POWER ONE-LINE SYMBOLS

THIS IS A STANDARD LEGEND NOT ALL SYMBOLS MAY BE USED ON THIS PROJECT

- ANTENNA
- EQUIPMENT GROUND CONNECTION
- TRANSFER SWITCH
  - ATS: AUTOMATIC TRANSFER SWITCH
  - MTS: MANUAL TRANSFER SWITCH
- VFD — VARIABLE FREQUENCY DRIVE MOTOR CONTROLLER
- F — FUSED DISCONNECT SWITCH
- NON-FUSED DISCONNECT SWITCH
- COMBINATION STARTER
- MAGNETIC CONTROLLER
- HP — MOTOR (HP SHOWN)
- GENERATOR
- WIRE — CONDUCTOR WITH CALLOUT REFERENCE (SEE CONDUIT/CONDUCTOR SCHEDULE)
- POWER FACTOR CAPACITOR
- CIRCUIT BREAKER
- POWER FEED
- CONNECTION POINT
- LUG
- DELTA WYE

- M — UTILITY METERING SOCKET WITH CIRCUIT BREAKER
- M — EXISTING UTILITY METERING SOCKET
- M — UTILITY METERING SOCKET
- M — FUTURE UTILITY METERING SOCKET
- UTILITY METERING CURRENT TRANSFORMER
- MOTOR STARTER
- SURGE PROTECTOR
- TRANSFORMER
- FUSED SWITCH
- FUSE IN HOLDER
- PNL — EXISTING POWER DISTRIBUTION PANEL
- PNL — POWER DISTRIBUTION PANEL
- PNL — FUTURE POWER DISTRIBUTION PANEL

CONTROL ONE-LINE SYMBOLS

THIS IS A STANDARD LEGEND NOT ALL SYMBOLS MAY BE USED ON THIS PROJECT

- ENCLOSURE OR CONTROL PANEL
- A-XX — HOME RUN TO POWER PANEL "A" CIRCUIT "XX"
- R — LIGHT
  - A: AMBER LENS
  - G: GREEN LENS
  - R: RED LENS
  - W: WHITE LENS
- COMBINATION MOTOR STARTER
  - F: FUSED
  - BLANK: CIRCUIT BREAKER
- NUMBER — EQUIPMENT IDENTIFICATION TAG
- ELECTRICAL CONNECTION POINT
- SINGLE RECEPTACLE

PLAN SYMBOLS

THIS IS A STANDARD LEGEND NOT ALL SYMBOLS MAY BE USED ON THIS PROJECT

EQUIPMENT

- 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
- COMBO STARTER/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

GENERAL DRAWING SYMBOLS

THIS IS A STANDARD LEGEND NOT ALL SYMBOLS MAY BE USED ON THIS PROJECT

- ① — REFERENCE NOTE
- 1 — DEMOLITION NOTE
- 1 — REVISION NOTE
- ① — IDENTIFICATION NOTE
- NO — PHOTO REFERENCE
- ## — EQUIPMENT REFERENCE
- XXX — WIRE SIZE REFERENCE
- PHOTO XXX / XXXX — PHOTO REFERENCE
- # / SHEET — SECTION/ELEVATION REFERENCE

LIGHT SWITCHES

THIS IS A STANDARD LEGEND NOT ALL SYMBOLS MAY BE USED ON THIS PROJECT

- $ — SINGLE POLE SWITCH
- $$ — GANGED SWITCHES IN COMMON BOX WITH COMMON COVER PLATE
- $a — SWITCH SUPERSCRIPT MODIFIER, LOWER CASE LETTER INDICATES CIRCUIT CONTROLLER -- a,b,c ETC. MAY BE COMBINED WITH CIRCUIT NUMBER. EXAMPLE: 1a, 3b
- $3 — SWITCH SUBSCRIPT MODIFIER, UPPER CASE LETTER OR NUMBER:
  - 2 = DOUBLE POLE
  - 3 = THREE WAY
  - 4 = FOUR WAY
  - K = KEY OPERATED
  - M = HORSEPOWER RATED MANUAL STARTER
  - MC = MOMENTARY CONTACT, THREE POSITION
  - MS = MANUAL (STARTER) OR SWITCH
  - D = DIMMER
  - S = SURFACE
  - F = FLUSH
  - WP = WEATHER PROOF

CONDUIT AND RACEWAYS

THIS IS A STANDARD LEGEND NOT ALL SYMBOLS MAY BE USED ON THIS PROJECT

- 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
- J — 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

GROUNDING SYMBOLS

THIS IS A STANDARD LEGEND NOT ALL SYMBOLS MAY BE USED ON THIS PROJECT

- 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

WIRING DEVICES

THIS IS A STANDARD LEGEND NOT ALL SYMBOLS MAY BE USED ON THIS PROJECT

- 20 AMP RATED RECEPTACLE
  - SINGLE STROKE = SINGLE
  - DOUBLE STROKE = DUPLEX
- RECEPTACLE MODIFIERS:
  - X-X = CIRCUIT NUMBER
  - AF = ARC FAULT CIRCUIT INTERRUPTER
  - S = SURFACE MOUNTED
  - IG = ISOLATED GROUND
  - WP = WEATHER PROOF
- EXISTING RECEPTACLE
- 220V RECEPTACLE
- GFCI RECEPTACLE
- ELECTRICAL CONNECTION
- J — JUNCTION BOX
- P — PHOTOELECTRIC CONTROL UNIT
- T — THERMOSTAT LOCATION
- CARD READER (ENTRY KEY PAD)

LIGHTING SYMBOLS

THIS IS A STANDARD LEGEND NOT ALL SYMBOLS MAY BE USED ON THIS PROJECT

- F1 — DESIGNATES FIXTURE NUMBER - REFER TO FIXTURE SCHEDULE
- PC — PHOTOCELL

LED FIXTURES

- SURFACE OR RECESSED 1X4 FIXTURE

EXTERIOR LIGHTS

- WALL PAK FIXTURE

MOTOR AND EQUIPMENT

THIS IS A STANDARD LEGEND NOT ALL SYMBOLS MAY BE USED ON THIS PROJECT

- HP — MOTOR (HP SHOWN)
- F — FRACTIONAL HORSEPOWER MOTOR
- $T WP — WEATHERPROOF THERMAL DISCONNECT SWITCH
- 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
- XXXA — DISCONNECT, NON-FUSED, 3 POLE, 100A RATED
- F — FUSED DISCONNECT SWITCH
- FIELD CONNECTION OR ELECTRICAL TERMINATION AT A FIELD DEVICE
- XXXXX — EQUIPMENT DESIGNATION

H.P.E. INC. ELECTRICAL ENGINEERS
POWER SYSTEMS, CONTROL & INSTRUMENTATION SYSTEMS
HEGERHORST POWER ENGINEERING INCORPORATED (801) 642-2051
708 EAST 50 SOUTH FAX (801) 642-2154
AMERICAN FORK, UT 84003

HPE PROJECT 20.111

FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

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. 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. CHANGES TO THE EQUIPMENT SHALL BE OWNER APPROVED.

REGISTERED PROFESSIONAL ENGINEER — No. 86-171214-2202 — KEITH B. HEGERHORST — 5/19/2023 — STATE OF UTAH

PROJECT ENGINEER

DESIGNED	KBH
DRAFTED	KBH
CHECKED	KBH
DATE	MAY 2023

SCALE: NONE

CENTRAL UTAH WATER CONSERVANCY DISTRICT

CENTRAL UTAH WATER CONSERVANCY DISTRICT

PUMP HOUSE PROJECT WELLS #7, #16 & #17
ELECTRICAL
LEGEND

SHEET E1.1

207.27.200

FILE NAME:
FILE DATE:

7/04

CONDUIT/CONDUCTOR SCHEDULE
THHN, THWN, THWN-2

AMP RATING	DRAWING ID TAG.	CONDUCTOR QTY.*	CONDUCTOR 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 CONDUCTORS. SEE EQUIPMENT GROUNDING CONDUCTORS FOR WIRE SIZES.

WHERE: C1 = ELECTRICAL METALLIC TUBING "**" = 60°C RATING
C2 = ELECTRICAL NON-METALLIC TUBING "+" = 75°C RATING
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

I&C WIRE/CONDUIT TABLE

IDENT.	CONDUIT SIZE	CONDUCTOR QTY	CONDUCTOR SIZE	SIGNAL DESCRIPTION
A1	3/4"	1	#18TSP	1 ANALOG SIGNAL
A2	3/4"	2	#18TSP	2 ANALOG SIGNALS
A3	3/4"	3	#18TSP	3 ANALOG SIGNALS
A3	1"	4	#18TSP	4 ANALOG SIGNALS

IDENT.	CONDUIT SIZE	CONDUCTOR QTY	CONDUCTOR SIZE	SIGNAL DESCRIPTION
D1	3/4"	2	#14	
D2	3/4"	3	#14	
D3	3/4"	4	#14	
D4	3/4"	5	#14	

TABLE VFD

CONDUIT SIZE	CONDUCTOR QTY	CONDUCTOR SIZE	SIGNAL DESCRIPTION MCP TO VFD
3/4"	1	#14	_COMMON OUTPUT
	1	#14	_COMMON INPUT
	1	#14	VFD CALL RUN
	1	#14	VFD ON
	1	#14	VFD FAULT
	1	#14	VFD HOA IN AUTO
	1	#14	VFD HOA IN HAND
	1	#14	VFD TRANSFOMER HIGH TEMP.
	2	#14	SPARE
3/4"	1	#18TSP	VFD RUNNING SPEED
	1	#18TSP	VFD COMMAND SPEED
3/4"	1	RS485	BELDEN 9842 (TEMP. MONITOR)
3/4"	1	CAT6U	ETHERNET
3/4"	-	-	PULL STRING

TABLE SV

CONDUIT SIZE	CONDUCTOR QTY	CONDUCTOR SIZE	SIGNAL DESCRIPTION MCP TO SURGE VAULT
3/4"	1	#14	_COMMON INPUT
	1	#14	_COMMON OUTPUT
	1	#14	ACCESS HATCH POSITION SW.
	1	#14	AIR RELEASE SOL. VALVE OPEN
	1	#14	AIR SUPPLY SOL. VALVE OPEN
	2	#14	EF-XX-02 EXHAUST FAN RUN
	1	#14	SUMP PUMP FLOW SWITCH
	2	#14	VALVE +/- 24 VOLTS
	1	#14	VALVE CLOSED
	1	#14	VALVE OPEN
	1	#14	VAULT FLOOD SWITCH
3/4"	1	#16TSP	DIFFERENTIAL PRESSURE TRANS.

TABLE VALVE

CONDUIT SIZE	CONDUCTOR QTY	CONDUCTOR SIZE	SIGNAL DESCRIPTION MCP TO BUTTERFLY VALVE
3/4"	1	#14	COMMON INPUT
	1	#14	COMMON OUTPUT
	1	#14	VALVE FULL OPEN
	1	#14	VALVE FULL CLOSED
	1	#14	+24VDC
	2	#14	-24VDC

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

TABLE SP 07

CONDUIT SIZE	CONDUCTOR QTY	CONDUCTOR SIZE	SIGNAL DESCRIPTION MCP TO SECURITY PANEL
1"	2	#14	MAINTENACE ROOM DOOR OPEN
	2	#14	PUMP ROOM DOOR OPEN
	2	#14	PUMP ROOM HATCH OPEN
	2	#14	MAIN DOOR CONTROLS
	2	#14	MAINT. DOOR CONTROLS
	2	#14	24 VAC POWER
	4	#14	SPARE
3/4"	1	CAT6U	ETHERNET

TABLE SP 16

CONDUIT SIZE	CONDUCTOR QTY	CONDUCTOR SIZE	SIGNAL DESCRIPTION MCP TO SECURITY PANEL
1"	2	#14	PUMP ROOM HATCH OPEN
	2	#14	PUMP ROOM DOOR OPEN
	2	#14	MAINTENANCE DOOR OPEN
	2	#14	MAIN DOOR CONTROLS
	2	#14	CHLORINE ROOM DOOR OPEN
	2	#14	CHLORINE ROOM DOOR CONTROS
	2	#14	MAINTEENANCE DOOR CONTROLS
	2	#14	24 VAC POWER
3/4"	1	CAT6U	ETHERNET

TABLE SP 17

CONDUIT SIZE	CONDUCTOR QTY	CONDUCTOR SIZE	SIGNAL DESCRIPTION MCP TO SECURITY PANEL
3/4"	2	#14	MAINTENANCE DOOR OPEN
	2	#14	PUMP ROOM DOOR OPEN
	2	#14	MAIN DOOR CONTROLS
	2	#14	MAINTEENANCE DOOR CONTROLS
	2	#14	24 VAC POWER
3/4"	1	CAT6U	ETHERNET

TABLE GEN

CONDUIT SIZE	CONDUCTOR QTY	CONDUCTOR SIZE	SIGNAL DESCRIPTION MCP TO GENERATOR
1"	1	#14	COMMON INPUT
	1	#14	GENERATOR RUNNING
	1	#14	GENERATOR ALARM
	1	#14	LOW FUEL LEVEL (LSL-X)
1"	1	CAT 5	ETHERNET
1"	1	PULL TAPE	SPARE CONDUIT

TABLE 4

CONDUIT SIZE	CONDUCTOR QTY	CONDUCTOR SIZE	SIGNAL DESCRIPTION MCP TO MOTOR DEVICES
3/4"	1	#14	COMMON INPUT
	1	#14	HIGH DISCHARGE PRESSURE
	1	#14	COMMON OUTPUT
	1	#14	PRE-LUBE SOLENOID VALVE
	1	#14	TURBIDITY SOLENOID VALVE

TABLE CP

CONDUIT SIZE	CONDUCTOR QTY	CONDUCTOR SIZE	SIGNAL DESCRIPTION MCP TO CHLORINE CONTROL PANEL
3/4"	1	#14	_COMMON INPUT
	1	#14	_COMMON OUTPUT
	1	#14	CHL. RM. EXHAUST FAN COMMAND RUN
	1	#14	CHL. RM. EXHAUST FAN HOA IN AUTO
	1	#14	CHL. RM. EXHAUST FAN HOA IN HAND
	1	#14	CHL. RM. EXHAUST FAN RUNNING
	1	#14	GEN. RM. EXHAUST FAN COMMAND RUN
	1	#14	GEN. RM. EXHAUST FAN RUNNING

TABLE DT

CONDUIT SIZE	CONDUCTOR QTY	CONDUCTOR SIZE	SIGNAL DESCRIPTION MCP TO DAY TANK CP
3/4"	1	#14	COMMON INPUT
	1	#14	HIGH/LOW FUEL LEVEL ALARM
	1	#14	LEAK DETECTOR ALARM
	2	#14	SPARE
3/4"	-	-	PULL STRING

TABLE ATS

CONDUIT SIZE	CONDUCTOR QTY	CONDUCTOR SIZE	SIGNAL DESCRIPTION MCP TO ATS
3/4"	1	#14	COMMON INPUT
	1	#14	COMMON OUTPUT
	1	#14	EMERGENCY CB OPEN
	1	#14	EMERGENCY CB CLOSED
	1	#14	NORMAL CB OPEN
	1	#14	NORMAL CB CLOSED
	1	#14	REMOTE TRANSFER
	2	#14	SPARE
3/4"	1	CAT 5	ETHERNET

TABLE PRV

CONDUIT SIZE	CONDUCTOR QTY	CONDUCTOR SIZE	SIGNAL DESCRIPTION MCP TO PRV
3/4"	1	TCP/IP	ETHERNET
	1	TCP/IP	ETHERNET SPARE
3/4"	-	-	PULL STRING
3/4"	-	-	PULL STRING
3/4"	-	-	PULL STRING

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

FIXTURE SCHEDULE

TYPE	DESCRIPTION	MANUFACTURER NAME	MANUFACTURER CATALOG NO.	FIX VA	LAMP	MOUNTING	NOTES:
F1	4' LED ENCLOSED INDUSTRIAL, FIBERGLASS HOUSING, DAMP LOCATION, MVOLT, 9850 LUMENS	METALUX	4VT2-LD4-8-DR-W-UNV-L840-CD1-U	91	FURNISHED	SURFACE	
F2	4' LED ENCLOSED INDUSTRIAL, FIBERGLASS HOUSING, DAMP LOCATION, MVOLT, 4528 LUMENS	METALUX	4VT2-LD4-4-DR-UNV-L840-CD1-U	38	FURNISHED	SURFACE	
F3	LED WALL MOUNTED 6-INCH OPEN CYLINDER 22-DEG BEAM SPREAD, 120 VOLT, BRONZE FINISH	INFINIUM	SPC0609LEDLE-12W-41K-MD-E1-FS-5045-SCBA-WM-BZ	12	FURNISHED	WALL	
F4	STRAIGHT ROUND 4" ALUMINUM 16' POLE FOR SECURITY CAMERA, DARK BRONZE.	LITHONIA	RSA-16-4C	-	-	-	
F5	UTILITY LED FLOOD LIGHT, 2,446 LUMEN, NON-DIMMING, 120 VAC, 5000K, 7H X 7V BEAM SPREAD HEAVY DUTY ARM MOUNTED WITH "O" RING	RAB	X34-25L/120	25	LED	WALL	
F6	LED WALL MOUNTED SECURITY LIGHT	LITHONIA	DSXW1 LED-10C-350-40K-T2M-MVOLT-DDBXD	13	LED	WALL	

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AMERICAN FORK, UT 84003
HPE PROJECT 20.111

FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

Sheet List Table

REGISTERED PROFESSIONAL ENGINEER
No. 86-171214-2202
KEITH B. HEGERHORST
5/19/2023
STATE OF UTAH
PROJECT ENGINEER

FILE NAME:
FILE DATE:

HANSEN ALLEN & LUCE ENGINEERS

DESIGNED	KBH
DRAFTED	KBH
CHECKED	KBH
DATE	MAY 2023

SCALE: NONE

CENTRAL UTAH WATER CONSERVANCY DISTRICT

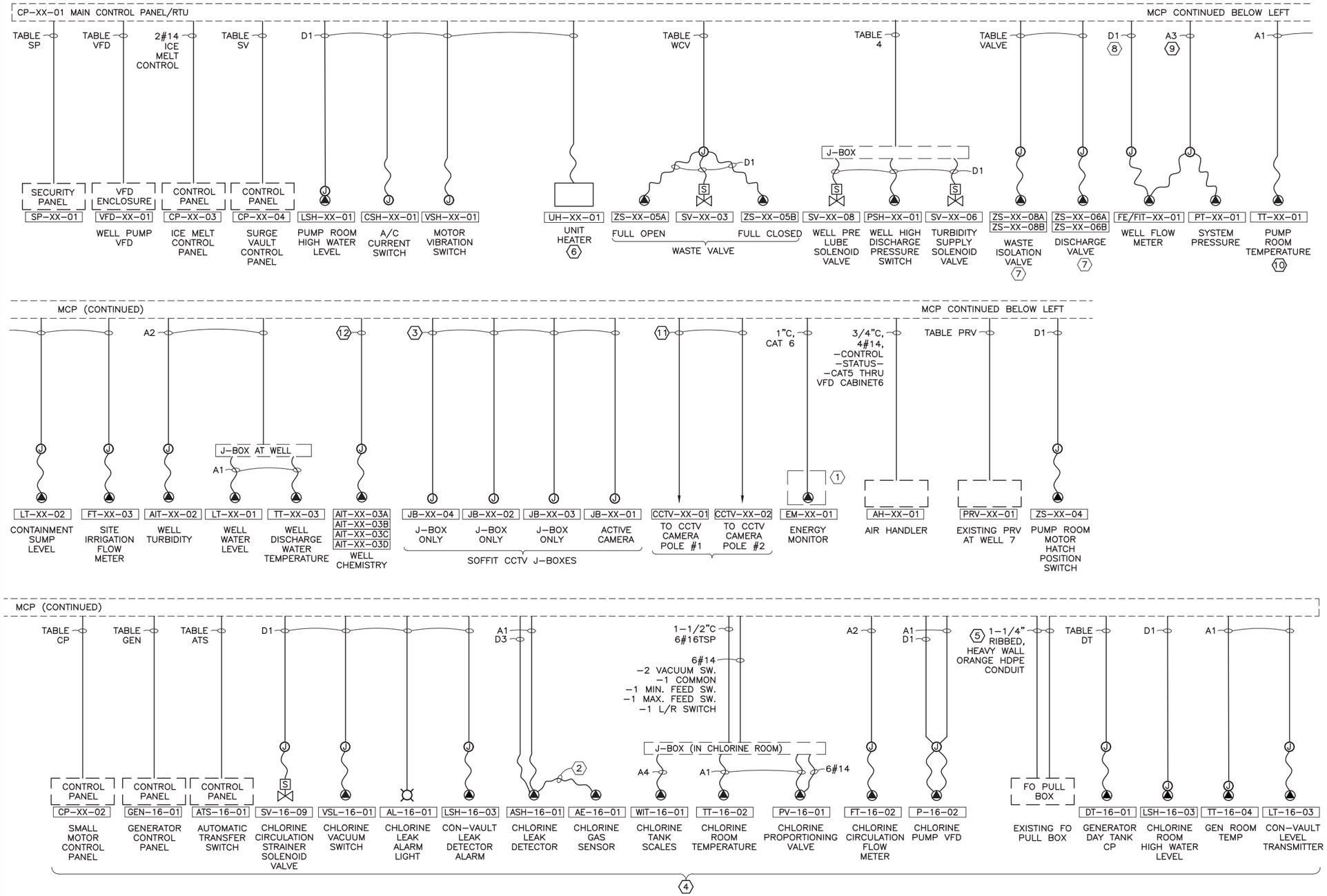
CENTRAL UTAH WATER CONSERVANCY DISTRICT

PUMP HOUSE PROJECT WELLS #7, #16 & #17
ELECTRICAL
TABLES

SHEET E1.2

207.27.200

7/04



CP-XX-01
I & C ONE-LINE DIAGRAM

H.P.E. INC. ELECTRICAL ENGINEERS
POWER SYSTEMS, CONTROL & INSTRUMENTATION SYSTEMS
HEGERHORST POWER ENGINEERING INCORPORATED
708 EAST 50 SOUTH
AMERICAN FORK, UT 84003
(801) 642-2051
FAX (801) 642-2154
HPE PROJECT 20.111

FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

GENERAL NOTES:

1. REFER TO ELECTRICAL SITE AND BUILDING PLANS FOR EQUIPMENT AND/OR DEVICE LOCATIONS. WELL 7 PLANS ARE E6.X SHEETS. WELL 16 PLANS ARE E7.X SHEETS. WELL 17 PLANS ARE E8.X SHEETS.
2. FOR WELL 7, REPLACE "XX" WITH "07". FOR WELL 16, REPLACE "XX" WITH "16". FOR WELL 17, REPLACE "XX" WITH "17".
3. ALL CONDUITS SHALL BE 3/4" EXCEPT AS NOTED. TABLES FOR INSTRUMENTATION AND CONTROLS SHOWN ON SHEET E1.2.
4. OWNER PREFERRED INSTALLATION IS PVC BELOW SLAB WITH ACCURATE NOTATION ON AS-BUILT DOCUMENTS. INSTALL PVC COATED RIGID THROUGH CONCRETE FLOOR WITH RMC FOR ALL EXPOSED CONDUIT.
5. CONTRACTOR SHALL INSTALL ALL CONDUITS SHOWN. ALL WIRING COMBINATIONS SHALL BE APPROVED BY OWNER.

SHEET KEYNOTES:

1. MODBUS TCP TO POWER AND ENERGY METER. VERIFY SERVICE ENTRANCE SWITCHGEAR SECTION PRIOR TO CONDUIT ROUGH-IN.
2. CABLE SUPPLIED WITH PROBE. INSTALL IN CHLORINE ROOM. SEAL OPENING THROUGH WALL.
3. PROVIDE 3/4" C WITH PULL STRING FROM THE SINGLE GANG BOX TO THE RTU FOR THE IN-ACTIVE CAMERA BOXES. PROVIDE 3/4" C WITH RED CAT 6 CABLE FOR THE ACTIVE CAMERA BOX. ACTIVE CAMERA J-BOX NOTED ON THE PLANS.
4. APPLIES TO WELL 16 ONLY. EQUIPMENT NOT INSTALLED AT WELLS 7 OR 17.
5. BURIED: PROVIDE EITHER 1-1/4 ORANGE HDPE OR 2" SCH 80 PVC. EXPOSED: PROVIDE GALVANIZED RIGID STEEL CONDUIT. CONDUCTOR SHALL BE RED SHIELDED CAT 6 CABLE. PROVIDE LONG-RADIUS ELBOWS FOR ALL BENDS.
6. WELL 7 & 17: SHOWN FOR UH-XX-01, DUPLICATE FOR UN-XX-02. WELL 16: SHOWN FOR UH-16-01, DUPLICATE FOR UH-16-02, UH-16-03 AND UH-16-04.
7. THE WASTE ISOLATION VALVE, DISCHARGE VALVE ARE MANUAL VALVES WITH POSITION SWITCHES. THEY DO NOT HAVE MOTORIZED ACTUATORS.
8. POWER FOR THE FE/FIT-XX-01 IS VIA THE 2#14 (DC) WIRES. THE FLOW METERS ARE 24 VDC UNITS. REFER TO 11 54 00, 2.1 FOR ADDITIONAL INFORMATION.
9. PRESSURE SIGNAL, FLOW AND TOTAL FLOW SIGNALS.
10. SHOWN FOR WELLS 7 & 17. AT WELL 16, DUPLICATE FOR TT-16-02 CHLORINE ROOM TEMPERATURE TRANSMITTER AND TT-16-03 GENERATOR ROOM TEMPERATURE TRANSMITTER.
11. 1"C, BELDEN 7853A (OR APPROVED EQUAL).
12. WELL #7 & #17: INSTALL "A2" (-03A/-03D). WELL #16: INSTALL "A4" (-03A/-03B/-03C/-03D).

REGISTERED PROFESSIONAL ENGINEER
No. 86-171214-2202
KEITH B. HEGERHORST
5/19/2023
STATE OF UTAH
PROJECT ENGINEER

DESIGNED	KBH
DRAFTED	KBH
CHECKED	KBH
DATE	MAY 2023

SCALE: NONE

CENTRAL UTAH WATER CONSERVANCY DISTRICT

CENTRAL UTAH WATER CONSERVANCY DISTRICT

PUMP HOUSE PROJECT WELLS #7, #16 & #17
ELECTRICAL
INST. & CONTROL ONE-LINE DIAGRAMS

SHEET E2.1
207.27.200

FILE NAME:
FILE DATE:
7/04

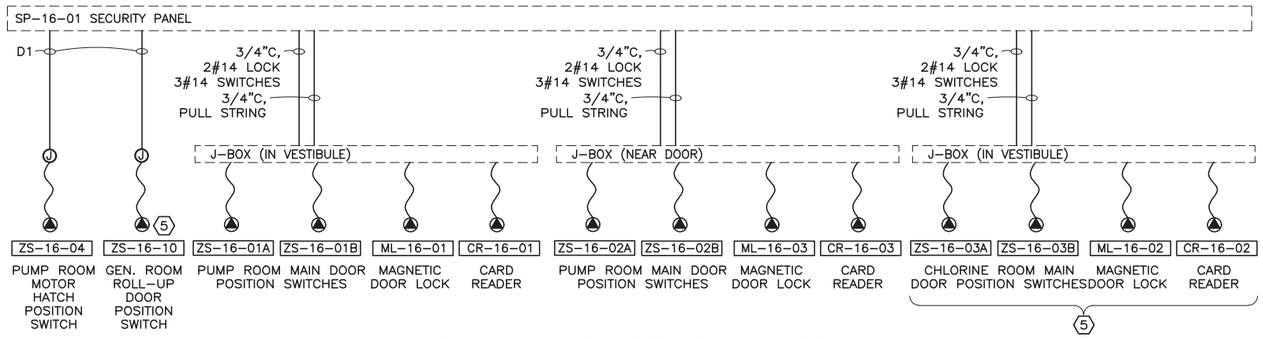
H.P.E. INC. ELECTRICAL ENGINEERS
POWER SYSTEMS, CONTROL & INSTRUMENTATION SYSTEMS
HEGERHORST POWER ENGINEERING INCORPORATED (801) 642-2051
708 EAST 50 SOUTH FAX (801) 642-2154
AMERICAN FORK, UT 84003

GENERAL NOTES:

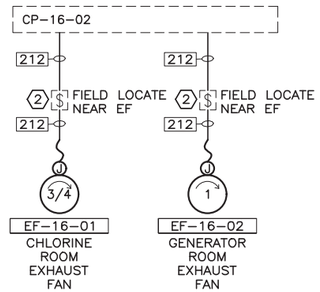
1. REFER TO PLANS FOR EQUIPMENT AND/OR DEVICE LOCATIONS.
2. CONDUCTOR/CONDUIT REQUIREMENTS SHOWN IN TABLES ON E1.2. ALL CONDUITS SHALL BE 3/4" EXCEPT AS NOTED.
3. OWNER PREFERRED INSTALLATION IS PVC BELOW SLAB WITH ACCURATE NOTATION ON AS-BUILT DOCUMENTS. INSTALL PVC COATED RIGID THROUGH CONCRETE FLOOR WITH RMC FOR ALL EXPOSED CONDUIT.

SHEET KEYNOTES:

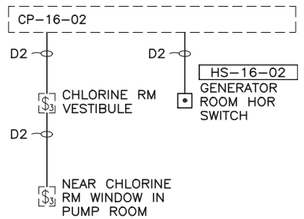
1. THE SURGE TANK VALVE IS A MANUAL VALVE WITH POSITION SWITCHES. IT DOES NOT HAVE A MOTORIZED ACTUATOR.
2. LABEL SWITCH AS "EXHAUST FAN DISCONNECT".
3. ON WELL 7 PROVIDE CONNECTION TO PRV SECURITY POINTS SEE TABLE PRV ON SHEET E1.2
4. WELLS #7 AND #17 ONLY.
5. WELL #16 ONLY.



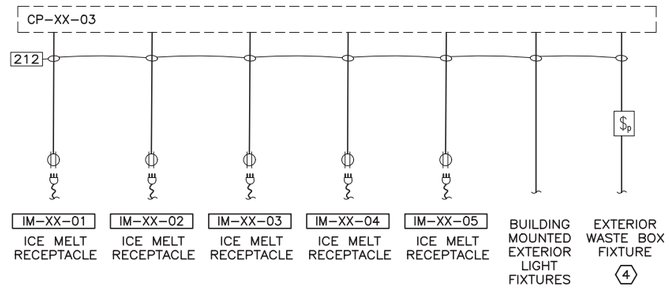
SP-XX-01 SECURITY ENCLOSURE CONTROL ONE-LINE DIAGRAM



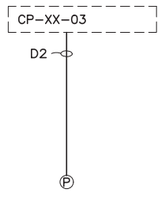
CP-16-02 EXHAUST FAN CP POWER ONE-LINE DIAGRAM (5)



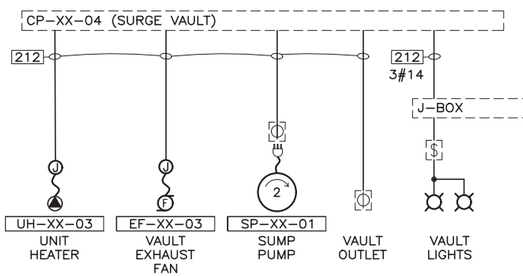
CP-16-02 EXHAUST FAN CP CONTROL ONE-LINE DIAGRAM (5)



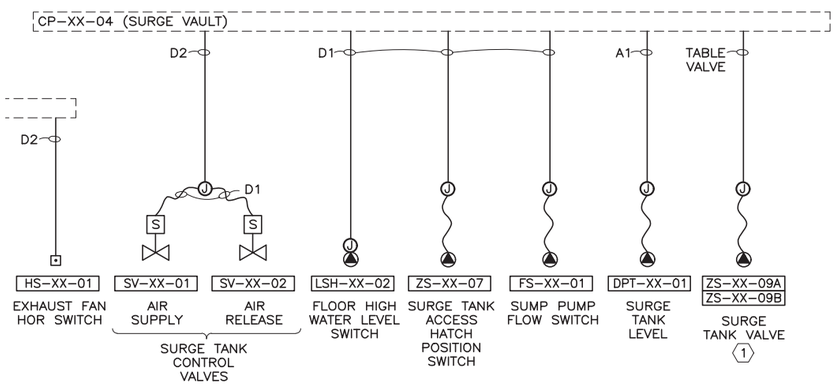
CP-XX-03 ICE/EXTERIOR LTS POWER ONE-LINE DIAGRAM



CP-XX-03 ICE/EXTERIOR LTS CONTROL ONE-LINE DIAGRAM



CP-XX-04 SURGE VAULT POWER ONE-LINE DIAGRAM



CP-XX-04 SURGE VAULT I & C ONE-LINE DIAGRAM

FILE NAME:
FILE DATE:

REGISTERED PROFESSIONAL ENGINEER No. 86-171214-2202 KEITH B. HEGERHORST 5/19/2023 STATE OF UTAH

PROJECT ENGINEER

DESIGNED	KBH
DRAFTED	KBH
CHECKED	KBH
DATE	MAY 2023

SCALE: NONE

CENTRAL UTAH WATER CONSERVANCY DISTRICT

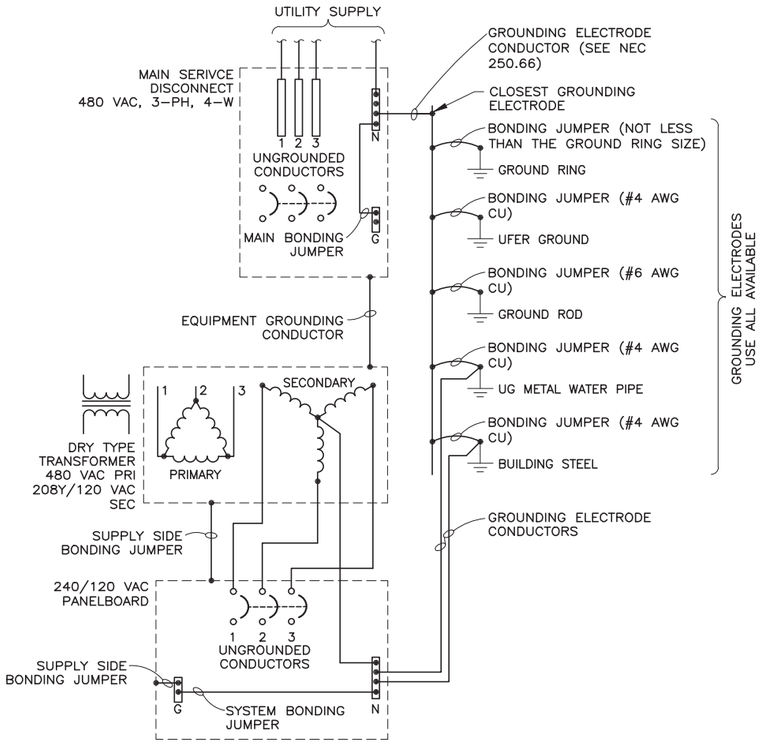
PUMP HOUSE PROJECT WELLS #7, #16 & #17
ELECTRICAL
MISCELLANEOUS ONE-LINE DIAGRAMS

SHEET E2.2
207.27.200

7/04

H.P.E. INC. ELECTRICAL ENGINEERS
POWER SYSTEMS, CONTROL & INSTRUMENTATION SYSTEMS
HEGERHORST POWER ENGINEERING INCORPORATED (801) 642-2051
708 EAST 50 SOUTH FAX (801) 642-2154
AMERICAN FORK, UT 84003
HPE PROJECT 20.111

FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST



GROUNDING DIAGRAM

GENERAL NOTES:

1. NOT USED.

SHEET KEYNOTES:

1. NOT USED.

FILE NAME:
FILE DATE:

REGISTERED PROFESSIONAL ENGINEER
No. 86-171214-2202
KEITH B. HEGERHORST
5/19/2023
STATE OF UTAH

HANSEN ALLEN & LUCE ENGINEERS

PROJECT ENGINEER

DESIGNED	KBH
DRAFTED	KBH
CHECKED	KBH
DATE	MAY 2023

SCALE: NONE

CENTRAL UTAH WATER CONSERVANCY DISTRICT

CENTRAL UTAH WATER CONSERVANCY DISTRICT

PUMP HOUSE PROJECT WELLS #7, #16 & #17
ELECTRICAL
MISCELLANEOUS DIAGRAMS

SHEET E2.3

207.27.200

7/04

H.P.E. INC. ELECTRICAL ENGINEERS
POWER SYSTEMS, CONTROL & INSTRUMENTATION SYSTEMS
HEGERHORST POWER ENGINEERING INCORPORATED (801) 642-2051
708 EAST 50 SOUTH FAX (801) 642-2154
AMERICAN FORK, UT 84003
HPE PROJECT 20.111

FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

GENERAL NOTES:

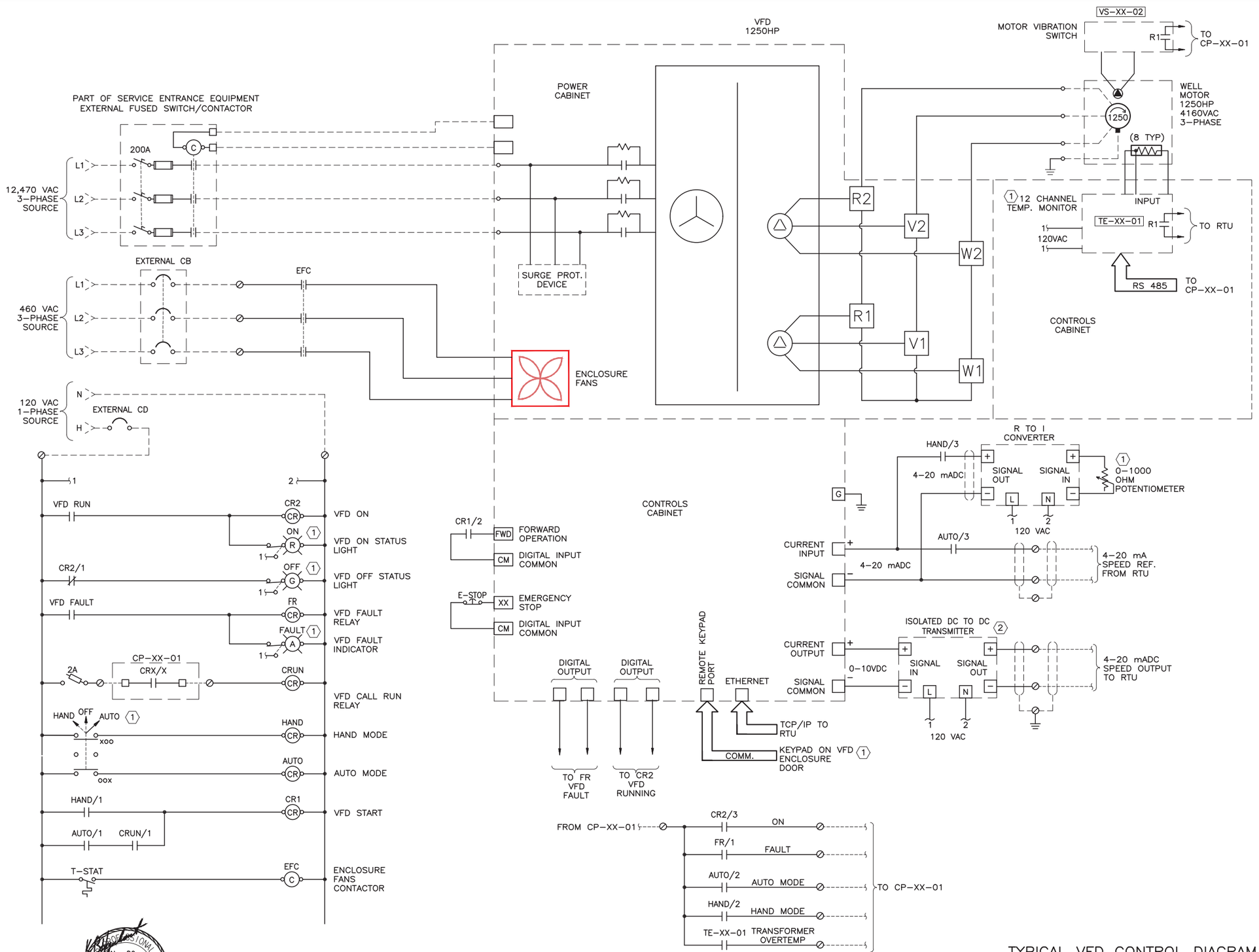
1. CONTROL WIRING DIAGRAM SHOWN IS CONCEPTUAL AND SHALL BE MODIFIED AS REQUIRED FOR THE SPECIFIC VFD SUPPLIED.
2. NOT ALL COMPONENTS IN VFD ARE SHOWN.
3. FUSES SIZED BY VFD SUPPLIER.
4. THE XX IN THE EQUIPMENT TAG REPRESENTS THE WELL NUMBER THAT YOU ARE WORKING ON..

SHEET KEYNOTES:

1. PROVIDE DEVICE ON VFD ENCLOSURE DOOR.
2. PROVIDE SIGNAL CONVERTER AS REQUIRED.

TERMINAL LEGEND

- ○ FIELD EQUIPMENT
- ⊘ VFD MOTOR CONTROLLER
- □ RTU (CP-XX-01)
- ⊠ EF/CHL. PUMP (CP-XX-02)
- ⊠ EXTERIOR LIGHTING/ICE MELTING (CP-XX-03)
- ⊠ SURGE TANK VAULT CP (CP-XX-04)



TYPICAL VFD CONTROL DIAGRAM

REGISTERED PROFESSIONAL ENGINEER No. 86-171214-2202 KEITH B. HEGERHORST 5/19/2023 STATE OF UTAH
PROJECT ENGINEER

DESIGNED	KBH
DRAFTED	KBH
CHECKED	KBH
DATE	MAY 2023

SCALE: NONE

CENTRAL UTAH WATER CONSERVANCY DISTRICT

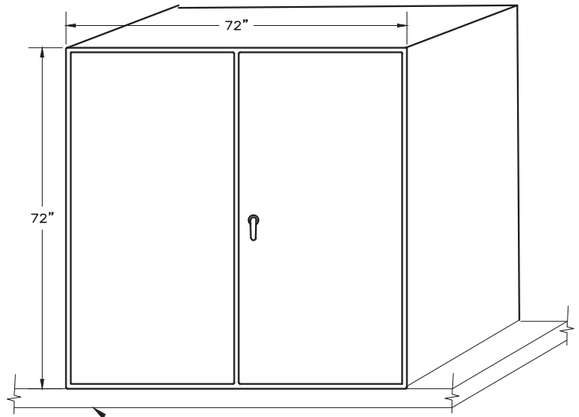
PUMP HOUSE PROJECT WELLS #7, #16 & #17
ELECTRICAL
VFD CONTROL DIAGRAM

SHEET E2.4
207.27.200

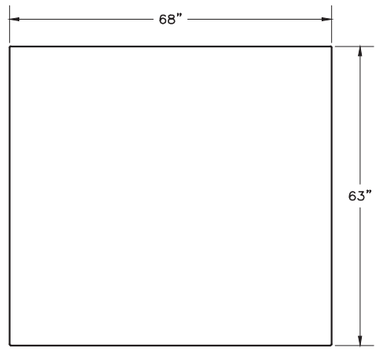
FILE NAME:
FILE DATE:
7/04

H.P.E. INC. ELECTRICAL ENGINEERS
POWER SYSTEMS, CONTROL & INSTRUMENTATION SYSTEMS
HEGERHORST POWER ENGINEERING INCORPORATED (801) 642-2051
708 EAST 50 SOUTH FAX (801) 642-2154
AMERICAN FORK, UT 84003
HPE PROJECT 20.111

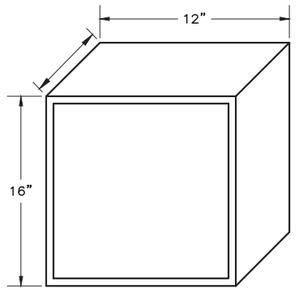
FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST



ELEVATION VIEW (1)
CP-XX-01

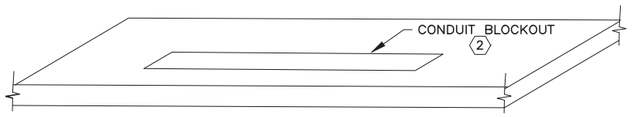


INTERNAL PANEL



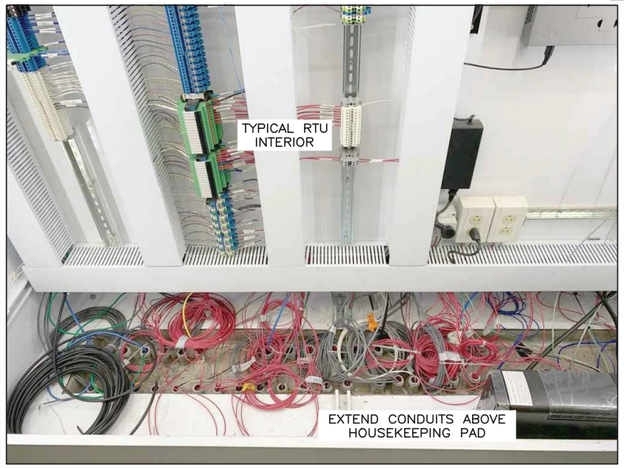
SP-XX-01 SECURITY ENCLOSURE (4)
SCALE: NTS

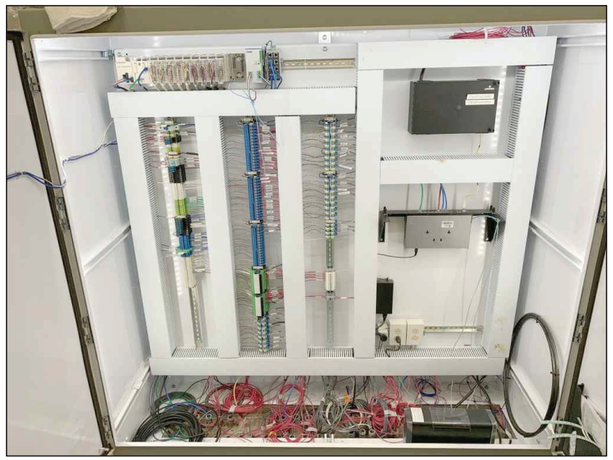
2 E6.8
2 E7.8
2 E8.8



CP-XX-01 MCP/RTU ENCLOSURE (3)
SCALE: 3/4"='-1"

1 E6.7
1 E7.7
1 E8.7





GENERAL NOTES:

1. CONTRACTOR SHALL PULL ALL WIRING TO RTU AND LABEL FOR THE OWNER TO TERMINATE. PROVIDE ADEQUATE SLACK AS REQUIRED.
2. CONTRACTOR SHALL SUPPLY AND INSTALL THE RTU ENCLOSURE.
3. RTU ENCLOSURE WITH INTERNAL PANEL PROVIDED AND INSTALLED BY CONTRACTOR. PROVIDE THE INTERNAL PANEL TO APCO TO ASSEMBLE AND WIRE THE INTERNAL COMPONENTS. APCO CONTACT: ERIC SMITH (801 519-9500 x104).
4. CP-XX-1 INPUT/OUTPUT LIST FOR WELL 7 SHOWN ON E6.2. INPUT/OUTPUT LIST FOR WELL 16 SHOWN ON E7.1. INPUT/OUTPUT LIST FOR WELL 17 SHOWN ON E8.2.

SHEET KEYNOTES:

1. RTU ENCLOSURE DEPTH SHALL BE 24".
2. PROVIDE A CONDUIT BLOCKOUT IN HOUSEKEEPING PAD. EXTEND CONDUITS TO MATCH HEIGHT OF HOUSEKEEPING PAD.
3. RTU GENERAL NOTES
   - 3.1. THERE WILL BE A CISCO SMALL BUSINESS SWITCH LOCATED IN THE RTU CABINET IN EACH WELL HOUSE. THE SWITCH WILL PROVIDE COMMUNICATION FROM THE WELL HOUSE TO THE DISTRICT NETWORK BACKBONE.
   - 3.2. A WALL RACK IN THE RTU CABINET FOR THE SWITCH WILL BE INCLUDED IN THE DESIGN FOR THE RTU CABINET AND WILL BE INSTALLED BY THE CONTRACTOR.
   - 3.3. THE SWITCH WILL BE PROVIDED AND INSTALLED BY THE DISTRICT.
   - 3.4. A FIBER PATCH PANEL WILL ALSO BE INSTALLED IN THE RTU CABINET BY THE CONTRACTOR.
   - 3.5. THE CONTRACTOR SHALL PROVIDE SINGLE MODE SC TO LC DUPLEX PATCH CABLE 1 METER LONG AS REQUIRED TO PATCH THE FIBER FROM THE FIBER PATCH PANEL IN THE RTU CABINET TO THE DISTRICT PROVIDED SWITCH AT EACH WELL SITE.
4. ENCLOSURE PROVIDED BY MOUNTAIN WEST SECURITY AND INSTALLED BY CONTRACTOR.

FILE NAME:
FILE DATE:

REGISTERED PROFESSIONAL ENGINEER
No. 86-171214-2202
KEITH B. HEGERHORST
5/19/2023
STATE OF UTAH
PROJECT ENGINEER

DESIGNED	KBH
DRAFTED	KBH
CHECKED	KBH
DATE	MAY 2023

HANSEN ALLEN & LUCE, Inc. ENGINEERS

SCALE: AS SHOWN

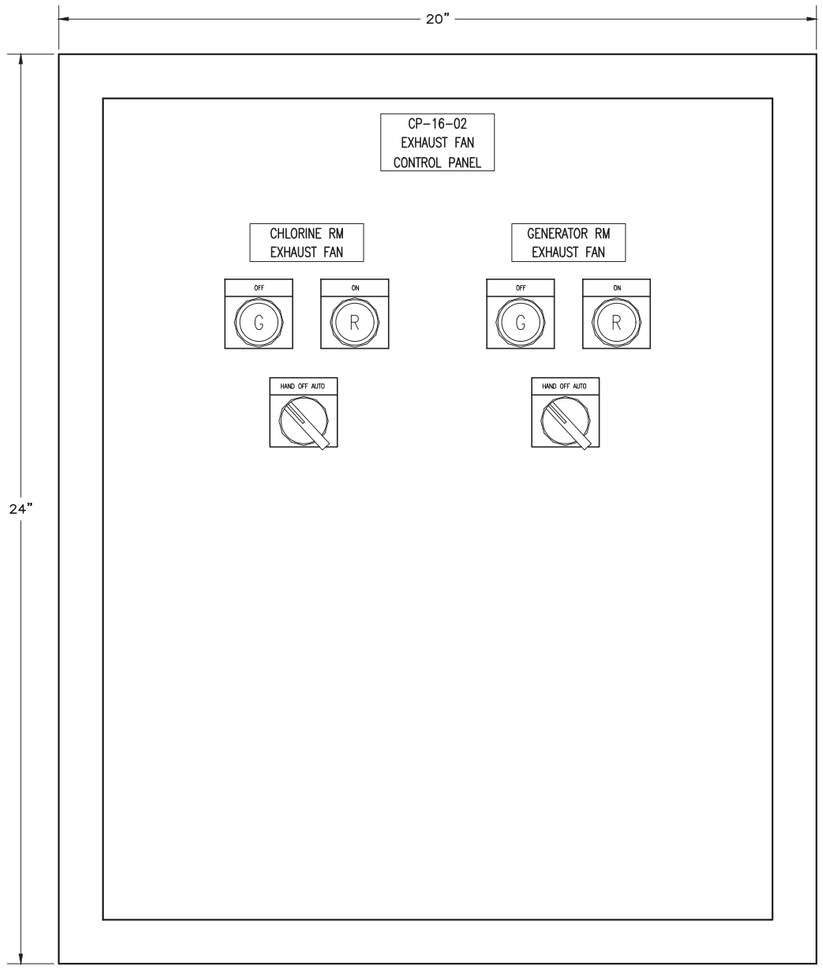
CENTRAL UTAH WATER CONSERVANCY DISTRICT

CENTRAL UTAH WATER CONSERVANCY DISTRICT

PUMP HOUSE PROJECT WELLS #7, #16 & #17
ELECTRICAL
RTU AND SECURITY ENCLOSURE

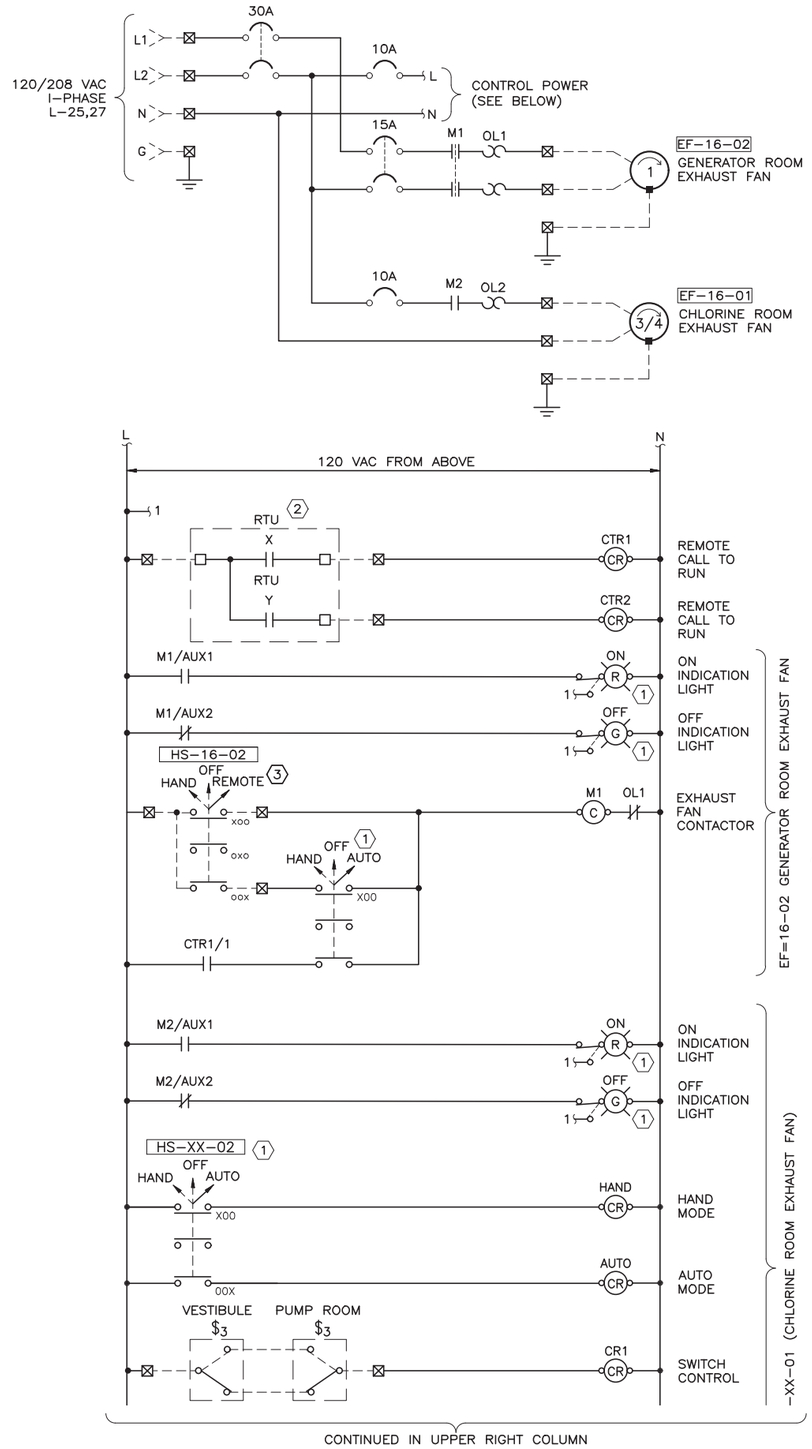
SHEET E3.1
207.27.200

7/04



CP-16-02 EXHAUST FAN CONTROL PANEL | 1

6" = 1'-0" | —



TYPICAL WIRING DIAGRAM

H.P.E. INC. ELECTRICAL ENGINEERS
POWER SYSTEMS, CONTROL & INSTRUMENTATION SYSTEMS
HEGERHORST POWER ENGINEERING INCORPORATED (801) 642-2051
708 EAST 50 SOUTH FAX (801) 642-2154
AMERICAN FORK, UT 84003
HPE PROJECT 20.111

FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

GENERAL NOTES:

1. ENCLOSURE DIMENSIONS SHOWN ARE APPROXIMATE. FINAL DIMENSIONS DETERMINED BY CONTRACTOR BASED ON THE REQUIRED COMPONENTS.
2. INTERNAL COMPONENT ARRANGEMENT DETERMINED BY CONTRACTOR.
3. CONTROL DIAGRAM IS TYPICAL AND SHALL BE MODIFIED BY THE CONTRACTOR AS REQUIRED FOR THE SELECTED COMPONENTS.

SHEET KEYNOTES:

1. DEVICE INSTALLED ON ENCLOSURE DOOR AVAILABLE TO OPERATOR.
2. RELAY CONTACT IN RTU TO BE DETERMINED BY RTU CONTRACTOR DURING CONSTRUCTION.
3. SWITCH LOCATED IN GENERATOR ROOM.

TERMINAL LEGEND

- ○ FIELD EQUIPMENT
- ⊘ VFD MOTOR CONTROLLER
- □ RTU (CP-XX-01)
- ⊠ EF/CHL. PUMP (CP-XX-02)
- ▧ EXTERIOR LIGHTING/ICE MELTING (CP-XX-03)
- ▨ SURGE TANK VAULT CP (CP-XX-04)

FILE NAME:
FILE DATE:

REGISTERED PROFESSIONAL ENGINEER
No. 86-171214-2202
KEITH B. HEGERHORST
5/19/2023
STATE OF UTAH
PROJECT ENGINEER

DESIGNED	KBH
DRAFTED	KBH
CHECKED	KBH
DATE	MAY 2023

SCALE: AS SHOWN

CENTRAL UTAH WATER CONSERVANCY DISTRICT

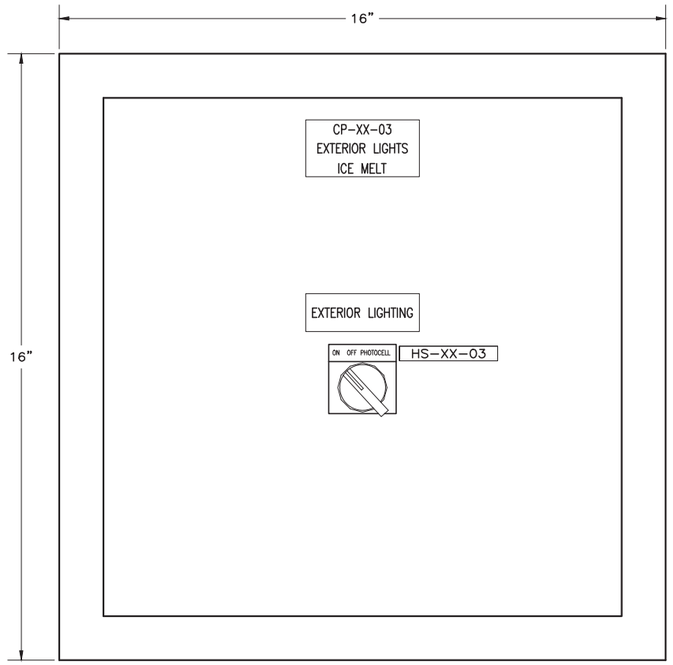
CENTRAL UTAH WATER CONSERVANCY DISTRICT

PUMP HOUSE PROJECT WELLS #7, #16 & #17
ELECTRICAL
CP-16-02 DIAGRAM AND ARRANGEMENT

SHEET E3.2

207.27.200

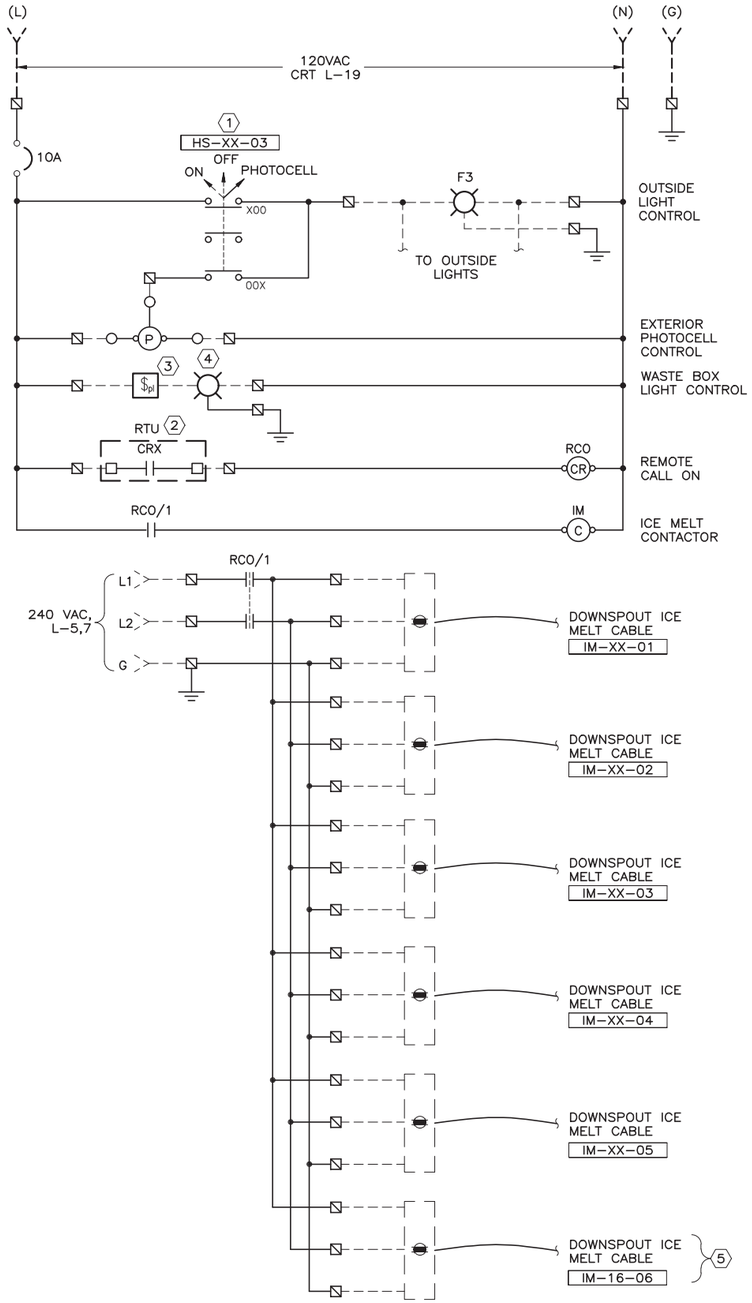
7/04



CP-XX-03 ARRANGEMENT

SCALE: 6"=1'-0"

1 E6.7 | 1 E7.7 | 1 E8.7



WIRING DIAGRAM

H.P.E. INC. ELECTRICAL ENGINEERS
POWER SYSTEMS, CONTROL & INSTRUMENTATION SYSTEMS
HEGERHORST POWER ENGINEERING INCORPORATED
708 EAST 50 SOUTH
AMERICAN FORK, UT 84003
(801) 642-2051
FAX (801) 642-2154

HPE PROJECT 20.111

FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

GENERAL NOTES:

1. ENCLOSURE DIMENSIONS SHOWN ARE APPROXIMATE. FINAL DIMENSIONS DETERMINED BY CONTRACTOR BASED ON THE REQUIRED COMPONENTS.
2. INTERNAL COMPONENT ARRANGEMENT DETERMINED BY CONTRACTOR.
3. CONTROL DIAGRAM IS TYPICAL AND SHALL BE MODIFIED BY THE CONTRACTOR AS REQUIRED FOR THE SELECTED COMPONENTS.
4. REFER TO POWER PLANS FOR THE LOCATIONS OF THE ICE MELT RECEPTACLES.

SHEET KEYNOTES:

1. DEVICE INSTALLED ON ENCLOSURE DOOR AVAILABLE TO OPERATOR.
2. RELAY CONTACT IN RTU TO BE DETERMINED DURING CONSTRUCTION.
3. PILOT LIGHTED TOGGLE SWITCH SEE LIGHTING PLAN FOR LOCATION. LABEL "WASTE BOX WALL LIGHT".
4. WALL MOUNTED LIGHT ABOVE WASTE BOX FOR WELLS #7 AND #17 ONLY.
5. NOT REQUIRED AT WELL #7 & #17.

TERMINAL LEGEND

- ○ FIELD EQUIPMENT
- ⊘ VFD MOTOR CONTROLLER
- □ RTU (CP-XX-01)
- ⊠ EF/CHL. PUMP (CP-XX-02)
- ▨ EXTERIOR LIGHTING/ICE MELTING (CP-XX-03)
- ▨ SURGE TANK VAULT CP (CP-XX-04)

REGISTERED PROFESSIONAL ENGINEER
No. 86-171214-2202
KEITH B. HEGERHORST
5/19/2023
STATE OF UTAH
PROJECT ENGINEER

DESIGNED	KBH
DRAFTED	KBH
CHECKED	KBH
DATE	MAY 2023

SCALE: AS SHOWN

CENTRAL UTAH WATER CONSERVANCY DISTRICT

CENTRAL UTAH WATER CONSERVANCY DISTRICT

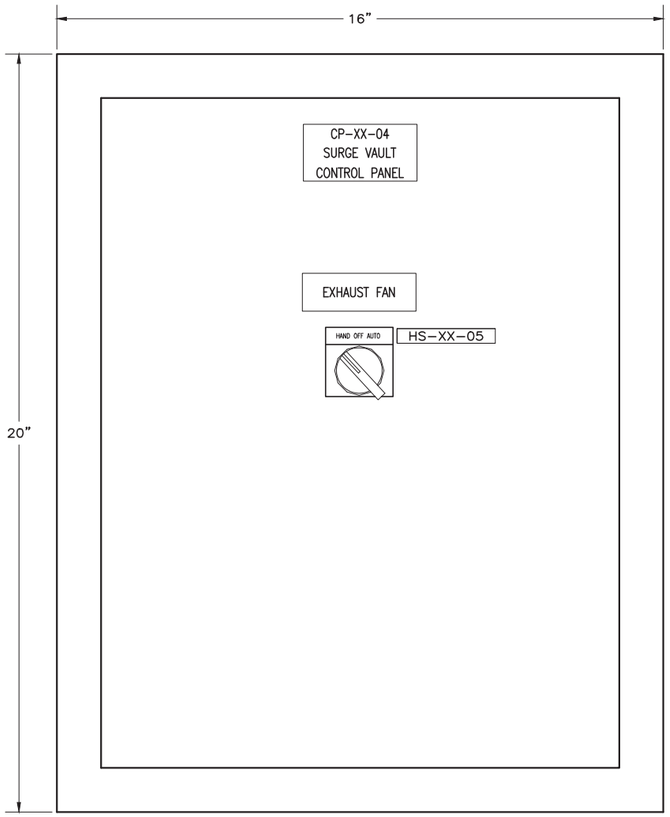
PUMP HOUSE PROJECT WELLS #7, #16 & #17
ELECTRICAL
CP-XX-03 DIAGRAM AND ARRANGEMENT

SHEET E3.3

207.27.200

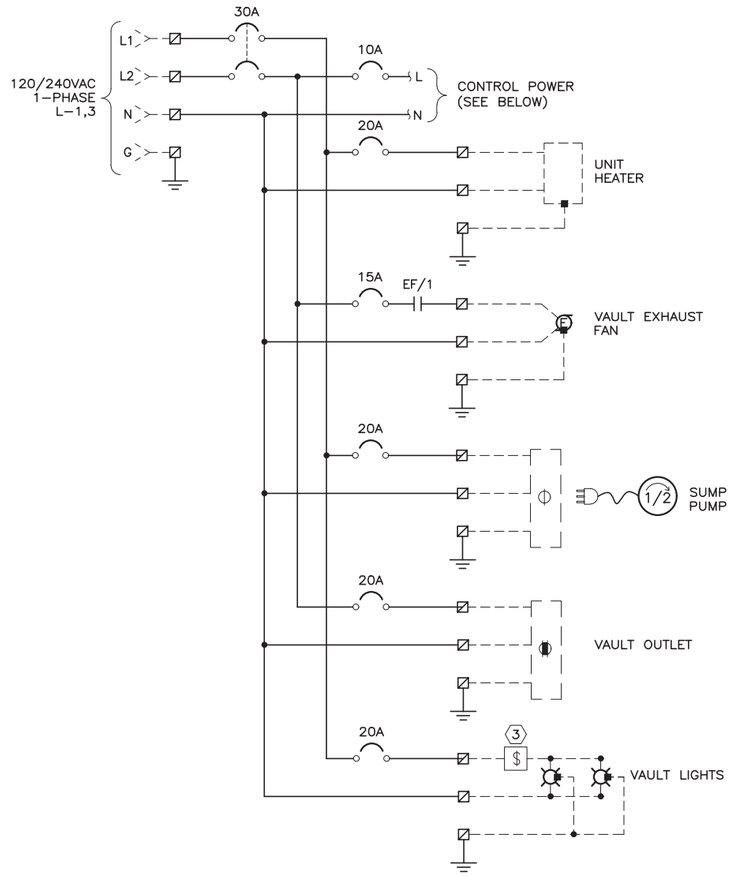
FILE NAME:
FILE DATE:

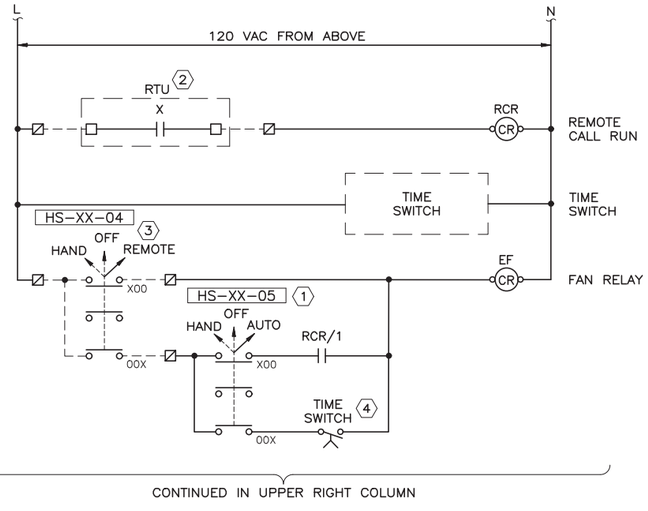
7/04



CP-XX-04 VAULT ELECTRICAL ENCLOSURE | 1 | E5.3

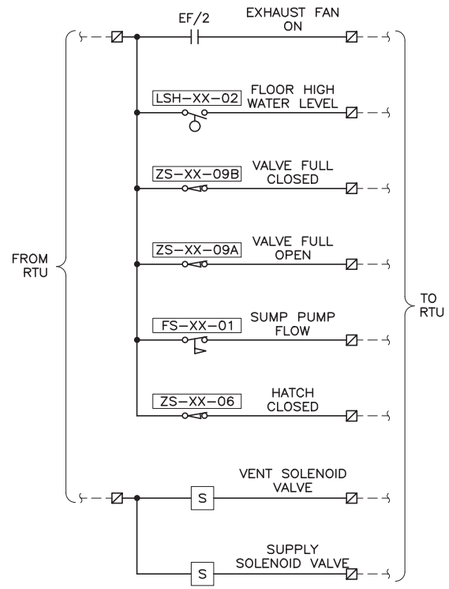
6" = 1'-0"





CONTINUED IN UPPER RIGHT COLUMN

CONTINUED FROM BELOW LEFT COLUNN



H.P.E. INC. ELECTRICAL ENGINEERS
POWER SYSTEMS, CONTROL & INSTRUMENTATION SYSTEMS
HEGERHORST POWER ENGINEERING INCORPORATED (801) 642-2051
708 EAST 50 SOUTH FAX (801) 642-2154
AMERICAN FORK, UT 84003
HPE PROJECT 20.111

FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

GENERAL NOTES:

1. ENCLOSURE DIMENSIONS SHOWN ARE APPROXIMATE. FINAL DIMENSIONS DETERMINED BY CONTRACTOR BASED ON THE REQUIRED COMPONENTS.
2. INTERNAL COMPONENT ARRANGEMENT DETERMINED BY CONTRACTOR.
3. CONTROL DIAGRAM IS TYPICAL AND SHALL BE MODIFIED BY THE CONTRACTOR AS REQUIRED FOR THE SELECTED COMPONENTS.

SHEET KEYNOTES:

1. DEVICE INSTALLED ON ENCLOSURE DOOR AVAILABLE TO OPERATOR.
2. RELAY CONTACT IN RTU TO BE DETERMINED DURING CONSTRUCTION.
3. SWITCH INSTALLED NEAR ACCESS HATCH AVAILABLE TO OPERATOR WITHOUT ENTERING THE VAULT.
4. SET TIME SWITCH TO OPERATE FAN FOR 15 MINUTES EVERY 12 HOURS.

TERMINAL LEGEND

- ○ FIELD EQUIPMENT
- ⊘ VFD MOTOR CONTROLLER
- □ RTU (CP-XX-01)
- ⊠ EF/CHL. PUMP (CP-XX-02)
- ▨ EXTERIOR LIGHTING/ICE MELTING (CP-XX-03)
- ◪ SURGE TANK VAULT CP (CP-XX-04)

FILE NAME:
FILE DATE:

REGISTERED PROFESSIONAL ENGINEER
No. 86-171214-2202
KEITH B. HEGERHORST
5/19/2023
STATE OF UTAH

PROJECT ENGINEER

DESIGNED	KBH
DRAFTED	KBH
CHECKED	KBH
DATE	MAY 2023

SCALE: AS SHOWN

CENTRAL UTAH WATER CONSERVANCY DISTRICT

CENTRAL UTAH WATER CONSERVANCY DISTRICT

PUMP HOUSE PROJECT WELLS #7, #16 & #17
ELECTRICAL
CP-XX-04 VAULT ELECTRICAL ENCLOSURE

SHEET E3.4

207.27.200

7/04

H.P.E. INC. ELECTRICAL ENGINEERS
POWER SYSTEMS, CONTROL & INSTRUMENTATION SYSTEMS
HEGERHORST POWER ENGINEERING INCORPORATED (801) 642-2051
708 EAST 50 SOUTH FAX (801) 642-2154
AMERICAN FORK, UT 84003
HPE PROJECT 20.111
FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

GENERAL NOTES:

1. NOT USED.

SHEET KEYNOTES:

1. NOT USED.

PHOTO 1 –

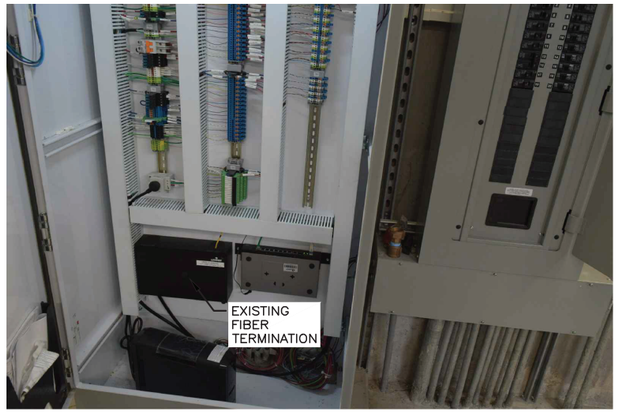


PHOTO 2 –

PHOTO 3 –

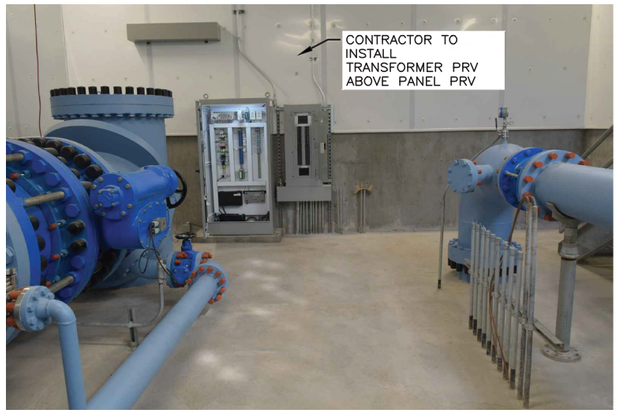


PHOTO 4 –

PHOTO 5 –

PHOTO 6 –

PHOTO 1–6 ARE THE EXISTING PRV VAULT ON WELL 7

REGISTERED PROFESSIONAL ENGINEER
No. 86-171214-2202
KEITH B. HEGERHORST
5/19/2023
STATE OF UTAH
PROJECT ENGINEER

DESIGNED	KBH
DRAFTED	KBH
CHECKED	KBH
DATE	MAY 2023

SCALE: NONE

CENTRAL UTAH WATER CONSERVANCY DISTRICT

CENTRAL UTAH WATER CONSERVANCY DISTRICT

PUMP HOUSE PROJECT WELLS #7, #16 & #17
ELECTRICAL
ELECTRICAL PHOTOGRAPHS

SHEET E4.1

207.27.200

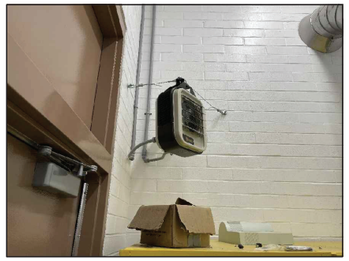
FILE NAME:
FILE DATE:

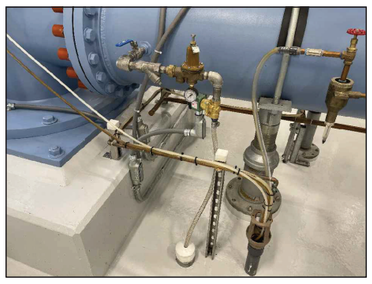
7/04

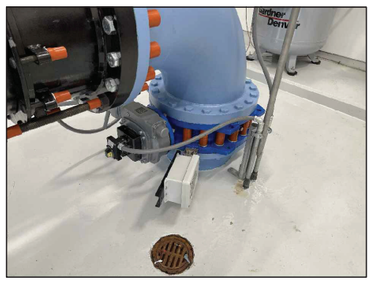
H.P.E. INC. ELECTRICAL ENGINEERS
POWER SYSTEMS, CONTROL & INSTRUMENTATION SYSTEMS
HEGERHORST POWER ENGINEERING INCORPORATED
708 EAST 50 SOUTH
AMERICAN FORK, UT 84003
(801) 642-2051
FAX (801) 642-2154

HPE PROJECT 20.111

FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST







TYPICAL INSTALLATIONS OF
PRIOR PUMP HOUSES

FILE NAME:
FILE DATE:

REGISTERED PROFESSIONAL ENGINEER
No. 86-171214-2202
KEITH B. HEGERHORST
5/19/2023
STATE OF UTAH

PROJECT ENGINEER

DESIGNED	KBH
DRAFTED	KBH
CHECKED	KBH
DATE	MAY 2023

SCALE
NONE

CENTRAL UTAH WATER CONSERVANCY DISTRICT

CENTRAL UTAH WATER CONSERVANCY DISTRICT

PUMP HOUSE PROJECT WELLS #7, #16 & #17
ELECTRICAL
ELECTRICAL PHOTOGRAPHS SHT. 2

SHEET
E4.2
207.27.200

7/04

LEGEND

- AIR TERMINAL
- MECHANICAL CONNECTION
- MISC. BONDING
- THRU-ROOF CONNECTOR (TR)
- CG — PVC CABLE GUARD
- AL — CLASS I ALUMINUM MAIN CONDUCTOR
- CU — CLASS I COPPER MAIN CONDUCTOR
- G — COPPER CLAD GROUND ROD WITH EXOTHERMIC WELD CONNECTION

H.P.E. INC. ELECTRICAL ENGINEERS
POWER SYSTEMS, CONTROL & INSTRUMENTATION SYSTEMS
HEGERHORST POWER ENGINEERING INCORPORATED
708 EAST 50 SOUTH
AMERICAN FORK, UT 84003
(801) 642-2051
FAX (801) 642-2154

HPE PROJECT 20.111

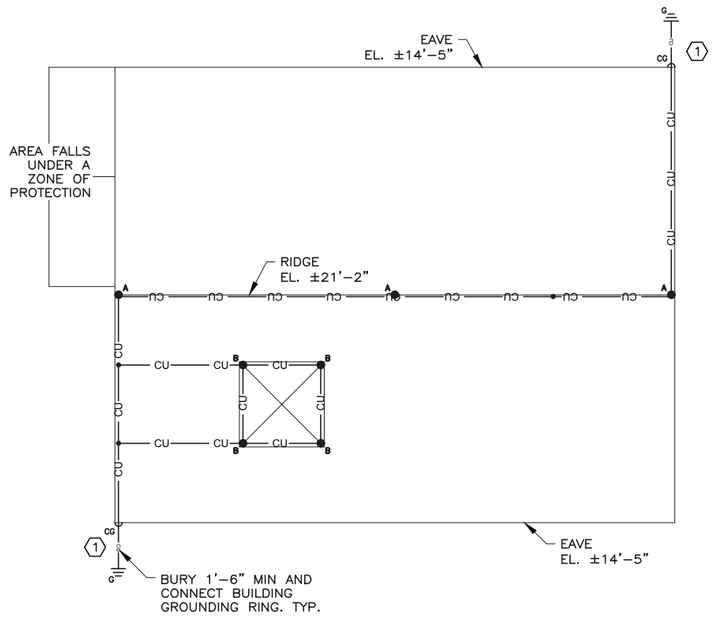
FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

GENERAL NOTES:

1. REFER TO ELECTRICAL SITE PLANS AND BUILDING GROUNDING PLANS FOR ADDITIONAL GROUNDING REQUIREMENTS.
2. SYSTEM INSTALLATION DETAILS SHOWN ON E5.2.

SHEET KEYNOTES:

1. INSTALL LIGHTNING DOWN CONDUCTORS IN PVC CONDUCT IN BUILDING WALLS. NO SURFACE MOUNTED CONDUCTORS EITHER INSIDE OR OUTSIDE THE BUILDING SHALL BE PERMITTED.



WELLS 7 & 17

0 4' 8' 16'

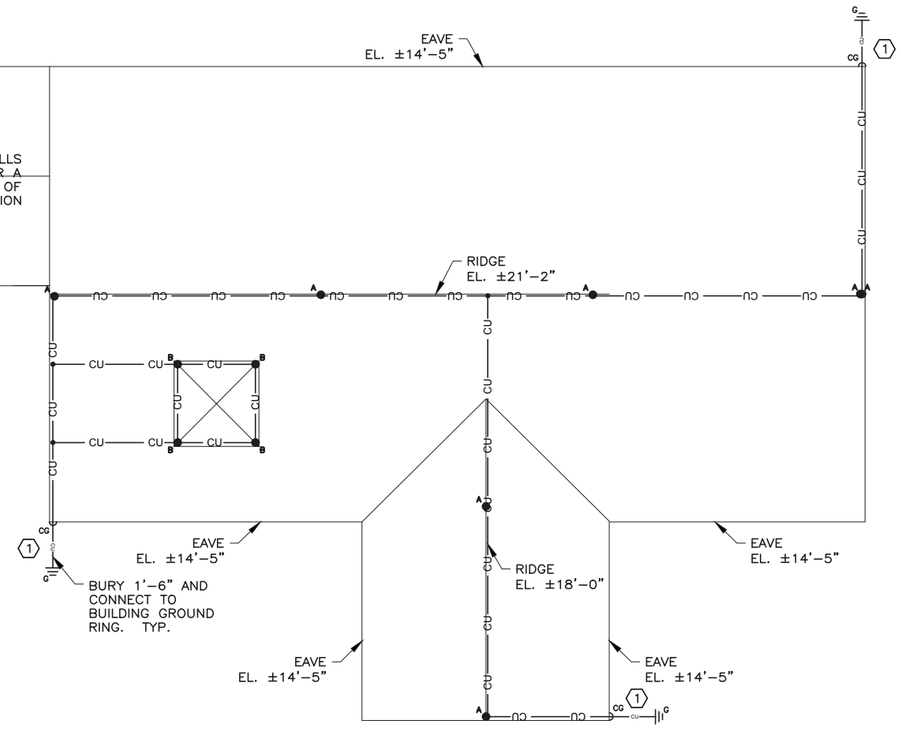
3/16"=1'-0"

N

WELL 7

Z

WELL 17



WELLS 16

0 4' 8' 16'

3/16"=1'-0"

N

FILE NAME:
FILE DATE:

REGISTERED PROFESSIONAL ENGINEER
No. 86-171214-2202
KEITH B. HEGERHORST
5/19/2023
STATE OF UTAH

PROJECT ENGINEER

DESIGNED	KBH
DRAFTED	KBH
CHECKED	KBH
DATE	MAY 2023

SCALE: AS SHOWN

CENTRAL UTAH WATER CONSERVANCY DISTRICT

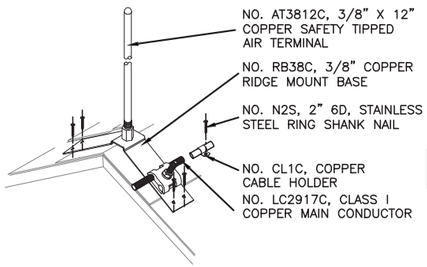
CENTRAL UTAH WATER CONSERVANCY DISTRICT

PUMP HOUSE PROJECT WELLS #7, #16 & #17
ELECTRICAL
ROOF LIGHTNING PROTECTION PLANS

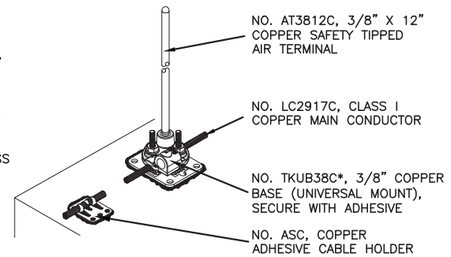
SHEET E5.1

207.27.200

7/04

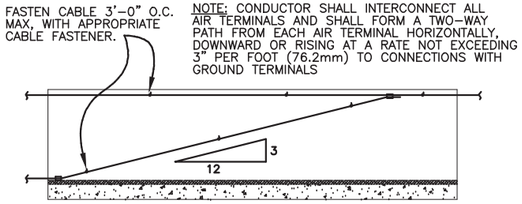


A AIR TERMINAL
— NTS

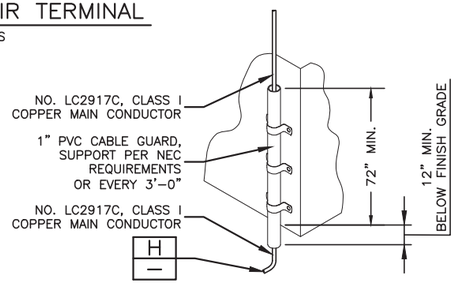


*** This product may be subject to patent rights of VFC. Consult your patent attorney about your rights and responsibilities regarding patented products.**

B AIR TERMINAL
— NTS



C 4 TO 1 CONDUCTOR DETAIL
— NTS



H
—

D BEND RADIUS DETAIL
— NTS

NOTE:
NO BEND OF A CONDUCTOR SHALL FORM AN INCLUDED ANGLE OF LESS THAN 90 DEGREES, NOR SHALL IT HAVE A RADIUS OF BEND LESS THAN 203mm (8").

E BEND RADIUS DETAIL
— NTS

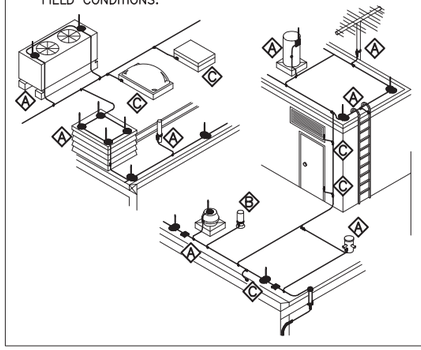
GENERAL BONDING NOTES

A TYPICAL BODIES OF CONDUCTANCE AS NOTED BELOW. USE FULL SIZE CONDUCTOR AND APPROPRIATE FITTING SHOWN FOR CONNECTION.

B (PLUMBING STACK) REQUIRES BONDING WITH MAIN SIZE CABLE ONLY IF WITHIN 6'-0" (1,828mm) OF LIGHTNING PROTECTION SYSTEM.

C TYPICAL BODIES OF INDUCTANCE AS NOTED BELOW. USE SECONDARY SIZE (SMALLER) CONDUCTOR AND APPROPRIATE FITTING SHOWN FOR CONNECTION.

D BONDING CONNECTIONS AND FITTINGS SHOWN ARE TYPICAL EXAMPLES. MAKE ALL CONNECTIONS REQUIRED TO MEET CODES AS NOTED BELOW. ADJUST FITTING TYPE AS REQUIRED TO SUIT FIELD CONDITIONS.



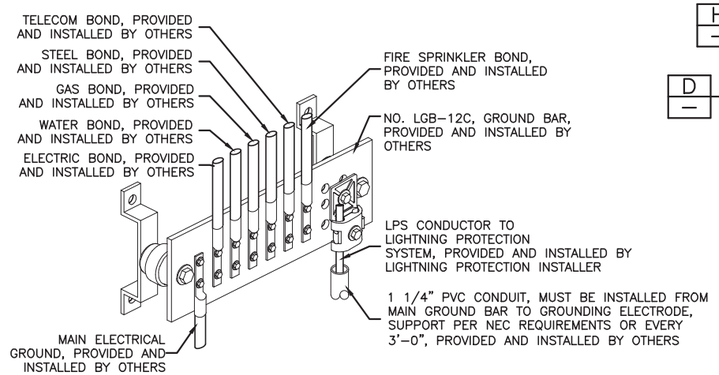
GENERAL CONSTRUCTION NOTES

1. THIS DRAWING IS INTENDED FOR USE AS A CONSTRUCTION DOCUMENT. FIELD VERIFY ACTUAL CONDITIONS PRIOR TO CONSTRUCTION. CONTACT VFC, TO CLARIFY ANY DISCREPANCIES.

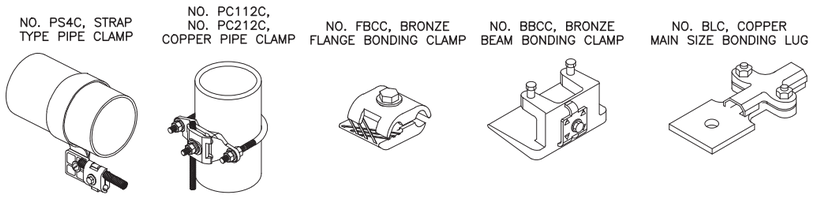
GENERAL INSTALLATION NOTES

1. LOCATE AIR TERMINALS AS SHOWN. TAKE CARE TO ENSURE THAT ALL POINTS ARE WITHIN 2'-0" (609mm) OF OUTSIDE BUILDING EDGE, OUTSIDE CORNERS, RIDGE ENDS, AND THAT MAX SPACING DOES NOT EXCEED 20'-0" (6,096mm), AND THAT MIN PROJECTION ABOVE OBJECT PROTECTED IS 10" (254mm); POINTS PROJECTING 24" (609mm) MAY BE SPACED @ 25'-0" (7,520mm) MAX.
2. MAINTAIN HORIZONTAL OR DOWNWARD COURSING OF MAIN CONDUCTOR. INSURE THAT ALL BENDS HAVE AT LEAST AN 8" (203mm) RADIUS AND DO NOT EXCEED 90 DEGREES.
3. ATTACH ALL EXPOSED ROOF, DOWN LEAD AND BONDING CABLES AT 3'-0" (914mm) ON CENTER MAX. VERIFY COMPATIBILITY OF ADHESIVE ON MEMBRANE ROOF APPLICATION PRIOR TO INSTALLATION.
4. GROUND ROD ELECTRODES SHALL BE INSTALLED AS SHOWN, BUT IN NO INSTANCE SHALL THEY BE LESS THAN 1'-0" (304mm) BELOW GRADE AND 2'-0" (609mm) FROM FOUNDATION WALL. DRIVEN RODS SHALL PENETRATE THE EARTH AT LEAST 10'-0" (3,048mm).
5. BOND TO WATER SERVICE AND OTHER PIPING SYSTEMS AS SHOWN AND AS REQUIRED BY CODE.
6. MAIN SIZE LIGHTNING CONDUCTOR BONDED TO MAIN GROUND BUS FIELD VERIFY LOCATION 1 1/4" CONDUIT FOR ACCESS, INSTALLED BY OTHERS. INTERCONNECT LIGHTNING PROTECTION GROUND TO TELEPHONE AND OTHER BUILDING GROUND SYSTEMS LOCATION FIELD DETERMINED OR AS REQUIRED BY CODE.
7. LB'S AND SIMILAR CONDUIT BODIES MAY NOT BE USED IN THE INSTALLATION OF DOWNLEAD CONDUITS, AS THEY DO NOT ADHERE TO THE REQUIRED 8" (203mm) MINIMUM BEND RADIUS.
8. SYSTEM SHALL BE INSTALLED AS SHOWN TO INSURE PROPER CODE COMPLIANCE AND SYSTEM CERTIFICATION. ANY MAJOR VARIANCE SHALL BE RESUBMITTED FOR APPROVAL.
9. ALL MATERIALS TO BE UNDERWRITER'S LABORATORIES APPROVED WITH APPROPRIATE UL96 MARKINGS.
10. FINAL SYSTEM INSPECTION AND QUALITY CONTROL
    - A) THE CONTRACTOR SHALL FURNISH AN LPI-IP CERTIFICATE OR A UL CERTIFICATE UPON COMPLETION OF THE INSTALLATION.
    - B) LPI CERTIFICATION IF REQUIRED, REQUIRES SIGNATURE BY A REPRESENTATIVE OF THE OWNER AT MULTIPLE STAGES OF INSTALLATION & BY THEIR THIRD PARTY FIELD STAFF. UL CERTIFICATION IF REQUIRED, REQUIRES INSPECTION BY THEIR THIRD-PARTY FIELD STAFF AFTER COMPLETION OF THE INSTALLATION.
    - C) AS-BUILT DRAWINGS SHALL BE COMPLETED AND STAMPED BY AN LPI CERTIFIED MASTER DESIGNER – INSTALLER OF LIGHTNING PROTECTION SYSTEMS.
    - D) FINAL INSPECTION REPORT – A FINAL INSPECTION AND INSPECTION REPORT SHALL BE COMPLETED BASED ON ANSI/TIA/EIA 607, NEC, NFPA 780, AND UL96A INDUSTRY STANDARDS AS APPLICABLE. THE SCOPE OF THE INSPECTION AND REPORT SHALL INCLUDE;
      - a. TEST AND EVALUATION THE OF GROUNDING SYSTEM. RECORD FINAL SYSTEMS TO GROUND RESISTANCE LEVEL.
      - b. EVALUATION AND TESTING OF THE INTERNAL BONDING AND GROUNDING SYSTEMS.
      - c. EVALUATION AND TESTING OF EQUIPMENT GROUNDING.
      - d. EVALUATION OF AC SURGE SUPPRESSION INSTALLATION.
      - e. EVALUATION OF TELCO SURGE SUPPRESSION INSTALLATION.
      - f. COPY OF THE LPI-IP OR UL LIGHTNING PROTECTION CERTIFICATION.
      - g. FINAL AS-BUILT REVIEW AND SUBMISSION.
    - E) REPORT SHALL INCLUDE DETAILED REPORTING AND TEST RESULTS WITH CORRESPONDING PHOTOS OF EACH EVALUATION CATEGORY.
11. SYSTEM TO BE DESIGNED AND INSTALLED BY:

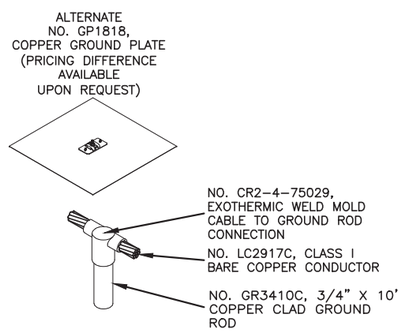
    VFC LIGHTNING PROTECTION
    90 NORTH CUTLER DRIVE * NORTH SALT LAKE, UT 84054
    PHONE: (801) 292-2956 * FAX: (801) 292-4164
    EMAIL: cad@vfcinc.com * INTERNET: www.vfcinc.com
12. SYSTEM DESIGNED UTILIZING UL LISTED VFC MATERIALS.



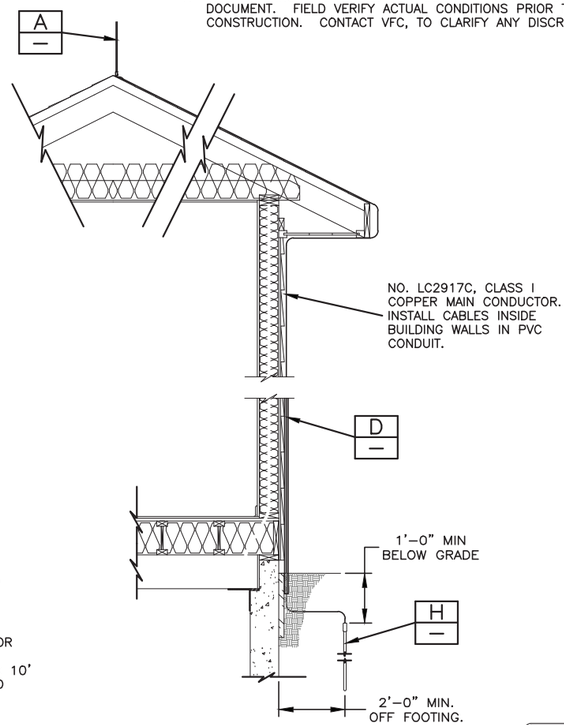
F COMMON BONDING GROUND BUS
— NTS



G MISCELLANEOUS
— NTS



H FurseWELD EXOTHERMIC WELD MOLD – CR2
— NTS



I TYPICAL DOWNLEAD DETAIL
— NTS

H.P.E. INC. ELECTRICAL ENGINEERS
POWER SYSTEMS, CONTROL & INSTRUMENTATION SYSTEMS
HEGERHORST POWER ENGINEERING INCORPORATED (801) 642-2051
708 EAST 50 SOUTH FAX (801) 642-2154
AMERICAN FORK, UT 84003
HPE PROJECT 20.111

FILE NAME:
FILE DATE:

HANSEN ADLER & LUCE ENGINEERS

REGISTERED PROFESSIONAL ENGINEER No. 86-171214-2202 KEITH B. HEGERHORST 5/19/2023 STATE OF UTAH
PROJECT ENGINEER

DESIGNED	KBH
DRAFTED	KBH
CHECKED	KBH
DATE	MAY 2023

SCALE: NONE

CENTRAL UTAH WATER CONSERVANCY DISTRICT

CENTRAL UTAH WATER CONSERVANCY DISTRICT

PUMP HOUSE PROJECT WELLS #7, #16 & #17
ELECTRICAL
LIGHTNING DETAILS

SHEET E5.2
207.27.200

7/04

H.P.E. INC. ELECTRICAL ENGINEERS
POWER SYSTEMS, CONTROL & INSTRUMENTATION SYSTEMS
HEGERHORST POWER ENGINEERING INCORPORATED
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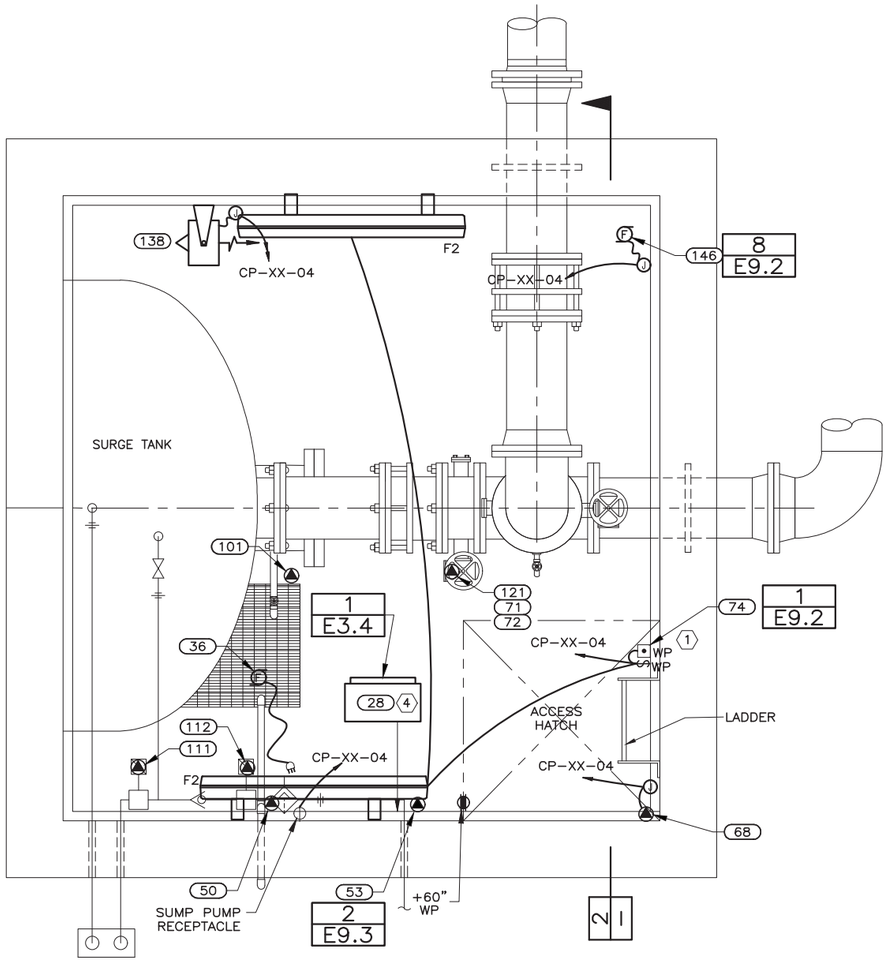
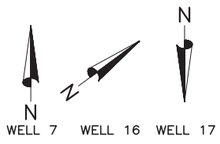
AMERICAN FORK, UT 84003
(801) 642-2051
FAX (801) 642-2154

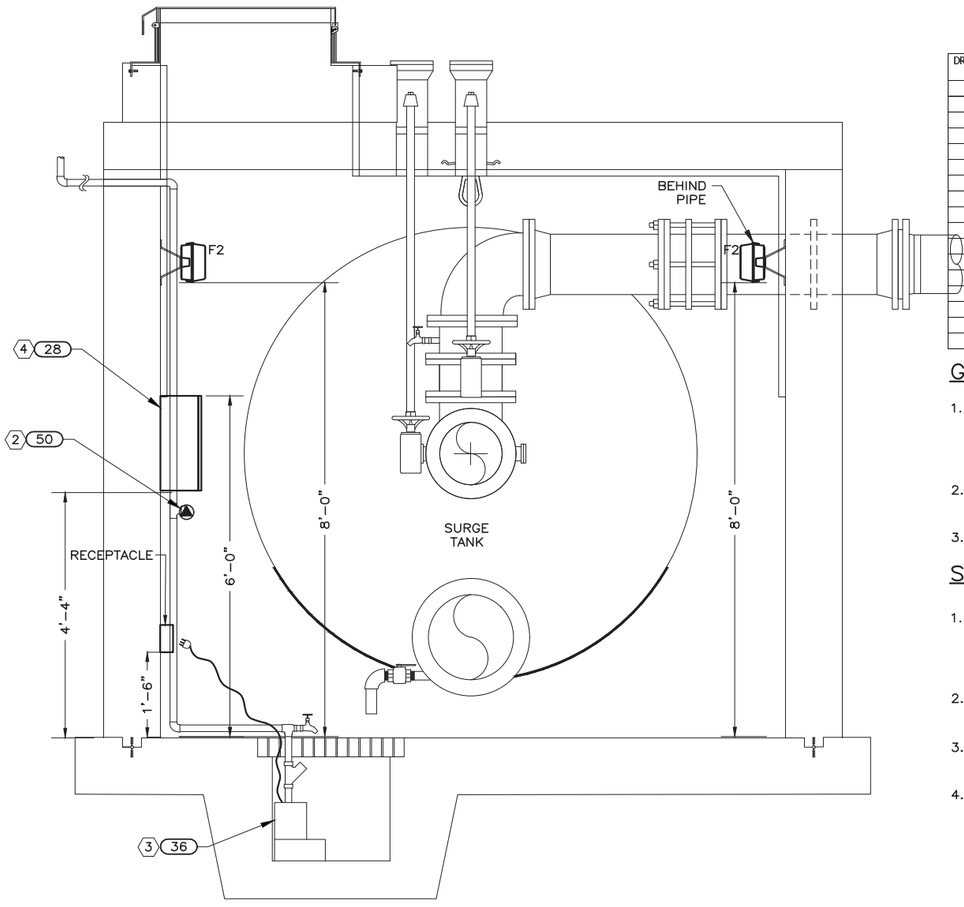
HPE PROJECT 20.111

FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST



TYPICAL VAULT PLAN 1 | 1 | 1
0 1' 2' 4
3/4"=1'-0"
E6.4 | E7.4 | E8.4





TYPICAL VAULT ELEVATION 2
3/4" = 1'-0" —

SURGE VAULT PLAN ITEMS

DRAWING ID	DESCRIPTION	WELL 7 TAG	WELL 16 TAG	WELL 17 TAG
28	SURGE VAULT CONTROL PANEL	CP-07-04	CP-16-04	CP-17-04
36	SUMP PUMP	SP-07-01	SP-16-01	SP-17-01
50	SURGE VAULT SUMP PUMP FLOW SWITCH	FS-07-01	FS-16-01	FS-17-01
53	SURGE TANK VAULT FLOOR HIGH WATER SWITCH	LSH-07-02	LSH-16-02	LSH-17-02
68	SURGE TANK VAULT HATCH POSITION SWITCH	ZS-07-07	ZS-16-07	ZS-17-07
71	SURGE VALVE OPEN POSITION SWITCH	ZS-07-09A	ZS-16-09A	ZS-17-09A
72	SURGE VALVE CLOSED POSITION SWITCH	ZS-07-09B	ZS-16-09B	ZS-17-09B
74	VAULT EF HOR SWITCH	HS-07-01	HS-16-01	HS-17-01
101	DIFFERENCIAL PRESSURE TRANSMITTER	DPT-07-01	DPT-16-01	DPT-17-01
111	SURGE TANK AIR SUPPLY SOLENOID VALVE	SV-07-01	SV-16-01	SV-17-01
112	SURGE TANK AIR RELEASE SOLENOID VALVE	SV-07-02	SV-16-02	SV-17-02
121	SURGE TANK VALVE	V-07-04	V-16-04	V-17-04
138	UNIT HEATER	UH-07-05	UH-16-05	UH-17-05
146	EXHAUST FAN	EF-07-03	EF-16-03	EF-17-03

GENERAL NOTES:

1. ALL WALL MOUNTED EQUIPMENT INSTALLED ON INSULATED WALLS WITHIN 4'-0" OF THE CEILING SHALL BE ANCHORED TO THE CONCRETE WALL. REFER TO TYPICAL DETAIL 2/E9.2.
2. REFER TO ONE-LINE DIAGRAMS ON E2.1 FOR VAULT WIRE AND CONDUIT REQUIREMENTS.
3. REFER TO SITE PLANS FOR GROUNDING REQUIREMENTS.

SHEET KEYNOTES:

1. INSTALL WALL LIGHT SWITCH AND EXHAUST FAN HOA SWITCH IN WEATHERPROOF ENCLOSURES. LOCATE NEAR THE ACCESS HATCH OPENING, SUCH THAT THE SWITCHES CAN BE OPERATED WITHOUT ENTERING THE VAULT.
2. INSTALL FLOW SWITCH IN A 1/2" PVC THREADED PVC TEE. ORIENT PARALLEL TO WALL.
3. START/STOP FLOAT SWITCH SUPPLIED WITH SUMP PUMP. INSTALL AS REQUIRED.
4. INSTALL CP-XX-04 ON THE VAULT WALL BELOW THE LIGHT FIXTURE.

FILE NAME:
FILE DATE:

REGISTERED PROFESSIONAL ENGINEER
No. 86-171214-2202
KEITH B. HEGERHORST
5/19/2023
STATE OF UTAH

PROJECT ENGINEER

DESIGNED	KBH
DRAFTED	KBH
CHECKED	KBH
DATE	MAY 2023

SCALE: AS SHOWN

CENTRAL UTAH WATER CONSERVANCY DISTRICT

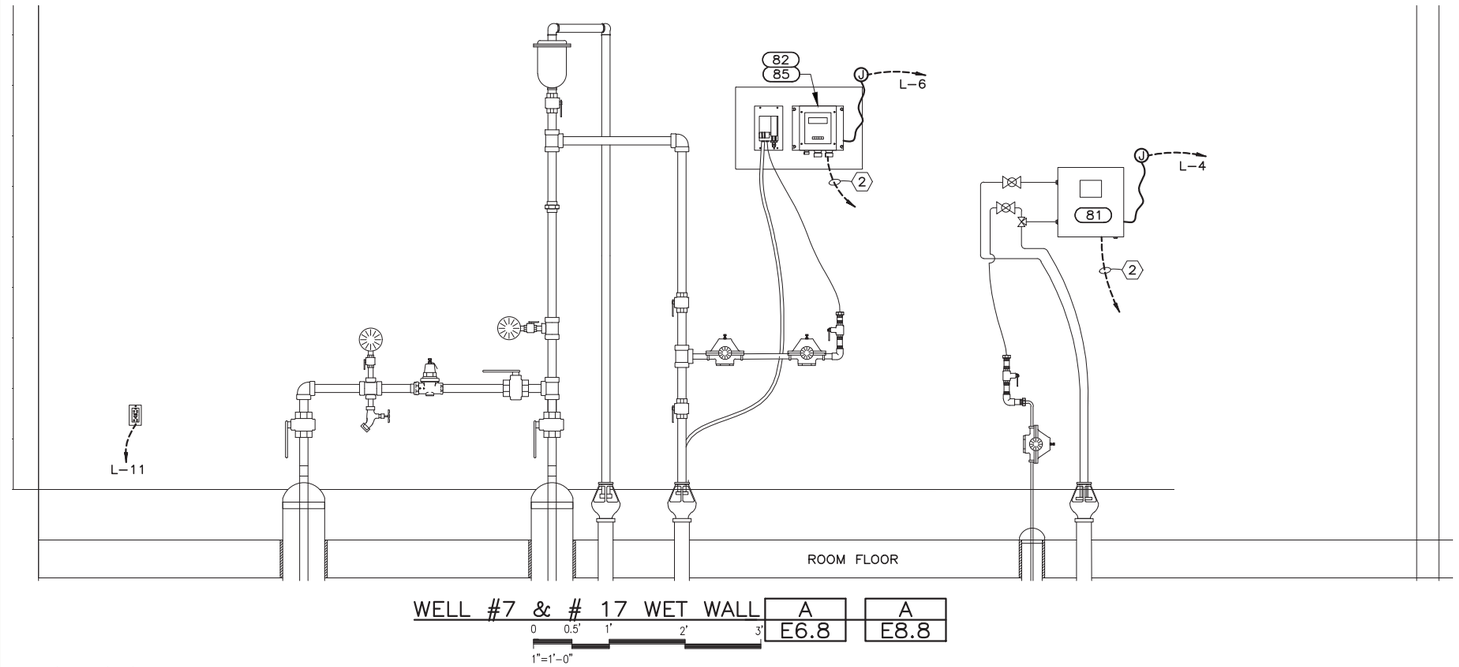
CENTRAL UTAH WATER CONSERVANCY DISTRICT

PUMP HOUSE PROJECT WELLS #7, #16 & #17
ELECTRICAL
SURGE VAULT

SHEET E5.3

207.27.200

7/04



WELL #7 & # 17 WET WALL | A E6.8 | A E8.8

0 0.5' 1' 2' 3'

1"=1'-0"

WET WALL PLAN ITEMS

DRAWING ID	DESCRIPTION	WELL 7 TAG	WELL 16 TAG	WELL 17 TAG
32	CHLORINE CIRCULATION PUMP		P-16-02	
73	CHLORINE LEAK DETECTOR		ASH-16-01	
81	WELL TURBIDITY ANALYZER	AIT-07-02	AIT-16-02	AIT-17-02
82	WELL pH ANALYZER	AIT-07-03A	AIT-16-03A	AIT-17-03A
83	WELL CONDUCTIVITY ANALYZER		AIT-16-03B	
84	RESIDUAL CHLORINE ANALYZER		AIT-16-03C	
85	WATER TEMPERATURE TRANSMITTER	AIT-07-03D	AIT-16-03D	AIT-17-03D
89	CHLORINE CIRCULATION FLOW METER		FT-16-02	
117	CHLORINE CIRCULATION STRAINER SOLENOID VALVE		SV-16-09	

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AMERICAN FORK, UT 84003
HPE PROJECT 20.111

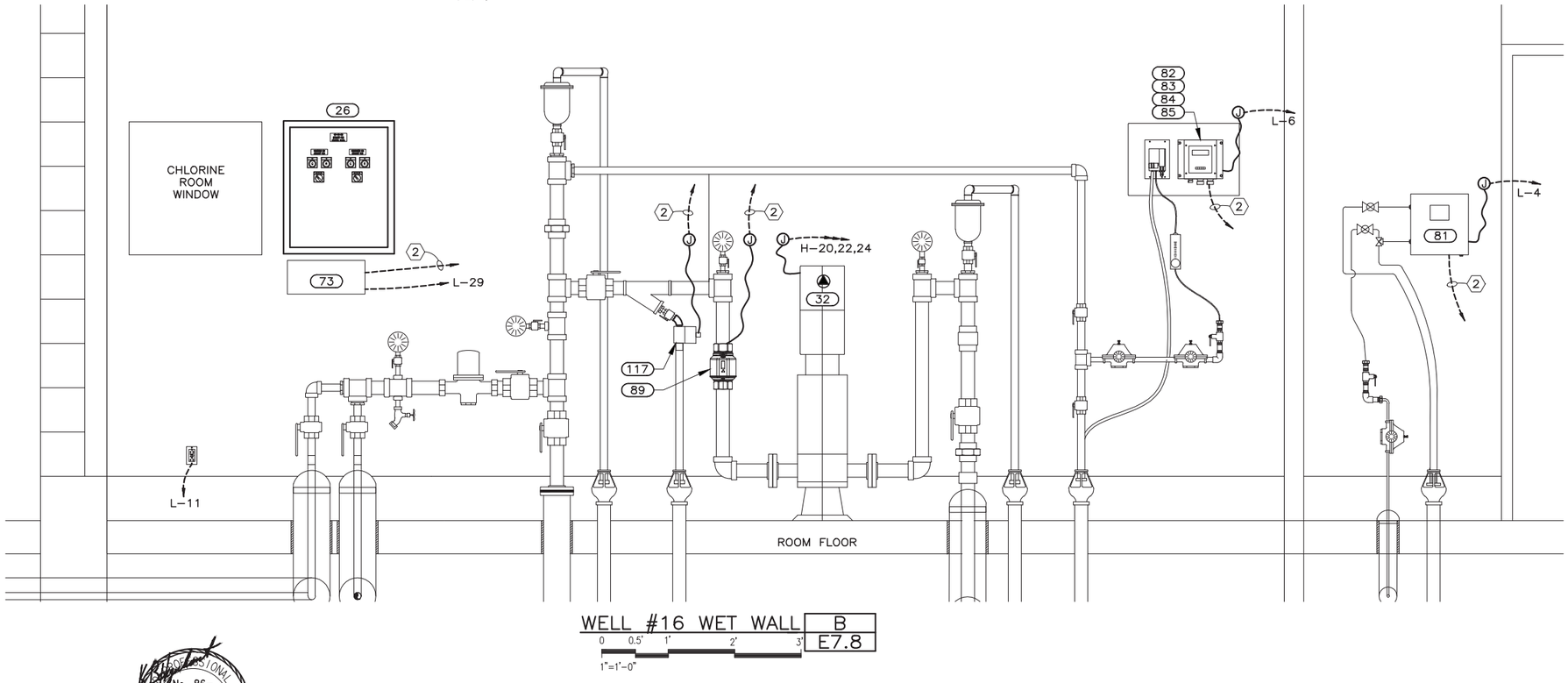
FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

GENERAL NOTES:

1. REFER TO ONE-LINE DIAGRAMS FOR WIRE AND CONDUIT REQUIREMENTS.
2. PRIOR TO CONDUIT ROUGH-IN VERIFY LOCATIONS OF ALL DEVICES WITH INSTALLER.

SHEET KEYNOTES:

1. TO PANELBOARD L.
2. WELL #7: TO CP-07-01, WELL #16: TO CP-16-01, WELL #17: TO CP-17-01.



WELL #16 WET WALL | B E7.8

0 0.5' 1' 2' 3'

1"=1'-0"

REGISTERED PROFESSIONAL ENGINEER No. 86-171214-2202 KEITH B. HEGERHORST 5/19/2023 STATE OF UTAH

PROJECT ENGINEER

DESIGNED	KBH
DRAFTED	KBH
CHECKED	KBH
DATE	MAY 2023

SCALE: AS SHOWN

CENTRAL UTAH WATER CONSERVANCY DISTRICT

CENTRAL UTAH WATER CONSERVANCY DISTRICT

PUMP HOUSE PROJECT WELLS #7, #16 & #17
ELECTRICAL
WET WALL

SHEET E5.4

207.27.200

FILE NAME:
FILE DATE:

7/04

WELL 7 MAIN SERVICE DISCONNECT

LOCATION: WELL 7 SITE			MFGR: SQUARE D				200 AMPS				VOLTS:	12,470/7200	
DIMENSIONS: 36"W x 36"D x 91.5"H			TYPE: SWITCHBOARD				X FUSED SWITCH				PHASE:	3	
MOUNTING: FLOOR			NEMA: 3R								WIRES:	4	
FEED: BOTTOM							65,000 A.I.C.				AIC AVAILABLE:		
							PHASE LOADS						
FUSE			WIRE	CONT.	N-CONT.		A		B		C		
A	P	DESCRIPTION	SIZE	WATTS	WATTS	NO	CONT.	N-CONT.	CONT.	N-CONT.	CONT.	N-CONT.	
150E	3	DISTRIBUTION SERVICE EQUIPMENT	*	1,177,587	37,102	2	397,236	13,366	389,370	13,510	390,981	10,226	
		TOTAL WATTS:		1,177,587	37,102		397,236	13,366	389,370	13,510	390,981	10,226	
		CONTINUOUS LOAD:		1,177,587									
		CONTINUOUS LOAD * 125%:		1,471,983									
		NON-CONTINUOUS LOAD:		37,102									
		DESIGN WATTS:		1,509,086			* = REFER TO ONE-LINE DIAGRAM FOR WIRE/CONDUIT SIZES						
		MIN. RATING (AMPS):		70									

WELL 7 DISTRIBUTION SWITCHGEAR

LOCATION: WELL 7 SITE			MFGR: SQUARE D				200 AMPS				VOLTS:	12,470/7200	
DIMENSIONS: 102"W x 48"D x 91.5"H			TYPE: SWITCHBOARD								PHASE:	3	
MOUNTING: FLOOR			NEMA: 3R				X M.L.O				WIRES:	4	
FEED: BOTTOM							65,000 A.I.C.				AIC AVAILABLE:		
							PHASE LOADS						
FUSE			WIRE	CONT.	N-CONT.		A		B		C		
A	P	DESCRIPTION	SIZE	WATTS	WATTS	NO	CONT.	N-CONT.	CONT.	N-CONT.	CONT.	N-CONT.	
10E	3	TRANSFORMER H	*	83,673	37,102	1	32,598	13,366	24,732	13,510	26,343	10,226	
150E	3	WELL MOTOR VFD-07-01	*	1,093,914	0	2	364,638		364,638		364,638		
		TOTAL WATTS:		1,177,587	37,102		397,236	13,366	389,370	13,510	390,981	10,226	
		CONTINUOUS LOAD:		1,177,587									
		CONTINUOUS LOAD * 125%:		1,471,983									
		NON-CONTINUOUS LOAD:		37,102									
		DESIGN WATTS:		1,509,086			* = REFER TO ONE-LINE DIAGRAM FOR WIRE/CONDUIT SIZES						
		MIN. RATING (AMPS):		70									

WELL 7 TRANSFORMER H

LOCATION: WELL 7 SITE				6.6 PRIMARY AMPS							PRIMARY VOLTS:	12,470	
DIMENSIONS:				170.6 SECONDARY AMPS							SECONDARY VOLTS:	480Y/277	
MOUNTING: PAD											KVA:	150	
FEED: BOTTOM											FED FROM:	DFS-7-02	
							PHASE LOADS						
				CONT.	N-CONT.		A		B		C		
				WATTS	WATTS		CONT.	N-CONT.	CONT.	N-CONT.	CONT.	N-CONT.	
		PANELBOARD L		83,673	37,102		32,598	13,366	24,732	13,510	26,343	10,226	
		TOTAL WATTS:		83,673	37,102		32,598	13,366	24,732	13,510	26,343	10,226	
		CONTINUOUS LOAD:		83,673									
		CONTINUOUS LOAD * 125%:		104,591									
		NON-CONTINUOUS LOAD:		37,102									
		DESIGN WATTS:		141,694									

WELL 7 TRANSFORMER L

LOCATION: WELL 7 PUMP ROOM				45.7 PRIMARY AMPS							PRIMARY VOLTS:	480	
DIMENSIONS: 30"W x 30"D x 30"H				105.5 SECONDARY AMPS							SECONDARY VOLTS:	208Y/120	
MOUNTING: WALL											KVA:	45	
FEED: SIDE											FED FROM:	PANELBOARD H	
							PHASE LOADS						
				CONT.	N-CONT.		A		B		C		
				WATTS	WATTS		CONT.	N-CONT.	CONT.	N-CONT.	CONT.	N-CONT.	
		PANELBOARD L		26,854	4,440		11,620	1,860	6,499	1,500	8,734	1,080	
		TOTAL WATTS:		26,854	4,440		11,620	1,860	6,499	1,500	8,734	1,080	
		CONTINUOUS LOAD:		26,854									
		CONTINUOUS LOAD * 125%:		33,568									
		NON-CONTINUOUS LOAD:		4,440									
		DESIGN WATTS:		38,008									

WELL 7 PANELBOARD SCHEDULE H

LOCATION: WELL 7 PUMP ROOM			MFGR: SQUARE D					250 AMPS						VOLTS:	480Y/277				
DIMENSIONS: 20"W x 5.75"D x 56"H			TYPE: NF					200 M.C.B.						PHASE:	3				
MOUNTING: SURFACE			NEMA: 1					X SURGE PROTECTION DEVICE						WIRES:	4				
FEED: BOTTOM								22,000 A.I.C.											
								PHASE LOADS											
BRKR			WIRE	CONT.	N-CONT.		A		B		C		N-CONT.	CONT.	WIRE		BRKR		
A	P	DESCRIPTION	SIZE	WATTS	WATTS	NO	CONT.	N-CONT.	CONT.	N-CONT.	CONT.	N-CONT.	NO	WATTS	WATTS	SIZE	DESCRIPTION	A	P
60	3	TRANSFORMER L	36	11,620	1,860	1	12,589	1,860					2		969	212	INTERIOR WELL HOUSE LIGHTS	20	1
-	-	-	-	6,499	1,500	3			6,499	1,500			4				SPARE	20	1
-	-	-	-	8,734	1,080	5					8,734	1,080	6				SPARE	20	1
20	3	VFD FAN POWER	312	2,750		7	2,750	5,813					8	5,813		38	AIR COMPRESSOR (AC-07-01), 15 HP	25	3
-	-	-	-	2,750		9			2,750	5,813			10	5,813		-	-	-	-
-	-	-	-	2,750		11					2,750	5,813	12	5,813		-	-	-	-
20	3	UNIT HEATER (UH-07-01)	312		1,667	13	14,859	1,667					14		14,859	32	CONDENSING UNIT (CU-07-01)	90	3
-	-	-	-		1,667	15			14,859	1,667			16		14,859	-	-	-	-
-	-	-	-		1,667	17					14,859	1,667	18		14,859	-	-	-	-
20	3	UNIT HEATER (UH-07-02)	312		1,667	19	2,400	4,027					20	2,360	2,400	26	TRANSFORMER PRV	60	2
-	-	-	-		1,667	21			624	4,531			22	2,864	624		-	-	-
-	-	-	-		1,667	23					0	1,667	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:		35,104	14,440		32,598	13,366	24,732	13,510	26,343	10,226		22,662	48,569				
		CONTINUOUS LOAD:		83,673															
		CONTINUOUS LOAD * 125%:		104,591															
		NON-CONTINUOUS LOAD:		37,102															
		DESIGN WATTS:		141,694			* = REFER TO ONE-LINE DIAGRAM FOR WIRE/CONDUIT SIZES												
		MIN. RATING (AMPS):		171															

WELL 7 PANELBOARD SCHEDULE L

LOCATION: WELL 7 PUMP ROOM			MFGR: SQUARE D					225 AMPS						VOLTS:	208Y/120				
DIMENSIONS: 20"W x 5.75"D x 56"H			TYPE: NQ					200 M.C.B.						PHASE:	3				
MOUNTING: SURFACE			NEMA: 1					X SURGE PROTECTION DEVICE						WIRES:	4				
FEED: BOTTOM								10,000 A.I.C.						FED FROM:	TRANSFORMER L				
								PHASE LOADS											
BRKR			WIRE	CONT.	N-CONT.		A		B		C		N-CONT.	CONT.	WIRE		BRKR		
A	P	DESCRIPTION	SIZE	WATTS	WATTS	NO	CONT.	N-CONT.	CONT.	N-CONT.	CONT.	N-CONT.	NO	WATTS	WATTS	SIZE	DESCRIPTION	A	P
30	2	SURGE TANK CONTROL PANEL (CP-07-04)	30	1,180	1,180	1	2,680	1,180					2		1,500	212	MCP/RTU (CP-07-01)	20	1
-	-	-	-	226	1,000	3			236	1,000			4		10	212	TUBIDITY UNIT (AIT-07-02)	20	1
30	2	ICE MELT CONTROL PANEL (CP-07-03)	20	858	0	5					873	0	6		15	212	CHEMISTRY UNIT (AIT-07-03)	20	1
-	-	-	-	858	0	7	1,358	0					8		500	212	VFD CONTROL POWER	20	1
20	1	SECURITY PANEL (SP-07-01)	212	500		9			1,500	0			10		1,000	212	VFD SPACE HEATER	20	1
20	1	RECEPT, INTERIOR	212		1,080	11					500	1,080	12		500	212	MAIN FUSED DISC. CONDENSATE HEATER	20	1
20	1	RECEPT, EXTERIOR	212		180	13	0	680					14	500		212	FUSED DISC. FDS-07-01 COND. HEATER	20	1
20	1	RECPT. IRRIGATION CONTROLLER	212	50		15			50	500			16	500		212	FUSED DISC. FDS-07-02 COND. HEATER	20	1
20	1	RECPT. AIR DRYER	212	180		17					195	0	18		15	212	ENERGY MONITOR	20	1
20	1	LTS, EXTERIOR	212	125		19	3,963	0					20		3,838	38	AIR HANDLER (AH-07-01), 10 HP	60	3
20	1	LTS, INTERIOR	212	584		21			4,422	0			22		3,838	-	-	-	-
	1	SPARE				23					3,838	0	24		3,838	-	-	-	-
	1	AVAILABLE SPACE				25	291	0					26		291	212	INDOOR FAN COIL (FC-07-01)	20	2
	1	AVAILABLE SPACE				27			291	0			28		291	-	-	-	-
	1	AVAILABLE SPACE				29					3,328	0	30		3,328	28	OUTDOOR COND. UNTI (MCU-7-01)	40	2
	1	AVAILABLE SPACE				31	3,328	0					32		3,328	-	-	-	-
	1	AVAILABLE SPACE				33			0	0			34				AVAILABLE SPACE		1
	1	AVAILABLE SPACE				35					0	0	36				AVAILABLE SPACE		1
	1	AVAILABLE SPACE				37	0	0					38				AVAILABLE SPACE		1
	1	AVAILABLE SPACE				39			0	0			40				AVAILABLE SPACE		1
	1	AVAILABLE SPACE				41					0	0	42				AVAILABLE SPACE		1
		TOTAL WATTS:		4,561	3,440		11,620	1,860	6,499	1,500	8,734	1,080		1,000	22,293				
		CONTINUOUS LOAD:		26,854															
		CONTINUOUS LOAD * 125%:		33,568															
		NON-CONTINUOUS LOAD:		4,440															
		DESIGN WATTS:		38,008															
		MIN. RATING (AMPS):		106															

WELL 7 TRANSFORMER PRV

LOCATION: PRV				10.8 PRIMARY AMPS							PRIMARY VOLTS:	480	
DIMENSIONS: 30"W x 30"D x 30"H				25.0 SECONDARY AMPS							SECONDARY VOLTS:	240/120	
MOUNTING: WALL											KVA:	25	
FEED: SIDE											FED FROM:	PANELBOARD H	
							PHASE LOADS						
				CONT.	N-CONT.		A		B				
				WATTS	WATTS		CONT.	N-CONT.	CONT.	N-CONT.			
		PANELBOARD V		3,024	5,224		2,400	2,360	624	2,864			
		TOTAL WATTS:		3,024	5,224		2,400	2,360	624	2,864			
		CONTINUOUS LOAD:		3,024									
		CONTINUOUS LOAD * 125%:		3,780									
		NON-CONTINUOUS LOAD:		5,224									
		DESIGN WATTS:		9,004									

H.P.E. INC. ELECTRICAL ENGINEERS
POWER SYSTEMS, CONTROL & INSTRUMENTATION SYSTEMS
HEGERHORST POWER ENGINEERING INCORPORATED (801) 642-2051
708 EAST 50 SOUTH FAX (801) 642-2154
AMERICAN FORK, UT 84003

FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

GENERAL NOTES:

1. NOT USED.

SHEET KEYNOTES:

1. NOT USED.

FILE NAME:
FILE DATE:

REGISTERED PROFESSIONAL ENGINEER — No. 86-171214-2202 — KEITH B. HEGERHORST — 5/19/2023 — STATE OF UTAH

PROJECT ENGINEER

DESIGNED	KBH
DRAFTED	KBH
CHECKED	KBH
DATE	MAY 2023

SCALE: NONE

CENTRAL UTAH WATER CONSERVANCY DISTRICT

CENTRAL UTAH WATER CONSERVANCY DISTRICT

PUMP HOUSE PROJECT WELLS #7, #16 & #17
ELECTRICAL
WELL 7 SCHEDULES, SHT. 1

SHEET E6.1

207.27.200

7/04

WELL 7 PANELBOARD SCHEDULE EXISTING VAULT "PRV"

LOCATION: WELL 7 VAULT			MFGR: EXISTING					200 AMPS						VOLTS: 240/120									
DIMENSIONS: 20"W x 5.75"D x 56"H			TYPE: SIEMENS					XX M.C.B						PHASE: 1									
MOUNTING: SURFACE			NEMA: 1											WIRES: 2									
FEED: BOTTOM								10,000 A.I.C.						FED FROM: TRANSFORMER PRV									
						PHASE LOADS																	
BRKR			WIRE	CONT.	N-CONT.		A		B			N-CONT.	CONT.	WIRE					BRKR				
A	P	DESCRIPTION	SIZE	WATTS	WATTS	NO	CONT.	N-CONT.	CONT.	N-CONT.		NO	WATTS	WATTS	SIZE	DESCRIPTION			A	P			
20	1	EX CONTROL PNL	212	1,200		1	1,200	0				2				SPARE			20	1			
20	1	SUMP PUMP	212		864	3			0	864		4				SPARE			20	1			
20	1	REC	212		360	5	1,200	360				6		1,200	212	RTU			20	1			
20	1	SPARE				7			624	0		8		624	212	LIGHTING			20	1			
20	1	SPARE				9	0	0				10				SPARE			20	1			
20	1	SPARE				11			0	0		12				SPARE			20	1			
30	2	ELECTRIC SPACE HEATER	20		2,000	13	0	2,000				14				SPARE			20	1			
-	-	-	-		2,000	15			0	2,000		16				SPARE			20	1			
20	1	SPARE				17	0	0				18				SPARE			20	1			
20	1	SPARE				19			0	0		20				SPARE			20	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			
	1	AVAILABLE SPACE				31			0	0		32				AVAILABLE SPACE				1			
	1	AVAILABLE SPACE				33	0	0				34				AVAILABLE SPACE				1			
	1	AVAILABLE SPACE				35			0	0		36				AVAILABLE SPACE				1			
	1	AVAILABLE SPACE				37	0	0				38				AVAILABLE SPACE				1			
	1	AVAILABLE SPACE				39			0	0		40				AVAILABLE SPACE				1			
	1	AVAILABLE SPACE				41	0	0				42				AVAILABLE SPACE				1			
									0	0													
		TOTAL WATTS:		1,200	5,224		2,400	2,360	624	2,864			0	1,824									
		CONTINUOUS LOAD:		3,024																			
		CONTINUOUS LOAD * 125%:		3,780																			
		NON-CONTINUOUS LOAD:		5,224																			
		DESIGN WATTS:		9,004																			
		MIN. RATING (AMPS):		38																			

WELL 7 CONTROL PANEL CP-07-03

LOCATION: PUMP ROOM			MFGR: N/A					N/A AMPS					VOLTS: 208/120				
DIMENSIONS:			TYPE: CUSTOM										PHASE: 1				
MOUNTING: SURFACE			NEMA: 12										WIRES: 3				
FEED: BOTTOM													FED FROM: PANELBOARD L				
						PHASE LOADS											
BRKR			WIRE	CONT.	N-CONT.		A		B								
A	P	DESCRIPTION	SIZE	WATTS	WATTS	NO	CONT.	N-CONT.	CONT.	N-CONT.							
30	2	ICE MELT CABLES	20	1,716		1	858		858								
	1	SPACE				1											
		TOTAL WATTS:		1,716	0		858	0	858	0	0	0					
		CONTINUOUS LOAD:		1,716													
		CONTINUOUS LOAD * 125%:		2,145													
		NON-CONTINUOUS LOAD:		0													
		DESIGN WATTS:		2,145													
		MIN. RATING (AMPS):		10													

WELL 7 CONTROL PANEL CP-07-04

LOCATION: SURGE TANK VAULT			MFGR: N/A					N/A AMPS					VOLTS: 240/120				
DIMENSIONS: 20"W x 8"D x 24"H			TYPE: CUSTOM					30 M.C.B.					PHASE: 1				
MOUNTING: SURFACE			NEMA: 12										WIRES: 3				
FEED: SIDE								10,000 A.I.C.					FED FROM: PANELBOARD L				
						PHASE LOADS											
BRKR			WIRE	CONT.	N-CONT.		A		B								
A	P	DESCRIPTION	SIZE	WATTS	WATTS	NO	CONT.	N-CONT.	CONT.	N-CONT.							
20	1	RECPT. SUMP PUMP (SP-07-01)	212	1,180		1	1,180	0									
20	1	VAULT LIGHTS	212	76		3			76	0							
20	1	VAULT OUTLET	212		180	5	0	180									
15	1	EXHAUST FAN (EF-07-02)	212	150		7			150	0							
20	2	UNIT HEATER (UH-07-03)	212		2,000	9	0	1,000	0	1,000							
20	1	SPARE				11			0	0							
	1	SPACE				13	0	0									
	1	SPACE				15			0	0							
		TOTAL WATTS:		1,406	2,180		1,180	1,180	226	1,000							
		CONTINUOUS LOAD:		1,406													
		CONTINUOUS LOAD * 125%:		1,758													
		NON-CONTINUOUS LOAD:		2,180													
		DESIGN WATTS:		3,938													
		MIN. RATING (AMPS):		16													

PROJECT TAG LIST

WELL 7 HVAC EQUIPMENT

DRAWING ID	TAG	DESCRIPTION	LOCATION	SUPPLIED BY	INSTALLED BY
126	FC-07-01	INDOOR FAN COIL UNIT	PUMP RM.	CONTRACTOR	CONTRACTOR
127	MCU-07-01	OUTDOOR CONDENSIONG UNIT	PUMP RM.	CONTRACTOR	CONTRACTOR
128	AH-07-01	AIR HANDLER	PUMP RM.	CONTRACTOR	CONTRACTOR
129	CU-07-01	CONDENSING UNIT	PUMP RM.	CONTRACTOR	CONTRACTOR
134	UH-07-01	UNIT HEATER	PUMP RM.	CONTRACTOR	CONTRACTOR
135	UH-07-02	UNIT HEATER	PUMP RM.	CONTRACTOR	CONTRACTOR
138	UH-07-05	UNIT HEATER	SURGE VAULT	CONTRACTOR	CONTRACTOR
146	EF-07-03	EXHAUST FAN	SURGE VAULT	CONTRACTOR	CONTRACTOR

WELL 7 PUMP AND EQUIPMENT

DRAWING ID	TAG	DESCRIPTION	LOCATION	SUPPLIED BY	INSTALLED BY
10	PME-07-01	PRIMARY METERING EQIPMENT	SITE	UTILITY CO.	UTILITY CO.
11	MS-07-01	METER SOCKET	SITE	CONTRACTOR	CONTRACTOR
12	MSD-07-01	MAIN SERVICE DISCONNECT	BLD. EXTERIOR	CONTRACTOR	CONTRACTOR
13	DFS-07-01	DISTRIBUTION EQUIPMENT FUSED SWITCH	BLD. EXTERIOR	CONTRACTOR	CONTRACTOR
14	DFS-07-02	DISTRIBUTION EQUIPMENT FUSED SWITCH	BLD. EXTERIOR	CONTRACTOR	CONTRACTOR
15	XFMR-07-01	TRANSFORMER H	SITE	CONTRACTOR	CONTRACTOR
16	XFMR-07-02	TRANSFOMER L	PUMP RM.	CONTRACTOR	CONTRACTOR
17	PNL-07-H	PANELBOARD H	PUMP RM.	CONTRACTOR	CONTRACTOR
18	PNL-07-L	PANELBOARD L	PUMP RM.	CONTRACTOR	CONTRACTOR
19	VFD-07-01	VARIABLE FREQUENCY DRIVE	PUMP RM.	CONTRACTOR	CONTRACTOR
23	AC-07-01	AIR COMPRESSOR	PUMP RM.	CONTRACTOR	CONTRACTOR
24	AD-07-01	AIR DRYER	PUMP RM.	CONTRACTOR	CONTRACTOR
25	CP-07-01	MAIN CONTROL PANEL/REMOTE TELEMETRY UNIT	PUMP RM.	CONTRACTOR	CONTRACTOR
27	CP-07-03	EXTERIOR LIGHTS/ICE MELT CONTROL PANEL	PUMP RM.	CONTRACTOR	CONTRACTOR
29	EM-07-1	ENERGY AND POWER MONITOR	SITE	CONTRACTOR	CONTRACTOR
30	PC-07-01	LIGHTING PHOTOCELL	BLD. EXTERIOR	CONTRACTOR	CONTRACTOR
31	P-07-01	WELL PUMP	PUMP RM.	CONTRACTOR	CONTRACTOR
37	IM-07-01	ICE MELT RECEPTACLE	BLD. EXTERIOR	CONTRACTOR	CONTRACTOR
38	IM-07-02	ICE MELT RECEPTACLE	BLD. EXTERIOR	CONTRACTOR	CONTRACTOR
39	IM-07-03	ICE MELT RECEPTACLE	BLD. EXTERIOR	CONTRACTOR	CONTRACTOR
40	IM-07-04	ICE MELT RECEPTACLE	BLD. EXTERIOR	CONTRACTOR	CONTRACTOR
41	IM-07-05	ICE MELT RECEPTACLE	BLD. EXTERIOR	CONTRACTOR	CONTRACTOR
43	IT-07-01	IRRIGATION VALVE TIMER	PUMP RM.	CONTRACTOR	CONTRACTOR
45	RTU-07-02	PRV VAULT SCADA RTU	PRV VAULT	EXISTING	EXISTING
46	FD-07-01	FUSED DISCONNECT	PRV VAULT	CONTRACTOR	CONTRACTOR
47	PNL-07-PRV	EXISTING PANELBOARD	PRV VAULT	EXISTING	EXISTING
80	XFMR-07-03	TRANSFORMER PRV	PRV VAULT	CONTRACTOR	CONTRACTOR

WELL 7 SWITCHES

DRAWING ID	TAG	DESCRIPTION	LOCATION	SUPPLIED BY	INSTALLED BY
52	LSH-07-01	PUMP RM. FLOOR HIGH WATER SWITCH	PUMP RM.	CONTRACTOR	CONTRACTOR
53	LSH-07-02	SURGE TANK VAULT FLOOR HIGH WATER SWITCH	SURGE VAULT	CONTRACTOR	CONTRACTOR
54	PSH-07-01	WELL HIGH DISCHARGE PRESSURE SWITCH	PUMP RM.	CONTRACTOR	CONTRACTOR
55	VSH-07-01	WELL MOTOR HIGH VIBRATION SWITCH	PUMP RM.	CONTRACTOR	CONTRACTOR
64	ZS-07-05A	WASTE VALVE WASTE POSITION SWITCH	PUMP RM.	CONTRACTOR	CONTRACTOR
65	ZS-07-05B	WASTE VALVE SYSTEM POSITION SWITCH	PUMP RM.	CONTRACTOR	CONTRACTOR
66	ZS-07-06A	DISCHARGE VALVE OPEN POSITION SWITCH	PUMP RM.	CONTRACTOR	CONTRACTOR
67	ZS-07-06B	DISCHARGE VALVE CLOSED POSITION SWITCH	PUMP RM.	CONTRACTOR	CONTRACTOR
68	ZS-07-07	SURGE TANK VAULT HATCH POSITION SWITCH	SURGE VAULT	CONTRACTOR	CONTRACTOR
69	ZS-07-08A	WASTE ISOLATION VALVE OPEN POSITION SWITCH	PUMP RM.	CONTRACTOR	CONTRACTOR
70	ZS-07-08B	WASTE ISOLATION VALVE CLOSED POSITION SWITCH	PUMP RM.	CONTRACTOR	CONTRACTOR
71	ZS-07-09A	SURGE VALVE OPEN POSITION SWITCH	SURGE VAULT	CONTRACTOR	CONTRACTOR
72	ZS-07-09B	SURGE VALVE CLOSED POSITION SWITCH	SURGE VAULT	CONTRACTOR	CONTRACTOR
74	HS-07-01	VAULT EF HOR SWITCH	SURGE VAULT	CONTRACTOR	CONTRACTOR
75	CSH-07-01	AIR COMPRESSOR CURRENT SWITCH	PUMP RM.	CONTRACTOR	CONTRACTOR

WELL 7 INSTRUMENTS

DRAWING ID	TAG	DESCRIPTION	LOCATION	SUPPLIED BY	INSTALLED BY
81	AIT-07-02	WELL TURBIDITY ANALYZER	PUMP RM.	CONTRACTOR	CONTRACTOR
82	AIT-07-03A	WELL pH ANALYZER	PUMP RM.	CONTRACTOR	CONTRACTOR
85	AIT-07-03D	WATER TEMPERATURE TRANSMITTER	PUMP RM.	CONTRACTOR	CONTRACTOR
87	FIT-07-01	WELL FLOW METER	PUMP RM.	CONTRACTOR	CONTRACTOR
88	FT-07-03	IRRIGATION FLOW METER	SITE	CONTRACTOR	CONTRACTOR
90	LT-07-01	WELL WATER LEVEL TRANSMITTER	PUMP RM.	CONTRACTOR	CONTRACTOR
91	LT-07-02	CONTAINMENT SUMP LEVEL TRANSMITTER	CONTAINMENT SUMP	CONTRACTOR	CONTRACTOR
92	LT-07-03	CANAL LEVEL TRANSMITTER	SITE	CONTRACTOR	CONTRACTOR
95	PT-07-01	SYSTEM PRESSURE TRANSMITTER	PUMP RM.	CONTRACTOR	CONTRACTOR
96	TE-07-01	MOTOR TEMPERATURE MONITOR	PUMP RM.	CONTRACTOR	CONTRACTOR
97	TT-07-01	PUMP RM. TEMPERATURE TRANSMITTER	PUMP RM.	CONTRACTOR	CONTRACTOR
99	TT-07-03	WELL DISCHARGE WATER TEMPERATURE TRANSMITTER	PUMP RM.	CONTRACTOR	CONTRACTOR
101	DPT-07-01	DIFFERENCIAL PRESSURE TRANSMITTER	SURGE VAULT	CONTRACTOR	CONTRACTOR

TABLES CONTINUED ON SHEET E6.3

H.P.E. INC. ELECTRICAL ENGINEERS
POWER SYSTEMS, CONTROL & INSTRUMENTATION SYSTEMS
HEGERHORST POWER ENGINEERING INCORPORATED (801) 642-2051
708 EAST 50 SOUTH FAX (801) 642-2154
AMERICAN FORK, UT 84003
HPE PROJECT 20.111

FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

WELL 7 MCP/RTU INPUT/OUTPUT LIST

IO TYPE	DESCRIPTION	DEVICE OR INSTRUMENT	TAG
AI	CONTAINMENT SUMP LEVEL	LT-XX-02	LT-07-02
AI	PUMP RM. TEMPERATURE	TT-XX-01	TT-07-01
AI	SURGE TANK WATER LEVEL	DPT-XX-01	DPT-07-01
AI	SYSTEM PRESSURE	PT-XX-01	PT-07-01
AI	WELL DISCHARGE WATER TEMPERATURE	TT-XX-03	TT-07-03
AI	WELL FLOW	FIT-XX-01	FIT-07-01
AI	WELL pH	AIT-XX-03A	AIT-07-03A
AI	WELL TURBIDITY	AIT-XX-02	AIT-07-02
AI	WELL VFD RUNNING SPEED	VFD-XX-01	VFD-07-01
AI	WELL WATER LEVEL	LT-XX-01	LT-07-01
AI	WELL WATER TEMPERATURE TRANSMITTER	AIT-XX-03D	AIT-07-03D
AO	WELL VFD COMMAND SPEED	VFD-XX-01	VFD-07-01
DI	AIR COMPRESSOR HIGH CURRENT	CSH-XX-01	CSH-07-01
DI	DISCHARGE VALVE FULL CLOSED POSITION	ZS-XX-06B	ZS-07-06B
DI	DISCHARGE VALVE FULL OPEN POSITION	ZS-XX-06A	ZS-07-06A
DI	EYE WASH FLOW (FUTURE)	FS-XX-02	FS-07-02
DI	MAINTENANCE DOOR DOOR 2A NOT CLOSED	ZS-XX-02A	ZS-07-02A
DI	MAINTENANCE DOOR DOOR 2B NOT CLOSED	ZS-XX-02B	ZS-07-02B
DI	MOTOR HIGH TEMPERATURE SHUTDOWN	TE-XX-01	TE-07-01
DI	PUMP RM. DOOR 1A NOT CLOSED	ZS-XX-01A	ZS-07-01A
DI	PUMP RM. DOOR 1B NOT CLOSED	ZS-XX-01B	ZS-07-01B
DI	PUMP RM. HATCH NOT CLOSED	ZS-XX-04	ZS-07-04
DI	PUMP ROOM COOLING ON	AH-XX-01	AH-07-01
DI	PUMP ROOM HIGH FLOOR WATER ALARM	LSH-XX-01	LSH-07-01
DI	SURGE TANK VAULT FLOOR HIGH WATER ALARM	LSH-XX-02	LSH-07-02
DI	SURGE TANK VAULT HATCH NOT CLOSED	ZS-XX-07	ZS-07-07
DI	SURGE VALVE FULL CLOSED POSITION	ZS-XX-09B	ZS-07-09B
DI	SURGE VALVE FULL OPEN POSITION	ZS-XX-09A	ZS-07-09A
DI	SURGE VAULT SUMP PUMP FLOW	FS-XX-01	FS-07-01
DI	WASTE ISOLATION VALVE FULL CLOSED POSITION	ZS-XX-08B	ZS-07-08B
DI	WASTE ISOLATION VALVE NOT OPEN POSITION	ZS-XX-08A	ZS-07-08A
DI	WASTE VALVE FULL SYSTEM POSITION	ZS-XX-05B	ZS-07-05B
DI	WASTE VALVE WASTE FULL WASTE POSITION	ZS-XX-05A	ZS-07-05A
DI	WELL HIGH DISCHARGE PRESSURE	PSH-XX-01	PSH-07-01
DI	WELL MOTOR HIGH VIBRATION	VSH-XX-01	VSH-07-01
DI	WELL VFD FAULT	VFD-XX-01	VFD-07-01
DI	WELL VFD HOA IN AUTO	VFD-XX-01	VFD-07-01
DI	WELL VFD HOA IN HAND	VFD-XX-01	VFD-07-01
DI	WELL VFD RUNNING	VFD-XX-01	VFD-07-01
DI	WELL VFD TRANSFORMER OVERTEMPERATURE	VFD-XX-01	VFD-07-01
DO	PUMP ROOM UNIT HEATER RUN	UH-XX-02	UH-07-02
DO	EXHAUST FAN	EF-XX-03	EF-07-03
DO	PUMP ROOM UNIT HEATER RUN	UH-XX-01	UH-07-01
DO	SURGE TANK AIR RELEASE SOLENOID VALVE OPEN	SV-XX-02	SV-07-02
DO	SURGE TANK AIR SUPPLY SOLENOID OPEN	SV-XX-01	SV-07-01
DO	TURBIDITY SUPPLY SOLENOID VALVE OPEN	SV-XX-06	SV-07-06
DO	WASTE VALVE PILOT SOLENOID VALVE OPEN	SV-XX-03	SV-07-03
DO	WELL PRE-LUBE SOLENOID VALVE OPEN	SV-XX-08	SV-07-08
DO	WELL VFD REMOTE RUN	VFD-XX-01	VFD-07-01
RS485	WELL MOTOR TERMPERATURES	TE-XX-01	TE-07-01
TCP/IP	WELL VFD PARAMETERS	VFD-XX-01	VFD-07-01

WELL 7 VAULT REMOTE/RTU INPUT/OUTPUT LIST

IO TYPE	DESCRIPTION	DEVICE OR INSTRUMENT	TAG
AI	DOWN STREAM RPESSURE	PRV-AI-0	PRV-AI-0
AI	VAULT TEMPERATURE	PRV-AI-1	PRV-AI-1
DI	UTILITY POWER LOSS	PRV-DI-00	PRV-DI-00
DI	MAIN HATCH INTRUSION	PRV-DI-01	PRV-DI-01
DI	NE HATCH LITTLE INTRUSION	PRV-DI-02	PRV-DI-02
DI	SE HATCH LITTLE INTRUSION	PRV-DI-03	PRV-DI-03
DI	SE HATCH BIG INTRUSION	PRV-DI-04	PRV-DI-04
DI	NE HATCH BIG INTRUSION	PRV-DI-06	PRV-DI-06
DI	SW HATCH BIG INTRUSION	PRV-DI-06	PRV-DI-06
DI	SUM PUMP RUN STATUS	PRV-DI-07	PRV-DI-07
DI	VAULT FLOOD SWITCH (NORTH)	PRV-DI-08	PRV-DI-08
DI	VAULT FLOOD SWITCH (SOUTH)	PRV-DI-09	PRV-DI-09
DI	V-734 CLOSED STATUS	PRV-DI-10	PRV-DI-10
DI	V-734 OPEN STUTUS	PRV-DI-11	PRV-DI-11
DI	V-733 CLOSED STATUS	PRV-DI-12	PRV-DI-12
DI	V-733 OPEN STUTUS	PRV-DI-13	PRV-DI-13
DI	V-730 CLOSED STATUS	PRV-DI-14	PRV-DI-14
DI	V-730 OPEN STATUS	PRV-DI-15	PRV-DI-15
DI	V-731 CLOSED STATUS	PRV-DI-16	PRV-DI-16
DI	V-731 OPEN STATUS	PRV-DI-17	PRV-DI-17
DO	EXHAUST FAN RUN COMMAND	PRV-DO-0	PRV-DO-0

FILE NAME:
FILE DATE:

REGISTERED PROFESSIONAL ENGINEER
No. 86-171214-2202
KEITH B. HEGERHORST
5/19/2023
STATE OF UTAH
PROJECT ENGINEER

DESIGNED	KBH
DRAFTED	KBH
CHECKED	KBH
DATE	MAY 2023

SCALE: NONE

CENTRAL UTAH WATER CONSERVANCY DISTRICT

CENTRAL UTAH WATER CONSERVANCY DISTRICT

PUMP HOUSE PROJECT WELLS #7, #16 & #17
ELECTRICAL
WELL 7 SCHEDULES, SHT. 2

SHEET E6.2

207.27.200

7/04

AVAILABLE FAULT CURRENT AT 12.47 KV

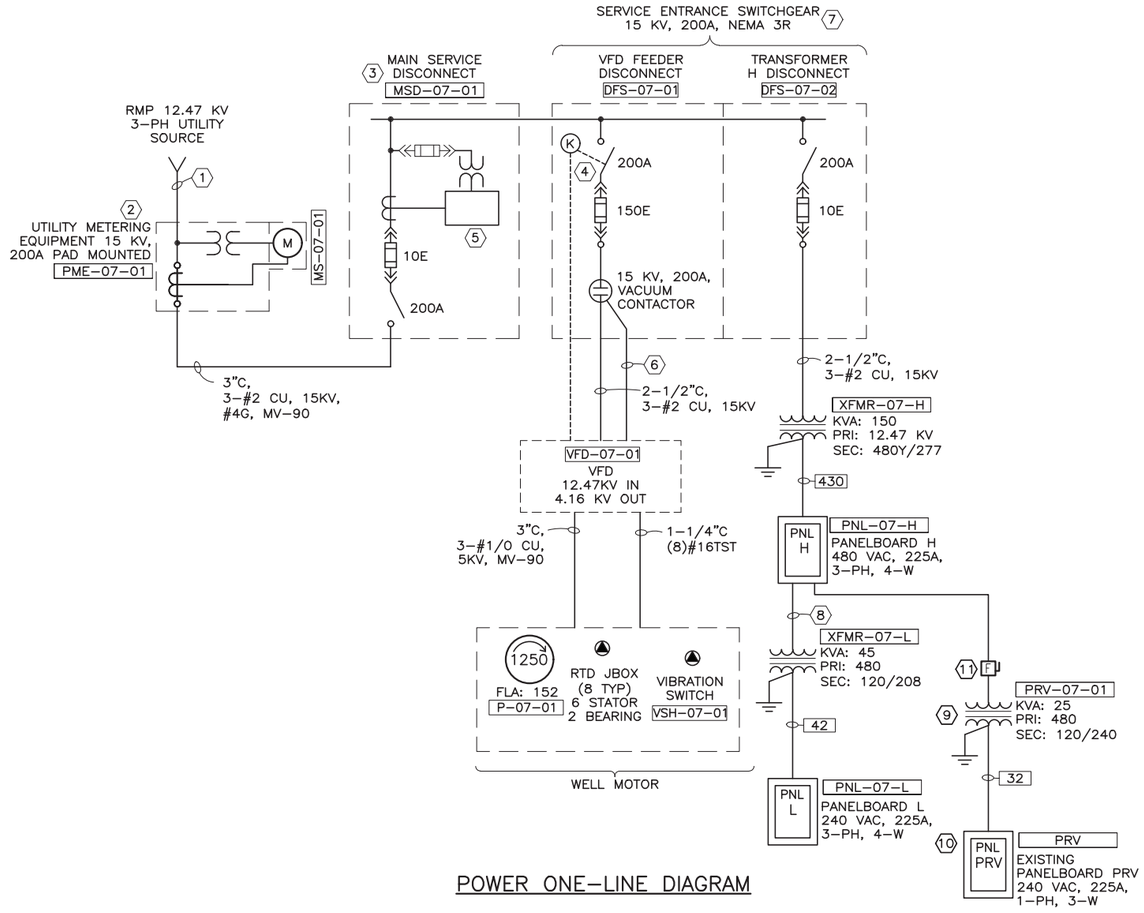
Primary System Fault Amps & Impedances

Short-Circuit Box

Node - CP_11406002.0160903/408

Voltage	12.8	Amps
LLL	5396.89	Amps
LLG	5228	Amps
LL	4772	Amps
LG	4393	Amps
Dist to source	6023.8	feet

	Ohms	Per Unit	X/R
R:	0.1782	0.1146	7.93
X:	1.4140	0.9093	
Ro:	0.5143	0.3307	4.79
Xo:	2.4615	1.5829	



POWER ONE-LINE DIAGRAM

TABLES CONTINUED FROM SHEET E6.2

WELL 7 SECURITY ITEMS

DRAWING ID	TAG	DESCRIPTION	LOCATION	SUPPLIED BY	INSTALLED BY
33	SP-07-01	SECURITY PANEL	PUMP RM.	CONTRACTOR	CONTRACTOR
57	ZS-07-01A	PUMP RM. DOOR 1A POSITION SWITCH	PUMP RM.	CONTRACTOR	CONTRACTOR
58	ZS-07-01B	PUMP RM. DOOR 1B POSITION SWITCH	PUMP RM.	CONTRACTOR	CONTRACTOR
59	ZS-07-02A	MAINTENANCE DOOR DOOR 2A POSITION SWITCH	PUMP RM.	CONTRACTOR	CONTRACTOR
60	ZS-07-02B	MAINTENANCE DOOR DOOR 2B POSITION SWITCH	PUMP RM.	CONTRACTOR	CONTRACTOR
63	ZS-07-04	PUMP RM. HATCH POSITION SWITCH	PUMP RM.	CONTRACTOR	CONTRACTOR
76	ML-07-01	MAGNETIC DOOR LOCK	PUMP RM.	CONTRACTOR	CONTRACTOR
78	CR-07-01	ACCESS CARD READER	PUMP RM.	CONTRACTOR	CONTRACTOR
123	ML-07-03	MAGNETIC DOOR LOCK	PUMP RM.	CONTRACTOR	CONTRACTOR
124	CR-07-03	ACCESS CARD READER	PUMP RM.	CONTRACTOR	CONTRACTOR
153	JB-07-01	SECURITY J-BOX (ACTIVE CAMERA)	BLD. EXTERIOR	CONTRACTOR	CONTRACTOR
154	JB-07-02	SECURITY J-BOX (FUTURE CAMERA)	BLD. EXTERIOR	CONTRACTOR	CONTRACTOR
155	JB-07-03	SECURITY J-BOX (FUTURE CAMERA)	BLD. EXTERIOR	CONTRACTOR	CONTRACTOR
156	JB-07-04	SECURITY J-BOX (FUTURE CAMERA)	BLD. EXTERIOR	CONTRACTOR	CONTRACTOR
160	CCTV-07-01	SITE CAMERA 1 (FIXTURE F4)	SITE	CONTRACTOR	CONTRACTOR
161	CCTV-07-02	SITE CAMERA 2 (FIXTURE F4)	SITE	CONTRACTOR	CONTRACTOR

WELL 7 VALVES

DRAWING ID	TAG	DESCRIPTION	LOCATION	SUPPLIED BY	INSTALLED BY
111	SV-07-01	SURGE TANK AIR SUPPLY SOLENOID VALVE	SURGE VAULT	CONTRACTOR	CONTRACTOR
112	SV-07-02	SURGE TANK AIR RELEASE SOLENOID VALVE	SURGE VAULT	CONTRACTOR	CONTRACTOR
113	SV-07-03	WASTE VALVE PILOT SOLENOID VALVE	PUMP RM.	CONTRACTOR	CONTRACTOR
114	SV-07-06	TURBIDITY SUPPLY SOLENOID VALVE	PUMP RM.	CONTRACTOR	CONTRACTOR
116	SV-07-08	WELL PRE-LUBE SOLENOID VALVE	PUMP RM.	CONTRACTOR	CONTRACTOR
118	V-07-01	WASTE ISOLATION VALVE	PUMP RM.	CONTRACTOR	CONTRACTOR
119	V-07-02	PUMP-TO-WASTE VALVE	PUMP RM.	CONTRACTOR	CONTRACTOR
120	V-07-03	DISCHARGE VALVE	PUMP RM.	CONTRACTOR	CONTRACTOR
121	V-07-04	SURGE TANK VALVE	SURGE VAULT	CONTRACTOR	CONTRACTOR

H.P.E. INC. ELECTRICAL ENGINEERS
POWER SYSTEMS, CONTROL & INSTRUMENTATION SYSTEMS
HEGERHORST POWER ENGINEERING INCORPORATED (801) 642-2051
708 EAST 50 SOUTH FAX (801) 642-2154
AMERICAN FORK, UT 84003
HPE PROJECT 20.111

FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

GENERAL NOTES:

1. REFER TO PLAN SHEETS FOR EQUIPMENT AND DEVICE LOCATIONS.
2. REFER TO CONDUIT/CONDUCTOR TABLE FOR WIRE AND CONDUIT REQUIREMENTS.
3. UTILITY COMPANY CONTACT: ALAN STEWART (801-360-1679), RODNEY.STEWART@ROCKYMOUNTAINPOWER.NET.
4. THE VFD AND MAIN SERVICE DISCONNECT EQUIPMENT SHALL BE FROM THE SAME MANUFACTURER.

SHEET KEYNOTES:

1. CONDUIT SIZE DETERMINED BY ROCKY MOUNTAIN POWER (RMP). COORDINATE WITH RMP AS REQUIRED.
2. PRIMARY METERING ENCLOSURE: PROVIDED BY UTILITY COMPANY, INSTALLED BY CONTRACTOR ON A PAD/VAULT AS REQUIRED BY UTILITY COMPANY. UTILITY COMPANY SHALL PROVIDE PT'S, CT'S AND METER.
3. MAIN SERVICE DISCONNECT: 15 KV, 200A FUSED SWITCH IN NEMA 3R LOCKABLE ENCLOSURE. LABEL AS "MAIN SERVICE DISCONNECT". LABEL SWITCHBOARD WITH AVAILABLE FAULT CURRENT. SEE AVAILABLE FAULT CURRENT AT 12.47 KV TABLE ON THIS SHEET. LABEL AS REQUIRED BY NEC 110.24.
4. PROVIDE A KIRK-KEY INTERLOCK ON THE 15 KV VFD FUSED DISCONNECT AND THE VFD ENCLOSURE WITH 12 KV OR 4.16 KV COMPONENTS. VFD ENCLOSURE CANNOT BE OPENED UNLESS THE FUSED SWITCH IS OPEN.
5. THREE-PHASE POWER MONITOR WITH APPROPRIATE PT/CT'S FOR 12.47 KV SWITCHGEAR. EQUIPMENT SUPPLIER SHALL SIZE PT AND CT'S AS REQUIRED.
6. 3/4"C, WITH CONTROLS CONDUCTORS AS REQUIRED TO CONTROL THE VFD CONTACTOR.
7. EQUIPMENT SPACE HEATERS SHOWN ON PLAN DRAWINGS.
8. REFER TO PANELBOARD SCHEDULE FOR CIRCUIT ID, THEN THE WIRE AND CONDUIT REQUIREMENTS ARE AS SHOWN IN THE CONDUIT/CONDUCTOR TABLE ON E1.1.
9. INSTALL TRANSFORMER ABOVE EXISTING PANEL PRV IN THE VAULT.
10. INSTALL A 100A MAIN BREAKER IN THE EXISTING PNL PRV (SEE PHOTOS).
11. INSTALL A 600V, 60A, NEMA 3R DISCONNECT SWITCH AT THE ENTRY STAIR. COORDINATE LOCATION AT VAULT WITH CUWCD DURING CONSTRUCTION.

REGISTERED PROFESSIONAL ENGINEER
No. 86-171214-2202
KEITH B. HEGERHORST
5/19/2023
STATE OF UTAH
PROJECT ENGINEER

DESIGNED	KBH
DRAFTED	KBH
CHECKED	KBH
DATE	MAY 2023

SCALE: NONE

CENTRAL UTAH WATER CONSERVANCY DISTRICT

CENTRAL UTAH WATER CONSERVANCY DISTRICT

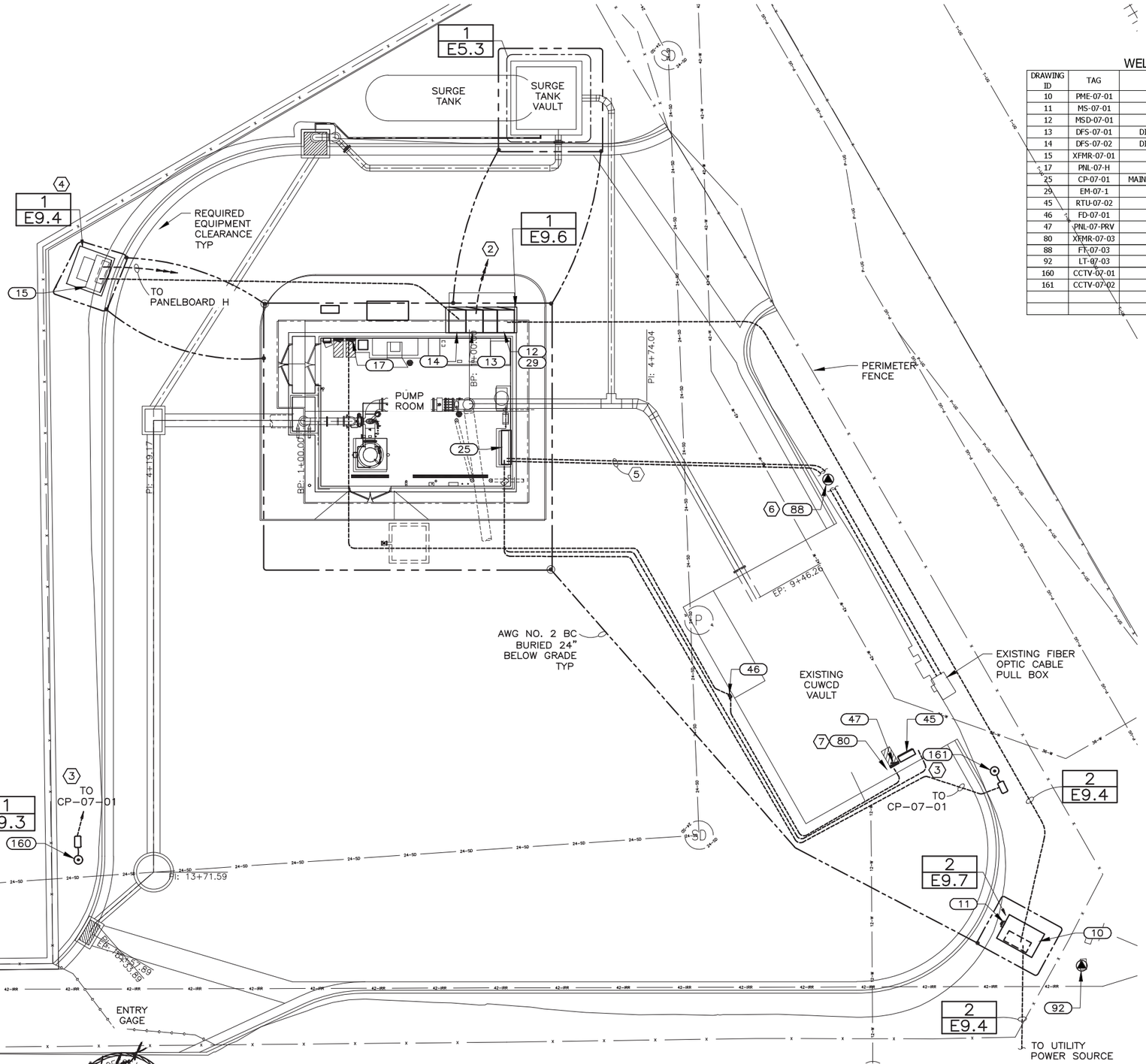
PUMP HOUSE PROJECT WELLS #7, #16 & #17
ELECTRICAL
WELL 7 POWER ONE-LINE DIAGRAM

SHEET E6.3

207.27.200

FILE NAME:
FILE DATE:

7/04



WELL 7 ELECTRICAL SITE PLAN ITEMS

DRAWING ID	TAG	DESCRIPTION	POWER SOURCE	LOCATION
10	PME-07-01	PRIMARY METERING EQIPMENT	UTILITY	SITE
11	MS-07-01	METER SOCKET	N/A	SITE
12	MSD-07-01	MAIN SERVICE DISCONNECT	PME-07-01	BLD. EXTERIOR
13	DFS-07-01	DISTRIBUTION EQUIPMENT FUSED SWITCH	MSD-07-01	BLD. EXTERIOR
14	DFS-07-02	DISTRIBUTION EQUIPMENT FUSED SWITCH	MSD-07-01	BLD. EXTERIOR
15	XFMR-07-01	TRANSFORMER H	DFS-07-02	SITE
17	PNL-07-H	PANELBOARD H	XFMR-07-01	PUMP RM.
25	CP-07-01	MAIN CONTROL PANEL/REMOTE TELEMETRY UNIT	L-4	PUMP RM.
29	EM-07-1	ENERGY AND POWER MONITOR	L-18	SITE
45	RTU-07-02	PRV VAULT SCADA RTU	PRV-6	PRV VAULT
46	FD-07-01	FUSED DISCONNECT	H-20,22	PRV VAULT
47	PNL-07-PRV	EXISTING PANELBOARD	XFMR-07-03	PRV VAULT
80	XFMR-07-03	TRANSFORMER PRV	FD-07-01	PRV VAULT
88	FT-07-03	IRRIGATION FLOW METER	CP-07-01	SITE
92	LT-07-03	CANAL LEVEL TRANSMITTER	CP-07-01	SITE
160	CCTV-07-01	SITE CAMERA 1 (FIXTURE F4)	CP-07-01	SITE
161	CCTV-07-02	SITE CAMERA 2 (FIXTURE F4)	CP-07-01	SITE

H.P.E. INC. ELECTRICAL ENGINEERS
POWER SYSTEMS, CONTROL & INSTRUMENTATION SYSTEMS
HEGERHORST POWER ENGINEERING INCORPORATED (801) 642-2051
708 EAST 50 SOUTH FAX (801) 642-2154
AMERICAN FORK, UT 84003
HPE PROJECT 20.111

FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

GENERAL NOTES:

1. "HOME RUN" POWER SOURCE LISTED IN THE SITE PLAN ITEM TABLE ABOVE.
2. FOR WIRE AND CONDUIT REQUIREMENTS, REFER TO THE POWER ONE-LINE AND/OR PANEL SCHEDULE FOR THE CIRCUIT ID, THEN THE WIRE AND CONDUIT INFORMATION IS IN THE CONDUIT/CONDUCTOR TABLE ON E1.1.
3. CORE DRILL AND SEAL TIGHT CONDUIT PENETRATIONS THROUGH VAULT CONCRETE WALLS.
4. ALL EXTERIOR EQUIPMENT PADS SHALL BE ELEVATED 3-INCHES ABOVE GRADE OR FINISHED SURFACE.

SHEET KEYNOTES:

1. NOT USED.
2. TO VFD INSIDE BUILDING.
3. AIM CAMERA TOWARDS BUILDING ENTRY DOORS.
4. EXTEND TRANSFORMER PAD TO BACK OF CURB. ELEVATE HOUSEKEEPING PAD MIN. OF 3" ABOVE GRADE.
5. TWO 1-1/4" ORANGE HIGH DENSITY POLYETHYLENE (HDPE_ RATED DUCT.
   - 5.1. CONDUIT 1: 6-STRAND FIBER OPTIC CABLE.
   - 5.2. CONDUIT 2: LOCATING WIRE.
6. COORDINATE LOCATION OF FLOW METER WITH IRRIGATION CONTRACTOR DURING CONSTRUCTION.
7. INSTALL TRANSFORMER ABOVE EXISTING PANELBOARD.

REGISTERED PROFESSIONAL ENGINEER No. 86-171214-2202 KEITH B. HEGERHORST 5/19/2023 STATE OF UTAH

PROJECT ENGINEER

DESIGNED	KBH
DRAFTED	KBH
CHECKED	KBH
DATE	MAY 2023

SCALE: AS SHOWN

CENTRAL UTAH WATER CONSERVANCY DISTRICT

CENTRAL UTAH WATER CONSERVANCY DISTRICT

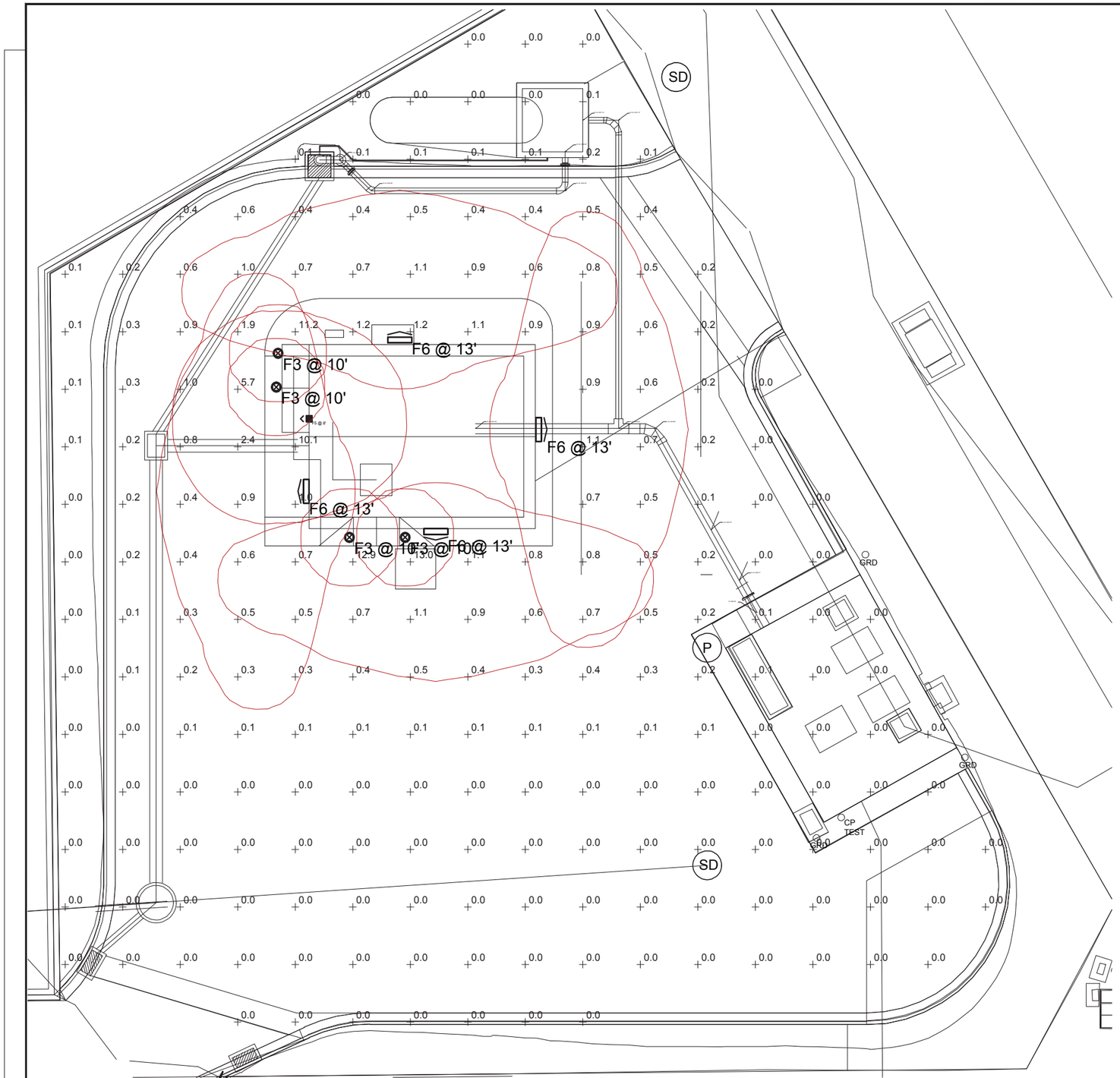
PUMP HOUSE PROJECT WELLS #7, #16 & #17
ELECTRICAL
WELL 7 SITE PLAN

SHEET E6.4

207.27.200

FILE NAME:
FILE DATE:

7/04



0 5' 10' 20' 30'
1"=10'

N

H.P.E. INC. ELECTRICAL ENGINEERS
POWER SYSTEMS, CONTROL & INSTRUMENTATION SYSTEMS
HEGERHORST POWER ENGINEERING INCORPORATED (801) 642-2051
708 EAST 50 SOUTH FAX (801) 642-2154
AMERICAN FORK, UT 84003
HPE PROJECT 20.111

FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

GENERAL NOTES:

1. NOT USED.

SHEET KEYNOTES:

1. NOT USED.

FILE NAME:
FILE DATE:

REGISTERED PROFESSIONAL ENGINEER
No. 86-171214-2202
KEITH B. HEGERHORST
5/19/2023
STATE OF UTAH

PROJECT ENGINEER

DESIGNED	KBH	3	·	·	·	·	
DRAFTED	KBH	2	·	·	·	·	
CHECKED	KBH	1	·	·	·	·	
DATE	MAY 2023	NO.	DATE	REVISIONS	BY	APVD.	

HANSEN ALLEN & LUCE ENGINEERS

SCALE AS SHOWN

CENTRAL UTAH WATER CONSERVANCY DISTRICT

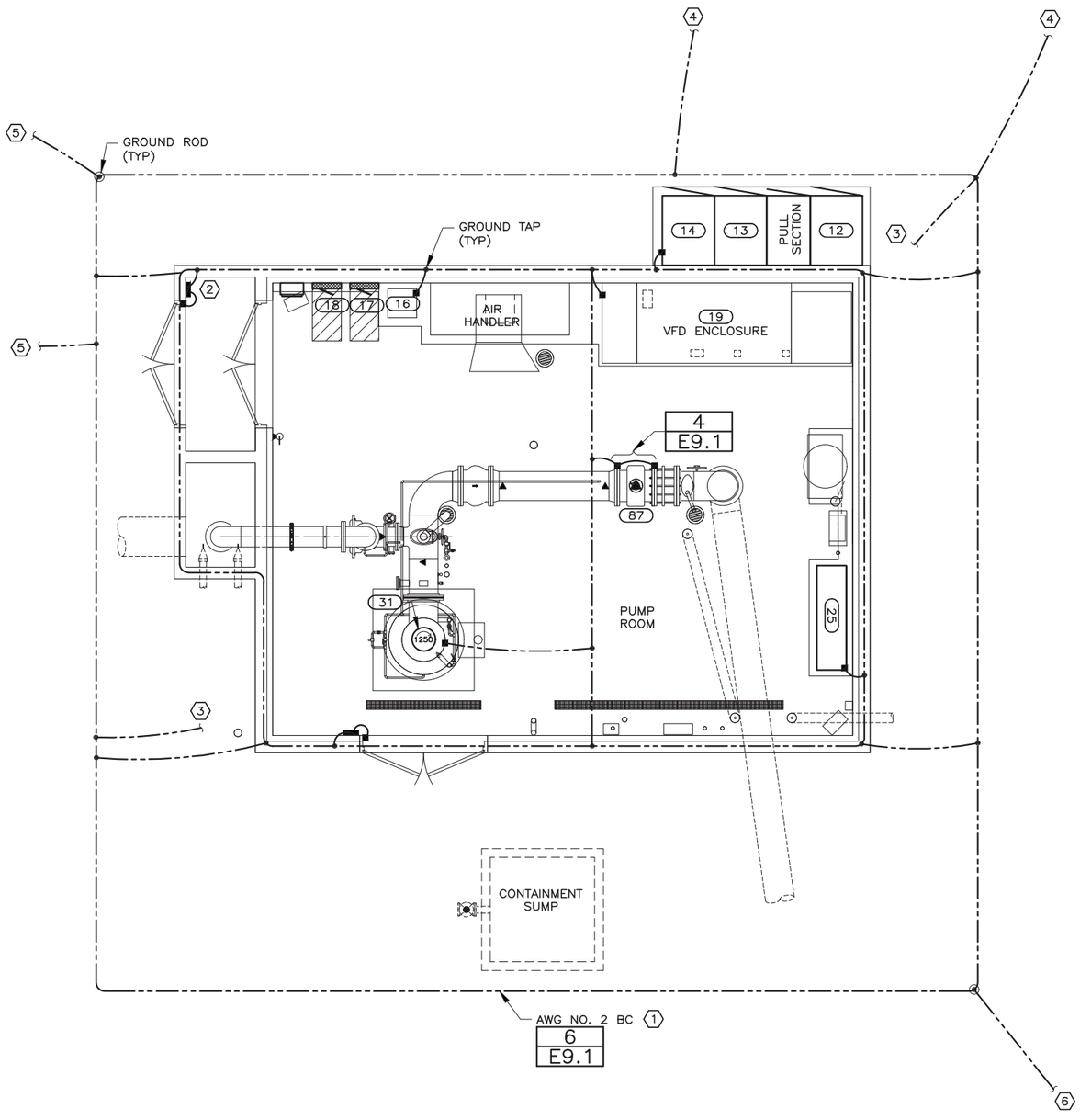
CENTRAL UTAH WATER CONSERVANCY DISTRICT

PUMP HOUSE PROJECT WELLS #7, #16 & #17
ELECTRICAL
WELL 7 SITE PHOTOMETRIC PLAN

SHEET E6.5

207.27.200

7/04



0 4' 8' 12'

1/4"=1'-0"

N

H.P.E. INC. ELECTRICAL ENGINEERS
POWER SYSTEMS, CONTROL & INSTRUMENTATION SYSTEMS
HEGERHORST POWER ENGINEERING INCORPORATED (801) 642-2051
708 EAST 50 SOUTH FAX (801) 642-2154
AMERICAN FORK, UT 84003
HPE PROJECT 20.111

FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

WELL 7 GROUNDING PLAN ITEMS

DRAWING ID	TAG	DESCRIPTION	LOCATION
12	MSD-07-01	MAIN SERVICE DISCONNECT	BLD. EXTERIOR
13	DFS-07-01	DISTRIBUTION EQUIPMENT FUSED SWITCH	BLD. EXTERIOR
14	DFS-07-02	DISTRIBUTION EQUIPMENT FUSED SWITCH	BLD. EXTERIOR
16	XFMR-07-02	TRANSFOMER L	PUMP RM.
17	PNL-07-H	PANELBOARD H	PUMP RM.
18	PNL-07-L	PANELBOARD L	PUMP RM.
19	VFD-07-01	VARIABLE FREQUENCY DRIVE	PUMP RM.
25	CP-07-01	MAIN CONTROL PANEL/REMOTE TELEMETRY UNIT	PUMP RM.
31	P-07-01	WELL PUMP	PUMP RM.
87	FIT-07-01	WELL FLOW METER	PUMP RM.

GENERAL NOTES:

1. NOT USED..

SHEET KEYNOTES:

1. GROUNDING RING SHALL BE BURIED 24–IN TO 36–IN FROM EXTERIOR PERIMETER OF BUILDING.
2. GROUNDING TO DOOR FRAME. TYPICAL ALL EXTERIOR DOORS. DO NOT GROUND VESTIBULE INTERIOR DOOR.
3. TO BUILDING LIGHTNING PROTECTION CONDUCTORS. SEE E5.1.
4. TO SURGE VAULT GROUNDING RING. REFER TO E6.4.
5. TO TRANSFORMER GROUND RING. REFER TO E6.4.
6. TO METERING EQUIPMENT GROUND RING. REFER TO E6.4.

FILE NAME:
FILE DATE:

REGISTERED PROFESSIONAL ENGINEER
No. 86-171214-2202
KEITH B. HEGERHORST
5/19/2023
STATE OF UTAH

HANSEN ALLEN & LUCE, Inc. ENGINEERS

PROJECT ENGINEER

DESIGNED	KBH
DRAFTED	KBH
CHECKED	KBH
DATE	MAY 2023

SCALE: AS SHOWN

CENTRAL UTAH WATER CONSERVANCY DISTRICT

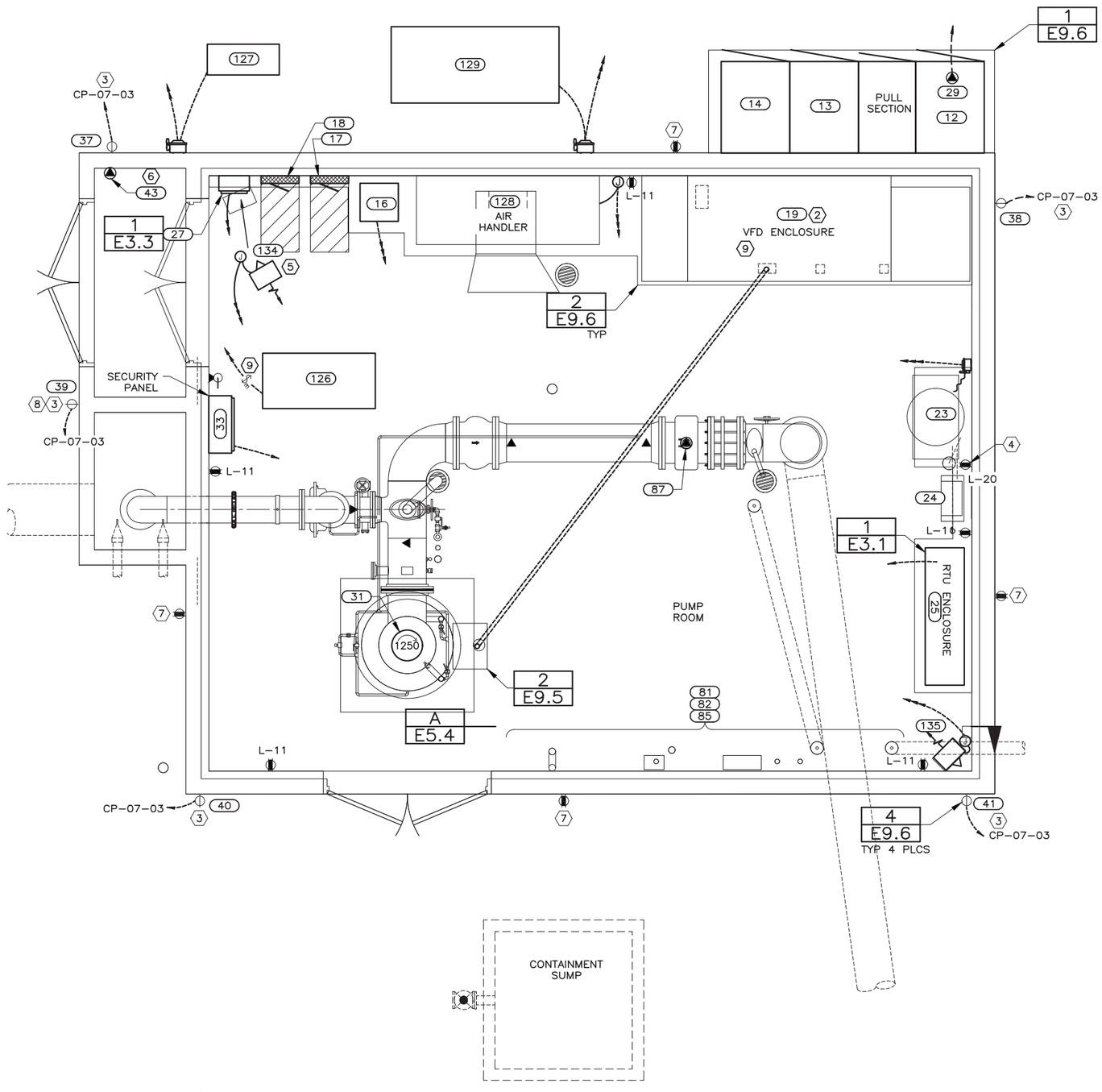
CENTRAL UTAH WATER CONSERVANCY DISTRICT

PUMP HOUSE PROJECT WELLS #7, #16 & #17
ELECTRICAL
WELL 7 GROUNDING PLAN

SHEET E6.6

207.27.200

7/04



0 2' 4' 8'

3/8"=1'-0"

N

WELL 7 POWER PLAN ITEMS

DRAWING ID	TAG	DESCRIPTION	POWER SOURCE	LOCATION
12	MSD-07-01	MAIN SERVICE DISCONNECT	PME-07-01	BLD. EXTERIOR
13	DFS-07-01	DISTRIBUTION EQUIPMENT FUSED SWITCH	MSD-07-01	BLD. EXTERIOR
14	DFS-07-02	DISTRIBUTION EQUIPMENT FUSED SWITCH	MSD-07-01	BLD. EXTERIOR
16	XFMR-07-02	TRANSFOMER L	H-1,3,5	PUMP RM.
17	PNL-07-H	PANELBOARD H	XFMR-07-01	PUMP RM.
18	PNL-07-L	PANELBOARD L	XFMR-07-02	PUMP RM.
19	VFD-07-01	VARIABLE FREQUENCY DRIVE	DFS-07-01	PUMP RM.
23	AC-07-01	AIR COMPRESSOR	H-8,10,12	PUMP RM.
24	AD-07-01	AIR DRYER	L-7	PUMP RM.
25	CP-07-01	MAIN CONTROL PANEL/REMOTE TELEMETRY UNIT	L-4	PUMP RM.
27	CP-07-03	EXTERIOR LIGHTS/ICE MELT CONTROL PANEL	L-5,7	PUMP RM.
29	EM-07-1	ENERGY AND POWER MONITOR	L-18	SITE
31	P-07-01	WELL PUMP	VFD-07-01	PUMP RM.
33	SP-07-01	SECURITY PANEL	L-12	PUMP RM.
37	IM-07-01	ICE MELT RECEPTACLE	CP-07-03	BLD. EXTERIOR
38	IM-07-02	ICE MELT RECEPTACLE	CP-07-03	BLD. EXTERIOR
39	IM-07-03	ICE MELT RECEPTACLE	CP-07-03	BLD. EXTERIOR
40	IM-07-04	ICE MELT RECEPTACLE	CP-07-03	BLD. EXTERIOR
41	IM-07-05	ICE MELT RECEPTACLE	CP-07-03	BLD. EXTERIOR
43	IT-07-01	IRRIGATION VALVE TIMER	L-15	PUMP RM.
81	AIT-07-02	WELL TURBIDITY ANALYZER	L-5	PUMP RM.
82	AIT-07-03A	WELL pH ANALYZER	L-6	PUMP RM.
85	AIT-07-03D	WATER TEMPERATURE TRANSMITTER	L-6	PUMP RM.
87	FIT-07-01	WELL FLOW METER	CP-07-01	PUMP RM.
126	FC-07-01	INDOOR FAN COIL UNIT	L-34,36	PUMP RM.
127	MCU-07-01	OUTDOOR CONDENSIONG UNIT	L-30,32	PUMP RM.
128	AH-07-01	AIR HANDLER	L-20,22,24	PUMP RM.
129	CU-07-01	CONDENSING UNIT	H-14,16,18	PUMP RM.
134	UH-07-01	UNIT HEATER	H-13,15,17	PUMP RM.
135	UH-07-02	UNIT HEATER	H-19,21,23	PUMP RM.

H.P.E. INC. ELECTRICAL ENGINEERS
POWER SYSTEMS, CONTROL & INSTRUMENTATION SYSTEMS
HEGERHORST POWER ENGINEERING INCORPORATED (801) 642-2051
708 EAST 50 SOUTH FAX (801) 642-2154
AMERICAN FORK, UT 84003
HPE PROJECT 20.111

FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

GENERAL NOTES:

1. POWER SOURCE OR "HOME RUN" SHOWN IN THE POWER PLAN ITEM LIST ABOVE. REFER TO ONE-LINE DIAGRAM, PANEL SCHEDULES AND CONDUIT/CONDUCTOR TABLE FOR WIRE AND CONDUIT REQUIREMENTS.
2. EQUIPMENT DIMENSIONS ARE APPROXIMATE. CONTRACTOR SHALL MODIFY AS REQUIRED FOR PROVIDED EQUIPMENT. MAINTAIN NEC CLEARANCES AS REQUIRED.
3. INSTALL IN-SERVICE WEATHERPROOF COVERS ON ALL RECEPTACLES.

SHEET KEYNOTES:

1. REFER TO WELL 7 WET WALL ELEVATION ON E5.4 FOR LOCATIONS OF WATER CHEMISTRY INSTRUMENTS. SEE INSTRUMENTATION ELEVATION FOR HEIGHT OF DEVICE.
2. VFD INCLUDES 120 VAC SPACE HEATER CIRCUIT (L-10) AND 480 VAC FAN POWER CIRCUIT (H-7,9,11). REFER TO PANEL SCHEDULES FOR ADDITIONAL INFORMATION.
3. RECEPTACLE FOR ICE MELT CABLE. PROVIDE IN-SERVICE WEATHERPROOF COVER. FOR INSTALLATION REQUIREMENTS REFER TO WIRING DIAGRAM ON SEE SHEET E3.3.
4. RECEPTACLE FOR AIR DRYER. INSTALL BELOW AIR DRYER.
5. INSTALL UNIT HEATER ABOVE CP-07-03.
6. PROVIDE AND INSTALL A 2-INCH PVC CONDUIT FROM BELOW THE IRRIGATION TIMER TO THE IRRIGATION VALVE AREA. VALVE AREA IS NEAR THE IRRIGATION METER SHOWN ON THE E6.4 SITE PLAN.
7. INSTALL RECEPTACLE +18". WIRE TO CIRCUIT L-13. PROVIDE IN-SERVICE WEATHERPROOF COVER.
8. DOWNSPOUT DISCHARGES INTO WASTE BASIN. INSTALL RECEPTACLE FOR ICE MELT 8-IN ABOVE WASTE BASIN TOP-OF-WALL. DO NOT INSTALL RECEPTACLE IN BASIN.
9. INSTALL MANUAL STARTER NEAR SECURITY ENCLOSURE AND LABEL AS "FAN COIL DISCONNECT".

FILE NAME:
FILE DATE:

REGISTERED PROFESSIONAL ENGINEER
No. 86-171214-2202
KEITH B. HEGERHORST
5/19/2023
STATE OF UTAH

PROJECT ENGINEER

DESIGNED	KBH
DRAFTED	KBH
CHECKED	KBH
DATE	MAY 2023

SCALE: AS SHOWN

CENTRAL UTAH WATER CONSERVANCY DISTRICT

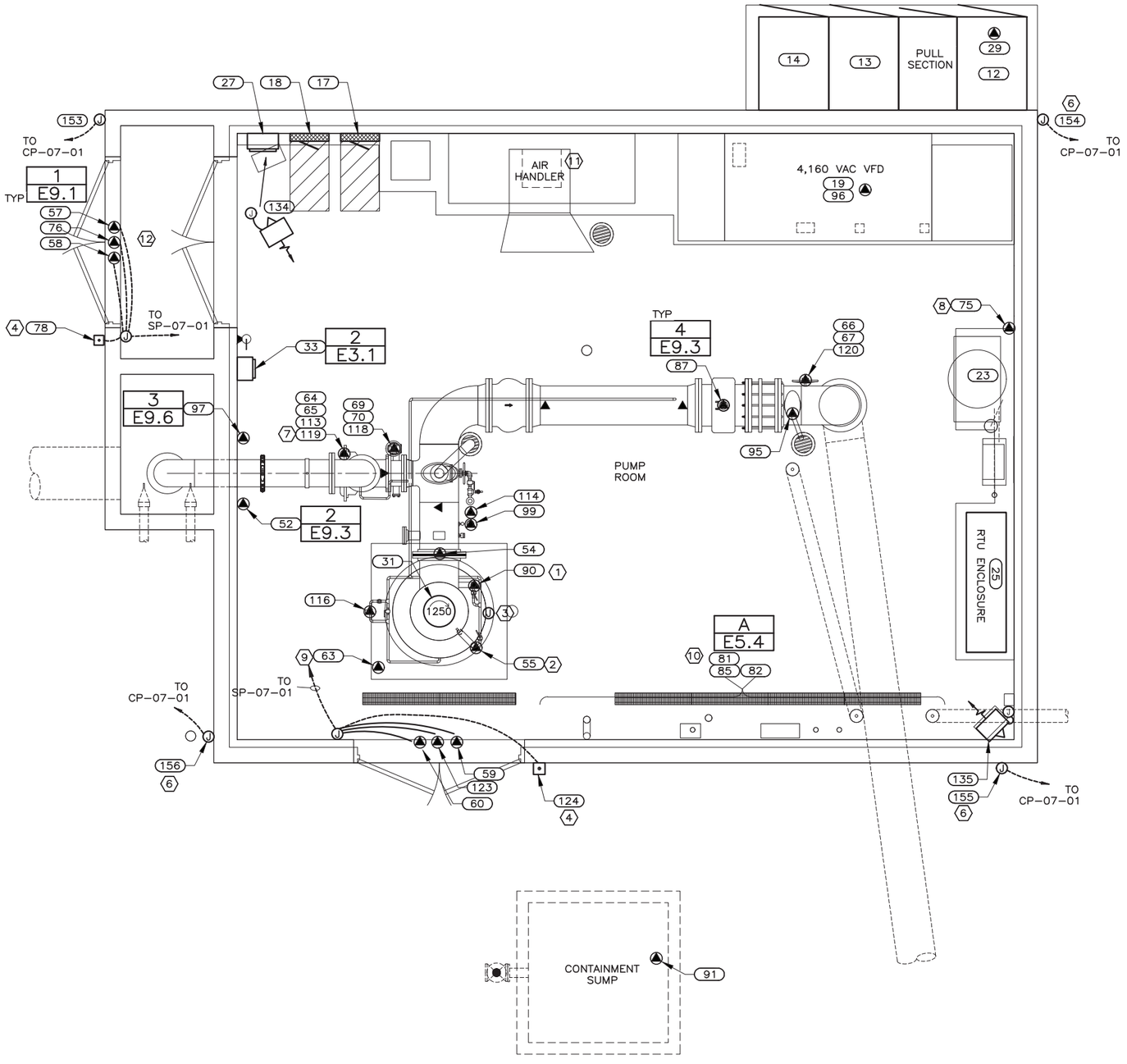
CENTRAL UTAH WATER CONSERVANCY DISTRICT

PUMP HOUSE PROJECT WELLS #7, #16 & #17
ELECTRICAL
WELL 7 POWER PLAN

SHEET E6.7

207.27.200

7/04



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3/8"=1'-0"

N

H.P.E. INC. ELECTRICAL ENGINEERS
POWER SYSTEMS, CONTROL & INSTRUMENTATION SYSTEMS
HEGERHORST POWER ENGINEERING INCORPORATED (801) 642-2051
708 EAST 50 SOUTH FAX (801) 642-2154
AMERICAN FORK, UT 84003
HPE PROJECT 20.111

FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

WELL 7 INSTR. & CONTROL PLAN ITEMS

DRAWING ID	TAG	DESCRIPTION	LOCATION
12	MSD-07-01	MAIN SERVICE DISCONNECT	BLD. EXTERIOR
13	DFS-07-01	DISTRIBUTION EQUIPMENT FUSED SWITCH	BLD. EXTERIOR
14	DFS-07-02	DISTRIBUTION EQUIPMENT FUSED SWITCH	BLD. EXTERIOR
17	PNL-07-H	PANELBOARD H	PUMP RM.
18	PNL-07-L	PANELBOARD L	PUMP RM.
19	VFD-07-01	VARIABLE FREQUENCY DRIVE	PUMP RM.
23	AC-07-01	AIR COMPRESSOR	PUMP RM.
25	CP-07-01	MAIN CONTROL PANEL/REMOTE TELEMETRY UNIT	PUMP RM.
27	CP-07-03	EXTERIOR LIGHTS/ICE MELT CONTROL PANEL	PUMP RM.
29	EM-07-1	ENERGY AND POWER MONITOR	SITE
31	P-07-01	WELL PUMP	PUMP RM.
33	SP-07-01	SECURITY PANEL	PUMP RM.
52	LSH-07-01	PUMP RM. FLOOR HIGH WATER SWITCH	PUMP RM.
54	PSH-07-01	WELL HIGH DISCHARGE PRESSURE SWITCH	PUMP RM.
55	VSH-07-01	WELL MOTOR HIGH VIBRATION SWITCH	PUMP RM.
57	ZS-07-01A	PUMP RM. DOOR 1A POSITION SWITCH	PUMP RM.
58	ZS-07-01B	PUMP RM. DOOR 1B POSITION SWITCH	PUMP RM.
59	ZS-07-02A	MAINTENANCE DOOR DOOR 2A POSITION SWITCH	PUMP RM.
60	ZS-07-02B	MAINTENANCE DOOR DOOR 2B POSITION SWITCH	PUMP RM.
63	ZS-07-04	PUMP RM. HATCH POSITION SWITCH	PUMP RM.
64	ZS-07-05A	WASTE VALVE WASTE POSITION SWITCH	PUMP RM.
65	ZS-07-05B	WASTE VALVE SYSTEM POSITION SWITCH	PUMP RM.
66	ZS-07-06A	DISCHARGE VALVE OPEN POSITION SWITCH	PUMP RM.
67	ZS-07-06B	DISCHARGE VALVE CLOSED POSITION SWITCH	PUMP RM.
69	ZS-07-08A	WASTE ISOLATION VALVE OPEN POSITION SWITCH	PUMP RM.
70	ZS-07-08B	WASTE ISOLATION VALVE CLOSED POSITION SWITCH	PUMP RM.
75	CSH-07-01	AIR COMPRESSOR CURRENT SWITCH	PUMP RM.
76	ML-07-01	MAGNETIC DOOR LOCK	PUMP RM.
78	CR-07-01	ACCESS CARD READER	PUMP RM.
81	AIT-07-02	WELL TURBIDITY ANALYZER	PUMP RM.
82	AIT-07-03A	WELL pH ANALYZER	PUMP RM.
85	AIT-07-03D	WATER TEMPERATURE TRANSMITTER	PUMP RM.
87	FIT-07-01	WELL FLOW METER	PUMP RM.
90	LT-07-01	WELL WATER LEVEL TRANSMITTER	PUMP RM.
91	LT-07-02	CONTAINMENT SUMP LEVEL TRANSMITTER	CONTAINMENT SUMP
95	PT-07-01	SYSTEM PRESSURE TRANSMITTER	PUMP RM.
96	TE-07-01	MOTOR TEMPERATURE MONITOR	PUMP RM.
97	TT-07-01	PUMP RM. TEMPERATURE TRANSMITTER	PUMP RM.
99	TT-07-03	WELL DISCHARGE WATER TEMPERATURE TRANSMITTER	PUMP RM.
113	SV-07-03	WASTE VALVE PILOT SOLENOID VALVE	PUMP RM.
114	SV-07-06	TURBIDITY SUPPLY SOLENOID VALVE	PUMP RM.
116	SV-07-08	WELL PRE-LUBE SOLENOID VALVE	PUMP RM.
118	V-07-01	WASTE ISOLATION VALVE	PUMP RM.
119	V-07-02	PUMP-TO-WASTE VALVE	PUMP RM.
120	V-07-03	DISCHARGE VALVE	PUMP RM.
123	ML-07-03	MAGNETIC DOOR LOCK	PUMP RM.
124	CR-07-03	ACCESS CARD READER	PUMP RM.
134	UH-07-01	UNIT HEATER	PUMP RM.
135	UH-07-02	UNIT HEATER	PUMP RM.
153	JB-07-01	SECURITY J-BOX (ACTIVE CAMERA)	BLD. EXTERIOR
154	JB-07-02	SECURITY J-BOX (FUTURE CAMERA)	BLD. EXTERIOR
155	JB-07-03	SECURITY J-BOX (FUTURE CAMERA)	BLD. EXTERIOR
156	JB-07-04	SECURITY J-BOX (FUTURE CAMERA)	BLD. EXTERIOR

GENERAL NOTES:

1. REFER TO ONE-LINE DIAGRAMS ON E2.1/E2.2 FOR WIRE AND CONDUIT REQUIREMENTS.
2. CONNECTION LOCATIONS SHOWN ARE APPROXIMATE. CONTRACTOR SHALL VERIFY ELECTRICAL CONNECTION LOCATIONS ON SUBMITTAL LITERATURE PRIOR TO CONDUIT ROUGH-IN.
3. ITEMS LOCATED IN THE SURGE VAULT ARE SHOWN ON E5.3.

SHEET KEYNOTES:

1. SUBMERSIBLE PRESSURE TRANSMITTER INSTALLED IN PVC GUIDE TUBE ATTACHED TO WELL DISCHARGE COLUMN. VERIFY LOCATION OF ACCESS PORT PRIOR TO CONDUIT ROUGH-IN REFER TO CIVIL DRAWINGS FOR PROBE INSTALLATION DEPTH. J-BOX AND CONDUIT SYSTEM FOR TRANSDUCER SHALL BE ASSEMBLED WITHOUT OPENINGS SO AS TO NOT ALLOW INSECTS INTO THE WELL. SEAL ANY OPENINGS WITH SILICONE AS REQUIRED.
2. MOTOR VIBRATION SWITCH: VERIFY LOCATION ON MOTOR PRIOR TO CONDUIT ROUGH-IN. FLEX CONDUIT SHALL NOT EXCEED 48-INCHES. PROVIDE CONDUIT SUPPORT THAT CAN BE REMOVED FROM THE MOTOR BASE.
3. MOTOR RTD J-BOX: SAME CONDUIT REQUIREMENTS AS KEYNOTE 2.
4. LOCATE THE DOOR ACCESS CARD READER ON THE RIGHT SIDE OF THE ENTRANCE DOOR. MOUNTING HEIGHT SHALL BE +36-INCHES ABOVE FINISHED SURFACE.
5. NOT USED.
6. WALL CCTV JUNCTION BOX. INSTALL RECESSED IN WALL WITH BLANK COVER PLATE.
7. WASTE VALVE LOCATED BELOW WASTE PIPE.
8. INSTALL CURRENT SWITCH IN A/C DISCONNECT SWITCH.
9. LOCATED AT ROOF HATCH.
10. REFER TO E5.4 FOR WET WALL ELECTRICAL EQUIPMENT.
11. VERIFY LOCATION OF AIR HANDLER CONTROLS PRIOR TO CONDUIT ROUGH-IN.
12. A REMOVABLE TRANSOM PANEL EXISTS ABOVE THE DOOR. DO NOT INSTALL CONDUIT ON REMOVABLE PANEL.

REGISTERED PROFESSIONAL ENGINEER
No. 86-171214-2202
KEITH B. HEGERHORST
5/19/2023
STATE OF UTAH

FILE NAME:
FILE DATE:

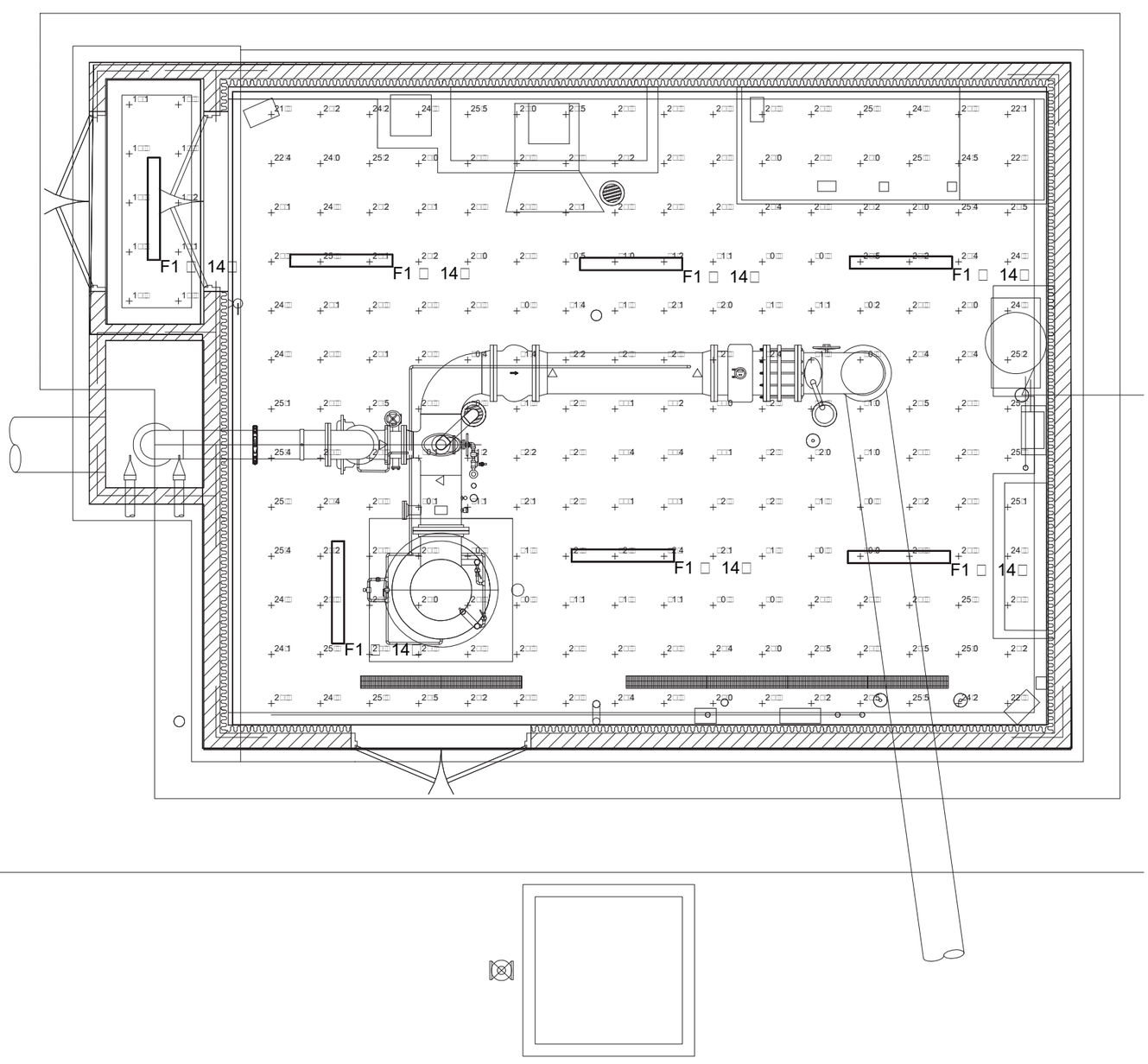
HANSEN ALLEN & LUCE ENGINEERS	PROJECT ENGINEER	DESIGNED KBH DRAFTED KBH CHECKED KBH DATE MAY 2023	SCALE AS SHOWN	CENTRAL UTAH WATER CONSERVANCY DISTRICT	CENTRAL UTAH WATER CONSERVANCY DISTRICT	PUMP HOUSE PROJECT WELLS #7, #16 & #17 ELECTRICAL WELL 7 I & C PLAN	SHEET E6.8 207.27.200

7/04

H.P.E. INC. ELECTRICAL ENGINEERS
POWER SYSTEMS, CONTROL & INSTRUMENTATION SYSTEMS
HEGERHORST POWER ENGINEERING INCORPORATED (801) 642-2051
708 EAST 50 SOUTH FAX (801) 642-2154
AMERICAN FORK, UT 84003

HPE PROJECT 20.111

FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST



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C	+	2 4	4	21	1 5 1	1 1
C	+	1	1	1	1 1	1 1

FILE NAME:
FILE DATE:

7/04

HANSEN ADLER & LUCE ENGINEERS

REGISTERED PROFESSIONAL ENGINEER
No. 86-171214-2202
KEITH B. HEGERHORST
5 / 19 / 2023
STATE OF UTAH
PROJECT ENGINEER

DESIGNED	KBH
DRAFTED	KBH
CHECKED	KBH
DATE	MAY 2023

SCALE
AS SHOWN

CENTRAL UTAH WATER CONSERVANCY DISTRICT

CENTRAL UTAH WATER CONSERVANCY DISTRICT

PUMP HOUSE PROJECT WELLS #7, #16 & #17
ELECTRICAL
WELL 7 INTERIOR PHOTOMETRIC PLAN

SHEET
E6.9
207.27.200

H.P.E. INC. ELECTRICAL ENGINEERS
POWER SYSTEMS, CONTROL & INSTRUMENTATION SYSTEMS
HEGERHORST POWER ENGINEERING INCORPORATED (801) 642-2051
708 EAST 50 SOUTH FAX (801) 642-2154
AMERICAN FORK, UT 84003
HPE PROJECT 20.111

FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

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3/8"=1'-0"

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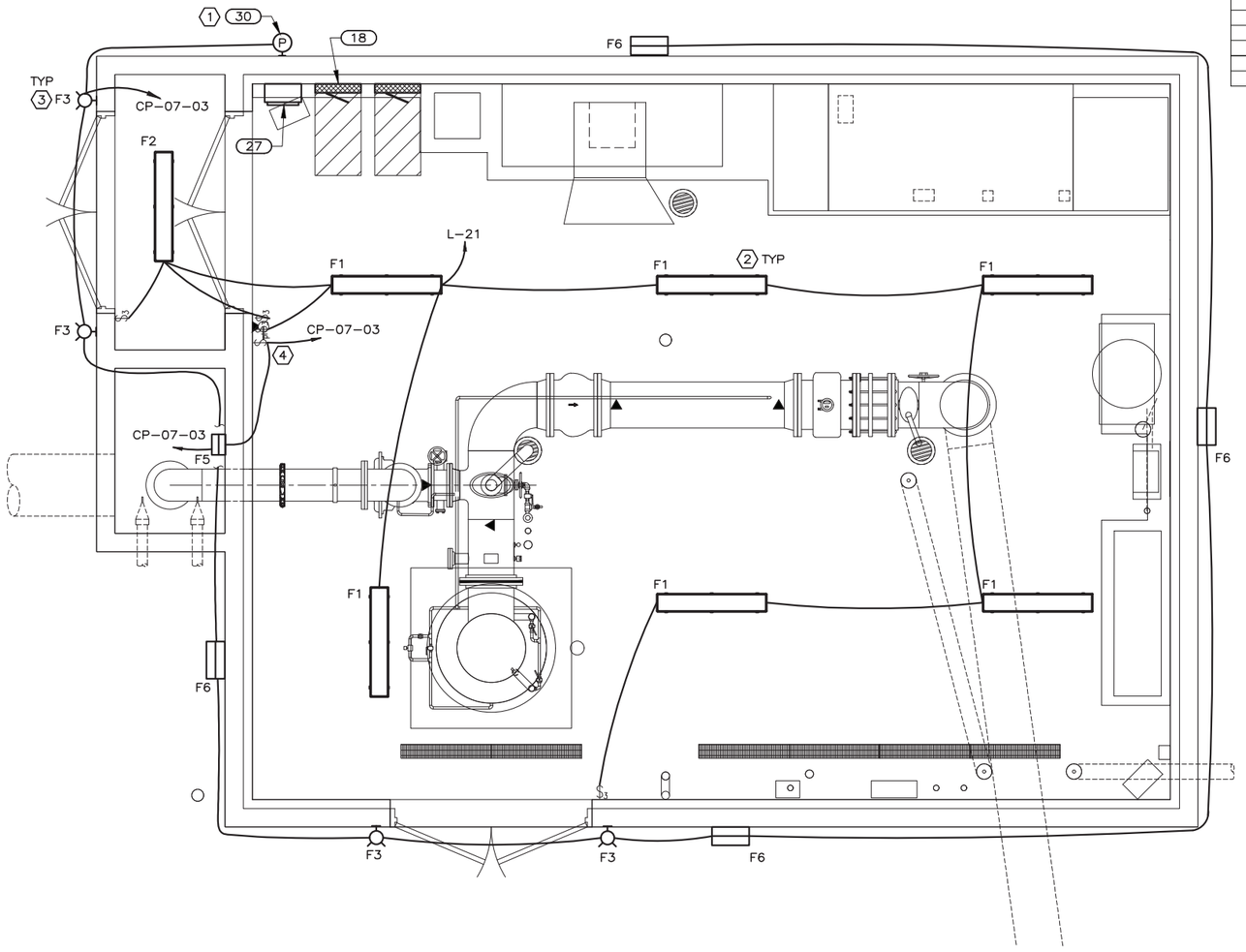


WELL 7 LIGHTING PLAN ITEMS

DRAWING ID	TAG	DESCRIPTION	LOCATION
18	PNL-07-L	PANELBOARD L	PUMP RM.
27	CP-07-03	EXTERIOR LIGHTS/ICE MELT CONTROL PANEL	PUMP RM.
30	PC-07-01	LIGHTING PHOTOCELL	BLD. EXTERIOR

GENERAL NOTES:

1. REFER TO PANEL SCHEDULES AND CONDUIT/ CONDUCTOR TABLE FOR WIRE AND CONDUIT REQUIREMENTS.
2. FIXTURE SCHEDULE SHOWN ON E1.2.
3. REFER TO ONE-LINE DIAGRAMS FOR ADDITIONAL WIRE AND CONDUIT INFORMATION.

SHEET KEYNOTES:

1. PHOTOCELL ON NORTH WALL OF BUILDING TO CONTROL EXTERIOR BUILDING LIGHTS. ROUTE CIRCUIT TO CP-07-03. SEE WIRING DIAGRAM ON E3.3.
2. CHAIN HANG FIXTURES SO THE BOTTOM OF ALL FIXTURES ARE 12-INCHES ABOVE TOP OF MOTOR.
3. FIXTURE MOUNTING HEIGHT SHOWN ON A-1.
4. PROVIDE LABEL FOR SWITCH "WASTE BASIN FLOOD".

FILE NAME:
FILE DATE:

REGISTERED PROFESSIONAL ENGINEER
No. 86-171214-2202
KEITH B. HEGERHORST
5/19/2023
STATE OF UTAH

PROJECT ENGINEER

DESIGNED	KBH
DRAFTED	KBH
CHECKED	KBH
DATE	MAY 2023

SCALE: AS SHOWN

CENTRAL UTAH WATER CONSERVANCY DISTRICT

CENTRAL UTAH WATER CONSERVANCY DISTRICT

PUMP HOUSE PROJECT WELLS #7, #16 & #17
ELECTRICAL
WELL 7 LIGHTING PLAN

SHEET E6.10
207.27.200

7/04

H.P.E. INC. ELECTRICAL ENGINEERS
POWER SYSTEMS, CONTROL & INSTRUMENTATION SYSTEMS
HEGERHORST POWER ENGINEERING INCORPORATED
708 EAST 50 SOUTH
AMERICAN FORK, UT 84003
(801) 642-2051
FAX (801) 642-2154
HPE PROJECT 20.111

FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

GENERAL NOTES:

1. NOT USED.

SHEET KEYNOTES:

1. NOT USED.

COMcheck Software Version 4.1.5.1

Interior Lighting Compliance Certificate

Project Information

Energy Code: 2018 IECC
Project Title: Central Utah Water Well #7
Project Type: New Construction

Construction Site:
400 East 400 North
Vineyard, UT

Owner/Agent:

Designer/Contractor:
Hegerhorst Power Engineering
708 East 50 South
American Fork, UT

Additional Efficiency Package(s)

Reduced interior lighting power. Requirements are implicitly enforced within interior lighting allowance calculations.

Allowed Interior Lighting Power

A Area Category	B Floor Area (ft2)	C Allowed Watts / ft2	D Allowed Watts (B X C)
1-PUMP HOUSE (Workshop)	915	0.81	741
		Total Allowed Watts =	741

Proposed Interior Lighting Power

A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast	B Lamps/ Fixture	C # of Fixtures	D Fixture Watt.	E (C X D)
1-PUMP HOUSE (Workshop)				
LED 1: F1: SURFACE LED: LED Panel 80W:	1	7	91	637
			Total Proposed Watts =	637

Interior Lighting PASSES: Design 14% better than code

Interior Lighting Compliance Statement

Compliance Statement: The proposed interior lighting design represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed interior lighting systems have been designed to meet the 2018 IECC requirements in COMcheck Version 4.1.5.1 and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

Ben Eliot Sorenson Engineer — Name - Title
Ben Eliot Sorenson — Signature
05/18/2023 — Date

COMcheck Software Version 4.1.5.1

Exterior Lighting Compliance Certificate

Project Information

Energy Code: 2018 IECC
Project Title: Central Utah Water Well #7
Project Type: New Construction
Exterior Lighting Zone 2 (Residential mixed use area)

Construction Site:
400 East 400 North
Vineyard, UT

Owner/Agent:

Designer/Contractor:
Hegerhorst Power Engineering
708 East 50 South
American Fork, UT

Allowed Exterior Lighting Power

A Area/Surface Category	B Quantity	C Allowed Watts / Unit	D Tradable Wattage	E Allowed Watts (B X C)
Pedestrian and vehicular entrances and exits	12 ft of door	14	Yes	168
Walkway < 10 feet wide	164 ft of	0.5	Yes	82
		Total Tradable Watts (a) =		250
		Total Allowed Watts =		250
		Total Allowed Supplemental Watts (b) =		400

(a) Wattage tradeoffs are only allowed between tradable areas/surfaces.
(b) A supplemental allowance equal to 400 watts may be applied toward compliance of both non-tradable and tradable areas/surfaces.

Proposed Exterior Lighting Power

A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast	B Lamps/ Fixture	C # of Fixtures	D Fixture Watt.	E (C X D)
Pedestrian and vehicular entrances and exits (12 ft of door width): Tradable Wattage				
LED 1: F3: ENTRY SIDE LIGHT: LED PAR 13W:	1	4	14	56
Walkway < 10 feet wide (164 ft of walkway length): Tradable Wattage				
LED 2: F6: SECURITY/WALKWAY: LED PAR 13W:	1	4	13	52
			Total Tradable Proposed Watts =	108

Exterior Lighting PASSES: Design 83% better than code

Exterior Lighting Compliance Statement

Compliance Statement: The proposed exterior lighting design represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed exterior lighting systems have been designed to meet the 2018 IECC requirements in COMcheck Version 4.1.5.1 and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

Ben Eliot Sorenson Engineer — Name - Title
Ben Eliot Sorenson — Signature
05/18/2023 — Date

COMcheck Software Version 4.1.5.1

Inspection Checklist

Energy Code: 2018 IECC

Requirements: 0.0% were addressed directly in the COMcheck software

Text in the "Comments/Assumptions" column is provided by the user in the COMcheck Requirements screen. For each requirement, the user certifies that a code requirement will be met and how that is documented, or that an exception is being claimed. Where compliance is itemized in a separate table, a reference to that table is provided.

Section # & Req.ID	Plan Review	Complies?	Comments/Assumptions
C103.2 [PR4][1]	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the interior lighting and electrical systems and equipment and document where exceptions to the standard are claimed. Information provided should include interior lighting power calculations, wattage of bulbs and ballasts, transformers and control devices.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C103.2 [PR8][1]	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the exterior lighting and electrical systems and equipment and document where exceptions to the standard are claimed. Information provided should include exterior lighting power calculations, wattage of bulbs and ballasts, transformers and control devices.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C406 [PR9][1]	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the additional energy efficiency package options.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

Additional Comments/Assumptions:

1	High Impact (Tier 1)	2	Medium Impact (Tier 2)	3	Low Impact (Tier 3)

FILE NAME:
FILE DATE:

REGISTERED PROFESSIONAL ENGINEER
No. 86-171214-2202
KEITH B. HEGERHORST
5/19/2023
STATE OF UTAH
PROJECT ENGINEER

HANSEN ALLEN & LUCE ENGINEERS

DESIGNED	KBH
DRAFTED	KBH
CHECKED	KBH
DATE	MAY 2023

SCALE: NONE

CENTRAL UTAH WATER CONSERVANCY DISTRICT

CENTRAL UTAH WATER CONSERVANCY DISTRICT

PUMP HOUSE PROJECT WELLS #7, #16 & #17
ELECTRICAL
WELL 7 COMCHECK

SHEET E6.11

207.27.200

7/04

H.P.E. INC. ELECTRICAL ENGINEERS
POWER SYSTEMS, CONTROL & INSTRUMENTATION SYSTEMS
HEGERHORST POWER ENGINEERING INCORPORATED (801) 642-2051
708 EAST 50 SOUTH FAX (801) 642-2154
AMERICAN FORK, UT 84003

FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

GENERAL NOTES:

1. SHEET 7 OF 7 IS BLANK AND NOT NEEDED.

SHEET KEYNOTES:

1. NOT USED.

Section # & Req.ID	Rough-In Electrical Inspection	Complies?	Comments/Assumptions
C405.2.2.2 [EL22][1]	Spaces required to have light-reduction controls have a manual control that allows the occupant to reduce the connected lighting load in a reasonably uniform illumination pattern >= 50 percent.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.2.1, C405.2.1.1 [EL18][1]	Occupancy sensors installed in classrooms/lecture/training rooms, conference/meeting/multipurpose rooms, copy/print rooms, lounges/breakrooms, enclosed offices, open plan office areas, restrooms, storage rooms, locker rooms, warehouse storage areas, and other spaces <= 300 sqft that are enclosed by floor-to-ceiling height partitions. Reference section language C405.2.1.2 for control function in warehouses and section C405.2.1.3 for open plan office spaces.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.2.1.2 [EL19][1]	Occupancy sensors control function in warehouses: In warehouses, the lighting in aisleways and open areas is controlled with occupant sensors that automatically reduce lighting power by 50% or more when the areas are unoccupied. The occupant sensors control lighting in each aisleway independently and do not control lighting beyond the aisleway being controlled by the sensor.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.2.1.3 [EL20][1]	Occupant sensor control function in open plan office areas: Occupant sensor controls in open office spaces >= 300 sq.ft. have controls 1) configured so that general lighting can be controlled separately in control zones with floor areas <= 600 sq.ft. within the space, 2) automatically turn off general lighting in all control zones within 20 minutes after all occupants have left the space, 3) are configured so that general lighting power in each control zone is reduced by >= 80% of the full zone general lighting power within 20 minutes of all occupants leaving that control zone, and 4) are configured such that any daylight responsive control will activate space general lighting or control zone general lighting only when occupancy for the same area is detected.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.2.2.1, C405.2.2.2 [EL21][2]	Each area not served by occupancy sensors (per C405.2.1) have time-switch controls and functions detailed in sections C405.2.2.1 and C405.2.2.2.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

Section # & Req.ID	Rough-In Electrical Inspection	Complies?	Comments/Assumptions
C405.2.3, C405.2.3.1, C405.2.3.2 [EL23][2]	Daylight zones provided with individual controls that control the lights independent of general area lighting. See code section C405.2.3 Daylight-responsive controls for applicable spaces, C405.2.3.1 Daylight responsive control function and section C405.2.3.2 Sidelit zone.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.2.4 [EL26][1]	Separate lighting control devices for specific uses installed per approved lighting plans.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.2.4 [EL27][1]	Additional interior lighting power allowed for special functions per the approved lighting plans and is automatically controlled and separated from general lighting.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.2.5 [EL28][null]	Automatic lighting controls for exterior lighting installed. Controls will be daylight controlled, set based on business operation time-of-day, or reduce connected lighting > 30%.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.3 [EL6][1]	Exit signs do not exceed 5 watts per face.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.6 [EL26][2]	Low-voltage dry-type distribution electric transformers meet the minimum efficiency requirements of Table C405.6.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.7 [EL27][2]	Electric motors meet the minimum efficiency requirements of Tables C405.7(1) through C405.7(4). Efficiency verified through certification under an approved certification program or the equipment efficiency ratings shall be provided by motor manufacturer (where certification programs do not exist).	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.8.2, C405.8.2.1 [EL28][2]	Escalators and moving walks comply with ASME A17.1/CSA B44 and have automatic controls configured to reduce speed to the minimum permitted speed in accordance with ASME A17.1/CSA B44 or applicable local code when not conveying passengers.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.9 [EL29][2]	Total voltage drop across the combination of feeders and branch circuits <= 5%.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

Section # & Req.ID	Final Inspection	Complies?	Comments/Assumptions
C303.3, C408.2.5.2 [FI17][3]	Furnished O&M instructions for systems and equipment to the building owner or designated representative.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.4.1 [FI18][1]	Interior installed lamp and fixture lighting power is consistent with what is shown on the approved lighting plans, demonstrating proposed watts are less than or equal to allowed watts.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	*See the Interior Lighting fixture schedule for values.*
C405.5.1 [FI19][1]	Exterior lighting power is consistent with what is shown on the approved lighting plans, demonstrating proposed watts are less than or equal to allowed watts.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	*See the Exterior Lighting fixture schedule for values.*
C408.1.1 [FI57][1]	Building operations and maintenance documents will be provided to the owner. Documents will cover manufacturers' information, specifications, programming procedures and means of illustrating to owner how building, equipment and systems are intended to be installed, maintained, and operated.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C408.2.5.1 [FI16][3]	Furnished as-built drawings for electric power systems within 90 days of system acceptance.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C408.3 [FI33][1]	Lighting systems have been tested to ensure proper calibration, adjustment, programming, and operation.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

FILE NAME:
FILE DATE:

REGISTERED PROFESSIONAL ENGINEER
No. 86-171214-2202
KEITH B. HEGERHORST
5/19/2023
STATE OF UTAH
PROJECT ENGINEER

HANSEN ALLEN & LUCE, Inc. ENGINEERS

DESIGNED	KBH
DRAFTED	KBH
CHECKED	KBH
DATE	MAY 2023

SCALE: NONE

CENTRAL UTAH WATER CONSERVANCY DISTRICT

CENTRAL UTAH WATER CONSERVANCY DISTRICT

PUMP HOUSE PROJECT WELLS #7, #16 & #17
ELECTRICAL
WELL 7 COMCHECK CONT.

SHEET E6.12
207.27.200

7/04

WELL 16 MAIN SERVICE DISCONNECT

LOCATION: OUTSIDE BUILDING			MFGR: SQUARE D			200 AMPS			VOLTS: 12,470/7200				
DIMENSIONS: 36"W x 36"D x 91.5"H			TYPE: QED SWITCHBOARD			X FUSED SWITCH			PHASE: 3				
MOUNTING: FLOOR			NEMA: 3R						WIRES: 4				
FEED: BOTTOM						65,000 A.I.C.			AIC AVAILABLE:				
						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.	
150E	3	DISTRIBUTION SERVICE EQUIPMENT	*	1,184,484	43,642	2	397,536	14,339	394,514	15,023	392,434	14,279	
		TOTAL WATTS:		1,184,484	43,642		397,536	14,339	394,514	15,023	392,434	14,279	
		CONTINUOUS LOAD:		1,184,484									
		CONTINUOUS LOAD * 125%:		1,480,605									
		NON-CONTINUOUS LOAD:		43,642									
		DESIGN WATTS:		1,524,247			* = REFER TO ONE-LINE DIAGRAM FOR WIRE/CONDUIT SIZES						
		MIN. RATING (AMPS):		71									

WELL 16 DISTRIBUTION SWITCHGEAR

LOCATION: OUTSIDE BUILDING			MFGR: SQUARE D			2500 AMPS			VOLTS: 12,470/7200				
DIMENSIONS: 102"W x 48"D x 91.5"H			TYPE: QED SWITCHBOARD						PHASE: 3				
MOUNTING: FLOOR			NEMA: 3R			X M.L.O			WIRES: 4				
FEED: BOTTOM						65,000 A.I.C.			AIC AVAILABLE:				
						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.	
10E	3	TRANSFORMER H	*	61,783	43,642	1	23,303	14,339	20,280	15,023	18,200	14,279	
150E	3	WELL MOTOR VFD-16-01	*	1,122,701	0	2	374,234		374,234		374,234		
		TOTAL WATTS:		1,184,484	43,642		397,536	14,339	394,514	15,023	392,434	14,279	
		CONTINUOUS LOAD:		1,184,484									
		CONTINUOUS LOAD * 125%:		1,480,605									
		NON-CONTINUOUS LOAD:		43,642									
		DESIGN WATTS:		1,524,247			* = REFER TO ONE-LINE DIAGRAM FOR WIRE/CONDUIT SIZES						
		MIN. RATING (AMPS):		71									

WELL 16 TRANSFORMER H

LOCATION: SITE				5.6 PRIMARY AMPS					PRIMARY VOLTS: 12,470				
DIMENSIONS:				145.6 SECONDARY AMPS					SECONDARY VOLTS: 480Y/277				
MOUNTING: PAD									KVA: 150				
FEED: BOTTOM									FED FROM: DFS-16-02				
						PHASE LOADS							
			CONT.	N-CONT.	A		B		C				
			WATTS	WATTS	CONT.	N-CONT.	CONT.	N-CONT.	CONT.	N-CONT.			
		PANELBOARD L	61,783	43,642	23,303	14,339	20,280	15,023	18,200	14,279			
		TOTAL WATTS:	61,783	43,642	23,303	14,339	20,280	15,023	18,200	14,279			
		CONTINUOUS LOAD:	61,783										
		CONTINUOUS LOAD * 125%:	77,229										
		NON-CONTINUOUS LOAD:	43,642										
		DESIGN WATTS:	120,871										

WELL 16 TRANSFORMER L

LOCATION: WELL 16 PUMP ROOM				42.8 PRIMARY AMPS					PRIMARY VOLTS: 480				
DIMENSIONS: 30"W x 30"D x 30"H				98.8 SECONDARY AMPS					SECONDARY VOLTS: 208Y/120				
MOUNTING: FLOOR									KVA: 45				
FEED: BOTTOM									FED FROM: PANELBOARD H				
						PHASE LOADS							
			CONT.	N-CONT.	A		B		C				
			WATTS	WATTS	CONT.	N-CONT.	CONT.	N-CONT.	CONT.	N-CONT.			
		PANELBOARD L	23,500	6,204	9,896	1,860	7,842	2,544	5,762	1,800			
		TOTAL WATTS:	23,500	6,204	9,896	1,860	7,842	2,544	5,762	1,800			
		CONTINUOUS LOAD:	23,500										
		CONTINUOUS LOAD * 125%:	29,375										
		NON-CONTINUOUS LOAD:	6,204										
		DESIGN WATTS:	35,579										

WELL 16 PANELBOARD SCHEDULE H

LOCATION: WELL 16 PUMP ROOM			MFGR: SQUARE D					250 AMPS					VOLTS: 480Y/277						
DIMENSIONS: 20"W x 5.75"D x 56"H			TYPE: NF					200 M.C.B.					PHASE: 3						
MOUNTING: SURFACE			NEMA: 1					X SURGE PROTECTION DEVICE					WIRES: 4						
FEED: BOTTOM								22,000 A.I.C.											
								PHASE LOADS											
BRKR			WIRE	CONT.	N-CONT.	A		B		C			N-CONT.	CONT.	WIRE		BRKR		
A	P	DESCRIPTION	SIZE	WATTS	WATTS	NO	CONT.	N-CONT.	CONT.	N-CONT.	CONT.	N-CONT.	NO	WATTS	WATTS	SIZE	DESCRIPTION	A	P
60	3	TRANSFORMER L	36	9,896	1,860	1	10,865	1,860					2		969	212	INTERIOR WELL HOUSE LIGHTS	20	1
-	-	-	-	7,842	2,544	3			7,842	2,544			4				SPARE	20	1
-	-	-	-	5,762	1,800	5					5,762	1,800	6				SPARE	20	1
20	3	VFD FAN POWER	312	2,750		7	2,750	5,813					8	5,813		30	AIR COMPRESSOR (AH-16-01), 15 HP	40	3
-	-	-	-	2,750		9			2,750	5,813			10	5,813		-	-	-	-
-	-	-	-	2,750		11					2,750	5,813	12	5,813		-	-	-	-
20	3	UNIT HEATER (UH-16-01)	312		1,667	13	5,813	1,667					14		5,813	30	AIR HANDLER (AH-16-01), 15 HP	40	3
-	-	-	-		1,667	15			5,813	1,667			16		5,813	-	-	-	-
-	-	-	-		1,667	17					5,813	1,667	18		5,813	-	-	-	-
20	3	UNIT HEATER (UH-16-02)	312		1,667	19	3,875	1,667					20		3,875	312	CHLORINE CIRCULATION PUMP	25	3
-	-	-	-		1,667	21			3,875	1,667			22		3,875	-	-	-	-
-	-	-	-		1,667	23					3,875	1,667	24		3,875	-	-	-	-
20	3	UNIT HEATER (UH-16-03)	312		1,667	25	0	1,667					26				AVAILABLE SPACE		1
-	-	-	-		1,667	27			0	1,667			28				AVAILABLE SPACE		1
-	-	-	-		1,667	29					0	1,667	30				AVAILABLE SPACE		1
20	3	UNIT HEATER (UH-16-04)	312		1,667	31	0	1,667					32				AVAILABLE SPACE		1
-	-	-	-		1,667	33			0	1,667			34				AVAILABLE SPACE		1
-	-	-	-		1,667	35					0	1,667	36				AVAILABLE SPACE		1
	1	AVAILABLE SPACE				37	0	0					38				AVAILABLE SPACE		1
	1	AVAILABLE SPACE				39			0	0			40				AVAILABLE SPACE		1
	1	AVAILABLE SPACE				41					0	0	42				AVAILABLE SPACE		1
		TOTAL WATTS:		31,750	26,204		23,303	14,339	20,280	15,023	18,200	14,279		17,438	30,033				
		CONTINUOUS LOAD:		61,783															
		CONTINUOUS LOAD * 125%:		77,229															
		NON-CONTINUOUS LOAD:		43,642															
		DESIGN WATTS:		120,871															
		MIN. RATING (AMPS):		146															

WELL 16 PANELBOARD SCHEDULE L

LOCATION: WELL 16 PUMP ROOM			MFGR: SQUARE D					225 AMPS					VOLTS: 208Y/120						
DIMENSIONS: 20"Wx5.75"Dx32"H			TYPE: NQ					150 M.C.B.					PHASE: 3						
MOUNTING: SURFACE			NEMA: 1					X SURGE PROTECTION DEVICE					WIRES: 4						
FEED: BOTTOM								10,000 A.I.C.					FED FROM: TRANSFORMER L						
								PHASE LOADS											
BRKR			WIRE	CONT.	N-CONT.	A		B		C			N-CONT.	CONT.	WIRE		BRKR		
A	P	DESCRIPTION	SIZE	WATTS	WATTS	NO	CONT.	N-CONT.	CONT.	N-CONT.	CONT.	N-CONT.	NO	WATTS	WATTS	SIZE	DESCRIPTION	A	P
30	2	SURGE TANK CONTROL PANEL (CP-16-04)	30	1,180	1,180	1	2,680	1,180					2		1,500	212	MCP/RTU (CP-16-01)	20	1
-	-	-	-	226	1,000	3			236	1,000			4		10	212	TUBIDITY UNIT (AIT-16-02)	20	1
30	2	ICE MELT CONTROL PANEL (CP-16-03)	20	858	0	5					873	0	6		15	212	CHEMISTRY UNIT (AIT-16-03)	20	1
-	-	-	-	1,092	0	7	1,592	0					8		500	212	VFD CONTROL POWER	20	1
20	1	SECURITY PANEL (SP-16-01)	212	500		9			1,500	0			10		1,000	212	VFD SPACE HEATER	20	1
20	1	RECEPT, INTERIOR	212		1,080	11					500	1,080	12		500	212	MAIN FUSED DISC. CONDENSATE HEATER	20	1
20	1	RECEPT, EXTERIOR	212		180	13	0	680					14	500		212	FUSED DISC. FDS-16-01 COND. HEATER	20	1
20	1	RECPT. IRRIGATION CONTROLLER	212	50		15			50	500			16	500		212	FUSED DISC. FDS-16-02 COND. HEATER	20	1
20	1	RECPT. AIR DRYER	212	180		17					195	0	18		15	212	ENERGY MONITOR	20	1
20	1	LTS, EXTERIOR	212	257		19	1,507	0					20		1,250	212	GENERATOR JACKET WATER HEATER	20	2
20	1	LTS, INTERIOR	212	1,147		21			2,397	0			22		1,250	-	-	-	-
20	1	FUEL POLISHER	212	864		23					1,864	0	24		1,000	212	GENERATOR BATTERY CHARGER	20	1
30	2	CONTROL PANEL (CP-16 02)	20	960	0	25	1,920	0					26		960	212	GENL RM. EXHAUST FAN (EF-16-02), 1 HP	15	2
-	-	EXHAUST FAN CONTROL PANEL	-	2,616	0	27			3,576	0			28		960	-	-	-	-
20	1	CHLORINE LEAK DETETOR	212	50		29					2,047	0	30		1,997	28	OUTDOOR COND. UNTI (MCU-16-01)	35	2
20	1	CHLORINE PROPORTIONING VALVE	212	50		31	2,047	0					32		1,997	-	-	-	-
20	1	RECPT. CHL. ROOM	212		180	33			83	180			34		83	212	INDOOR FAN COIL (FC-16-01)	20	2
20	1	RECPT. GENERATOR ROOM	212		720	35					83	720	36		83	-	-	-	-
20	1	CHLORINE TANK SCALE IND/TRANS.	212	150		37	150	0					38				AVAILABLE SPACE		1
20	1	GENERATOR DAY TANK CONTROL PANEL	212		864	39			0	864			40				AVAILABLE SPACE		1
20	1	FUEL LINE HEAT TRACING	212	200		41					200	0	42				AVAILABLE SPACE		1
		TOTAL WATTS:		10,380	5,204		9,896	1,860	7,842	2,544	5,762	1,800		1,000	13,120				
		CONTINUOUS LOAD:		23,500															
		CONTINUOUS LOAD * 125%:		29,375															
		NON-CONTINUOUS LOAD:		6,204															
		DESIGN WATTS:		35,579															
		MIN. RATING (AMPS):		99															

H.P.E. INC. ELECTRICAL ENGINEERS
POWER SYSTEMS, CONTROL & INSTRUMENTATION SYSTEMS
HEGERHORST POWER ENGINEERING INCORPORATED (801) 642-2051
708 EAST 50 SOUTH FAX (801) 642-2154
AMERICAN FORK, UT 84003

FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

GENERAL NOTES:

1. NOT USED.

SHEET KEYNOTES:

1. NOT USED.

FILE NAME:
FILE DATE:

REGISTERED PROFESSIONAL ENGINEER
No. 86-171214-2202
KEITH B. HEGERHORST
5/19/2023
STATE OF UTAH

HANSEN ALLEN & LUCE, Inc. ENGINEERS

PROJECT ENGINEER

DESIGNED	KBH
DRAFTED	KBH
CHECKED	KBH
DATE	MAY 2023

SCALE: NONE

CENTRAL UTAH WATER CONSERVANCY DISTRICT

CENTRAL UTAH WATER CONSERVANCY DISTRICT

PUMP HOUSE PROJECT WELLS #7, #16 & #17
ELECTRICAL
WELL16 SCHEDULES, SHT. 1

SHEET E7.1

207.27.200

7/04

WELL 16 CONTROL PANEL CP-16-02

LOCATION: PUMP ROOM		MFGR: N/A				N/A AMPS			VOLTS: 240/120		
DIMENSIONS:		TYPE: CUSTOM				30 M.C.B.			PHASE: 1		
MOUNTING: SURFACE		NEMA: 12							WIRES: 3		
FEED: BOTTOM									FED FROM: PANELBOARD L		
						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.
10	1	CONTROL POWER	#12	100		1	100	0				
20	1	CHL. RM EXHAUST FAN (EF-16-01), .75HP	212	1,656		3			1,656	0		
40	1	GEN. RM EXHAUST FAN (EF-16-02), 1 HP	212	1,920		4	960	0	960			
	1	SPACE				5						
		TOTAL WATTS:		3,576	0		960	0	2,616	0		
		CONTINUOUS LOAD:		3,576								
		CONTINUOUS LOAD * 125%:		4,470								
		NON-CONTINUOUS LOAD:		0								
		DESIGN WATTS:		4,470								
		MIN. RATING (AMPS):		19								

WELL 16 CONTROL PANEL CP-16-03

LOCATION: WELL 16 PUMP ROOM		MFGR: N/A				N/A AMPS			VOLTS: 208/120		
DIMENSIONS:		TYPE: CUSTOM							PHASE: 1		
MOUNTING: SURFACE		NEMA: 12							WIRES: 3		
FEED: BOTTOM									FED FROM: PANELBOARD L		
						PHASE LOADS					
BRKR			WIRE	CONT.	N-CONT.		A				C	
A	P	DESCRIPTION	SIZE	WATTS	WATTS	NO	CONT.	N-CONT.			CONT.	N-CONT.
30	2	ICE MELT CABLES	20	1,716		1	858				858	0
20	1	EXTERIOR LIGHTING	212	97		2	97					
10	1	CONTROL POWER	212	137		3	137					
	1	SPACE				4						
		TOTAL WATTS:		1,950	0		1,092	0	0	0	858	0
		CONTINUOUS LOAD:		1,950								
		CONTINUOUS LOAD * 125%:		2,438								
		NON-CONTINUOUS LOAD:		0								
		DESIGN WATTS:		2,438								
		MIN. RATING (AMPS):		12								

WELL 16 CONTROL PANEL CP-16-04

LOCATION: SURGE TANK VAULT		MFGR: N/A				N/A AMPS			VOLTS: 240/120	
DIMENSIONS: 20"W x 8"D x 24"H		TYPE: CUSTOM				30 M.C.B.			PHASE: 1	
MOUNTING: SURFACE		NEMA: 12							WIRES: 3	
FEED: SIDE						10,000 A.I.C.			FED FROM: PANELBOARD L	
						PHASE LOADS				
BRKR			WIRE	CONT.	N-CONT.		A		B	
A	P	DESCRIPTION	SIZE	WATTS	WATTS	NO	CONT.	N-CONT.	CONT.	N-CONT.
20	1	RECPT. SUMP PUMP (SP-16-01)	212	1,180		1	1,180	0		
20	1	VAULT LIGHTS	212	76		3			76	0
20	1	VAULT OUTLET	212		180	5	0	180		
15	1	EXHAUST FAN (EF-16-02)	212	150		7			150	0
20	2	UNIT HEATER (UH-16-03)	212		2,000	9	0	1,000	0	1,000
20	1	SPARE				11			0	0
	1	SPACE				13	0	0		
	1	SPACE				15			0	0
		TOTAL WATTS:		1,406	2,180		1,180	1,180	226	1,000
		CONTINUOUS LOAD:		1,406						
		CONTINUOUS LOAD * 125%:		1,758						
		NON-CONTINUOUS LOAD:		2,180						
		DESIGN WATTS:		3,938						
		MIN. RATING (AMPS):		16						

PROJECT TAG LIST

WELL 16 HVAC EQUIPMENT

DRAWING ID	TAG	DESCRIPTION	LOCATION	SUPPLIED BY	INSTALLED BY
126	FC-16-01	INDOOR FAN COIL UNIT	PUMP RM.	CONTRACTOR	CONTRACTOR
127	MCU-16-01	OUTDOOR CONDENSIONG UNIT	PUMP RM.	CONTRACTOR	CONTRACTOR
128	AH-16-01	AIR HANDLER	PUMP RM.	CONTRACTOR	CONTRACTOR
129	CU-16-01	CONDENSING UNIT	PUMP RM.	CONTRACTOR	CONTRACTOR
134	UH-16-01	UNIT HEATER	PUMP RM.	CONTRACTOR	CONTRACTOR
135	UH-16-02	UNIT HEATER	PUMP RM.	CONTRACTOR	CONTRACTOR
136	UH-16-03	UNIT HEATER	GENERATOR RM.	CONTRACTOR	CONTRACTOR
137	UH-16-04	UNIT HEATER	CHLORINE RM.	CONTRACTOR	CONTRACTOR
144	EF-16-01	EXHAUST FAN	CHLORINE RM.	CONTRACTOR	CONTRACTOR
145	EF-16-02	EXHAUST FAN	GENERATOR RM.	CONTRACTOR	CONTRACTOR

WELL 16 PUMP AND EQUIPMENT

DRAWING ID	TAG	DESCRIPTION	LOCATION	SUPPLIED BY	INSTALLED BY
10	PME-16-01	PRIMARY METERING EQIPMENT	SITE	UTILITY CO.	UTILITY CO.
11	MS-16-01	METER SOCKET	SITE	CONTRACTOR	CONTRACTOR
12	MSD-16-01	MAIN SERVICE DISCONNECT	BLD. EXTERIOR	CONTRACTOR	CONTRACTOR
13	DFS-16-01	DISTRIBUTION EQUIPMENT FUSED SWITCH	BLD. EXTERIOR	CONTRACTOR	CONTRACTOR
14	DFS-16-02	DISTRIBUTION EQUIPMENT FUSED SWITCH	BLD. EXTERIOR	CONTRACTOR	CONTRACTOR
15	XFMR-16-01	TRANSFORMER H	SITE	CONTRACTOR	CONTRACTOR
16	XFMR-16-02	TRANSFOMER L	PUMP RM.	CONTRACTOR	CONTRACTOR
17	PNL-16-H	PANELBOARD H	PUMP RM.	CONTRACTOR	CONTRACTOR
18	PNL-16-L	PANELBOARD L	PUMP RM.	CONTRACTOR	CONTRACTOR
19	VFD-16-01	VARIABLE FREQUENCY DRIVE	PUMP RM.	CONTRACTOR	CONTRACTOR
20	ATS-16-01	AUTOMATIC TRANSFER SWITCH	SITE	CONTRACTOR	CONTRACTOR
21	GEN-16-01	BACKUP POWER GENERATOR	GENERATOR RM.	CONTRACTOR	CONTRACTOR
22	AL-16-01	CHLORINE LEAK ALARM LIGHT	CHLORINE VEST.	CONTRACTOR	CONTRACTOR
23	AC-16-01	AIR COMPRESSOR	PUMP RM.	CONTRACTOR	CONTRACTOR
24	AD-16-01	AIR DRYER	PUMP RM.	CONTRACTOR	CONTRACTOR
25	CP-16-01	MAIN CONTROL PANEL/REMOTE TELEMETRY UNIT	PUMP RM.	CONTRACTOR	CONTRACTOR
26	CP-16-02	SMALL MOTOR CONTROL PANEL	PUMP RM.	CONTRACTOR	CONTRACTOR
27	CP-16-03	EXTERIOR LIGHTS/ICE MELT CONTROL PANEL	PUMP RM.	CONTRACTOR	CONTRACTOR
29	EM-16-1	ENERGY AND POWER MONITOR	SITE	CONTRACTOR	CONTRACTOR
30	PC-16-01	LIGHTING PHOTOCELL	BLD. EXTERIOR	CONTRACTOR	CONTRACTOR
31	P-16-01	WELL PUMP	PUMP RM.	CONTRACTOR	CONTRACTOR
32	P-16-02	CHLORINE CIRCULATION PUMP	PUMP RM.	CONTRACTOR	CONTRACTOR
34	BC-16-01	GENERATOR BATTERY CHARGER	GENERATOR RM.	CONTRACTOR	CONTRACTOR
35	JWH-16-01	GENERATOR JACKET WATER HEATER	GENERATOR RM.	CONTRACTOR	CONTRACTOR
37	IM-16-01	ICE MELT RECEPTACLE	BLD. EXTERIOR	CONTRACTOR	CONTRACTOR
38	IM-16-02	ICE MELT RECEPTACLE	BLD. EXTERIOR	CONTRACTOR	CONTRACTOR
39	IM-16-03	ICE MELT RECEPTACLE	BLD. EXTERIOR	CONTRACTOR	CONTRACTOR
40	IM-16-04	ICE MELT RECEPTACLE	BLD. EXTERIOR	CONTRACTOR	CONTRACTOR
41	IM-16-05	ICE MELT RECEPTACLE	BLD. EXTERIOR	CONTRACTOR	CONTRACTOR
42	IM-16-06	ICE MELT RECEPTACLE	BLD. EXTERIOR	CONTRACTOR	CONTRACTOR
43	IT-16-01	IRRIGATION VALVE TIMER	PUMP RM.	CONTRACTOR	CONTRACTOR
44	DT-16-01	GENERATOR DAY TANK	GENERATOR RM.	CONTRACTOR	CONTRACTOR
106	FP-16-01	FUEL POLISHING EQUIPMENT	SITE	CONTRACTOR	CONTRACTOR
107	FHT-16-01	FUEL PIPE HEAT TRACING	SITE	CONTRACTOR	CONTRACTOR

WELL 16 SWITCHES

DRAWING ID	TAG	DESCRIPTION	LOCATION	SUPPLIED BY	INSTALLED BY
48	HS-16-02	GENERATOR RM. EXHAUST FAN HOR SWITCH	GENERATOR RM.	CONTRACTOR	CONTRACTOR
49	ZS-16-10	ROLL UP DOOR POSITION SWITCH	GENERATOR RM.	CONTRACTOR	CONTRACTOR
52	LSH-16-01	PUMP RM. FLOOR HIGH WATER SWITCH	PUMP RM.	CONTRACTOR	CONTRACTOR
54	PSH-16-01	WELL HIGH DISCHARGE PRESSURE SWITCH	PUMP RM.	CONTRACTOR	CONTRACTOR
55	VSH-16-01	WELL MOTOR HIGH VIBRATION SWITCH	PUMP RM.	CONTRACTOR	CONTRACTOR
56	VSL-16-01	CHLORINE VACUUM SWITCH	CHLORINE RM.	CONTRACTOR	CONTRACTOR
64	ZS-16-05A	WASTE VALVE WASTE POSITION SWITCH	PUMP RM.	CONTRACTOR	CONTRACTOR
65	ZS-16-05B	WASTE VALVE SYSTEM POSITION SWITCH	PUMP RM.	CONTRACTOR	CONTRACTOR
66	ZS-16-06A	DISCHARGE VALVE OPEN POSITION SWITCH	PUMP RM.	CONTRACTOR	CONTRACTOR
67	ZS-16-06B	DISCHARGE VALVE CLOSED POSITION SWITCH	PUMP RM.	CONTRACTOR	CONTRACTOR
68	ZS-16-07	SURGE TANK VAULT HATCH POSITION SWITCH	SURGE VAULT	CONTRACTOR	CONTRACTOR
69	ZS-16-08A	WASTE ISOLATION VALVE OPEN POSITION SWITCH	PUMP RM.	CONTRACTOR	CONTRACTOR
70	ZS-16-08B	WASTE ISOLATION VALVE CLOSED POSITION SWITCH	PUMP RM.	CONTRACTOR	CONTRACTOR
75	CSH-16-01	AIR COMPRESSOR CURRENT SWITCH	PUMP RM.	CONTRACTOR	CONTRACTOR
108	LSH-16-03	DAY TANK LEAK SENSOR	SITE	CONTRACTOR	CONTRACTOR

WELL 16 MCP/RTU INPUT/OUTPUT LIST

IO TYPE	DESCRIPTION	DEVICE OR INSTRUMENT	TAG
AI	CHLORINE CIRCULATION FLOW	FT-XX-02	FT-16-02
AI	CHLORINE ROOM TEMPERATURE	TT-XX-02	TT-16-02
AI	CHLORINE TANK 1A WEIGHT	WIT-XX-01	WIT-16-01
AI	CHLORINE TANK 1B WEIGHT	WIT-XX-01	WIT-16-01
AI	CHLORINE TANK 1C WEIGHT	WIT-XX-01	WIT-16-01
AI	CHLORINE TANK 1D WEIGHT	WIT-XX-01	WIT-16-01
AI	CONTAINMENT SUMP LEVEL	LT-XX-02	LT-16-02
AI	CON-VAULT FUEL LEVEL	LT-XX-04	LT-16-04
AI	GENERATOR ROOM TEMPERATURE	TT-16-04	TT-16-04
AI	PUMP RM. TEMPERATURE	TT-XX-01	TT-16-01
AI	SURGE TANK WATER LEVEL	DPT-XX-01	DPT-16-01
AI	SYSTEM PRESSURE	PT-XX-01	PT-16-01
AI	WELL CONDUCTIVITY	AIT-XX-03B	AIT-16-03B
AI	WELL DISCHARGE WATER TEMPERATURE	TT-XX-03	TT-16-03
AI	WELL FLOW	FIT-XX-01	FIT-16-01
AI	WELL pH	AIT-XX-03A	AIT-16-03A
AI	WELL RESIDUAL CHLORINE	AIT-XX-03C	AIT-16-03C
AI	WELL TURBIDITY	AIT-XX-02	AIT-16-02
AI	WELL VFD RUNNING SPEED	VFD-XX-01	VFD-16-01
AI	WELL WATER LEVEL	LT-XX-01	LT-16-01
AI	WELL WATER TEMPERATURE TRANSMITTER	AIT-XX-03D	AIT-16-03D
AO	CHLORINE CIRCULAITON PUMP COMMAND SPEED	P-XX-02	P-16-02
AO	CHLORINE PROPORTIONING VALVE CONTROL	PV-XX-01	PV-16-01
AO	WELL VFD COMMAND SPEED	VFD-XX-01	VFD-16-01
DI	AIR COMPRESSOR HIGH CURRENT	CSH-XX-01	CSH-16-01
DI	ATS IN GENERATOR POSITION	ATS-XX-01	ATS-16-01
DI	ATS IN UTILITY POSITION	ATS-XX-01	ATS-16-01
DI	BACKUP GENERATOR CB CLOSED	ATS-16-01	ATS-16-01
DI	BACKUP GENERATOR CB OPEN	ATS-16-01	ATS-16-01
DI	CHLORINE CIRCULATION PUMP ON	P-XX-02	P-16-02
DI	CHLORINE INJECTION LOSS OF VACUUM	VSL-XX-01	VSL-16-01
DI	CHLORINE LEAK ALARM	ASH-XX-01	ASH-16-01
DI	CHLORINE ROOM DOOR 3A NOT CLOSED	ZS-XX-03A	ZS-16-03A
DI	CHLORINE ROOM DOOR 3A POSITION SWITCH	ZS-XX-03A	ZS-16-03A
DI	CHLORINE ROOM DOOR 3B NOT CLOSED	ZS-XX-03B	ZS-16-03B
DI	CHLORINE ROOM DOOR 3B POSITION SWITCH	ZS-XX-03B	ZS-16-03B
DI	CHLORINE ROOM EF HOA IN AUTO	CP-XX-02	CP-16-02
DI	CHLORINE ROOM EF HOA IN HAND	CP-XX-02	CP-16-02
DI	CHLORINE ROOM EF RUNNING	CP-XX-02	CP-16-02
DI	CHLORINE ROOM HIGH WATER LEVEL	LSH-XX-03	LSH-16-03
DI	CON-VAULT LEAK DETECTION SWITCH	LSH-16-04	LSH-16-04
DI	DAY TANK HIGH/LOW LEVEL ALARM	DT-XX-01	DT-16-01
DI	DAY TANK LEAK ALARM	DT-XX-01	DT-16-01
DI	DISCHARGE VALVE FULL CLOSED POSITION	ZS-XX-06B	ZS-16-06B
DI	DISCHARGE VALVE FULL OPEN POSITION	ZS-XX-06A	ZS-16-06A
DI	EYE WASH FLOW (FUTURE)	FS-XX-02	FS-16-02
DI	GENERATOR ROOM EXHAUST FAN RUNNING	CP-XX-02	CP-16-02
DI	GENERATOR RUNNING	GEN-16-01	GEN-16-01
DI	GENERATOR TROUBLE	GEN-16-01	GEN-16-01
DI	MAINTENANCE DOOR DOOR 2A NOT CLOSED	ZS-XX-02A	ZS-16-02A
DI	MAINTENANCE DOOR DOOR 2B NOT CLOSED	ZS-XX-02B	ZS-16-02B
DI	MOTOR HIGH TEMPERATURE SHUTDOWN	TE-XX-01	TE-16-01
DI	PUMP RM. DOOR 1A NOT CLOSED	ZS-XX-01A	ZS-16-01A
DI	PUMP RM. DOOR 1B NOT CLOSED	ZS-XX-01B	ZS-16-01B
DI	PUMP RM. HATCH NOT CLOSED	ZS-XX-04	ZS-16-04
DI	PUMP ROOM COOLING ON	AH-XX-01	AH-16-01
DI	PUMP ROOM HIGH FLOOR WATER ALARM	LSH-XX-01	LSH-16-01
DI	ROLL UP DOOR NOT CLOSED	ZS-XX-10	ZS-16-10
DI	SURGE TANK VAULT FLOOR HIGH WATER ALARM	LSH-XX-02	LSH-16-02
DI	SURGE TANK VAULT HATCH NOT CLOSED	ZS-XX-07	ZS-16-07
DI	SURGE VALVE FULL CLOSED POSITION	ZS-XX-09B	ZS-16-09B
DI	SURGE VALVE FULL OPEN POSITION	ZS-XX-09A	ZS-16-09A
DI	SURGE VAULT SUMP PUMP FLOW	FS-XX-01	FS-16-01
DI	UTILITY UTILITY CB CLOSED	ATS-16-01	ATS-16-01
DI	UTILITY UTILITY CB OPEN	ATS-16-01	ATS-16-01
DI	WASTE ISOLATION VALVE FULL CLOSED POSITION	ZS-XX-08B	ZS-16-08B
DI	WASTE ISOLATION VALVE NOT OPEN POSITION	ZS-XX-08A	ZS-16-08A
DI	WASTE VALVE FULL SYSTEM POSITION	ZS-XX-05B	ZS-16-05B
DI	WASTE VALVE WASTE FULL WASTE POSITION	ZS-XX-05A	ZS-16-05A
DI	WELL HIGH DISCHARGE PRESSURE	PSH-XX-01	PSH-16-01
DI	WELL MOTOR HIGH VIBRATION	VSH-XX-01	VSH-16-01
DI	WELL VFD FAULT	VFD-XX-01	VFD-16-01
DI	WELL VFD HOA IN AUTO	VFD-XX-01	VFD-16-01
DI	WELL VFD HOA IN HAND	VFD-XX-01	VFD-16-01
DI	WELL VFD RUNNING	VFD-XX-01	VFD-16-01
DI	WELL VFD TRANSFORMER OVERTEMPERATURE	VFD-XX-01	VFD-16-01
DO	PUMP ROOM UNIT HEATER RUN	UH-XX-02	UH-16-02
DO	CHLORINE CIRCULATION PUMP ENABLE/DISABLE	P-XX-02	P-16-02
DO	ORINE CIRCULATION STRAINER SOLENOID VALVE C	SV-XX-09	SV-16-09
DO	CHLORINE LEAK ALARM LIGHT	AL-XX-01	AL-16-01
DO	CHLORINE LEAK ALARM REMOTE RESET	AL-XX-01	AL-16-01
DO	CHLORINE ROOM EF COMMAND RUN	CP-XX-02	CP-16-02
DO	CHLORINE ROOM UNIT HEATER RUN	UH-XX-04	UH-16-04
DO	EXHAUST FAN	EF-XX-01	EF-16-01
DO	EXHAUST FAN	EF-XX-02	EF-16-02
DO	EXHAUST FAN	EF-XX-03	EF-16-03
DO	GEN SWITCH ATS TO GENERATOR	ATS-16-01	ATS-16-01
DO	GENERATOR ROOM UNIT HEATER RUN	UH-XX-03	UH-16-03
DO	PUMP ROOM UNIT HEATER RUN	UH-XX-01	UH-16-01
DO	SURGE TANK AIR RELEASE SOLENOID VALVE OPEN	SV-XX-02	SV-16-02
DO	SURGE TANK AIR SUPPLY SOLENOID OPEN	SV-XX-01	SV-16-01
DO	TURBIDITY SUPPLY SOLENOID VALVE OPEN	SV-XX-06	SV-16-06
DO	WASTE VALVE PILOT SOLENOID VALVE OPEN	SV-XX-03	SV-16-03
DO	WELL PRE-LUBE SOLENOID VALVE OPEN	SV-XX-08	SV-16-08

H.P.E. INC. ELECTRICAL ENGINEERS
POWER SYSTEMS, CONTROL & INSTRUMENTATION SYSTEMS
HEGERHORST POWER ENGINEERING INCORPORATED (801) 642-2051
708 EAST 50 SOUTH FAX (801) 642-2154
AMERICAN FORK, UT 84003

FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

FILE NAME:
FILE DATE:

REGISTERED PROFESSIONAL ENGINEER
No. 86-171214-2202
KEITH B. HEGERHORST
5/19/2023
STATE OF UTAH

PROJECT ENGINEER

HANSEN ALLEN & LUCE, Inc. ENGINEERS

DESIGNED	KBH
DRAFTED	KBH
CHECKED	KBH
DATE	MAY 2023

SCALE: NONE

CENTRAL UTAH WATER CONSERVANCY DISTRICT

CENTRAL UTAH WATER CONSERVANCY DISTRICT

PUMP HOUSE PROJECT WELLS #7, #16 & #17
ELECTRICAL
WELL16 SCHEDULES, SHT. 2

SHEET E7.2

207.27.200

7/04

AVAILABLE FAULT CURRENT AT 12.47 KV

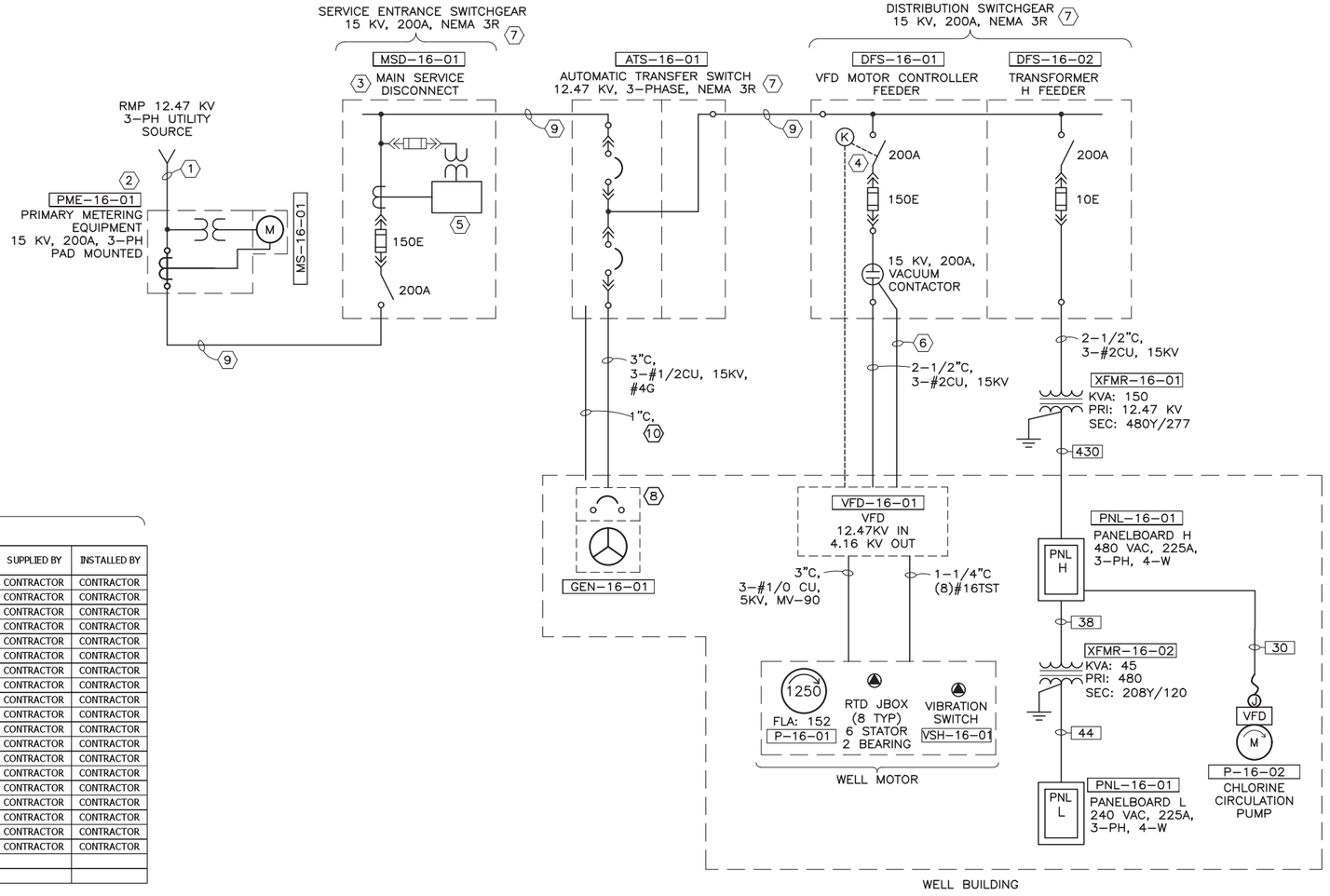
Primary System Fault Amps & Impedances

Short-Circuit Box

Node - PM_11406002.0088380/101160

Voltage	12.8	Amps
LLL	6902.38	Amps
LLG	7014	Amps
LL	6039	Amps
LG	5900	Amps
Dist to source	4410.6	feet

	Ohms	Per Unit	X/R
R:	0.2971	0.1911	3.63
X:	1.0779	0.6932	
Ro:	0.9174	0.5900	1.64
Xo:	1.5062	0.9686	



POWER ONE–LINE DIAGRAM

TABLES CONTINUED FROM E7.2

WELL 16 INSTRUMENTS

DRAWING ID	TAG	DESCRIPTION	LOCATION	SUPPLIED BY	INSTALLED BY
73	ASH-16-01	CHLORINE LEAK DETECTOR	PUMP RM.	CONTRACTOR	CONTRACTOR
81	AIT-16-02	WELL TURBIDITY ANALYZER	PUMP RM.	CONTRACTOR	CONTRACTOR
82	AIT-16-03A	WELL pH ANALYZER	PUMP RM.	CONTRACTOR	CONTRACTOR
83	AIT-16-03B	WELL CONDUCTIVITY ANALYZER	PUMP RM.	CONTRACTOR	CONTRACTOR
84	AIT-16-03C	RESIDUAL CHLORINE ANALYZER	PUMP RM.	CONTRACTOR	CONTRACTOR
85	AIT-16-03D	WATER TEMPERATURE TRANSMITTER	PUMP RM.	CONTRACTOR	CONTRACTOR
87	FIT-16-01	WELL FLOW METER	PUMP RM.	CONTRACTOR	CONTRACTOR
88	FT-16-03	IRRIGATION FLOW METER	SITE	CONTRACTOR	CONTRACTOR
89	FT-16-02	CHLORINE CIRCULATION FLOW METER	PUMP RM.	CONTRACTOR	CONTRACTOR
90	LT-16-01	WELL WATER LEVEL TRANSMITTER	PUMP RM.	CONTRACTOR	CONTRACTOR
91	LT-16-02	CONTAINMENT SUMP LEVEL TRANSMITTER	CONTAINMENT SUMP	CONTRACTOR	CONTRACTOR
93	LT-16-04	CON-VAULT FUEL LEVEL TRANSMITTER	SITE	CONTRACTOR	CONTRACTOR
95	PT-16-01	SYSTEM PRESSURE TRANSMITTER	PUMP RM.	CONTRACTOR	CONTRACTOR
96	TE-16-01	MOTOR TEMPERATURE MONITOR	PUMP RM.	CONTRACTOR	CONTRACTOR
97	TT-16-01	PUMP RM. TEMPERATURE TRANSMITTER	PUMP RM.	CONTRACTOR	CONTRACTOR
98	TT-16-02	CHLORINE ROOM TEMPERATURE TRANSMITTER	CHLORINE RM.	CONTRACTOR	CONTRACTOR
99	TT-16-03	WELL DISCHARGE WATER TEMPERATURE TRANSMITTER	PUMP RM.	CONTRACTOR	CONTRACTOR
100	WIT-16-01	CHLORINE TANK SCALES TRANSMITTER	CHLORINE RM.	CONTRACTOR	CONTRACTOR
102	TT-16-03	GENERATOR ROOM TEMPERATURE TRANSMITTER	GENERATOR RM.	CONTRACTOR	CONTRACTOR

WELL 17 VALVES

DRAWING ID	TAG	DESCRIPTION	LOCATION	SUPPLIED BY	INSTALLED BY
110	PV-16-01	CHLORINE PROPORTIONING VALVE	CHLORINE RM.	CONTRACTOR	CONTRACTOR
112	SV-16-02	SURGE TANK AIR RELEASE SOLENOID VALVE	SURGE VAULT	CONTRACTOR	CONTRACTOR
113	SV-16-03	WASTE VALVE PILOT SOLENOID VALVE	PUMP RM.	CONTRACTOR	CONTRACTOR
114	SV-16-06	TURBIDITY SUPPLY SOLENOID VALVE	PUMP RM.	CONTRACTOR	CONTRACTOR
116	SV-16-08	WELL PRE-LUBE SOLENOID VALVE	PUMP RM.	CONTRACTOR	CONTRACTOR
118	V-16-01	WASTE ISOLATION VALVE	PUMP RM.	CONTRACTOR	CONTRACTOR
119	V-16-02	PUMP-TO-WASTE VALVE	PUMP RM.	CONTRACTOR	CONTRACTOR
120	V-16-03	DISCHARGE VALVE	PUMP RM.	CONTRACTOR	CONTRACTOR
121	V-16-04	SURGE TANK VALVE	SURGE VAULT	CONTRACTOR	CONTRACTOR

WELL 16 SECURITY ITEMS

DRAWING ID	TAG	DESCRIPTION	LOCATION	SUPPLIED BY	INSTALLED BY
33	SP-16-01	SECURITY PANEL	PUMP RM.	CONTRACTOR	CONTRACTOR
57	ZS-16-01A	PUMP RM. DOOR 1A POSITION SWITCH	PUMP RM.	CONTRACTOR	CONTRACTOR
58	ZS-16-01B	PUMP RM. DOOR 1B POSITION SWITCH	PUMP RM.	CONTRACTOR	CONTRACTOR
59	ZS-16-02A	MAINTENANCE DOOR DOOR 2A POSITION SWITCH	PUMP RM.	CONTRACTOR	CONTRACTOR
60	ZS-16-02B	MAINTENANCE DOOR DOOR 2B POSITION SWITCH	PUMP RM.	CONTRACTOR	CONTRACTOR
61	ZS-16-03A	CHLORINE ROOM DOOR 3A POSITION SWITCH	CHLORINE RM.	CONTRACTOR	CONTRACTOR
62	ZS-16-03B	CHLORINE ROOM DOOR 3B POSITION SWITCH	CHLORINE RM.	CONTRACTOR	CONTRACTOR
63	ZS-16-04	PUMP RM. HATCH POSITION SWITCH	PUMP RM.	CONTRACTOR	CONTRACTOR
76	ML-16-01	MAGNETIC DOOR LOCK	PUMP RM.	CONTRACTOR	CONTRACTOR
77	ML-16-02	MAGNETIC DOOR LOCK	CHLORINE RM.	CONTRACTOR	CONTRACTOR
78	CR-16-01	ACCESS CARD READER	PUMP RM.	CONTRACTOR	CONTRACTOR
79	CR-16-02	ACCESS CARD READER	BLD. EXTERIOR	CONTRACTOR	CONTRACTOR
123	ML-16-03	MAGNETIC DOOR LOCK	PUMP RM.	CONTRACTOR	CONTRACTOR
124	CR-16-03	ACCESS CARD READER	PUMP RM.	CONTRACTOR	CONTRACTOR
153	JB-16-01	SECURITY J-BOX (ACTIVE CAMERA)	BLD. EXTERIOR	CONTRACTOR	CONTRACTOR
154	JB-16-02	SECURITY J-BOX (FUTURE CAMERA)	BLD. EXTERIOR	CONTRACTOR	CONTRACTOR
155	JB-16-03	SECURITY J-BOX (FUTURE CAMERA)	BLD. EXTERIOR	CONTRACTOR	CONTRACTOR
156	JB-16-04	SECURITY J-BOX (FUTURE CAMERA)	BLD. EXTERIOR	CONTRACTOR	CONTRACTOR
160	CCTV-16-01	SITE CAMERA 1 (FIXTURE F4)	SITE	CONTRACTOR	CONTRACTOR
161	CCTV-16-02	SITE CAMERA 2 (FIXTURE F4)	SITE	CONTRACTOR	CONTRACTOR

H.P.E. INC. ELECTRICAL ENGINEERS
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(801) 642-2051
FAX (801) 642-2154
HPE PROJECT 20.111

FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

GENERAL NOTES:

1. REFER TO PLAN SHEETS FOR EQUIPMENT AND DEVICE LOCATIONS.
2. REFER TO CONDUIT/CONDUCTOR TABLE FOR WIRE AND CONDUIT REQUIREMENTS.
3. UTILITY COMPANY CONTACT: ALAN STEWART (801–360–1679), RODNEY.STEWART@ROCKYMOUNTAINPOWER.NET.
4. THE VFD AND MAIN SERVICE DISCONNECT EQUIPMENT SHALL BE FROM THE SAME MANUFACTURER.

SHEET KEYNOTES:

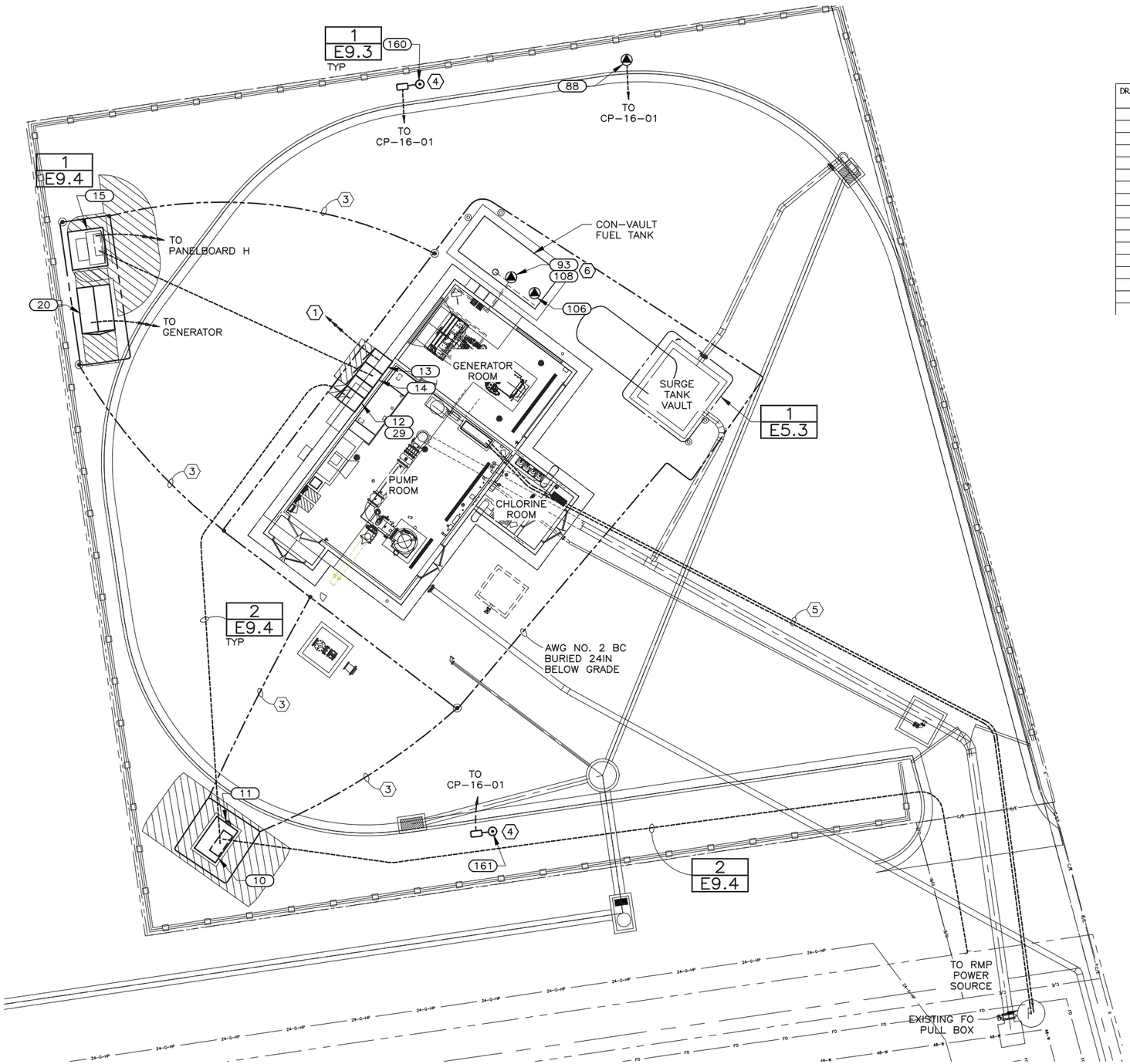
1. CONDUIT SIZE DETERMINED BY ROCKY MOUNTAIN POWER (RMP). COORDINATE WITH RMP AS REQUIRED.
2. PRIMARY METERING ENCLOSURE: PROVIDED BY UTILITY COMPANY, INSTALLED BY CONTRACTOR ON A PAD/VAULT AS REQUIRED BY UTILITY COMPANY. UTILITY COMPANY SHALL PROVIDE PT'S, CT'S AND METER.
3. MAIN SERVICE DISCONNECT: 15 KV, 200A FUSED SWITCH IN NEMA 3R LOCKABLE ENCLOSURE. LABEL AS "MAIN SERVICE DISCONNECT". LABEL SWITCHBOARD WITH AVAILABLE FAULT CURRENT. SEE AVAILABLE FAULT CURRENT AT 12.47 KV TABLE ON THIS SHEET. LABEL AS REQUIRED BY NEC 110.24.
4. PROVIDE A KIRK–KEY INTERLOCK ON THE 15 KV VFD FUSED DISCONNECT AND THE VFD ENCLOSURE WITH 12 KV OR 4.16 KV COMPONENTS. VFD ENCLOSURE CANNOT BE OPENED UNLESS THE FUSED SWITCH IS OPEN.
5. THREE–PHASE POWER MONITOR WITH APPROPRIATE PT/CT'S FOR 12.47 KV SWITCHGEAR. EQUIPMENT SUPPLIER SHALL SIZE PT AND CT'S AS REQUIRED.
6. 3/4"C, WITH CONTROLS CONDUCTORS AS REQUIRED TO CONTROL THE VFD CONTACTOR.
7. EQUIPMENT SPACE HEATERS SHOWN ON PLAN DRAWINGS.
8. BACKUP POWER GENERATOR: 1500 KW, 12.47 KV, 3–PHASE, 4–WIRE DIESEL FUELED.
9. 3"C, 3–#2CU, 15 KV, #4G.
10. QUANTITY AND SIZE OF CONDUCTORS AS REQUIRED BY AUTOMATIC TRANSFER SWITCH TO AUTOMATICALLY START GENERATOR.

REGISTERED PROFESSIONAL ENGINEER
No. 86–171214–2202
KEITH B. HEGERHORST
5/19/2023
STATE OF UTAH

FILE NAME:
FILE DATE:

HANSEN ALLEN & LUCE ENGINEERS	PROJECT ENGINEER	DESIGNED KBH DRAFTED KBH CHECKED KBH DATE MAY 2023		SCALE NONE	CENTRAL UTAH WATER CONSERVANCY DISTRICT	CENTRAL UTAH WATER CONSERVANCY DISTRICT	PUMP HOUSE PROJECT WELLS #7, #16 & #17 ELECTRICAL WELL16 POWER ONE–LINE DIAGRAM	SHEET E7.3 207.27.200

7/04



0 6' 12' 24'

3/32"=1'-0"

N

WELL 16 ELECTRICAL SITE PLAN ITEMS

DRAWING ID	TAG	DESCRIPTION	POWER SOURCE	LOCATION
10	PME-16-01	PRIMARY METERING EQIPMENT	UTILITY	SITE
11	MS-16-01	METER SOCKET	N/A	SITE
12	MSD-16-01	MAIN SERVICE DISCONNECT	PME-16-01	BLD. EXTERIOR
13	DFS-16-01	DISTRIBUTION EQUIPMENT FUSED SWITCH	MSD-16-01	BLD. EXTERIOR
14	DFS-16-02	DISTRIBUTION EQUIPMENT FUSED SWITCH	MSD-16-01	BLD. EXTERIOR
15	XFMR-16-01	TRANSFORMER H	SCB-16-02	SITE
20	ATS-16-01	AUTOMATIC TRANSFER SWITCH	GEN-16-01	SITE
25	CP-16-01	AIN CONTROL PANEL/REMOTE TELEMETRY UN	L-4	PUMP RM.
29	EM-16-1	ENERGY AND POWER MONITOR	L-18	SITE
88	FT-16-03	IRRIGATION FLOW METER	CP-16-01	SITE
93	LT-16-04	CON-VAULT FUEL LEVEL TRANSMITTER	CP-16-01	SITE
106	FP-16-01	FUEL POLISHING EQUIPMENT	L-23	SITE
108	LSH-16-03	DAY TANK LEAK SENSOR	CP-16-01	SITE
160	CCTV-16-01	SITE CAMERA 1 (FIXTURE F4)	CP-16-01	SITE
161	CCTV-16-02	SITE CAMERA 2 (FIXTURE F4)	CP-16-01	SITE

H.P.E. INC. ELECTRICAL ENGINEERS
POWER SYSTEMS, CONTROL & INSTRUMENTATION SYSTEMS
HEGERHORST POWER ENGINEERING INCORPORATED (801) 642-2051
708 EAST 50 SOUTH FAX (801) 642-2154
AMERICAN FORK, UT 84003

FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

GENERAL NOTES:

1. "HOME RUN" POWER SOURCE LISTED IN THE SITE PLAN ITEM TABLE ABOVE. REFER TI ONE-LINE DIAGRAM, PANEL SCHEDULES AND CONDUIT/CONDUCTOR TABLE FOR WIRE AND CONDUIT REQUIREMENTS.
2. FOR WIRE AND CONDUIT REQUIREMENTS, REFER TO THE POWER ONE-LINE AND/OR PANEL SCHEDULE FOR THE CIRCUIT ID, THEN THE WIRE AND CONDUIT INFORMATION IS IN THE CONDUIT/CONDUCTOR TABLE ON E1.2.
3. ALL EXTERIOR EQUIPMENT PADS SHALL BE ELEVATED 3-INCHES ABOVE GRADE OR FINISHED SURFACE.

SHEET KEYNOTES:

1. TO VFD INSIDE BUILDING.
2. NOT USED.
3. EXTEND GROUND CONDUCTORS TO BUILDING GROUNDING RING. REFER TO BUILDING POWER PLAN.
4. AIM CAMERA TOWARD BUILDING ENTRY DOORS.
5. TWO 1-1/4" ORANGE HIGH DENSITY POLYETHYLENE (HDPE_ RATED DUCT.
   - 5.1. CONDUIT 1: 6-STRAND FIBER OPTIC CABLE.
   - 5.2. CONDUIT 2: LOCATING WIRE.
6. VERIFY LOCATION OF LEVEL SWITCH AND TRANSMITTER WITH TANK SUPPLIER DURING CONSTRUCTION.

REGISTERED PROFESSIONAL ENGINEER
No. 86-171214-2202
KEITH B. HEGERHORST
5/19/2023
STATE OF UTAH
PROJECT ENGINEER

HANSEN ALLEN & LUCE INC. ENGINEERS

DESIGNED	KBH
DRAFTED	KBH
CHECKED	KBH
DATE	MAY 2023

SCALE: AS SHOWN

CENTRAL UTAH WATER CONSERVANCY DISTRICT

CENTRAL UTAH WATER CONSERVANCY DISTRICT

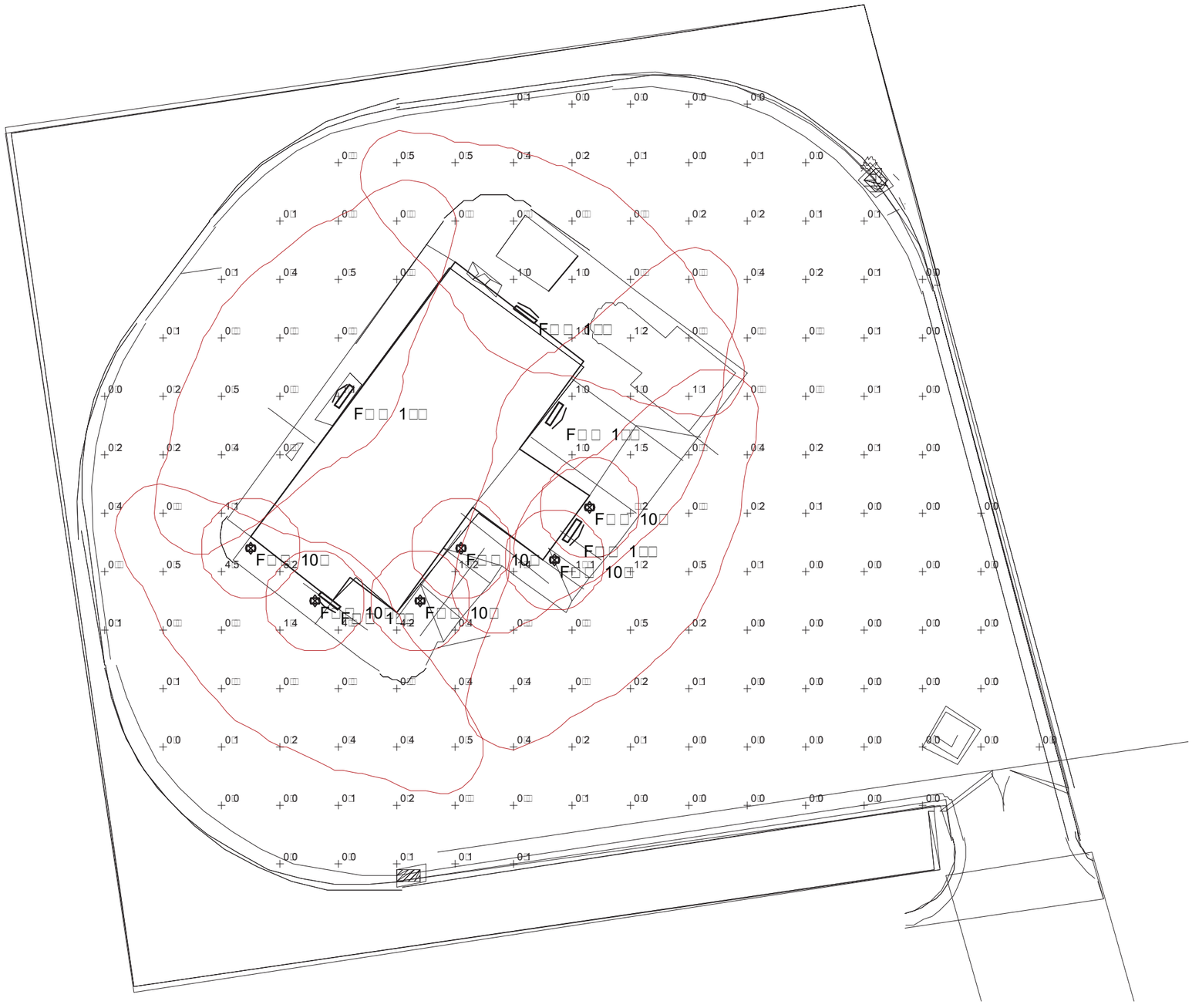
PUMP HOUSE PROJECT WELLS #7, #16 & #17
ELECTRICAL
WELL 16 SITE PLAN

SHEET E7.4

207.27.200

FILE NAME:
FILE DATE:

7/04



0 5' 10' 20' 30'
1"=10'

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H.P.E. INC. ELECTRICAL ENGINEERS
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HEGERHORST POWER ENGINEERING INCORPORATED (801) 642-2051
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AMERICAN FORK, UT 84003
HPE PROJECT 20.111

FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

GENERAL NOTES:

1. NOT USED.

SHEET KEYNOTES:

1. NOT USED.

FILE NAME:
FILE DATE:

REGISTERED PROFESSIONAL ENGINEER
No. 86-171214-2202
KEITH B. HEGERHORST
5/19/2023
STATE OF UTAH
PROJECT ENGINEER

HANSEN ALLEN & LUCE, Inc. ENGINEERS

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CENTRAL UTAH WATER CONSERVANCY DISTRICT

CENTRAL UTAH WATER CONSERVANCY DISTRICT

PUMP HOUSE PROJECT WELLS #7, #16 & #17
ELECTRICAL
WELL 16 SITE PHOTOMETRIC PLAN

SHEET E7.5

207.27.200

7/04

H.P.E. INC. ELECTRICAL ENGINEERS
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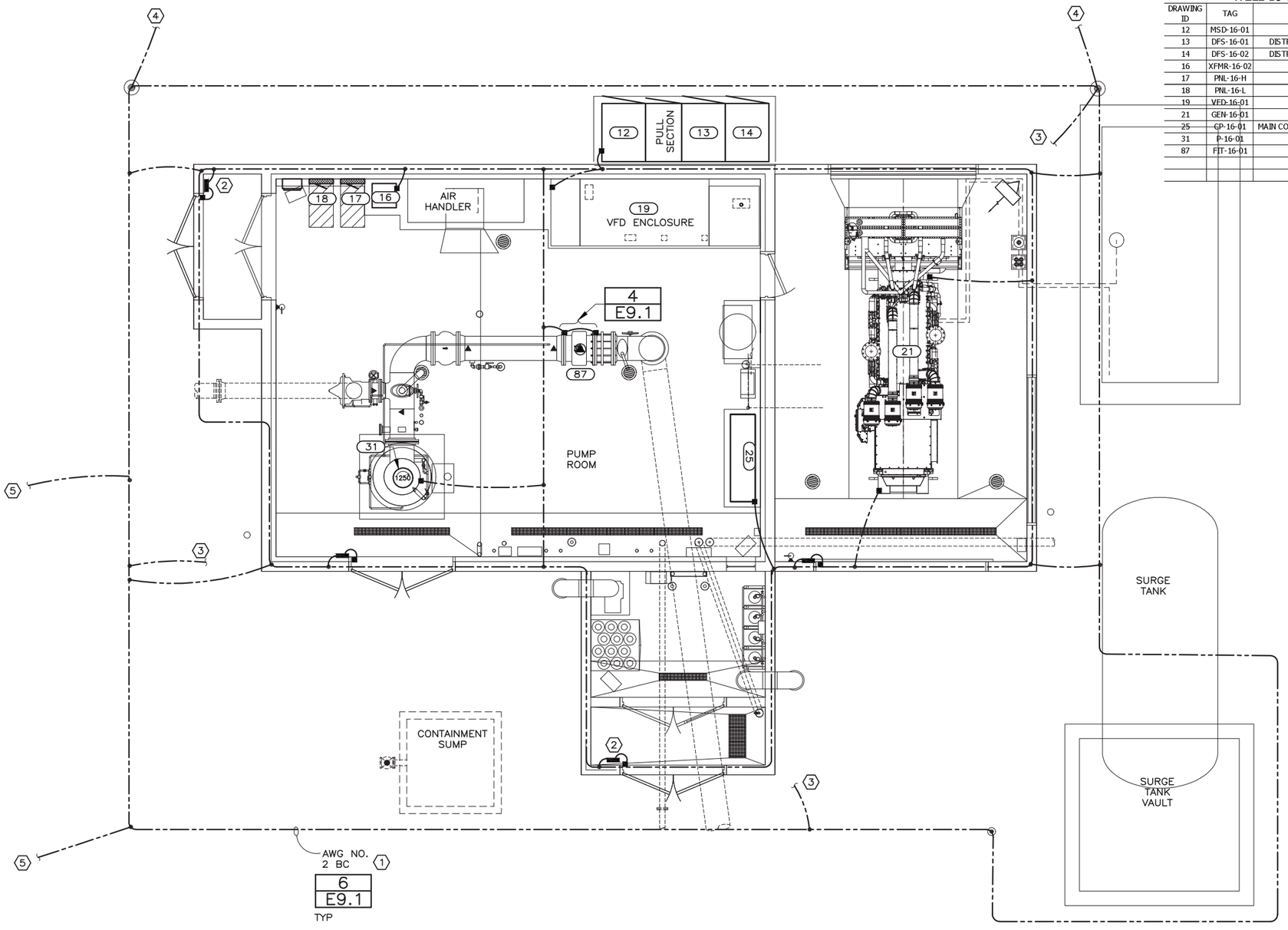
AMERICAN FORK, UT 84003
HPE PROJECT 20.111

FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

0 4' 8' 12'
1/4"=1'-0"



WELL 16 GROUNDING PLAN ITEMS

DRAWING ID	TAG	DESCRIPTION	LOCATION
12	MSD-16-01	MAIN SERVICE DISCONNECT	BLD. EXTERIOR
13	DFS-16-01	DISTRIBUTION EQUIPMENT FUSED SWITCH	BLD. EXTERIOR
14	DFS-16-02	DISTRIBUTION EQUIPMENT FUSED SWITCH	BLD. EXTERIOR
16	XFMR-16-02	TRANSFOMER L	PUMP RM.
17	PNL-16-H	PANELBOARD H	PUMP RM.
18	PNL-16-L	PANELBOARD L	PUMP RM.
19	VFD-16-01	VARIABLE FREQUENCY DRIVE	PUMP RM.
21	GEN-16-01	BACKUP POWER GENERATOR	GENERATOR RM.
25	CP-16-01	MAIN CONTROL PANEL/REMOTE TELEMETRY UNIT	PUMP RM.
31	P-16-01	WELL PUMP	PUMP RM.
87	FIT-16-01	WELL FLOW METER	PUMP RM.

GENERAL NOTES:

1. REFER TO GROUNDING DETAIL ON E9.1 FOR ADDITIONAL INFORMATION ON GROUNDING SYSTEM INSTALLATION.

SHEET KEYNOTES:

1. GROUNDING RING SHALL BE BURIED 24-IN TO 36-IN FROM EXTERIOR PERIMETER OF BUILDING.
2. GROUNDING TO DOOR FRAME. TYPICAL ALL EXTERIOR DOORS. DO NOT GROUND VESTIBULE INTERIOR DOOR.
3. TO BUILDING LIGHTNING PROTECTION CONDUCTORS. REFER TO E5.1.
4. TO TRANSFORMER GROUND RING. REFER TO E7.4.
5. TO METERING EQUIPMENT GROUND RING. REFER TO E7.4.

FILE NAME:
FILE DATE:

REGISTERED PROFESSIONAL ENGINEER
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KEITH B. HEGERHORST
5/19/2023
STATE OF UTAH

HANSEN ALLEN & LUCE ENGINEERS

PROJECT ENGINEER

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DATE	MAY 2023

SCALE: AS SHOWN

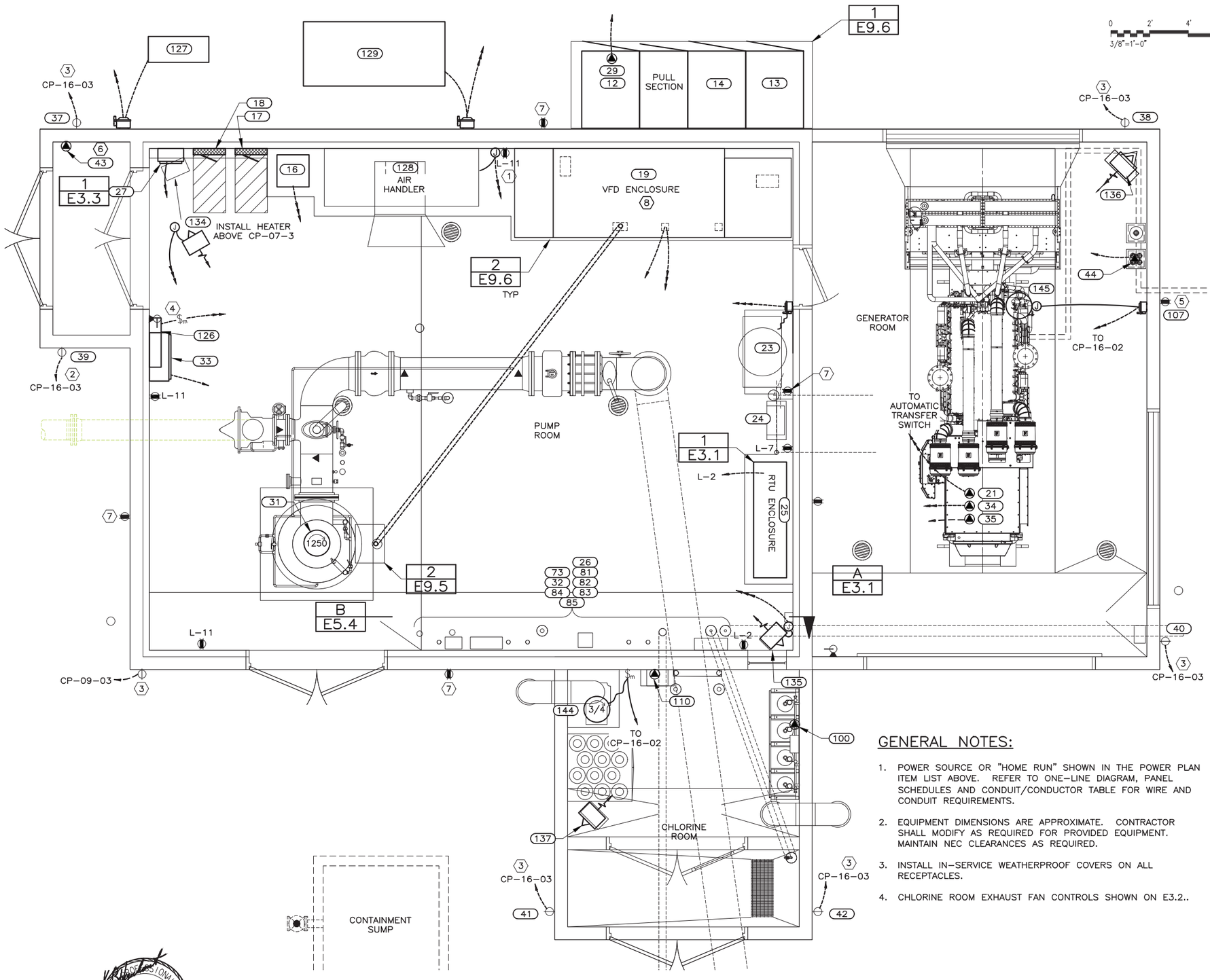
CENTRAL UTAH WATER CONSERVANCY DISTRICT

CENTRAL UTAH WATER CONSERVANCY DISTRICT

PUMP HOUSE PROJECT WELLS #7, #16 & #17
ELECTRICAL
WELL 16 GROUNDING PLAN

SHEET E7.6
207.27.200

7/04



0 2' 4' 8'
3/8"=1'-0"

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FAX (801) 642-2154
HPE PROJECT 20.111

FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

WELL 16 POWER PLAN ITEMS

DRAWING ID	TAG	DESCRIPTION	POWER SOURCE	LOCATION
12	MSD-16-01	MAIN SERVICE DISCONNECT	PME-16-01	BLD. EXTERIOR
13	DFS-16-01	DISTRIBUTION EQUIPMENT FUSED SWITCH	MSD-16-01	BLD. EXTERIOR
14	DFS-16-02	DISTRIBUTION EQUIPMENT FUSED SWITCH	MSD-16-01	BLD. EXTERIOR
16	XFMR-16-02	TRANSFOMER L	H-1,3,5	PUMP RM.
17	PNL-16-H	PANELBOARD H	XFMR-16-01	PUMP RM.
18	PNL-16-L	PANELBOARD L	XFMR-16-02	PUMP RM.
19	VFD-16-01	VARIABLE FREQUENCY DRIVE	SCB-16-01	PUMP RM.
21	GEN-16-01	BACKUP POWER GENERATOR	N/A	GENERATOR RM.
23	AC-16-01	AIR COMPRESSOR	H-8,10,12	PUMP RM.
24	AD-16-01	AIR DRYER	L-7	PUMP RM.
25	CP-16-01	MAIN CONTROL PANEL/REMOTE TELEMETRY UNIT	L-4	PUMP RM.
26	CP-16-02	SMALL MOTOR CONTROL PANEL	L-25,27	PUMP RM.
27	CP-16-03	EXTERIOR LIGHTS/ICE MELT CONTROL PANEL	L-5,7	PUMP RM.
29	EM-16-1	ENERGY AND POWER MONITOR	L-18	SITE
31	P-16-01	WELL PUMP	VFD-16-01	PUMP RM.
32	P-16-02	CHLORINE CIRCULATION PUMP	H-20,22,24	PUMP RM.
33	SP-16-01	SECURITY PANEL	L-12	PUMP RM.
34	BC-16-01	GENERATOR BATTERY CHARGER	L-24	GENERATOR RM.
35	JWH-16-01	GENERATOR JACKET WATER HEATER	L-20,22	GENERATOR RM.
37	IM-16-01	ICE MELT RECEPTACLE	CP-16-03	BLD. EXTERIOR
38	IM-16-02	ICE MELT RECEPTACLE	CP-16-03	BLD. EXTERIOR
39	IM-16-03	ICE MELT RECEPTACLE	CP-16-03	BLD. EXTERIOR
40	IM-16-04	ICE MELT RECEPTACLE	CP-16-03	BLD. EXTERIOR
41	IM-16-05	ICE MELT RECEPTACLE	CP-16-03	BLD. EXTERIOR
42	IM-16-06	ICE MELT RECEPTACLE	CP-16-03	BLD. EXTERIOR
43	IT-16-01	IRRIGATION VALVE TIMER	L-15	PUMP RM.
44	DT-16-01	GENERATOR DAY TANK	L-39	GENERATOR RM.
73	ASH-16-01	CHLORINE LEAK DETECTOR	L-29	PUMP RM.
81	AIT-16-02	WELL TURBIDITY ANALYZER	L-5	PUMP RM.
82	AIT-16-03A	WELL pH ANALYZER	L-6	PUMP RM.
83	AIT-16-03B	WELL CONDUCTIVITY ANALYZER	L-6	PUMP RM.
84	AIT-16-03C	RESIDUAL CHLORINE ANALYZER	L-6	PUMP RM.
85	AIT-16-03D	WATER TEMPERATURE TRANSMITTER	CP-16-01	PUMP RM.
100	WIT-16-01	CHLORINE TANK SCALES TRANSMITTER	L-37	CHLORINE RM.
107	FHT-16-01	FUEL PIPE HEAT TRACING	L-41	SITE
110	PV-16-01	CHLORINE PROPORTIONING VALVE	L-31	CHLORINE RM.
126	FC-16-01	INDOOR FAN COIL UNIT	L-34,36	PUMP RM.
127	MCU-16-01	OUTDOOR CONDENSIONG UNIT	L-30,32	PUMP RM.
128	AH-16-01	AIR HANDLER	L-20,22,24	PUMP RM.
129	CU-16-01	CONDENSING UNIT	H-14,16,18	PUMP RM.
134	UH-16-01	UNIT HEATER	H-13,15,17	PUMP RM.
135	UH-16-02	UNIT HEATER	H-19,21,23	PUMP RM.
136	UH-16-03	UNIT HEATER	H-25,27,29	GENERATOR RM.
137	UH-16-04	UNIT HEATER	H-31,33,38	CHLORINE RM.
144	EF-16-01	EXHAUST FAN	CP-16-02	CHLORINE RM.
145	EF-16-02	EXHAUST FAN	CP-16-02	GENERATOR RM.

SHEET KEYNOTES:

1. INSTALL A MANUAL STARTER AS THE DISCONNECT MEANS FOR AH-16-01. FIELD LOCATE BELOW THE AIR HANDLER.
2. SEE INSTRUMENTATION ELEVATION FOR HEIGHT OF DEVICE.
3. RECEPTACLE FOR ICE MELT CABLE. PROVIDE IN-SERVICE WEATHERPROOF COVER. FOR INSTALLATION REQUIREMENTS REFER TO WIRING DIAGRAM ON SEE SHEET E3.3.
4. INSTALL MANUAL STARTER NEAR SECURITY ENCLOSURE. LABEL AS "AIR HANDLER DISCONNECT".
5. LOCATE OUTLET WITHIN 12-INCHES OF FUEL PIPE WHERE IT ENTERS THE BUILDING. PROVIDE IN-SERVICE W/P COVER. COORDINATE HEIGHT DURING CONSTRUCTION WITH FUEL PIPE INSTALLER.
6. PROVIDE AND INSTALL A 2-INCH PVC CONDUIT FROM BELOW THE IRRIGATION TIMER TO THE IRRIGATION VALVE AREA. VALVE AREA IS NEAR THE IRRIGATION METER SHOWN ON THE E7.4 SITE PLAN.
7. INSTALL RECEPTACLE +18". WIRE TO CIRCUIT L-16. PROVIDE IN-SERVICE WEATHERPROOF COVER.
8. VFD INCLUDES 120 VAC SPACE HEATER CIRCUIT (L-10) AND 480 VAC FAN POWER CIRCUIT (H-7,9,11). REFER TO PANEL SCHEDULES FOR ADDITIONAL INFORMATION.

GENERAL NOTES:

1. POWER SOURCE OR "HOME RUN" SHOWN IN THE POWER PLAN ITEM LIST ABOVE. REFER TO ONE-LINE DIAGRAM, PANEL SCHEDULES AND CONDUIT/CONDUCTOR TABLE FOR WIRE AND CONDUIT REQUIREMENTS.
2. EQUIPMENT DIMENSIONS ARE APPROXIMATE. CONTRACTOR SHALL MODIFY AS REQUIRED FOR PROVIDED EQUIPMENT. MAINTAIN NEC CLEARANCES AS REQUIRED.
3. INSTALL IN-SERVICE WEATHERPROOF COVERS ON ALL RECEPTACLES.
4. CHLORINE ROOM EXHAUST FAN CONTROLS SHOWN ON E3.2..

REGISTERED PROFESSIONAL ENGINEER
No. 86-171214-2202
KEITH B. HEGERHORST
5/19/2023
STATE OF UTAH
PROJECT ENGINEER

FILE NAME:
FILE DATE:

DESIGNED	KBH
DRAFTED	KBH
CHECKED	KBH
DATE	MAY 2023

SCALE: AS SHOWN

CENTRAL UTAH WATER CONSERVANCY DISTRICT

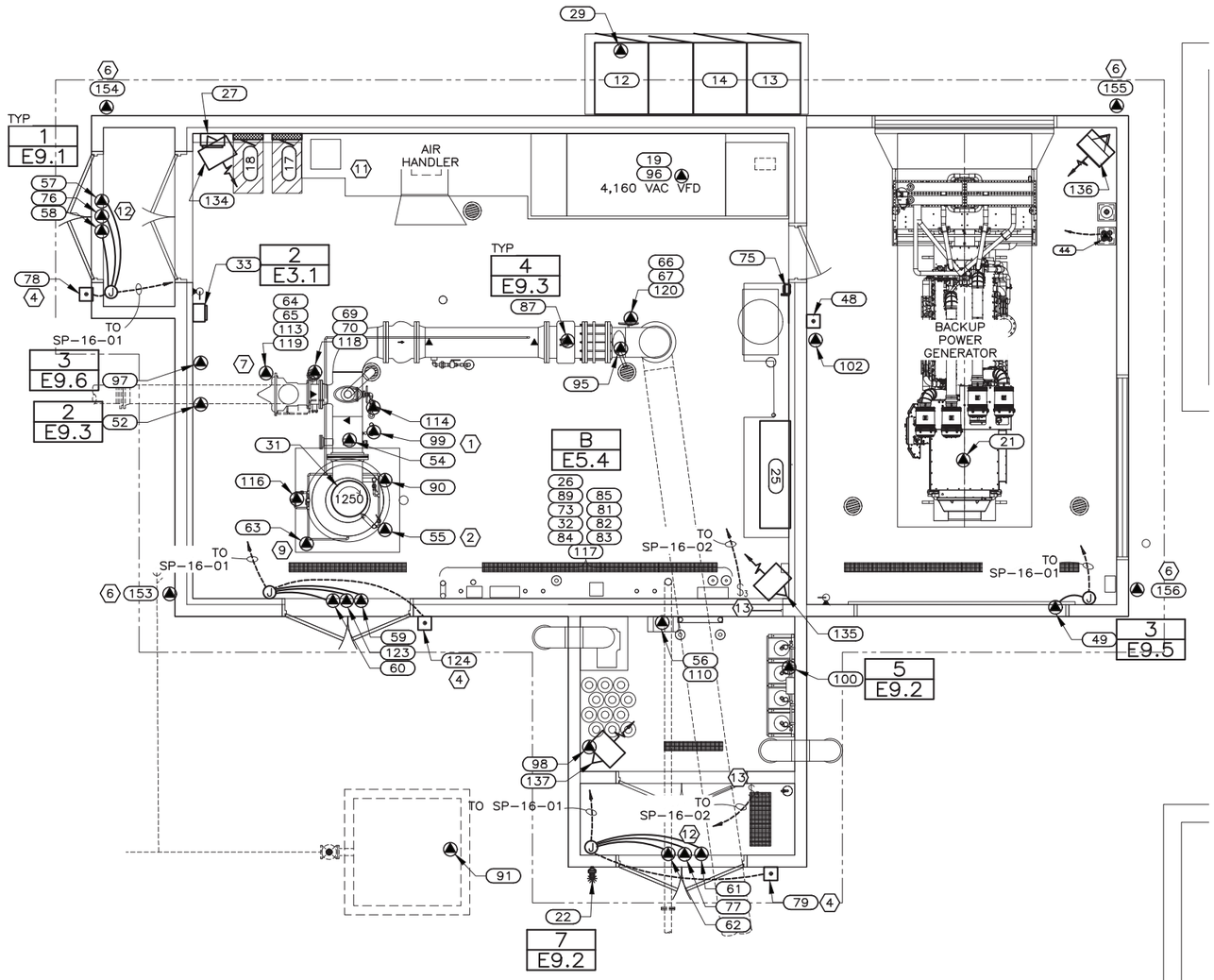
CENTRAL UTAH WATER CONSERVANCY DISTRICT

PUMP HOUSE PROJECT WELLS #7, #16 & #17
ELECTRICAL
WELL 16 POWER PLAN

SHEET E7.7

207.27.200

7/04



0 4' 8' 12'

1/4"=1'-0"

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HEGERHORST POWER ENGINEERING INCORPORATED (801) 642-2051
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AMERICAN FORK, UT 84003
HPE PROJECT 20.111

FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

WELL 16 INSTR. & CONTROL PLAN ITEMS

DRAWING ID	TAG	DESCRIPTION	LOCATION
12	MSD-16-01	MAIN SERVICE DISCONNECT	BLD. EXTERIOR
13	DFS-16-01	DISTRIBUTION EQUIPMENT FUSED SWITCH	BLD. EXTERIOR
14	DFS-16-02	DISTRIBUTION EQUIPMENT FUSED SWITCH	BLD. EXTERIOR
17	PNL-16-H	PANELBOARD H	PUMP RM.
18	PNL-16-L	PANELBOARD L	PUMP RM.
19	VFD-16-01	VARIABLE FREQUENCY DRIVE	PUMP RM.
21	GEN-16-01	BACKUP POWER GENERATOR	GENERATOR RM.
22	AL-16-01	CHLORINE LEAK ALARM LIGHT	CHLORINE VEST.
25	CP-16-01	MAIN CONTROL PANEL/REMOTE TELEMETRY UNIT	PUMP RM.
27	CP-16-03	EXTERIOR LIGHTS/ICE MELT CONTROL PANEL	PUMP RM.
29	EM-16-1	ENERGY AND POWER MONITOR	SITE
31	P-16-01	WELL PUMP	PUMP RM.
32	P-16-02	CHLORINE CIRCULATION PUMP	PUMP RM.
33	SP-16-01	SECURITY PANEL	PUMP RM.
44	DT-16-01	GENERATOR DAY TANK	GENERATOR RM.
48	HS-16-02	GENERATOR RM. EXHAUST FAN HOR SWITCH	GENERATOR RM.
49	ZS-16-10	ROLL UP DOOR POSITION SWITCH	GENERATOR RM.
52	LSH-16-01	PUMP RM. FLOOR HIGH WATER SWITCH	PUMP RM.
54	PSH-16-01	WELL HIGH DISCHARGE PRESSURE SWITCH	PUMP RM.
55	VSH-16-01	WELL MOTOR HIGH VIBRATION SWITCH	PUMP RM.
56	VSL-16-01	CHLORINE VACUUM SWITCH	CHLORINE RM.
57	ZS-16-01A	PUMP RM. DOOR 1A POSITION SWITCH	PUMP RM.
58	ZS-16-01B	PUMP RM. DOOR 1B POSITION SWITCH	PUMP RM.
59	ZS-16-02A	MAINTENANCE DOOR DOOR 2A POSITION SWITCH	PUMP RM.
60	ZS-16-02B	MAINTENANCE DOOR DOOR 2B POSITION SWITCH	PUMP RM.
61	ZS-16-03A	CHLORINE ROOM DOOR 3A POSITION SWITCH	CHLORINE RM.
62	ZS-16-03B	CHLORINE ROOM DOOR 3B POSITION SWITCH	CHLORINE RM.
63	ZS-16-04	PUMP RM. HATCH POSITION SWITCH	PUMP RM.
64	ZS-16-05A	WASTE VALVE WASTE POSITION SWITCH	PUMP RM.
65	ZS-16-05B	WASTE VALVE SYSTEM POSITION SWITCH	PUMP RM.
66	ZS-16-06A	DISCHARGE VALVE OPEN POSITION SWITCH	PUMP RM.
67	ZS-16-06B	DISCHARGE VALVE CLOSED POSITION SWITCH	PUMP RM.
69	ZS-16-08A	WASTE ISOLATION VALVE OPEN POSITION SWITCH	PUMP RM.
70	ZS-16-08B	WASTE ISOLATION VALVE CLOSED POSITION SWITCH	PUMP RM.
73	ASH-16-01	CHLORINE LEAK DETECTOR	PUMP RM.
75	CSH-16-01	AIR COMPRESSOR CURRENT SWITCH	PUMP RM.
76	ML-16-01	MAGNETIC DOOR LOCK	PUMP RM.
77	ML-16-02	MAGNETIC DOOR LOCK	CHLORINE RM.
78	CR-16-01	ACCESS CARD READER	PUMP RM.
79	CR-16-02	ACCESS CARD READER	BLD. EXTERIOR
81	AIT-16-02	WELL TURBIDITY ANALYZER	PUMP RM.
82	AIT-16-03A	WELL pH ANALYZER	PUMP RM.
83	AIT-16-03B	WELL CONDUCTIVITY ANALYZER	PUMP RM.
84	AIT-16-03C	RESIDUAL CHLORINE ANALYZER	PUMP RM.
85	AIT-16-03D	WATER TEMPERATURE TRANSMITTER	PUMP RM.
87	FIT-16-01	WELL FLOW METER	PUMP RM.
89	FT-16-02	CHLORINE CIRCULATION FLOW METER	PUMP RM.
90	LT-16-01	WELL WATER LEVEL TRANSMITTER	PUMP RM.
91	LT-16-02	CONTAINMENT SUMP LEVEL TRANSMITTER	CONTAINMENT SUMP
95	PT-16-01	SYSTEM PRESSURE TRANSMITTER	PUMP RM.
96	TE-16-01	MOTOR TEMPERATURE MONITOR	PUMP RM.
97	TT-16-01	PUMP RM. TEMPERATURE TRANSMITTER	PUMP RM.
98	TT-16-02	CHLORINE ROOM TEMPERATURE TRANSMITTER	CHLORINE RM.
99	TT-16-03	WELL DISCHARGE WATER TEMPERATURE TRANSMITTER	PUMP RM.
100	WIT-16-01	CHLORINE TANK SCALES TRANSMITTER	CHLORINE RM.
102	TT-16-03	GENERATOR ROOM TEMPERATURE TRANSMITTER	GENERATOR RM.
110	PV-16-01	CHLORINE PROPORTIONING VALVE	CHLORINE RM.
113	SV-16-03	WASTE VALVE PILOT SOLENOID VALVE	PUMP RM.
114	SV-16-06	TURBIDITY SUPPLY SOLENOID VALVE	PUMP RM.
116	SV-16-08	WELL PRE-LUBE SOLENOID VALVE	PUMP RM.
117	SV-16-09	CHLORINE CIRCULATION STRAINER SOLENOID VALVE	PUMP RM.
118	V-16-01	WASTE ISOLATION VALVE	PUMP RM.
119	V-16-02	PUMP-TO-WASTE VALVE	PUMP RM.
120	V-16-03	DISCHARGE VALVE	PUMP RM.
123	ML-16-03	MAGNETIC DOOR LOCK	PUMP RM.
124	CR-16-03	ACCESS CARD READER	PUMP RM.
134	UH-16-01	UNIT HEATER	PUMP RM.
135	UH-16-02	UNIT HEATER	PUMP RM.
136	UH-16-03	UNIT HEATER	GENERATOR RM.
137	UH-16-04	UNIT HEATER	CHLORINE RM.
153	JB-16-01	SECURITY J-BOX (ACTIVE CAMERA)	BLD. EXTERIOR
154	JB-16-02	SECURITY J-BOX (FUTURE CAMERA)	BLD. EXTERIOR
155	JB-16-03	SECURITY J-BOX (FUTURE CAMERA)	BLD. EXTERIOR
156	JB-16-04	SECURITY J-BOX (FUTURE CAMERA)	BLD. EXTERIOR

GENERAL NOTES:

1. REFER TO ONE-LINE DIAGRAMS ON E2.1/E2.2 FOR WIRE AND CONDUIT REQUIREMENTS.
2. CONNECTION LOCATIONS SHOWN ARE APPROXIMATE. CONTRACTOR SHALL VERIFY ELECTRICAL CONNECTION LOCATIONS ON SUBMITTAL LITERATURE PRIOR TO CONDUIT ROUGH-IN.
3. ITEMS LOCATED IN THE SURGE VAULT ARE SHOWN ON E5.3.

SHEET KEYNOTES:

1. SUBMERSIBLE PRESSURE TRANSMITTER INSTALLED IN PVC GUIDE TUBE ATTACHED TO WELL DISCHARGE COLUMN. VERIFY LOCATION OF ACCESS PORT PRIOR TO CONDUIT ROUGH-IN REFER TO CIVIL DRAWINGS FOR PROBE INSTALLATION DEPTH. J-BOX AND CONDUIT SYSTEM FOR TRANSDUCER SHALL BE ASSEMBLED WITHOUT OPENINGS SO AS TO NOT ALLOW INSECTS INTO THE WELL. SEAL ANY OPENINGS WITH SILICONE AS REQUIRED.
2. MOTOR VIBRATION SWITCH: VERIFY LOCATION ON MOTOR PRIOR TO CONDUIT ROUGH-IN. FLEX CONDUIT SHALL NOT EXCEED 48-INCHES. PROVIDE CONDUIT SUPPORT THAT CAN BE REMOVED FROM THE MOTOR BASE.
3. NOT USED.
4. LOCATE THE DOOR ACCESS CARD READER ON THE RIGHT SIDE OF THE ENTRANCE DOOR. MOUNTING HEIGHT SHALL BE +36-INCHES ABOVE FINISHED SURFACE.
5. NOT USED.
6. WALL CCTV JUNCTION BOX. INSTALL RECESSED SINGLE-GANG BOX IN WALL NEAR EVES WITH BLANK COVER PLATE. BOX LOCATION TO BE DETERMINED BY OWNER DURING CONSTRUCTION.
7. WASTE VALVE LOCATED BELOW WASTE PIPE.
8. INSTALL CURRENT SWITCH IN A/C DISCONNECT SWITCH.
9. LOCATED AT ROOF HATCH.
10. NOT UESD
11. VERIFY LOCATION OF AIR HANDLER CONTROLS PRIOR TO CONDUIT ROUGH-IN.
12. A REMOVABLE TRANSOM PANEL EXISTS ABOVE THE DOOR. DO NOT INSTALL CONDUIT ON REMOVABLE PANEL.
13. CHLORINE ROOM EXHAUST FAN 3-WAY SWITCHES. LABEL EACH SWITCH "CHLORINE ROOM EXHAUST FAN".

FILE NAME:
FILE DATE:

REGISTERED PROFESSIONAL ENGINEER
No. 86-171214-2202
KEITH B. HEGERHORST
5/19/2023
STATE OF UTAH

HANSEN ALLEN & LUCE, Inc. ENGINEERS

PROJECT ENGINEER

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SCALE: AS SHOWN

CENTRAL UTAH WATER CONSERVANCY DISTRICT

CENTRAL UTAH WATER CONSERVANCY DISTRICT

PUMP HOUSE PROJECT WELLS #7, #16 & #17
ELECTRICAL
WELL 16 I & C PLAN

SHEET E7.8

207.27.200

7/04

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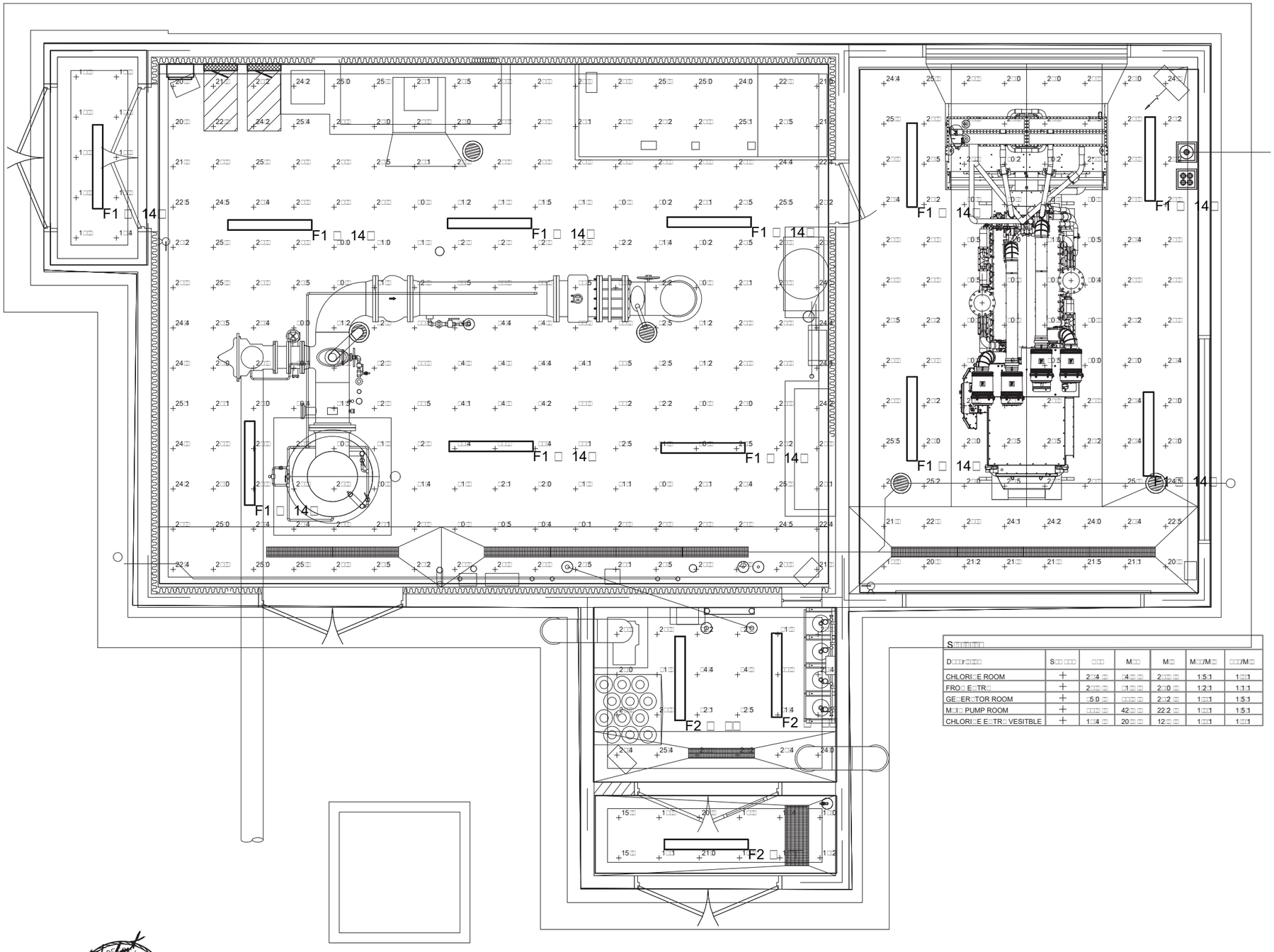
0 2' 4' 8'
3/8"=1'-0"

GENERAL NOTES:

1. NOT USED.

SHEET KEYNOTES:

1. NOT USED.



S□□□□□□						
D□□□r□□□□	S□□ □□□	□□□	M□□	M□	M□□/M□	□□□/M□
CHLORI□E ROOM	+	2□□4 □□	□4 □□	2□□□ □□	1:5:1	1 □□1
FRO□ E□TR□	+	2□□□ □□	□1 □□	2□□0 □□	1:2:1	1:1:1
GE□ER□TOR ROOM	+	□5:0 □□	□□□ □□	2□:2 □□	1 □□1	1:5:1
M□□ PUMP ROOM	+	□□□□ □□	42□ □□	22:2 □□	1 □□1	1:5:1
CHLORI□E E□TR□ VESITBLE	+	1□□4 □□	20□ □□	12□ □□	1 □□1	1 □□1

FILE NAME:
FILE DATE:

REGISTERED PROFESSIONAL ENGINEER
No. 86-171214-2202
KEITH B. HEGERHORST
5/19/2023
STATE OF UTAH
PROJECT ENGINEER

DESIGNED	KBH
DRAFTED	KBH
CHECKED	KBH
DATE	MAY 2023

SCALE: AS SHOWN

CENTRAL UTAH WATER CONSERVANCY DISTRICT

CENTRAL UTAH WATER CONSERVANCY DISTRICT

PUMP HOUSE PROJECT WELLS #7, #16 & #17
ELECTRICAL
WELL 16 INTERIOR PHOTOMETRIC PLAN

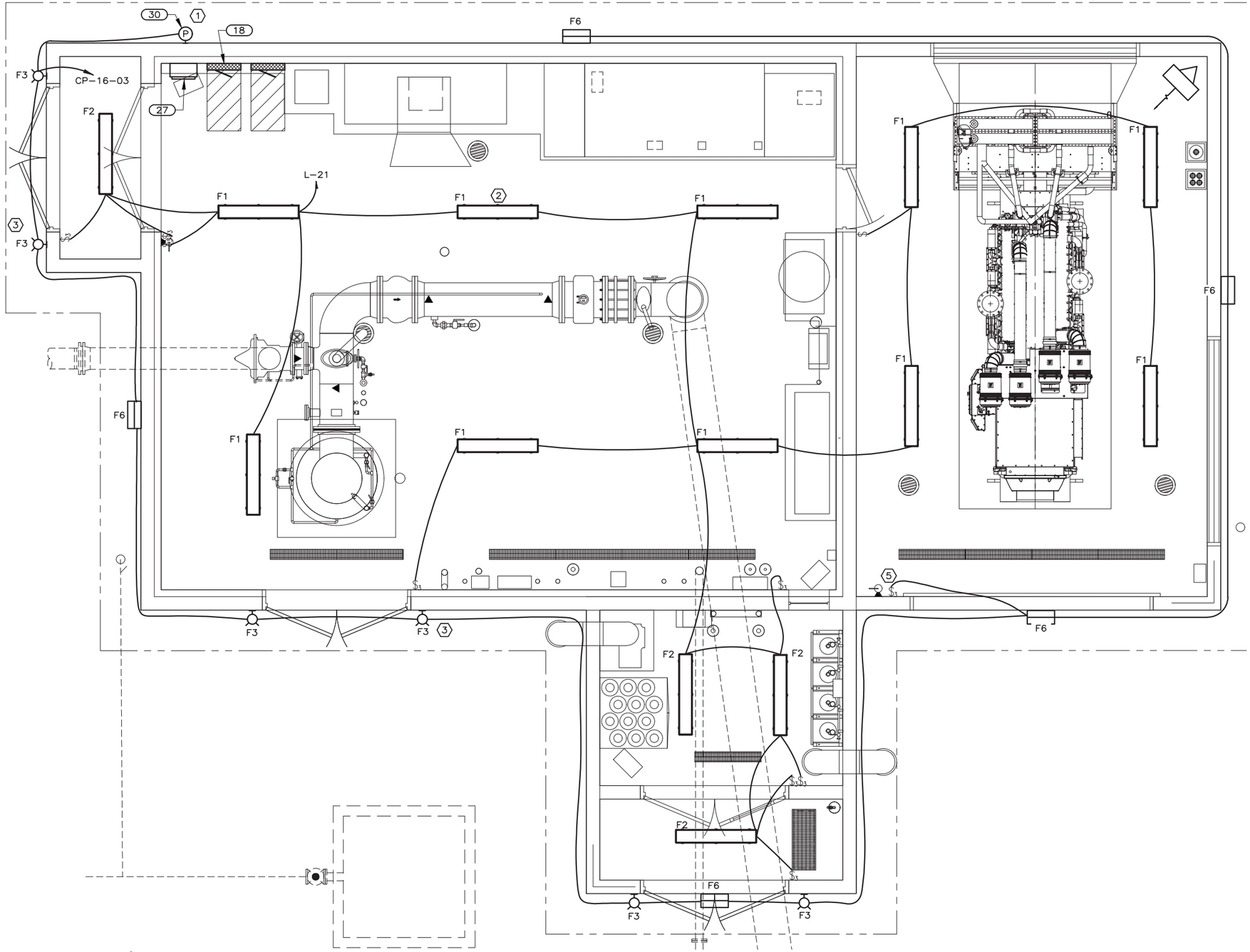
SHEET E7.9
207.27.200

7/04

H.P.E. INC. ELECTRICAL ENGINEERS
POWER SYSTEMS, CONTROL & INSTRUMENTATION SYSTEMS
HEGERHORST POWER ENGINEERING INCORPORATED (801) 642-2051
708 EAST 50 SOUTH FAX (801) 642-2154
AMERICAN FORK, UT 84003
HPE PROJECT 20.111

FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

0 2' 4' 8'
3/8"=1'-0"



WELL 16 LIGHTING PLAN ITEMS

DRAWING ID	TAG	DESCRIPTION	LOCATION
18	PNL-16-L	PANELBOARD L	PUMP RM.
27	CP-XX-03	EXTERIOR LIGHTS/ICE MELT CONTROL PANEL	PUMP RM.
30	PC-XX-01	LIGHTING PHOTOCELL	BLD. EXTERIOR

GENERAL NOTES:

1. REFER TO PANEL SCHEDULES AND CONDUIT/ CONDUCTOR TABLE FOR WIRE AND CONDUIT REQUIREMENTS.
2. FIXTURE SCHEDULE SHOWN ON E1.2
3. REFER TO ONE-LINE DIAGRAMS FOR ADDITIONAL WIRE AND CONDUIT INFORMATION.

SHEET KEYNOTES:

1. PHOTOCELL ON NORTH SIDE OF BUILDING TO CONTROL EXTERIOR BUILDING LIGHTS. ROUTE CIRCUIT TO CP-16-03. SEE WIRING DIAGRAM ON E3.3.
2. CHAIN HANG FIXTURES SO THE BOTTOM OF ALL FIXTURES ARE 12-INCHES ABOVE TOP OF MOTOR.
3. FIXTURE MOUNTING HEIGHT SHOWN ON A-1.
4. PROVIDE LABEL FOR SWITCH "WASTE BASIN FLOOD".
5. PROVIDE A LABEL FOR SWITCH "OVERHEAD DOOR LIGHT".

FILE NAME:
FILE DATE:

HANSEN ALLEN & LUCE, Inc. ENGINEERS

REGISTERED PROFESSIONAL ENGINEER
No. 86-171214-2202
KEITH B. HEGERHORST
5/19/2023
STATE OF UTAH
PROJECT ENGINEER

DESIGNED	KBH
DRAFTED	KBH
CHECKED	KBH
DATE	MAY 2023

SCALE: AS SHOWN

CENTRAL UTAH WATER CONSERVANCY DISTRICT

CENTRAL UTAH WATER CONSERVANCY DISTRICT

PUMP HOUSE PROJECT WELLS #7, #16 & #17
ELECTRICAL
WELL 16 LIGHTING PLAN

SHEET E7.10
207.27.200

7/04

H.P.E. INC. ELECTRICAL ENGINEERS
POWER SYSTEMS, CONTROL & INSTRUMENTATION SYSTEMS
HEGERHORST POWER ENGINEERING INCORPORATED (801) 642-2051
708 EAST 50 SOUTH FAX (801) 642-2154
AMERICAN FORK, UT 84003
HPE PROJECT 20.111

FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

GENERAL NOTES:

1. NOT USED.

SHEET KEYNOTES:

1. NOT USED.

COMcheck Software Version 4.1.5.1

Interior Lighting Compliance Certificate

Project Information

Energy Code: 2018 IECC
Project Title: Central Utah Water Well #16
Project Type: New Construction

Construction Site:
700 East 1300 North
Vineyard, UT

Owner/Agent:

Designer/Contractor:
Hegerhorst Power Engineering
708 East 50 South
American Fork, UT

Additional Efficiency Package(s)

Reduced interior lighting power. Requirements are implicitly enforced within interior lighting allowance calculations.

Allowed Interior Lighting Power

A Area Category	B Floor Area (ft2)	C Allowed Watts / ft2	D Allowed Watts (B X C)
1-PUMP HOUSE (Workshop)	1593	0.81	1290
		Total Allowed Watts =	1290

Proposed Interior Lighting Power

A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast	B Lamps/ Fixture	C # of Fixtures	D Fixture Watt.	E (C X D)
1-PUMP HOUSE (Workshop)				
LED 1: F1: SURFACE LED: LED Panel 80W:	1	11	91	1001
LED 2: F2: SURFACE LED: LED Panel 38W:	1	3	38	114
			Total Proposed Watts =	1115

Interior Lighting PASSES: Design 14% better than code

Interior Lighting Compliance Statement

Compliance Statement: The proposed interior lighting design represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed interior lighting systems have been designed to meet the 2018 IECC requirements in COM*check* Version 4.1.5.1 and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

Ben Eliot Sorenson Engineer — Name - Title
Ben Eliot Sorenson — Signature
05/18/2023 — Date

COMcheck Software Version 4.1.5.1

Exterior Lighting Compliance Certificate

Project Information

Energy Code: 2018 IECC
Project Title: Central Utah Water Well #16
Project Type: New Construction
Exterior Lighting Zone 2 (Residential mixed use area)

Construction Site:
700 East 1300 North
Vineyard, UT

Owner/Agent:

Designer/Contractor:
Hegerhorst Power Engineering
708 East 50 South
American Fork, UT

Allowed Exterior Lighting Power

A Area/Surface Category	B Quantity	C Allowed Watts / Unit	D Tradable Wattage	E Allowed Watts (B X C)
Pedestrian and vehicular entrances and exits	18 ft of door	14	Yes	252
Walkway < 10 feet wide	254 ft of	0.5	Yes	127
		Total Tradable Watts (a) =		379
		Total Allowed Watts =		379
		Total Allowed Supplemental Watts (b) =		400

(a) Wattage tradeoffs are only allowed between tradable areas/surfaces.
(b) A supplemental allowance equal to 400 watts may be applied toward compliance of both non-tradable and tradable areas/surfaces.

Proposed Exterior Lighting Power

A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast	B Lamps/ Fixture	C # of Fixtures	D Fixture Watt.	E (C X D)
Pedestrian and vehicular entrances and exits (18 ft of door width): Tradable Wattage				
LED 1: F3: ENTRY SIDE LIGHT: LED PAR 13W:	1	6	14	84
Walkway < 10 feet wide (254 ft of walkway length): Tradable Wattage				
LED 2: F6: SECURITY/WALKWAY: LED PAR 13W:	1	5	13	65
			Total Tradable Proposed Watts =	149

Exterior Lighting PASSES: Design 81% better than code

Exterior Lighting Compliance Statement

Compliance Statement: The proposed exterior lighting design represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed exterior lighting systems have been designed to meet the 2018 IECC requirements in COM*check* Version 4.1.5.1 and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

Ben Eliot Sorenson Engineer — Name - Title
Ben Eliot Sorenson — Signature
05/18/2023 — Date

COMcheck Software Version 4.1.5.1

Inspection Checklist

Energy Code: 2018 IECC

Requirements: 0.0% were addressed directly in the COM*check* software

Text in the "Comments/Assumptions" column is provided by the user in the COMcheck Requirements screen. For each requirement, the user certifies that a code requirement will be met and how that is documented, or that an exception is being claimed. Where compliance is itemized in a separate table, a reference to that table is provided.

Section # & Req.ID	Plan Review	Complies?	Comments/Assumptions
C103.2 [PR4][1]	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the interior lighting and electrical systems and equipment and document where exceptions to the standard are claimed. Information provided should include interior lighting power calculations, wattage of bulbs and ballasts, transformers and control devices.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C103.2 [PR8][1]	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the exterior lighting and electrical systems and equipment and document where exceptions to the standard are claimed. Information provided should include exterior lighting power calculations, wattage of bulbs and ballasts, transformers and control devices.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C406 [PR9][1]	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the additional energy efficiency package options.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

FILE NAME:
FILE DATE:

REGISTERED PROFESSIONAL ENGINEER
No. 86-171214-2202
KEITH B. HEGERHORST
5/19/2023
STATE OF UTAH

HANSEN ALLEN & LUCE ENGINEERS

PROJECT ENGINEER

DESIGNED	KBH
DRAFTED	KBH
CHECKED	KBH
DATE	MAY 2023

SCALE: NONE

CENTRAL UTAH WATER CONSERVANCY DISTRICT

CENTRAL UTAH WATER CONSERVANCY DISTRICT

PUMP HOUSE PROJECT WELLS #7, #16 & #17
ELECTRICAL
WELL 16 COMCHECK

SHEET E7.11
207.27.200

7/04

H.P.E. INC. ELECTRICAL ENGINEERS
POWER SYSTEMS, CONTROL & INSTRUMENTATION SYSTEMS
HEGERHORST POWER ENGINEERING INCORPORATED (801) 642-2051
708 EAST 50 SOUTH FAX (801) 642-2154
AMERICAN FORK, UT 84003

GENERAL NOTES:

1. SHEET 7 OF 7 IS BLANK AND NOT NEEDED.

SHEET KEYNOTES:

1. NOT USED.

Section # & Req.ID	Rough-In Electrical Inspection	Complies?	Comments/Assumptions
C405.2.2.2 [EL22][1]	Spaces required to have light-reduction controls have a manual control that allows the occupant to reduce the connected lighting load in a reasonably uniform illumination pattern >= 50 percent.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.2.1, C405.2.1.1 [EL18][1]	Occupancy sensors installed in classrooms/lecture/training rooms, conference/meeting/multipurpose rooms, copy/print rooms, lounges/breakrooms, enclosed offices, open plan office areas, restrooms, storage rooms, locker rooms, warehouse storage areas, and other spaces <= 300 sqft that are enclosed by floor-to-ceiling height partitions. Reference section language C405.2.1.2 for control function in warehouses and section C405.2.1.3 for open plan office spaces.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.2.1.2 [EL19][1]	Occupancy sensors control function in warehouses: In warehouses, the lighting in aisleways and open areas is controlled with occupant sensors that automatically reduce lighting power by 50% or more when the areas are unoccupied. The occupant sensors control lighting in each aisleway independently and do not control lighting beyond the aisleway being controlled by the sensor.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.2.1.3 [EL20][1]	Occupant sensor control function in open plan office areas: Occupant sensor controls in open office spaces >= 300 sq.ft. have controls 1) configured so that general lighting can be controlled separately in control zones with floor areas <= 600 sq.ft. within the space, 2) automatically turn off general lighting in all control zones within 20 minutes after all occupants have left the space, 3) are configured so that general lighting power in each control zone is reduced by >= 80% of the full zone general lighting power within 20 minutes of all occupants leaving that control zone, and 4) are configured such that any daylight responsive control will activate space general lighting or control zone general lighting only when occupancy for the same area is detected.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.2.2.1, C405.2.2.2 [EL21][2]	Each area not served by occupancy sensors (per C405.2.1) have time-switch controls and functions detailed in sections C405.2.2.1 and C405.2.2.2.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

Section # & Req.ID	Rough-In Electrical Inspection	Complies?	Comments/Assumptions
C405.2.3, C405.2.3.1, C405.2.3.2 [EL23][2]	Daylight zones provided with individual controls that control the lights independent of general area lighting. See code section C405.2.3 Daylight-responsive controls for applicable spaces, C405.2.3.1 Daylight responsive control function and section C405.2.3.2 Sidelit zone.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.2.4 [EL26][1]	Separate lighting control devices for specific uses installed per approved lighting plans.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.2.4 [EL27][1]	Additional interior lighting power allowed for special functions per the approved lighting plans and is automatically controlled and separated from general lighting.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.2.5 [EL28][null]	Automatic lighting controls for exterior lighting installed. Controls will be daylight controlled, set based on business operation time-of-day, or reduce connected lighting > 30%.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.3 [EL6][1]	Exit signs do not exceed 5 watts per face.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.6 [EL26][2]	Low-voltage dry-type distribution electric transformers meet the minimum efficiency requirements of Table C405.6.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.7 [EL27][2]	Electric motors meet the minimum efficiency requirements of Tables C405.7(1) through C405.7(4). Efficiency verified through certification under an approved certification program or the equipment efficiency ratings shall be provided by motor manufacturer (where certification programs do not exist).	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.8.2, C405.8.2.1 [EL28][2]	Escalators and moving walks comply with ASME A17.1/CSA B44 and have automatic controls configured to reduce speed to the minimum permitted speed in accordance with ASME A17.1/CSA B44 or applicable local code when not conveying passengers.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.9 [EL29][2]	Total voltage drop across the combination of feeders and branch circuits <= 5%.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

Section # & Req.ID	Final Inspection	Complies?	Comments/Assumptions
C303.3, C408.2.5.2 [FI17][3]	Furnished O&M instructions for systems and equipment to the building owner or designated representative.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.4.1 [FI18][1]	Interior installed lamp and fixture lighting power is consistent with what is shown on the approved lighting plans, demonstrating proposed watts are less than or equal to allowed watts.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	*See the Interior Lighting fixture schedule for values.*
C405.5.1 [FI19][1]	Exterior lighting power is consistent with what is shown on the approved lighting plans, demonstrating proposed watts are less than or equal to allowed watts.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	*See the Exterior Lighting fixture schedule for values.*
C408.1.1 [FI57][1]	Building operations and maintenance documents will be provided to the owner. Documents will cover manufacturers' information, specifications, programming procedures and means of illustrating to owner how building, equipment and systems are intended to be installed, maintained, and operated.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C408.2.5.1 [FI16][3]	Furnished as-built drawings for electric power systems within 90 days of system acceptance.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C408.3 [FI33][1]	Lighting systems have been tested to ensure proper calibration, adjustment, programming, and operation.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

FILE NAME:
FILE DATE:

REGISTERED PROFESSIONAL ENGINEER — No. 86-171214-2202 — KEITH B. HEGERHORST — 5/19/2023 — STATE OF UTAH

PROJECT ENGINEER

DESIGNED	KBH
DRAFTED	KBH
CHECKED	KBH
DATE	MAY 2023

SCALE: NONE

CENTRAL UTAH WATER CONSERVANCY DISTRICT

CENTRAL UTAH WATER CONSERVANCY DISTRICT

PUMP HOUSE PROJECT WELLS #7, #16 & #17
ELECTRICAL
WELL 16 COMCHECK CONT.

SHEET E7.12

207.27.200

7/04

WELL 17 MAIN SERVICE DISCONNECT

LOCATION: WELL 17 SITE			MFGR: SQUARE D				200 AMPS				VOLTS: 12,470/7200				
DIMENSIONS: 36"W x 36"D x 91.5"H			TYPE: SWITCHBOARD				X FUSED SWITCH				PHASE: 3				
MOUNTING: FLOOR			NEMA: 3R								WIRES: 4				
FEED: BOTTOM							65,000 A.I.C.				AIC AVAILABLE:				
							PHASE LOADS								
FUSE			WIRE	CONT.	N-CONT.		A		B		C				
A	P	DESCRIPTION	SIZE	WATTS	WATTS	NO	CONT.	N-CONT.	CONT.	N-CONT.	CONT.	N-CONT.			
150E	3	DISTRIBUTION SERVICE EQUIPMENT	*	1,174,850	31,878	2	394,836	11,006	388,799	10,646	391,215	10,226			
		TOTAL WATTS:		1,174,850	31,878		394,836	11,006	388,799	10,646	391,215	10,226			
		CONTINUOUS LOAD:		1,174,850											
		CONTINUOUS LOAD * 125%:		1,468,562											
		NON-CONTINUOUS LOAD:		31,878											
		DESIGN WATTS:		1,500,441			* = REFER TO ONE-LINE DIAGRAM FOR WIRE/CONDUIT SIZES								
		MIN. RATING (AMPS):		70											

WELL 17 DISTRIBUTION SWITCHGEAR

LOCATION: WELL 17 SITE			MFGR: SQUARE D				200 AMPS				VOLTS: 12,470/7200				
DIMENSIONS: 102"W x 48"D x 91.5"H			TYPE: SWITCHBOARD								PHASE: 3				
MOUNTING: FLOOR			NEMA: 3R				X M.L.O				WIRES: 4				
FEED: BOTTOM							65,000 A.I.C.				AIC AVAILABLE:				
							PHASE LOADS								
FUSE			WIRE	CONT.	N-CONT.		A		B		C				
A	P	DESCRIPTION	SIZE	WATTS	WATTS	NO	CONT.	N-CONT.	CONT.	N-CONT.	CONT.	N-CONT.			
10E	3	TRANSFORMER H	*	80,936	31,878	1	30,198	11,006	24,161	10,646	26,577	10,226			
150E	3	WELL MOTOR VFD-17-01	*	1,093,914	0	2	364,638		364,638		364,638				
		TOTAL WATTS:		1,174,850	31,878		394,836	11,006	388,799	10,646	391,215	10,226			
		CONTINUOUS LOAD:		1,174,850											
		CONTINUOUS LOAD * 125%:		1,468,562											
		NON-CONTINUOUS LOAD:		31,878											
		DESIGN WATTS:		1,500,441			* = REFER TO ONE-LINE DIAGRAM FOR WIRE/CONDUIT SIZES								
		MIN. RATING (AMPS):		70											

WELL 17 TRANSFORMER H

LOCATION: WELL 17 SITE				6.2	PRIMARY AMPS						PRIMARY VOLTS: 12,470				
DIMENSIONS:				160.2	SECONDARY AMPS						SECONDARY VOLTS: 480Y/277				
MOUNTING: PAD											KVA: 150				
FEED: BOTTOM											FED FROM: DFS-17-02				
							PHASE LOADS								
				CONT.	N-CONT.		A		B		C				
				WATTS	WATTS		CONT.	N-CONT.	CONT.	N-CONT.	CONT.	N-CONT.			
		PANELBOARD L		80,936	31,878		30,198	11,006	24,161	10,646	26,577	10,226			
		TOTAL WATTS:		80,936	31,878		30,198	11,006	24,161	10,646	26,577	10,226			
		CONTINUOUS LOAD:		80,936											
		CONTINUOUS LOAD * 125%:		101,170											
		NON-CONTINUOUS LOAD:		31,878											
		DESIGN WATTS:		133,049											

WELL 17 TRANSFORMER L

LOCATION: WELL 17 PUMP ROOM				46.1	PRIMARY AMPS						PRIMARY VOLTS: 480				
DIMENSIONS: 30"W x 30"D x 30"H				106.5	SECONDARY AMPS						SECONDARY VOLTS: 208Y/120				
MOUNTING: WALL											KVA: 45				
FEED: SIDE											FED FROM: PANELBOARD H				
							PHASE LOADS								
				CONT.	N-CONT.		A		B		C				
				WATTS	WATTS		CONT.	N-CONT.	CONT.	N-CONT.	CONT.	N-CONT.			
		PANELBOARD L		27,141	4,440		11,620	1,860	6,552	1,500	8,968	1,080			
		TOTAL WATTS:		27,141	4,440		11,620	1,860	6,552	1,500	8,968	1,080			
		CONTINUOUS LOAD:		27,141											
		CONTINUOUS LOAD * 125%:		33,927											
		NON-CONTINUOUS LOAD:		4,440											
		DESIGN WATTS:		38,367											

WELL 17 PANELBOARD SCHEDULE H

LOCATION: WELL 17 PUMP ROOM			MFGR: SQUARE D				200 AMPS							VOLTS: 480Y/277						
DIMENSIONS: 20"W x 5.75"D x 56"H			TYPE: NF				200 M.C.B.							PHASE: 3						
MOUNTING: SURFACE			NEMA: 1				X SURGE PROTECTION DEVICE							WIRES: 4						
FEED: BOTTOM							22,000 A.I.C.													
							PHASE LOADS													
BRKR			WIRE	CONT.	N-CONT.		A		B		C			N-CONT.	CONT.	WIRE		BRKR		
A	P	DESCRIPTION	SIZE	WATTS	WATTS	NO	CONT.	N-CONT.	CONT.	N-CONT.	CONT.	N-CONT.	NO	WATTS	WATTS	SIZE	DESCRIPTION	A	P	
45	3	TRANSFORMER L	*	11,620	1,860	1	12,589	1,860					2		969	212	INTERIOR WELL HOUSE LIGHTS	20	1	
-	-	-	-	6,552	1,500	3			6,552	1,500			4				SPARE	20	1	
-	-	-	-	8,968	1,080	5					8,968	1,080	6				SPARE	20	1	
20	3	VFD FAN POWER	312	2,750		7	2,750	5,813					8	5,813		38	AIR COMPRESSOR (AC-17-01), 15 HP	25	3	
-	-	-	-	2,750		9			2,750	5,813			10	5,813		-	-	-	-	
-	-	-	-	2,750		11					2,750	5,813	12	5,813		-	-	-	-	
20	3	UNIT HEATER (UH-17-01)	312		1,667	13	14,859	1,667					14		14,859	32	CONDENSING UNIT (CU-17-01)	90	3	
-	-	-	-		1,667	15			14,859	1,667			16		14,859	-	-	-	-	
-	-	-	-		1,667	17					14,859	1,667	18		14,859	-	-	-	-	
20	3	UNIT HEATER (UH-17-02)	312		1,667	19	0	1,667					20				AVAILABLE SPACE		1	
-	-	-	-		1,667	21			0	1,667			22				AVAILABLE SPACE		1	
-	-	-	-		1,667	23					0	1,667	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:		35,391	14,440		30,198	11,006	24,161	10,646	26,577	10,226		17,438	45,545					
		CONTINUOUS LOAD:		80,936																
		CONTINUOUS LOAD * 125%:		101,170																
		NON-CONTINUOUS LOAD:		31,878																
		DESIGN WATTS:		133,049			* = REFER TO ONE-LINE DIAGRAM FOR WIRE/CONDUIT SIZES													
		MIN. RATING (AMPS):		160																

WELL 17 PANELBOARD SCHEDULE L

LOCATION: WELL 17 PUMP ROOM			MFGR: SQUARE D				225 AMPS							VOLTS: 208Y/120						
DIMENSIONS: 20"W x 5.75"D x 50"H			TYPE: NQ				150 M.C.B.							PHASE: 3						
MOUNTING: SURFACE			NEMA: 1				X SURGE PROTECTION DEVICE							WIRES: 4						
FEED: BOTTOM							10,000 A.I.C.							FED FROM: TRANSFORMER L						
							PHASE LOADS													
BRKR			WIRE	CONT.	N-CONT.		A		B		C			N-CONT.	CONT.	WIRE		BRKR		
A	P	DESCRIPTION	SIZE	WATTS	WATTS	NO	CONT.	N-CONT.	CONT.	N-CONT.	CONT.	N-CONT.	NO	WATTS	WATTS	SIZE	DESCRIPTION	A	P	
30	2	SURGE TANK CONTROL PANEL (CP-17-04)	30	1,180	1,180	1	2,680	1,180					2		1,500	212	MCP/RTU (CP-17-01)	20	1	
-	-	-	-	226	1,000	3			236	1,000			4		10	212	TUBIDITY UNIT (AIT-17-02)	20	1	
30	2	ICE MELT CONTROL PANEL (CP-17-03)	20	1,092	0	5					1,107	0	6		15	212	CHEMISTRY UNIT (AIT-17-03)	20	1	
-	-	-	-	858	0	7	1,358	0					8		500	212	VFD CONTROL POWER	20	1	
20	1	SECURITY PANEL (SP-17-01)	212	500		9			1,500	0			10		1,000	212	VFD SPACE HEATER	20	1	
20	1	RECEPT, INTERIOR	212		1,080	11					500	1,080	12		500	212	MAIN FUSED DISC. CONDENSATE HEATER	20	1	
20	1	RECEPT, EXTERIOR	212		180	13	0	680					14	500		212	FUSED DISC. FDS-17-01 COND. HEATER	20	1	
20	1	RECPT. IRRIGATION CONTROLLER	212	50		15			50	500			16	500		212	FUSED DISC. FDS-17-02 COND. HEATER	20	1	
20	1	RECPT. AIR DRYER	212	180		17					195	0	18		15	212	ENERGY MONITOR	20	1	
20	1	LTS, EXTERIOR	212	125		19	3,963	0					20		3,838	38	AIR HANDLER (AH-17-01), 10 HP	60	3	
20	1	LTS, INTERIOR	212	637		21			4,475	0			22		3,838	-	-	-	-	
	1	SPARE				23					3,838	0	24		3,838	-	-	-	-	
	1	AVAILABLE SPACE				25	291	0					26		291	212	INDOOR FAN COIL (FC-17-01)	20	2	
	1	AVAILABLE SPACE				27			291	0			28		291	-	-	-	-	
	1	AVAILABLE SPACE				29					3,328	0	30		3,328	28	OUTDOOR COND. UNTI (MCU-17-01)	40	2	
	1	AVAILABLE SPACE				31	3,328	0					32		3,328	-	-	-	-	
	1	AVAILABLE SPACE				33			0	0			34				AVAILABLE SPACE		1	
	1	AVAILABLE SPACE				35					0	0	36				AVAILABLE SPACE		1	
	1	AVAILABLE SPACE				37	0	0					38				AVAILABLE SPACE		1	
	1	AVAILABLE SPACE				39			0	0			40				AVAILABLE SPACE		1	
	1	AVAILABLE SPACE				41					0	0	42				AVAILABLE SPACE		1	
		TOTAL WATTS:		4,848	3,440		11,620	1,860	6,552	1,500	8,968	1,080		1,000	22,293					
		CONTINUOUS LOAD:		27,141																
		CONTINUOUS LOAD * 125%:		33,927																
		NON-CONTINUOUS LOAD:		4,440																
		DESIGN WATTS:		38,367																
		MIN. RATING (AMPS):		107																

H.P.E. INC. ELECTRICAL ENGINEERS
POWER SYSTEMS, CONTROL & INSTRUMENTATION SYSTEMS
HEGERHORST POWER ENGINEERING INCORPORATED (801) 642-2051
708 EAST 50 SOUTH FAX (801) 642-2154
AMERICAN FORK, UT 84003
HPE PROJECT 20.111

FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

GENERAL NOTES:

1. NOT USED.

SHEET KEYNOTES:

1. NOT USED.

FILE NAME:
FILE DATE:

REGISTERED PROFESSIONAL ENGINEER
No. 86-171214-2202
KEITH B. HEGERHORST
5/19/2023
STATE OF UTAH
PROJECT ENGINEER

HANSEN ALLEN & LUCE, Inc. ENGINEERS

DESIGNED	KBH
DRAFTED	KBH
CHECKED	KBH
DATE	MAY 2023

SCALE: NONE

CENTRAL UTAH WATER CONSERVANCY DISTRICT

CENTRAL UTAH WATER CONSERVANCY DISTRICT

PUMP HOUSE PROJECT WELLS #7, #16 & #17
ELECTRICAL
WELL 17 SCHEDULES, SHT. 1

SHEET E8.1

207.27.200

7/04

WELL 17 CONTROL PANEL CP-17-03

LOCATION: PUMP ROOM		MFGR: N/A				N/A AMPS			VOLTS: 208/120		
DIMENSIONS:		TYPE: CUSTOM							PHASE: 1		
MOUNTING: SURFACE		NEMA: 12							WIRES: 3		
FEED: BOTTOM									FED FROM: PANELBOARD L		
						PHASE LOADS					
BRKR			WIRE	CONT.	N-CONT.		A		B		
A	P	DESCRIPTION	SIZE	WATTS	WATTS	NO	CONT.	N-CONT.	CONT.	N-CONT.	
30	2	ICE MELT CABLES	20	1,716		1	858		858		
20	1	EXTERIOR LIGHTING	212	97		2	97				
10	1	CONTROL POWER	212	137		3	137				
	1	SPACE				4					
		TOTAL WATTS:		1,950	0		1,092	0	858	0	0 0
		CONTINUOUS LOAD:		1,950							
		CONTINUOUS LOAD * 125%:		2,438							
		NON-CONTINUOUS LOAD:		0							
		DESIGN WATTS:		2,438							
		MIN. RATING (AMPS):		12							

WELL 17 CONTROL PANEL CP-17-04

LOCATION: SURGE TANK VAULT		MFGR: N/A				N/A AMPS			VOLTS: 240/120		
DIMENSIONS: 20"W x 8"D x 24"H		TYPE: CUSTOM				30 M.C.B.			PHASE: 1		
MOUNTING: SURFACE		NEMA: 12							WIRES: 3		
FEED: SIDE						10,000 A.I.C.			FED FROM: PANELBOARD L		
						PHASE LOADS					
BRKR			WIRE	CONT.	N-CONT.		A		B		
A	P	DESCRIPTION	SIZE	WATTS	WATTS	NO	CONT.	N-CONT.	CONT.	N-CONT.	
20	1	RECPT. SUMP PUMP (SP-17-01)	212	1,180		1	1,180	0			
20	1	VAULT LIGHTS	212	76		3			76	0	
20	1	VAULT OUTLET	212		180	5	0	180			
15	1	EXHAUST FAN (EF-17-02)	212	150		7			150	0	
20	2	UNIT HEATER (UH-17-03)	212		2,000	9	0	1,000	0	1,000	
20	1	SPARE				11			0	0	
	1	SPACE				13	0	0			
	1	SPACE				15			0	0	
		TOTAL WATTS:		1,406	2,180		1,180	1,180	226	1,000	
		CONTINUOUS LOAD:		1,406							
		CONTINUOUS LOAD * 125%:		1,758							
		NON-CONTINUOUS LOAD:		2,180							
		DESIGN WATTS:		3,938							
		MIN. RATING (AMPS):		16							

WELL 17 SECURITY ITEMS

DRAWING ID	TAG	DESCRIPTION	LOCATION	SUPPLIED BY	INSTALLED BY
33	SP-17-01	SECURITY PANEL	PUMP RM.	CONTRACTOR	CONTRACTOR
57	ZS-17-01A	PUMP RM. DOOR 1A POSITION SWITCH	PUMP RM.	CONTRACTOR	CONTRACTOR
58	ZS-17-01B	PUMP RM. DOOR 1B POSITION SWITCH	PUMP RM.	CONTRACTOR	CONTRACTOR
59	ZS-17-02A	MAINTENANCE DOOR DOOR 2A POSITION SWITCH	PUMP RM.	CONTRACTOR	CONTRACTOR
60	ZS-17-02B	MAINTENANCE DOOR DOOR 2B POSITION SWITCH	PUMP RM.	CONTRACTOR	CONTRACTOR
63	ZS-17-04	PUMP RM. HATCH POSITION SWITCH	PUMP RM.	CONTRACTOR	CONTRACTOR
76	ML-17-01	MAGNETIC DOOR LOCK	PUMP RM.	CONTRACTOR	CONTRACTOR
78	CR-17-01	ACCESS CARD READER	PUMP RM.	CONTRACTOR	CONTRACTOR
123	ML-17-03	MAGNETIC DOOR LOCK	PUMP RM.	CONTRACTOR	CONTRACTOR
124	CR-17-03	ACCESS CARD READER	PUMP RM.	CONTRACTOR	CONTRACTOR
153	JB-17-01	SECURITY J-BOX (ACTIVE CAMERA)	BLD. EXTERIOR	CONTRACTOR	CONTRACTOR
154	JB-17-02	SECURITY J-BOX (FUTURE CAMERA)	BLD. EXTERIOR	CONTRACTOR	CONTRACTOR
155	JB-17-03	SECURITY J-BOX (FUTURE CAMERA)	BLD. EXTERIOR	CONTRACTOR	CONTRACTOR
156	JB-17-04	SECURITY J-BOX (FUTURE CAMERA)	BLD. EXTERIOR	CONTRACTOR	CONTRACTOR
160	CCTV-17-01	SITE CAMERA 1 (FIXTURE F4)	SITE	CONTRACTOR	CONTRACTOR
161	CCTV-17-02	SITE CAMERA 2 (FIXTURE F4)	SITE	CONTRACTOR	CONTRACTOR

PROJECT TAG LIST

WELL 17 HVAC EQUIPMENT

DRAWING ID	TAG	DESCRIPTION	LOCATION	SUPPLIED BY	INSTALLED BY
126	FC-17-01	INDOOR FAN COIL UNIT	PUMP RM.	CONTRACTOR	CONTRACTOR
127	MCU-17-01	OUTDOOR CONDENSIONG UNIT	PUMP RM.	CONTRACTOR	CONTRACTOR
128	AH-17-01	AIR HANDLER	PUMP RM.	CONTRACTOR	CONTRACTOR
129	CU-17-01	CONDENSING UNIT	PUMP RM.	CONTRACTOR	CONTRACTOR
134	UH-17-01	UNIT HEATER	PUMP RM.	CONTRACTOR	CONTRACTOR
135	UH-17-02	UNIT HEATER	PUMP RM.	CONTRACTOR	CONTRACTOR

WELL 17 PUMP AND EQUIPMENT

DRAWING ID	TAG	DESCRIPTION	LOCATION	SUPPLIED BY	INSTALLED BY
10	PME-17-01	PRIMARY METERING EQIPMENT	SITE	UTILITY CO.	UTILITY CO.
11	MS-17-01	METER SOCKET	SITE	CONTRACTOR	CONTRACTOR
12	MSD-17-01	MAIN SERVICE DISCONNECT	BLD. EXTERIOR	CONTRACTOR	CONTRACTOR
13	DFS-17-01	DISTRIBUTION EQUIPMENT FUSED SWITCH	BLD. EXTERIOR	CONTRACTOR	CONTRACTOR
14	DFS-17-02	DISTRIBUTION EQUIPMENT FUSED SWITCH	BLD. EXTERIOR	CONTRACTOR	CONTRACTOR
15	XFMR-17-01	TRANSFORMER H	SITE	CONTRACTOR	CONTRACTOR
16	XFMR-17-02	TRANSFOMER L	PUMP RM.	CONTRACTOR	CONTRACTOR
17	PNL-17-H	PANELBOARD H	PUMP RM.	CONTRACTOR	CONTRACTOR
18	PNL-17-L	PANELBOARD L	PUMP RM.	CONTRACTOR	CONTRACTOR
19	VFD-17-01	VARIABLE FREQUENCY DRIVE	PUMP RM.	CONTRACTOR	CONTRACTOR
23	AC-17-01	AIR COMPRESSOR	PUMP RM.	CONTRACTOR	CONTRACTOR
24	AD-17-01	AIR DRYER	PUMP RM.	CONTRACTOR	CONTRACTOR
25	CP-17-01	MAIN CONTROL PANEL/REMOTE TELEMETRY UNIT	PUMP RM.	CONTRACTOR	CONTRACTOR
27	CP-17-03	EXTERIOR LIGHTS/ICE MELT CONTROL PANEL	PUMP RM.	CONTRACTOR	CONTRACTOR
29	EM-17-1	ENERGY AND POWER MONITOR	SITE	CONTRACTOR	CONTRACTOR
30	PC-17-01	LIGHTING PHOTOCELL	BLD. EXTERIOR	CONTRACTOR	CONTRACTOR
31	P-17-01	WELL PUMP	PUMP RM.	CONTRACTOR	CONTRACTOR
37	IM-17-01	ICE MELT RECEPTACLE	BLD. EXTERIOR	CONTRACTOR	CONTRACTOR
38	IM-17-02	ICE MELT RECEPTACLE	BLD. EXTERIOR	CONTRACTOR	CONTRACTOR
39	IM-17-03	ICE MELT RECEPTACLE	BLD. EXTERIOR	CONTRACTOR	CONTRACTOR
40	IM-17-04	ICE MELT RECEPTACLE	BLD. EXTERIOR	CONTRACTOR	CONTRACTOR
41	IM-17-05	ICE MELT RECEPTACLE	BLD. EXTERIOR	CONTRACTOR	CONTRACTOR
43	IT-17-01	IRRIGATION VALVE TIMER	PUMP RM.	CONTRACTOR	CONTRACTOR

WELL 17 SWITCHES

DRAWING ID	TAG	DESCRIPTION	LOCATION	SUPPLIED BY	INSTALLED BY
52	LSH-17-01	PUMP RM. FLOOR HIGH WATER SWITCH	PUMP RM.	CONTRACTOR	CONTRACTOR
54	PSH-17-01	WELL HIGH DISCHARGE PRESSURE SWITCH	PUMP RM.	CONTRACTOR	CONTRACTOR
55	VSH-17-01	WELL MOTOR HIGH VIBRATION SWITCH	PUMP RM.	CONTRACTOR	CONTRACTOR
64	ZS-17-05A	WASTE VALVE WASTE POSITION SWITCH	PUMP RM.	CONTRACTOR	CONTRACTOR
65	ZS-17-05B	WASTE VALVE SYSTEM POSITION SWITCH	PUMP RM.	CONTRACTOR	CONTRACTOR
66	ZS-17-06A	DISCHARGE VALVE OPEN POSITION SWITCH	PUMP RM.	CONTRACTOR	CONTRACTOR
67	ZS-17-06B	DISCHARGE VALVE CLOSED POSITION SWITCH	PUMP RM.	CONTRACTOR	CONTRACTOR
68	ZS-17-07	SURGE TANK VAULT HATCH POSITION SWITCH	SURGE VAULT	CONTRACTOR	CONTRACTOR
69	ZS-17-08A	WASTE ISOLATION VALVE OPEN POSITION SWITCH	PUMP RM.	CONTRACTOR	CONTRACTOR
70	ZS-17-08B	WASTE ISOLATION VALVE CLOSED POSITION SWITCH	PUMP RM.	CONTRACTOR	CONTRACTOR
75	CSH-17-01	AIR COMPRESSOR CURRENT SWITCH	PUMP RM.	CONTRACTOR	CONTRACTOR

WELL 17 INSTRUMENTS

DRAWING ID	TAG	DESCRIPTION	LOCATION	SUPPLIED BY	INSTALLED BY
81	AIT-17-02	WELL TURBIDITY ANALYZER	PUMP RM.	CONTRACTOR	CONTRACTOR
82	AIT-17-03A	WELL pH ANALYZER	PUMP RM.	CONTRACTOR	CONTRACTOR
85	AIT-17-03D	WATER TEMPERATURE TRANSMITTER	PUMP RM.	CONTRACTOR	CONTRACTOR
87	FIT-17-01	WELL FLOW METER	PUMP RM.	CONTRACTOR	CONTRACTOR
88	FT-17-03	IRRIGATION FLOW METER	SITE	CONTRACTOR	CONTRACTOR
90	LT-17-01	WELL WATER LEVEL TRANSMITTER	PUMP RM.	CONTRACTOR	CONTRACTOR
91	LT-17-02	CONTAINMENT SUMP LEVEL TRANSMITTER	CONTAINMENT SUMP	CONTRACTOR	CONTRACTOR
95	PT-17-01	SYSTEM PRESSURE TRANSMITTER	PUMP RM.	CONTRACTOR	CONTRACTOR
96	TE-17-01	MOTOR TEMPERATURE MONITOR	PUMP RM.	CONTRACTOR	CONTRACTOR
97	TT-17-01	PUMP RM. TEMPERATURE TRANSMITTER	PUMP RM.	CONTRACTOR	CONTRACTOR
99	TT-17-03	WELL DISCHARGE WATER TEMPERATURE TRANSMITTER	PUMP RM.	CONTRACTOR	CONTRACTOR

WELL 17 VALVES

DRAWING ID	TAG	DESCRIPTION	LOCATION	SUPPLIED BY	INSTALLED BY
113	SV-17-03	WASTE VALVE PILOT SOLENOID VALVE	PUMP RM.	CONTRACTOR	CONTRACTOR
114	SV-17-06	TURBIDITY SUPPLY SOLENOID VALVE	PUMP RM.	CONTRACTOR	CONTRACTOR
116	SV-17-08	WELL PRE-LUBE SOLENOID VALVE	PUMP RM.	CONTRACTOR	CONTRACTOR
118	V-17-01	WASTE ISOLATION VALVE	PUMP RM.	CONTRACTOR	CONTRACTOR
119	V-17-02	PUMP-TO-WASTE VALVE	PUMP RM.	CONTRACTOR	CONTRACTOR
120	V-17-03	DISCHARGE VALVE	PUMP RM.	CONTRACTOR	CONTRACTOR

H.P.E. INC. ELECTRICAL ENGINEERS
POWER SYSTEMS, CONTROL & INSTRUMENTATION SYSTEMS
HEGERHORST POWER ENGINEERING INCORPORATED (801) 642-2051
708 EAST 50 SOUTH FAX (801) 642-2154
AMERICAN FORK, UT 84003

HPE PROJECT 20.111
FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

WELL 17 MCP/RTU INPUT/OUTPUT LIST

IO TYPE	DESCRIPTION	DEVICE OR INSTRUMENT	TAG
AI	CONTAINMENT SUMP LEVEL	LT-XX-02	LT-17-02
AI	PUMP RM. TEMPERATURE	TT-XX-01	TT-17-01
AI	SURGE TANK WATER LEVEL	DPT-XX-01	DPT-17-01
AI	SYSTEM PRESSURE	PT-XX-01	PT-17-01
AI	WELL DISCHARGE WATER TEMPERATURE	TT-XX-03	TT-17-03
AI	WELL FLOW	FIT-XX-01	FIT-17-01
AI	WELL pH	AIT-XX-03A	AIT-17-03A
AI	WELL TURBIDITY	AIT-XX-02	AIT-17-02
AI	WELL VFD RUNNING SPEED	VFD-XX-01	VFD-17-01
AI	WELL WATER LEVEL	LT-XX-01	LT-17-01
AI	WELL WATER TEMPERATURE TRANSMITTER	AIT-XX-03D	AIT-17-03D
AO	WELL VFD COMMAND SPEED	VFD-XX-01	VFD-17-01
DI	AIR COMPRESSOR HIGH CURRENT	CSH-XX-01	CSH-17-01
DI	DISCHARGE VALVE FULL CLOSED POSITION	ZS-XX-06B	ZS-17-06B
DI	DISCHARGE VALVE FULL OPEN POSITION	ZS-XX-06A	ZS-17-06A
DI	EYE WASH FLOW (FUTURE)	FS-XX-02	FS-17-02
DI	MAINTENANCE DOOR DOOR 2A NOT CLOSED	ZS-XX-02A	ZS-17-02A
DI	MAINTENANCE DOOR DOOR 2B NOT CLOSED	ZS-XX-02B	ZS-17-02B
DI	MOTOR HIGH TEMPERATURE SHUTDOWN	TE-XX-01	TE-17-01
DI	PUMP RM. DOOR 1A NOT CLOSED	ZS-XX-01A	ZS-17-01A
DI	PUMP RM. DOOR 1B NOT CLOSED	ZS-XX-01B	ZS-17-01B
DI	PUMP RM. HATCH NOT CLOSED	ZS-XX-04	ZS-17-04
DI	PUMP ROOM COOLING ON	AH-XX-01	AH-17-01
DI	PUMP ROOM HIGH FLOOR WATER ALARM	LSH-XX-01	LSH-17-01
DI	SURGE TANK VAULT FLOOR HIGH WATER ALARM	LSH-XX-02	LSH-17-02
DI	SURGE TANK VAULT HATCH NOT CLOSED	ZS-XX-07	ZS-17-07
DI	SURGE VALVE FULL CLOSED POSITION	ZS-XX-09B	ZS-17-09B
DI	SURGE VALVE FULL OPEN POSITION	ZS-XX-09A	ZS-17-09A
DI	SURGE VAULT SUMP PUMP FLOW	FS-XX-01	FS-17-01
DI	WASTE ISOLATION VALVE FULL CLOSED POSITION	ZS-XX-08B	ZS-17-08B
DI	WASTE ISOLATION VALVE NOT OPEN POSITION	ZS-XX-08A	ZS-17-08A
DI	WASTE VALVE FULL SYSTEM POSITION	ZS-XX-05B	ZS-17-05B
DI	WASTE VALVE WASTE FULL WASTE POSITION	ZS-XX-05A	ZS-17-05A
DI	WELL HIGH DISCHARGE PRESSURE	PSH-XX-01	PSH-17-01
DI	WELL MOTOR HIGH VIBRATION	VSH-XX-01	VSH-17-01
DI	WELL VFD FAULT	VFD-XX-01	VFD-17-01
DI	WELL VFD HOA IN AUTO	VFD-XX-01	VFD-17-01
DI	WELL VFD HOA IN HAND	VFD-XX-01	VFD-17-01
DI	WELL VFD RUNNING	VFD-XX-01	VFD-17-01
DI	WELL VFD TRANSFORMER OVERTEMPERATURE	VFD-XX-01	VFD-17-01
DO	PUMP ROOM UNIT HEATER RUN	UH-XX-02	UH-17-02
DO	EXHAUST FAN	EF-XX-03	EF-17-03
DO	PUMP ROOM UNIT HEATER RUN	UH-XX-01	UH-17-01
DO	SURGE TANK AIR RELEASE SOLENOID VALVE OPEN	SV-XX-02	SV-17-02
DO	SURGE TANK AIR SUPPLY SOLENOID OPEN	SV-XX-01	SV-17-01
DO	TURBIDITY SUPPLY SOLENOID VALVE OPEN	SV-XX-06	SV-17-06
DO	WASTE VALVE PILOT SOLENOID VALVE OPEN	SV-XX-03	SV-17-03
DO	WELL PRE-LUBE SOLENOID VALVE OPEN	SV-XX-08	SV-17-08
DO	WELL VFD REMOTE RUN	VFD-XX-01	VFD-17-01
RS485	WELL MOTOR TERMPERATURES	TE-XX-01	TE-17-01
TCP/IP	WELL VFD PARAMETERS	VFD-XX-01	VFD-17-01

REGISTERED PROFESSIONAL ENGINEER
No. 86-171214-2202
KEITH B. HEGERHORST
5/19/2023
STATE OF UTAH
PROJECT ENGINEER

FILE NAME:
FILE DATE:

DESIGNED	KBH
DRAFTED	KBH
CHECKED	KBH
DATE	MAY 2023

SCALE: NONE

CENTRAL UTAH WATER CONSERVANCY DISTRICT

CENTRAL UTAH WATER CONSERVANCY DISTRICT

PUMP HOUSE PROJECT WELLS #7, #16 & #17
ELECTRICAL
WELL 17 SCHEDULES, SHT. 2

SHEET E8.2

207.27.200

7/04

AVAILABLE FAULT CURRENT AT 12.47 KV

Primary System Fault Amps & Impedances

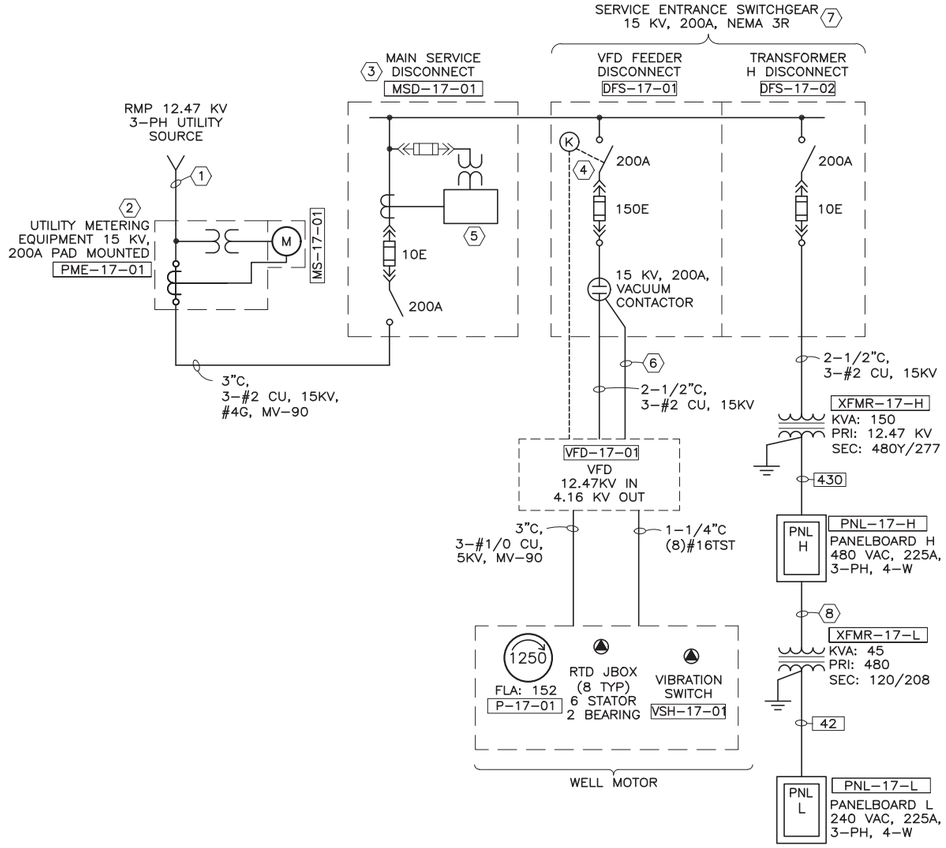
Short-Circuit Box

Node - FP175980__6091632_JN3565969

Voltage	12.8	Amps
LLL	4098.94	Amps
LLG	4026	Amps
LL	3634	Amps
LG	3249	Amps
Dist to source	12801.8	feet

	Ohms	Per Unit	X/R
R:	0.3560	0.2289	5.17
X:	1.8388	1.1825	
Ro:	1.2070	0.7762	2.75
Xo:	3.3142	2.1313	

S C L



POWER ONE–LINE DIAGRAM

H.P.E. INC. ELECTRICAL ENGINEERS
POWER SYSTEMS, CONTROL & INSTRUMENTATION SYSTEMS
HEGERHORST POWER ENGINEERING INCORPORATED
708 EAST 50 SOUTH
AMERICAN FORK, UT 84003
(801) 642–2051
FAX (801) 642–2154
HPE PROJECT 20.111

FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

GENERAL NOTES:

1. REFER TO PLAN SHEETS FOR EQUIPMENT AND DEVICE LOCATIONS.
2. REFER TO CONDUIT/CONDUCTOR TABLE FOR WIRE AND CONDUIT REQUIREMENTS.
3. UTILITY COMPANY CONTACT: ALAN STEWART (801–360–1679), RODNEY.STEWART@ROCKYMOUNTAINPOWER.NET.
4. THE VFD AND MAIN SERVICE DISCONNECT EQUIPMENT SHALL BE FROM THE SAME MANUFACTURER.

SHEET KEYNOTES:

1. CONDUIT SIZE DETERMINED BY ROCKY MOUNTAIN POWER (RMP). COORDINATE WITH RMP AS REQUIRED.
2. PRIMARY METERING ENCLOSURE: PROVIDED BY UTILITY COMPANY, INSTALLED BY CONTRACTOR ON A PAD/VAULT AS REQUIRED BY UTILITY COMPANY. UTILITY COMPANY SHALL PROVIDE PT'S, CT'S AND METER.
3. MAIN SERVICE DISCONNECT: 15 KV, 200A FUSED SWITCH IN NEMA 3R LOCKABLE ENCLOSURE. LABEL AS "MAIN SERVICE DISCONNECT". LABEL SWITCHBOARD WITH AVAILABLE FAULT CURRENT. SEE AVAILABLE FAULT CURRENT AT 12.47 KV TABLE ON THIS SHEET. LABEL AS REQUIRED BY NEC 110.24.
4. PROVIDE A KIRK–KEY INTERLOCK ON THE 15 KV VFD FUSED DISCONNECT AND THE VFD ENCLOSURE WITH 12 KV OR 4.16 KV COMPONENTS. VFD ENCLOSURE CANNOT BE OPENED UNLESS THE FUSED SWITCH IS OPEN.
5. THREE–PHASE POWER MONITOR WITH APPROPRIATE PT/CT'S FOR 12.47 KV SWITCHGEAR. EQUIPMENT SUPPLIER SHALL SIZE PT AND CT'S AS REQUIRED.
6. 3/4"C, WITH CONTROLS CONDUCTORS AS REQUIRED TO CONTROL THE VFD CONTACTOR.
7. EQUIPMENT SPACE HEATERS SHOWN ON PLAN DRAWINGS.
8. REFER TO PANELBOARD SCHEDULE FOR CIRCUIT ID, THEN THE WIRE AND CONDUIT REQUIREMENTS ARE AS SHOWN IN THE CONDUIT/CONDUCTOR TABLE ON E1.2

FILE NAME:
FILE DATE:

HANSEN ALLEN & LUCE, Inc. ENGINEERS

REGISTERED PROFESSIONAL ENGINEER
No. 86–171214–2202
KEITH B. HEGERHORST
5/19/2023
STATE OF UTAH
PROJECT ENGINEER

DESIGNED	KBH
DRAFTED	KBH
CHECKED	KBH
DATE	MAY 2023

SCALE: NONE

CENTRAL UTAH WATER CONSERVANCY DISTRICT

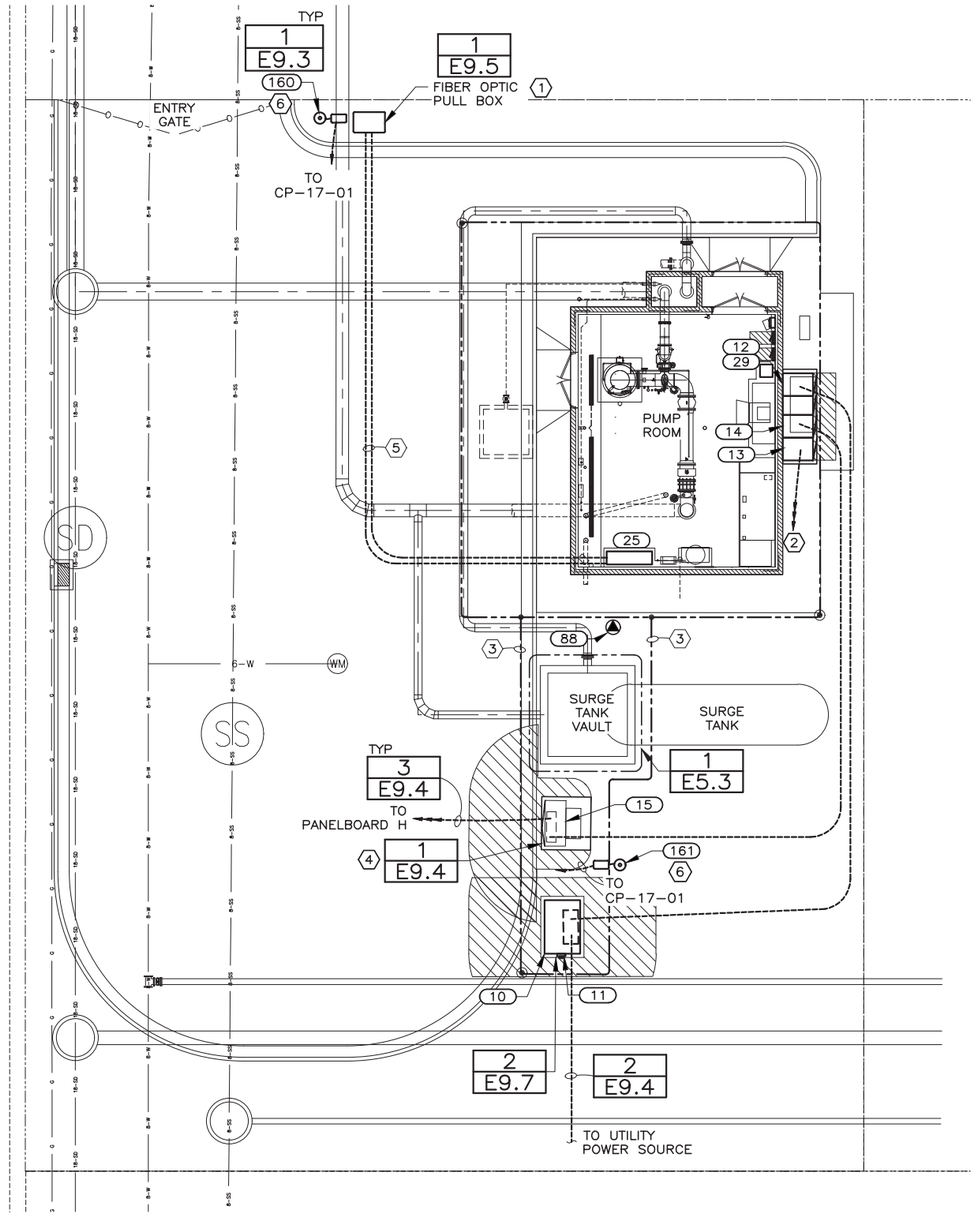
CENTRAL UTAH WATER CONSERVANCY DISTRICT

PUMP HOUSE PROJECT WELLS #7, #16 & #17
ELECTRICAL
WELL 17 POWER ONE–LINE DIAGRAM

SHEET E8.3

207.27.200

7/04



0 5' 10' 20' 30'
1"=10'

N

WELL 17 ELECTRICAL SITE PLAN ITEMS

DRAWING ID	TAG	DESCRIPTION	POWER SOURCE	LOCATION
10	PME-17-01	PRIMARY METERING EQIPMENT	UTILITY	SITE
11	MS-17-01	METER SOCKET	N/A	SITE
12	MSD-17-01	MAIN SERVICE DISCONNECT	PME-17-01	BLD. EXTERIOR
13	DFS-17-01	DISTRIBUTION EQUIPMENT FUSED SWITCH	MSD-17-01	BLD. EXTERIOR
14	DFS-17-02	DISTRIBUTION EQUIPMENT FUSED SWITCH	MSD-17-01	BLD. EXTERIOR
15	XFMR-17-01	TRANSFORMER H	SCB-17-02	SITE
25	CP-17-01	MAIN CONTROL PANEL/REMOTE TELEMETRY UNIT	L-4	PUMP RM.
29	EM-17-1	ENERGY AND POWER MONITOR	L-18	SITE
88	FT-17-03	IRRIGATION FLOW METER	CP-17-01	SITE
160	CCTV-17-01	SITE CAMERA 1 (FIXTURE F4)	CP-17-01	SITE
161	CCTV-17-02	SITE CAMERA 2 (FIXTURE F4)	CP-17-01	SITE

H.P.E. INC. ELECTRICAL ENGINEERS
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708 EAST 50 SOUTH FAX (801) 642-2154
AMERICAN FORK, UT 84003
HPE PROJECT 20.111

FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

GENERAL NOTES:

1. "HOME RUN" POWER SOURCE LISTED IN THE SITE PLAN ITEM TABLE ABOVE.
2. FOR WIRE AND CONDUIT REQUIREMENTS, REFER TO THE POWER ONE-LINE AND/OR PANEL SCHEDULE FOR THE CIRCUIT ID, THEN THE WIRE AND CONDUIT INFORMATION IS IN THE CONDUIT/CONDUCTOR TABLE ON E1.2.

SHEET KEYNOTES:

1. UDOT TYPE III PULL BOX, SEE 1/E9.5.
2. TO VFD INSIDE BUILDING.
3. EXTEND GROUND CONDUCTORS TO BUILDING GROUNDING RING. REFER TO BUILDING POWER PLAN.
4. EXTEND TRANSFORMER PAD TO BACK OF CURB.
5. TWO 1-1/4" ORANGE HIGH DENSITY POLYETHYLENE (HDPE_ RATED DUCT.
   - 5.1. CONDUIT 1: 6-STRAND FIBER OPTIC CABLE.
   - 5.2. CONDUIT 2: LOCATING WIRE.
6. AIM CAMERA TOWARDS BUILDING ENTRY DOORS.

FILE NAME:
FILE DATE:

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STATE OF UTAH
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HANSEN ALLEN & LUCE ENGINEERS

DESIGNED	KBH	3	·	·	·	·	
DRAFTED	KBH	2	·	·	·	·	
CHECKED	KBH	1	·	·	·	·	
DATE	MAY 2023	NO.	DATE	REVISIONS	BY	APVD.	

SCALE: AS SHOWN

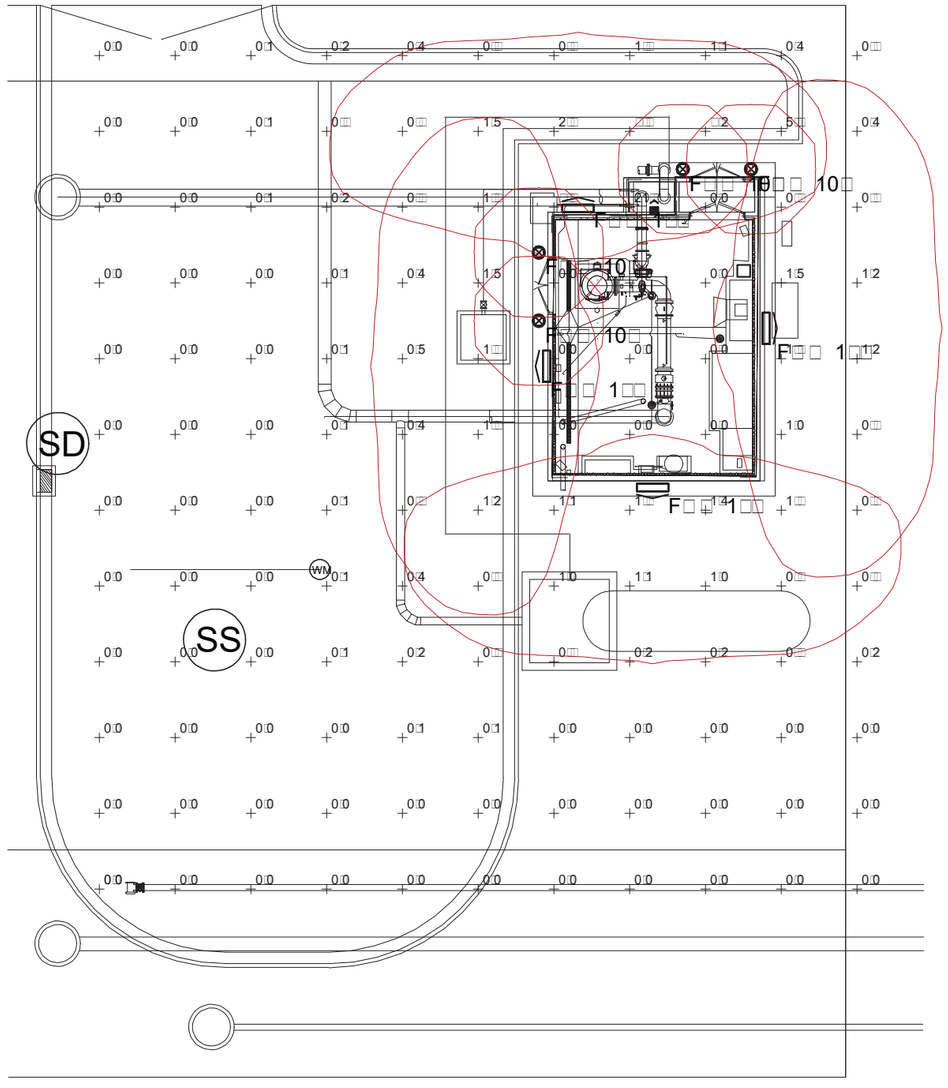
CENTRAL UTAH WATER CONSERVANCY DISTRICT

CENTRAL UTAH WATER CONSERVANCY DISTRICT

PUMP HOUSE PROJECT WELLS #7, #16 & #17
ELECTRICAL
WELL 17 SITE PLAN

SHEET E8.4
207.27.200

7/04



0 5' 10' 20' 30'

1"=10'

N

H.P.E. INC. ELECTRICAL ENGINEERS
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AMERICAN FORK, UT 84003
HPE PROJECT 20.111

FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

GENERAL NOTES:

1. NOT USED.

SHEET KEYNOTES:

1. NOT USED.

FILE NAME:
FILE DATE:

7/04

HANSEN ALLEN & LUCE, Inc. ENGINEERS

REGISTERED PROFESSIONAL ENGINEER
No. 86-171214-2202
KEITH B. HEGERHORST
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SCALE: AS SHOWN

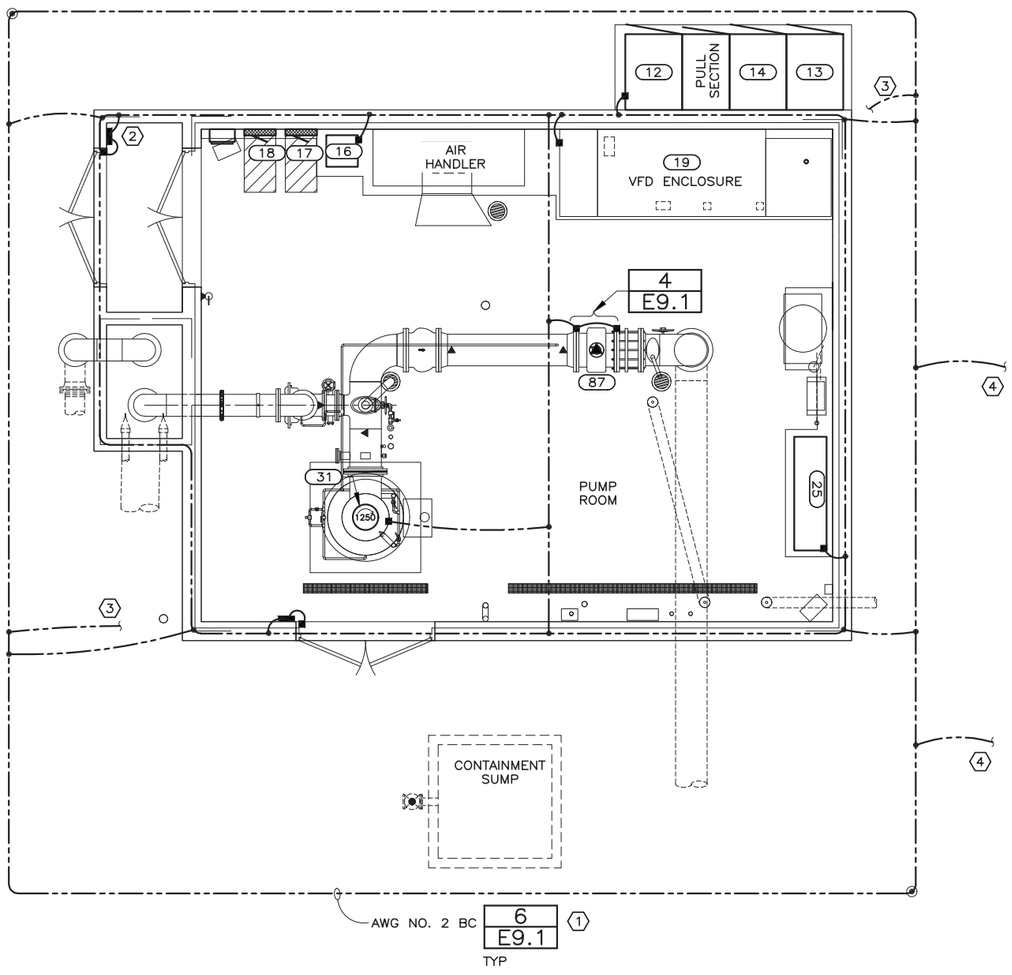
CENTRAL UTAH WATER CONSERVANCY DISTRICT

CENTRAL UTAH WATER CONSERVANCY DISTRICT

PUMP HOUSE PROJECT WELLS #7, #16 & #17
ELECTRICAL
WELL 17 SITE PHOTOMETRIC PLAN

SHEET E8.5

207.27.200



0 2' 4' 8'

3/8"=1'-0"

N

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HEGERHORST POWER ENGINEERING INCORPORATED (801) 642-2051
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AMERICAN FORK, UT 84003
HPE PROJECT 20.111

FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

WELL 17 GROUNDING PLAN ITEMS

DRAWING ID	TAG	DESCRIPTION	LOCATION
12	MSD-17-01	MAIN SERVICE DISCONNECT	BLD. EXTERIOR
13	DFS-17-01	DISTRIBUTION EQUIPMENT FUSED SWITCH	BLD. EXTERIOR
14	DFS-17-02	DISTRIBUTION EQUIPMENT FUSED SWITCH	BLD. EXTERIOR
16	XFMR-17-02	TRANSFOMER L	PUMP RM.
17	PNL-17-H	PANELBOARD H	PUMP RM.
18	PNL-17-L	PANELBOARD L	PUMP RM.
19	VFD-17-01	VARIABLE FREQUENCY DRIVE	PUMP RM.
25	CP-17-01	MAIN CONTROL PANEL/REMOTE TELEMETRY UNIT	PUMP RM.
31	P-17-01	WELL PUMP	PUMP RM.
87	FIT-17-01	WELL FLOW METER	PUMP RM.

GENERAL NOTES:

1. REFER TO GROUNDING DETAIL H/E9.0 FOR ADDITIONAL INFORMATION ON GROUNDING SYSTEM INSTALLATION.

SHEET KEYNOTES:

1. GROUNDING RING SHALL BE BURIED 24–IN TO 36–IN FROM EXTERIOR PERIMETER OF BUILDING.
2. GROUNDING TO DOOR FRAME. TYPICAL ALL EXTERIOR DOORS. DO NOT GROUND VESTIBULE INTERIOR DOOR.
3. TO BUILDING LIGHTNING PROTECTION CONDUCTORS. REFER TO E5.1.
4. TO SURGE VAULT, TRANSFORMER AND METERING EQUIPMENT GROUNDING RING. REFER TO E8.4.

FILE NAME:
FILE DATE:

REGISTERED PROFESSIONAL ENGINEER
No. 86-171214-2202
KEITH B. HEGERHORST
5/19/2023
STATE OF UTAH

PROJECT ENGINEER

DESIGNED	KBH
DRAFTED	KBH
CHECKED	KBH
DATE	MAY 2023

SCALE: AS SHOWN

CENTRAL UTAH WATER CONSERVANCY DISTRICT

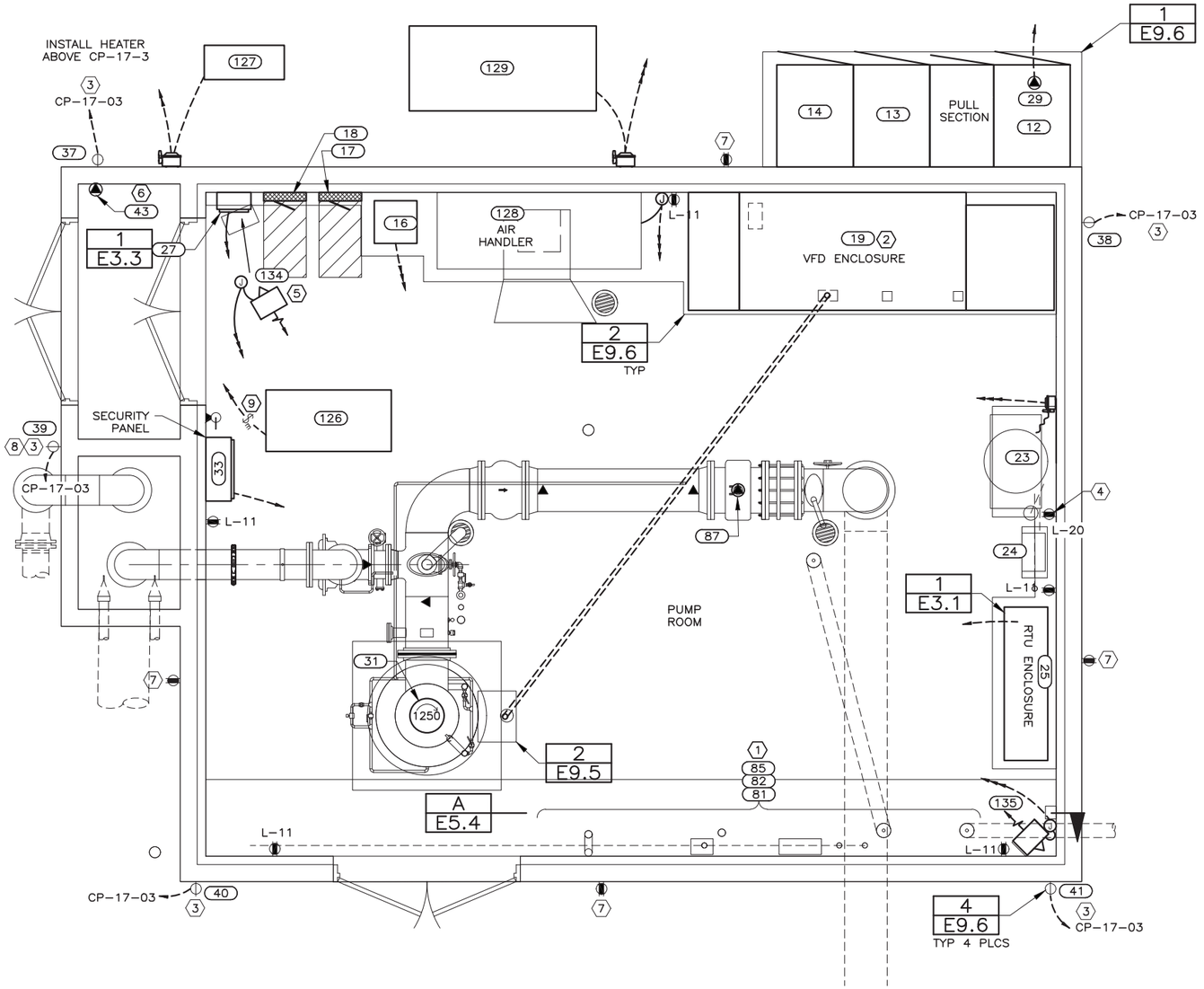
CENTRAL UTAH WATER CONSERVANCY DISTRICT

PUMP HOUSE PROJECT WELLS #7, #16 & #17
ELECTRICAL
WELL 17 GROUNDING PLAN

SHEET E8.6

207.27.200

7/04



3/8"=1'-0"

WELL 17 POWER PLAN ITEMS

DRAWING ID	TAG	DESCRIPTION	POWER SOURCE	LOCATION
12	MSD-17-01	MAIN SERVICE DISCONNECT	PME-17-01	BLD. EXTERIOR
13	DFS-17-01	DISTRIBUTION EQUIPMENT FUSED SWITCH	MSD-17-01	BLD. EXTERIOR
14	DFS-17-02	DISTRIBUTION EQUIPMENT FUSED SWITCH	MSD-17-01	BLD. EXTERIOR
16	XFMR-17-02	TRANSFOMER L	H-1,3,5	PUMP RM.
17	PNL-17-H	PANELBOARD H	XFMR-17-01	PUMP RM.
18	PNL-17-L	PANELBOARD L	XFMR-17-02	PUMP RM.
19	VFD-17-01	VARIABLE FREQUENCY DRIVE	SCB-17-01	PUMP RM.
23	AC-17-01	AIR COMPRESSOR	H-8,10,12	PUMP RM.
24	AD-17-01	AIR DRYER	L-7	PUMP RM.
25	CP-17-01	MAIN CONTROL PANEL/REMOTE TELEMETRY UNIT	L-4	PUMP RM.
27	CP-17-03	EXTERIOR LIGHTS/ICE MELT CONTROL PANEL	L-5,7	PUMP RM.
29	EM-17-1	ENERGY AND POWER MONITOR	L-18	SITE
31	P-17-01	WELL PUMP	VFD-17-01	PUMP RM.
33	SP-17-01	SECURITY PANEL	L-12	PUMP RM.
37	IM-17-01	ICE MELT RECEPTACLE	CP-17-03	BLD. EXTERIOR
38	IM-17-02	ICE MELT RECEPTACLE	CP-17-03	BLD. EXTERIOR
39	IM-17-03	ICE MELT RECEPTACLE	CP-17-03	BLD. EXTERIOR
40	IM-17-04	ICE MELT RECEPTACLE	CP-17-03	BLD. EXTERIOR
41	IM-17-05	ICE MELT RECEPTACLE	CP-17-03	BLD. EXTERIOR
43	IT-17-01	IRRIGATION VALVE TIMER	L-15	PUMP RM.
81	AIT-17-02	WELL TURBIDITY ANALYZER	L-5	PUMP RM.
82	AIT-17-03A	WELL pH ANALYZER	L-6	PUMP RM.
85	AIT-17-03D	WATER TEMPERATURE TRANSMITTER	CP-17-01	PUMP RM.
87	FIT-17-01	WELL FLOW METER	CP-17-01	PUMP RM.
126	FC-17-01	INDOOR FAN COIL UNIT	L-34,36	PUMP RM.
127	MCU-17-01	OUTDOOR CONDENSIONG UNIT	L-30,32	PUMP RM.
128	AH-17-01	AIR HANDLER	L-20,22,24	PUMP RM.
129	CU-17-01	CONDENSING UNIT	H-14,16,18	PUMP RM.
134	UH-17-01	UNIT HEATER	H-13,15,17	PUMP RM.
135	UH-17-02	UNIT HEATER	H-19,21,23	PUMP RM.

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AMERICAN FORK, UT 84003
HPE PROJECT 20.111

FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

GENERAL NOTES:

1. POWER SOURCE OR "HOME RUN" SHOWN IN THE POWER PLAN ITEM LIST ABOVE. REFER TO ONE-LINE DIAGRAM, PANEL SCHEDULES AND CONDUIT/CONDUCTOR TABLE FOR WIRE AND CONDUIT REQUIREMENTS.
2. EQUIPMENT DIMENSIONS ARE APPROXIMATE. CONTRACTOR SHALL MODIFY AS REQUIRED FOR PROVIDED EQUIPMENT. MAINTAIN NEC CLEARANCES AS REQUIRED.
3. INSTALL IN-SERVICE WEATHERPROOF COVERS ON ALL RECEPTACLES.

SHEET KEYNOTES:

1. REFER TO WELL 17 WET WALL ELEVATION ON E5.4 FOR LOCATIONS OF WATER CHEMISTRY INSTRUMENTS. SEE INSTRUMENTATION ELEVATION FOR HEIGHT OF DEVICE.
2. VFD INCLUDES 120 VAC SPACE HEATER CIRCUIT (L-10) AND 480 VAC FAN POWER CIRCUIT (H-7,9,11). REFER TO PANEL SCHEDULES FOR ADDITIONAL INFORMATION.
3. RECEPTACLE FOR ICE MELT CABLE. PROVIDE IN-SERVICE WEATHERPROOF COVER. FOR INSTALLATION REQUIREMENTS REFER TO WIRING DIAGRAM ON SEE SHEET E3.3.
4. RECEPTACLE FOR AIR DRYER. INSTALL BELOW AIR DRYER.
5. INSTALL UNIT HEATER ABOVE CP-17-03.
6. PROVIDE AND INSTALL A 2-INCH PVC CONDUIT FROM BELOW THE IRRIGATION TIMER TO THE IRRIGATION VALVE AREA. VALVE AREA IS NEAR THE IRRIGATION METER SHOWN ON THE E8.4 SITE PLAN.
7. INSTALL RECEPTACLE +18". WIRE TO CIRCUIT L-13. PROVIDE IN-SERVICE WEATHERPROOF COVER.
8. DOWNSPOUT DISCHARGES INTO WASTE BASIN. INSTALL RECEPTACLE FOR ICE MELT 8-IN ABOVE WASTE BASIN TOP-OF-WALL. DO NOT INSTALL RECEPTACLE IN BASIN.
9. INSTALL MANUAL STARTER NEAR SECURITY ENCLOSURE AND LABEL AS "FAN COIL DISCONNECT".

FILE NAME:
FILE DATE:

HANSEN ALLEN & LUCE ENGINEERS

REGISTERED PROFESSIONAL ENGINEER No. 86-171214-2202 KEITH B. HEGERHORST 5/19/2023 STATE OF UTAH
PROJECT ENGINEER

DESIGNED	KBH
DRAFTED	KBH
CHECKED	KBH
DATE	MAY 2023

SCALE: AS SHOWN

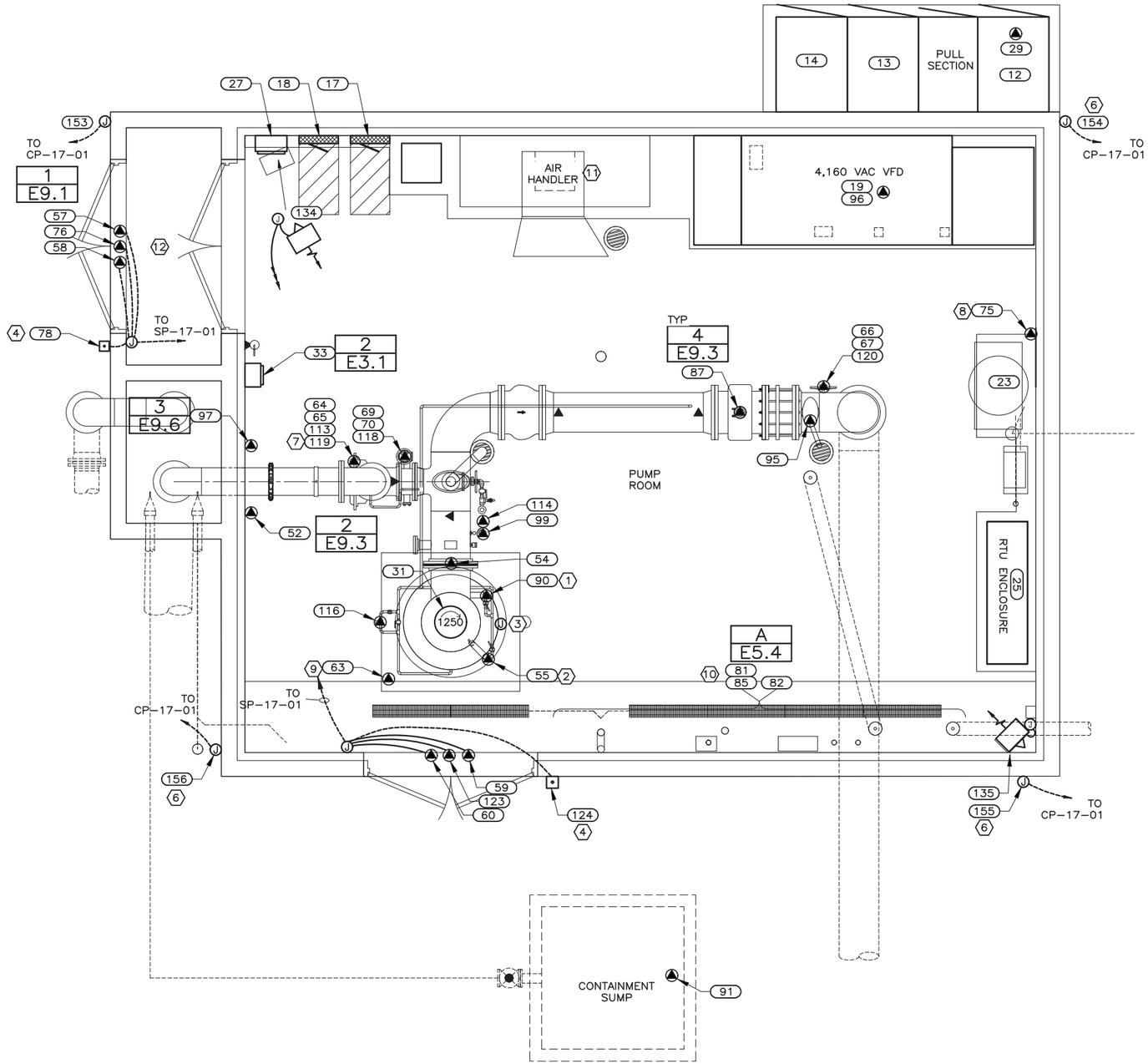
CENTRAL UTAH WATER CONSERVANCY DISTRICT

CENTRAL UTAH WATER CONSERVANCY DISTRICT

PUMP HOUSE PROJECT WELLS #7, #16 & #17
ELECTRICAL
WELL 17 POWER PLAN

SHEET E8.7
207.27.200

7/04



0 2' 4' 8'

3/8"=1'-0"

N

WELL 17 INSTR. & CONTROL PLAN ITEMS

DRAWING ID	TAG	DESCRIPTION	LOCATION
12	MSD-17-01	MAIN SERVICE DISCONNECT	BLD. EXTERIOR
13	DFS-17-01	DISTRIBUTION EQUIPMENT FUSED SWITCH	BLD. EXTERIOR
14	DFS-17-02	DISTRIBUTION EQUIPMENT FUSED SWITCH	BLD. EXTERIOR
17	PNL-17-H	PANELBOARD H	PUMP RM.
18	PNL-17-L	PANELBOARD L	PUMP RM.
19	VFD-17-01	VARIABLE FREQUENCY DRIVE	PUMP RM.
23	AC-17-01	AIR COMPRESSOR	PUMP RM.
25	CP-17-01	MAIN CONTROL PANEL/REMOTE TELEMETRY UNIT	PUMP RM.
27	CP-17-03	EXTERIOR LIGHTS/ICE MELT CONTROL PANEL	PUMP RM.
29	EM-17-1	ENERGY AND POWER MONITOR	SITE
31	P-17-01	WELL PUMP	PUMP RM.
33	SP-17-01	SECURITY PANEL	PUMP RM.
52	LSH-17-01	PUMP RM. FLOOR HIGH WATER SWITCH	PUMP RM.
54	PSH-17-01	WELL HIGH DISCHARGE PRESSURE SWITCH	PUMP RM.
55	VSH-17-01	WELL MOTOR HIGH VIBRATION SWITCH	PUMP RM.
57	ZS-17-01A	PUMP RM. DOOR 1A POSITION SWITCH	PUMP RM.
58	ZS-17-01B	PUMP RM. DOOR 1B POSITION SWITCH	PUMP RM.
59	ZS-17-02A	MAINTENANCE DOOR DOOR 2A POSITION SWITCH	PUMP RM.
60	ZS-17-02B	MAINTENANCE DOOR DOOR 2B POSITION SWITCH	PUMP RM.
63	ZS-17-04	PUMP RM. HATCH POSITION SWITCH	PUMP RM.
64	ZS-17-05A	WASTE VALVE WASTE POSITION SWITCH	PUMP RM.
65	ZS-17-05B	WASTE VALVE SYSTEM POSITION SWITCH	PUMP RM.
66	ZS-17-06A	DISCHARGE VALVE OPEN POSITION SWITCH	PUMP RM.
67	ZS-17-06B	DISCHARGE VALVE CLOSED POSITION SWITCH	PUMP RM.
69	ZS-17-08A	WASTE ISOLATION VALVE OPEN POSITION SWITCH	PUMP RM.
70	ZS-17-08B	WASTE ISOLATION VALVE CLOSED POSITION SWITCH	PUMP RM.
75	CSH-17-01	AIR COMPRESSOR CURRENT SWITCH	PUMP RM.
76	ML-17-01	MAGNETIC DOOR LOCK	PUMP RM.
78	CR-17-01	ACCESS CARD READER	PUMP RM.
81	AIT-17-02	WELL TURBIDITY ANALYZER	PUMP RM.
82	AIT-17-03A	WELL pH ANALYZER	PUMP RM.
85	AIT-17-03D	WATER TEMPERATURE TRANSMITTER	PUMP RM.
87	FIT-17-01	WELL FLOW METER	PUMP RM.
90	LT-17-01	WELL WATER LEVEL TRANSMITTER	PUMP RM.
91	LT-17-02	CONTAINMENT SUMP LEVEL TRANSMITTER	CONTAINMENT SUMP
95	PT-17-01	SYSTEM PRESSURE TRANSMITTER	PUMP RM.
96	TE-17-01	MOTOR TEMPERATURE MONITOR	PUMP RM.
97	TT-17-01	PUMP RM. TEMPERATURE TRANSMITTER	PUMP RM.
99	TT-17-03	WELL DISCHARGE WATER TEMPERATURE TRANSMITTER	PUMP RM.
113	SV-17-03	WASTE VALVE PILOT SOLENOID VALVE	PUMP RM.
114	SV-17-06	TURBIDITY SUPPLY SOLENOID VALVE	PUMP RM.
116	SV-17-08	WELL PRE-LUBE SOLENOID VALVE	PUMP RM.
118	V-17-01	WASTE ISOLATION VALVE	PUMP RM.
119	V-17-02	PUMP-TO-WASTE VALVE	PUMP RM.
120	V-17-03	DISCHARGE VALVE	PUMP RM.
123	ML-17-03	MAGNETIC DOOR LOCK	PUMP RM.
124	CR-17-03	ACCESS CARD READER	PUMP RM.
134	UH-17-01	UNIT HEATER	PUMP RM.
135	UH-17-02	UNIT HEATER	PUMP RM.
153	JB-17-01	SECURITY J-BOX (ACTIVE CAMERA)	BLD. EXTERIOR
154	JB-17-02	SECURITY J-BOX (FUTURE CAMERA)	BLD. EXTERIOR
155	JB-17-03	SECURITY J-BOX (FUTURE CAMERA)	BLD. EXTERIOR
156	JB-17-04	SECURITY J-BOX (FUTURE CAMERA)	BLD. EXTERIOR

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AMERICAN FORK, UT 84003

HPE PROJECT 20.111

FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

GENERAL NOTES:

1. REFER TO ONE-LINE DIAGRAMS ON E2.1/E2.2 FOR WIRE AND CONDUIT REQUIREMENTS.
2. CONNECTION LOCATIONS SHOWN ARE APPROXIMATE. CONTRACTOR SHALL VERIFY ELECTRICAL CONNECTION LOCATIONS ON SUBMITTAL LITERATURE PRIOR TO CONDUIT ROUGH-IN.
3. ITEMS LOCATED IN THE SURGE VAULT ARE SHOWN ON E5.0.

SHEET KEYNOTES:

1. SUBMERSIBLE PRESSURE TRANSMITTER INSTALLED IN PVC GUIDE TUBE ATTACHED TO WELL DISCHARGE COLUMN. VERIFY LOCATION OF ACCESS PORT PRIOR TO CONDUIT ROUGH-IN REFER TO CIVIL DRAWINGS FOR PROBE INSTALLATION DEPTH. J-BOX AND CONDUIT SYSTEM FOR TRANSDUCER SHALL BE ASSEMBLED WITHOUT OPENINGS SO AS TO NOT ALLOW INSECTS INTO THE WELL. SEAL ANY OPENINGS WITH SILICONE AS REQUIRED.
2. MOTOR VIBRATION SWITCH: VERIFY LOCATION ON MOTOR PRIOR TO CONDUIT ROUGH-IN. FLEX CONDUIT SHALL NOT EXCEED 48-INCHES. PROVIDE CONDUIT SUPPORT THAT CAN BE REMOVED FROM THE MOTOR BASE.
3. MOTOR RTD J-BOX: SAME CONDUIT REQUIREMENTS AS KEYNOTE 2.
4. LOCATE THE DOOR ACCESS CARD READER ON THE RIGHT SIDE OF THE ENTRANCE DOOR. MOUNTING HEIGHT SHALL BE +36-INCHES ABOVE FINISHED SURFACE.
5. NOT USED.
6. WALL CCTV JUNCTION BOX. INSTALL RECESSED IN WALL WITH BLANK COVER PLATE.
7. WASTE VALVE LOCATED BELOW WASTE PIPE.
8. INSTALL CURRENT SWITCH IN A/C DISCONNECT SWITCH.
9. LOCATED AT ROOF HATCH.
10. REFER TO E5.4 FOR WET WALL ELECTRICAL EQUIPMENT.
11. VERIFY LOCATION OF AIR HANDLER CONTROLS PRIOR TO CONDUIT ROUGH-IN.
12. A REMOVABLE TRANSOM PANEL EXISTS ABOVE THE DOOR. DO NOT INSTALL CONDUIT ON REMOVABLE PANEL.

FILE NAME:
FILE DATE:

7/04

HANSEN ALLEN & LUCE, Inc. ENGINEERS

REGISTERED PROFESSIONAL ENGINEER No. 86-171214-2202 KEITH B. HEGERHORST 5/19/2023 STATE OF UTAH

PROJECT ENGINEER

DESIGNED	KBH
DRAFTED	KBH
CHECKED	KBH
DATE	MAY 2023

SCALE: AS SHOWN

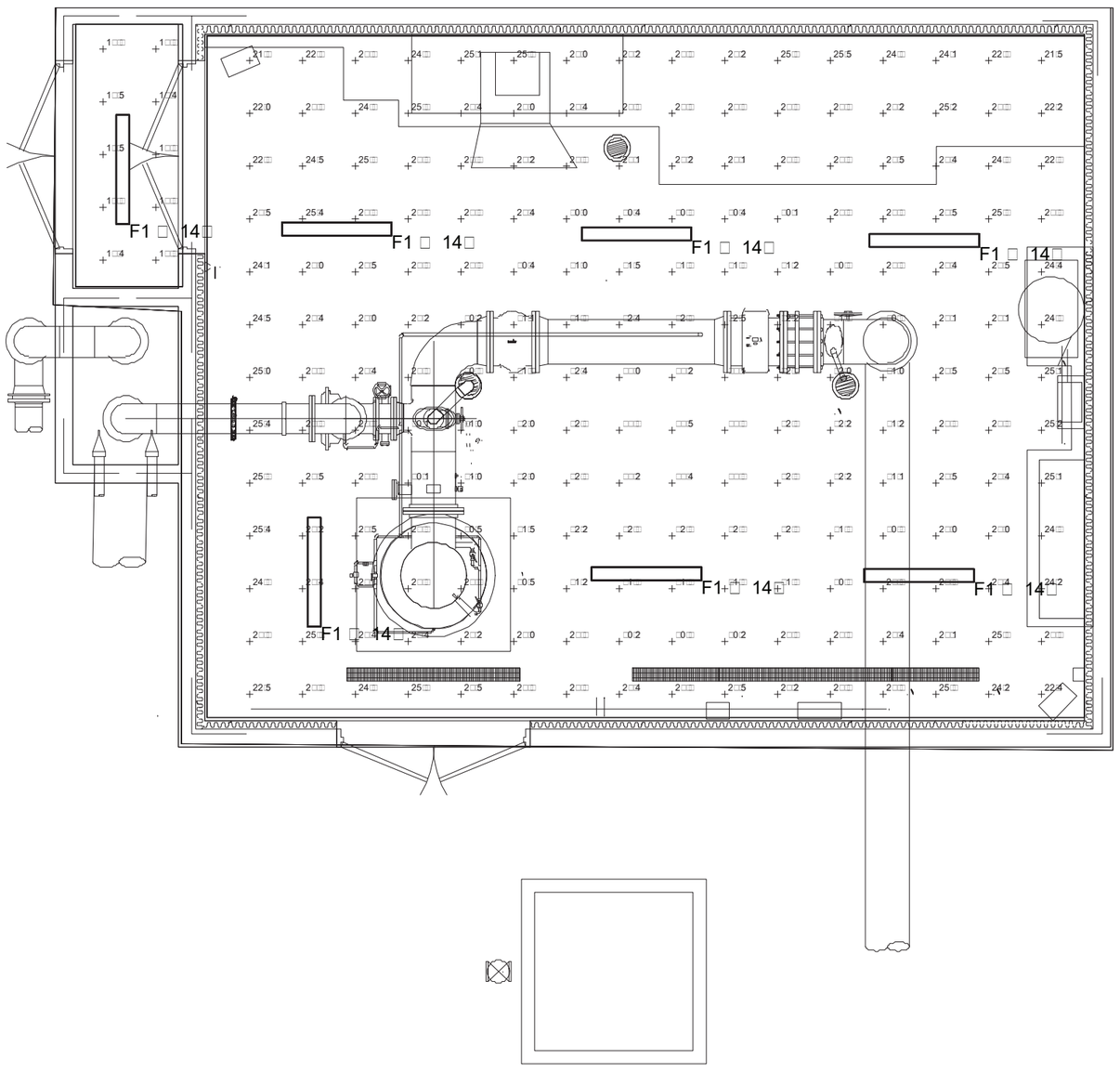
CENTRAL UTAH WATER CONSERVANCY DISTRICT

CENTRAL UTAH WATER CONSERVANCY DISTRICT

PUMP HOUSE PROJECT WELLS #7, #16 & #17
ELECTRICAL
WELL 17 I & C PLAN

SHEET E8.8

207.27.200



0 2' 4' 8'
3/8"=1'-0"

N

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AMERICAN FORK, UT 84003
HPE PROJECT 20.111

FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

GENERAL NOTES:

1. NOT USED.

SHEET KEYNOTES:

1. NOT USED.

S□□□□□□□□						
D□□r□□□□	S□□ □□□	□□□	M□□	M□	M□□/M□	□□□/M□
PUMP ROOM	+	2□□ □□	□□5 □□	21□ □□	1□□1	1□□1
E□TR□ VESTIBLE	+	1□5 □□	1□5 □□	1□□ □□	1□1	1□1

REGISTERED PROFESSIONAL ENGINEER
No. 86-171214-2202
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5/19/2023
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CENTRAL UTAH WATER CONSERVANCY DISTRICT

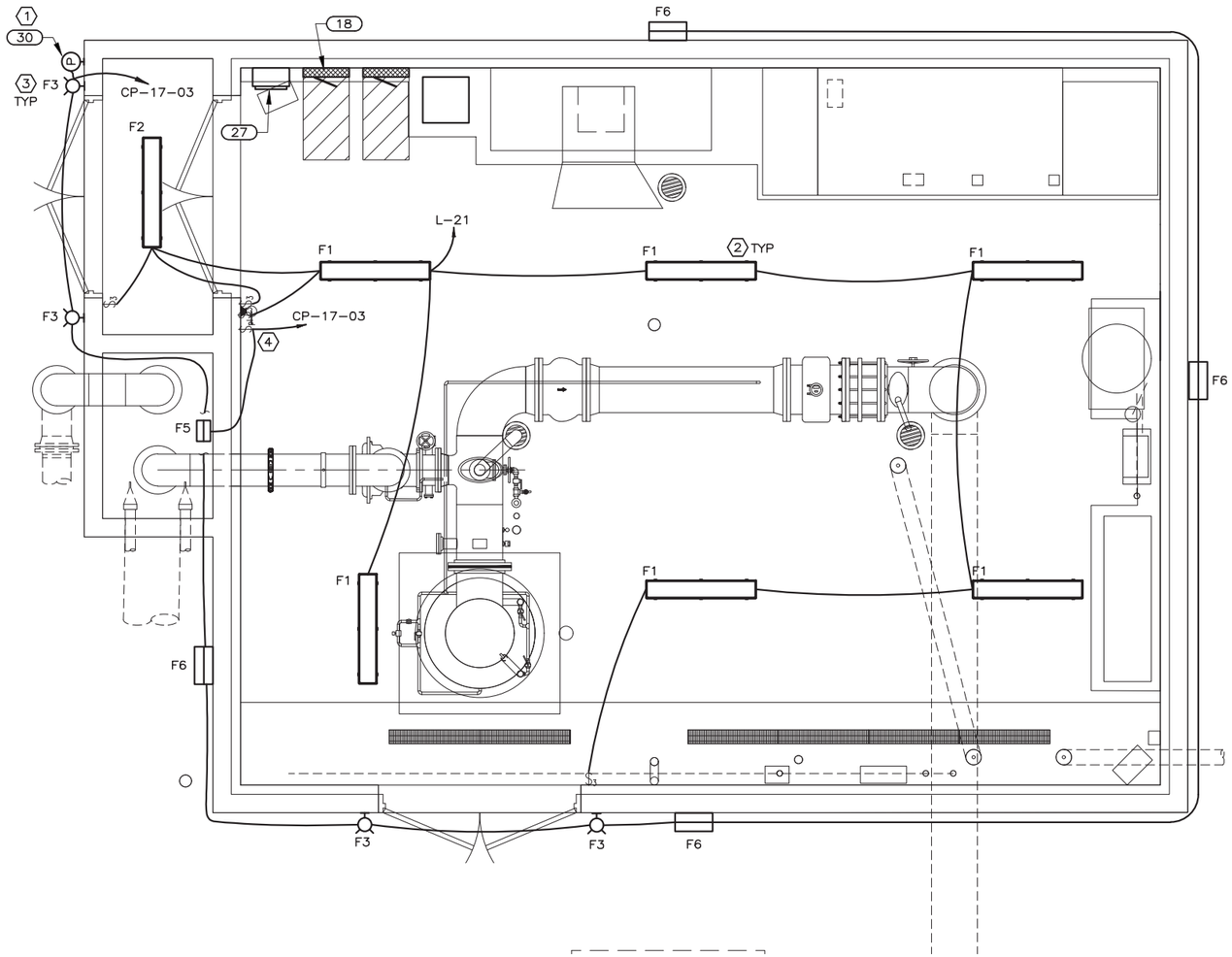
CENTRAL UTAH WATER CONSERVANCY DISTRICT

PUMP HOUSE PROJECT WELLS #7, #16 & #17
ELECTRICAL
WELL 17 INTERIOR PHOTOMETRIC PLAN

SHEET E8.9
207.27.200

FILE NAME:
FILE DATE:

7/04



0 2' 4' 8'

3/8"=1'-0"

N

H.P.E. INC. ELECTRICAL ENGINEERS
POWER SYSTEMS, CONTROL & INSTRUMENTATION SYSTEMS
HEGERHORST POWER ENGINEERING INCORPORATED (801) 642-2051
708 EAST 50 SOUTH FAX (801) 642-2154
AMERICAN FORK, UT 84003

HPE PROJECT 20.111

FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

WELL 17 LIGHTING PLAN ITEMS

DRAWING ID	TAG	DESCRIPTION	LOCATION
18	PNL-17-L	PANELBOARD L	PUMP RM.
27	CP-17-03	EXTERIOR LIGHTS/ICE MELT CONTROL PANEL	PUMP RM.
30	PC-17-01	LIGHTING PHOTOCELL	BLD. EXTERIOR

GENERAL NOTES:

1. REFER TO PANEL SCHEDULES AND CONDUIT/ CONDUCTOR TABLE FOR WIRE AND CONDUIT REQUIREMENTS.
2. FIXTURE SCHEDULE SHOWN ON E1.2.
3. REFER TO ONE-LINE DIAGRAMS FOR ADDITIONAL WIRE AND CONDUIT INFORMATION.

SHEET KEYNOTES:

1. PHOTOCELL ON NORTH WALL OF BUILDING TO CONTROL EXTERIOR BUILDING LIGHTS. ROUTE CIRCUIT TO CP-17-03. SEE WIRING DIAGRAM ON E3.3.
2. CHAIN HANG FIXTURES SO THE BOTTOM OF ALL FIXTURES ARE 12-INCHES ABOVE TOP OF MOTOR.
3. FIXTURE MOUNTING HEIGHT SHOWN ON A-1.
4. PROVIDE LABEL FOR SWITCH "WASTE BASIN FLOOD".

FILE NAME:
FILE DATE:

7/04

HANSEN ALLEN & LUCE ENGINEERS

REGISTERED PROFESSIONAL ENGINEER
No. 86-171214-2202
KEITH B. HEGERHORST
5/19/2023
STATE OF UTAH
PROJECT ENGINEER

DESIGNED	KBH
DRAFTED	KBH
CHECKED	KBH
DATE	MAY 2023

SCALE: AS SHOWN

CENTRAL UTAH WATER CONSERVANCY DISTRICT

CENTRAL UTAH WATER CONSERVANCY DISTRICT

PUMP HOUSE PROJECT WELLS #7, #16 & #17
ELECTRICAL
WELL 17 LIGHTING PLAN

SHEET E8.10

207.27.200

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AMERICAN FORK, UT 84003
HPE PROJECT 20.111

FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

COM*check* Software Version 4.1.5.1

Interior Lighting Compliance Certificate

Project Information

Energy Code: 2018 IECC
Project Title: Central Utah Water Well #17
Project Type: New Construction

Construction Site:
800 East 350 North
Vineyard, UT

Owner/Agent:

Designer/Contractor:
Hegerhorst Power Engineering
708 East 50 South
American Fork, UT

Additional Efficiency Package(s)

Reduced interior lighting power. Requirements are implicitly enforced within interior lighting allowance calculations.

Allowed Interior Lighting Power

A Area Category	B Floor Area (ft2)	C Allowed Watts / ft2	D Allowed Watts (B X C)
1-PUMP HOUSE (Workshop)	915	0.81	741
		Total Allowed Watts =	741

Proposed Interior Lighting Power

A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast	B Lamps/ Fixture	C # of Fixtures	D Fixture Watt.	E (C X D)
1-PUMP HOUSE (Workshop)				
LED 1: F1: SURFACE LED: LED Panel 80W:	1	7	91	637
			Total Proposed Watts =	637

Interior Lighting PASSES: Design 14% better than code

Interior Lighting Compliance Statement

Compliance Statement: The proposed interior lighting design represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed interior lighting systems have been designed to meet the 2018 IECC requirements in COM*check* Version 4.1.5.1 and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

Ben Eliot Sorenson — Engineer — Ben Eliot Sorenson — 05/18/2023
Name - Title — Signature — Date

COM*check* Software Version 4.1.5.1

Exterior Lighting Compliance Certificate

Project Information

Energy Code: 2018 IECC
Project Title: Central Utah Water Well #17
Project Type: New Construction
Exterior Lighting Zone 2 (Residential mixed use area)

Construction Site:
800 East 350 North
Vineyard, UT

Owner/Agent:

Designer/Contractor:
Hegerhorst Power Engineering
708 East 50 South
American Fork, UT

Allowed Exterior Lighting Power

A Area/Surface Category	B Quantity	C Allowed Watts / Unit	D Tradable Wattage	E Allowed Watts (B X C)
Pedestrian and vehicular entrances and exits	12 ft of door	14	Yes	168
Walkway < 10 feet wide	164 ft of	0.5	Yes	82
			Total Tradable Watts (a) =	250
			Total Allowed Watts =	250
			Total Allowed Supplemental Watts (b) =	400

(a) Wattage tradeoffs are only allowed between tradable areas/surfaces.
(b) A supplemental allowance equal to 400 watts may be applied toward compliance of both non-tradable and tradable areas/surfaces.

Proposed Exterior Lighting Power

A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast	B Lamps/ Fixture	C # of Fixtures	D Fixture Watt.	E (C X D)
Pedestrian and vehicular entrances and exits (12 ft of door width): Tradable Wattage				
LED 1: F3: ENTRY SIDE LIGHT: LED PAR 13W:	1	4	14	56
Walkway < 10 feet wide (164 ft of walkway length): Tradable Wattage				
LED 2: F6: SECURITY/SIDEWALK: LED PAR 13W:	1	13	4	52
			Total Tradable Proposed Watts =	108

Exterior Lighting PASSES: Design 83% better than code

Exterior Lighting Compliance Statement

Compliance Statement: The proposed exterior lighting design represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed exterior lighting systems have been designed to meet the 2018 IECC requirements in COM*check* Version 4.1.5.1 and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

Ben Eliot Sorenson — Engineer — Ben Eliot Sorenson — 05/18/2023
Name - Title — Signature — Date

COM*check* Software Version 4.1.5.1

Inspection Checklist

Energy Code: 2018 IECC

Requirements: 0.0% were addressed directly in the COM*check* software

Text in the "Comments/Assumptions" column is provided by the user in the COMcheck Requirements screen. For each requirement, the user certifies that a code requirement will be met and how that is documented, or that an exception is being claimed. Where compliance is itemized in a separate table, a reference to that table is provided.

Section # & Req.ID	Plan Review	Complies?	Comments/Assumptions
C103.2 [PR4][1]	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the interior lighting and electrical systems and equipment and document where exceptions to the standard are claimed. Information provided should include interior lighting power calculations, wattage of bulbs and ballasts, transformers and control devices.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C103.2 [PR8][1]	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the exterior lighting and electrical systems and equipment and document where exceptions to the standard are claimed. Information provided should include exterior lighting power calculations, wattage of bulbs and ballasts, transformers and control devices.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C406 [PR9][1]	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the additional energy efficiency package options.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

Additional Comments/Assumptions:

1	High Impact (Tier 1)	2	Medium Impact (Tier 2)	3	Low Impact (Tier 3)

FILE NAME:
FILE DATE:

REGISTERED PROFESSIONAL ENGINEER
No. 86-171214-2202
KEITH B. HEGERHORST
5/19/2023
STATE OF UTAH
PROJECT ENGINEER

HANSEN ALLEN & LUCE, INC. ENGINEERS

DESIGNED	KBH
DRAFTED	KBH
CHECKED	KBH
DATE	MAY 2023

SCALE: NONE

CENTRAL UTAH WATER CONSERVANCY DISTRICT

CENTRAL UTAH WATER CONSERVANCY DISTRICT

PUMP HOUSE PROJECT WELLS #7, #16 & #17
ELECTRICAL
WELL 17 COMCHECK

SHEET E8.11
207.27.200

7/04

Section # & Req.ID	Rough-In Electrical Inspection	Complies?	Comments/Assumptions
C405.2.2.2 [EL22][1]	Spaces required to have light-reduction controls have a manual control that allows the occupant to reduce the connected lighting load in a reasonably uniform illumination pattern >= 50 percent.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.2.1, C405.2.1.1 [EL18][1]	Occupancy sensors installed in classrooms/lecture/training rooms, conference/meeting/multipurpose rooms, copy/print rooms, lounges/breakrooms, enclosed offices, open plan office areas, restrooms, storage rooms, locker rooms, warehouse storage areas, and other spaces <= 300 sqft that are enclosed by floor-to-ceiling height partitions. Reference section language C405.2.1.2 for control function in warehouses and section C405.2.1.3 for open plan office spaces.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.2.1.2 [EL19][1]	Occupancy sensors control function in warehouses: In warehouses, the lighting in aisleways and open areas is controlled with occupant sensors that automatically reduce lighting power by 50% or more when the areas are unoccupied. The occupant sensors control lighting in each aisleway independently and do not control lighting beyond the aisleway being controlled by the sensor.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.2.1.3 [EL20][1]	Occupant sensor control function in open plan office areas: Occupant sensor controls in open office spaces >= 300 sq.ft. have controls 1) configured so that general lighting can be controlled separately in control zones with floor areas <= 600 sq.ft. within the space, 2) automatically turn off general lighting in all control zones within 20 minutes after all occupants have left the space, 3) are configured so that general lighting power in each control zone is reduced by >= 80% of the full zone general lighting power within 20 minutes of all occupants leaving that control zone, and 4) are configured such that any daylight responsive control will activate space general lighting or control zone general lighting only when occupancy for the same area is detected.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.2.2.1, C405.2.2.2 [EL21][2]	Each area not served by occupancy sensors (per C405.2.1) have time-switch controls and functions detailed in sections C405.2.2.1 and C405.2.2.2.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

Section # & Req.ID	Rough-In Electrical Inspection	Complies?	Comments/Assumptions
C405.2.3, C405.2.3.1, C405.2.3.2 [EL23][2]	Daylight zones provided with individual controls that control the lights independent of general area lighting. See code section C405.2.3 Daylight-responsive controls for applicable spaces, C405.2.3.1 Daylight responsive control function and section C405.2.3.2 Sidelit zone.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.2.4 [EL26][1]	Separate lighting control devices for specific uses installed per approved lighting plans.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.2.4 [EL27][1]	Additional interior lighting power allowed for special functions per the approved lighting plans and is automatically controlled and separated from general lighting.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.2.5 [EL28][null]	Automatic lighting controls for exterior lighting installed. Controls will be daylight controlled, set based on business operation time-of-day, or reduce connected lighting > 30%.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.3 [EL6][1]	Exit signs do not exceed 5 watts per face.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.6 [EL26][2]	Low-voltage dry-type distribution electric transformers meet the minimum efficiency requirements of Table C405.6.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.7 [EL27][2]	Electric motors meet the minimum efficiency requirements of Tables C405.7(1) through C405.7(4). Efficiency verified through certification under an approved certification program or the equipment efficiency ratings shall be provided by motor manufacturer (where certification programs do not exist).	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.8.2, C405.8.2.1 [EL28][2]	Escalators and moving walks comply with ASME A17.1/CSA B44 and have automatic controls configured to reduce speed to the minimum permitted speed in accordance with ASME A17.1/CSA B44 or applicable local code when not conveying passengers.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.9 [EL29][2]	Total voltage drop across the combination of feeders and branch circuits <= 5%.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

Section # & Req.ID	Final Inspection	Complies?	Comments/Assumptions
C303.3, C408.2.5.2 [FI17][3]	Furnished O&M instructions for systems and equipment to the building owner or designated representative.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.4.1 [FI18][1]	Interior installed lamp and fixture lighting power is consistent with what is shown on the approved lighting plans, demonstrating proposed watts are less than or equal to allowed watts.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	*See the Interior Lighting fixture schedule for values.*
C405.5.1 [FI19][1]	Exterior lighting power is consistent with what is shown on the approved lighting plans, demonstrating proposed watts are less than or equal to allowed watts.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	*See the Exterior Lighing fixture schedule for values.*
C408.1.1 [FI57][1]	Building operations and maintenance documents will be provided to the owner. Documents will cover manufacturers' information, specifications, programming procedures and means of illustrating to owner how building, equipment and systems are intended to be installed, maintained, and operated.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C408.2.5.1 [FI16][3]	Furnished as-built drawings for eiectric power systems within 90 days of system acceptance.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C408.3 [FI33][1]	Lighting systems have been tested to ensure proper calibration, adjustment, programming, and operation.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

H.P.E. INC. ELECTRICAL ENGINEERS
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AMERICAN FORK, UT 84003
HPE PROJECT 20.111
FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

GENERAL NOTES:

1. SHEET 7 OF 7 IS BLANK AND NOT NEEDED.

SHEET KEYNOTES:

1. NOT USED.

FILE NAME:
FILE DATE:

REGISTERED PROFESSIONAL ENGINEER No. 86-171214-2202 KEITH B. HEGERHORST 5/19/2023 STATE OF UTAH
PROJECT ENGINEER

HANSEN ALLEN & LUCE ENGINEERS

DESIGNED	KBH
DRAFTED	KBH
CHECKED	KBH
DATE	MAY 2023

SCALE NONE

CENTRAL UTAH WATER CONSERVANCY DISTRICT

CENTRAL UTAH WATER CONSERVANCY DISTRICT

PUMP HOUSE PROJECT WELLS #7, #16 & #17
ELECTRICAL
WELL 17 COMCHECK CONT.

SHEET E8.12

207.27.200

7/04

H.P.E. INC. ELECTRICAL ENGINEERS
POWER SYSTEMS, CONTROL & INSTRUMENTATION SYSTEMS
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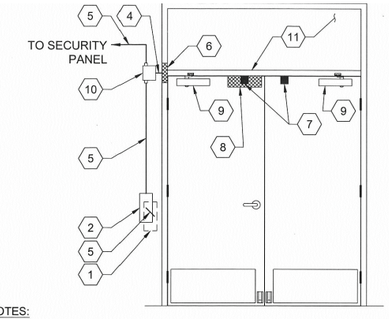
708 EAST 50 SOUTH FAX (801) 642-2154
AMERICAN FORK, UT 84003
HPE PROJECT 20.111

FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

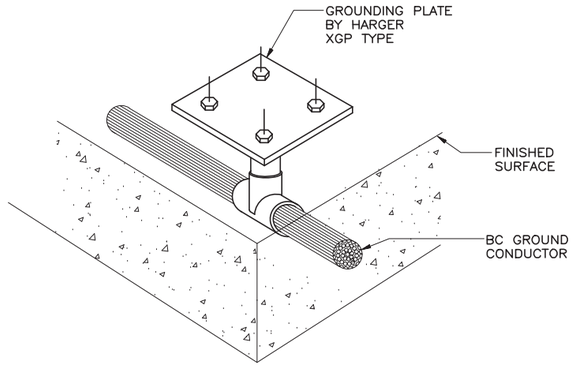


NOTES:

1. PROVIDE EMBEDDED SINGLE GANG BOX. INSTALL FLUSH WITH EXTERIOR WALL. SEE NOTE 3.
2. PROVIDE EMBEDDED SINGLE GANG BOX ON SECURE SIDE. SEE NOTE 3.
3. THE SINGLE GANG BOXES INDICATED IN NOTES 1 AND 2 SHOULD BE MOUNTED BACK TO BACK AND A 3/4" CONDUIT ROUTED BETWEEN THEM AND A SINGLE 3/4" CONDUIT RUN TO THE JUNCTION BOX ABOVE.
4. 3/4" EMBEDDED CONDUIT STUBBED INTO DOOR FRAME.
5. 3/4" EMBEDDED CONDUIT.
6. FILL DOOR FRAME WITH SPRAY FOAM WHERE CONDUIT ENTERS.
7. DOOR CONTACT WITH LEAD WIRES WITH CONNECTORS THAT EXTEND TO SECURITY JUNCTION BOX.
8. ELECTROMAGNETIC LOCK WITH LEAD WIRES WITH CONNECTORS THAT EXTEND TO SECURITY JUNCTION BOX.
9. DOOR CLOSER MOUNTED ON BOTH DOORS.
10. EMBEDDED DOUBLE GANG BOX ON SECURE SIDE WHICH SERVES AS A SECURITY JUNCTION BOX AND LOCATION WHERE WIRES GOING TO THE DOOR CONTACTS AND THE MAG LOCK CAN BE CONNECTED OR DISCONNECTED WHEN THE REMOVABLE HORIZONTAL MULL AND TRANSOM ARE TAKEN OUT OR REPLACED.
11. REMOVABLE TRANSOM AND HORIZONTAL MULL.

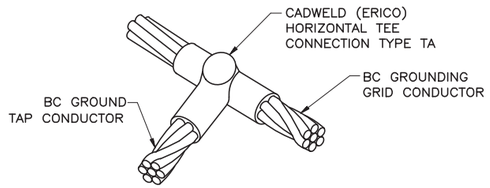
DOUBLE DOOR SECURITY - WITH REMOVABLE TRANSOM AND HORIZONTAL MULL

NTS



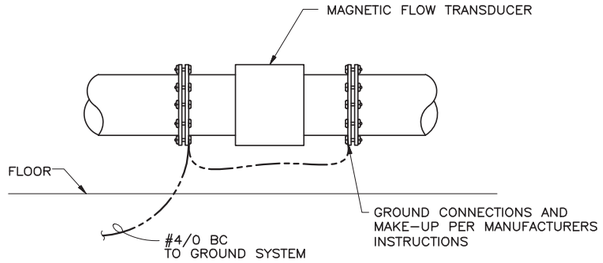
GROUNDING PLATE 2

1' = 1'-0" —



GROUND TAP CONNECTION 3

1' = 1'-0" —



MAG METER GROUNDING

SCALE: 1'=1'-0"

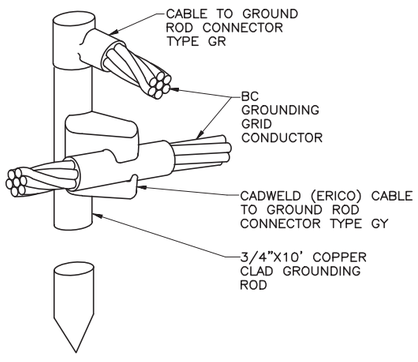
4 E6.6 — 4 E7.6

4 E8.6

DOOR & CARD READER INSTALLATION

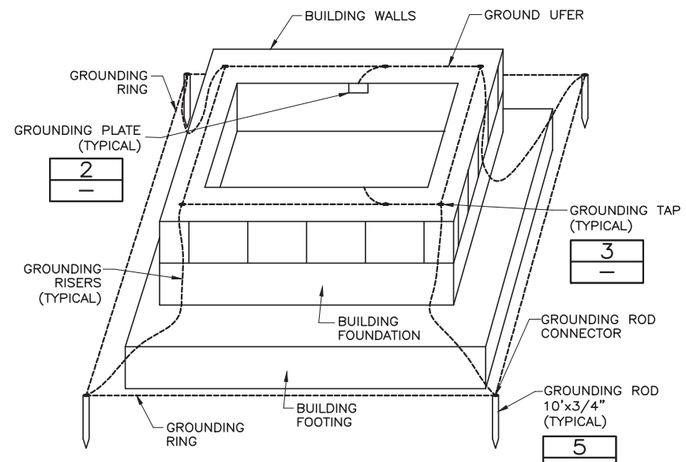
1 E6.8 — 1 E7.8

1 E8.8



GROUND ROD CONNECTION 5

1' = 1'-0" —



GROUND RING INSTALLATION

SCALE: NTS

6 E6.6 — 6 E7.6

6 E8.6

REGISTERED PROFESSIONAL ENGINEER — No. 86-171214-2202 — KEITH B. HEGERHORST — 5/19/2023 — STATE OF UTAH

FILE NAME:
FILE DATE:

7/04

HANSEN ALLEN & LUCE, Inc. ENGINEERS	PROJECT ENGINEER	DESIGNED KBH DRAFTED KBH CHECKED KBH DATE MAY 2023		SCALE AS SHOWN	CENTRAL UTAH WATER CONSERVANCY DISTRICT	CENTRAL UTAH WATER CONSERVANCY DISTRICT	PUMP HOUSE PROJECT WELLS #7, #16 & #17 ELECTRICAL DETAILS, SHT. 1	SHEET E9.1 207.27.200

H.P.E. INC. ELECTRICAL ENGINEERS
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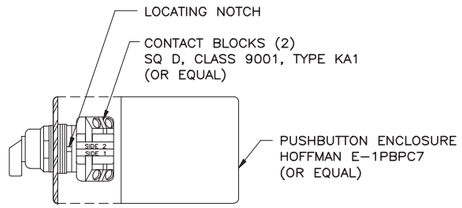
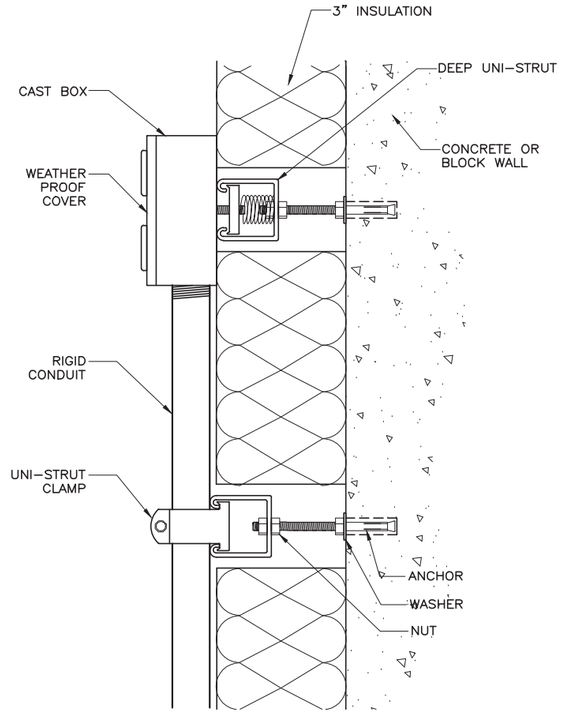
AMERICAN FORK, UT 84003
HPE PROJECT 20.111

FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST



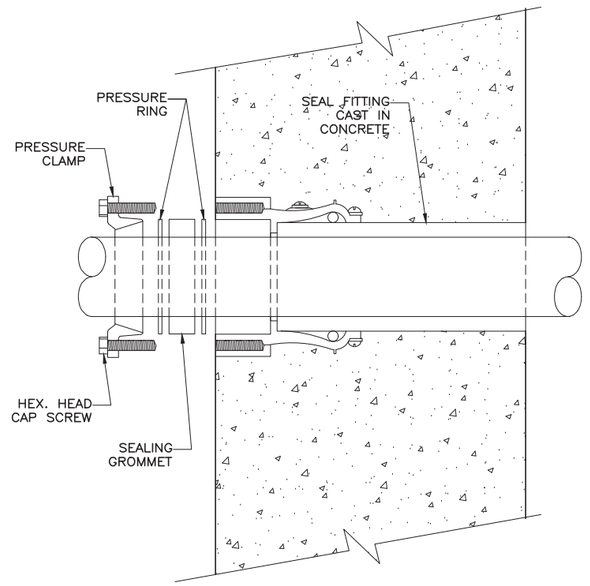
HAND OFF REMOTE SWITCH

1' = 1'-0" | 1 E5.3 | 1 E7.8



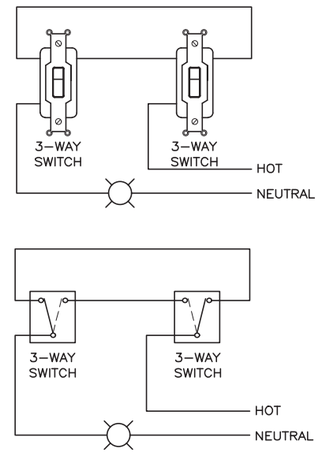
EQUIPMENT INSTALLATION ON INSULATED WALL

SCALE: 1'=1'-0" | 2 E5.3



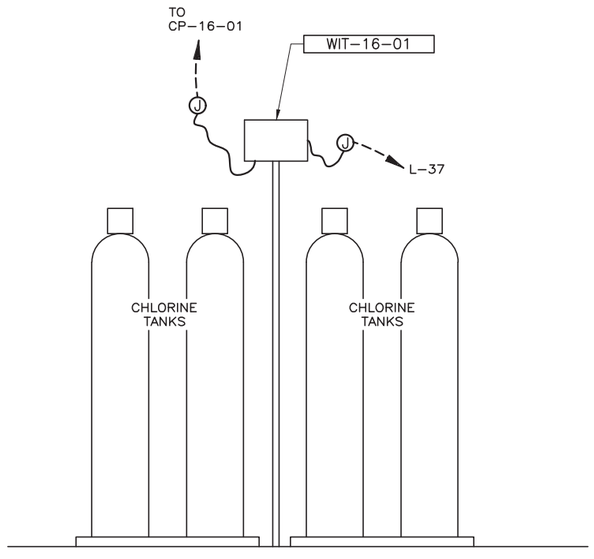
O-Z GEDNEY CONDUIT PENETRATION

SCALE: 1'=1'-0"



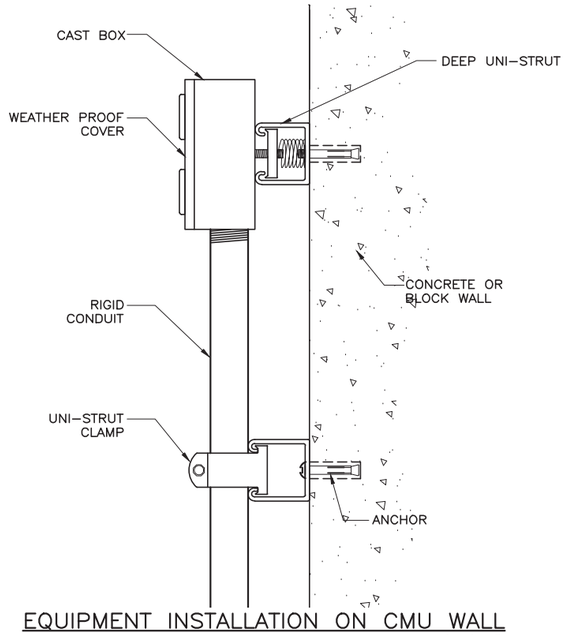
TYPICAL THREE-WAY SWITCH WIRING

SCALE: NONE



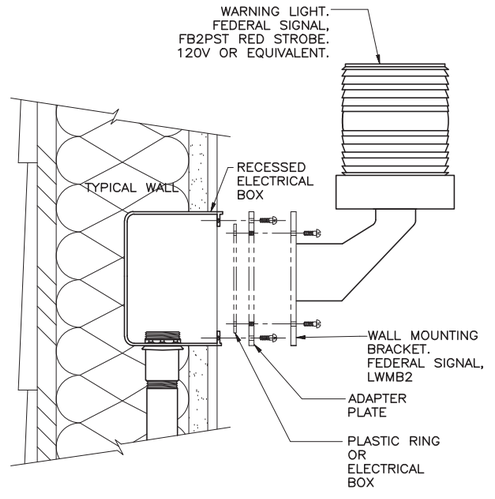
CHLORINE TANK INSTALLATION

SCALE: NONE | 5 E7.8



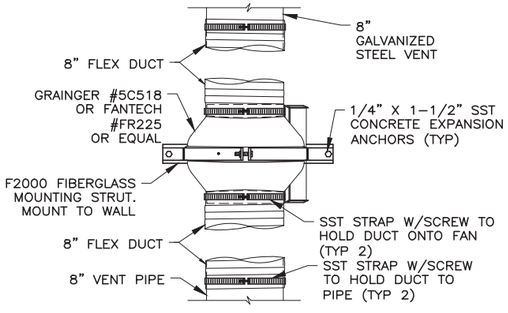
EQUIPMENT INSTALLATION ON CMU WALL

SCALE: 1'=1'-0"



LEAK ALARM LIGHT INSTALLATION

1' = 1'-0" | 7 E7.8



INLINE DUCT FAN DETAIL

1 1/2" = 1'-0" | 8 E5.3

REGISTERED PROFESSIONAL ENGINEER
No. 86-171214-2202
KEITH B. HEGERHORST
5/19/2023
STATE OF UTAH

PROJECT ENGINEER

DESIGNED	KBH
DRAFTED	KBH
CHECKED	KBH
DATE	MAY 2023

SCALE: AS SHOWN

CENTRAL UTAH WATER CONSERVANCY DISTRICT

CENTRAL UTAH WATER CONSERVANCY DISTRICT

PUMP HOUSE PROJECT WELLS #7, #16 & #17
ELECTRICAL
DETAILS, SHT. 2

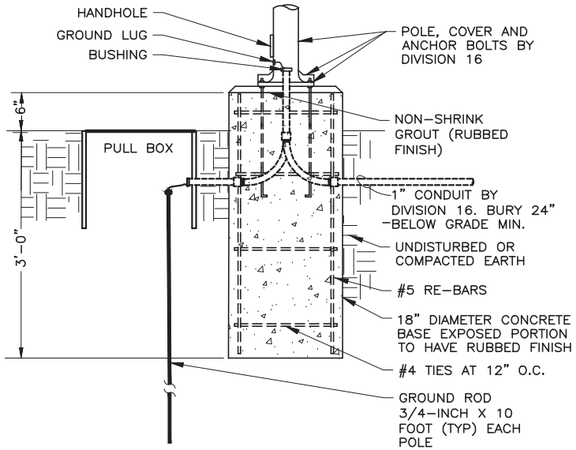
SHEET E9.2

207.27.200

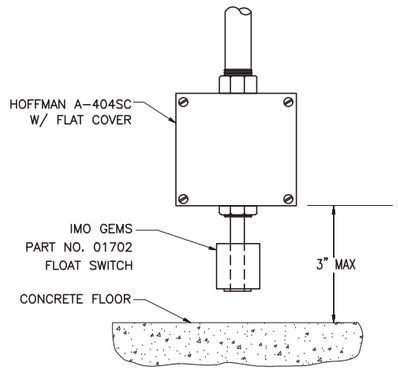
FILE NAME:
FILE DATE:

7/04

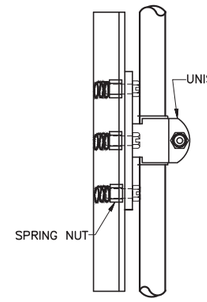
H.P.E. INC. ELECTRICAL ENGINEERS
POWER SYSTEMS, CONTROL & INSTRUMENTATION SYSTEMS
HEGERHORST POWER ENGINEERING INCORPORATED (801) 642-2051
708 EAST 50 SOUTH FAX (801) 642-2154
AMERICAN FORK, UT 84003
HPE PROJECT 20.111
FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

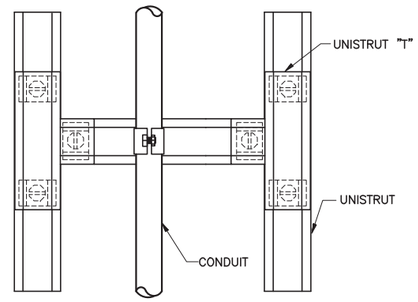


CCTV POLE BASE DETAIL 1
1" = 1'-0" E7.4

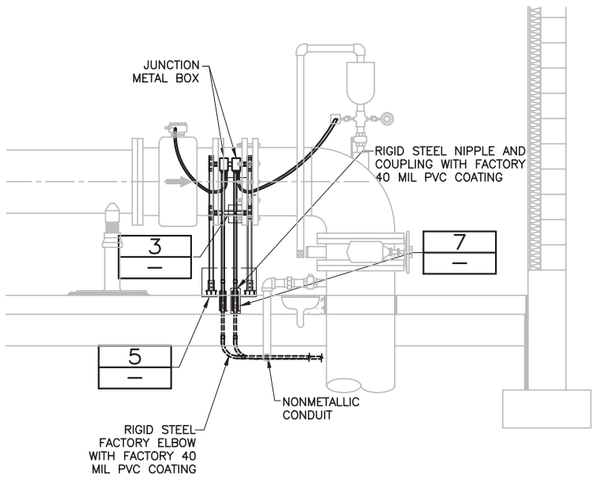


HIGH WATER FLOOD ALARM SWITCH
SCALE: 1'=1'-0"
2 5.3 | 2 E6.8
2 E7.8 | 2 E8.8

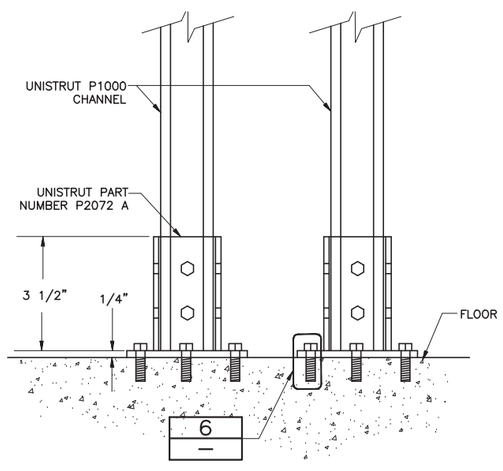




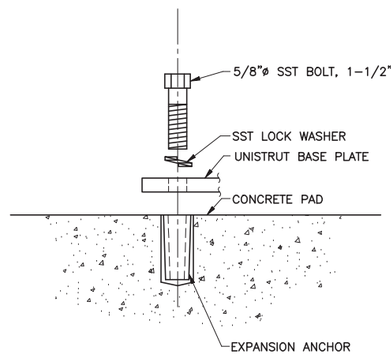
CONDUIT SUPPORT BRACE 3
1" = 1'-0" —



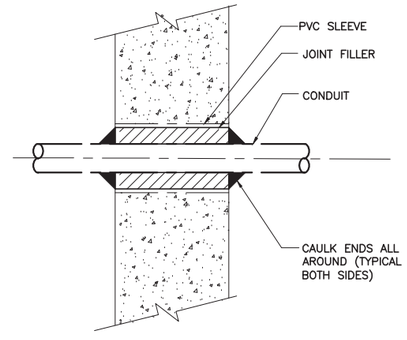
INSTRUMENTATION CONDUIT SUPPORT
SCALE: 1/2"=1'-0"
4 E6.8 | 4 E7.8
4 E8.8



SUPPORT FLOOR ANCHOR 5
1" = 1'-0" —



BASE FLOOR ATTACHMENT 6
1" = 1'-0" —



CONDUIT PENETRATION AT NEW WALL OR SLAB 7
3" = 1'-0" —

FILE NAME:
FILE DATE:
7/04

REGISTERED PROFESSIONAL ENGINEER
No. 86-171214-2202
KEITH B. HEGERHORST
5/19/2023
STATE OF UTAH
PROJECT ENGINEER

HANSEN ADLER & LUCE ENGINEERS

DESIGNED KBH
DRAFTED KBH
CHECKED KBH
DATE MAY 2023

SCALE AS SHOWN

CENTRAL UTAH WATER CONSERVANCY DISTRICT

CENTRAL UTAH WATER CONSERVANCY DISTRICT

PUMP HOUSE PROJECT WELLS #7, #16 & #17
ELECTRICAL
DETAILS, SHT. 3

SHEET E9.3
207.27.200

H.P.E. INC. ELECTRICAL ENGINEERS
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AMERICAN FORK, UT 84003
HPE PROJECT 20.111

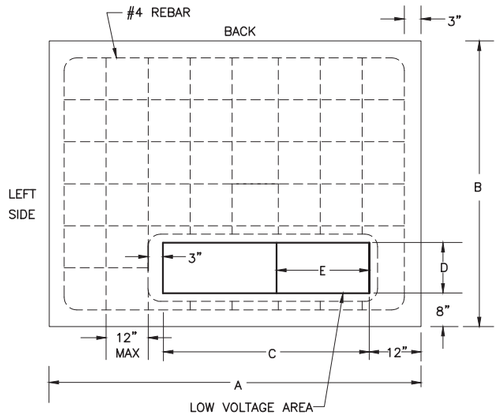
FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

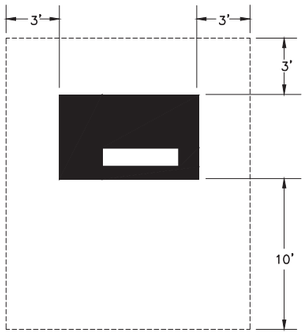
GENERAL NOTES:

1. NOT USED.

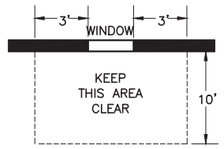
SHEET KEYNOTES:

1. ELEVATE TRANSFORMER PAD 3" MIN. ABOVE GRADE.





DETAIL "C"



DETAIL "A"

NOTES:

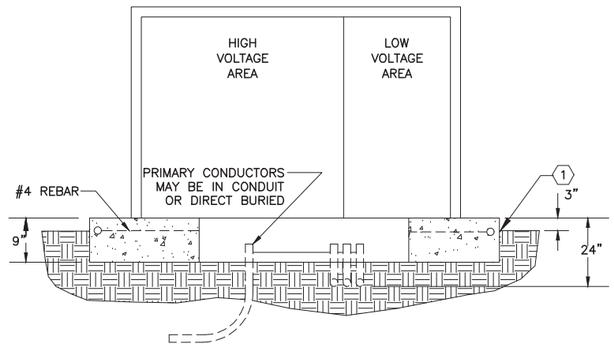
1. SITE PREPARATION: ALL DIRT BENEATH THE PAD SITE MUST BE COMPACTED AND LEVEL PRIOR TO SETTING OR POURING THE PAD TO PREVENT SETTLING.

2. CONCRETE: SHALL BE MADE USING A STANDARD BRAND OF PORTLAND CEMENT. STEEL REINFORCEMENT SHALL BE #4 REBAR PLACED ACCORDING TO THE DRAWINGS. THE PAD MUST BE POURED AT LEAST THREE FULL DAYS PRIOR TO SETTING THE UNIT. CONCRETE MUST BE KEPT ABOVE FREEZING AT LEAST 72 HOURS AFTER POURING. THE FINISHED SURFACE MUST BE COMPLETELY FLAT AND LEVEL. ALL WORK MUST BE DONE TO HIGH QUALITY STANDARDS.

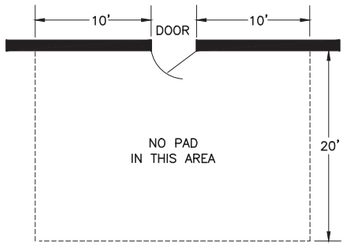
3. PREFABRICATION: THE PAD MAY EITHER BE CONSTRUCTED ON THE SITE OR PREFABRICATED ACCORDING TO SPECIFICATIONS.

4. TRANSFORMER CONDUIT WINDOW LAYOUT: LOW VOLTAGE CONDUITS SHALL BE FORMED AS TIGHTLY AS POSSIBLE AGAINST RIGHT SIDE OF THE OPENING AND SHALL IN NO CASE EXTEND FURTHER THAN 16" FROM THE RIGHT SIDE OF CONDUIT WINDOW ON THE PAD. NO MORE THAN 4 CONDUITS WILL BE USED ON THE LOW VOLTAGE SIDE. DO NOT PUT ANY CONCRETE IN OR UNDER THE CONDUIT WINDOW. USE DIRT TO SEPARATE CONDUITS. BELL ENDS ARE REQUIRED FOR ALL METAL CONDUITS BUT NOT FOR PLASTIC CONDUIT.

5. CLEARANCE: THE FRONT OF THE PAD SHOULD ALWAYS FACE AWAY FROM ADJACENT STRUCTURES AND BE FREE OF OBSTRUCTIONS. AT LEAST THREE FEET MUST SEPARATE THE EDGES OF THE PAD FROM ANY ADJACENT STRUCTURES. THE EDGES OF THE PAD MUST BE AT LEAST TEN FEET FROM ANY COMBUSTIBLE STRUCTURE. THE AREA IN FRONT OF THE PAD MUST HAVE TEN FEET OF CLEAR LEVEL WORKING AREA FOR MAINTENANCE OF THE UNIT.



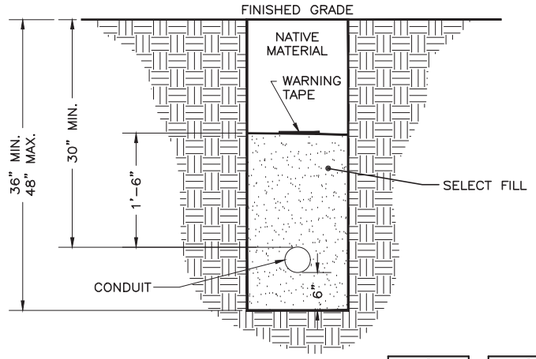
TRANSFORMER PAD DIMENSION CHART					
TRANSFORMER RATING	DIMENSIONS				
	A	B	C	D	E
75–500KVA	84"	78"	48"	15"	20"
750–2500KVA	96"	82"	60"	16"	30"



DETAIL "B"

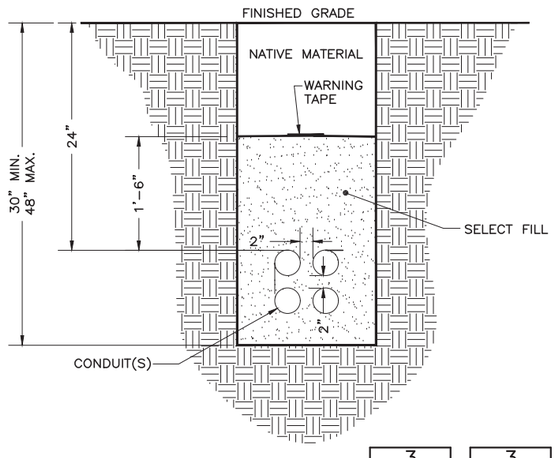
TRANSFORMER PAD INSTALLATION
SCALE: NONE

1/E6.4 | 1/E7.4 | 1/E8.4



12 KV CONDUIT INSTALLATION
SCALE: 1'=1'-0"

2/E6.4 | 2/E7.4 | 2/E8.4



480V CONDUIT INSTALLATION
SCALE: 1'=1'-0"

3/E6.4 | 3/E7.4 | 3/E8.4

FILE NAME:
FILE DATE:

HANSEN ALLEN & LUCE ENGINEERS

REGISTERED PROFESSIONAL ENGINEER No. 86-171214-2202 KEITH B. HEGERHORST 5/19/2023 STATE OF UTAH

PROJECT ENGINEER

DESIGNED	KBH
DRAFTED	KBH
CHECKED	KBH
DATE	MAY 2023

SCALE: AS SHOWN

CENTRAL UTAH WATER CONSERVANCY DISTRICT

CENTRAL UTAH WATER CONSERVANCY DISTRICT

PUMP HOUSE PROJECT WELLS #7, #16 & #17
ELECTRICAL
DETAILS, SHT. 4

SHEET E9.4

207.27.200

7/04

H.P.E. INC. ELECTRICAL ENGINEERS
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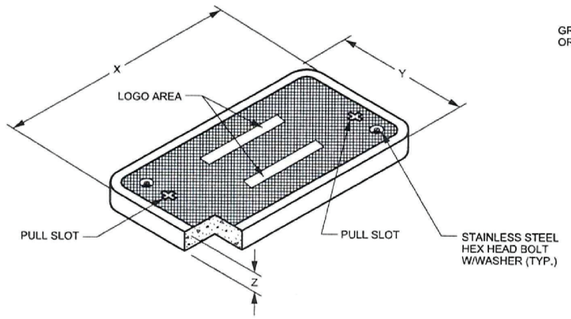
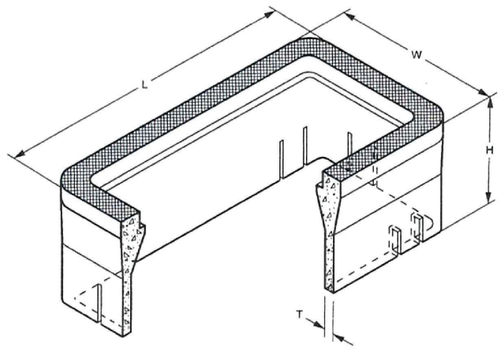
AMERICAN FORK, UT 84003
HPE PROJECT 20.111

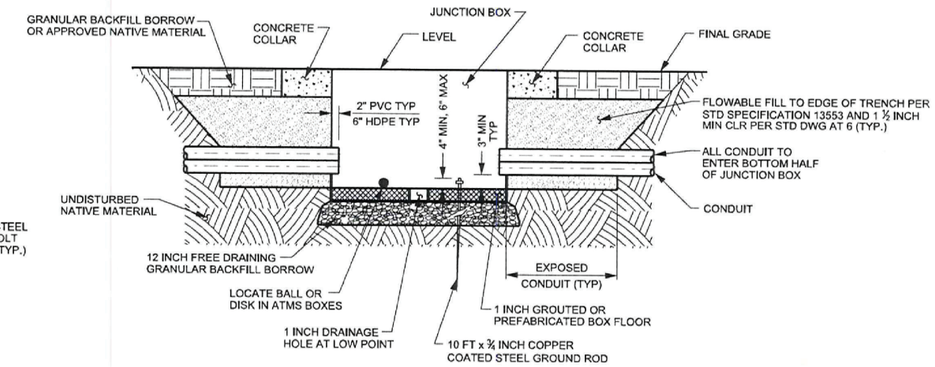
FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST



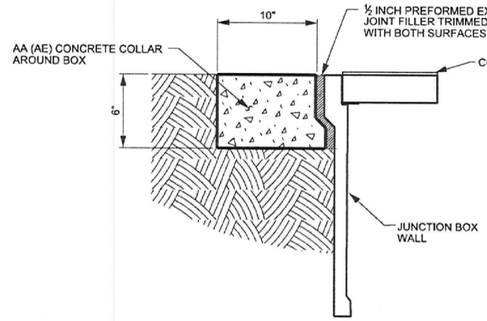


BOX AND LID DIMENSIONS

BOX TYPE	"H" inch	"L" inch	"T" inch	"W" inch	"X" inch	"Y" inch	"Z" inch
I-PC	24	25	1 ½	16	23 ¼	13 ¾	2
II-PC	24	37 ⅝	1 ½	26	35 ⅝	24	3
III-PC	24	49 ⅝	2	32 ⅛	47 ⅝	30 ⅛	3



JUNCTION BOX CONDUIT PENETRATION DETAIL

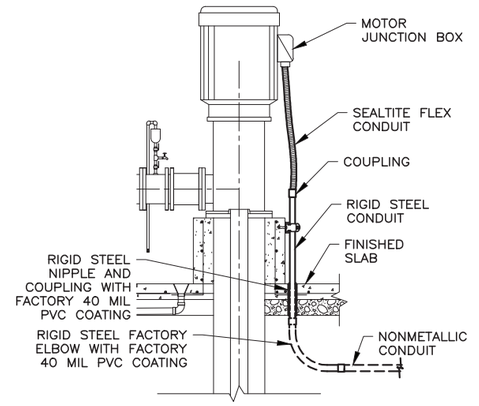


JUNCTION BOX CONCRETE COLLAR DETAIL

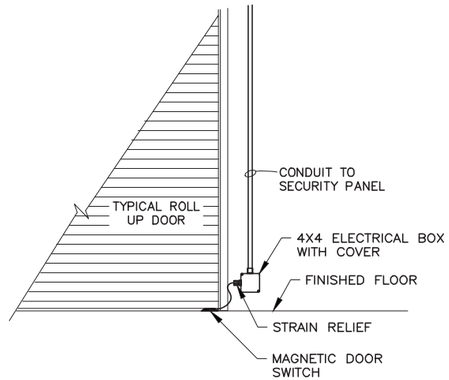
NOTES:

1. STAMP BOX LOGO INTO THE LID FROM THE FACTORY. (SEE STANDARD SPECIFICATION 13554).
2. DO NOT PLACE JUNCTION BOXES IN THE TRAVELED WAY OR ON FREEWAY SHOULDERS.
3. CONCRETE COLLAR WIDTH VARIES WHEN ADJACENT TO ATMS CABINETS. REFER TO AT AND SL SERIES STD DWGS.
4. PROVIDE CONCRETE COLLARS EXCEPT WITHIN CONCRETE PAVED AREAS.
5. INSTALL CONDUIT PLUG PER STANDARD SPECIFICATION 13554.
6. ALIGN ATMS CONDUIT BY COLOR ON EACH SIDE OF THE JUNCTION BOX.
7. PROVIDE TYPE III-PC JUNCTION BOXES WITH A SPLIT LID.
8. CONFORM TO ANSI/SCTE-77 2007 "SPECIFICATION FOR UNDERGROUND ENCLOSURE INTEGRITY" TIER 22 LOADING FOR ALL JUNCTION BOXES.
9. EXTEND GROUND ROD A MINIMUM OF 4 INCHES AND A MAXIMUM OF 6 INCHES ABOVE BOTTOM OF JUNCTION BOX.
10. USE A SPLIT BOLT TO ATTACH GROUND WIRES TO GROUND ROD. ATTACH NOT MORE THAN TWO WIRES PER BOLT.
11. DO NOT CUT GROUND RODS.

UDOT TYPE 1–II–III UG ELECRICAL BOX — 1
NTS — E8.4



VERTICAL MOTOR CONDUIT INSTALLATION — 2 E6.7 / 2 E7.7 / 2 E8.7
SCALE: 1/4"=1'–0"



ROLL–UP DOOR POSITION SWITCH — 3 / E7.8
3/4" = 1'–0"

FILE NAME:
FILE DATE:

REGISTERED PROFESSIONAL ENGINEER No. 86-171214-2202 KEITH B. HEGERHORST 5/19/2023 STATE OF UTAH
PROJECT ENGINEER

HANSEN ALLEN & LUCE, Inc. ENGINEERS

DESIGNED	KBH
DRAFTED	KBH
CHECKED	KBH
DATE	MAY 2023

SCALE: AS SHOWN

CENTRAL UTAH WATER CONSERVANCY DISTRICT

CENTRAL UTAH WATER CONSERVANCY DISTRICT

PUMP HOUSE PROJECT WELLS #7, #16 & #17
ELECTRICAL
DETAILS, SHT. 5

SHEET E9.5
207.27.200

7/04

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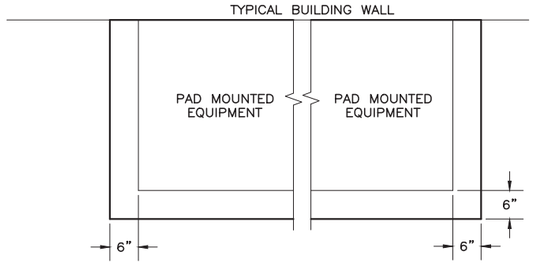
POWER SYSTEMS, CONTROL & INSTRUMENTATION SYSTEMS
HEGERHORST POWER ENGINEERING INCORPORATED (801) 642-2051
708 EAST 50 SOUTH FAX (801) 642-2154
AMERICAN FORK, UT 84003
HPE PROJECT 20.111
FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

GENERAL NOTES:

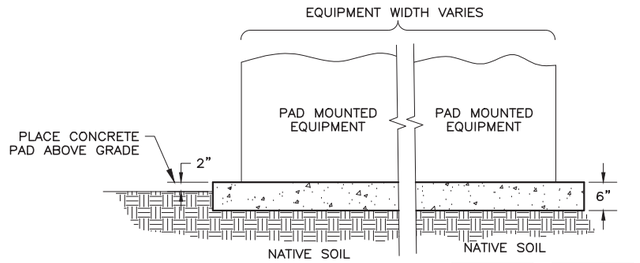
1. NOT USED.

SHEET KEYNOTES:

1. NOT USED.

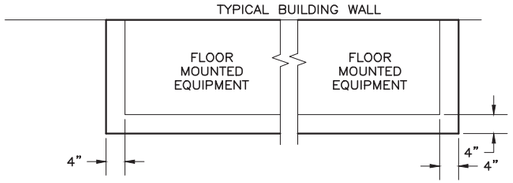


TOP VIEW



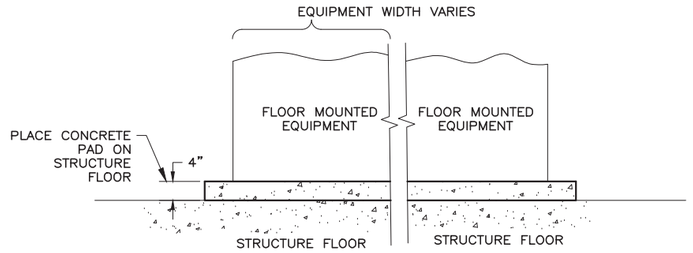
SERVICE EQUIPMENT INSTALLATION
SCALE: 3/4"=1'-0"

1 E6.7 | 1 E7.7 | 1 E8.7



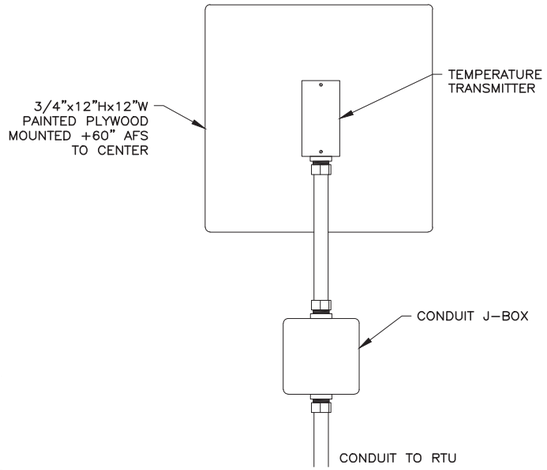
HOUSEKEEPING PAD FOR FLOOR MOUNTED EQUIPMENT SHOWN. PAD FOR WALL MOUNTED EQUIPMENT SHALL EXTEND A MAXIMUM OF 6" FROM WALL.

TOP VIEW



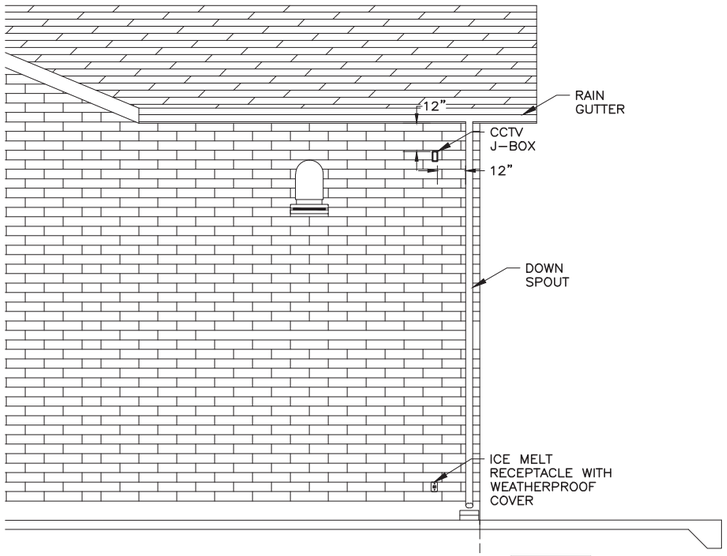
ELECTRICAL EQUIPMENT INSTALLATION
SCALE: 3/4"=1'-0"

2 E6.7 | 2 E7.7 | 2 E8.7



TEMPERATURE TRANSMITTER
SCALE: 3"=1'-0"

3 E6.8 | 3 E7.8 | 3 E8.8



TYPICAL CCTV AND ICE MELT INSTALLATION
SCALE: 3/8"=1'-0"

4 E6.7 | 4 E8.7

REGISTERED PROFESSIONAL ENGINEER
No. 86-171214-2202
KEITH B. HEGERHORST
5/19/2023
STATE OF UTAH
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HANSEN ALLEN & LUCE ENGINEERS

DESIGNED	KBH
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CENTRAL UTAH WATER CONSERVANCY DISTRICT

CENTRAL UTAH WATER CONSERVANCY DISTRICT

PUMP HOUSE PROJECT WELLS #7, #16 & #17
ELECTRICAL
DETAILS, SHT. 6

SHEET E9.6
207.27.200

FILE NAME:
FILE DATE:
7/04

H.P.E. INC. ELECTRICAL ENGINEERS
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AMERICAN FORK, UT 84003
HPE PROJECT 20.111

FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

GENERAL NOTES:

1. NOT USED.

SHEET KEYNOTES:

1. NOT USED.

GV 001

J. Barrier Posts

Six-inch steel or concrete barrier posts shall be provided by the customer wherever vehicular traffic may pose a threat to padmounted equipment. Steel posts shall be painted or galvanized, and may be filled with concrete. Concrete posts shall be painted. The posts shall have a domed top, and be free of burrs and sharp edges. Each barrier post shall be set in a concrete foundation at least 12 inches in diameter and 24 inches in depth below grade (see Figure 14).

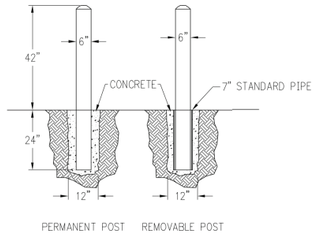

Figure 14 – Barrier Post Details

Posts shall meet the following additional requirements:

1. In areas where construction equipment traffic poses a temporary threat to equipment, barrier posts shall be provided by the customer, and shall remain in place until the threat has been eliminated.
2. Enough barrier posts shall be installed to adequately protect the padmounted equipment from vehicular traffic.
3. If the distance between two posts, or between a post and a non-traffic area, is greater than six feet, an intermediate post shall be installed (see Figure 15).
4. Barrier posts shall be placed so as not to obstruct the opening of the equipment doors, nor to impede the operation of the equipment. If this is not possible, removable posts shall be used in the obstructive location(s) (see Figure 16).

Distribution Construction Standard © 2007 by PacifiCorp. All rights reserved.	Equipment Bases and Enclosures—General Information	PACIFICORP	
Engineer (D. Wedam): Standards Manager (G. Lyons):		4 Apr 07	GV 001 Page 11 of 12

ZG 621

5.4 Conduit Entrances

The padvault shall be constructed with TERM-A-DUCT or equivalent conduit entrances compatible with PVC, polyethylene (PE), or fiberglass 90°C-rated electrical-grade conduit. The standard conduit entrance locations are as follows, and are also shown in Figure 2:

Entrances at each end wall: Two 6.63″ entrances, two 4.5″ entrances, and two 2.38″ entrances.

Entrances at each side wall: Eight 4.5″ entrances and one 6.63″ entrance.

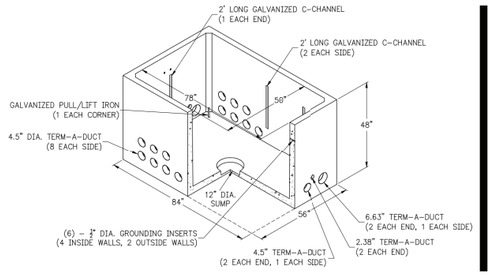

Figure 1—5′×7′ (56″× 84″) Vault, Cutaway View

MATERIAL SPECIFICATION Distribution © 2012 by PacifiCorp. All rights reserved.	Padvault — 5′×7′ (56″×84″), for Three-Phase Sectionalizing Cabinets and Metering Equipment	PACIFICORP	
Engineer (E. Malek): T&D Stds Mgr (J. Jones):		14 Nov 12	ZG 621 Page 3 of 8

ZG 621

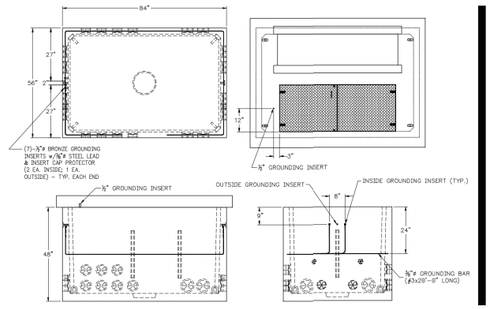

Figure 3—5′×7′ (56″× 84″) Vault Ground Grid Layout

5.6 Installation

This unit shall be set at the site by the supplier. The contractor shall be responsible to ensure that all earth under the vault is compacted and leveled to no more than 2% slope prior to setting the vault. A clean gravel base under the padvault may be necessary in areas where drainage is poor. The interface between the pad and the enclosure shall be sealed using a waterproof substance, such as tar or mastic. The top of the frame should be flush with the final grade in pedestrian areas. Setting depth shall be determined by the local regulatory authority for full-traffic areas.

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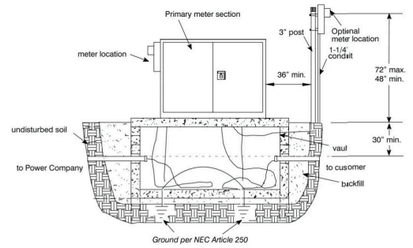
Engineer (E. Malek): T&D Stds Mgr (J. Jones):		14 Nov 12	ZG 621 Page 5 of 8

Figure 62—Underground Pad-Mounted Primary Metering Enclosure



Requirements:

1. The meter may be located on the primary metering enclosure, or post-mounted as shown in Figure 62.
2. The location of the metering vault will be mutually agreed upon between the customer and Power Company. The size of the metering vault will be specified by the Power Company.

9.6.3 Switchgear, Pad-Mounted Metering, EUSERC 400

Customers shall meet the requirements of EUSERC Section 400 when switchgear enclosures are required for metering primary voltage delivery services.

Requirements:

The customer shall provide/install:

1. Enclosure drawings for approval prior to fabrication
2. All necessary hardware per EUSERC, Section 400
3. A concrete vault for the switchgear metering enclosure

9.7 Metering in a Customer-Owned Substation

The customer shall consult the Power Company for the location of metering equipment for customer-owned substations. Power Company metering equipment is not allowed in these substations.

BOLLARD INSTALLATION 1
NTS —

METERING EQUIPMENT PADVAULT 2
NTS —

METERING EQUIPMENT INSTALLATION 2 E6.4 2 E7.4 2 E8.4
SCALE: NONE

FILE NAME:
FILE DATE:

REGISTERED PROFESSIONAL ENGINEER
No. 86-171214-2202
KEITH B. HEGERHORST
5/19/2023
STATE OF UTAH

HANSEN ALLEN & LUCE ENGINEERS

PROJECT ENGINEER

DESIGNED	KBH
DRAFTED	KBH
CHECKED	KBH
DATE	MAY 2023

SCALE: NONE

CENTRAL UTAH WATER CONSERVANCY DISTRICT

CENTRAL UTAH WATER CONSERVANCY DISTRICT

PUMP HOUSE PROJECT WELLS #7, #16 & #17
ELECTRICAL
DETAILS, SHT. 7

SHEET E9.7
207.27.200

7/04