



# CITY OF PORT ORCHARD

## MCCORMICK WOODS - WELL NO. 11

### SITE IMPROVEMENT PROJECT

COUNTER COMPLETE  
Permit Center  
OCT 17, 2022  
City of Port Orchard  
Community Development

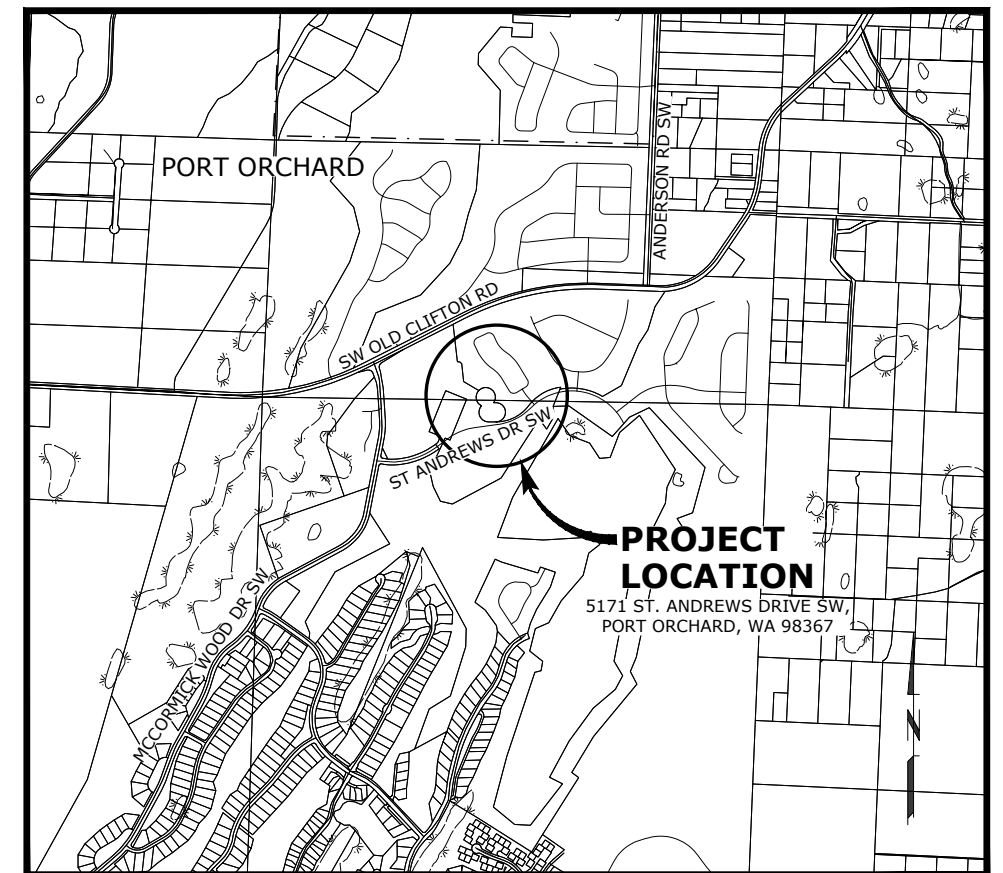
SEPTEMBER 2022

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VICINITY MAP  
SCALE: 1"=500'



600 UNIVERSITY STREET, SUITE 300  
SEATTLE, WA 98101  
P 206.462.7030



Know what's below.  
Call before you dig.

PW22-052, PW22-053

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### PIPE & FITTING SYMBOLS

PLANT	SCHEMATIC	DESCRIPTION
		WELDED JOINT
		FLANGED JOINT
		GROOVED END JOINT
		MECHANICAL JOINT
		PUSH-ON JOINT (RUBBER GASKET)
		FLANGED COUPLING ADAPTER
		DOUBLE BALL FLEXIBLE EXTENSION COUPLING
		FLEXIBLE COUPLING W/ THRUST RING
		90° BEND UP
		90° BEND DOWN
		TEE UP
		TEE DOWN
		LATERAL UP
		LATERAL DOWN
		CONCENTRIC REDUCER
		ECCENTRIC REDUCER
		UNION
		BLIND FLANGE
		CAP
		LONG SLEEVE
		FLEXIBLE COUPLING
		FITTING (45°)

### TOPOGRAPHIC LEGEND

	EXISTING	PROPOSED
WATERLINE		
ELECTRICITY		
GAS		
TELEPHONE/TELEMETRY		
CABLE TELEVISION		
SANITARY SEWER LINE		
SANITARY SEWER FORCE MAIN		
STORM DRAIN		
CULVERT		
ABANDON PIPE		
DRAINAGE DITCH		
BARBWIRE FENCE		
CHAIN LINK FENCE		
TEMPORARY SILT FENCE		
GUARDRAIL		
ROCK WALL		
CENTERLINE		
EASEMENT/PROPERTY LINE		
RIGHT-OF-WAY		
EDGE OF PAVEMENT/AC		
EDGE OF GRAVEL		
CURB		
SIDEWALK		
TEMP CONSTRUCTION ENTRANCE		
STRUCTURE OR FACILITY		
CONTOUR MINOR		
CONTOUR MAJOR		
MANHOLE		
CLEAN-OUT		
CATCH BASIN/FIELD INLET		
STORM DRAIN INLET PROTECTION		
THRUST BLOCK		
VALVE		
AIR INJECTION ASSEMBLY		
BLOW-OFF ASSEMBLY		
AIR RELEASE ASSEMBLY		
FIRE HYDRANT ASSEMBLY		
WATER METER		
PULL BOX/JUNCTION BOX		
UTILITY POLE		
GUY WIRE		
LIGHT POST		
SIGN		
BENCHMARK		
TREE DECIDUOUS		
TREE CONIFEROUS		
TREE TO BE REMOVED		
SURFACE ELEVATION		

### VALVE SYMBOLS

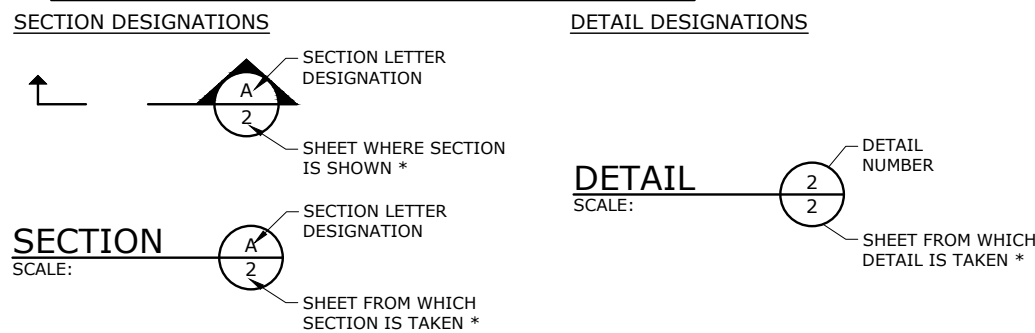
PLANT	SCHEMATIC	DESCRIPTION
		BUTTERFLY VALVE
		GATE VALVE
		GLOBE VALVE
		BALL VALVE
		BALANCING VALVE
		PLUG VALVE (TOP)
		PLUG VALVE (SIDE)
		3-WAY PLUG VALVE
		CHECK VALVE
		SWING CHECK VALVE
		DOUBLE CHECK ASSEMBLY
		BALL SWING CHECK
		SILENT CHECK VALVE
		PRESSURE REDUCING VALVE
		ALTITUDE CONTROL VALVE
		SOLENOID VALVE
		RELIEF VALVE
		NEEDLE VALVE
		HOSE VALVE
		REDUCED PRESSURE BACKFLOW PREVENTER W/ GATE VALVES
		HOSE BIBB

### MISCELLANEOUS PIPING SYMBOLS

	STRAINER
	SIGHT GLASS
	PRESSURE GAUGE W/ COCK
	PRESSURE SWITCH W/ COCK
	METER
	SLIP-ON JOINT PIPE
	RESTRAINED JOINT PIPE

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### SECTION AND DETAIL DESIGNATIONS



NO.	DATE	BY	REVISION

NOTICE
0 1/2 1
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SEPTEMBER 2022

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**Port ORCHARD**

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**MCCORMICK WOODS - WELL NO. 11**  
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SYMBOLS AND LEGEND			
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SHEET

G-2

X of X

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@ AASHTO  AB ABAN(D) ABS ABV AC ACP ADJ ADJC AFF AFG AHR AHU AL ALT AMP ANSI  APPROX APPVD APWA ARCH ARV ASCE  ASSN ASSY ASTM  ATM AUTO AUX AVE AVG AWWA  B&S BC BD BETW BF BFD BFILL BFV BGS BHP BKGD BLDG BLK BLVD BM BMP BO BOC BOT BS BSMT BTF BTU BV BW  C C TO C CARV CATV CB CCP CCW CDOT  CFM CFS CHAN CHEM CHFR CHKV CI CIP CIPC CISP CJ CL OR C/L CL2 CLG CLJ CLR	AT AMERICAN ASSOCIATION OF STATE HIGHWAY & TRANSPORTATION OFFICIALS ANCHOR BOLT ABANDON(ED) ACRYLONITRILE BUTADIENE STYRENE ABOVE / ALCOHOL BY VOLUME ASPHALTIC CONCRETE ASPHALTIC CONCRETE PAVING ADJUSTABLE ADJACENT ABOVE FINISHED FLOOR ABOVE FINISHED GRADE ANCHOR AIR HANDLING UNIT ALUMINUM ALTERNATE AMPERE AMERICAN NATIONAL STANDARDS INSTITUTE APPROXIMATE APPROVED AMERICAN PUBLIC WORKS ASSOCIATION ARCHITECTURAL AIR RELEASE VALVE AMERICAN SOCIETY OF CIVIL ENGINEERS ASSOCIATION ASSEMBLY AMERICAN SOCIETY FOR TESTING & MATERIALS ATMOSPHERE AUTOMATIC AUXILIARY AVENUE AVERAGE AMERICAN WATER WORKS ASSOCIATION  BELL & SPIGOT BOLT CIRCLE BOARD BETWEEN BOTH FACE BACKFLOW PREVENTION DEVICE BACKFILL BUTTERFLY VALVE BELOW GROUND SURFACE BRAKE HORSEPOWER BACKGROUND BUILDING BLOCK BOULEVARD BENCHMARK / BEAM BEST MANAGEMENT PRACTICES BLOW-OFF BACK OF CURB BOTTOM BOTH SIDES BASEMENT BOTTOM FACE BRITISH THERMAL UNIT BALL VALVE BOTH WAYS  CELSIUS CENTER TO CENTER COMBINATION AIR RELEASE VALVE CABLE TELEVISION CATCH BASIN CONCRETE CYLINDER PIPE COUNTER CLOCKWISE COLORADO DEPARTMENT OF TRANSPORTATION CUBIC FEET PER MINUTE CUBIC FEET PER SECOND CHANNEL CHEMICAL CHAMFER CHECK VALVE CAST IRON CAST IRON PIPE CAST IN PLACE CONCRETE CAST IRON SOIL PIPE CONSTRUCTION JOINT CENTER LINE CHLORINE CEILING CONTROL JOINT CLEAR	CLSM CMP CMU CND CO COL COMB CONC CONN CONST CONT CONTR COORD COP CORP CORR CP CPLG CPVC CR CS CSP CT CTR CU CULV CV CW CY CYL  D DC DEFL DET DI DIA DIM DIR DIST DN DOH DR DS DWG DWL DWV DWY  E / ELEC EA ECC ECY EF EG EL ELB ENCL EOP EQ EQL SP EQUIP ESC ESMT EW EXC EXIST EXP EXP BT EXP JT EXT  F F TO F FAB FB FCA FCO FD FDN FEXT FF FGL FH FIN FIPT FITG FL FLEX	CONTROLLED LOW STRENGTH MATERIAL CORRUGATED METAL PIPE CONCRETE MASONRY UNIT CONDUIT CLEANOUT COLUMN COMBINATION CONCRETE CONNECTION CONSTRUCTION CONTINUOUS / CONTINUATION CONTRACT(OR) COORDINATE COPPER CORPORATION CORRUGATED CONTROL POINT COUPLING CHLORINATED POLYVINYL CHLORIDE CRUSHED ROCK COMBINED SEWER CONCRETE SEWER PIPE COURT CENTER CUBIC CULVERT CONTROL VALVE CLOCKWISE / COLD WATER CUBIC YARDS CYLINDER LOCK  DRAIN DIRECT CURRENT DEFLECTION DETAIL DUCTILE IRON DIAMETER DIMENSION DIRECTION DISTANCE DOWN DEPARTMENT OF HEALTH DRIVE DOWNSPOUT DRAWING DOWEL DRAIN WASTE AND VENT DRIVEWAY  ELECTRICAL EACH ECCENTRIC DEPARTMENT OF ECOLOGY EACH FACE / EXHAUST FAN EXHAUST GRATE ELEVATION / EXHAUST LOUVER ELBOW ENCLOSURE EDGE OF PAVEMENT EQUAL EQUALLY SPACED EQUIPMENT EROSION & SEDIMENT CONTROL EASEMENT EACH WAY EXCAVATE EXISTING EXPANSION EXPANSION BOLT EXPANSION JOINT EXTERIOR  FAHRENHEIT FACE TO FACE FABRICATE FLAT BAR FLANGED COUPLING ADAPTER FLOOR CLEANOUT FLOOR DRAIN FOUNDATION FIRE EXTINGUISHER FAR FACE FIBERGLASS FIRE HYDRANT FINISH(ED) FEMALE IRON PIPE THREAD FITTING FLOOR LINE FLEXIBLE	FLG FLL FLR FM FO FOC FOF FOM FOS FPM FPS FRP FT FTG FUT FXTR  G GA GAL GALV GC GFA GI GIP GJ GL GLV GND GPD GPH GPM GPS GR GR LN GRTG GV GRLV GYP  HB HC HDPE HDR HDWE HGR HGT HH HM HMAC HNDRL HOA HOR HORIZ HP HPG HPT HPU HR HSB HV HVAC  HWL HWY HYD HYDR  I&C IAW ID IE IF IMPVT IN INCC INFL INJ INSTL INSUL INTER INTR INV IP IPT IR IRRI JT JUNC	FLANGE FLOW LINE FLOOR FORCE MAIN FIBER OPTIC FACE OF CONCRETE FACE OF FINISH FACE OF MASONRY FACE OF STUDS FEET PER MINUTE FEET PER SECOND FIBERGLASS REINFORCED PLASTIC FEET / FOOT FOOTING FUTURE FIXTURE  GAS GAUGE GALLON GALVANIZED GROOVED COUPLING GROOVED FLANGE ADAPTER GALVANIZED IRON GALVANIZED IRON PIPE GRIP JOINT GLASS GLOBE VALVE GROUND GALLONS PER DAY GALLONS PER HOUR GALLONS PER MINUTE GALLONS PER SECOND GRADE GRADE LINE GRATING GATE VALVE GRAVEL GYPSUM  HOSE BIBB HOLLOW CORE HIGH DENSITY POLYETHYLENE HEADER HARDWARE HANGER HEIGHT HANDHOLD HOLLOW METAL HOT MIX ASPHALT CONCRETE HANDRAIL HAND-OFF-AUTO HAND-OFF-REMOTE HORIZONTAL HIGH PRESSURE / HORSEPOWER HIGH PRESSURE GAS HIGH POINT HEAT PUMP UNIT HOUR HIGH STRENGTH BOLT HOSE VALVE HEATING, VENTILATION, AIR CONDITIONING HIGH WATER LINE HIGHWAY HYDRANT HYDRAULIC  INSTRUMENTATION & CONTROL IN ACCORDANCE WITH INSIDE DIAMETER INVERT ELEVATION INSIDE FACE IMPROVEMENT INCH INCLUDE(D)(ING) INFLUENT INJECTION INSTALLATION / INSTALL INSULATION INTERCEPTOR INTERIOR INVERT IRON PIPE IRON PIPE THREAD IRON ROD IRRIGATION JOINT JUNCTION	KPL KVA KW KWY  L LAB LAV LB LF LIN LN LOC LONG LP LPT LRG LS LT LVL LWL  MAN MAT MAX MCC MCP MECH MET MFR MGD MH MIN MIPT MISC MJ MON MOT MP MSL MTD  NA NAVD NC NF NIC NO / NO. HM NORM NRS NTS  O TO O OC OD OF OPNG OPP ORIG OSHA  OVHD  P&ID  PC PCC PCVC  PE PERF PERM PERP PG PH PI PIVC  PL OR P/L PLBG PNL POC POLY PP PRC PRCST PREP PRESS	KICK PLATE KILOVOLT AMPERE KILOWATT KEYWAY  LENGTH LABORATORY LAVATORY POUND LINEAR FOOT LINEAL LANE LOCATION LONGITUDINAL LOW PRESSURE LOW POINT LARGE LONG SLEEVE / LUMP SUM LEFT LEVEL LOW WATER LINE  MANUAL MATERIAL MAXIMUM MOTOR CONTROL CENTER MASTER CONTROL PANEL MECHANICAL METAL MANUFACTURER MILLION GALLONS PER DAY MANHOLE MINIMUM MALE IRON PIPE THREAD MISCELLANEOUS MECHANICAL JOINT MONUMENT / MONOLITHIC MOTOR MILEPOST MEAN SEAL LEVEL MOUNTED  NOT APPLICABLE NORTH AMERICAN VERTICAL DATUM NORMALLY CLOSED NEAR FACE NOT IN CONTRACT NORMALLY OPEN / NUMBER NOMINAL NORMAL NON-RISING STEM NOT TO SCALE  OUT TO OUT ON CENTER OUTSIDE DIAMETER OVERFLOW / OUTSIDE FACE OPENING OPPOSITE ORIGINAL OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION OVERHEAD  PROCESS & INSTRUMENTATION DIAGRAM POINT OF CURVE POINT OF COMPOUND CURVE POINT OF CURVATURE ON VERTICAL CURVE PLAIN END PERFORATED PERMANENT PERPENDICULAR PRESSURE GAUGE PIPE HANGER POINT OF INTERSECTION POINT OF INTERSECTION ON VERTICAL CURVE PROPERTY LINE / PLATE / PLASTIC PLUMBING PANEL POINT OF CURVATURE POLYETHYLENE POWER POLE POINT OF REVERSE CURVATURE PRECAST PREPARATION PRESSURE	PRKG PROP PRV PS PSIG PSL PSPT PT PTVC  PV PVC PVMT PWR  QTY  RAD RC RCP RD RDCR REF REINF REQ'D RESTR RFCA  RM RND RO R/W RBPBD  RPM RR RST RT  SALV SAN SC SCHED SD SDL SDR SECT SG SHLDR SHT SIM SL SLP SLV SOLN SP SPCL SPEC(S) SPG SPL SPRT SQ SQ FT SQ IN SQ YD SS SST ST STA STD STL STOR STR STRUCT SUBMG SUCT SV S/W SWD SWGR SYMM SYS  T OR TEL T&B	PARKING PROPERTY PRESSURE REDUCING VALVE PUMP STATION POUNDS PER SQUARE INCH GAUGE PIPE SLEEVE PIPE SUPPORT POINT OF TANGENCY POINT OF TANGENCY ON VERTICAL CURVE PLUG VALVE POLYVINYL CHLORIDE PAVEMENT POWER  QUANTITY  RADIUS REINFORCED CONCRETE REINFORCED CONCRETE PIPE ROAD / ROOF DRAIN REDUCER REFERENCE REINFORCE(D)(ING)(MENT) REQUIRED RESTRAINED RESTRAINED FLANGE COUPLING ADAPTER ROOM ROUND ROUGH OPENING RIGHT-OF-WAY REDUCED PRESSURE BACKFLOW PREVENTION DEVICE REVOLUTIONS PER MINUTE RAILROAD REINFORCED STEEL RIGHT  SALVAGE SANITARY SOLID CORE SCHEDULE STORM DRAIN SADDLE STANDARD DIMENSION RATIO SECTION SUPPLY GRATE SHOULDER SHEET SIMILAR SUPPLY LOUVER SLOPE SLEEVE SOLUTION SOIL PIPE / SEWER PIPE SPECIAL SPECIFICATION(S) SPACING SPOOL SUPPORT SQUARE SQUARE FOOT SQUARE INCH SQUARE YARD SANITARY SEWER STAINLESS STEEL STREET STATION STANDARD STEEL STORAGE STRAIGHT STRUCTURE / STRUCTURAL SUBMERGED SUCTION SOLENOID VALVE SIDEWALK SIDEWATER DEPTH SWITCH GEAR SYMMETRICAL SYSTEM  TELEPHONE TOP & BOTTOM	TAN TB TBM TC TCE TDH TEMP T&G THK THRD THRU TOG TP  TRANS TSP TST TW TYP  UG UH UN UON USGS  V VAC VB VBOX VC VERT VFD VOL VCP VTR  W W/ W/IN W/O W/W WD WF WH WI WM WP WS WSDOT  WT WTP WTRT WWF  X SECT XFMR  YD YH YR  ZN	TANGENCY THRUST BLOCK TEMPORARY BENCHMARK TOP OF CONCRETE / TOP OF CURB TEMPORARY CONSTRUCTION EASEMENT TOTAL DYNAMIC HEAD TEMPERATURE / TEMPORARY TONGUE & GROOVE THICK / THICKNESS THREAD (ED) THROUGH TOP OF GRATE TEST PIT / TOP OF PAVEMENT / TURNING POINT TRANSITION TRI-SODIUM PHOSPHATE TOP OF STEEL TOP OF WALL TYPICAL  UNDERGROUND UNIT HEATER UNION UNLESS OTHERWISE NOTED UNITED STATES GEOLOGIC SURVEY  VENT / VOLT VACUUM VACUUM BREAKER VALVE BOX VERTICAL CURVE VERTICAL VARIABLE FREQUENCY DRIVE VOLUME VITRIFIED CLAY PIPE VENT THROUGH ROOF  WATER WITHIN WITHOUT WALL TO WALL WOOD WIDE FLANGE WATER HEATER WROUGHT IRON WATER METER WORKING POINT / WATERPROOFING WATER SERVICE WASHINGTON STATE DEPARTMENT OF TRANSPORTATION WEIGHT WATER TREATMENT PLANT WATERTIGHT WELDED WIRE FABRIC  CROSS SECTION TRANSFORMER  YARD DRAIN / YARD YARD HYDRANT YEAR  ZINC
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**Port ORCHARD**

**CITY OF PORT ORCHARD**  
**MCCORMICK WOODS - WELL NO. 11**  
**SITE IMPROVEMENT PROJECT**

**ABBREVIATIONS**

PROJECT NO.:	20-2839.01	SCALE:	AS SHOWN	DATE:	SEPTEMBER 2022
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SHEET

**G-3**

X of X

**GENERAL NOTES**

1. CONTRACTOR SHALL HAVE BEEN IN BUSINESS UNDER THE SAME NAME THE LAST 5 CONTINUOUS YEARS AND SHALL PROVIDE A MINIMUM OF 3 CONSTRUCTION PROJECTS WHICH ARE SIMILAR IN TYPE, SIZE, AND SCOPE OF WORK REQUIRED FOR THIS PROJECT.
2. THE SCOPE OF WORK FOR THIS PROJECT CONSTITUTES AS PUBLIC WORK UNDER STATE LAW. BIDDERS SHOULD TAKE INTO CONSIDERATION STATUTORY LEGAL REQUIREMENTS, PARTICULARLY, THE PAYMENT OR PREVAILING WAGES, PAYMENT/PERFORMANCE BONDS AND SALES TAX IMPLICATIONS IN MAKING THEIR BID.
3. CONTRACTOR IS RESPONSIBLE FOR VERIFYING CONDITIONS IN THE FIELD PRIOR TO BID SUBMISSION. ANY DISCREPANCIES BETWEEN FIELD CONDITIONS AND PROJECT INTENT/CONTRACT DOCUMENTS AFFECTING THE COST OR THE PROJECT SHALL BE REPORTED TO THE OWNER'S REPRESENTATIVE IMMEDIATELY.
4. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE ALL UTILITIES PRIOR TO CONSTRUCTION. COST OF LOCATES IS THE SOLE RESPONSIBILITY OR THE CONTRACTOR.
5. OWNER IS RESPONSIBLE FOR OBTAINING ALL PERMITS.
6. THESE CONSTRUCTION DOCUMENTS ARE NOT COMPLETE UNLESS ACCOMPANIED BY THE PROJECT MANUAL, SPECIFICATIONS, AND BID FORM PROVIDED BY THE CITY OF PORT ORCHARD THAT CONFORM TO WASHINGTON STATE REGULATIONS.
7. CONTRACTOR IS RESPONSIBLE FOR INCIDENTAL TRAFFIC CONTROL MEASURES AS REQUIRED IN ACCORDANCE WITH THE MANUAL ON TRAFFIC CONTROL DEVICES (MUTCD) AND WASHINGTON STATE MODIFICATIONS TO THE MUTCD.
8. AREAS DISTURBED OR DAMAGED BY CONSTRUCTION ACTIVITIES SHALL BE CONSTRUCTED OR RESTORED TO ORIGINAL CONDITIONS OR BETTER. THE CONTRACTOR IS RESPONSIBLE FOR DOCUMENTING CONDITIONS PRIOR TO CONSTRUCTION ACTIVITIES AND ANY DAMAGES THAT MAY OCCUR.
9. OWNER WILL FURNISH COMPACTION & MATERIAL TESTING. IF CONTRACTOR RAILS TESTING, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ADDITIONAL TESTING UNTIL COMPACTION AND MATERIALS MEET SPECIFICATION.

**CONSTRUCTION SEQUENCING NOTES**

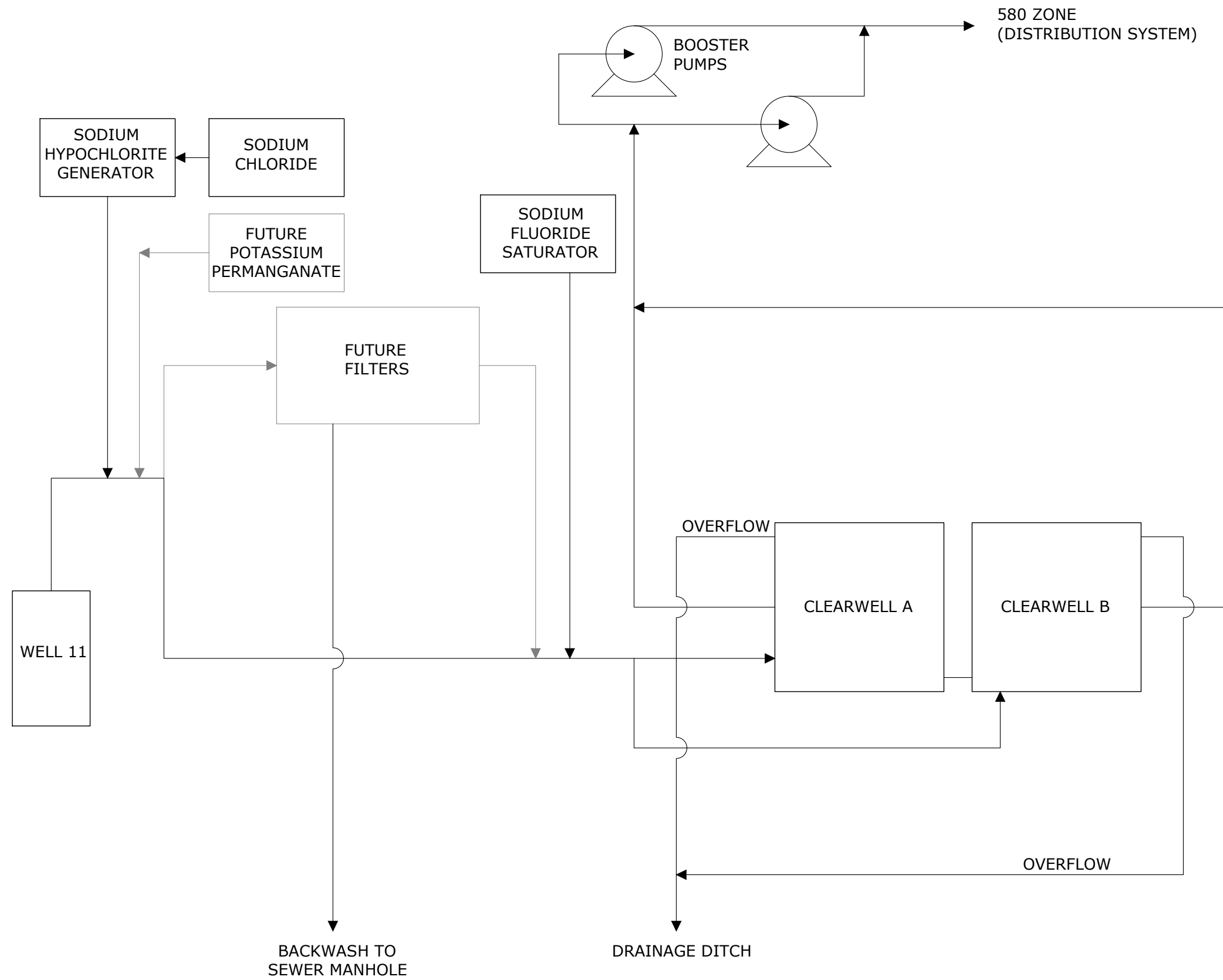
1. SEE SPECIFICATION SECTION 01 12 16 - WORK SEQUENCE

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	<p>NOTICE</p> <p>IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE</p>	<p>CLB DESIGNED</p> <p>EJJ DRAWN</p> <p>EKS CHECKED</p>	<p><b>PRELIMINARY ONLY</b> DO NOT USE FOR CONSTRUCTION</p> <p>SEPTEMBER 2022</p> <p><b>Murraysmith</b> <small>www.murraysmith.us</small></p>		<p><b>CITY OF PORT ORCHARD</b> <b>MCCORMICK WOODS -</b> <b>WELL NO. 11</b> <b>SITE IMPROVEMENT</b> <b>PROJECT</b></p>	<p><b>GENERAL NOTES</b></p>	<p>SHEET</p> <p>G-4</p> <p>X of X</p>	
NO.	DATE	BY	REVISION					<p>PROJECT NO.: 20-2839.01    SCALE: AS SHOWN    DATE: SEPTEMBER 2022</p>

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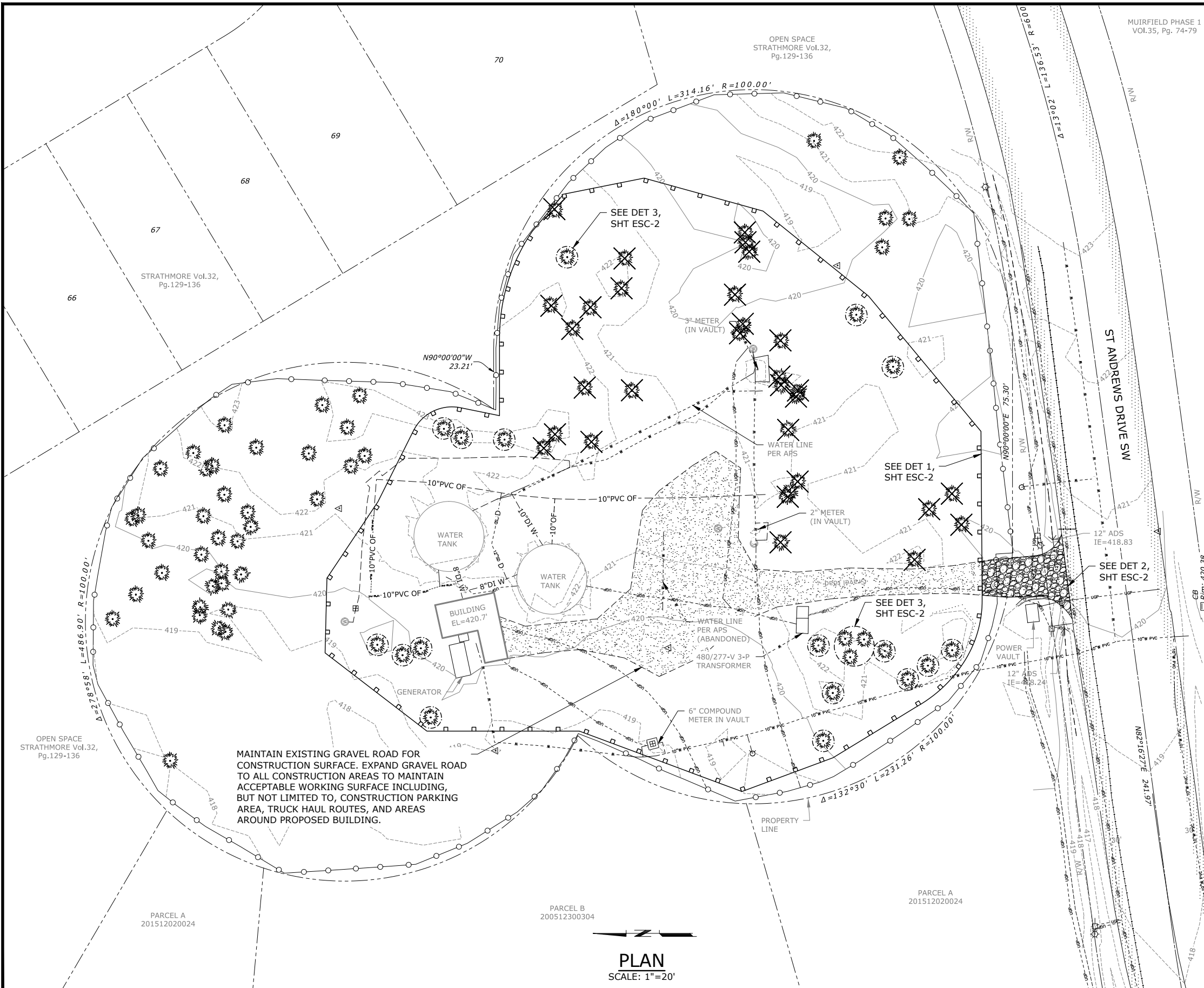


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**FLOW SCHEMATIC**  
 PROJECT NO.: 20-2839.01 SCALE: AS SHOWN DATE: SEPTEMBER 2022

SHEET  
 G-5  
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**EROSION CONTROL NOTES:**

1. EROSION CONTROL MEASURES SHALL BE TAKEN BY THE CONTRACTOR DURING CONSTRUCTION TO PREVENT THE MIGRATION OF SILT AND DEBRIS. EROSION CONTROL BEST MANAGEMENT PRACTICES SHALL BE IN COMPLIANCE WITH THESE CONTRACT DOCUMENTS AND WITH THE CITY OF PORT ORCHARD STORMWATER MANUAL.
2. THE TEMPORARY EROSION CONTROL SYSTEM SHALL BE INSTALLED PRIOR TO ALL OTHER CONSTRUCTION AND SHALL BE MAINTAINED IN A SATISFACTORY CONDITION UNTIL CLEARING AND/OR CONSTRUCTION IS COMPLETED. PERMANENT DRAINAGE FACILITIES ARE OPERATIONAL AND THE POTENTIAL FOR EROSION HAS PASSED.

**STANDARD NOTES:**

1. APPROVAL OF THIS EROSION/SEDIMENT CONTROL (ESC) PLAN DOES NOT CONSTITUTE AN APPROVAL OF PERMANENT ROAD OR DRAINAGE DESIGN (E.G. SIZE AND LOCATION OF ROADS, PIPES, RESTRICTORS, CHANNELS, RETENTION FACILITIES, UTILITIES, ETC.).
2. THE IMPLEMENTATION OF THESE ESC PLANS AND THE CONSTRUCTION, MAINTENANCE, REPLACEMENT, AND UPGRADING OF THESE ESC FACILITIES IS THE RESPONSIBILITY OF THE APPLICANT/CONTRACTOR UNTIL ALL CONSTRUCTION IS COMPLETED AND APPROVED AND VEGETATION/LANDSCAPING IS ESTABLISHED.
3. THE BOUNDARIES OF THE CLEARING LIMITS SHOWN ON THIS PLAN SHALL BE CLEARLY FLAGGED IN THE FIELD PRIOR TO CONSTRUCTION. DURING THE CONSTRUCTION PERIOD, NO DISTURBANCE BEYOND THE FLAGGED CLEARING LIMITS SHALL BE PERMITTED. THE FLAGGING SHALL BE MAINTAINED BY THE APPLICANT/CONTRACTOR FOR THE DURATION OF THE CONSTRUCTION.
4. THE ESC FACILITIES SHOWN ON THIS PLAN MUST BE CONSTRUCTED IN CONJUNCTION WITH ALL CLEARING GRADING ACTIVITIES, AND IN SUCH A MANNER AS TO INSURE THAT SEDIMENT AND SEDIMENT LADEN WATER DO NOT ENTER THE DRAINAGE SYSTEM, ROADWAYS, OR VIOLATE APPLICABLE WATER STANDARDS.
5. THE ESC FACILITIES SHOWN ON THIS PLAN ARE THE MINIMUM REQUIREMENTS FOR ANTICIPATED SITE CONDITIONS. DURING THE CONSTRUCTION PERIOD, THESE ESC FACILITIES SHALL BE UPGRADED AS NEEDED FOR UNEXPECTED STORM EVENTS AND TO ENSURE THAT SEDIMENT AND SEDIMENT-LADEN WATER DO NOT LEAVE THE SITE.
6. THE ESC FACILITIES SHALL BE INSPECTED DAILY BY THE APPLICANT/CONTRACTOR AND MAINTAINED AS NECESSARY TO ENSURE THEIR CONTINUED FUNCTIONING.
7. THE ESC FACILITIES ON INACTIVE SITES SHALL BE INSPECTED AND MAINTAINED A MINIMUM OF ONCE A MONTH OR WITHIN THE 48 HOURS FOLLOWING A MAJOR STORM EVENT.
8. AT NO TIME SHALL MORE THAN ONE FOOT OF SEDIMENT BE ALLOWED TO ACCUMULATE WITHIN A TRAPPED CATCH BASIN. ALL CATCH BASINS AND CONVEYANCE LINES SHALL BE CLEANED PRIOR TO PAVING. THE CLEANING OPERATION SHALL NOT FLUSH SEDIMENT LADEN WATER INTO THE DOWNSTREAM SYSTEM.
9. STABILIZED CONSTRUCTION ENTRANCES SHALL BE INSTALLED AT THE BEGINNING OF CONSTRUCTION AND MAINTAINED FOR THE DURATION OF THE PROJECT. ADDITIONAL MEASURES MAY BE REQUIRED TO INSURE THAT ALL PAVED AREAS ARE KEPT CLEAN FOR THE DURATION OF THE PROJECT.

**LEGEND**

-  TREE PROTECTION
-  TREE TO BE REMOVED
-  TEMPORARY CONSTRUCTION ENTRANCE
-  HIGH VISIBILITY SILT FENCE

MAINTAIN EXISTING GRAVEL ROAD FOR CONSTRUCTION SURFACE. EXPAND GRAVEL ROAD TO ALL CONSTRUCTION AREAS TO MAINTAIN ACCEPTABLE WORKING SURFACE INCLUDING, BUT NOT LIMITED TO, CONSTRUCTION PARKING AREA, TRUCK HAUL ROUTES, AND AREAS AROUND PROPOSED BUILDING.

**PLAN**  
SCALE: 1"=20'

**90% SUBMITTAL**

NO.	DATE	BY	REVISION

**NOTICE**  
0 1/2 1  
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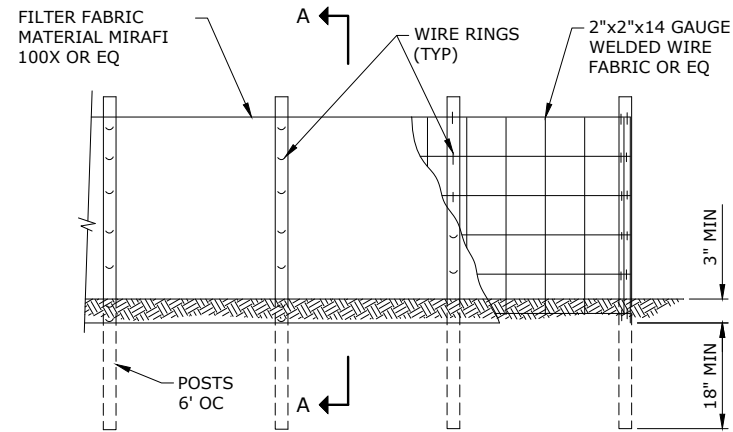
**Port ORCHARD**

**CITY OF PORT ORCHARD**  
**MCCORMICK WOODS - WELL NO. 11**  
**SITE IMPROVEMENT PROJECT**

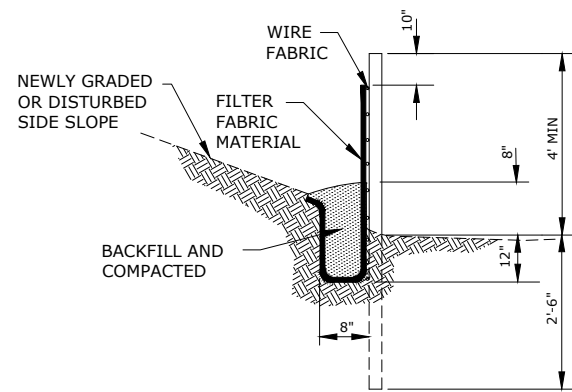
PROJECT NO.:	20-2839.01	SCALE:	AS SHOWN	DATE:	SEPTEMBER 2022
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SHEET  
**ESC-1**  
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ELEVATION



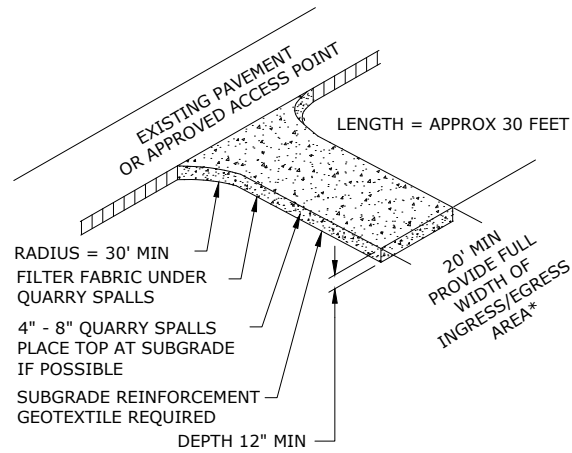
SECTION A-A

NOTES:

1. BURY BOTTOM OF FILTER FABRIC 12" VERTICALLY BELOW FINISHED GRADE
2. 2"x 2" FIR, PINE OR STEEL FENCE POSTS
3. STITCHED LOOPS TO BE INSTALLED DOWNHILL SIDE OF SLOPE
4. COMPACT ALL AREAS OF FILTER FABRIC TRENCH
5. LOCATE SILT FENCING AND SECURITY FENCING IMMEDIATELY NEXT TO ONE ANOTHER TO THE MAXIMUM EXTENT PRACTICAL, AT CONTRACTORS DISCRETION, AND CONTINGENT UPON APPROVAL BY OWNER, SILT AND SECURITY FENCING MAY BE COMBINED INTO A COMMON FENCE

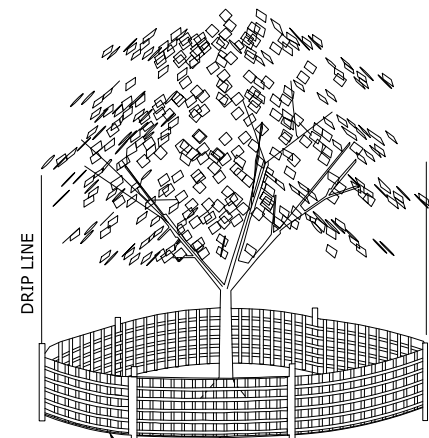
**HIGH VISIBILITY SILT FENCE**

SCALE: NTS



**TEMP CONSTRUCTION ENTRANCE**

SCALE: NTS



**TREE PROTECTION**

SCALE: NTS



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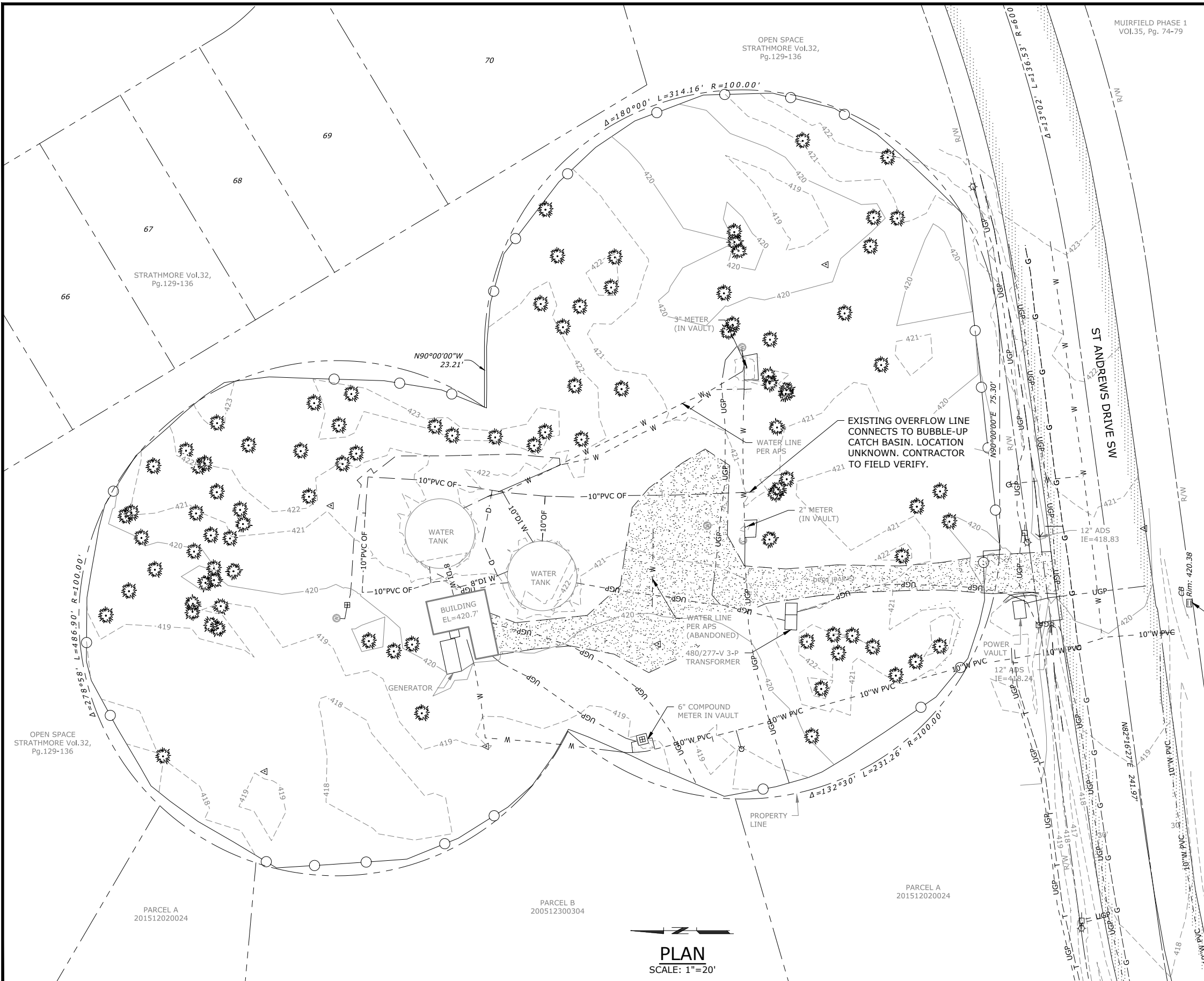


**CITY OF PORT ORCHARD**  
**MCCORMICK WOODS -**  
**WELL NO. 11**  
**SITE IMPROVEMENT**  
**PROJECT**

PROJECT NO.: 20-2839.01 SCALE: AS SHOWN DATE: SEPTEMBER 2022

SHEET  
**ESC-2**  
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**HORIZONTAL DATUM:**  
 WASHINGTON STATE COORDINATE SYSTEM , NORTH ZONE NAD83(11), US FEET UTILIZING RTK GPS FIELD PROCEDURES

**CONTOUR INTERVAL:**  
 ONE(1) FOOT CONTOURS

**VERTICAL DATUM:**  
 NORTH AMERICAN DATUM 1988 (NAVD88), US FEET. AS PRESCRIBED BY KITSAP COUNTY

**UNDERGROUND UTILITIES NOTE:**  
 THE LOCATION OF UNDERGROUND UTILITIES SHOWN ARE APPROXIMATE ONLY AND HAVE BEEN LOCATED FROM VISIBLE EVIDENCE AND PAINT MARKS BY APPLIED PROFESSIONAL SERVICES, INC. AND THE CITY OF PORT ORCHARD. AES CONSULTANTS AND MURRAYSMITH AND ASSOCIATES MAKE NO GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION SHOWN OR COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE LOCATION OF CRITICAL UNDERGROUND UTILITIES SHOULD BE EXPOSED AND VERIFIED PRIOR TO CONSTRUCTION. PLEASE NOTIFY ONE CALL AT 1-800-424-5555 AND ARRANGE FOR FIELD LOCATION OF EXISTING FACILITIES PRIOR TO ANY CONSTRUCTION ACTIVITIES.

**TOPOGRAPHIC MAPPING:**  
 THE MAP SHOWN HEREIN IS THE RESULT OF A TOPOGRAPHIC SURVEY BY AES CONSULTANTS, INC (AES) COMPLETED IN JUNE 2020. AES ASSUMES NO LIABILITY, BEYOND SAID DATE, FOR ANY FUTURE SURFACE FEATURE MODIFICATIONS OR CONSTRUCTION ACTIVITIES THAT MAY OCCUR WITHIN OR ADJOINING THE PERMITTER OF THIS SURVEY. CONTACT AES (360) 692-6400 FOR SITE UPDATES AND VERIFICATIONS.

NOTE: PROPERTY LINES HEREIN GENERATED FROM KITSAP GIS RECORDS AND ARE CONSIDERED APPROXIMATE IN LOCATION.

BUBBLE-UP CATCH BASIN FROM CLEARWELL OVERFLOWS

PLAN  
 SCALE: 1"=20'

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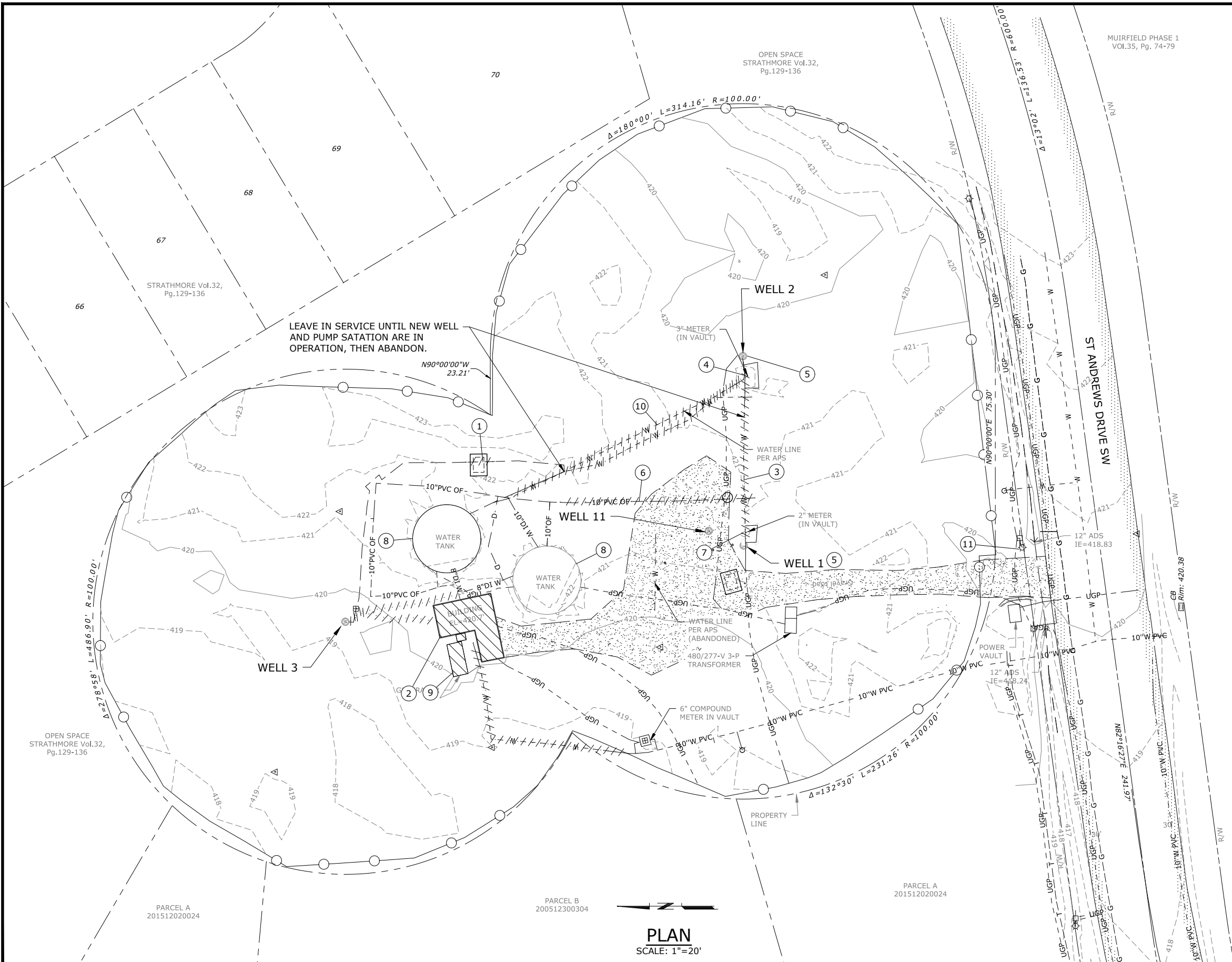
Port ORCHARD  
 CITY OF PORT ORCHARD  
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**EXISTING SITE CONDITIONS AND SURVEY**  
 PROJECT NO.: 20-2839.01 SCALE: AS SHOWN DATE: SEPTEMBER 2022

SHEET  
 C-1  
 X of X



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- DEMOLITION KEY NOTES:**
- ① CUT AND REMOVE APPROX. 8' OF EXISTING 8" WATER PIPE FROM WELL 3. INSTALL NEW 8" WATER PIPE AND VAULT AS SHOWN ON SHT C-4.
  - ② DEMO EXIST PUMP HOUSE
  - ③ ABANDON YARD PIPING FROM EXISTING WELLS ONCE THE NEW WELL AND PUMP STATION ARE IN SERVICE. PLUG AND CAP ENDS OF PIPES WITH 2' MIN. CONCRETE
  - ④ ABANDON EXIST METER VAULT. SALVAGE 3" METER AND (3) 6" GATE VALVES TO OWNER
  - ⑤ CAP AND DECOMMISSION EXIST WELLS 1 AND 2 PER WAC 173-160-381 ONCE THE NEW WELL AND PUMP STATION ARE IN SERVICE
  - ⑥ REMOVE EXISTING 10" OVERFLOW PIPE AND INSTALL NEW OVERFLOW PIPE, AS SHOWN ON SHT C-4, PRIOR TO PREPARING SOIL FOR PAVEMENT AND BUILDING FOUNDATION
  - ⑦ ABANDON EXIST METER VAULT SALVAGE 2" METER, (3) 4" GATE VALVES TO OWNER
  - ⑧ CLEAN BLAST AND COAT INTERIOR AND EXTERIOR OF EXISTING TANKS. REPLACE ACCESS HATCHES, MECHANICAL FLOATS, VENTS AND TRANSDUCERS.
  - ⑨ REMOVE EXIST GENSET AND DEMOLISH EXIST GENERATOR PAD, SALVAGE GENSET TO OWNER
  - ⑩ REMOVE EXISTING 10" WATER PIPE AND INSTALL NEW WATER PIPE, AS SHOWN ON SHT C-4, PRIOR TO PREPARING SOIL FOR PAVEMENT AND BUILDING FOUNDATION.
  - ⑪ RELOCATE EXISTING LIGHT POLE NEAR ACCESS ROAD, TO THE NORTHEAST, AS SHOWN ON SHEET C-3, PRIOR TO PREPARING SOIL FOR PAVEMENT AND BUILDING FOUNDATION.

- NOTES:**
1. EXISTING WELLS AND BOOSTER TANKS MUST REMAIN IN OPERATION UNTIL NEW FACILITIES ARE ACCEPTED BY THE CITY ARE IN OPERATION.
  2. SEE SHT G-4 AND SPECIFICATION SECTION 01 12 16 - WORK SEQUENCE FOR CONSTRUCTION SEQUENCING NOTES.
  3. SEE SHT ESC-1 FOR TREE REMOVAL AND TREE PROTECTION DETAILS.

**LEGEND:**

- X X X REMOVE
- ABANDON
- ////// REMOVE STRUCTURE

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**PLAN**  
SCALE: 1"=20'

**Port ORCHARD**

**CITY OF PORT ORCHARD**  
**MCCORMICK WOODS - WELL NO. 11**  
**SITE IMPROVEMENT PROJECT**

**SITE DEMOLITION PLAN**

SHEET **C-2**

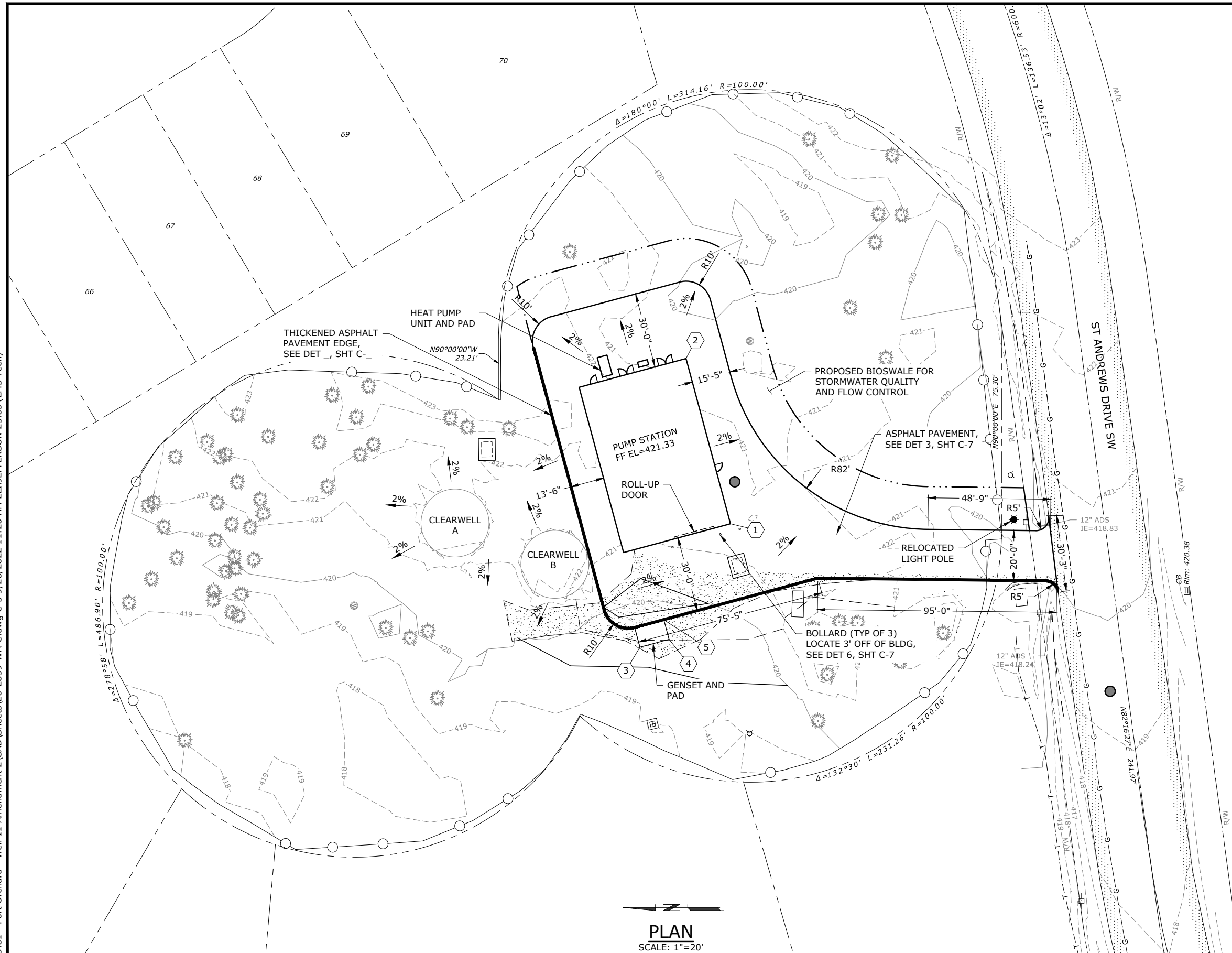
PROJECT NO.: 20-2839.01 SCALE: AS SHOWN DATE: SEPTEMBER 2022 X of X

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**PAVING KEY NOTES:**

- ① SLOPE NEW PAVEMENT AREAS MIN 2% AWAY FROM BUILDING AND GENERATOR PAD
- ② FIRE LANES SHALL BE MARKED AS "FIRE LANE - NO PARKING" IN ACCORDANCE WITH PORT ORCHARD MUNICIPAL CODE 10.60

GRADING CONTROL POINTS				
PT NO.	DESCRIPTION	ELEVATION	NORTHING	EASTING
①	PUMP STATION CORNER, SW	421.54	189611.21	1182623.57
②	PUMP STATION CORNER, SE	420.59	189628.88	1182689.24
③	GENSET PAD CORNER, NW	420.17	189647.21	1182574.53
④	GENSET PAD CORNER, SW	419.71	189635.62	1182577.63
⑤	PAVEMENT EDGE	419.69	189637.69	1182585.36



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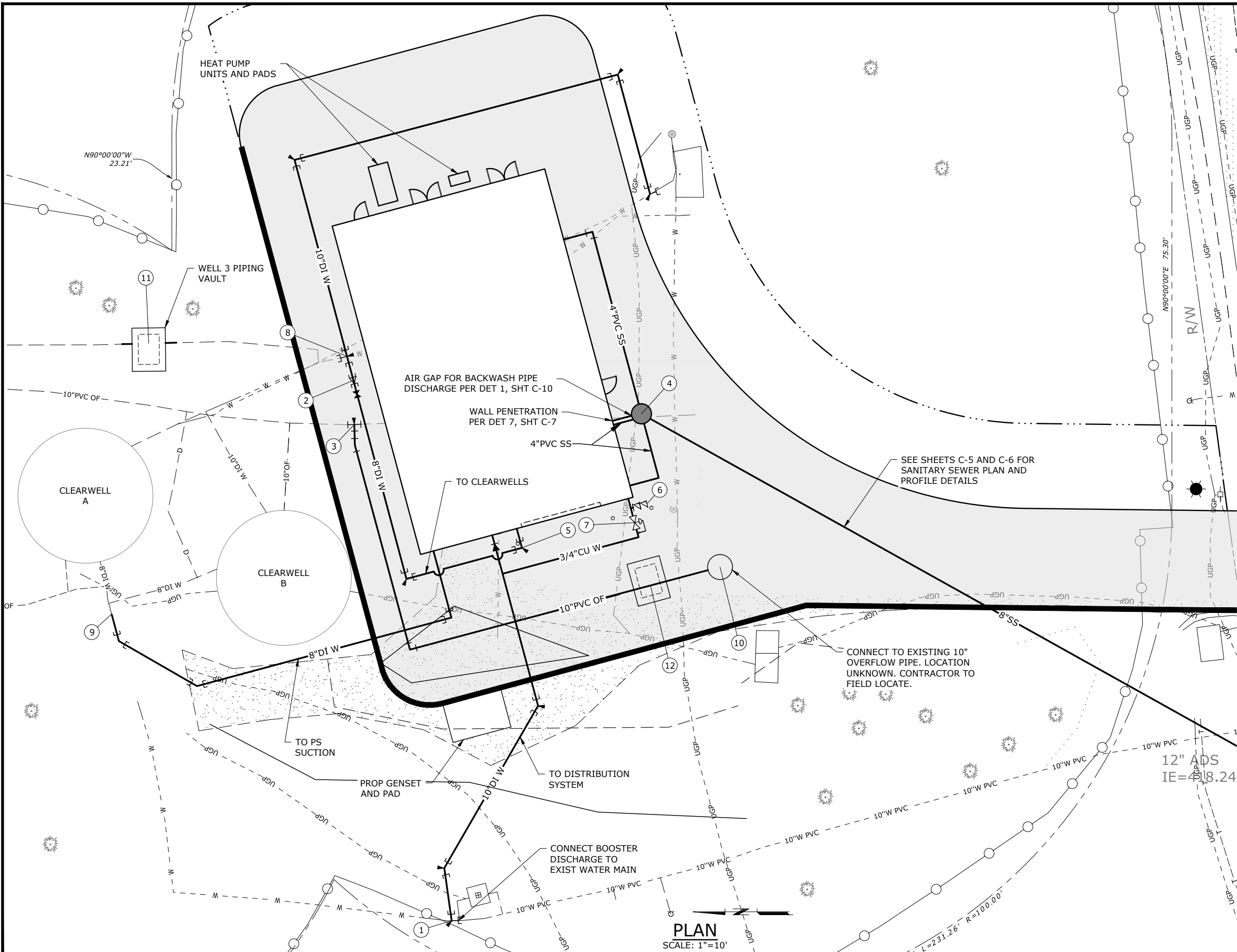
**CITY OF PORT ORCHARD**  
**MCCORMICK WOODS - WELL NO. 11**  
**SITE IMPROVEMENT PROJECT**

**PAVING, GRADING AND DRAINAGE PLAN**

PROJECT NO.: 20-2839.01 SCALE: AS SHOWN DATE: SEPTEMBER 2022

SHEET  
**C-3**  
 X of X

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**PIPING KEY NOTES:**

- ① N189647.46, E1182538.86  
FURNISH & INSTALL:  
1-10"DI 90° BEND, MJ RESTR  
2-10"DI 45° BEND, MJ RESTR  
1-10"x8" DI RDCR, MJ RESTR  
3-TB, SEE DET 2 & 3, SHT C-10  
CONNECT TO EXISTING 10" WATER MAIN
- ② N189666.94, E1182646.27  
FURNISH & INSTALL:  
1-10"x8" DI RDCR, MJ RESTR  
1-8" DI 90° BEND, MJ RESTR  
1-8" GV, MJ  
1-TB  
CONNECT TO EXIST 10" DI TEE LEADING TO CLEARWELLS
- ③ N189682.15, E1182638.62  
FURNISH AND INSTALL:  
1-10" SDR 35 PVC TEE  
1-10" 11.25° BENDS, SDR 35 PVC  
1-10" 90° BEND, SDR 35 PVC  
CONNECT TO EXISTING 10" PVC OVERFLOW PIPE
- ④ N189609.51, E1182640.25  
FURNISH & INSTALL:  
1-4' DIA CONCRETE MANHOLE W/ AIR GAP PER DET 1, SHT C-10
- ⑤ N189633.42, E1182613.46  
FURNISH & INSTALL:  
1-8" DI 90° BEND, MJ RESTR  
1-TB
- ⑥ N189608.42, E1182622.25  
FURNISH & INSTALL:  
3/4" RPBA W/ HOSE BIB IN HOT BOX
- ⑦ N189610.87, E1182618.48  
FURNISH & INSTALL:  
3/4" PRV IN AASHTO H-20 VALVE BOX
- ⑧ N189668.40, E1182651.73  
FURNISH & INSTALL:  
3-10" DI 90° BENDS, MJ RESTR  
1-10" DI TEE, MJ  
3-TB  
CONNECT TO EXIST 10" DI WATER PIPE
- ⑨ N189715.46, E1182600.13  
FURNISH & INSTALL:  
1-8" DI 90° BENDS, MJ RESTR  
2-8" DI 45° BENDS, MJ RESTR  
3-TB  
CONNECT TO EXIST 8" DI WATER PIPE FROM CLEARWELLS
- ⑩ N189593.81, E1182609.62  
FURNISH & INSTALL:  
1-5' DIA CHLORINATION MANHOLE PER DET 1, SHT C-11  
CONNECT TO EXISTING 10" PVC OVERFLOW PIPE
- ⑪ N189708.10, E1182654.29  
FURNISH & INSTALL  
1-CONC VAULT PER DET 4, SHT C-12  
CONNECT TO EXISTING 8" DI WATER PIPE FROM WELL 3 TO CLEARWELLS
- ⑫ N189607.88, E1182605.87  
FURNISH & INSTALL  
1-CONC VAULT PER DET 5, SHT C-12  
1-10" CV

- NOTES:**
- 1. ALL PRESSURIZED WATER PIPELINES SHALL BE FULLY RESTRAINED. INCLUDE RESTRAINED MECHANICAL JOINTS AT ALL PIPE CONNECTIONS AND FITTINGS, AND INSTALL THRUST BLOCKING AT ALL BENDS, PER TABLE 1 ON SHEET C-6.
  - 2. CONTRACTOR SHALL PROTECT EXISTING WATER MAIN EXCEPT WHERE THE PLANS CALL FOR ABANDONMENT.
  - 3. SLOPE 10" PVC OVERFLOW AT A CONSTANT GRADE BETWEEN EXISTING CONNECTION POINTS.
  - 4. SEE DET 1, SHT C-8 FOR WATER MAIN TRENCH DETAILS.
  - 5. VALVE BOXES SHALL BE INSTALLED ON ALL BURIED VALVES PER DET 3 & 4, SHT C-9.

**PLAN**  
SCALE: 1"=10'

**90% SUBMITTAL**

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**NOTICE**

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**CITY OF PORT ORCHARD**  
**MCCORMICK WOODS - WELL NO. 11**  
**SITE IMPROVEMENT PROJECT**

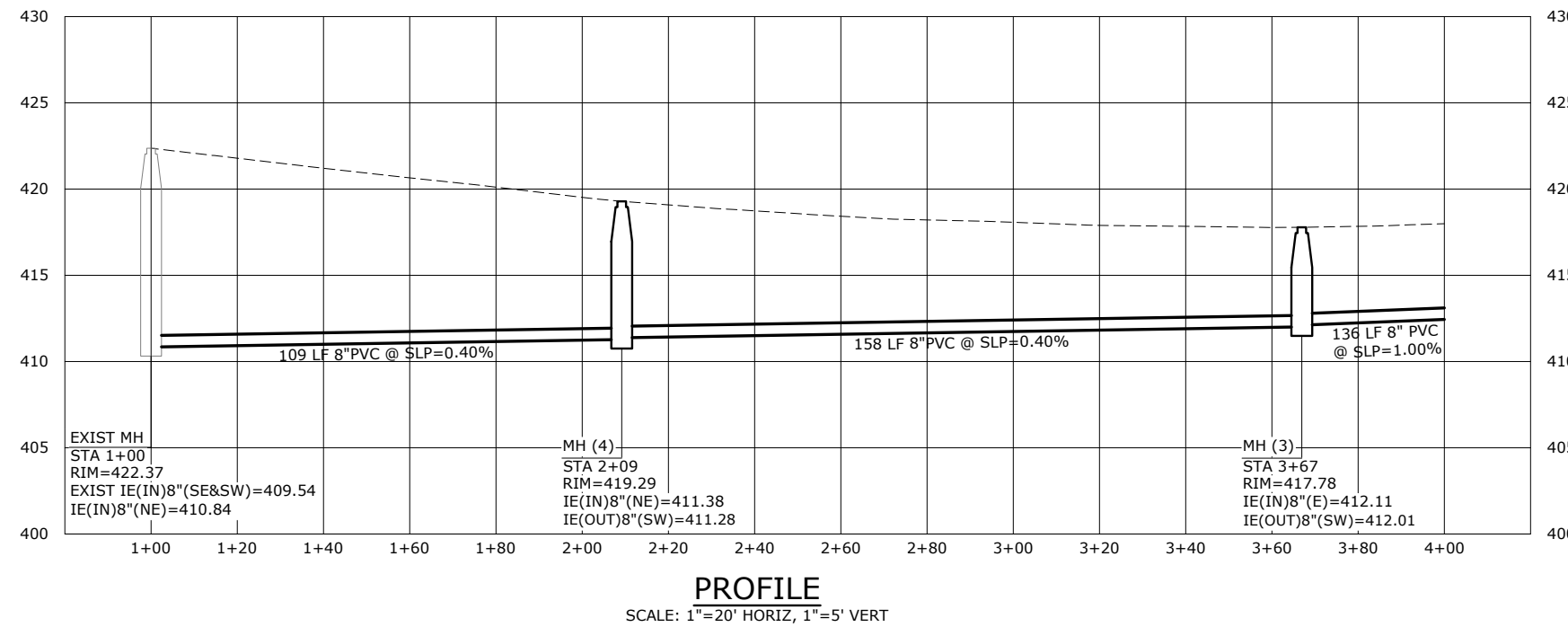
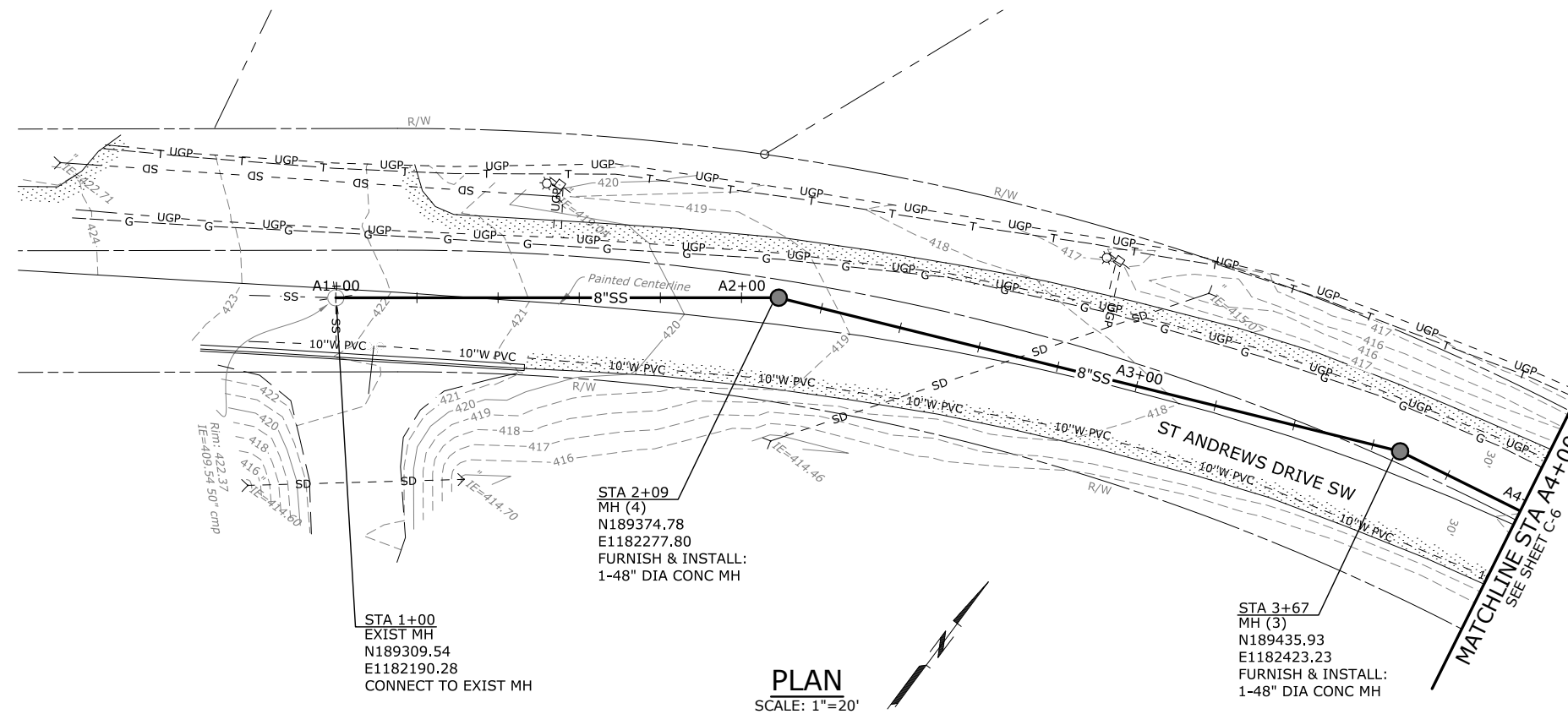
**YARD PIPING PLAN**

PROJECT NO.: 20-2839.01 SCALE: AS SHOWN DATE: SEPTEMBER 2022

SHEET  
**C-4**  
X of X

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- NOTES:
1. SEE DET 4 & 5, SHT C-7 FOR STREET RESTORATION.
  2. SEE DET 2, SHT C-8 FOR SEWER TRENCH DETAILS.
  3. MAINTAIN MINIMUM REQUIRED DISTANCE BETWEEN WATER LINES AND SANITARY SEWER PER DET 3, SHT C-8.
  4. SEE DET 4, SHT C-8 AND DET 1 & 2, SHT C-9 FOR NEW 48" DIAMETER MANHOLES.



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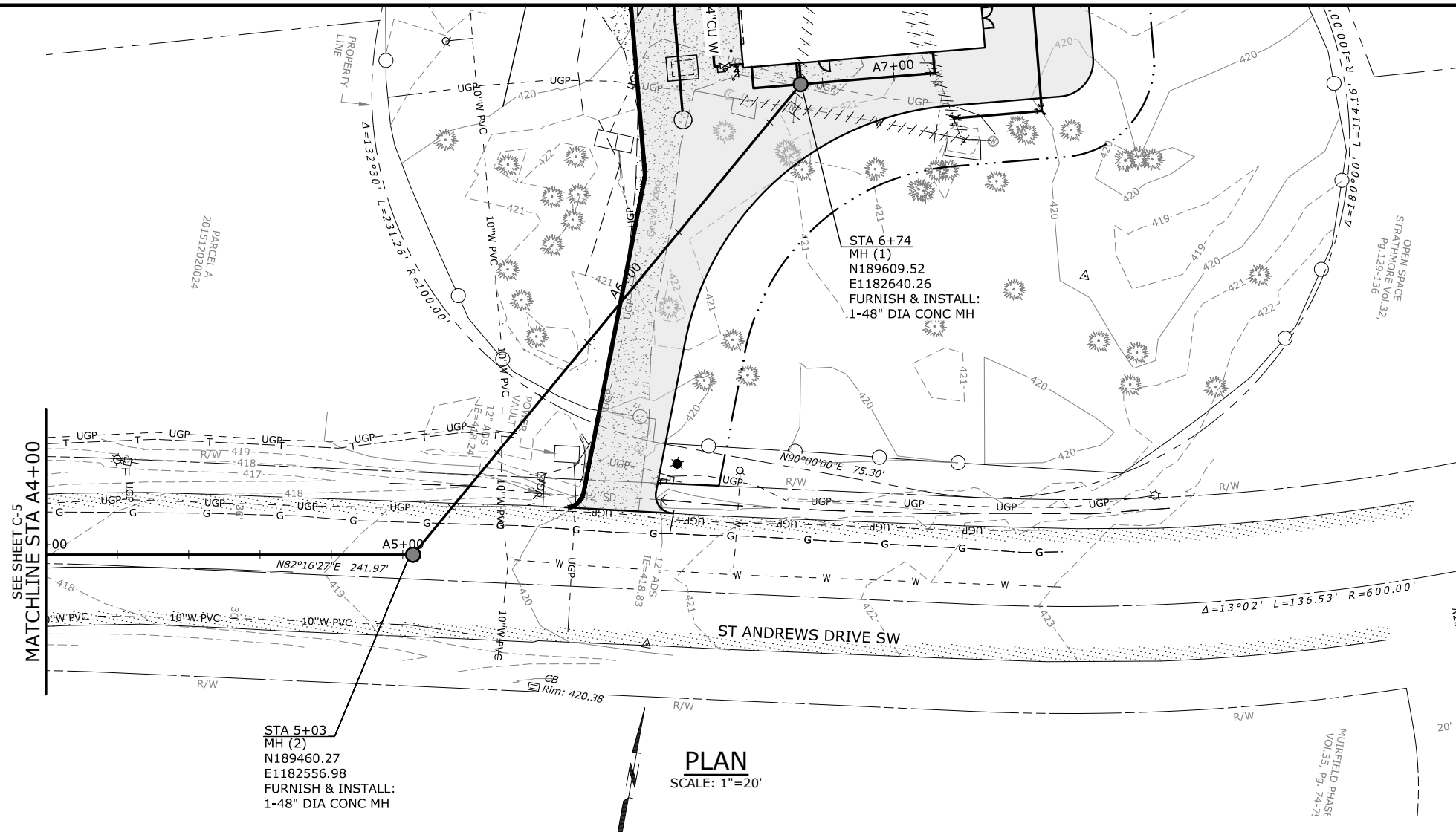
**CITY OF PORT ORCHARD  
MCCORMICK WOODS -  
WELL NO. 11  
SITE IMPROVEMENT  
PROJECT**

**SANITARY SEWER  
PLAN AND PROFILE 1**

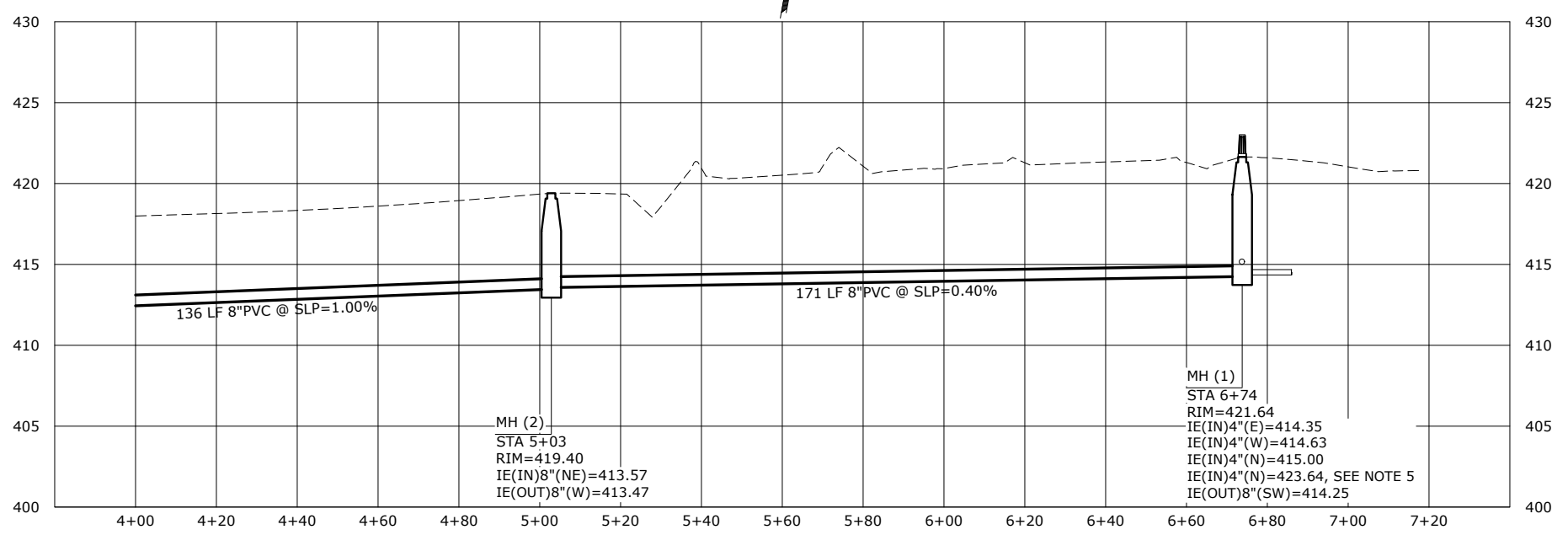
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SHEET  
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- NOTES:
1. SEE DET 4 & 5, SHT C-7 FOR STREET RESTORATION.
  2. SEE DET 2, SHT C-8 FOR SEWER TRENCH DETAILS.
  3. MAINTAIN MINIMUM REQUIRED DISTANCE BETWEEN WATER LINES AND SANITARY SEWER PER DET 3, SHT C-8.
  4. SEE DET 4, SHT C-8 AND DET 1 & 2, SHT C-9 FOR NEW 48" DIAMETER MANHOLES.
  5. SEE DTL 1, SHT C-10 FOR BACKWASH PIPE AIR GAP AND DEBRIS CAGE.



**PROFILE**  
SCALE: 1"=20' HORIZ, 1"=5' VERT

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**SANITARY SEWER PLAN AND PROFILE 2**

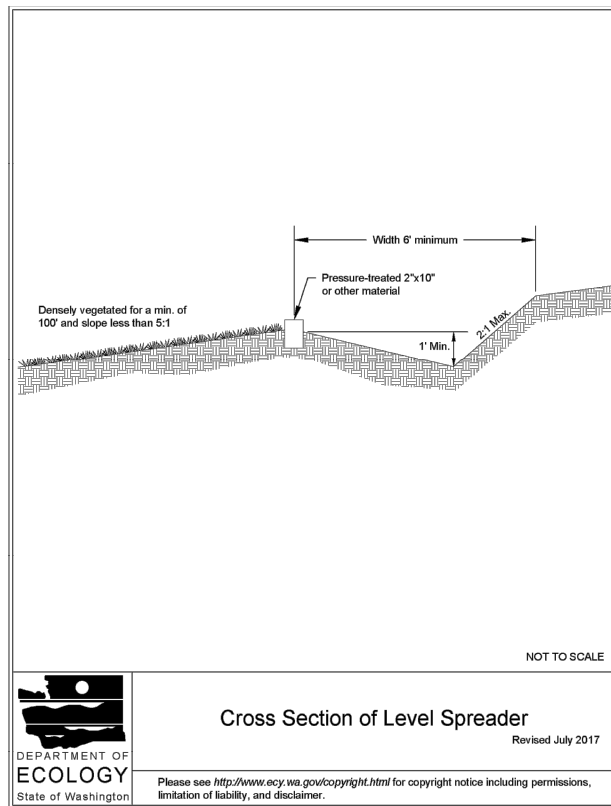
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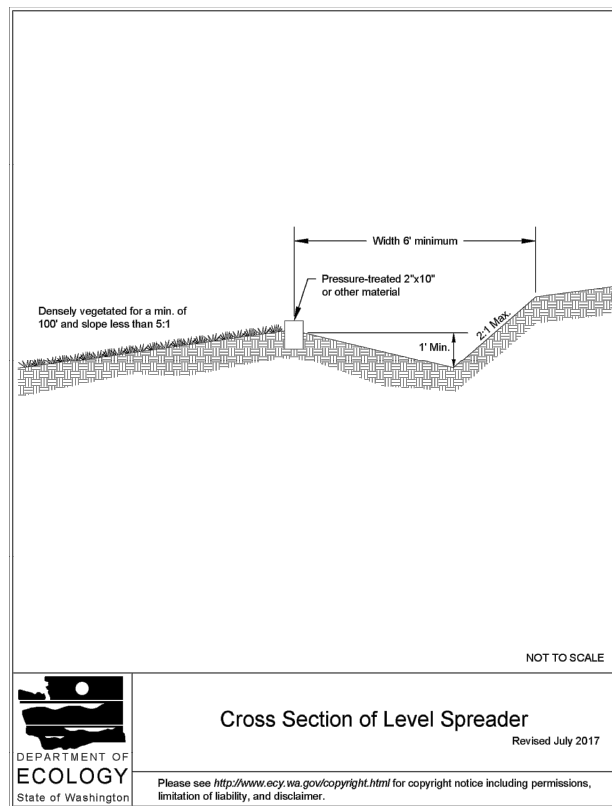


Cross Section of Level Spreader  
Revised July 2017



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**LEVEL SPREADER SECTION 1**  
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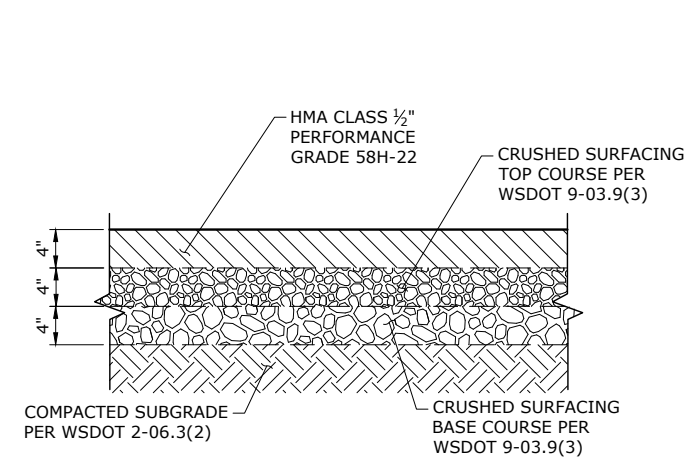


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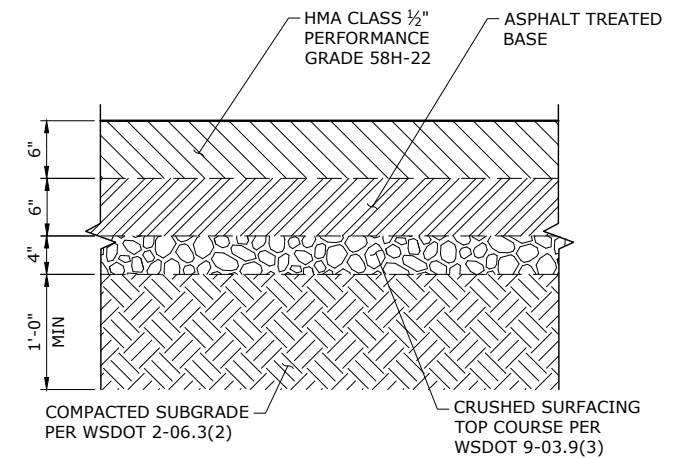


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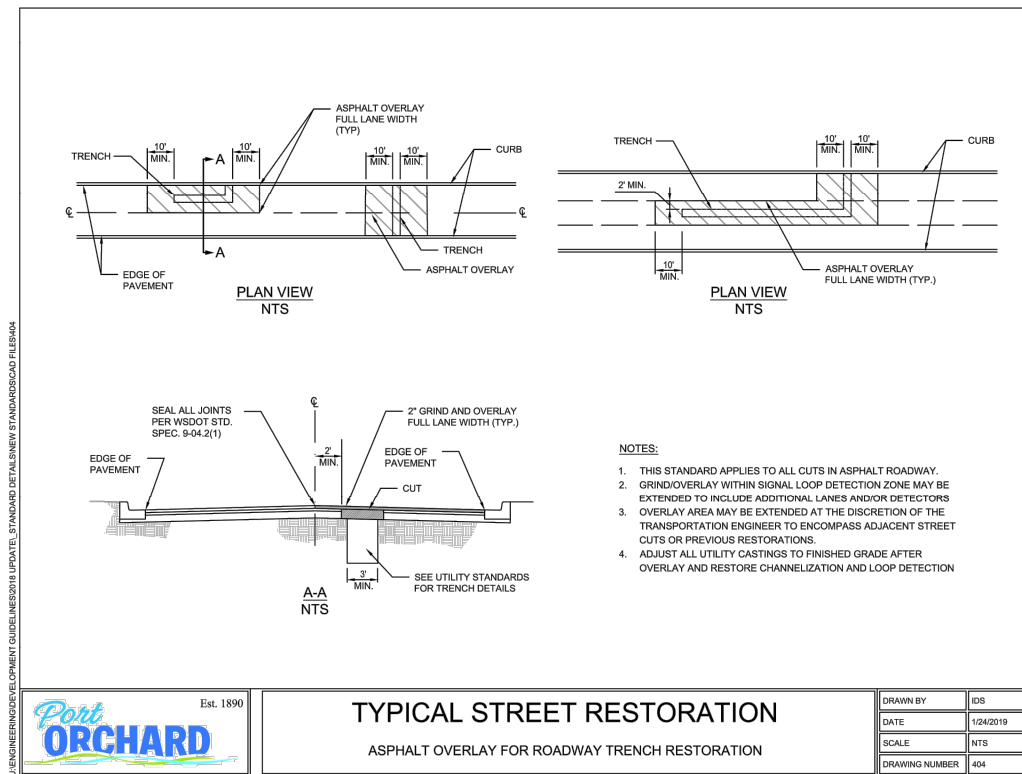
**LEVEL SPREADER 2**  
SCALE: NTS



**SITE PAVEMENT SECTION 3**  
SCALE: NTS

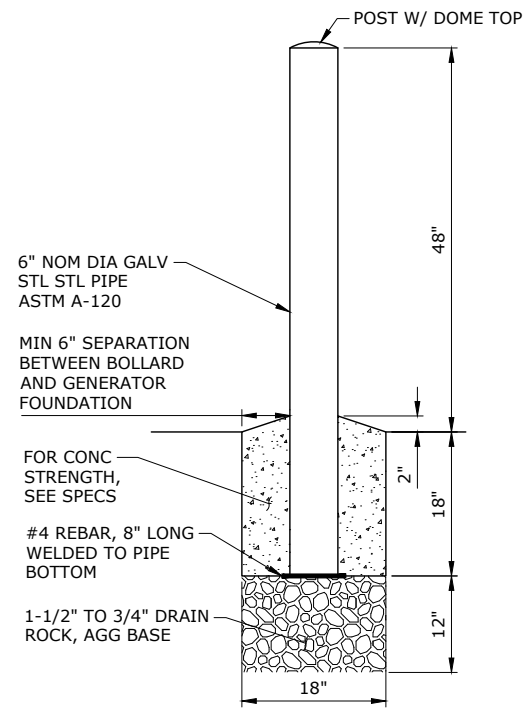


**STREET RESTORATION SECTION 4**  
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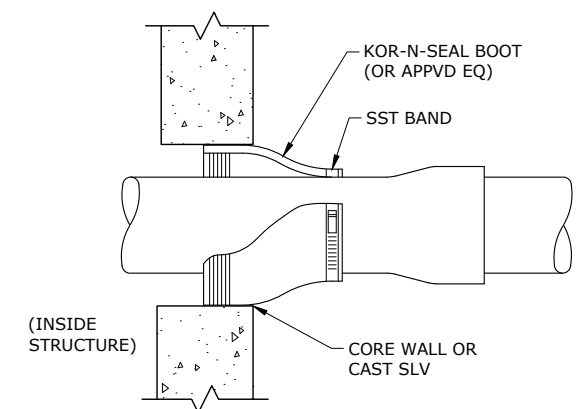


**TYPICAL STREET RESTORATION**  
ASPHALT OVERLAY FOR ROADWAY TRENCH RESTORATION

**TYPICAL STREET RESTORATION 5**  
SCALE: NTS



**BOLLARD 6**  
SCALE: NTS



**PIPE TO STRUCTURE FLEXIBLE CONNECTOR 7**  
SCALE: NTS

**PIPE TO STRUCTURE FLEXIBLE CONNECTOR 7**  
SCALE: NTS

NOTE:  
1. BOLLARD SHALL BE PAINTED SAFETY YELLOW.

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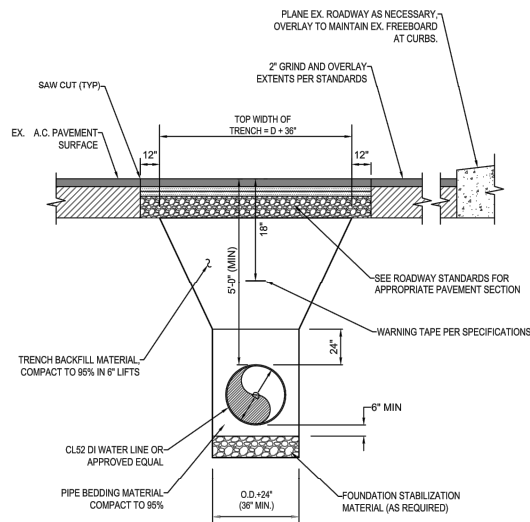


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MCCORMICK WOODS - WELL NO. 11  
SITE IMPROVEMENT PROJECT

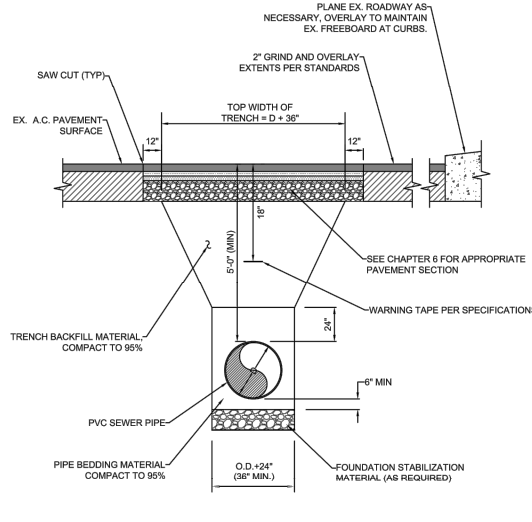
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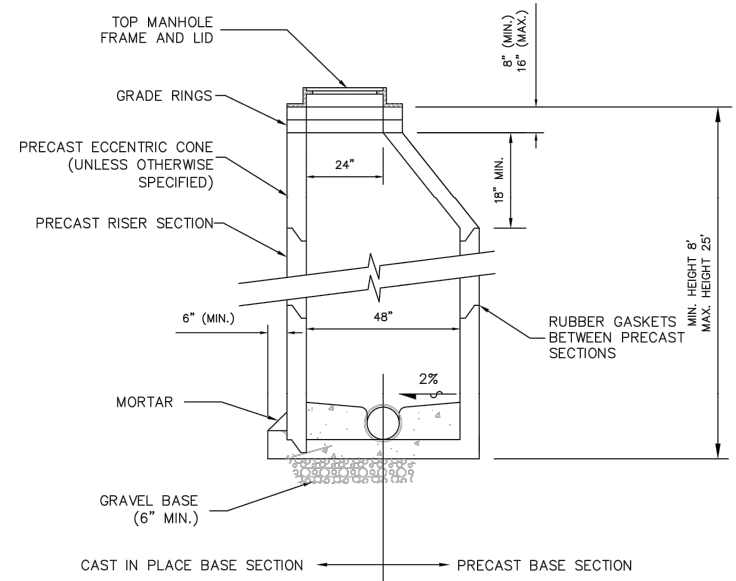
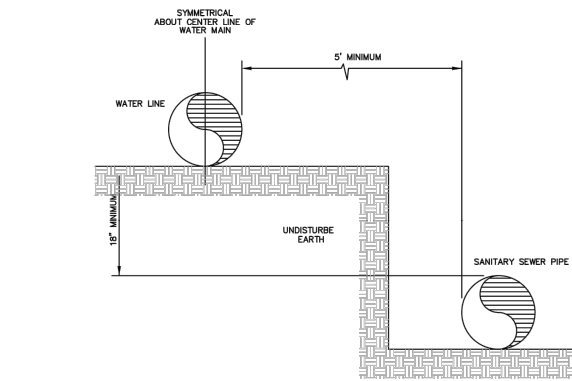
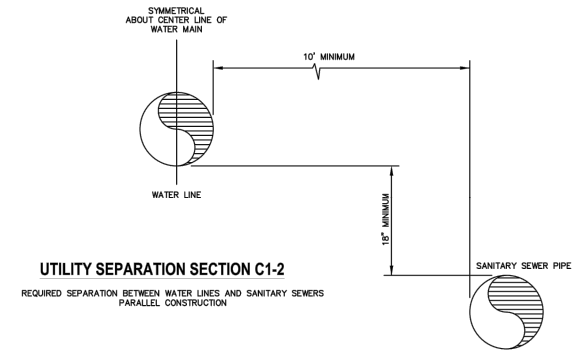
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- NOTES:**
- 1) BED THE ENTIRE WIDTH OF THE TRENCH PAVEMENT
  - 2) RESTORATION SHALL BE PER THE APPROPRIATE SECTION IN CHAPTER 6 (PAVEMENT SURFACING).
  - 3) INSTALL TRACER WIRE PER SPECIFICATIONS



- NOTES:**
- 1) BED THE ENTIRE WIDTH OF THE TRENCH PAVEMENT
  - 2) RESTORATION SHALL BE PER THE APPROPRIATE SECTION IN CHAPTER 6 (PAVEMENT SURFACING).



- NOTES:**
1. MATCH CROWNS OF SEWERS.
  2. FOR CAST IN PLACE BASE, CONSTRUCT IN FIELD CHANNEL AND SHELF TO THE CROWN OF THE PIPE.
  3. FOR PRECAST BASE, USE GRAVEL BACKFILL, 6" MIN. COMPACTED DEPTH UNDER THE BASE.
  4. ALL RIGID PIPE ENTERING OR LEAVING THE MANHOLE SHALL BE PROVIDED WITH FLEXIBLE JOINTS WITHIN 1/2 PIPE DIAMETERS OF THE MANHOLE STRUCTURE.
  5. INSTALL DROP MANHOLE CONNECTION IF INVERT OF ANY INCOMING SEWER IS MORE THAN 2'-0" ABOVE THE TOP OF THE MAIN SEWER.
  6. IN UNIMPROVED AREAS AND EASEMENTS, MANHOLE SHALL EXTEND A MINIMUM OF 2" AND A MAXIMUM OF 4" ABOVE FINISHED GRADE.
  7. MANHOLE RING AND COVER SHALL HAVE A CLEAR OPENING. WORDING ON COVER SHALL BE "SEWER" IN 3" RAISED LETTERS.
  8. ALL MANHOLE JOINTS SHALL USE A CONFINED ROUND RUBBER GASKET MEETING ASTM C-443 SPECIFICATIONS.

	Est. 1890	RESTORATION, TAPS, AND BLOCKING B	DRAWN BY	IDS
		WATER MAIN TRENCH	DATE	10/12/2019
			SCALE	NTS
			DRAWING NUMBER	801

**WATER MAIN TRENCH** 1  
SCALE: NTS C-4

	Est. 1890	TRENCHES AND PIPE CONNECTIONS A	DRAWN BY	IDS
		SEWER TRENCH DETAILS	DATE	1/23/2019
			SCALE	NTS
			DRAWING NUMBER	900

**SEWER TRENCH** 2  
SCALE: NTS C-5 C-6

	Est. 1890	RESTORATION, TAPS, AND BLOCKING A	DRAWN BY	IDS
		SEPARATION STANDARDS	DATE	1/30/2019
			SCALE	NTS
			DRAWING NUMBER	800-B

**PIPE SEPARATION STANDARDS** 3  
SCALE: NTS C-5 C-6

	Est. 1890	MANHOLES A	DRAWN BY	IDS
		MANHOLE DETAIL 48"	DATE	1/30/2019
			SCALE	NTS
			DRAWING NUMBER	820

**48" DIA MANHOLE** 4  
SCALE: NTS C-5 C-6

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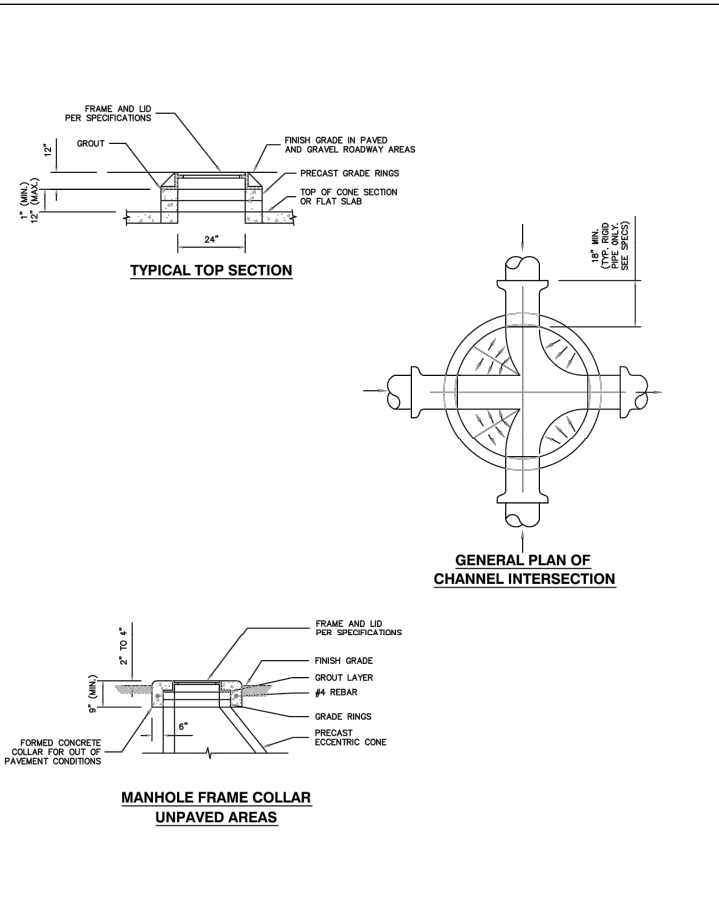
**CIVIL DETAILS - 2**

SHEET C-8

X of X

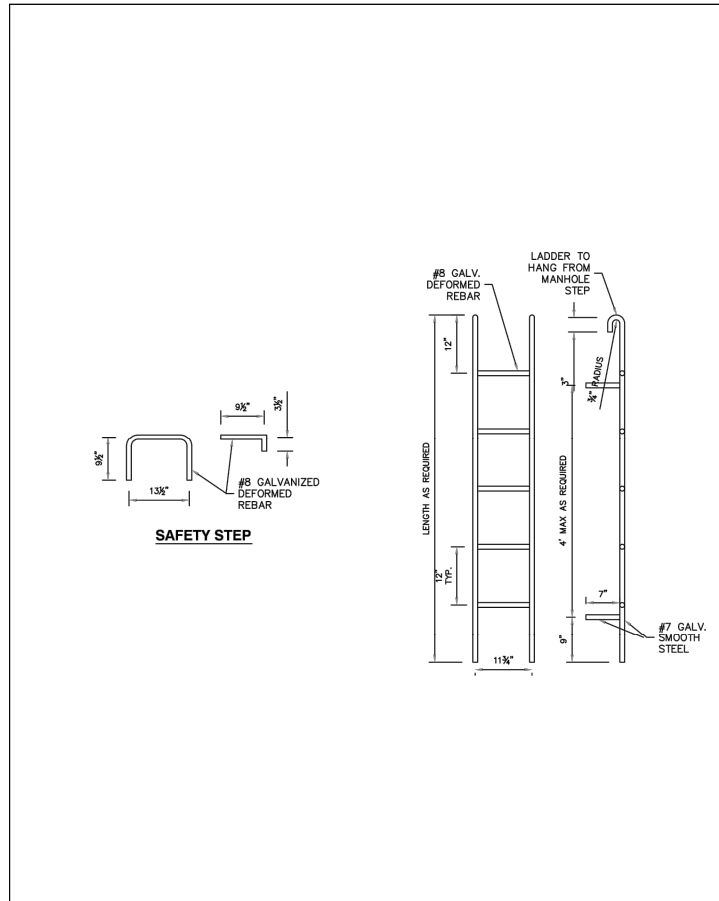
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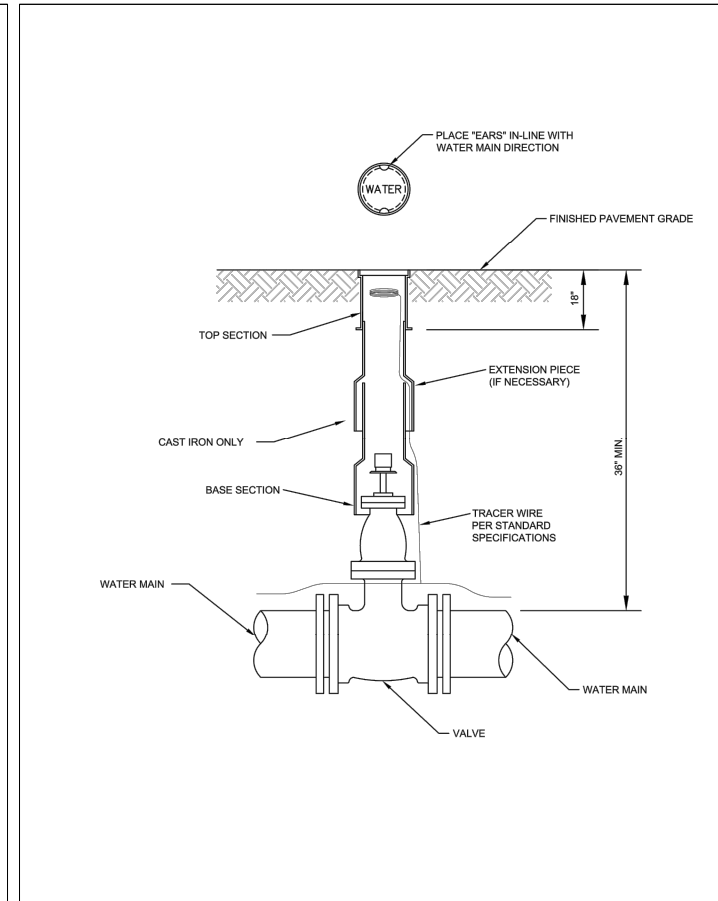
Est. 1890	<b>MANHOLES C</b> TOP SECTION AND CHANNELIZATION	DRAWN BY	IDS
		DATE	1/30/2019
		SCALE	NTS
		DRAWING NUMBER	922

**MANHOLE TOP SECTION** 1 C-5 C-6  
SCALE: NTS



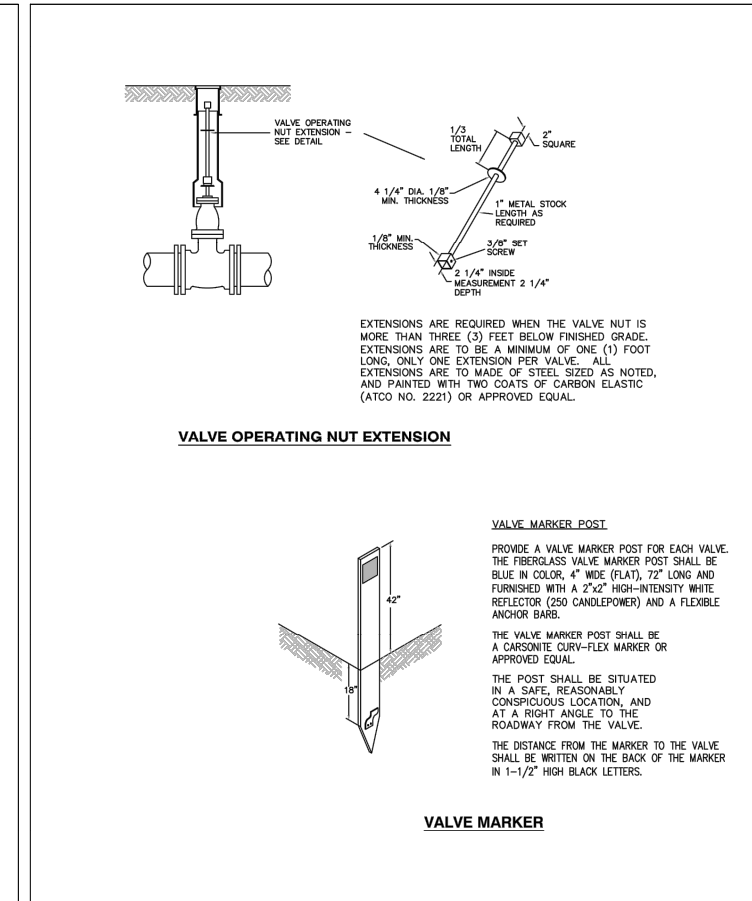
Est. 1890	<b>MANHOLES E</b> MANHOLE DETAIL - LADDER	DRAWN BY	IDS
		DATE	1/30/2019
		SCALE	NTS
		DRAWING NUMBER	924

**MANHOLE LADDER** 2 C-5 C-6  
SCALE: NTS



Est. 1890	<b>SYSTEM APPURTENANCES</b> VALVE BOX	DRAWN BY	IDS
		DATE	1/23/2019
		SCALE	NTS
		DRAWING NUMBER	884

**VALVE BOX** 3 C-4  
SCALE: NTS



Est. 1890	<b>SYSTEM APPURTENANCES C</b> VALVE MARKER AND VALVE EXTENSION	DRAWN BY	IDS
		DATE	1/30/2019
		SCALE	NTS
		DRAWING NUMBER	882

**VALVE MARKER AND EXTENSIONS** 4 C-4  
SCALE: NTS

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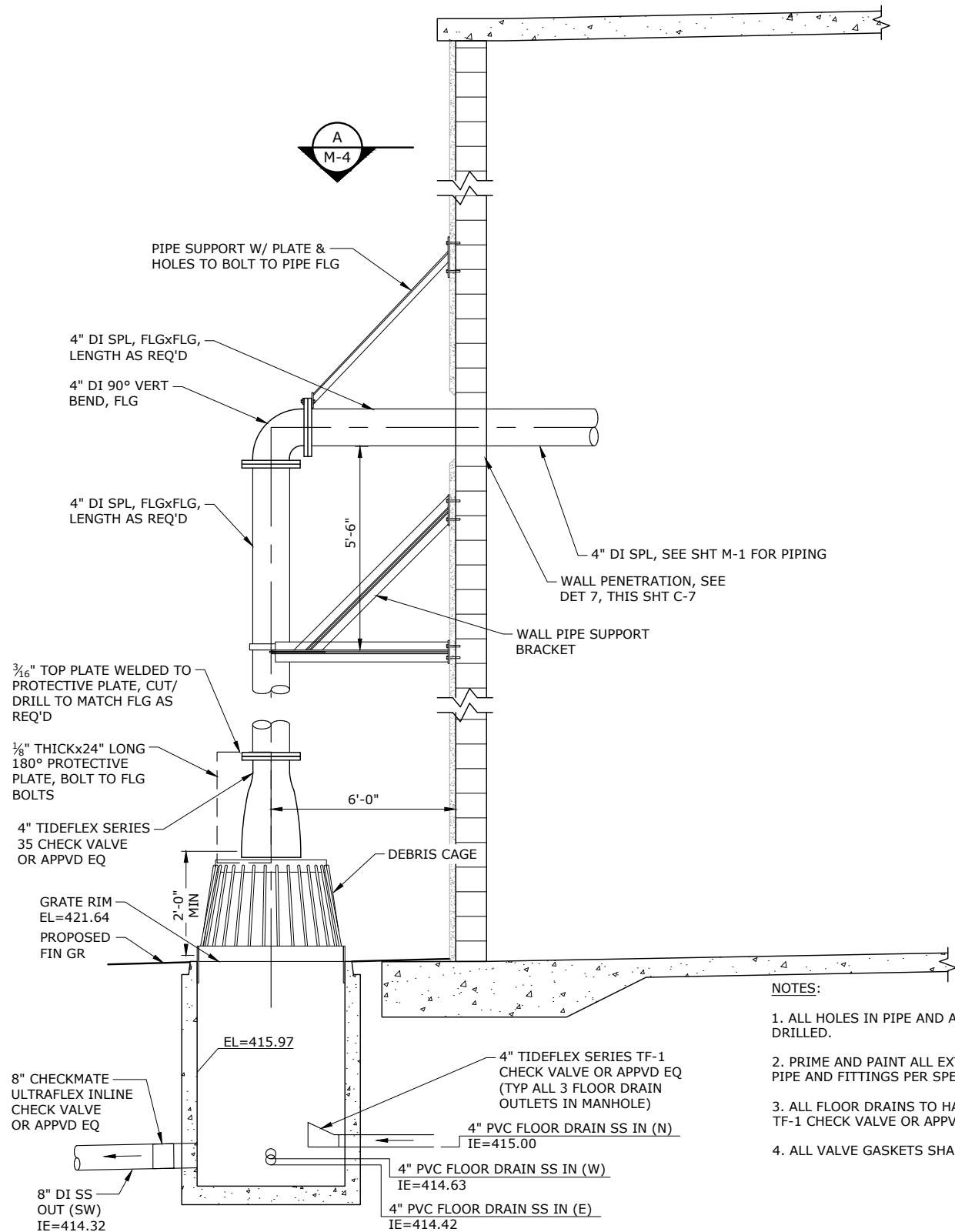
Est. 1890  
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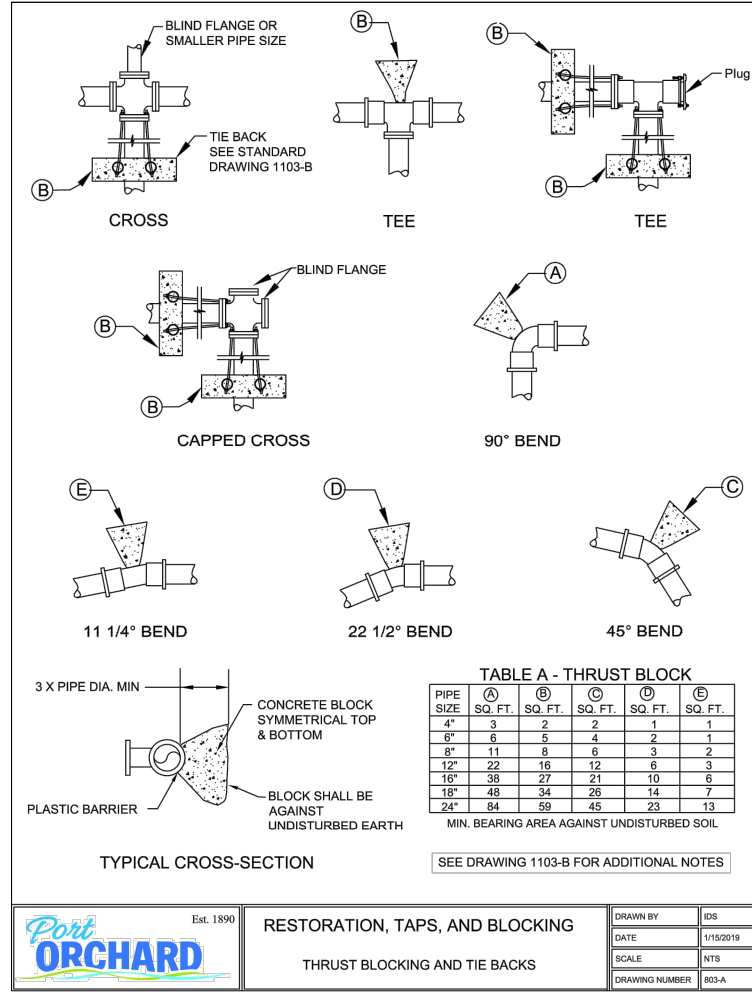


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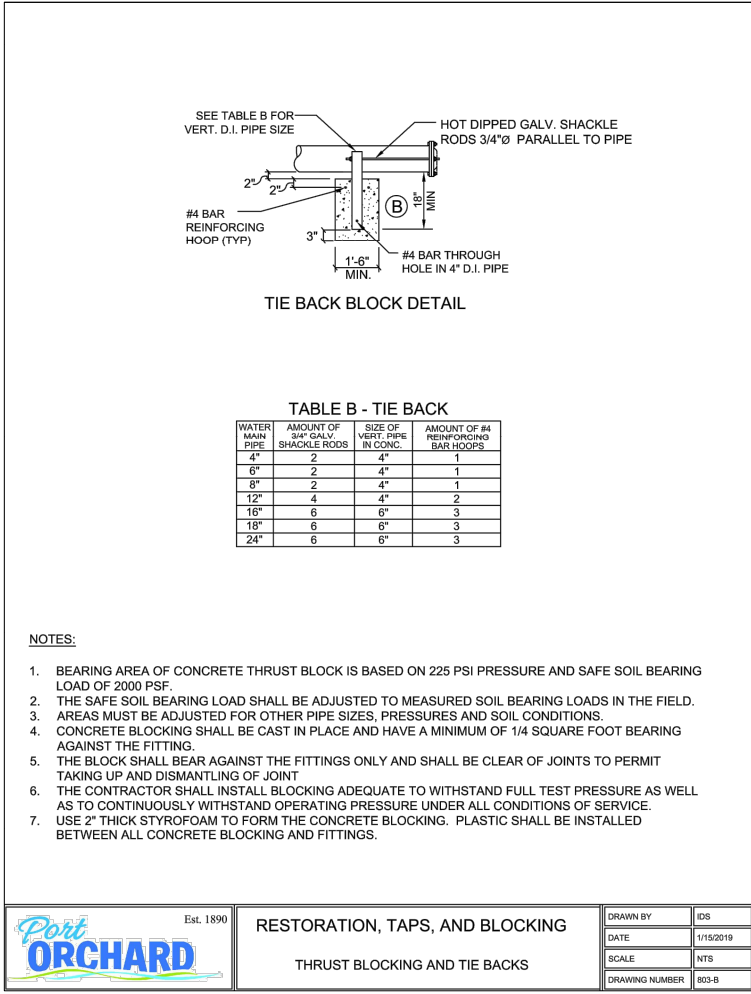


**BACKWASH PIPE TO MANHOLE** (1) C-4  
SCALE: NTS

- NOTES:**
1. ALL HOLES IN PIPE AND APPURTENANCES TO BE DRILLED.
  2. PRIME AND PAINT ALL EXTERIOR DUCTILE IRON PIPE AND FITTINGS PER SPECIFICATION 09 90 00.
  3. ALL FLOOR DRAINS TO HAVE TIDEFLEX SERIES TF-1 CHECK VALVE OR APPVD EQ.
  4. ALL VALVE GASKETS SHALL BE EPDM RUBBER.



**THRUST BLOCKS** (2) C-4  
SCALE: NTS



**THRUST BLOCK TIE BACKS** (3) C-4  
SCALE: NTS

- NOTES:**
1. BEARING AREA OF CONCRETE THRUST BLOCK IS BASED ON 225 PSI PRESSURE AND SAFE SOIL BEARING LOAD OF 2000 PSF.
  2. THE SAFE SOIL BEARING LOAD SHALL BE ADJUSTED TO MEASURED SOIL BEARING LOADS IN THE FIELD.
  3. AREAS MUST BE ADJUSTED FOR OTHER PIPE SIZES, PRESSURES AND SOIL CONDITIONS.
  4. CONCRETE BLOCKING SHALL BE CAST IN PLACE AND HAVE A MINIMUM OF 1/4 SQUARE FOOT BEARING AGAINST THE FITTING.
  5. THE BLOCK SHALL BEAR AGAINST THE FITTINGS ONLY AND SHALL BE CLEAR OF JOINTS TO PERMIT TAKING UP AND DISMANTLING OF JOINT.
  6. THE CONTRACTOR SHALL INSTALL BLOCKING ADEQUATE TO WITHSTAND FULL TEST PRESSURE AS WELL AS TO CONTINUOUSLY WITHSTAND OPERATING PRESSURE UNDER ALL CONDITIONS OF SERVICE.
  7. USE 2" THICK STYROFOAM TO FORM THE CONCRETE BLOCKING. PLASTIC SHALL BE INSTALLED BETWEEN ALL CONCRETE BLOCKING AND FITTINGS.

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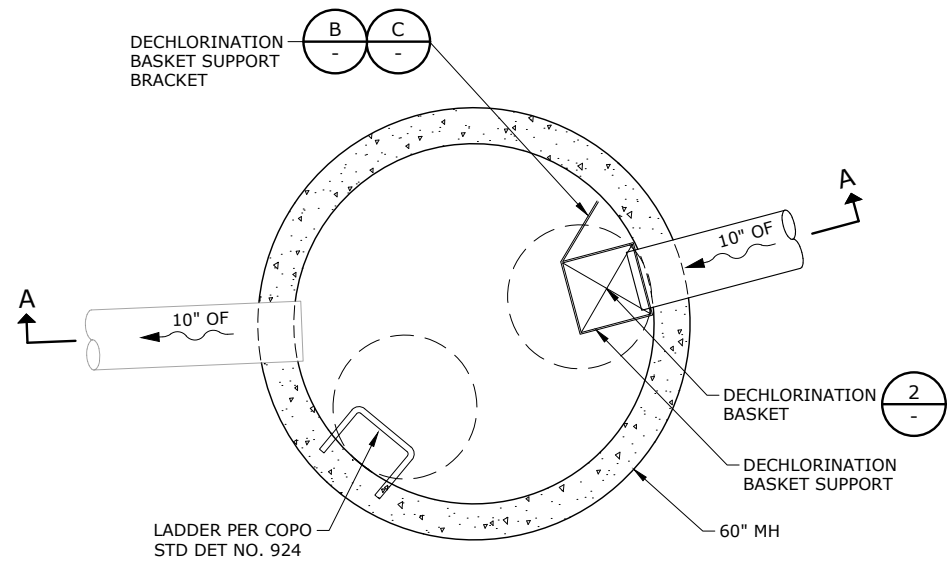
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**CIVIL DETAILS - 4**

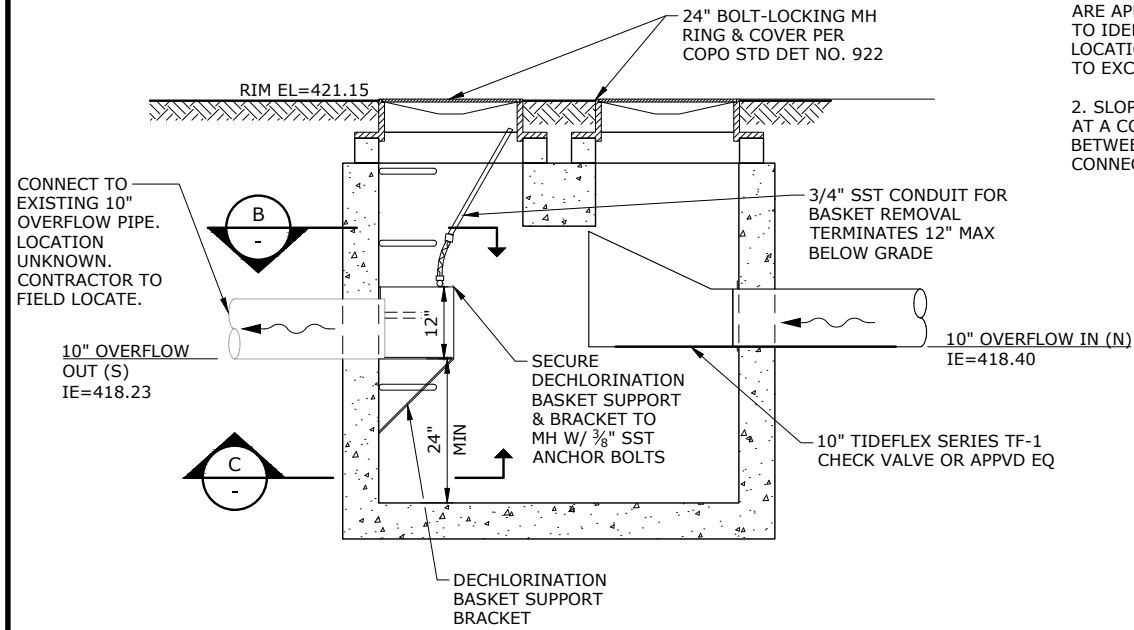
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PLAN



SECTION A-A

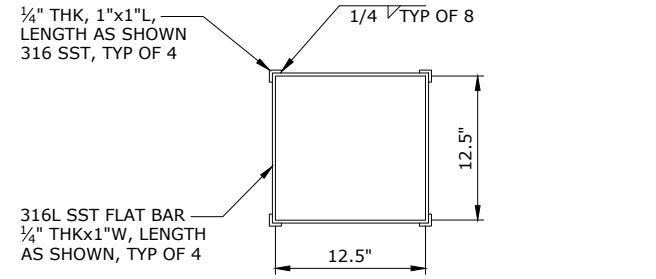
DECHLORINATION MANHOLE

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

1  
C-4

NOTES:

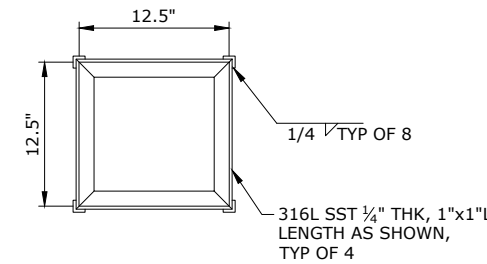
1. PIPE ELEVATION SHOWN ARE APPROXIMATE. POTHOLE TO IDENTIFY EXISTING PIPE LOCATION AND DEPTH PRIOR TO EXCAVATION.
2. SLOPE 10" PVC OVERFLOW AT A CONSTANT GRADE BETWEEN EXISTING CONNECTION POINTS.



SUPPORT SECTION-UPPER

SCALE: 1- " =1'-0"

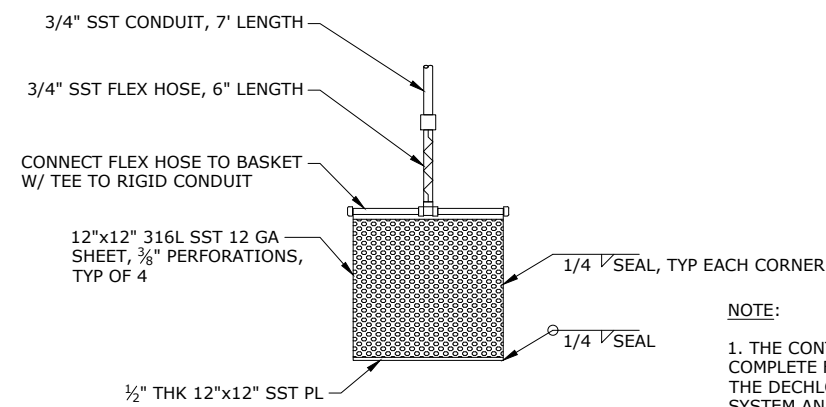
2  
B



SUPPORT SECTION-LOWER

SCALE: 1- " =1'-0"

3  
C



NOTE:

1. THE CONTRACTOR IS RESPONSIBLE FOR THE COMPLETE FABRICATION AND INSTALLATION OF THE DECHLORINATION BASKET AND SUPPORT SYSTEM AND ENSURING THE INTENDED FUNCTION OF THE BASKET. THE BASKET SHALL ALLOW AT LEAST 600 GPM OF FLOW THROUGH THE INCOMING PIPE AND BASKET PENETRATIONS.

DECHLORINATION BASKET

SCALE: 1- " =1'-0"

2  
-

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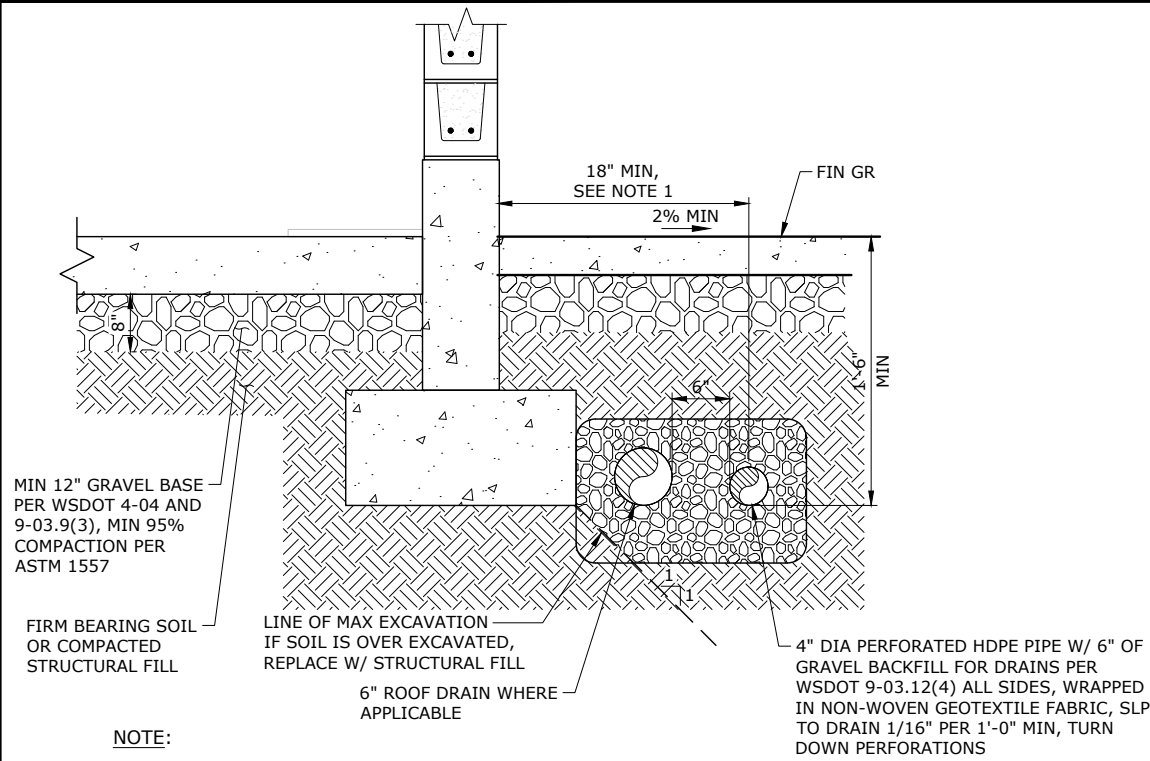
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CIVIL DETAILS - 5

PROJECT NO.: 20-2839.01 SCALE: AS SHOWN DATE: SEPTEMBER 2022

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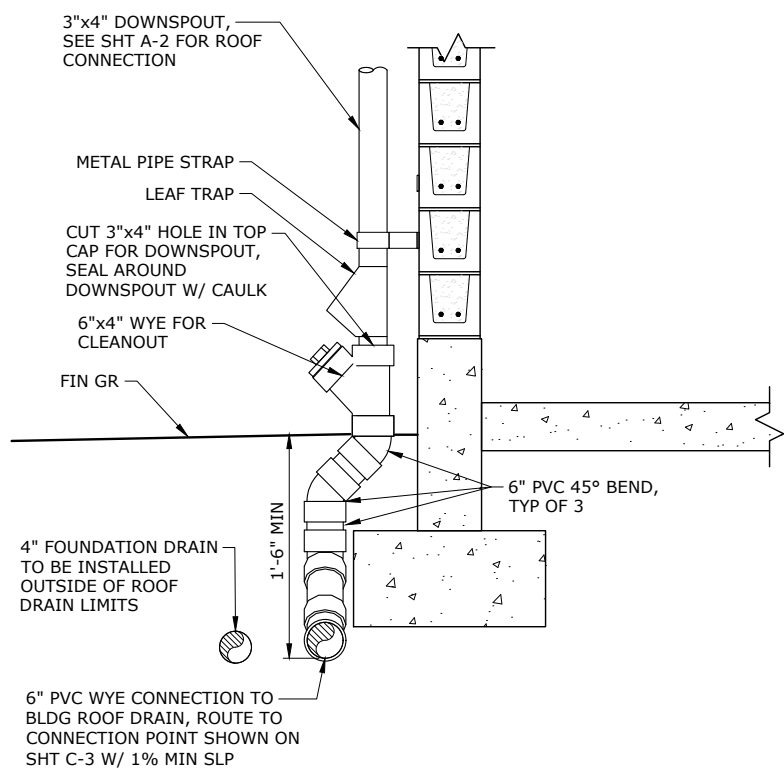
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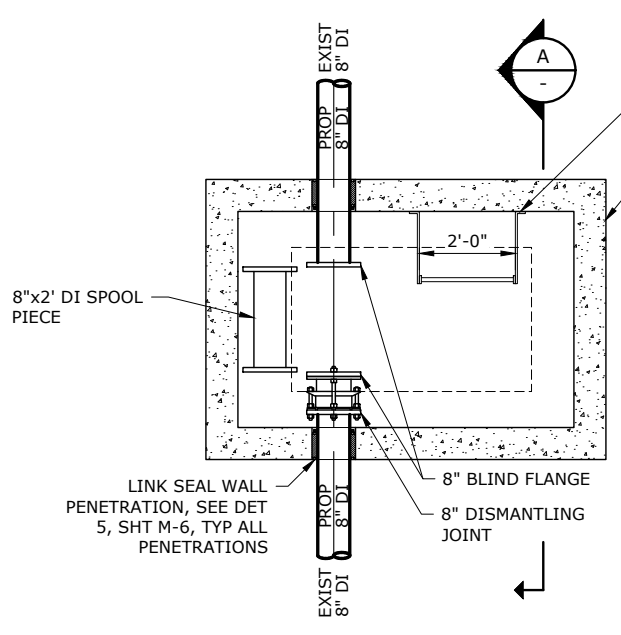
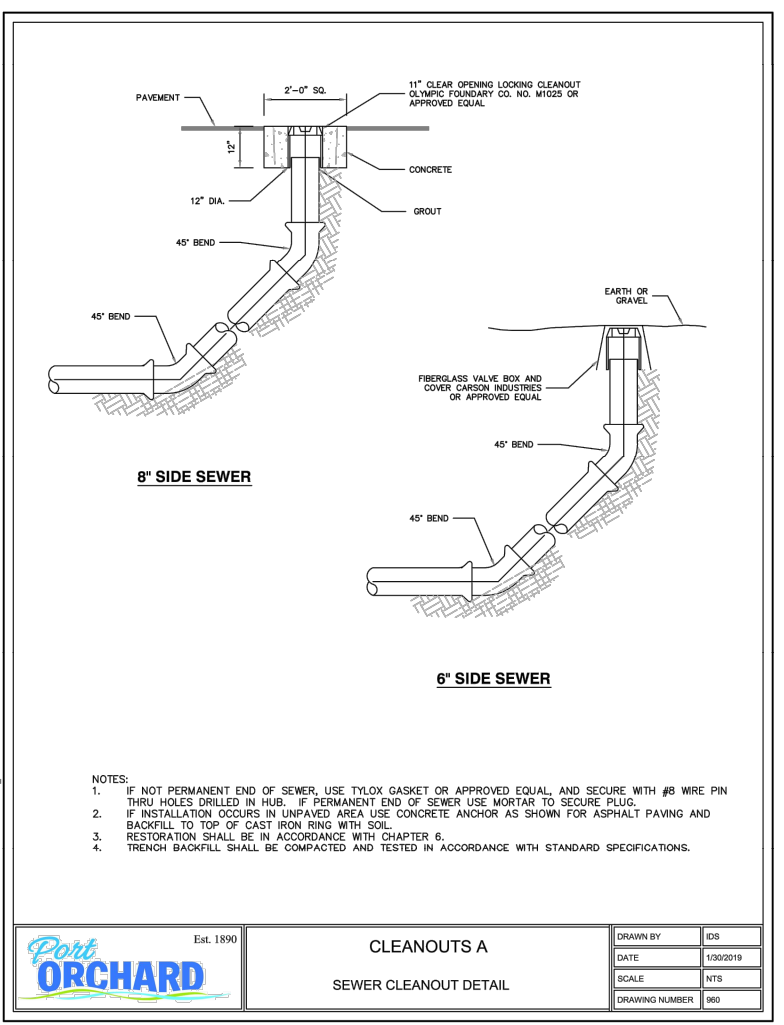
NOTE:

- DISTANCE FROM OUTER WALL TO CENTERLINE OF 4" FOUNDATION DRAIN MAY BE REDUCED TO 12" WHEN NOT IN SAME TRENCH AS ROOF DRAIN.

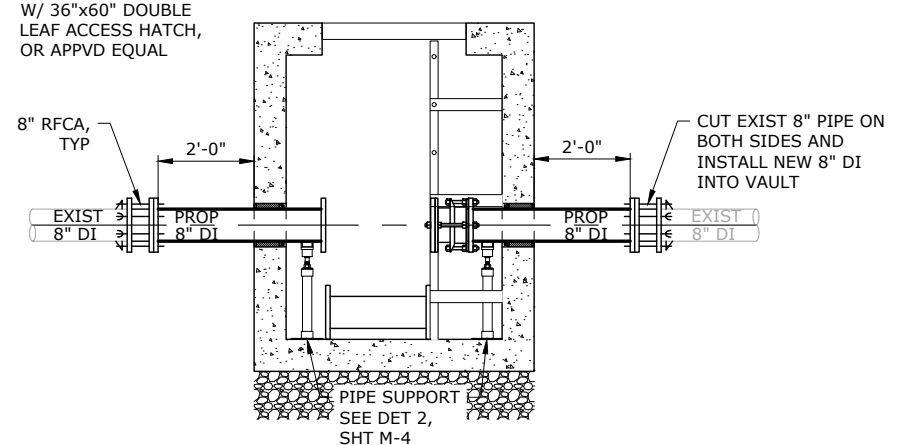
**TYPICAL FOUNDATION DRAIN** 1  
SCALE: NTS



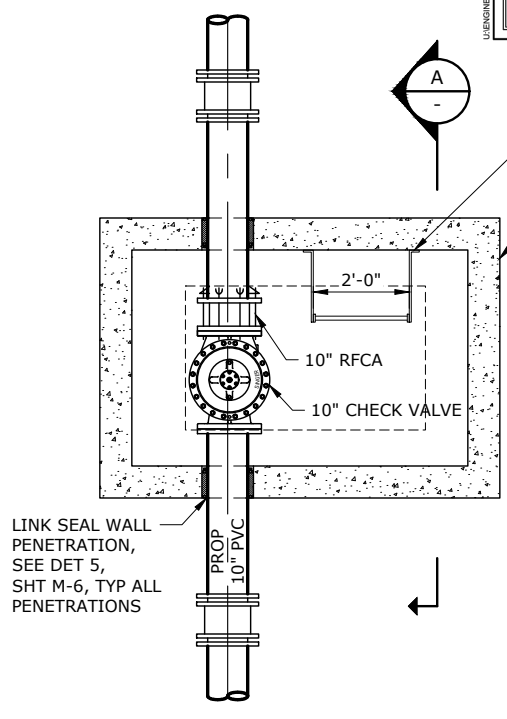
**ROOF DRAIN CONNECTION** 2  
SCALE: NTS



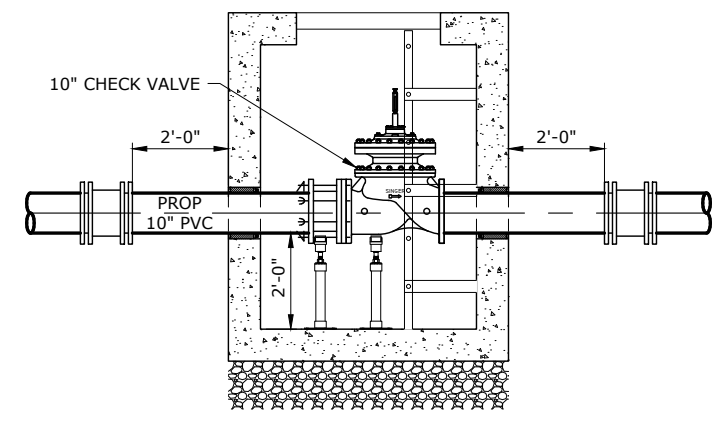
**WELL 3 PIPING VAULT** 4  
SCALE: 1/2"=1'



**WELL 3 PIPING VAULT SECTION - 'A'** 4  
SCALE: 1/2"=1'



**10IN VALVE VAULT** 5  
SCALE: 1/2"=1'



**10IN METER VALVE SECTION - 'A'** 5  
SCALE: 1/2"=1'

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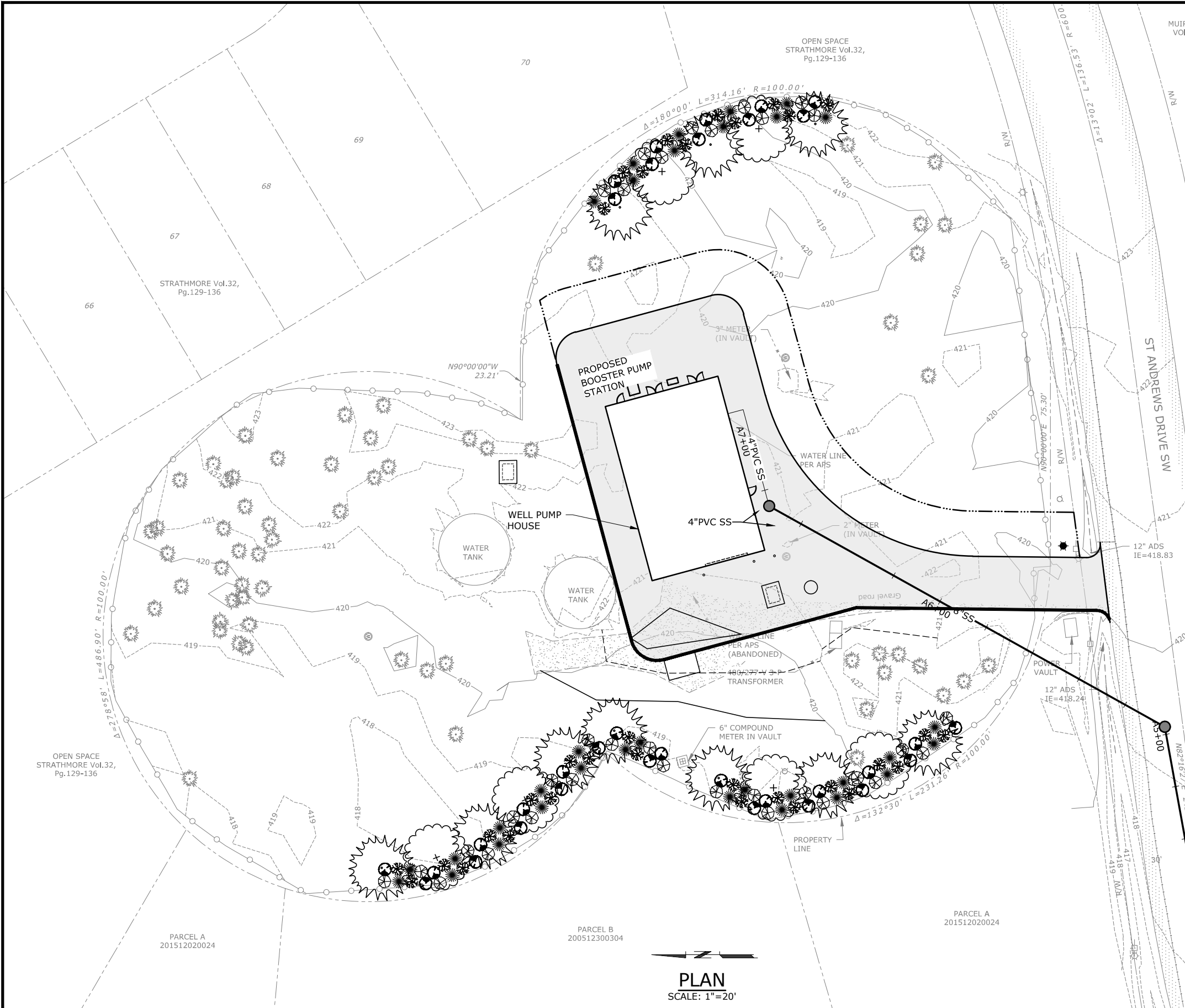


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LEGEND					
SYMBOL	QUANTITY	COMMON NAME BOTANICAL NAME	TYPE	PLANTING SIZE	NOTES
	6	BIGLEAF MAPLE ACER MACROPHYLLUM	TREE	1.5" CAL	
	10	WESTERN WHITE PINE PINUS MONTICOLA	TREE	6' HIGH	
	32	EVERGREEN HUCKLEBERRY VACCINIUM OVATUM	SHRUB	2 GAL	
	32	THIMBLEBERRY RUBUS PARVIFLORUS	SHRUB	2 GAL	
	32	TALL OREGON GRAPE MAHONIA AQUIFOLIUM	SHRUB	2 GAL	
	32	OCEANSPRAY HOLODISCUS DISCOLOR	SHRUB	2 GAL	
	X.X LB	SEEDSMIX A - XXXX SF	(SEE SHEET RES-L-3)		
		EXISTING TREES			

PLAN  
SCALE: 1"=20'

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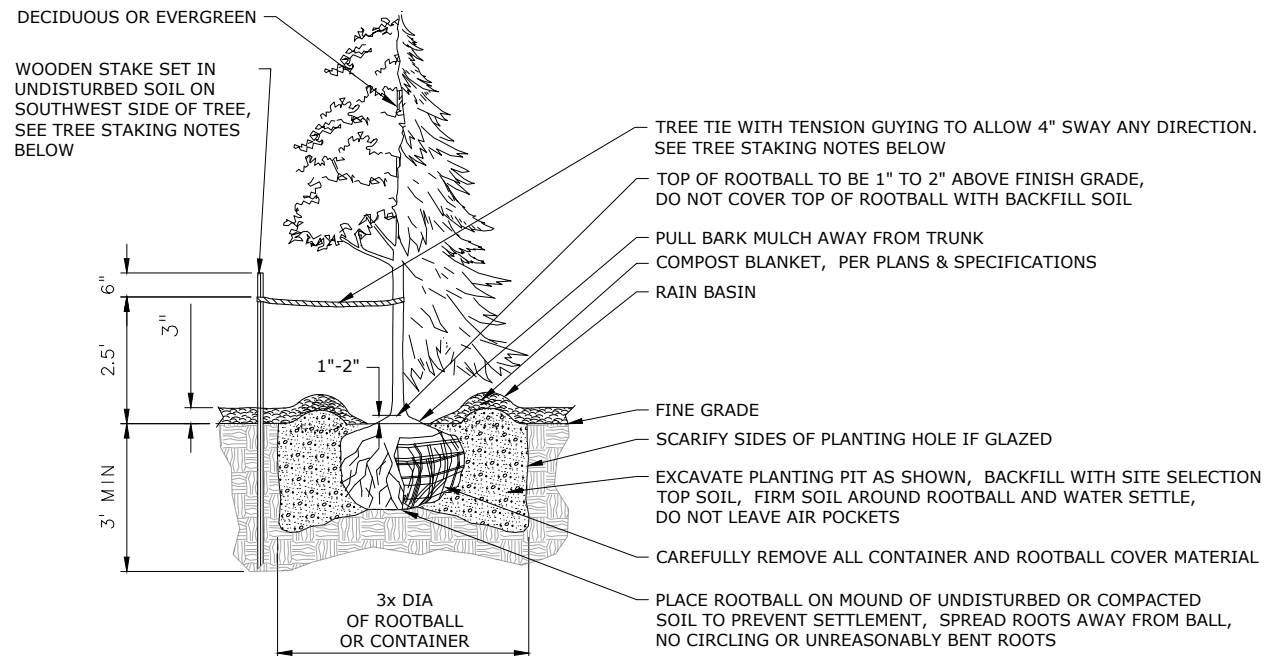
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**LANDSCAPE PLAN**

PROJECT NO.: 20-2839.01 SCALE: AS SHOWN DATE: SEPTEMBER 2022

SHEET  
**L-1**  
X of X

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**NOTES:**

**1. TREE TIES TO BE EITHER:**

RIGID GUY SYSTEM WITH GALVANIZED WIRE TO BE APPROXIMATELY 1/8" THICKNESS AND 24" LENGTH. THERE IS A PLASTIC SLEEVE OVER PORTION THAT GOES AROUND TREE. THE WIRE TIE IS TO GO THRU THE WOOD STAKE AND BE SECURELY FASTENED.

PLASTIC CHAIN TYPE, APPROXIMATELY 1" WIDTH BY 1/8" DEPTH WHERE TWO STAKES ARE REQUIRED. CROSS TIES BETWEEN STAKES AND WRAP TIE AROUND TREE. FASTEN SECURELY TO STAKE.

**2. EXCAVATE ALL PLANT WELLS PER DETAIL AT 3X DIAMETER OF ROOTBALL OR CONTAINER AND BACKFILL WITH SITE SELECT TOPSOIL FREE OF NOXIOUS WEEDS PLANT MATERIAL INCLUDING ROOTS AND SPRIGS.**

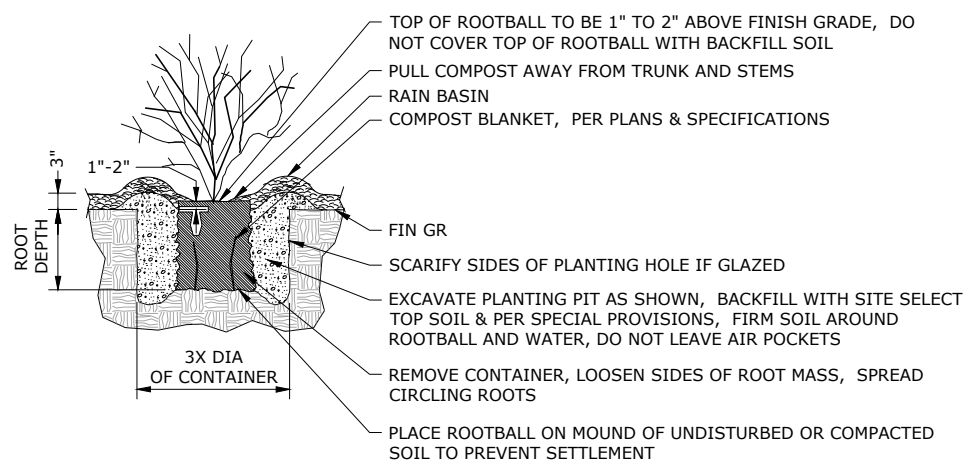
**3. FURNISH TREE STAKES ON ALL TREE PLANTINGS. STAKES TO BE CONSTRUCTION GRADE, ROUGH SAWN OR FINISHED DOUGLAS FIR OR PINE. STAIN WITH APPROVED GREEN PENETRATING OIL. STAKE SIZE IS TO BE 1 1/2"x1-1/2" BY FOLLOWING LENGTHS:**

TREES 36" AND SHORTER - USE ONE - 6' (APPROXIMATELY) STAKE

TREES TALLER THAN 36" - USE ONE - 8' (APPROXIMATELY) STAKE

DRIVE STAKES VERTICALLY AND AT LEAST 24" INTO UNDISTURBED SOIL. DO NOT DRIVE STAKES THRU ROOT BALL. LOCATE STAKES TO BEST RESIST PREVAILING WINDS.

**TREE PLANTING DETAIL 1**  
SCALE: NTS



**SHRUB PLANTING DETAIL 2**  
SCALE: NTS

**PLANTING METHODS:**

1. SOIL PREPARATION: TILL THE SUB-GRADE IN THESE AREAS TO A DEPTH OF AT LEAST FOUR INCHES AND ADD AT LEAST 12 INCHES OF CLEAN COMPOST-AMENDED TOPSOIL. THE COMPOST-AMENDED TOPSOIL SHALL HAVE A GOOD GROWING MEDIUM WITH TEXTURE MATERIAL THAT PASSES THROUGH ONE-INCH AND 35% ORGANIC MATTER FERTILITY.

2. PLANTING TIME: CONTAINERIZED STOCK SHALL BE INSTALLED ONLY FROM FEBRUARY 1 THROUGH MAY 1 AND OCTOBER 1 THROUGH NOVEMBER 15. PLANTINGS OUTSIDE THESE TIMES MAY REQUIRE ADDITIONAL MEASURES TO ENSURE SURVIVAL WHICH SHALL BE SPECIFIED ON THE PLANS.

3. INSTALLED PLANTS SHALL TAGGED FOR DORMANT SEASON IDENTIFICATION AND SHALL REMAIN ON PLANT MATERIALS AFTER PLANTING FOR MONITORING PURPOSES.

4. EROSION CONTROL: GRADING, SOIL PREPARATION, AND SEEDING SHALL BE PERFORMED DURING OPTIMAL WEATHER CONDITIONS AND AT LOW FLOW LEVELS TO MINIMIZE SEDIMENT IMPACTS.

5. MULCHING: TREES, SHRUBS, AND GROUND COVER AREAS SHALL BE MULCHED A MINIMUM OF THREE INCHES IN DEPTH AND 18 INCHES IN DIAMETER, TO RETAIN MOISTURE AND DISCOURAGE WEED GROWTH AROUND NEWLY INSTALLED PLANT MATERIAL. APPROPRIATE MULCHES ARE MADE FROM COMPOSTED BARK OR LEAVES THAT HAVE NOT BEEN CHEMICALLY TREATED.

6. WEED CONTROL: THE REMOVAL OF NON-NATIVE, INVASIVE WEEDS SHALL BE NECESSARY THROUGHOUT THE MAINTENANCE PERIOD, OR UNTIL A HEALTHY STAND OF DESIRABLE VEGETATION IS ESTABLISHED.

8. PLANT REPLACEMENT AND PRESERVATION: INSTALLED PLANTS THAT ARE UNHEALTHY OR DAMAGED SHALL BE REPLACED DURING THE MAINTENANCE PERIOD. PRIOR TO REPLACEMENT, THE CAUSE OF LOSS (WILDLIFE DAMAGE, POOR PLANT STOCK, ETC.) SHALL BE DOCUMENTED WITH A DESCRIPTION OF THE CORRECTIVE ACTIONS TAKEN.

9. IF PLANTING OCCURRED OUT OF PLANTING PERIODS INDICATED AT NOTE 2 ABOVE, THE FOLLOWING MEASURES SHOULD BE APPLIED:

- A. HAVE PLANTS INSPECTED FOR EARLY SYMPTOMS OF POOR HEALTH. TREES AFFECTED BY EARLY STAGES OF STRESS COULD DISPLAY PREMATURE FALL COLOR IN LATE SUMMER, PARTIAL DEFOLIATION AND SYMPTOMS OF MOISTURE STRESS.
- B. PROVIDE SUPPLEMENTAL IRRIGATION EACH WEEK OR MORE OFTEN ON NEWLY PLANTED TREES, SHRUBS AND OLDER PLANTS STRESSED WITH INSECT OR DISEASE PROBLEMS WHEN RAINFALL IS LACKING IN SUMMER.
- C. PRUNE FLOWERING TREES AND SHRUBS ONCE FLOWER BUDS BEGIN TO FORM IN LATE SUMMER, JUDICIOUS PRUNING REDUCES THE BLOOM SOMEWHAT BUT SHOULD NOT IMPACT THE DISPLAY SIGNIFICANTLY.
- D. INSPECT FOR PESTS THAT COMMONLY ARRIVE DURING HOT, DRY WEATHER AND APPLY TREATMENTS AS NEEDED.
- E. ASSESS CANOPIES FOR DEAD BRANCHES AND STRUCTURAL WEAKNESSES THAT CAN BE PRUNED LATER IN WINTER.

**PLANTS MAINTENANCE NOTES:**

1. CONTRACTOR SHALL PROVIDE 2 YEARS PLANT ESTABLISHMENT PERIOD TO MAINTAIN PLANTS IN A VIGOROUS GROWING CONDITION THROUGH PERIODIC INSPECTIONS. PLANTS WATERING IS PARTICULARLY NEEDED DURING THE DRY SUMMER MONTHS. DURING PLANT ESTABLISHMENT PERIOD, THE CONTRACTOR SHALL ENSURE PLANTING AREAS ARE FREE OF INVASIVE WEEDS AND PLANTS SHALL BE FREE OF INSECTS AND DISEASES WHILE SHOWING SIGNS OF CONTINUING HEALTH. THE CONTRACTOR SHALL REPLACE ALL PLANTS THAT SHOW UNHEALTHY SIGNS OR ARE DEAD.

2. THE MAINTENANCE PERIOD BEGINS IMMEDIATELY AFTER THE COMPLETION OF ALL PLANTING OPERATION AND WRITTEN NOTIFICATION TO THE ENGINEER.

3. OTHER MAINTENANCE OPERATIONS DURING THE ONE-YEAR GUARANTEE PERIOD:

- RESET PLANTS TO FINISH GRADE AND RESTORATION OF PLANT SAUCERS, AS NECESSARY
- REPAIR DAMAGED OR WASHED OUT EROSION CONTROL SEEDING.
- PRUNING, INCLUDING REMOVAL OF DEAD OR BROKEN BRANCHES.
- DISEASE CONTROL.
- MAINTAINING WRAPPING, GUYS, [TURNBUCKLES,] AND STAKES. [ADJUST TURNBUCKLES TO KEEP GUY WIRES TIGHT.] REPAIR OR REPLACE ACCESSORIES WHEN REQUIRED.
- REPORT ANY PROBLEMS THAT MAY BE A HINDRANCE TO COMPLETING AND FULFILLING THE CONDITIONS OF THE PLANT GUARANTEE WITHIN

**SEED MIX**

**SEED MIX A: FOR DISTURBED AREA**

BOTANICAL NAME	COMMON NAME	PLS LBS. PER ACRE
ELYMUS GLAUCUS	BLUE WILD RYE	21.74
FESTUCA RUBRA RUBRA	NATIVE WILD FESCUE	6.52
HORDEUM BRACHYANTHERUM	MEADOW BARLEY	4.35
GLYCERIA OCCIDENTALLIS	WESTERN MANNAGRASS	4.35
BECKMANI SYZIGACHNE	AMERICAN SLOUGHGRASS	4.35
DESCHAMPSIA CAESPITOSA	TUFTED HAIRGRASS	2.17
	TOTAL	43.38

**90% SUBMITTAL**

NO.	DATE	BY	REVISION

NOTICE  
0 1/2 1  
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

FE DESIGNED  
MBE DRAWN  
FE CHECKED

**PRELIMINARY ONLY**  
DO NOT USE FOR CONSTRUCTION

SEPTEMBER 2022

**Murraysmith**  
www.murraysmith.us



**Port ORCHARD**

**CITY OF PORT ORCHARD**  
**MCCORMICK WOODS - WELL NO. 11**  
**SITE IMPROVEMENT PROJECT**

PROJECT NO.:	20-2839.01	SCALE:	AS SHOWN	DATE:	SEPTEMBER 2022
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SHEET  
**L-2**  
X of X

# STRUCTURAL NOTES

(THESE NOTES ARE TYPICAL UNLESS NOTED OR DETAILED OTHERWISE ON DRAWINGS)

## CODE

ALL MATERIALS, WORKMANSHIP, DESIGN, AND CONSTRUCTION SHALL CONFORM TO THE DRAWINGS, SPECIFICATIONS, AND THE INTERNATIONAL BUILDING CODE (IBC), 2018 EDITION. SPECIFICATIONS AND STANDARDS WHERE REFERENCED ON THE DRAWINGS ARE TO BE THE LATEST EDITION.

## DESIGN LOADS

DEAD LOADS:  
ROOF 15 PSF

LIVE LOADS:  
ROOF (SNOW LOAD) 30 PSF ( $I_s = 1.2$ )

(LIVE LOADS ARE REDUCED WHERE PERMISSIBLE PER IBC SECTION 1607.11.)

## EARTHQUAKE LOADS:

EQUIVALENT LATERAL FORCE PROCEDURE PER ASCE 7-16 SECTION 12.8.

SITE CLASS	D
SHORT PERIOD SPECTRAL RESPONSE ACCEL ( $S_s$ )	1.631
ONE SECOND SPECTRAL RESPONSE ACCEL ( $S_1$ )	0.561
SHORT PERIOD DESIGN SPECTRAL RESPONSE ACCEL ( $S_{DS}$ )	1.305
ONE SECOND DESIGN SPECTRAL RESPONSE ACCEL ( $S_{D1}$ )	0.542
RISK CATEGORY	IV
SEISMIC IMPORTANCE FACTOR ( $I_e$ )	1.5
SEISMIC DESIGN CATEGORY	D
BASIC SEISMIC FORCE-RESISTING-SYSTEM	SPECIAL REINFORCED CMU BEARING WALLS
RESPONSE MODIFICATION FACTOR, (R)	5.0
REDUNDANCY FACTOR (p)	1.0
SEISMIC RESPONSE COEFFICIENT ( $C_e$ )	0.391

W = TOTAL SEISMIC DEAD LOAD AS DEFINED PER ASCE 7-16 SECTION 12.7.2.

BASE SHEAR (V),  $V_c = C_v W = \frac{S_{DS}}{R} W$

## WIND LOADS:

BASIC WIND SPEED (3 SECOND GUST)	108 MPH
EXPOSURE	C
$K_{zt}$	1.0

SEE PLANS FOR ADDITIONAL DESIGN LOADS.

## STATEMENT OF SPECIAL INSPECTIONS

SPECIAL INSPECTIONS ARE REQUIRED AS INDICATED IN THE FOLLOWING TABLE. THE CONTRACTOR SHALL SUBMIT A WRITTEN STATEMENT OF RESPONSIBILITY TO THE BUILDING OFFICIAL AND OWNER PRIOR TO COMMENCEMENT OF WORK IN ACCORDANCE WITH SECTION 1704.4 OF THE IBC.

**STRUCTURAL OBSERVATION** BY THE ENGINEER OF RECORD IS REQUIRED PER IBC SECTION 1704.6 TO VERIFY CONSTRUCTION HAS BEEN PERFORMED IN GENERAL CONFORMANCE TO THE APPROVED CONSTRUCTION DOCUMENTS AT SUBSTANTIAL COMPLETION OF THE WORK. THE CONTRACTOR SHALL NOTIFY THE ENGINEER A MINIMUM OF TWO WEEKS IN ADVANCE OF THE OBSERVATION.

- OBSERVATION PRIOR TO POURING CONCRETE FOUNDATIONS
- OBSERVATION PRIOR TO GROUTING CMU WALLS
- FINAL OBSERVATION AT SUBSTANTIAL COMPLETION OF STRUCTURE

**FREQUENCY AND DISTRIBUTION OF REPORTS** - INSPECTION REPORTS SHALL BE PROVIDED FOR EACH DAY ON SITE BY SPECIAL INSPECTOR. STRUCTURAL OBSERVATION REPORTS SHALL BE PROVIDED AFTER EACH OBSERVATION. REPORTS SHALL BE DISTRIBUTED TO THE CONTRACTOR, ENGINEER AND BUILDING OFFICIAL.

## SPECIAL INSPECTION

OPERATION	CONT	PERIODIC	REMARKS
<b>SOILS</b>			
EXCAVATION, FILL, COMPACTION, & DRAINAGE		X	GEOTECH ENGINEER
<b>CONCRETE</b>			
REINFORCING PLACEMENT		X	
CONCRETE TEST SPECIMENS	X		
CONCRETE PLACEMENT	X		
EPOXY THREADED RODS & REBAR	X		
<b>MASONRY</b>			
PRISM CONSTRUCTION	X		
REINFORCING PLACEMENT		X	
UNIT PLACEMENT	X		
GROUT PLACEMENT	X		
<b>WOOD FRAME</b>			
STRAP NAILING		X	
<b>STRUCTURAL STEEL</b>			
FABRICATION & ERECTION		X	

**NOTE:**  
ALL ITEMS MARKED WITH AN "X" SHALL BE INSPECTED IN ACCORDANCE WITH IBC CHAPTER 17. SPECIAL INSPECTION SHALL BE PERFORMED BY A QUALIFIED TESTING AGENCY. THE STRUCTURAL ENGINEER AND BUILDING OFFICIAL SHALL BE FURNISHED WITH COPIES OF ALL RESULTS. ANY INSPECTION FAILING TO MEET THE PROJECT SPECIFICATIONS SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE DESIGN TEAM.

## SHOP DRAWINGS

SHOP DRAWINGS FOR THE FOLLOWING ITEMS SHALL BE SUBMITTED TO THE STRUCTURAL ENGINEER FOR REVIEW PRIOR TO FABRICATION:

- CONCRETE MIX DESIGN
- CONCRETE REINFORCING
- CMU UNITS
- CMU REINFORCING
- CMU GROUT & MORTAR
- STRUCTURAL STEEL

SHOP DRAWINGS SHALL BE REVIEWED, REVISED AS REQUIRED FOR FIELD CONDITIONS, AND DATE STAMPED BY THE CONTRACTOR PRIOR TO REVIEW BY THE ENGINEER. CONTRACTOR SHALL PROVIDE (3) SETS OF SHOP DRAWINGS FOR ENGINEER'S REVIEW. ALLOW TWO WEEKS FOR SHOP DRAWING APPROVAL BY ENGINEER.

ENGINEER'S SHOP DRAWING REVIEW IS FOR GENERAL CONFORMANCE WITH THE DESIGN CONCEPT AND CONTRACT DOCUMENTS. MARKINGS OR COMMENTS SHALL NOT BE CONSTRUED AS RELIEVING THE CONTRACTOR FROM COMPLIANCE WITH THE PROJECT PLANS AND SPECIFICATIONS. THE CONTRACTOR REMAINS RESPONSIBLE FOR DETAILS AND ACCURACY, FOR CONFORMING AND CORRELATING ALL QUANTITIES AND DIMENSIONS, FOR SELECTING FABRICATION PROCESSES, FOR TECHNIQUES OF ASSEMBLY, AND FOR PERFORMING THE WORK IN A SAFE MANNER.

ENGINEER'S SHOP DRAWING REVIEW OF STRUCTURAL COMPONENTS DESIGNED BY OTHERS IS FOR LOADS IMPOSED ON THE BASIC STRUCTURE. THE COMPONENT DESIGNER IS RESPONSIBLE FOR CODE CONFORMANCE AND ALL CONNECTIONS TO THE BASIC STRUCTURE. SHOP DRAWINGS SHALL INDICATE MAGNITUDE AND DIRECTION OF THE LOADS IMPOSED ON THE BASIC STRUCTURE AND SHALL BE STAMPED & SIGNED BY A PROFESSIONAL ENGINEER REGISTERED IN THE SAME STATE AS THE PROJECT.

FABRICATION SHALL BEGIN ONLY AFTER SHOP DRAWINGS BEARING THE STAMP AND SIGNATURE OF THE ENGINEER OF RECORD AND CONTRACTOR HAVE BEEN RECEIVED.

## FOUNDATIONS: SPREAD FOOTINGS

SOILS REPORT: REPORT NO.: 12309-018-00  
PREPARED BY: GEOENGINEERS, INC.  
DATED: 11/01/21

ALLOWABLE SOIL PRESSURE: 4000 PSF

FOOTINGS SHALL BEAR ON FIRM UNDISTURBED EARTH OR COMPACTED STRUCTURAL FILL AS SPECIFIED IN THE GEOTECHNICAL REPORTS. BOTTOM OF FOOTINGS SHALL EXTEND AT LEAST 18" BELOW ADJACENT EXTERIOR GRADE. ANY FOOTING ELEVATIONS SHOWN IN THE DRAWINGS REPRESENT MINIMUM DEPTHS AND ARE FOR BIDDING ONLY. ACTUAL FOOTING ELEVATIONS ARE SUBJECT TO SITE CONDITIONS AND MUST THEREFORE BE ESTABLISHED BY THE CONTRACTOR. FOOTINGS SHALL BE CENTERED BELOW COLUMNS OR WALLS ABOVE, UNLESS NOTED OTHERWISE.

EXCAVATIONS AND DRAINAGE INSTALLATION SHALL BE OBSERVED BY A SOILS ENGINEER. IF EXCAVATION SHOWS SOIL CONDITIONS TO BE OTHER THAN THOSE ASSUMED ABOVE NOTIFY THE STRUCTURAL ENGINEER FOR POSSIBLE FOUNDATION REDESIGN.

## CONCRETE

ALL CONCRETE SHALL BE MIXED, PROPORTIONED, CONVEYED, AND PLACED IN ACCORDANCE WITH CHAPTER 26 OF ACI 318 AND THE AMERICAN CONCRETE INSTITUTE'S SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS (ACI 301).

ALL CONCRETE SHALL BE STONE-AGGREGATE CONCRETE HAVING A UNIT WEIGHT OF APPROXIMATELY 150 POUNDS PER CUBIC FOOT.

CONCRETE STRENGTHS AT 28 DAYS ( $f'_c$ ) AND MIX CRITERIA SHALL BE AS FOLLOWS:

TYPE OF CONSTRUCTION	$f'_c$	MAXIMUM WATER/CEMENT RATIO	MIN CEMENT CONTENT PER CUBIC YARD	MAXIMUM SHRINKAGE STRAIN
SLABS ON GRADE	4000 PSI	0.52	5 1/2 SACK	N/A
FOOTINGS & STEM WALLS	4000 PSI	0.52	5 1/2 SACK	N/A
ALL OTHER CONC	4000 PSI	0.52	5 1/2 SACK	N/A

THE MINIMUM AMOUNT OF CEMENT LISTED ABOVE MAY BE CHANGED IF A CONCRETE PERFORMANCE MIX IS SUBMITTED TO THE ENGINEER AND THE BUILDING DEPARTMENT FOR APPROVAL TWO WEEKS PRIOR TO PLACING ANY CONCRETE. THE PERFORMANCE MIX SHALL INCLUDE THE AMOUNTS OF CEMENT, FINE AND COARSE AGGREGATE, WATER, AND ADMIXTURES AS WELL AS THE WATER-CEMENT RATIO, SLUMP, CONCRETE YIELD, AND SUBSTANTIATING STRENGTH DATA IN ACCORDANCE WITH CHAPTER 26 OF ACI 318.

ALL CONCRETE EXPOSED TO WEATHER OR TO FREEZING TEMPERATURES SHALL BE AIR-ENTRAINED IN ACCORDANCE WITH ACI 318 TABLE 19.3.3.1 FOR MODERATE EXPOSURE CLASS F1.

## REINFORCING STEEL

REINFORCING STEEL SHALL BE DEFORMED BILLET STEEL CONFORMING TO ASTM A615, AND SHALL BE GRADE 60 ( $F_y = 60,000$  PSI), UNLESS NOTED OTHERWISE. GRADE 60 REINFORCING BARS INDICATED ON DRAWINGS TO BE WELDED SHALL CONFORM TO ASTM A706. REINFORCING COMPLYING WITH ASTM A615 MAY BE WELDED IF MATERIAL PROPERTY REPORTS INDICATING CONFORMANCE WITH WELDING PROCEDURES SPECIFIED IN AWS D1.4 ARE SUBMITTED.

WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185. PROVIDE WELDED WIRE FABRIC IN SHEETS NOT ROLLS. LAP WELDED WIRE FABRIC 12" AT SIDES AND ENDS.

REINFORCING STEEL SHALL BE DETAILED INCLUDING HOOKS AND BENDS IN ACCORDANCE WITH ACI SP-66 AND ACI 318, LATEST EDITIONS. UNLESS OTHERWISE NOTED, REINFORCING SPLICE LENGTHS AND DEVELOPMENT LENGTHS SHALL BE PER SCHEDULE.

REINFORCING SHALL BE PLACED AND ADEQUATELY SUPPORTED PRIOR TO PLACING CONCRETE. WET-SETTING EMBEDDED ITEMS IS NOT ALLOWED WITHOUT PRIOR ENGINEER APPROVAL. BARS PARTIALLY EMBEDDED IN HARDENED CONCRETE SHALL NOT BE FIELD BENT UNLESS SO DETAILED OR APPROVED BY THE STRUCTURAL ENGINEER. REFER TO CHAPTER 25 OF ACI 318 FOR OTHER REINFORCING STEEL REQUIREMENTS.

## MINIMUM LAPS AND EMBEDMENT

UNLESS OTHERWISE NOTED, REINFORCING SPLICE LENGTHS AND DEVELOPMENT LENGTHS SHALL BE AS TABULATED BELOW:

BAR SIZE	$f'_c = 4000$ PSI					
	DEVELOPMENT LENGTH			LAP SPLICE		
	TENSION		COMPRESSION	TENSION		COMPRESSION
	TOP BARS	OTHER BARS	ALL BARS	TOP BARS	OTHER BARS	ALL BARS
#3	19	15	8	24	19	12
#4	25	19	10	33	25	15
#5	31	24	12	41	31	19
#6	37	29	15	49	37	23
#7	54	42	17	71	54	27
#8	62	48	19	81	62	30

NOTES:  
1. ALL LENGTHS ARE IN INCHES.  
2. ALL LAP SPLICES ARE CLASS B.  
3. "TOP BARS" ARE HORIZONTAL REINFORCEMENT PLACED SUCH THAT MORE THAN 12 INCHES OF CONCRETE IS CAST IN THE MEMBER BELOW THE BAR.

## CONCRETE COVER ON REINFORCING

CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH: 3"

CONCRETE EXPOSED TO EARTH AND WEATHER:  
#6 BARS AND LARGER 2"  
#5 BARS AND SMALLER 1 1/2"

CONCRETE NOT EXPOSED TO EARTH OR WEATHER:  
SLABS, WALLS AND JOISTS 3/4"  
COLUMN TIES OR SPIRALS AND BEAM STIRRUPS 1 1/2"

## CONCRETE GENERAL NOTES

VERTICAL BARS SHALL START FROM TOP OF FOOTING. HORIZONTAL BARS SHALL START A DISTANCE OF 1/2 THE NORMAL BAR SPACING FROM TOP OF FOOTING AND TOP OF FRAMED SLABS. IN ADDITION, THERE SHALL BE A HORIZONTAL BAR AT A MAXIMUM OF 3" FROM TOP OF WALL AND BOTTOM OF FRAMED SLABS.

PROVIDE CORNER BARS TO MATCH THE HORIZONTAL REINFORCING WITH TENSION LAP SPLICE AT EACH SIDE PER TABLE, OR BEND ONE SIDE OVER TO PROVIDE TENSION LAP.

PROVIDE CONTROL OR CONSTRUCTION JOINTS IN SLABS ON GRADE TO BREAK UP SLAB INTO RECTANGULAR AREAS OF NOT MORE THAN 400 SQUARE FEET EACH. AREAS TO BE AS SQUARE AS PRACTICAL AND HAVE NO ACUTE ANGLES. JOINT LOCATIONS TO BE APPROVED BY THE ENGINEER.

ALL CONSTRUCTION JOINTS SHALL BE THOROUGHLY CLEANED AND PROPERLY PREPARED IMMEDIATELY PRIOR TO POURING OF CONCRETE. DOWEL STEEL SHALL BE THE SAME SIZE AND SPACING AS MAIN REINFORCING DETAILED BEYOND JOINT.

SEE MECHANICAL DRAWINGS FOR EXACT LOCATIONS AND DIMENSIONS OF OPENINGS IN CONCRETE WALLS, FLOORS AND ROOF. UNLESS INDICATED OTHERWISE, REINFORCE AROUND OPENINGS GREATER THAN 12" IN EITHER DIRECTION WITH (2) #5 EACH SIDE AND (1) #5 x 4'-0" DIAGONAL AT EACH CORNER. EXTEND BARS 2'-0" BEYOND EDGE OF OPENING. IF 2'-0" IS UNAVAILABLE, EXTEND AS FAR AS POSSIBLE AND HOOK. HOOK ALL REINFORCING INTERRUPTED BY OPENINGS.

BARS PARTIALLY EMBEDDED IN HARDENED CONCRETE SHALL NOT BE FIELD BENT UNLESS SO DETAILED OR APPROVED BY THE STRUCTURAL ENGINEER.

## MASONRY

CONCRETE MASONRY UNITS SHALL BE ASTM C90, MEDIUM WT, TYPE 1  $f_m = 2000$  PSI. BLOCKS SHALL BE PLACED IN RUNNING BOND. ALL MASONRY CONTAINING REINFORCING AND CELLS BELOW GRADE SHALL BE GROUTED SOLID.

MORTAR SHALL CONFORM TO ASTM C 270 TYPE S.

GROUT SHALL CONFORM TO ASTM C 476 W/  $f'_c = 2000$  PSI

PROVIDE CLEANOUTS IN THE BOTTOM COURSE OF MASONRY FOR EACH GROUT POUR EXCEEDING 5 FEET. IF THE CELLS ARE SOLID GROUTED, CLEANOUTS ARE REQUIRED AT 32" OC MAXIMUM. GROUT FOR EACH POUR SHALL BE STOPPED 1 1/2" BELOW THE TOP OF THE LAST COURSE OF BLOCK. ALL GROUT TO BE THOROUGHLY CONSOLIDATED BY VIBRATING IMMEDIATELY AFTER PLACING.

EXPANSION JOINTS @ 40'-0" OC UNO. PROVIDE MINIMUM #5 VERTICAL BAR EACH SIDE OF JOINT.

## STRUCTURAL STEEL

STRUCTURAL STEEL DESIGN, FABRICATION AND ERECTION SHALL BE IN ACCORDANCE WITH THE AISC "SPECIFICATION FOR THE DESIGN, FABRICATION, AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS", LATEST EDITION.

WIDE FLANGE SHAPES SHALL CONFORM TO ASTM A992,  $F_y = 50$  KSI.

PLATES, ANGLES, CHANNELS, AND RODS SHALL CONFORM TO ASTM A36,  $F_y = 36$  KSI.

STRUCTURAL TUBING SHALL CONFORM TO ASTM A500 GRADE B,  $F_y = 46$  KSI.

STEEL PIPE SHALL CONFORM TO ASTM A53 GRADE B,  $F_y = 35$  KSI.

BOLTS CONNECTING STEEL MEMBERS SHALL CONFORM TO ASTM A325-N. BOLTS SHALL BE 3/4" Ø MINIMUM, UNO ANCHOR BOLTS SHALL CONFORM TO ASTM A307.

CONTRACTOR SHALL PROVIDE CONNECTION ADJUSTMENT TOLERANCES TO SATISFY THE REQUIREMENTS OF AISC MANUAL OF STEEL CONSTRUCTION.

UNLESS SPECIFIED AS STAINLESS STEEL, ALL STEEL MEMBERS, SHAPES, BOLTS, AND ACCESSORIES EXPOSED TO WEATHER SHALL BE HOT DIP GALVANIZED.

## WELDING

WELDING SHALL CONFORM TO AWS "STRUCTURAL WELDING CODE", LATEST EDITION. ALL WELDING SHALL BE DONE WITH 70 KSI LOW HYDROGEN ELECTRODES. WHERE NOT CALLED OUT, MINIMUM FILLET WELD SIZE SHALL BE PER TABLE 5.8 IN AWS D1.1, LATEST EDITION.

WELDING OF REINFORCING BARS SHALL NOT BE PERMITTED UNLESS SPECIFICALLY CALLED OUT ON DRAWINGS OR APPROVED BY STRUCTURAL ENGINEER. WELDING OF GRADE 60 REINFORCING BARS SHALL BE PERFORMED USING LOW HYDROGEN ELECTRODES. WELDING OF GRADE 40 REINFORCING BARS SHALL BE PERFORMED USING E70XX ELECTRODES. SEE REINFORCING NOTES FOR MATERIAL REQUIREMENTS OF WELDED BARS. WELDING WITHIN 4" OF COLD BENDS IN REINFORCING BARS IS NOT PERMITTED.

ALL WELDING SHALL BE DONE BY WASHINGTON ASSOCIATION OF BUILDING OFFICIALS (WABO) CERTIFIED WELDERS.

## NAILS, BOLTS, AND METAL CONNECTORS FOR WOOD

ALL NAILS SHALL CONFORM TO THE STANDARDS SET FORTH BY THE NATIONAL DESIGN STANDARDS (NDS) FOR WOOD CONSTRUCTION, LATEST EDITION. NAILING NOT SPECIFIED SHALL BE PER IBC TABLE 2304.10.1 NAILING SCHEDULE. ALL NAILS CALLED OUT ON PLANS SHALL BE COMMON NAILS UNLESS NOTED OTHERWISE AND SHALL MEET OR EXCEED THE FOLLOWING MINIMUM GUIDELINES:

NAIL	SHANK Ø	MIN LENGTH
8d COMMON	0.131Ø	2 1/2" SHANK
10d COMMON	0.148Ø	3" SHANK
12d COMMON	0.148Ø	3 1/4" SHANK
16d COMMON	0.162Ø	3 1/2" SHANK

10d BOX NAILS MAY BE SUBSTITUTED FOR 8d COMMON NAILS WITH NO CHANGE IN NAIL SPACING. FRAMING MEMBERS MAY BE NAILED WITH 16d SINKERS (0.148" Ø x 3 1/4"), BUT ONLY 16d COMMON NAILS SHALL BE USED WHERE 16d NAILS ARE INDICATED IN THIS DRAWING SET. ENGINEER MAY APPROVE OTHER NAILS IF NAIL LABELS ARE SUBMITTED TO ENGINEER PRIOR TO START OF CONSTRUCTION.

ALL BOLTS IN WOOD MEMBERS SHALL CONFORM TO ASTM A307. PROVIDE WASHERS UNDER THE HEADS AND NUTS OF ALL BOLTS AND LAG SCREWS BEARING ON WOOD. LEAD HOLES FOR LAG BOLTS SHALL BE BORED FOR THE SHANK AND THREADED PORTIONS PER NDS 12.1.4.2.

CONNECTORS CALLED OUT BY LETTERS AND NUMBERS SHALL BE "STRONG-TIE" BY SIMPSON COMPANY, CATALOG TO BE THE LATEST EDITION, OR ENGINEER APPROVED EQUAL. CONNECTORS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND WITH THE NUMBER AND SIZE OF FASTENERS AS SPECIFIED BY THE MANUFACTURER. WHERE CONNECTOR STRAPS CONNECT TWO MEMBERS, PLACE ONE-HALF OF THE NAILS, SCREWS, OR BOLTS IN EACH MEMBER.

INSTALL SOLID BLOCKING AT ALL BEARING POINTS. ALL SHIMS SHALL BE SEASONED, DRIED, AND THE SAME GRADE (MINIMUM) AS MEMBERS CONNECTED.

## GALVANIZATION

UNLESS NOTED OTHERWISE, STEEL CONNECTORS IN CONTACT WITH TREATED WOOD SHALL BE GALVANIZED ACCORDING TO THE FOLLOWING TABLE:

GALVANIZATION	UNTREATED WOOD	CCA-C	SBX	ACQ-C ACQ-D	CBA-A CA-B	OTHER BORATE	ACZA	OTHER PT WOOD
G90	X	X	X					
G185	X	X	X	X	X	X		
HDG	X	X	X	X	X	X		
ST3300	X	X	X	X	X	X	X	X

G90 = 0.90 OZ. OF ZINC PER SQUARE FOOT OF AREA  
G185 = 1.85 OZ. OF ZINC PER SQUARE FOOT OF AREA  
HDG = HOT DIP GALVANIZED  
ST3300 = TYPE 316L STAINLESS STEEL

## RATED SHEATHING

RATED SHEATHING SHALL BE GRADE C-D INT-APA WITH EXTERIOR GLUE OR OSB SHEATHING WITH EXTERIOR GLUE IN CONFORMANCE WITH IBC STANDARD 2303.1.5.

## GLUE-LAMINATED TIMBER

GLUE-LAMINATED TIMBER SHALL BE DOUGLAS FIR, FABRICATED IN CONFORMANCE WITH ANSI/AITC STANDARD A190.1, LATEST EDITION. EACH MEMBER SHALL BEAR AN AITC IDENTIFICATION MARK AND SHALL BE ACCOMPANIED BY AN AITC CERTIFICATE OF CONFORMANCE. FABRICATOR SHALL BE CERTIFIED. MEMBERS SHALL BE OF THE FOLLOWING MINIMUM STANDARDS:

SPAN	COMBINATION	$F_b$
SIMPLE SPAN BEAMS	24F-V4	2400 PSI
CANTILEVER OR MULTI-SPAN BEAMS	24F-V8	2400 PSI

## TIMBERSTRAND, MICROLAM, AND PARALLAM MEMBERS

FABRICATED IN CONFORMANCE WITH THE INTERNATIONAL CODE COUNCIL EVALUATION SERVICE (ICC-ES) REPORT NO. ESR-1387 OR CCMC REPORT NO. 12627-R, 08675-R, AND 11161-R. EACH MEMBER SHALL BE IDENTIFIED BY A STAMP INDICATING THE PRODUCT TYPE AND GRADE, ICC-ES OR CCMC REPORT NUMBER, MANUFACTURER'S NAME, PLANT NUMBER AND INDEPENDENT INSPECTION AGENCY'S LOGO. FABRICATOR SHALL BE CERTIFIED. MEMBERS SHALL MEET THE FOLLOWING MINIMUM STANDARDS:

SIZE CLASSIFICATION	SPECIES	GRADE	$F_b$ (PSI)	$F_v$ (PSI)	$F_c$ (PSI)
BEAMS & POSTS ( $d < 9 1/2"$ )	LSL	1.3E	1,700	425	1,835
JOISTS & BEAMS ( $d \geq 9 1/2"$ )	LSL	1.55E	2,325	310	-
BEAMS & POSTS	LVL	2.0E	2,600	285	2,510
POSTS ( $d < 9 1/2"$ )	PSL	1.8E	2,400	190	2,500
BEAMS ( $d \geq 9 1/2"$ )	PSL	2.0E	2,900	290	-

TIMBERSTRAND, MICROLAM, AND UNTREATED PARALLAM MEMBERS ARE INTENDED FOR DRY-USE APPLICATIONS. UNLESS NOTED OTHERWISE, ENGINEERED WOOD BEAMS EXPOSED TO WEATHER SHALL BE TREATED PER MANUFACTURER RECOMMENDATIONS.



## NOTICE

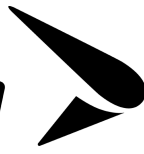


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murraysmith



CITY OF PORT ORCHARD  
MCCORMICK WOODS -  
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SITE IMPROVEMENT  
PROJECT

STRUCTURAL NOTES - 1

SHEET

S-1

X of X

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PROJECT NO.: 20-2839.01 SCALE: AS SHOWN DATE: SEPTEMBER 2022

# STRUCTURAL NOTES

(THESE NOTES ARE TYPICAL UNLESS NOTED OR DETAILED OTHERWISE ON DRAWINGS)

## TYPICAL FRAMING NOTES

### 1. WOOD SILL PLATES ON CMU

SILL PLATES BEARING ON CMU SHALL BE PRESSURE-TREATED. BOLT SILLS TO CMU WITH 3/4 INCH DIAMETER ANCHOR BOLTS WITH 7 INCH MINIMUM EMBEDMENT. PLACE AT 24" ON MAXIMUM. USE MINIMUM OF TWO ANCHOR BOLTS PER SILL AND PLACE ONE WITHIN 16 INCHES OF EITHER END TYPICAL UNLESS NOTED OR DETAILED OTHERWISE.

### 2. ROOF AND FLOOR FRAMING

PROVIDE 1 1/2" FULL DEPTH BLOCKING FOR RAFTERS AT ALL SUPPORTS AND 8'-0" ON MAXIMUM UNO. INTERMEDIATE 8'-0" OC BLOCKING NOT REQ'D IF CEILING IS INSTALLED DIRECTLY TO UNDERSIDE OF FRAMING. PROVIDE BLOCKING FOR ROOF RAFTERS AT SUPPORTS, AND WHERE INDICATED ON PLANS AND DETAILS.

### 3. DIAPHRAGM NAILING

ALL DIAPHRAGM NAILINGS SHALL BE AS CALLED OUT OR ON THE PLANS OR IN THE PLAN NOTES.

THE USE OF NAIL GUNS WILL BE APPROVED IF NAILING INTO THE DIAPHRAGMS CAN BE INSTALLED FLUSH WITH FACE OF SHEATHING. NAIL PENETRATIONS GREATER THAN 1/16" ARE NOT ACCEPTABLE.

### GENERAL

STRUCTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH CIVIL, ELECTRICAL, AND MECHANICAL DRAWINGS FOR BIDDING AND CONSTRUCTION. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS FOR COMPATIBILITY BEFORE PROCEEDING. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE DESIGN TEAM BEFORE PROCEEDING.

CONTRACTOR TO SEE CIVIL, ELECTRICAL AND MECHANICAL DRAWINGS FOR SIZE AND LOCATION OF PIPE, VENT, DUCT AND OTHER OPENINGS AND DETAILS NOT SHOWN ON THESE DRAWINGS.

CONTRACTOR SHALL BE RESPONSIBLE FOR ERECTION STABILITY AND TEMPORARY SHORING AS NECESSARY UNTIL PERMANENT SUPPORT AND STIFFENING ARE INSTALLED.

CONTRACTOR-INITIATED CHANGES SHALL BE SUBMITTED IN WRITING TO THE STRUCTURAL ENGINEER FOR APPROVAL PRIOR TO FABRICATION OR CONSTRUCTION. CHANGES SHOWN ON SHOP DRAWINGS ONLY WILL NOT SATISFY THIS REQUIREMENT.

DRAWINGS INDICATE GENERAL AND TYPICAL DETAILS OF CONSTRUCTION. WHERE CONDITIONS ARE NOT SPECIFICALLY INDICATED BUT ARE OF A SIMILAR CHARACTER TO DETAILS SHOWN, SIMILAR DETAILS OF CONSTRUCTION SHALL BE USED, SUBJECT TO REVIEW AND APPROVAL BY THE STRUCTURAL ENGINEER.

## LEGEND

DEFINITION	SYMBOL	DEFINITION	SYMBOL
DIRECTION OF FRAMING		NATIVE SOIL	
EXTENT OF FRAMING		GRANULAR FILL	
COLUMNS		STRUCTURAL STEEL	
COLUMN BEARING ON BEAM		RATED SHEATHING	
BEAM CONTINUOUS OVER SUPPORT		SHEAR WALL (SEE SCHEDULE)	SWX
CONCRETE WALL		COLUMN MARK (SEE SCHEDULE)	
BEARING STUD WALL		FOOTING MARK (SEE SCHEDULE)	
NON-BEARING STUD WALL		HOLDOWN MARK (SEE SCHEDULE)	
BEARING STUD SHEAR WALL		HANGER MARK (SEE SCHEDULE)	
NON-BEARING STUD SHEAR WALL		FLAG NOTE (SEE PLAN NOTES)	
CMU WALL		STEEL MOMENT FRAME CONN.	

## ABBREVIATIONS

ABBREVIATIONS			
(A)	ABOVE	GLB	GLUE-LAMINATED BEAM
AB	ANCHOR BOLT	HORIZ	HORIZONTAL
ALT	ALTERNATE	KP	KING POST
ARCH	ARCHITECT	KSI	KIPS PER SQUARE INCH
(B)	BELOW	L	ANGLE
BD	BAR DIAMETER	MECH	MECHANICAL
BLKG	BLOCKING	MF	MOMENT FRAME
BM	BEAM	MTL	METAL
BOT	BOTTOM	NS	NEAR SIDE
BRNG	BEARING	OC	ON CENTER
BTWN	BETWEEN	OPP	OPPOSITE
CJP	COMPLETE JOINT PENETRATION	PL	PLATE
CLR	CLEAR	PLCS	PLACES
CMU	CONCRETE MASONRY UNIT	PSI	POUNDS PER SQUARE INCH
COL	COLUMN	PSF	POUNDS PER SQUARE FOOT
CONC	CONCRETE	P/T	POST TENSIONED
CONN	CONNECTION	PT	PRESSURE TREATED
CONT	CONTINUOUS	REINF	REINFORCING
COORD	COORDINATE	REQ'D	REQUIRED
DBL	DOUBLE	SCHED	SCHEDULE
DET	DETAIL	SIM	SIMILAR
DIA	DIAMETER	SOG	SLAB ON GRADE
DIM	DIMENSION	STD	STANDARD
DIR	DIRECTION	STIFF	STIFFENER
EA	EACH	STL	STEEL
ELEV	ELEVATION	SYMM	SYMMETRICAL
ES	EACH SIDE	SW	SHEARWALL
EX	EXISTING	TOC	TOP OF CONCRETE
EXP	EXPANSION	TOS	TOP OF STEEL
FLR	FLOOR	TOW	TOP OF WALL
FDN	FOUNDATION	TYP	TYPICAL
FTG	FOOTING	UNO	UNLESS NOTED OTHERWISE
FS	FAR SIDE	VERT	VERTICAL
GC	GENERAL CONTRACTOR	WF	WIDE FLANGE



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STRUCTURAL NOTES - 2

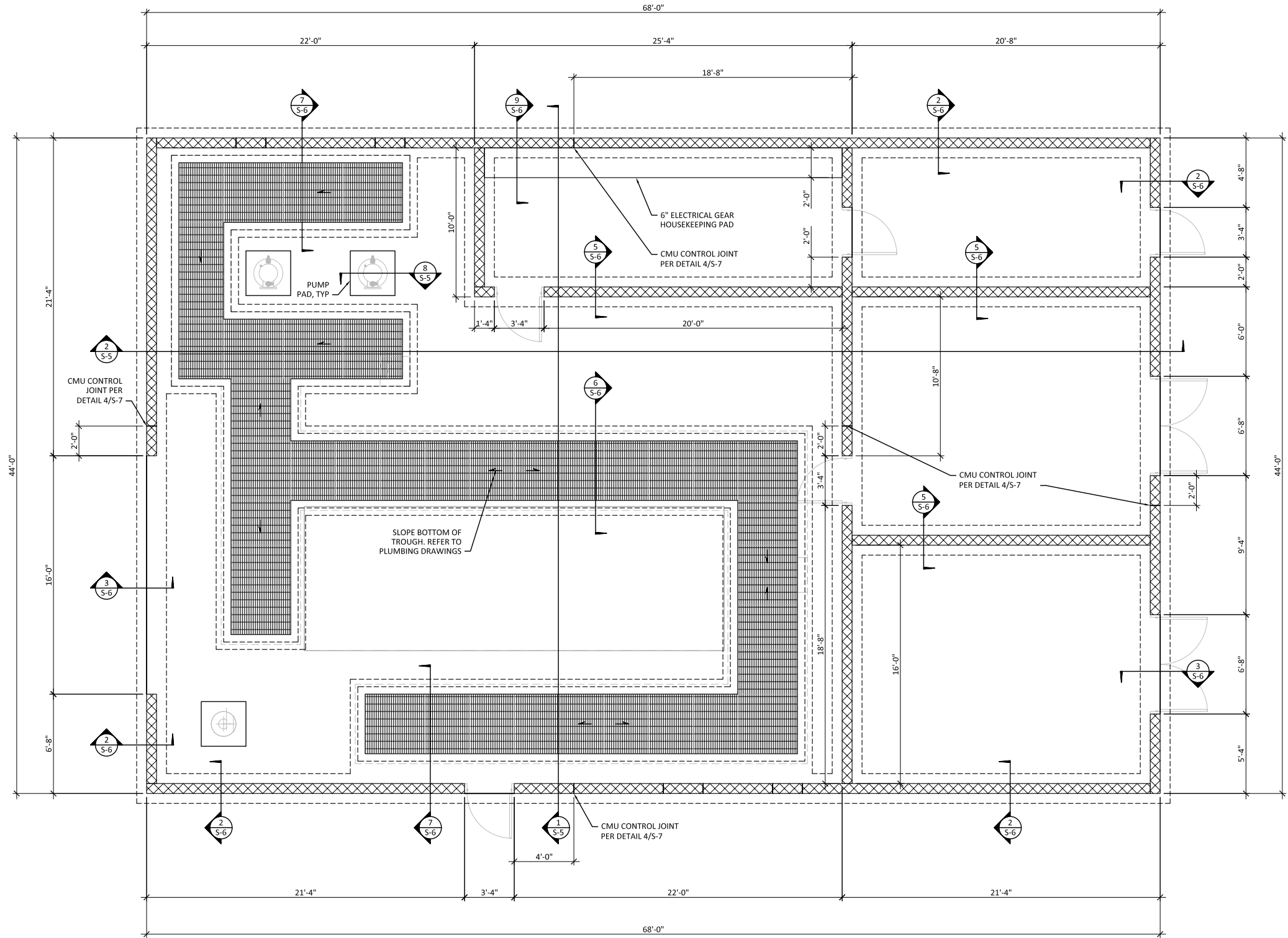
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X of X

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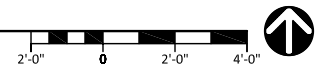
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**FOUNDATION PLAN NOTES:**

- EXTERIOR FOOTINGS SHALL BEAR A MIN OF 1'-6" BELOW ADJACENT GRADE.
- FOOTINGS AND SLAB ON GRADE SHALL BEAR ON FIRM NATIVE SOIL OR COMPACTED STRUCTURAL FILL AS SPECIFIED IN THE SOILS REPORT. REFER TO THE SOILS REPORT FOR THE SPECIFICS REGARDING EXCAVATION SUBGRADE PREPARATION BELOW THE FOUNDATION AND SLAB ON GRADE.
- WHERE SLAB ON GRADE IS INDICATED, SLAB SHALL BE 5" THICK W/ #4 @ 12" OC WA WAY, CENTERED. SLAB SHALL BE POURED OVER A 10 MIL VAPOR BARRIER OVER GRAVEL AND/OR SUBGRADE RECOMMENDED BY THE SOILS ENGINEER.
- REFER TO PLAN AND "CONCRETE GENERAL NOTES" ON SHEET S-1 FOR CONTROL JOINT PLACEMENT AND DETAIL 1/5-6 FOR CONTROL JOINT CONSTRUCTION.
- REFER TO SHEET S-6 FOR FOUNDATION DETAILS.
- PLACE ALL REINFORCEMENT PER THE STRUCTURAL NOTES AND FOUNDATION DETAILS. REFER TO SHEET S-1 FOR ADDITIONAL CONCRETE DETAILING REQUIREMENTS.
- CONTRACTOR SHALL VERIFY ALL DIMENSIONS, WALL LOCATIONS, AND CONCRETE ROUGH OPENINGS WITH MECHANICAL DRAWINGS AND NOTIFY ALL PARTIES OF ANY DISCREPANCIES.
- REFER TO DETAIL 4/5-6 FOR PIPE PENETRATIONS THROUGH CONCRETE SLAB.
- CONTRACTOR SHALL PROVIDE FOOTING AND SLAB SUBSTRATE PREPARATION, WATERPROOFING, AND BACKFILL & DRAINAGE PER GEOTECHNICAL REPORT. GEOTECHNICAL ENGINEER SHALL OBSERVE EXCAVATED SOIL CONDITIONS DURING CONSTRUCTION (AND GROUNDWATER CONDITIONS) AS REQUIRED, AND PROVIDE ADDITIONAL RECOMMENDATIONS IF NECESSARY BASED ON ACTUAL SITE CONDITIONS.

**1 FOUNDATION PLAN**  
SCALE: 1/4" = 1'-0"



**CG ENGINEERING**  
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FAX (425) 778-5536  
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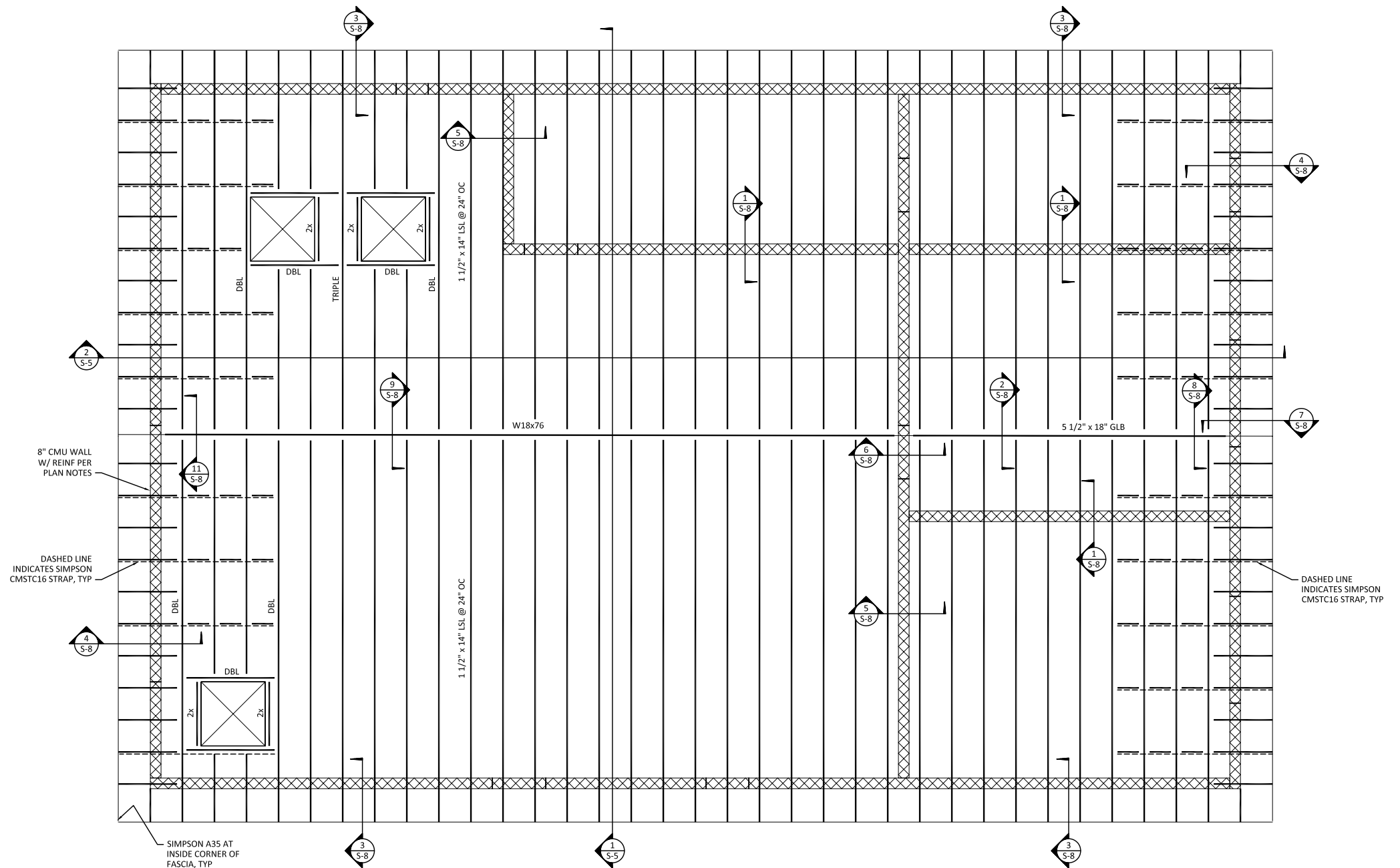


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SHEET  
**S-3**  
X of X



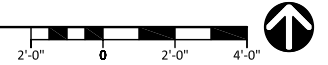


**TYPICAL ROOF FRAMING PLAN NOTES:**

1. WALLS SHOWN ON ROOF FRAMING PLAN ARE WALLS BELOW ROOF FRAMING.
2. ROOF SHEATHING SHALL BE 5/8" PI 40/20 WITH 8d COMMON NAILS SPACED AT 6" OC AT ALL DIAPHRAGM BOUNDARIES, PANEL EDGES, WALLS, AND BLOCKING. NAILING AT INTERMEDIATE FRAMING SHALL BE 8d COMMON NAILS @ 12" OC. REFER TO DETAIL 2/S-9 FOR SHEATHING LAYOUT AND NAILING.
3. REFER TO SHEET S-8 & S-9 FOR ROOF FRAMING DETAILS.
4. ALL DIAPHRAGMS UNBLOCKED UNO.

MINIMUM CMU WALL REINFORCING (BEARING WALL AND NON BEARING WALL)		
THICKNESS	VERTICAL REINFORCING	HORIZONTAL REINFORCING
8"	#5 @ 16"	(2) #4 @ 48" OC

**1 ROOF FRAMING PLAN**  
SCALE: 1/4" = 1'-0"



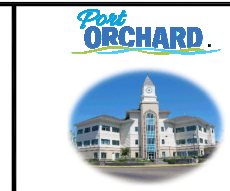
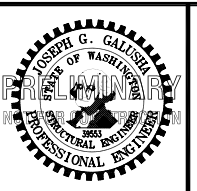
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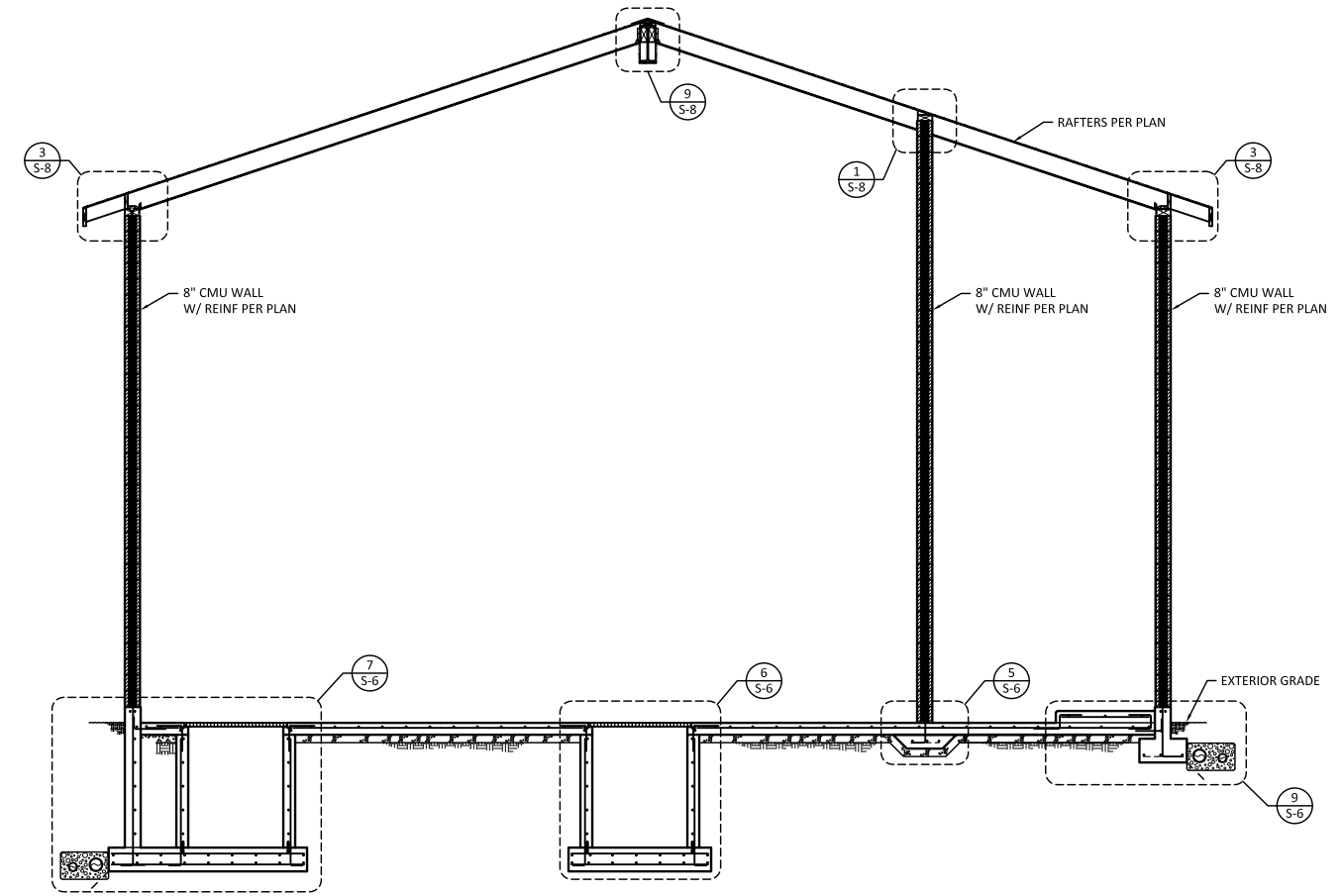


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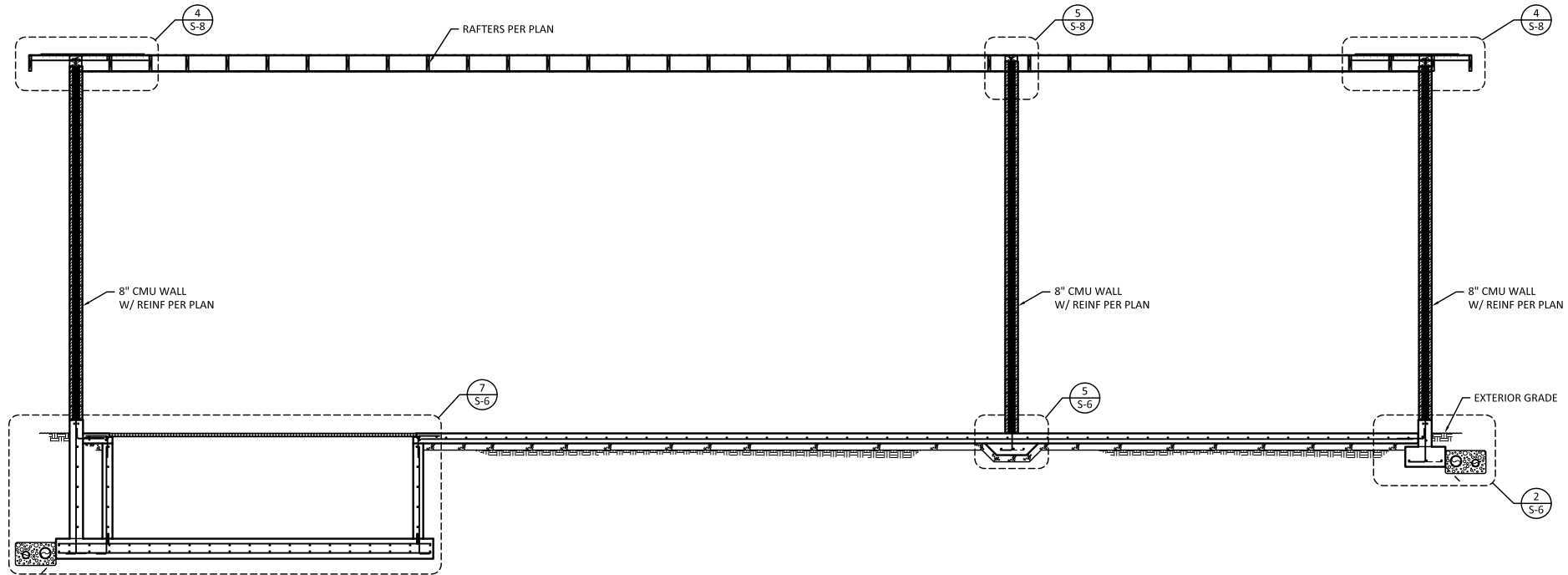
**ROOF FRAMING PLAN**

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SHEET  
**S-4**  
X of X



**1** BUILDING SECTION (TRANSVERSE)  
SCALE: 1/4" = 1'-0"



**2** BUILDING SECTION (LONGITUDINAL)  
SCALE: 1/4" = 1'-0"

**EG**  
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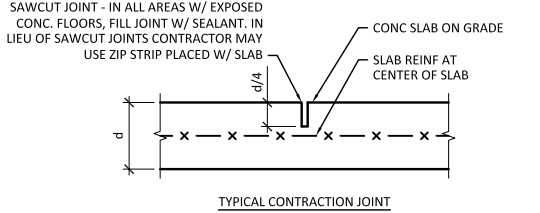
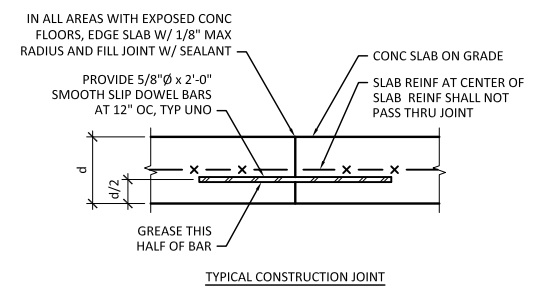
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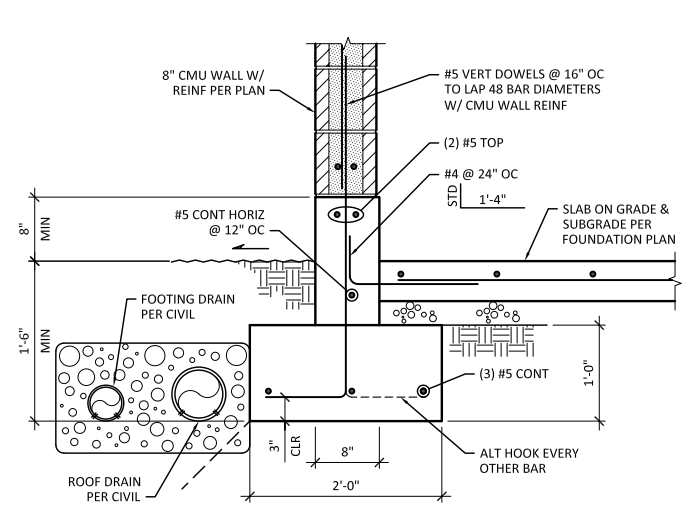
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**BUILDING SECTIONS**  
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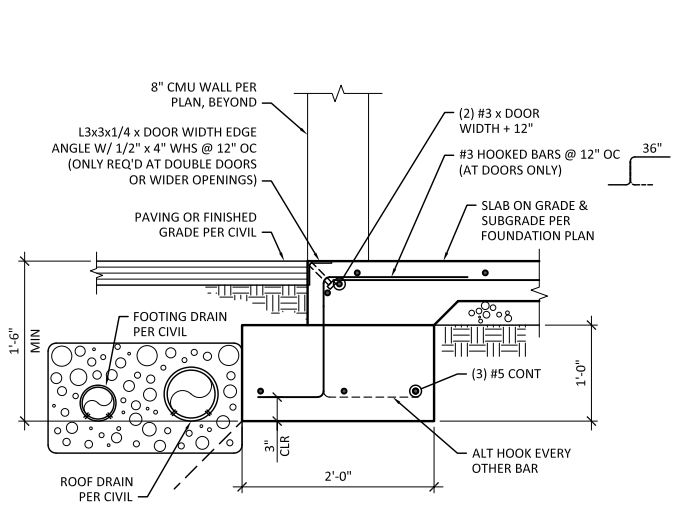
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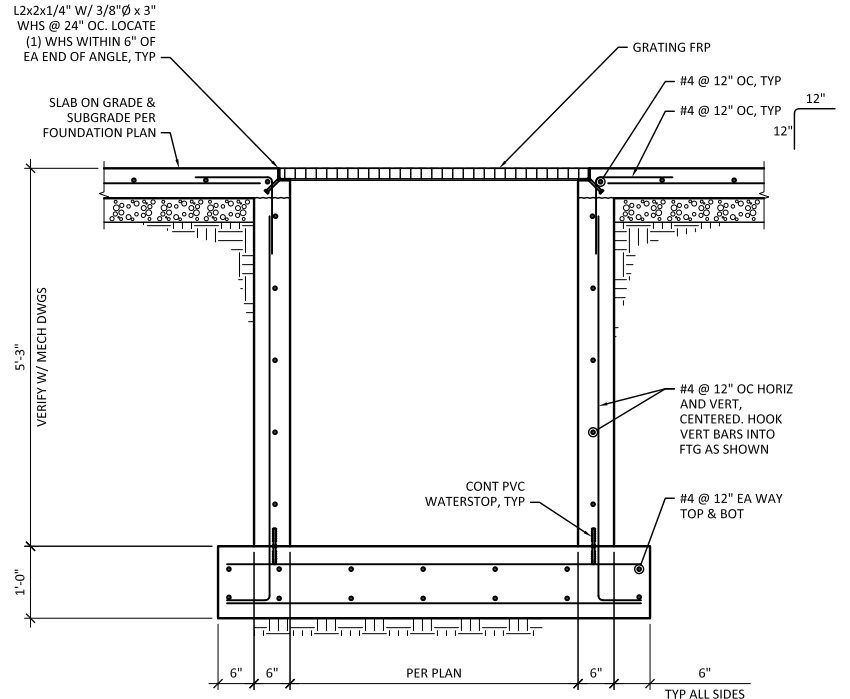
**1** TYPICAL SLAB ON GRADE DETAILS  
SCALE: 1" = 1'-0"



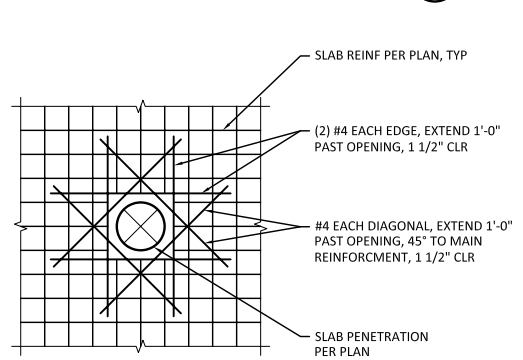
**2** PERIMETER FOUNDATION SECTION  
SCALE: 1" = 1'-0"



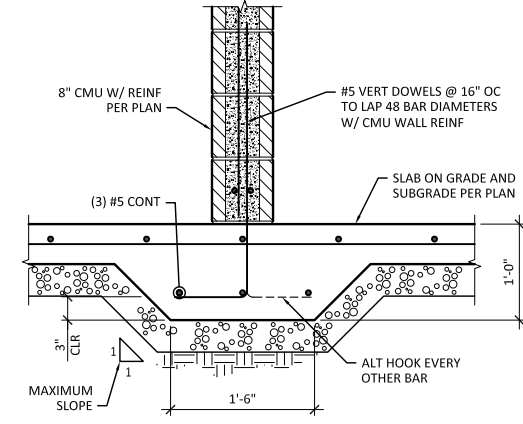
**3** FOUNDATION SECTION AT DOOR OPENINGS  
SCALE: 1" = 1'-0"



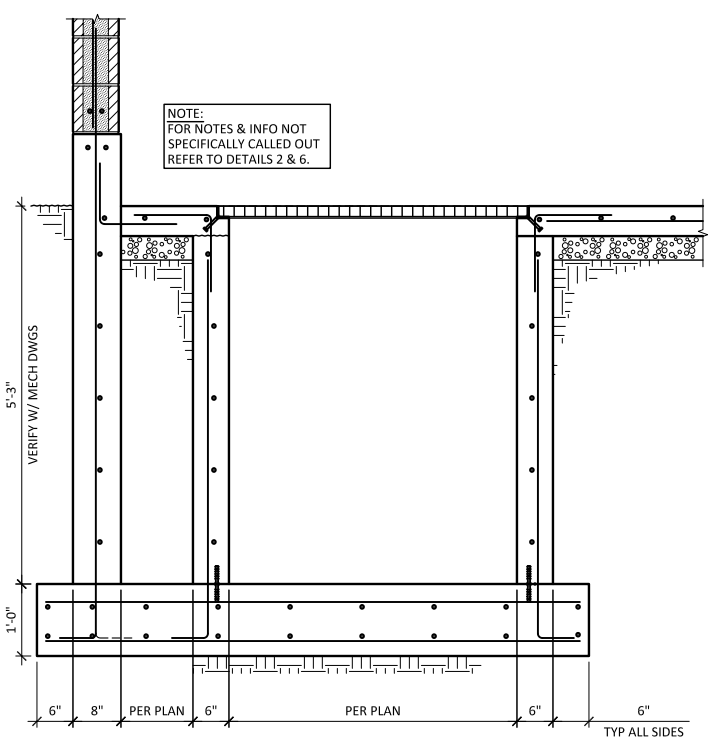
**6** TYPICAL TRENCH SECTION  
SCALE: 3/4" = 1'-0"



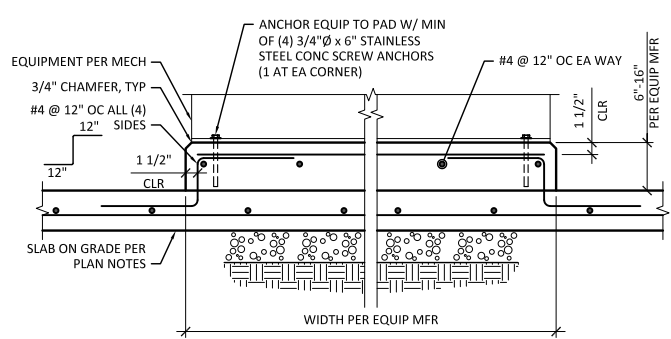
**4** CONCRETE PENETRATION REINFORCING  
SCALE: NTS



**5** INTERIOR FOUNDATION SECTION  
SCALE: 1" = 1'-0"

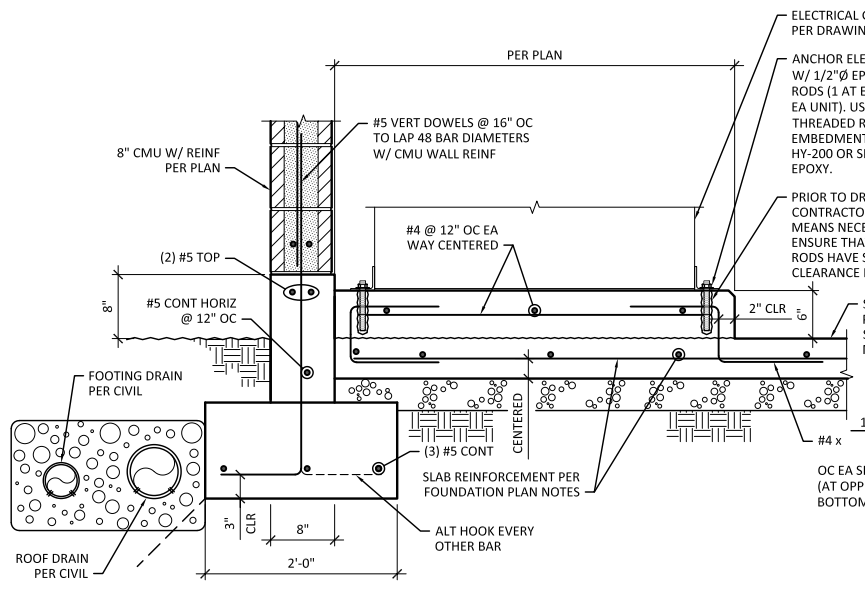


**7** WALL & TRENCH SECTION  
SCALE: 3/4" = 1'-0"

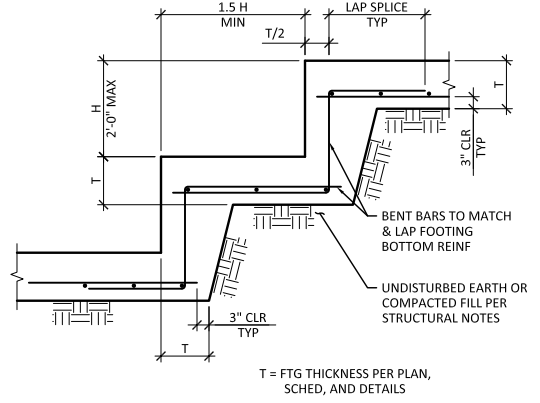


NOTES:  
COORDINATE PAD HEIGHT WITH EQUIPMENT MANUFACTURERS. ADJUST PAD HEIGHT TO PROVIDE PIPING CENTERLINES AS SHOWN ON MECHANICAL SHEETS. PROVIDE ADDITIONAL LAYER OF #4 @ 12" OC EA WAY FOR PADS OVER 12" HIGH. THE ADDED LAYER SHALL MAINTAIN 2" CLEARANCE FROM THE TOP OF FLOOR SLAB.

**8** PUMP & EQUIPMENT HOUSEKEEPING PAD  
SCALE: 1" = 1'-0"



**9** ELECTRICAL GEAR HOUSEKEEPING PAD  
SCALE: 1" = 1'-0"



**10** TYPICAL STEPPED WALL FOOTING  
SCALE: 1/2" = 1'-0"

**EG**  
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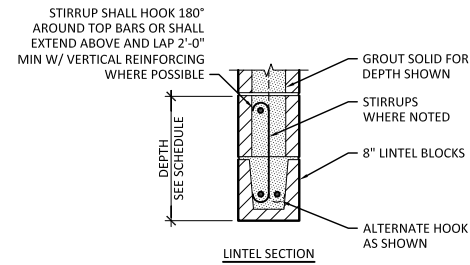
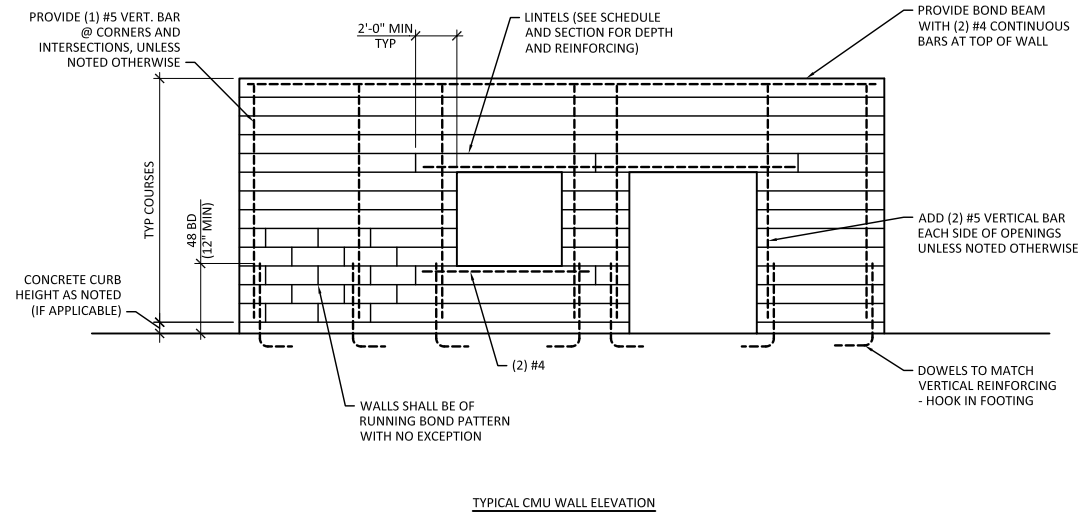
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SHEET  
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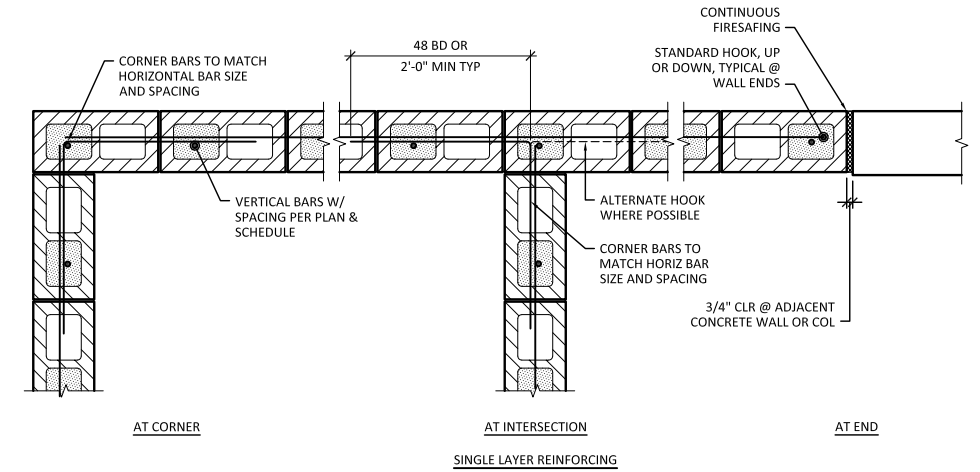
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MINIMUM CMU WALL REINFORCING (BEARING WALL AND NON BEARING WALL)		
THICKNESS	VERTICAL REINFORCING	HORIZONTAL REINFORCING
8"	#5 @ 16"	(2) #4 @ 48" OC



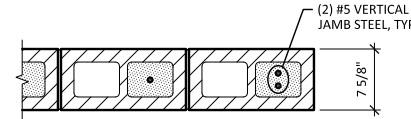
TYPICAL 8" CMU LINTEL REINFORCING			
CLEAR SPAN OR MARK	DEPTH	HORIZONTAL REINFORCING	STIRRUPS
4'-0" OR LESS	8"	(2) #4 BOT	#3 @ 8" OC
4'-0" TO 6'-4"	16"	(1) #5 TOP (2) #5 BOT	#3 @ 8" OC
6'-4" TO 9'-0"	16"	(1) #5 TOP (2) #6 BOT	#3 @ 8" OC
9'-0" TO 16'-0"	24"	(2) #5 TOP (2) #6 BOT	#3 @ 12" OC
16'-0" TO 20'-8"	48"	(2) #5 TOP (2) #7 BOT	#3 @ 12" OC

NOTES:  
 1. FILL ALL CELLS CONTAINING REINFORCING OR EMBEDDED ITEMS AND ALL CELLS BELOW GRADE WITH GROUT. PROVIDE CLEANOUT HOLES AT BOTTOM OF ALL CELLS CONTAINING REINFORCING.  
 2. UNLESS OTHERWISE NOTED, LAP ALL REINFORCING 48 BAR DIAMETERS (BD) MINIMUM.

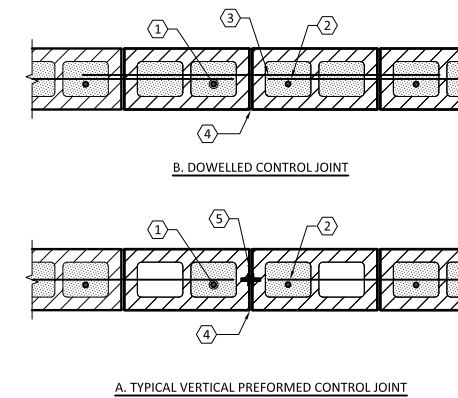


**1** TYPICAL CMU DETAILS  
SCALE: NTS

**2** TYPICAL CMU WALL REINFORCING  
SCALE: 1" = 1'-0"



**3** CMU JAMB STEEL  
SCALE: 1" = 1'-0"



NOTES:  
 1. PROVIDE CONTROL JOINTS IN CMU AT LOCATIONS SHOWN ON PLANS.  
 2. HORIZONTAL BOND BEAMS AT FLOORS, ROOF, AND AT THE TOP OF PARAPET WALLS SHALL BE CONTINUOUS THROUGH CONTROL JOINTS.  
 3. RECOMMENDED CONTROL JOINT SPACING FOR EXPOSED MASONRY WALLS SHOULD NOT EXCEED LESSER OF 3 TIMES WALL HEIGHT OR 40 FEET.

- ① ADDITIONAL #5 VERTICAL BAR ON EACH SIDE OF ALL CONTROL JOINTS.
- ② TERMINATE ALL REINFORCING 2" FROM CONTROL JOINT EXCEPT BOND BEAMS PER NOTE 2.
- ③ 5/8"Ø x 4'-0" LONG SMOOTH DOWELS @ 48" OC ACROSS THE JOINT. GREASE OR SLEEVE DOWEL ONE SIDE OF JOINT ONLY. CAP ALL DOWELS TO ALLOW 1" OF MOVEMENT HORIZONTALLY.
- ④ 3/8" JOINT W/ 3/16" SEALANT OVER BACKER ROD, TYP.
- ⑤ CONTINUOUS VERTICAL PREFORMED DA2002 DUR-O-WALL OR EQUAL CONTROL JOINT.

**4** TYPICAL CMU CONTROL JOINT DETAILS  
SCALE: 1" = 1'-0"

**EG**  
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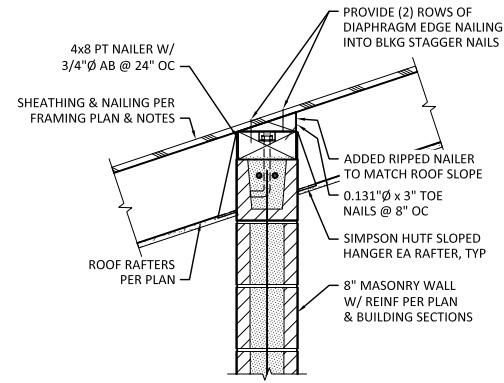
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CMU DETAILS

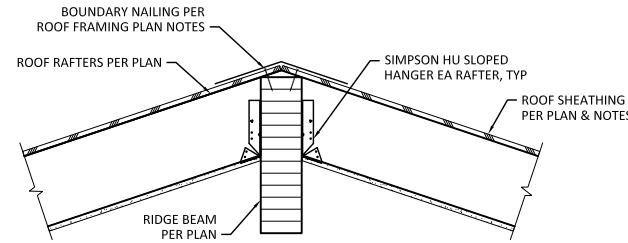
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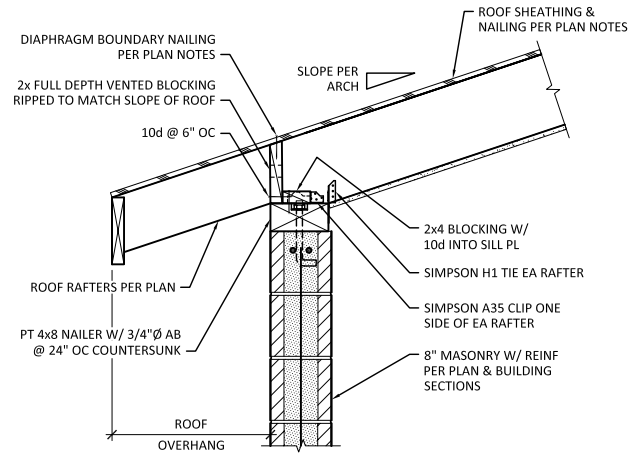
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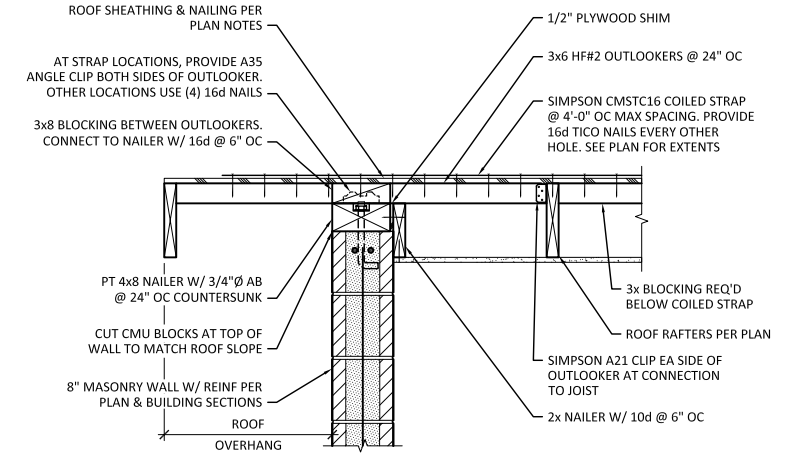
**1** INTERIOR CMU WALL (PERPENDICULAR)  
SCALE: 1" = 1'-0"



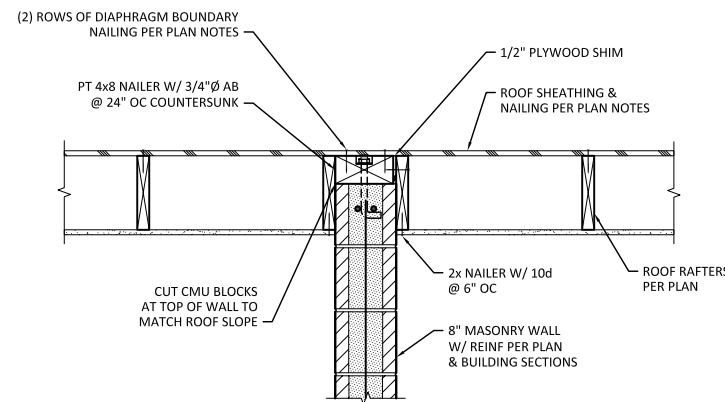
**2** RIDGE BEAM SECTION  
SCALE: 1" = 1'-0"



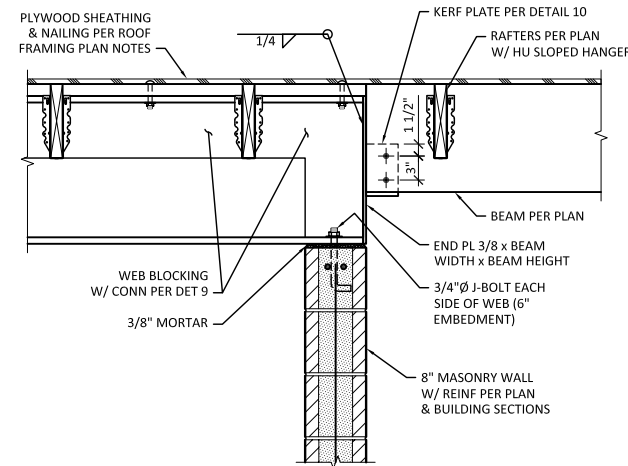
**3** CMU WALL AT WOOD RAFTERS  
SCALE: 1" = 1'-0"



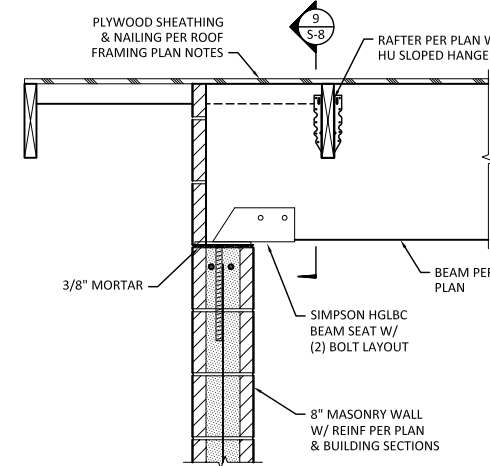
**4** CMU GABLE END SECTION AT ROOF  
SCALE: 1" = 1'-0"



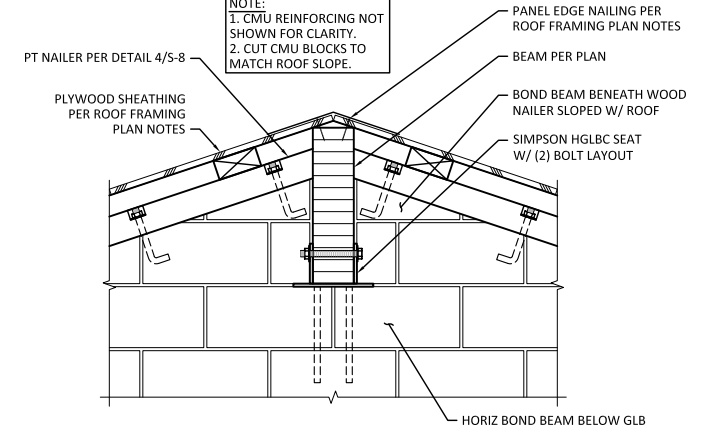
**5** INTERIOR CMU WALL (PARALLEL)  
SCALE: 1" = 1'-0"



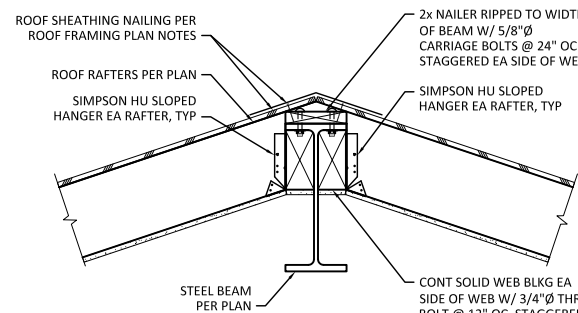
**6** BEAM CONNECTION (INTERIOR WALL)  
SCALE: 1" = 1'-0"



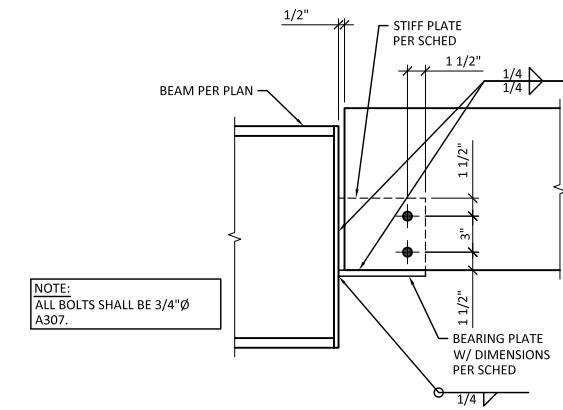
**7** GLULAM BEAM CONN (EXTERIOR WALL)  
SCALE: 1" = 1'-0"



**8** GLULAM BEAM CONN TO CMU WALL  
SCALE: 1" = 1'-0"



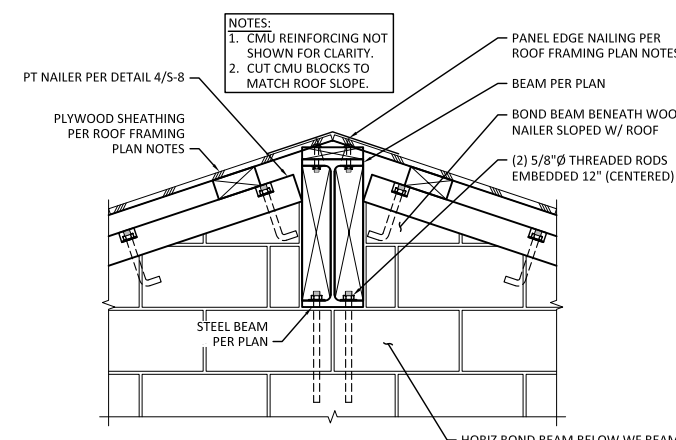
**9** RIDGE BEAM SECTION  
SCALE: 1" = 1'-0"



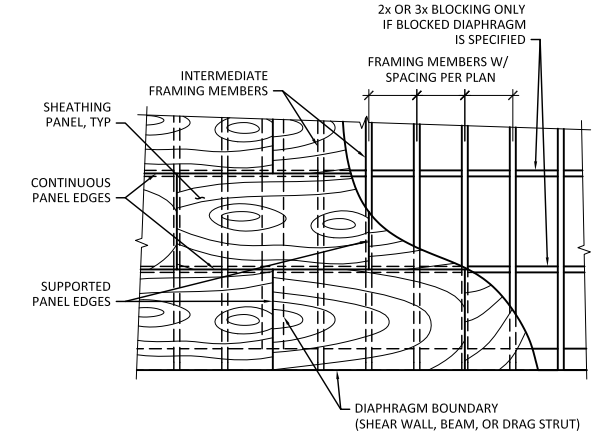
**KERF PLATE SCHEDULE**

BEAM SIZE	BEARING PLATE	STIFFENER PLATE	BOLTS
5 1/8" GLB	1/2 x 5 x 0'-7 1/2"	1/4 x 6 x 0'-7 1/2"	(2) 3/4"Ø

**10** KERF PLATE DETAIL  
SCALE: NTS



**11** STEEL BEAM CONNECTION AT CMU WALL  
SCALE: 1" = 1'-0"



**12** TYPICAL ROOF SHEATHING DETAIL  
SCALE: NTS



250 4TH AVE. S., SUITE 200  
EDMONDS, WASHINGTON 98020  
PHONE (425) 778-8500  
FAX (425) 778-5536  
CG# 21319.10

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JGG  
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CITY OF PORT ORCHARD  
MCCORMICK WOODS - WELL NO. 11  
SITE IMPROVEMENT PROJECT

ROOF FRAMING DETAILS

PROJECT NO.: 20-2839.01 SCALE: AS SHOWN DATE: SEPTEMBER 2022

SHEET  
S-8  
X of X

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CODE SUMMARY	
Section I - Governing Codes	
2018 IBC & CHAPTER 51-50 WAC, 2018 UPC & CHAPTER 51-56 WAC	
2018 IECC COMMERCIAL PROVISIONS & CHAPTER 51-11C WAC	
Section II - Building "Construction" Data	
Type of Construction	Type VB - CMU, Wood Rafters
Maximum Building Height	26'-6" +/- (to roof ridge)
Maximum Allowable Height	35 FT, POMC 20.34.020
Number of Stories	1 story
Allowable Stories	2 stories, IBC TABLE 504.4
Basement	No
Total Floor Area Provided (Gross)	2,992 square feet
	Pump & Treatment Room = 1,813 square feet
	Controls Room = 270 square feet
	Fluoridation Room = 345 square feet
	Disinfection Room = 345 square feet
	Storage Room = 220 square feet
Minimum Required Property Setbacks	
Front Yard	10 FT, POMC 20.34.020
Side Yard	10 FT, POMC 20.34.020
Rear Yard	10 FT, POMC 20.34.020
Section III - Building "Occupancy" Data	
Building Occupancy Classification Group	F-2
Separated or Unseparated Use Areas	Separated
Accessory or Incidental Use Areas	N/A
Total Occupant Load by Floor	Not Customarily Occupied
Total Occupant Load for Each Room	Not Customarily Occupied
Total Occupant Load for Each Occupancy Group	Not Customarily Occupied
Section IV Building Area Data "Actual" and "Allowable"	
Actual Building Area	2,992 square feet
Allowable Base Area	13,000 square feet, IBC Table 506.2
Building Frontage	See Sheets A-4
Section V - "Fire Resistive" Building Elements	
Separation of Occupancies	N/A
Section VI - Building "Exiting"	
Maximum Floor Area Allowance per Occupant	N/A - Not Customarily Occupied
Exits Required in Each Room or Area	1
Exits Provided in Each Room or Area	1
Exits Required per Floor	Building is only one floor
Exits Provided per Floor	Building is only one floor
Exit Width Required per Exit	32 inches
Minimum Corridor Exit Width Required	30 inches
Emergency Exit Illumination	See Sheet E-X
Exit Sign Layout Plan	See Sheet E-X

Section VII - Building "Fire Detection and Suppression"	
Smoke Detection/Fire Alarm System Required	Yes, IBC 907.2.5
Smoke Detection/Fire Alarm System Provided	Yes, Tied to SCADA, see Sheet I-X
Type of System	Ionization Smoke Detector
Areas Protected	Pump & Treatment Room, Controls Room, Fluoridation Room, Disinfection Room
Sprinkler System Required	No, total storage capacity does not exceed IFC 603.3.2.1
Standpipe System Required	No
Number of Fire Department Vehicle Accesses	1
Fire Extinguisher Locations	See sheets A-2
Section VIII - Occupancy Ventilation Requirements	
Ventilation Required	3,276 cfm (Pump & Treatment Room)
	432 cfm (Controls Room)
	254 cfm (Fluoridation Room)
	254 cfm (Disinfection Room)
Section IX - Energy Code Requirements	
Roof - rigid insulation between rafters	U = 0.027
Roof - attic / other	U = 0.021
Doors (steel door with polystyrene core)	U = 0.37
Slabs-On-Grade, Unheated Slabs	F = 0.54
CMU walls with integral perlite insulation	NA per Table C402.1.4, Footnote D
Roof Hatches (swinging opaque doors)	U = 0.37
Lighting Layout	See Electrical Sheets
Section X - Hazardous Materials	
Hazardous Materials Present: Up to 1,090 gal 0.7% Liquid Sodium Hypochlorite Up to 55 gal of 4% Liquid Sodium Fluoride	
Section XI - Accessibility	
Facility is exempt from accessibility requirements per 2018 IBC 1103.2.9	
Section XII - Plumbing and Fixture Count Requirements	
No Fixtures Required - Not Customarily Occupied	
Section XIII - Underground and Padmounted Transformers	
See Electrical Sheets	
Section XIV - Special Inspection, Structural Observation	
Required Structural Inspections are listed on Sheet S-X Structural Observation requirements are indicated on Sheet S-X Submittals are listed in Specifications	
Section XV - Room Specific Requirements	
Not Applicable - Not Customarily Occupied	

FINISH SCHEDULE				
ITEM/SURFACE	MATERIAL	FINISH	COLOR	SPECIFICATION
EXTERIOR WALLS	SPLIT FACE CMU	COATING 300	MUTUAL MATERIALS SAND STONE	09 90 00
EXTERIOR WALLS (ACCENT)	SPLIT FACE CMU	COATING 300	MUTUAL MATERIALS MOUNTAIN BROWN	09 90 00
INTERIOR WALLS	SMOOTH FACE CMU	COATING 302	OFF-WHITE	09 90 00
CEILING	MOISTURE RESISTANT GYPSUM BOARD	COATING 303	OFF-WHITE	09 90 00
INTERIOR FLOOR	SMOOTH SLAB ON GRADE	COATING 305	TRANSPARENT	09 90 00
ROOF	STANDING SEAM METAL	BAKED ENAMEL	COOL HEMLOCK GREEN	07 41 13
LOUVERS	ALUMINUM	ANODIZED	COOL HEMLOCK GREEN	08 91 19
GUTTERS AND DOWNSPOUTS	STEEL	BAKED ENAMEL	COOL HEMLOCK GREEN	07 60 00
DOORS	STEEL	PER MANUFACTURER	DARK BROWN	08 10 00
SOFFITS	FIBER CEMENT	COATING 302	COOL HEMLOCK GREEN	09 90 00
SIDING	FIBER CEMENT	COATING 302	DARK BROWN	09 90 00
ROOF HATCHES	ALUMINUM	PER MANUFACTURER	COOL HEMLOCK GREEN	07 72 33

DOOR SCHEDULE								
NO.	DESCRIPTION	ROUGH OPENING	SIZE	OPEN	HARDWARE	U-Value	SPECIFICATION	NOTE
1	STEEL DOUBLE DOOR	6'-8"x7'-4"	6'-0"x7'-0"	RH ACT LEAF	GROUP 1	0.37	08 10 00	
2	STEEL DOUBLE DOOR	6'-8"x7'-4"	6'-0"x7'-0"	RH ACT LEAF	GROUP 1	0.37	08 10 00	
3	STEEL DOOR	3'-4"x7'-4"	3'-0"x7'-0"	LH OPENING	GROUP 2	0.37	08 10 00	
4	STEEL DOOR	3'-4"x7'-4"	3'-0"x7'-0"	RH OPENING	GROUP 2	0.37	08 10 00	
5	ALUMINUM CURTAIN	16'-0"x14'-0"	PER MFR	ROLL-UP	PER MFR	0.37	08 10 00	
6	STEEL DOOR	3'-4"x7'-4"	3'-0"x7'-0"	RH OPENING	GROUP 3	0.37	08 10 00	
7	STEEL DOOR	3'-4"x7'-4"	3'-0"x7'-0"	RH OPENING	GROUP 3	0.37	08 10 00	
8	STEEL DOOR	3'-4"x7'-4"	3'-0"x7'-0"	LH OPENING	GROUP 3	0.37	08 10 00	

ROOF HATCH SCHEDULE				
ID	ROUGH OPENING	FRAME	U-VAULE	SPECIFICATION
A	4'-0"x4'-0"	ALUMINUM	0.37	07 72 33
B	4'-0"x4'-0"	ALUMINUM	0.37	07 72 33
C	4'-0"x4'-0"	ALUMINUM	0.37	07 72 33

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**CITY OF PORT ORCHARD  
MCCORMICK WOODS -  
WELL NO. 11  
SITE IMPROVEMENT  
PROJECT**

**CODE SUMMARY AND  
ARCHITECTURAL SCHEDULES**

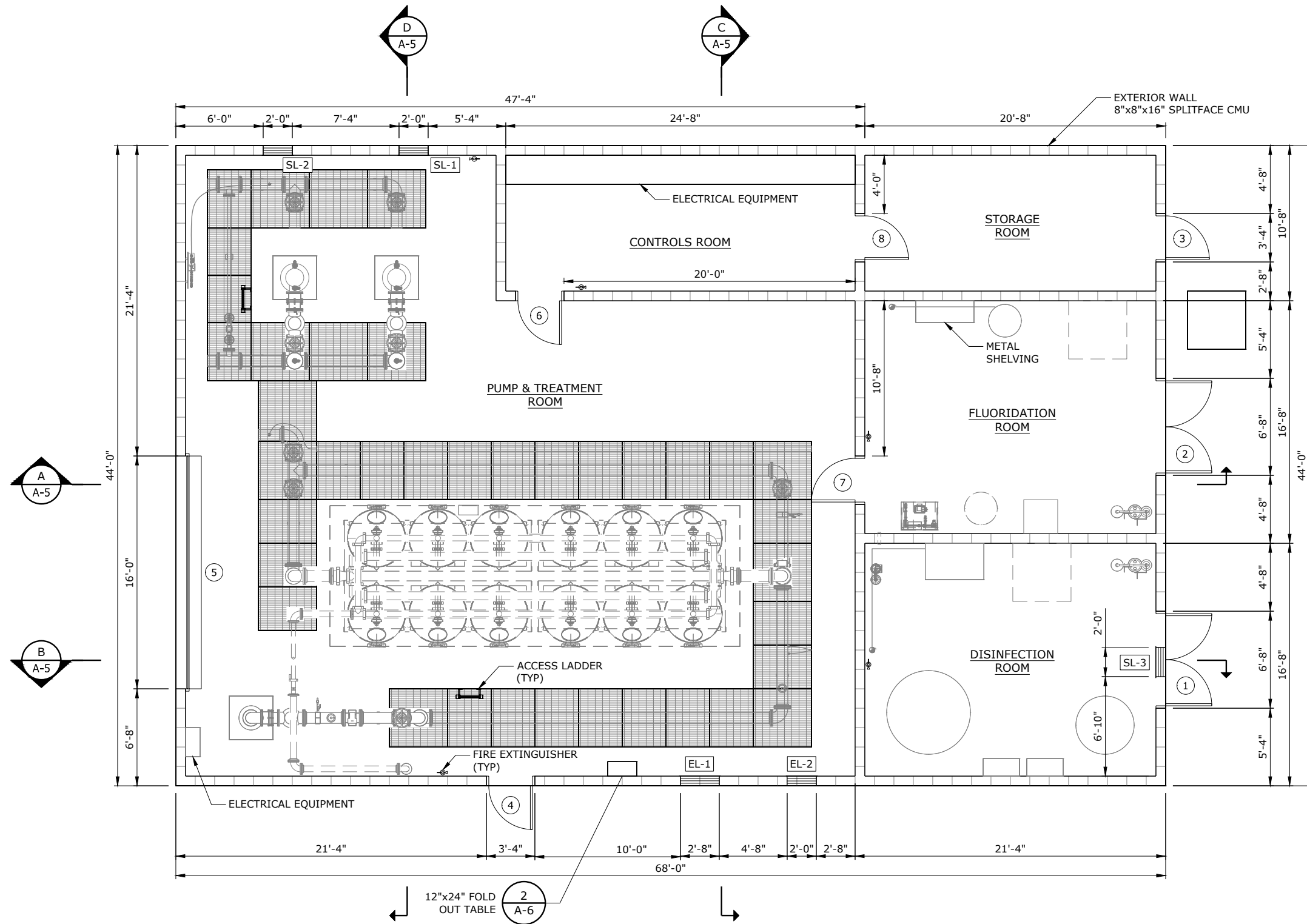
SHEET

A-1

X of X

PROJECT NO.: 20-2839.01 SCALE: AS SHOWN DATE: SEPTEMBER 2022

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

**NOTES:**

1. (#) REFER TO DOOR SCHEDULES, SEE SHT A-1.
2. SEE SHT H-1 FOR LOUVER SCHEDULES.

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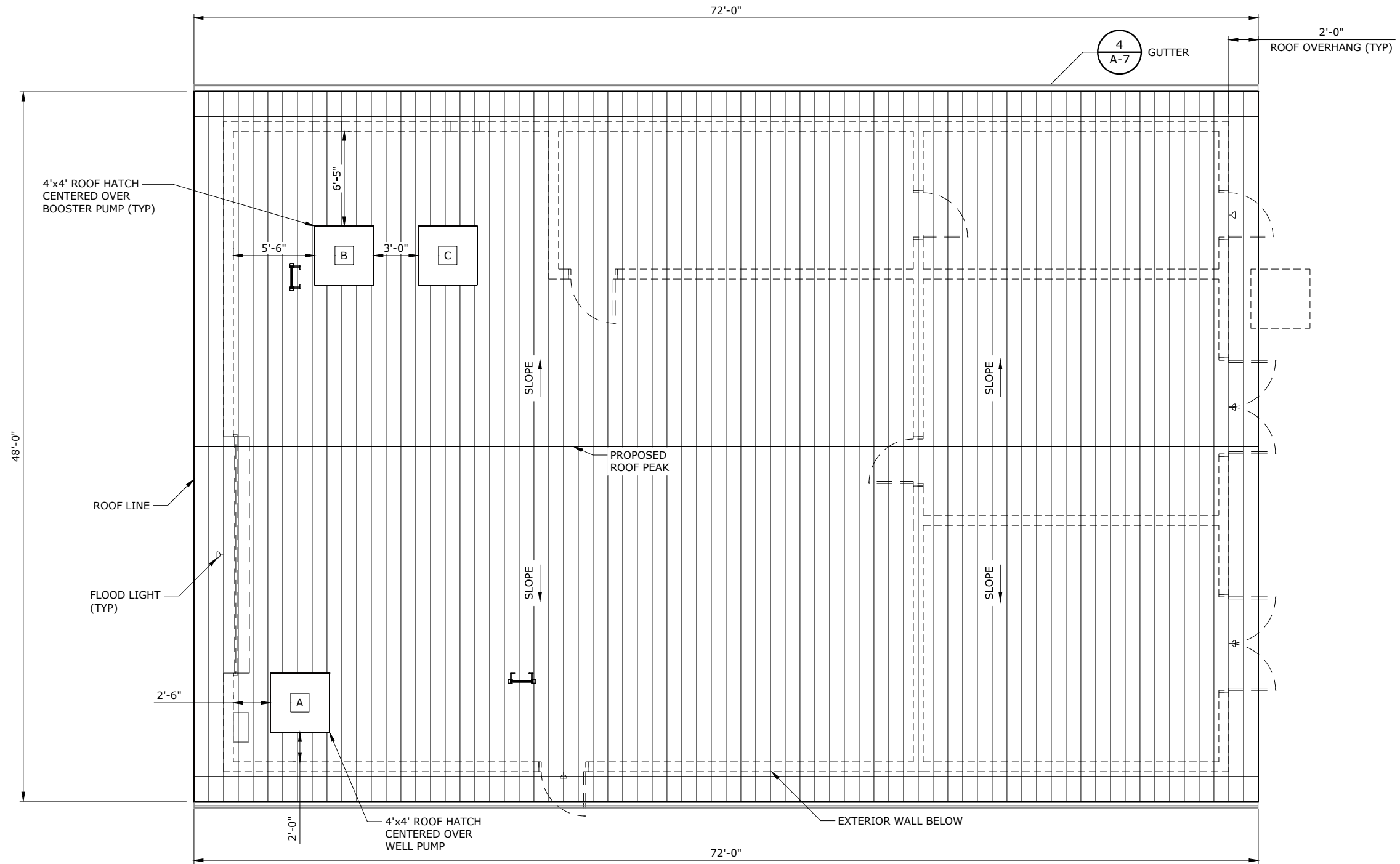
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<b>PUMP STATION FLOOR PLAN LAYOUT</b>		SHEET
PROJECT NO.: 20-2839.01		A-2
SCALE: AS SHOWN	DATE: SEPTEMBER 2022	X of X

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**ROOF PLAN**  
SCALE: 1/4" = 1'-0"

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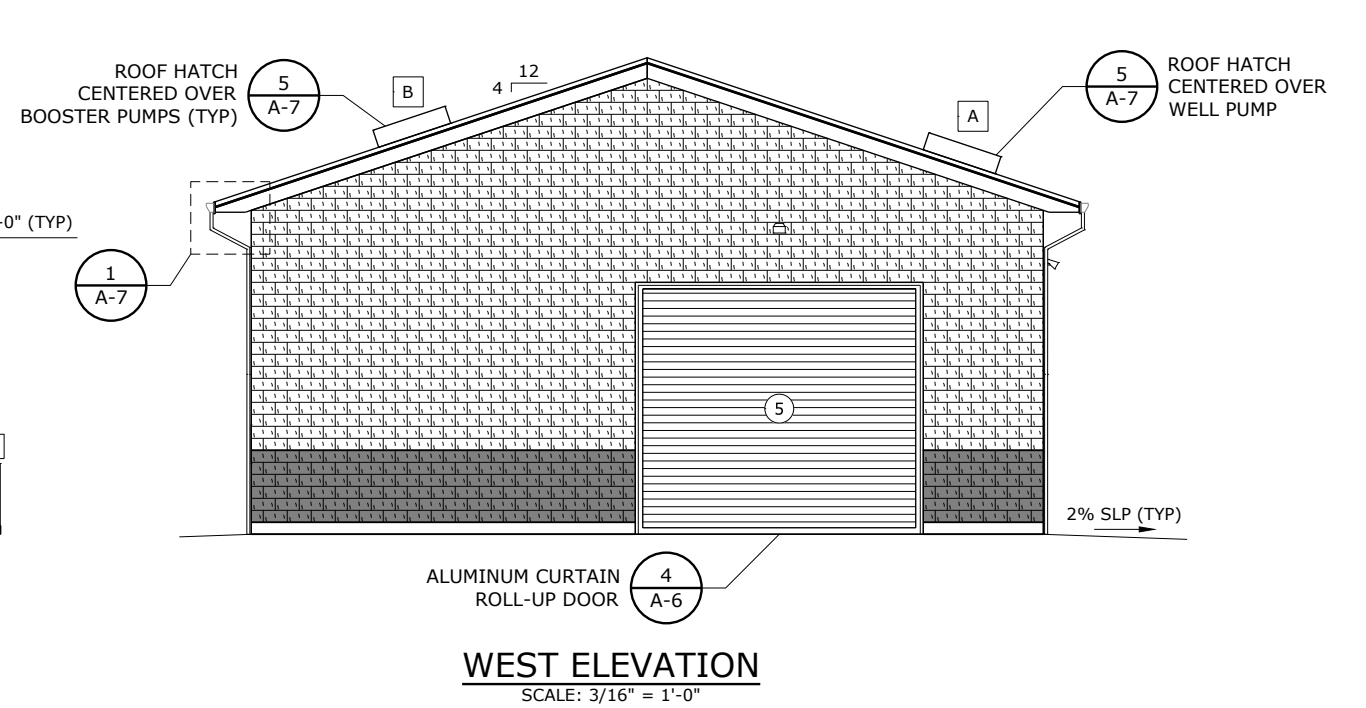
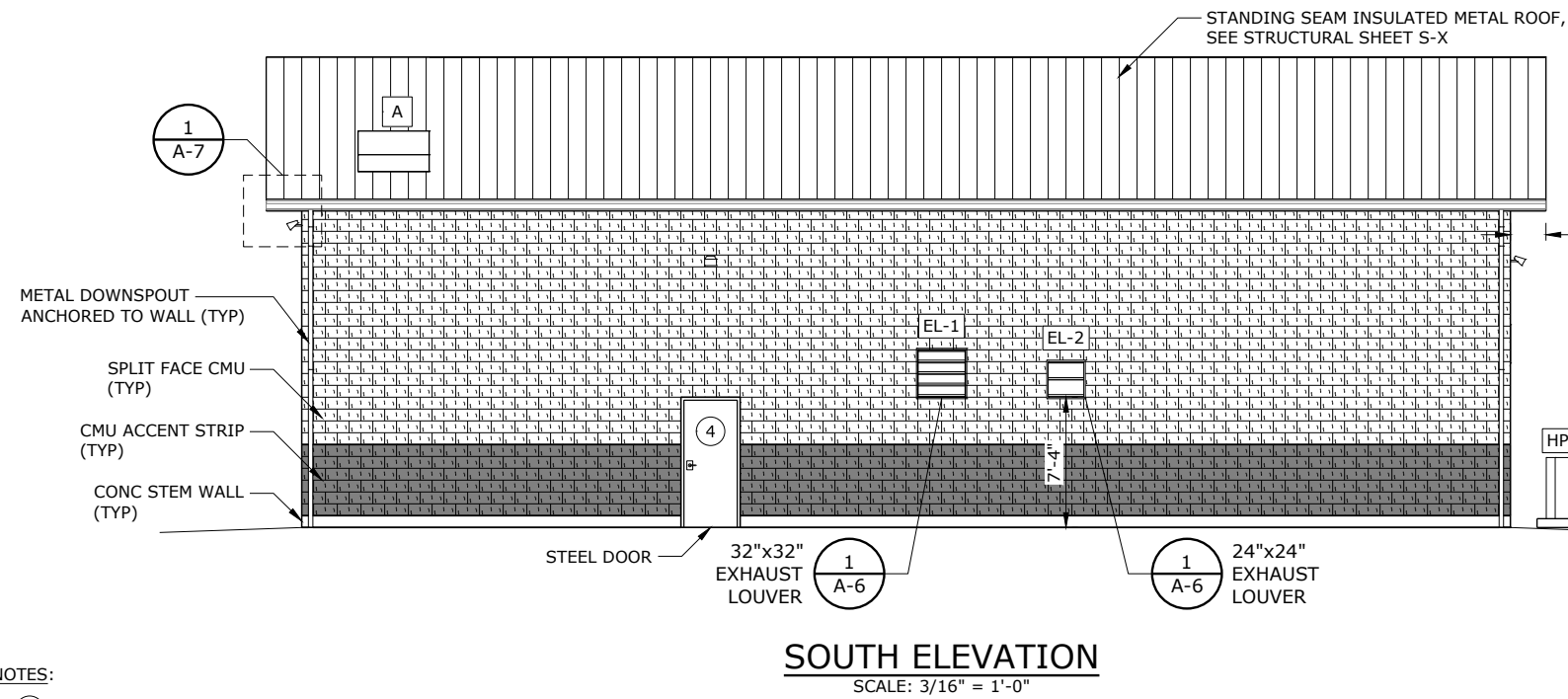
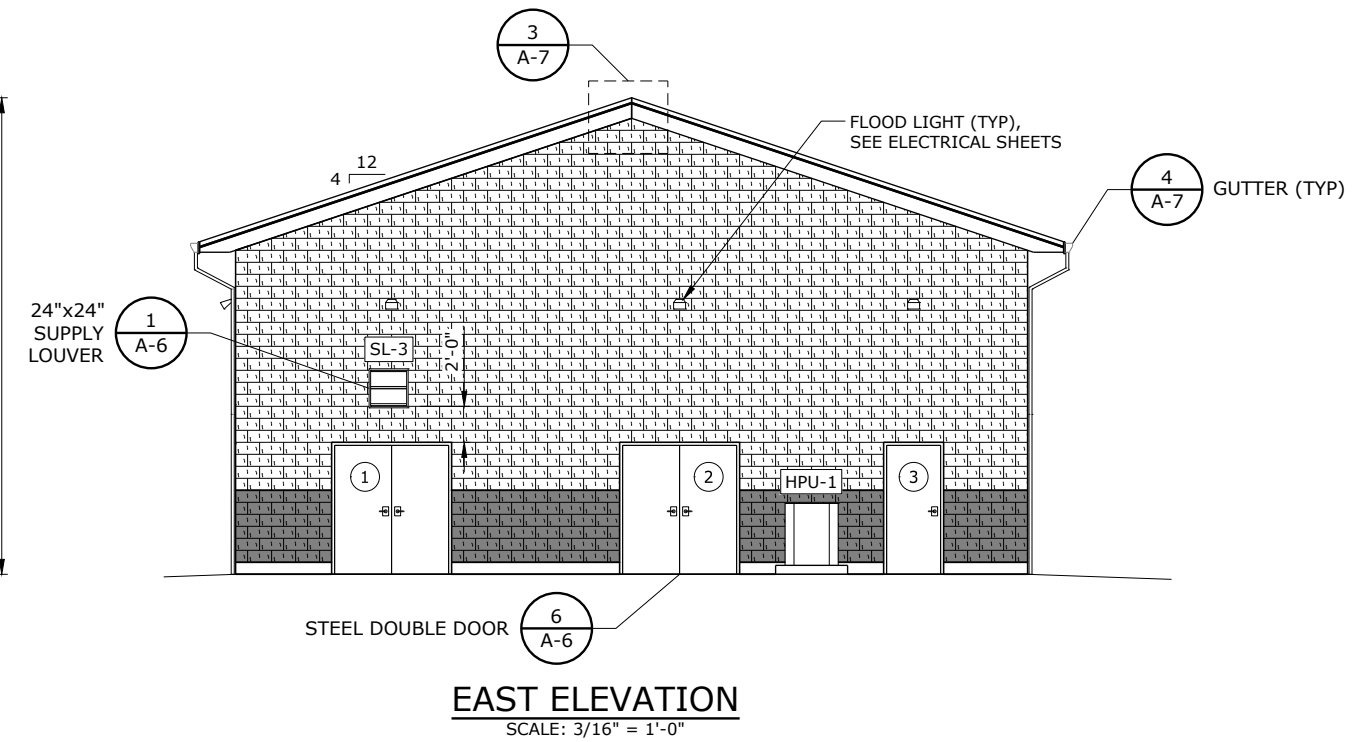
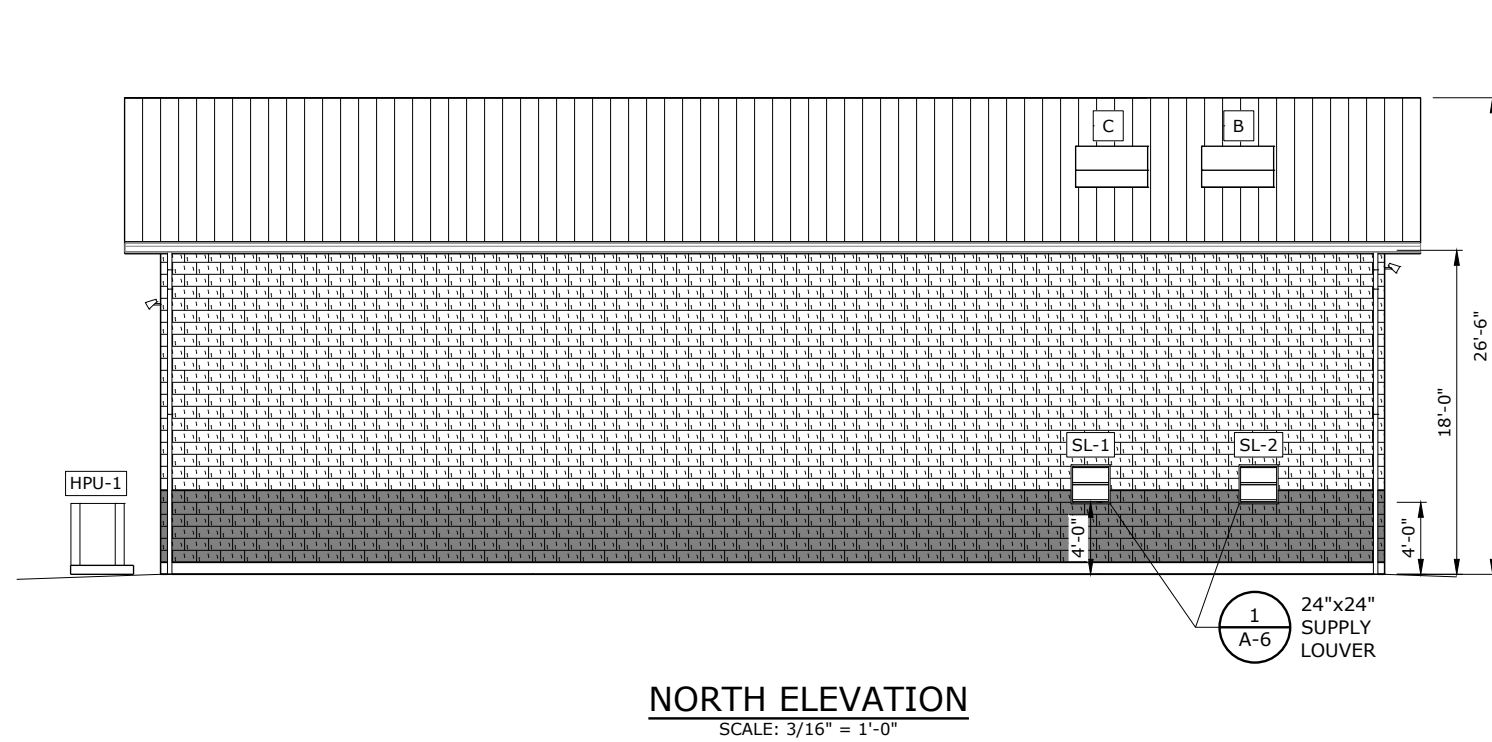
**PUMP STATION ROOF PLAN LAYOUT**

PROJECT NO.: 20-2839.01 SCALE: AS SHOWN DATE: SEPTEMBER 2022

SHEET  
**A-3**  
X of X



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- NOTES:**
1. (#) REFER TO DOOR SCHEDULES, SEE SHT A-1.
  2. SEE SHT H-1 FOR LOUVER SCHEDULES.

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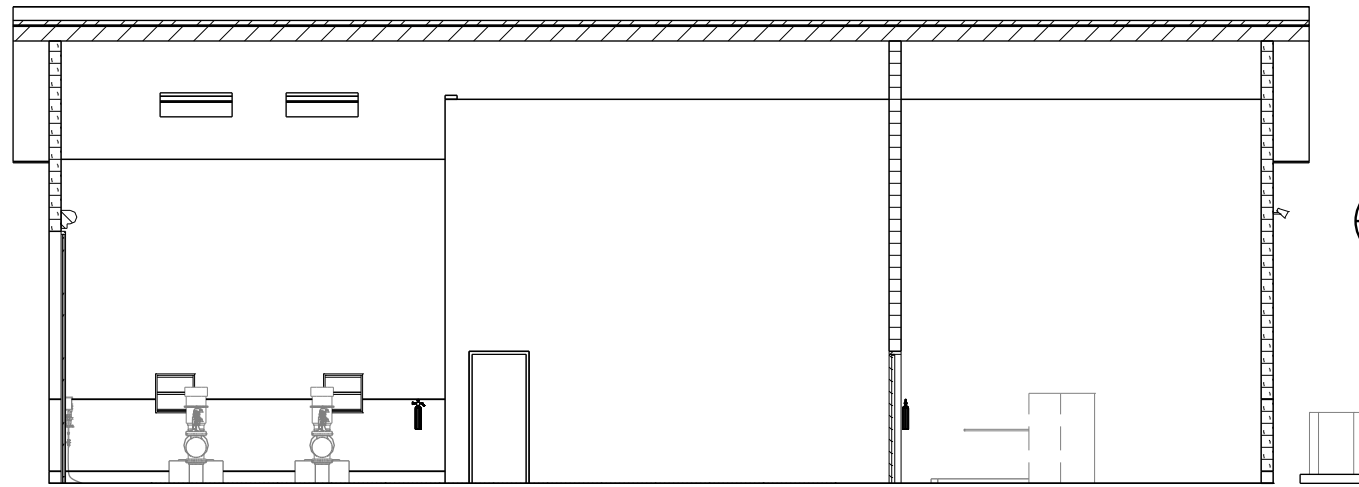
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**MCCORMICK WOODS - WELL NO. 11**  
**SITE IMPROVEMENT PROJECT**

**PUMP STATION**  
**ARCHITECTURAL ELEVATIONS**

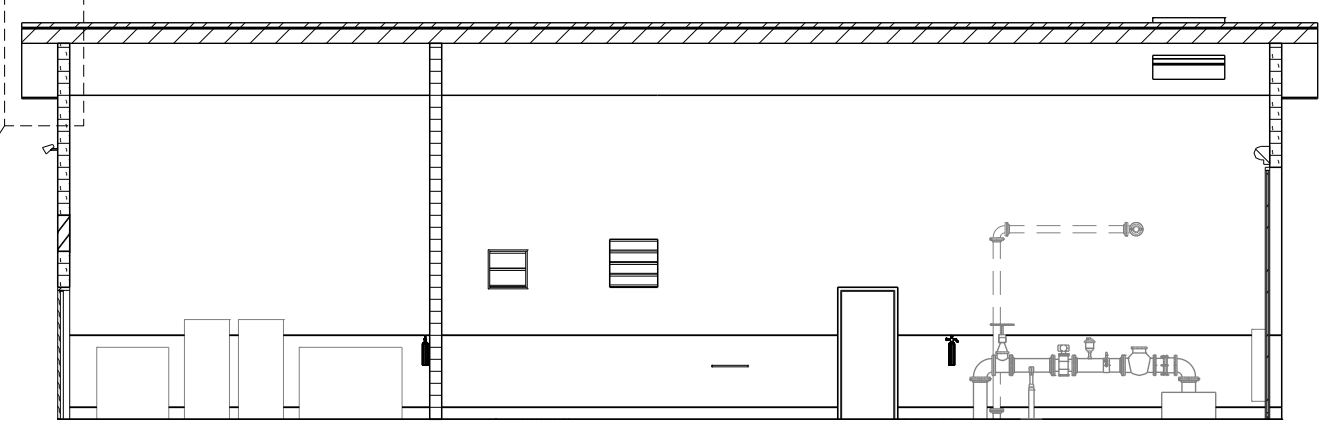
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SHEET  
**A-4**  
X of X

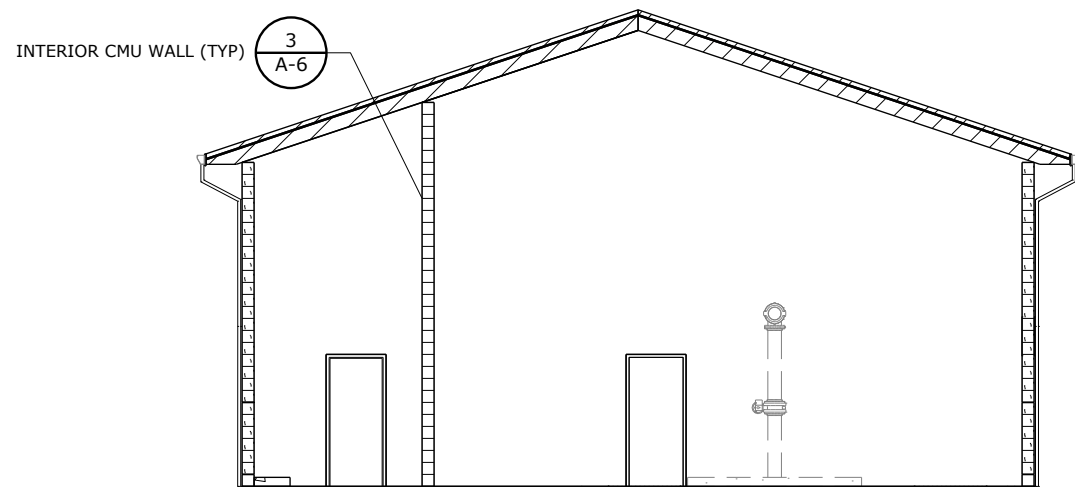
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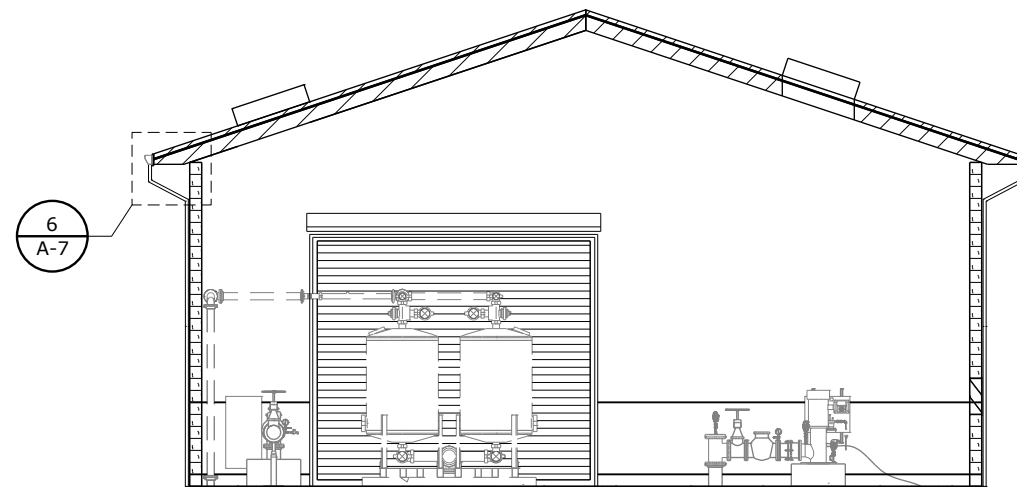
SECTION A  
SCALE: 3/16" = 1'-0"



SECTION B  
SCALE: 3/16" = 1'-0"



SECTION C  
SCALE: 3/16" = 1'-0"



SECTION D  
SCALE: 3/16" = 1'-0"

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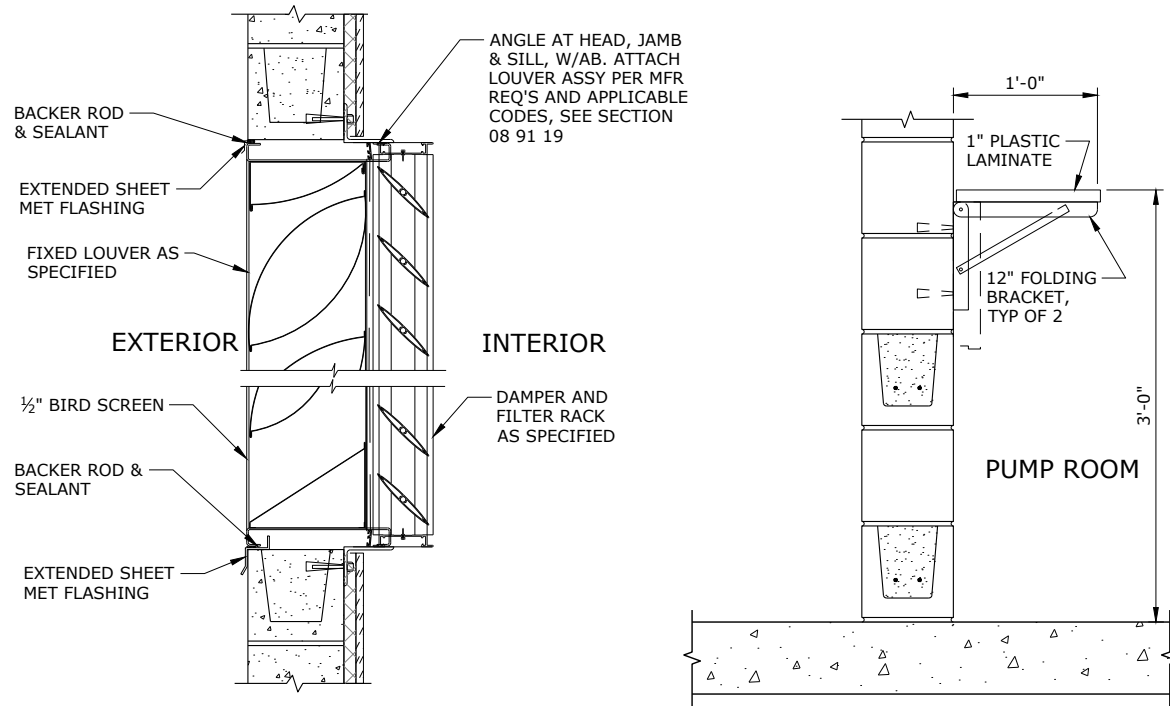


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**MCCORMICK WOODS - WELL NO. 11**  
**SITE IMPROVEMENT PROJECT**

**PUMP STATION ARCHITECTURAL SECTIONS**  
PROJECT NO.: 20-2839.01 SCALE: AS SHOWN DATE: SEPTEMBER 2022

SHEET  
A-5  
X of X

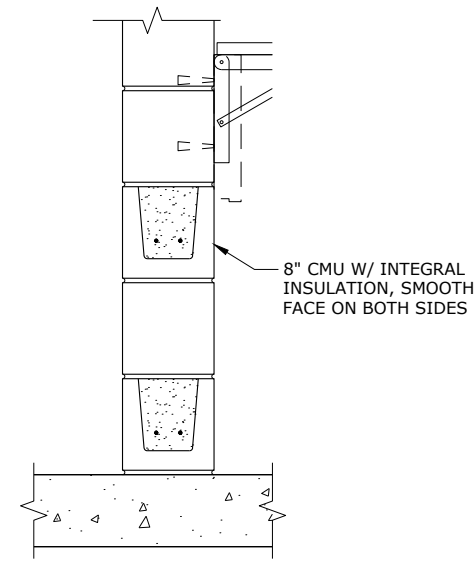
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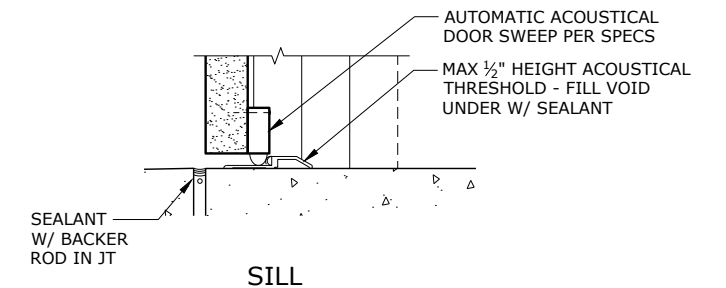
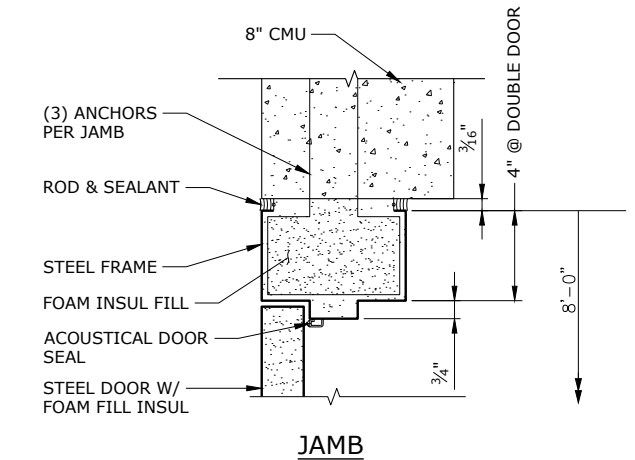
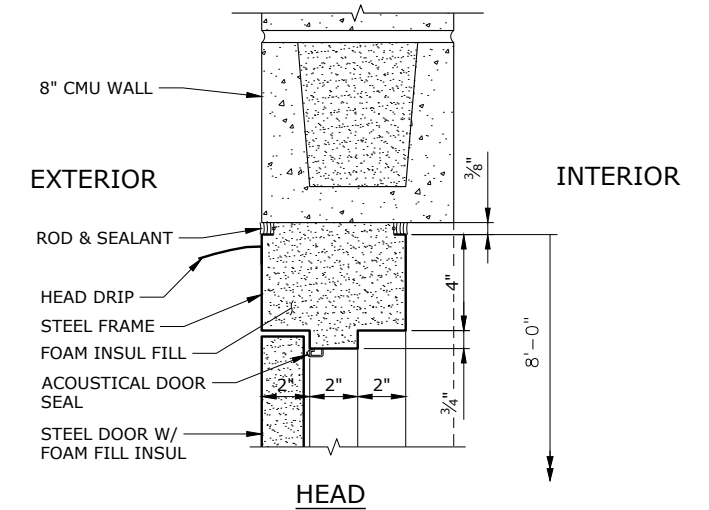
**TYPICAL LOUVER** 1  
SCALE: 1 1/2" = 1'-0" A-4

**FOLD-OUT TABLE** 2  
SCALE: 1 1/2" = 1'-0" A-2

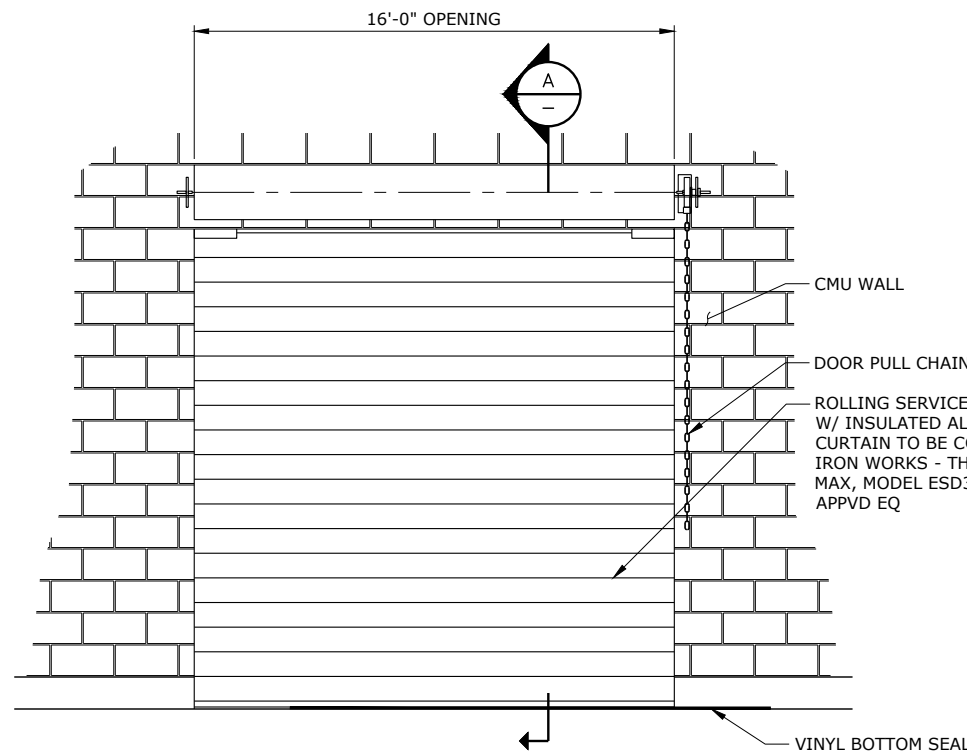
**NOTES:**  
 1. FOLDING BRACKET SHALL BE KNAPE AND VOGT 206 SERIES FOLDING L-BRACKET OR EQUAL. MINIMUM CAPACITY 880 LBS. PER PAIR. LOCKABLE WITH ONE-HAND RELEASE MECHANISM. CORROSION RESISTANT FINISH, COORDINATE COLOR WITH OWNER.  
 2. PRIOR TO INSTALLATION, COORDINATE LOCATION WITH OWNER.



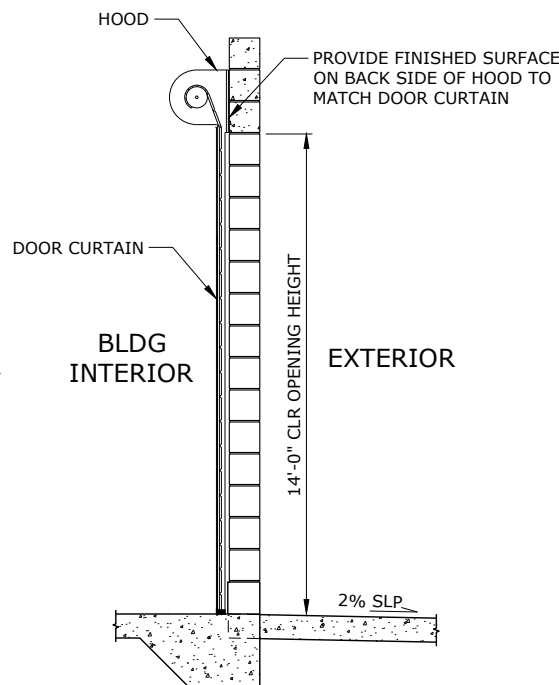
**INTERIOR CMU WALL** 3  
SCALE: NTS A-5



**EXTERIOR DOORS** 6  
SCALE: 3" = 1'-0" A-4



**OVERHEAD DOOR ELEVATION, INTERIOR** 4  
SCALE: 1/2" = 1'-0" A-4



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

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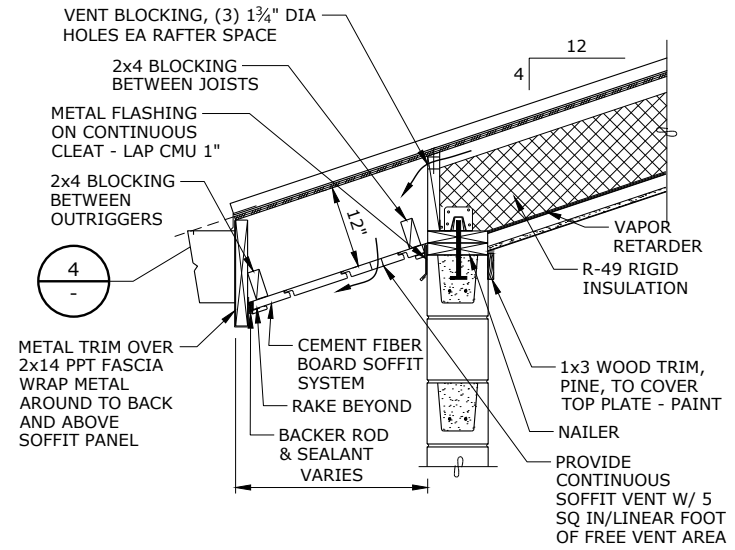


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 SITE IMPROVEMENT PROJECT

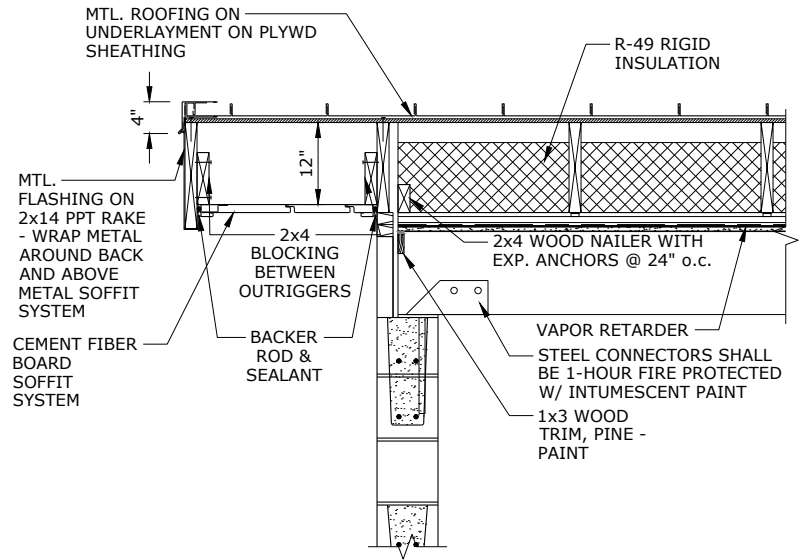
**ARCHITECTURAL DETAILS - 1**

PROJECT NO.: 20-2839.01 SCALE: AS SHOWN DATE: SEPTEMBER 2022

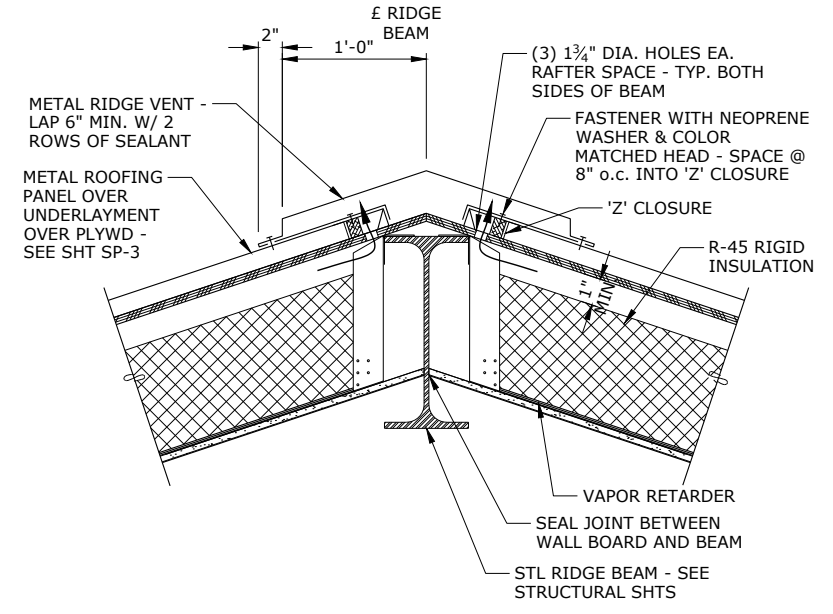
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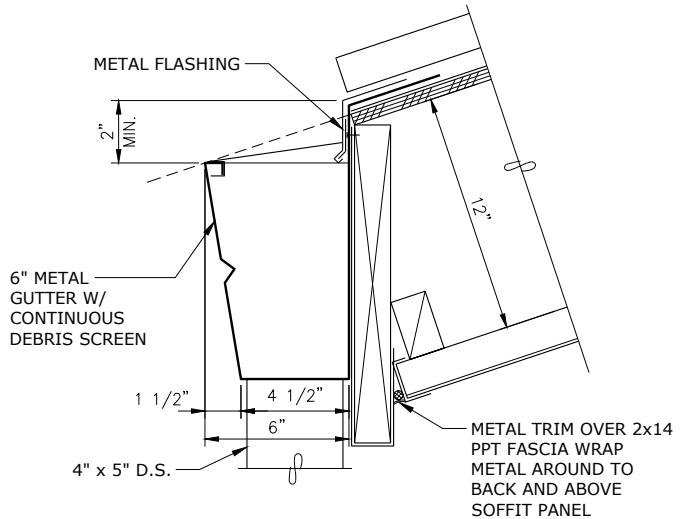
**FASCIA**  
SCALE: 1" = 1'-0"  
1  
A-4



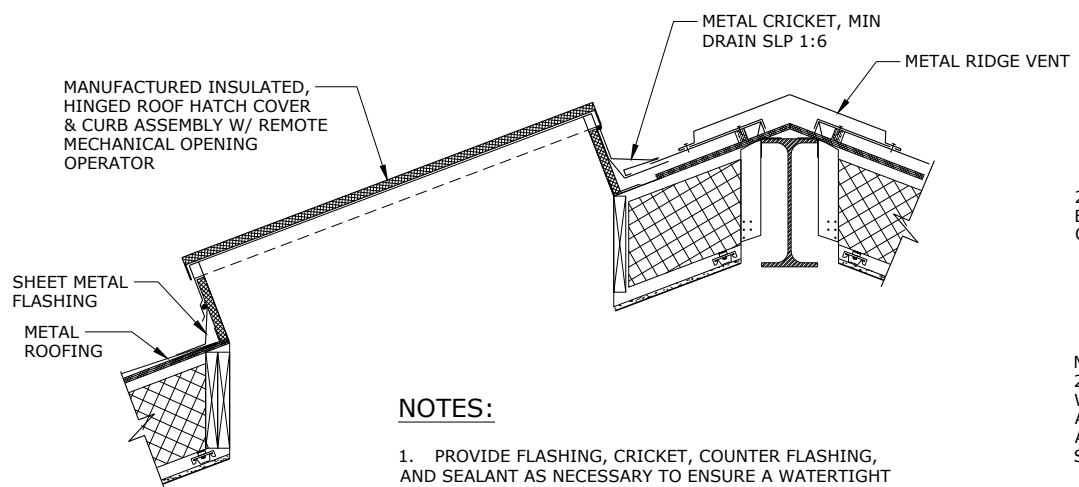
**RAKE**  
SCALE: 1" = 1'-0"  
2  
A-5



**RIDGE**  
SCALE: 1 1/2" = 1'-0"  
3  
A-4

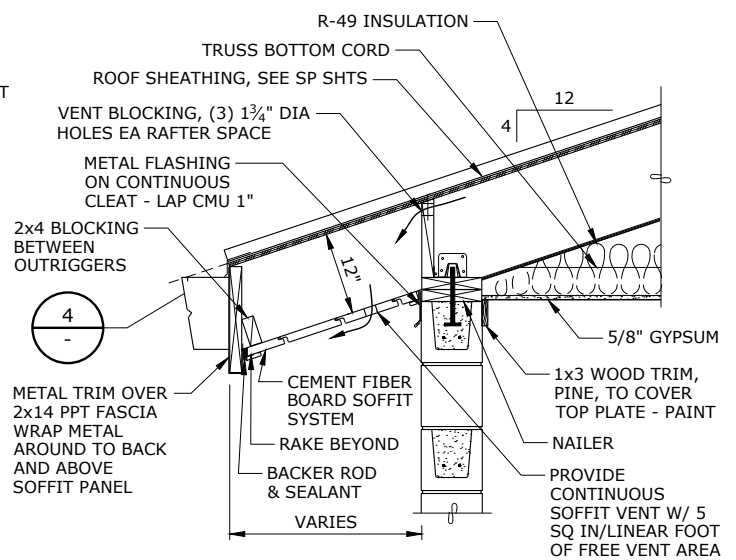


**TYPICAL 6" GUTTER**  
3" = 1'-0"  
4  
A-4



**ROOF HATCH**  
1" = 1'-0"  
5  
A-4

**NOTES:**  
1. PROVIDE FLASHING, CRICKET, COUNTER FLASHING, AND SEALANT AS NECESSARY TO ENSURE A WATERTIGHT ROOF. SUBMIT FLASHING LAYOUT AROUND ROOF HATCH CURB FOR ENGINEER'S APPROVAL.



**SOFFIT DETAIL**  
1" = 1'-0"  
6  
A-5

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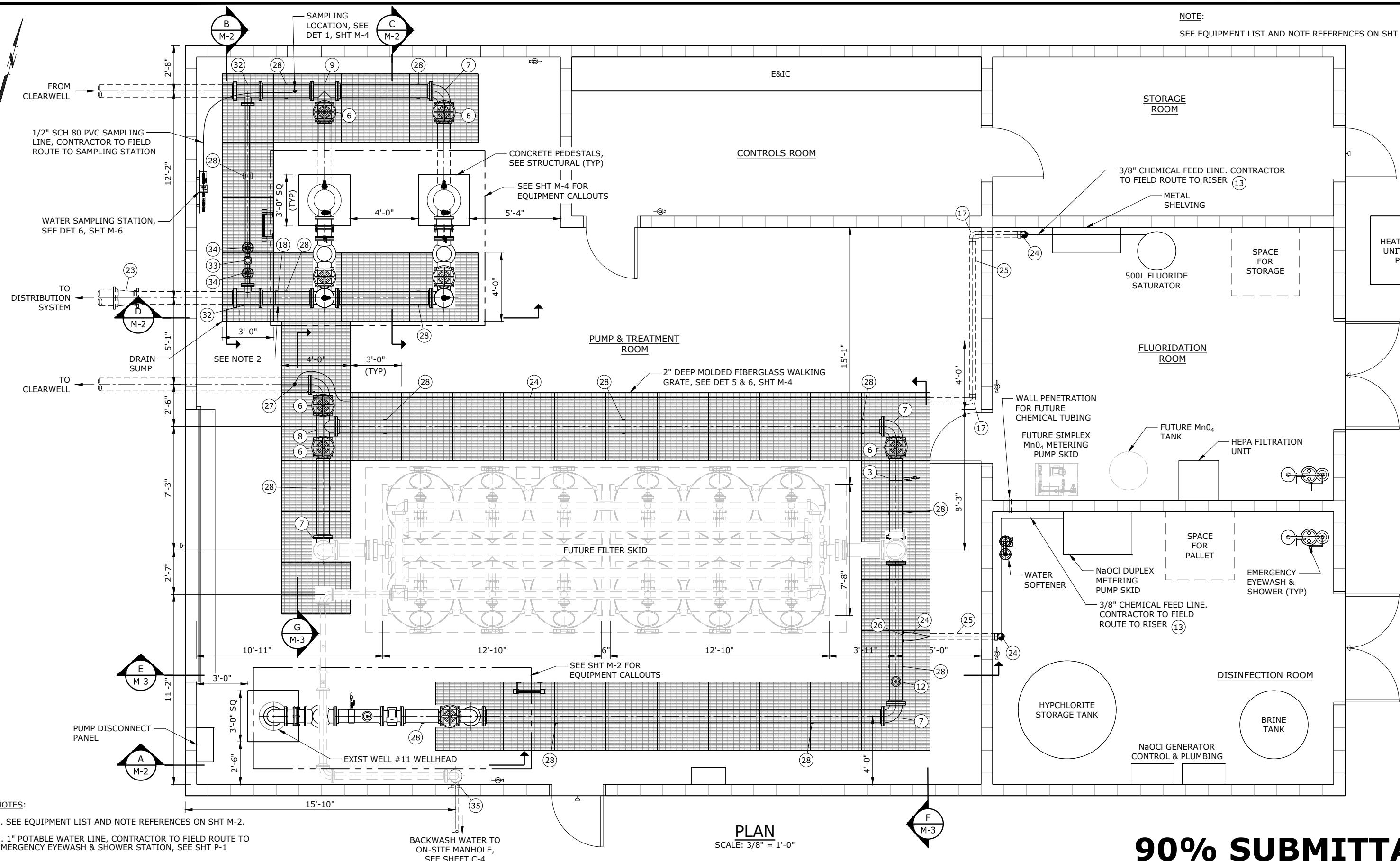
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SITE IMPROVEMENT PROJECT

**ARCHITECTURAL DETAILS - 2**  
PROJECT NO.: 20-2839.01 SCALE: AS SHOWN DATE: SEPTEMBER 2022

SHEET  
A-7  
X of X

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NOTE:  
SEE EQUIPMENT LIST AND NOTE REFERENCES ON SHT M-2



- NOTES:
- SEE EQUIPMENT LIST AND NOTE REFERENCES ON SHT M-2.
  - 1" POTABLE WATER LINE, CONTRACTOR TO FIELD ROUTE TO EMERGENCY EYEWASH & SHOWER STATION, SEE SHT P-1

BACKWASH WATER TO ON-SITE MANHOLE, SEE SHEET C-4

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

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NOTICE

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**Port ORCHARD**

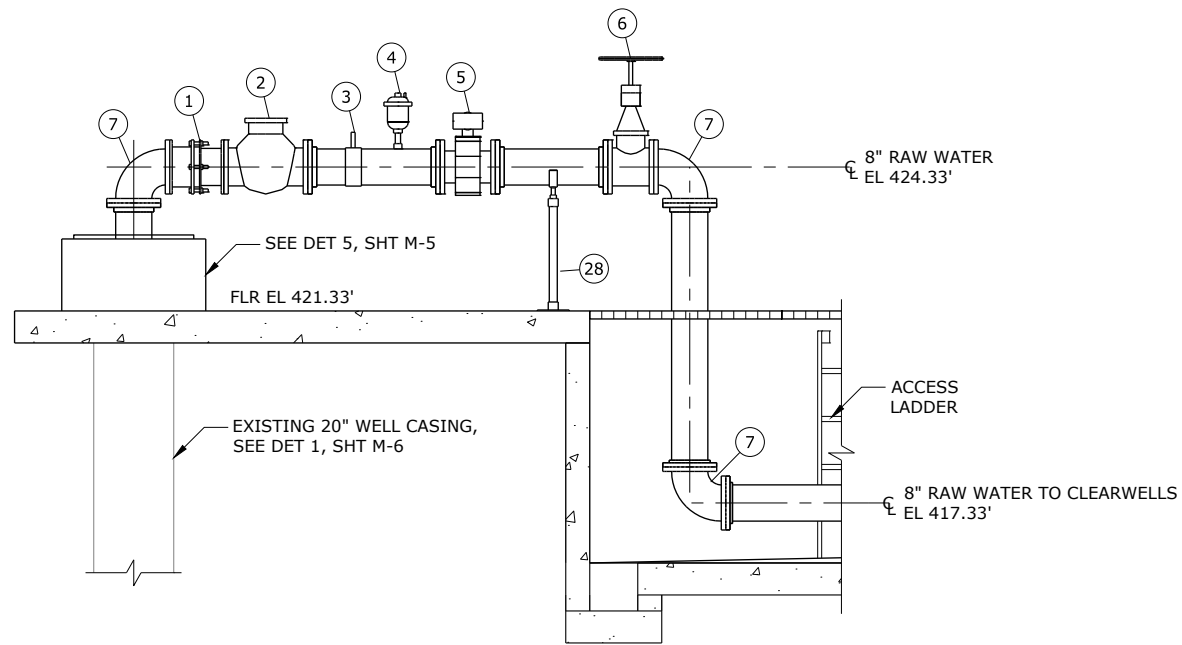
CITY OF PORT ORCHARD  
MCCORMICK WOODS - WELL NO. 11  
SITE IMPROVEMENT PROJECT

**PUMP STATION MECHANICAL PLAN**

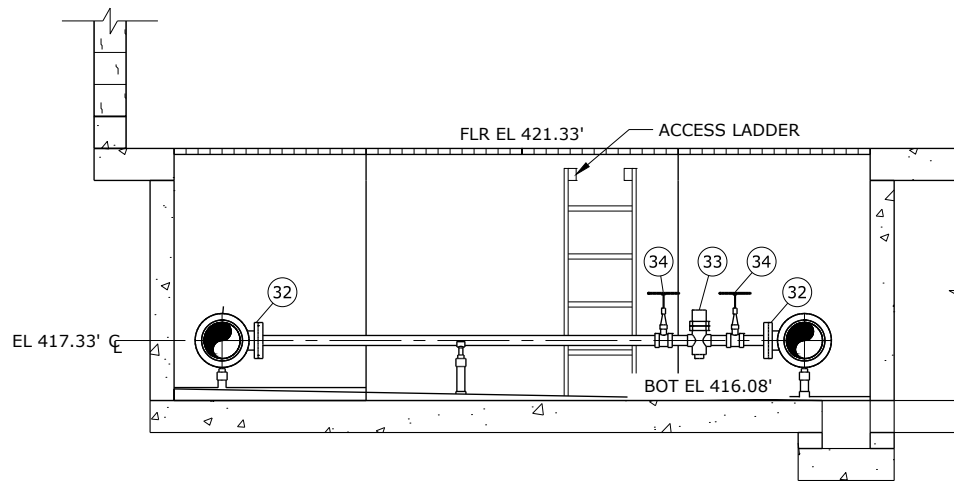
PROJECT NO.: 20-2839.01 SCALE: AS SHOWN DATE: SEPTEMBER 2022

SHEET  
M-1  
X of X

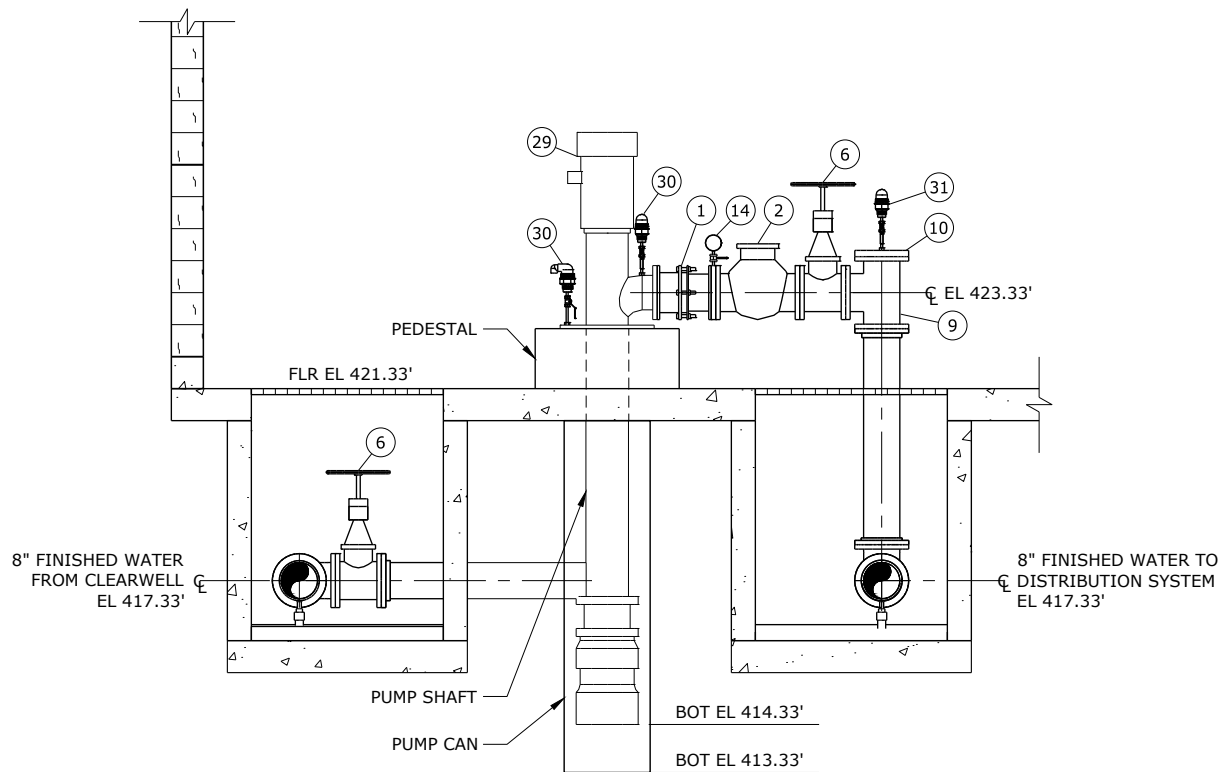
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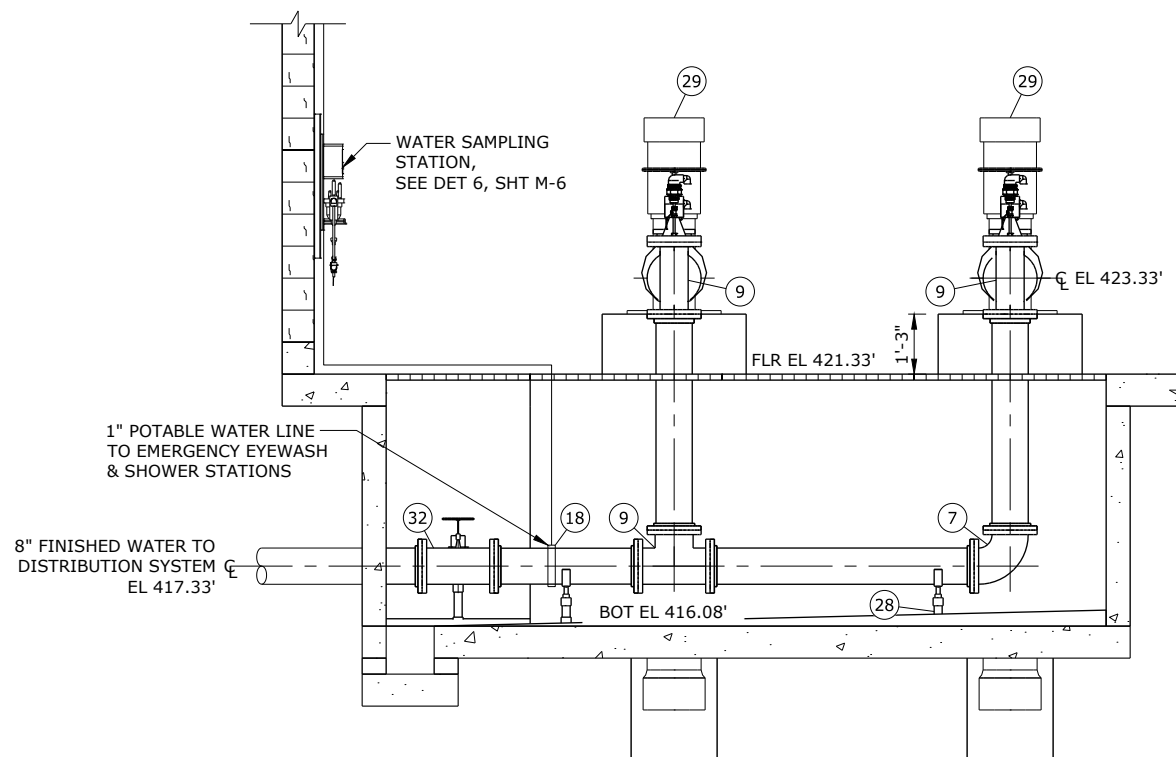
**SECTION A**  
SCALE: 1/2" = 1'-0"  
M-1



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



**SECTION C**  
SCALE: 1/2" = 1'-0"  
M-1



**SECTION D**  
SCALE: 1/2" = 1'-0"  
M-1

**EQUIPMENT LIST:**

- 1 8" DISMANTLING JOINT, FLG
- 2 8" CHECK VALVE
- 3 1/2" SAMPLING TAP, SEE DET 3, SHT M-4
- 4 1" ARV, SEE DET 2, SHT M-5
- 5 8" FLOW METER
- 6 8" GATE VALVE
- 7 8" 90° BEND, FLG
- 8 8" 90° BEND, MJ
- 9 8" TEE, FLG
- 10 8" BLIND FLANGE
- 11 8" WYE, MJ
- 12 2" ARV, SEE DET 2, SHT M-5
- 13 3/8" CHEMICAL FEED LINE
- 14 ANNULAR PRESSURE GAUGE
- 15 4" 90° BEND, FLG
- 16 4" BLIND FLANGE
- 17 4" 90° BEND, PVC
- 18 1" TAP, SEE DET 3, SHT M-6
- 19 NOT USED
- 20 NOT USED
- 21 8" 45° BEND, MJ
- 22 NOT USED
- 23 8" x 10" DI RDCR, MJ
- 24 4" PVC CONDUIT AND 4" x 2" SCH 40 PVC SLIP x SPIG REDUCER BUSHING
- 25 4" SDR 40 PVC CONDUIT SLEEVE
- 26 NaOCl AND KMnO4 INJECTION, SEE DET 1, SHT M-4
- 27 FLUORIDE INJECTION, SEE DET 1, SHT M-4
- 28 PIPE SUPPORT, SEE DET 2, SHT M-4
- 29 BOOSTER PUMP
- 30 STD 1/2" COMB AIR/VAC VALVE, LOW PRESSURE
- 31 1/2" AIR RELEASE VALVE W/VACUUM CHECK
- 32 8" x 4" TEE W/ BLIND FLANGE AND 2" THREADED TAP
- 33 2" PRESSURE RELIEF VALVE, THREADED
- 34 2" GATE VALVE, THREADED
- 35 4" 90° BEND, MJ

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**NOTICE**  
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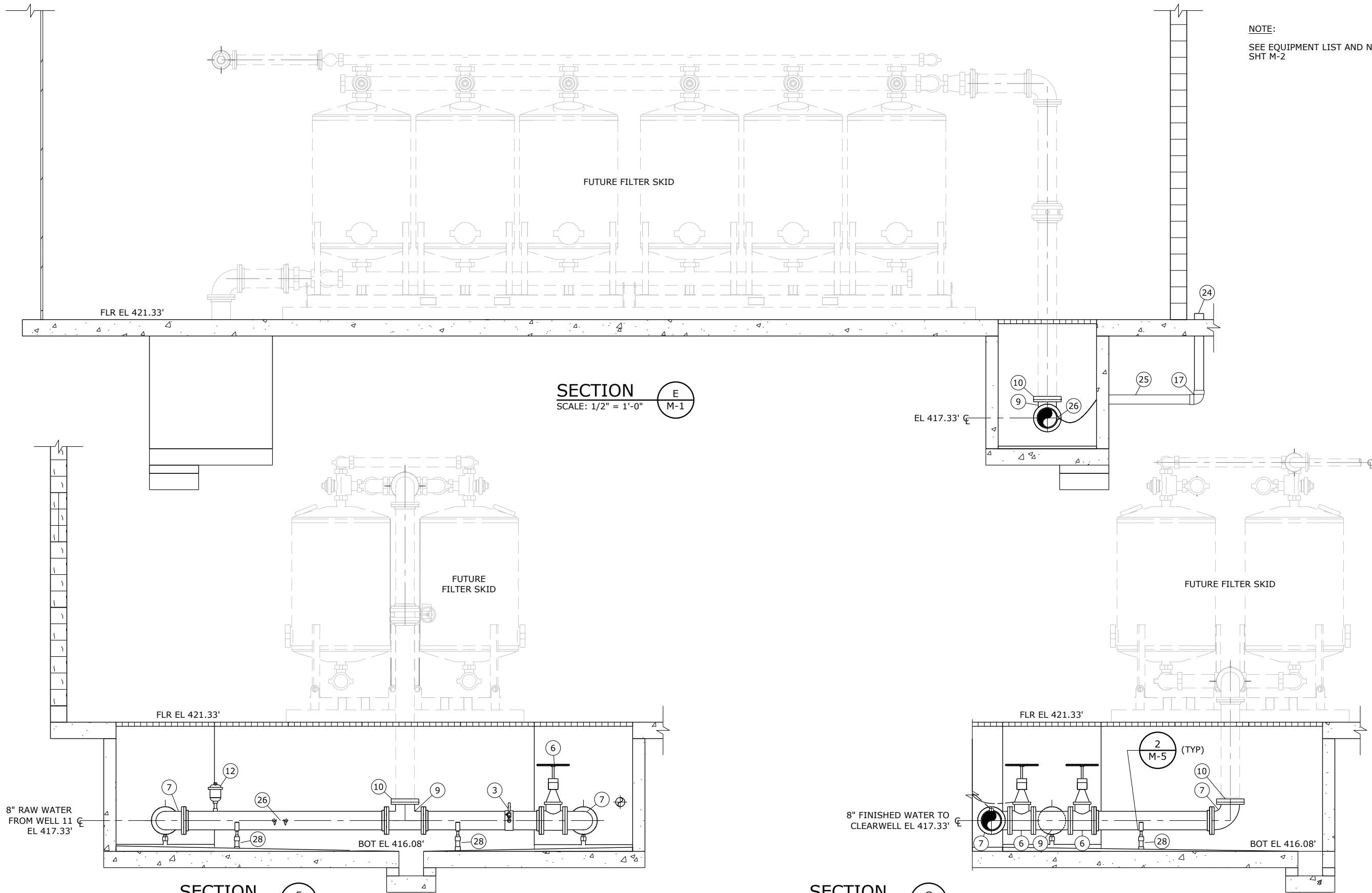
**PUMP STATION MECHANICAL SECTIONS**  
**1 OF 2**

PROJECT NO.: 20-2839.01 SCALE: AS SHOWN DATE: SEPTEMBER 2022

SHEET  
**M-2**  
X of X

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NOTE:  
SEE EQUIPMENT LIST AND NOTE REFERENCES ON  
SHT M-2



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

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

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

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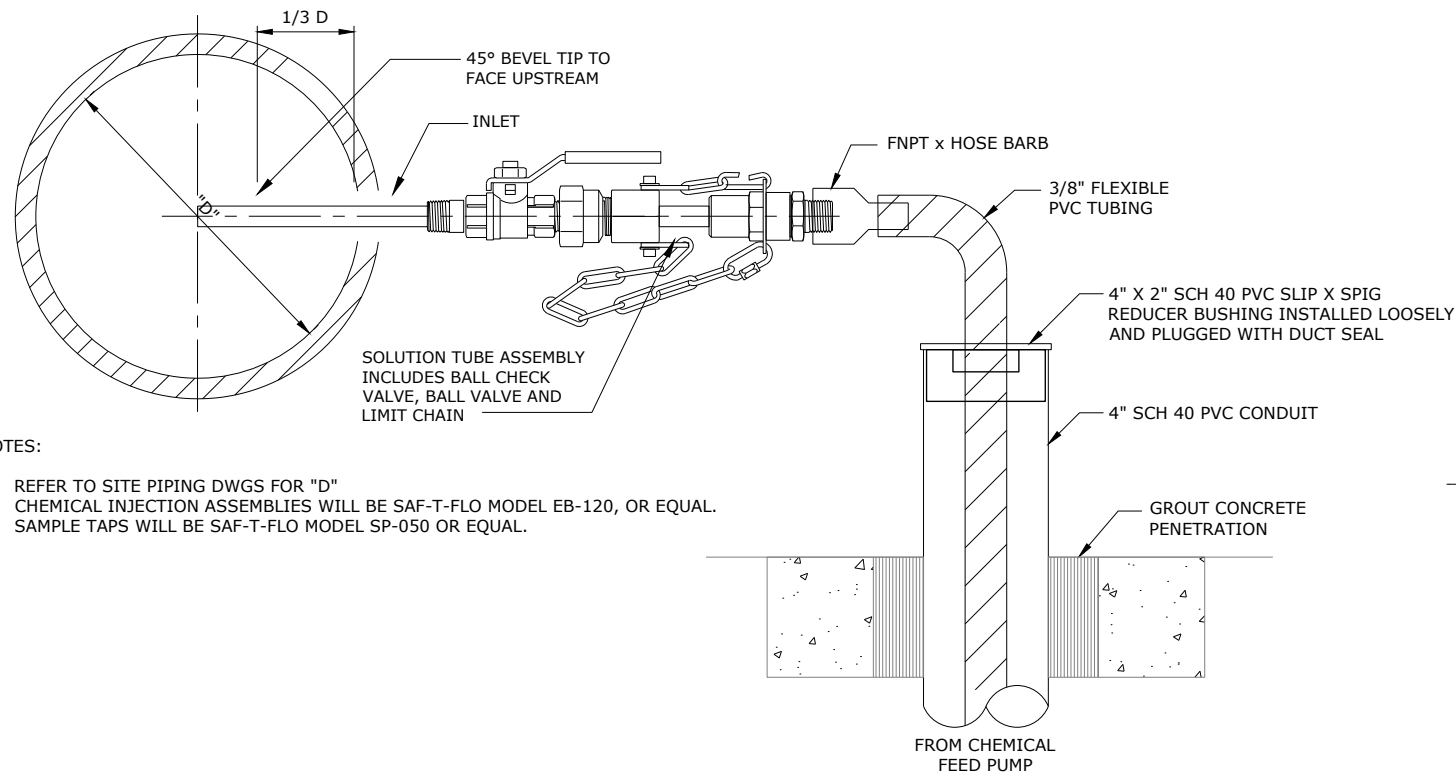


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SITE IMPROVEMENT PROJECT

PUMP STATION MECHANICAL SECTIONS  
2 OF 2  
PROJECT NO.: 20-2839.01 SCALE: AS SHOWN DATE: SEPTEMBER 2022

SHEET M-3  
X of X

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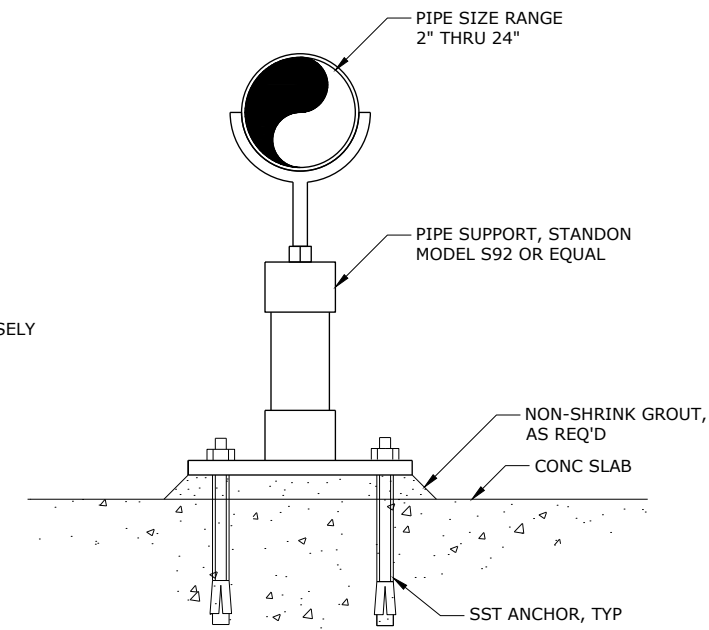
**NOTES:**

1. REFER TO SITE PIPING DWGS FOR "D"
2. CHEMICAL INJECTION ASSEMBLIES WILL BE SAF-T-FLO MODEL EB-120, OR EQUAL.
3. SAMPLE TAPS WILL BE SAF-T-FLO MODEL SP-050 OR EQUAL.

**CHEMICAL INJECTION AND SAMPLE TAP**

SCALE: NTS

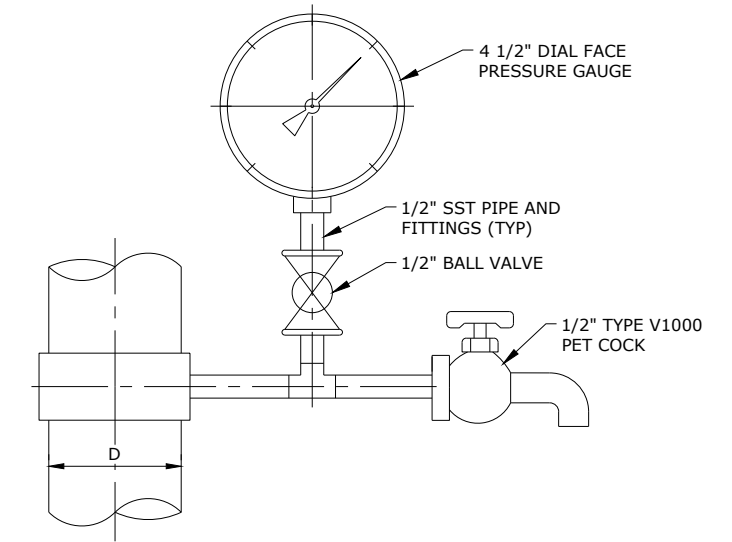
1  
M-2



**PIPE SUPPORT**

SCALE: NTS

2  
M-2



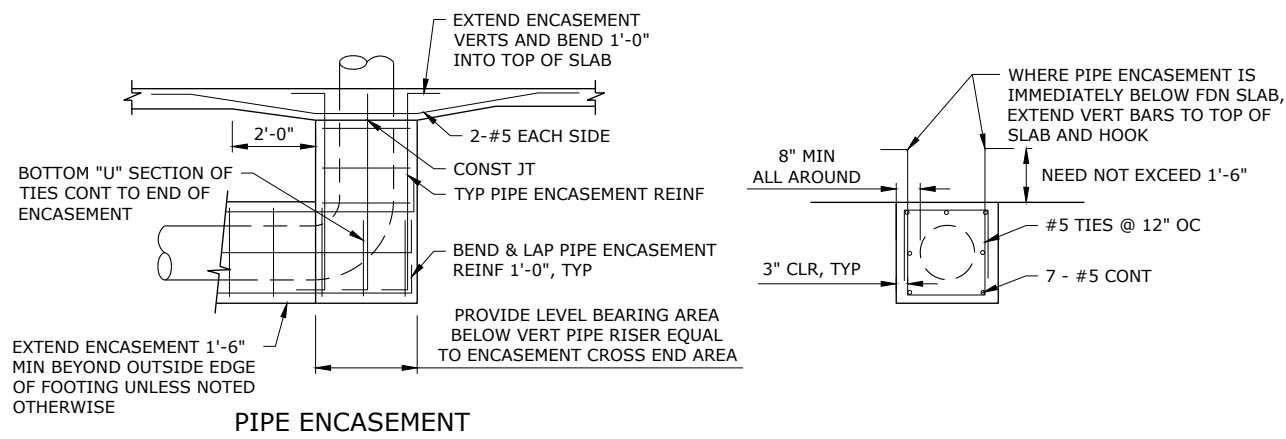
**NOTES:**

1. FOR STL, GALV & PVC 2-1/2" & SMALLER USE A BUSHING IN A TEE
2. FOR DI & FRP ALL SIZES, USE PIPE SADDLE W/BUSHING
3. FOR STL & SST PIPES 3" & LARGER, & PRESSURE VESSELS, USE THRED-O-LET
4. PROVIDE SNUBBER FOR POSITIVE DISPLACEMENT PUMP INSTALLATIONS
5. CONFIGURE GAUGE PET COCK AS NEEDED FOR VISIBILITY AND ACCESSIBILITY

**PRESSURE GAUGE AND GRAB SAMPLING TAP MOUNTING**

SCALE: NTS

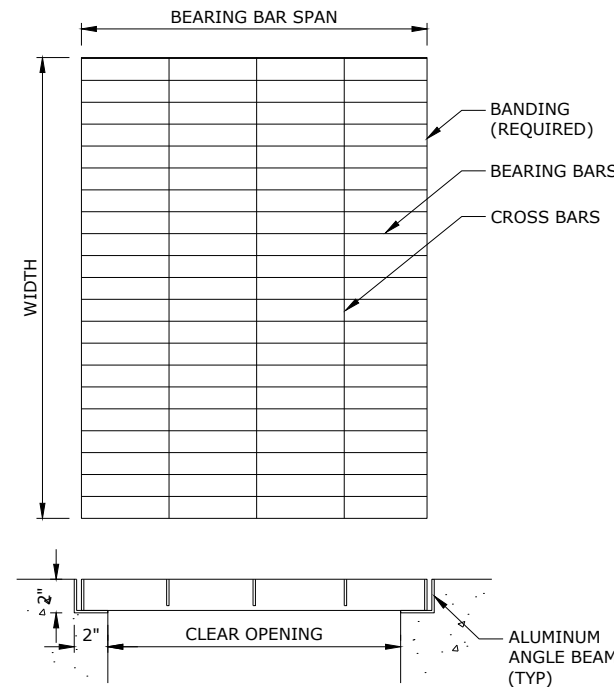
3  
M-2



**CONCRETE PIPE ENCASUREMENT**

SCALE: NTS

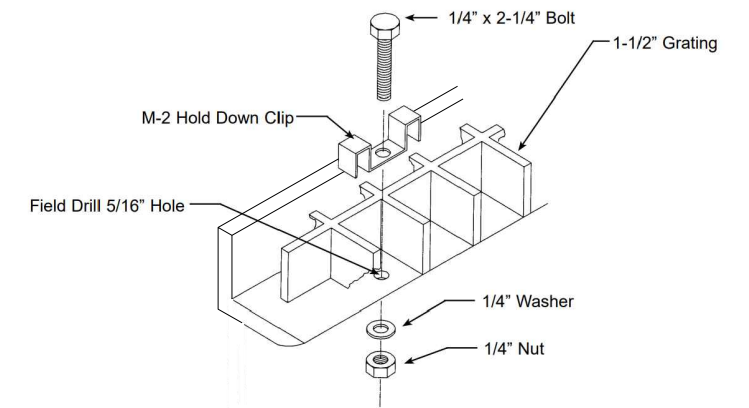
4  
M-1



**WALKING GRATE MOUNTING DETAIL**

SCALE: NTS

5  
M-1



**WALKING GRATE MOUNTING DETAIL**

SCALE: NTS

6  
M-1

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**SITE IMPROVEMENT PROJECT**

**MECHANICAL DETAILS - 1**

SHEET

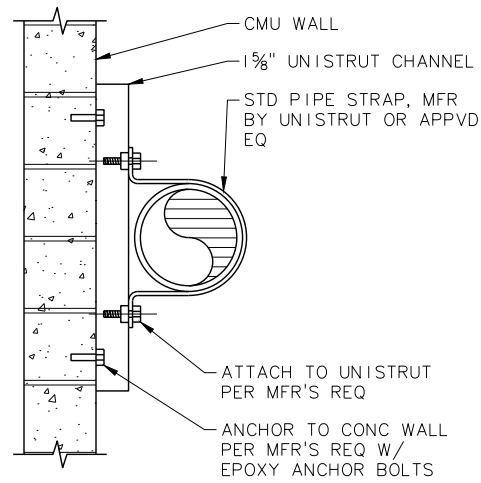
M-4

X of X

PROJECT NO.: 20-2839.01 SCALE: AS SHOWN DATE: SEPTEMBER 2022



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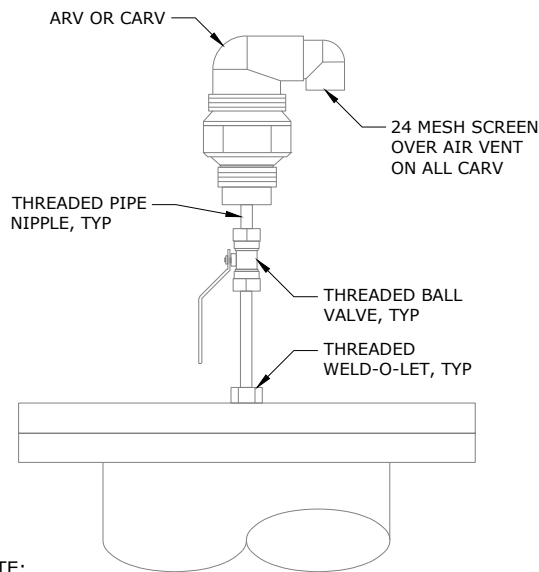


**NOTES:**

1. ORIENT UNISTRUT CHANNEL VERTICALLY OR HORIZONTALLY DEPENDING ON APPLICATION.
2. SUPPORT PIPE HORIZONTALLY EVERY 6 FEET (MINIMUM), AND VERTICALLY AT EVERY 10 FEET (MINIMUM).
3. ALL SUPPORT MATERIALS SHALL BE PER SPECIFICATION SECTION 22 05 29.

**PIPE SUPPORT**

SCALE: NTS



**NOTE:**

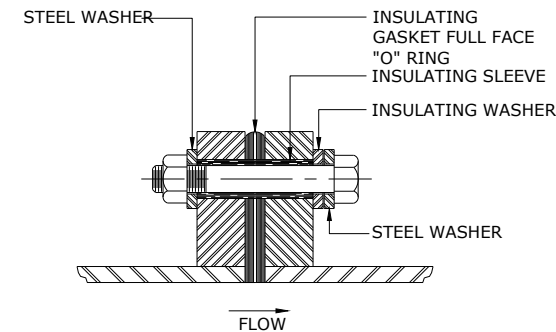
1. PIPE, FITTING, AND VALVE SIZES SHALL MATCH AIR VALVE INLET DIAMETER UNLESS NOTED OTHERWISE.

**AIR RELEASE OR COMBINATION AIR/VAC VALVE**

SCALE: NTS

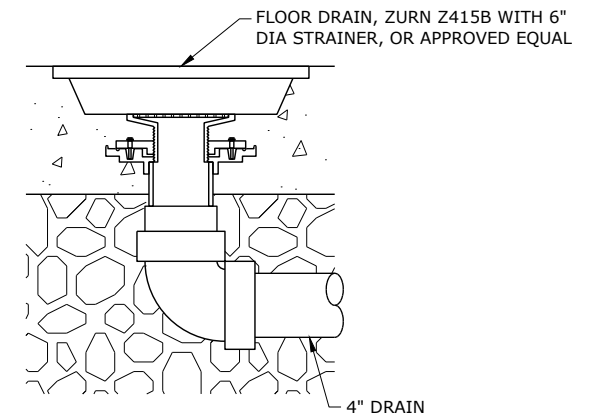


- NOTES:**
1. PLACE NON-INSULATED SIDE OF BOLT TOWARD VALVE
  2. DO NOT APPLY METALLIC OR OTHER NON-INSULATING PAINTS TO INSULATING PARTS OR FLANGES
  3. INSULATING SLEEVE TO BE 1/64" SHORTER THAN DISTANCE BETWEEN STEEL WASHERS WHEN BOLT IS FULLY TIGHTENED
  4. COAT WITH COLD APPLIED COAL TAR MASTIC AFTER ASSEMBLING JOINT AND WRAP WITH A BUTYL RUBBER ADHESIVE, POLYETHYLENE BACKED TAPE



**INSULATED FLANGE**

SCALE: NTS



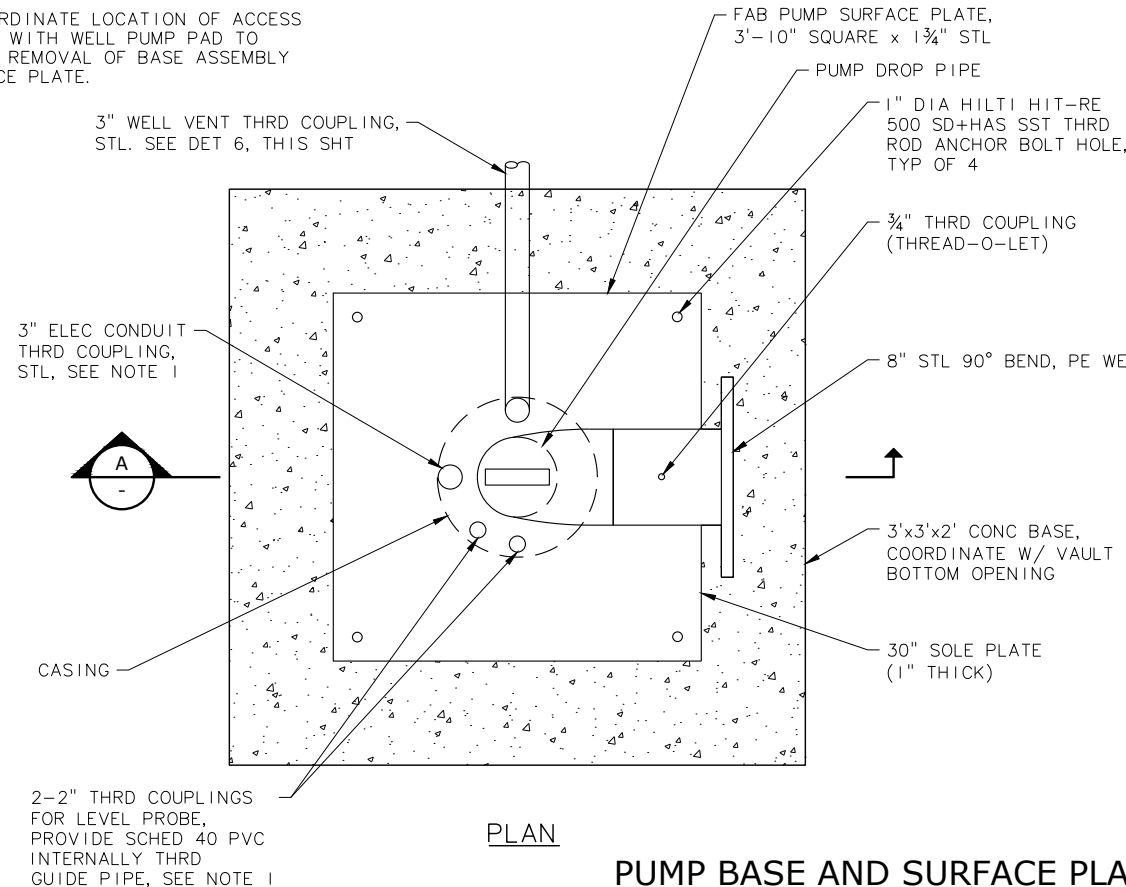
**TYPICAL FLOOR DRAIN**

SCALE: NTS



**NOTE:**

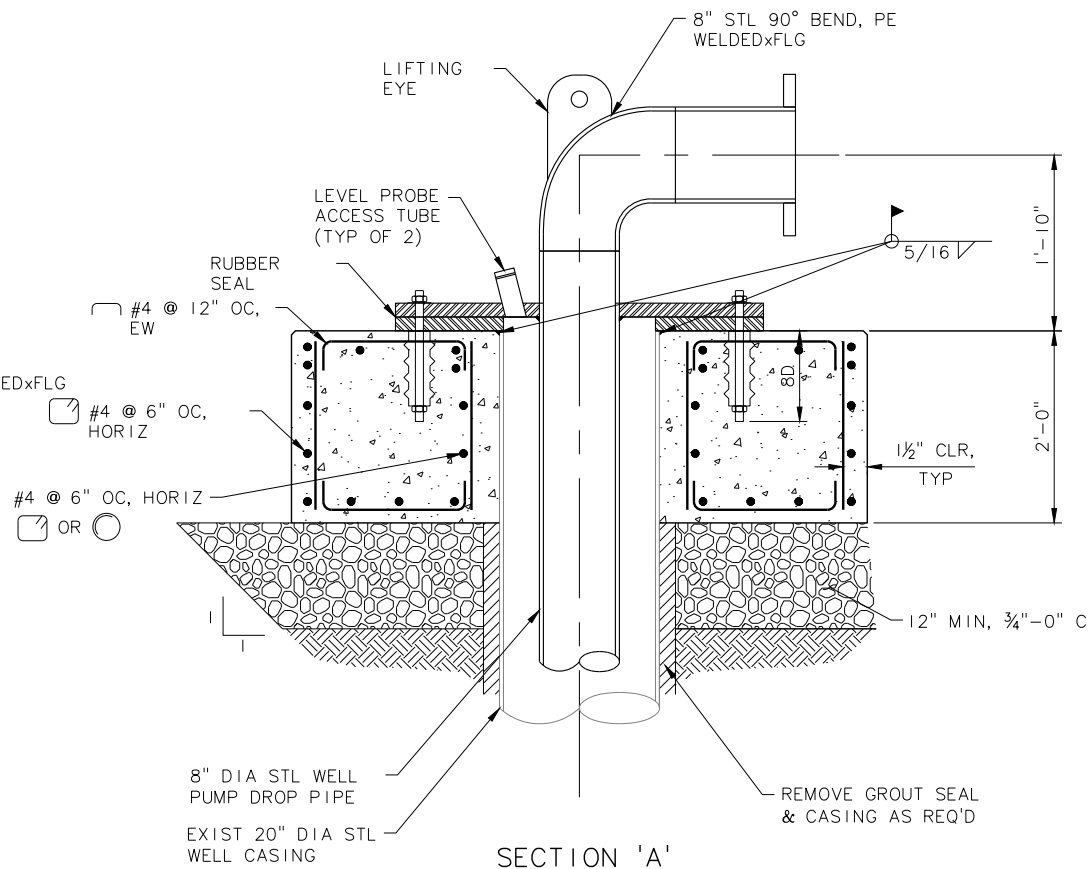
1. COORDINATE LOCATION OF ACCESS HATCH WITH WELL PUMP PAD TO ALLOW REMOVAL OF BASE ASSEMBLY SURFACE PLATE.



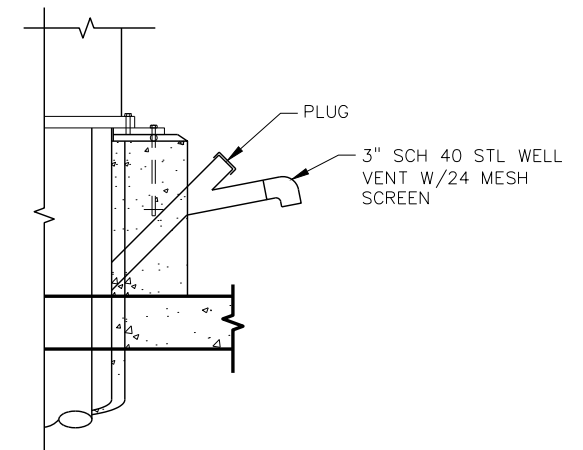
**PLAN**

**PUMP BASE AND SURFACE PLATE ASSEMBLY DETAIL**

SCALE: 1" = 1'-0"



**SECTION 'A'**



**WELL VENT W/ INSECT SCREEN**

SCALE: NTS



**SHEET NOTES:**

1. FURNISH AND INSTALL WATERTIGHT CONDUIT SEALING BUSHINGS FOR PUMP POWER AND LEVEL SENSOR COUPLINGS THROUGH WELL SURFACE PLATE, SEE ELECTRICAL SPECIFICATIONS.
2. ALL THREADED COUPLINGS THROUGH SURFACE PLATE ASSEMBLY SHALL BE SEALED AND WATERTIGHT.
3. COMPLY WITH ALL REQUIREMENTS OF WASHINGTON DEPARTMENT OF ECOLOGY FOR WORK ON EXISTING WELL.

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**CITY OF PORT ORCHARD**  
**MCCORMICK WOODS - WELL NO. 11**  
**SITE IMPROVEMENT PROJECT**

**MECHANICAL DETAILS - 2**

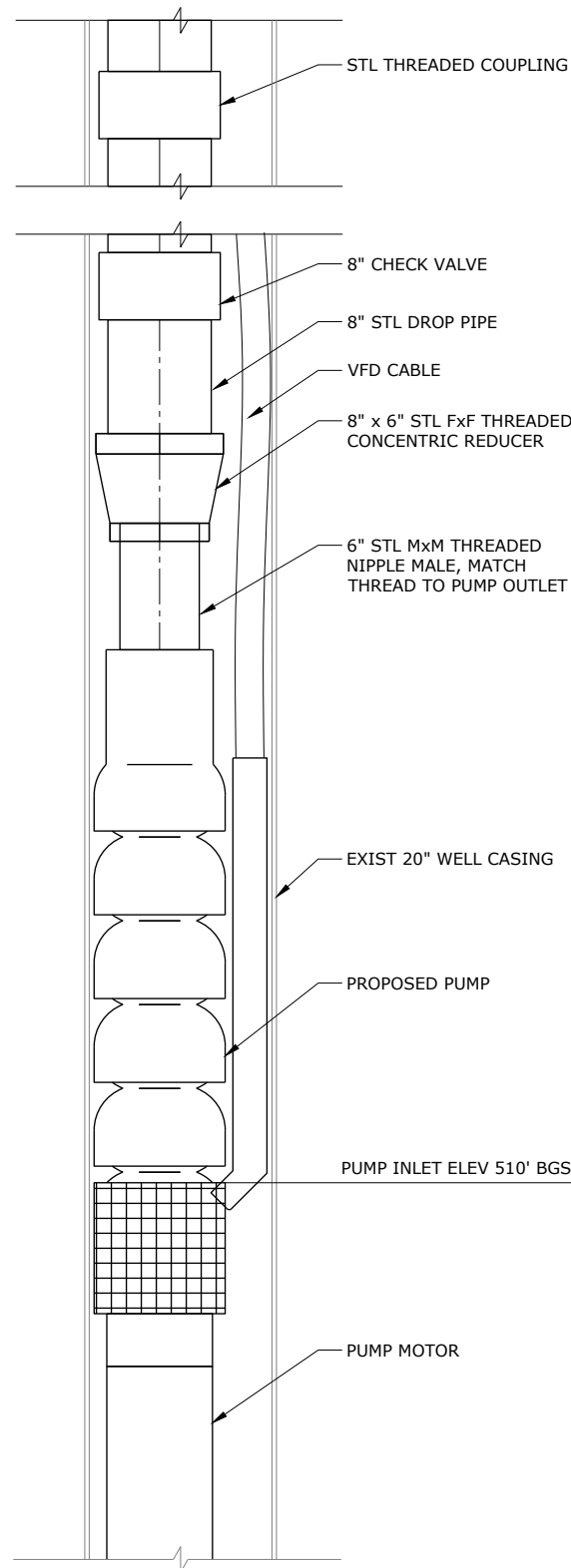
PROJECT NO.: 20-2839.01 SCALE: AS SHOWN DATE: SEPTEMBER 2022

SHEET

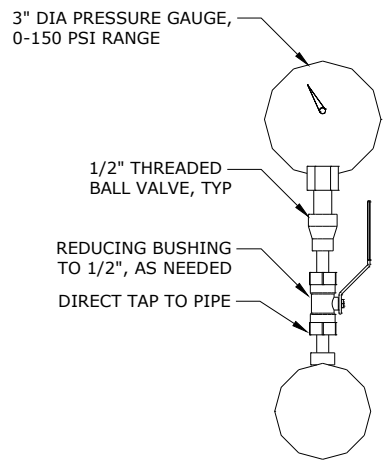
**M-5**

X of X

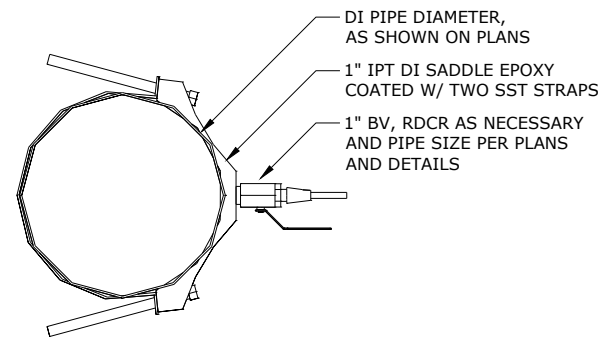
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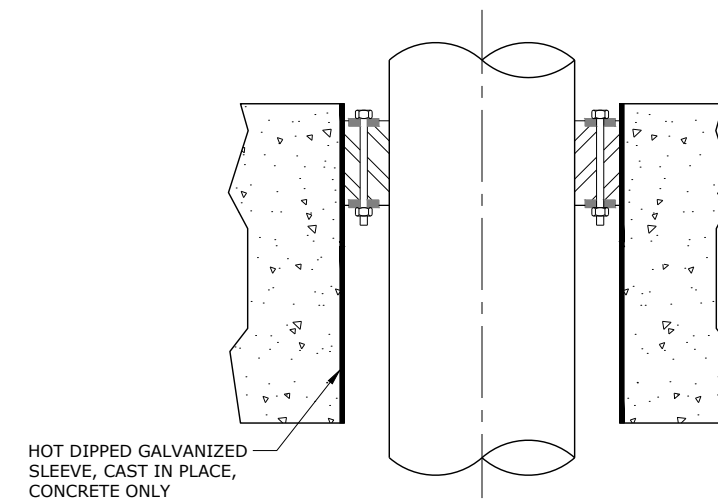
**WELL SECTION**  
SCALE: NTS



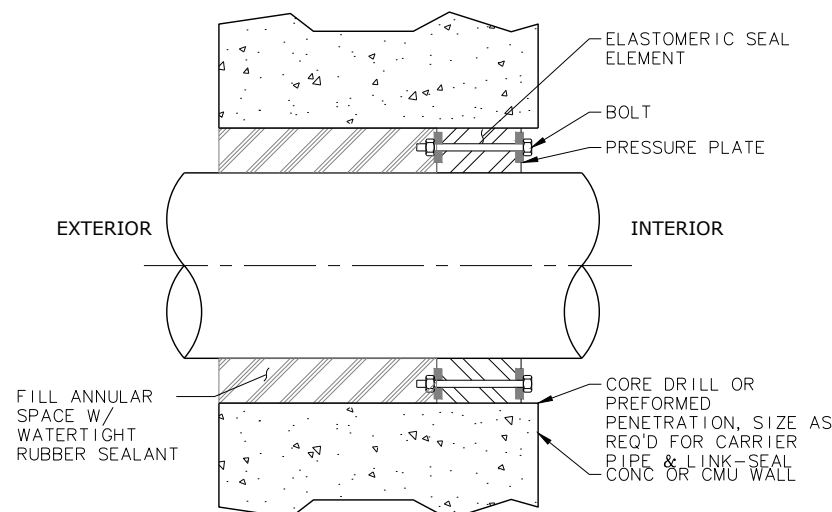
**PRESSURE GAUGE**  
SCALE: NTS



**TAP DETAIL**  
SCALE: NTS

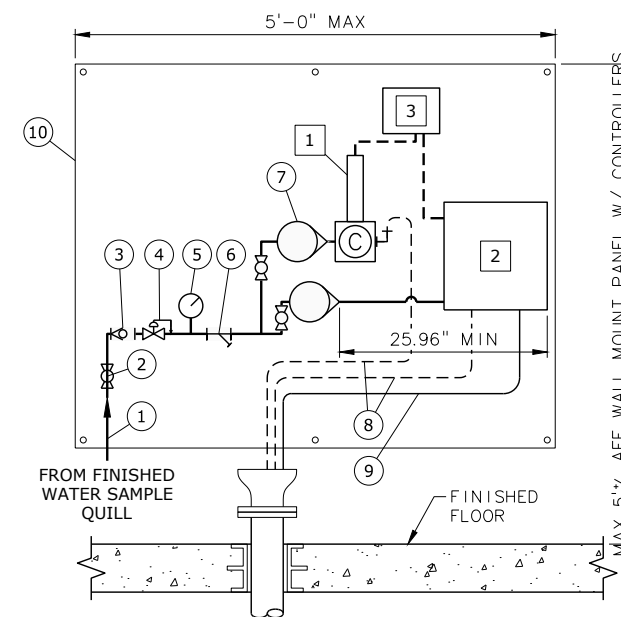


**FLOOR PENETRATION DETAIL**  
SCALE: NTS



**NOTE:**  
1. GROUT CMU WALL TO 12" ABOVE PENETRATION PRIOR TO CORE DRILLING.

**LINK SEAL DETAIL**  
SCALE: NTS



- NOTES:**
- COORDINATE CONNECTION OF PIPING WITH INSTRUMENT AND INSTRUMENT CELL CONNECTIONS.
  - INSTALL ANALYZERS PER MANUFACTURER'S INSTRUCTIONS.
  - ROUTE POWER AND SIGNAL CABLES TO ELECTRIC WIREWAY AT TOP OF PANEL. USE LIQUID TIGHT FLEXIBLE METAL CONDUIT FOR SIGNAL AND POWER TERMINATION TO ALL INSTRUMENTS.
  - CONTRACTOR TO SUPPORT ALL PIPING TO THE MOUNTING BOARD PER SPECIFICATION 40\_05\_07.
  - USE CPVC PIPE UP TO THE ROTAMETER INLETS. USE FLEXIBLE HOSE FROM THE ROTAMETER OUTLETS TO THE ANALYZERS.

**FINISHED WATER SAMPLE PANEL**  
SCALE: NTS

- KEY NOTES:**
- ALL PIPING TO BE 1/2" SCH 90 CVPC
  - BALL VALVE (TYP)
  - BALL CHECK VALVE (TYP)
  - PRESSURE REDUCING VALVE (TYP)
  - PRESSURE GAUGE (TYP)
  - Y-STRAINER
  - ROTOMETER W/INTEGRAL NEEDLE VALVE (TYP)
  - 1/2" DRAIN, ROUTE TO HUB DRAIN
  - OVERFLOW, ROUTE TO HUB DRAIN
  - PROVIDE MOUNTING BOARD, SIZE AS NEEDED, MOUNT TO WALL

- MATERIAL LIST:**
- AE-600A (pH)
  - AE-600B (CHLORINE ANALYZER)
  - XV-601 (pH/CHLORINE CONTROLLER)

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**MCCORMICK WOODS - WELL NO. 11**  
**SITE IMPROVEMENT PROJECT**

**MECHANICAL DETAILS - 3**

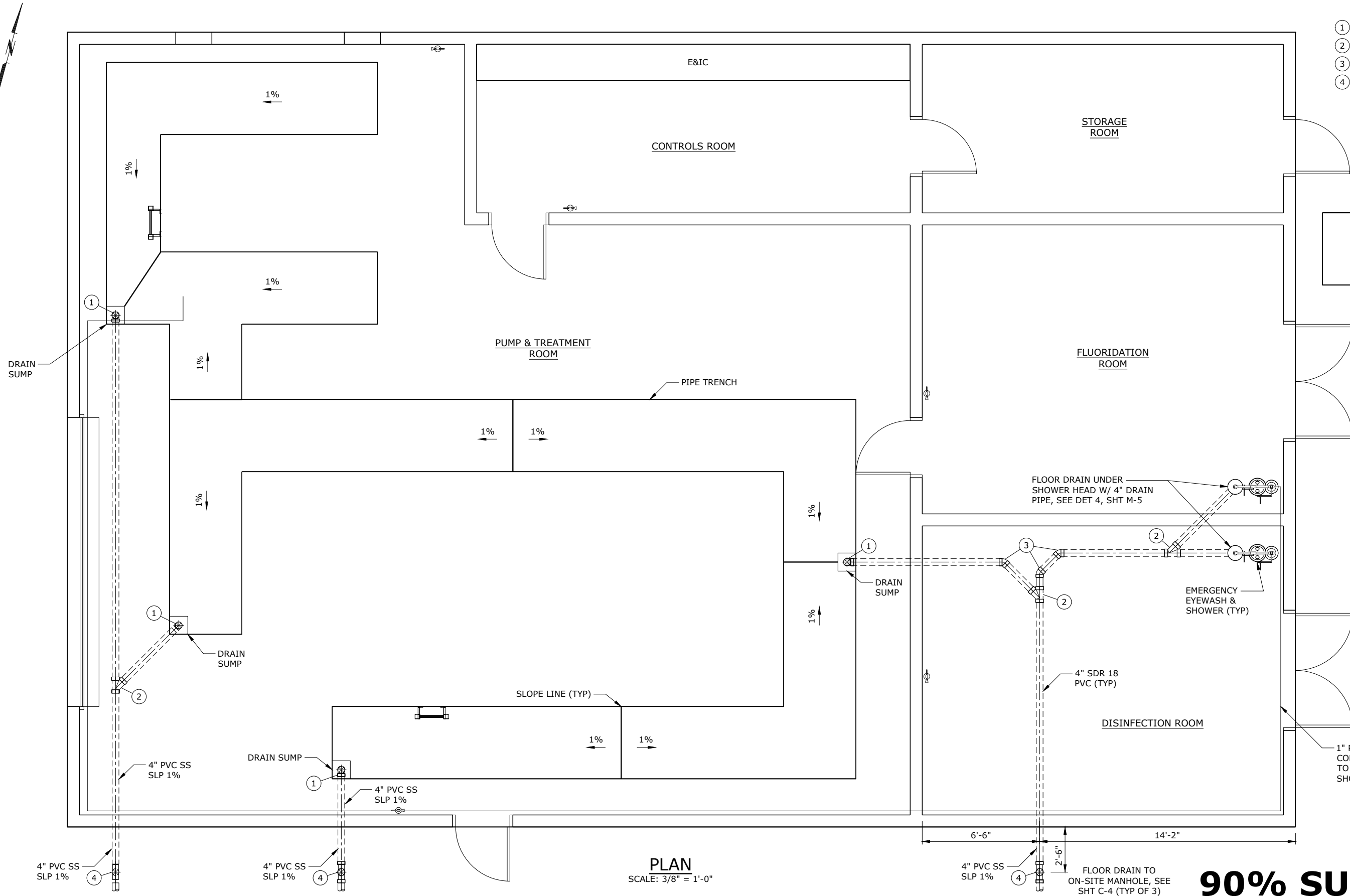
PROJECT NO.: 20-2839.01 SCALE: AS SHOWN DATE: SEPTEMBER 2022

SHEET  
**M-6**  
X of X

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**EQUIPMENT LIST:**

- ① 4" SCH 40 PVC 90° BEND
- ② 4" SCH 40 PVC WYE
- ③ 4" SCH 40 PVC 45° BEND
- ④ 4" CLEANOUT, SEE DET 3, SHT C-12



**PLUMBING NOTES:**

1. FLOOR DRAINS, CLEANOUTS AND PLUMBING FIXTURES SHALL BE TRAPPED AND VENTED AS REQUIRED BY UNIFORM PLUMBING.
2. SLOPE ALL PIPE CHASE FLOORS AT 1% MINIMUM AS SHOWN. CONTRACTOR TO FIELD VERIFY PIPE CHASE DRAIN INVERT ELEVATIONS.
3. ATTACH EXPOSED PLUMBING TO WALLS PER DET 1, SHT M-5
4. FOUNDATION DRAIN AND ROOF DRAINAGE NOT SHOWN. SEE CIVIL SHTS.
5. POTABLE WATER PIPING SHALL BE COPPER PER SPECIFICATIONS.

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

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**SITE IMPROVEMENT PROJECT**

**PUMP STATION PLUMBING PLAN**  
PROJECT NO.: 20-2839.01 SCALE: AS SHOWN DATE: SEPTEMBER 2022

SHEET  
**P-1**  
X of X

**HVAC ABBREVIATIONS**

ABBREVIATION	MEANING
A	ANALOG SIGNAL
ACU	AIR CONDITIONING UNIT
AHU	AIR HANDLING UNIT
AO	AIR TO OPEN
BDD	BACK DRAFT DAMPER
BOD	BOTTOM OF DUCT
BOP	BOTTOM OF PIPE
CFCI	CONTRACTOR FURNISHED, CONTRACTOR INSTALLED
CV	CONSTANT AIR VOLUME
(D)	DEMO
DIR	DIRECT-ACTING
DWV	DOMESTIC WASTE AND VENT
EC	ENERGIZE TO CLOSE
ED	EXHAUST DAMPER
EF	EXHAUST FAN
EG	EXHAUST GRILL
EL	EXHAUST LOUVER
EO	ENERGIZE TO OPEN
ES	ELECTRIC SUPPLY
ESP	EXTERNAL STATIC PRESSURE
EV	SOLENOID VALVE
ESD	EMERGENCY SHUTDOWN
EXH	EXHAUST
(F)	FUTURE
FC	FAIL CLOSED
FD	FIRE DAMPER
FFU	FAN FILTER UNIT
FL	FAIL LOCKED OR LAST
FO	FAIL OPEN
GD	GRAVITY DAMPER
IN HG	INCHES OF MERCURY
HH	HAND HOLE
HS	HYDRAULIC SUPPLY
HT	HEAT TRACED
IA	INTAKE AIR
MBH	THOUSANDS OF BTU'S PER HOUR
MA	MAKE-UP AIR
(N)	NEW
NC	NORMALLY CLOSED
NO	NORMALLY OPEN
OA, OSA	OUTSIDE AIR
OC	OCCUPIED
OFCI	OWNER FURNISHED, CONTRACTOR INSTALLED
P	PNEUMATIC SIGNAL
PSI	POUNDS PER SQUARE INCH
PSIA	POUNDS PER SQUARE INCH ABSOLUTE
RA	RETURN AIR
RH	RELATIVE HUMIDITY
RTD	RESISTANCE TEMPERATURE DETECTOR
RTU	ROOF TOP UNIT
SA	SUPPLY AIR
SD	SUPPLY DAMPER
SCFM	STANDARD CUBIC FEET PER MINUTE
SF	SUPPLY FAN
SG	SUPPLY GRILL
SMACNA	SHEET METAL AND AIR CONDITIONING CONTRACTORS' NATIONAL ASSOCIATION SET-POINT
SP	TRAP
TC	THERMOCOUPLE
VAV	VARIABLE AIR VOLUME
IN WG	INCHES WATER GAUGE

LOCATION	OUTDOOR UNIT				INDOOR UNIT				THERMAL CAPACITY		
	NO.	VOLTAGE/PH/AMPS	CONTROL	MANUFACTURER & MODEL	NO.	VOLTAGE/PH/AMPS	FAN MIN CFM	CONTROL	MANUFACTURER & MODEL	TOTAL CAPACITY HEATING (BTU/H)	TOTAL CAPACITY COOLING (BTU/H)
CONTROL ROOM	HPU-1	208(230)/1/30(30)	AHU-1	GOODMAN GVZC20 0481	AHU-1	208(230)/1/8(8)	1,600	T-1	GOODMAN ASPT 48D14	46,000	46,500
PUMP & TREATMENT ROOM	HPU-2	208(230)/1/30(30)	AHU-2	GOODMAN GVZC20 0482	AHU-2	208(230)/1/8(8)	1,400	T-2	GOODMAN ASPT 36C14	35,400	35,800
DISINFECTION ROOM	HPU-3	208(230)/1/30(30)	AHU-3	24RLXFZ	AHU-3	208(230)/1/8(8)	250	T-3	ASU12RLF1	24,000/12,000	24,000/12,000
FLUORIDATION ROOM	HPU-3	208(230)/1/30(30)	AHU-4	24RLXFZ	AHU-4	208(230)/1/8(8)	250	T-4	ASU12RLF1	24,000/12,000	24,000/12,000

TAG	LOCATION	AREA SERVED	MANUFACTURER & MODEL	APPLICATION	WIDTH (IN)	HEIGHT (IN)	DEPTH (IN)	VOLUME (CFM)	MAX PRESSURE DROP (IN. WG)	FREE AREA VELOCITY (FT/MIN)	FREE AREA (SQ FT)	NOTES
SL-2	PUMP STATION	PUMP & TREATMENT ROOM	GREENHECK, ECD-601	INTAKE	24	24	6	500	0.03	294	1.7	COMBO LOUVER/DAMPER
EL-1	PUMP STATION	PUMP & TREATMENT ROOM	GREENHECK, ECD-601	EXHAUST	24	24	6	1000	0.06	588	1.7	COMBO LOUVER/DAMPER
SL-3	PUMP STATION	CHEMICAL ROOMS	GREENHECK, ECD-601	INTAKE	24	24	6	1000	0.06	588	1.7	COMBO LOUVER/DAMPER
EL-2	PUMP STATION	CHEMICAL ROOMS	GREENHECK, ECD-601	EXHAUST	24	24	6	1000	0.06	588	1.7	COMBO LOUVER/DAMPER

TAG	LOCATION	AREA SERVED	MANUFACTURER & MODEL	DRIVE TYPE	CFM	TOTAL EXTERNAL SP	FAN RPM	BHP	MOTOR HP	V/C/P	SONES (INLET)	NOTES
EF-2	PUMP STATION	CHEMICAL ROOMS	GREENHECK, SQ-130	DIRECT	1,000	0.30	1,140	0.18	1/4	460/60/3	6.7	
RF-1	PUMP STATION	FLUORIDATION ROOM	MONOXIVENT, PHS-10	DIRECT	750	-	1,140	-	1-1/2	120/60/1	20	PORTABLE UNIT

TAG	LOCATION	AREA SERVED	CFM	FRAME SIZE	MANUFACTURER & MODEL	NOTES
RG-2	PUMP STATION	PUMP & TREATMENT ROOM	1400	20X20	TITUS 350 RL-SS	
SG-1	PUMP STATION	ELECTRICAL ROOM	650	14X14	TITUS 300 RL-SS	
SG-2	PUMP STATION	ELECTRICAL ROOM	650	14X14	TITUS 300 RL-SS	
SG-3	PUMP STATION	STORAGE ROOM	100	10X6	TITUS 300 RL-SS	
SG-4	PUMP STATION	PUMP & TREATMENT ROOM	500	12X10	TITUS 301 RL-SS	
SG-5	PUMP STATION	PUMP & TREATMENT ROOM	500	12X10	TITUS 301 RL-SS	
SG-6	PUMP STATION	PUMP & TREATMENT ROOM	400	12X8	TITUS 301 RL-SS	
SG-7	PUMP STATION	DISINFECTION ROOM	500	20X10	TITUS 300 RL-SS	
SG-8	PUMP STATION	FLORIDATION ROOM	500	20X10	TITUS 300 RL-SS	
EG-1	PUMP STATION	PUMP & TREATMENT ROOM	1000	18X18	TITUS 350 RL-SS	
EG-2	PUMP STATION	DISINFECTION ROOM	500	14X14	TITUS 350 RL-SS	
EG-3	PUMP STATION	FLORIDATION ROOM	500	14X14	TITUS 350 RL-SS	

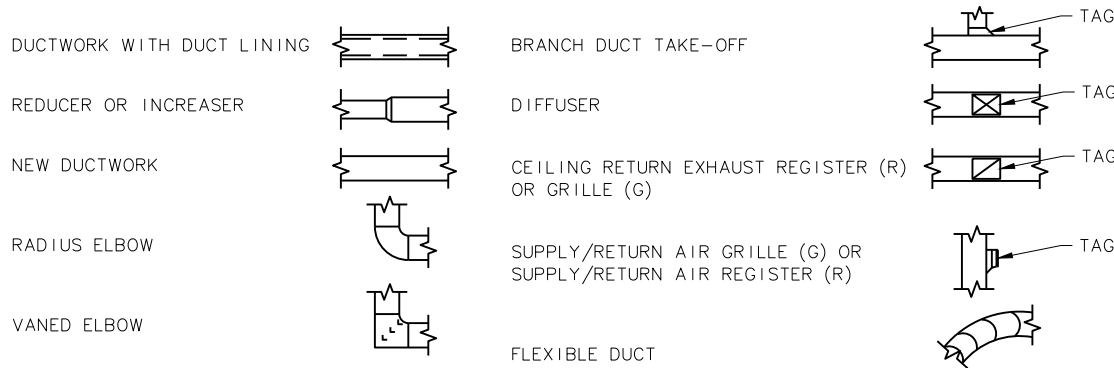
DAMPER ACTUATORS			
NO.	TYPE	CONTROL	MANUFACTURER & MODEL
SD-1	MOTORIZED	EF-1	BELIMO, LF120-S
ED-1	MOTORIZED	EF-1	BELIMO, LF120-S
SD-2	MOTORIZED	EF-1	BELIMO, LF120-S
SD-3	MOTORIZED	EF-2	BELIMO, LF120-S
ED-2	MOTORIZED	EF-2	BELIMO, LF120-S

THERMOSTATS			
TAG	AREA SERVED	CONTROLS	NOTES
T-1	CONTROLS ROOM	AHU-1	
T-2	PUMP & TREATMENT ROOM	AHU-2	
T-3	DISINFECTION ROOM	AHU-3	
T-4	FLUORIDATION ROOM	AHU-4	

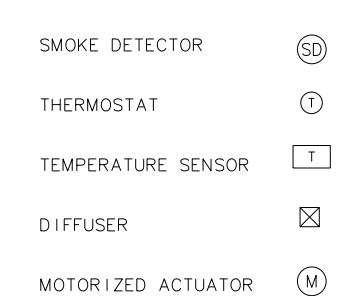
**NOTES:**

- ALL FANS AND OVERHEAD DUCTWORK TO BE MOUNTED 8--FEET CLEAR ABOVE FLOOR (MINIMUM) AND SUSPENDED FROM ROOF FRAMING. FAN TO BE SUSPENDED OR MOUNTED ON VIBRATION ISOLATED HANGERS PER MANUFACTURER'S REQUIREMENTS.
- FURNISH SEISMIC RESTRAINTS FOR ALL DUCTWORK SYSTEMS AND SWAY BRACING AS DESCRIBED IN SMACNA "GUIDELINES FOR SEISMIC RESTRAINTS OF MECHANICAL SYSTEMS".
- SEE ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR LOCATION OF LOUVER WALL OPENINGS AND DETAILS.
- SHOWN SIZES OF EQUIPMENT MOUNTING PLATFORMS, CEILING AND WALL PENETRATIONS SHALL BE VERIFIED PRIOR TO FABRICATION OR ORDERING OF EQUIPMENT.
- LOCATE ALL CONTROLS, PANELS, AND DISCONNECT SWITCHES APPROXIMATELY 4 FEET ABOVE FINISHED FLOOR. COORDINATE LOCATIONS WITH ELECTRICAL.
- ALL DUCTWORK TO HAVE EQUIVALENT AREA UNLESS OTHERWISE SHOWN OR SPECIFIED. PROVIDE MOUNTING AND TRANSITIONS TO ALL EQUIPMENT AND ACCESSORIES AS NECESSARY AND AS RECOMMENDED BY MANUFACTURER.
- EQUIPMENT MANUFACTURERS AND MODEL NUMBERS ARE PROVIDED FOR REFERENCE ONLY AND SHALL BE USED TO ESTABLISH EQUIPMENT SIZES AND REQUIRED PERFORMANCE. APPROVED EQUAL MANUFACTURES WILL BE ACCEPTED.

**DUCTWORK SYMBOLS AND LEGEND**



**EQUIPMENT SYMBOLS**



**90% SUBMITTAL**

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NO.	DATE	BY	REVISION

NOTICE  
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**Port ORCHARD**

**CITY OF PORT ORCHARD MCCORMICK WOODS - WELL NO. 11 SITE IMPROVEMENT PROJECT**

**HVAC SYMBOLS, ABBREVIATIONS AND SCHEDULES**

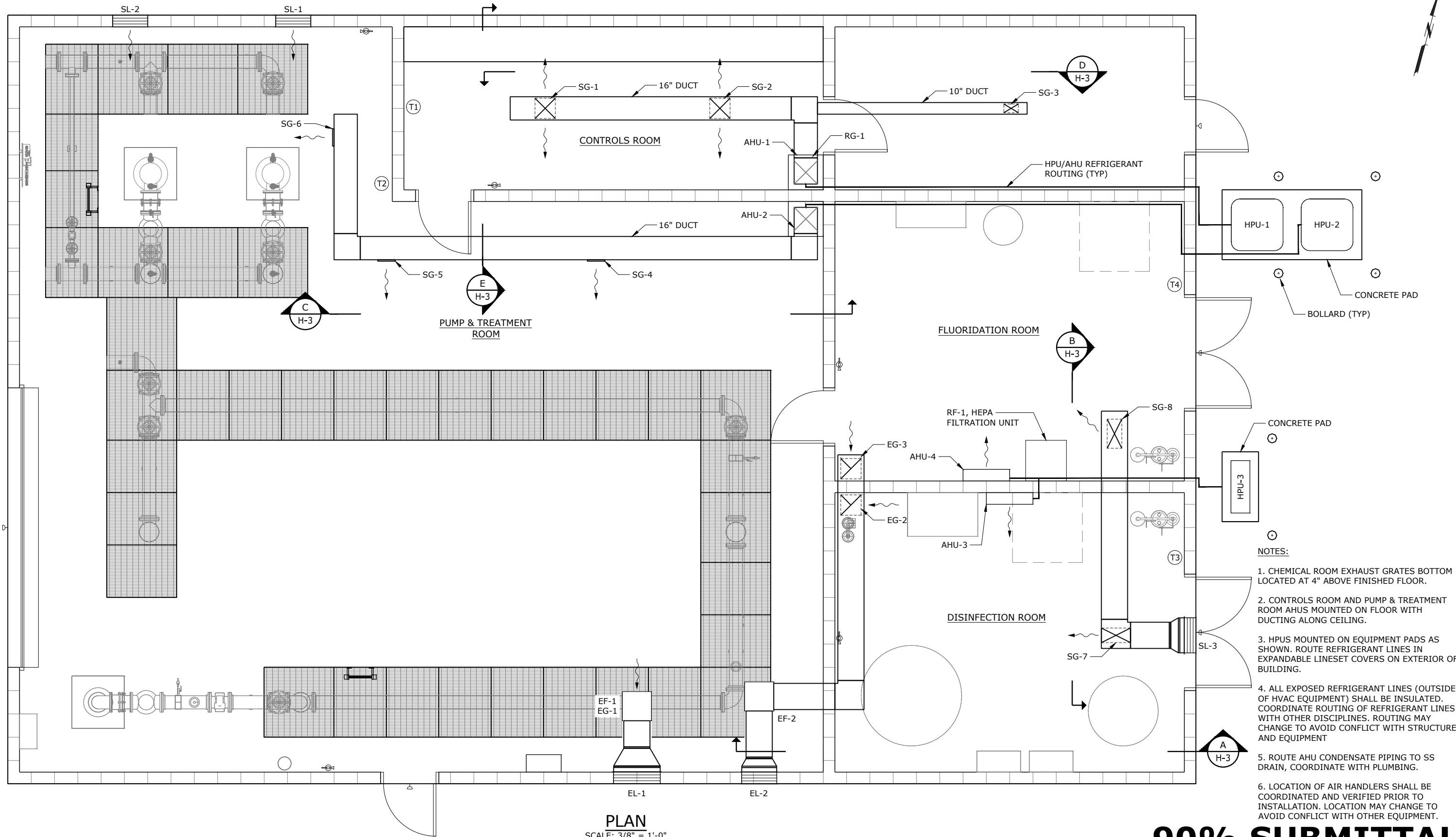
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- NOTES:**
- CHEMICAL ROOM EXHAUST GRATES BOTTOM LOCATED AT 4" ABOVE FINISHED FLOOR.
  - CONTROLS ROOM AND PUMP & TREATMENT ROOM AHUS MOUNTED ON FLOOR WITH DUCTING ALONG CEILING.
  - HPUS MOUNTED ON EQUIPMENT PADS AS SHOWN. ROUTE REFRIGERANT LINES IN EXPANDABLE LINESSET COVERS ON EXTERIOR OF BUILDING.
  - ALL EXPOSED REFRIGERANT LINES (OUTSIDE OF HVAC EQUIPMENT) SHALL BE INSULATED. COORDINATE ROUTING OF REFRIGERANT LINES WITH OTHER DISCIPLINES. ROUTING MAY CHANGE TO AVOID CONFLICT WITH STRUCTURE AND EQUIPMENT
  - ROUTE AHU CONDENSATE PIPING TO SS DRAIN, COORDINATE WITH PLUMBING.
  - LOCATION OF AIR HANDLERS SHALL BE COORDINATED AND VERIFIED PRIOR TO INSTALLATION. LOCATION MAY CHANGE TO AVOID CONFLICT WITH OTHER EQUIPMENT.

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

**90% SUBMITTAL**

NO.	DATE	BY	REVISION

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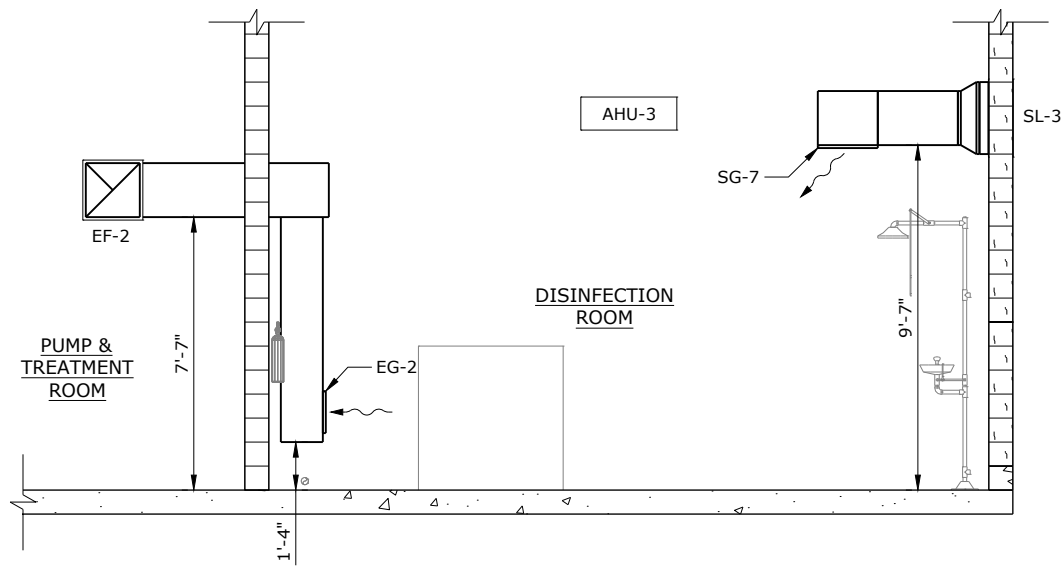
**CITY OF PORT ORCHARD**  
**MCCORMICK WOODS - WELL NO. 11**  
**SITE IMPROVEMENT PROJECT**

**PUMP STATION HVAC PLAN**

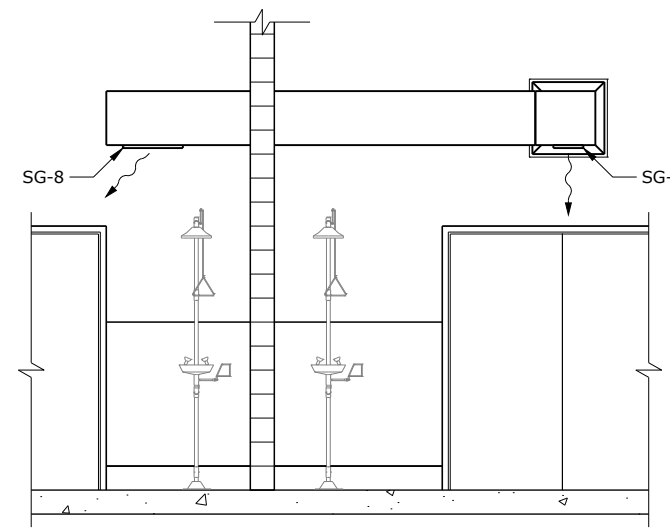
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**H-2**  
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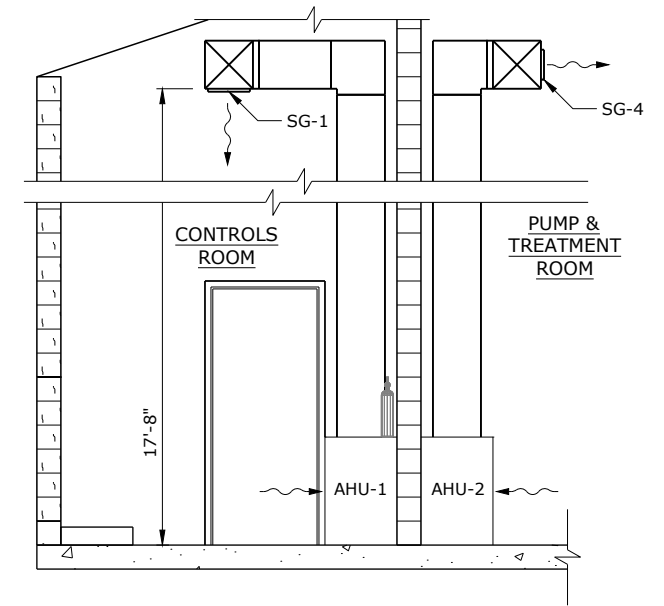
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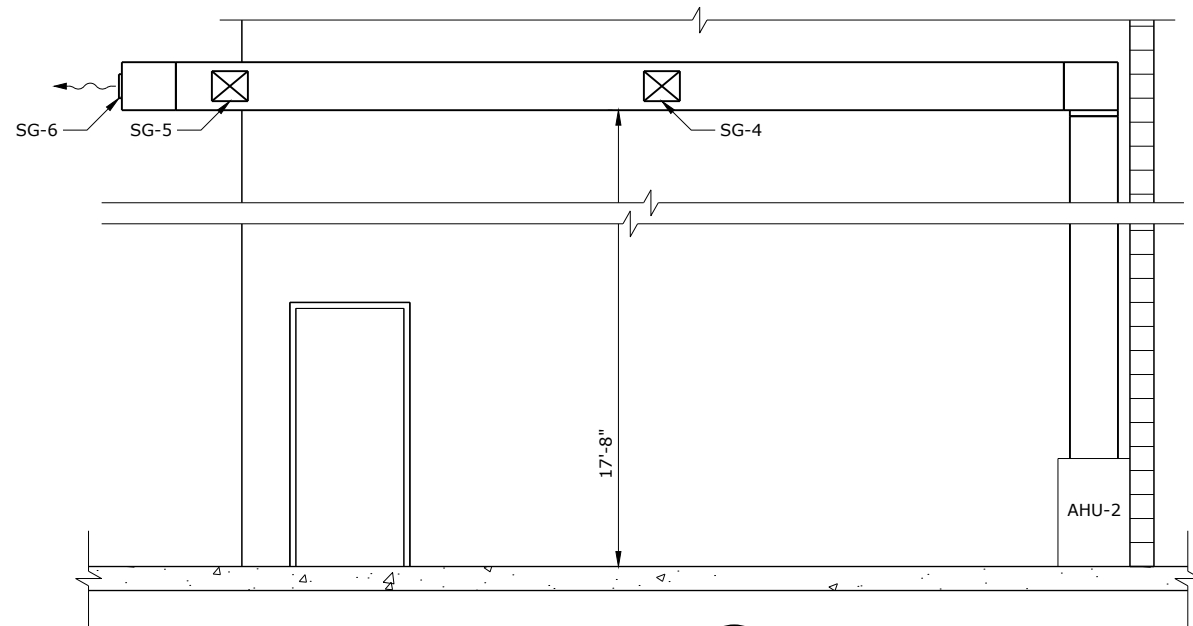
**SECTION A**  
SCALE: 3/8" = 1'-0"  
H-2



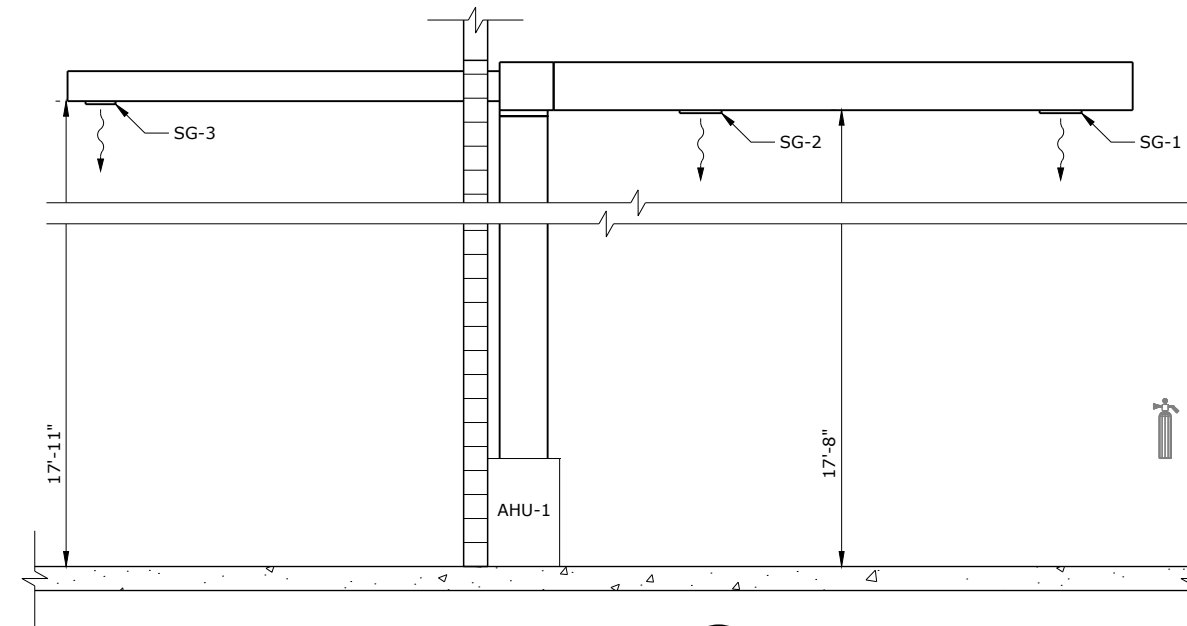
**SECTION B**  
SCALE: 3/8" = 1'-0"  
H-2



**SECTION C**  
SCALE: 3/8" = 1'-0"  
H-2



**SECTION D**  
SCALE: 3/8" = 1'-0"  
H-2



**SECTION E**  
SCALE: 3/8" = 1'-0"  
H-2

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**CITY OF PORT ORCHARD**  
**MCCORMICK WOODS - WELL NO. 11**  
**SITE IMPROVEMENT PROJECT**

**PUMP STATION HVAC SECTIONS**

PROJECT NO.: 20-2839.01 SCALE: AS SHOWN DATE: SEPTEMBER 2022

SHEET  
**H-3**  
X of X

GENERAL NOTES

- 1. ALL MATERIALS AND INSTALLATIONS SHALL BE IN ACCORDANCE WITH THE LATEST NATIONAL ELECTRICAL CODE. INSTALLATION DRAWINGS, CONSTRUCTION SPECIFICATIONS AND LOCAL CODES. ALL MATERIALS SHALL BE NEW AND LISTED BY THE UNDERWRITERS' LABORATORY INC. (UL). ALL ELECTRICAL WORK SHALL BE INSTALLED IN A GOOD AND WORKMANLIKE MANNER.
2. REFER TO THE ELECTRICAL CIRCUIT SCHEDULE FOR CIRCUIT IDENTIFICATIONS, ROUTING, CONDUCTOR SIZES, ETC.
3. ELECTRICAL CONTRACTOR SHALL COORDINATE WITH OTHER DISCIPLINES AS REQUIRED TO MITIGATE INTERFERENCES.
4. CONDUIT MATERIAL SHOWN ON ELECTRICAL PLANS ARE SPECIFIC FOR THE LOCATION WHERE THE CONDUIT STARTS. CONTRACTOR IS RESPONSIBLE FOR TRANSITIONING TO APPROVED CONDUIT MATERIAL BASED ON LOCATION AND IN ACCORDANCE TO ELECTRICAL SPECIFICATIONS.

SYMBOLS

SYMBOLS legend including: NEW ELECTRICAL EQUIPMENT, EXISTING ELECTRICAL EQUIPMENT, EQUIPMENT TO BE DEMO'D OR REMOVED, SURFACE MOUNTED LED LUMINAIRE, RECESSED MOUNTED LED LUMINAIRE, WALL MOUNTED LED LUMINAIRE, WALL SWITCH STANDARD TOGGLE, DUPLEX, QUADPLEX RECEPTACLE, METERBASE W/UTILITY METER, DISCONNECT RECEPTACLE AND PLUG, SPECIAL EQUIPMENT CONNECTION, MOTOR CONNECTION, JUNCTION BOX, DISCONNECT SWITCH, FUSED DISCONNECT SWITCH, FUSE, THERMAL MAGNETIC CIRCUIT BREAKER, MAGNETIC ONLY CIRCUIT BREAKER, MOTOR STARTER, RECEPTACLE, FAN, VARIABLE FREQUENCY DRIVE, LINE OR LOAD REACTOR, TRANSFORMER, SURGE PROTECTIVE DEVICE, CURRENT TRANSFORMER, GROUND ROD, GROUND ROD TEST WELL, AUTOMATIC TRANSFER SWITCH, DOUBLE THROW SWITCH, GROUND CONNECTION PER NEC ARTICLE 250, 120V CONTROL RELAY, 24VDC CONTROL RELAY, RELAY CONTACT - NO, NC, PUSHBUTTON OR SWITCH CONTACT BLOCK - NO, NC, THREE POSITION SWITCH, TWO POSITION SWITCH, KEYED, PUSH-TO-TEST LED PILOT LIGHT, FLOAT SWITCH - NO, NC, TEMPERATURE SWITCH - NO, NC, LIMIT SWITCH - NO, NC, TIME DELAY CONTACTS, ELAPSED TIME METER, COUNTER, WALL MOUNTED THERMOSTAT.

ABBREVIATIONS

Table of abbreviations including: a (CIRCUIT BREAKER AUX. CONTACT, CLOSED WHEN BREAKER IS CLOSED), A (AMMETER, AMPERES), AC (ALTERNATING CURRENT), A/D (ANALOG TO DIGITAL), AF (AMPERE FRAME), AFE (ACTIVE FRONT END (VFD)), AIC (AMPERES INTERRUPTING CAPACITY), ALT (ALTERNATOR), A/M (AUTO/MANUAL CONTROLLER), ANN (ANNUNCIATOR), AS (AMMETER SWITCH), ASD (ADJUSTABLE SPEED DRIVE), AT (AMPERE TRIP), ATS (AUTOMATIC TRANSFER SWITCH), AUTO (AUTOMATIC), AWG (AMERICAN WIRE GAGE), b (CIRCUIT BREAKER AUX. CONTACT, CLOSED WHEN BREAKER IS OPEN), BCG (BARE COPPER GROUND CONDUIT, CONTACTOR), CAP (CAPACITOR), CB (CIRCUIT BREAKER), CC (CONTROL CABLE, CLOSING COIL), CHH (COMMUNICATION HANDHOLE), CL (CHLORINE), CKT (CIRCUIT), CMH (COMMUNICATION MANHOLE), CO (CONDUIT ONLY), COMM (COMMUNICATION), CON (CONTACTOR), COND (CONDUCTOR), CONT (CONTINUED, CONTINUATION), CPT (CONTROL POWER TRANSFORMER), CP (CONTROL PANEL), CR (CONTROL RELAY), CS (CONTROL SWITCH), CT (CURRENT TRANSFORMER), CWP (COLD WATER PIPE), DC (DIRECT CURRENT), DIAG (DIAGRAM), DISC (DISCONNECT), DISTR (DISTRIBUTION), DP (DISTRIBUTION PANEL), DPDT (DOUBLE POLE, DOUBLE THROW), DPST (DOUBLE POLE, SINGLE THROW), (E) (EXISTING), EF (EXHAUST FAN), EHH (ELECTRICAL HANDHOLE), ELEM (ELEMENTARY), EMERG (EMERGENCY), EFFL (EFFLUENT), EQ (EQUAL), EQUIP (EQUIPMENT), ETM (ELAPSED TIME METER), FACP (FIRE ALARM CONTROL PANEL), FIN FL (FINISHED FLOOR), FLEX (FLEXIBLE), FLUOR (FLUORESCENT), FO (FIBER OPTIC), FREQ (FREQUENCY), FU (FUSE), FUT (FUTURE), FVNR (FULL VOLTAGE, NON REVERSING), FVR (FULL VOLTAGE, REVERSING), FWD (FORWARD), GA (GAUGE), GEN (GENERATOR), GFI (GROUND FAULT INTERRUPTER), GRS (GALVANIZED RIGID STEEL), H2O2 (HYDROGEN PEROXIDE), HMI (HUMAN MACHINE INTERFACE), HOA (HAND-OFF-AUTOMATIC), HOR (HAND-OFF-REMOTE), HORZ (HORIZONTAL), HPS (HIGH PRESSURE SODIUM), HTR (HEATER), HV (HIGH VOLTAGE), HZ (HERTZ (CYCLES PER SECOND)), IND LT (INDICATING LIGHT), INCAND (INCANDESCENT), I/O (INPUT/OUTPUT), JB (JUNCTION BOX), KA (KILOAMPERES), KCMIL (THOUSANDS OF CIRCULAR MILS), KV (KILOVOLTS), KVA (KILOVOLT AMPERES), KVAR (KILOVOLT AMPERES REACTIVE), KVARH (KILOVOLT AMPERES REACTIVE HOURS), KW (KILOWATTS), KWH (KILOWATT HOURS), LCP (LIGHTING CONTROL PANEL), LP (LIGHTING PANEL), LPS (LOW PRESSURE SODIUM), LTG (LIGHTING), LT(S) (LIGHT(S)), (M) (MODIFIED), Ma (MILLIAMPERES), MCC (MOTOR CONTROL CENTER), MCP (MOTOR CIRCUIT PROTECTOR), MOV (MOTOR OPERATED VALVE), MS (MOTOR STARTER), MTD (MOUNTED), MTG (MOUNTING), MTS (MANUAL TRANSFER SWITCH), (N) (NEW), NEC (NATIONAL ELECTRICAL CODE), NEMA (NATIONAL ELECTRICAL MANUFACTURER'S ASSOC.), NEUT (NEUTRAL), NO (NORMALLY OPEN, NUMBER), NTS (NOT TO SCALE), OVHD (OVERHEAD), OL (THERMAL OVERLOAD RELAY), OT (OVER TEMPERATURE), PB (PULLBOX, PUSHBUTTON), PD (POSITIVE DISPLACEMENT), PE (PHOTOELECTRIC), PEC (PHOTOELECTRIC CELL), PF (POWER FACTOR), pH (MEASURE OF ACIDITY OR ALKALINITY), PH (PHASE), PLC (PROGRAMMABLE LOGIC CONTROLLER), PM (POWER MONITOR), PNL (PANEL), PNLBD (PANELBOARD), PRI (PRIMARY), PS (PRESSURE SWITCH), PSI (POUNDS PER SQUARE INCH), PWR (POWER), (RL) (RELOCATE), (RLD) (RELOCATED), RCPT (RECEPTACLE), RCT (REPEAT CYCLE TIMER), RPM (REVOLUTIONS PER MINUTE), RT (RESET TIMER), SCR (SILICON CONTROLLED RECTIFIER), SD (SMOKE DETECTOR), SDBC (SOFT-DRAWN BARE COPPER), SEC (SECONDS, SECONDARY), SECT (SECTION), SF (SUPPLY FAN), SHH (SIGNAL HANDHOLE), SIG (SIGNAL), SN (SOLID NEUTRAL SPECIFICATIONS), SPEC (SPECIFICATIONS), SPD (SURGE PROTECTIVE DEVICE), SPDT (SINGLE POLE, DOUBLE THROW), SS (STAINLESS STEEL, SOLID), SW (STATE SWITCH), SWBD (SWITCHBOARD), SWGR (SWITCHGEAR), SYNC (SYNCHRONIZING TERMINAL BOX, TERMINAL BOARD), TB (TELEPHONE CABINET), TC (TEMPERATURE), TEMP (TEMPERATURE), TP (TWISTED PAIR UNSHIELDED), TSP (TWISTED SHIELDED PAIR), TVSS (TRANSIENT VOLTAGE SURGE SUPPRESSOR), UH (UNIT HEATER), UV (ULTRA VIOLET), V (VOLTS), VA (VOLT-AMPERES), VFD (VARIABLE FREQUENCY DRIVE), VAR (VOLT AMPERES REACTIVE), VERT (VERTICAL), VH (VAR-HOUR), VS (VOLTMETER SWITCH), W (WIRE, WATTS), WHM (WATTHOUR METER), WHDM (WATTHOUR DEMAND METER), WP (WEATHERPROOF), WTRT (WATERTIGHT), WTP (WATER TREATMENT PLANT), XDCR (TRANSDUCER), XMTR (TRANSMITTER).

Additional symbols and notes including: FUSED TERMINAL, FIELD TERMINAL, LOCAL TERMINAL OR LUG CONNECTION, SMOKE/HEAT DETECTOR, INTRUSION SWITCH, THERMOSTAT/TEMPERATURE TRANSMITTER, MOTION DETECTOR/OCCUPANCY SENSOR, CONDUIT SEAL-OFF, CONDUIT CONCEALED UNDERFLOOR OR UNDERGROUND, CONDUIT CONCEALED IN WALL OR ABOVE CEILING IN FINISHED AREAS, EXPOSED IN PROCESS AND EQUIPMENT AREAS, CONDUIT UP, CONDUIT DOWN, CONDUIT UP FROM UNDERGROUND RACEWAY, CONDUIT STUB, FLEXIBLE CONDUIT OR MFR CABLE, HOME RUN, ELECTRICAL PANEL DESTINATION SHOWN. 1. RUNS MARKED WITH CROSS-HATCHES INDICATE NUMBER OF NO.12 WIRE. LARGER GAUGES ARE SHOWN OR NOTED ELSEWHERE. LONG CROSS HATCH INDICATES NEUTRAL, SHORT INDICATES PHASE CONDUCTOR, SLANT INDICATES GROUND WIRE PER NEC ARTICLE 250. 2. FOR UNMARKED CONDUIT RUNS, CONTRACTOR SHALL INSTALL REQUIRED NUMBER OF WIRES FOR POWER AND/OR CONTROL OF ELEMENTS IN CIRCUIT(S) SHOWN. SIZE OF WIRE SHALL BE NO. 12, UNLESS OTHERWISE NOTED OR REQUIRED BY CODE. 3. SIZE CONDUIT ACCORDING TO SPECIFICATIONS AND APPLICABLE CODE. 4. DASHED LINE INDICATE CONDUITS CONCEALED UNDERGROUND OR UNDERFLOOR. 5. SOLID HOME RUN INDICATES CONDUIT ABOVE CEILING IN FINISHED AREA, CONCEALED IN WALL OR EXPOSED IN PROCESS AND EQUIPMENT AREAS. ELECTRICAL CIRCUIT IDENTIFICATION, MULTIPLE ELECTRICAL CIRCUITS, SEPARATE CONDUITS, MULTIPLE ELECTRICAL CIRCUITS, COMMON CONDUIT (SIZE SHOWN).

P:\Projects\21-55-01\_MSA\_Port\_Orchard\_McCormick\_Well\_11\DWG\E-1.dwg E-1 9/23/2022 3:56 PM JANB 23.1s (LMS Tech)

Industrial Systems INC logo and address: 12119 NE 99th Street, Suite #2090, Vancouver, Washington 98682. Phone: (360) 718-7267. Fax: (360) 952-8958. e-mail: ig@industrialsystems-inc.com. CR CCB #198597 WA #INDUSS1880K9 AK #1018436 PROJECT#: 21.55.01

Table with columns: NO., DATE, BY, REVISION.

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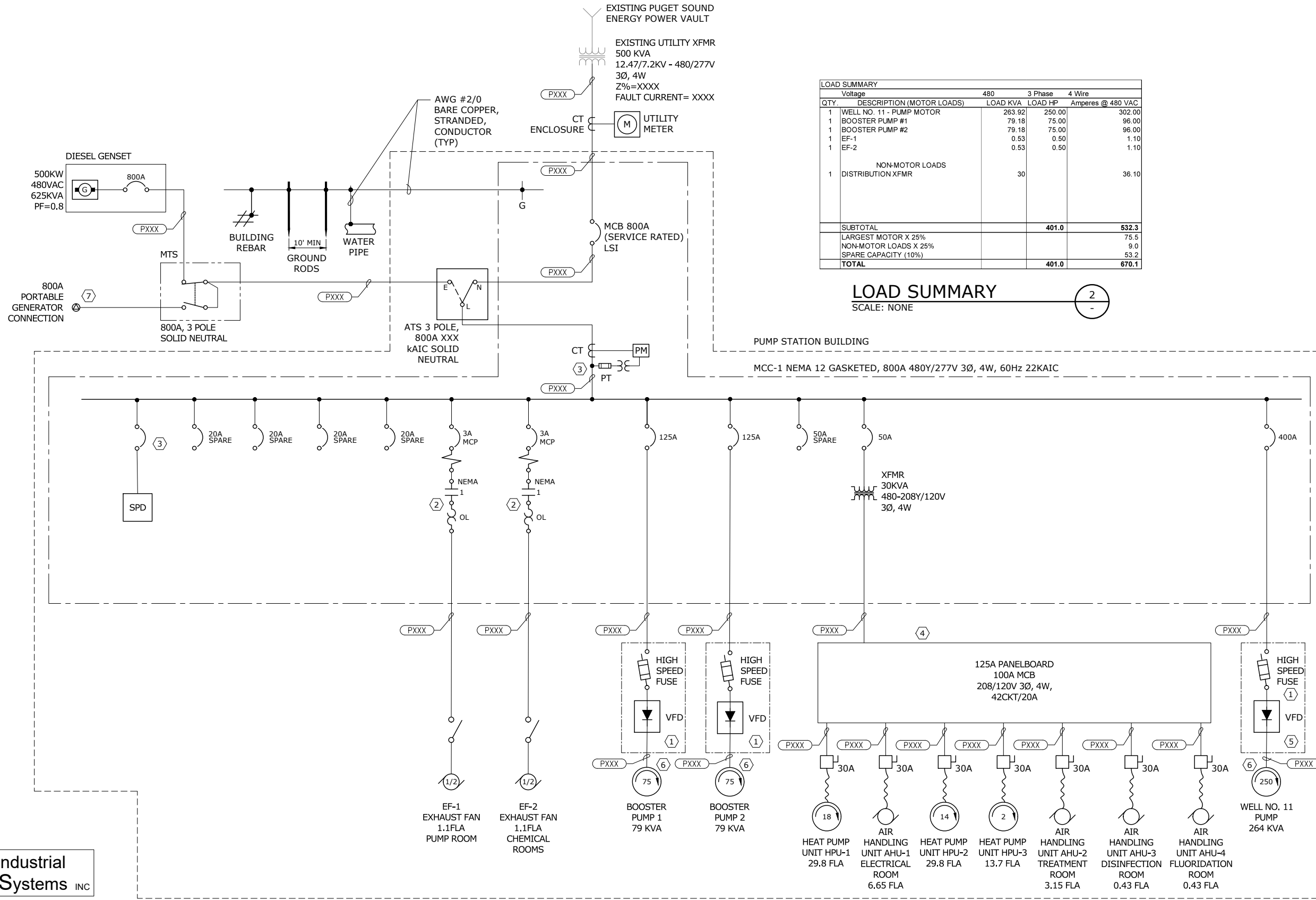
Port Orchard logo. CITY OF PORT ORCHARD MCCORMICK WOODS WELL NO. 11 AMENDMENT 2.

ELECTRICAL LEGEND, SYMBOLS AND ABBREVIATIONS. PROJECT NO.: 20-2839.01 SCALE: AS SHOWN DATE: March 2022

SHEET E-1 X of X

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LOAD SUMMARY				
Voltage		480	3 Phase	4 Wire
QTY.	DESCRIPTION (MOTOR LOADS)	LOAD KVA	LOAD HP	Amperes @ 480 VAC
1	WELL NO. 11 - PUMP MOTOR	263.92	250.00	302.00
1	BOOSTER PUMP #1	79.18	75.00	96.00
1	BOOSTER PUMP #2	79.18	75.00	96.00
1	EF-1	0.53	0.50	1.10
1	EF-2	0.53	0.50	1.10
NON-MOTOR LOADS				
1	DISTRIBUTION XFMR	30		36.10
SUBTOTAL			401.0	532.3
LARGEST MOTOR X 25%				75.5
NON-MOTOR LOADS X 25%				9.0
SPARE CAPACITY (10%)				53.2
TOTAL			401.0	670.1

**LOAD SUMMARY**  
SCALE: NONE

- KEY NOTES:**
- VFD'S FOR WELL NO. 11 AND BOOSTER PUMPS SHALL BE IGBT BASED ACTIVE FRONT END VFD'S.
  - EXHAUST FANS AND BUILDING INTAKE LOUVERS CONTROLLED BY SAME STARTER. REFER TO CONTROL DIAGRAM AND MANUFACTURERS INSTALLATION GUIDELINES FOR DETAILS ON CONTROL WIRING FOR PROPER OPERATION
  - OVERCURRENT PROTECTIVE DEVICES FOR SURGE PROTECTION DEVICE (SPD) AND POWER MONITORING (PM) SHALL BE SIZED BY EQUIPMENT MANUFACTURER.
  - SEE SHEET E-XX FOR PANEL SCHEDULE.
  - VFD FOR WELL NO. 11 PUMP SHALL INCLUDE A DVDT FILTER
  - CABLE FROM VFD TO PUMP SHALL BE SHIELDED VFD CABLE. SEE CIRCUIT SCHEDULE ON SHEET E-XX FOR MORE DETAILS.
  - PORTABLE GENERATOR CONNECTION SHALL USE 800A CAMLOCK CONNECTORS.

- GENERAL NOTES:**
- ONE-LINE DIAGRAM IS STRICTLY DIAGRAMMATIC. ARRANGEMENT OF EQUIPMENT IN MCC SECTIONS IS PER THE MANUFACTURER'S RECOMMENDATIONS.
  - COORDINATE SERVICE WITH PUGET SOUND ENERGY (PSE). CONTRACTOR TO COMPLY WITH ALL THE REQUIREMENTS OF PGE, REFERENCE THE LATEST EDITION OF "ELECTRICAL SERVICE HANDBOOK". REVIEW THIS DOCUMENT PRIOR TO BID AND INCLUDE ALL ASSOCIATED COSTS IN BID PRICE FOR A COMPLETE OPERABLE SYSTEM.

**UTILITY CONTACT INFORMATION:**  
CONTACT: JAMIE SILVERSON  
PHONE: (360) 353-6005  
EMAIL: JAMIE.SILVERSON@PSE.COM  
REF#: TBD

**ONE-LINE DIAGRAM**  
SCALE: NONE

**Industrial Systems INC**

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Suite #2090  
Vancouver, Washington 98682  
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CR CCB #198997 WA #INDUSS1880K9  
AK #1018436  
PROJECT#: 21.55.01

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**CITY OF PORT ORCHARD**  
**MCCORMICK WOODS**  
**WELL NO. 11**  
**AMENDMENT 2**

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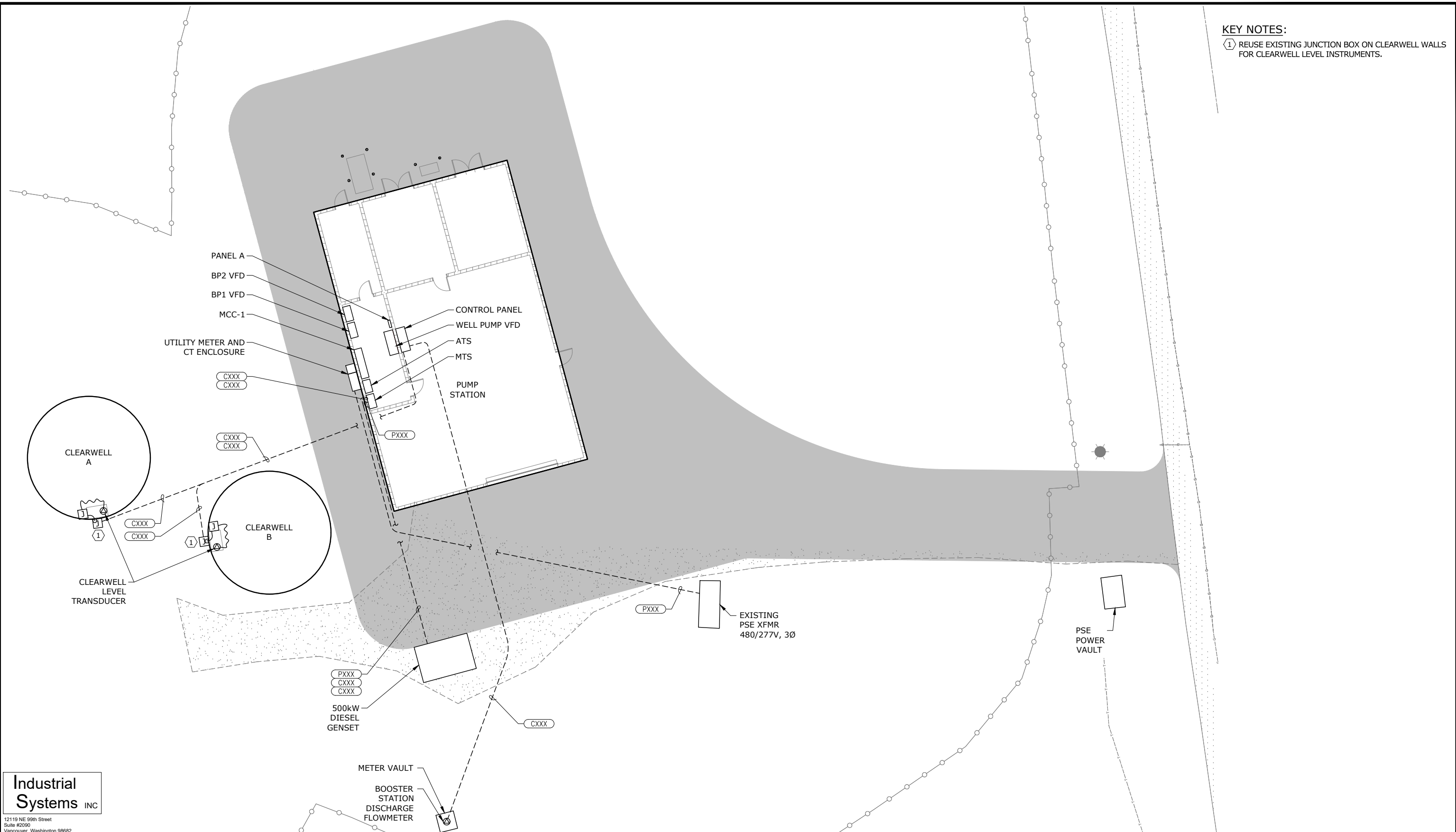
**ELECTRICAL**  
**ONE LINE DIAGRAM**  
**AND LOAD CALCULATION**

SHEET  
**E-2**  
X of X

PROJECT NO.: 20-2839.01 SCALE: AS SHOWN DATE: September 2022



**KEY NOTES:**  
 ① REUSE EXISTING JUNCTION BOX ON CLEARWELL WALLS FOR CLEARWELL LEVEL INSTRUMENTS.



P:\Projects\21-55-01\_MSA\_Port\_Orchard\_McCormick\_Well\_11\DWG\E-3.dwg E-3 9/23/2022 3:21 PM JANB 23.1s (LWS Tech)

**Industrial Systems INC**

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 CR CCB #198597 WA #INDUS1880K9  
 AK #1018436  
 PROJECT#: 21.55.01

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

**90% SUBMITTAL**

NO.	DATE	BY	REVISION

**NOTICE**  
 0 1/2 1  
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**Port ORCHARD**

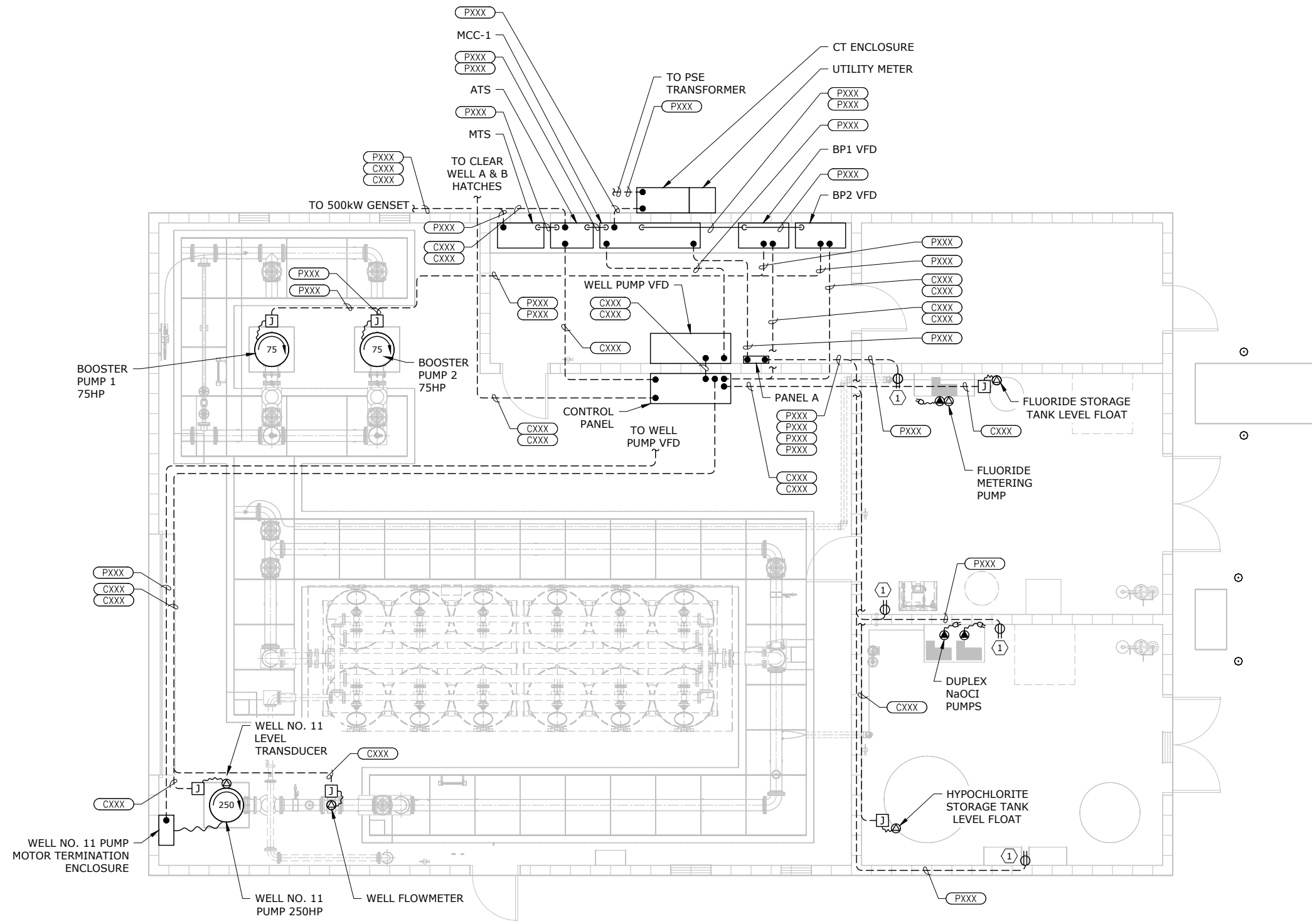
**CITY OF PORT ORCHARD  
 MCCORMICK WOODS  
 WELL NO. 11  
 AMENDMENT 2**

**ELECTRICAL  
 SITE PLAN**

PROJECT NO.: 20-2839.01 SCALE: AS SHOWN DATE: September 2022

SHEET  
**E-3**  
 X of X

KEY NOTES:  
 ① DEDICATED RECEPTACLES FOR CHEMICAL EQUIPMENT.



**ELECTRICAL AND CONTROL**  
 SCALE: 1/4"=1'-0"



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**WELL NO. 11**  
**AMENDMENT 2**

**ELECTRICAL AND CONTROL**  
**PUMP STATION BUILDING PLAN**

PROJECT NO.: 20-2839.01 SCALE: AS SHOWN DATE: September 2022

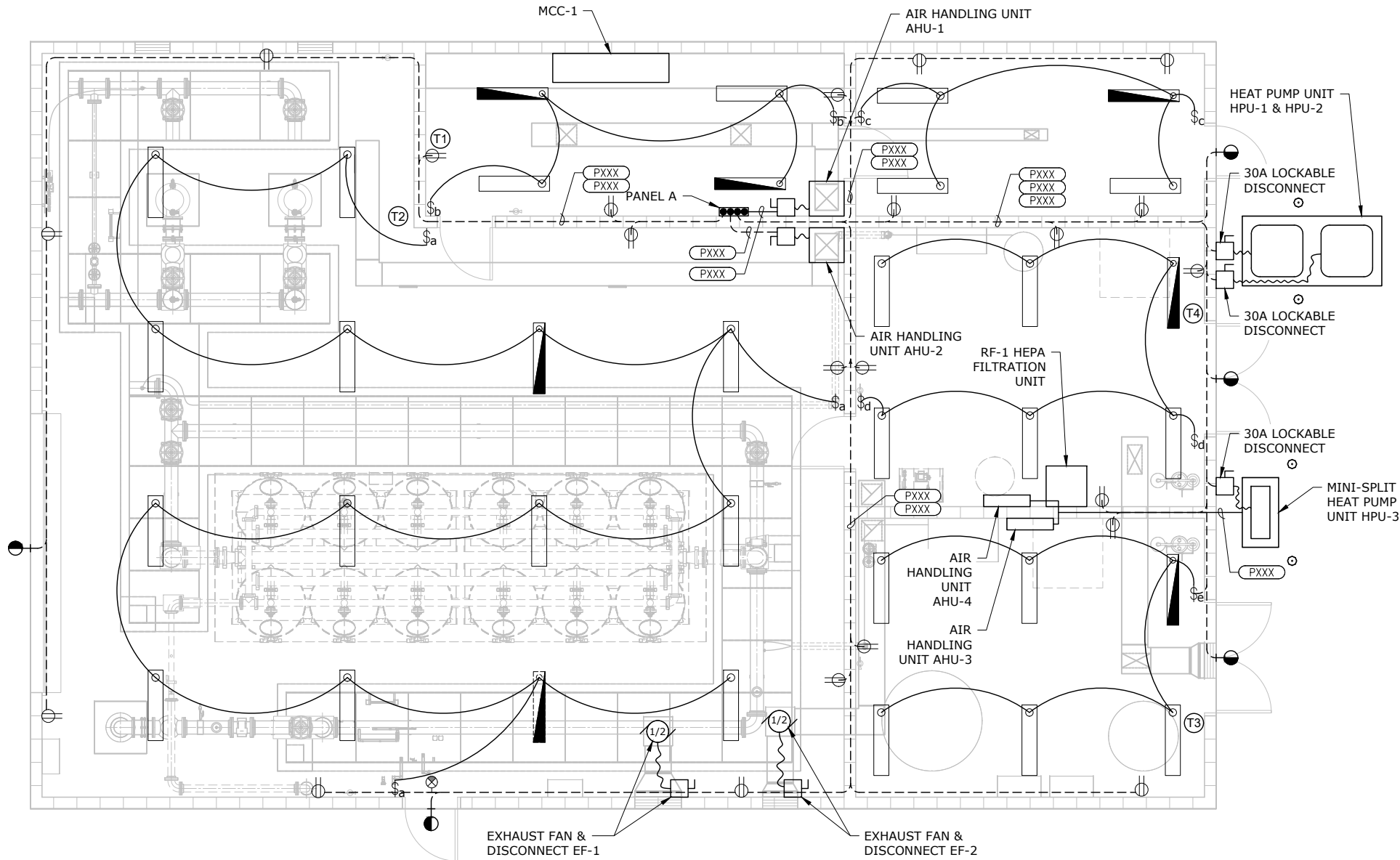
SHEET  
 E-4  
 X of X

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**GENERAL NOTES:**

- PURSUANT TO WAC C405.2 LIGHTING CONTROLS LIST OF EXCEPTIONS, LIGHTING CONTROLS ARE NOT REQUIRED FOR AREAS OF THIS FACILITY WHERE SUCH CONTROL WOULD IMPACT PRODUCTION AND SAFETY.

LIGHT FIXTURE, LUMINAIRE AND RECEPTACLE SCHEDULE				
DEVICE/LOCATION/USE	DESCRIPTION	VOLTS	WATTS	SUGGESTED MANUFACTURER & CATALOG NUMBER
BUILDING INTERIOR LIGHT	6000 LUMEN LED LUMINAIRE FEM SERIES 48"	120V	37.5	LITHONIA FEM L48 6000LM LPAQL MD 120 GZ10 40K 80CRI OR EQUAL
BUILDING INTERIOR LIGHT, BATTERY BACKED	6000 LUMEN LED LUMINAIRE FEM SERIES 48" WITH BUILT IN BATTERY BACKUP	120V	37.5	LITHONIA FEM L48 6000LM LPAQL MD 120 GZ10 40K 80CRI B66WCP OR EQUAL
WALL MOUNT LUMINAIRE LED TYPE INTERIOR/EXTERIOR	3,132 LUMEN LED LUMINAIRE WALL PACK DESIGN WITH BATTERY BACKUP	120V	18	LITHONIA WDGE2 LED P3 40K 80CRI T2M 120 SRM PE E10WH DBLXD OR EQUAL
CEILING MOUNTED EXIT SIGN	SELF-CONTAINED BATTERY EMERGENCY EXIT LIGHT FIXTURE RED EXIT SIGN	120V	1.0	LITHONIA EXR LED EL M6 OR EQUAL
WALL MOUNTED EXIT SIGN	SELF-CONTAINED BATTERY EMERGENCY EXIT LIGHT FIXTURE RED EXIT SIGN WALL MOUNT	120V	1.0	LITHONIA EXR LED EL M6 OR EQUAL
GFCI RECEPTACLE	RECEPTACLE, 20A, 120V, MOUNTED IN UL LISTED HOUSING	120V	-	HUBBELL STD RECEPTACLE HBL5362W OR EQUAL HUBBELL GFCI RECEPTACLE GFR5362SGW OR EQUAL WHEATHERPROOF HOUSING HUBBELL MX-3200 OR EQUAL
ON/OFF DIMMING SWITCH	NLIGHT ON/OFF RAISE/LOWER 3-WAY CAPABLE LIGHT SWITCH.	-	-	NLIGHT nPODMA DX
OCCUPANCY SENSOR	LITHONIA OCCUPANCY SENSOR 452 FT^2	-	-	LITHONIA CMR 9 P 347



**LIGHTING AND HVAC**  
SCALE: 1/4"=1'-0"

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**WELL NO. 11**  
**AMENDMENT 2**

**LIGHTING AND HVAC**  
**PUMP STATION BUILDING PLAN**

PROJECT NO.: 20-2839.01 SCALE: AS SHOWN DATE: September 2022

SHEET  
**E-5**  
X of X

**90% SUBMITTAL**

GENERAL NOTES:

- 1. NOT USED.

KEY NOTES:

- ① NOT USED.

ALL CIRCUITS ARE IDENTIFIED ON THE PLANS WITH THE DIAMOND SYMBOL. CONDUCTOR SIZES ARE BASED ON COPPER CONDUCTORS. CONDUIT SIZES ARE SHOWN FOR CASES WHEN CIRCUIT CONDUCTORS ARE RUN WITHOUT OTHER CIRCUITS. MULTIPLE CIRCUITS RUN IN COMMON CONDUITS ARE SHOWN ON PLANS AND SUPERSEDE THE BASIC CONDUIT SIZE SHOWN.

RACEWAY SIZES ARE IN INCHES WITH QUANTITIES IN EXCESS OF (1) SHOWN IN ADJACENT PARENTHESIS. CONDUCTOR CONFIGURATIONS ARE CODED AS FOLLOWS: P- FOR POWER CONDUCTORS, G- FOR GROUND CONDUCTORS, N- FOR NEUTRAL CONDUCTORS, C- FOR CONTROL CONDUCTORS, AND SP- FOR SPARE CONDUCTORS.

CIRCUITS REVISED SINCE LAST ISSUE ARE INDICATED BY AN ASTERISK(\*).

CIRCUIT NUMBER	FROM	TO	CONDUCTORS	RACEWAY	NOTES
PXXX	UTILITY TRANSFORMER	ELECTRICAL METER	PULL STRING	(3) 3"	FUTURE PSE 800A SERVICE UTILITY PROVIDED CONDUCTORS
PXXX	ELECTRICAL METER	800A MAIN BREAKER	(9) 300 KCMIL, P (3) 300 KCMIL, N	(3) 3"	
PXXX	800A MAIN BREAKER	AUTOMATIC TRANSFER SWITCH	(9) 300 KCMIL, P (3) 2/0 AWG, N (3) 2/0 AWG, G	(3) 3"	
PXXX	AUTOMATIC TRANSFER SWITCH	MANUAL TRANSFER SWITCH	(9) 300 KCMIL, P (3) 2/0 AWG, N (3) 2/0 AWG, G	(3) 3"	
PXXX	MANUAL TRANSFER SWITCH	GENERATOR	(9) 300 KCMIL, P (3) 2/0 AWG, N (3) 2/0 AWG, G	(3) 3"	
PXXX	AUTOMATIC TRANSFER SWITCH	MCC -1 POWER MONITOR	(9) 300 KCMIL, P (3) 2/0 AWG, N (3) 2/0 AWG, G	(3) 3"	
PXXX	MCC -1	WELL NO. 11 PUMP VFD	(6) 300 KCMIL, P (2) #3 AWG, G	(2) 2-1/2"	
PXXX	WELL NO. 11 PUMP VFD	WELL NO. 11 PUMP 250HP	VFD CABLE	(1) 1-1/4"	BELDEN 2935 VIA MOTOR TERMINATION ENCLOSURE
PXXX	MCC -1	BOOSTER PUMP 1 VFD	(3) #1 AWG, P (1) #6 AWG, G	(1) 1-1/4"	
PXXX	BOOSTER PUMP 1 VFD	BOOSTER PUMP 1 - 75HP	VFD CABLE	(1) 1-1/4"	BELDEN 29504 OR APPROVED EQUAL
PXXX	MCC -1	BOOSTER PUMP 2 VFD	(3) #1 AWG, P (1) #6 AWG, G	(1) 1-1/4"	
PXXX	BOOSTER PUMP 2 VFD	BOOSTER PUMP 2 - 75HP	VFD CABLE	(1) 1-1/4"	BELDEN 29504 OR APPROVED EQUAL
PXXX	MCC -1	EXHAUST FAN, EF - 1	(3) #14 AWG, P (1) #12 AWG, G	1/2"	
PXXX	MCC -1	EXHAUST FAN, EF - 2	(3) #14 AWG, P (1) #12 AWG, G	1/2"	
PXXX	30 KVA TRANSFORMER	PANEL A	(3) #1 AWG, P (1) #1 AWG, N (1) #6 AWG, G	1-1/2"	
PXXX	PANEL A	HEAT PUMP HPU-1	(3) #10 AWG, P (1) #10 AWG, G	3/4"	VIA 30A LOCAL DISCONNECT
PXXX	PANEL A	HEAT PUMP HPU-2	(3) #10 AWG, P (1) #10 AWG, G	3/4"	VIA 30A LOCAL DISCONNECT
PXXX	PANEL A	HEAT PUMP HPU-3	(2) #12 AWG, P (1) #12 AWG, G	1/2"	VIA 30A LOCAL DISCONNECT
PXXX	PANEL A	AIR HANDLING UNIT AHU-1	(3) #16 AWG, P (1) #14 AWG, G	1/2"	VIA 30A LOCAL DISCONNECT
PXXX	PANEL A	AIR HANDLING UNIT AHU-2	(3) #16 AWG, P (1) #14 AWG, G	1/2"	VIA 30A LOCAL DISCONNECT
PXXX	HEAT PUMP HPU-3	AIR HANDLING UNIT AHU-3 AIR HANDLING UNIT AHU-4	(3) #12 AWG, P (1) #12 AWG, G	1/2"	
PXXX	HEAT PUMP HPU-1	AIR HANDLING UNIT AHU-1	(2) #14 AWG, P (2) #14 AWG, C (1) #14 AWG, G	1/2"	
PXXX	PANEL A	FLUORIDE METERING PUMP	(2) #12 AWG, P (1) #12 AWG, G	1/2"	VIA DEDICATED RECEPTACLE
PXXX	PANEL A	DUPLEX CHLORINE METERING PUMP	(2) #12 AWG, P (1) #12 AWG, G	1/2"	VIA DEDICATED RECEPTACLE
PXXX	PANEL A	CHLORINE GENERATOR SKID	(2) #12 AWG, P (1) #12 AWG, G	1/2"	VIA DEDICATED RECEPTACLE
PXXX	PANEL A	FUTURE PERMANGANATE METERING PUMP	(2) #12 AWG, P (1) #12 AWG, G	1/2"	VIA DEDICATED RECEPTACLE

CIRCUIT NUMBER	FROM	TO	CONDUCTORS	RACEWAY	NOTES
PXXX	PANEL A	HEPA FILTRATION UNIT	(2) #12 AWG, P (1) #12 AWG, G	1/2"	VIA DEDICATED RECEPTACLE
PXXX	PANEL A	CONTROL PANEL	(2) #12 AWG, P (1) #12 AWG, G	1/2"	
PXXX	PANEL A	TREATMENT AREA LIGHTS	(2) #12 AWG, P (1) #12 AWG, G	1/2"	
PXXX	PANEL A	TREATMENT AREA WEST NORTH AND ELECTRICAL WEST RECEPTACLES	(2) #12 AWG, P (1) #12 AWG, G	1/2"	
PXXX	PANEL A	TREATMENT AREA EAST AND SOUTH RECEPTACLES	(2) #12 AWG, P (1) #12 AWG, G	1/2"	
PXXX	PANEL A	ELECTRICAL ROOM LIGHTS	(2) #12 AWG, P (1) #12 AWG, G	1/2"	
PXXX	PANEL A	STORAGE ROOM LIGHTS	(2) #12 AWG, P (1) #12 AWG, G	1/2"	
PXXX	PANEL A	ELECTRICAL ROOM EAST, SOUTH AND STORAGE ROOM NORTH RECEPTACLES	(2) #12 AWG, P (1) #12 AWG, G	1/2"	
PXXX	PANEL A	STORAGE SOUTH, FLUORIDE ROOM NORTH AND EAST RECEPTACLES	(2) #12 AWG, P (1) #12 AWG, G	1/2"	
PXXX	PANEL A	FLUORIDE ROOM LIGHTS	(2) #12 AWG, P (1) #12 AWG, G	1/2"	
PXXX	PANEL A	FLUORIDE ROOM WEST AND SOUTH RECEPTACLES	(2) #12 AWG, P (1) #12 AWG, G	1/2"	
PXXX	PANEL A	HYPOCHLORITE ROOM LIGHTS	(2) #12 AWG, P (1) #12 AWG, G	1/2"	
PXXX	PANEL A	HYPOCHLORITE ROOM RECEPTACLES	(2) #12 AWG, P (1) #12 AWG, G	1/2"	
PXXX	PANEL A	EXTERIOR BUILDING LIGHTS	(2) #12 AWG, P (1) #12 AWG, G	1/2"	
CXXX	AUTOMATIC TRANSFER SWITCH	GENERATOR	(2) #14 AWG, C	1/2"	GENSET ENGINE START
CXXX	CONTROL PANEL	AUTOMATIC TRANSFER SWITCH	(5) #14 AWG, C	3/4"	ATS EMERGENCY POWER ATS NORMAL POWER
CXXX	CONTROL PANEL	GENERATOR	(2) #14 AWG, C (1) #14 AWG, G	1/2"	GENERATOR RUNNING GENERATOR TROUBLE
CXXX	CONTROL PANEL	WELL NO. 11 PUMP VFD	(4) #14 AWG, C (4) #14 AWG, N (1) #14 AWG, G	3/4"	VFD CALL TO RUN, ENABLE VFD RUNNING, FAULT
CXXX	CONTROL PANEL	WELL NO. 11 PUMP VFD	(1) CAT6 (2) TSP #18 AWG	3/4"	ETHERNET/IP COMMUNICATION VFD REMOTE SPEED REFERENCE VFD SPEED FEEDBACK
CXXX	CONTROL PANEL	BOOSTER PUMP 1 VFD	(4) #14 AWG, C (4) #14 AWG, N (1) #14 AWG, G	3/4"	VFD CALL TO RUN, ENABLE VFD RUNNING, FAULT
CXXX	CONTROL PANEL	BOOSTER PUMP 1 VFD	(1) CAT6 (2) TSP #18 AWG	3/4"	ETHERNET/IP COMMUNICATION VFD REMOTE SPEED REFERENCE VFD SPEED FEEDBACK
CXXX	CONTROL PANEL	BOOSTER PUMP 2 VFD	(4) #14 AWG, C (4) #14 AWG, N (1) #14 AWG, G	3/4"	VFD CALL TO RUN, ENABLE VFD RUNNING, FAULT
CXXX	CONTROL PANEL	BOOSTER PUMP 2 VFD	(1) CAT6 (2) TSP #18 AWG	3/4"	ETHERNET/IP COMMUNICATION VFD REMOTE SPEED REFERENCE VFD SPEED FEEDBACK
CXXX	CONTROL PANEL	WELL FLOWMETER TRANSMITTER	(3) #14 AWG, P (4) #14 AWG, C (1) TSP #18 AWG	3/4"	WELL FLOW TOTALIZER PULSE
CXXX	CONTROL PANEL	BOOSTER DISCHARGE FLOWMETER TRANSMITTER	(3) #14 AWG, P (4) #14 AWG, C (1) TSP #18 AWG	1"	
CXXX	CONTROL PANEL	CLEARWELL A LEVEL TRANSDUCER	(1) TSP #18 AWG	1/2"	
CXXX	CONTROL PANEL	CLEARWELL B LEVEL TRANSDUCER	(1) TSP #18 AWG	1/2"	
CXXX	CONTROL PANEL	FLUORIDE STORAGE TANK	(1) TSP #18 AWG	1/2"	LOW LEVEL FLOAT SWITCH
CXXX	CONTROL PANEL	HYPOCHLORITE STORAGE TANK	(1) TSP #18 AWG	1/2"	LOW LEVEL FLOAT SWITCH

CIRCUIT SCHEDULES  
SCALE: NTS

1  
-

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AMENDMENT 2

ELECTRICAL SCHEDULES, 1

SHEET

E-6

X of X

NO.	DATE	BY	REVISION

PROJECT NO.: 20-2839.01 SCALE: AS SHOWN DATE: September 2022

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**GENERAL NOTES:**

1. NOT USED.

**KEY NOTES:**

- 1) NOT USED.

CKT NO	CIRCUIT DESCRIPTION	BREAKER POLES	AMPS	LOAD VA	PHASE	LOAD VA	BREAKER POLES	AMPS	CIRCUIT DESCRIPTION	CKT NO
1	LIGHTING - TREATMENT ROOM	1	15	525	A	225	1	15	LIGHTING - FLUORIDATION ROOM	2
3	LIGHTING - ELECTRICAL ROOM	1	15	150	B	225	1	15	LIGHTING - DISINFECTION ROOM	4
5	LIGHTING - STORAGE ROOM	1	15	150	C	90	1	15	LIGHTING - EXTERIOR	6
7	CHLORINE GENERATOR	1	15	180	A				SPARE	8
9	RECEPTACLES - TREATMENT WEST/NORTH ELECTRICAL WEST GFCI	1	15	180	B	180	1	15	RECEPTACLES - TREATMENT EAST/SOUTH GFCI	10
11	RECEPTACLES - ELECTRICAL EAST/SOUTH, STORAGE NORTH GFCI	1	15	180	C	1200	1	30	HEPA FILTRATION UNIT RF-1	12
13	FUTURE PERMANGANATE DOSING PUMP	1	15	180	A	1200				14
15	FLUORIDE DOSING PUMP	1	15	180	B	120	1	15	RECEPTACLES - STORAGE SOUTH, FLUORIDE NORTH, EAST GFCI	16
17	CONTROL PANEL CP-1	1	15	1440	C	180	1	15	RECEPTACLES -FLUORIDE WEST, SOUTH GFCI	18
19	SPARE				A	3099	2	30	HEAT PUMP HPU-2	20
21	HEAT PUMP HPU-1	2	30	3099	B	3099				22
23				3099	C				SPARE	24
25	RECEPTACLES - HYPOCHLORITE ROOM, GFCI	1	15	180	A	692	2	15	AIR HANDLING UNIT AHU-1	26
27	CHLORINE DOSING PUMP	1	15	180	B	692				28
29	HEAT PUMP HPU-3			1466	C	328	15	2	AIR HANDLING UNIT AHU-2	30
31	AIR HANDLING UNIT AHU-3	2	20	1466	A	328				32
33	AIR HANDLING UNIT AHU-4				B					34
35					C					36
37					A					38
39					B					40
41					C					42

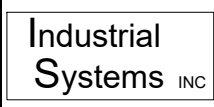
LOAD PER PHASE			AMPS PER PHASE		
PHASE A	8.1	KVA	PHASE A	67.29	0.000 0 AMPS
PHASE B	8.1	KVA	PHASE B	67.5417	0.000 0 AMPS
PHASE C	8.1	KVA	PHASE C	67.7767	0.000 0 AMPS

TOTAL LOAD	24.3	KVA
TOTAL AMPS	68	AMPS

**PANEL A - SCHEDULE**  
SCALE: NTS



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MCCORMICK WOODS  
WELL NO. 11  
AMENDMENT 2

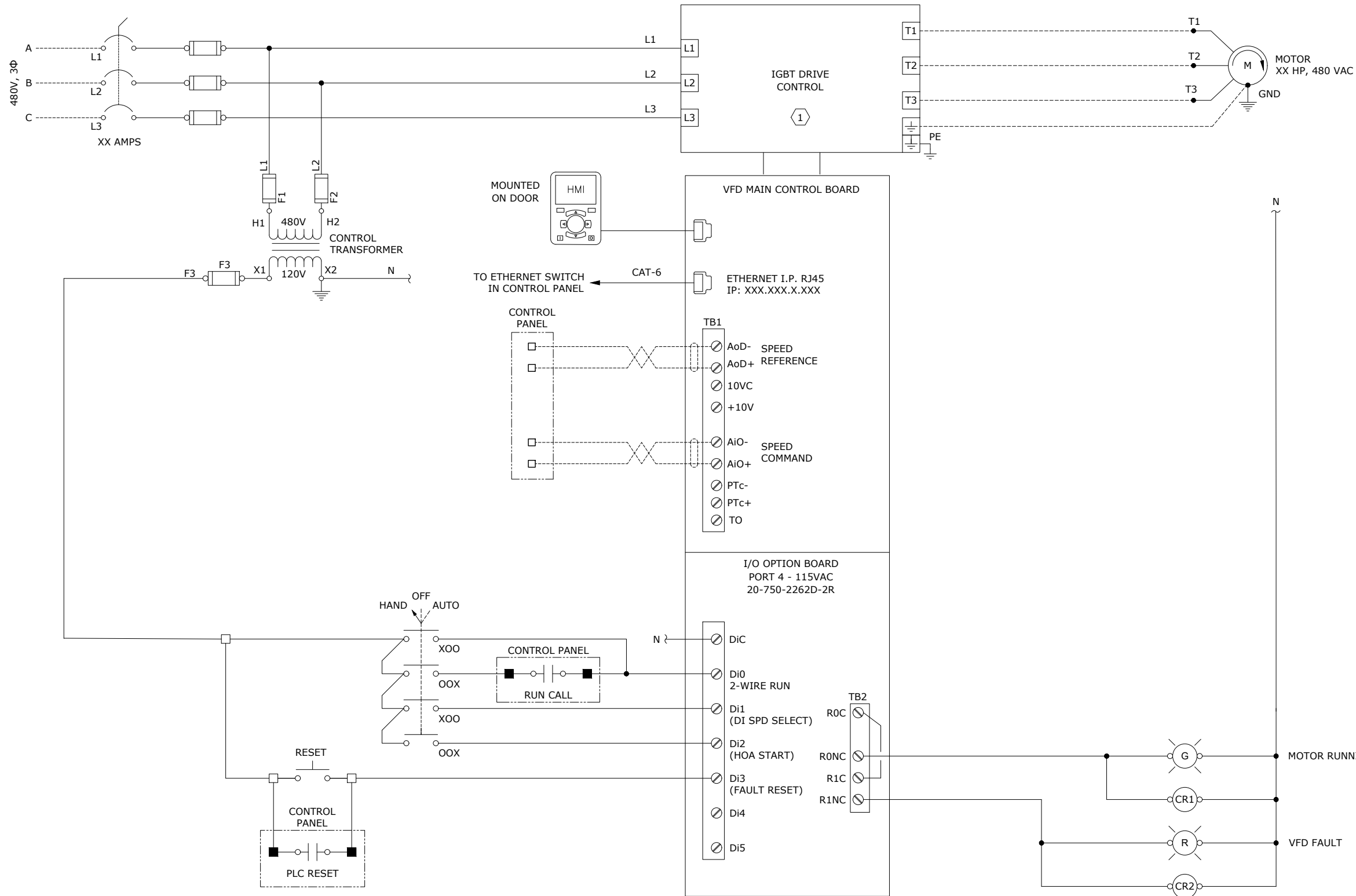
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**ELECTRICAL SCHEDULES, 2**

PROJECT NO.: 20-2839.01 SCALE: AS SHOWN DATE: September 2022

SHEET  
E-7  
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**KEY NOTES**

① MOV AND CM CAPACITOR JUMPERS SHIP INSTALLED. DAMAGE TO THE VFD CAN OCCUR IN UNGROUNDED SYSTEMS. REVIEW INSTALLATION MANUAL TO DETERMINE FINAL INSTALLATION.

**TERMINAL LEGEND**

- TERMINAL IN STARTER
- TERMINAL IN PLC CONTROL PANEL

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**VFD WIRING DIAGRAM - WELL & BOOSTER PUMPS (TYP. 3)** ①  
 SCALE: NONE

**90% SUBMITTAL**

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**Port ORCHARD**  
 CITY OF PORT ORCHARD  
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 WELL NO. 11  
 AMENDMENT 2

**ELECTRICAL**  
**MOTOR CONTROL DIAGRAMS**

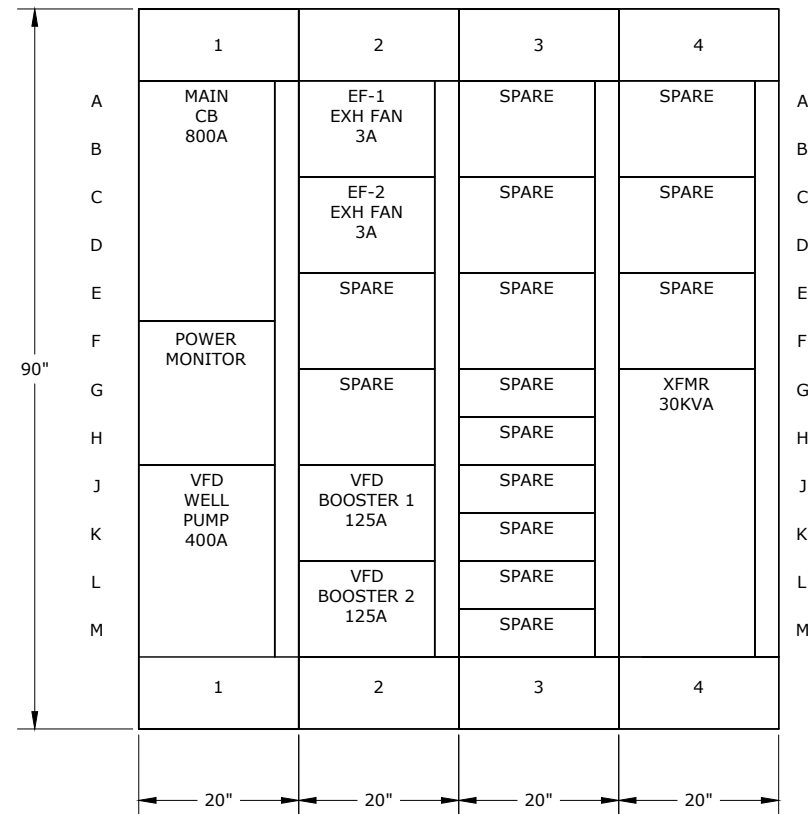
PROJECT NO.: 20-2839.01 SCALE: AS SHOWN DATE: June 2022

**GENERAL NOTES:**

1. NOT USED.

**KEY NOTES:**

1. NOT USED.



**MCC-1 ELEVATION**  
SCALE: 1"=1'-0"



P:\Projects\21-55-01\_MSA\_Port\_Orchard\_McCormick\_Well\_11\DWG\E-10.dwg E-10 9/20/2022 11:46 AM JAMB 23.1s (LMS Tech)

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AK #1018436  
PROJECT#: 21.55.01

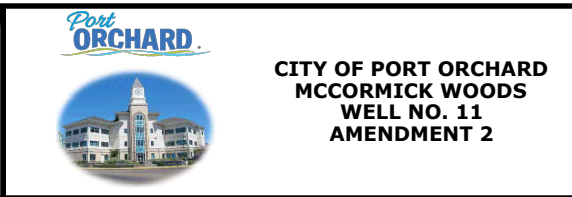
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NO.	DATE	BY	REVISION

**NOTICE**  
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**ELECTRICAL  
ELEVATIONS AND DETAILS**  
PROJECT NO.: 20-2839.01 SCALE: AS SHOWN DATE: June 2022

SHEET  
**E-10**  
X of X

**GENERAL INSTRUMENT SYMBOLS**

LOCATION/ACCESSIBILITY	DISCRETE INSTRUMENTS	SHARED DISPLAY AND CONTROL (DCS)	PLC	DISCRETE HARDWARE INTERLOCK
<b>FIELD MOUNTED</b> 1. FIELD OR LOCALLY MOUNTED. 2. ACCESSIBLE TO AN OPERATOR AT DEVICE.				
<b>PRIMARY LOCATION NORMALLY ACCESSIBLE TO AN OPERATOR</b> 1. CENTRAL OR MAIN CONTROL ROOM. 2. FRONT OF MAIN PANEL OR CONSOLE MOUNTED. 3. VISIBLE ON VIDEO DISPLAY. 4. ACCESSIBLE TO AN OPERATOR AT DEVICE OR CONSOLE.				
<b>PRIMARY LOCATION NORMALLY INACCESSIBLE TO AN OPERATOR</b> 1. CENTRAL OR MAIN CONTROL ROOM. 2. REAR OF PANEL OR CABINET MOUNTED. 3. NOT VISIBLE ON VIDEO DISPLAY. 4. NOT NORMALLY ACCESSIBLE TO AN OPERATOR AT DEVICE OR CONSOLE.				
<b>AUXILIARY LOCATION NORMALLY ACCESSIBLE TO AN OPERATOR</b> 1. SECONDARY OR LOCAL CONTROL ROOM. 2. FIELD OR LOCAL CONTROL PANEL. 3. FRONT OF SECONDARY OR LOCAL PANEL MOUNTED. 4. VISIBLE ON VIDEO DISPLAY.				
<b>AUXILIARY LOCATION NORMALLY INACCESSIBLE TO AN OPERATOR</b> 1. SECONDARY OR LOCAL CONTROL ROOM. 2. FIELD OR LOCAL CONTROL PANEL. 3. REAR OF SECONDARY OR LOCAL PANEL OR CABINET MOUNTED. 4. NOT VISIBLE ON VIDEO DISPLAY. 5. NOT NORMALLY ACCESSIBLE TO AN OPERATOR AT DEVICE OR CONSOLE.				

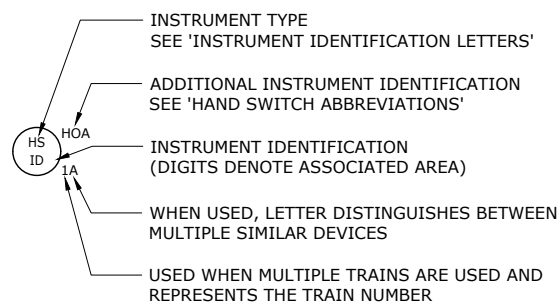
**ABBREVIATIONS**

AG ABOVE GROUND	LO LOCKED OPEN
ATM ATMOSPHERE	LP LOW PRESSURE
BYP BYPASS	LPT LOW POINT
CC CHEMICAL CLEANOUT	MTL MATERIAL
CL CENTERLINE	MAX MAXIMUM
CO CLEANOUT	MCC MOTOR CONTROL CENTER
CONN CONNECTION	MCP MAIN CONTROL PANEL
CVLS CHECK VALVE LIMIT SWITCH	MIN MINIMUM
CTR CENTER	MOV MOTOR OPERATED VALVE
DCS DISTRIBUTED CONTROL SYSTEM	MW MANWAY
DES DESIGN	NC NORMALLY CLOSED
DIA DIAMETER	NNF NORMALLY NO FLOW
DP DESIGN PRESSURE	NO NORMALLY OPEN
D/P DIFFERENTIAL PRESSURE	NOZ NOZZLE
DRN DRAIN	O/C OPEN/CLOSE
DT DESIGN TEMPERATURE	O/O ON/OFF
DWG DRAWING	OIT OPERATOR INTERFACE TERMINAL
(E) EXISTING	OP OUTPUT
EL ELEVATION	OVHD OVERHEAD
ESD EMERGENCY SHUTDOWN	PLC PROGRAMMABLE LOGIC CONTROLLER
FOF FACE OF FLANGE	PRESS PRESSURE
(F) FURNISHED	PV PROCESS VARIABLE
FC FAIL CLOSED	(R) RELOCATED
FI FAIL INDETERMINATE	REQD REQUIRED
FL FAIL LOCKED (LAST POSITION)	RIO REMOTE I/O PANEL
FLG FLANGE	RTD RESISTANCE TEMPERATURE DETECTOR
FO FAIL OPEN	SC SAMPLE CONNECTION
FP FULL PORT	SCADA SUPERVISORY CONTROL AND DATA ACQUISITION
FV FULL VACUUM	SCH SCHEDULE
GO GEAR OPERATED	SCH SCHEDULE
GR GRADE	SD SHUTDOWN
HC HOSE CONNECTION	SG SPECIFIC GRAVITY
HDR HEADER	SIS SAFETY INSTRUMENTED SYSTEM
HH HAND HOLE	SO STEAM OUT
HOA HAND/OFF/AUTOMATIC	SP SET POINT
HP HIGH PRESSURE	SS STAINLESS STEEL S/S or START/STOP
HPT HIGH POINT	STD STANDARD
IAS INSTRUMENT AIR SUPPLY	T/C THERMOCOUPLE
LC LOCKED CLOSED	TDH TOTAL DIFFERENTIAL HEAD
LCP LOCAL CONTROL PANEL	TEMP TEMPERATURE
	THRD THREADED
	TSO TIGHT SHUT-OFF
	TYP TYPICAL
	UG UNDERGROUND
	VNT VENT
	VAC VACUUM
	VB VORTEX BREAKER
	VFD VARIABLE FREQUENCY DRIVE
	W/ WITH
	W/O WITHOUT

**INSTRUMENT IDENTIFICATION LETTERS**

	FIRST LETTER		SUCCEEDING LETTERS		
	MEASURED OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A	ANALYSIS		ALARM		
B	BURNER, FLAME, COMBUSTION		USER'S CHOICE	USER'S CHOICE	USER'S CHOICE
C	USER'S CHOICE (TYPICALLY CONDUCTIVITY - ELECTRICAL)			CONTROL, COMMAND	CLOSED
D	USER'S CHOICE (TYPICALLY DENSITY OR SPECIFIC GRAVITY)	DIFFERENTIAL			DIVERT
E	VOLTAGE		SENSOR (PRIMARY ELEMENT)		
F	FLOW RATE	RATIO (FRACTION)			
G	USER'S CHOICE OR GAUGING (DIMENSIONAL)		GLASS, VIEWING DEVICE		
H	HAND				HIGH
I	CURRENT (ELECTRICAL)		INDICATE		
J	POWER	SCAN			
K	TIME, TIME SCHEDULE	TIME RATE OF CHANGE		CONTROL STATION	
L	LEVEL		LIGHT		LOW
M	USER'S CHOICE (TYPICALLY MOISTURE OR HUMIDITY)	MOMENTARY			MIDDLE, INTERMEDIATE
N	USER'S CHOICE		USER'S CHOICE	USER'S CHOICE	USER'S CHOICE
O	USER'S CHOICE		ORIFICE, RESTRICTION		OPEN
P	PRESSURE, VACUUM		POINT (TEST) CONNECTION		
Q	QUANTITY OR HEAT DUTY	INTEGRATE, TOTALIZE			
R	RADIATION		RECORD		
S	SPEED, FREQUENCY	SAFETY		SWITCH	
T	TEMPERATURE			TRANSMIT	THROUGH
U	MULTIVARIABLE		MULTIFUNCTION	MULTIFUNCTION	MULTIFUNCTION
V	VIBRATION, MECHANICAL ANALYSIS			VALVE, DAMPER, LOUVER	
W	WEIGHT, FORCE, TORQUE		WELL		
X	UNCLASSIFIED	X AXIS	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED
Y	EVENT, STATE OR PRESENCE	Y AXIS		RELAY, COMPUTE, CONVERT	
Z	POSITION, DIMENSION	Z AXIS		DRIVER, ACTUATOR, UNCLASSIFIED FINAL CONTROL ELEMENT	

**TYPICAL INSTRUMENT TAG NUMBERS & DESIGNATION**



**HAND SWITCH ABBREVIATIONS**

AO = AUTO/OFF	LOS = LOCKOUT/STOP
AM = AUTO/MANUAL	LA = LOCAL/AUTO
CM = COMPUTER/MANUAL	LR = LOCAL/REMOTE
CL = COMPUTER LOCAL	OC = OPEN/CLOSE
ES = EMERGENCY STOP	OCA = OPEN/CLOSE/AUTO
FR = FORWARD/REVERSE	OO = ON/OFF
FOR = FORWARD/OFF/REVERSE	OOA = ON/OFF/AUTO
FS = FAST/SLOW	OSC = OPEN/STOP/CLOSE
FOS = FAST/OFF/SLOW	RES = RESET
HA = HAND/AUTO	RF = RUN/FAULT
HIM = HUMAN INTERFACE MODULE	RSL = RAISE/STOP/LOWER
HOA = HAND/OFF/AUTOMATIC	SS = START/STOP
LLS = LEAD/LAG/STANDBY	SOR = START/OFF/RESET
LOC = LOCAL/OFF/COMPUTER	V/B = VFD/BYPASS
LOR = LOCAL/OFF/REMOTE	

**PIPING LINE SYMBOLS**

PRIMARY (AG & UG)	
SECONDARY / UTILITY (AG & UG)	
FUTURE OR EXISTING ON NEW P&IDs	
JACKETED OR DOUBLE CONTAINMENT	

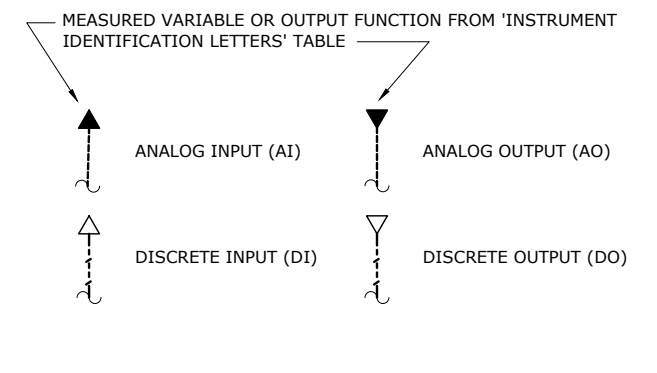
**INSTRUMENT LINE SYMBOLS**

INSTRUMENT SUPPLY OR CONNECTION TO PROCESS	
PNEUMATIC SIGNAL	
ELECTRIC SIGNAL (ANALOG)	
ELECTRIC SIGNAL (DISCRETE)	
HYDRAULIC SIGNAL	
CAPILLARY TUBE	
ELECTROMAGNETIC, SONIC, OPTICAL, OR NUCLEAR SIGNAL	
SOFTWARE OR DATA LINK	
MECHANICAL LINK	

**OFF-PAGE CONNECTORS AND TIE-IN SYMBOL**

A. OFF-PLOT CONNECTOR	
B. PRIMARY/SECONDARY LINES AND INSTRUMENT SIGNAL CONNECTOR	
C. UTILITY CONNECTOR	
D. TIE-IN SYMBOL	

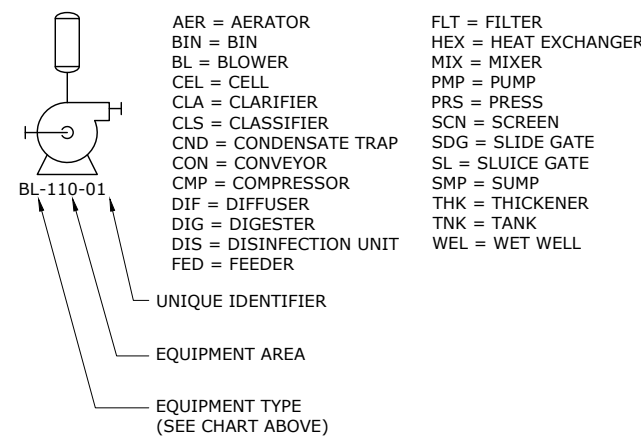
**INPUT / OUTPUT SIGNALS**



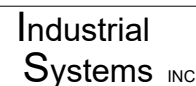
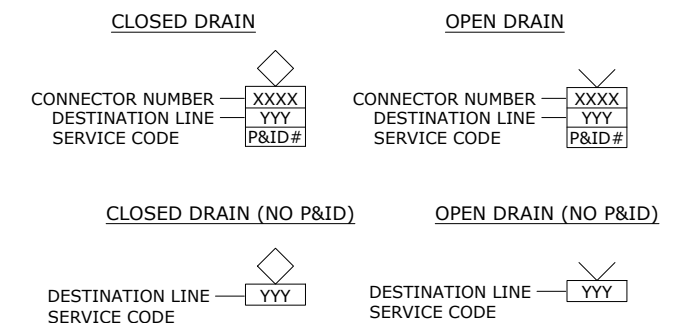
**FLOW STREAM IDENTIFIERS**

ABE = AERATION BASIN EFFLUENT	PI = PRIMARY INFLUENT
BD = BASIN DRAIN	PLE = PLANT EFFLUENT
CS = COMBINED SLUDGE	PS = PRIMARY SLUDGE
CAS = CAUSTIC SODA	RAS = RETURN ACTIVATED SLUDGE
DR = DRAIN	RS = RAW SEWAGE
DS = DIGESTER SOLIDS	SSL = SECONDARY SLUDGE
FBW = FILTER BACKWASH	SCM = SCUM
FE = FINAL EFFLUENT	SSCM = SECONDARY SCUM
GR = GRIT	SCRN = SCREENINGS
ICE = INTERMEDIATE CLARIFIER EFFLUENT	SE = SECONDARY EFFLUENT
LPA = LOW PRESSURE AIR	TE = TERTIARY EFFLUENT
ML = MIXED LIQUOR	TWAS = THICKENED WASTE ACTIVATED SLUDGE
NPW = NON POTABLE WATER	UW = UTILITY WATER
PE = PRIMARY EFFLUENT	WAS = WASTE ACTIVATED SLUDGE

**TYPICAL EQUIPMENT TAG NUMBERS & DESIGNATION**

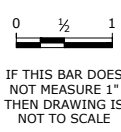


**DRAIN CONNECTORS**



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PROJECT#: 21.55.01

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**WELL NO. 11**  
**AMENDMENT 2**

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**LEGENDS, SYMBOLS AND**  
**ABBREVIATIONS 1**

SHEET

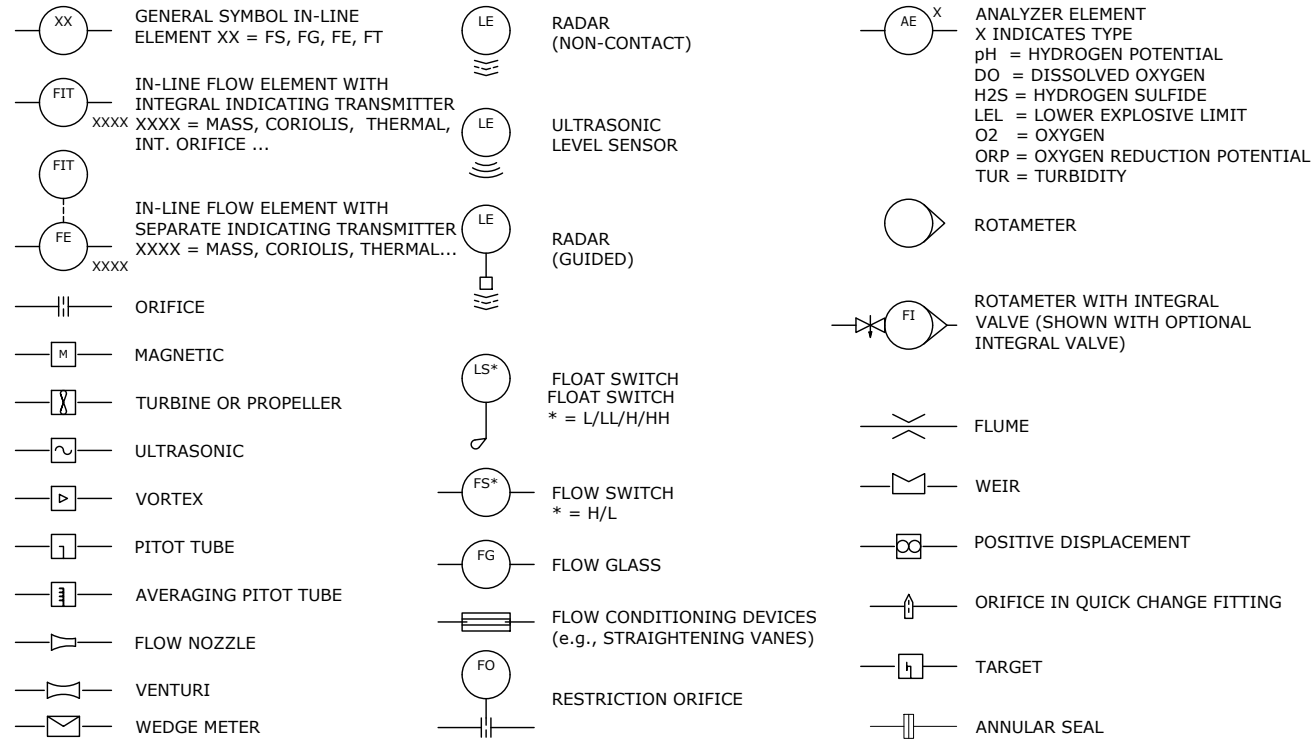
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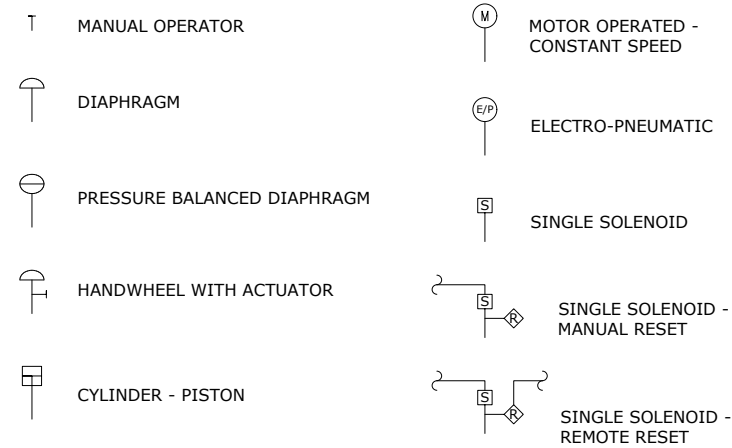
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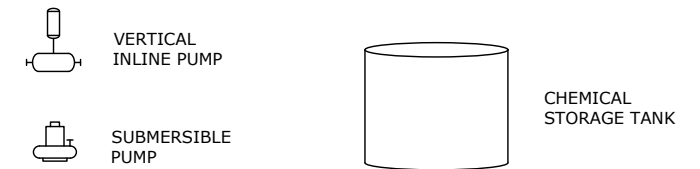
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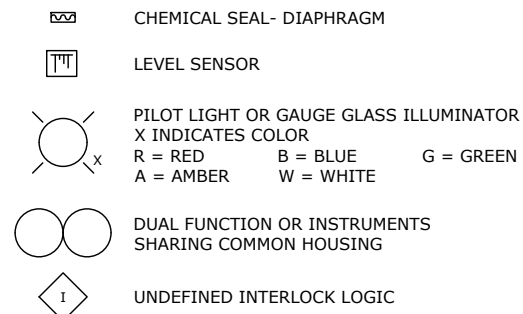
**CONTROL VALVE ACTUATOR SYMBOLS**



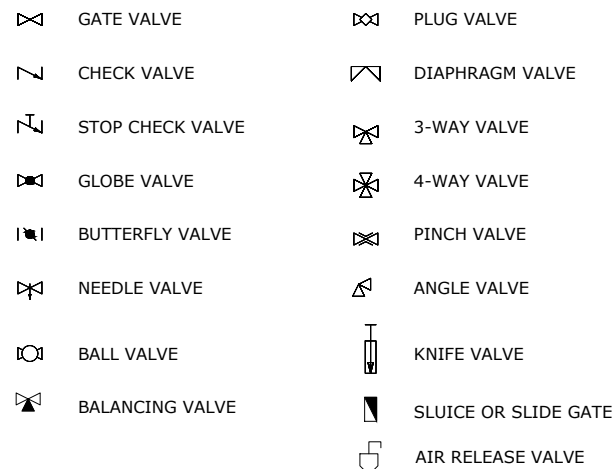
**PROCESS EQUIPMENT**



**MISCELLANEOUS INSTRUMENT SYMBOLS**



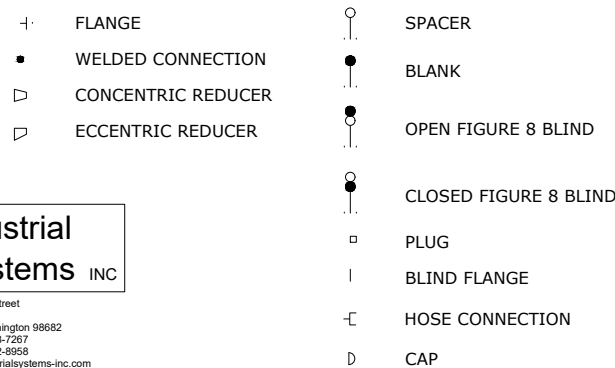
**VALVE SYMBOLS (N.C. WHEN SHADED)**



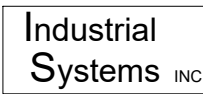
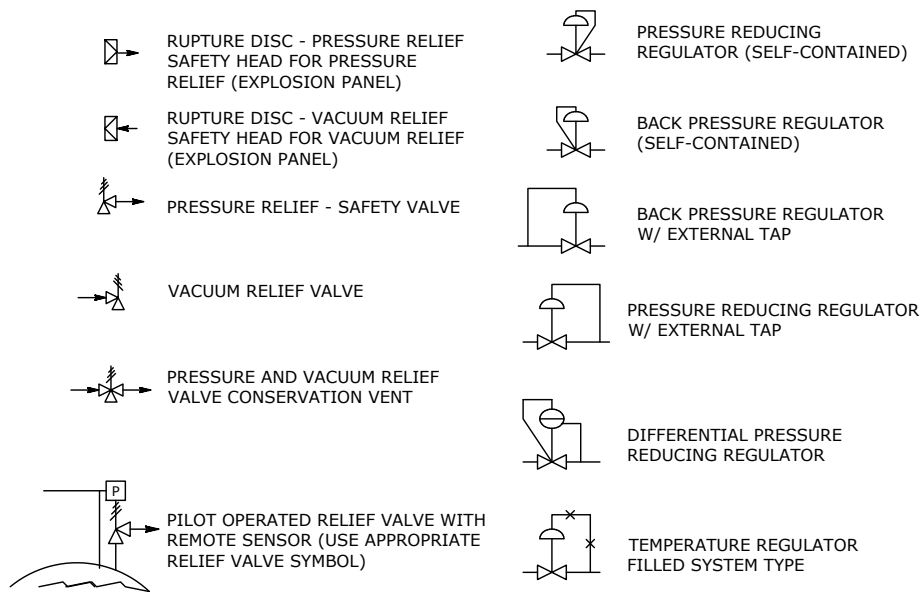
**PIPING SPECIALTY ITEMS**



**PIPING FITTINGS**



**SELF-ACTUATED DEVICES**



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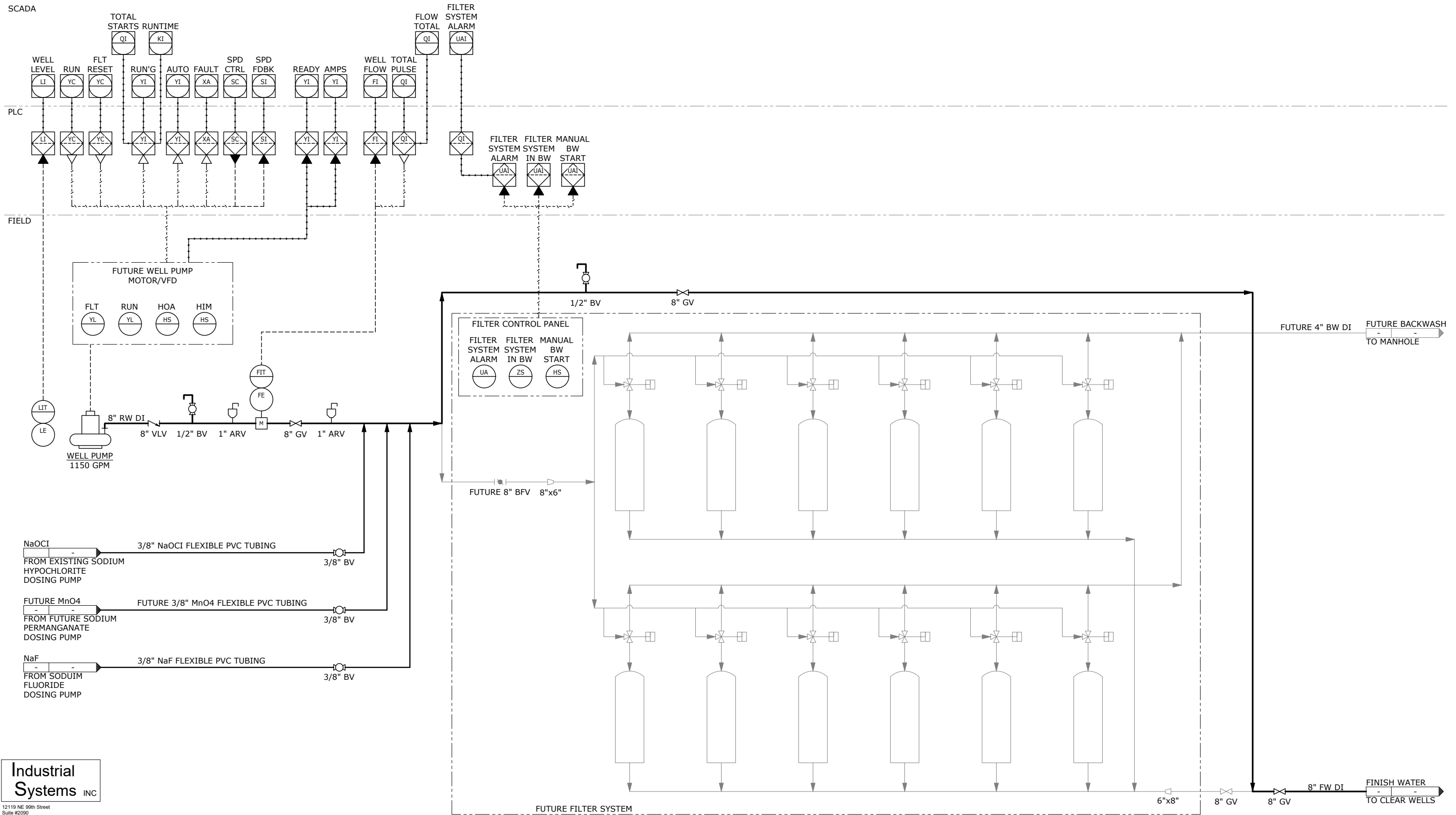
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**LEGENDS, SYMBOLS AND ABBREVIATIONS 2**

PROJECT NO.: 20-2839.01 SCALE: AS SHOWN DATE: September 2022

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 PROJECT NO.: 20-2839.01 SCALE: AS SHOWN DATE: July 2022

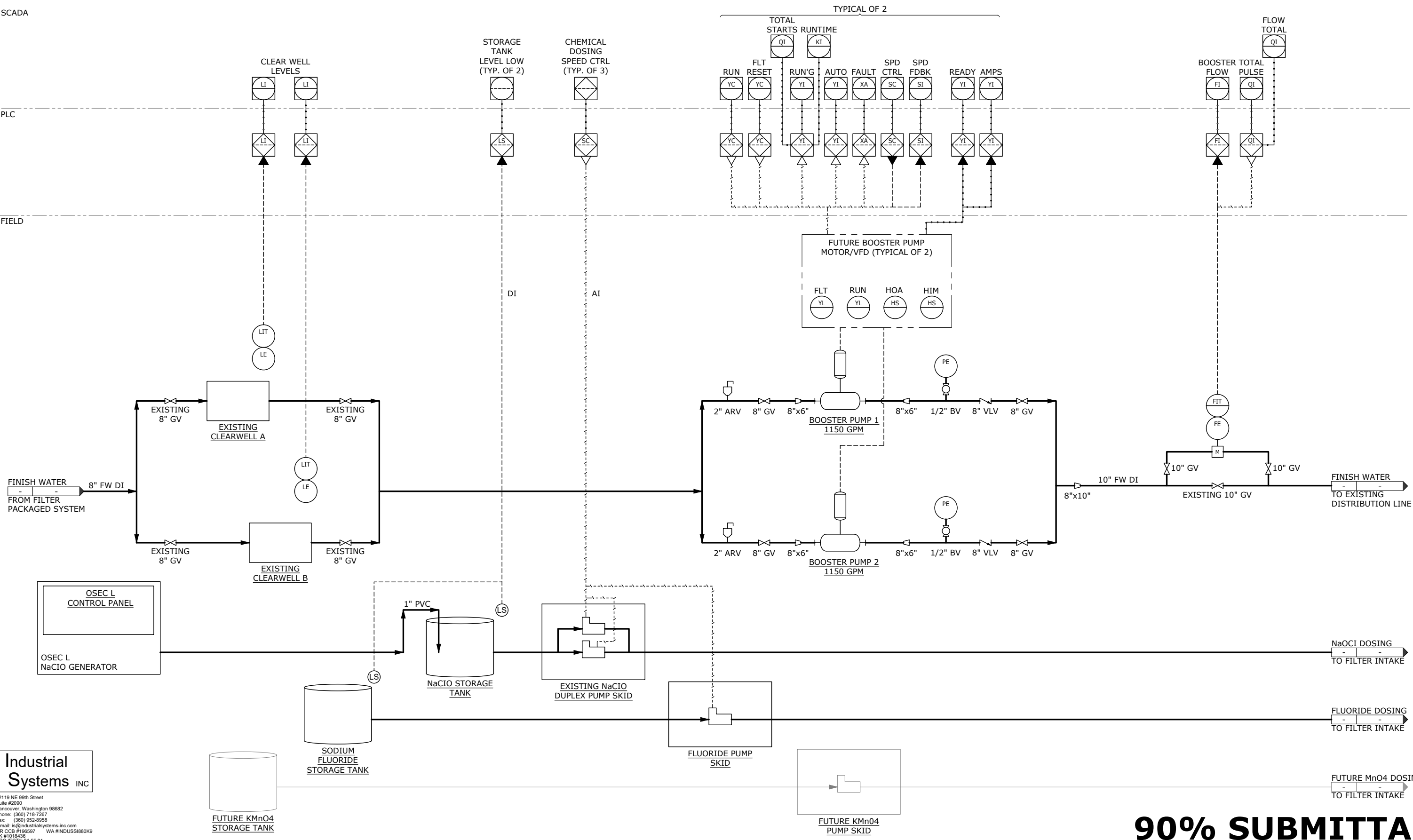
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NO.	DATE	BY	REVISION

SCADA

PLC

FIELD



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FUTURE KMnO4 STORAGE TANK

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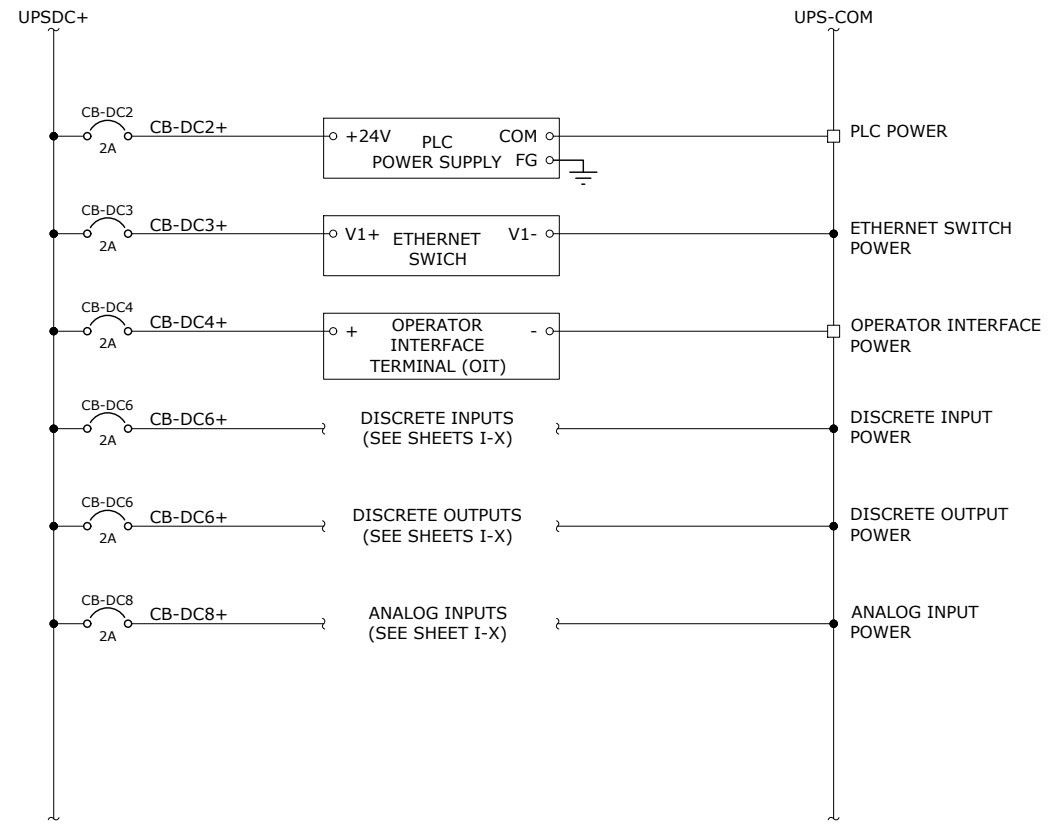
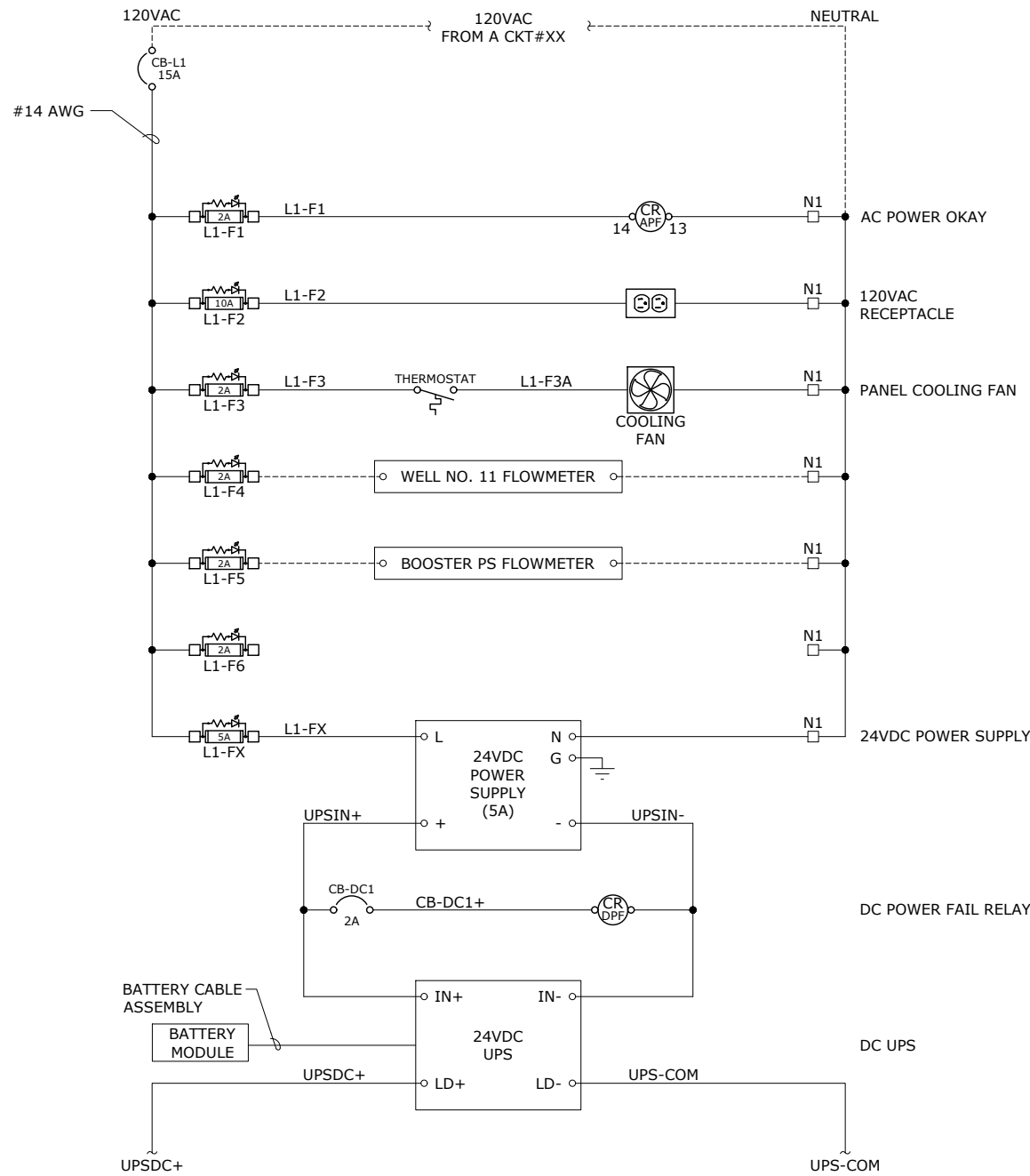
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SHEET 2**

SHEET  
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X of X

NO.	DATE	BY	REVISION

PROJECT NO.: 20-2839.01 SCALE: AS SHOWN DATE: June 2022

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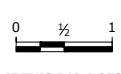
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**CONTROL PANEL POWER DIAGRAM** 1

SCALE: NTS

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**CONTROL PANEL  
POWER DISTRIBUTION**

SHEET

I-6

X of X

PROJECT NO.: 20-2839-01 SCALE: AS SHOWN DATE: September 2022

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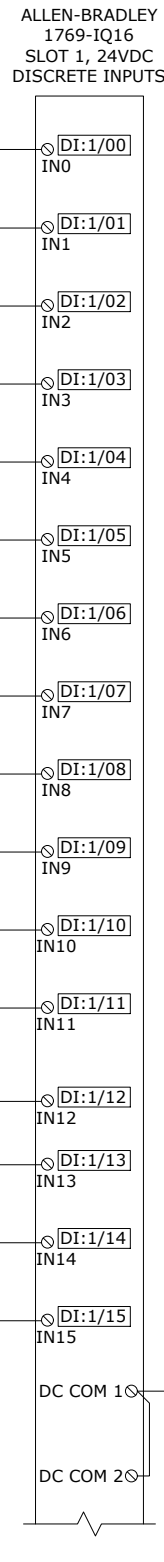
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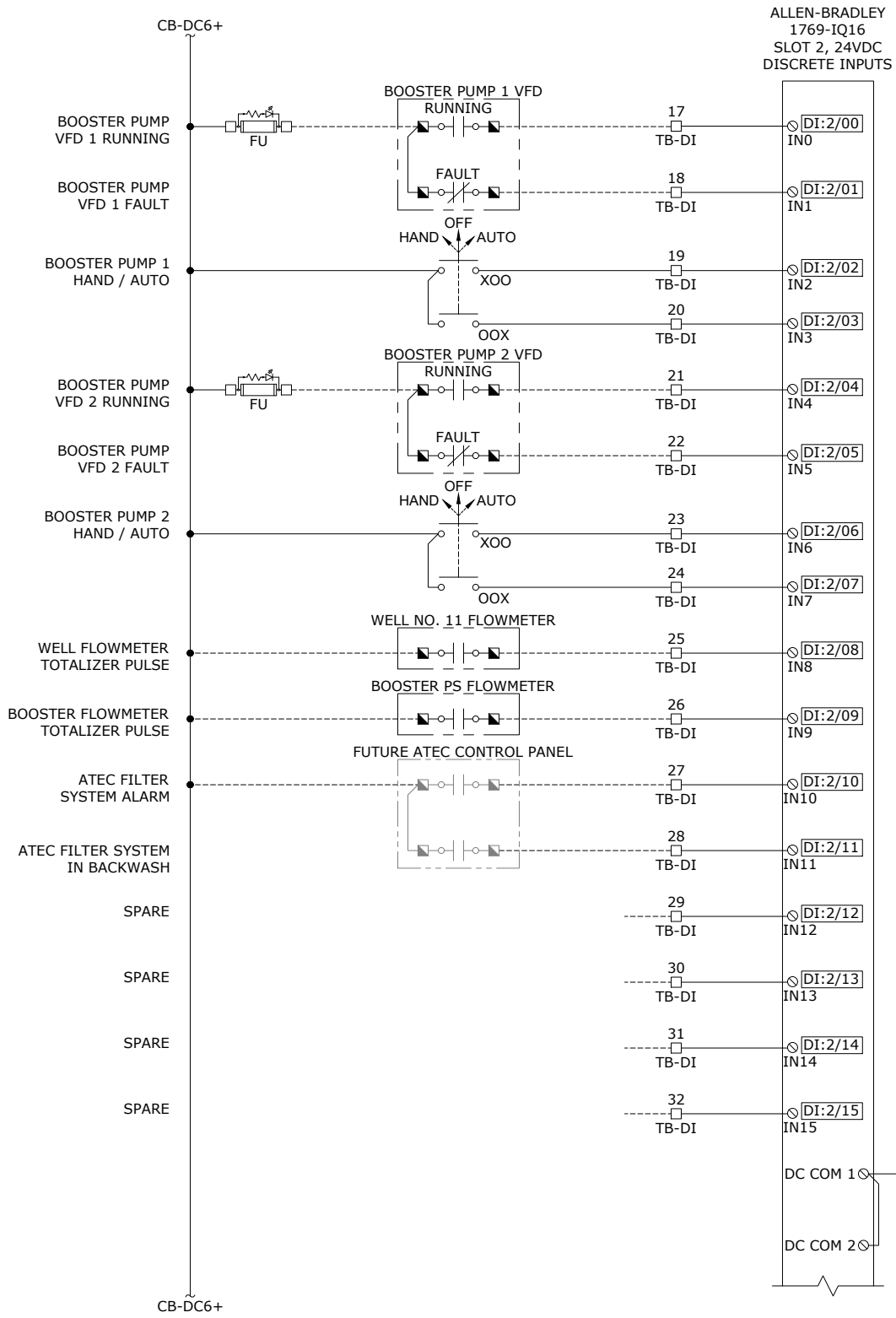
**DISCRETE INPUTS MODULE 1**  
 SCALE: NTS

1  
-



**DISCRETE INPUTS MODULE 2**  
 SCALE: NTS

2  
-



**KEY NOTES**  
 ① NOT USED.

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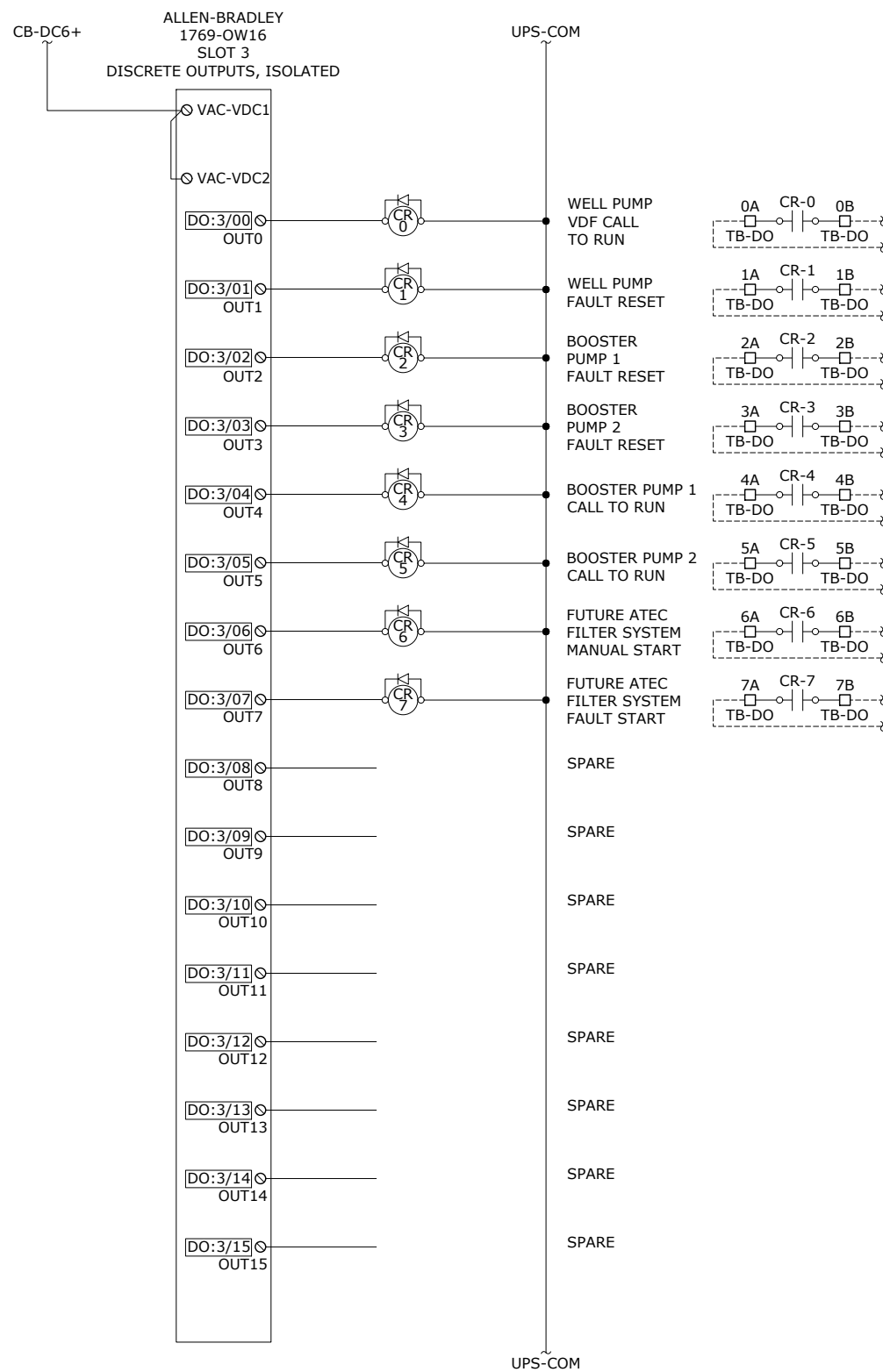
**CITY OF PORT ORCHARD**  
**MCCORMICK WOODS**  
**WELL NO. 11**  
**AMENDMENT 2**

**CONTROL PANEL**  
**I/O WIRING 1**

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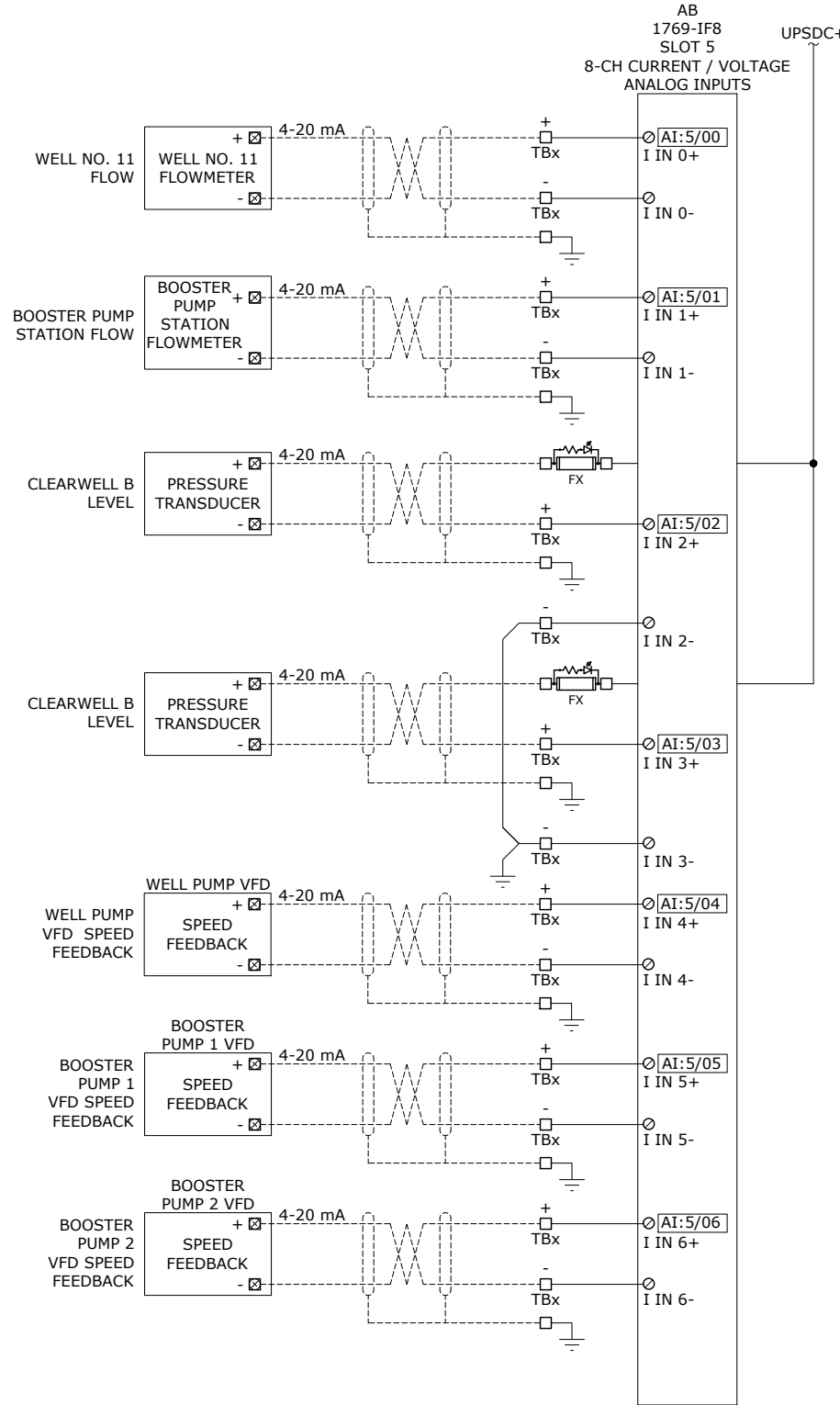
SHEET  
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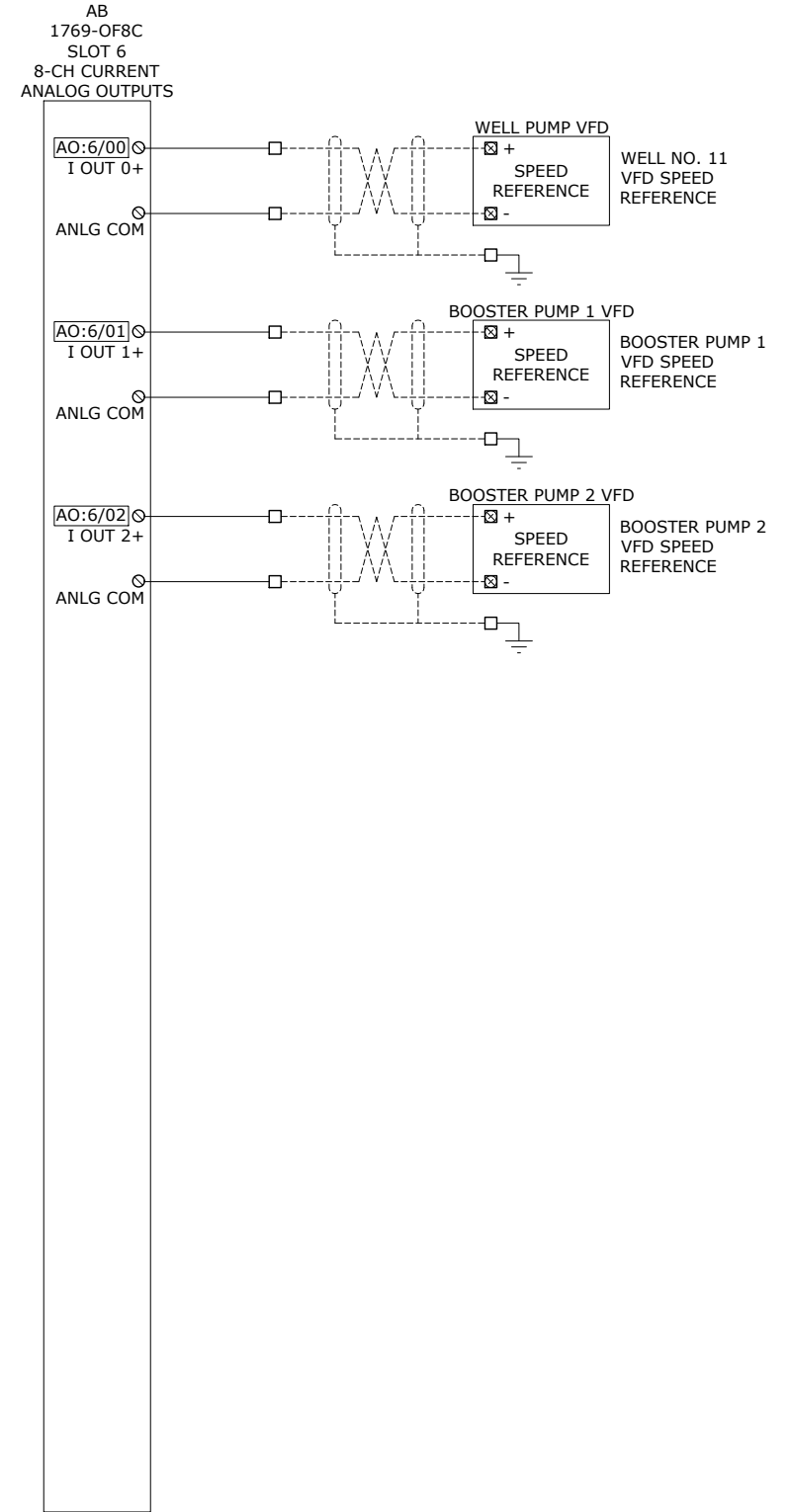
**DIGITAL OUTPUTS MODULE**  
SCALE: NTS

1  
-



**ANALOG INPUTS MODULE**  
SCALE: NTS

2  
-



**ANALOG OUTPUTS MODULE**  
SCALE: NTS

3  
-

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WELL NO. 11  
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**CONTROL PANEL  
I/O WIRING 2**

SHEET

I-8

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