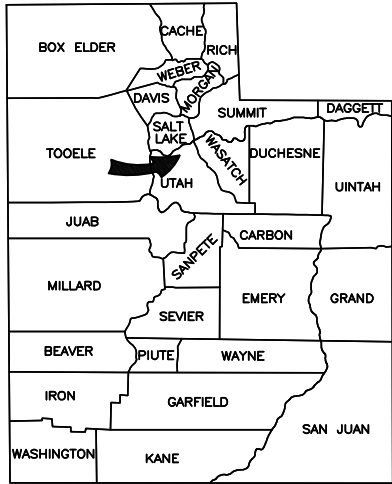




STATE OF UTAH

SHEET INDEX

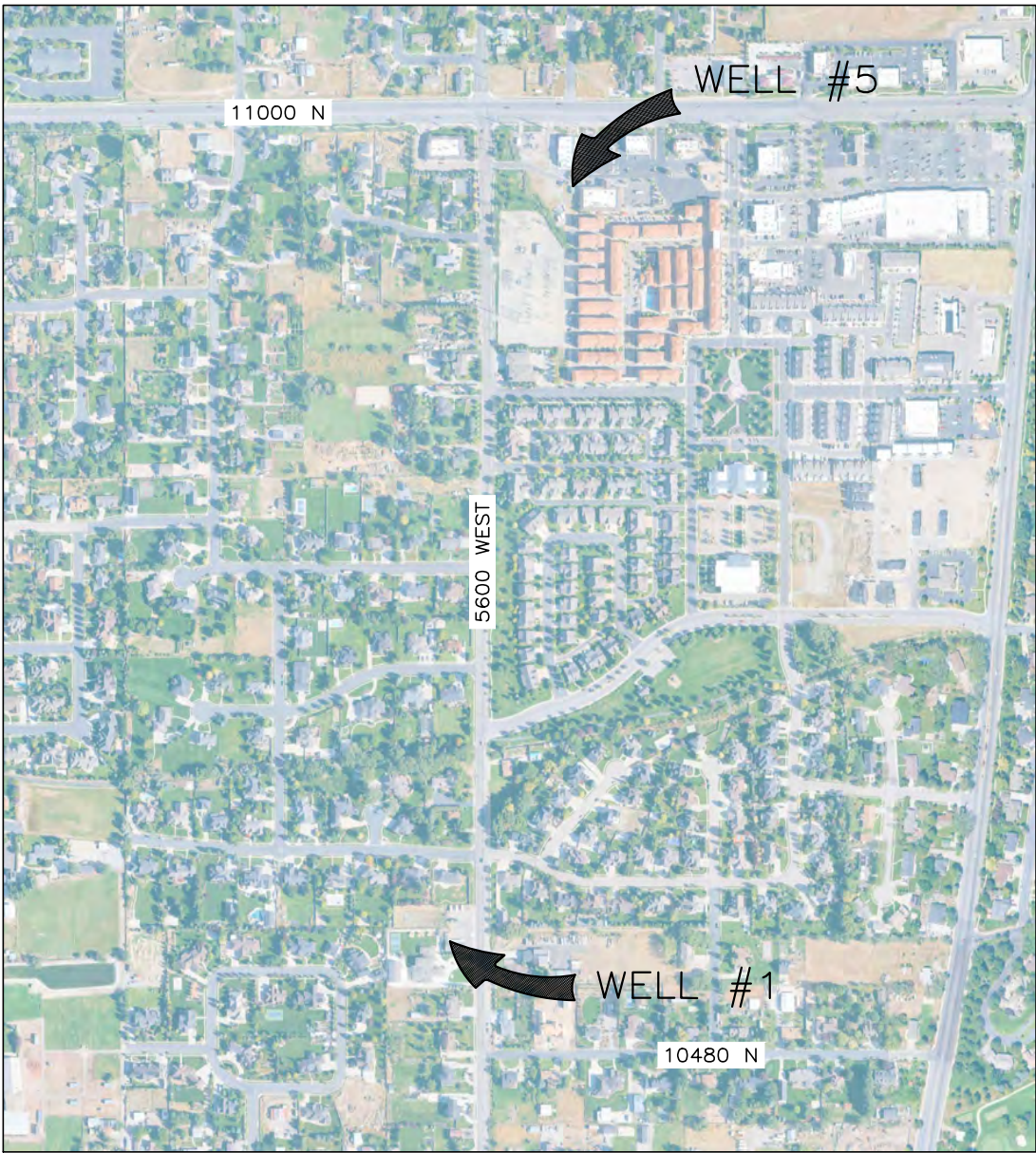
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HIGHLAND CITY

WELL #1 AND WELL #5 CHLORINATION
DECEMBER 2025
BIDDING DRAWINGS



PROJECT LOCATION

Know what's below.

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BT ENGINEERING

FOR:
HIGHLAND CITY
5400 W CIVIC CENTER DR
HIGHLAND, UT 84003

CONTACT:
CHRIS TRUSTY
801-772-4508

HIGHLAND CITY

WELL #1 AND WELL #5 CHLORINATION
COVER SHEET

REGISTERED PROFESSIONAL ENGINEER

NO. 5148332

Jason Bradford

12-2-2025

STATE OF UTAH

NO.	DATE	REVISION	BY

PROJECT NO.:	DATE:
001.24.001	DECEMBER 2025
DRAWN BY:	CHECKED BY:
JB	TT
PROJECT MANAGER:	
T. TIMOTHY	

COVER SHEET

1

FILE NAME: \\USERS\BRADF\DROPBOX\HIGHLAND CITY\WELL 1 CHLORINATION\2 NOTES.DWG
FILE DATE: 12/2/2025 14:10:47 (JEB)

GENERAL NOTES

- ALL WORK SHALL BE CONSTRUCTED IN STRICT ACCORDANCE WITH THE CURRENT HIGHLAND CITY STANDARDS, PLANS AND SPECIFICATIONS, EXCEPT WHERE NOTED ON THESE PLANS.
- CONSTRUCTION OPERATIONS SHALL BE CONDUCTED, AND SIGNS, BARRICADES, AND FLASHERS SHALL BE PLACED; SO AS TO COMPLY WITH OSHA, LOCAL SAFETY STANDARDS, AND MANUAL ON UNIFORM TRAFFIC CONTROL. CONTRACTOR SHALL SUBMIT TRAFFIC CONTROL PLANS TO CITY FOR APPROVAL.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING ALL UNDERGROUND UTILITIES, INCLUDING WATER LINES, IRRIGATION LINES, TELEPHONE CABLES, GAS LINES, AND ANY OTHER OBSTRUCTION DURING THE COURSE OF CONSTRUCTION AND INSTALLATION OF THE IMPROVEMENTS. EXISTING UTILITIES DAMAGED DURING CONSTRUCTION SHALL BE RESTORED TO A CONDITION AT LEAST EQUAL TO THEIR ORIGINAL CONDITION.
- THE CONTRACTOR SHALL BE RESPONSIBLE TO OBTAIN RIGHTS OF INGRESS AND EGRESS SHOULD HE VENTURE ONTO PRIVATE PROPERTY WHICH IS NOT INCLUDED IN OWNER ACQUIRED RIGHTS--OF--WAY AND EASEMENTS.
- UNLESS DETAILED, SPECIFIED OR INDICATED OTHERWISE, CONSTRUCTION SHALL BE AS INDICATED IN THE APPLICABLE TYPICAL DETAILS AND NOTES. TYPICAL DETAILS ARE MEANT TO APPLY EVEN THOUGH NOT REFERENCED AT SPECIFIC LOCATIONS OR IN SPECIFIC DRAWINGS.
- THE CONTRACTOR SHALL BE RESPONSIBLE TO PROTECT ALL EXISTING IMPROVEMENTS DURING CONSTRUCTION AND SHALL REPLACE OR RESTORE ANY IMPROVEMENTS DAMAGED AS A RESULT OF THE CONSTRUCTION ACTIVITY AS DIRECTED BY THE OWNER.
- THIS PROJECT IS LOCATED IN HIGHLAND CITY LIMITS. THE CONTRACTOR SHALL OBTAIN ALL APPLICABLE PERMITS AND APPROVALS FROM GOVERNING AGENCY AND SHALL COMPLY WITH CITY REGULATIONS FOR TRAFFIC CONTROL, SAFETY, EXCAVATION IN CITY OWNED RIGHTS OF WAY, ETC.
- THE CONTRACTOR SHALL OBTAIN A LAND DISTURBANCE PERMIT FROM HIGHLAND CITY AND SHALL COMPLY WITH ALL UPDES REQUIREMENTS. AS A MINIMUM, CONTRACTOR SHALL CONTROL STORM WATER DISCHARGE USING APPROPRIATE BMP'S.

STRUCTURAL GENERAL NOTES:

- THE GENERAL CONTRACTOR AND SUB-CONTRACTORS SHALL PROVIDE SUFFICIENT SKILLED WORKMEN AND SUPERVISORS WHO SHALL BE PRESENT AT ALL TIMES DURING EXECUTION OF THE WORK. A PROJECT MANAGER, SHALL BE ASSIGNED BY THE GENERAL CONTRACTOR, AND SHALL BE RESPONSIBLE FOR THE DAILY COORDINATION OF THE PROJECT AND SHALL MAINTAIN ALL REQUIRED DRAWINGS, SPECIFICATIONS, REPORTS, AND OTHER ITEMS FOR REVIEW AT THE SITE.
- ALL CONSTRUCTION SHALL BE ACCORDING TO THE 2021 EDITION OF THE INTERNATIONAL BUILDING CODE (IBC). AS AMENDED BY THE STATE OF UTAH.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF AND SAFETY IN AND AROUND THE JOB SITE AND/OR ADJACENT PROPERTIES.
- THE CONTRACTOR AND/OR OWNER SHALL KEEP LOADS ON THE STRUCTURE WITHIN THE LIMITS OF THE DESIGN LOADS BOTH DURING AND AFTER CONSTRUCTION.

WATER PIPELINE NOTES

- CONTACT HIGHLAND CITY AT LEAST 72 HOURS IN ADVANCE OF ALL WATER SHUTDOWNS.
- ALL DUCTILE IRON PIPE, VALVES, HYDRANTS AND FITTINGS EXPOSED TO SOIL SHALL BE WRAPPED WITH 8 MIL THICK POLYETHYLENE FILM TUBE (PURPLE COLOR). ALL FITTINGS, VALVES AND EXPOSED NUTS & BOLTS SHALL BE LIBERALLY COATED WITH FM GREASE PRIOR TO WRAPPING. THE FILM SHALL BE HELD IN PLACE BY 2-INCH WIDE PLASTIC BACKED ADHESIVE TAPE EQUAL TO POLYKEN NO. 900 OR SCOTCHRAP NO. 50. THE TAPE SHALL BE INSTALLED TO TIGHTLY SECURE THE FILM TO THE PIPE. ENOUGH FILM SHALL BE USED TO OVERLAP ADJOINING SECTIONS OF FILM A MINIMUM OF ONE (1) FOOT.
- POLYETHYLENE WRAP SHALL BE PROTECTED FROM THE SUN AND WEATHERING PRIOR TO USE. CARE SHALL BE EXERCISED DURING BACK FILLING OF THE PROTECTED AREAS TO PREVENT PUNCTURING OF THE FILM.
- MINIMUM COVER OVER TOP OF WATER LINE SHALL BE 48-INCHES.
- CONTRACTOR SHALL POT HOLE UTILITIES AT ALL CROSSINGS SUFFICIENTLY IN ADVANCE OF LAYING PIPE TO ALLOW FOR ADJUSTMENTS OF NEW PIPELINE GRADE TO AVOID CONFLICTS.
- CONTRACTOR TO PROVIDE TEMPORARY BLOW OFF VALVES & FITTINGS TO FLUSH NEW PIPELINES. PROVIDE PLAN TO CITY FOR APPROVAL BEFORE BEGINNING FLUSHING. TEMPORARY BLOWOFF & FITTINGS SHALL BE REMOVED PRIOR TO PUTTING NEW LINE INTO SERVICE.
- DEFLECTIONS IN PIPE JOINTS SHALL NOT EXCEED 5 DEGREES FOR DUCTILE IRON PIPE, 1 DEGREE FOR PVC PIPE OR MANUFACTURER'S PUBLISHED DEFLECTIONS.
- PROVIDE CONCRETE THRUST BLOCKS AND JOINT RESTRAINTS ON ALL BENDS, FITTINGS & VALVES, UNLESS SPECIFIED OTHERWISE. ALL FITTINGS THAT REQUIRE CONCRETE BLOCKING SHOULD BE COMPLETELY WRAPPED PRIOR TO THE POURING OF THE CONCRETE THRUSTING BLOCK.
- ELEVATIONS OF EXISTING WATER LINES ARE UNKNOWN. CONTRACTOR SHALL POTHOLE EXISTING WATER LINES AT CONNECTIONS TO VERIFY LOCATION AND ELEVATION. MODIFICATIONS TO CONNECTION DETAILS MAY BE REQUIRED, BASED ON THE INFORMATION OBTAINED.

REINFORCED CONCRETE NOTES:

- MINIMUM CONCRETE SPECIFIED CYLINDER STRENGTH 4000 PSI AT 28 DAYS
- REINFORCEMENT TO BE DEFORMED BARS GRADE 60 ACCORDING TO ASTM A-615
- MINIMUM CONCRETE COVER TO BE 2" UNLESS OTHERWISE SHOWN
- ALL REINFORCEMENT DETAILING IS TO BE ACCORDING TO ACI 318 LATEST EDITION
- FLOOR SLAB SHALL BE GIVEN A SMOOTH TROWEL FINISH
- ALL OUTSIDE CONCRETE EDGES SHALL HAVE A 1" CHAMFERED FINISH
- ALL COLD JOINTS TO HAVE WATER STOP ACROSS JOINT
- CONCRETE FORM WORK TO BE OF ADEQUATE SIZE AND STRENGTH, PROPERLY BRACED TO PREVENT BAGGING OR BULGING. PROTECT ALL CONCRETE FROM FREEZING TEMPERATURES.
- NO FOOTING SHALL BE PLACED ON DISTURBED OR FROZEN SOIL.
- CONSTRUCTION OF CRACK CONTROL JOINTS. ALL SURFACES OF CONSTRUCTION JOINTS SHALL BE CLEANED TO REMOVE DUST,, CHIPS AND OTHER FOREIGN MATERIAL PRIOR TO PLACING ADJACENT CONCRETE. CRACK CONTROL JOINTS IN SLABS SHALL HAVE A MAXIMUM SPACING OF 15'-0" IN BOTH DIRECTIONS. THE CONTRACTOR SHALL SUBMIT THE DETAILS AND PROPOSED LOCATIONS OF CONSTRUCTION JOINTS AND CRACK CONTROL JOINTS FOR REVIEW BEFORE STARTING CONSTRUCTION.

SOIL NOTES

- ALL ORGANIC MATERIALS, RUBBISH, UNSUITABLE FILL, TOPSOIL, ETC. SHALL BE REMOVED FROM BENEATH LOCATIONS OF PROPOSED FOOTINGS, CONCRETE SLABS AND ASPHALT PAVING.
- ALL FOOTINGS SHALL BE PLACED ON UNDISTURBED NATURAL SOIL OR ON COMPACTED STRUCTURAL FILL EXTENDING DOWN TO THE UNDISTURBED NATURAL SOIL. IMPORTED STRUCTURAL FILL SHALL BE COMPACTED TO 95% MAXIMUM RELATIVE DENSITY BASED ON ASTM D1557, .
- SLABS SHALL BE PLACED ON COMPACTED GRANULAR BACKFILL.
- UNLESS OTHERWISE NOTED, STRUCTURAL BACKFILL SHALL CONFORM TO:
A. IMPORTED GRANULAR MATERIAL SHALL BE FREE OF ORGANIC MATTER AND OTHER DELETERIOUS SUBSTANCES.
B. SHALL COMPLY WITH SPECIFICATIONS FOR GRADATIONS.
- ALL FREE WATER SHALL BE REMOVED FROM THE FOUNDATION EXCAVATION PRIOR TO PLACING CONCRETE.
- EXTERIOR FOOTINGS AND GRADE BEAMS SHALL BE LOCATED AT LEAST 30" BELOW FINISHED GRADE, AND MAINTAIN 6" BETWEEN FINISH GRADE AND WOOD FRAMING.
- CONTRACTOR SHALL REMOVE ALL UNSUITABLE FILL FROM UNDER ALL CONCRETE FLATWORK, PAVEMENT, BUILDINGS AND STRUCTURES, AND REPLACE WITH STRUCTURAL FILL COMPACTED TO 95% MAX. DRY DENSITY PER ASTM D-1557.

BT ENGINEERING

FOR:
HIGHLAND CITY
5400 W CIVIC CENTER DR
HIGHLAND, UT 84003

CONTACT:
CHRIS TRUSTY
801-772-4508

HIGHLAND CITY
WELL #1 AND WELL #5 CHLORINATION
NOTES



NO.	DATE	REVISION	BY

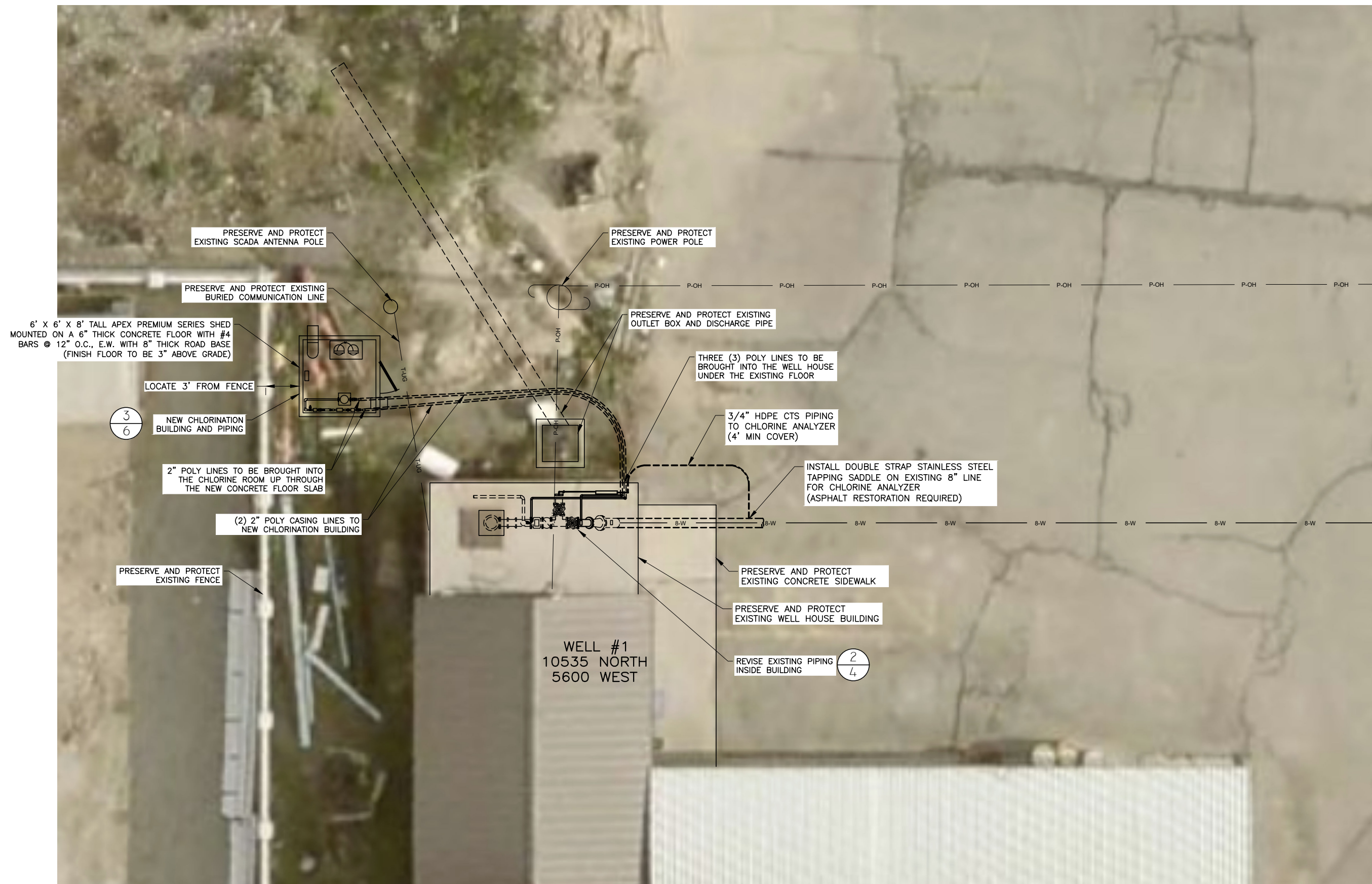
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001.24-.001	DECEMBER 2025

DRAWN BY:	CHECKED BY:
JB	TT

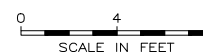
PROJECT MANAGER:
T. TIMOTHY

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PROJECT NO.:	DATE:
001.24.001	DECEMBER 21
DRAWN BY:	CHECKED BY:
JB	TT
PROJECT MANAGER:	
T. TIMOTHY	



1 WELL 1 CHLORINATION - SITE PLAN



PROJECT NO.:	DATE:
001.24.001	DECEMBER 202
DRAWN BY:	CHECKED BY:
JB	TT
PROJECT MANAGER:	
T. TIMOTHY	

5

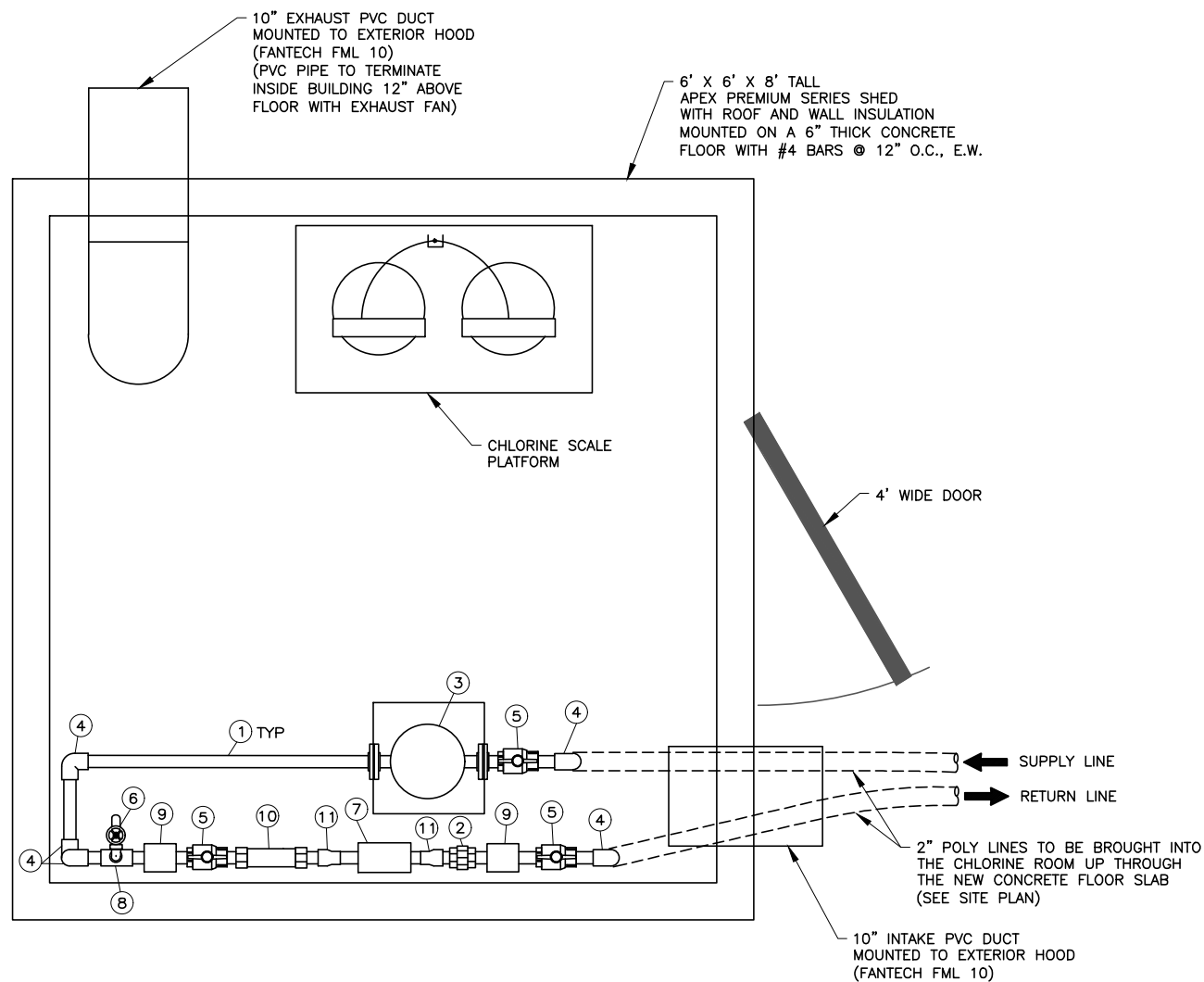
NOTES:

1. PRESERVE AND PROTECT ALL EXISTING FITTINGS.
2. ALL NEW PIPING TO BE MOUNTED ON NORTH WALL AND PROPERLY SUPPORTED.
3. ALL NEW BOLTS SHALL BE ZINC PLATED.
4. THE NEW 45-DEG BEND SHALL BE PAINTED.



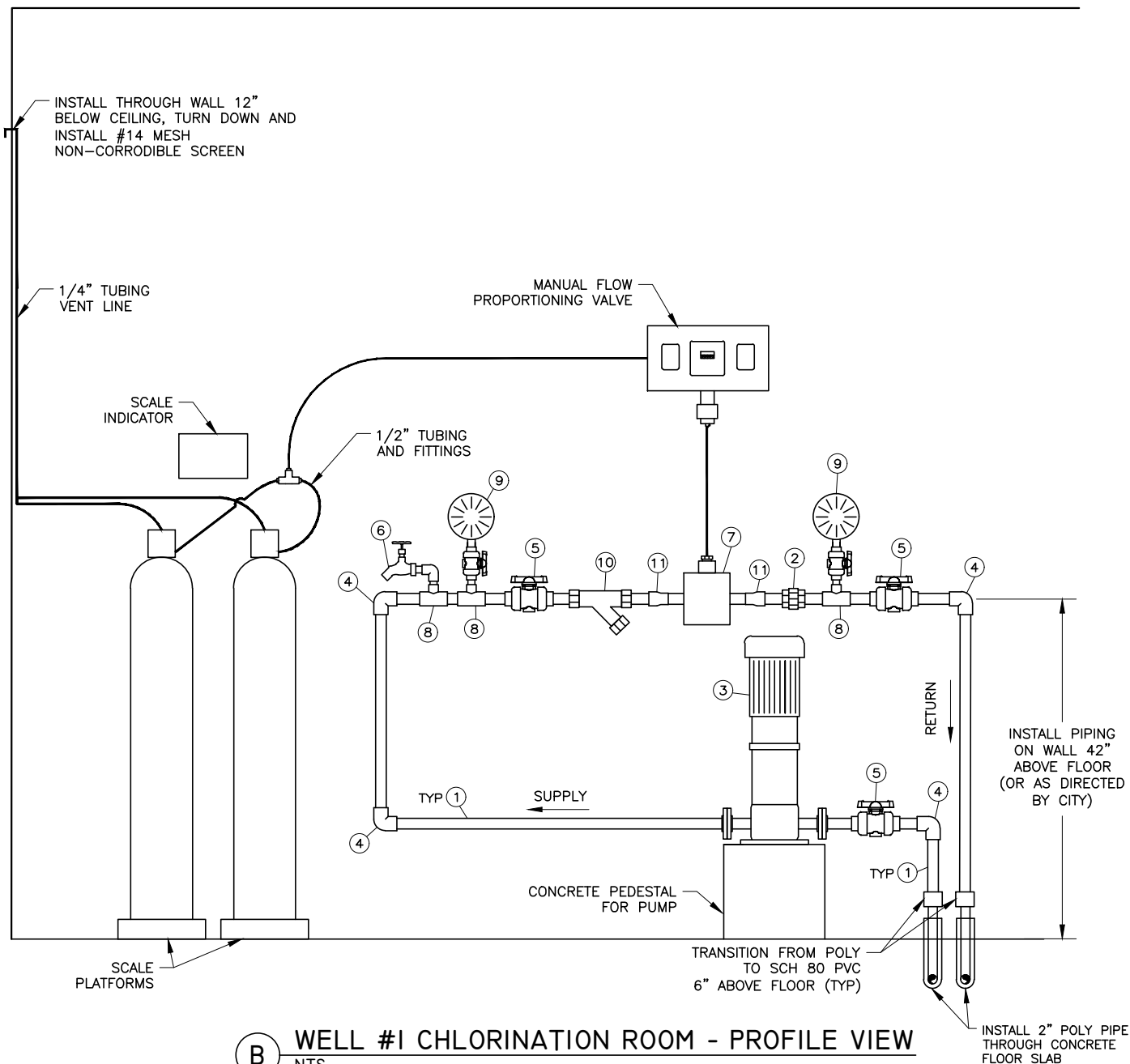
A horizontal scale bar with a black background and white markings. It is labeled "SCALE IN FEET" below the bar. The bar has tick marks at 0, 1, and 2 feet. The distance between 0 and 1 is divided into four equal segments, and the distance between 1 and 2 is also divided into four equal segments.

FILE NAME: \USERS\BRADY\DR0PBOX\HIGHLAND CITY\WELL 1 CHLORINATION\6 - CHLORINE DETAILS.DWG
FILE DATE: 12/2/2025 13:16:34 (JEB)



3 WELL #1 CHLORINATION ROOM - PLAN VIEW
NTS

PIPING SCHEDULE			
NO.	DESCRIPTION	SIZE	JOINT
1.	PIPE (PVC SCH 80)	1"	THD
2.	UNION (PVC SCH 80)	1"	THD
3.	PUMP (GRUNDFOS CR 1-10 OR APPROVED EQUAL)	1"	THD
4.	ELBOW (PVC SCH 80)	1"	THD
5.	BALL VALVE (PVC SCH 80)	1"	THD
6.	HOSE BIBB (S.S. 316)	1/2"	THD
7.	EJECTOR	3/4"	THD
8.	TEE (PVC SCH 80)	1" X 1/2"	THD
9.	PRESSURE GAUGE (2 1/2" DIA.) W/ GAUGE COCK OR BALL VALVE (0-150 PSI)	1/2"	THD
10.	Y-STRAINER (PVC SCH 80)	1" X 3/4"	THD
11.	REDUCER (PVC SCH 80)	1" X 3/4"	THD

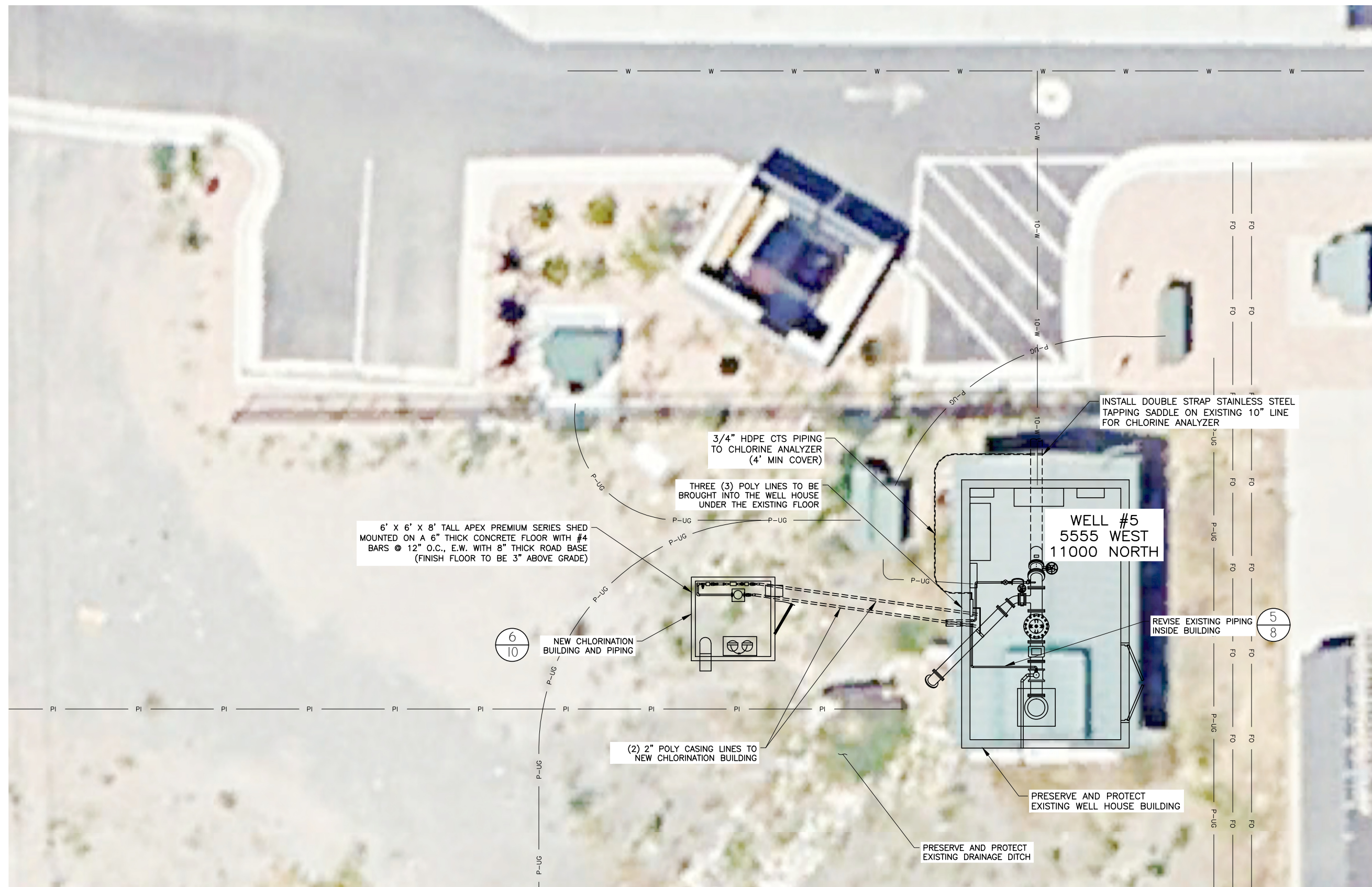


B WELL #1 CHLORINATION ROOM - PROFILE VIEW
NTS

NOTES:

- PIPING SHOWN IS SCHEMATIC. CONTRACTOR TO SUBMIT PLAN FOR PIPING AND EQUIPMENT LOCATIONS FOR APPROVAL BY OWNER.
- PUMP TO BE MOUNTED ON CONCRETE BASE ABOVE FLOOR PER MANUFACTURER'S RECOMMENDATIONS TO DAMPEN VIBRATIONS.

NO.	DATE	REVISION	BY
PROJECT NO.: 00I.24.00I		DATE: DECEMBER 2025	
DRAWN BY: JB		CHECKED BY: TT	
PROJECT MANAGER: T. TIMOTHY			

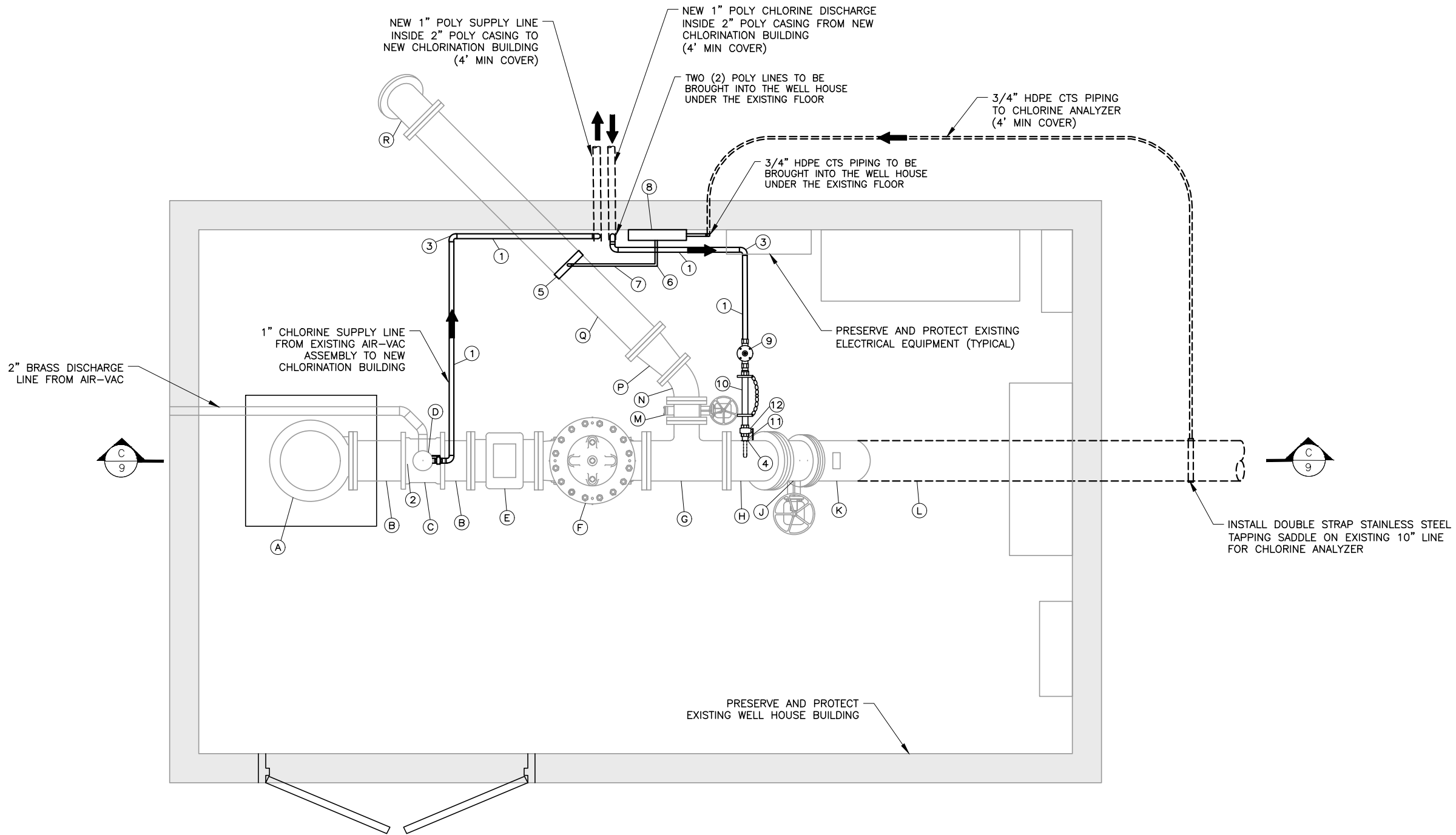


4 WELL 5 CHLORINATION - SITE PLAN

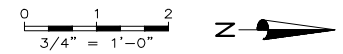


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FILE DATE: 12.2.2025 13:17:12 (JEB)

FILE NAME: \\USERS\BRADY\DR\BOX\HIGHLAND CITY\2025 MISC\WELL 5\CHLORINATION\CAD\8 - CHLORINE PIPING - PLAN VIEW.DWG
FILE DATE: 12/2/2025 13:18:36 (JEB)



5 WELL #5 CHLORINATION PIPING - PLAN VIEW



- NOTES:
- PRESERVE AND PROTECT ALL EXISTING FITTINGS.
 - ALL NEW PIPING TO BE MOUNTED ON NORTH WALL AND PROPERLY SUPPORTED. PIPING SHOWN IN PLAN VIEW IS SCHEMATIC. CONTRACTOR TO SUBMIT PLAN FOR PIPING AND EQUIPMENT LOCATIONS FOR APPROVAL BY OWNER.
 - ALL NEW BOLTS SHALL BE ZINC PLATED.

EXISTING PIPING SCHEDULE			
NO.	DESCRIPTION	SIZE	JOINT
A	VERTICAL TURBINE PUMP	10"	FLG
B	DIP SPOOL	10"	FLG X PE
C	DIP SLEEVE WITH 2" TAP	10"	MJ
D	AIR-VAC VALVE ASSEMBLY	3"	THD
E	FLOW METER	10"	FLG
F	CHECK VALVE	10"	FLG
G	DIP REDUCING TEE	10" X 6"	FLG
H	DIP 45-DEG BEND WITH SIDE TAPPING BOSS	10"	FLG
J	BUTTERFLY VALVE	10"	FLG
K	DIP SPOOL WITH TAP FOR PRESSURE TRANSDUCER	10"	FLG
L	BURIED DIP	10"	-
M	BUTTERFLY VALVE	6"	FLG
N	DIP 45-DEG BEND	6"	FLG
P	DIP REDUCER	8" X 6"	FLG
Q	8" DIP TO DISCHARGE	8"	FLG
R	45-DEG BEND	8"	FLG

NEW PIPING SCHEDULE			
NO.	DESCRIPTION	SIZE	JOINT
1.	PIPE (PVC SCH 80) AND REQUIRED FITTINGS	1"	THD
2.	BALL VALVE (PVC SCH 80)	1"	THD
3.	ELBOW (PVC SCH 80)	1"	THD
4.	TAP EXISTING DIP 45-DEG BEND WITH 1 1/2" USING EXISTING TAPPING BOSS	10"	FLG
5.	DOUBLE STRAP STAINLESS STEEL TAPPING SADDLE	8" X 1 1/2"	THD
6.	ELBOW (PVC SCH 80)	1 1/2"	THD
7.	PIPE (PVC SCH 80)	1 1/2"	THD
8.	CHLORINE ANALYZER (KUNTZE 7014200K DES)	-	-
9.	ANTI-SIPHON DEVICE	1"	THD
10.	INJECTION NOZZLE QUILL WITH SAFETY CHAIN	1"	THD
11.	PIPE (PVC SCH 80)	1 1/2"	THD
12.	BALL VALVE	1 1/2"	THD

BT ENGINEERING

FOR:
HIGHLAND CITY
5400 W CIVIC CENTER DR
HIGHLAND, UT 84003

CONTACT:
CHRIS TRUSTY
801-772-4508

HIGHLAND CITY
WELL #1 AND WELL #5 CHLORINATION
WELL #5 PIPING - PLAN VIEW

NO.	DATE	REVISION	BY

PROJECT NO.:
00124-001

DATE:
DECEMBER 2025

DRAWN BY:
JB

CHECKED BY:
TT

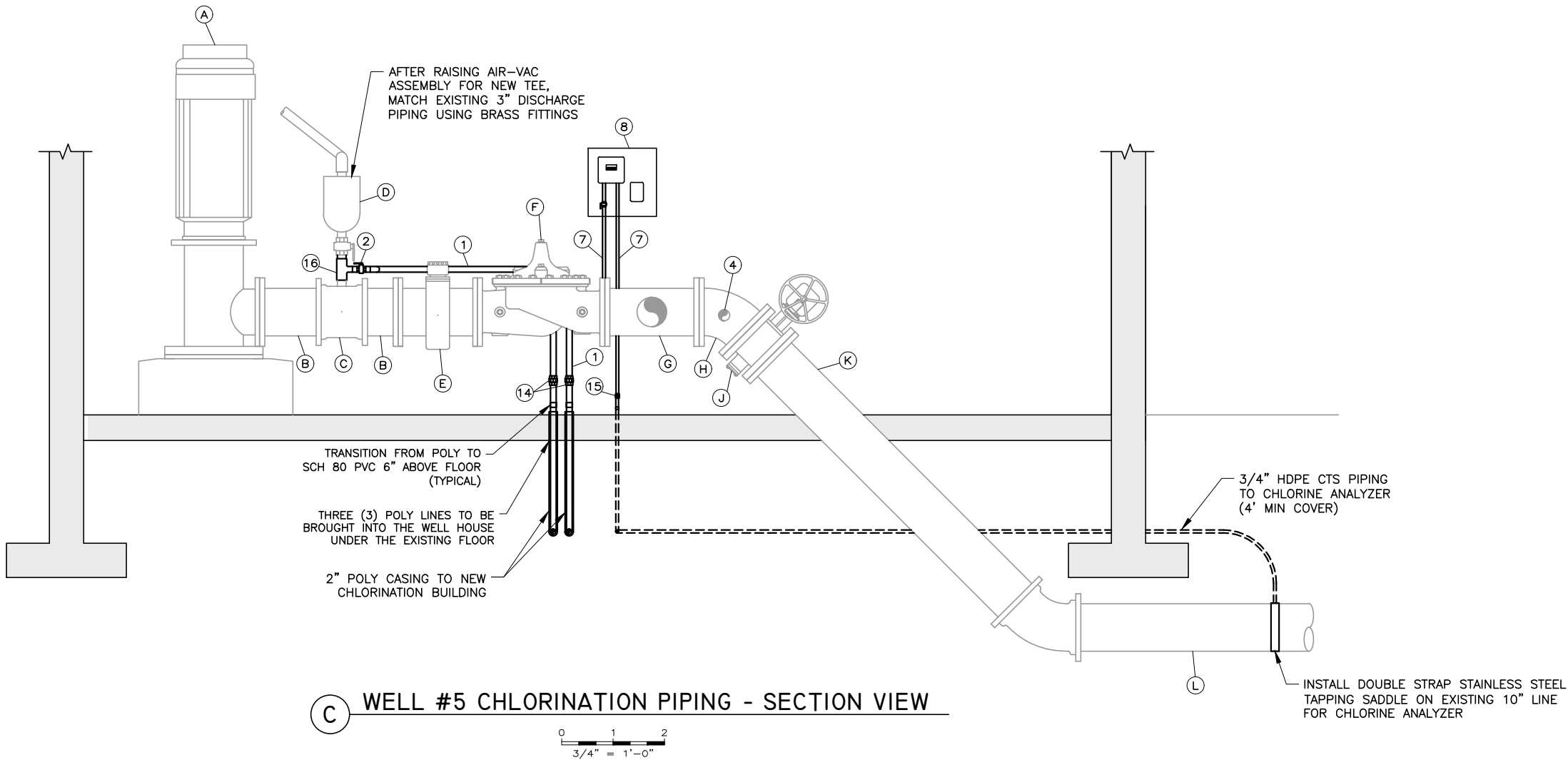
PROJECT MANAGER:
T. TIMOTHY

WELL #5 PIPING
PLAN VIEW

8

FILE NAME: \\USERS\BRADF\DROPBOX\HIGHLAND CITY\2025 MISC\WELL 5\CHLORINATION\CAD\9 - CHLORINE PIPING - SECTION VIEW.DWG
FILE DATE: 12/2/2025 13:19:17 (JEB)

EXISTING PIPING SCHEDULE			
NO.	DESCRIPTION	SIZE	JOINT
A	VERTICAL TURBINE PUMP	10"	FLG
B	DIP SPOOL	10"	FLG X PE
C	DIP SLEEVE WITH 2" TAP	10"	MJ
D	AIR-VAC VALVE ASSEMBLY	3"	THD
E	FLOW METER	10"	FLG
F	CHECK VALVE	10"	FLG
G	DIP REDUCING TEE	10" X 6"	FLG
H	DIP 45-DEG BEND WITH SIDE TAPPING BOSS	10"	FLG
J	BUTTERFLY VALVE	10"	FLG
K	DIP SPOOL WITH TAP FOR PRESSURE TRANSDUCER	10"	FLG
L	BURIED DIP	10"	-



C WELL #5 CHLORINATION PIPING - SECTION VIEW

- NOTES:
- PRESERVE AND PROTECT ALL EXISTING FITTINGS.
 - ALL NEW PIPING TO BE MOUNTED ON WEST WALL AND PROPERLY SUPPORTED.
 - ALL NEW BOLTS SHALL BE ZINC PLATED.

NEW PIPING SCHEDULE			
NO.	DESCRIPTION	SIZE	JOINT
1.	PIPE (PVC SCH 80) AND REQUIRED FITTINGS	1"	THD
2.	BALL VALVE (PVC SCH 80)	1"	THD
3.	ELBOW (PVC SCH 80)	1"	THD
4.	TAP EXISTING DIP 45-DEG BEND WITH 1 1/2" USING EXISTING TAPPING BOSS	10"	FLG
7.	PIPE (PVC SCH 80)	1/2"	THD
8.	CHLORINE ANALYZER (KUNTZE 7014200K DES)	-	-
13.	BALL VALVE (PVC SCH 80)	1/2"	THD
14.	UNION	1"	THD
15.	UNION	1/2"	THD
16.	BRASS REDUCING TEE	2" X 1"	THD

BT ENGINEERING

FOR:
HIGHLAND CITY
5400 W CIVIC CENTER DR
HIGHLAND, UT 84003

CONTACT:
CHRIS TRUSTY
801-772-4508

HIGHLAND CITY
WELL #1 AND WELL #5 CHLORINATION
WELL #5 PIPING - SECTION VIEW

REGISTERED PROFESSIONAL ENGINEER
NO. 5148332
Jason Bradford
JASON BRADFORD
12-2-2025
STATE OF UTAH

NO.	DATE	REVISION	BY

PROJECT NO.: 001.24.001
DATE: DECEMBER 2025

DRAWN BY: JB
CHECKED BY: TT

PROJECT MANAGER:
T. TIMOTHY

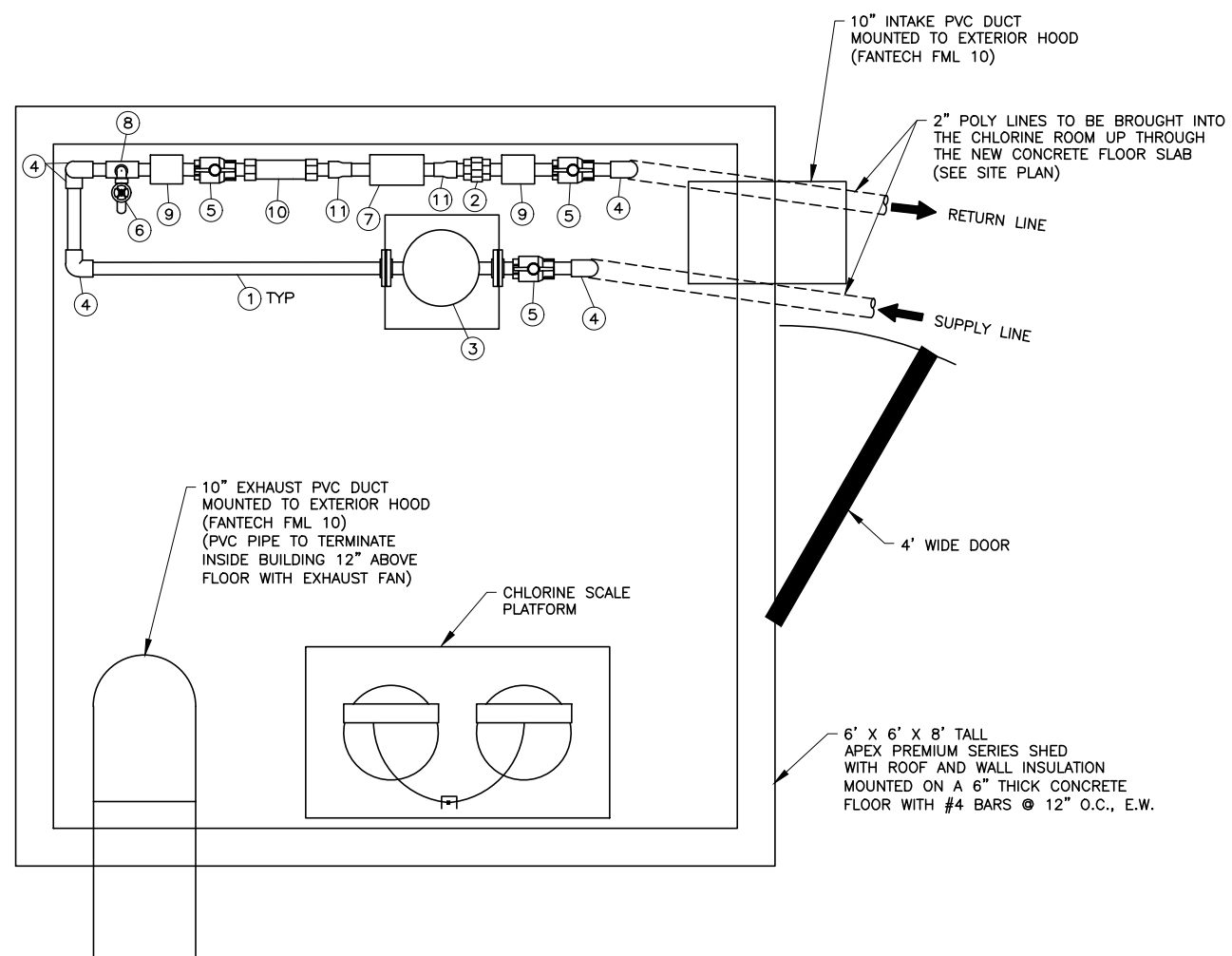
WELL #5 PIPING
SECTION VIEW
9

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PROJECT NO.:	DATE:
001.24.001	DECEMBER 2

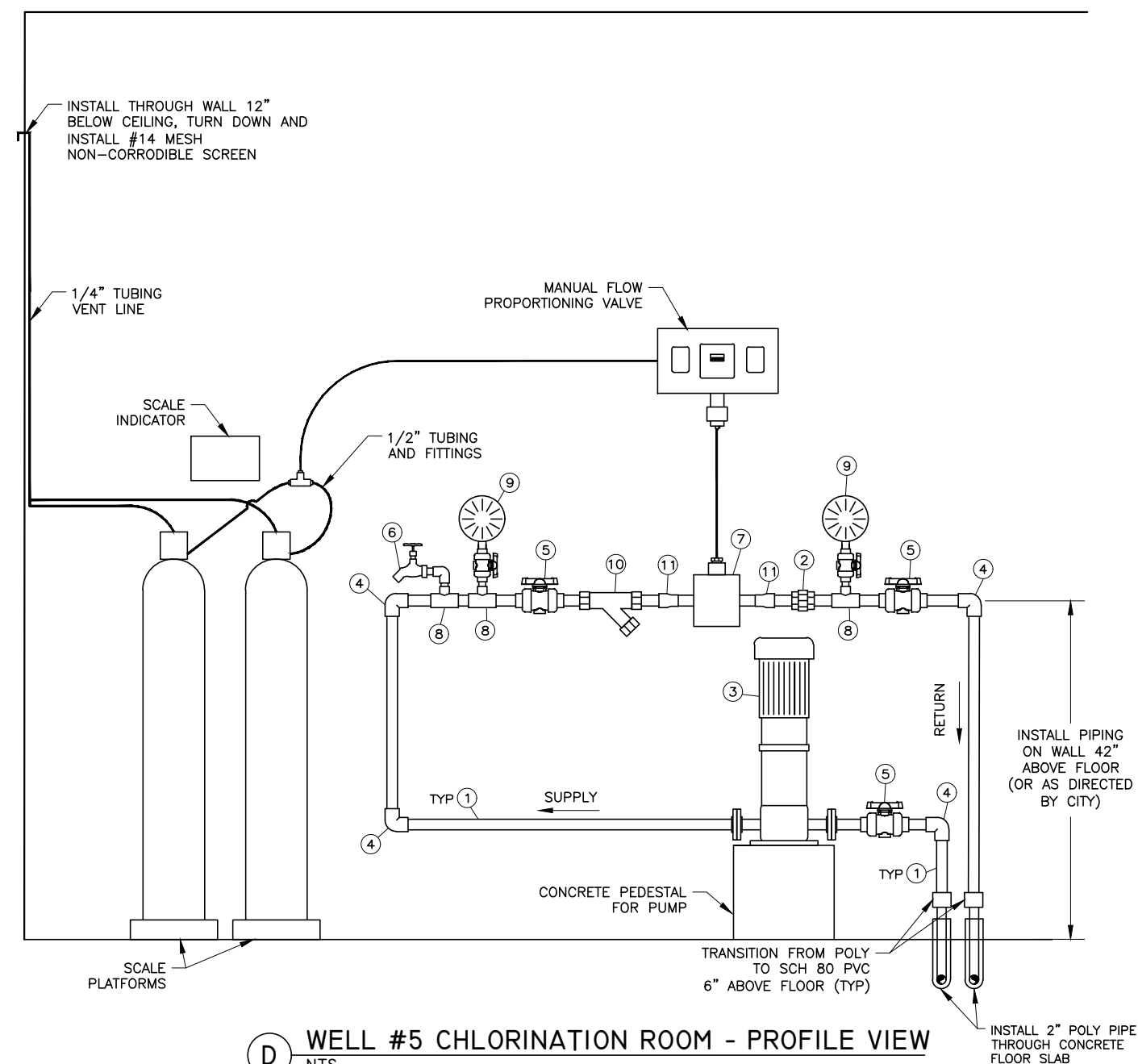
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PROJECT MANAGER:
T. TIMOTHY



6 WELL #5 CHLORINATION ROOM - PLAN VIEW
NTS

PIPING SCHEDULE			
NO.	DESCRIPTION	SIZE	JOINT
1.	PIPE (PVC SCH 80)	1"	THD
2.	UNION (PVC SCH 80)	1"	THD
3.	PUMP (GRUNDFOS CR 1-10 OR APPROVED EQUAL)	1"	THD
4.	ELBOW (PVC SCH 80)	1"	THD
5.	BALL VALVE (PVC SCH 80)	1"	THD
6.	HOSE BIBB (S.S. 316)	1/2"	THD
7.	EJECTOR	3/4"	THD
8.	TEE (PVC SCH 80)	1" X 1/2"	THD
9.	PRESSURE GAUGE (2 1/2" DIA.) W/ GAUGE COCK OR BALL VALVE (0-150 PSI)	1/2"	THD
10.	Y-STRAINER (PVC SCH 80)	1" X 3/4"	THD
11.	REDUCER (PVC SCH 80)	1" X 3/4"	THD



(D) WELL #5 CHLORINATION ROOM - PROFILE VIEW
NTS

NOTES:

1. PIPING SHOWN IS SCHEMATIC. CONTRACTOR TO SUBMIT PLAN FOR PIPING AND EQUIPMENT LOCATIONS FOR APPROVAL BY OWNER.
2. PUMP TO BE MOUNTED ON CONCRETE BASE ABOVE FLOOR PER MANUFACTURER'S RECOMMENDATIONS TO DAMPEN VIBRATIONS.

GENERAL DRAWING SYMBOLS AND REFERENCES	
	REFERENCE NOTE
	DEMOLITION NOTE
	REVISION NOTE
	IDENTIFICATION NOTE
	PHOTO REFERENCE
	HPE DETAIL BUBBLE
	EQUIPMENT REFERENCE
	WIRE SIZE REFERENCE
	PHOTO REFERENCE
	SECTION/ELEVATION REFERENCE
	EQUIPMENT ID TAG
THIS IS A STANDARD LEGEND NOT ALL SYMBOLS MAY BE USED ON THIS PROJECT	
PLAN SYMBOLS	
	CIRCUIT DISTRIBUTION PANELBOARD SURFACE MOUNTED
	CIRCUIT DISTRIBUTION PANELBOARD RECESSED
	POWER DISTRIBUTION PANELBOARD SURFACE OR FLOOR MOUNTED DOORS DESIGNATE FRONT OF PANEL MDP DESIGNATES MAIN DISTRIBUTION PANEL
	CONTROL PANEL ENCLOSURE
	LIGHTING CONTROL PANEL
	DISCONNECT
	HVAC EQUIPMENT
	UNIT HEATER, WALL MOUNTED
	UNIT HEATER, CEILING MOUNTED
	CONDENSING UNIT, PAD MOUNTED, SIDE DISCHARGE
	CONDENSING UNIT, PAD MOUNTED, UP FLOW
	ROOFTOP MOUNTED EQUIPMENT
THIS IS A STANDARD LEGEND NOT ALL SYMBOLS MAY BE USED ON THIS PROJECT	
MOTOR AND EQUIPMENT	
	MOTOR (HP SHOWN)
	FRACTIONAL HORSEPOWER MOTOR
	MOTOR STARTER, INDIVIDUAL, NOT LOCATED IN A MOTOR CONTROL CENTER (MCC) OR SIMILAR GROUP ASSEMBLY
	COMBINATION MOTOR STARTER ASSEMBLY, NOT LOCATED IN AN MCC OR SIMILAR ASSEMBLY
	MAGNETIC CONTACTOR ASSEMBLY, NOT LOCATED IN AN MCC OR SIMILAR ASSEMBLY
	DISCONNECT, NON-FUSED, 3 POLE, 100A RATED
	FUSED DISCONNECT SWITCH
	FIELD CONNECTION OR ELECTRICAL TERMINATION AT A FIELD DEVICE
	EQUIPMENT DESIGNATION

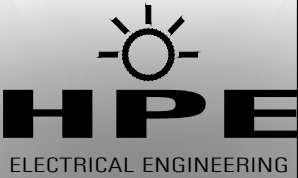
POWER ONE-LINE SYMBOLS	
	ANTENNA
	EQUIPMENT GROUND CONNECTION
	TRANSFER SWITCH ATS: AUTOMATIC TRANSFER SWITCH MTS: MANUAL TRANSFER SWITCH
	VARIABLE FREQUENCY DRIVE MOTOR CONTROLLER
	FUSED DISCONNECT SWITCH
	NON-FUSED DISCONNECT SWITCH
	COMBINATION STARTER
	MAGNETIC CONTROLLER
	MOTOR (HP SHOWN)
	GENERATOR
	CONDUCTOR WITH CALLOUT REFERENCE (SEE CONDUIT/CONDUCTOR SCHEDULE)
	POWER FACTOR CAPACITOR
	CIRCUIT BREAKER
	POWER FEED
	CONNECTION POINT
	LUG
	DELTA WYE
THIS IS A STANDARD LEGEND NOT ALL SYMBOLS MAY BE USED ON THIS PROJECT	
GROUNDING SYMBOLS	
	GROUND ROD (3/4" x 10' COPPER COATED STEEL)
	GROUND ROD (3/4" x 10' COPPER COATED STEEL) IN WELL
	BOLTED GROUND CONNECTION (ABOVE GROUND)
	WELDED GROUND CONNECTION (BELOW GRADE)
	GROUND CONDUCTOR (#2/0 BARE COPPER)
THIS IS A STANDARD LEGEND NOT ALL SYMBOLS MAY BE USED ON THIS PROJECT	
LIGHT SWITCHES	
	SINGLE POLE SWITCH
	GANGED SWITCHES IN COMMON BOX WITH COMMON COVER PLATE
	SWITCH SUPERSCRIPT MODIFIER, LOWER CASE LETTER INDICATES CIRCUIT CONTROLLER -- a,b,c ETC. MAY BE COMBINED WITH CIRCUIT NUMBER. EXAMPLE: 1a, 3b
	SWITCH SUBSCRIPT MODIFIER, UPPER CASE LETTER OR NUMBER: 2 = DOUBLE POLE 3 = THREE WAY 4 = FOUR WAY OC = MOTION OCCUPANCY SWITCH K = KEY OPERATED M = HORSEPOWER RATED MANUAL STARTER MC = MOMENTARY CONTACT, THREE POSITION MS = MANUAL (STARTER) OR SWITCH D = DIMMER S = SURFACE F = FLUSH
THIS IS A STANDARD LEGEND NOT ALL SYMBOLS MAY BE USED ON THIS PROJECT	
CONDUIT AND RACEWAYS	
	RACEWAY OR WIRING SYSTEM IN OR UNDER FLOOR OR CONCEALED IN WALL OR BEHIND STRUCTURE OR EQUIPMENT OR CONDUIT ROUTED BELOW GRADE IN CONCRETE ENCASEMENT
	FLEX CONDUIT
	RACEWAY OR WIRING SYSTEM ABOVE FLOOR LEVEL BELOW CEILING, EXPOSED
	HOMERUN: DESIGNATIONS INDICATE A ONE-LINE DIAGRAM OR PANELBOARD SCHEDULE REFERENCE
	JUNCTION BOX
	RACEWAY OR WIRING SYSTEM TURNED TOWARD THE VIEWER (UP ON PLAN DRAWINGS)
	RACEWAY OR WIRING SYSTEM TURNED AWAY FROM THE VIEWER (DOWN ON PLAN DRAWINGS)
	RACEWAY OR WIRING SYSTEM CHANGE IN ELEVATION OR DISTANCE FROM VIEWER
	CONDUIT STUB AND CAP
THIS IS A STANDARD LEGEND NOT ALL SYMBOLS MAY BE USED ON THIS PROJECT	

GENERAL NOTES:

1. VERIFY ALL EQUIPMENT DIMENSIONS AND LOCATIONS BEFORE BEGINNING ROUGH-IN. CONSULT ALL APPLICABLE CONTRACT DRAWINGS AND SHOP DRAWINGS TO ENSURE NEC CODE CLEARANCE REQUIRED AROUND ALL ELECTRICAL EQUIPMENT.
2. CONTRACTOR SHALL VERIFY ALL ELECTRICAL LOADS (VOLTAGE, PHASE, CONNECTION REQUIREMENTS, ETC.) OF EQUIPMENT FURNISHED BEFORE BEGINNING ROUGH-IN.
3. SEE APPLICABLE SHOP DRAWINGS FOR ROUGH-IN LOCATION OF ALL EQUIPMENT, WIRING DEVICES, ETC.
4. THE ELECTRICAL CONTRACTOR SHALL NOTIFY AND COOPERATE WITH THE MECHANICAL CONTRACTOR SUCH THAT NO PIPING, OR EQUIPMENT FOREIGN TO THE OPERATION OF THE ELECTRICAL EQUIPMENT SHALL BE PERMITTED TO BE INSTALLED IN, ENTER OR PASS THROUGH ELECTRICAL ROOMS OR SPACES; OR ABOVE OR BELOW ELECTRICAL EQUIPMENT IN THE OTHER AREAS.
5. ALL PENETRATIONS OF FLOORS, WALLS AND CEILINGS SHALL BE SEALED WITH APPROVED MATERIAL.
6. FOR PACKAGE EQUIPMENT PROVIDED ON THE PROJECT, SOME CONDUITS AND WIRES ARE SHOWN ON THE DRAWINGS, BUT IT IS EXPECTED THAT SOME ADDITIONAL CONDUITS AND WIRES MAY BE REQUIRED BY EQUIPMENT MANUFACTURERS TO COMPLETE INSTALLATION. IT IS INCUMBENT UPON THE GENERAL CONTRACTOR TO COORDINATE THIS REQUIREMENT WITH HIS SUBCONTRACTORS TO MAKE SURE THAT EQUIPMENT SUPPLIER PROVIDED ALL NECESSARY ELECTRICAL INFORMATION TO ELECTRICAL SUBCONTRACTOR FOR INCLUSION WHETHER SHOWN OR NOT SHOWN ON THE DRAWINGS.
7. IF OTHER THAN FIRST NAMED EQUIPMENT IS USED, IT SHALL BE CAREFULLY CHECKED FOR ELECTRICAL REQUIREMENTS AND CONTROL REQUIREMENTS OF ALTERNATE EQUIPMENT. SHOULD CHANGES OR ADDITIONS OCCUR IN ELECTRICAL WORK, OR THE WORK OF OTHER CONTRACTORS BE REVISED BY THE ALTERNATE EQUIPMENT, THE COST OF ALL CHANGES SHALL BE BORNE BY THE ELECTRICAL CONTRACTOR.

Sheet List Table		
Sheet Number	Sheet Title	Sheet Number
E1.1	ELECTRICAL LEGEND	E1.1
E1.2	ELECTRICAL TABLES, SHT. 1	E1.2
E2.1	WELL 1 POWER ONE-LINE DIAGRAMS	E2.1
E2.2	WELL 1 INST. & CONTROL ONE-LINE DIAGRAM	E2.2
E2.3	WELL 5 POWER ONE-LINE DIAGRAM	E2.3
E2.4	WELL 5 INST. & CONTROL ONE-LINE DIAGRAM	E2.4
E2.5	TYPICAL VFD CONTROL DIAGRAM	E2.5
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E3.1	WELL 1, EXISTING ELECTRICAL SCHEDULES	E3.1
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E4.1	WELL 1 ELECTRICAL PLANS	E4.1
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E5.1	CP-2 CONTROL PANEL ARRANGEMENT	E5.1
E6.1	ELECTRICAL DETAILS, SHT. 1	E6.1
E6.2	ELECTRICAL DETAILS, SHT. 2	E6.2
E6.3	ELECTRICAL DETAILS, SHT. 3	E6.3

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SYSTEMS
HEGERHORST POWER
ENGINEERING INCORPORATED
717 N. MAIN ST. STE 207,
SPRINGVILLE, UTAH, 84663
TEL. (801) 642-2051



REV:	DATE:	DESCRIPTION:	BY:
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HIGHLAND CITY
W#1 & #5 UPGRADE
HIGHLAND
UTAH

ELECTRICAL LEGEND

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0" VERIFY SCALE 1"
BAR IS ONE INCH ON ORIGINAL
DRAWING. IF NOT ONE INCH ON THIS
SHEET, ADJUST SCALES ACCORDINGLY.

DRAWING SCALE:
AS SHOWN
DRAWN BY:
GDS
DESIGNED BY:
KBH
ENGINEERED BY:
KBH
DATE:
FEB. 2025
SHEET NO. E1.1 HPE PROJECT NO. 25.011

CONDUIT/CONDUCTOR SCHEDULE *					
THHN, THWN, THWN-2					
AMP RATING	DRAWING ID TAG.	CONDUCTOR QTY.	SIZE	MIN. CONDUIT SIZE EXCEPTIONS	
20** 20+	212	2	#12	3/4"	
	312	3		3/4"	
	412	4		3/4"	
30** 30+	20	2	#10	3/4"	
	30	3		3/4"	
	40	4		3/4"	
40** 50+	28	2	#8	3/4"	
	38	3		3/4"	
	48	4		3/4"	
55** 65+	26	2	#6	3/4"	
	36	3		3/4"	
	46	4		3/4"	1"(C9)
70** 85+	24	2	#4	3/4"	1"(C2,C9)
	34	3		1"	3/4"(C4),1-1/4"(C9)
	44	4		1"	1-1/4"(C9)
95** 115+	22	2	#2	1"	
	32	3		1"	1-1/4"(C9)
	42	4		1-1/4"	
110** 130+	21	2	#1	1-1/4"	1"(C3,C4)
	31	3		1-1/4"	1"(C3)
	41	4		1-1/4"	1-1/2"(C2,C9,C10)
150	210	2	1/0	1-1/4"	
	310	3		1-1/4"	1-1/2"(C3,C9)
	410	4		1-1/2"	2"(C9)
175	220	2	2/0	1-1/4"	1-1/2"(C3,C4,C9)
	320	3		1-1/2"	
	420	4		2"	
200	230	2	3/0	1-1/2"	1-1/4(C4)
	330	3		1-1/2"	2"(C3,C9)
	430	4		2"	
230	240	2	4/0	1-1/2"	2"(C3)
	340	3		2"	
	440	4		2"	2-1/2"(C9)
255	225	2	250 KCMIL	2"	1-1/2"(C4)
	325	3		2"	2-1/2"(C1,C8)
	425	4		2-1/2"	2"(C4)
310	235	2	350 KCMIL	2"	2-1/2"(C9)
	335	3		2-1/2"	2"(C4)
	435	4		3"	2-1/2"(C1,C4)
380	250	2	500 KCMIL	2-1/2"	2"(C4)
	350	3		3"	2-1/2"(C1,C4)
	450	4		3"	3-1/2"(C9)
475	275	2	750 KCMIL	3"	
	375	3		3-1/2"	3"(C1,C7,C8)
	475	4		4"	3-1/2"(C1,C4,C8)
* CONDUCTOR QUANTITY DOES NOT INCLUDE GROUNDING CONDUCTOR. SEE EQUIPMENT GROUNDING CONDUCTORS FOR WIRE SIZE.					
WHERE: C1 = ELECTRICAL METALLIC TUBING C2 = ELECTRICAL NON-METALLIC TUBING C3 = FLEXIBLE STEEL CONDUIT C4 = INTERMEDIATE METALLIC CONDUIT C7 = LIQUIDTIGHT FLEXIBLE METAL CONDUIT C8 = RIGID METALLIC CONDUIT C9 = PVC SCHEDULE 80 CONDUIT C10 = PVC SCHEDULE 40 CONDUIT ** = RATED AMPACITY AT 60°C + = RATED AMPACITY AT 75°C USE 60°C CONDUCTOR RATING WHEN TERMINATION RATINGS ARE NOT PUBLISHED.					

GROUNDING ELECTRODE CONDUCTOR SERVICE ENTRANCE OR SEPARATELY DERIVED SYSTEM

COPPER CONDUCTOR	WIRE SIZE
#2 OR SMALLER	#8
1 OR 1/0	#6
2/0 OR 3/0	#4
>3/0 THRU 350 KCMIL	#2
>350 KCMIL THRU 600 KCMIL	1/0
>600 KCMIL THRU 1100 KCMIL	2/0
>1100 KCMIL	3/0

EQUIPMENT GROUNDING CONDUCTORS

FUSE OR CB SIZE	SIZE (COPPER)
15	14
20	12
30	10
40	10
60	10
100	8
200	6
300	4
400	3
500	2
600	1
800	1/0
1000	2/0
1200	3/0
1600	4/0
2000	250
2500	350

PROJECT TAG LIST							
WELL 1 HVAC EQUIPMENT							
DRAWING ID	TAG	DESCRIPTION	POWER SOURCE	SITE	LOCATION	SUPPLIED BY	INSTALLED BY
44	EF-2	EXHAUST FAN	CP-2	WELL #1	CHLORINE ROOM	CONTRACTOR	CONTRACTOR
45	UH-2	UNIT HEATER	L2-6	WELL #1	CHLORINE ROOM	CONTRACTOR	CONTRACTOR
47	ML-2A	MOTORIZED ACTUATOR, INTAKE	CP-2	WELL #1	CHLORINE ROOM	CONTRACTOR	CONTRACTOR
48	ML-2B	MOTORIZED ACTUATOR, EXHAUST	CP-2	WELL #1	CHLORINE ROOM	CONTRACTOR	CONTRACTOR
49	CU-1	CONDENSING UNIT	L-6,8	WELL #1	WELL ROOM	OTHERS	OTHERS
50	AH-1A	AIR HANDLER	CU-1	WELL #1	WELL ROOM	OTHERS	OTHERS
51	AH-1B	AIR HANDLER	CU-1	WELL #1	WELL ROOM	OTHERS	OTHERS

WELL 1 PUMP AND EQUIPMENT							
DRAWING ID	TAG	DESCRIPTION	POWER SOURCE	SITE	LOCATION	SUPPLIED BY	INSTALLED BY
10	MTS-1	MANUAL TRANSFER SWITCH	UTILITY	WELL #1	WELL ROOM	EXISTING	EXISTING
11	CP-1/RTU	CONTROL PNL/RTU	L-9	WELL #1	WELL ROOM	EXISTING	EXISTING
12	VFD-1	WELL PUMP VFD	MTS-1	WELL #1	WELL ROOM	CONTRACTOR	CONTRACTOR
13	AL-1	ALARM LIGHT	CP-1/RTU	WELL #1	CHL. BLD. EXTERIOR	CONTRACTOR	CONTRACTOR
14	CBP-1	CHLORINE BOOSTER PUMP	CP-2	WELL #1	CHLORINE ROOM	CONTRACTOR	CONTRACTOR
15	CP-2	SMALL MOTOR CONTROL PANEL	L2-9	WELL #1	CHLORINE ROOM	CONTRACTOR	CONTRACTOR
16	PNL L	POWER PANEL	XFMR-L	WELL #1	WELL ROOM	EXISTING	EXISTING
17	PNL-L2	POWER PANEL	L-5,7	WELL #1	CHLORINE ROOM	CONTRACTOR	CONTRACTOR
18	XFMR-L	TRANSFORMER	VFD-1	WELL #1	WELL ROOM	EXISTING	EXISTING
20	P-1	WELL PUMP	VFD-1	WELL #1	WELL ROOM	EXISTING	EXISTING
21	TJB-1	TERMINAL J-BOX	N/A	WELL #1	CHLORINE ROOM	CONTRACTOR	CONTRACTOR
22	DISC-1	TRANSFORMER DISCONNECT	VFD-1	WELL #1	WELL ROOM	EXISTING	EXISTING

WELL 1 SWITCHES							
DRAWING ID	TAG	DESCRIPTION	POWER SOURCE	SITE	LOCATION	SUPPLIED BY	INSTALLED BY
25	ZS-2	DOOR POSITION SWITCH	CP-1/RTU	WELL #1	WELL ROOM	CONTRACTOR	CONTRACTOR
26	ZS-3	DOOR POSITION SWITCH	CP-1/RTU	WELL #1	CHLORINE ROOM	CONTRACTOR	CONTRACTOR
27	ZT-4	V-1, SYSTEM VALVE POSITION	CP-1/RTU	WELL #1	WELL ROOM	CONTRACTOR	CONTRACTOR
28	ZC-4	V-1, VALVE POSITION CONTROLLER	CP-1/RTU	WELL #1	WELL ROOM	CONTRACTOR	CONTRACTOR
30	ZT-5	V-2, WASTE VALVE POSITION	CP-1/RTU	WELL #1	WELL ROOM	CONTRACTOR	CONTRACTOR
31	ZC-5	V-2, VALVE POSITION CONTROLLER	CP-1/RTU	WELL #1	WELL ROOM	CONTRACTOR	CONTRACTOR

WELL 1 INSTRUMENTS							
DRAWING ID	TAG	DESCRIPTION	POWER SOURCE	SITE	LOCATION	SUPPLIED BY	INSTALLED BY
33	AE-1	CHLORINE GAS SENSING PROBE	ASH-1	WELL #1	CHLORINE ROOM	CONTRACTOR	CONTRACTOR
34	AIT-1	RESIDUAL CHLORINE ANALYZER	L-3	WELL #1	WELL ROOM	CONTRACTOR	CONTRACTOR
35	ASH-1	CHLORINE LEAK DETECTOR	L2-5	WELL #1	CHLORINE ROOM	CONTRACTOR	CONTRACTOR
36	TIT-2	TEMPERATURE TRANSMITTER	CP-1/RTU	WELL #1	CHLORINE ROOM	CONTRACTOR	CONTRACTOR
37	WE-1A	SCALE TRANSDUCER	WIT-1A/1B	WELL #1	CHLORINE ROOM	CONTRACTOR	CONTRACTOR
38	WE-1B	SCALE TRANSDUCER	WIT-1A/1B	WELL #1	CHLORINE ROOM	CONTRACTOR	CONTRACTOR
39	WIT-1A/1B	CHLORINE TANK SCALE	L2-8	WELL #1	CHLORINE ROOM	CONTRACTOR	CONTRACTOR

WELL 1 VALVES							
DRAWING ID	TAG	DESCRIPTION	POWER SOURCE	SITE	LOCATION	SUPPLIED BY	INSTALLED BY
55	V-2	SYSTEM VALVE ACTUATOR	L-10,12	WELL #1	WELL ROOM	CONTRACTOR	CONTRACTOR
56	V-1	WASTE VALVE ACTUATOR	L-2,4	WELL #1	WELL ROOM	CONTRACTOR	CONTRACTOR
57	SV-1	CHLORINE SOLENOID VALVE	CP-1/RTU	WELL #1	WELL ROOM	CONTRACTOR	CONTRACTOR

GENERAL NOTES:

1. NOT USED.

SHEET KEYNOTES:

1. NOT USED.

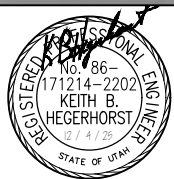
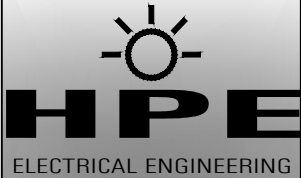
WELL 5 HVAC EQUIPMENT							
DRAWING ID	TAG	DESCRIPTION	POWER SOURCE	SITE	LOCATION	SUPPLIED BY	INSTALLED BY
94	EF-2	EXHAUST FAN	CP-2	WELL #5	CHLORINE ROOM	CONTRACTOR	CONTRACTOR
95	UH-2	UNIT HEATER	L2-6	WELL #5	CHLORINE ROOM	CONTRACTOR	CONTRACTOR
97	ML-2A	MOTORIZED ACTUATOR, INTAKE	CP-2	WELL #5	CHLORINE ROOM	CONTRACTOR	CONTRACTOR
98	ML-2B	MOTORIZED ACTUATOR, EXHAUST	CP-2	WELL #5	CHLORINE ROOM	CONTRACTOR	CONTRACTOR

WELL 5 PUMP AND EQUIPMENT							
DRAWING ID	TAG	DESCRIPTION	POWER SOURCE	SITE	LOCATION	SUPPLIED BY	INSTALLED BY
60	MTS-1	MANUAL TRANSFER SWITCH	MSD-1	WELL #5	WELL ROOM	EXISTING	EXISTING
61	CP-1/RTU	CONTROL PNL/RTU	L-9	WELL #5	WELL ROOM	EXISTING	EXISTING
62	MC-1	MOTOR CONTROLLER	MTS-1	WELL #5	WELL ROOM	CONTRACTOR	CONTRACTOR
63	AL-1	ALARM LIGHT	CP-1/RTU	WELL #5	CHL. BLD. EXTERIOR	CONTRACTOR	CONTRACTOR
64	CBP-1	CHLORINE BOOSTER PUMP	CP-2	WELL #5	CHLORINE ROOM	CONTRACTOR	CONTRACTOR
65	CP-2	SMALL MOTOR CONTROL PANEL	L2-9	WELL #5	CHLORINE ROOM	CONTRACTOR	CONTRACTOR
66	PNL L	POWER PANEL	XFMR-L	WELL #5	WELL ROOM	CONTRACTOR	CONTRACTOR
67	PNL-L2	POWER PANEL	L-5,7	WELL #5	CHLORINE ROOM	CONTRACTOR	CONTRACTOR
68	XFMR-L	TRANSFORMER	DISC-1	WELL #5	WELL ROOM	CONTRACTOR	CONTRACTOR
69	MSD-1	MAIN SERVICE DISCONNECT	CTE-1	WELL #5	BUILDING EXTERIOR	CONTRACTOR	CONTRACTOR
70	P-1	WELL PUMP	MC-1	WELL #5	WELL ROOM	EXISTING	EXISTING
71	CTE-1	CURRENT TRANSFORMER ENCL.	UTILITY	WELL #5	BUILDING EXTERIOR	CONTRACTOR	CONTRACTOR
72	DISC-1	TRANSFORMER DISCONNECT	MC-1	WELL #5	WELL ROOM	CONTRACTOR	CONTRACTOR
73	MS-1	METER SOCKET	N/A	WELL #5	BUILDING EXTERIOR	CONTRACTOR	CONTRACTOR

WELL 5 SWITCHES							
DRAWING ID	TAG	DESCRIPTION	POWER SOURCE	SITE	LOCATION	SUPPLIED BY	INSTALLED BY
75	ZS-2	DOOR POSITION SWITCH	CP-1/RTU	WELL #5	WELL ROOM	CONTRACTOR	CONTRACTOR
76	ZS-3	DOOR POSITION SWITCH	CP-1/RTU	WELL #5	CHLORINE ROOM	CONTRACTOR	CONTRACTOR

WELL 5 INSTRUMENTS							
DRAWING ID	TAG	DESCRIPTION	POWER SOURCE	SITE	LOCATION	SUPPLIED BY	INSTALLED BY
83	AE-1	CHLORINE GAS SENSING PROBE	ASH-1	WELL #5	CHLORINE ROOM	CONTRACTOR	CONTRACTOR
84	AIT-1	RESIDUAL CHLORINE ANALYZER	L-3	WELL #5	WELL ROOM	CONTRACTOR	CONTRACTOR
85	ASH-1	CHLORINE LEAK DETECTOR	L2-5	WELL #5	CHLORINE ROOM	CONTRACTOR	CONTRACTOR
86	TIT-2	TEMPERATURE TRANSMITTER	CP-1/RTU	WELL #5	CHLORINE ROOM	CONTRACTOR	CONTRACTOR
87	WE-2A	SCALE TRANSDUCER	WIT-2A/2B	WELL #5	CHLORINE ROOM	CONTRACTOR	CONTRACTOR
88	WE-2B	SCALE TRANSDUCER	WIT-2A/2B	WELL #5	CHLORINE ROOM	CONTRACTOR	CONTRACTOR
89	WIT-1A/1B	CHLORINE TANK SCALE	L2-8	WELL #5	CHLORINE ROOM	CONTRACTOR	CONTRACTOR

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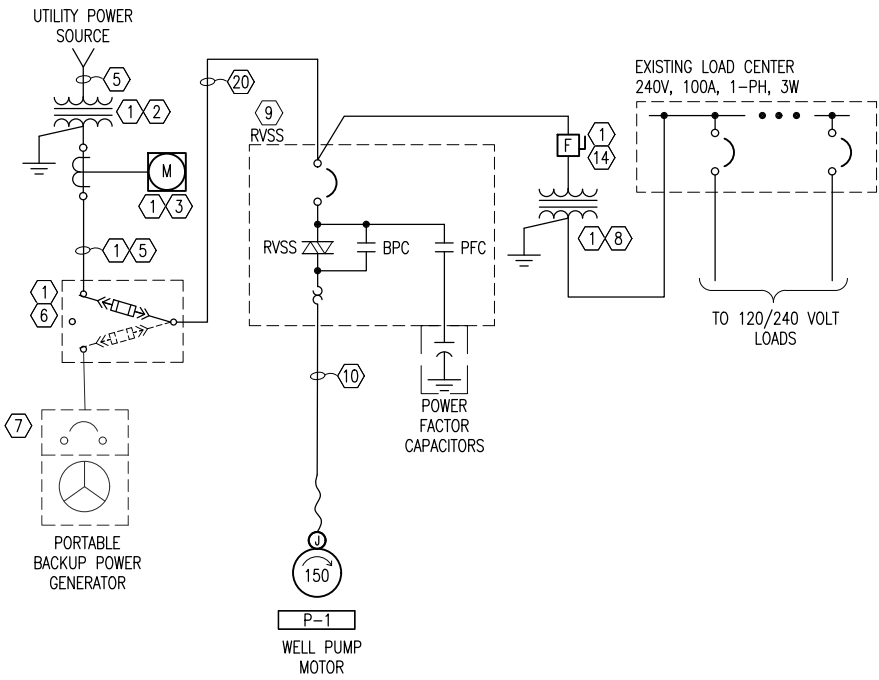
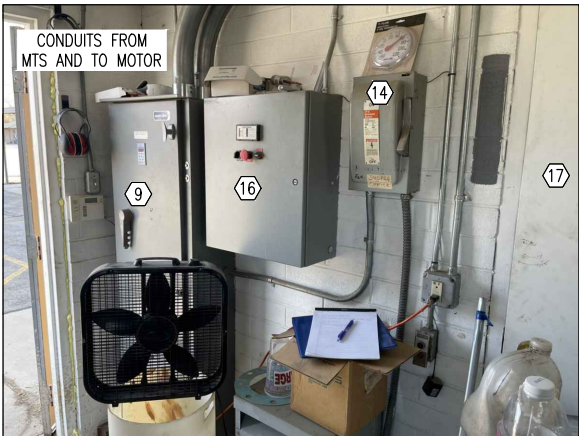
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ELECTRICAL TABLES

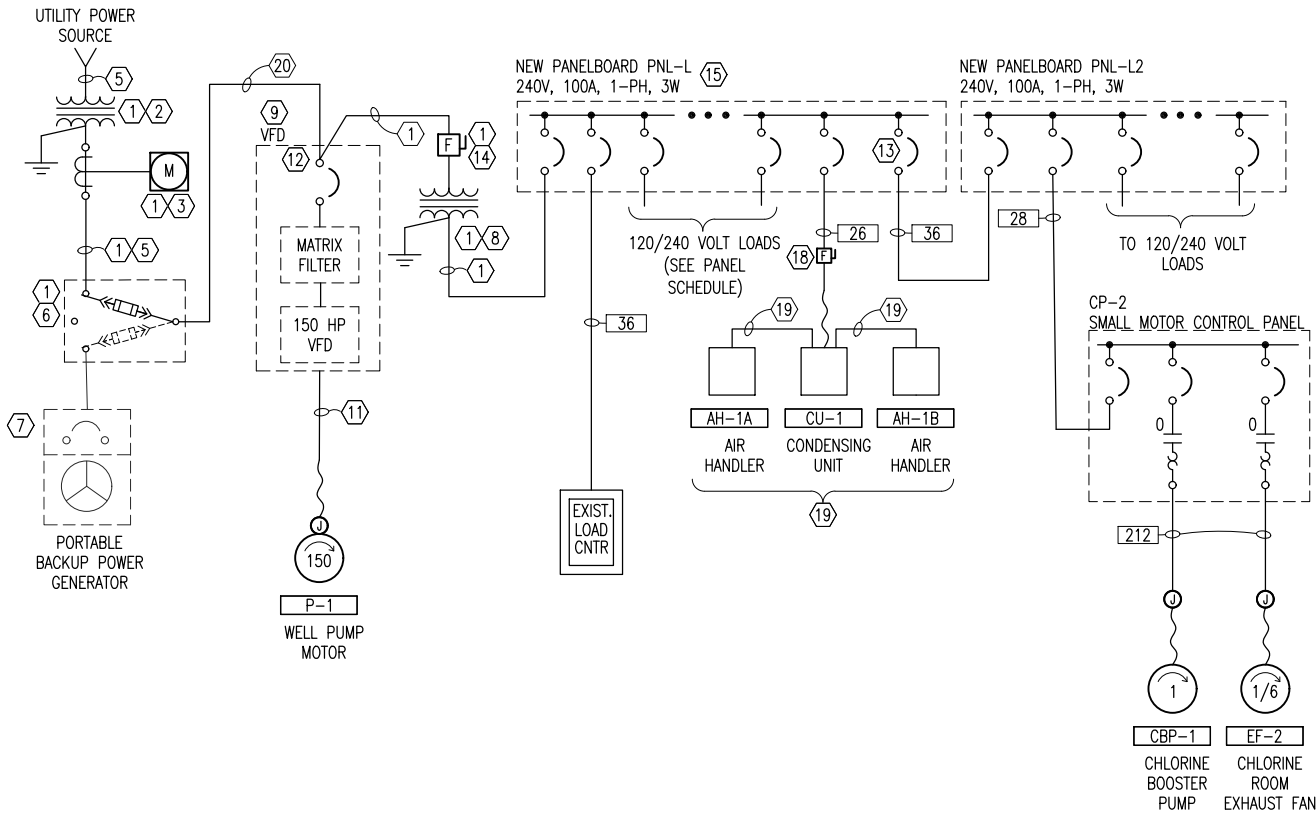
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0" VERIFY SCALE
1"
BAR IS ONE INCH ON ORIGINAL
DRAWING. IF NOT ONE INCH ON THIS
SHEET, ADJUST SCALES ACCORDINGLY.

DRAWING SCALE: AS SHOWN	
DRAWN BY: GDS	
DESIGNED BY: KBH	
ENGINEERED BY: KBH	
DATE: FEB. 2025	
SHEET NO. E1.2	HPE PROJECT NO. 25.011



EXISTING POWER ONE-LINE DIAGRAM



NEW POWER ONE-LINE DIAGRAM

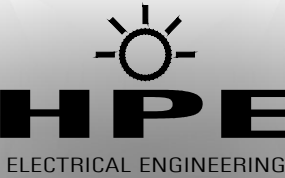
GENERAL NOTES:

1. REFER TO THE ELECTRICAL PLANS FOR THE EQUIPMENT LOCATIONS.
2. SOME EXISTING CONDUIT RUNS MAY REMAIN AND BE RE-USED. ADD NEW CONDUIT AS REQUIRED. PROVIDE NEW CONTINUOUS CONDUCTORS. SPLICING CONDUCTORS NOT PERMITTED.

SHEET KEYNOTES:

1. EQUIPMENT TO REMAIN AS-IS. NO CONTRACTOR WORK ANTICIPATED.
2. POLE MOUNTED UTILITY TRANSFORMERS.
3. UTILITY METERING CURRENT TRANSFORMERS ARE POLE MOUNTED WITH METER SOCKET ALSO POLE MOUNTED.
4. EXISTING LOADCENTER IS LOCATED IN THE STORAGE ROOM ON OPPOSITE SIDE OF THIS WALL.
5. OVERHEAD SERVICE POWER.
6. MAIN SERVICE DISCONNECT AND MANUAL 400A FUSED TRANSFER SWITCH.
7. OWNER MANUALLY CONNECTS A PORTABLE GENERATOR WHEN REQUIRED.
8. TRANSFORMER L: 25 KVA, 480V PRI, 240/120V SEC.
9. REDUCED VOLTAGE SOFT STARTER TO BE REMOVED. INSTALL VFD WITH HARMONIC FILTERS IN THE SAME LOCATION.
10. EXISTING CONDUIT/CONDUCTORS TO BE REMOVED. REPLACE WITH NEW VFD CABLE (SEE NOTE 11).
11. 2-1/2"C, SHIELDED 3C-#4/0, W/GROUND (BELDEN 29532 OR APPROVED EQUAL).
12. VFD SHALL HAVE DOUBLE LUGS.
13. PANELBOARD L2 IN THE CHLORINE BUILDING SHALL BE FED FROM THE NEW PANELBOARD PNL-L.
14. TRANSFORMER L DISCONNECT: FOR NEC CLEARANCE RELOCATE DISCONNECT TO NEW WALL.
15. NEW PANELBOARD PNL-L: INSTALL PANELBOARD ON NEW WALL. SUB-FEED EXISTING LOAD CENTER IN STORAGE ROOM.
16. REMOVE PLC ENCLOSURE.
17. REMOVE DOOR AND FRAME. REPLACE WITH BLOCK. MATCH WIDTH OF WALL.
18. 240V, 60A, 3P, NEMA 3R FUSED DISCONNECT. FUSE AT 35A.
19. THE COOLING EQUIPMENT WILL BE A SPLIT-SYSTEM WITH TWO INDOOR AIR HANDLERS. POWER FOR THE INDOOR UNITS PROVIDED BY OUTDOOR UNIT. REFER TO MANUFACTURER'S INSTALLATION REQUIREMENTS FOR WIRE AND CONDUIT REQUIREMENTS. HVAC PROVIDED AND INSTALLED BY OTHERS.
20. IF OF ADEQUATE LENGTH, THE EXISTING CONDUIT/CONDUCTORS MAY REMAIN. IF NOT, REPLACE WIRE AND CONDUIT AS REQUIRED.

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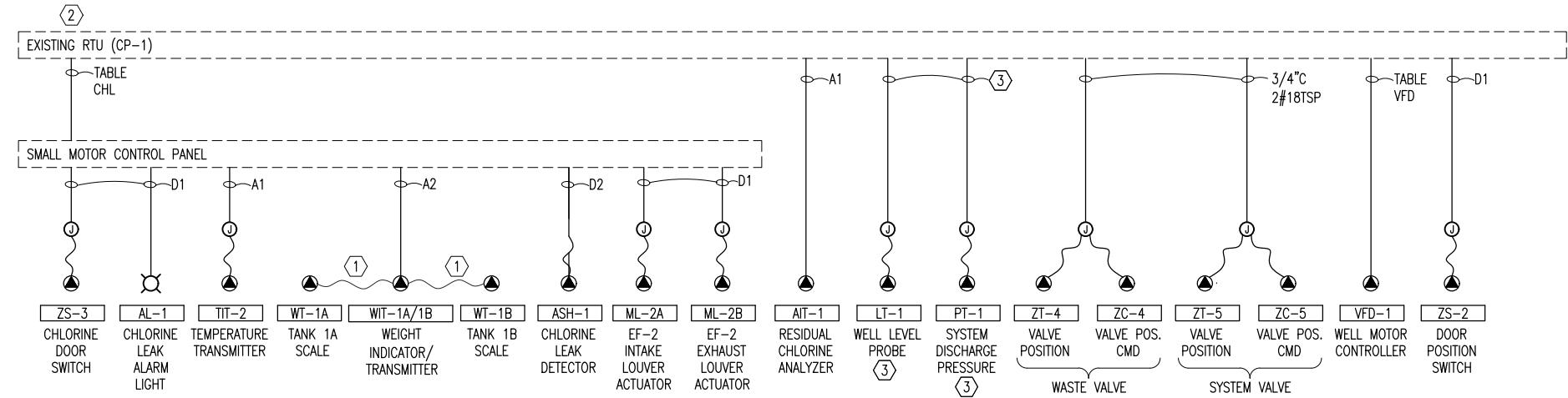
WELL 1 POWER
ONE-LINE DIAGRAMS

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INSTRUMENTATION AND CONTROL
ONE-LINE DIAGRAM

I&C WIRE/CONDUIT TABLE				
IDENT.	CONDUIT SIZE	CONDUCTOR		SIGNAL DESCRIPTION
		QTY	SIZE	
A1	3/4"	1	#18TSP	1 ANALOG SIGNAL
A2	3/4"	2	#18TSP	2 ANALOG SIGNALS
A3	3/4"	3	#18TSP	3 ANALOG SIGNALS
IDENT.	CONDUIT SIZE	CONDUCTOR		SIGNAL DESCRIPTION
		QTY	SIZE	
D1	3/4"	2	#14	1 DISCRETE SIG.
D2	3/4"	4	#14	2 DISCRETE SIG.
D3	3/4"	6	#14	3 DISCRETE SIG.

TABLE CHL (RTU TO SMCP-1)			
CONDUIT SIZE	CONDUCTOR		GENERATOR SIGNAL DESCRIPTION
	QTY	SIZE	
1"	2	#14	CBP-1 COMMAND RUN
	2	#14	CBP-1 HOA IN AUTO
	2	#14	CBP-1 HOA IN HAND
	2	#14	CBP-1 ON
	2	#14	CHLORINE ALARM LIGHT
	2	#14	CHLORINE DETECTOR REMOTE RESET
	2	#14	CHLORINE LEAK DETECTOR ALARM
	2	#14	CHLORINE RM DOOR NOT CLOSED
	2	#14	EF-2 HOA IN AUTO
	2	#14	EF-2 HOA IN HAND
	2	#14	EF-2 HOA IN ON
1"	1	#18TSP	CHLORINE TANK 1A WEIGHT
	1	#18TSP	CHLORINE TANK 1B WEIGHT
	1	#18TSP	CHLORINE ROOM TEMPERATURE
1"	1	PULL STRING	SPARE CONDUIT

TABLE VFD (RTU TO VFD CONTROLLER)			
CONDUIT SIZE	CONDUCTOR		GENERATOR SIGNAL DESCRIPTION
	QTY	SIZE	
1"	2	#14	FILTER HIGH TEMPERATUR EALARM
	2	#14	VFD BACKSPIN DELAY
	2	#14	VFD COMMAND RUN
	2	#14	VFD FAULT
	2	#14	VFD HS IN AUTO MODE
	2	#14	VFD HS IN HAND MODE
	2	#14	VFD RUNNING
	2	#14	VFD SHUTDOWN
	4	#14	SPARES
3/4"	1	#18TSP	VFD RUNNING SPEED
	1	#18TSP	VFD COMMAND SPEED
3/4"	1	PULL STRING	SPARE CONDUIT (FUT. ETHERNET)



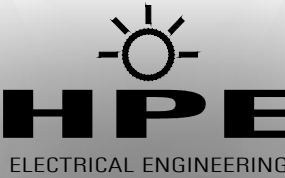
GENERAL NOTES:

- REFER TO ELECTRICAL PLANS FOR EQUIPMENT AND DEVICE LOCUTIONS.
- WELL #5: THE REDUCED VOLTAGE MOTOR CONTROLLER TO SCADA RTU WIRING SHALL REMAIN AS-IS. NO CONTRACTOR ANTICIPATED. MAINTAIN CIRCUIT INTEGRITY.

SHEET KEYNOTES:

- CABLES SUPPLIED BY MANUFACTURER WITH INDICATOR/TRANSMITTER UNIT.
- EXISTING RTU IS IN THE WELL ROOM. ADD NEW CHLORINE EQUIPMENT CIRCUITS AS SHOWN.
- DEVICE IS EXISTING. CONDUIT AND WIRE ARE EXISTING.

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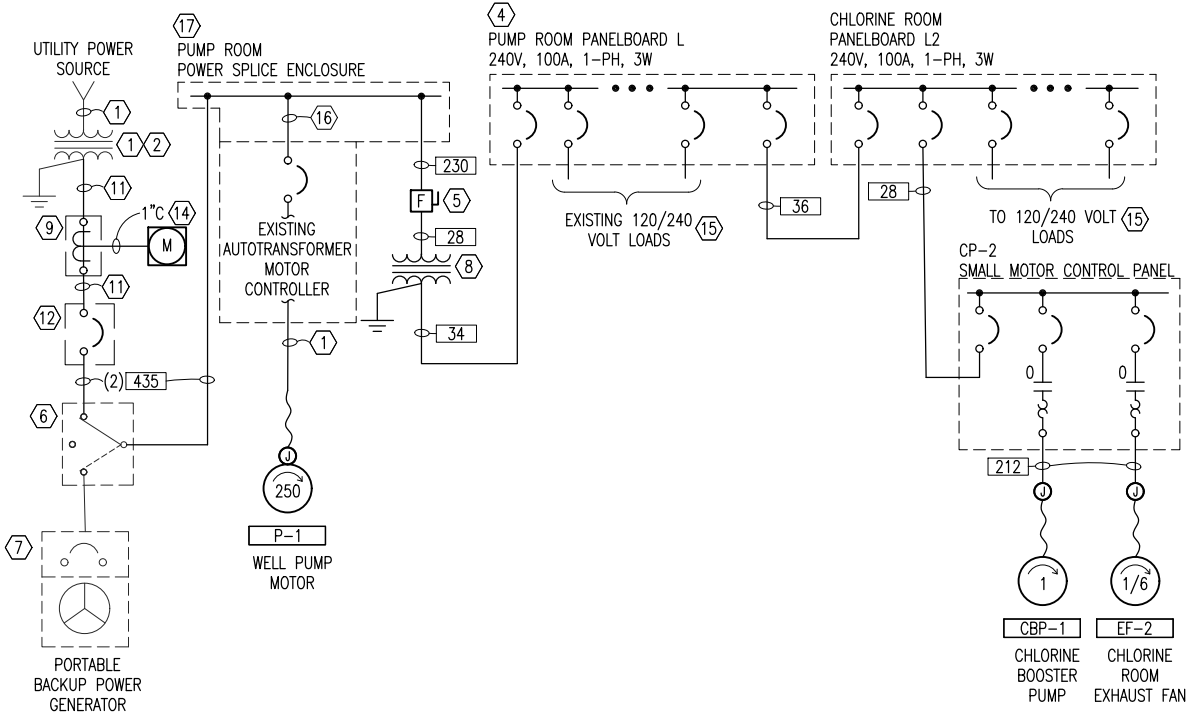
WELL 1 INST. &
CONTROL ONE-LINE
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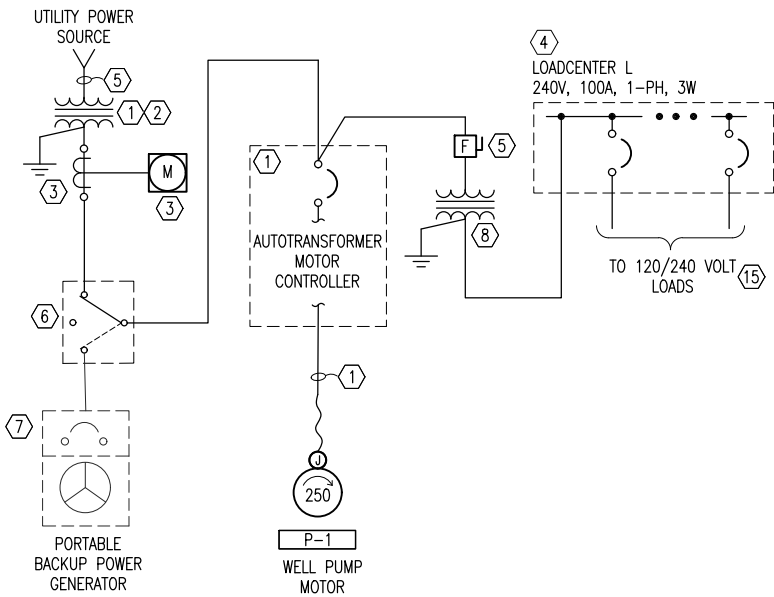
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NEW POWER ONE-LINE DIAGRAM



EXISTING POWER ONE-LINE DIAGRAM

GENERAL NOTES:

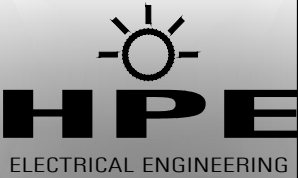
1. REFER TO THE ELECTRICAL PLANS FOR THE EQUIPMENT LOCATIONS.
2. SOME EXISTING CONDUIT RUNS MAY REMAIN AND BE RE-USED. ADD NEW CONDUIT AS REQUIRED. PROVIDE NEW CONTINUOUS CONDUCTORS. SPLICING CONDUCTORS NOT PERMITTED.

SHEET KEYNOTES:

1. EQUIPMENT TO REMAIN AS-IS. NO CONTACTOR WORK ANTICIPATED.
2. PAD MOUNTED UTILITY TRANSFORMER. COORDINATE WITH UTILITY COMPANY FOR OUTAGE TO PERFORM WORK.
3. UTILITY METERING CURRENT TRANSFORMERS ARE INSTALLED IN THE TRANSFORMER SECONDARY CABINET. COORDINATE WITH UTILITY COMPANY TO REMOVE TRANSFORMERS. REMOVE METER SOCKET.
4. LOADCENTER L: REMOVE LOAD CENTER AND REPLACE WITH A NEW PANELBOARD.
5. TRANSFORMER L FUSED DISCONNECT: REMOVE EXISTING AND REPLACE WITH A NEW 60A/600V/NEMA 1 FUSED DISCONNECT. FUSE AT 40A.
6. MANUAL TRANSFER SWITCH (MTS): MTS LOCATED INSIDE THE PUMP ROOM.
7. WHEN REQUIRED, OWNER MANUALLY CONNECTS A PORTABLE GENERATOR TO THE TRANSFER SWITCH.
8. TRANSFORMER L: REMOVE EXISTING 10 KVA, 480V PRI, 240/120V SEC. AND REPLACE WITH A 15 KVA, 480V PRI, 120/240V SEC. TRANSFORMER ON A RAISED HOUSEKEEPING PAD.
9. CURRENT TRANSFORMER (CT) ENCLOSURE: PROVIDE A NEW CT ENCLOSURE, 600V, 600A (MIN), 3-POLE, AS REQUIRED BY ROCKY MOUNTAIN POWER.
10. WELL PUMP MOTOR CONTROLLER.
11. TWO 4" CONDUITS. CONDUCTOR PROVIDED AND INSTALLED BY UTILITY COMPANY.
12. MAIN SERVICE DISCONNECT: 480V (MIN), 600A, 3P CIRCUIT BREAKER IN A NEMA 3R ENCLOSURE. LABEL AS "MAIN SERVICE DISCONNECT" AND AS REQUIRED BY NEC 110.24.
13. TWO EACH (3"C, W/4-350KCMIL, #1G).
14. METER SOCKET: PROVIDED AND INSTALLED BY CONTRACTOR AS REQUIRED BY UTILITY COMPANY.
15. REFER TO PANEL SCHEDULES FOR OTHER LOW VOLTAGE LOADS.
16. TWO EACH 4/0 PER PHASE.
17. PROVIDE AND INSTALL A NEW ENCLOSURE ABOVE THE MOTOR CONTROLLER AND INSTALL INSULATED POWER SPLICES. ENCLOSURE SIZED BY CONTRACTOR.

ELECTRICAL UTILITY INSTALLATION		
UTILITY INFORMATION		
UTILITY COMPANY:	ROCKY MOUNTAIN POWER	
UTILITY COMPANY CONTACT:		
CONTACT INFORMATION: PHONE:		
SERVICE PRIMARY		
PRIMARY TRENCHING/BACKFILL	SUPPLIED BY: -	INSTALLED BY: CONTRACTOR
PRIMARY CONDUIT	CONTRACTOR	CONTRACTOR
PRIMARY CONDUCTOR	UTILITY COMPANY	UTILITY COMPANY
SERVICE TRANSFORMER		
TRANSFORMER PAD	CONTRACTOR	CONTRACTOR
TRANSFORMER	UTILITY COMPANY	UTILITY COMPANY
SERVICE SECONDARY		
SECONDARY TRENCHING/BACKFILL	SUPPLIED BY: -	INSTALLED BY: CONTRACTOR
SECONDARY CONDUIT	CONTRACTOR	CONTRACTOR
SECONDARY CONDUCTOR	UTILITY COMPANY	UTILITY COMPANY
METERING EQUIPMENT		
METER	UTILITY COMPANY	UTILITY COMPANY
METER SOCKET	CONTRACTOR	CONTRACTOR
COMBO METER/MAIN	-	-
CURRENT TRANSFORMER ENCL.	CONTRACTOR	CONTRACTOR
CT MOUNTING BASE	CONTRACTOR	CONTRACTOR
MAIN SERVICE DISCONNECT	CONTRACTOR	CONTRACTOR
CT ENCL. TO METER SOCKET WIRING	UTILITY COMPANY	UTILITY COMPANY
CT ENCL. TO METER SOCKET CONDUIT	CONTRACTOR	CONTRACTOR
MAIN SERVICE DISCONNECT		
CIRCUIT BREAKER	CONTRACTOR	CONTRACTOR
FUSED DISCONNECT SWITCH	-	-

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WELL 5 POWER
ONE-LINE DIAGRAM

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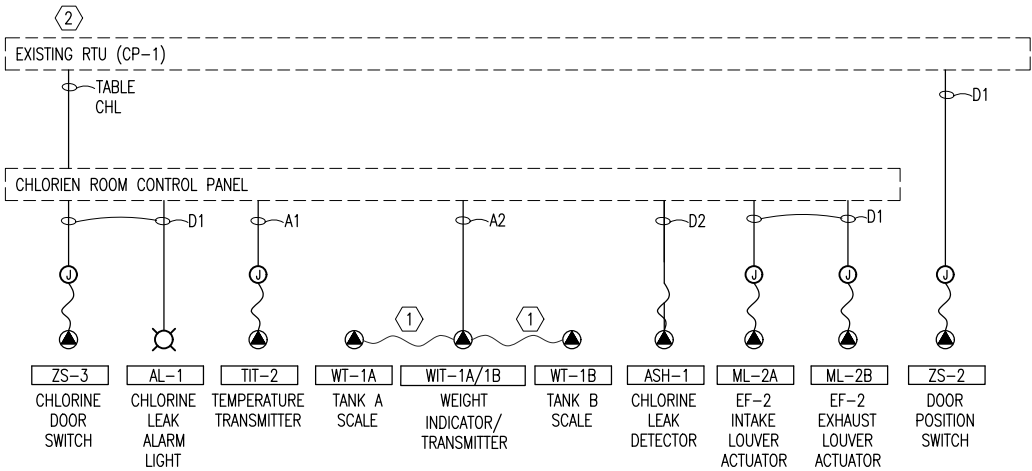
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E2.3 25.011



INSTRUMENTATION AND CONTROL
ONE-LINE DIAGRAM

I&C WIRE/CONDUIT TABLE

IDENT.	CONDUIT SIZE	CONDUCTOR		SIGNAL DESCRIPTION
		QTY	SIZE	
A1	3/4"	1	#18TSP	1 ANALOG SIGNAL
A2	3/4"	2	#18TSP	2 ANALOG SIGNALS
A3	3/4"	3	#18TSP	3 ANALOG SIGNALS
IDENT.	CONDUIT SIZE	QTY	CONDUCTOR SIZE	SIGNAL DESCRIPTION
D1	3/4"	2	#14	1 DISCRETE SIG.
D2	3/4"	4	#14	2 DISCRETE SIG.
D3	3/4"	6	#14	3 DISCRETE SIG.

TABLE CHL (RTU TO SMCP-1)

CONDUIT SIZE	CONDUCTOR		GENERATOR SIGNAL DESCRIPTION
	QTY	SIZE	
1"	2	#14	CBP-1 COMMAND RUN
	2	#14	CBP-1 HOA IN AUTO
	2	#14	CBP-1 HOA IN HAND
	2	#14	CBP-1 ON
	2	#14	CHLORINE ALARM LIGHT
	2	#14	CHLORINE DETECTOR REMOTE RESET
	2	#14	CHLORINE LEAK DETECTOR ALARM
	2	#14	CHLORINE RM DOOR NOT CLOSED
	2	#14	EF-2 HOA IN AUTO
	2	#14	EF-2 HOA IN HAND
1"	1	#18TSP	CHLORINE TANK 1A WEIGHT
	1	#18TSP	CHLORINE TANK 1B WEIGHT
	1	#18TSP	CHLORINE ROOM TEMPERATURE
1"	1	PULL STRING	SPARE CONDUIT

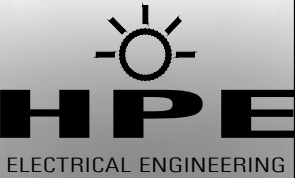
GENERAL NOTES:

1. REFER TO ELECTRICAL PLANS FOR EQUIPMENT AND DEVICE LOCATIONS.

SHEET KEYNOTES:

1. CABLES SUPPLIED BY MANUFACTURER WITH INDICATOR/TRANSMITTER UNIT.
2. EXISTING RTU IS IN THE WELL ROOM NORTH WALL (SEE PHOTO ON E2.3). ADD NEW CHLORINE EQUIPMENT CIRCUITS AS SHOWN.

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WELL 5 INST. &
CONTROL ONE-LINE
DIAGRAM

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E2.4

HPE PROJECT NO.

25.011

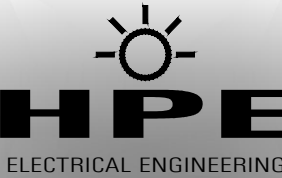


CONDUIT SIZE	CONDUCTOR		GENERATOR SIGNAL DESCRIPTION
	QTY	SIZE	
1"	2	#14	FILTER HIGH TEMPERATURE ALARM
	2	#14	VFD BACKSTOP DELAY
	2	#14	VFD COMMAND RUN
	2	#14	VFD FAULT
	2	#14	VFD HS IN AUTO MODE
	2	#14	VFD HS IN HAND MODE
	2	#14	VFD RUNNING
	2	#14	VFD SHUTDOWN
	4	#14	SPARES
3/4"	1	#18TSP	VFD RUNNING SPEED
	1	#18TSP	VFD COMMAND SPEED
	1	PULL STRING	SPARE CONDUIT (FUT. ETHERNET)
3/4"			

1. CONTROL WIRING DIAGRAM SHOWN IS CONCEPTUAL AND IS INTENDED TO SHOW THE CONTROL PHILOSOPHY. IT SHALL BE MODIFIED AS REQUIRED FOR THE SPECIFIC VFD SUPPLIED.

1. PROVIDE VFD MEMBRANE CONTROL STATION ON VFD ENCLOSURE DOOR.
2. FUSES SIZED BY VFD SUPPLIER.
3. FILTER CAPACITORS SHALL BE DE-ENERGIZED WHEN VFD IS OPERATING LESS THAN 30 HERTZ.
4. VFD VENTILATION FAN(S) SHALL BE THERMOSTATICALLY CONTROLLED AND OPERATE WHEN VFD IS RUNNING.
5. PROVIDE SIGNAL CONVERTER AS REQUIRED.
6. DEVICE INSTALLED IN ENCLOSURE DOOR AND AVAILABLE TO THE OPERATOR.
7. PROVIDE POWER SUPPLY AS REQUIRED.
8. VFD SHALL SHUTDOWN ON HIGH OR LOW PRESSURE ON BOTH HAND AND AUTO MODE CONTROL.

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TYPICAL VFD CONTROL DIAGRAM

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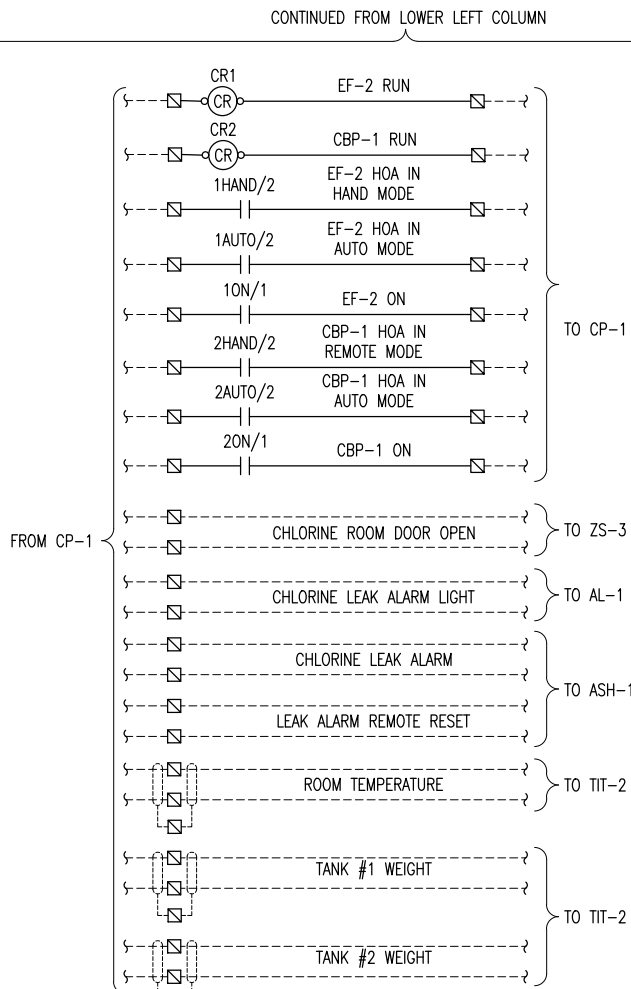
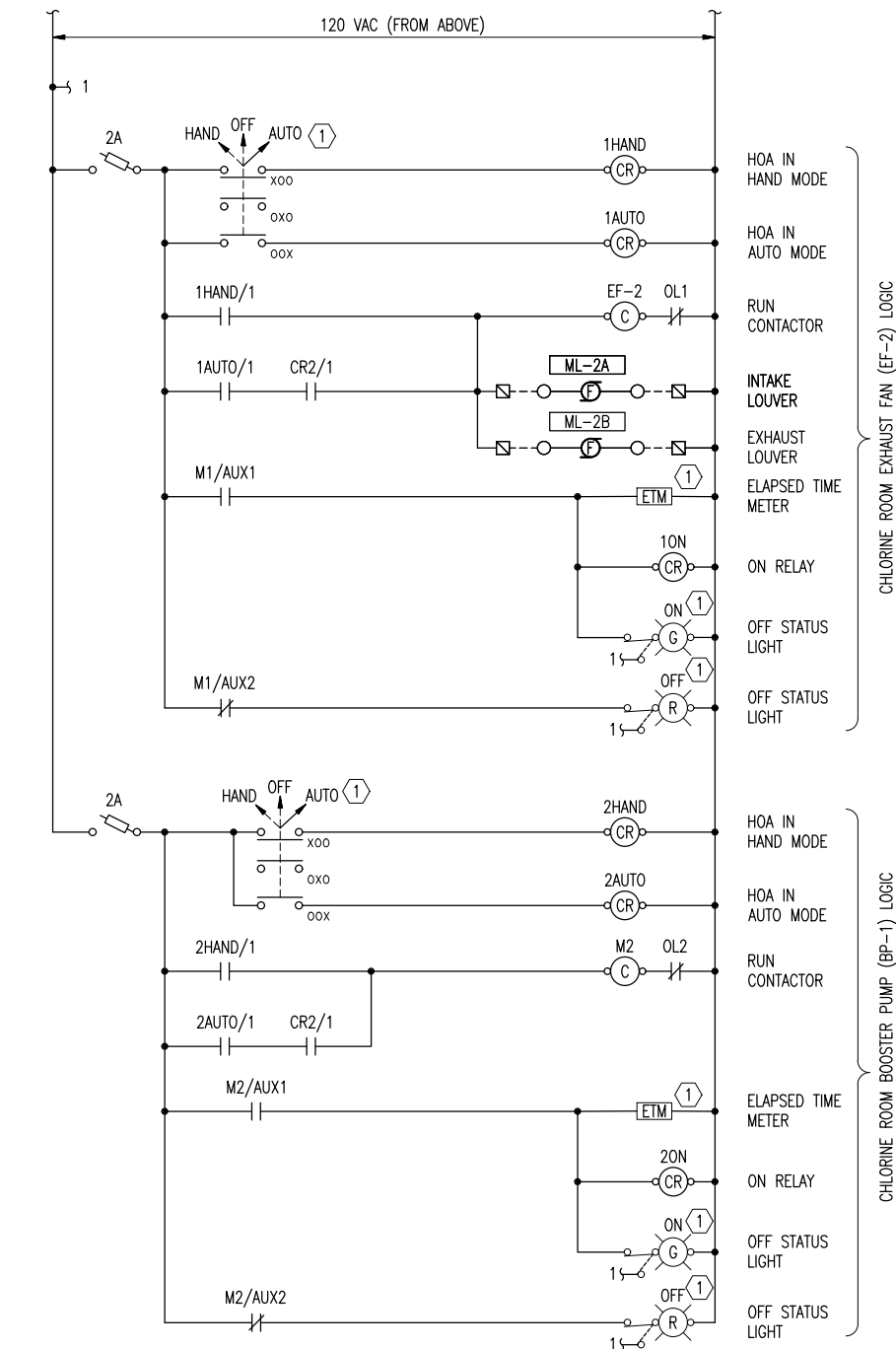
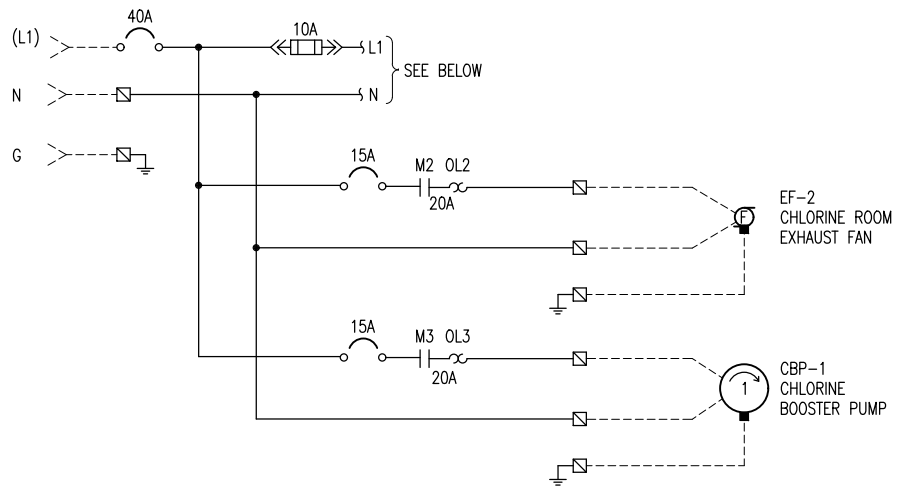
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PANEL CONTROL DIAGRAM

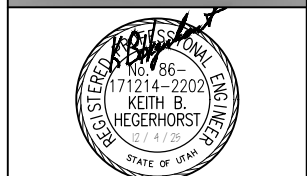
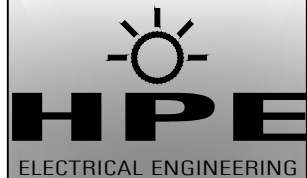
GENERAL NOTES:

1. TYPICAL EXTERNAL ARRANGEMENT SHOWN ON E5.2.
2. CONTRACTOR SHALL PROVIDE FUSE, TERMINAL AND WIRE NUMBERS AS REQUIRED.

SHEET KEYNOTES:

1. DEVICE LOCATED ON ENCLOSURE DOOR AND AVAILABLE TO THE OPERATOR.
2. FIELD LOCATE SWITCH NEAR CHLORINE BOOSTER PUMP IN CHLORINE ROOM.

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CP-2 SMALL MOTOR
CONTROL PANEL

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WELL #1 EXISTING MTS-1 MANUAL FUSED TRANSFER SWITCH

LOCATION: WELL #1 WELL ROOM		MFGR: EXISTING				400 AMPS					
DIMENSIONS: "Wx "Dx "H		TYPE:									
MOUNTING: SURFACE		NEMA: 1									
FEED: TBD											
		PHASE LOADS									
BRKR		WIRE	CONT.	N-CONT.		A		B		C	
A	P	SIZE	WATTS	WATTS	NO	CONT.	N-CONT.	CONT.	N-CONT.	CONT.	N-CONT.
-	3	-	141,957	760	2	47,702	180	47,752	580	46,502	0
TOTAL WATTS:			141,957	760		47,702	180	47,752	580	46,502	0
CONTINUOUS LOAD:			141,957								
CONTINUOUS LOAD * 125%:			177,447								
NON-CONTINUOUS LOAD:			760								
DESIGN WATTS:			178,207								
MIN. RATING (AMPS):			215								

WELL #1 EXISTING XFMR-L TRANSFORMER

LOCATION: WELL #1 WELL ROOM		7.8 PRIMARY AMPS		PRIMARY VOLTS: 480x240	
DIMENSIONS: 20"W x 20"D x 30"H		15.7 SECONDARY AMPS		SECONDARY VOLTS: 240x120	
MOUNTING: FLOOR				KVA: 25	
FEED: SIDE		FED FROM: PNL MTS-1			
		PHASE LOADS			
		CONT.	N-CONT.	A	B
		WATTS	WATTS	CONT.	N-CONT.
POWER PANEL L		2,400	760	1,150	180
				1,250	580
TOTAL WATTS:		2,400	760	1,150	180
CONTINUOUS LOAD:		2,400			
CONTINUOUS LOAD * 125%:		3,000			
NON-CONTINUOUS LOAD:		760			
DESIGN WATTS:		3,760			

WELL #1 EXISTING RVSS-1 MOTOR CONTROLLER

LOCATION: WELL #1 WELL ROOM			MFGR: EXISTING			VOLTS: 480					
DIMENSIONS: EXISTING			TYPE: RVSS			PHASE: 3					
MOUNTING:			NEMA: 1			WIRES: 3					
FEED: TOP			FED FROM: MTS-1								
			PHASE LOADS								
A	P	DESCRIPTION	WIRE SIZE	CONT. WATTS	N-CONT. WATTS	NO CONT.	A N-CONT.	B CONT.	N-CONT.	C CONT.	N-CONT.
-	2	VFD CONTROL POWER		50	0		50	0			
-	3	W1-P-1 EXISTING WELL PUMP	**	139,507	0		46,502	46,502		46,502	
-	2	EXISTING 25 KVA TRANSFORMER DISC.	26	2,400	760		1,150	180	1,250	580	0
TOTAL WATTS:				141,957	760		47,702	180	47,752	580	46,502
CONTINUOUS LOAD:				141,957							
CONTINUOUS LOAD * 125%:				177,447							
NON-CONTINUOUS LOAD:				760		** SEE POWER ONE-LINE DIAGRAM					
DESIGN WATTS:				178,207							
MIN. RATING (AMPS):				215							

WELL #1 EXISTING PNL-L LOAD CENTER

LOCATION: WELL #1 STORAGE ROOM				MFGR: SQUARE D				100 AMPS				VOLTS: 240/120									
DIMENSIONS: 15.44"W x "D x 19.12"H				TYPE: HOMEC12UC				X M.L.O.				PHASE: 1									
MOUNTING: SURFACE				NEMA: 1				10,000 A.I.C.				WIRES: 3									
FEED: BOTTOM												FED FROM: XFMR-L									
BRKR				CIRCUIT		CONT.		N-CONT.		A		B		N-CONT.		CONT.		CIRCUIT		BRKR	
A	P	DESCRIPTION		ID	WATTS	WATTS	NO	CONT.	N-CONT.	CONT.	N-CONT.	NO	WATTS	WATTS	ID	DESCRIPTION		A	P		
20	1	GFI OUTLET		E		180	12		0	180		11				AVAILABLE SPACE			1		
	1	EXHAUST FAN OUTLET		E	500		10			500	400	9	400		E	SCADA RTU ENCLOSURE		20	1		
30	2	BASEBOARD HEAT		E	750		8	750	0			7				AVAILABLE SPACE			1		
	-	-			750		6			750	0	5				AVAILABLE SPACE			1		
	1	AVAILABLE SPACE					4	400	0			3			400	E	AVAILABLE SPACE			1	
	1	AVAILABLE SPACE					2			0	180	1	180		E	COUNTER OUTLETS		20	1		
TOTAL WATTS:					2,000	180		1,150	180	1,250	580		580	400							
CONTINUOUS LOAD:					2,400																
CONTINUOUS LOAD * 125%:					3,000																
NON-CONTINUOUS LOAD:					760	E EXISTING WIRE/CONDUIT/CIRCUIT															
DESIGN WATTS:					3,760																
MIN. RATING (AMPS):					16																

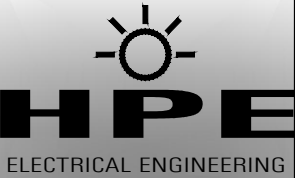
GENERAL NOTES:

1. THIS SHEET IS THE EXISTING WELL LOADS.

SHEET KEYNOTES:

1. NOT USED.

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REV:	DATE:	DESCRIPTION:	BY:
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HIGHLAND CITY
W#1 & #5 UPGRADE
HIGHLAND
UTAH

WELL 1, EXISTING
ELECTRICAL SCHEDULES

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AS SHOWN
DRAWN BY:
GDS
DESIGNED BY:
KBH
ENGINEERED BY:
KBH
DATE:
FEB. 2025
SHEET NO.
HPE PROJECT NO.

E3.125.011

WELL #1 UPDATED MTS-1 MANUAL FUSED TRANSFER SWITCH

LOCATION: WELL #1 WELL ROOM		MFGR: EXISTING				400 AMPS				
DIMENSIONS: SEE PHOTOS		TYPE:								
MOUNTING: SURFACE		NEMA: 1								
FEED: TBD										
		PHASE LOADS								
BRKR		WIRE	CONT.	N-CONT.	A		B		C	
A	P	DESCRIPTION	SIZE	WATTS	WATTS	NO	CONT.	N-CONT.	CONT.	N-CONT.
-	3	NEW VFD MOTOR CONTROLLER	-	149,449	1,752	2	50,536	876	52,410	876
									46,502	0
TOTAL WATTS:			149,449	1,752			50,536	876	52,410	876
CONTINUOUS LOAD:			149,449						46,502	0
CONTINUOUS LOAD * 125%:			186,812							
NON-CONTINUOUS LOAD:			1,752							
DESIGN WATTS:			188,564							
MIN. RATING (AMPS):			227							

EXISTING WELL #1 UPDATED XFMR-L TRANSFORMER

LOCATION: WELL #1 WELL ROOM		29.4 PRIMARY AMPS		PRIMARY VOLTS: 480x240	
DIMENSIONS: 20"W x 20"D x 30"H		58.8 SECONDARY AMPS		SECONDARY VOLTS: 240x120	
MOUNTING: FLOOR				KVA: 25	
FEED: SIDE				FED FROM: PNL MTS-1	
		PHASE LOADS			
		CONT.	N-CONT.	A	B
		WATTS	WATTS	CONT.	N-CONT.
POWER PANEL L		9,892	1,752	3,984	876
				5,908	876
TOTAL WATTS:		9,892	1,752	3,984	876
CONTINUOUS LOAD:		9,892			
CONTINUOUS LOAD * 125%:		12,365			
NON-CONTINUOUS LOAD:		1,752			
DESIGN WATTS:		14,117			

WELL #1 CP-2 SMALL MOTOR CONTROL PANEL

LOCATION: CHLORINE ROOM			MFGR: CUSTOM			VOLTS: 120		
DIMENSIONS: 16"Wx 1"Dx 20"H			TYPE:			PHASE: 1		
MOUNTING: SURFACE			NEMA: 1			WIRES: 3		
FEED: TBD			FED FROM: L2-7					
			PHASE LOADS					
BRKR			WIRE	CONT.	N-CONT.		A	
A	P	DESCRIPTION	SIZE	WATTS	WATTS	NO	CONT.	N-CONT.
10	1	CONTROL POWER		50	0		50	0
30	1	CBP-1 CHLORINE BOOSTER PUMP	212	1,920			1,920	0
15	1	EF-2 EXHAUST FAN	212	528	0		528	0
		UNASSIGNED SPACE						
		TOTAL WATTS:		2,498	0		2,498	0
		CONTINUOUS LOAD:		2,498				
		CONTINUOUS LOAD * 125%:		3,123				
		NON-CONTINUOUS LOAD:		0				
		DESIGN WATTS:		3,123				
		MIN. RATING (AMPS):		26				

WELL #1 NEW VFD-1 VARIABLE FREQUENCY CONTROLLER

LOCATION: WELL #1 WELL ROOM			MFGR: CUSTOM			VOLTS: 480						
DIMENSIONS: BY CONTRACTOR			TYPE:			PHASE: 3						
MOUNTING: FLOOR			NEMA: 1			WIRES: 3						
FEED: TOP			FED FROM: MTS-1									
			PHASE LOADS									
A	P	DESCRIPTION	WIRE SIZE	CONT. WATTS	N-CONT. WATTS	NO	A CONT.	N-CONT.	B CONT.	N-CONT.	C CONT.	N-CONT.
10	2	VFD CONTROL POWER		50	0		50	0				
250	3	W1-P-1 EXISTING WELL PUMP	**	139,507	0		46,502		46,502		46,502	
-	2	EXISTING 25 KVA TRANSFORMER DISC.	26	9,892	1,752		3,984	876	5,908	876		
TOTAL WATTS:				149,449	1,752		50,536	876	52,410	876	46,502	0
CONTINUOUS LOAD:				149,449								
CONTINUOUS LOAD * 125%:				186,812								
NON-CONTINUOUS LOAD:				1,752		** SEE POWER ONE-LINE DIAGRAM						
DESIGN WATTS:				188,564								
MIN. RATING (AMPS):				227								

WELL #1 NEW PNL-L PANELBOARD

LOCATION: WELL #1 PUMP ROOM			MFGR: SQUARE D			225 AMPS			VOLTS: 240/120								
DIMENSIONS: 20"W x 5.75"D x 44"H			TYPE: NQ			110 M.C.B.			PHASE: 1								
MOUNTING: SURFACE			NEMA: 1			10,000 A.I.C.			WIRES: 3								
FEED: BOTTOM												FED FROM: XFMR-L					
			PHASE LOADS														
BRKR			CIRCUIT	CONT.	N-CONT.	A		B		N-CONT.	CONT.	CIRCUIT		BRKR			
A	P	DESCRIPTION	ID	WATTS	WATTS	NO	CONT.	N-CONT.	CONT.	N-CONT.	NO	WATTS	WATTS	DESCRIPTION	A	P	
20	1	EF-2 EXHAUST FAN	E		180	1	0	528			2	348	212	VA-1 WASTE VALVE ACTUATOR	20	2	
20	1	AIT-1 RESIDUAL CHLORINE ANALYZER	212	50	3				50	348	4	348	-	-	-	-	
50	2	PANELBOARD L2	36	124	0	5	3,484	0			6		3,360	28	CU-1 CONDENSING UNIT	35	2
-	-	-	-	2,498	180	7			5,858	180	8		3,360	-	-	-	
20	1	EXISTING CONTROL PANEL/TRU	E	500	9		500	348			10	348	212	VA-2 SYSTEM VALVE ACTUATOR	20	2	
1		AVAILABLE SPACE	34	0	11				0	348	12	348	-	-	-	-	
60	2	EXISTING STR. RM. LOADCENTER	34	1,150	180	13	1,330	180			14		180	-	EXISTING GFI OUTLET	20	1
1		AVAILABLE SPACE		1,250	580	15			1,250	580	16		-	-	-	-	
1		AVAILABLE SPACE			17	0	0				18			AVAILABLE SPACE		1	
1		AVAILABLE SPACE			19				0	0	20			AVAILABLE SPACE		1	
1		AVAILABLE SPACE			21	0	0				22			AVAILABLE SPACE		1	
1		AVAILABLE SPACE			23				0	0	24			AVAILABLE SPACE		1	
1		AVAILABLE SPACE			25	0	0				26			AVAILABLE SPACE		1	
1		AVAILABLE SPACE			27				0	0	28			AVAILABLE SPACE		1	
1		AVAILABLE SPACE			29	0	0				30			AVAILABLE SPACE		1	
TOTAL WATTS:				3,172	360		3,984	876	5,908	876			1,392	6,720			
CONTINUOUS LOAD:				9,892													
CONTINUOUS LOAD * 125%:				12,365													
NON-CONTINUOUS LOAD:				1,752		E	EXISTING WIRE/CONDUIT/CIRCUIT										
DESIGN WATTS:				14,117													
MIN. RATING (AMPS):				59													

WELL #1 NEW PNL-L2 PANELBOARD

LOCATION: WELL #1 CHLORINE ROOM				MFGR: SQUARE D				100 AMPS				VOLTS: 240/120							
DIMENSIONS: 20"W x 5.75"D x 26"H				TYPE: NQ				50 M.C.B.				PHASE: 1							
MOUNTING: SURFACE								10,000 A.I.C.				WIRES: 3							
FEED: BOTTOM												FED FROM: XFMR-L							
PHASE LOADS																			
BRKR		CIRCUIT		CONT.		N-CONT.		A		B		N-CONT.		CONT.		CIRCUIT		BRKR	
A	P	DESCRIPTION	ID	WATTS	WATTS	NO	NO	CONT.	N-CONT.	CONT.	N-CONT.	NO	WATTS	WATTS	ID	DESCRIPTION	A	P	
20	1	LTS, INTERIOR	212	56		0	1	74	0			2		18	212	LTS, EXTERIOR	20	1	
20	1	RECPT, INTERIOR	212		180	3				0	180	4		180	212	RECPT, EXTERIOR	20	1	
20	1	ASH-1 CHLORINE LEAK DETECTOR	212	50		5		50	950			6	950		212	UH-2 UNIT HEATER	20	1	
50	1	CP-1, SMALL MOTOR CONTROL PANEL	26	2,498	0	7				2,498	0	8		100	212	WIT-1A/1B CHLORINE TANK SCALE	20	1	
	1	AVAILABLE SPACE				9		0	0			10				SPARE	20	1	
	1	AVAILABLE SPACE				11				0	0	12				AVAILABLE SPACE		1	
	1	AVAILABLE SPACE				13		0	0			14				AVAILABLE SPACE		1	
	1	AVAILABLE SPACE				15				0	0	16				AVAILABLE SPACE		1	
50	2	MAIN CIRCUIT BREAKER				17		0	0			18				AVAILABLE SPACE		1	
-	-	-				19				0	0	20							
TOTAL WATTS:				2,604	180			124	950	2,498	180		950	298					
CONTINUOUS LOAD:				2,902															
CONTINUOUS LOAD * 125%:				3,628															
NON-CONTINUOUS LOAD:				1,130															
DESIGN WATTS:				4,758															
MIN. RATING (AMPS):				20															

GENERAL NOTES:

1. THIS SHEET ARE THE NEW EQUIPMENT LOADS WITH THE CHLORINE BUILDING ADDITION.

SHEET KEYNOTES:

1. NOT USED.

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HIGHLAND CITY

W#1 & #5 UPGRADE

HIGHLAND

UTAH

WELL 1, NEW ELECTRICAL
SCHEDULES

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1"

BAR IS ONE INCH ON ORIGINAL
DRAWING. IF NOT ONE INCH ON THIS
SHEET, ADJUST SCALES ACCORDINGLY.

DRAWING SCALE:

AS SHOWN

DRAWN BY:

GDS

DESIGNED BY:

KBH

ENGINEERED BY:

KBH

DATE:

FEB. 2025

SHEET NO.

E3.2

HPE PROJECT NO.

25.011

WELL #5 EXISTING MTS-1 MANUAL TRANSFER SWITCH

LOCATION: WELL #5 WELL ROOM				MFGR: EXISTING				400 AMPS					
DIMENSIONS: "Wx "Dx "H				TYPE:									
MOUNTING: SURFACE				NEMA: 1									
FEED: TBD													
				PHASE LOADS									
BRKR				WIRE	CONT.	N-CONT.	A		B		C		
A	P	DESCRIPTION		SIZE	WATTS	WATTS	NO	CONT.	N-CONT.	CONT.	N-CONT.	CONT.	N-CONT.
-	3	EXISTING MOTOR CONTROLLER		-	234,012	6,540	2	78,331	3,540	77,901	3,000	77,781	0
TOTAL WATTS:					234,012	6,540		78,331	3,540	77,901	3,000	77,781	0
CONTINUOUS LOAD:					234,012								
CONTINUOUS LOAD * 125%:					292,516								
NON-CONTINUOUS LOAD:					6,540								
DESIGN WATTS:					299,056								
MIN. RATING (AMPS):					360								

WELL #5 EXISTING XFMR-L TRANSFORMER

LOCATION: WELL #5 WELL ROOM				15.2 PRIMARY AMPS		PRIMARY VOLTS: 480x240	
DIMENSIONS: 9.75"W x 9.75"D x 14.75"H				30.5 SECONDARY AMPS		SECONDARY VOLTS: 240x120	
MOUNTING: WALL						KVA: 10	
FEED: SIDE						FED FROM: PNL MTS-1	
				PHASE LOADS			
		CONT.	N-CONT.	A		B	
		WATTS	WATTS	CONT.	N-CONT.	CONT.	N-CONT.
POWER PANEL L		620	6,540	500	3,540	120	3,000
TOTAL WATTS:		620	6,540	500	3,540	120	3,000
CONTINUOUS LOAD:		620					
CONTINUOUS LOAD * 125%:		775					
NON-CONTINUOUS LOAD:		6,540					
DESIGN WATTS:		7,315					

WELL #5 EXISTING MOTOR CONTROLLER

LOCATION: WELL #5 WELL ROOM				MFGR:				VOLTS: 480				
DIMENSIONS: "Wx "Dx "H				TYPE: TWO SPEED				PHASE: 3				
MOUNTING: FLOOR				NEMA: 1				WIRES: 3				
FEED: TBD				FED FROM: MTS-1								
PHASE LOADS												
A	P	DESCRIPTION	WIRE SIZE	CONT. WATTS	N-CONT. WATTS	NO	CONT.	A N-CONT.	B CONT.	N-CONT.	C CONT.	N-CONT.
-	2	VFD CONTROL POWER		50	0		50	0				
-	3	W5-P-1 EXISTING WELL PUMP	**	233,342	0		77,781		77,781		77,781	
-	2	EXISTING 25 KVA TRANSFORMER DISC.	26	620	6,540		500	3,540	120	3,000	0	0
TOTAL WATTS:				234,012	6,540		78,331	3,540	77,901	3,000	77,781	0
CONTINUOUS LOAD:				234,012								
CONTINUOUS LOAD * 125%:				292,516								
NON-CONTINUOUS LOAD:				6,540		** SEE POWER ONE-LINE DIAGRAM						
DESIGN WATTS:				299,056								
MIN. RATING (AMPS):				360								

WELL #5 EXISTING PNL-L LOADCENTER

LOCATION: WELL #5 WELL ROOM				MFGR: SQUARE D				100 AMPS				VOLTS: 240/120					
DIMENSIONS: 15.44"W x "D x 19.12"H				TYPE: LOADCENTER				X M.L.O.				PHASE: 1					
MOUNTING: SURFACE				NEMA: 1				10,000 A.I.C.				WIRES: 3					
FEED:												FED FROM: XFMR-L					
PHASE LOADS																	
BRKR				CIRCUIT	CONT.	N-CONT.	A		B		N-CONT.	CONT.	CIRCUIT	BRKR			
A	P	DESCRIPTION	ID	WATTS	WATTS	NO	CONT.	N-CONT.	CONT.	N-CONT.	NO	WATTS	WATTS	ID	DESCRIPTION	A	P
20	1	RECEPTACLES	E		540	1	0	540			2		300	E	FAN	15	1
20	1	LIGHTS	E	120		3			120	1,500	4	1,500		E	WEST HEAT	20	2
20	2	EAST HEAT	E		1,500	5	0	3,000			6	1,500		-	-	-	-
-	-	-	-		1,500	7			0	1,500	8				SPARE	20	1
15	1	SCADA POWER	E	500		9	500	0			10				AVAILABLE SPACE	1	1
1		AVAILABLE SPACE				11			0	0	12				AVAILABLE SPACE		1
TOTAL WATTS:				620	3,540		500	3,540	120	3,000		3,000	300				
CONTINUOUS LOAD:				920													
CONTINUOUS LOAD * 125%:				1,150													
NON-CONTINUOUS LOAD:				6,540	E EXISTING WIRE/COJNDUIT/CIRCUIT												
DESIGN WATTS:				7,690													
MIN. RATING (AMPS):				32													

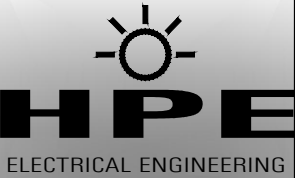
GENERAL NOTES:

1. THIS SHEET IS THE EXISTING WELL LOADS.

SHEET KEYNOTES:

1. NOT USED.

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HIGHLAND CITY
W#1 & #5 UPGRADE
HIGHLAND
UTAH

WELL 5, EXISTING
ELECTRICAL SCHEDULES

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AS SHOWN
DRAWN BY:
GDS
DESIGNED BY:
KBH
ENGINEERED BY:
KBH
DATE:
FEB. 2025
SHEET NO.
E3.3
HPE PROJECT NO.
25.011

ION: WELL #5 WELL ROOM		MFR: EXISTING				400 AMPS				
SIONS: "Wx "Dx "H		TYPE:								
TING: SURFACE		NEMA: 1								
TBD										
		PHASE LOADS								
2		WIRE	CONT.	N-CONT.		A		B		C
P	DESCRIPTION	SIZE	WATTS	WATTS	NO	CONT.	N-CONT.	CONT.	N-CONT.	CONT.
3	EXISTING MOTOR CONTROLLER	-	235,142	9,162	1	79,281	3,664	78,081	5,498	77,781
TOTAL WATTS:			235,142	9,162		79,281	3,664	78,081	5,498	77,781
CONTINUOUS LOAD:			235,142							
CONTINUOUS LOAD * 125%:			293,928							
NON-CONTINUOUS LOAD:			9,162							
DESIGN WATTS:			303,090							
MIN. RATING (AMPS):			365							

LOCATION: WELL #5 WELL ROOM						MFRG: SQUARE D						600 AMPS						VOLTS: 480Y/277					
DIMENSIONS: 26"W x 6.5"D x 52"H						TYPE: I-LINE, HCN						X M.L.O.						PHASE: 3					
MOUNTING: SURFACE						NEMA: 1						42,000 A.I.C.						WIRES: 4					
FEED:																		FED FROM: MTS					
BRKR						PHASE LOADS												BRKR					
A	P	DESCRIPTION	CIRCUIT ID	CONT. WATTS	N-CONT. WATTS	NO	A		B		C		N-CONT. WATTS	CONT. WATTS	CIRCUIT ID	DESCRIPTION	A	P					
						CONT.	N-CONT.																
600	3	WS MOTOR CONTROLLER	2-340	77,831	0	1	79,281	3,664					2	3,664	1,450	36	NEW 15 KVA TRANSFORMER	40	2				
-	-	-	-	77,781	0	3			78,081	5,498			4	5,498	300	-	-	-					
-	-	-	-	77,781	0	5					77,781		0	6		AVAILABLE SPACE	-	1					
1		AVAILABLE SPACE			7		0	0					8			AVAILABLE SPACE		1					
1		AVAILABLE SPACE			9				0	0			10			AVAILABLE SPACE		1					
1		AVAILABLE SPACE			11						0	0	12			AVAILABLE SPACE		1					
1		AVAILABLE SPACE			13		0	0					14			AVAILABLE SPACE		1					
1		AVAILABLE SPACE			15				0	0			16			AVAILABLE SPACE		1					
1		AVAILABLE SPACE			17						0	0	18			AVAILABLE SPACE		1					
TOTAL WATTS:				233,392	0		79,281	3,664	78,081	5,498	77,781	0	9,162	1,750									
CONTINUOUS LOAD:				235,142																			
CONTINUOUS LOAD * 125%:				293,928																			
NON-CONTINUOUS LOAD:				9,162																			
DESIGN WATTS:				303,090																			
MIN. RATING (AMPS):				365																			

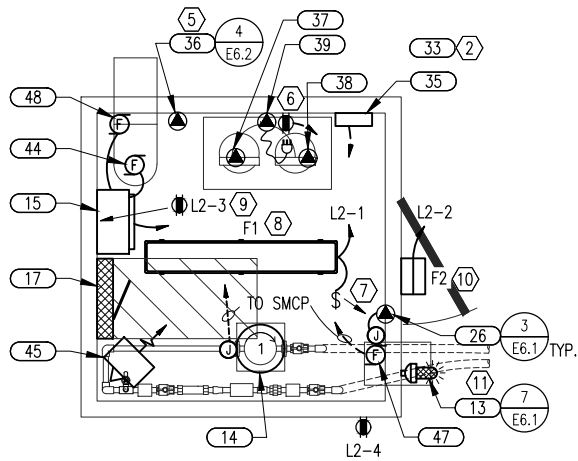
E3.4

LOCATION: WELL #5 WELL ROOM						MFGR: SQUARE D				100 AMPS				VOLTS: 240/120					
DIMENSIONS: 15.44"W x "D x 19.12"H						TYPE: NQ				75 M.C.B.				PHASE: 1					
MOUNTING: SURFACE						NEMA: 1				10,000 A.I.C.				WIRES: 3					
FEED:						FED FROM: XFMR-L													
		PHASE LOADS																	
		CIRCUIT	CONT.	N-CONT.	A				B		N-CONT.		CONT.	CIRCUIT		BRKR			
A	P	ID	WATTS	WATTS	NO	CONT.	N-CONT.	CONT.	N-CONT.	NO	WATTS	WATTS	ID	DESCRIPTION	A	P			
20	1	RECEPTACLES	E		540	1	0	540		2			300	E	FAN	15	1		
20	1	LIGHTS	E	120		3			120	4	1,500		E	WEST HEAT	20	2			
20	2	EAST HEAT	E		1,500	5	0	3,000		6	1,500		-	-	-	-			
-	-	-	-		1,500	7			0	8				S-PARE	20	1			
15	1	SCADA POWER	E	500		9	1,450	124		10	124	950	36	PANEL L2	50	2			
	1	AVAILABLE SPACE				11			180	12	2,498	180	-	-	-	-			
						13	0	0		14									
	3	MAIN CIRCUIT BREAKER	-			15			0	16									
-	-	-	-			17	0	0		18									
TOTAL WATTS:				620	3,540		1,450	3,664	300	5,498		5,622	1,430						
CONTINUOUS LOAD:				2,050															
CONTINUOUS LOAD * 125%:				2,563															
NON-CONTINUOUS LOAD:				9,162		E EXISTING WIRE/CONDUIT/CIRCUIT													
DESIGN WATTS:				11,725															
MIN. RATING (AMPS):				49															

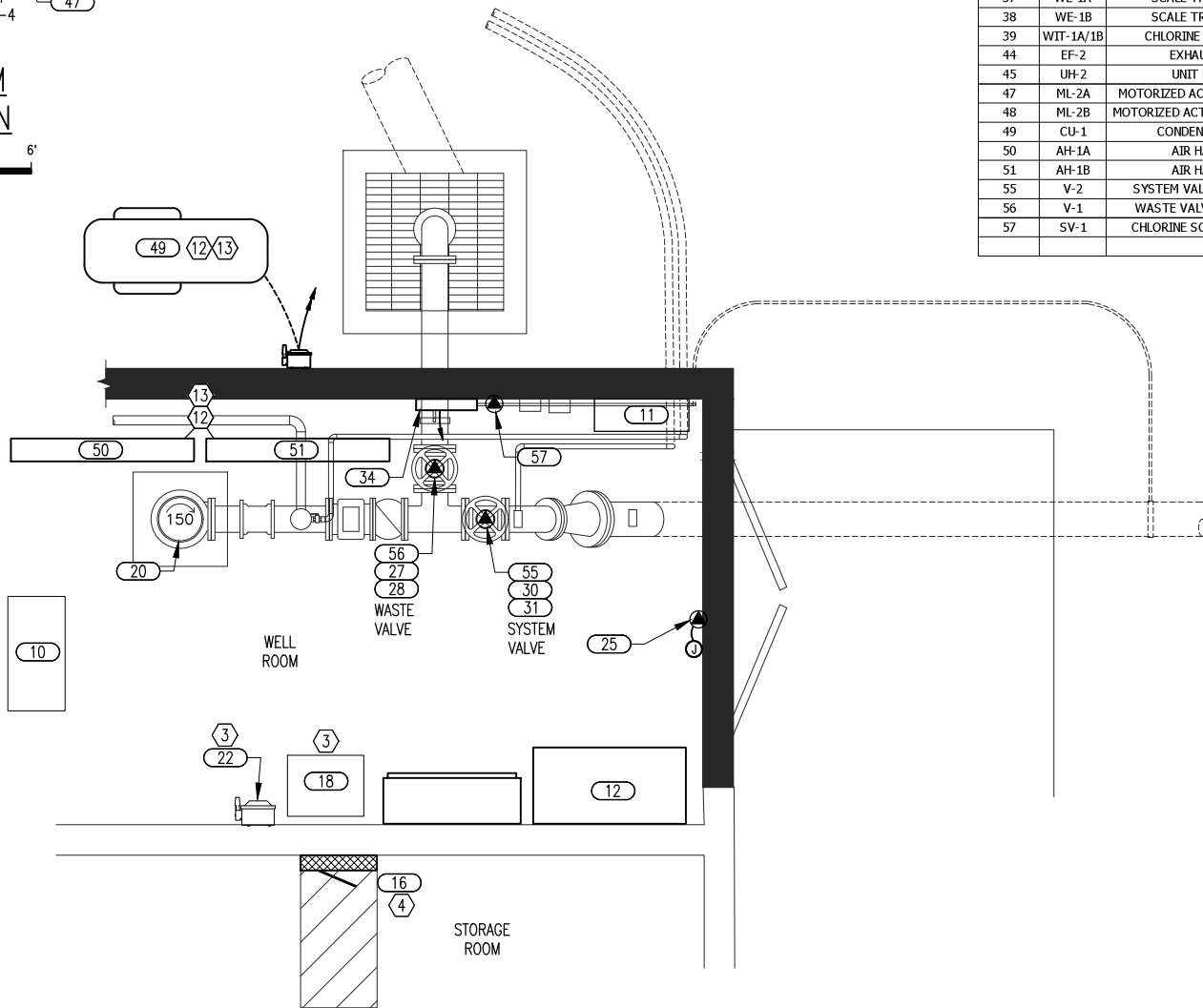
LOCATION: WELL #5 WELL ROOM	23.6 PRIMARY AMPS		PRIMARY VOLTS: 480x240			
DIMENSIONS: 9.75"W x 9.75"D x 14.75"H	47.3 SECONDARY AMPS		SECONDARY VOLTS: 240x120			
MOUNTING: WALL			KVA: 15			
FEED: SIDE			FED FROM: F. DISC			
	PHASE LOADS					
	CONT. WATTS	N-CONT. WATTS	A CONT.	N-CONT.	B CONT.	N-CONT.
POWER PANEL L	1,750	9,162	1,450	3,664	300	5,498
TOTAL WATTS:	1,750	9,162	1,450	3,664	300	5,498
CONTINUOUS LOAD:	1,750					
CONTINUOUS LOAD * 125%:	2,188					
NON-CONTINUOUS LOAD:	9,162					
DESIGN WATTS:	11,350					

LOCATION: CHLORINE ROOM		MFR: CUSTOM		VOLTS: 120	
DIMENSIONS: 16"Wx 20"H		TYPE:		PHASE: 1	
MOUNTING: SURFACE		NEMA: 1		WIRES: 3	
FEED: TBD		FED FROM: L2-7			
		PHASE LOADS			
BRKR				A	B
A	P	DESCRIPTION	WIRE SIZE	CONT. WATTS	N-CONT. WATTS
10	1	CONTROL POWER		50	0
30	1	CBP-1 CHLORINE BOOSTER PUMP	212	1,920	0
15	1	EF-2 EXHAUST FAN	212	528	0
		UNASSIGNED SPACE			
TOTAL WATTS:			2,498	0	
CONTINUOUS LOAD:			2,498		
CONTINUOUS LOAD * 125%:			3,123		
NON-CONTINUOUS LOAD:			0		
DESIGN WATTS:			3,123		
MIN. RATING (AMPS):			26		

LOCATION: WELL #5 CHLORINE ROOM						MFGR: SQUARE D				100 AMPS				VOLTS: 240/120			
DIMENSIONS: 20"W x 5.75"D x 26"H						TYPE: NQ				50 M.C.B.				PHASE: 1			
MOUNTING: SURFACE										10,000 A.I.C.				WIRES: 3			
FEED: BOTTOM														FED FROM: L-12, 14			
BRKR			CIRCUIT	CONT.	N-CONT.	PHASE LOADS									BRKR		
A	P	DESCRIPTION	ID	WATTS	NO	CONT.	N-CONT.	B CONT.	N-CONT.		N-CONT. NO	CONT. WATTS	CIRCUIT ID	DESCRIPTION	A	P	
20	1	LTS, INTERIOR	212	56	0	1	74	0			2		18	212	LTS, EXTERIOR	20	1
20	1	RECPT, INTERIOR	212		180	3			0	180	4		180	212	RECPT, EXTERIOR	20	1
20	1	ASH-1 CHLORINE LEAK DETECTOR	212	50	5		50	950			6	950	212	UH-2 UNIT HEATER	20	1	
50	1	CP-1, SMALL MOTOR CONTROL PANEL	26	2,498	0	7			2,498	0	8		100	212	WIT-1A/1B CHLORINE TANK SCALE	20	1
	1	AVAILABLE SPACE			9		0	0			10				SARE	20	1
	1	AVAILABLE SPACE			11				0	0	12				AVAILABLE SPACE		1
	1	AVAILABLE SPACE			13		0	0			14				AVAILABLE SPACE		1
	1	AVAILABLE SPACE			15				0	0	16				AVAILABLE SPACE		1
50	2	MAIN CIRCUIT BREAKER			17		0	0			18				AVAILABLE SPACE		1
-	-	-			19				0	0	20						
TOTAL WATTS:				2,604	180		124	950	2,498	180			950	298			
CONTINUOUS LOAD:				2,902													
CONTINUOUS LOAD * 125%:				3,628													
NON-CONTINUOUS LOAD:				1,130													
DESIGN WATTS:				4,758													
MIN. RATING (AMPS):				20													



CHLORINE ROOM
ELECTRICAL PLAN



WELL ROOM ELECTRICAL PLAN



WELL #1 PLAN ITEMS (E4.1)				
DRAWING ID	TAG	DESCRIPTION	POWER SOURCE	LOCATION
10	MTS-1	MANUAL TRANSFER SWITCH	UTILITY	WELL ROOM
11	CP-1/RTU	CONTROL PNL/RTU	L-9	WELL ROOM
12	VFD-1	WELL PUMP VFD	MTS-1	WELL ROOM
13	AL-1	ALARM LIGHT	CP-1/RTU	CHL. BLD. EXTERIOR
14	CBP-1	CHLORINE BOOSTER PUMP	CP-2	CHLORINE ROOM
15	CP-2	SMALL MOTOR CONTROL PANEL	L2-9	CHLORINE ROOM
16	PNL L	POWER PANEL	XFMR-L	WELL ROOM
17	PNL-L2	POWER PANEL	L-5,7	CHLORINE ROOM
18	XFMR-L	TRANSFORMER	VFD-1	WELL ROOM
20	P-1	WELL PUMP	VFD-1	WELL ROOM
21	TJB-1	TERMINAL J-BOX	N/A	CHLORINE ROOM
22	DISC-1	TRANSFORMER DISCONNECT	VFD-1	WELL ROOM
25	ZS-2	DOOR POSITION SWITCH	CP-1/RTU	WELL ROOM
26	ZS-3	DOOR POSITION SWITCH	CP-1/RTU	CHLORINE ROOM
27	ZT-4	V-1, SYSTEM VALVE POSITION	CP-1/RTU	WELL ROOM
28	ZC-4	V-1, VALVE POSITION CONTROLLER	CP-1/RTU	WELL ROOM
30	ZT-5	V-2, WASTE VALVE POSITION	CP-1/RTU	WELL ROOM
31	ZC-5	V-2, VALVE POSITION CONTROLLER	CP-1/RTU	WELL ROOM
33	AE-1	CHLORINE GAS SENSING PROBE	ASH-1	CHLORINE ROOM
34	AIT-1	RESIDUAL CHLORINE ANALYZER	L-3	WELL ROOM
35	ASH-1	CHLORINE LEAK DETECTOR	L2-5	CHLORINE ROOM
36	TTT-2	TEMPERATURE TRANSMITTER	CP-1/RTU	CHLORINE ROOM
37	WE-1A	SCALE TRANSDUCER	WIT-1A/1B	CHLORINE ROOM
38	WE-1B	SCALE TRANSDUCER	WIT-1A/1B	CHLORINE ROOM
39	WIT-1A/1B	CHLORINE TANK SCALE	L2-8	CHLORINE ROOM
44	EF-2	EXHAUST FAN	CP-2	CHLORINE ROOM
45	UH-2	UNIT HEATER	L2-6	CHLORINE ROOM
47	ML-2A	MOTORIZED ACTUATOR, INTAKE	CP-2	CHLORINE ROOM
48	ML-2B	MOTORIZED ACTUATOR, EXHAUST	CP-2	CHLORINE ROOM
49	CU-1	CONDENSING UNIT	L-6,8	WELL ROOM
50	AH-1A	AIR HANDLER	CU-1	WELL ROOM
51	AH-1B	AIR HANDLER	CU-1	WELL ROOM
55	V-2	SYSTEM VALVE ACTUATOR	L-10,12	WELL ROOM
56	V-1	WASTE VALVE ACTUATOR	L-2,4	WELL ROOM
57	SV-1	CHLORINE SOLENOID VALVE	CP-1/RTU	WELL ROOM

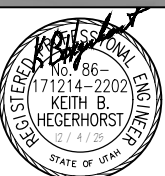
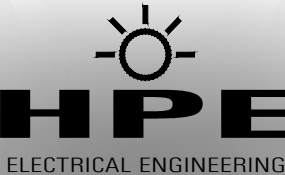
GENERAL NOTES:

- POWER SOURCE OR "HOME RUN" LISTED IN THE ITEM TABLE. FOR CONDUCTOR AND CONDUIT REQUIREMENTS, REFER TO THE POWER ONE-LINE DIAGRAM (E2.1) OR PANEL SCHEDULES (E3.1) FOR THE CIRCUIT ID, THEN THE CONDUIT AND CONDUCTOR REQUIREMENTS ARE LISTED IN THE CONDUIT/CONDUCTOR TABLE ON E1.2.
- INSTRUMENTATION AND CONTROL CONDUIT/CONDUCTORS ARE ON THE INSTRUMENTATION AND CONTROL ONE-LINE DIAGRAM (E2.2).
- INSTALL OUTLET IN CHLORINE ROOM BELOW THE SMALL MOTOR CONTROL PANEL. EXTERIOR OUTLETS SHALL BE AT +18-IN AND HAVE AN IN-SERVICE W/P COVER.

SHEET KEYNOTES:

- UTILITY POLE WITH THREE TRANSFORMERS. SEE PHOTOS FOR ADDITIONAL INFORMATION. METER SOCKET INSTALLED AT BASE OF THE WOOD POLE. NO CONTRACTOR WORK ANTICIPATED.
- GAS PROBE INSTALLED BELOW LEAK DETECTOR.
- REMOVE DOOR AND FRAME TO STORAGE ROOM. INSTALL BLOCK TO MATCH THE EXISTING CMU WALL. PAINT TO MATCH. RELOCATE TRANSFORMER DISCONNECT TO PROVIDE NEC CLEARANCE AS REQUIRED.
- EXISTING LOADCENTER IS LOCATED IN A STORAGE ROOM (OPPOSITE SIDE OF WALL FROM WELL ROOM).
- INSTALL TEMPERATURE TRANSMITTER +60-IN ABOVE THE FINISHED FLOOR.
- INSTALL THE RECEPTACLE FOR THE WEIGHT SCALE 6-IN ABOVE TOP OF INDICATOR/TRANSMITTER.
- INSTALL LIGHT SWITCH ON LATCH SIDE OF DOOR.
- PROVIDE A 4' LED ENCLOSED INDUSTRIAL, FIBERGLASS HOUSING, DAMP LOCATION FIXTURE (METALUX 4VT2-LD5-6-DR-W-UNV-L840-CD-1-U) OR EQUAL. PROVIDE A 90-MINUTE BATTERY IN THIS FIXTURE.
- INSTALL RECEPTACLE BELOW SMCP-1.
- INSTALL EXTERIOR LIGHT 6-IN ABOVE TOP OF DOOR FRAME.
- INSTALL CHLORINE LEAK ALARM LIGHT 6-IN ABOVE TOP OF DOOR FRAME.
- LOCATIONS FOR CU-1, AH-1A/AH-1B TO BE DETERMINED BY THE MECHANICAL CONTRACTOR. COORDINATE ACTUAL LOCATION WITH HVAC CONTRACTOR DURING CONSTRUCTION.
- CU-1, AH-1A AND AH-1B ARE SUPPLIED AND INSTALLED BY OTHERS. ELECTRICAL CONTRACTOR SHALL INSTALL POWER TO EXTERIOR CONDENSING UNIT AND CONDUIT FOR AIR HANDLERS INSIDE THE BUILDING. COORDINATE WITH HVAC PROVIDER/INSTALLER DURING CONSTRUCTION.

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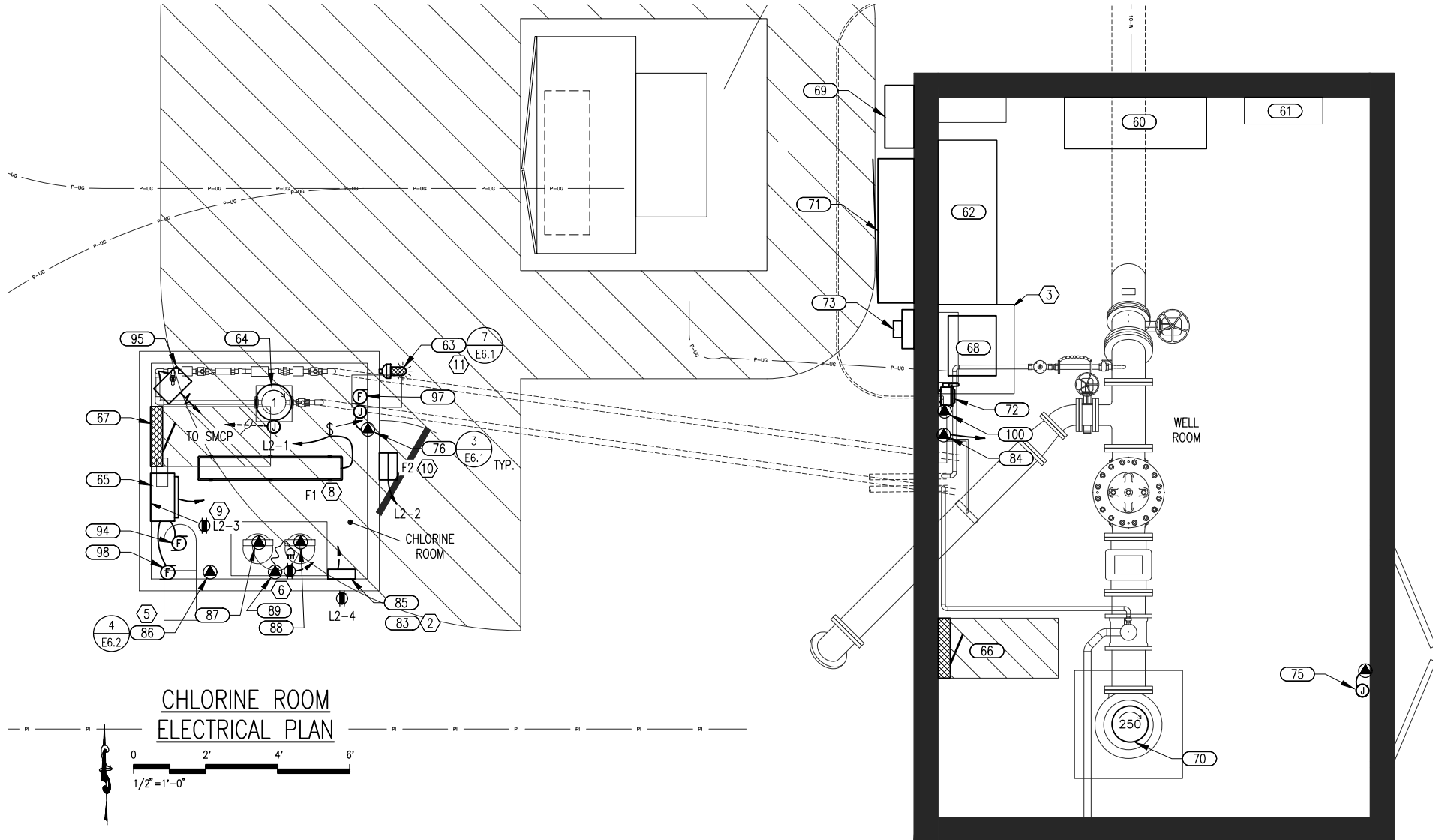
WELL 1 ELECTRICAL
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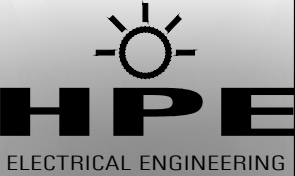
E4.1 25.011



WELL #5 PLAN ITEMS (E4.2)				
DRAWING ID	TAG	DESCRIPTION	POWER SOURCE	LOCATION
60	MTS-1	MANUAL TRANSFER SWITCH	MSD-1	WELL ROOM
61	CP-1/RTU	CONTROL PNL/RTU	L-9	WELL ROOM
62	MC-1	MOTOR CONTROLLER	MTS-1	WELL ROOM
63	AL-1	ALARM LIGHT	CP-1/RTU	CHL. BLD. EXTERIOR
64	CBP-1	CHLORINE BOOSTER PUMP	CP-2	CHLORINE ROOM
65	CP-2	SMALL MOTOR CONTROL PANEL	L2-9	CHLORINE ROOM
66	PNL L	POWER PANEL	XFMR-L	WELL ROOM
67	PNL-L2	POWER PANEL	L-5,7	CHLORINE ROOM
68	XFMR-L	TRANSFORMER	DISC-1	WELL ROOM
69	MSD-1	MAIN SERVICE DISCONNECT	CTE-1	BUILDING EXTERIOR
70	P-1	WELL PUMP	MC-1	WELL ROOM
71	CTE-1	CURRENT TRANSFORMER ENCL.	UTILITY	BUILDING EXTERIOR
72	DISC-1	TRANSFORMER DISCONNECT	MC-1	WELL ROOM
73	MS-1	METER SOCKET	N/A	BUILDING EXTERIOR
75	ZS-2	DOOR POSITION SWITCH	CP-1/RTU	WELL ROOM
76	ZS-3	DOOR POSITION SWITCH	CP-1/RTU	CHLORINE ROOM
83	AE-1	CHLORINE GAS SENSING PROBE	ASH-1	CHLORINE ROOM
84	AIT-1	RESIDUAL CHLORINE ANALYZER	L-3	WELL ROOM
85	ASH-1	CHLORINE LEAK DETECTOR	L2-5	CHLORINE ROOM
86	TIT-2	TEMPERATURE TRANSMITTER	CP-1/RTU	CHLORINE ROOM
87	WE-2A	SCALE TRANSDUCER	WIT-2A/2B	CHLORINE ROOM
88	WE-2B	SCALE TRANSDUCER	WIT-2A/2B	CHLORINE ROOM
89	WIT-1A/1B	CHLORINE TANK SCALE	L2-8	CHLORINE ROOM
94	EF-2	EXHAUST FAN	CP-2	CHLORINE ROOM
95	UH-2	UNIT HEATER	L2-6	CHLORINE ROOM
97	ML-2A	MOTORIZED ACTUATOR, INTAKE	CP-2	CHLORINE ROOM
98	ML-2B	MOTORIZED ACTUATOR, EXHAUST	CP-2	CHLORINE ROOM
100	SV-1	CHLORINE SOLENOID VALVE	CP-1/RTU	WELL ROOM

- GENERAL NOTES:**
- POWER SOURCE OR "HOME RUN" LISTED IN THE ITEM TABLE. FOR CONDUCTOR AND CONDUIT REQUIREMENTS, REFER TO THE POWER ONE-LINE DIAGRAM (E2.1) OR PANEL SCHEDULES (E3.1) FOR THE CIRCUIT ID, THEN THE CONDUIT AND CONDUCTOR REQUIREMENTS ARE LISTED IN THE CONDUIT/CONDUCTOR TABLE ON E1.2.
 - INSTRUMENTATION AND CONTROL CONDUIT/CONDUCTORS ARE ON THE INSTRUMENTATION AND CONTROL ONE-LINE DIAGRAM (E2.2).
 - EXTERIOR OUTLETS SHALL BE AT +18-IN AND HAVE AN IN-SERVICE W/P COVER.
- SHEET KEYNOTES:**
- UTILITY POLE WITH THREE TRANSFORMERS. SEE PHOTOS FOR ADDITIONAL INFORMATION. METER SOCKET INSTALLED AT BASE OF THE WOOD POLE. NO CONTRACTOR WORK ANTICIPATED.
 - GAS PROBE INSTALLED BELOW LEAK DETECTOR.
 - TRANSFORMER EQUIPMENT PAD. MATCH HEIGHT OF MOTOR CONTROLLER PAD. EXTEND 6-IN IN FRONT AND SIDE OF TRANSFORMER.
 - EXISTING LOADCENTER IS LOCATED IN A STORAGE ROOM (OPPOSITE SIDE OF WALL FROM WELL ROOM).
 - INSTALL TEMPERATURE TRANSMITTER +60-IN ABOVE THE FINISHED FLOOR.
 - INSTALL THE RECEPTACLE FOR THE WEIGHT SCALE 6-IN ABOVE TOP OF INDICATOR/TRANSMITTER.
 - INSTALL LIGHT SWITCH ON LATCH SIDE OF DOOR.
 - PROVIDE A 4' LED ENCLOSED INDUSTRIAL, FIBERGLASS HOUSING, DAMP LOCATION FIXTURE (METALUX 4VT2-LD5-6-DR-W-UNV-L840-CD-1-U) OR EQUAL. PROVIDE A 90-MINUTE BATTERY IN THIS FIXTURE.
 - INSTALL RECEPTACLE BELOW SMCP-1.
 - INSTALL EXTERIOR LIGHT 6-IN ABOVE TOP OF DOOR FRAME.
 - INSTALL CHLORINE LEAK ALARM LIGHT 6-IN ABOVE TOP OF DOOR FRAME.

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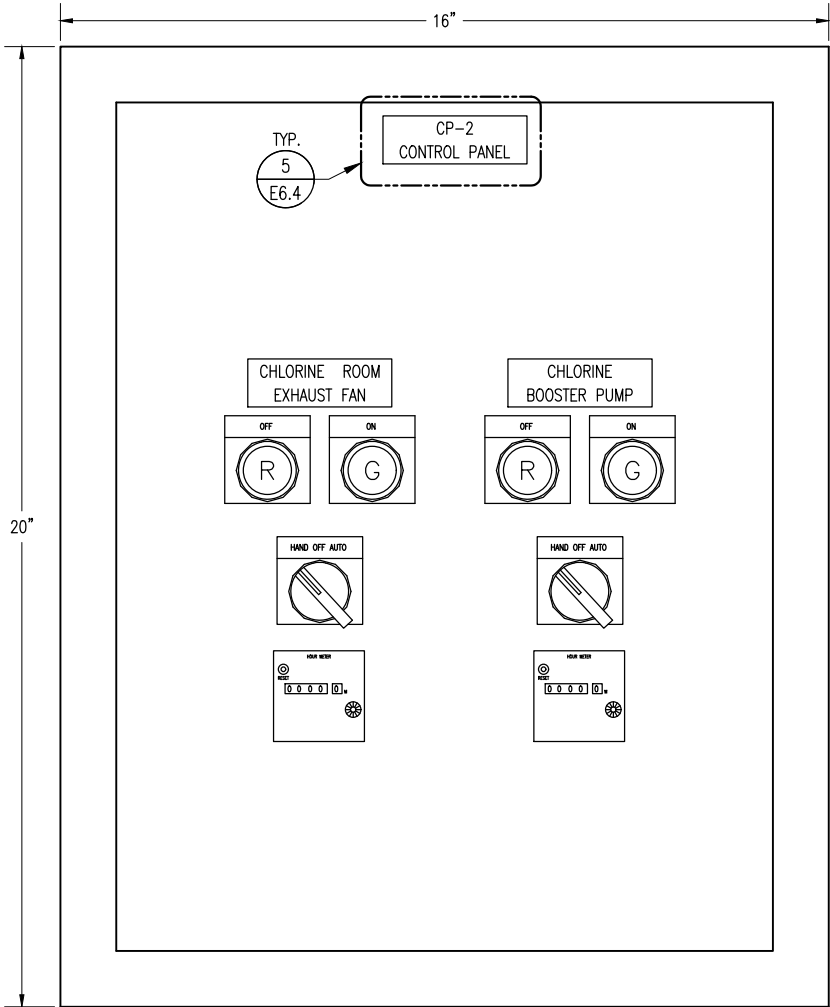
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E4.2 25.011



1 CP-1 SMALL MOTOR CONTROL PANEL ARRANGEMENT
E4.3 SCALE: 6" = 1'-0"

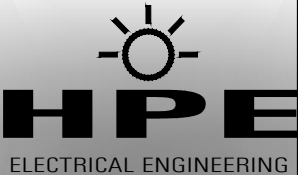
GENERAL NOTES:

- ENCLOSURE DIMENSIONS SHALL BE DETERMINED BY THE CONTRACTOR AS REQUIRED FOR THE SELECTED COMPONENTS. DIMENSIONS SHOWN ARE APPROXIMATE. INTERNAL ARRANGEMENT OF COMPONENTS DETERMINED BY THE CONTRACTOR. CONTRACTOR SHALL PROVIDE FUSE, WIRE AND TERMINAL NUMBERS AS REQUIRED.
- FOR TYPICAL WIRING DIAGRAM, REFER TO E2.6. MODIFY AS REQUIRED FOR THE DEVICES SUPPLIED.

SHEET KEYNOTES:

- NOT USED.

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CP-2 CONTROL PANEL
ARRANGEMENT

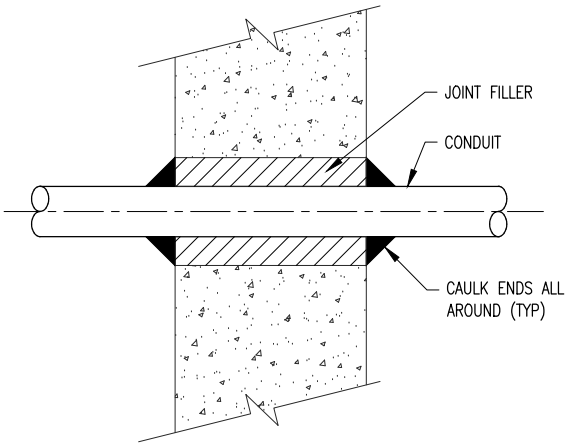
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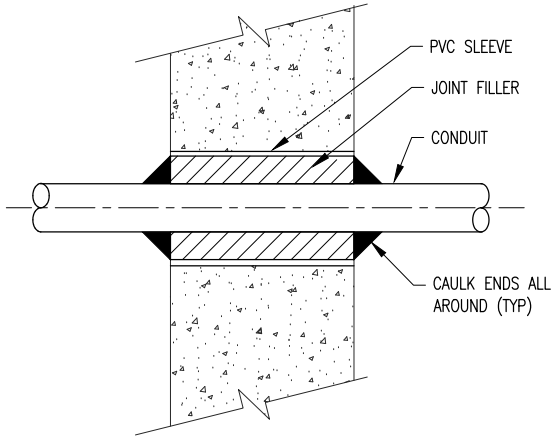
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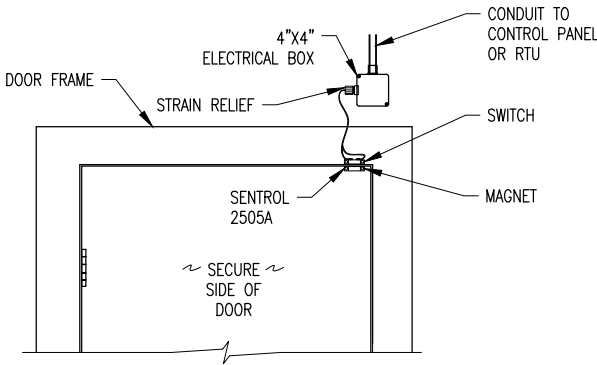
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E5.1	25.011



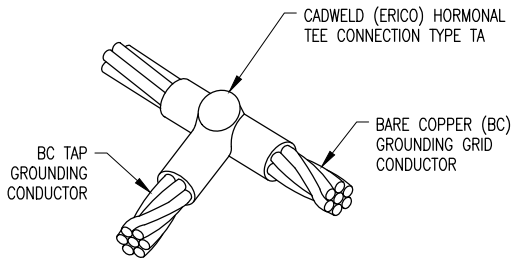
CONDUIT THRU EXISTING CONCRETE



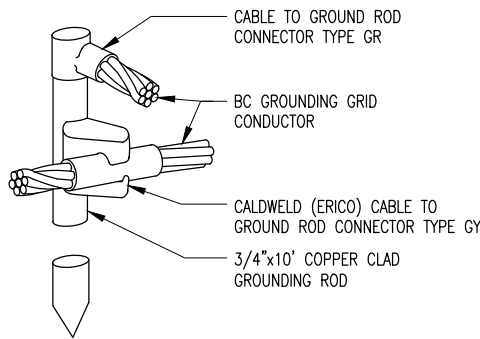
CONDUIT THRU NEW CONCRETE



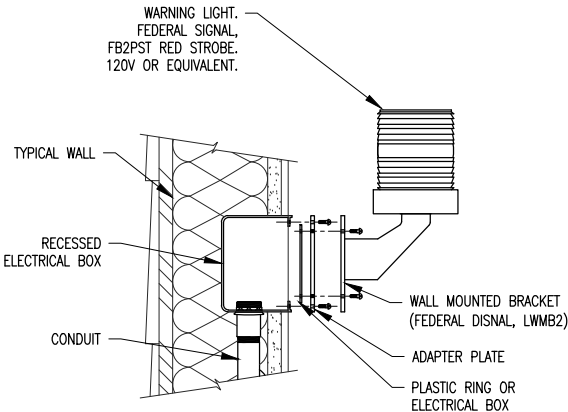
3 SINGLE DOOR POSITION SWITCH
SCALE: 1" = 1'-0"



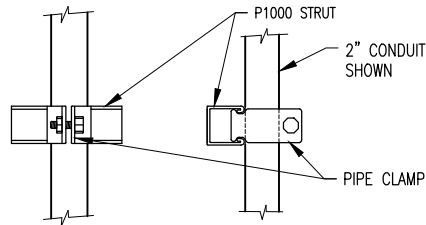
5 WELDED GROUND CONNECTION
SCALE: 1" = 1'-0"



6 GROUND ROD CONNECTION
SCALE: 6" = 1'-0"



7 ALARM LIGHT INSTALLATION
SCALE: 3" = 1'-0"



CONDUIT PIPE CLAMPS*			
SIZE	EMT	RGS	EMT/RGS
1/2"	P1426	P1111	-
3/4"	P1427	P1112	P1212
1"	P1428	P1113	P1213
1-1/4"	P1429	P1114	P1214
1-1/2"	P1430	P1115	P1215
2"	P1431	P1117	P1217
2-1/2"	P1118	P1118	-
3"	P1119	P1119	-
3-1/2"	P1120	P1120	-
4"	P1121	P1121	-

* = SUPPLIED WITH SLOTTED HEAD SCREW AND NUT

TYPICAL CONDUIT SUPPORT CLAMP



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ELECTRICAL DETAILS,
SHT. 1

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KBH

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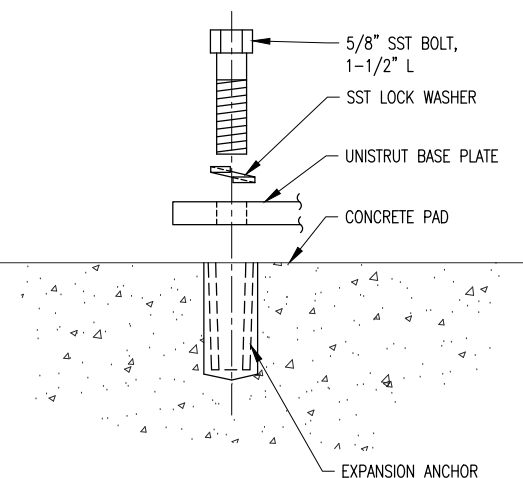
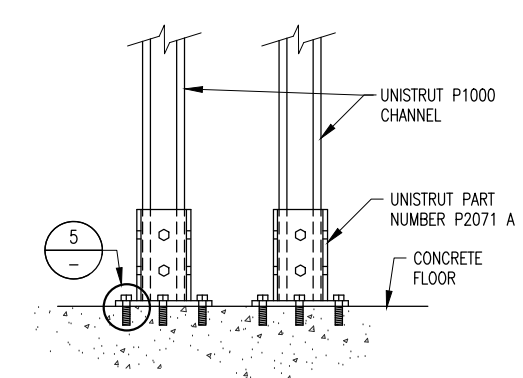
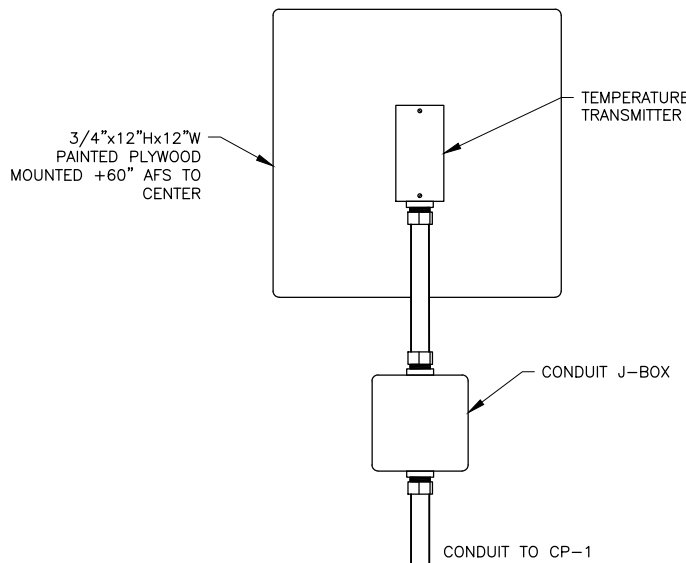
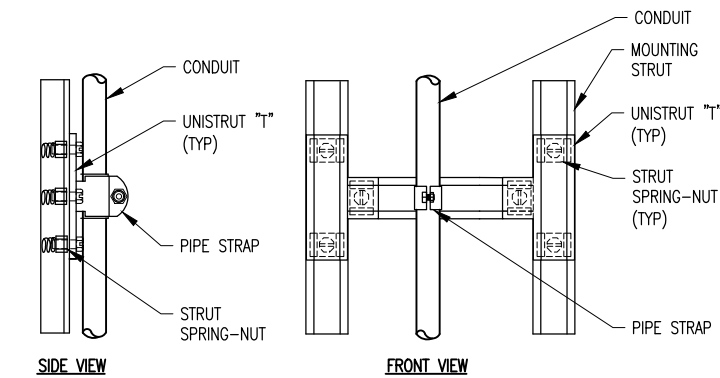
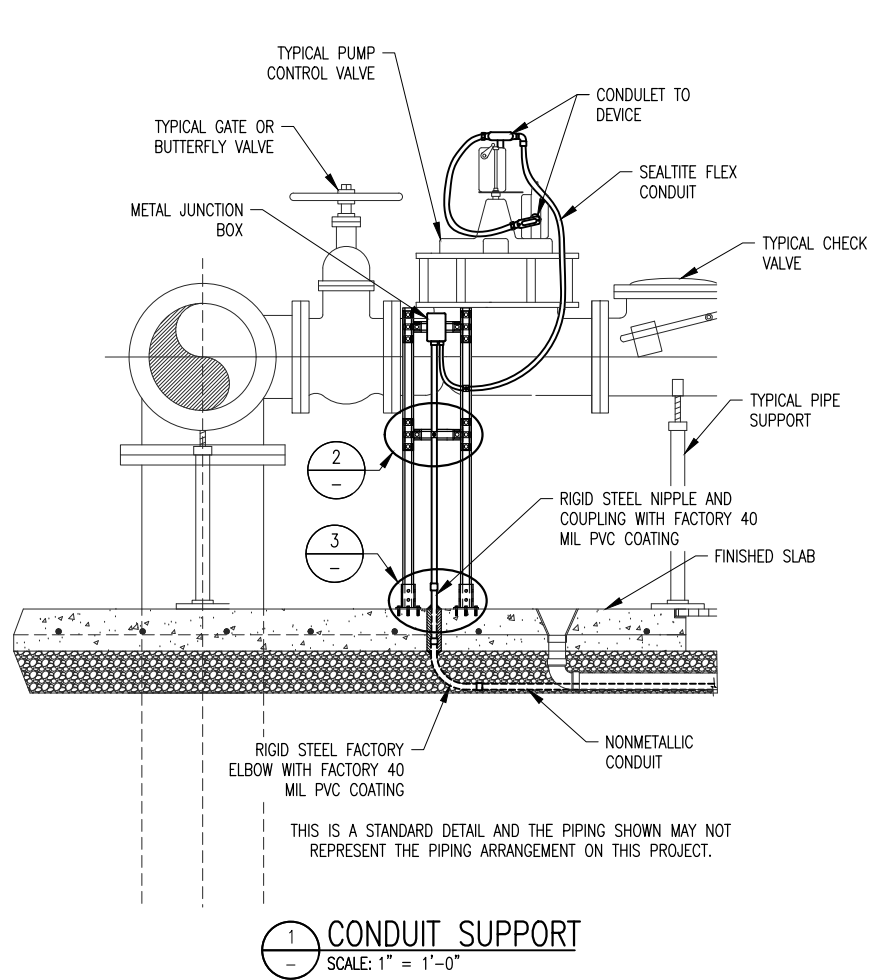
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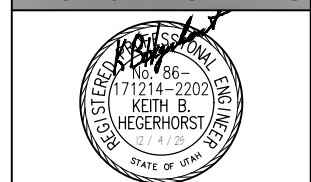
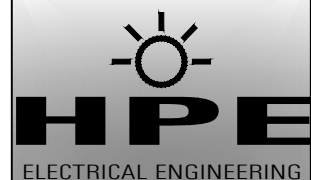
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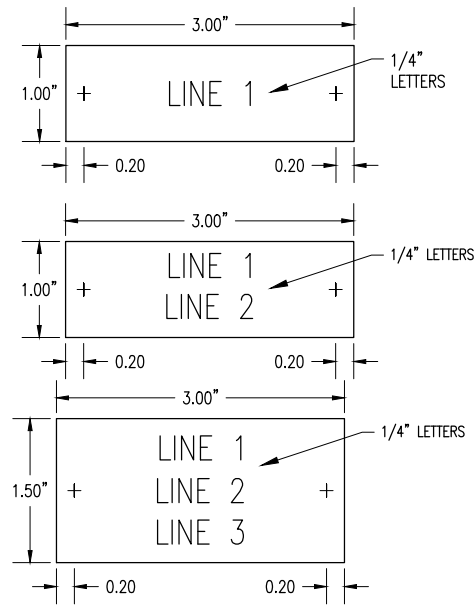
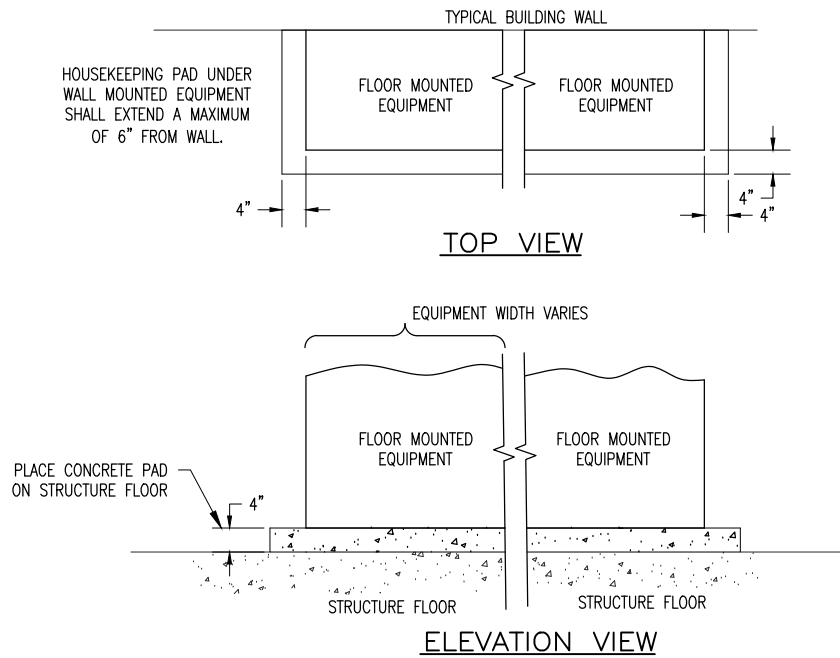
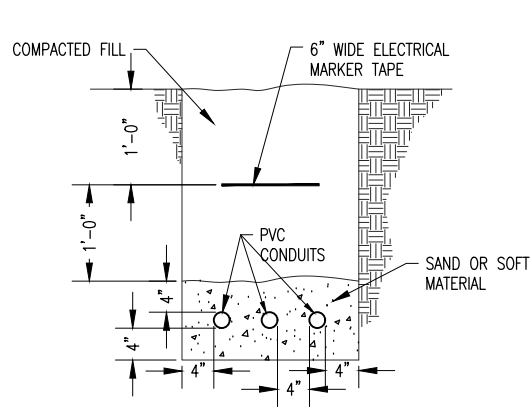
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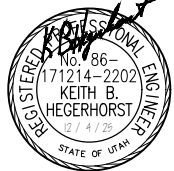
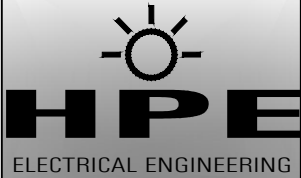
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