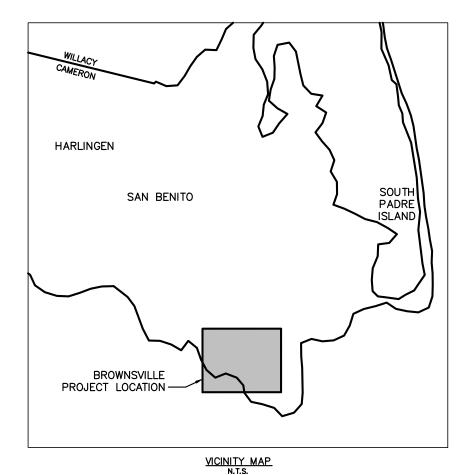


## B R O W N S V I L L E

# PUBLIC UTILITIES BOARD

# CITY OF BROWNSVILLE PUBLIC UTILITIES BOARD

## PACKET 1 - WASTEWATER PUMPING STATIONS LIFT STATIONS 9, 10, 11, AND 43



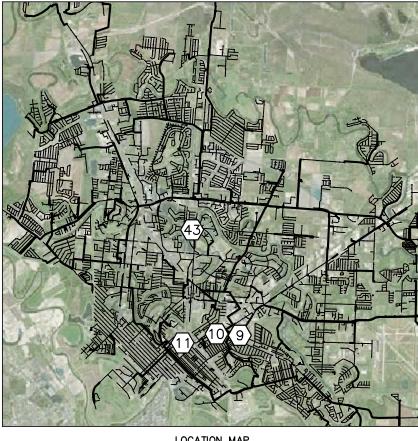
## AUGUST 2022

BOARD MEMBERS SANDRA SAENZ — CHAIR PATRICIO SAMPAYO — VICE CHAIR SANDRA LOPEZ-LANGLEY - SECRETARY/TREASURER JUDE A. BENAVIDES, Ph.D. - MEMBER JOSEPH L. HOLLMANN, Ph.D. - MEMBER ARTHUR RENDON - MEMBER MAYOR TREY MENDEZ III - EX-OFFICIO MEMBER



12500 SAN PEDRO, STE. 450 SAN ANTONIO, TEXAS 78216 TPBE REGISTRATION NO.: F-1741





LOCATION MAP N.T.S.

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#### <u>LEGEND</u>

G	GAS METER/RISER	(\$)	SANITARY SEWER MANHOLE		TRAFFIC SIGN		BRICK WALL
<b>(</b>	GAS VALVE	$\bigcirc$	CLEANOUT	0	1" IRON ROD	O	CHAIN LINK FENCE
$\otimes$	WATER VALVE		MAILBOX	0	POWER POLE		WOODEN FENCE
_		(M)	MAILBOX		POWER POLE	— - — <del>Ç</del> — - —	ROAD CENTERLINE
ſ	WATER FAUCET	П	TELEPHONE PEDESTAL	~ C)	W/GUY WIRE	P	OVERHEAD POWER
	5555	ت		$\checkmark$	LIGHT POLE	'	OVERTICAL TOWER
F	FIRE HYDRANT		GRATE INLET	Υ.		——— FM ———	FORCE MAIN
ф	SPRINKLER		3			X"	UNDERGROUND UTILITY
Ψ	31 7 1 2		ELECTRIC				
	TYPE "A" GRATE INLET		TRANSFORMER				

#### STANDARD ABBREVIATIONS

AH AC ASPH B-B BC BSL CI Q COSA CPS CONC CP CSC CORP CMP CHP DWG DI E ELEC ELEV/EL ESM/EXIST EW EWEF FC FLG FO FIN FH FL FND FRP GA GI GPS GRND HORZ HMAS I.A.W. I.D. INV	AHEAD ASBESTOS CEMENT ASPHALT BACK TO BACK BACK OF CURB BUILDING SETBACK LINE CAST IRON CENTERLINE CITY OF SAN ANTONIO CITY PUBLIC SERVICE CONCRETE CONTROL PANEL CONCRETE STEEL CYLINDER CORPORATION CORRUGATED METAL PIPE COUPLING CURED—IN—PLACE PIPE DRAWING DUCTILE IRON EAST ELECTRICAL ELEVATION EAST ELECTRICAL ELEVATION EASEMENT EXISTING EACH WAY EACH ENDURG FIBER OPTIC FINISHED FIRE HYDRANT FLOWLINE FOUND HORIZONTAL HOT MIX ASPHALTIC CONCRETE HOURS IN ACCORDANCE WITH INNER DIAMETER	IP LT LP MH MAX. M.J. NSPI N NE NW NTS OC O.D. OHE O-C OHT O-C OFWMT P&P + C PSI PPV PCC PSI PPV RCP	IRON PIN LEFT LENGTH LIGHT POLE MANHOLE MAXIMUM MECHANICAL JOINT MINIMUM NO SEPARATE PAY ITEM NORTH NORTHEAST NORTHWEST NOT APPLICABLE NOT TO SCALE ON CENTER OUTER DIAMETER OVERHEAD ELECTRIC OVERHEAD TELEPHONE OPEN CUT OPEN CUT OR TRENCH LESS PAVEMENT PLAN AND PROFILE PLUS OR MINUS POINT OF CURVATURE PLAIN END POINT OF INTERSECTION POLYVIYL CHLORIDE PIPE POUNDS PER SQUARE INCH POWER POLE POINT OF VERTICAL INTERSECTION PRESTRESSED CONCRETE CYLINDER PROPERTY LINE RADIUS RALROAD REINFORCED CONCRETE PIPE REQUIRED RESTRAINED JOINT RESTRAINED LENGTH RIGHT RIGHT RIGHT RIGHTOF—WAY RECYCLE WATER LINE SANITARY SEWER SOUTHWEST	STD STA T TEM THD TYP USN UNK VART VF WL WWF PT	STANDARD STATION STORM SEWER TANGENT TELEPHONE TEMPORARY BENCH MARK THREADED TYPICAL UNDERGROUND ELECTRIC UNLESS NOTED UNKNOWN VARIABLE VERTICAL VERTICAL WETTICAL WETTICAL FEET WATER LINE WELDED WIRE FABRIC WITH POINT OF TANGENCY
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NO.			REVISION	Ы	DATE
N KE	VERIFY SCALE	SALE	BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE	DRAWIN ADJUS	IG. IF

BROWNSVILLE PUBLIC UTILITIES BOARD LIFT STATION REHABILITATION PACKET 1 SHEET INDEX AND LEGEND

SHEET

G-2SHEET 2 OF 52

- TOLERANCES:
- PIPELINE AND DUCT BANKS ALIGNMENT: ±1.0'/1000' PIPELINE AND DUCT BANKS GRADE: ±3"/100'
- OTHER CONTRACTORS MAY BE WORKING ON THE SITE IN CONJUNCTION WITH OTHER CONCURRENT CONTRACTS. CONTRACTOR SHALL COORDINATE ACTIVITIES WITH OTHER CONTRACTORS ON SITE, THE OWNER AND THE OWNER'S CONSTRUCTION REPRESENTATIVE.
- 4. EXCAVATION BY "BLASTING". UNDER ANY CIRCUMSTANCES. IS NOT ALLOWED ON THIS PROJECT
- GROUNDWATER AT THE PROPOSED SITE WILL VARY DEPENDING ON SEASONAL VARIATIONS AND SUBSURFACE CONDITIONS, GROUND WATER LEVELS PROVIDED IN THE BORING LOGS AND SHOWN ON THE DRAWINGS ARE ONLY AN INDICATION OF GROUNDWATER LEVELS AT THE TIME OF DRILLING THE BORINGS. THE CONTRACTOR IS RESPONSIBLE FOR ANY ADDITIONAL WORK RESULTING FROM ENCOUNTERING GROUNDWATER DURING CONSTRUCTION AT NO ADDITIONAL
- EXISTING VALVES AND PIPELINES WILL LEAK IN THE CLOSED POSITION. CONTRACTOR SHALL PROVIDE WHATEVER MEANS AND EQUIPMENT NECESSARY TO CONTROL WATER DURING CONSTRUCTION AT NO ADDITIONAL COST TO THE OWNER.
- INFORMATION SHOWN ON THE DRAWINGS CONCERNING TYPE, LOCATION, DIMENSIONS, ELEVATION AND RELATED INFORMATION OF EXISTING PIPES AND STRUCTURES WAS OBTAINED FROM AND RELATED INFORMATION OF EXISTING PIPES AND STRUCTURES WAS OBTAINED FROM CONSTRUCTION DRAWINGS OF PREVIOUS PROJECTS FURNISHED BY BPUB. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAKING HIS OWN DETERMINATION OF THE ACTUAL SIZE, LOCATION AND ELEVATIONS OF EXISTING FACILITIES. THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR MAKING WHATEVER ADJUSTMENTS ARE NECESSARY IN HIS WORK TO FIT WITHIN THE EXISTING FACILITIES AT NO ADDITIONAL COST TO THE CITY. THE LOCATIONS AND DEPTHS OF ALL EXISTING UNDERGROUND UTILITIES SHOWN ON THE PLANS ARE APPROXIMATE, BASED ON AVAILABLE INFORMATION, AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE ENGINEER, THE OWNER, OR THE OWNER'S REPRESENTATIVE. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY THE SIZE, ELEVATION OF EXISTING UTILITIES, AND DRAINAGE STRUCTURES AT LEAST 48 HOURS PRIOR TO SUBMITTING SHOP DRAWINGS AND COMMENCING FABRICATION OF MATERIALS, WHETHER SHOWN ON PLAN OR NOT, AND TO PROTECT THE SAME DURING CONSTRUCTION. FINDINGS SHALL BE DOCUMENTED BY CONTRACTOR IN RECORD DRAWINGS. THE CONTRACTOR SHALL NOTIFY ENGINEER AND BPUB INSPECTOR OF ANY CONFLICTS WITH PROPOSED WORK. THE CONTRACTOR MUST VERIFY ACTUAL LOCATIONS AND DEPTHS OF UTILITIES PRIOR TO COMMENCING FABRICATION OF MATERIALS. THE CONTRACTOR AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.
- RPUR (WATER & SEWER) 956-983-6215 TEXAS STATE WIDE ONE CALL LOCATOR
- CONTRACTOR SHALL NOTIFY, AT LEAST 48 HOURS PRIOR TO STARTING CONSTRUCTION, THE

A. BROWNSVILLE PUBLIC UTILITIES BOARD

- 10. CONTRACTOR'S PERSONNEL SHALL HAVE IDENTIFYING CLOTHING OR HATS AT ALL TIMES. THE CONTRACTOR SHALL HAVE IDENTIFICATION ON ALL VEHICLES.
- 11. CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS, ANY AVAILABLE GEOTECHNICAL INFORMATION, AND THE ANTICIPATED INSTALLATION SITE(S) WITHIN THE PROJECT WORK AREA IN ORDER TO DEVELOP THE CONTRACTOR'S PLANS TO IMPLEMENT THE PROJECT SPECIFIC TRENCH SAFETY PLAN DESCRIBED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR'S PLANS SHALL PROVIDE FOR ADEQUATE TRENCH SAFETY SYSTEMS THAT COMPLY WITH, AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL DEVELOP AND IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION. THE SAFETY PROGRAM SHALL BE SUBMITTED FOR RECORD TO BPUB AND NO CONSTRUCTION OR MOBILIZATION SHALL OCCUR PRIOR TO ACCEPTANCE OF THE SAFETY
- 12. THE CONTRACTOR SHALL PROVIDE A COURSE OF ACTION PLAN FOR THE OCCURRENCE OF AN ACCIDENTAL SPILL OF FUEL OR OTHER SUBSTANCE DURING CONSTRUCTION. THE ACTION PLAN SHALL BE SUBMITTED FOR REVIEW TO BPUB. NO CONSTRUCTION OR MOBILIZATION SHALL OCCUR PRIOR TO ACCEPTANCE OF THE ACTION PLAN.
- 13. CONTRACTOR SHALL VIDEO TAPE AND PHOTOGRAPH ALL EXISTING PLANT ROADS, FENCING, CONTRACTOR SHALL VIDEO TAPE AND PHOTOGRAPH ALL EXISTING PLANT ROADS, FEINCHING, STRUCTURES, PROCESS FACILITIES, BUILDINGS, AND AREA SURROUNDING THE PROPOSED WORK PRIOR TO MOBILIZATION TO DOCUMENT THE CONDITION OF THESE ROADS AND FACILITIES. CONTRACTOR SHALL SUBMIT VIDEO TAPE AND PHOTOGRAPHS PRIOR TO MOBILIZATION. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO THE EXISTING FACILITIES DUE TO HIS CONSTRUCTION ACTIVITIES. THE CONTRACTOR SHALL REPAIR SUCH DAMAGE TO THE OWNER'S SATISFACTION AT NO ADDITIONAL COST TO THE OWNER.
- 14. THE CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORING TO ITS ORIGINAL OR BETTER CONDITION FROM DAMAGES DONE TO EXISTING FENCES, CURBS, STREETS, DRIVEWAYS, SIDEWALKS, LANDSCAPING AND STRUCTURES.
- 15. NO EXTRA PAY ITEM WILL BE ALLOWED FOR WORK CALLED FOR ON THE PLANS BUT NOT INCLUDED ON THE BID SCHEDULE. THIS INCIDENTAL WORK WILL BE REQUIRED AND SHALL BE INCLUDED IN THE PAY ITEM TO WHICH IT RELATES.
- 16. ALL MATERIAL AND CONSTRUCTION PROCEDURES WITHIN THE SCOPE OF THIS CONTRACT SHALL BE APPROVED BY THE BROWNSVILLE PUBLIC UTILITIES BOARD (BPUB) AND COMPLY WITH THE PROJECT PLANS AND SPECIFICATIONS UNDER THIS CONTRACT AND THE FOLLOWING AS
  - A. CURRENT TEXAS COMMISSION ON ENVIRONMENTAL QUALITY DESIGN CRITERIA. B. CURRENT BROWNSVILLE WATER SYSTEM "STANDARD SPECIFICATIONS FOR CONSTRUCTION." C. CURRENT CITY OF BROWNSVILLE "STANDARD SPECIFICATION FOR PUBLIC WORKS CONSTRUCTION.
- D. THE LAWS OF THE STATE OF TEXAS, INTERNATIONAL FIRE CODE, INTERNATIONAL BUILDING CODE, AND OSHA STANDARDS. IN CASE OF CONFLICTS AMONG ABOVE LISTED SPECIFICATIONS AND STANDARDS, THE STRICTEST REQUIREMENTS SHALL GOVERN

- 17. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING, SUPPORTING, AND PROTECTING THE INTEGRITY OF UNDERGROUND UTILITIES, THRUST BLOCKING AND POWER POLES DURING CONSTRUCTION. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO EXCAVATE OVER, UNDER AND AROUND SUCH UTILITY AND IF NECESSARY, PROVIDE A TEMPORARY BRIDGING/BRACING DURING CONSTRUCTION SO AS TO MAINTAIN CONTINUOUS SERVICE WHILE CONSTRUCTING THE PROPOSED BPUB FACILITIES. IT WILL BE THE CONTRACTOR'S RESPONSIBILITY TO BACKFILL AROUND THE UTILITY FACILITY AND TO COMPLETE CONSTRUCTION IN A MANNER SUCH AS TO LEAVE THE UTILITY FACILITY SECURELY B3EDDED IN ITS POSITION. ALL THIS WORK SHALL BE AT NO ADDITIONAL COST TO BPUB.
- 18. THE CONTRACTOR SHALL ALSO COMPLY WITH THE PROVISIONS IN ITEM 550, TRENCH EXCAVATION SAFETY PROTECTION, OF THE CURRENT BROWNSVILLE WATER SYSTEM SPECIFICATIONS FOR WATER AND SANITARY SEWER CONSTRUCTION.
- WHERE OVERHEAD POWER LINES ARE IN CLOSE PROXIMITY TO THE PROPOSED WORK, THE CONTRACTOR SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS ESTABLISHED BY CHAPTER 752. TEXAS HEALTH & SAFETY CODE.
- 20. ALL UNPAVED DISTURBED AREAS SHALL BE SEEDED AS INDICATED IN THE SPECIFICATIONS. ALL DISTURBED PAVED AREAS SHALL BE REPAVED AS INDICATED AND AS SPECIFIED. ALL DISTURBED SIDEWALKS SHALL BE REPLACED.
- 21. CONTRACTOR TO CHLORINATE NEW WATER MAINS PRIOR TO PLACING IN SERVICE.
- 22. THE WORDS DEMOLITION, DEMOLISH, AND REMOVE IN THIS CONTRACT REFER TO ITEMS THAT WILL BE REMOVED AND PROPERLY DISPOSED OF FROM THE CONSTRUCTION SITE. NOT ITEMS MARKED DEMOLITION OR DEMOLISH SHALL BE GROUND, CRUSHED, OR PULVERIZED. ITEMS REQUIRED TO BE DEMOLISHED OR REMOVED TO COMPLETE REQUIREMENTS OF THIS CONTRACTOR SHALL BE COORDINATED WITH THE OWNER FOR EQUIPMENT TO BE SALVAGED. ITEMS LABELED TO BE DEMOLISHED OR REMOVED SHALL BE REMOVED AND DISPOSED OF IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND LOCAL, STATE, AND FEDERAL REGULATIONS AND GUIDELINES.
- THE DETAILS DESIGNATED AS "TYPICAL DETAILS" OR "STANDARD DETAILS" APPLY GENERALLY TO THE DRAWINGS IN ALL AREAS WHERE CONDITIONS ARE SIMILAR TO THOSE DESCRIBED IN THE
- 24. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING GENERAL SAFETY AT AND ADJACENT TO THE PROJECT AREA, INCLUDING THE PERSONAL SAFETY OF THE CONSTRUCTION CREW AND PLANT STAFF IN ACCORDANCE WITH ALL APPLICABLE CITY, STATE, AND OSHA STANDARDS.
- TEMPORARY SANITARY FACILITIES SHALL BE PROVIDED IN THE STAGING AREA. BPUB SANITARY AND OTHER FACILITIES SHALL NOT BE USED BY THE CONTRACTOR'S PERSONELL.
- 26. STORAGE AREAS SHALL BE COORDINATED WITH THE PLANT CONSTRUCTION CONTRACTOR. CONTRACTOR SHALL SUBMIT TO THE CITY, A DETAILED SITE PLAN FOR REVIEW PRIOR TO MOBILIZATION.
- 27. THE CONTRACTOR SHALL BE RESPONSIBLE FOR KEEPING PLANT ROADS ADJACENT TO AREAS OF WORK WITHIN THE PROJECT SITE AND ALONG THE CONSTRUCTION ROUTE FREE OF MUD AND DEBRIS FROM CONSTRUCTION AT ALL TIMES.
- 28. THE CONTRACTOR SHALL REMOVE FROM THE PROJECT AREA ALL SURPLUS MATERIAL. THIS SHALL BE INCLUDED AND NOT A SEPARATE PAY ITEM. SURPLUS MATERIALS FROM EXCAVATION INCLUDING DIRT, TRASH, ETC., SHALL BE PROPERLY DISPOSED OF IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL LAWS.
- 29. CONTRACTOR SHALL CONTACT AND RECEIVE APPROVAL FROM PLANT MANAGEMENT BEFORE EXCAVATING ANY AREA INSIDE THE PLANT, DISCONNECTING ANY ELECTRICAL DEVICES, OR PERFORMING ANY ACTIVITY THAT MAY INTERFERE WITH THE PLANT OPERATION. CONTRACTOR SHALL NOT OPERATE ANY VALVES.
- ALL UTILITIES REPRESENTED ON THESE DRAWINGS ARE SHOWN AT THE APPROXIMATE LOCATIONS BASED ON THE BEST AVAILABLE INFORMATION. SOME OF THE EXISTING UNDERGROUND UTILITIES SHOWN HEREON HAVE NOT BEEN FIELD VERIFIED. THEY HAVE BEEN PLOTTED FROM INFORMATION OBTAINED FROM BROWNSVILLE WATER SYSTEM AND/OR PRIVATE TO COMMENCING CONTRACTOR SHALL FIELD DETERMINE THE EXACT LOCATIONS PRIOR TO COMMENCING CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY AND ALL DAMAGES CAUSED BY HIS FAILURE TO EXACTLY LOCATE AND MAINTAIN THESE UNDERGROUND
- THIS PROJECT IS SUBJECT TO THE AMERICAN IRON AND STEEL (AIS) REQUIREMENTS OF SECTION 608 OF THE FEDERAL WATER POLLUTION CONTROL ACT. ALL IRON AND STEEL PRODUCTS FOR CONSTRUCTION, ALTERATION, MAINTENANCE, OR REPAIRS INCORPORATED IN THESE PLANS MUST BE PRODUCED IN THE UNITED STATES.
- 32. PRIOR TO ANY CONSTRUCTION THE CONTRACTOR SHALL BE FAMILIAR WITH THE CONTRACT DOCUMENTS AND SPECIFICATIONS, THE PLANS (INCLUDING ALL NOTES), THE CITY OF BROWNSYILLE SPECIFICATIONS AND ANY OTHER APPLICABLE STANDARDS OR SPECIFICATIONS RELEVANT TO THE PROPER COMPLETION OF THE WORK SPECIFIED. FAILURE ON THE PART OF THE CONTRACTOR TO BE FAMILIAR WITH ALL STANDARDS AND SPECIFICATIONS PERTAINING TO THIS WORK SHALL IN NO WAY RELIEVE THE CONTRACTOR OF RESPONSIBILITY FOR PERFORMING THE WORK IN ACCORDANCE WITH ALL SUCH APPLICABLE
- 33. CONTRACTOR SHALL HAVE IN POSSESSION, PRIOR TO CONSTRUCTION, ALL NECESSARY PERMITS, AND LICENSES, ETC. CONTRACTOR SHALL HAVE A LEAST ONE SET OF APPROVED ENGINEERING PLANS AND SPECIFICATIONS ON—SITE AT ALL TIMES.
- CONSTRUCTION INSPECTION WILL BE PERFORMED BY REPRESENTATIVES OF THE OWNER, ENGINEER, CITY, GEOTECHNICAL ENGINEER, AND REVIEWING AUTHORITIES AND AGENCIES. UNRESTRICTED ACCESS SHALL BE PROVIDED TO THEM AT ALL TIMES. CONTRACTOR IS RESPONSIBLE FOR UNDERSTANDING AND SCHEDULING REQUIRED INSPECTIONS. TESTING SAMPLES SHALL BE COLLECTED AND PROCESSED BY CERTIFIED TECHNICIANS.
- ALL CONTRACTORS MUST CONFINE THEIR ACTIVITIES TO THE WORK AREA. NO ENCROACHMENTS ONTO DEVELOPED OR UNDEVELOPED AREAS WILL BE ALLOWED. ANY DAMAGE RESULTING THERE FROM SHALL BE CONTRACTOR'S RESPONSIBILITY TO REPAIR.
- 36. THE PROJECT MUST COMPLY WITH THE FOLLOWING CONDITIONS

A. STANDARD EMERGENCY CONDITION FOR THE DISCOVERY OF CULTURAL RESOURCES; AND, B. STANDARD EMERGENCY CONDITION FOR THE DISCOVERY OF THREATENED AND ENDANGERED SPECIES.

#### STANDARD GRADING IMPROVEMENT NOTES

- EXISTING UTILITIES AND UNDERGROUND FACILITIES INDICATED ON THESE PLANS HAVE BEEN LOCATED FROM REFERENCE INFORMATION SUPPLIED BY VARIOUS OWNERS OF THE FACILITIES. THE ENGINEER DOES NOT ACCEPT RESPONSIBILITY FOR THE UTILITY LOCATIONS SHOWN. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY BOTH HORIZONTALLY AND VERTICALLY THE LOCATION OF ALL UTILITIES AND UNDERGROUND FACILITIES PRIOR TO CONSTRUCTION, TO TAKE NECESSARY PRECAUTIONS IN ORDER TO PROTECT ALL FACILITIES ENCOUNTERED, AND TO NOTIFY THE ENGINEER PROMPTLY OF A CONFLICTS OF THE WORK WITH EXISTING FACILITIES. THE CONTRACTOR SHALL PRESERVE AND PROTECT ALL EXISTING UTILITIES FROM DAMAGE DURING CONSTRUCTION. ANY DAMAGES BY THE CONTRACTOR TO EXISTING UTILITIES SHALL BE REPAIRED BY THE CONTRACTOR AT HIS EXPENSE.
- NEW FINISHED CONTOURS SHOWN ARE TOP OF PAVING IN AREAS TO RECEIVE PAVEMENT AND TOP OF TOPSOIL IN AREAS TO BE VEGETATE.
- AREAS OUTSIDE OF THE PARKING LOT PERIMETERS SHOWN TO BE SEEDED SHALL RECEIVE 6 INCHES OF TOPSOIL. THIS TOPSOIL TO BE PLACED AND LEVELED BY THE GRADING CONTRACTOR.
- 4. ROUGH GRADING ELEVATIONS SHALL BE AS FOLLOWS: 6" BELOW FINISHED CONTOURS IN GRASS AREAS. 6" OR 7" BELOW FINISHED CONTOURS IN PAVED AREAS, REFER TO PAVEMENT LAYOUT FOR THICKNESS AND TYPE OF PAVEMENT 6" BELOW FLOOR ELEVATIONS WITHIN THE BUILDING, UNLESS OTHERWISE NOTED.
- DIMENSIONS ON BUILDINGS ARE FOR GRADING PURPOSES ONLY AND ARE NOT TO BE USED TO LAY-OUT BUILDING FOUNDATION.
- GRADING CONTRACTOR SHALL NOTIFY AND COOPERATE WITH ALL UTILITY COMPANIES OR FIRMS HAVING FACILITIES ON OR ADJACENT TO THE SITE BEFORE DISTURBING, ALTERING, REMOVING, RELOCATING, ADJUSTING OR CONNECTING TO SAID FACILITIES. CONTRACTOR SHALL PAY ALL COSTS IN CONNECTION WITH THE ALTERATION OF OR RELOCATION OF THE
- GRADING CONTRACTOR SHALL COOPERATE AND WORK WITH ALL OTHER CONTRACTORS PERFORMING WORK ON THIS PROJECT TO INSURE PROPER AND TIMELY COMPLETION OF
- REFER TO PAVING DETAILS FOR TYPE OF PAVING AND BASE TO BE USED
- GRADING CONTRACTOR IS RESPONSIBLE FOR REMOVING ANY EXISTING STRUCTURES FENCES, DEBRIS OR TREES REMAINING AS SHOWN ON THE DRAWINGS. COORDINATE WITH
- GRADING CONTRACTOR TO COMPLY WITH ALL STATE AND LOCAL SEDIMENT CONTROL AND AIR POLLUTION ORDINANCES OR RULES.
- A QUALIFIED SOILS LABORATORY SHALL DETERMINE THE SUITABILITY OF THE EXISTING SUBGRADE AND EXISTING ON-SITE MATERIAL PRIOR TO BEGINNING ANY FILLING
- ADEQUATE MEASURES SHALL BE TAKEN TO PREVENT EROSION. IN THE EVENT THAT SIGNIFICANT EROSION OCCURS AS A RESULT OF CONSTRUCTION THE CONTRACTOR SHALL RESTORE THE ERODED AREA TO ORIGINAL CONDITION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING EROSION CONTROL AS REQUIRED BY BPUB AND THE CITY OF BROWNSVILLE'S CODE OF ORDINANCES.
- 13. ALL AREAS NOT COVERED BY BUILDING OR PAVING TO BE HYDROMULCHED/LANDSCAPED.
- UNSUITABLE EXCAVATED MATERIALS AND ALL WASTE RESULTING FROM CLEARING AND GRUBBING SHALL BE DISPOSED OF OFF-SITE BY GRADING CONTRACTOR.
- ALL EXCAVATING IS UNCLASSIFIED AND SHALL INCLUDE ALL MATERIALS ENCOUNTERED.
- BEFORE ANY MACHINE WORK IS DONE, CONTRACTOR SHALL STAKE OUT AND MARK THE ITEMS ESTABLISHED BY THE SITE PLAN. CONTROL POINTS SHALL BE PRESERVED AT ALL TIMES DURING THE COURSE OF THE PROJECT. LACK OF PROPER WORKING POINTS AND GRADE STAKES MAY REQUIRE CESSATION OF OPERATIONS UNTIL SUCH GRADES HAVE BEEN PLACED TO THE OWNER'S SATISFACTION.
- COORDINATE SIDEWALK GRADE TRANSITIONS WITH ARCHITECTURAL PLANS.
- THE CONTRACTOR SHALL RESTORE ALL AREAS DISTURBED BY CONSTRUCTION TO ORIGINAL CONDITION OR BETTER. RESTORED AREAS INCLUDE, BUT ARE NOT LIMITED TO TRENCH BACKFILL, SIDE SLOPES FENCES, CULVERT PIPES, DRAINAGE DITCHES, DRIVEWAYS, PRIVATE YARDS AND ROADWAYS.

#### STANDARD PAVING IMPROVEMENT NOTES

- ALL PAVEMENT MARKINGS SHALL BE FOUR (4) INCHES WIDE, COLOR WHITE UNLESS INDICATED OTHERWISE ON THE DRAWINGS. PROVIDE TWO COATS OF PAINT. APPLY SECOND COAT IMMEDIATELY PRIOR TO OCCUPANCY.
- ALL DIMENSIONS ARE TO FACE OF CURB OR EDGE OF PAVEMENT UNLESS INDICATED
- CONTRACTOR SHALL FURNISH AND INSTALL ALL PAVEMENT MARKINGS AS SHOWN IN THE
- CONTRACTOR SHALL COORDINATE INSTALLATION OF ALL SIGNS, PAVEMENT MARKINGS AND OTHER TRAFFIC CONTROL DEVICES WITH OTHER CONTRACTORS ON THE SITE. CONTRACTOR SHALL SAW-CUT TO PROVIDE SMOOTH TRANSITION AT TIE-IN TO EXISTING
- EDGE OF PAVEMENT. JOINTS OR SCORE MARKS ARE TO BE SHARP AND CLEAN WITHOUT SHOWING EDGES OF JOINTING TOOL. CONTRACTOR SHALL SAW-CUT TIE-INS AT EXISTING CURBS AS NECESSARY TO INSURE SMOOTH TRANSITIONS. CONTRACTOR SHALL SAW—CUT AND TRANSITION TO MEET EXISTING PAVEMENT AS NECESSARY TO INSURE POSITIVE DRAINAGE.
- CONTRACTOR SHALL MAKE PROVISIONS FOR UTILITY VERIFICATION PRIOR TO CONSTRUCTION. REFER TO PLANS FOR EXISTING UNDERGROUND UTILITIES

 $\circ$ 2 CP&Y, TEXAS REGIST ENGINEERING

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E PUBLIC UTILITIES E REHABILITATION PAC NOTE ENERAL

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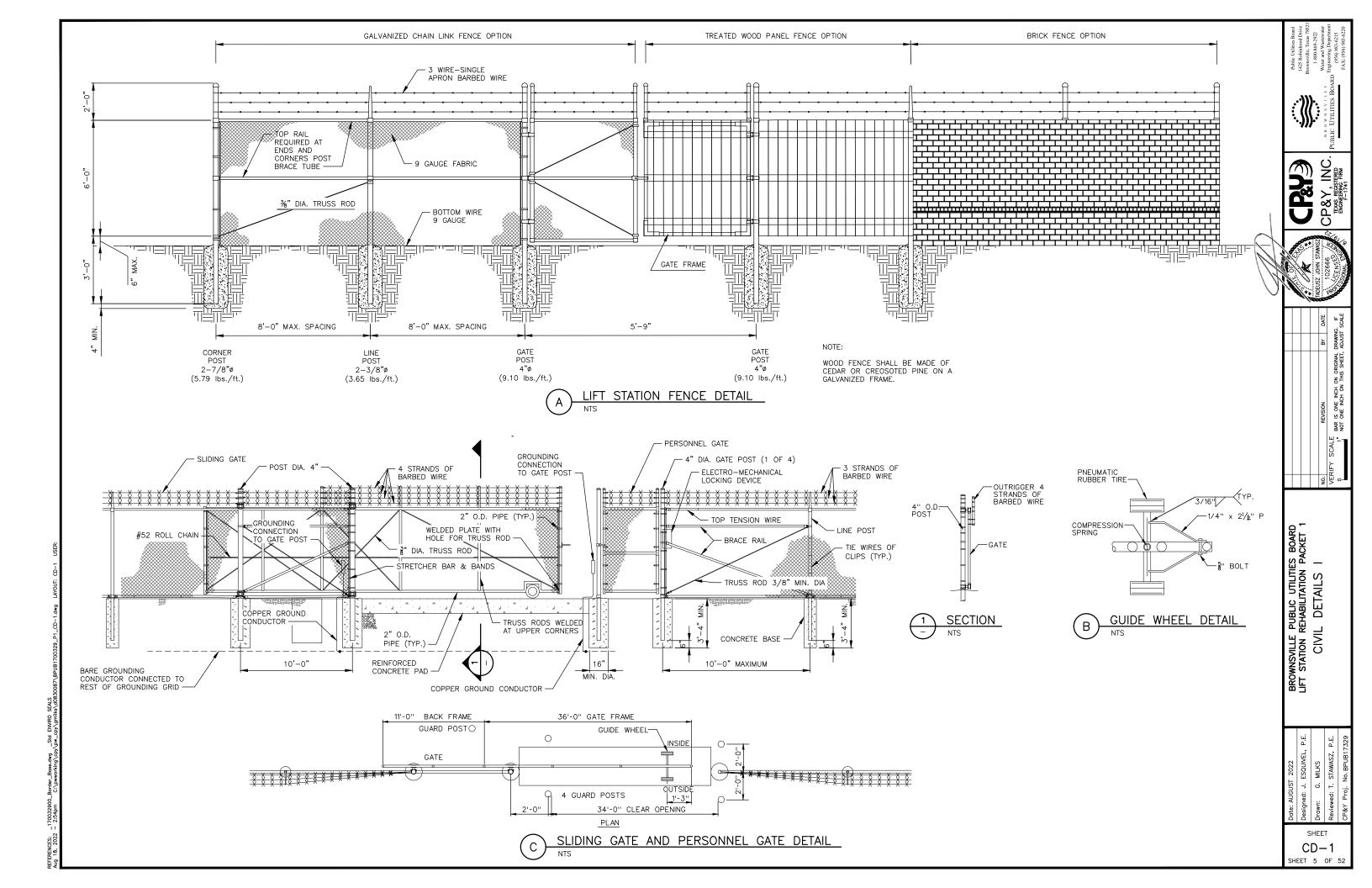


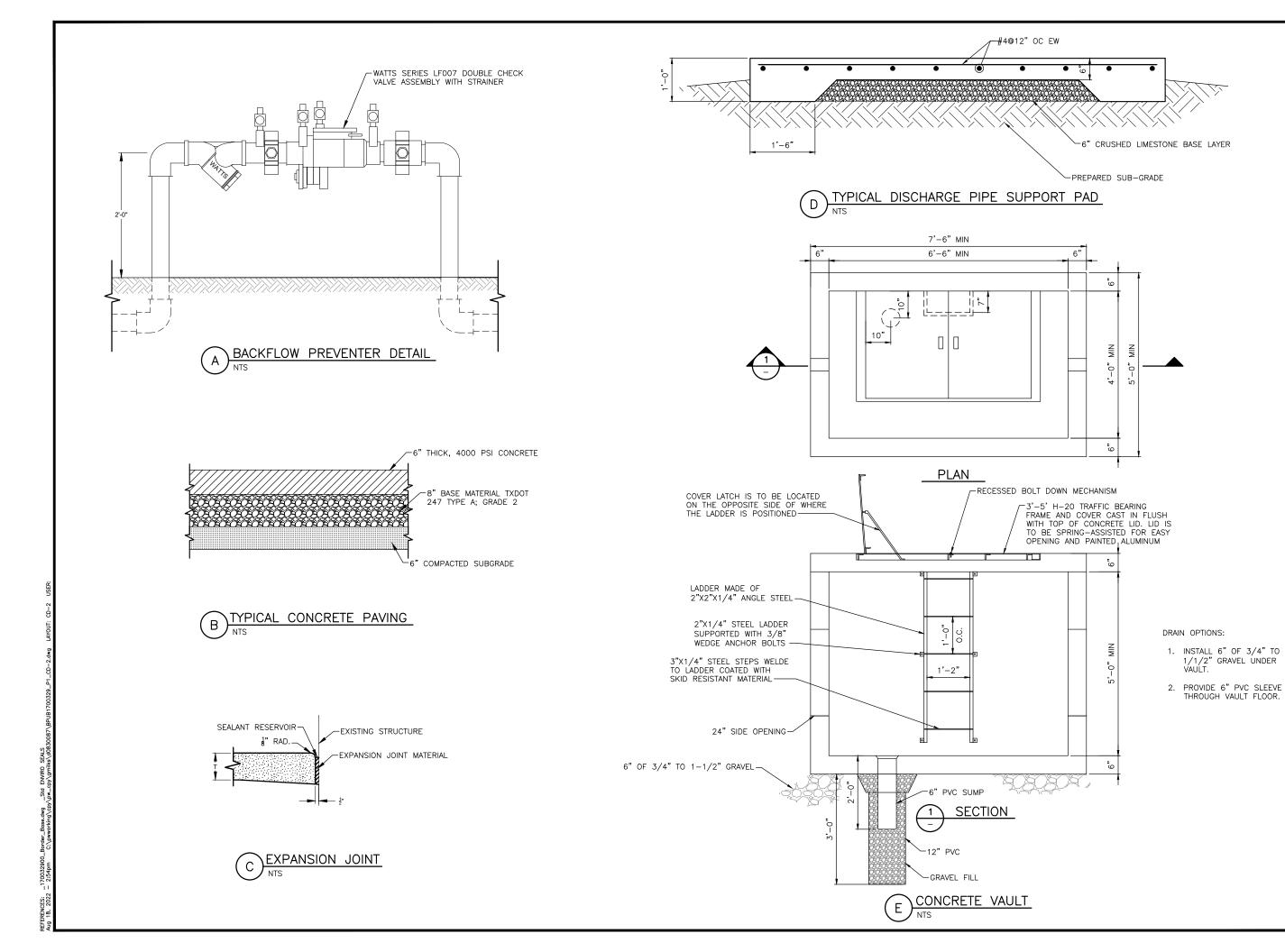
CP&Y, INC. IEXS REGISTERD ENGINEERING FIRM

BROWNSVILLE PUBLIC UTILITIES BOARD LIFT STATION REHABILITATION PACKET 1 GENERAL LOCATION MAP

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SHEET 4 OF 52



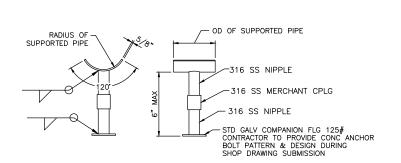


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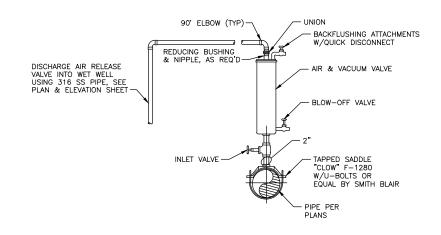
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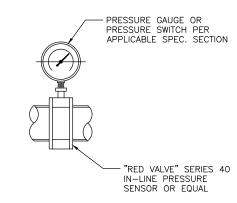
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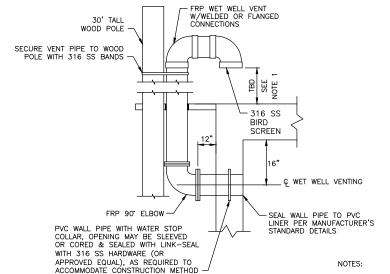




AIR VACUUM VALVE DETAIL

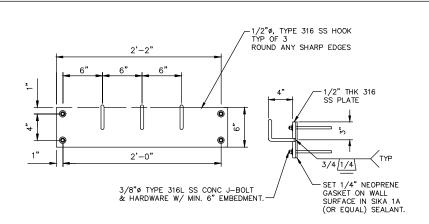




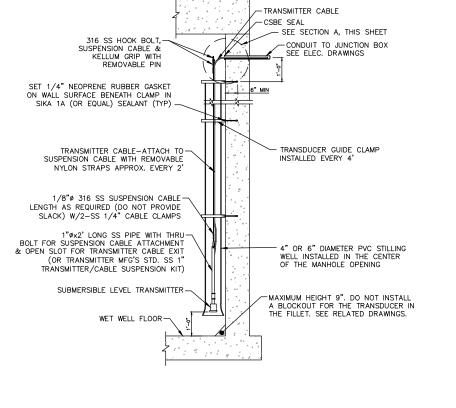


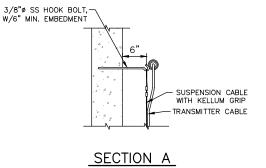
HIGH PROFILE WET WELL VENTING INSTALLATION

 EXTEND PVC VENT PIPE 30'
 ABOVE GROUND ELEVATION. SECURE PVC VENT PIPE TO 30'
TALL WOOD POLE WITH STAINLESS
STEEL BANDS AT A MAXIMUM
SPACING OF 5'-0".











ASSEMBLY DETAIL

CP&Y, INC. EXS REGISTERD ENGINEERING FIRM 

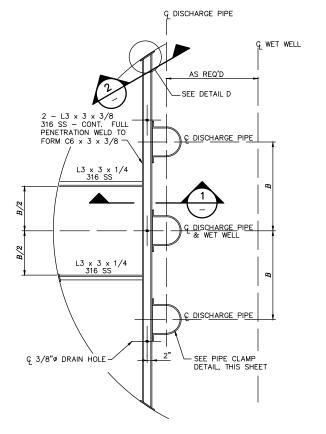
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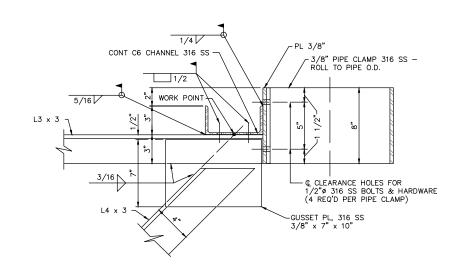
BROWNSVILLE PUBLIC UTILITIES BOAR LIFT STATION REHABILITATION PACKET MECHANICAL DETAILS I

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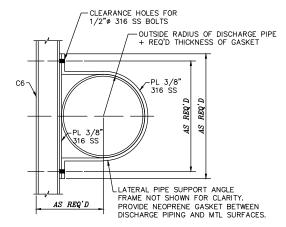
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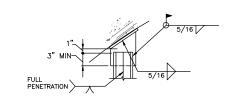




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FRAME CONNECTION DETAIL



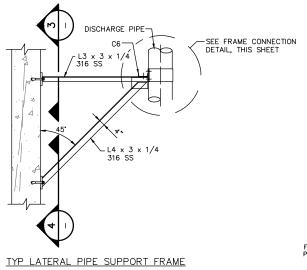


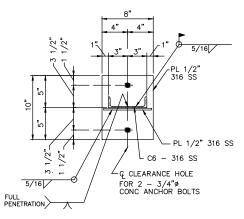


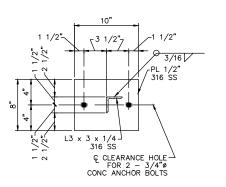


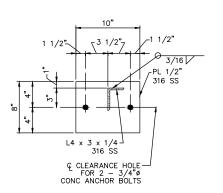
A DISCHARGE PIPING SUPPORT DETAIL

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JOUST 2022

S. J. ESQUIVEL, P.E.

G. MILKS

G. MILKS

G. TAWASZ, P.E.

Designed: J. Designed: J. Drown: G. Reviewed: T. CP&Y Proj.

CP&Y, INC. IEXAS REGISTERD ENGINEERING FIRM

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SHEET 8 OF 52

BROWNSVILLE PUBLIC UTILITIES BOARD LIFT STATION REHABILITATION PACKET 1 MECHANICAL DETAILS II

#### **GENERAL NOTES FOR STRUCTURES**

#### REINFORCED CONCRETE

- I. REINFORCED CONCRETE REQUIREMENTS SHALL BE PER THE DRAWINGS AND DIVISION 3 SPECIFICATIONS
- II. MINIMUM LENGTHS FOR LAPPED SPLICES AND DEVELOPMENT LENGTH OF GR 60 REINFORCEMENT IN 4000 PSI CONCRETE FOR END ANCHORAGE SHALL BE AS GIVEN IN THE FOLLOWING TABLE.

	REINFORCING LAP SPLICE		DEVELOPMENT LENGTH				
BAR SIZE	MIN LAP CL	ASS B (IN.)		DEVELOPMENT H (IN.)	STD HOOK		
	**TOP BARS	OTHER BARS	**TOP BARS	OTHER BARS	(114.)		
#3	24	18	18	14	7		
#4	32	25	25	19	9		
#5	40	31	31	24	12		
#6	48	37	37	28	14		
#7	70	54	54	32	17		
#8	80	62	62	47	19		
#9	90	70	70	54	21		
#10	102	78	78	60	24		
#11	113	87	87	67	27		

- TOP BARS ARE HORIZONTAL BARS SO PLACED THAT MORE THAN 12" OF CONCRETE IS CAST IN THE MEMBER BELOW THE BAR. HORIZONTAL BARS IN WALLS ARE TO BE PROVIDED WITH LAPS AS REQUIRED FOR TOP BARS.
- a. EXCEPT AS OTHERWISE INDICATED ON THE PLANS, EMBEDMENT LENGTH FOR END ANCHORAGE AND LAPPED SPLICES SHALL BE NOT LESS THAN (NO MINUS TOLERANCE) SHOWN ABOVE.
- b. MINIMUM EMBEDMENT AND SPLICE LENGTHS FOR BARS AS SHOWN IN THE ABOVE TABLE ARE BASED ON 2 BAR DIAMETER CLEAR SPACING (MIN) AND 1 BAR DIAMETER CLEAR CONCRETE (MIN).
- c. FOR ALL OTHER CASES, MULTIPLY EMBEDMENT AND SPLICE LENGTHS BY
- d. LAPPED SPLICES SHALL NOT BE MADE AT POINTS OF MAXIMUM STRESS AS DETERMINED BY THE ENGINEER AND SHALL NOT BE SPACED CLOSER THAN 6" ON CENTERS.

#### III. MINIMUM CONCRETE CLEAR COVER

UNLESS OTHERWISE SHOWN, THE CLEAR COVER FOR REINFORCING STEEL SHALL BE AS FOLLOWS:

#### SLABS AND JOISTS

EXPOSED TO EARTH, LIQUID, WEATHER OR BEARING ON WORK MATS OR SLABS SUPPORTING EARTH COVER DRY CONDITION

#### BEAMS AND COLUMNS

EXPOSED TO EARTH, LIQUID, WEATHER OR BEARING ON WORK MATS OR SLABS SUPPORTING EARTH COVER: STIRRUPS, SPIRALS AND TIES PRIMARY REINFORCEMENT

	2/2
DRY CONDITION: STIRRUPS, SPIRALS AND TIES PRIMARY REINFORCEMENT	— 1½" —— 2"

#### WALLS

EXPOSED TO EARTH, LIQUID, WEATHER OR BEARING ON WORK MATS OR SLABS SUPPORTING EARTH COVER

#### FOOTINGS AND BASE SLABS

CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH --- 3"

EXPOSED TO EARTH, LIQUID, WEATHER OR BEARING ON WORK MATS OR SLABS SUPPORTING EARTH COVER: FORMED SURFACES TOP OF FOOTINGS AND BASE SLABS -

#### SHELLS, FOLDED PLATE MEMBERS

EXPOSED TO EARTH, LIQUID, WEATHER OR BEARING ON WORK MATS OR SLABS SUPPORTING EARTH COVER DRY CONDITION :

- IV. CONSTRUCTION JOINTS AND EXPANSION JOINTS SHALL BE AT THE LOCATIONS SHOWN ON THE DRAWINGS. ADDITIONAL CONSTRUCTION JOINTS SHALL BE LOCATED BY THE CONTRACTOR AS SPECIFIED IN SECTION 03250.
- WATERSTOPS SHOWN IN DESIGN SHEETS ARE REQUIRED TO PREVENT WATER INFILTRATION. SEE SPECIFICATION SECTION 03250.
- VI. REINFORCING BAR SPACING INDICATED IN DRAWINGS SHALL BE MEASURED FROM BARS CENTER TO CENTER.
- VII. DESIGN DRAWINGS DO NOT SHOW ADDITIONAL REINF. BARS AT WALL CORNERS AND OPENINGS. CONTRACTOR SHALL REFER TO STRUCTURAL STANDARD SHEETS TO ADD ALL REQUIRED REINF. BARS IN THE SHOP DRAWINGS.
- CONTRACTOR TO REPAIR, PATCH, ETC. ANY CONCRETE SURFACE AFTER DEMOLISHING WALL, WALKWAY, ETC. INCLUDING ALL HOLES DUE TO REMOVAL OF PIPES, UTILITIES, ETC PER SPECIFICATION AND STANDARD DETAIL.
- IX. CONTRACTOR TO REPAIR CRACKS, EXPANSION JOINTS, ETC PER SPECIFICATIONS AND STANDARD DETAILS

#### STRUCTURAL STEEL & MISCELLANEOUS METAL

- I. STRUCTURAL STEEL AND MISCELLANEOUS METAL REQUIREMENTS SHALL BE PER THE DRAWINGS AND DIVISION 5 SPECIFICATIONS.
- II. STRUCTURAL STEEL DETAILING, FABRICATION AND ERECTION SHALL CONFORM TO THE AISC MANUAL OF STEEL CONSTRUCTION.
- III. ALUMINUM DETAILS, FABRICATION AND ERECTION SHALL CONFORM TO ALUMINUM DESIGN MANUAL AND DIVISION 5 SPECIFICATIONS.

- PIPING AND MECHANICAL PENETRATIONS IN THE STRUCTURAL FRAMING COMPONENT MEMBERS ARE INDICATED ON THE STRUCTURAL DRAWINGS AT CRITICAL LOCATIONS. HOWEVER, ALL SLEEVES, INSERTS AND OPENINGS, CRITICAL LOCATIONS. HOWEVER, ALL SLEEVES, INSERTS AND OPENINGS, INCLUDING FRAMES AND/OR SLEEVES SHALL BE PROVIDED FOR PASSAGE, PROVISION AND/OR INCORPORATION OF THE WORK OF THE CONTRACT, INCLUDING BUT NOT LIMITED TO ARCHITECTURAL, MECHANICAL, HVAC PIPING, ELECTRICAL AND PLUMBING WORK. THIS WORK SHALL INCLUDE THE COORDINATION OF SIZES, ALIGNMENT, DIMENSIONS, POSITION, LOCATIONS, ELEVATIONS AND GRADES AS REQUIRED TO SERVE THE INTENDED PURPOSE. OPENINGS NOT INDICATED ON THE STRUCTURAL DRAWINGS, BUT REQUIRED AS NOTED ABOVE, SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW. NOT ALL PENETRATIONS ARE SHOWN IN STRUCTURAL DRAWINGS. CONTRACTOR TO COORDINATE WALL OTHER DISCIPLINE DRAWINGS PRICE TO ARRIVATION OF COORDINATE W/ALL OTHER DISCIPLINE DRAWINGS PRIOR TO FABRICATION OR PLACING CONCRETE
- FLOOR ELEVATIONS, SLOPES, DRAINS AND LOCATION OF DEPRESSED AND ELEVATED FLOOR AREAS SHALL BE COORDINATED WITH ALL DISCIPLINE DRAWINGS PRIOR TO CONSTRUCTION. NOTIFY THE ENGINEER IN THE EVENT OF A DISCREPANCY BETWEEN DISCIPLINES.
- III. COMPATIBILITY OF THE STRUCTURE AND PROVISIONS FOR BUILDING EQUIPMENT SUPPORTED ON OR FROM STRUCTURAL COMPONENTS SHALL BE VERIFIED AS TO SIZE, DIMENSIONS, CLEARANCES, ACCESSIBILITY, WEIGHTS AND REACTION WITH THE EQUIPMENT FOR WHICH THE STRUCTURE HAS BEEN DESIGNED PRIOR TO SUBMISSION OF SHOP DRAWINGS AND DATA FOR EACH PIECE OF EQUIPMENT AND FOR STRUCTURAL COMPONENTS. DIFFERENCES SHALL BE NOTED ON THE SUBMITTALS.
- SHOP DRAWINGS SHALL BE PREPARED FOR ALL STRUCTURAL ITEMS AND SUBMITTED FOR REVIEW BY THE ENGINEER. CONTRACT DRAWINGS SHALL NOT BE REPRODUCED AND USED AS SHOP DRAWINGS. ALL ITEMS DEVIATING FROM CONTRACT DRAWINGS OR FROM PREVIOUSLY SUBMITTED SHOP DRAWINGS SHALL BE CLOUDED.
- V. THE DETAILS DESIGNATED AS "TYPICAL DETAILS" OR "STANDARD DETAILS" APPLY GENERALLY TO THE DRAWINGS IN ALL AREAS WHERE CONDITIONS ARE SIMILAR TO THOSE DESCRIBED IN THE DETAILS.
- ALL RELEVANT DIMENSIONS AND CONDITIONS OF EXISTING CONSTRUCTION SHALL BE FIELD VERIFIED AT THE PROJECT SITE PRIOR TO FABRICATION OR CONSTRUCTION DISCREPANCIES BETWEEN EXISTING CONSTRUCTION AND THE DRAWINGS SHALL BE REFERRED TO THE ENGINEER FOR RESOLUTION THROUGH A REQUEST FOR INFORMATION (RFI). DIFFERENCES SHALL ALSO BE CLOUDED
- THE DESIGN AND PROVISION OF ALL TEMPORARY SUPPORTS SUCH AS GUYS, BRACES, FALSEWORK, SUPPORTS AND ANCHORS FOR SAFETY LINES, RIBBING, OR ANY OTHER TEMPORARY ELEMENTS REQUIRED FOR THE EXECUTION OF THE CONTRACT ARE NOT INCLUDED IN THESE DRAWINGS AND SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. TEMPORARY SUPPORTS SHALL NOT RESULT IN THE OVERSTRESS OR DAMAGE OF THE ELEMENTS TO BE BRACED NOR ANY ELEMENTS USED AS BRACE SUPPORTS.

- I. INTERNATIONAL BUILDING CODE IBC (2012).
- II. MINIMUM DESIGN LOADS FOR BUILDING AND OTHER STRUCTURES (ASCE/SEI
- III. BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE (ACI 318-11).
- IV. CODE REQUIREMENTS OF ENVIRONMENTAL ENGINEERING CONCRETE STRUCTURES (ACI 350-06).
- V. AISC MANUAL OF STEEL CONSTRUCTION (14TH EDITION).
- VI. ALUMINUM DESIGN MANUAL (2010).

#### DESIGN LOADS

I. ACCESS FLOOR, WALKWAY: 125 PSF (UON)

II. LIVE LOAD: 125 PSF (UON)

50 PLF UNIFORM LOAD OR III. HANDRAILS, GUARDS: 200 LBS CONCENTRATED LOAD (NOT CONCURRENTLY)

IV. STAIRS 100 PSF UNIFORM LOAD 300 LBS CONCENTRATED LOAD

V. RISK CATEGORY: III

VI. GROUND SNOW LOAD: PSF SNOW IMPORTANCE FACTOR:

DESIGN WIND SPEED: EXPOSURE CATEGORY: 150 MPH (3 SEC GUST)

SEISMIC DESIGN CATEGORY: SEISMIC SITE CLASS: SEISMIC DESIGN PARAMETERS:

1.4%a SEISMIC IMPORTANCE FACTOR:

MASONRY VENEER SHALL BE IN ACCORDANCE WITH THE ARCHITECTURAL DRAWINGS AND SPECIFICATIONS.

(NOT CONCURRENTLY)

- CONCRETE BLOCKS SHALL BE HOLLOW LOAD-BEARING CONCRETE MASONRY UNITS CONFORMING TO ASTM C90. USE BOND BEAMS AT HORIZONTAL REINFORCING. USE KNOCK-OUT LINTEL UNITS WHERE HORIZONTAL AND VERTICAL REINFORCEMENT
- MASONRY WALL ASSEMBLY SHALL BE CONSTRUCTED SUCH THAT PRISM STRENGTH OF F'M=1500 PSI IS DEVELOPED. MORTAR SHALL CONFORM TO ASTM C270, TYPE
- HORIZONTAL JOINT REINFORCING SHALL BE TRUSS TYPE 9 GA. WELDED WIRE @ 16 IN VERTICALLY. LAP HORIZONTAL JOINT REINFORCING 6" AT SPLICES.
- GROUT ON CONCRETE WITH 3/8 INCH AGGREGATE WITH A 28 DAY COMPRESSIVE STRENGTH OF 3000 PSI SHALL BE USED FOR VERTICAL & HORIZONTAL REINFORCED SECTIONS. ALL CELLS SCHEDULED OR INDICATED AS BEING REINFORCED AND AS SHOWN ON MASONRY DETAILS SHALL BE FULLY GROUTED. 1/2 INCH MAXIMUM AGGREGATE SHALL BE USED FOR LINTELS AND BOND BEAMS.
- ALL REINFORCING SHALL BE ASTM C615 GRADE 60. PROVIDE MINIMUM 1/2 INCH CLEARANCE BETWEEN MAIN REINFORCING AND MASONRY UNITS. VERTICAL AND HORIZONTAL REINFORCING SHALL BE AS INDICATED ON THE DRAWINGS. REINFORCING BARS SHALL BE STRAIGHT EXCEPT FOR BENDS AROUND CORNERS AND WHERE DETAILED OTHERWISE ON THE DRAWINGS.
- VII. MINIMUM DEVELOPMENT LENGTH AND LAP SPLICE LENGTH FOR REINFORCING BARS SHALL BE AS GIVEN IN THE FOLLOWING TABLE.

DEVELOPMENT LENGTH & LAP SPLICE (IN)						
BAR SIZE	BARS CENTERED IN WALL (SINGLE REINFORCING)			BARS PLACED WITH COVER = 3" (DOUBLE REINFORCING)		
	8" CMU	10" CMU	12" CMU	8" CMU	10" CMU	12" CMU
#3	18	18	18	18	18	18
#4	24	24	24	24	24	24
#5	3Ø	3Ø	3Ø	3Ø	3Ø	3Ø
#6	37	36	36	49	49	49
#7	-	42	42	-	63	63

- USE 'LOW LIFT' CONSTRUCTION, WITH A MAXIMUM GROUT POUR HEIGHT OF 4 FEET.
- CELLS SHALL BE IN VERTICAL ALIGNMENT. DOWELS IN FOUNDATIONS SHALL BE SET TO ALIGN WITH CORES CONTAINING REINFORCING STEEL. PROVIDE DOWELS EQUAL TO WALL REINFORCEMENT IN SIZE, QUANTITY AND SPACING AND HOOK INTO CONCRETE FOOTINGS WITH STANDARD HOOKS.
- REFER TO BUILDING ELEVATION DRAWINGS FOR SURFACE AND HEIGHT OF MASONRY UNITS, LAYING PATTERN AND JOINT TYPE.

#### COLD-FORMED STEEL FRAMING

- ALL COLD-FORMED STEEL FRAMING SHALL BE PER THE DRAWINGS AND DIVISION 5 SPECIFICATIONS.
- ALL MEMBERS SHALL BE GALVANIZED
- ALL WELDING SHALL BE IN CONFORMANCE WITH AWS D1.3. ALL WELDS SHALL BE TOUCHED UP WITH GALVANIZED PAINT.



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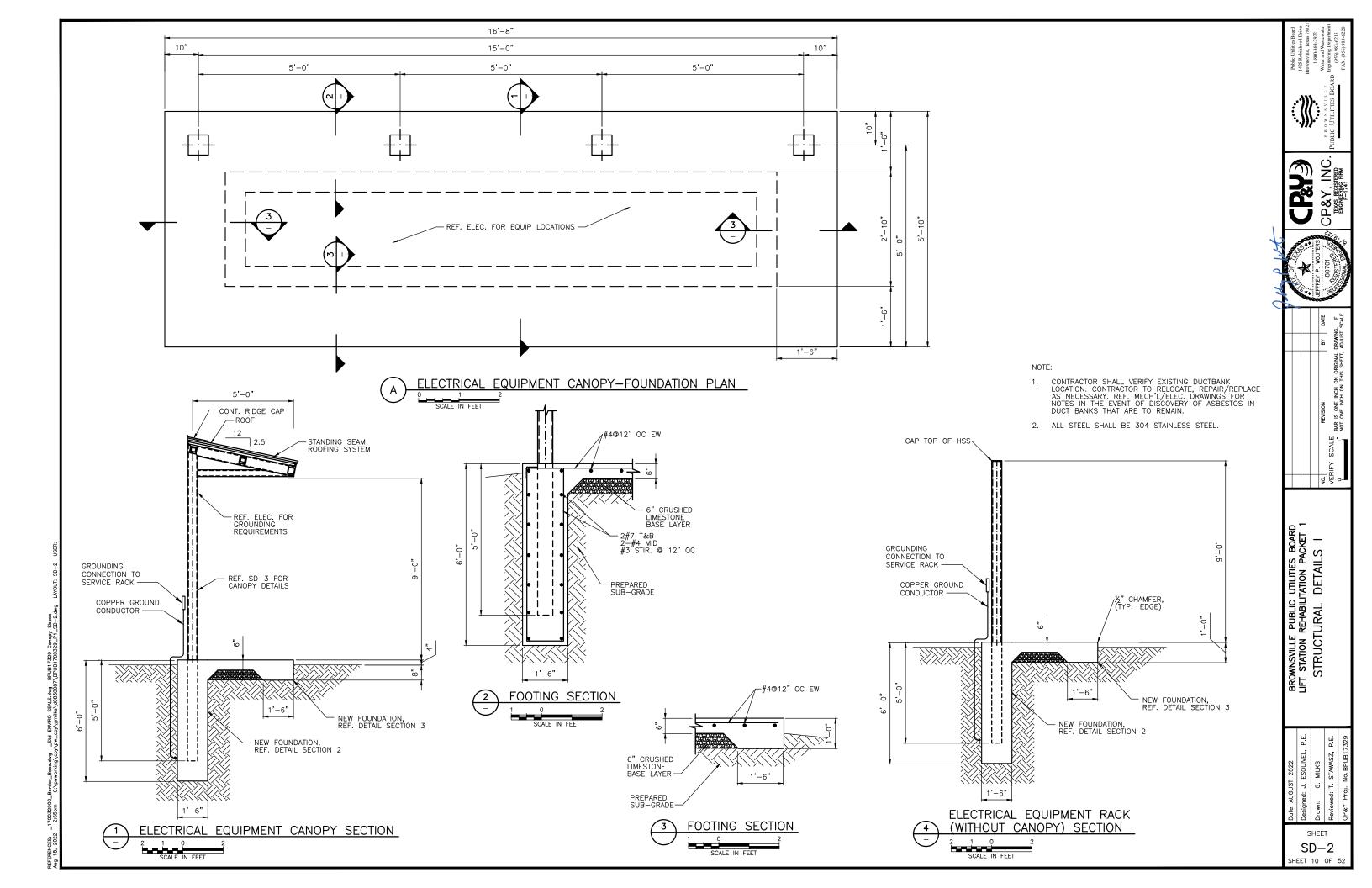
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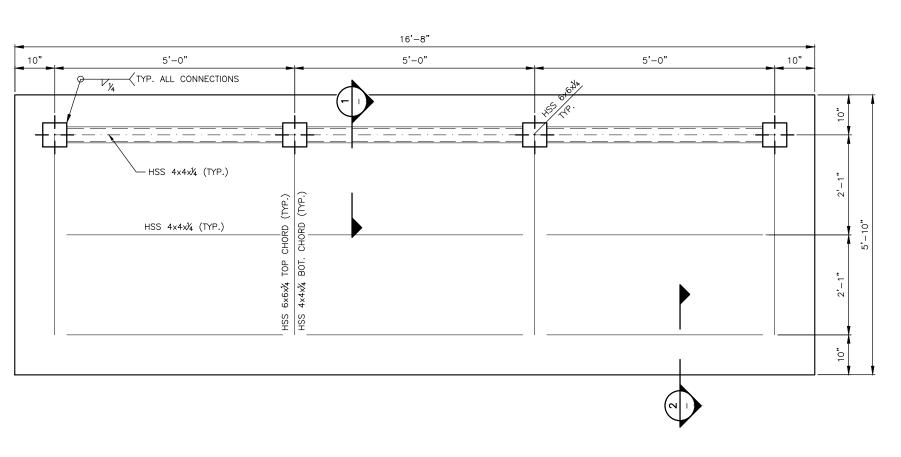
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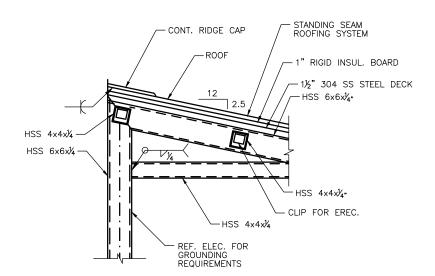




NOTE:

1. ALL STEEL SHALL BE 304 STAINLESS STEEL.

## ELEC. EQUIPMENT CANOPY- ROOF FRAMING PLAN SCALE IN FEET



CLIP FOR EREC .-∠ 2½×3½×¼-HSS 4x4x1/4" HSS 6x6x1/4-

PROVIDE CJP WELD BETWEEN HSS 6x6x1/4 COLUMN AND HSS 6x6x1/4 TOP CHORD.

ELEC. EQUIPMENT CANOPY - ROOF FRAMING SECTION

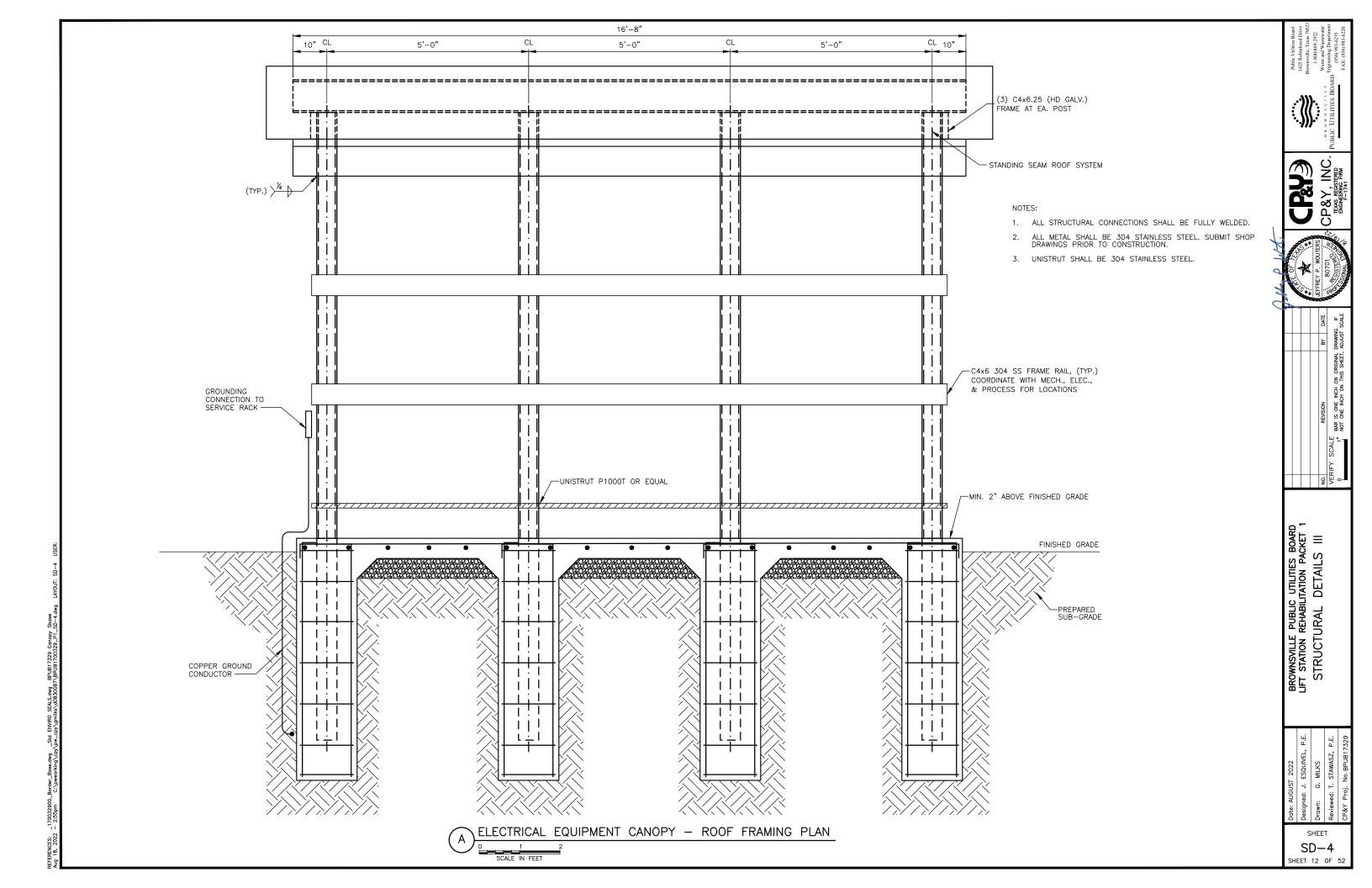
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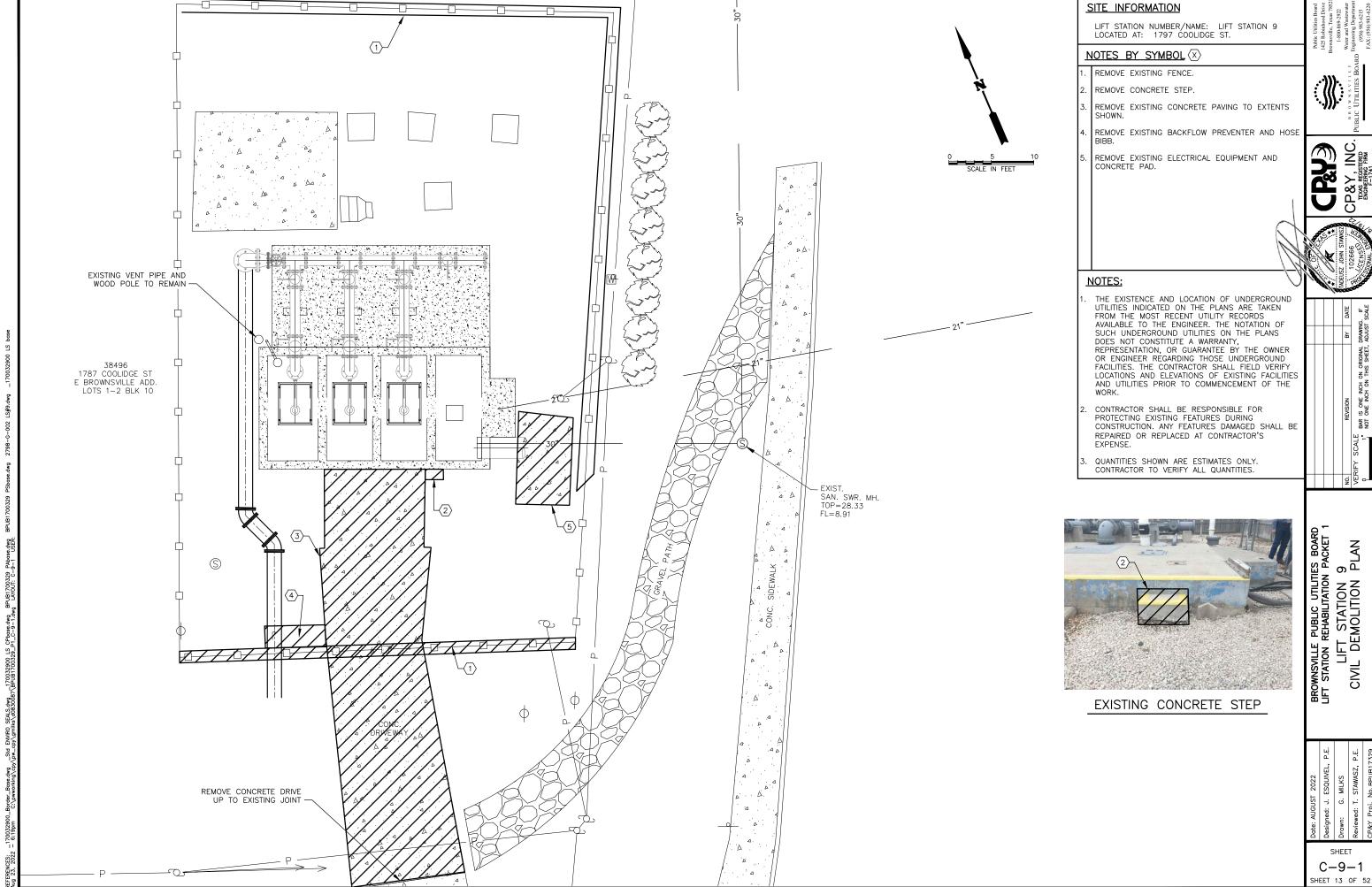
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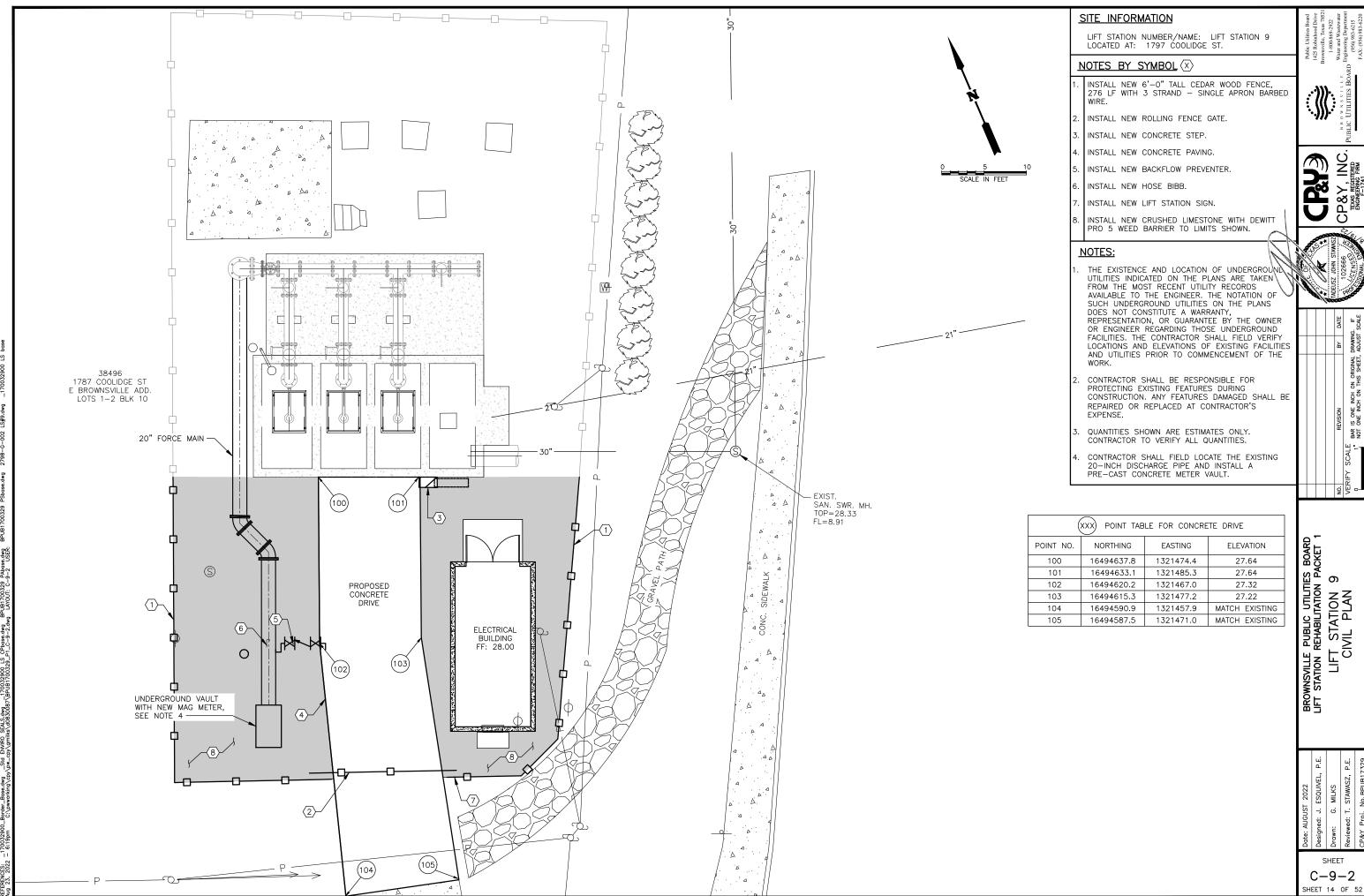
BROWNSVILLE PUBLIC UTILITIES BOARD LIFT STATION REHABILITATION PACKET 1 STRUCTURAL DETAILS II

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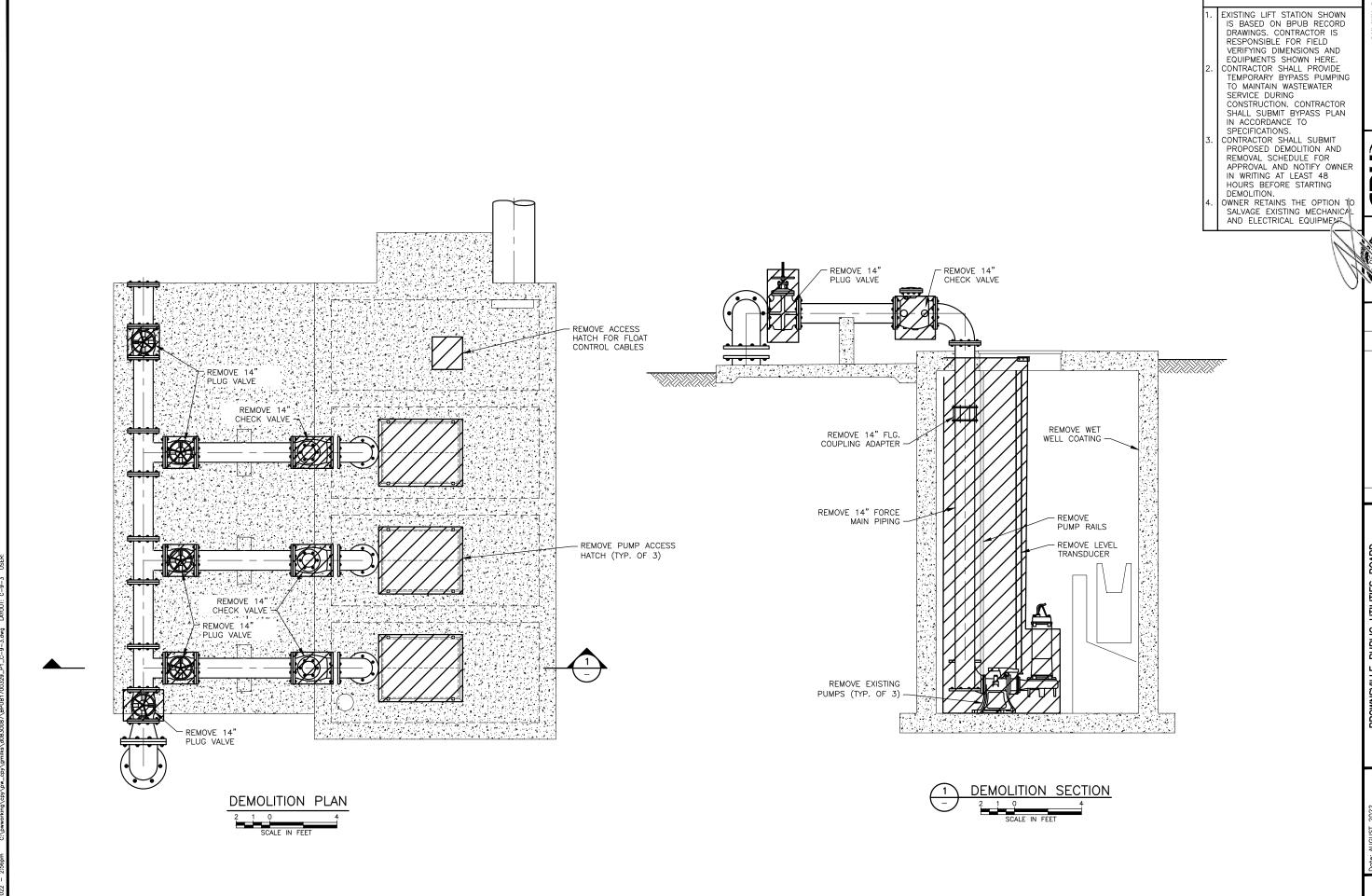
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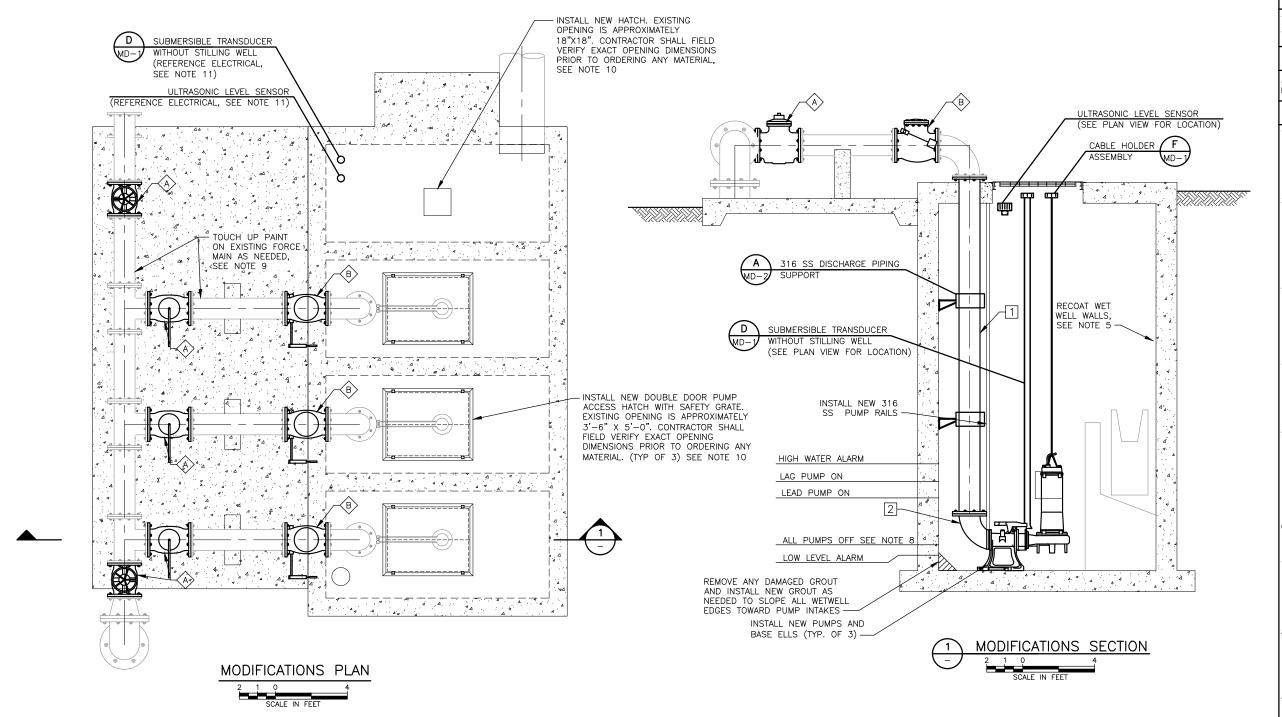
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VIEW LIFT STATION 9
DEMOLITION PLAN AND SECTION Brownsville Public Utilities Board Lift Station Rehabilitation Packet

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C - 9 - 3SHEET 15 OF 52



#### STATION OPERATION TABLES

RISING LEVEL CYCLE					
WATER LEVEL ELEVATION	ACTION	PUMP(S) IN OPERATION			
9.50	PUMPS OFF LEVEL	ALL PUMPS ARE OFF			
11.08	LEAD PUMP LEVEL	LEAD PUMP ON			
13.08	LAG PUMP LEVEL	LEAD & LAG PUMPS ON			
13.70	HIGH LEVEL ALARM LEVEL	HIGH LEVEL ALARM ACTIVITIES			
	·	·			

C:\pw		FALLING LEVEL CYCLE							
ပ်	WATER LEVEL ELEVATION	ACTION	PUMP(S) IN OPERATION						
– 7:50pm	13.08	LAG PUMP LEVEL	LEAD & LAG PUMPS ON HIGH LEVEL ALARM RESETS						
	11.08	LEAD PUMP LEVEL	LEAD & LAG PUMPS ON						
, 2022	9.50	ALL PUMPS OFF LEVEL	ALL PUMPS STOPPED - LAG PUMP SWITCHES TO LEAD PUMP						
g 23,	9.00	LOW LEVEL ALARM	LOW LEVEL ALARM ACTIVATES						

#### PIPE AND FITTING SCHEDULE X

INSTALL 14" YELOMINE PIPE INSTALL 14" REDUCING 316 SS 90° BEND

## VALVE SCHEDULE (X)

INSTALL 14" PLUG VALVE INSTALL 14" CHECK VALVE

#### SHEET NOTES

EXISTING LIFT STATION SHOWN IS BASED ON BPUB RECORD DRAWINGS. CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING DIMENSIONS AND EQUIPMENTS SHOWN HERE.

> CONTRACTOR SHALL PROVIDE TEMPORARY BYPASS PUMPING TO MAINTAIN WASTEWATER SERVICE DURING
> CONSTRUCTION, CONTRACTOR SHALL SUBMIT BYPASS PI IN ACCORDANCE TO SPECIFICATIONS.

CONTRACTOR SHALL SUBMIT PROPOSED DEMOLITION AND REMOVAL SCHEDULE FOR APPROVAL AND NOTIFY OWNER IN WRITING AT LEAST 48 HOURS BEFORE STARTING DEMOLITION

CONTRACTOR SHALL RETURN BPUB THE FOLLOWING
EQUIPMENT AND MATERIALS: PUMPS, MOTORS, VALVES, PIPE FITTINGS, CONTROLS AND ACCESSORIES.

CONTRACTOR SHALL VACUUM AND PRESSURE WASH ENTIRE WETWELL. CONTRACTOR SHALL REMOVE AND DISPOSE OFFSITE ALL SLUDGE. COAT ALL INTERIOR SURFACES WITHIN THE WET WELL IN ACCORDANCE WITH THE SPECIFICATIONS.

INSTALL PLUG VALVES TO OPEN UPWARD AND TO CLOSE TO A SEATING POSITION.

INSTALL CHECK VALVES SO THAT THE WEIGHT LEVER POSITION IS APPROXIMATELY 45° BELOW THE VALVE HORIZONTAL CENTER LINE IN THE FULL OPEN POSITION.

ALL PUMPS OFF PUMP MANUFACTURER SHALL DETERMINE THE ABSOLUTE MINIMUM WATER LEVEL IN WET WELL FOR PROPER OPERATION OF THE PUMPS

CONTRACTOR SHALL TOUCH UP PAINT ON EXISTING FORCE MAIN PIPE AND VALVES AS NEEDED.

SECURE RETRO-FIT HATCHES TO EXISTING CONCRETE WET WELL LID WITH 1/2" DIAMETER, HILTI HIT-Z ANCHOR RODS. SEE SPECIFICATION 11062 FOR FULL REQUIREMENTS.

CONTRACTOR SHALL CORE DRILL EXISTING CONCRETE LID AS NEEDED TO INSTALL THE NEW LEVEL TRANSDUCER AND ULTRA SONIC LEVEL SENSORS. DRAWINGS AND SPECIFICATIONS FOR FULL REQUIREMENTS.

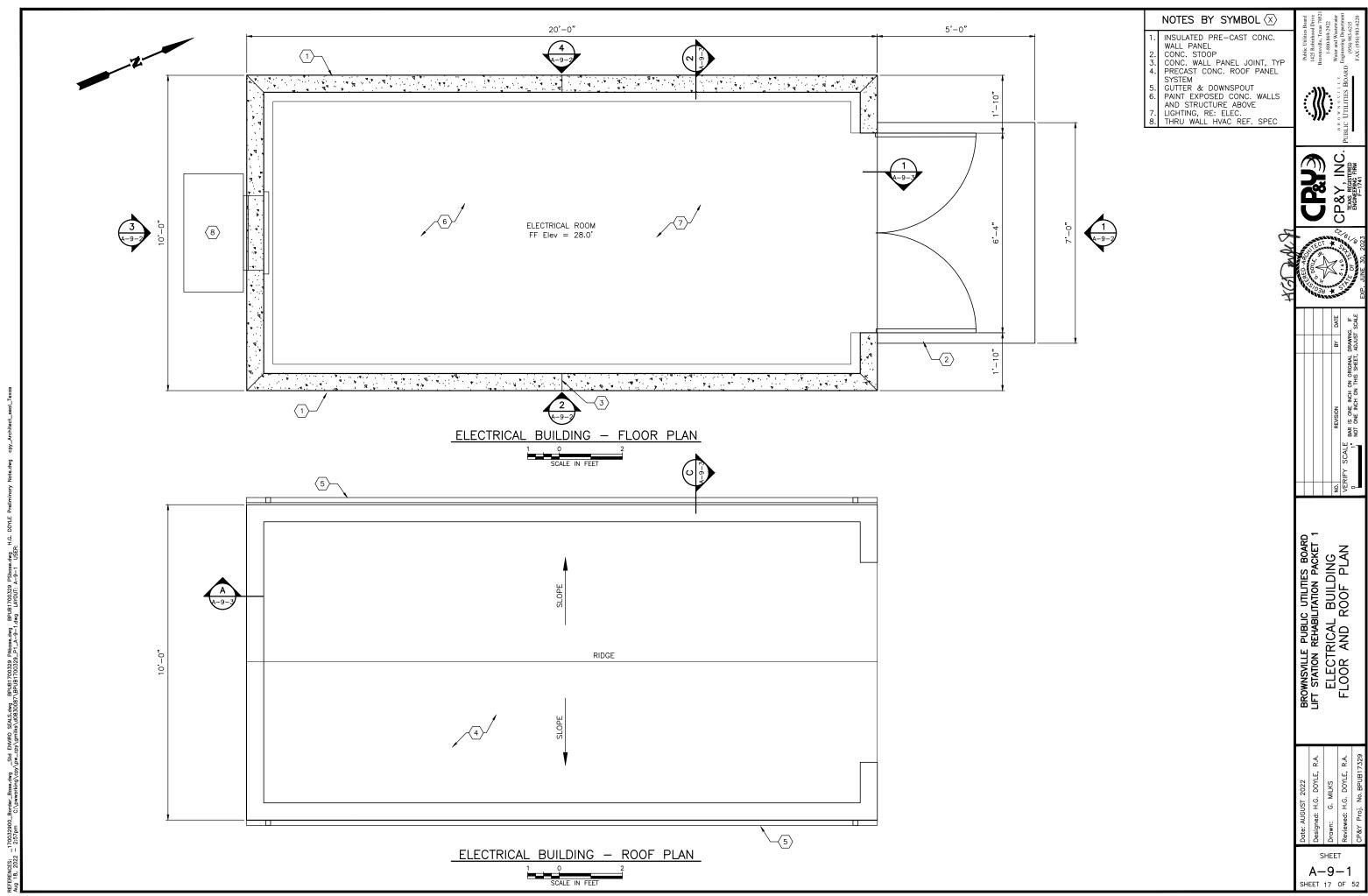
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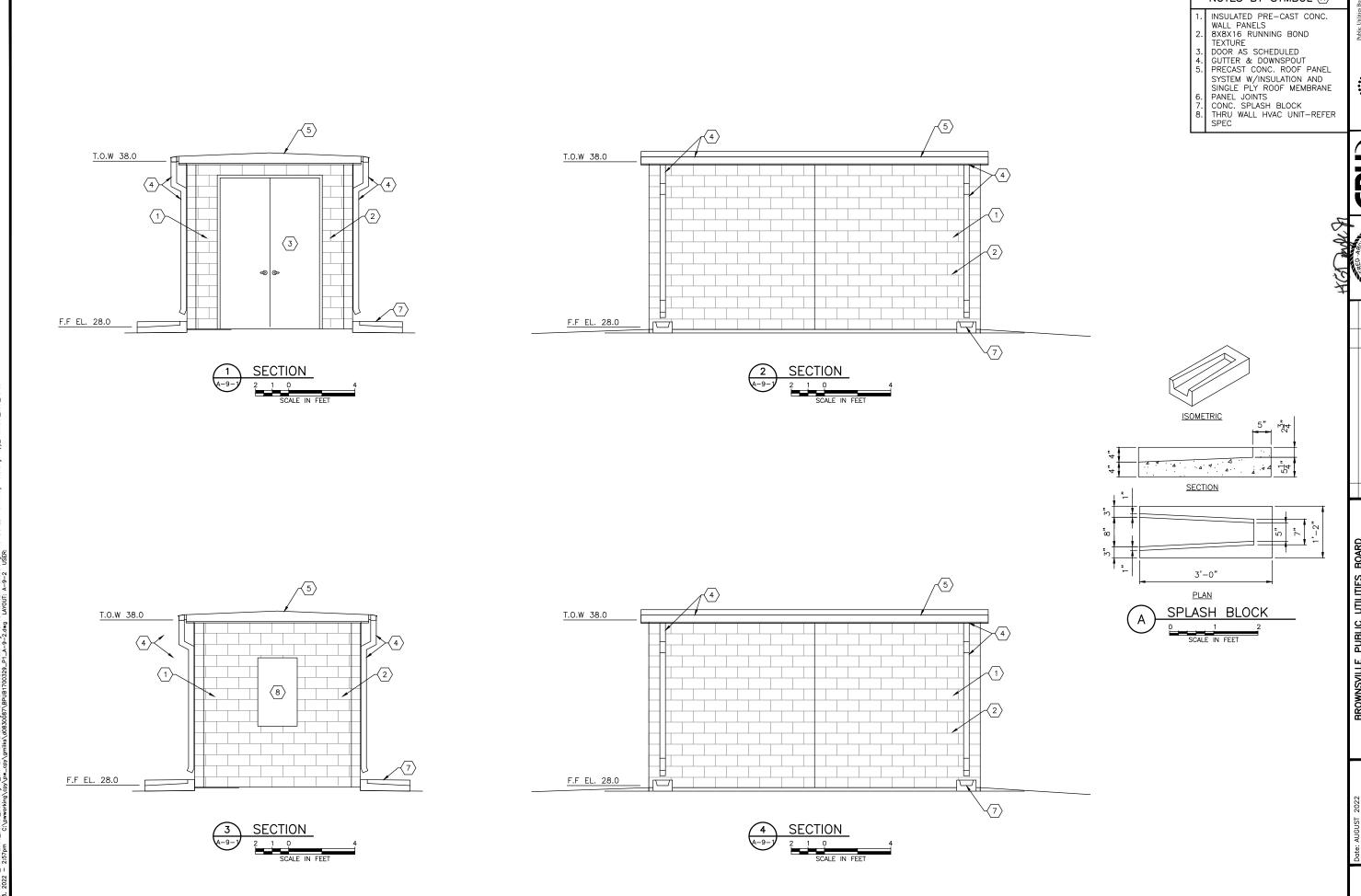
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VIEW LIFT STATION 9
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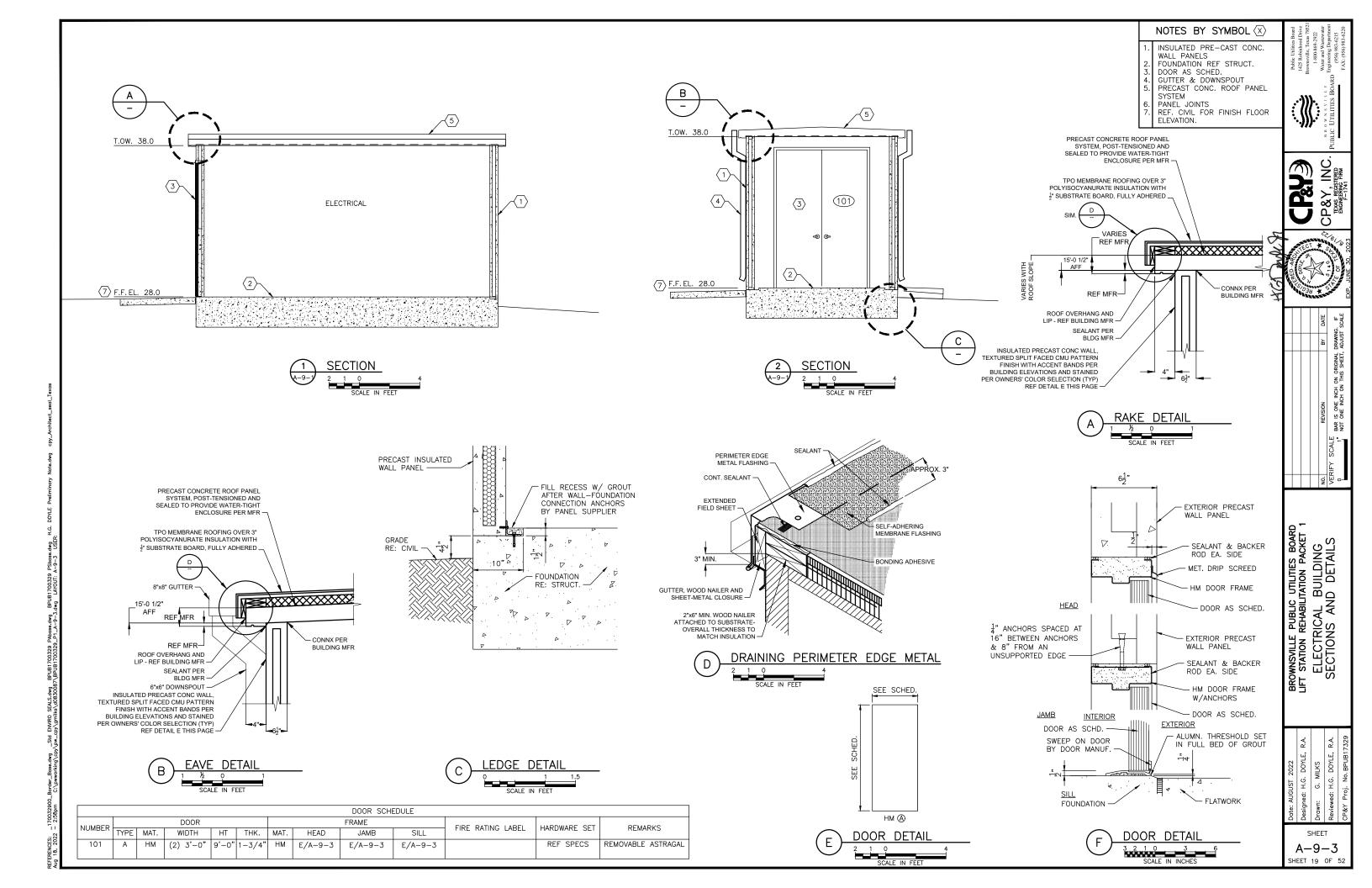
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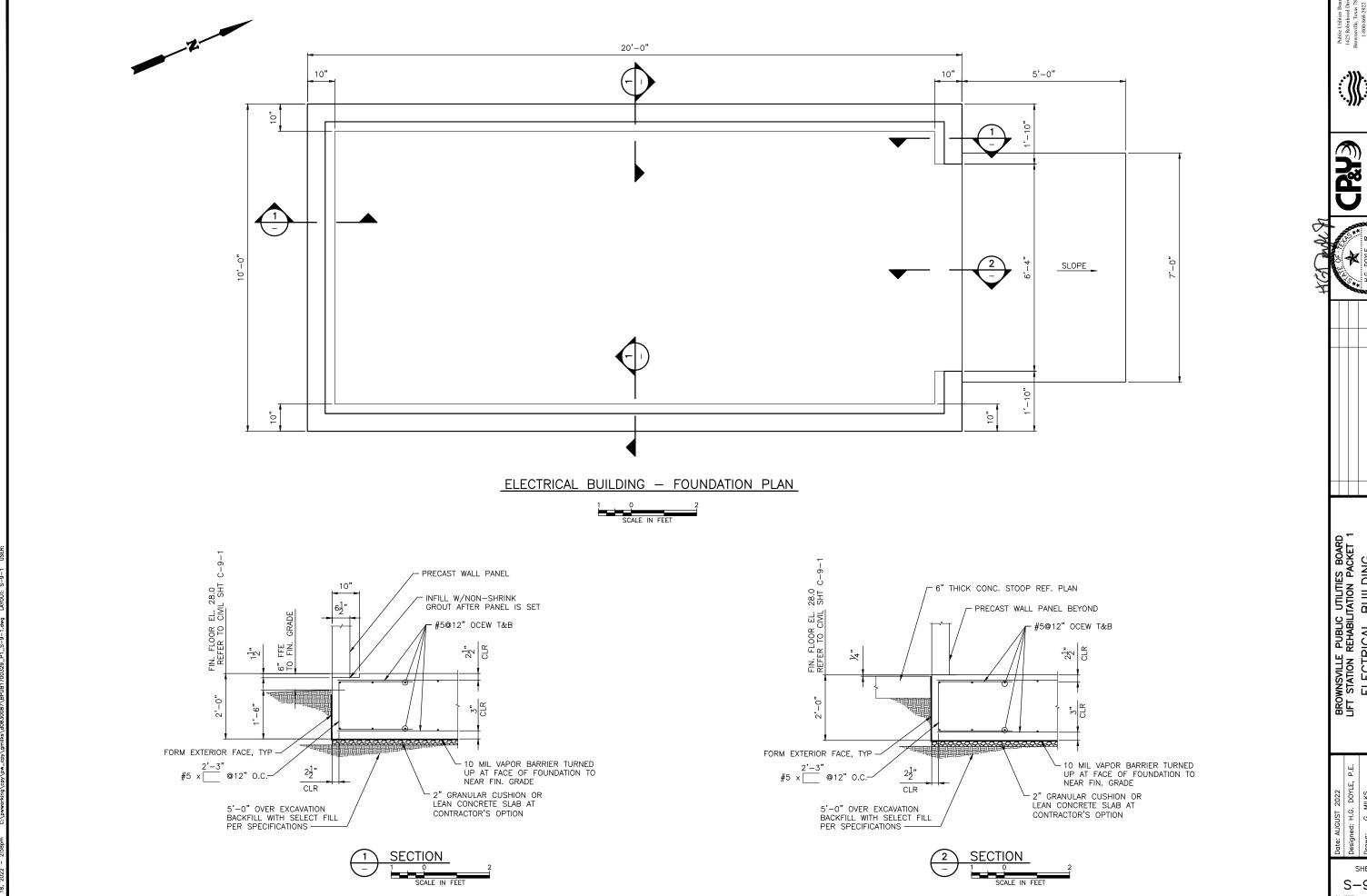
BROWNSVILLE PUBLIC UTILITIES BOARD LIFT STATION REHABILITATION PACKET 1 ELECTRICAL BUILDING ELEVATIONS

Date: AUGUST 2022	Designed: H.G. DOYLE, R.A.	Drawn: G. MILKS	Reviewed: H.G. DOYLE, R.A.	CP&Y Proj. No.BPUB17329

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A-9-2 SHEET 18 OF 52





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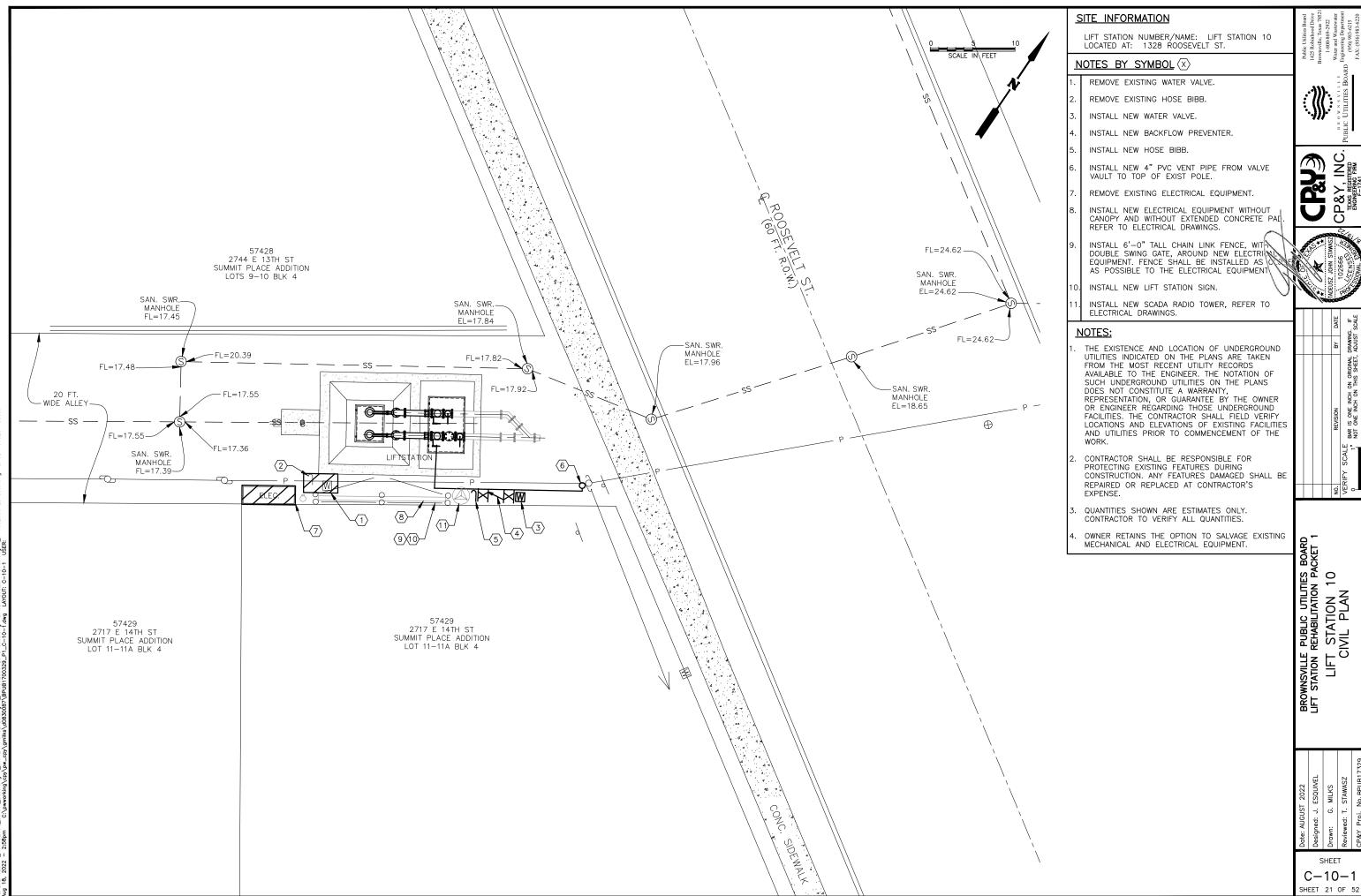
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BROWNSVILLE PUBLIC UTILITIES BOARD
LIFT STATION REHABILITATION PACKET 1
ELECTRICAL BUILDING
FOUNDATION PLAN AND DETAILS

SHEET

S-9-1 SHEET 20 OF 52



INC.

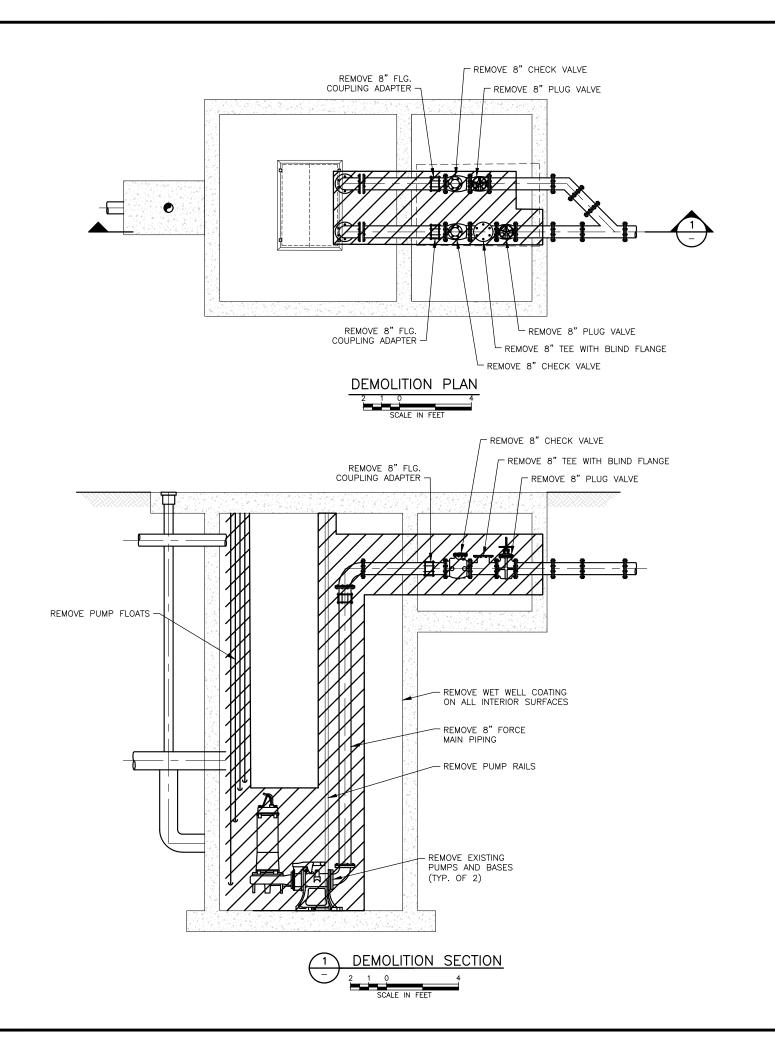
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WNSVILLE PUBLIC UTILITIES BOAR STATION REHABILITATION PACKET LIFT STATION 10 LIFT STATION 1 CIVIL PLAN

Designed: J.	۲.	ESQUIVEL
Drawn:	ى ن	MILKS
Reviewed: T.	⊢:	STAWASZ
CP&Y Pro	-	CP&Y Proj. No. BPUB17329

SHEET C - 10 - 1



#### SHEET NOTES

EXISTING LIFT STATION SHOWN IS BASED ON BPUB RECORD DRAWINGS. CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING DIMENSIONS AND

EQUIPMENTS SHOWN HERE. CONTRACTOR SHALL PROVIDE TEMPORARY BYPASS PUMPING TO MAINTAIN WASTEWATER SERVICE DURING CONSTRUCTION. CONTRACTOR SHALL SUBMIT BYPASS PLAN

IN ACCORDANCE TO SPECIFICATIONS. CONTRACTOR SHALL SUBMIT PROPOSED DEMOLITION AND REMOVAL SCHEDULE FOR APPROVAL AND NOTIFY OWNER IN WRITING AT LEAST 48 HOURS BEFORE STARTING DEMOLITION.

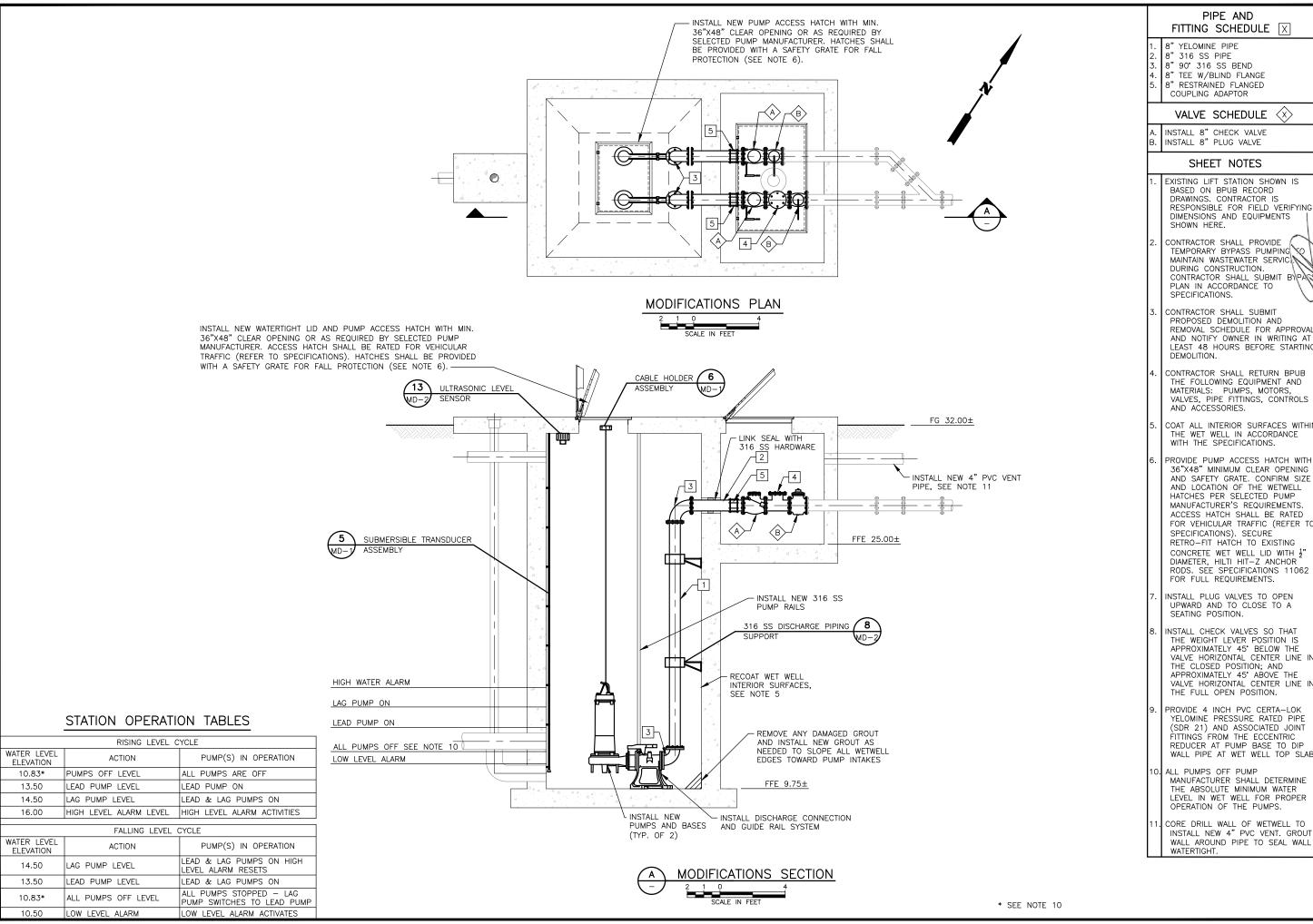
OWNER RETAINS THE OPTION TO SALVAGE EXISTING MECHANICAL AND ELECTRICAL EQUIPMENT

CP&Y, INC. EXAS REGISTERD ENGINEERING FIRM 

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BROWNSVILLE PUBLIC UTILITIES BOARD LIFT STATION REHABILITATION PACKET 1 LIFT STATION 10 DEMOLITION PLAN

SHEET C - 10 - 2SHEET 22 OF 52



FITTING SCHEDULE X

EXISTING LIFT STATION SHOWN IS BASED ON BPUB RECORD DRAWINGS, CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING DIMENSIONS AND EQUIPMENTS

TEMPORARY BYPASS PUMPING MAINTAIN WASTEWATER SERVIC CONTRACTOR SHALL SUBMIT B' PLAN IN ACCORDANCE TO

PROPOSED DEMOLITION AND REMOVAL SCHEDULE FOR APPROVAL AND NOTIFY OWNER IN WRITING AT LEAST 48 HOURS BEFORE STARTING

THE FOLLOWING EQUIPMENT AND MATERIALS: PUMPS, MOTORS, VALVES, PIPE FITTINGS, CONTROLS

THE WET WELL IN ACCORDANCE WITH THE SPECIFICATIONS.

PROVIDE PUMP ACCESS HATCH WITH 36"X48" MINIMUM CLEAR OPENING AND SAFETY GRATE. CONFIRM SIZE AND LOCATION OF THE WETWELL HATCHES PER SELECTED PUMP MANUFACTURER'S REQUIREMENTS. ACCESS HATCH SHALL BE RATED FOR VEHICULAR TRAFFIC (REFER TO SPECIFICATIONS), SECURE RETRO-FIT HATCH TO EXISTING CONCRETE WET WELL LID WITH 1/2" DIAMETER, HILTI HIT-Z ANCHOR RODS. SÉE SPECIFICATIONS 11062

INSTALL PLUG VALVES TO OPEN UPWARD AND TO CLOSE TO A

INSTALL CHECK VALVES SO THAT THE WEIGHT LEVER POSITION IS APPROXIMATELY 45° BELOW THE VALVE HORIZONTAL CENTER LINE THE CLOSED POSITION; AND APPROXIMATELY 45° ABOVE THE VALVE HORIZONTAL CENTER LINE IN THE FULL OPEN POSITION.

PROVIDE 4 INCH PVC CERTA-LOK YELOMINE PRESSURE RATED PIPE (SDR 21) AND ASSOCIATED JOINT FITTINGS FROM THE ECCENTRIC REDUCER AT PUMP BASE TO DIP WALL PIPE AT WET WELL TOP SLAB.

MANUFACTURER SHALL DETERMINE THE ABSOLUTE MINIMUM WATER LEVEL IN WET WELL FOR PROPER OPERATION OF THE PUMPS.

CORE DRILL WALL OF WETWELL TO INSTALL NEW 4" PVC VENT. GROUT WALL AROUND PIPE TO SEAL WALL

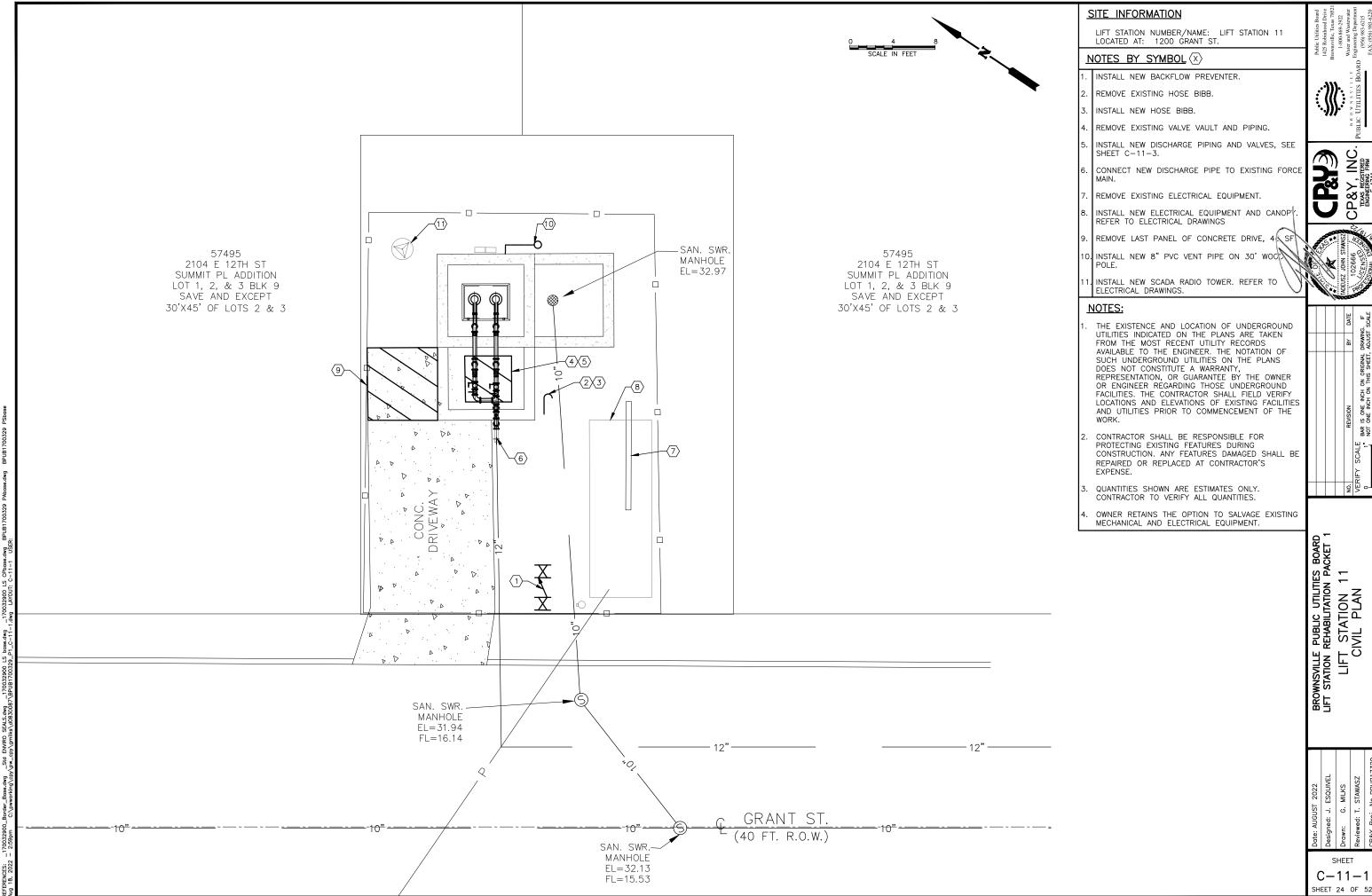
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SHEET C - 10 - 3SHEET 23 OF 52

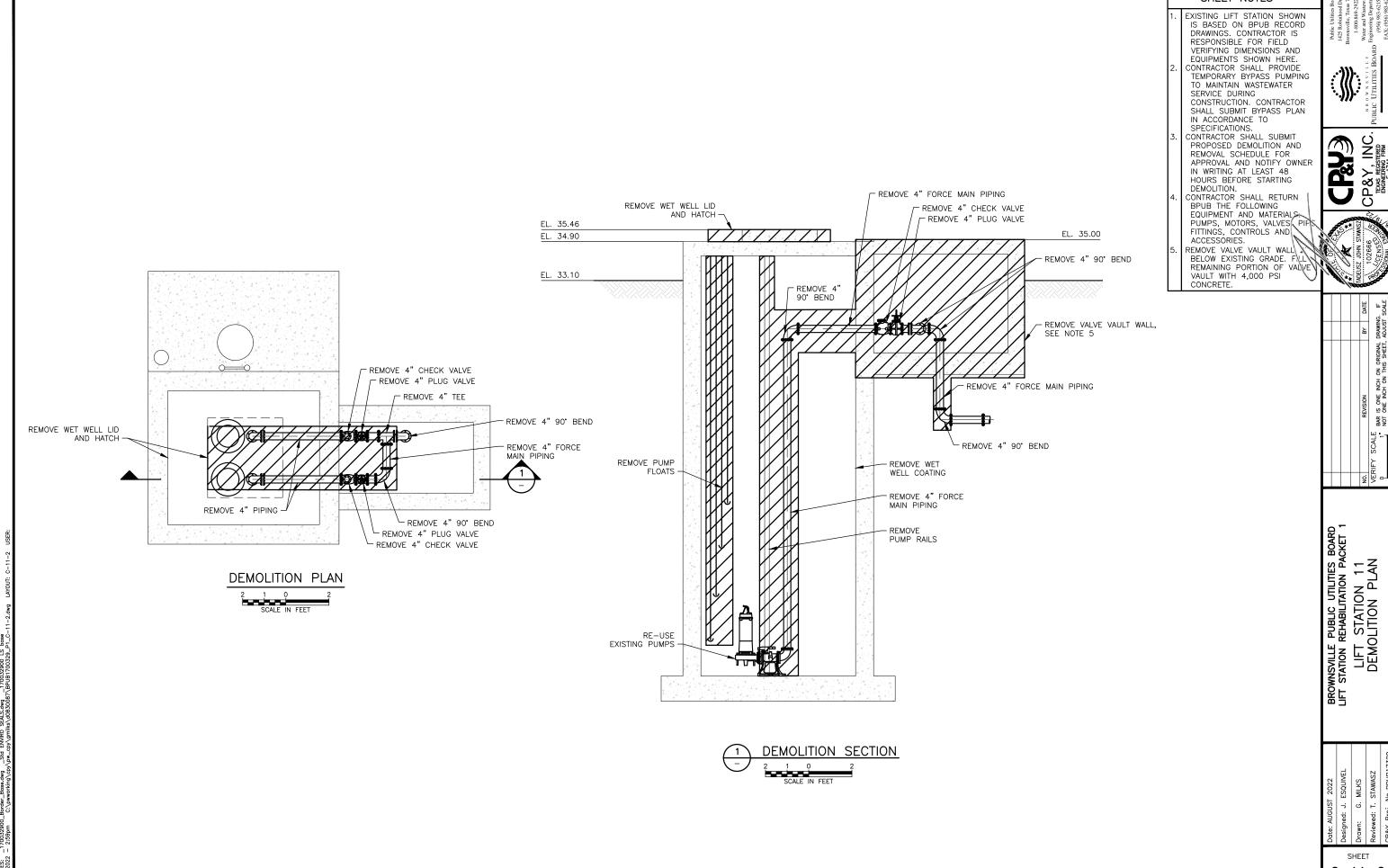


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BROWNSVILLE PUBLIC UTILITIES BOARD LIFT STATION REHABILITATION PACKET 1 CIFT STATION 11 CIVIL PLAN

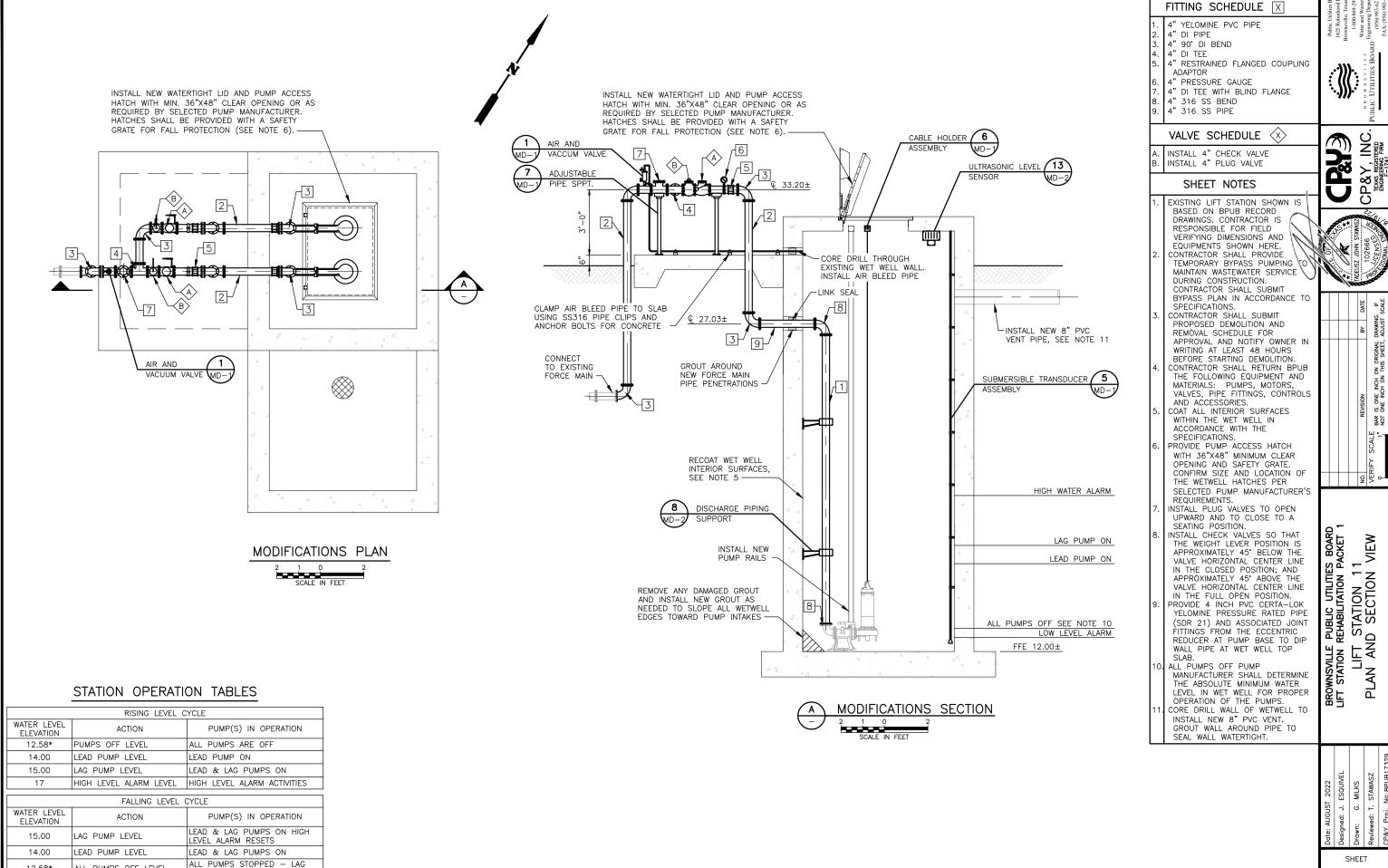
SHEET C - 11 - 1



SHEET NOTES

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C - 11 - 2SHEET 25 OF 52



12.58\*

12

ALL PUMPS OFF LEVEL

LOW LEVEL ALARM

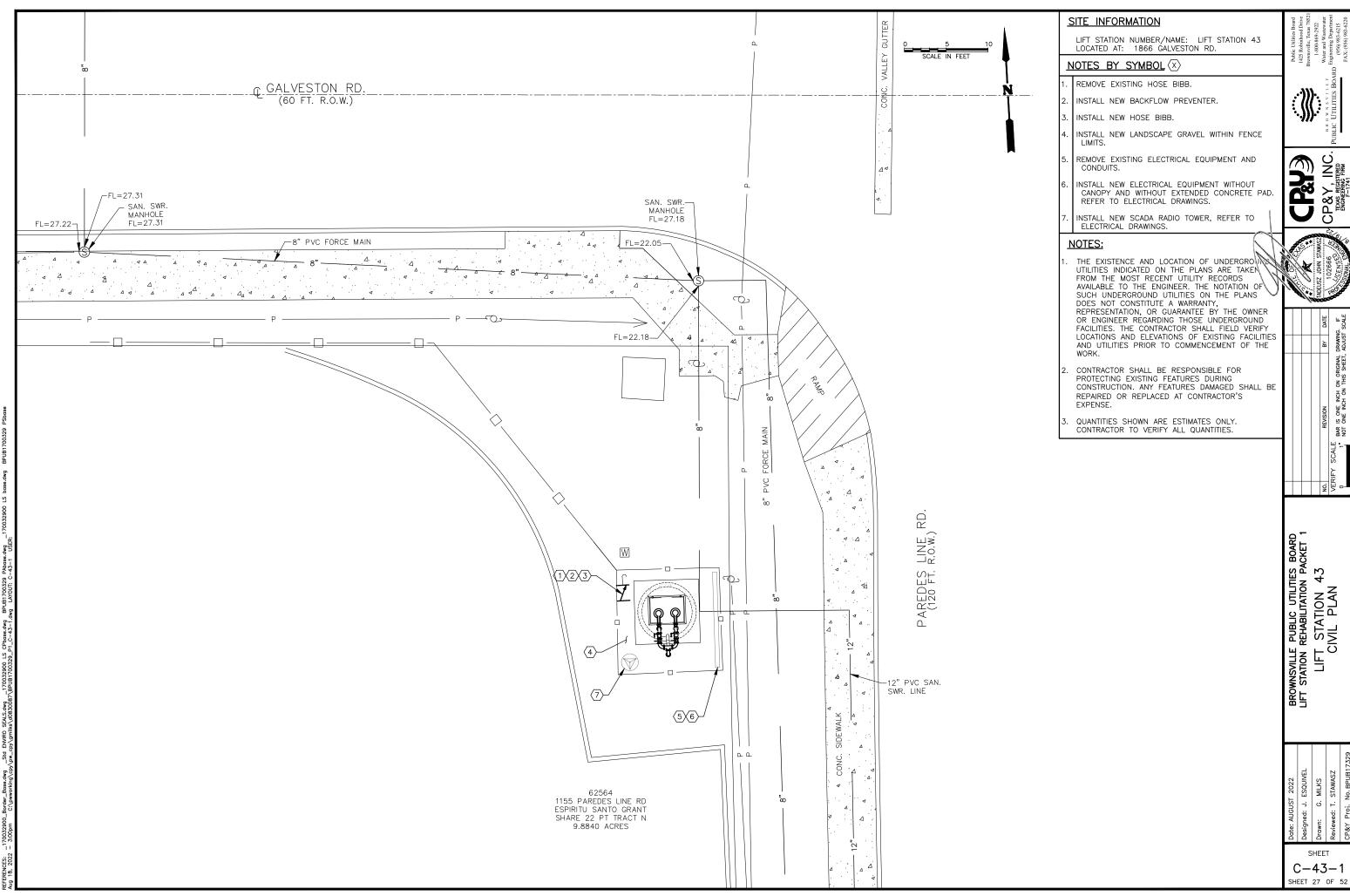
PUMP SWITCHES TO LEAD PUMP

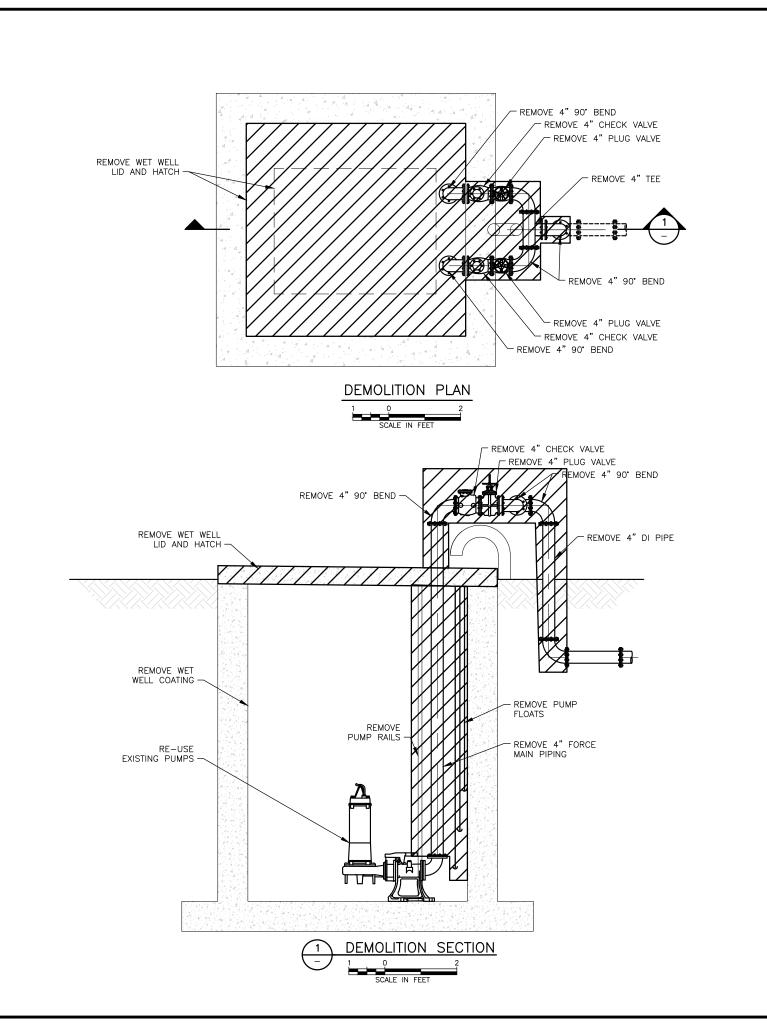
\* SEE NOTE 10

LOW LEVEL ALARM ACTIVATES

PIPE AND

SHEET C - 11 - 3SHEET 26 OF 52





#### SHEET NOTES

EXISTING LIFT STATION SHOWN IS BASED ON BPUB RECORD DRAWINGS. CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING DIMENSIONS AND

EQUIPMENTS SHOWN HERE.
CONTRACTOR SHALL PROVIDE
TEMPORARY BYPASS PUMPING TO MAINTAIN WASTEWATER SERVICE DURING
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CONTRACTOR SHALL RETURN BPUB THE FOLLOWING EQUIPMENT AND MATERIALS PUMPS, MOTORS, VALVES PIP

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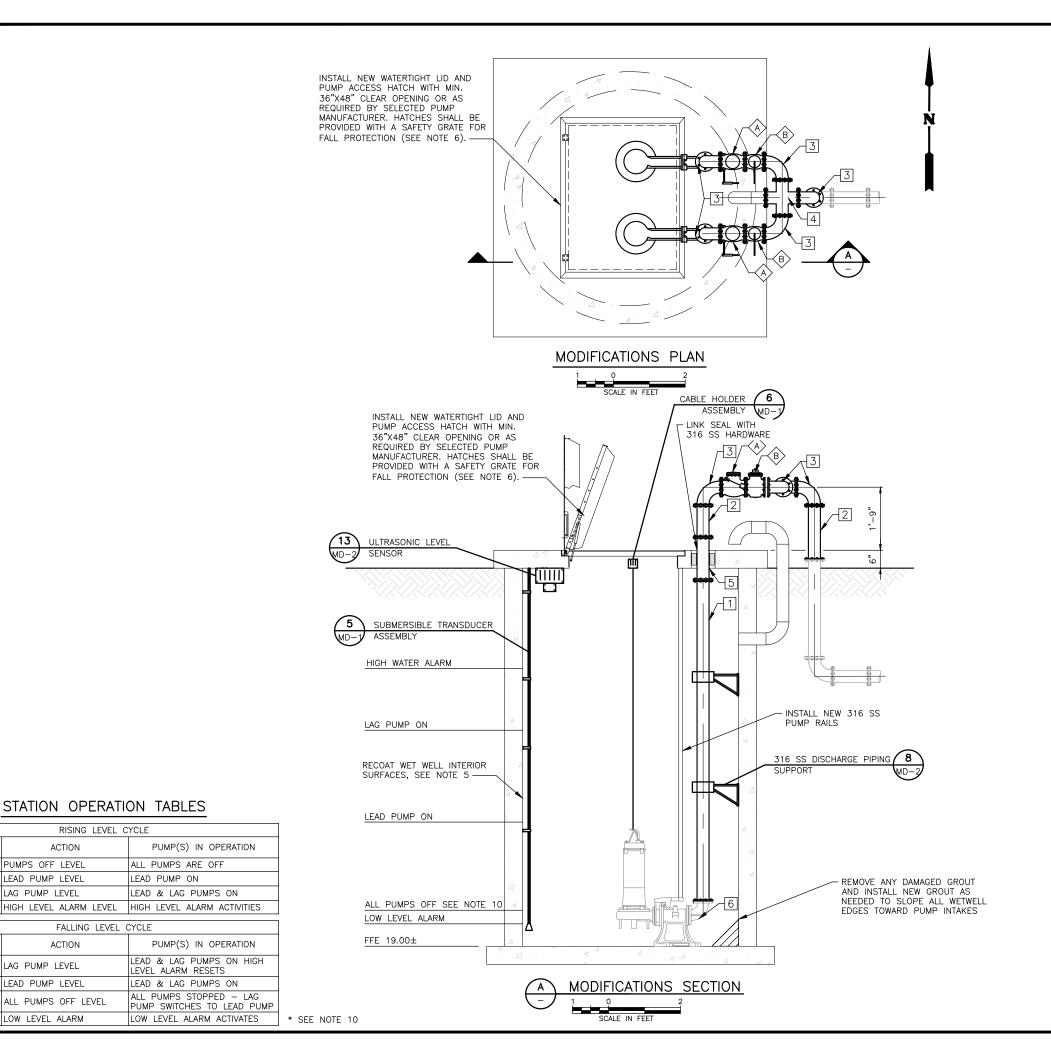


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Brownsville public utilities board Lift station rehabilitation packet LIFT STATION 43 DEMOLITION PLAN

SHEET

C - 43 - 2SHEET 28 OF 52



STATION OPERATION TABLES

RISING LEVEL CYCLE

FALLING LEVEL CYCLE

ACTION

ACTION

PUMPS OFF LEVEL

LEAD PUMP LEVEL

LAG PUMP LEVEL

LAG PUMP LEVEL

LEAD PUMP LEVEL

LOW LEVEL ALARM

ALL PUMPS OFF LEVEL

PUMP(S) IN OPERATION

PUMP(S) IN OPERATION

ALL PUMPS ARE OFF

LEAD & LAG PUMPS ON

LEVEL ALARM RESETS

LEAD & LAG PUMPS ON

ALL PUMPS STOPPED - LAG

LEAD PUMP ON

WATER LEVEL

ELEVATION 20.00\*

25.50

26.50

28.00

WATER LEVEL

ELEVATION 26.50

25.50

20.00\*

19.50

### FITTING SCHEDULE X

- 4" YELOMINE DI PIPE
- 4" DI PIPE
- 4" DI 90" BEND
- 4" DI CROSS WITH ONE (1) BLIND FLANGE
- 4" 316 SS PIPE 4" 316 SS BEND

## VALVE SCHEDULE (X)

INSTALL 4" CHECK VALVE INSTALL 4" PLUG VALVE

#### SHEET NOTES

- EXISTING LIFT STATION SHOWN IS BASED ON BPUB RECORD DRAWINGS. CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING DIMENSIONS AND
- TEMPORARY BYPASS PUMPING MAINTAIN WASTEWATER SERVICE DURING CONSTRUCTION. CONTRACTOR SHALL SUBMIT BYPASS PLAN IN ACCORDANCE SPECIFICATIONS. CONTRACTOR SHALL SUBMIT
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- UPWARD AND TO CLOSE TO A SEATING POSITION. INSTALL CHECK VALVES SO THAT
- THE WEIGHT LEVER POSITION IS APPROXIMATELY 45° BELOW THE VALVE HORIZONTAL CENTER LINE IN THE CLOSED POSITION: AND APPROXIMATELY 45° ABOVE THE VALVE HORIZONTAL CENTER LINE
- MANUFACTURER SHALL DETERMINE THE ABSOLUTE MINIMUM WATER LEVEL IN WET WELL FOR PROPER OPERATION OF THE PUMPS.

- EQUIPMENTS SHOWN HERE. CONTRACTOR SHALL PROVIDE
- THE FOLLOWING EQUIPMENT AND MATERIALS: PUMPS, MOTORS,
- VALVES, PIPE FITTINGS, CONTROLS AND ACCESSORIES.
  COAT ALL INTERIOR SURFACES
  WITHIN THE WET WELL IN
- SPECIFICATIONS.
  PROVIDE PUMP ACCESS HATCH WITH
- IN THE FULL OPEN POSITION.
- PROVIDE 4 INCH PVC CERTA-LOK YELOMINE PRESSURE RATED PIPE (SDR 21) AND ASSOCIATED JOINT FITTINGS FROM THE ECCENTRIC REDUCER AT PUMP BASE TO DIP WALL PIPE AT WET WELL TOP
- ALL PUMPS OFF PUMP

.3 I VIEW FT STATION 4.
AND SECTION PLAN BROV

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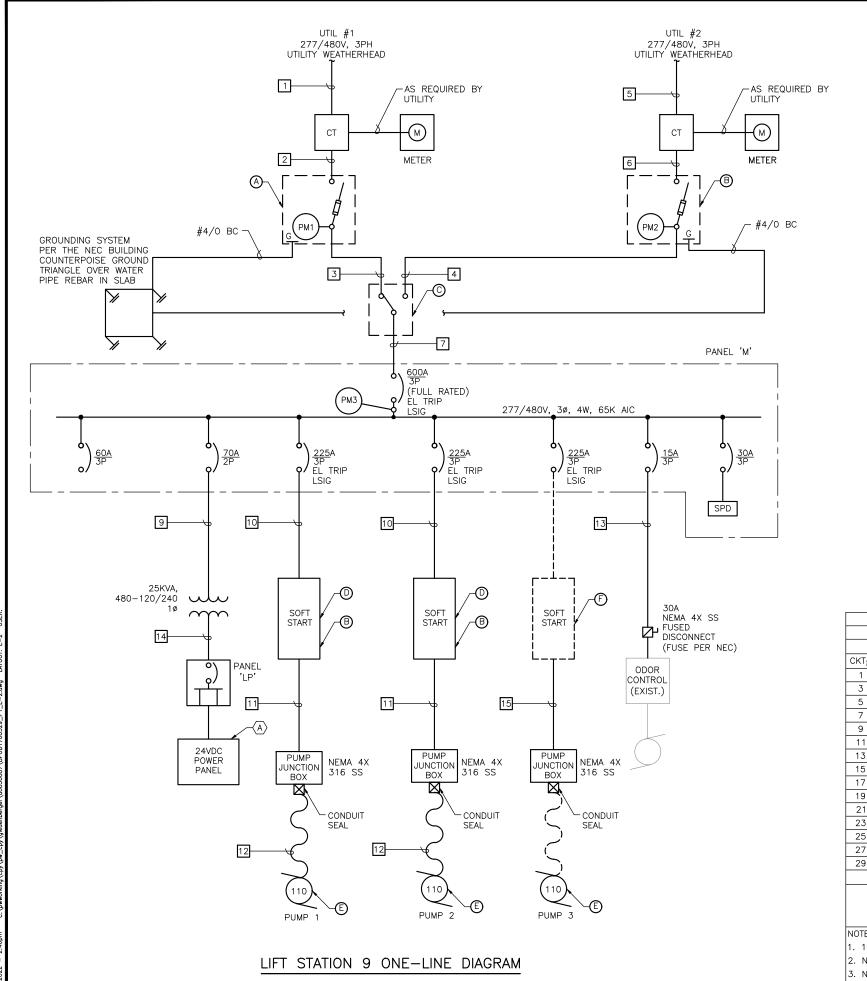
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Drawn: G. MILKS Reviewed: T. STAWASZ CP&Y Proj. No. BPUB17329

SHEET C - 43 - 3SHEET 29 OF 52

				ELEC	TRICAL SYMBOLS							es Board od Drive exas 78521 1-2922 astewater epartment -6215
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	Public Utiliti 425 Robinho ownsville, T 1-800-865 Vater and W agineering D
		)A( <sub>PΠ</sub>	INDICATING LIGHT—PUSH TO TEST (PTT) LETTER INDICATES COLOR.  A = AMBER Y = YELLOW G = GREEN B = BLUE R = RED W = WHITE	Д.				(25)	SYNCHRONOUS CHECK RELAY	871	TRANSFORMER DIFFERENTIAL	I I Br V V L E
	BRANCH CIRCUIT PANEL BOARD	J or ↓	R = RED W = WHITE  STRESS CONE	3 ⊱	CURRENT TRANSFORMER — NUMBER INDICATES QUANTITY	$\cup$	NOTE ON SHEET, NO. AS INDICATED	(27)	UNDERVOLTAGE PROTECTIVE RELAY	AM	PROTECTIVE RELAY  AMMETER	))) <sup>[8</sup> 8 8 8 8 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9
	CONTROL PANEL TELEPHONE TERMINAL BOARD	Til		, <b>Å</b>	WINDOW CURRENT TRANSFORMER ENCLOSING ALL CONDUCTORS.	F	STROBE/HORN F = FIRE	(32)	REVERSE POWER PROTECTIVE RELAY	AS	AMMETER SWITCH	o w n s v Umilime
ТВ	TERMINAL BOARD	<u> </u>	LEVEL FLOAT	·		F	L = LEAK A = ALARM (TCEQ)  MANUAL PULL STATION	(47)	PHASE—SEQUENCE VOLTAGE RELAY	cs	BREAKER CONTROL SWITCH	BLIC 1
	CONDUIT WITH WIRE	, j	GATE FLEXIBLE GROUNDING STRAP.		NEMA SIZE 5 CONTACTOR	I ;;		(49)	OVERLOAD TEMPERATURE RELAY	€ E	ELECTRICAL INTERLOCK	- bo
	NEUTRAL SWITCH LEG	•	GROUND ROD CONNECTION 5/8" X 8' LONG	⊗ <sub>E</sub>	EXIT SIGN, TYPE AS NOTED	ATS ATS	AUTOMATIC TRANSFER SWITCH	(50) (51)	TIME OVERCURRENT RELAY WITH INSTANTANEOUS ATTACHMENT	ETM	ELAPSED TIME METER	
<del></del>	GROUND  CONCEALED CONDUIT OR UNDERGROUND CONDUIT	<b>(</b>	GROUNDING PAD		EXIT/EMERGENCY COMBO, TYPE AS NOTED		ELECTRICAL SERVICE METER	50G	INSTANTANEOUS OVERCURRENT GROUND FAULT RELAY	K	KEY INTERLOCK	
	EXPOSED CONDUIT	XX	NAMEPLATE OR LEGEND PLATE - SEE SCHEDULE		EMERGENCY LIGHTING UNIT, TYPE AS NOTED		DEVICE LOCATED AT MOTOR OR IN FIELD	50N	INSTANTANEOUS NEUTRAL OVERCURRENT RELAY	PF	POWER FACTOR METER	
	GROUND MAT	————	MEDIUM VOLTAGE VACUUM INTERRUPTER	C C			DEVICE LOCATED AT VALVE	51	TIME OVERCURRENT RELAY	RPM	RPM METER	<b>₩</b> 8
<del></del>	CONDUIT — UP		CONTACT - NORMALLY OPEN	-010-	FLOW SWITCH		DEVICE LOCATED IN MCC	(51G)	TIME GROUND OVERCURRENT RELAY	SSOLR	SOLID STATE OVERLOAD RELAY MOTOR OVERLOAD, PHASE LOSS, AND CURRENT	The state of the s
	CONDUIT — DOWN  CONDUIT — STUBBED AND CAPPED		CONTACT - NORMALLY CLOSED		LIMIT SWITCH	<b>A</b>	DEVICE LOCATED IN SWITCHGEAR — 5KV  DEVICE LOCATED IN CONTROL/INSTRUMENT PANEL	55	POWER FACTOR RELAY	SST	UNBALANCE PROTECTION SOLID STATE TRIP	RINES CO
— s —	SOUND SYSTEM WIRING RUN	x	THERMAL OVERLOAD RELAY			<b>¢</b>	LIGHT SWITCH	59	OVERVOLTAGE RELAY	T	TACHOMETER (4-20ma)	PF 7
OE	OVERHEAD ELECTRIC LINES  CONDUIT FOR TELEPHONE, 3/4"		CIRCUIT BREAKER — THERMAL MAGNETIC 3 POLE UNLESS INDICATED OTHERWISE CONTINUOUS AMP TRIP SETTING INDICATED	-010-	PRESSURE SWITCH	<sup>1</sup>		63	TRANSFORMER SUDDEN PRESSURE RELAY	TDR	TIME DELAY RELAY	DIVAC
—т—	UNLESS OTHERWISE INDICATED	100A	SWITCH — CURRENT RATING INDICATED. 3 POLE UNLESS INDICATED	-050-	TEMPERATURE SWITCH OR THERMOSTAT		PANELBOARD	67	DIRECTIONAL OVERCURRENT RELAY	VAR	VAR METER	O marrows
LP-1,3	HOME RUN, LP INDICATES PANEL LP, 1,3 INDICATES CIRCUITS 1 & 3.	800AF/600AT	OTHERWISE	5		0/		(74T)	TEMPERATURE ALARM RELAY	VM	VOLTMETER	DATE F
XXX	CABLE IDENTIFICATION TAG	<b>←</b> → → →	DRAWOUT AIR CIRCUIT BREAKER LOW VOLTAGE. FRAME SIZE AND TRIP SETTING INDICATED.	-010-	VACUUM SWITCH	6	NON-FUSED DISCONNECT	81	UNDERFREQUENCY RELAY	vs	VOLTMETER SWITCH	
XXXX	INSTRUMENTATION/CONTROL CABLE IDENTIFICATION TAG	1200A 52	DRAWOUT AIR OR VACUUM CIRCUIT BREAKER. (VCB) MEDIUM VOLTAGE. FRAME SIZE INDICATED.	L.O. STOP		. \$3		83	AUTOMATIC TRANSFER RELAY	w	WATTMETER	[6] A
XXXXXXXX	INSTRUMENT TAG NUMBER	• *1		<u> </u>	LOCKOUT STOP PUSH-BUTTON		PHOTOCELL	86	LOCKOUT RELAY	WH)	WATT/WATT HOUR TRANSDUCER	ORIGINAL
⊗ 24" W.	INSTRUMENT	\$\$	LIGHTNING AND SURGE ARRESTOR	<b>-</b> ~ ~ ~	NORMALLY OPEN DELAY ON MAKE		GENERATOR	87	DIFFERENTIAL PROTECTIVE RELAY	WH	WATT-HOUR METER	
	CABLE TRAY, LADDER TYPE, WIDTH AS INDICATED	100A	FUSED SWITCH — SWITCH AND FUSE CURRENT RATING		NODWALLY GLOCE DELAY ON MIKE	(G)	GENERATOR			WHD	WATT HOUR DEMAND/WATT HOUR METER	Z 4
<del># # #</del>	MULTI-OUTLET ASSEMBLY		INDICATED. 3 POLE UNLESS INDICATED OTHERWISE  FUSED TERMINAL BLOCK	→ To-	NORMALLY CLOSE DELAY ON MAKE			51 FOTDIO	1		HOOK METER	REVISION IS ONE
<del>* * *</del>	ABANDON CONDUIT & REMOVE CONDUCTORS	——————————————————————————————————————	CAPACITOR — KVAR INDICATED		NORMALLY CLOSE DELAY ON BREAK			ELECTRICA	AL ABBREVIATIONS			E BAR R
M	MOTOR, SQUIRREL CAGE INDUCTION—HORSEPOWER INDICATED ON ONE LINE. NUMBER INDICATES HORSEPOWER.	<u> </u>	GROUND	-0_0-	NORMALLY OPEN DELAY ON BREAK	AC /	AMPERAGE GALV ALTERNATING CURRENT GEN AIR CONDITIONING UNIT GFCI	GALVANIZED GENERATOR GROUND FAULT CIE		: RAMMABLE LOGIC CON' MOUNTED TRANSFORME		SCALE
MCD	MANUFACTURER SUPPLIED PACKAGE INCLUDES LOCAL COMBINATION STARTER, MOTOR AND CONTROL PANEL.	uuu m	TRANSFORMER	<b>—</b>	BASIC RELAY SYMBOL	AFF /	NR CONDITIONING ONLY  BBOVE FINISH GRADE  H  HIR HANDLING UNIT  HSP	GROUND FAULT RE HORN HOUSEKEEPING PA	(LAY PMGR PAD I PP POWE	MOUNTED SWITCHGEAR R PANEL ETTING RELAY(TIMER)	•	
MSP	NUMBER INDICATES HÖRSE POWER.	480V		*	*RELAY FUNCTIONS: ALT = ALTERNATOR	AIC /	NALYZER INDICATING CAPACITY  HDG  NALYZER INDICATING TRANSMITTER  HID  NALOG JUNCTION BOX  HH	HOT DIPPED GALVA HIGH INTENSITY DI HAND HOLE	ANIZED PSI POUN SCHARGE PT POTEN	DS PER SQUARE INCH ITIAL TRANSFORMER		No.
X	LUMINAIRE, TYPE AS NOTED		CONTROL POWER TRANSFORMER - VOLTAGES. INDICATED.		CR = CONTROL RELAY TR = TIMING RELAY M = MOTOR CONTACTOR	AM A	MMETER HOA NNUNCIATOR HPS MERICAN NATIONAL STANDARD INSTITUTE HS	HAND OFF AUTOMA HIGH PRESSURE S HAND SWITCH	ODIUM PWR POWE			
├── <b>○</b> <sub>A</sub>	LUMINAIRE FLUORESCENT, TYPE AS NOTED	ulu	DOWED DISTRIBUTION TRANSFORMED VOLTAGES AND DATING		ALARM INDICATING DEVICE: BZ = BUZZER CH = CHIME	APP. EQ. /	RPPROVED EQUAL HV ICHMPMETER SWITCH IC RUTOMATIC TRANSFER SWITCH IGV	HIGH VOLTAGE INTERRUPTING CAP INLET GUIDE VANE	REQD REQU	RSE		l <sub></sub>
<b>■</b>	LUMINAIRE AND POLE, TYPE AS NOTED	2000KVA 4160/480V	POWER DISTRIBUTION TRANSFORMER VOLTAGES AND RATING INDICATED.	(CON		AUTO /	NUTOMATIC INCAND NUXILIARY INST INB	INCANDESCENT INSTANTANEOUS INBOARD	RLY RELAY RS RIGID		PANSFORMER	ARD ET 1
- □ <sub>A</sub>	LUMINAIRE AND POLE, TIPE AS NOTED	4100/4000		( <u>`</u> R())	ALARM HORN AND BEACON	BYZ V	SLOWER FILTER MOTOR VINDOW CURRENT TRANSFORMER KS SONDUIT KVA	JUNCTION BOX KEY INTERLOCK KEY SWITCH	RVNR REDU RVR REDU	CED VOLTAGE NON-RE DE VOLTAGE REVERSIN DE VOLTAGE SOLID ST	VERSING G	S BO PACKE
$\mathcal{A}$	WALL MOUNTED LUMINAIRE, TYPE AS NOTED	<u></u>	SHIELDED ISOLATED TRANSFORMER VOLTAGES AND RATING INDICATED	-⊗⊗-	TERMINALS FOR FIELD OR REMOTE WIRING CONNECTIONS. DEVICES LOCATED BETWEEN THESES SYMBOLS ARE LOCATED IN THE	C	AND CONTROL OF CONTROL	KILOVOLT—AMPERE KILOWATT LIGHTING PANEL LIGHTNING ARRESTI	RTD RESIS RTU REMO	TANCE TEMP DETECTOR TE TERMINAL UNIT HOID VALVE		PUBLIC UTILITIES REHABILITATION PAR RICAL LEGENI O SYMBOLS
°	FLOODLIGHTS AIM IN DIRECTION SHOWN, TYPE		PUSH-BUTTON SWITCH - MOMENTARY CONTACT. NORMALLY OPEN	~MV-	FIELD OR REMOTELY.  MOTOR OR STARTER ENCLOSURE SPACE HEATER	CB CC	CIRCUIT BREAKER LC CONTROL CABLE	LIGHTING CONTACTI	OR SA SURG ANEL SC SHOR	E ARRESTOR I CIRCUIT RITY CARD READER		LEC FAILE
_	CONVENIENCE RECEPTACLE-DUPLEX UNLESS SPECIFIED OTHERWISE	<u> </u>	PUSH-BUTTON SWITCH - MOMENTARY CONTACT. NORMALLY CLOSED		BATTERY	CHH C	COMMUNICATIONS HAND HOLE LIT CONTROL JUNCTION BOX	LEVEL ELEMENT LEVEL INDICATING LEVEL LOW LOCKO LOCKOUT	TRANSMITTER SCCR CURR UT SCADA SUPEI	ENT RATING RVISORY CONTROL AND	)	ĬċË 츫홈
Ж	C = CLOCK HANGER CR = CORROSION RESISTANT EWC = WATER COOLER	- <del>-</del>	PUSH-BUTTON SWITCH - MAINTAINED CONTACTS WITH MECHANICAL INTERLOCK		COURT OFFICE OUGH, AS DESTIFIED	CLD C	CONDUIT MARKER LR	LOCAL PROCESSING LATCH RELAY	G UNIT SCU SPEEL SEC SECO			TILE PUBLIC IN REHABILIT. ECTRICAL AND SYME
H	TL = TWIST LOCK WP = WEATHERPROOF GFCI = GROUND FAULT CIRCUIT INTERRUPTER	ofo		*	SOLID STATE DEVICE SUCH AS RECTIFIER OR SCR DRIVE.	CO C	CONDUIT ONLY LS,LMS CONCRETE PULL BOX	LOCKED ROTOR CU LIMIT SWITCH LEVEL SWITCH	SPD SURG SRV SURG	LY FAN E PROTECTION DEVICE E RELIEF VALVE		
Ш	RECEPTACLE - 240V, 1PH OR 208V., 1PH	OFF	SELECTOR SWITCH-MAINTAINED CONTACT. CHART DEFINES OPERATION:	OR OR	CONTROL STATION	CR C	CONTROL RELAY LSH	LIMIT SWITCH VALV LEVEL HIGH SWITC LEVEL LOW SWITCH	H SW NETWI	LESS STEEL DRK SWITCH H GEAR		WNSVILLE STATION   ELECTI
₩/ <b>⊕</b>	RECEPTACLE — 480V, 3PH OR 208V., 3PH	POLE 1 XOO	POLE LOCAL OFF REMOTE X = CLOSED CONTACT	нт	HEAT TRACE	CTRL C	ONTROL SWITCH LSL SURRENT TRANSFORMER LSO CONTROL LTG CONTROL LV CONDENSING UNIT	LIMIT SWITCH VALV LIGHTING LOW VOLTAGE	T THER	H MOSTAT NAL BOX		STA El
ı	JUNCTION BOX	POLE 2 OOX	1 X 0 0 0 0 = OPEN CONTACT			DF I	DIRECT CURRENT  PRINKING FOUNTAIN  M  DIFFERENTIAL RELAY  M  MB	MAGNETIC CONTACT ELECTRIC MOTOR MAIN CONTACTOR	TD TIME AUXILIARY TDC TIME	DELAY DELAY CLOSING DELAY ENERGIZED		BRO
<del>6</del> 50	THERMOSTAT				FLOAT SWITCH	DTL	DISCONNECT SWITCH MB DETAIL MCC DETAIL MIN DETAIL MIN DETAIL MJB	MOTOR BEARING MOTOR CONTROL ( MINUTES	CENTER TDO TIME TJB TERMI	DELAY OPENING NAL JUNCTION BOX		_
lack	TELEPHONE/DATA OUTLET			$\triangle$		EF E	EXHAUST FAN MSC LECTRIC HAND HOLE MTS	MOTOR JUNCTION MANUFACTURES SU MANUAL TRANSFER	IPPLIED CABLE TR TIMER SWITCH TRN TRANS	ED PAIR FORMER		
$\otimes$	INSTRUMENT	Ĭ\		<b>P</b>		EI E	ELECTRICAL INTERRUPT MH ELECTRIC MANHOLE MHO EXPLOSION BROOF MLO	MERCURY VAPOR METAL HALIDE MAIN LUGS ONLY	TSO VALVE TSP TWIST	TORQUE SWITCH CLO TORQUE SWITCH OPE ED SHIELDED PAIR	DIRECTION EN DIRECTION	
□	NON FUSED DISCONNECT		COMBINATION STARTER DISCONNECT		3-ROD LIGHTNING GROUND	ETM E	LAPSED TIME METER MOV LAPSED TIME METER MRP LACH WAY N	MOTOR OPERATED MOTOR PROTECTION NEUTRAL GROUNDE	n relay tx trans :D ug unde	ED SHIELDED TRIAD SFORMER RGROUND		(0)
$\mathbb{Z}_{h}$	FUSED DISCONNECT	\frac{1}{5}		<b>e</b>	ADOVE CRADE TAIL FOR FOLIRMENT COMMECTION	EWH EXF	ELECTRIC WATER HEATER EXHAUST FAN NA FORWARD NC	CONDUCTOR NON-AUTOMATIC NORMALLY CLOSED	UH UNIT	RGROUND TELEPHONE HEATER 'ERRUPTIBLE POWER S	SUPPLY	BARNES MILKS LI, P.E.
⊠₁	LOCAL COMBINATION (IN FIELD) MAGNETIC STARTER WITH THERMAL OVERLOAD	[ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \			ABOVE GRADE TAIL FOR EQUIPMENT CONNECTION. TO BE LOCATED FOR PROPER EQUIPMENT ENTRANCE. PENETRATION THRU CONCRETE TO HAVE SCHEDULE 80 PVC PIPE SEGMENT.	FCV F	LOW CONTROL VALVE NF LOW INDICATING TRANSMITTER NO TOW TRANSMITTER OB	NON-FUSED NORMALLY OPEN OUTBOARD	UV UNDE V VOLT	RVOLTAGE ALTERNATING CURREI		UST X B
30 <u></u>	NON FUSED DISCONNECT SWITCH-SIZE INDICATED. 3 POLE UNLESS INDICATED OTHERWISE.	•	GROUNDING CONNECTION EXOTHERMIC OR COMPRESSION			FLA FLUO	TULL LOAD AMPERE OC TUORESCENT OHD TEEDER MANAGEMENT RELAY OL	OVERCURRENT OVERHEAD DOOR OVERLOAD	VDC VOLTS VCB VACUI VCR VALVE	DIRECT CURRENT JM CIRCUIT BREAKER CLOSE RELAY		: AUGl gned: m:
L	LIGHTNING MAST		AL NOTES:		LEGEND:	FO F FQI F FU F	FIBER OPTIC OPDU FLOW INTEGRATED TOTALIZER OV FUSE PR	OVERALL POWER DOVERVOLTAGE PUSHBUTTON	ISTRIBUTION UNIT VF VARIA VFD VARIA VM VOLTM	BLE FREQUENCY BLE FREQUENCY DRIVE METER	<u> </u>	Date: Desig Draw Revie
<b>©</b>	TEST WELL WITH GROUND ROD CONNECTION 5/8" X 8' LONG		ECTRICAL DETAILS AND STANDARD DETAILS SHOWN APPLY T L EQUIPMENT AND MATERIALS PROVIDED ON THIS PROJECT.		MODIFIED	FVR I	TULL VOLTAGE NON-REVERSING PB FULL VOLTAGE REVERSING PBR FREEN INDICATING LIGHT PC	PUSHBUTTON PULLBOX PUMP—BEARING RE PHOTOCELL	VP VAPOI TLAY VOR VALVE VS VOLT	R PROOF OPEN RELAY METER SWITCH		SHEET
<u> </u>	GROUND TEST WELL, REFER TO STANDARD DETAIL		ONTRACTOR SHALL VISIT PROJECT SITE AND BECOME FAMILIATH ALL EXISTING CONDITIONS BEFORE SUBMITTING BID.	AR	——— NEW		RREEN INDICATING LIGHT PC PC PFCC	PERSONAL COMPU	TER W WIRE DRRECTION CAPACITOR WHD WATT	OR WITH HOUR DEMAND METER IER PROOF	•	E-1
	SHOOTS TEST THEE, NEIGH TO STANDARD DETAIL	WI			EXISTING	I			XFMR TRANS	SFORMER		SHEET 30 OF



KEY NOTE (X)

A. 24VDC POWER PANEL (SEI POWER 900/24-N4-P 900W, 37.SA, NEMA 4X, SS

CUSTOM)
PROVIDE MOTOR CIRCUIT CT SWITCH TO
DETECT LOW CURRENT FOR WELL FLUSH
CONTROL. COORDINATE WITH PUMP
MANUFACTURER FOR CT SETTING.

- 1. PROVIDE 90° C WIRING FOR ALL FULL RATED BREAKERS.
- 2. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING THE UTILITY SERVICE INSTALLATION, AND PERFORM ALL WORK REQUIRED BY THE UTILITY COMPANY INCLUDING CONDUIT INSTALLATION, SITE WORK, FLATWORK, METERING.

  3. UTILITY CONDUCTORS SHALL BE INSTALLED AND TERMINATED BY THE UTILITY COMPANY.

MARK	EQUIPMENT	LIFT STATION #9
	STATION VOLTAGE	277/480, 3 PHASE
A	MAIN SERVICE #1 600A FUSED SWITCH NEMA 4X SS HEAVY DUTY RATED	600 AMP / 3 POLE
B	MAIN SERVICE #2 600A FUSED SWITCH NEMA 4X SS HEAVY DUTY RATED	600 AMP / 3 POLE
0	AUTOMATIC TRANSFER SWITCH NEMA 1 ASCO, NO EQUALS	600 AMP / 4 POLE 4 SWITCHED NEUTRAL
0	PUMP SOFT STARTER (TYP OF 2)	NEMA SIZE 5
Ē	PUMP SIZE (TYP OF 2)	110 HP
F	FUTURE SOFT START	
1	SERVICE ENTRANCE 1	3#400, 1#400N IN EACH OF 2-4"C
2	SERVICE ENTRANCE 1	3#400, 1#400N IN EACH OF 2-4"C
3	ATS FEEDER (MAIN SERVICE #1)	4#400, 1#4/0G IN EACH OF 2-4"C
4	ATS FEEDER (MAIN SERVICE #2)	4#400, 1#4/0G IN EACH OF 2-4"C
5	SERVICE ENTRANCE 2	3#400, 1#400N IN EACH OF 2-4"C
6	SERVICE ENTRANCE 2	3#400, 1#400N IN EACH OF 2-4"C
7	PANEL 'M' FEEDER	4#400, 1#4/0G IN EACH OF 2-4"C
8	AC UNIT FEEDER	4#6, 1#6G IN A 1 1/2" C
9	PANEL 'LP' TRANSFORMER FEEDER	2#4, 1#4G IN A 1 1/2" C
10	PUMP SOFT START FEEDER (TYP OF 2)	3#4/0, 1#4/0G IN A 3" C
11	PUMP JUNCTION BOX FEEDER (TYP OF 2)	3#4/0, 1#4/0G IN A 3" C
12	PUMP CABLE	MFG CABLE
13	ODOR CONTROL FEEDER	4#10, 1#10G IN 2" C
14	PANEL 'LP' FEEDER	3#2, 1#2G IN A 2"C
15	SPARE	3"C

					PANE	L: LP					
1 PH 3 WIRE						VOLTA	GE L-	L-240 L-N:120 MAIN 150	A MCB		
	LOC	ATION:	LS #9 ELECTRICAL BUILDING		PH	PH		MOUNTING SURFAC	E		
CKT#	BKR	POLE	DESCRIPTION	VA	Α	В	VA	DESCRIPTOION	POLE	BKR	CKT#
1	20	1	MAGNETIC FLOWMETER	500	2580		2080	WELDING REC.	2	30	2
3	20	1	EXTERIOR BUILDING REC.	360		2440	2080	WELDING REC.	2	30	4
5	20	1	INTERIOR BUILDING REC.	360	360		2000	AC UNIT	2	30	6
7	20	1	INTERIOR LIGHTING	140		140	2000	AC ONT	~	30	8
9	20	1	WALLPACK LIGHT	50	50			SPARE	1	20	10
11	20	1	MECHANICAL PANEL	400		400		SPARE	1	20	12
13	20	1	24V POWER SUPPLY	180	180			SPARE	1	20	14
15	20	1	SITE LIGHTING	500		500		SPARE	1	20	16
17	20	1	SITE LIGHTING	500	500			SPARE	1	20	18
19	20	1	SPARE			0		SPARE	1	20	20
21	20	1	SPARE		0			SPARE	1	20	22
23	20	1	SPARE			0		SPARE	1	20	24
25	20	1	SPARE		0			SPARE	1	20	26
27	20	1	SPARE			0		SPARE	1	20	28
29	20	1	SPARE		0			SPARE	1	20	30
TOTAL LOAD(VA)/PHASE THIS PANEL:					5670	5480		•	•		

TOTAL CONNECTED LOAD(VA) THIS PANEL: TOTAL DEMAND LOAD(VA) THIS PANEL:

11150 11150

TOTAL CONNECTED LOAD(A): TOTAL DEMAND LOAD(A) THIS PANEL:

### NOTES:

- 1. 10 K.A.I.C.
- 2. NEMA 1
- 3. NEUTRAL+GROUND BUS 4. PROVIDE WITH MFG. STANDARD INTERNAL SPD

Date: AUGUST 2022	Designed: L. LIANG, P.E.	Drawn: G. MILKS	Reviewed: L. LI, P.E.	CP&Y Proj. No.BPUB173			
	OUEET						

CP&Y, INC. IEXS REGISTERD ENGINEERING FIRM

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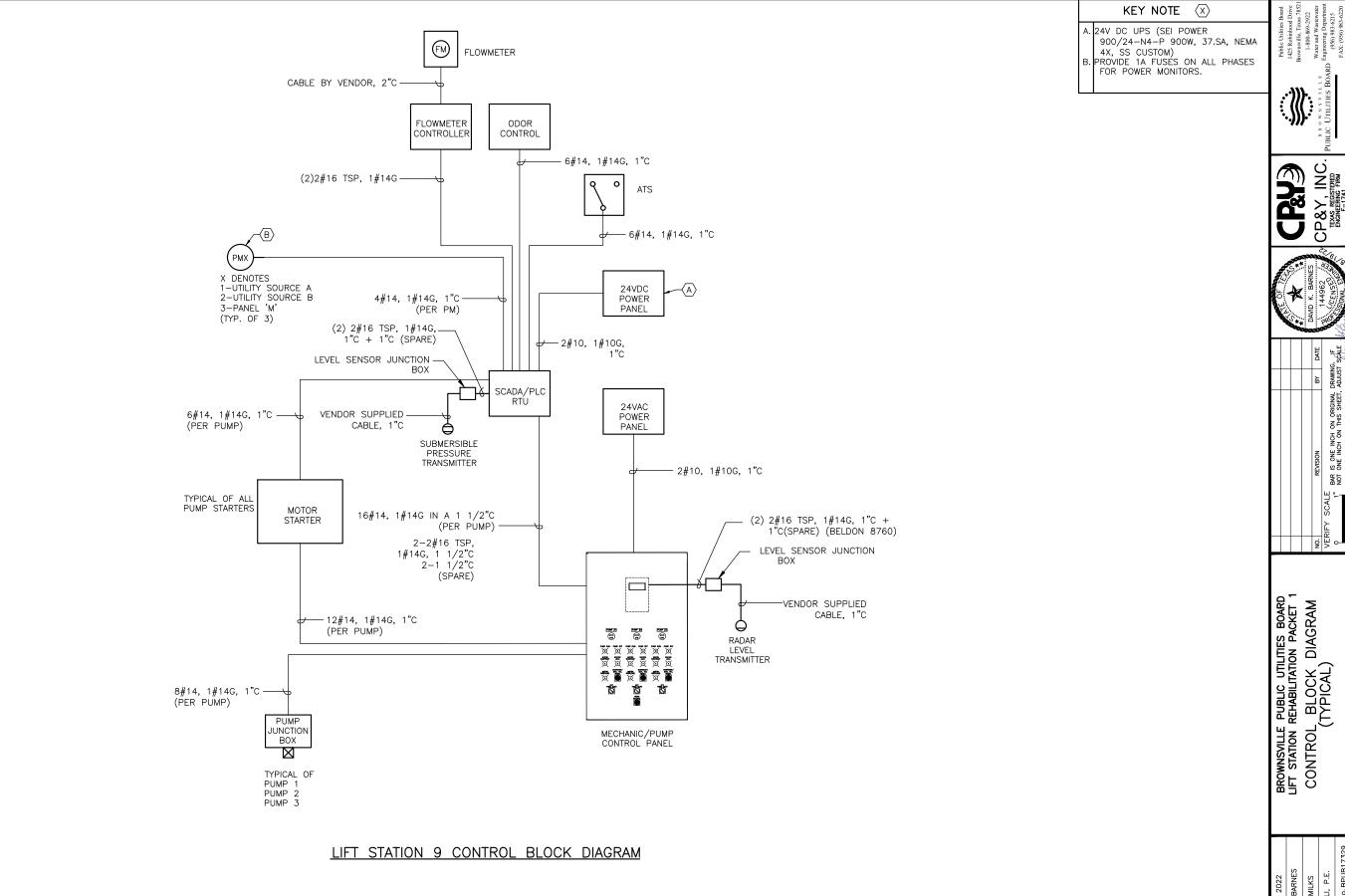
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LIFT STATION 9 ELECTRICAL ONE—LINE DIAGRAM

BROWNSVILLE PUBLIC UTILITIES BOARD LIFT STATION REHABILITATION PACKET 1

SHEET

SHEET 31 OF 52

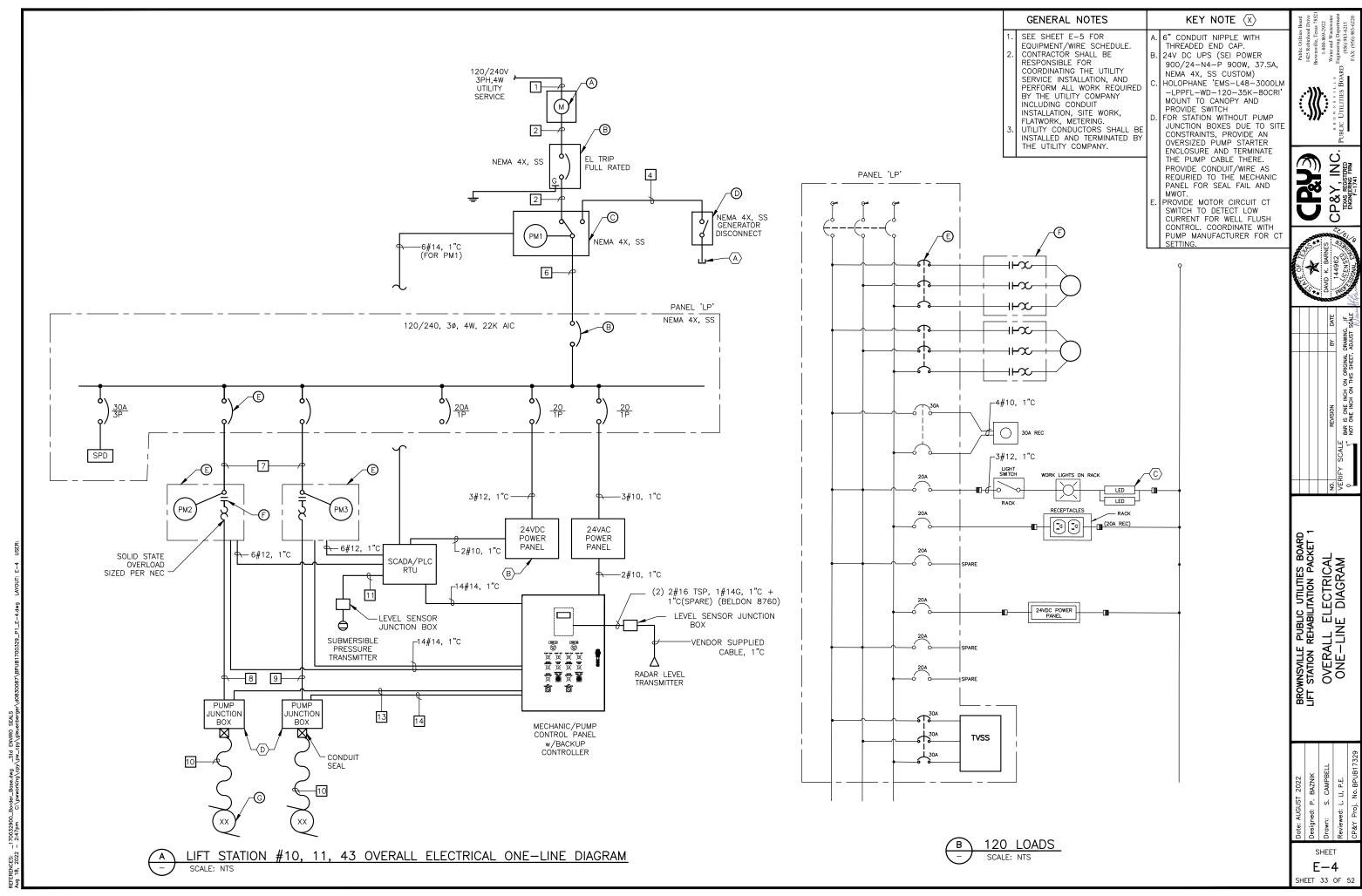


Designed: K. BARNES
Designed: K. BARNES
The Drawn: G. MILKS
Reviewed: L. LI, P.E.

SHEET

E-3

SHEET 32 OF 52



			LIFT STATION #	
		10	11	43
MARK	EQUIPMENT			
	STATION VOLTAGE	120/240, 3 PHASE	120/240, 3 PHASE	120/240, 3 PHASE
Α	METER	200 AMP	200 AMP	200 AMP
В	MAIN BREAKER	200 AMP / 3 POLE	100 AMP / 3 POLE	100 AMP / 3 POLE
С	MANUAL TRANSFER SWITCH	200 AMP / 3 POLE	100 AMP / 3 POLE	100 AMP / 3 POLE
D	GENERATOR DISCONNECT	200 AMP / 3 POLE	100 AMP / 3 POLE	100 AMP / 3 POLE
E	PUMP BREAKER (TYP. OF 2)	80 AMP / 3 POLE	30 AMP / 3 POLE	30 AMP / 3 POLE
F	PUMP STARTER SIZE (TYP.OF 2)	NEMA SIZE 2	NEMA SIZE 1	NEMA SIZE 1
G	PUMP SIZE (TYP. OF 2)	15 HP	5 HP	5 HP
	WIRE			
1	SERVICE ENTRANCE	4#4/0, 1#2G 2 1/2"C	4#2, 1#2G 1 1/2"C	4#2, 1#2G 1 1/2"C
2	SERVICE ENTRANCE	4#4/0, 1#2G 2 1/2"C	4#2, 1#2G 1 1/2"C	4#2, 1#2G 1 1/2"C
3	ATS FEEDER (NORMAL POWER)	4#4/0, 1#2G 2 1/2"C	4#2, 1#2G 1 1/2"C	4#2, 1#2G 1 1/2"C
4	ATS FEEDER (GENERATOR POWER)	4#4/0, 1#2G 2 1/2"C	4#2, 1#2G 1 1/2"C	4#2, 1#2G 1 1/2"C
5	STUB OUT FOR GENERATOR CONNECTION	2"	2"	2"
6	PANEL LP	4#4/0, 1#2G 2 1/2"C	4#2, 1#2G 1 1/2"C	4#2, 1#2G 1 1/2"C
7	PUMP FEEDER (TYP OF 2)	3#4, 1#2G 2"C	3#10, 1#10G 1"C	3#10, 1#10G 1"C
8	PUMP JUNCTION BOX FEEDER #2	3#4, 1#2G 2"C	3#10, 1#10G 1"C	3#10, 1#10G 1"C
9	PUMP JUNCTION BOX FEEDER #2	3#4, 1#2G 2"C	3#10, 1#10G 1"C	3#10, 1#10G 1"C
10	PUMP CABLE	MFG CABLE, 2"	MFG CABLE, 2"	MFG CABLE, 2"
11	SUBMERSIBLE TRANSMITTER CABLE	MFG CABLE, 1"	MFG CABLE, 1"	MFG CABLE, 1"
12	ULTRASONIC TRANSMITTER	MFG CABLE, 1"	MFG CABLE, 1"	MFG CABLE, 1"
13	PUMP 1 CONTROL SIGNALS	8#14, 1"C	8#14, 1"C	8#14, 1"C
14	PUMP 2 CONTROL SIGNALS	8#14, 1"C	8#14, 1"C	8#14, 1"C
15	SCADA ANTENNA CABLE	CAT6, 1"	CAT6, 1"	CAT6, 1"

LIFT STATIONS 10, 11 & 43 EQUIPMENT WIRE SCHEDULE

Public Utilities Board
1428 Robinhood Drive
Brownsville, Texas 78521
1-800-869-222
Water and Wastewater
Frini noeviting Drawtmourt

1425 R Brownsv 1-8

B R O W N S V I L L

P&Y, INC. PUB.

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BAR IS ONE INCH ON ORIGINAL DRAWING. JF
NOT ONE INCH ON THIS SHEET, ADJUGT SQUEEN

BROWNSVILLE PUBLIC UTILITIES BOARD LIFT STATION REHABILITATION PACKET 1 EQUIPMENT WIRE SCHEDULE

Designed: P. BAZNIK Drawn: S. CAMPBELL Reviewed: L. Ll, P.E.

SHEET

E-5

SHEET 34 OF 52

### INTERNATIONAL SOCIETY OF AUTOMATION (ISA) TABLE

			O ACTOMATION (	,			
	FIRST LETTERS		SUCCEEDING LETTERS				
	MEASURED OR INITIATING VARIABLE	VARIABLE MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT/ACTIVE FUNCTIO	N FUNCTION MODIFIER		
Α	ANALYSIS		ALARM				
В	BURNER, COMBUSTION		USER'S CHOICE (+)	USER'S CHOICE (+)	USER'S CHOICE (+)		
С	USER'S CHOICE (+)			CONTROL	CLOSE		
D	USER'S CHOICE (+)	DIFFERENTIAL			DEVIATION		
Ε	VOLTAGE		SENSOR, PRIMARY ELEMENT				
F	FLOW, FLOW RATE	RATIO (FRACTION)					
G	USER'S CHOICE (+)		GLASS, GAUGE, VIEWING DEVI	CE			
Н	HAND				HIGH		
1	CURRENT (ELECTRICAL)		INDICATE				
J	POWER		SCAN				
K	TIME, TIME SCHEDULE	TIME RATE OF CHANG	E	CONTROL STATION			
L	LEVEL		LIGHT		LOW		
М	MOTOR				MIDDLE, INTERMEDIATE		
N	USER'S CHOICE (+)		USER'S CHOICE (+)	USER'S CHOICE (+)	USER'S CHOICE (+)		
0	USER'S CHOICE (+)		ORIFICE, RESTRICTION	,	OPEN		
Р	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			
V	VIBRATION, MECH. ANALYSIS			VALVE, DAMPER, LOUVER			
w	WEIGHT, FORCE		WELL, PROBE				
X	UNCLASSIFIED (+)	X-AXIS	ACCESSORY DEVICES, UNCLASSIFIED (+)	UNCLASSIFIED (+)	UNCLASSIFIED (+)		
Y	EVENT, STATE, PRESENCE	Y-AXIS		AUXILLARY DEVICES (RELA COMPUTE, CONVERT)	ΥY,		
Z	POSITION, DIMENSION	Z-AXIS		DRIVER, ACTUATOR, UNCLASSIFIED FINAL CONTROL ELEMENT			

### ISA INSTRUMENT IDENTIFICATION

	PRIMARY LOCATION NORMALLY ACCESSIBLE TO OPERATOR (2)	FIELD MOUNTED	AUXILIARY LOCATION NORMALLY ACCESSIBL TO OPERATOR (2)
DISCRETE INSTRUMENTS	$\bigcirc$		
SHARED DISPLAY, SHARED CONTROL			
COMPUTER FUNCTION	$\longrightarrow$	$\bigcirc$	$\ominus$
PROGRAMMABLE LOGIC CONTROL			
		INSTRUMENT WITH LONG TAG NUMBERS	INSTRUMENTS SHARIN COMMON HOUSING
	PILOT LIGHT	C 12 PANEL MOUNTED PATCHBOARD POINT 12	PURGE OR FLUSHING DEVICE
	R	M	
	RESET FOR LATCH— TYPE ACTUATOR	DIAPHRAGM SEAL	UNDEFINED INTERLOCK LOGIC

- (1) ABBREVIATIONS OF THE USER'S CHOICE SUCH AS IP1 (INSTRUMENT PANEL #1), IC2 (INSTRUMENT CONSOLE #2), CC3 (COMPUTER CONSOLE #3), ETC., MAY BE USED WHEN IT IS NECESSARY TO SPECIFY INSTRUMENT OR FUNCTION LOCATION.
- (2) NORMALLY INACCESSIBLE OR BEHIND THE PANEL DEVICES OR FUNCTIONS MAY BE DEPICTED BY USING THE SAME SYMBOLS BUT WITH DASHED HORIZONTAL BARS, I.E.



### WHEN USED, EXPLANATION IS SHOWN ADJACENT TO INSTRUMENT SYMBOL. SEE ABBREVIATIONS AND LETTER SYMBOLS.

### PROCESS SYMBOLS

PLUG VALVE

CHECK VALVE

PUMP

MIXER

HOSE BIB

( ) [

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 $\phi$ 

M

BUTTERFLY VALVE

PRIMARY ELEMENT

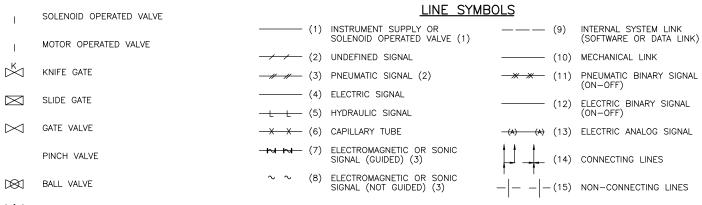
AIR RELEASE VALVE

MAGNETIC FLOW METER

THERMAL DISPERSION FLOW METER

MOTOR-ARROW DENOTES MODULATED

TRANSIT TIME OR DOPPLER SONIC FLOW METER



#### **GENERAL NOTES**

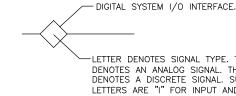
(1) THE FOLLOWING ABBREVIATIONS ARE SUGGESTED TO DENOTE THE TYPES OF POWER SUPPLY. THESE DESIGNATIONS MAY ALSO BE APPLIED TO PURGE FLUID SUPPLIES.

WS - WATER SUPPLY

AS - AIR SUPPLY HS — HYDRAULIC SUPPLY NS — NITROGEN SUPPLY SS — STEAM SUPPLY IA - INSTRUMENT AIR OPTIONS PA - PLANT AIR ES - ELECTRIC SUPPLY

GS - GAS SUPPLY THE SUPPLY LEVEL MAY BE ADDED TO THE INSTRUMENT SUPPLY LINE, E.G., AS-100, 100-PSIG AIR SUPPLY: ES-24DC, A 24-VOLT DIRECT CURRENT POWER SUPPLY.

- (2) THE PNEUMATIC SIGNAL SYMBOL APPLIES TO A SIGNAL USING ANY GAS AS THE SIGNAL MEDIUM. IF A GAS OTHER THAN AIR IS USED, THE GAS MAY BE IDENTIFIED BY A NOTE ON THE SIGNAL SYMBOL OR OTHERWISE.
- (3) ELECTROMAGNETIC PHENOMENA INCLUDE HEAT, RADIO WAVES, NUCLEAR RADIATION AND LIGHT.



-LETTER DENOTES SIGNAL TYPE. THE LETTER "A" DENOTES AN ANALOG SIGNAL. THE LETTER "D" DENOTES A DISCRETE SIGNAL. SUCCEEDING LETTERS ARE "I" FOR INPUT AND "O" FOR OUTPUT. THE LETTER "FO" DENOTES FIBER OPTIC

### HAND SWITCH ABBREVIATIONS

HAND SWILL	AL ADDIVENIATION
H/O/A	HAND/OFF/AUTO
L/0/C	LOCAL/OFF/COMPUTER
L/O/R	LOCAL/OFF/REMOTE
0/C/S	OPEN/CLOSE/STOP
L/C	LOCAL/COMPUTER
L/R	LOCAL/REMOTE
0/C	OPEN/CLOSE
A/H	AUTO/HAND
L/A	LOCAL/AUTO
0/0/C	ON/OFF/COMPUTER
N/B	NORMAL/BYPASS

### **GENERAL ABBREVIATIONS**

AIR SUPPLY

CL	CLOSE
CMD	COMMAND
COM CPU	COMMUNICATION CENTRAL PROCESSOR UNIT
DC	DIRECT CURRENT
DCU	DISTRIBUTED CONTROL UNIT
EFF	EFFLUENT
ES	ELECTRIC SUPPLY
ETM	ELAPSED TIME METER
FC	FAIL CLOSE
FE	FLOW ELEMENT
FIT FLP	FLOW INDICATOR TRANSMITTER FAIL LAST POSITION
FO	FAIL OPEN
FOC	FIBER OPTIC CABLE
FOM	FIBER OPTIC MODEM
FOPP	FIBER OPTIC PATCH PANEL
FREQ	FREQUENCY
FS FWD	FLOW SWITCH FORWARD
HDC	HISTORICAL DATA COLLECTION
HMI	HUMAN MACHINE INTERFACE
IND	INDICATION
INF	INFLUENT
10	INPUT OUTPUT
IPC	INDUSTRIAL PERSONAL COMPUTER
LAH LAHH	LEVEL ALARM HIGH HIGH
LCP	LEVEL ALARM HIGH HIGH LOCAL CONTROL PANEL
LE	LEVEL ELEMENT
LI	LEVEL INDICATOR
LIT	LEVEL INDICATOR TRANSMITTER
LS	LEVEL SWITCH
LSH LSL	LEVEL SWITCH HIGH LEVEL SWITCH LOW
MC	MOTOR CONTROLLER
MCC	MOTOR CONTROL CENTER
MCP	MASTER CONTROL PANEL
NC	NORMALLY CLOSED NORMALLY OPEN
NO	NORMALLY OPEN
OEM	ORIGINAL EQUIPMENT MANUFACTURE
OIU OP	OPERATOR INTERFACE UNIT OPEN
ORP	OXIDATION REDUCTION POTENTIAL
OWS	OPERATOR WORK STATION
PE	PRESSURE ELEMENT/SENSOR
PI	PRESSURE INDICATOR PRESSURE INDICATOR TRANSMITTER
PIT	PRESSURE INDICATOR TRANSMITTER
PLC	PROGRAMMABLE LOGIC CONTROLLER
POS	POSITION PRESSURE
PRES PS	POWER SUPPLY
PSH	PRESSURE SWITCH HIGH
PSL	PRESSURE SWITCH LOW
RE	REFERENCE
REV	REVERSE
RIO	REMOTE INPUT OUTPUT
RTU	REMOTE TERMINAL UNIT
SE	SPEED CLEMENT/SENSOR
SC STPT	SPEED / POSITION CONTROL SETPOINT
SIK	SPEED INDICATE CONTROL STATION
SI	SPEED/POSITION INDICATION
SL	SLUDGE
SW	ETHERNET SWITCH
TE	TEMPERATURE ELEMENT/SENSOR
TIT	TEMPERATURE INDICATOR
TDANCMITT	TED

UNINTERRUPTIBLE POWER SUPPLY ULTRAVIOLET

VARIABLE FREQUENCY DRIVE

EVENT ALARM EVENT INDICATION

OPEN LIMIT SWITCH

EVENT SWITCH CLOSE LIMIT SWITCH

VFD

YΑ

YL

ZS0









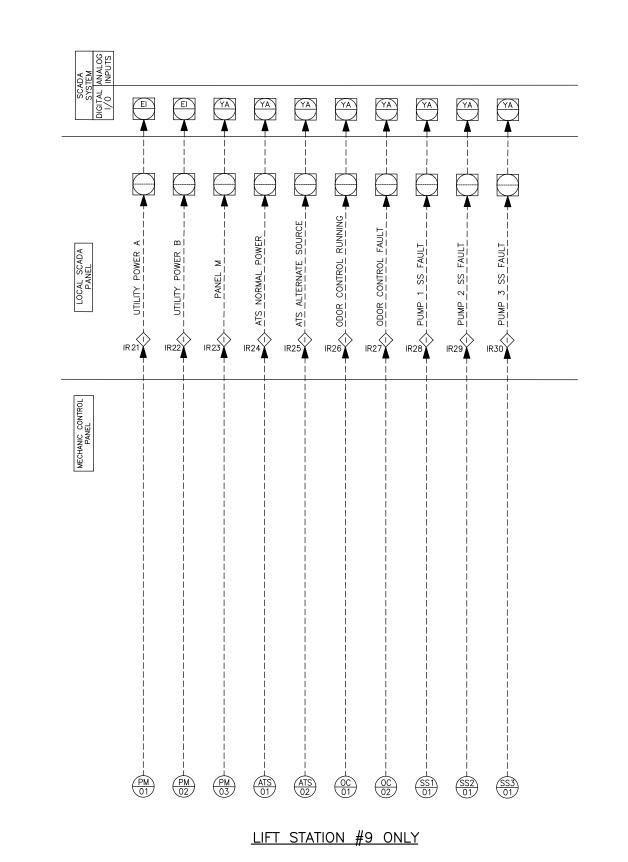


BAR

TIES BOARD IN PACKET SYMBOL! LEGEND BROWNSVILLE LIFT STATION F P&ID LEGE

SHEET E-6SHEET 35 OF 52

MICROWAVE SOLIDS SENSOR



BROWNSVILLE PUBLIC UTILITIES BOARD LIFT STATION REHABILITATION PACKET 1 LIFT STATION P&ID

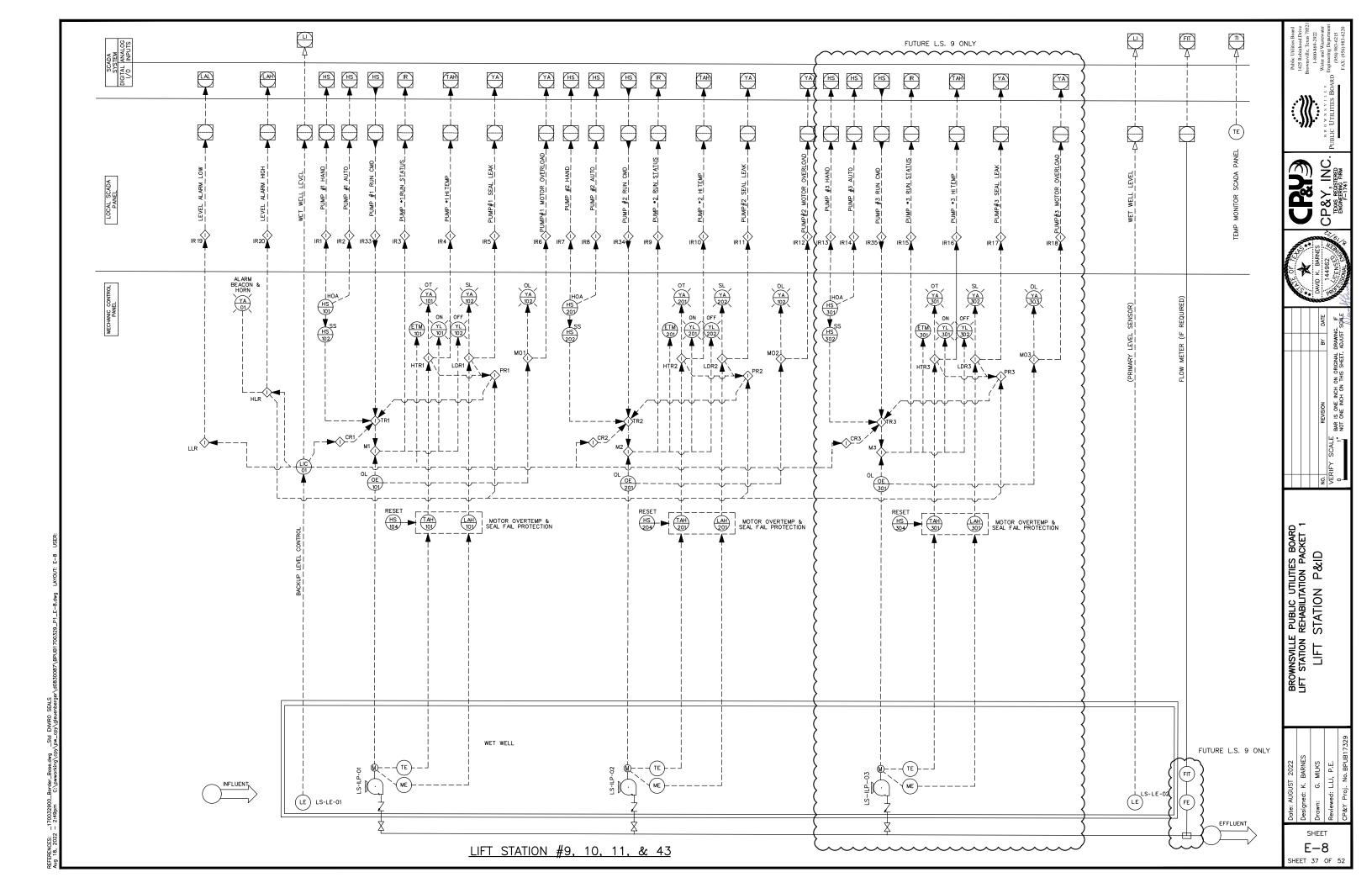
CP&Y, INC.

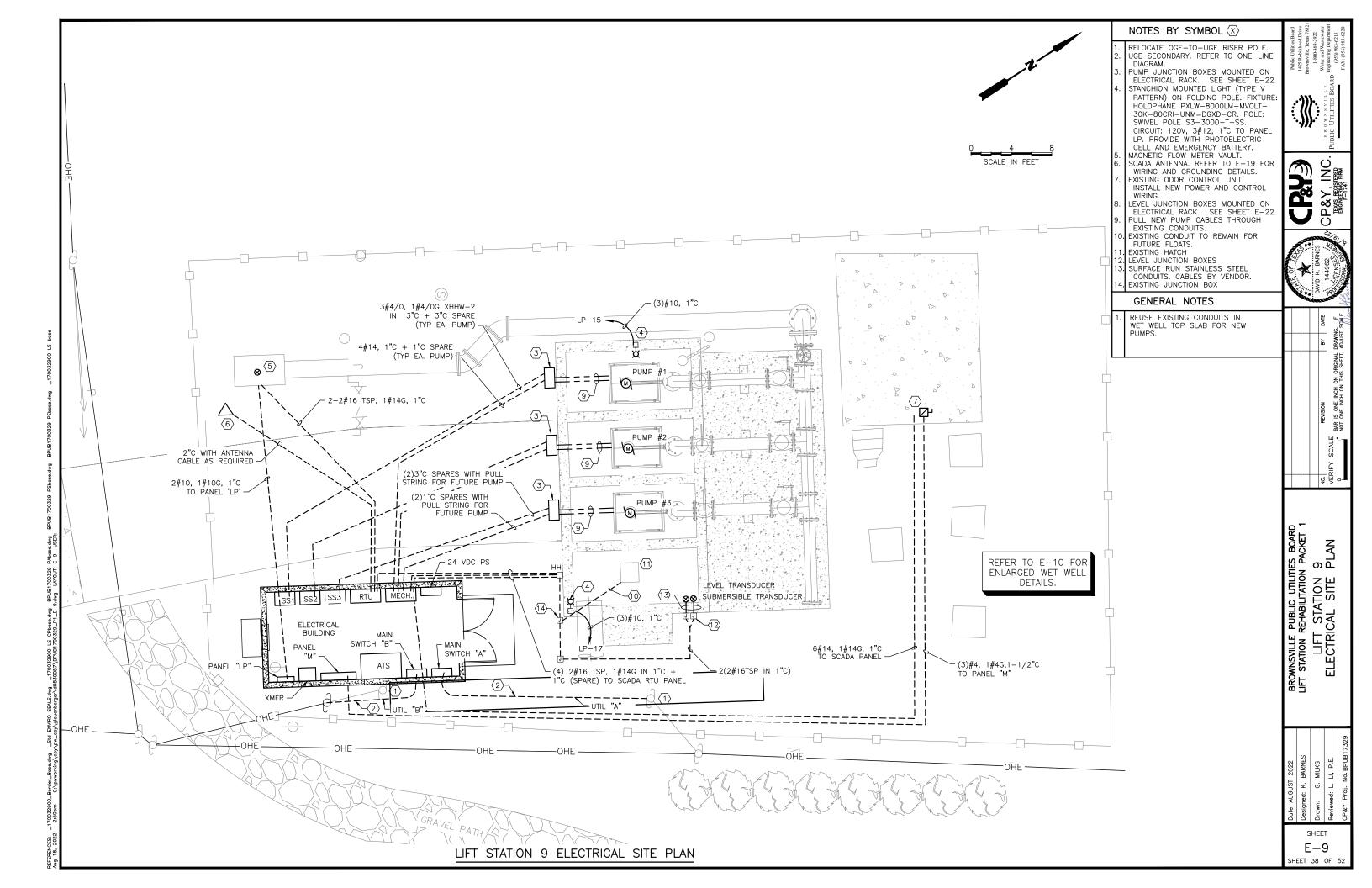
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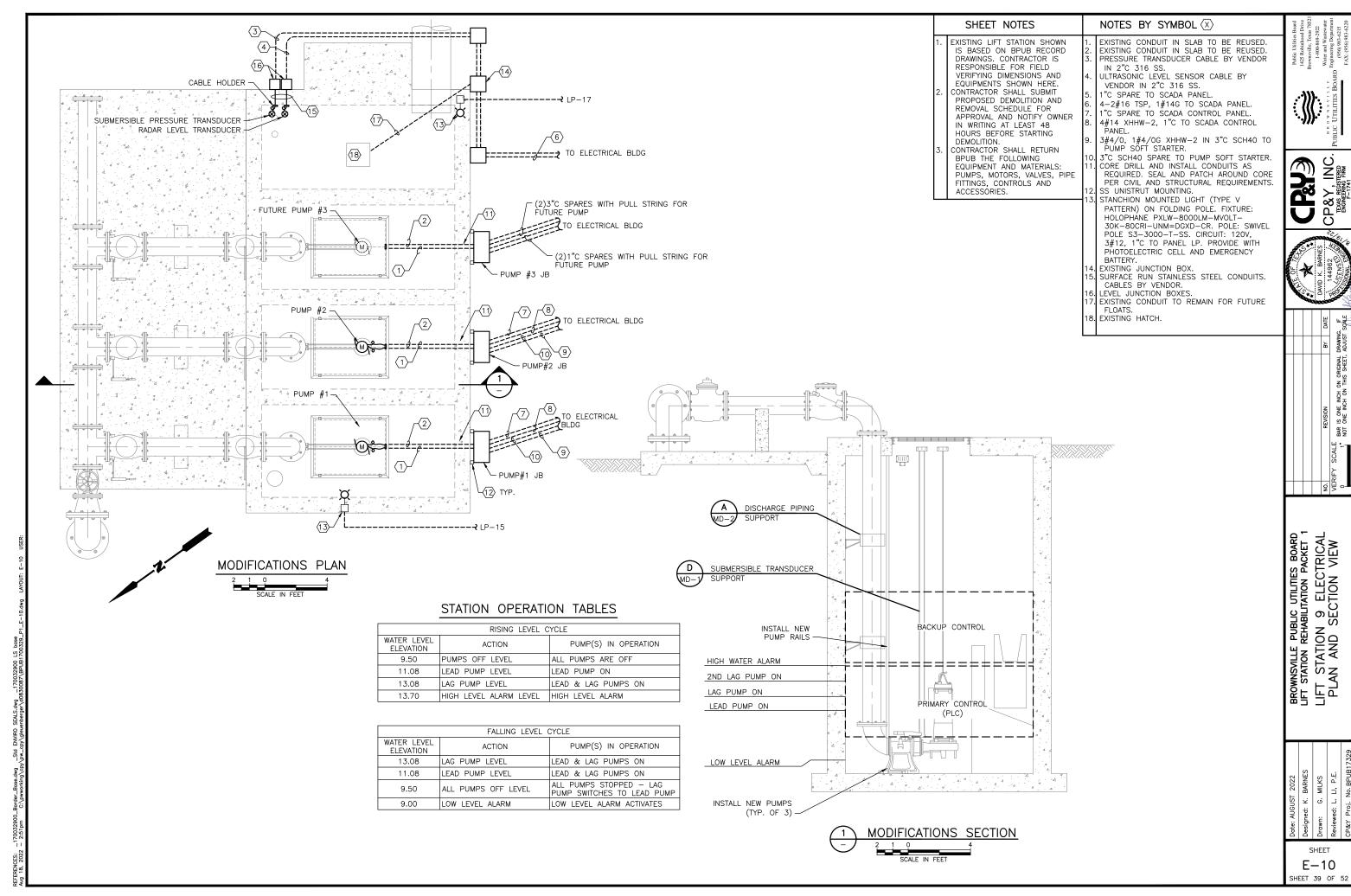
Designed: K. BARNES
Drawn: G. MILKS
Reviewed: L. LI, P.E.

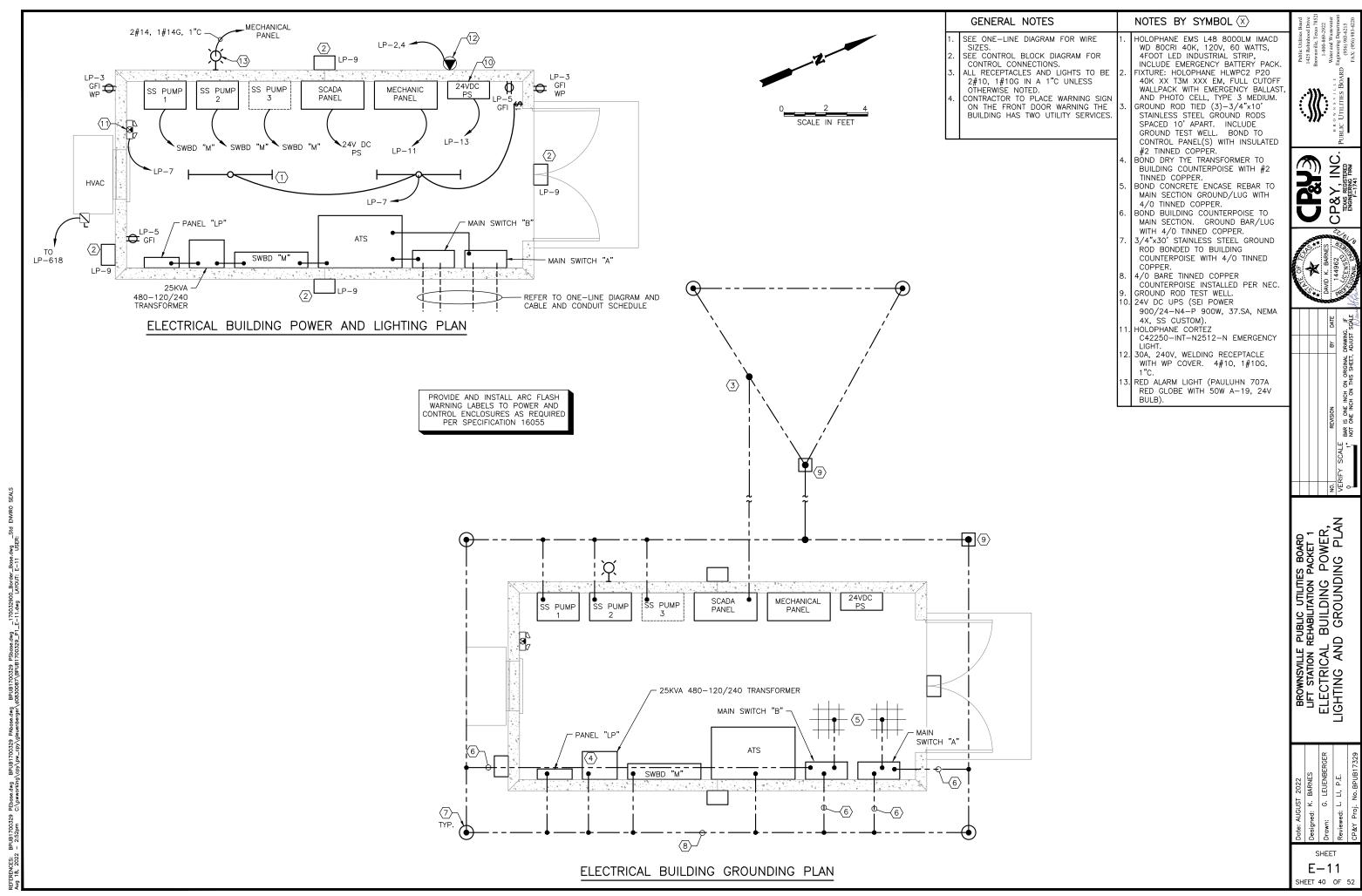
SHEET **E-7**SHEET 36 OF 52

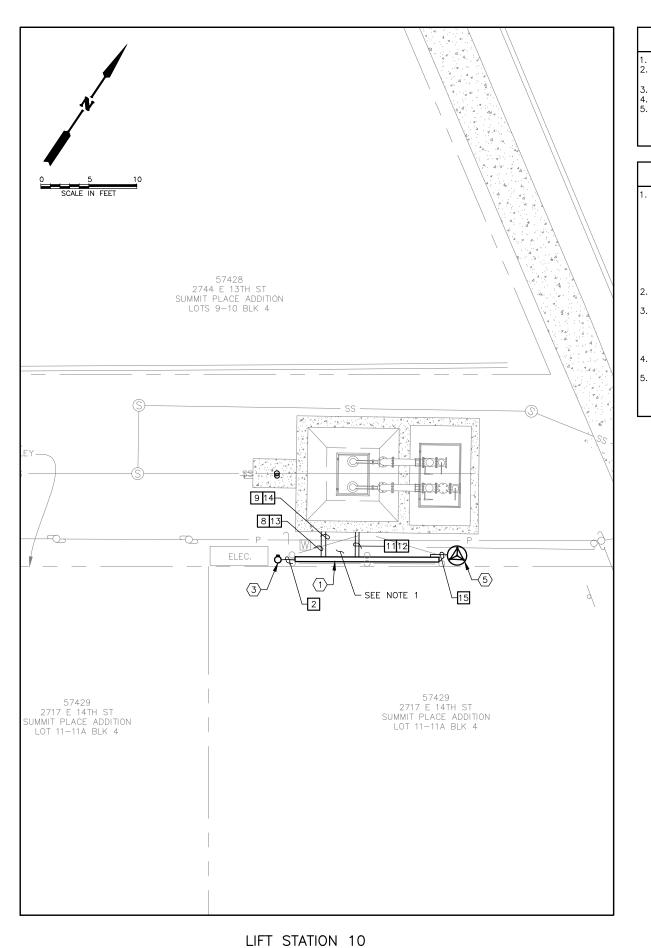
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# NOTES BY SYMBOL (X)

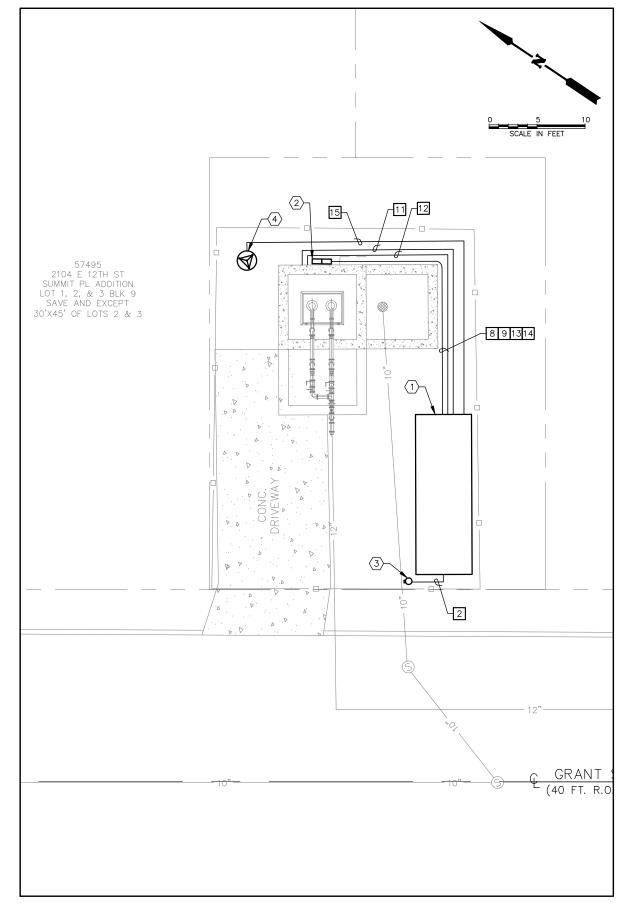
ELECTRICAL SERVICE RACK.
PUMP CONNECTION JUNCTION
BOXES. (TYP OF 2)
SERVICE ENTRANCE RISER POLE.
SCADA RADIO TOWER.
SCADA RADIO TOWER. LIMIT
HEIGHT OF ANTENNA TO
REMAIN CLEAR OF EXISTING
POWER LINES. POWER LINES.

## NOTES

- CONTRACTOR TO REMOVE ALL EXISTING ELECTRICAL. INCLUDING BUT NOT LIMITED TO: UTILITY COMPANY RISER/METER POLE, RISER/METER POLE,
  UNDERGROUND CONDUITS,
  EXISTING ELECTRICAL
  ENCLOSURES, SCADA
  EQUIPMENT, ALL WIRING,
  EQUIPMENT RACK, ETC.
  THE CONTRACTOR SHALL PATCH
  ALL HOLES IN THE WET WELL.
  CONTRACTOR TO CORE DRILL
  ALI FISTINIC WET WE'LLS AS
- ALL EXISTING WET WELLS AS REQUIRED FOR INSTALLATION OF POWER AND CONTROL
- OF POWER AND CONTROL
  CABLES.

  ALL MOUNTING HARDWARE TO BE
  STAINLESS STEEL.

  X REPRESENTS CABLE AND
  CONDUIT TAG. REFER TO SHEET
  E-5.



LIFT STATION 11

SHEET E-12 SHEET 41 OF 52

BROWNSVILLE PUBLIC UTILITIES BOARD LIFT STATION REHABILITATION PACKET 1 LIFT STATION 10 & 11 ELECTRICAL SITE PLANS

CP&Y, INC. TEXS REGISTERD ENGINEERING FIRM

REVISION
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NOTES BY SYMBOL  $igtie{x}$ 

ELECTRICAL SERVICE RACK.
PUMP CONNECTION JUNCTION
BOXES. (TYP OF 2)
SERVICE ENTRANCE RISER POLE.
SCADA RADIO TOWER.

## NOTES

- CONTRACTOR TO REMOVE ALL EXISTING ELECTRICAL. INCLUDING BUT NOT LIMITED TO: UTILITY COMPANY TO: UTILITY COMPANY
  RISER/METER POLE,
  UNDERGROUND CONDUITS,
  EXISTING ELECTRICAL
  ENCLOSURES, SCADA
  EQUIPMENT, ALL WIRING,
  EQUIPMENT RACK, ETC.
  THE CONTRACTOR SHALL PATCH
  ALL HOLES IN THE WET WELL.
  CONTRACTOR TO CORE DRILL
  ALL EXISTING WET WELLS AS
  REQUIRED FOR INSTALLATION
  OF POWER AND CONTROL
  CABLES.

- OF POWER AND CONTROL
  CABLES.

  ALL MOUNTING HARDWARE TO BE
  STAINLESS STEEL.

  X REPRESENTS CABLE AND
  CONDUIT TAGS. REFER TO
  SHEET E-5.

LIFT STATION 43







REVISION

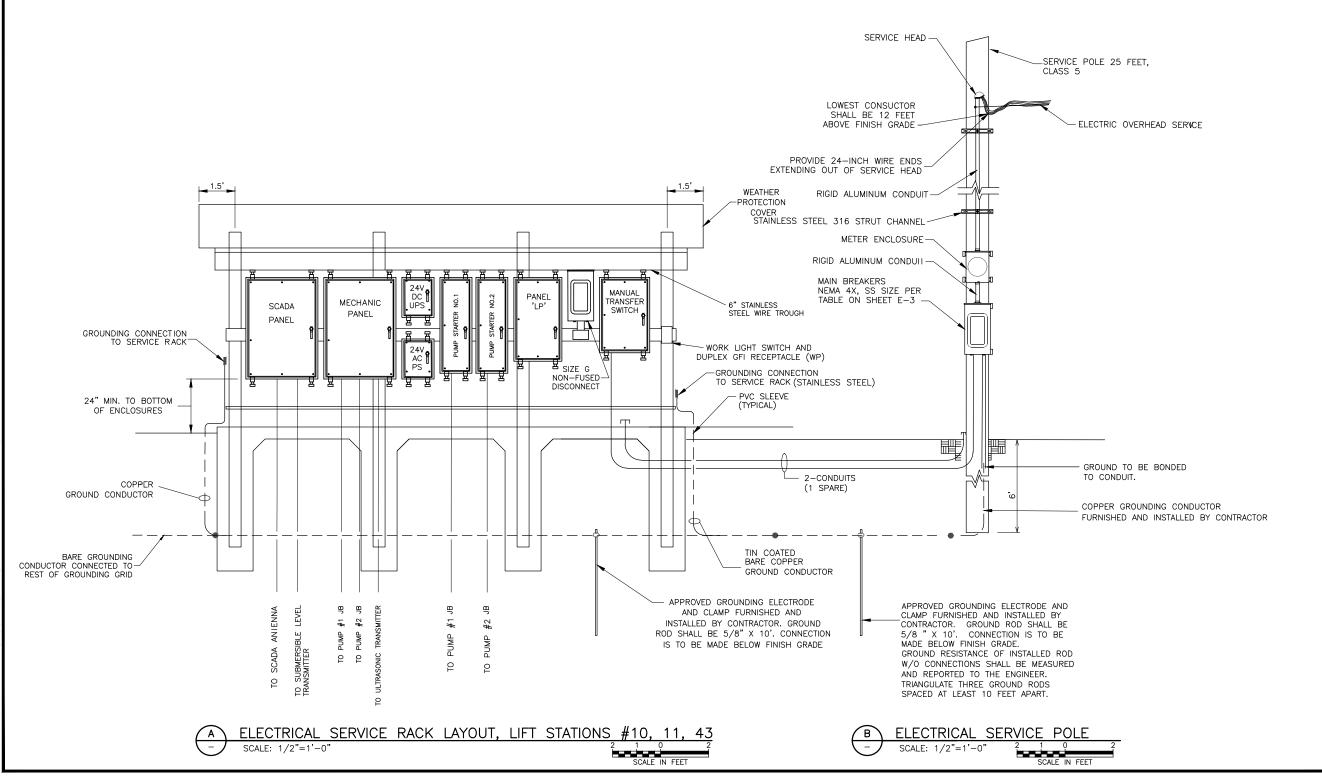
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BROWNSVILLE PUBLIC UTILITIES BOARD LIFT STATION REHABILITATION PACKET 1 LIFT STATION 43 ELECTRICAL SITE PLAN

SHEET E - 13SHEET 42 OF 52

- . ALL BURIED ELECTRIC CONDUIT SHALL BE CONCRETE ENCASED 24-INCHES BELOW GRADE.
- 2. ABOVE GROUND CONDUIT SHALL BE RIGID ALUMINUM.
- 3. UNDERGROUND CONDUIT SHALL BE SCHEDULE 80 PVC.
- 4. ALL ENCLOSURES AND DISCONNECTS SHALL BE PAD-LOCKABLE.
- 5. ALL MOUNTING HARDWARE AND STRUT CHANNEL SHALL BE OF STAINLESS STEEL 304. ALL ENCLOSURES SHALL BE NEMA 4X, STAINLESS STEEL 304.
- 6. ALL DISCONNECTS SHALL BE NEMA 4X, STAINLESS STEEL 304.
- 7. SERVICE RACK STRUTS SHALL BE OF STAINLESS STEEL 304 1-1/2 INCH MINIMUM, AND SHALL BE MOUNTED ON 4-INCH X 1/2-INCH THICK STRUCTURAL STEEL TUBE. STRUT CHANNEL ENDS SHALL BE PROTECTED WITH END CAPS.
- 8. THERE SHALL BE 3" MINIMUM SPACING BETWEEN EQUIPMENT MOUNTED ON THE RACK.

- 9. ELECTRIC RACK SHALL HAVE SUPPORT COLUMNS EVERY 5 FEET.
- 10. PROVIDE SEALING FITTING FOR ALL CONDUITS ENTERING WET-WELL.
- 11. PROVIDE A SURGE ARRESTOR IN A SEPARATE ENCLOSURE ATTACHED TO THE INCOMING MAIN SAFETY SWITCH.
- 12. SPARE CONDUITS ARE NOT SHOWN.
- 13. ALL ELECTRICAL COMPONENTS SHALL BE NEMA RATED.
- 14. GROUND RESISTANCE GRID SHALL NOT EXCEED 5 OHMS AT ANY POINT.



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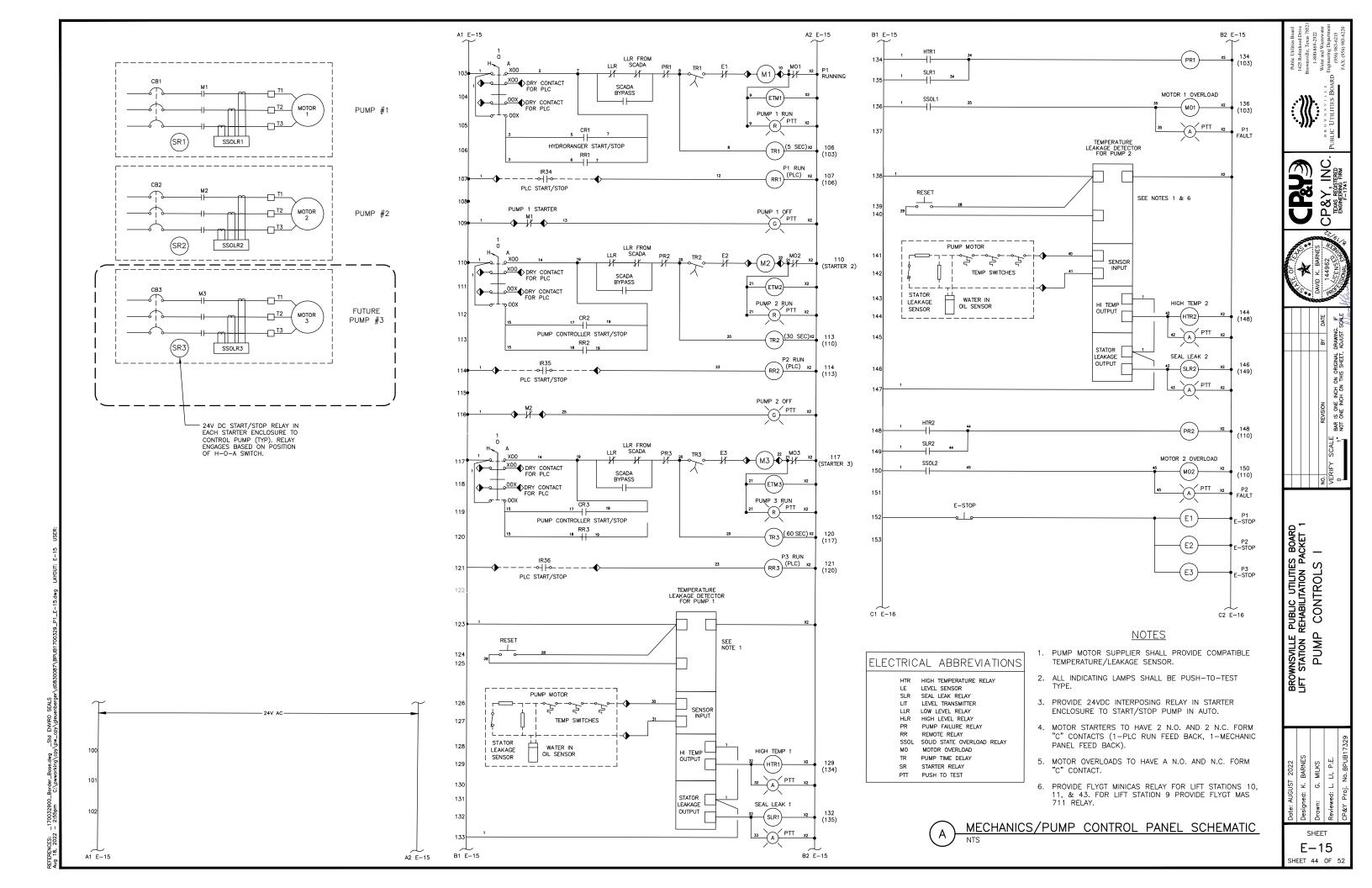
BROWNSVILLE PUBLIC UTILITIES BOARD
LIFT STATION REHABILITATION PACKET 1
SERVICE RACK, SERVICE POLE
& CANOPY DETAILS

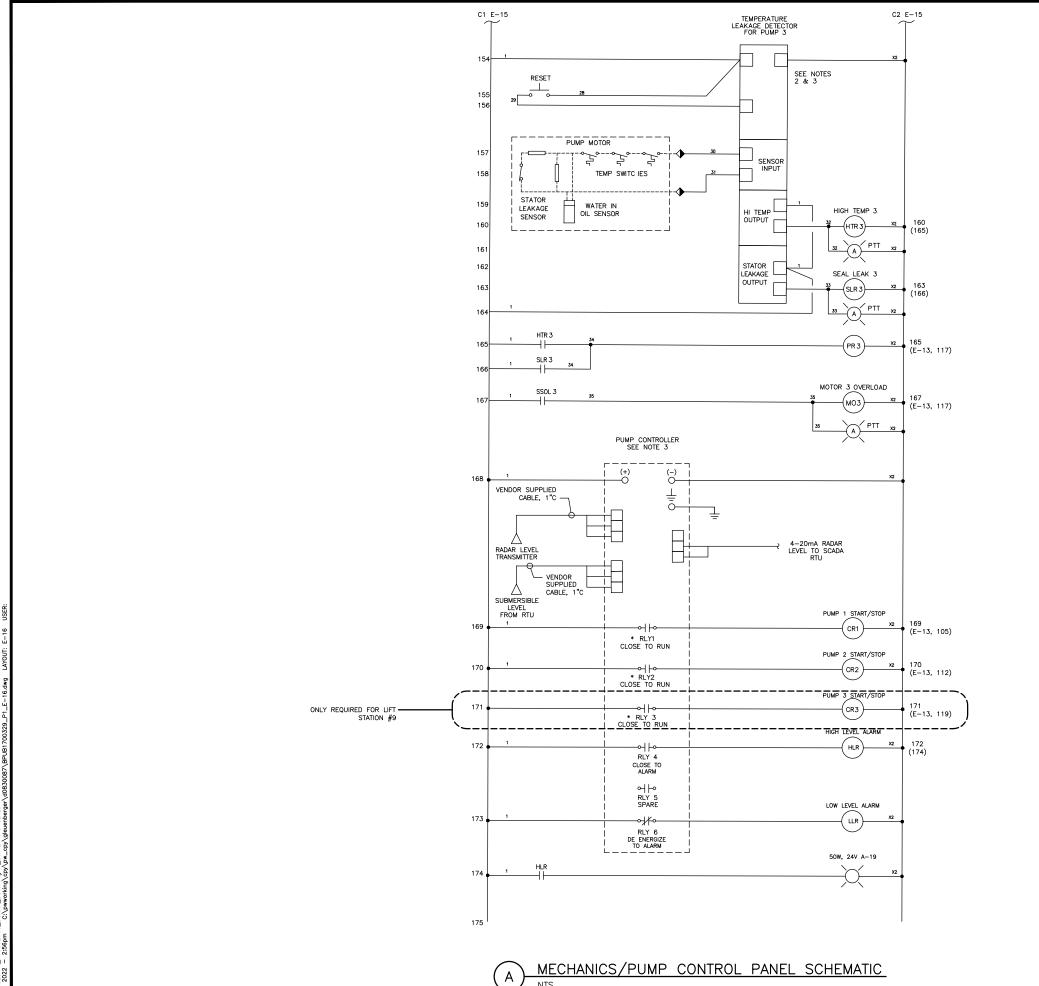
Designed: P. BAZNIK
Drawn: S. CAMPBELL
Reviewed: L. LI, P.E.

SHEET

E-14

SHEET 43 OF 52





GENERAL NOTE:

- 1. CONFIGURE THE HYDRORANGER FOR 30 SEC DELAY ON "POWER RESUMPTION" AND 30 SEC DELAY BETWEEN "PUMP STARTS".
- 2. CONTROL PANEL VENDER SHALL PROVIDE TEMPERATURE/LEAKAGE SENSOR (PROVIDE THE SAME FOR FUTURE PUMP #3 AS FOR PUMPS #1 AND #2).
- 3. PUMP CONTROLLER SHALL BE IDEC PROGRAMMABLE RELAY FL1F—M08B2R2 WITH FL9Y—LP1CDW SOFTWARE.

CP&Y, INC. IEXS REGISTERD ENGINEERING FIRM

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BROWNSVILLE PUBLIC UTILTIES BOARD LIFT STATION REHABILITATION PACKET 1 PUMP CONTROLS II

SHEET E-16 SHEET 45 OF 52

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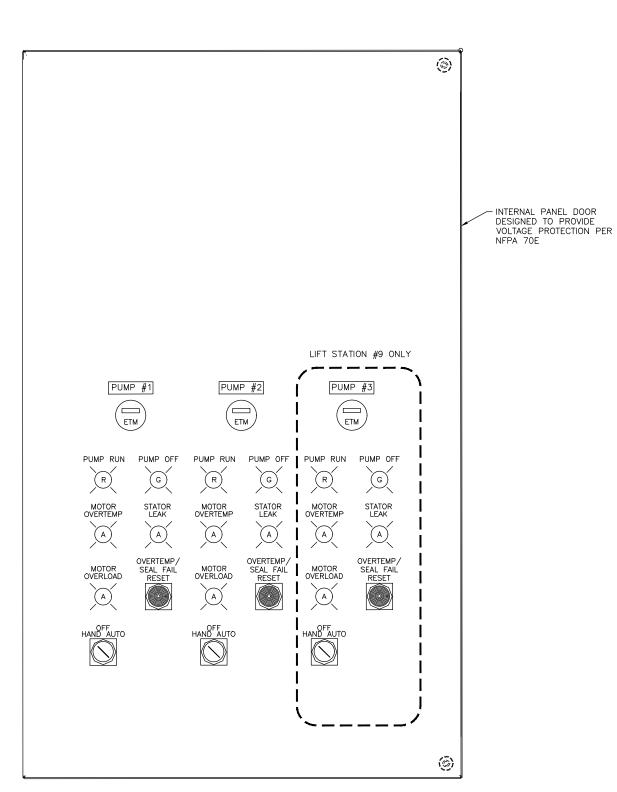
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BROWNSVILLE PUBLIC UTILITIES BOARD LIFT STATION REHABILITATION PACKET 1 MECHANICAL CONTROL PANEL

SHEET E-17

SHEET 46 OF 52

24V(+) 24V(-) GND 0 RR1 0 CR2 TR2 RR2 HTR2 RR3 HTR3 Terminal Blocks **©** • 0 0 

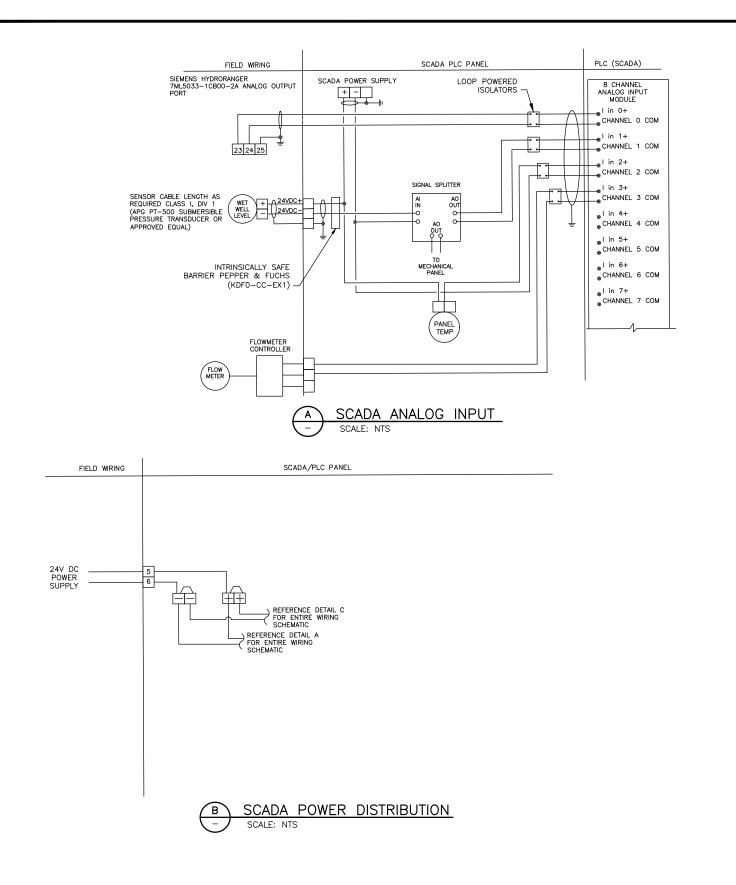


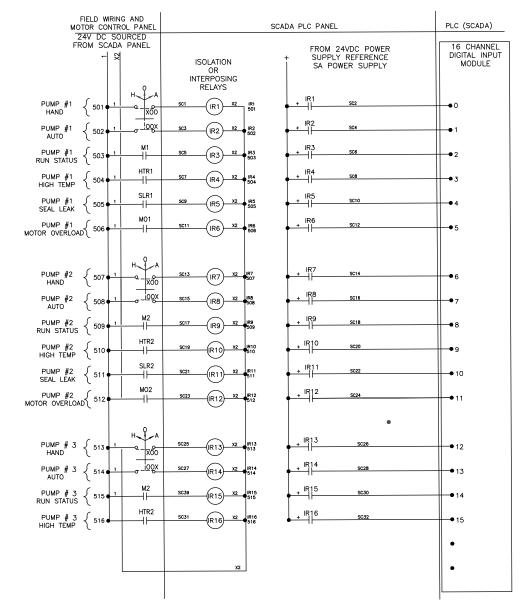
NOTE: ADJUST SPACING AS REQUIRED FOR DUPLEX LIFT STATIONS.

INTERIOR WIRING PANELS FOR MECHANIC/PUMP CONTROL PANELS



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 C SCADA DIGITAL INPUT
- SCALE: NTS

BROWNSVILLE PUBLIC UTILITIES BOARD LIFT STATION REHABILITATION PACKET 1 SCADA WIRING DETAILS I

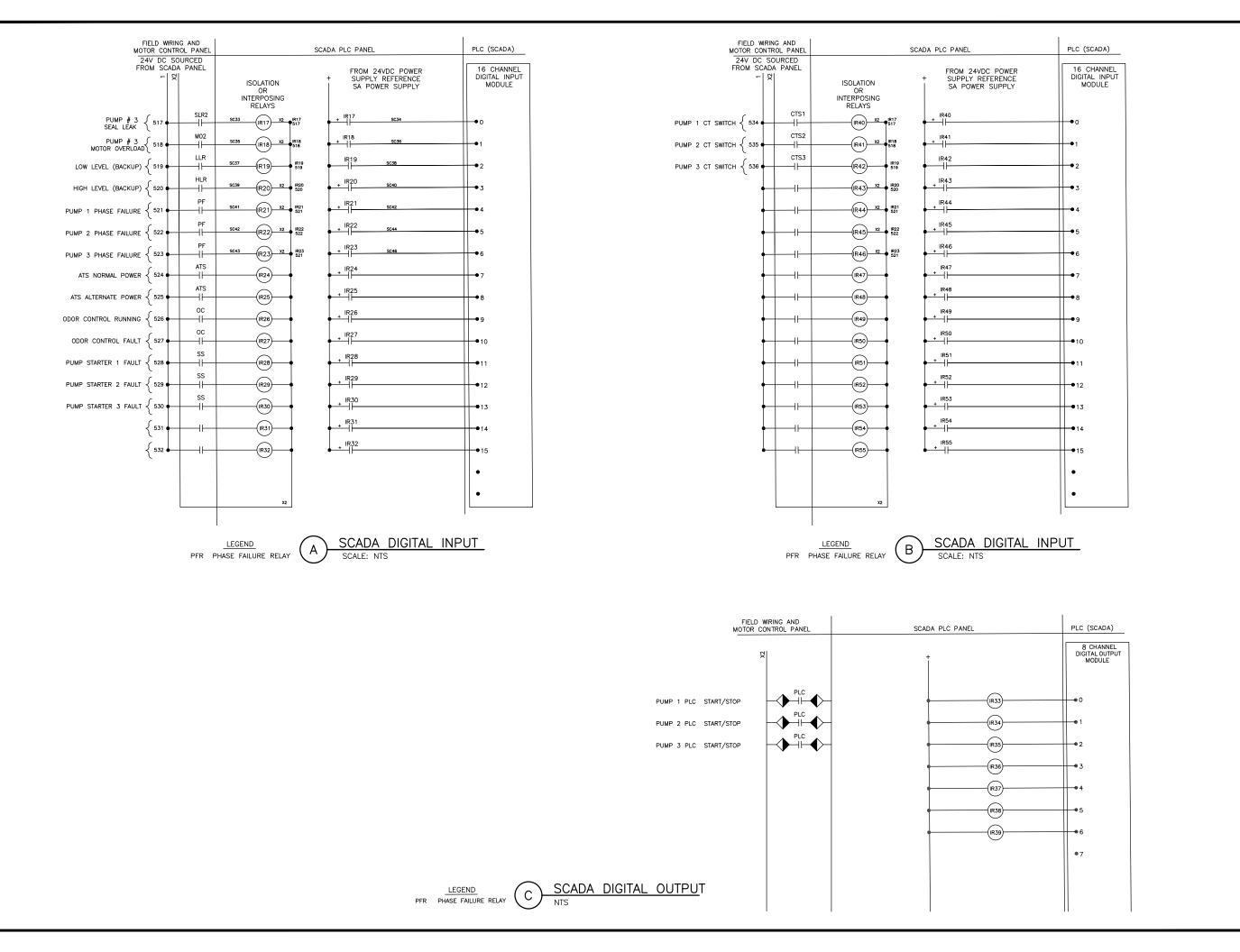
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Designed: K. BARNES	
Drawn: G. MILKS	
Reviewed: L. LI, P.E.	

SHEET
E-18
SHEET 47 OF 52



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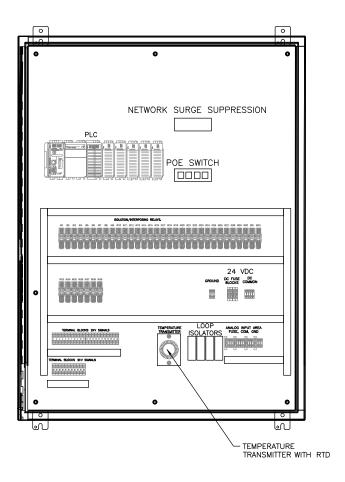
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BROWNSVILLE PUBLIC UTILITIES BOARD LIFT STATION REHABILITATION PACKET 1 SCADA WIRING DETAILS II

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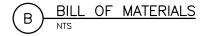
E-19 SHEET 48 OF 52



MINIMUM ENCLOSURE DIMENSIONS: 48" X 36" X 16"



QUANTITY	MATERIAL DESCRIPTION	MANUFACTURER	PART NUMBER
1	NEMA 4X STAINLESS STEEL ENCLOSURE WITH PACKPANEL. STAINLESS STEEL DOOR WITH STAINLESS STEEL PIANO HINGES AND HINGE PINS. 3 POINT LOCKING HANDLE.	HOFFMAN OR RITTAL	
1	POE MANAGED SWITCH	TO MATCH EXISTING SWITCHES IN OWNER SYSTEM	
1	POE SURGE PROTECTOR	DITEK	DTK-MRJPOES
1	ESSENTIAL POWER SUPPLY, 24-28V DC, 120 W, 120V AC INPUT VOLTAGE	ALLEN-BRADELY	1606-XLE120EN
1	CONTROLLER, COMPACTLOGIX 5380, 600 KB USER MEMORY, 8 I/OS, 16 ETHERNET/IP DEVICES	ALLEN-BRADELY	5069-L306ER
2	COMPACT I/O POWER TERMINAL RTB KIT FOR BOTH 4 AND 6 PIN SCREW TYPE	ALLEN-BRADELY	5069-RTB64-SCREW
3	COMPACT I/O 16 CHANNEL 24V DC SINK INPUT MODULE	ALLEN-BRADELY	5069-IB16
1	COMPACT I/O 8 CHANNELS HIGH CURRENT 2A DISCRETE OUTPUT.	ALLEN-BRADELY	5069-OB8
1	COMPACT I/O 8 CHANNEL VOLTAGE/CURRENT ANALOG INPUT MODULE	ALLEN-BRADELY	5069-IF8
4	COMPACT I/O 18 PINS SCREW TYPE TERMINAL BLOCK KIT IN A PACK OF 1 PCS	ALLEN-BRADELY	5069-RTB18-SCREW
1	LOOP POWERED CURRENT CONVERTER (INTRENSICALLY SAFE BARRIER)	PEPPERL+FUCHS	KFD0-CC-Ex1
1	SUBMERSIBLE LEVEL TRANDUCER	APG	PT-500
1	PANEL TEMP RTD		
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CP&Y, INC. TEXAS REGISTERD ENGINEERING FIRM

REVISION

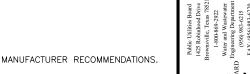
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BROWNSVILLE PUBLIC UTILITIES BOARD LIFT STATION REHABILITATION PACKET 1 SCADA PANEL LAYOUT, INSULATION DETAIL AND BILL OF MATERIALS

NOTES BY SYMBOL (X)

CONTROL PANEL ENCLOSURE SHALL BE LOCKABLE WITH LOCKOUT/TAGOUT EQUIPMENT

SHEET E-20 SHEET 49 OF 52



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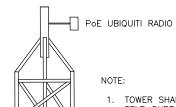
BROWNSVILLE PUBLIC UTILITIES BOARD LIFT STATION REHABILITATION PACKET 1 INSTRUMENTATION AND TOWER STRUCTURAL DETAILS

SHEET E-21

SHEET 50 OF 52

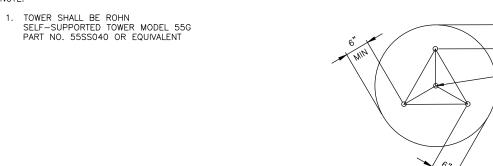
### NOTES:

- 1. INSTALL PER TOWER MANUFACTURER RECOMMENDATIONS.
- 2. TOWER MANUFACTURER RESPONSIBLE FOR TOWER
- 3. FOUNDATION DESIGN TO BE PER ASCE-7 BASED ON STANDARD SOIL BEARING PRESSURES FOR IBC. DESIGN TO BE PERFORMED BY A TEXAS PROFESSIONAL ENGINEER AND SUBMITTED SIGNED AND SEALED AS A SHOP DRAWING

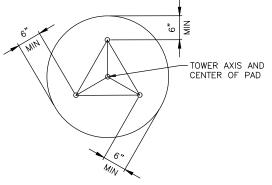


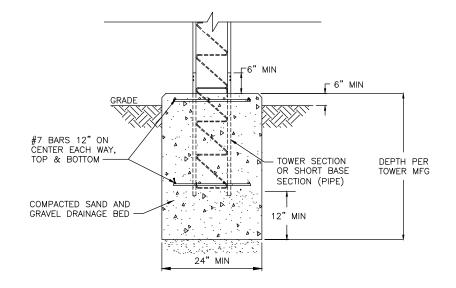
TOP SECTION

MID SECTION (MULTIPLE REQUIRED)

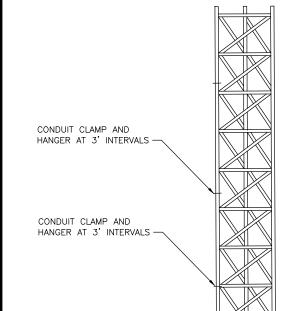


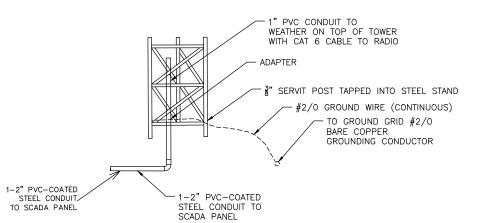
PLAN VIEW TOWER FOUNDATION

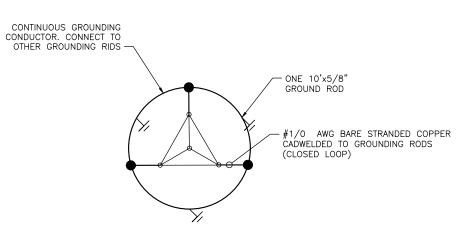




ELEVATION VIEW TOWER FOUNDATION



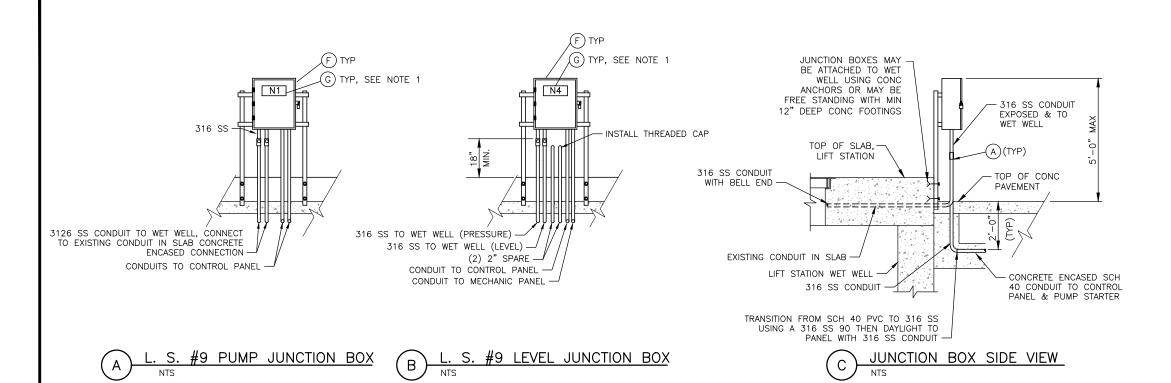


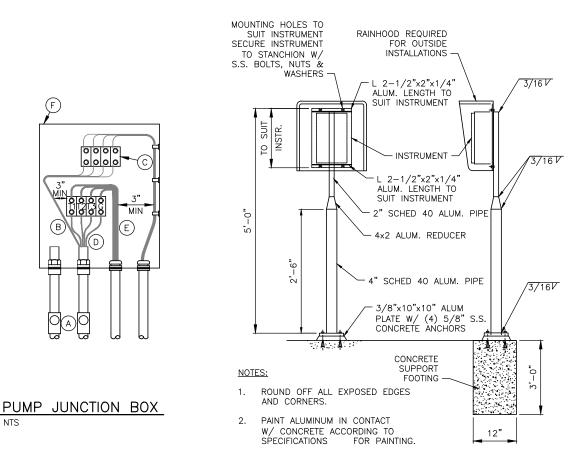


PLAN VIEW



ANTENNA GROUNDING DETAILS





TYP. STANCHION SUPPORT FOR CASE MOUNTED INSTRUMENTS

### JUNCTION BOX EQUIPMENT SCHEDULE

A - CLASS I, DIV 1, EXPLOSION PROOF SEAL INSTALLED PER NEC DIV 501

B - POWER TERMINAL BLOCK W/SCREW DOWN BOX LUGS C - CONTROL TERM BLOCK W/SCREW DOWN BOX LUGS

D - MULTI-CONDUCTOR CABLE, REMOVE OUTER JACKET AS SHOWN

E - WRING AS SCHEDULED
F - NEMA 4X STAINLESS STEEL JUNCTION BOX WITH
GASKETED FRONT COVER, SINGLE QUARTER TURN, OIL-TIGHT LATCH AND PADLOCKING PROVISIONS, HOFFMAN D-3L16H1206 SS LF.

MINIMUM SIZE: 12"W X 16"H X 6"D

G - NAMEPLATE, 3/8" HIGH LETTERS IN WHITE ON
BLACK BAKELIGHT (SEE NAMEPLATE SCHEDULE)

#### NAMEPLATE SCHEDULE

<u>DESIGNATION</u>	<u>ENGRAVED</u>	
N1 N2 N3 N4	PUMP NO. 1 PUMP NO. 2 PUMP NO. 3 (LIFT STATION #9 ONLY) LEVEL	

#### NOTES:

- 1. NAMEPLATES SHALL BE MOUNTED TO JUNCTION BOXES USING 316 STAINLESS STEEL HARDWARE.
- 2. MAINTAIN MINIMUM SEPARATION REQUIRED UNDER NEC ARTICLE 504, BETWEEN INTRINSICALLY SAFE CONTROL WRING AND NONINTRINSICALLY SAFE MOTOR FEEDER
- 3. ALL CONDUITS BETWEEN THE WET WELL AND SEAL OFF SHALL BE 316 STAINLESS STEEL WITH NO BREAKS, JOINTS OR FITTINGS. BETWEEN ALL OTHER EXPOSED CONDUITS SHALL BE ALUMINUM. WRAP ALUMINUM CONDUITS WITH 2 WRAPS OF ANTI-CORROSION TAPE WHEN IN CONTACT WITH CONCRETE.
- 4. UNLESS OTHERWISE NOTED, ALL NUTS, BOLTS, SCREWS WASHERS, ETC SHALL BE TYPE 316 STAINLESS STEEL.
- 5. ALL UNDERGROUND CONDUITS TO BE ENCASED IN REINFORCED CONCRETE DUCTBANK.
- 6. PROVIDE ANTI-CORROSIVE SPRAY ON ANY BARE METAL PARTS OR EXPOSED WIRE.



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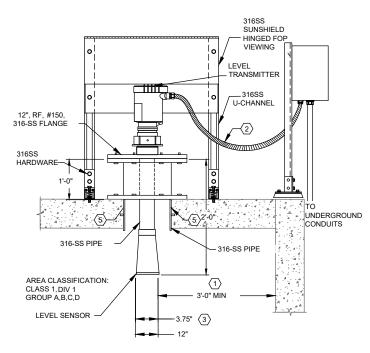
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BROWNSVILLE PUBLIC UTILITIES BOAR LIFT STATION REHABILITATION PACKET PUMP CONNECTION
JUNCTION BOX DETAIL

_			
	Drawn:	G.	G. MILKS
	Reviewed: L. LI, P.E.	نـ	LI, P.E.
	CP&Y Pro	<del>-</del>	CP&Y Proj. No. BPUB17329

SHEET E-22SHEET 51 OF 52



#### NOTES BY SYMBOL:

- MAINTAIN A 3' CLEARANCE FROM WALLS OR MANUFACTURER REQUIREMENTS.
   FURNISH SUFFICIENT LENGTH OF LIQUID TIGHT CONDUIT AND CABLE TO REMOVE THE INSTRUMENT FOR MAINTENANCE.
   REFER TO CIVIL STRUCTURAL DRAWING FOR CONCRETE CORES LOCATION AND SIZE.

- TO BE FURNISHED BY GENERAL DRAWING FOR CONCRETE CORES LOCATION AND SIZE.

  TO BE FURNISHED BY GENERAL CONTRACTOR.

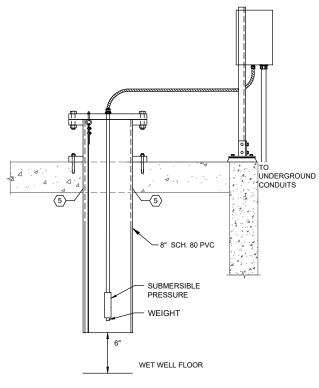
  COAT CORE-DRILLED OPENING PER SPECIFICATION 09901

  EPOXY COATING FOR CONCRETE SURFACES.

  RADAR LEVEL TRANSMITTER SHALL BE SIEMENS 5408 OR VEGA VEGAPLUS WL61.

  SURGE PROTECTION FOR RADAR LEVEL TRANSMITTER SHALL BE PHOENIX CONTACT
  S-PT1-2PE-24DC WITH 316 STAINLESS STEEL CONNECTION.





#### NOTES BY SYMBOL:

5. COAT CORE-DRILLED OPENING PER SPECIFICATION 09901 EPOXY COATING FOR CONCRETE SURFACES









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BROWNSVILLE PUBLIC UTILITIES BOARD LIFT STATION REHABILITATION PACKET 1 LEVEL DETAILS

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