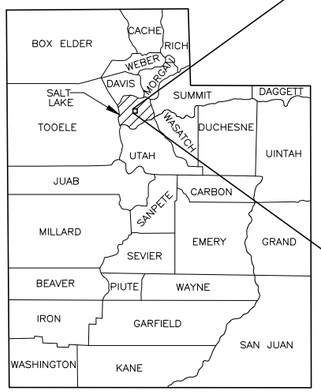
# WEST JORDAN CITY

# WELL # 8 PUMP BUILDING
# CONSTRUCTION PLANS
# MARCH 2023

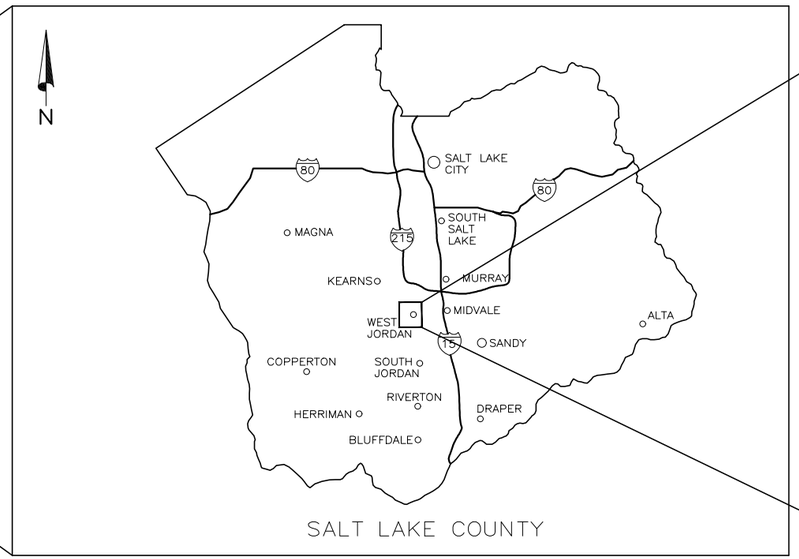

WEST JORDAN CITY

DAVID MURPHY, P.E.
UTILITY ENGINEERING MANAGER

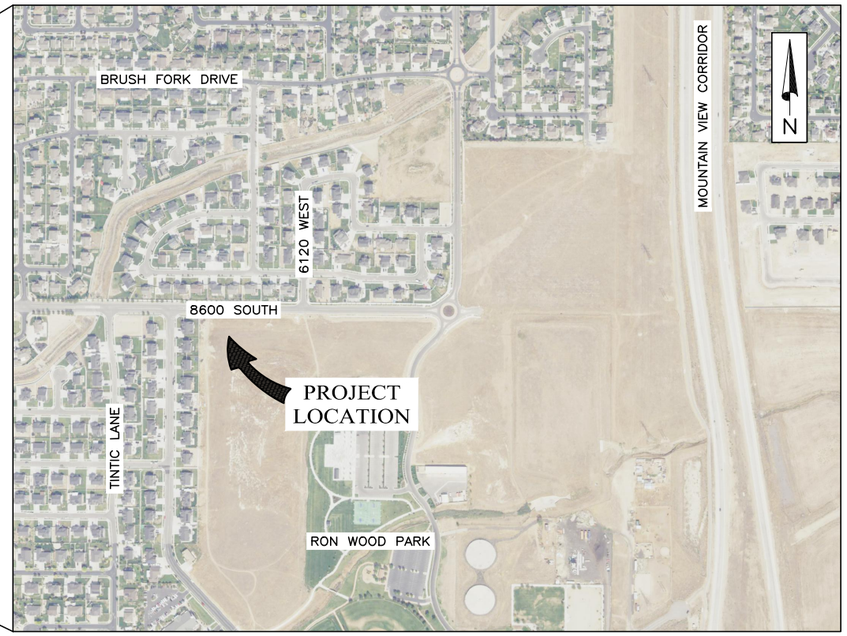
7960 SOUTH 4000 WEST
WEST JORDAN UTAH, 84088
(801) 569-5700


STATE OF UTAH




VICINITY MAP




PROJECT LOCATION
6183 WEST 8600 SOUTH

APPROVED BY PLANNING DEPARTMENT
BY: LARRY GARDNER – CITY PLANNER
01/19/2023

CONDITIONAL USE PERMIT APPROVED BY WJ
PLANNING COMMISSION
08/18/2020

## WEST JORDAN CITY OFFICIALS

MAYOR
DIRK BURTON
CITY COUNCIL
PAMELA BLOOM
KELVIN GREEN
ZACH JACOB
CHRIS MCCONNEHEY
DAVID PACK
KAYLEEN WHITELOCK
MELISSA WORTHEN

## HANSEN, ALLEN & LUCE DESIGN TEAM

MARVIN E. ALLEN, P.E. – PRINCIPAL
MARK G ATENCIO, P.E. – PROJECT MANAGER
ZAK C. STEELE – PROJECT ENGINEER
ROBERT C. CONDER, S.E. – STRUCTURAL ENGINEER
(CONDER ENGINEERING)
KEITH B. HEGERHORST, P.E. – ELECTRICAL ENGINEER
(HPE, INC. ELECTRICAL ENGINEERS)
TAYLOR E. GROBERG, P.E.
(BLUEFIELD ENGINEERING)
ERIC LYMAN – LANDSCAPE ARCHITECT
(E.A. LYMAN LANDSCAPE ARCHITECTS)
JAY R. MCQUIVEY – GEOTECHNICAL
(AGEC, INC.)


859 W. SOUTH JORDAN PKWY STE. 200
SOUTH JORDAN UTAH, 84095
(801) 566-5599


HANSEN ALLEN & LUCE inc
ENGINEERS


FILE NAME: PROJECTS\089 - WEST JORDAN\29.100 - WELL NO. 8 PUMP BUILDING\CAD\G-1 COVER.DWG
FILE DATE: 3.9.2023 16:41:22 (ABO)


1/93


ALL COORDINATES SHOWN ARE IN UTAH STATE PLANE 83. CENTRAL ZONE, US SURVEY FEET, MODIFIED TO GROUND USING BASE POINT OF:
NORTHING 7,385,985.111
EASTING 1,492,189.396
ELEVATION 4889.879
SCALE FACTOR 1.000244269

N

## SURVEY CONTROL TABLE

| CONTROL POINT | NORTHING | EASTING | ELEVATION | DESCRIPTION |
|---|---|---|---|---|
| 100 | 7,385,985.11 | 1,492,189.40 | 4,889.88 | SLCO MON 2S2W3502 |
| 101 | 7,386,012.88 | 1,489,539.73 | 4,968.97 | SLCO MON 2S2W3401 |
| 102 | 7,383,368.14 | 1,489,521.08 | 4,967.99 | SLCO MON 3S2W0306 |
| 103 | 7,383,351.68 | 1,491,305.79 | 4,939.79 | SLCO MON 26021016 |

PROFESSIONAL ENGINEER
NO. 191306
MARK G. ATENCIO
3-14-23
STATE OF UTAH

PROJECT ENGINEER

HANSEN ALLEN & LUCE Inc
ENGINEERS

| | |
|---|---|
| DESIGNED | MGA |
| DRAFTED | JKN |
| CHECKED | MEA |
| DATE | MARCH 2023 |

| NO. | DATE | REVISIONS | BY | APVD. |
|---|---|---|---|---|
| 3 | | | | |
| 2 | | | | |
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SCALE
NOT TO SCALE

WEST JORDAN
UTAH

WEST JORDAN CITY WELL #8
GENERAL
SURVEY CONTROL

SHEET
G-3
089.29.100

FILE NAME: PROJECTS\089 - WEST JORDAN\29.100 - WELL NO. 8 PUMP BUILDING\CAD\G-3 SURVEY CONTROL.DWG
FILE DATE: 2.5.2021 13:46:22 (DCL)

7/04

## 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

## LIGHTING SYMBOLS

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

- F1 — DESIGNATES FIXTURE NUMBER – REFER TO FIXTURE SCHEDULE
- P — PHOTOCELL

LED FIXTURES

- SURFACE OR RECESSED 1X4 FIXTURE

EXTERIOR LIGHTS

- WALL PAK FIXTURE

## 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
- XX/XX — EQUIPMENT REFERENCE
- XXX — WIRE SIZE REFERENCE
- PHOTO X/XX — PHOTO REFERENCE
- A — SECTION/ELEVATION REFERENCE
- XXX-XXX — EQUIPMENT ID TAG

## 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

## 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) IN WELL
- BOLTED GROUND CONNECTION (ABOVE GROUND)
- WELDED GROUND CONNECTION (BELOW GRADE)
- GROUND CONDUCTOR

## 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
- 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

## 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 = ARK 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)

## POWER ONE-LINE SYMBOLS

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

- EXISTING POWER FEED
- M — EXISTING UTILITY METERING SOCKET
- EQUIPMENT GROUND CONNECTION
- XXX — CONDUCTOR WITH CALLOUT REFERENCE (SEE CONDUIT/CONDUCTOR SCHEDULE)
- PNL — POWER DISTRIBUTION PANEL
  GROUND ROD (3/4" x 10' COPPER COATED STEEL)
- CIRCUIT BREAKER
- CONNECTION POINT

## 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


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 **20.025**



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 OF ALTERNATE EQUIPMENT. SHOULD CHANGES OR ADDITIONS OCCUR IN ELECTRICAL WORK, OR THE WORK OF OTHER CONTRACTORS BE REVISED BY THE ALTERNATE EQUIPMENT, THE COST OF ALL CHANGES SHALL BE BORNE BY THE ELECTRICAL CONTRACTOR.

REGISTERED PROFESSIONAL ENGINEER — No. 86-171214-2202 — KEITH B. HEGERHORST — 1/20/2023 — STATE OF UTAH

PROJECT ENGINEER

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| DESIGNED | KBH | 3 | | | | | |
| DRAFTED | DAS | 2 | | | | | |
| CHECKED | KBH | 1 | | | | | |
| DATE | AUGUST 2020 | NO. | DATE | REVISIONS | | BY | APVD. |

SCALE

HANSEN ALLEN & LUCE INC ENGINEERS

WEST JORDAN UTAH

WEST JORDAN CITY WELL #8
ELECTRICAL
LEGEND

SHEET E001

089.29.100

FILE NAME:
FILE DATE:

7/04

H.P.E. INC. ELECTRICAL ENGINEERS
POWER SYSTEMS, CONTROL & INSTRUMENTATION SYSTEMS
HEGERHORST POWER ENGINEERING INCORPORATED (801) 642-2051
709 EAST 50 SOUTH FAX (801) 642-2154
AMERICAN FORK, UT 84003
HPE PROJECT **20.025** © 2020
FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: **KEITH HEGERHORST**

## CONDUIT/CONDUCTOR SCHEDULE THHN, THWN, THWN-2

| AMP RATING | DRAWING ID TAG. | CONDUCTOR QTY.* | CONDUCTOR SIZE | MIN. CONDUIT SIZE | EXCEPTIONS |
|---|---|---|---|---|---|
| | | | | | |
| 20 | 212 | 2 | #12 | 3/4" | |
| | 312 | 3 | | 3/4" | |
| | 412 | 4 | | 3/4" | |
| 30 | 20 | 2 | #10 | 3/4" | |
| | 30 | 3 | | 3/4" | |
| | 40 | 4 | | 3/4" | |
| 50 | 28 | 2 | #8 | 3/4" | |
| | 38 | 3 | | 3/4" | |
| | 48 | 4 | | 3/4" | |
| 65 | 26 | 2 | #6 | 3/4" | |
| | 36 | 3 | | 3/4" | |
| | 46 | 4 | | 3/4" | 1"(C9) |
| 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) |
| 115 | 22 | 2 | #2 | 1" | |
| | 32 | 3 | | 1" | 1-1/4"(C9) |
| | 42 | 4 | | 1-1/4" | |
| 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
C2 = ELECTRICAL NON-METALLIC TUBING
C3 = FLEXIBLE STEEL CONDUIT
C4 = INTERMEDIATE METALLIC CONDUIT
C7 = LIQUIDTIGHT FLEXIBLE METAL CONDUIT
C8 = RIGID METALLIC CONDUIT
C9 = PVC SCHEDULE 80 CONDUIT
C10 = PVC SCHEDULE 40 CONDUIT

## 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 |

## 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 |

## WEST JORDAN WELL TAG LIST

### HVAC EQUIPMENT

| TAG | DESCRIPTION | LOCATION | SUPPLIED BY | INSTALLED BY |
|---|---|---|---|---|
| CU-1 | CONDENSING UNIT 1 | OUTSIDE | CONTRACTOR | CONTRACTOR |
| CU-2 | CONDENSING UNIT 2 | OUTSIDE | CONTRACTOR | CONTRACTOR |
| EF-1 | EXHAUST FAN | CHLORINE ROOM | CONTRACTOR | CONTRACTOR |
| FC-1 | FAN COIL 1 | WELL ROOM | CONTRACTOR | CONTRACTOR |
| FC-2 | FAN COIL 2 | WELL ROOM | CONTRACTOR | CONTRACTOR |
| LA-1 | EXHAUST FAN INTAKE LOUVER ACTUATOR | CHLORINE ROOM | CONTRACTOR | CONTRACTOR |
| LA-2 | EXHAUST FAN LOUVER ACTUATOR | CHLORINE ROOM | CONTRACTOR | CONTRACTOR |
| UH-1 | UNIT HEATER | WELL ROOM | CONTRACTOR | CONTRACTOR |
| UH-2 | UNIT HEATER | CHLORINE ROOM | CONTRACTOR | CONTRACTOR |
| | | | | |

### PUMP AND EQUIPMENT

| TAG | DESCRIPTION | LOCATION | SUPPLIED BY | INSTALLED BY |
|---|---|---|---|---|
| ATS | AUTOMATIC TRANSFER SWITCH | WELL ROOM | CONTRACTOR | CONTRACTOR |
| CP-1 | MAIN CONTROL PANEL | WELL ROOM | CONTRACTOR | CONTRACTOR |
| CP-2 | EXHAUST FAN CONTROL PANEL | WELL ROOM | CONTRACTOR | CONTRACTOR |
| CTE | CURRENT TRANSFORMER ENCLOSURE | OUTSIDE | CONTRACTOR | CONTRACTOR |
| GA-1 | GATE ACTUATOR | OUTSIDE | CONTRACTOR | CONTRACTOR |
| GEN | BACKUP POWER GENERATOR | OUTSIDE | CONTRACTOR | CONTRACTOR |
| MSD | MAIN SERVICE DISCONNECT | OUTSIDE | CONTRACTOR | CONTRACTOR |
| P-1 | WELL PUMP | WELL ROOM | CONTRACTOR | CONTRACTOR |
| TC-1 | TABLET CHLORINATOR | CHLORINE ROOM | CONTRACTOR | CONTRACTOR |
| RTU | REMOTE TELEMETRY UNIT | WELL ROOM | OWNER | CONTRACTOR |
| VFD | WELL VARIABLE FREQUENCY DRIVE | WELL ROOM | CONTRACTOR | CONTRACTOR |
| | | | | |

### SWITCHES

| TAG | DESCRIPTION | LOCATION | SUPPLIED BY | INSTALLED BY |
|---|---|---|---|---|
| LSH-1 | PUMP ROOM FLOOR HIGH WATER SWITCH | WELL ROOM | CONTRACTOR | CONTRACTOR |
| PSH-1 | WELL PUMP DISCHARGE PRESSURE SWITCH | WELL ROOM | CONTRACTOR | CONTRACTOR |
| ZS-1 | MAN-DOOR POSITION SWITCH | WELL ROOM | CONTRACTOR | CONTRACTOR |
| ZS-2A | SERVICE DOOR POSITION SWITCH | WELL ROOM | CONTRACTOR | CONTRACTOR |
| ZS-2B | SERVICE DOOR POSITION SWITCH | WELL ROOM | CONTRACTOR | CONTRACTOR |
| ZS-3 | WELL ROOF HATCH POSITION SWITCH | WELL ROOM | CONTRACTOR | CONTRACTOR |
| ZS-4 | MAN-DOOR POSITION SWITCH | CHLORINE ROOM | CONTRACTOR | CONTRACTOR |
| ZS-5B | WV-1 IN FULL WASTE POSITION | WELL ROOM | CONTRACTOR | CONTRACTOR |
| ZS-5A | WV-1 IN FULL SYSTEM POSITION | WELL ROOM | CONTRACTOR | CONTRACTOR |
| | | | | |

### INSTRUMENTS

| TAG | DESCRIPTION | LOCATION | SUPPLIED BY | INSTALLED BY |
|---|---|---|---|---|
| AE-3 | CHLORINE ANALYZER | CHLORINE ROOM | CONTRACTOR | CONTRACTOR |
| AE-2 | TURBIDITY ANALYZER | WELL ROOM | CONTRACTOR | CONTRACTOR |
| AIT-3 | CHLORINE INDICATOR/TRANSMITTER | WELL ROOM | CONTRACTOR | CONTRACTOR |
| AIT-2 | TURBIDITY INDICATOR/TRANSMITTER | WELL ROOM | CONTRACTOR | CONTRACTOR |
| FE-1 | WELL DISCHARGE FLOW ELEMENT | WELL ROOM | CONTRACTOR | CONTRACTOR |
| FIT-1 | WELL DISCHARGE FLOW INDICATOR/TRANSMITTER | WELL ROOM | CONTRACTOR | CONTRACTOR |
| LT-1 | WELL LEVEL TRANSMITTER | WELL ROOM | CONTRACTOR | CONTRACTOR |
| PT-1 | STATION DISCHARGE PRESSURE TRANSMITTER | WELL ROOM | CONTRACTOR | CONTRACTOR |
| PT-2 | WELL DISCHARGE PRESSURE TRANSMITTER | WELL ROOM | CONTRACTOR | CONTRACTOR |
| TT-1 | ROOM TEMPERATURE TRANSMITTER | WELL ROOM | CONTRACTOR | CONTRACTOR |
| TT-2 | ROOM TEMPERATURE TRANSMITTER | CHLORINE ROOM | CONTRACTOR | CONTRACTOR |
| | | | | |

### VALVES

| TAG | DESCRIPTION | LOCATION | SUPPLIED BY | INSTALLED BY |
|---|---|---|---|---|
| V-1 | WASTE VALVE | WELL ROOM | CONTRACTOR | CONTRACTOR |
| SV-1 | WELL PRE-LUBE SOLENOID VALVE | WELL ROOM | CONTRACTOR | CONTRACTOR |
| SV-2 | TURBIDITY ANALYZER VALVE | WELL ROOM | CONTRACTOR | CONTRACTOR |
| SV-3 | CHLORINE ANALYZER VALVE | WELL ROOM | CONTRACTOR | CONTRACTOR |
| V-2 | SYSTEM VALVE | WELL ROOM | CONTRACTOR | CONTRACTOR |
| | | | | |

## GENERAL NOTES:

1. NOT USED.

## SHEET KEYNOTES:

1. NOT USED.

STATE OF UTAH REGISTERED PROFESSIONAL ENGINEER No. 86-171214-2202 KEITH B. HEGERHORST 1/20/2023

FILE NAME:
FILE DATE:

HANSEN ALLEN & LUCE inc ENGINEERS

PROJECT ENGINEER

DESIGNED KBH
DRAFTED DAS
CHECKED KBH
DATE AUGUST 2020

| NO. | DATE | REVISIONS | BY | APVD. |
|---|---|---|---|---|
| 3 | | | | |
| 2 | | | | |
| 1 | | | | |

SCALE AS NOTED SHOWN

WEST JORDAN UTAH

WEST JORDAN CITY WELL #8
ELECTRICAL
TABLES AND TAG LIST

SHEET E002
089.29.100

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 **20.025** © 2020
FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: **KEITH HEGERHORST**

## GENERAL NOTES:

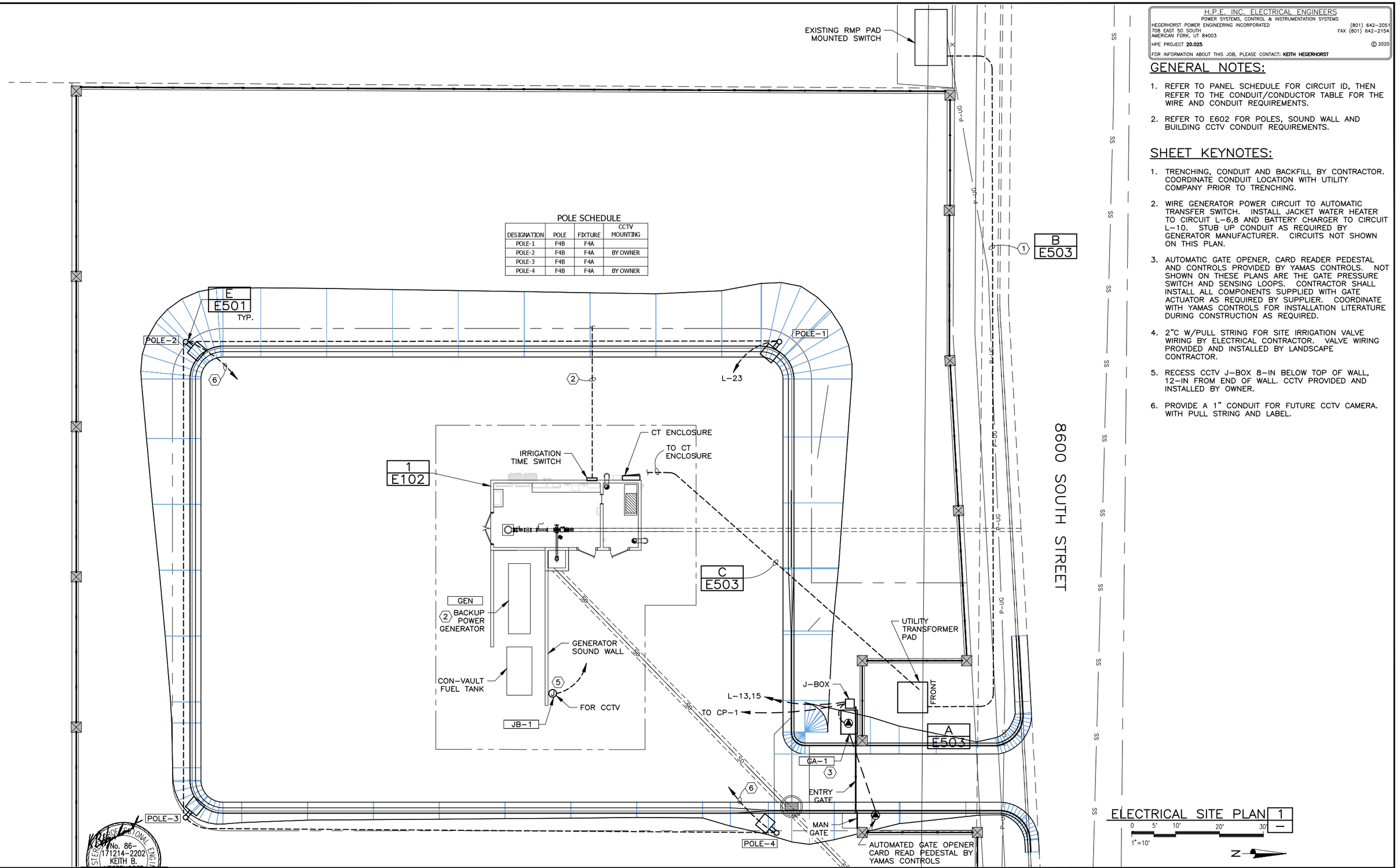
1. REFER TO PANEL SCHEDULE FOR CIRCUIT ID, THEN REFER TO THE CONDUIT/CONDUCTOR TABLE FOR THE WIRE AND CONDUIT REQUIREMENTS.
2. REFER TO E602 FOR POLES, SOUND WALL AND BUILDING CCTV CONDUIT REQUIREMENTS.

## SHEET KEYNOTES:

1. TRENCHING, CONDUIT AND BACKFILL BY CONTRACTOR. COORDINATE CONDUIT LOCATION WITH UTILITY COMPANY PRIOR TO TRENCHING.
2. WIRE GENERATOR POWER CIRCUIT TO AUTOMATIC TRANSFER SWITCH. INSTALL JACKET WATER HEATER TO CIRCUIT L-6,8 AND BATTERY CHARGER TO CIRCUIT L-10. STUB UP CONDUIT AS REQUIRED BY GENERATOR MANUFACTURER. CIRCUITS NOT SHOWN ON THIS PLAN.
3. AUTOMATIC GATE OPENER, CARD READER PEDESTAL AND CONTROLS PROVIDED BY YAMAS CONTROLS. NOT SHOWN ON THESE PLANS ARE THE GATE PRESSURE SWITCH AND SENSING LOOPS. CONTRACTOR SHALL INSTALL ALL COMPONENTS SUPPLIED WITH GATE ACTUATOR AS REQUIRED BY SUPPLIER. COORDINATE WITH YAMAS CONTROLS FOR INSTALLATION LITERATURE DURING CONSTRUCTION AS REQUIRED.
4. 2"C W/PULL STRING FOR SITE IRRIGATION VALVE WIRING BY ELECTRICAL CONTRACTOR. VALVE WIRING PROVIDED AND INSTALLED BY LANDSCAPE CONTRACTOR.
5. RECESS CCTV J-BOX 8-IN BELOW TOP OF WALL, 12-IN FROM END OF WALL. CCTV PROVIDED AND INSTALLED BY OWNER.
6. PROVIDE A 1" CONDUIT FOR FUTURE CCTV CAMERA. WITH PULL STRING AND LABEL.

### POLE SCHEDULE

| DESIGNATION | POLE | FIXTURE | CCTV MOUNTING |
|---|---|---|---|
| POLE-1 | F4B | F4A | |
| POLE-2 | F4B | F4A | BY OWNER |
| POLE-3 | F4B | F4A | |
| POLE-4 | F4B | F4A | BY OWNER |




ELECTRICAL SITE PLAN 1
0 5' 10' 20' 30'
1"=10'

FILE NAME:
FILE DATE:

REGISTERED PROFESSIONAL ENGINEER
No. 86-17214-2202
KEITH B. HEGERHORST
1/20/2023
STATE OF UTAH

PROJECT ENGINEER

| | | | | | | |
|---|---|---|---|---|---|---|
| DESIGNED | KBH | 3 | | | | |
| DRAFTED | DAS | 2 | | | | |
| CHECKED | KBH | 1 | | | | |
| DATE | AUGUST 2020 | NO. | DATE | REVISIONS | BY | APVD. |

SCALE

WEST JORDAN UTAH

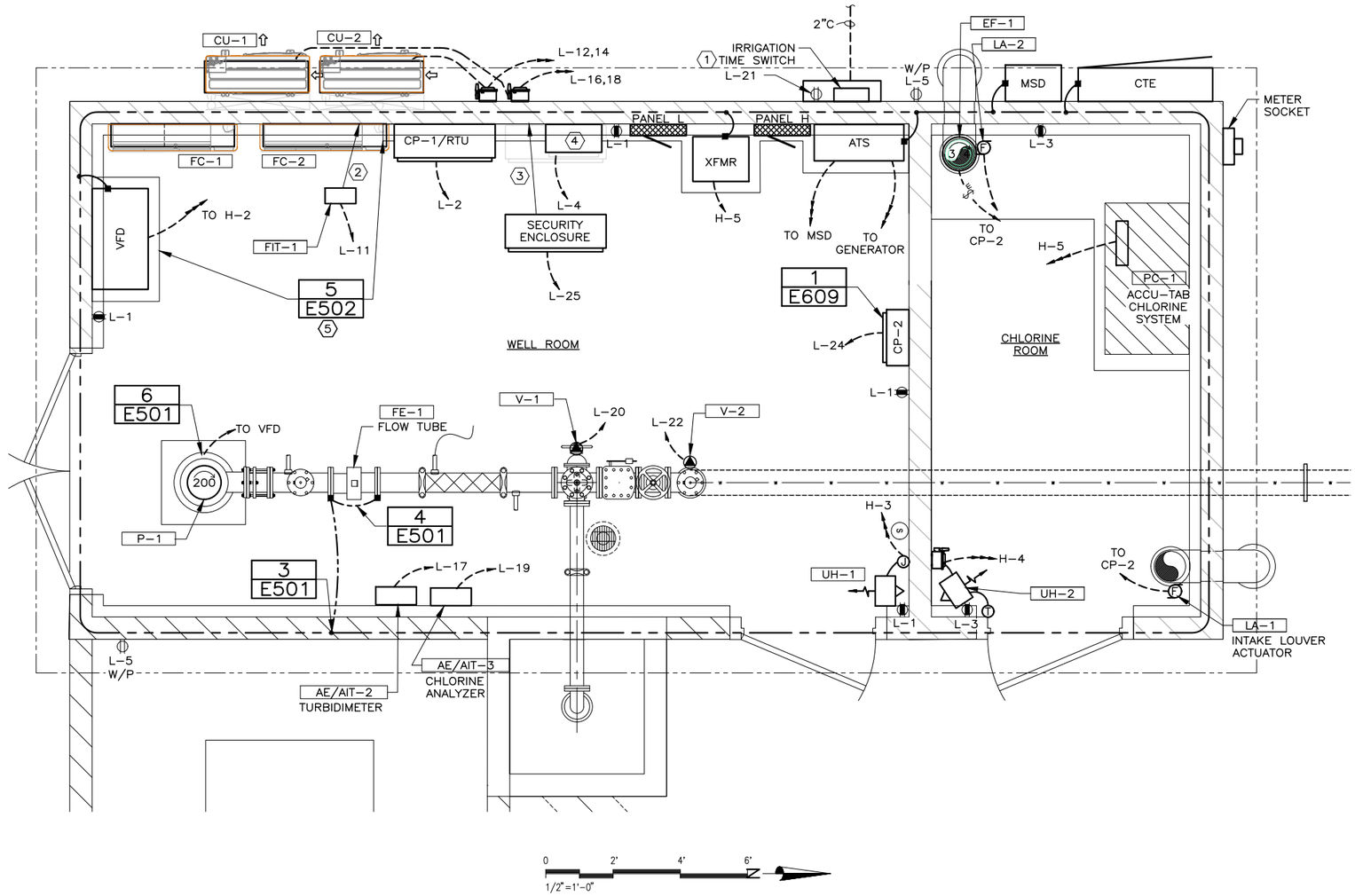
WEST JORDAN CITY WELL #8
ELECTRICAL
OVERALL SITE PLAN

SHEET E101
089.29.100

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 **20.025**

FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: **KEITH HEGERHORST**




## GENERAL NOTES:

1. FOR CONDUIT AND CONDUCTOR REQUIREMENTS REFER TO ONE-LINE DIAGRAM AND/OR THE PANEL SCHEDULES FOR THE CIRCUIT ID. WIRE AND CONDUIT REQUIREMENTS ARE ON THE CONDUIT/CONDUCTOR TABLE ON E002.
2. EQUIPMENT ARRANGEMENT SHOWN IS APPROXIMATE. CONTRACTOR SHALL ADJUST LOCATION AS REQUIRED FOR THE DIMENSIONS OF THE ACTUAL EQUIPMENT. MAINTAIN NEC CLEARANCES AS REQUIRED.
3. SPECIFIED INDOOR UNITS RECEIVE POWER FROM OUTDOOR UNITS THROUGH FIELD-SUPPLIED INTERCONNECTED WIRING. IF UNITS ARE OTHER THAN SPECIFIED, MODIFY PROVIDE POWER AS REQUIRED.
4. HEATING CONTROLS BY MECHANICAL CONTRACTOR. CHLORINE ROOM EXHAUST FAN CONTROLS BY ELECTRICAL CONTRACTOR.
5. VERIFY LOCATIONS OF ALL ELECTRICAL CONNECTIONS PRIOR TO CONDUIT ROUGH-IN.

## SHEET KEYNOTES:

1. CONTRACTOR SHALL PROVIDE AND INSTALL A 24"H x 20"W x 8"D LOCKABLE NEMA 12 ENCLOSURE FOR THE LANDSCAPE TIMER AND OUTLET. COORDINATE WITH LANDSCAPE CONTRACTOR DURING CONSTRUCTION AND MODIFY DIMENSIONS AS REQUIRED FOR IRRIGATION TIMER. INSTALL A 2"C FROM THE ENCLOSURE UNDER THE PAVING TO THE LANDSCAPE AREA FOR THE IRRIGATION VALVE CONTROL WIRES.
2. INSTALL FLOW METER INDICATOR/TRANSMITTER ON THE WALL BELOW THE FAN COIL UNIT.
3. INSTALL THE SECURITY ENCLOSURE BELOW THE RTU RADIO ENCLOSURE AND AT THE SAME HEIGHT AS CP-1.
4. SCADA RADIO ENCLOSURE: 24"H X 20"W X 8"D ENCLOSURE WITH INTERNAL PANEL. DATA RADIO AND ANTENNA SURGE DEVICE PROVIDED AND INSTALLED BY SCADA CONTRACTOR.
5. FLOOR MOUNTED EQUIPMENT: EXTEND HOUSEKEEPING PAD 4-IN IN FRONT AND SIDES. WALL MOUNTED EQUIPMENT: PAD SHALL EXTEND 6-IN (MAX.) FROM WALL

FILE NAME:
FILE DATE:

HANSEN ALLEN & LUCE INC ENGINEERS

REGISTERED PROFESSIONAL ENGINEER
No. 86-171214-2202
KEITH B. HEGERHORST
1/20/2023
STATE OF UTAH
PROJECT ENGINEER

| | | | | | | |
|---|---|---|---|---|---|---|
| DESIGNED KBH | 3 | | | | | |
| DRAFTED DAS | 2 | | | | | |
| CHECKED KBH | 1 | | | | | |
| DATE AUGUST 2020 | NO. | DATE | REVISIONS | BY | APVD. | |

SCALE: AS SHOWN

WEST JORDAN UTAH

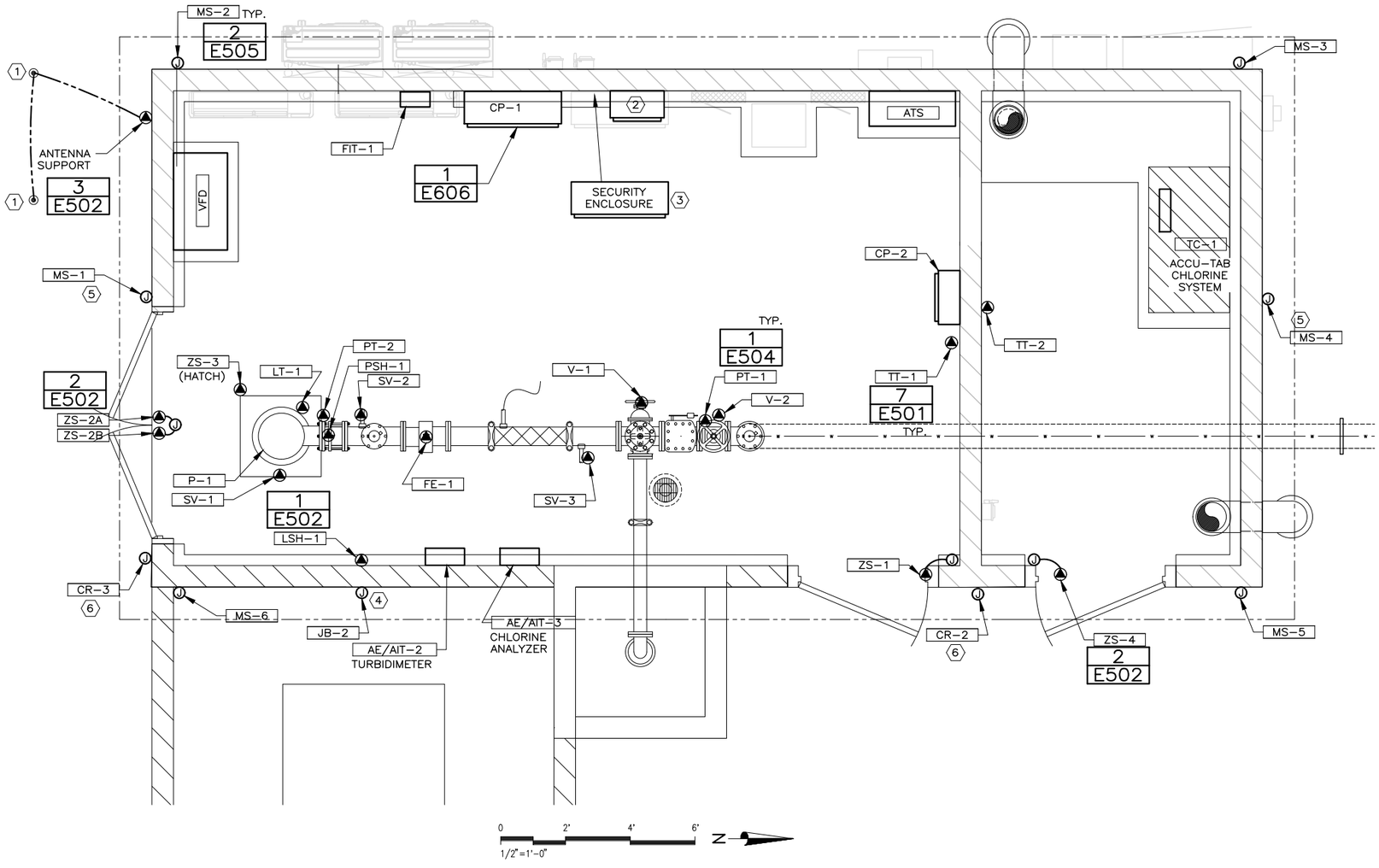
WEST JORDAN CITY WELL #8
ELECTRICAL
PUMP HOUSE POWER PLAN

SHEET E102
089.29.100

7/04

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

FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: **KEITH HEGERHORST**




## GENERAL NOTES:

1. VERIFY LOCATIONS OF ALL DEVICES PRIOR TO CONDUIT ROUGH-IN.
2. FOR WIRE AND CONDUIT REQUIREMENTS, REFER TO INSTRUMENTATION AND CONTROL ONE-LINE DIAGRAM ON E602.

## SHEET KEYNOTES:

1. GROUND ANTENNA SUPPORT WITH AWG NO 6 BC. INSTALL TWO 3/4"X10' GROUND RODS APPROXIMATELY 10' APART.
2. SUPPLY AND INSTALL A 20"W x 24"H x 10"D RTU RADIO ENCLOSURE WITH A SUB PANEL. PROVIDE PANEL TO SCADA CONTRACTOR FOR ASSEMBLY OF THE RTU. RTU COMPONENTS PROVIDED AND INSTALLED BY APCO.
3. SECURITY ENCLOSURE INSTALLED BELOW RTU ENCLOSURE.
4. FOR A FUTURE CAMERA, INSTALL A RECESSED CCTV J-BOX IN THE BUILDING WALL 6-IN BELOW SOFFIT CENTERED ABOVE THE GENERATOR.
5. INSTALL BUILDING END J-BOXES AT SAME HEIGHT AS THE SIDE J-BOXES.
6. RECESS 2X4 ELECTRICAL BOX IN MASONRY FOR CARD READER. VERIFY HEIGHT AND LOCATION WITH OWNER DURING CONSTRUCTION.

FILE NAME:
FILE DATE:

REGISTERED PROFESSIONAL ENGINEER No. 86-171214-2202 KEITH B. HEGERHORST 1/20/2023 STATE OF UTAH

PROJECT ENGINEER

| | | | | | | |
|---|---|---|---|---|---|---|
| DESIGNED KBH | 3 | | | | | |
| DRAFTED DAS | 2 | | | | | |
| CHECKED KBH | 1 | | | | | |
| DATE AUGUST 2020 | NO. | DATE | REVISIONS | BY | APVD. | |

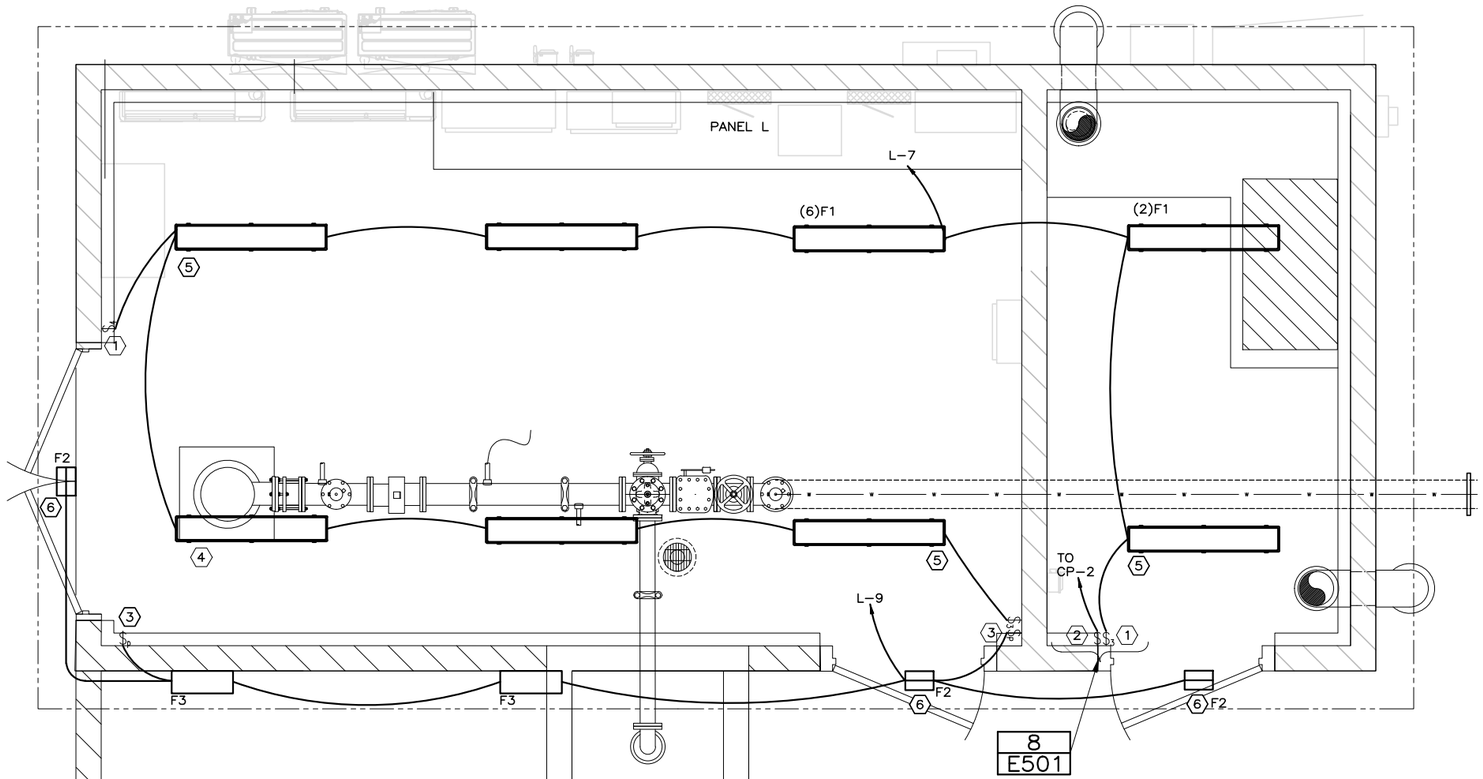
SCALE: AS SHOWN

WEST JORDAN CITY WELL #8
ELECTRICAL
PUMP HOUSE INSTR. & CONTROL PLAN

SHEET E103
089.29.100

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 **20.025** 
FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: **KEITH HEGERHORST**




## GENERAL NOTES:

1. REFER TO PANEL SCHEDULE FOR WIRE AND CONDUIT SIZES.

## SHEET KEYNOTES:

1. THREE-WAY SWITCHES AND FOUR-WAY SHALL CONTROL BOTH ROOM FIXTURES AT THE SAME TIME.
2. EXHAUST FAN MANUAL SWITCH (HS-1) LABEL AS CHLORINE ROOM EXHAUST FAN.
3. PROVIDE A PILOT LIGHT TOGGLE SWITCH TO CONTROL THE TWO GENERATOR FLOOD LIGHTS. LABEL "GENERATOR FLOOD LIGHTS".
4. RELOCATE FIXTURE AS REQUIRED FOR ROOF HATCH.
5. PROVIDE A 90-MINUTE BATTERY PACK IN THIS FIXTURE.
6. INSTALL FIXTURE 8-IN ABOVE DOOR.

FILE NAME:
FILE DATE:

REGISTERED PROFESSIONAL ENGINEER No. 86-171214-2202 KEITH B. HEGERHORST 1/20/2023 STATE OF UTAH

HANSEN ALLEN & LUCE inc ENGINEERS

PROJECT ENGINEER

| | | | | | | |
|---|---|---|---|---|---|---|
| DESIGNED KBH | 3 | | | | | |
| DRAFTED DAS | 2 | | | | | |
| CHECKED KBH | 1 | | | | | |
| DATE AUGUST 2020 | NO. | DATE | REVISIONS | BY | APVD. | |

SCALE: AS SHOWN

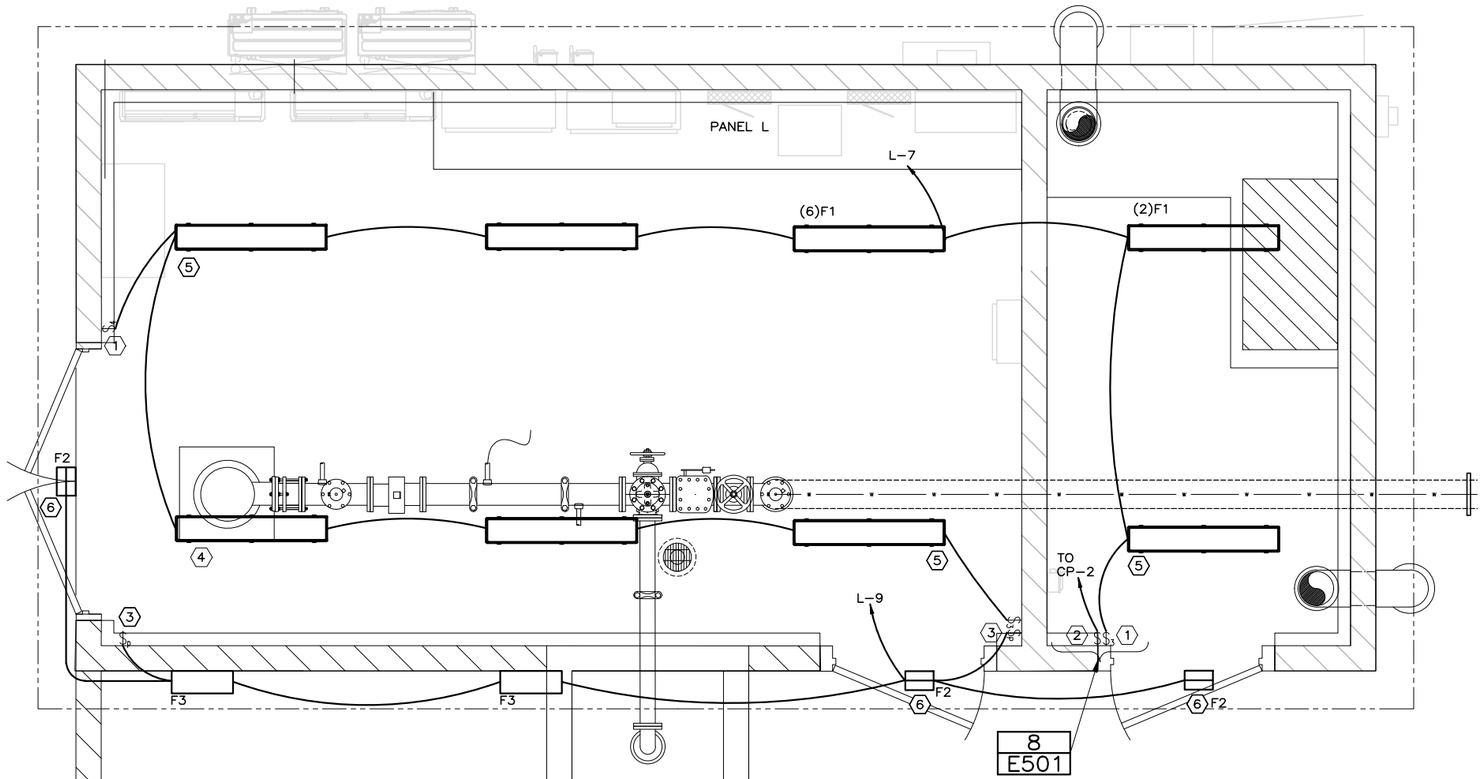
WEST JORDAN UTAH

WEST JORDAN CITY WELL #8
ELECTRICAL
PUMP HOUSE LIGHTING PLAN

SHEET E104
089.29.100

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 **20.025** 
FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: **KEITH HEGERHORST**




## GENERAL NOTES:

1. REFER TO PANEL SCHEDULE FOR WIRE AND CONDUIT SIZES.

## SHEET KEYNOTES:

1. THREE-WAY SWITCHES AND FOUR-WAY SHALL CONTROL BOTH ROOM FIXTURES AT THE SAME TIME.
2. EXHAUST FAN MANUAL SWITCH (HS-1) LABEL AS CHLORINE ROOM EXHAUST FAN.
3. PROVIDE A PILOT LIGHT TOGGLE SWITCH TO CONTROL THE TWO GENERATOR FLOOD LIGHTS. LABEL "GENERATOR FLOOD LIGHTS".
4. RELOCATE FIXTURE AS REQUIRED FOR ROOF HATCH.
5. PROVIDE A 90-MINUTE BATTERY PACK IN THIS FIXTURE.
6. INSTALL FIXTURE 8-IN ABOVE DOOR.

FILE NAME:
FILE DATE:

REGISTERED PROFESSIONAL ENGINEER No. 86-171214-2202 KEITH B. HEGERHORST 1/20/2023 STATE OF UTAH

HANSEN ALLEN & LUCE inc ENGINEERS

PROJECT ENGINEER

| | | | | | | |
|---|---|---|---|---|---|---|
| DESIGNED KBH | 3 | | | | | |
| DRAFTED DAS | 2 | | | | | |
| CHECKED KBH | 1 | | | | | |
| DATE AUGUST 2020 | NO. | DATE | REVISIONS | BY | APVD. | |

SCALE: AS SHOWN

WEST JORDAN UTAH

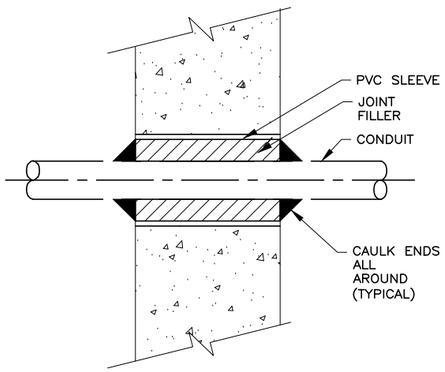
WEST JORDAN CITY WELL #8
ELECTRICAL
PUMP HOUSE LIGHTING PLAN

SHEET E104
089.29.100

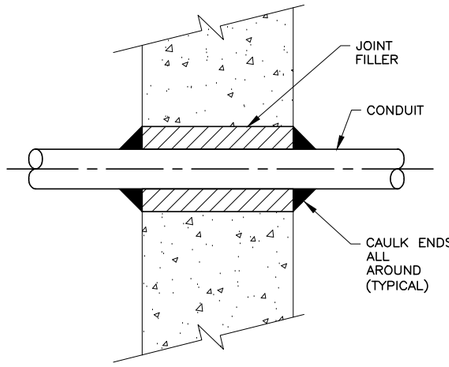
7/04

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 **20.025**

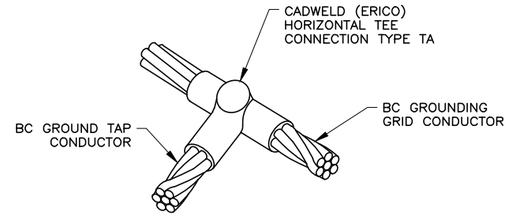
FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: **KEITH HEGERHORST**



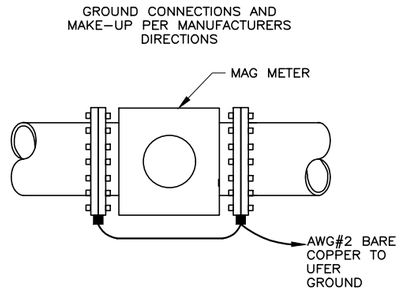

CONDUIT THRU NEW WALL **A**
3" = 1'-0" —



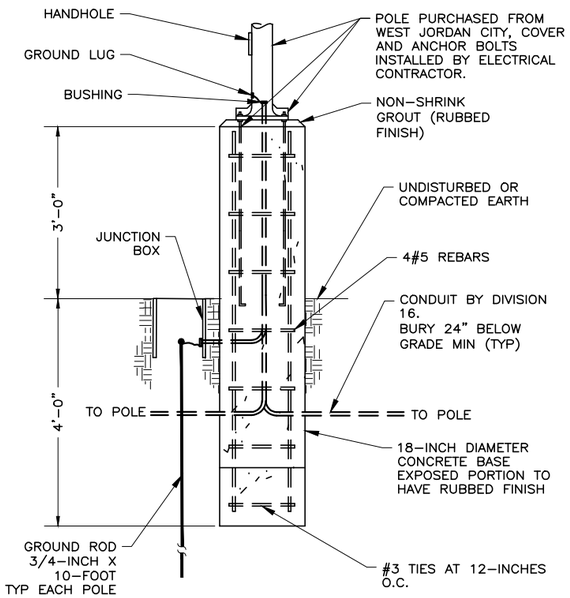

CONDUIT THRU EXISTING WALL **B**
3" = 1'-0" —




WELDED GROUND CONNECTION **C**
NONE —

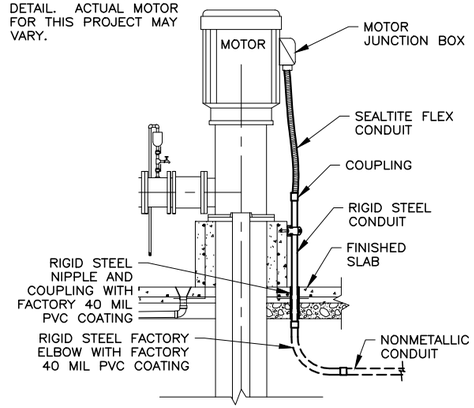



FLOW METER GROUNDING DETAIL **D**
1' = 1'-0" —

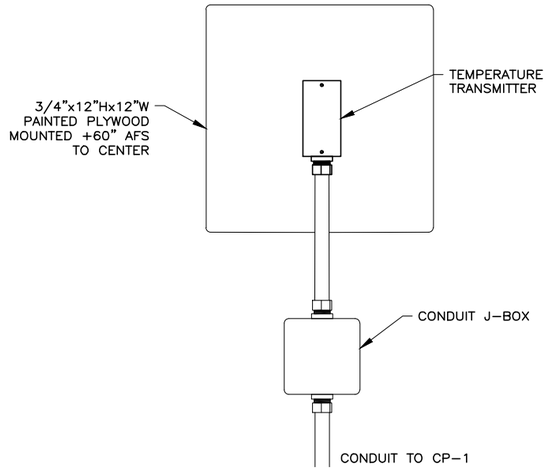



POLE BASE DETAIL **E**
NTS —

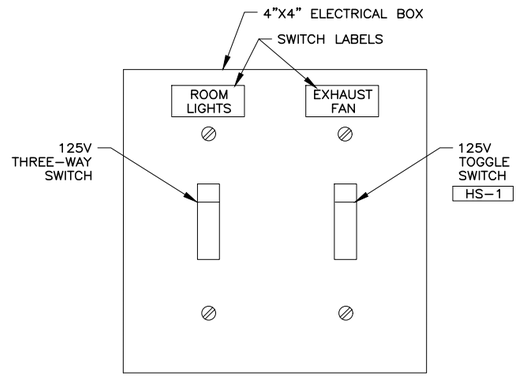
TYPICAL INSTALLATION DETAIL. ACTUAL MOTOR FOR THIS PROJECT MAY VARY.




WELL MOTOR CONDUIT INSTALLATION **F**
1/4" = 1'-0" —




TEMPERATURE TRANSMITTER **G**
3" = 1'-0" —




CHLORINE ROOM SWITCHES **F**
1' = 1'-0" —

FILE NAME:
FILE DATE:

REGISTERED PROFESSIONAL ENGINEER
No. 86-171214-2202
KEITH B. HEGERHORST
1/20/2023
STATE OF UTAH

HANSEN ALLEN & LUCE, Inc. ENGINEERS

PROJECT ENGINEER

| | | | | | | |
|---|---|---|---|---|---|---|
| DESIGNED | KBH | 3 | | | | |
| DRAFTED | DAS | 2 | | | | |
| CHECKED | KBH | 1 | | | | |
| DATE | AUGUST 2020 | NO. | DATE | REVISIONS | BY | APVD. |

SCALE

WEST JORDAN UTAH

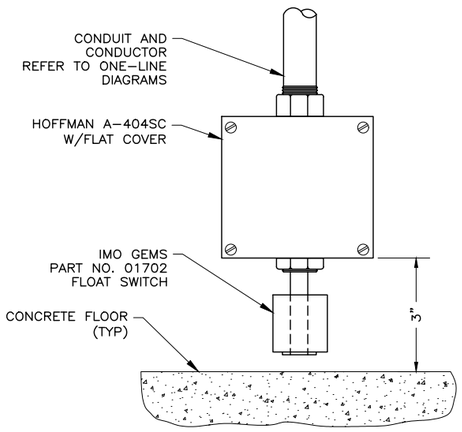
WEST JORDAN CITY WELL #8
ELECTRICAL
DETAILS, SHT. 1

SHEET E501
089.29.100

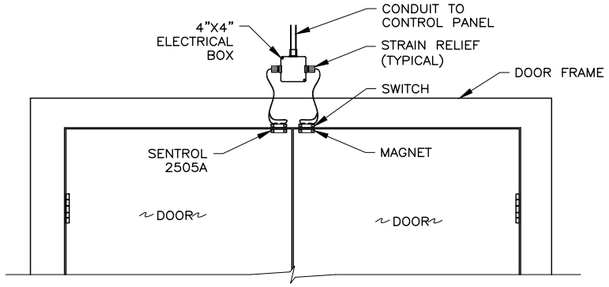
7/04

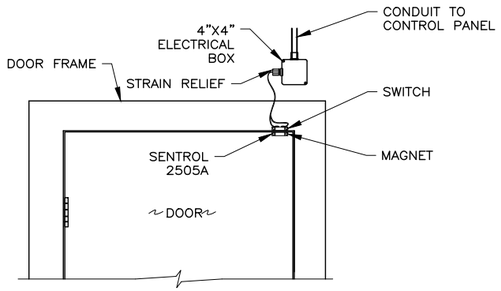
H.P.E. INC. ELECTRICAL ENGINEERS
POWER SYSTEMS, CONTROL & INSTRUMENTATION SYSTEMS
HEGERHORST POWER ENGINEERING INCORPORATED (801) 642-2051
708 EAST 50 SOUTH FAX (801) 642-2154
AMERICAN FORK, UT 84003
HPE PROJECT 20.025

FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

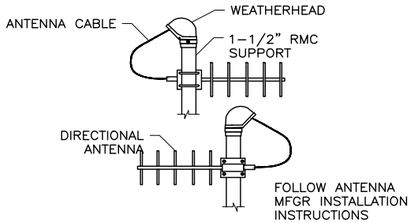



FLOOD LEVEL SWITCH INSTALLATION 1
6" = 1'-0" E103

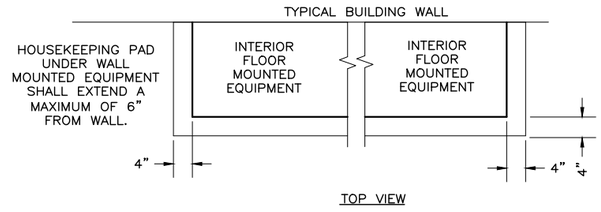


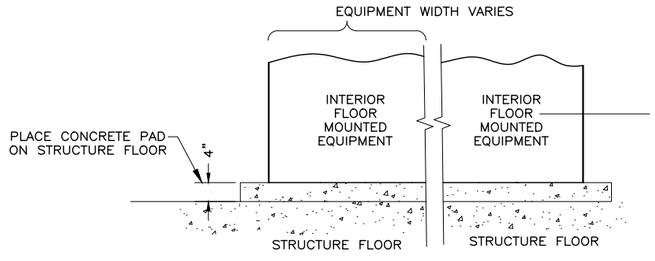

TYPICAL DOOR POSITION SWITCH 2
1" = 1'-0" E103




SUPPORT WEATHERHEAD 4
1 1/2" = 1'-0" —

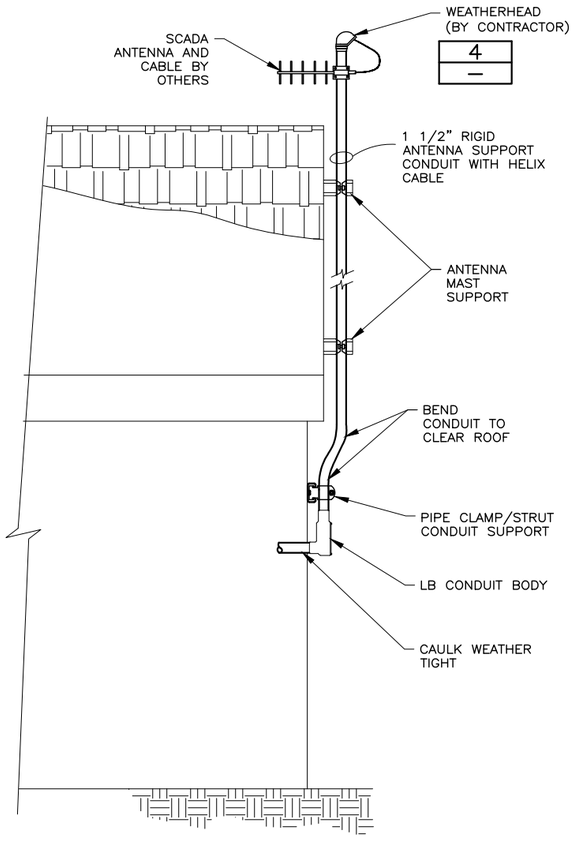



TOP VIEW




FRONT VIEW

EQUIPMENT INSTALLATION 5
3/4" = 1'-0" E102




SCADA ANTENNA SUPPORT 3
1" = 1'-0" E103

FILE NAME:
FILE DATE:

REGISTERED PROFESSIONAL ENGINEER
No. 86-171214-2202
KEITH B. HEGERHORST
1/20/2023
STATE OF UTAH

HANSEN ALLEN & LUCE, INC. ENGINEERS

PROJECT ENGINEER

| | | | | | | |
|---|---|---|---|---|---|---|
| DESIGNED KBH | 3 | | | | | |
| DRAFTED DAS | 2 | | | | | |
| CHECKED KBH | 1 | | | | | |
| DATE AUGUST 2020 | NO. | DATE | REVISIONS | BY | APVD. | |

SCALE AS SHOWN

WEST JORDAN UTAH

WEST JORDAN CITY WELL #8
ELECTRICAL
DETAILS, SHT. 2

SHEET E502
089.29.100

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 **20.025**

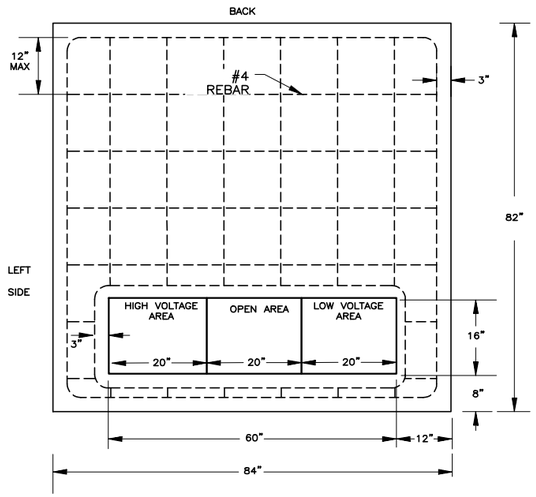
FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: **KEITH HEGERHORST**

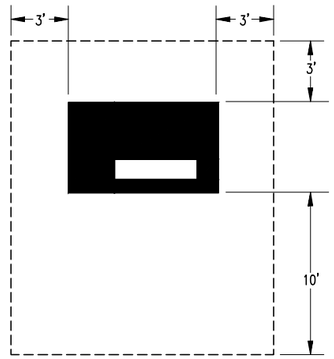
## GENERAL NOTES:

1. REFER TO UTILITY STANDARD DETAILS ON-LINE FOR THE LATEST PAD AND TRENCH REQUIREMENTS.
2. NOT USED.

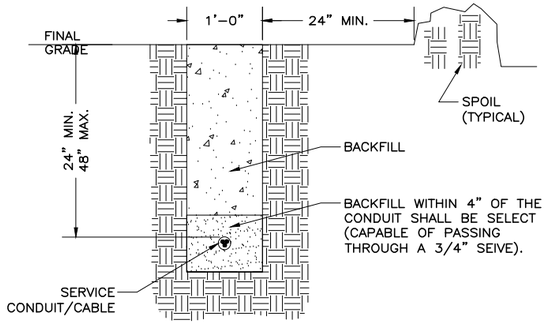
## SHEET KEYNOTES:

1. NOT USED.

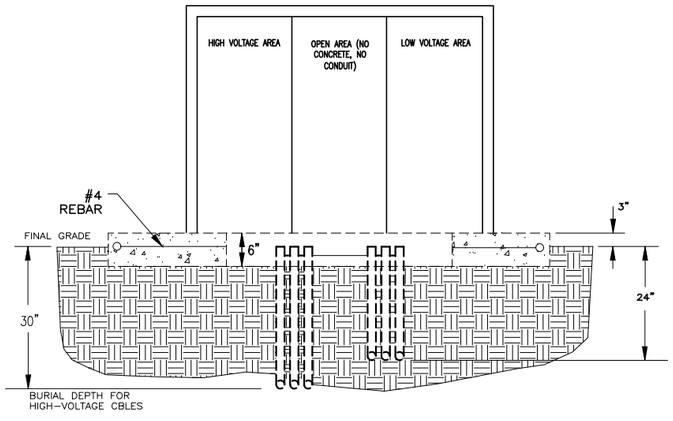


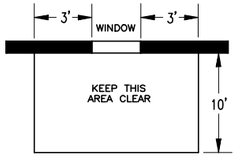




DETAIL "C"

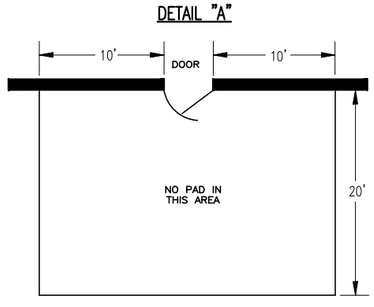



PRIMARY CONDUIT TRENCH B
1" = 1'-0" —

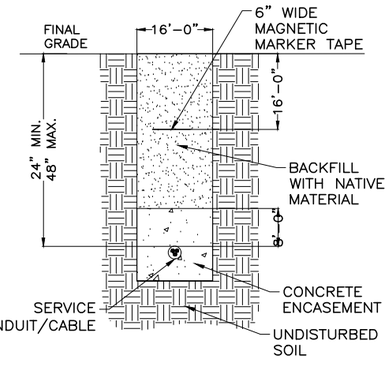



DETAIL "A"




DETAIL "B"

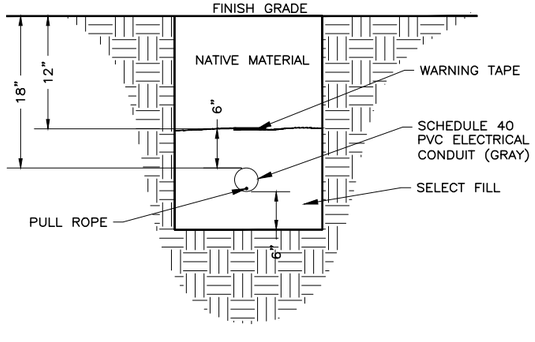



SECONDARY CONDUIT TRENCH C
1" = 1'-0" —

## 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. PREFABRICATED PADS SHALL BE SET LEVEL AND PLUMB.
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.

RMP UTILITY TRANSFORMER PAD A
3/4" = 1'-0" —




TRENCH DETAIL D
1" = 1'-0" —

REGISTERED PROFESSIONAL ENGINEER No. 86-171214-2202 KEITH B. HEGERHORST 1/20/2023 STATE OF UTAH

PROJECT ENGINEER

| | | | | | | |
|---|---|---|---|---|---|---|
| DESIGNED KBH | 3 | | | | | |
| DRAFTED DAS | 2 | | | | | |
| CHECKED KBH | 1 | | | | | |
| DATE AUGUST 2020 | NO. | DATE | REVISIONS | | BY | APVD. |

SCALE

WEST JORDAN UTAH

WEST JORDAN CITY WELL #8
ELECTRICAL
DETAILS, SHT. 3

SHEET E503
089.29.100

HANSEN ALLEN & LUCE INC ENGINEERS

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 **20.025**

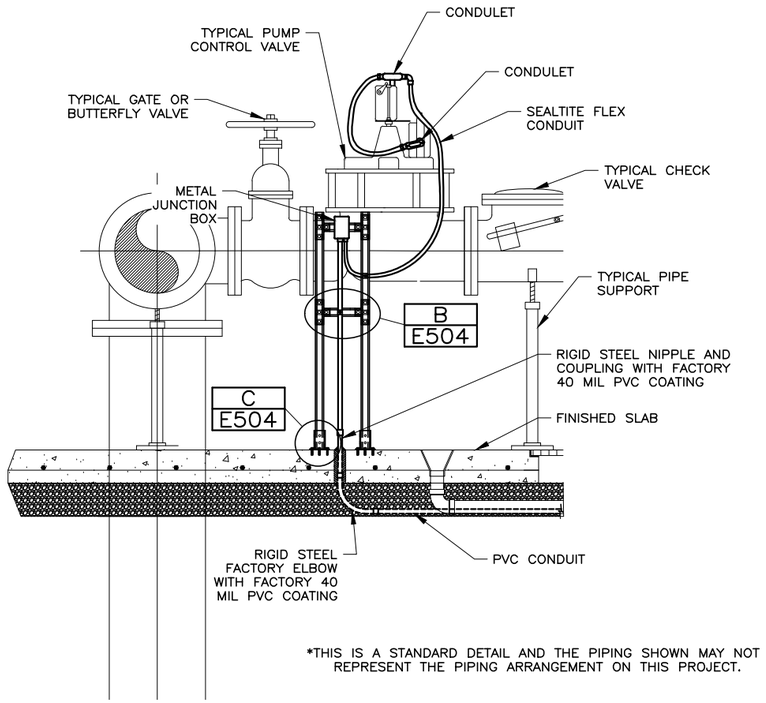
FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: **KEITH HEGERHORST**

## GENERAL NOTES:

1. NOT USED.

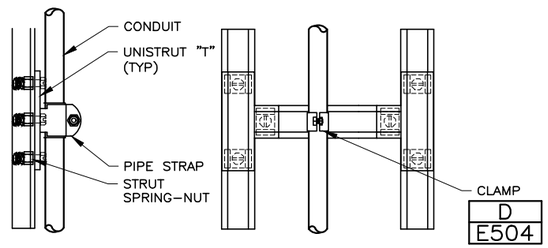
## SHEET KEYNOTES:

1. NOT USED.

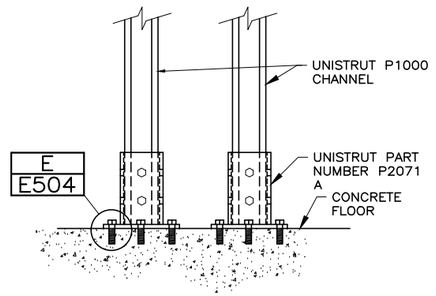



*THIS IS A STANDARD DETAIL AND THE PIPING SHOWN MAY NOT REPRESENT THE PIPING ARRANGEMENT ON THIS PROJECT.

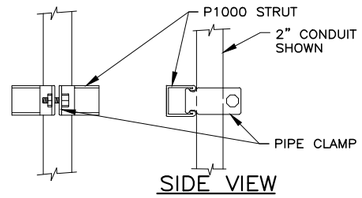
CONDUIT SUPPORT INSTALLATION A
1" = 1'-0" —




SUPPORT BRACE INSTALLATION B
3" = 1'-0" —




SUPPORT BASE INSTALLATION C
3" = 1'-0" —

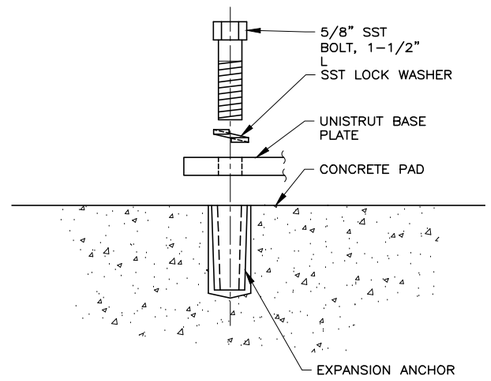



SIDE VIEW

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

* = SUPPLIED WITH SLOTTED HEAD SCREW AND NUT

CONDUIT CLAMP INSTALLATION D
3" = 1'-0" —




BASE ANCHOR INSTALLATION E
6" = 1'-0" —

FILE NAME:
FILE DATE:

HANSEN ALLEN & LUCE INC ENGINEERS

REGISTERED PROFESSIONAL ENGINEER — No. 86-171214-2202 — KEITH B. HEGERHORST — 1/20/2023 — STATE OF UTAH

PROJECT ENGINEER

| | | | | | | |
|---|---|---|---|---|---|---|
| DESIGNED KBH | 3 | | | | | |
| DRAFTED DAS | 2 | | | | | |
| CHECKED KBH | 1 | | | | | |
| DATE AUGUST 2020 | NO. | DATE | REVISIONS | BY | APVD. | |

SCALE

WEST JORDAN UTAH

WEST JORDAN CITY WELL #8
ELECTRICAL
DETAILS, SHT. 4

SHEET
E504
089.29.100

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 **20.025**

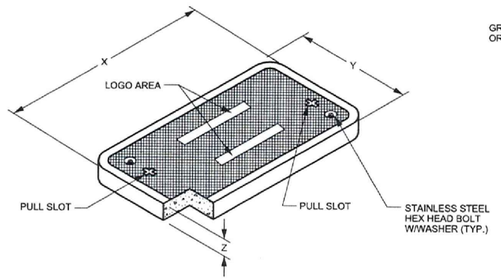
FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: **KEITH HEGERHORST**

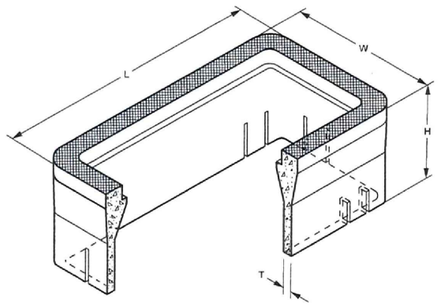
## GENERAL NOTES:

1. NOT USED.

## SHEET KEYNOTES:

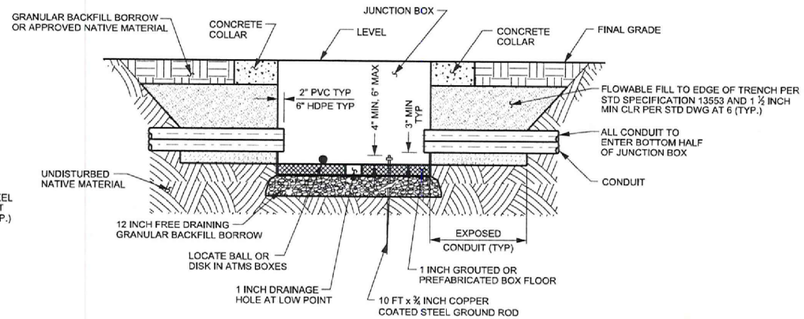
1. NOT USED.



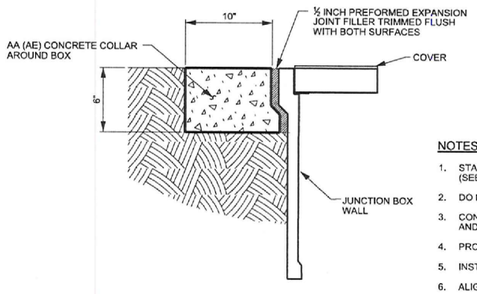




### BOX AND LID DIMENSIONS

| 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 ⅜ | 1 ½ | 28 | 35 ⅞ | 24 | 3 |
| III-PC | 24 | 49 ⅜ | 2 | 32 ⅛ | 47 ⅞ | 30 ⅛ | 3 |



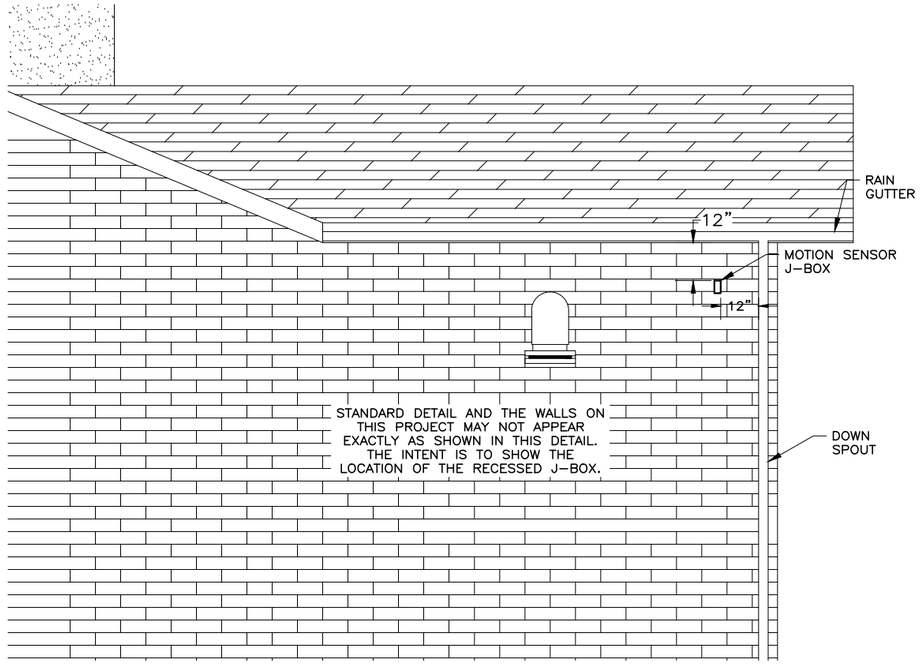

### JUNCTION BOX CONDUIT PENETRATION DETAIL




### 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.




UG ELECTRICAL BOX A

MOTION SENSOR J–BOX INSTALLATION B

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

FILE NAME:
FILE DATE:

REGISTERED PROFESSIONAL ENGINEER
No. 86-171214-2202
KEITH B. HEGERHORST
1/20/2023
STATE OF UTAH

PROJECT ENGINEER

| | | | | | | |
|---|---|---|---|---|---|---|
| DESIGNED KBH | 3 | | | | | |
| DRAFTED DAS | 2 | | | | | |
| CHECKED KBH | 1 | | | | | |
| DATE AUGUST 2020 | NO. | DATE | REVISIONS | BY | APVD. | |

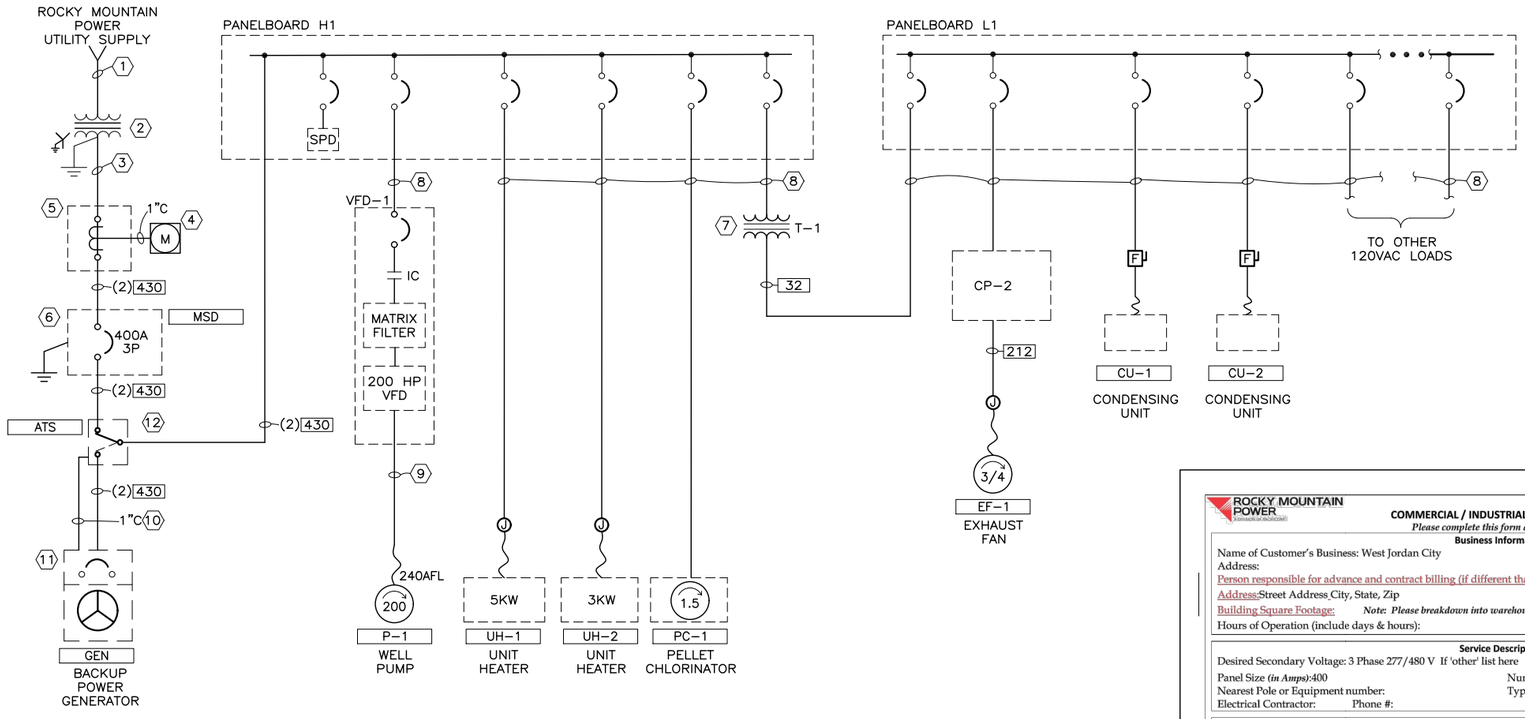
SCALE

WEST JORDAN UTAH

WEST JORDAN CITY WELL #8
ELECTRICAL
DETAILS, SHT. 5

SHEET E505
089.29.100

7/04




ONE-LINE DIAGRAM A
NONE —

## ELECTRICAL UTILITY INSTALLATION

UTILITY INFORMATION

| | |
|---|---|
| UTILITY COMPANY: | ROCKY MOUNTAIN POWER |
| UTILITY COMPANY CONTACT: | AUBREY RASMUSSEN |
| CONTACT INFORMATION: | PHONE: 801-576-6247 |
| WORK ORDER NUMBER: | 6845352 |

| SERVICE PRIMARY | SUPPLIED BY: | INSTALLED BY: |
|---|---|---|
| PRIMARY TRENCHING/BACKFILL | - | CONTRACTOR |
| PRIMARY CONDUIT | CONTRACTOR | CONTRACTOR |
| PRIMARY CONDUCTOR | UTILITY COMPANY | UTILITY COMPANY |
| **SERVICE TRANSFORMER** | **SUPPLIED BY:** | **INSTALLED BY:** |
| TRANSFORMER PAD | CONTRACTOR | CONTRACTOR |
| TRANSFORMER | UTILITY COMPANY | UTILITY COMPANY |
| **SERVICE SECONDARY** | **SUPPLIED BY:** | **INSTALLED BY:** |
| SECONDARY TRENCHING/BACKFILL | - | CONTRACTOR |
| SECONDARY CONDUIT | CONTRACTOR | CONTRACTOR |
| SECONDARY CONDUCTOR | UTILITY COMPANY | UTILITY COMPANY |
| **METERING EQUIPMENT** | **SUPPLIED BY:** | **INSTALLED BY:** |
| METER | UTILITY COMPANY | UTILITY COMPANY |
| METER SOCKET | CONTRACTOR | CONTRACTOR |
| COMBO METER/MAIN | - | - |
| CURRENT TRANSFORMER ENCL. | CONTRACTOR | CONTRACTOR |
| CT ENCL. TO METER SOCKET WIRING | UTILITY COMPANY | UTILITY COMPANY |
| CT ENCL. TO METER SOCKET CONDUIT | CONTRACTOR | CONTRACTOR |
| **MAIN SERVICE DISCONNECT** | **SUPPLIED BY:** | **INSTALLED BY:** |
| CIRCUIT BREAKER | CONTRACTOR | CONTRACTOR |
| FUSED DISCONNECT SWITCH | - | - |

ROCKY MOUNTAIN POWER

**COMMERCIAL / INDUSTRIAL CUSTOMER INFORMATION SHEET**

*Please complete this form and return to the Estimator assigned to your job*

**Business Information**

Name of Customer's Business: West Jordan City — Phone No.: — Request Number:
Address: — Fax No.:
Person responsible for advance and contract billing (if different than monthly billing customer):
Address: Street Address, City, State, Zip — E-mail Address:
Building Square Footage: *Note: Please breakdown into warehouse, office and manufacturing if applicable*
Hours of Operation (include days & hours):

**Service Description**

Desired Secondary Voltage: 3 Phase 277/480 V If 'other' list here *Note: Not all voltages may be available*
Panel Size *(in Amps)*:400 — Number of Meters: 1 *List addresses for each above*
Nearest Pole or Equipment number: — Type of Service Desired: Underground
Electrical Contractor: Phone #:

**Load List** *(attach additional sheets if necessary)*

| Description | Phase and Voltage | New Load to be added | Load to be removed | Total Connected Load after changes | Unit |
|---|---|---|---|---|---|
| HVAC (name plate rating) | 1 Phase 120/240 V | 1.8 | - | 1.8 | Tons* |
| Refrigeration Equipment | 1 Phase 120/240 V | - | - | - | Tons* |
| **Total connected Tons** | | | | 1.8 Tons | |
| Exhaust Fans | 1 Phase 120/240 V | 0.75 | - | 0.75 | HP |
| Gas/Fuel/Sump Pump | 1 Phase 120/240 V | - | - | - | HP |
| Small Motors (include motor codes) | 1 Phase 120/240 V | 1.5 | - | 1.5 | HP |
| Air Compressor | 1 Phase 120/240 V | - | - | - | HP |
| Swimming Pool | 1 Phase 120/240 V | - | - | - | HP |
| Largest Motor (not included above) & code | 3 Phase 277/480 V | 200 | - | 200 | HP |
| **Total connected HP** | | | | 202.25 HP | |
| Electric Heat | 3 Phase 277/480 V | 9.08 | - | 9.,08 | kW |
| Water Heating | 1 Phase 120/240 V | - | - | - | kW |
| Lighting | 1 Phase 120/240 V | 0.6 | - | 0.6 | kW |
| Outlets | 1 Phase 120/240 V | 1.62 | - | 1.62 | kW |
| Office Equipment | 1 Phase 120/240 V | - | - | - | kW |
| Kitchen Equipment | 1 Phase 120/240 V | - | - | - | kW |
| Computers, Magnetic Power Supplies | 1 Phase 120/240 V | 1.0 | - | 1.0 | kW |
| Machinery | 1 Phase 120/240 V | - | - | - | kW |
| Thermoplastic Injection Equipment | 1 Phase 120/240 V | - | - | - | kW |
| Elevators | 1 Phase 120/240 V | - | - | - | kW |
| Boiler | 1 Phase 120/240 V | - | - | - | kW |
| Snow Melting | 1 Phase 120/240 V | - | - | - | kW |
| Signs | 1 Phase 120/240 V | - | - | - | kW |
| X-Ray Equipment | 1 Phase 120/240 V | - | - | - | kW |
| Washer/Dryer | 1 Phase 120/240 V | - | - | - | kW |
| Miscellaneous | 1 Phase 120/240 V | 1.0 | - | 1.0 | kW |
| Heat Exchanger | 1 Phase 120/240 V | - | - | - | kW |
| Humidifier | 1 Phase 120/240 V | - | - | - | kW |
| Future | 1 Phase 120/240 V | | - | 0 | kW |
| **Total connected kW** | | | | 20.22 kW | |

It is important to provide the most accurate information available, as it is used by the Estimator to design PacifiCorp's facilities and determine the customer's costs. Please sign and date this form before giving it to your estimator.

Customer Signature — Date

Note:
- You may wish to consult a trained professional (electrician, engineer, etc.) prior to providing the information to your estimator.
- Commercial metering can have many restrictions that should be discussed with the estimator prior to the purchase and installation of your metering equipment. There are also restrictions regarding master metering. If your plans call for master metering, please discuss this with your estimator.
- Motors larger than 35hp three phase or 5hp single phase will require approval by our engineering department prior to installation in order to determine the acceptable starting current.

* Tons = BTUs/12,000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AMERICAN FORK, UT 84003
HPE PROJECT **20.025**



FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: **KEITH HEGERHORST**


## GENERAL NOTES:

1. REFER TO CONDUIT/CONDUCTOR TABLE FOR WIRE AND CONDUIT REQUIREMENTS.
2. REFER TO ELECTRICAL PLANS FOR ELECTRICAL EQUIPMENTS LOCATIONS.

## SHEET KEYNOTES:

1. CONDUIT SIZE 4". COORDINATE WITH UTILITY COMPANY AS AS REQUIRED.
2. TRANSFORMER: PROVIDED AND INSTALLED BY UTILITY COMPANY. PAD BY CONTRACTOR.
3. 4"C, CONDUCTORS BY UTILITY COMPANY.
4. METER SOCKET: PROVIDED AND INSTALLED AS REQUIRED BY UTILITY COMPANY.
5. CT METERING ENCLOSURE: PROVIDED AND INSTALLED AS REQUIRED BY BY UTILITY COMPANY.
6. MAIN SERVICE DISCONNECT: 480VAC, 300A, 3-POLE CIRCUIT BREAKER IN NEMA 3R ENCLOSURE. LABEL AS "MAIN SERVICE DISCONNECT" AND AS REQUIRED BY NEC 110.24.
7. TRANSFORMER T-1: XXKVA, 480VAC PRIMARY, 208Y/120V SECONDARY.
8. REFER TO PANELBOARD SCHEDULE FOR WIRE IDENTIFICATION.
9. VFD CONDUCTORS: 3-350, IN 3"C (BELDEN 29534 OR APPROVED EQUAL).
10. 1"C, CONDUCTORS AS REQUIRED FOR ATS TO START/STOP THE GENERATOR.
11. BACKUP POWER GENERATOR: 230KW, 480VAC, 3-PH, 4-W DIESEL GENERATOR.
12. AUTOMATIC TRANSFER SWITCH: 480VAC, 400A, 3-PH, 4-W.

REGISTERED PROFESSIONAL ENGINEER
No. 86-171214-2202
KEITH B. HEGERHORST
1/20/2023
STATE OF UTAH

FILE NAME:
FILE DATE:

HANSEN ALLEN & LUCE Inc. ENGINEERS

PROJECT ENGINEER

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| DESIGNED | KBH | 3 | | | | | |
| DRAFTED | DAS | 2 | | | | | |
| CHECKED | KBH | 1 | | | | | |
| DATE | AUGUST 2020 | NO. | DATE | REVISIONS | BY | APVD. | |

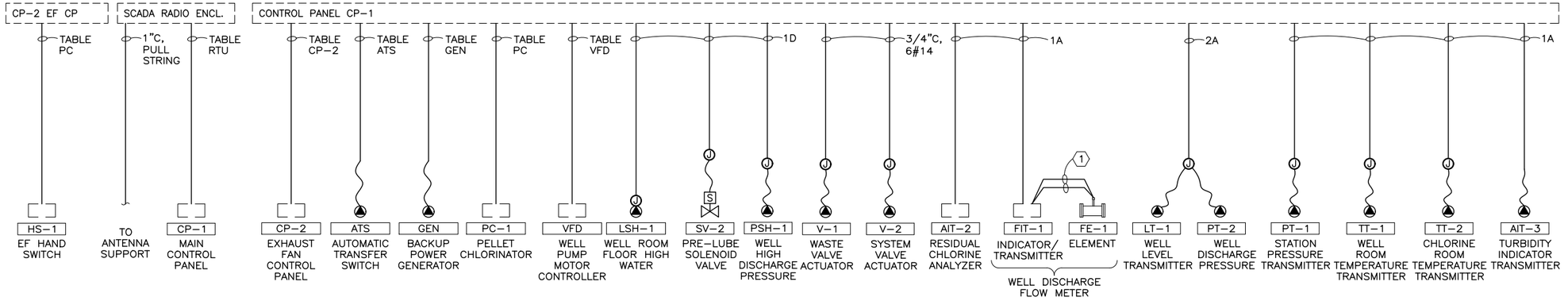
SCALE

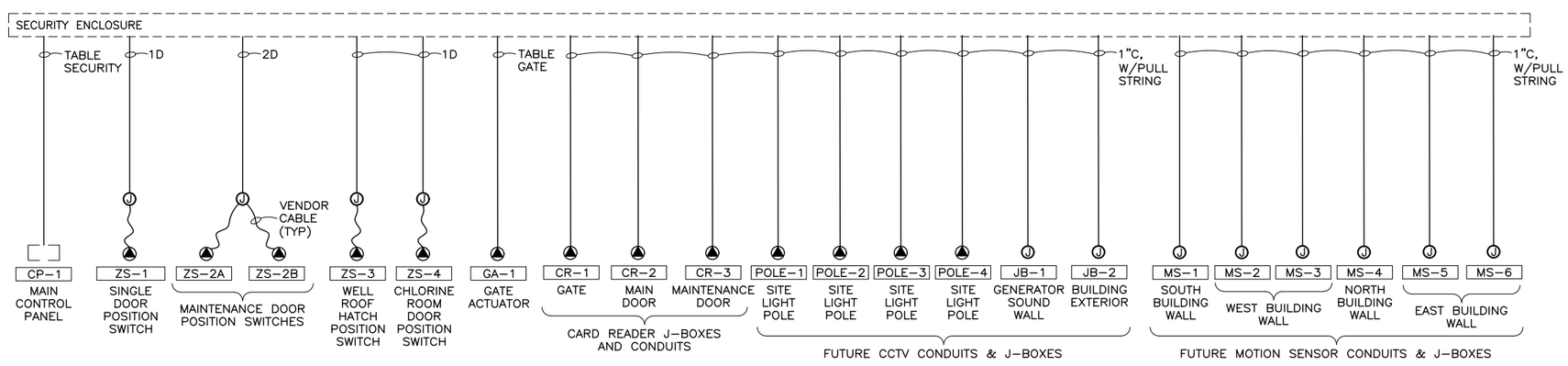
WEST JORDAN UTAH

WEST JORDAN CITY WELL #8
ELECTRICAL
POWER ONE-LINE DIAGRAM

SHEET E601
089.29.100

7/04

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AMERICAN FORK, UT 84003
HPE PROJECT **20.025**

FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: **KEITH HEGERHORST**

## GENERAL NOTES:

1. LOCATIONS OF INSTRUMENTS AND DEVICE SHOWN ON THE INSTRUMENTATION AND CONTROL PLAN. SEE E103.

## SHEET KEYNOTES:

1. INSTALL SUPPLIED DATA AND SIGNAL WIRE IN CONDUIT AS REQUIRED BY THE METER MANUFACTURER. DO NOT COMBINE SIGNAL AND DATA CONDUCTORS IN THE SAME CONDUIT.
2. INSTALL A 4"X4" ELECTRICAL BOX IN THE CHLORINE ROOM. PROVIDE A THREE-WAY SWITCH FOR THE BUILDING LIGHTS AND A TOGGLE SWITCH FOR THE EXHAUST FAN.

## INSTRUMENTATION AND CONTROL ONE-LINE DIAGRAM A-

### TABLE VFD

| CONDUIT SIZE | CONDUCTOR QTY | CONDUCTOR SIZE | CP-1 TO VFD SIGNAL DESCRIPTION |
|---|---|---|---|
| 3/4"C | 1 | #14 | COMMON INPUT |
| | 1 | #14 | COMMON OUTPUT |
| | 1 | #14 | BACKSPIN TIME DELAY |
| | 1 | #14 | FILTER CAPACITOR CONTROL |
| | 1 | #14 | SHUTDOWN RESET |
| | 1 | #14 | VFD FAULT |
| | 1 | #14 | VFD FILTER HIGH TEMP. |
| | 1 | #14 | VFD HAND START/STOP |
| | 1 | #14 | VFD HIGH PRESSURE SHUTDOWN |
| | 1 | #14 | VFD LOW LEVEL SHUTDOWN |
| | 1 | #14 | VFD READY TO START |
| | 1 | #14 | VFD RUN |
| | 1 | #14 | VFD RUNNING |
| | | | |
| 1"C | 1 | CAT 6U | VFD ETHERNET |
| | 1 | CAT 6U | MOTOR RTD TEMPERATURES |
| | 1 | CAT 6U | POWER MONITOR |
| | | | |
| 3/4"C | 1 | #18TSP | VFD COMMAND SPEED |
| | 1 | #18TSP | VFD RUNNING SPEED |
| | | | |
| 3/4"C | - | P. STRING | SPARE CONDUIT |
| | | | |

### TABLE GATE

| CONDUIT SIZE | CONDUCTOR QTY | CONDUCTOR SIZE | CP-1 TO GATE ACTUATOR SIGNAL DESCRIPTION |
|---|---|---|---|
| 1"C | 1 | #14 | COMMON INPUT |
| | 1 | #14 | COMMON OUTPUT |
| | 1 | #14 | CLOSE COMMAND |
| | 1 | #14 | GATE OPEN STATUS |
| | 1 | #14 | GATE CLOSED STATUS |
| | 1 | #14 | OPEN COMMAND |
| | | | |

### TABLE GEN

| CONDUIT SIZE | CONDUCTOR QTY | CONDUCTOR SIZE | CP-1 TO GENERATOR SIGNAL DESCRIPTION |
|---|---|---|---|
| 3/4"C | 1 | #14 | COMMON INPUT |
| | 1 | #14 | GENERATOR RUNNING |
| | 1 | #14 | GENERATOR FAULT |
| | | | |

### TABLE ATS

| CONDUIT SIZE | CONDUCTOR QTY | CONDUCTOR SIZE | CP-1 TO ATS SIGNAL DESCRIPTION |
|---|---|---|---|
| 3/4"C | 1 | #14 | COMMON INPUT |
| | 1 | #14 | ATS IN GENERATOR POSITION |
| | 1 | #14 | ATS IN UTILITY POSITION |
| | | | |

### TABLE CP-2

| CONDUIT SIZE | CONDUCTOR QTY | CONDUCTOR SIZE | CP-1 TO CP-2 SIGNAL DESCRIPTION |
|---|---|---|---|
| 3/4"C | 1 | #14 | COMMON OUTPUT |
| | 1 | #14 | COMMON INPUT |
| | 1 | #14 | EXHAUST FAN ON |
| | 1 | #14 | EXHAUST FAN RUN |
| | | | |

### I&C WIRE/CONDUIT TABLE

| IDENT. | CONDUIT SIZE | CONDUCTOR QTY | CONDUCTOR SIZE | SIGNAL DESCRIPTION |
|---|---|---|---|---|
| 1A | 3/4" | 1 | #18TSP | 1 ANALOG SIGNAL |
| 2A | 3/4" | 2 | #18TSP | 2 ANALOG SIGNALS |
| 3A | 3/4" | 3 | #18TSP | 3 ANALOG SIGNALS |
| | | | | |
| IDENT. | CONDUIT SIZE | CONDUCTOR QTY | CONDUCTOR SIZE | SIGNAL DESCRIPTION |
| 1D | 3/4" | 2 | #14 | 1 SIGNAL |
| 2D | 3/4" | 3 | #14 | 1 COMMON, 2 DISCRETE SIG. |
| 3D | 3/4" | 4 | #14 | VARIES |
| 4D | 3/4" | 5 | #14 | VARIES |
| | | | | |

### TABLE RTU

| CONDUIT SIZE | CONDUCTOR QTY | CONDUCTOR SIZE | CP-1 TO RTU |
|---|---|---|---|
| 3/4"C | 1 | CAT 6U | ETHERNET |
| | | | |

### TABLE PC

| CONDUIT SIZE | CONDUCTOR QTY | CONDUCTOR SIZE | CP-1 TO PELLET CHLORINATOR SIGNAL DESCRIPTION |
|---|---|---|---|
| 3/4"C | 1 | #14 | COMMON INPUT |
| | 1 | #14 | COMMON OUTPUT |
| | 1 | #14 | CHLORINATOR REMOTE RUN |
| | 1 | #14 | PUMP RUNNING |
| | 1 | #14 | SOLUTION TANK HIGH LEVEL |
| | 1 | #14 | SOLUTION TANK LOW LEVEL |
| | 1 | #14 | SPARE |
| | 1 | #14 | WEIGHT SCALE ALARM |
| | | | |
| 3/4"C | 1 | #18TSP | WELL FLOW |
| | | | |

### TABLE ASH-1

| CONDUIT SIZE | CONDUCTOR QTY | CONDUCTOR SIZE | CP-1 TO ASH-1 SIGNAL DESCRIPTION |
|---|---|---|---|
| 3/4"C | 1 | #14 | COMMON OUTPUT |
| | 1 | #14 | COMMON INPUT |
| | 1 | #14 | CHLORINE LEAK ALARM |
| | 1 | #14 | CHLORINE ALARM RESET |
| | | | |

### TABLE SECURITY

| CONDUIT SIZE | CONDUCTOR QTY | CONDUCTOR SIZE | CP-1 TO SECURITY ENCLOSURE SIGNAL DESCRIPTION |
|---|---|---|---|
| 1-1/2C | 1 | #14 | COMMON INPUT |
| | 1 | #14 | COMMON OUTPUT |
| | 1 | #14 | CHLORINE ROOM DOOR POS. |
| | 1 | #14 | CLOSE COMMAND |
| | 1 | #14 | GATE CLOSED STATUS |
| | 1 | #14 | GATE OPEN STATUS |
| | 1 | #14 | OPEN COMMAND |
| | 1 | #14 | SITE MOTION SENSOR ALARM |
| | 2 | #14 | WELL ROOM MAINT. DOOR POS. |
| | 1 | #14 | WELL ROOM MAN DOOR POS. |
| | 1 | #14 | WELL ROOM ROOF HATCH POS. |
| | | | |
| 1"C | - | - | FUTURE ETHERNET |
| | | | |

### SCADA COORDINATION

| | | |
|---|---|---|
| SCADA CONTRACTOR: | APCO, INC. | |
| | | |
| CONTACT INFORMATION: | (801) 519-9500 | |

| **ENCLOSURE** | **SUPPLIED BY:** | **INSTALLED BY:** |
|---|---|---|
| ENCLOSURE | CONTRACTOR | CONTRACTOR |
| INTERNAL PANEL | CONTRACTOR | CONTRACTOR |
| INTERNAL COMPONENTS | SCADA CONTR. | SCADA CONTR. |
| INTERNAL COMPONENT WIRING | SCADA CONTR. | SCADA CONTR. |
| | | |
| **ING TO/FROM RTU ENCLOSURE** | **SUPPLIED BY:** | **INSTALLED BY:** |
| POWER SOURCE | CONTRACTOR | CONTRACTOR |
| FIELD I/O TO ENCLOSURE TERMINALS | CONTRACTOR | CONTRACTOR |
| FIELD DEVICE TERMINATIONS | CONTRACTOR | CONTRACTOR |
| | | |
| **COMPONENT** | **SUPPLIED BY:** | **INSTALLED BY:** |
| PROGRAMMABLE LOGIC CONTROLLER | SCADA CONTR. | SCADA CONTR. |
| SEPARATE RTU CONTROLLER | - | - |
| | - | - |
| | | |
| **RNAL WIRING INSIDE RTU** | **SUPPLIED BY:** | **INSTALLED BY:** |
| FIELD DEVICE WIRING TERMINATION | - | SCADA CONTR. |
| | | |
| | | |
| **SIGNAL** | **SUPPLIED BY:** | **INSTALLED BY:** |
| 1" CONDUIT FOR SCADA RADIO | CONTRACTOR | CONTRACTOR |
| DATA RADIO COAXIAL CABLE | SCADA CONTR. | SCADA CONTR. |
| ANTENNA SUPPORT (SEE PLANS) | CONTRACTOR | CONTRACTOR |
| DATA RADIO ANTENNA | SCADA CONTR. | SCADA CONTR. |
| | | |

REGISTERED PROFESSIONAL ENGINEER No. 86-171214-2202 KEITH B. HEGERHORST 1/20/2023 STATE OF UTAH

FILE NAME:
FILE DATE:

HANSEN ALLEN & LUCE, Inc. ENGINEERS

PROJECT ENGINEER

DESIGNED KBH
DRAFTED DAS
CHECKED KBH
DATE AUGUST 2020

| NO. | DATE | REVISIONS | BY | APVD. |
|---|---|---|---|---|
| 3 | | | | |
| 2 | | | | |
| 1 | | | | |

SCALE

WEST JORDAN UTAH

WEST JORDAN CITY WELL #8
ELECTRICAL
I&C DIAGRAM

SHEET E602
089.29.100

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 **20.025**

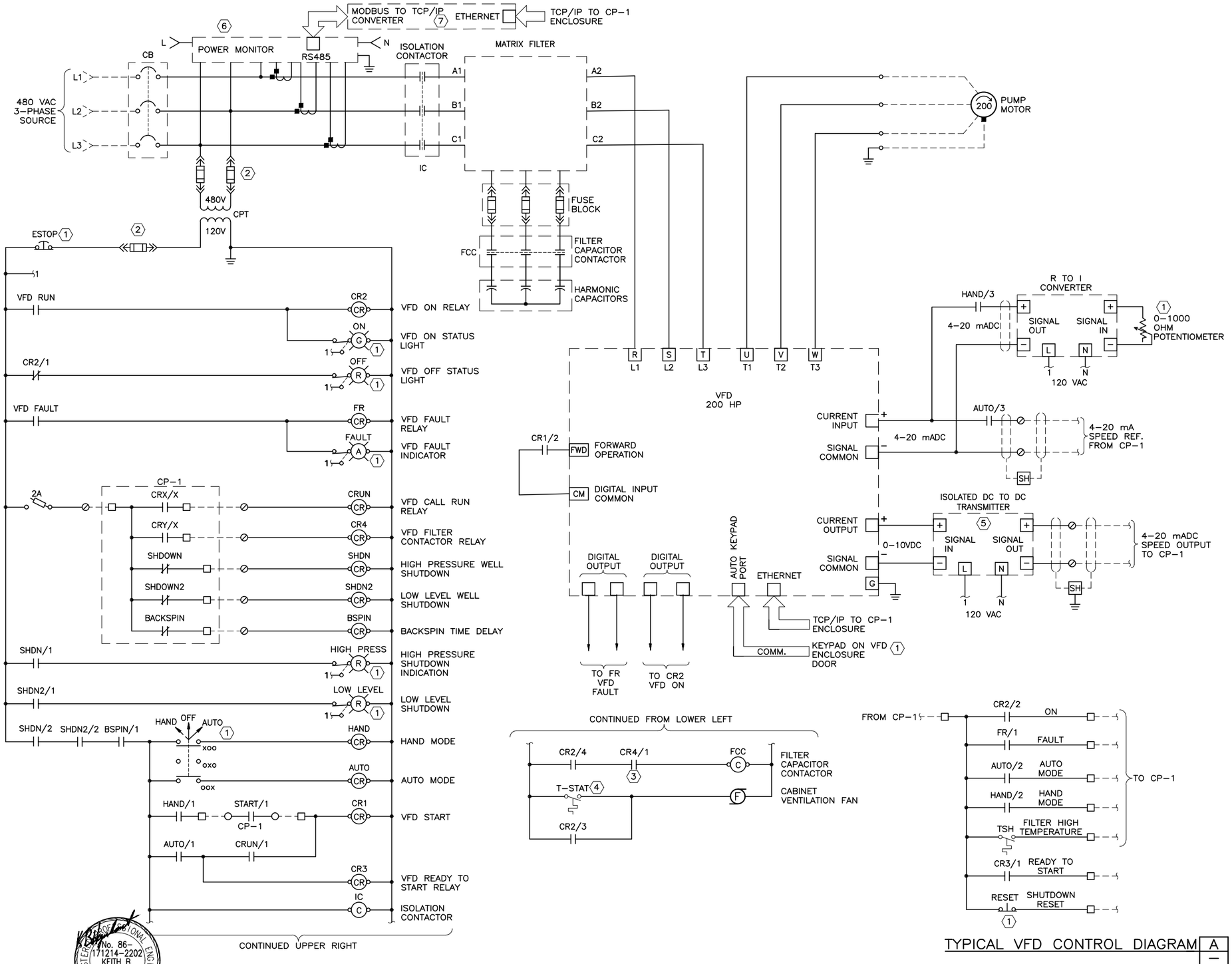
FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: **KEITH HEGERHORST**

## GENERAL NOTES:

1. THIS IS A TYPICAL WIRING DIAGRAM. CONTRACTOR SHALL MODIFY AS REQUIRED FOR THE VFD AND OTHER COMPONENTS PROVIDED.
2. CONTRACTOR SHALL PROVIDE TERMINAL NUMBERS AND WIRE NUMBERS AS REQUIRED.
3. COORDINATE WITH PROVIDER OF CP-1 FOR RELAY DESIGNATIONS IN CP-1.
4. VFD MANUFACTURER SHALL PROVIDE POWER FOR POWER MONITOR AND MODBUS TO TCP/IP CONVERTER AS REQUIRED.

## SHEET KEYNOTES:

1. DEVICE SHALL BE LOCATED ON ENCLOSURE DOOR AVAILABLE TO THE OPERATOR.
2. FUSES SIZED BY EQUIPMENT MANUFACTURER.
3. CONTACT TO CONTROL FILTER CAPACITOR CONTACTOR. DE-ENERGIZE CAPACITORS WHEN VFD IS LESS THAN 30%.
4. T-STAT SHALL CONTROL ENCLOSURE FAN.
5. PROVIDE SIGNAL CONVERTER AS REQUIRED.
6. POWER MONITOR SHOWN WITHOUT FUSING. CONTRACTOR SHALL PROVIDE FUSING AS REQUIRED BY MANUFACTURER.
7. PROVIDE RS485 TO ETHERNET CONVERTER AND POWER SUPPLY AS REQUIRED.




TYPICAL VFD CONTROL DIAGRAM A

FILE NAME:
FILE DATE:

REGISTERED PROFESSIONAL ENGINEER
No. 86-171214-2202
KEITH B. HEGERHORST
1/20/2023
STATE OF UTAH

HANSEN ALLEN & LUCE, INC. ENGINEERS

PROJECT ENGINEER

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| DESIGNED | KBH | 3 | | | | | |
| DRAFTED | DAS | 2 | | | | | |
| CHECKED | KBH | 1 | | | | | |
| DATE | AUGUST 2020 | NO. | DATE | REVISIONS | | BY | APVD. |

SCALE

WEST JORDAN UTAH

WEST JORDAN CITY WELL #8
ELECTRICAL
TYPICAL VFD CONTROL DIAGRAM

SHEET E603
089.29.100

7/04

## EQUIPMENT SCHEDULE

| ITEM | DESCRIPTION | EQUIPMENT RATING | | | | | | DISCONNECT | | | | | | STARTER | | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | VOLTS | PH | HP | WATTS | FLA | MCA | AMPS | VOLTS | POLES | NEMA | FUSE | CONNECTION | TYPE | NEMA SIZE | |
| AIT-2 | CHLORINE ANALYZER | 120 | 1 | - | 10 | 0.08 | | - | - | - | - | - | HARD-WIRED | - | - | |
| AIT-3 | TURBIDITY ANALIZER | 120 | 1 | | 150 | 1.25 | | - | - | - | - | - | HARD-WIRED | - | - | |
| ATS | AUTOMATIC TRANSFER SWITCH | 480 | 3 | - | - | 400 | - | - | - | - | - | - | HARD-WIRED | - | - | |
| CP-1 | MAIN CONTROL PANEL | 120 | 1 | - | 800 | - | - | - | - | - | - | - | HARD-WIRED | - | - | |
| CP-2 | EXHAUST FAN CONTROL PANEL | 120 | 1 | - | - | - | - | - | - | - | - | - | HARD-WIRED | - | - | |
| CTE | CURRENT TRANSFORMER ENCLOSURE | 480 | 3 | - | - | - | - | - | - | - | - | - | - | - | - | |
| FE-1 | FLOW ELEMENT | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| FIT-1 | FLOW INDICATOR/TRANSMITTER | 120 | 1 | - | 50 | 0.4 | | | | | | | | | | |
| GA-1 | GATE ACTUATOR | 240 | 1 | 1 | 1,920 | 8 | - | - | - | - | - | - | - | - | - | |
| GEN | BACKUP POWER GENERATOR | 480 | 3 | - | | - | - | - | - | - | - | - | HARD-WIRED | - | - | |
| LT-1 | WELL LEVEL TRANSMITTER | 24 | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| MSD | MAIN SERVICE DISCONNECT | 480 | 3 | - | - | - | - | - | - | - | - | - | - | - | - | |
| P-1 | WELL PUMP | 480 | 3 | 200 | 199,296 | 240 | - | - | - | - | - | - | HARD-WIRED | VFD | 200 HP | |
| PC-1 | PELLET CHLORINATOR | 120 | 1 | - | 1,656 | - | - | - | - | - | - | - | - | - | - | |
| RTU | REMOTE TELEMETRY UNIT | 120 | 1 | - | - | - | - | - | - | - | - | - | HARD-WIRED | - | - | |
| SV-2 | WELL PRE-LUBE SOLENOID VALVE | 120 | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| TT-1 | PUMP ROOM TEMPERATURE SENSOR | 24 | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| TT-2 | CHLORINE ROOM TEMPERATURE SENSOR | 24 | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| V-1 | WASTE VALVE ACTUATOR | 120 | 1 | 1/6 | 528 | 4.4 | | - | - | - | - | - | - | - | - | |
| V-2 | SYSTEM VALVE ACTUATOR | 120 | 1 | 1/6 | 528 | 4.4 | | - | - | - | - | - | - | - | - | |
| VFD | WELL VARIABLE FREQUENCY DRIVE | 480 | 3 | 200 | - | - | | - | - | - | - | - | HARD-WIRED | | - | |
| | | | | | | | | | | | | | | | | |

NOTES: 1)

## FIXTURE SCHEDULE

| TYPE | DESCRIPTION | MANUFACTURER | | FIX | LAMP | LUMENS | TEMPERATURE (KELVIN) | MOUNTING | NOTES: |
|---|---|---|---|---|---|---|---|---|---|
| | | NAME | CATALOG NO. | VA | | | | | |
| F1 | 4' LED ENCLOSED INDUSTRIAL, FIBERGLASS HOUSING, DAMP LOCATION, MVOLT | METALUX | 4VT2 LD5-4-DR-UNV-L840-CD1-WL-U | 38 | LED | 4000 | 4000 | SURFACE | |
| F2 | LED WALL MOUNTED FULL CUTOFF MINI AREA WALL PACK FOR WET LOCATIONS | LUMARK | XTOR2B-W-PC1 | 18 | LED | 1,472 | 4000 | WALL | 1) |
| F3 | FLOOD LIGHT, WIDE DISTRIBUTION, 120 VAC, 4000 DEG K LED | EATON | ULFD-C25-E-U-66-Y-BZ | 128 | LED | 15,530 | 4000 | WALL | 2) |
| F4A | WEST JORDAN STANDARD POLE LIGHT | - | - | 129 | LED | 13,748 | 4999 | POLE | 3) |
| F4B | WEST JORDAN STANDARD LIGHT POLE | - | - | - | - | - | - | - | 3) |

NOTES:
1) FIXTURE SHALL BE MOTION SENSOR CONTROLLED.
2) AIM TOWARD GENERATOR SIDE AISLE.
3) POLE AND FIXTURE SHALL BE PURCHASED FROM WEST JORDAN CITY.

## HVAC MECHANICAL EQUIPMENT SCHEDULE

| ITEM | DESCRIPTION | EQUIPMENT RATING | | | | | | DISCONNECT | | | | | | STARTER | | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | VOLTS | PH | HP | WATTS | FLA | MCA | AMPS | VOLTS | POLES | NEMA | FUSE | CONNECTION | TYPE | NEMA SIZE | |
| CU-1 | CONDENSING UNIT | 208 | 1 | - | 3,162 | 15.2 | 19 | 30 | 240 | 3 | 3R | 25 | HARD-WIRED | INCL. | N/A | |
| CU-2 | CONDENSING UNIT | 208 | 1 | - | 3,162 | 15.2 | 19 | 30 | 240 | 3 | 3R | 25 | HARD-WIRED | INCL. | N/A | |
| EF-1 | EXHAUST FAN | 120 | 1 | F | 150 | 1.25 | - | 20 | 125 | 1 | - | - | HARD-WIRED | N/A | N/A | |
| FC-1 | AIR HANDLER | 208 | 1 | | - | - | - | - | - | - | - | - | - | - | - | 1) |
| FC-2 | AIR HANDLER | 208 | 1 | | - | - | - | - | - | - | - | - | - | - | - | 1) |
| L-1 | CHL. ROOM INTAKE LOUVER | 120 | 1 | F | 50 | 0.4 | - | - | - | - | - | - | - | - | - | |
| L-2 | CHL. ROOM EXHAUST LOUVER | 120 | 1 | F | 50 | 0.4 | - | - | - | - | - | - | - | - | - | |
| UH-1 | UNIT HEATER | 480 | 3 | F | 5,000 | 6.02 | - | - | - | - | - | - | HARD-WIRED | INCL. | N/A | |
| UH-2 | UNIT HEATER | 480 | 3 | F | 3,300 | 3.97 | - | 30 | 600 | 3 | 1 | - | HARD-WIRED | N/A | N/A | |
| | | | | | | | | | | | | | | | | |

NOTES: 1) INDOOR UNIT RECEIVES POWER FROM OUTDOOR UNIT. REFER TO MANUFACTURER'S LITERATURE.
2)

## PANELBOARD H

LOCATION: WELL ROOM | MFGR: SQUARE D COMPANY | 400 AMPS | VOLTS: 480Y/277
DIMENSIONS: 20"Wx 6"Dx 26"H | TYPE: I-LINE | X M.L.O | PHASE: 3
MOUNTING: SURFACE | NEMA: 1 | 22,000 A.I.C. | WIRES: 4
FEED: TOP | X SURGE PROTECTION | FED FROM: UTILITY

| BRKR A | P | DESCRIPTION | CIRCUIT ID | CONT. WATTS | N-CONT. WATTS | NO | PHASE LOADS A CONT. | A N-CONT. | B CONT. | B N-CONT. | C CONT. | C N-CONT. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 20 | 3 | CP-1 SURGE DEVICE | 312 | | | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 350 | 3 | WELL PUMP (200 HP) | 310 | 199,296 | | 2 | 66,432 | 0 | 66,432 | 0 | 66,432 | 0 |
| 20 | 3 | WELL ROOM HEATER | 312 | 5,000 | | 3 | 1,667 | | 1,667 | | 1,667 | |
| 20 | 3 | CHLORINE ROOM HEATER | 312 | 3,300 | | 4 | 1,100 | | 1,100 | | 1,100 | |
| 20 | 3 | PELLET CHLORINATOR | 312 | 2,491 | | 5 | 830 | | 830 | | 830 | |
| 50 | 3 | TRANSFORMER L | 38 | 5,382 | 14,482 | 6 | 1,954 | 5,071 | 860 | 4,221 | 2,568 | 5,191 |
| | | SPACE | | | | 7 | | | | | | |
| | | TOTAL WATTS: | | 215,469 | 14,482 | | 71,983 | 5,071 | 70,889 | 4,221 | 72,597 | 5,191 |
| | | CONTINUOUS LOAD: | | 215,469 | | | | | | | | |
| | | CONTINUOUS LOAD * 125%: | | 269,337 | | | | | | | | |
| | | NON-CONTINUOUS LOAD: | | 14,482 | | | | | | | | |
| | | DESIGN WATTS: | | 283,819 | | | | | | | | |
| | | MIN. RATING (AMPS): | | 342 | | | | | | | | |

## TRANSFORMER L

LOCATION: WELL ROOM | 25.5 PRIMARY AMPS | PRIMARY VOLTS: 480
DIMENSIONS: 14.75"W x 9.00"D x 14.75"H | 58.9 SECONDARY AMPS | SECONDARY VOLTS: 208Y/120
MOUNTING: WALL | KVA: 30
FEED: SIDE | FED FROM: PNL H

| | | CONT. WATTS | N-CONT. WATTS | PHASE LOADS A CONT. | A N-CONT. | B CONT. | B N-CONT. | C CONT. | C N-CONT. |
|---|---|---|---|---|---|---|---|---|---|
| | PANELBOARD L | 5,382 | 14,482 | 1,954 | 5,071 | 860 | 4,221 | 2,568 | 5,191 |
| | TOTAL WATTS: | 5,382 | 14,482 | 1,954 | 5,071 | 860 | 4,221 | 2,568 | 5,191 |
| | CONTINUOUS LOAD: | 5,382 | | | | | | | |
| | CONTINUOUS LOAD * 125%: | 6,728 | | | | | | | |
| | NON-CONTINUOUS LOAD: | 14,482 | | | | | | | |
| | DESIGN WATTS: | 21,210 | | | | | | | |

## PANELBOARD L

LOCATION: WELL ROOM | MFGR: SQUARE D | 225 AMPS | VOLTS: 208Y/120
DIMENSIONS: 20"W x 5.75"D x "H | TYPE: NQ | 90 M.C.B. | PHASE: 3
MOUNTING: SURFACE | NEMA: 1 | 10,000 A.I.C. | WIRES: 4
FEED: TOP | X SPD | FED FROM: XFMR L

| BRKR A | P | DESCRIPTION | CIRCUIT ID | CONT. WATTS | N-CONT. WATTS | NO | PHASE LOADS A CONT. | A N-CONT. | B CONT. | B N-CONT. | C CONT. | C N-CONT. | NO | N-CONT. WATTS | CONT. WATTS | CIRCUIT ID | DESCRIPTION | BRKR A | P |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 20 | 1 | CO, PUMP ROOM | 212 | | 1,080 | 1 | 1,000 | 1,080 | | | | | 2 | | 1,000 | 212 | CP-1/RTU | 20 | 1 |
| 20 | 1 | CO, CHLORINE ROOM | 212 | | 180 | 3 | | | 500 | 180 | | | 4 | | 500 | 212 | RTU RADIO ENCLOSURE | 20 | 1 |
| 20** | 1 | CO, EXTERIOR | 212 | | 360 | 5 | | | | | 0 | 1,110 | 6 | 750 | | 212 | GENERATOR JACKET WATER HEATER | 20 | 2 |
| 20** | 1 | LTS, INTERIOR | 212 | 304 | | 7 | 304 | 750 | | | | | 8 | 750 | | - | - | - | - |
| 20 | 1 | LTS, EXTERIOR | 212 | 310 | | 9 | | | 310 | 1,000 | | | 10 | 1,000 | | 212 | GENERATOR BATTERY CHARGER | 20 | 1 |
| 20 | 1 | FLOW METER | 212 | 50 | | 11 | | | | | 50 | 1,581 | 12 | 1,581 | | 20 | WELL ROOM EXTERIOR A/C UNIT-1 | 30 | 2 |
| 20 | 2 | SITE GATE ACTUATOR | 212 | | 960 | 13 | 0 | 2,541 | | | | | 14 | 1,581 | | - | - | - | - |
| - | - | - | - | | 960 | 15 | | | 0 | 2,541 | | | 16 | 1,581 | | 20 | WELL ROOM EXTERIOR A/C UNIT-1 | 30 | 2 |
| 20 | 1 | TURBIDIMETER | 212 | 150 | | 17 | | | | | 150 | 1,581 | 18 | 1,581 | | - | - | - | - |
| 20 | 1 | RESIDUAL CHLORINE ANALYZER | 212 | 150 | | 19 | 150 | 500 | | | | | 20 | 500 | | 212 | V-1 ACTUATOR | 20 | 1 |
| 20** | 1 | CO, IRRIGATION CONTROLLER | 212 | 50 | | 21 | | | 50 | 500 | | | 22 | 500 | | 212 | V-2 ACTUATOR | 20 | 1 |
| 20 | 1 | LTS, POLES & CCTV CO | 212 | 512 | 720 | 23 | | | | | 2,368 | 920 | 24 | 200 | 1,856 | 20 | CP-2 CONTROL PANEL | 30 | 1 |
| 20 | 1 | SECURITY ENCLOSURE | 212 | 500 | | 25 | 500 | 200 | | | | | 26 | | | | SPARE | 20 | 1 |
| 20 | 1 | SPARE | | | | 27 | | | 0 | 0 | | | 28 | | | | SPARE | 20 | 1 |
| | 1 | SPACE | | | | 29 | | | | | 0 | 0 | 30 | | | | SPARE | 20 | 1 |
| | | TOTAL WATTS: | | 2,026 | 4,260 | | 1,954 | 5,071 | 860 | 4,221 | 2,568 | 5,191 | | 10,022 | 3,356 | | | | |
| | | CONTINUOUS LOAD: | | 5,382 | | | | | | | | | | | | | | | |
| | | CONTINUOUS LOAD * 125%: | | 6,728 | | | | | | | | | | | | | | | |
| | | NON-CONTINUOUS LOAD: | | 14,282 | | | ** PROVIDE A GFC CIRCUIT BREAKER | | | | | | | | | | | | |
| | | DESIGN WATTS: | | 21,010 | | | | | | | | | | | | | | | |
| | | MIN. RATING (AMPS): | | 58 | | | | | | | | | | | | | | | |


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 **20.025**


FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: **KEITH HEGERHORST**

## GENERAL NOTES:

1. NOT USED.

## SHEET KEYNOTES:

1. GATE SUPPLIED 208V, 1-PHASE. IF GATE REQUIRES 240V 1-PHASE PROVIDE APPROPRIATE BUCK/BOOST TRANSFORMER IN WELL BUILDING AS REQUIRED. COORDINATE WITH GATE ACTUATOR SUPPLIER DURING CONSTRUCTION.

FILE NAME:
FILE DATE:


HANSEN ALLEN & LUCE inc ENGINEERS

PROJECT ENGINEER

| | | | | | |
|---|---|---|---|---|---|
| DESIGNED | KBH | 3 | | | |
| DRAFTED | DAS | 2 | | | |
| CHECKED | KBH | 1 | | | |
| DATE | AUGUST 2020 | NO. | DATE | REVISIONS | BY APVD. |

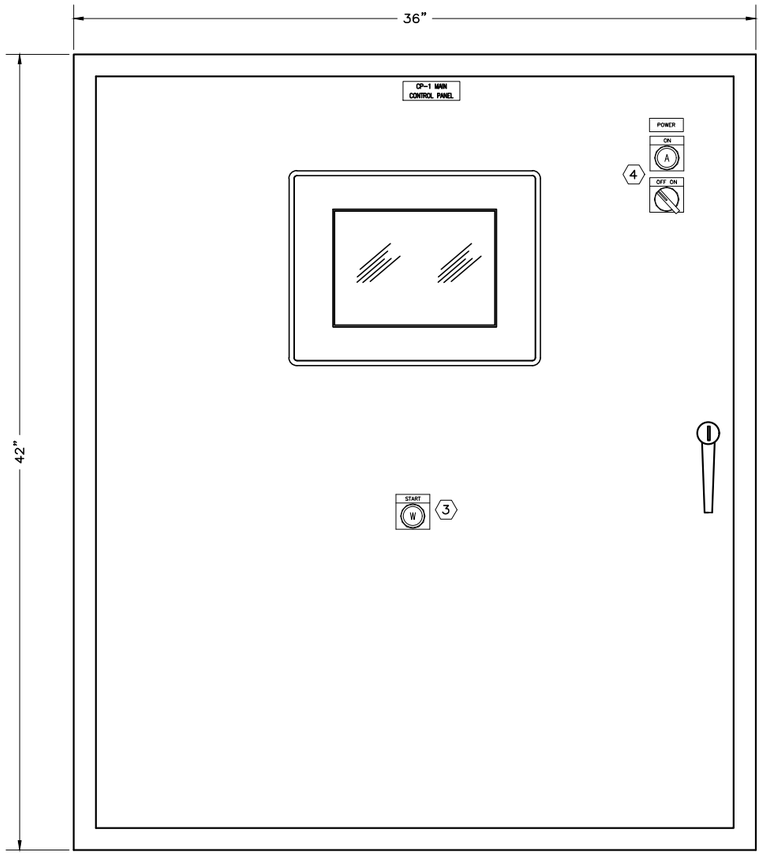
SCALE

WEST JORDAN UTAH

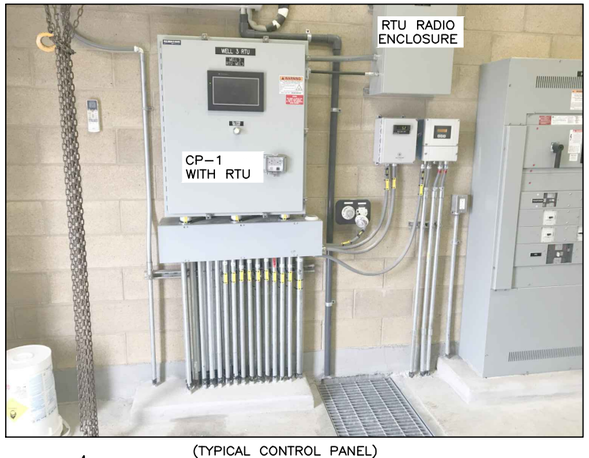
WEST JORDAN CITY WELL #8
ELECTRICAL
SCHEDULES, SHT. 1

SHEET
E604
089.29.100

7/04

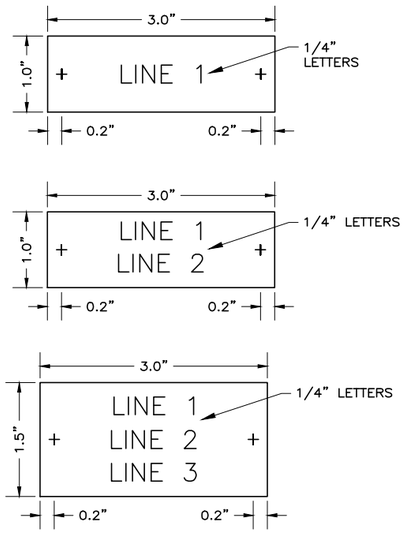



CONTROL PANEL CP-1 WITH RTU 1




(TYPICAL CONTROL PANEL)

PHOTO 1 2




NAMEPLATE DETAIL A

## SCADA COORDINATION

| | | |
|---|---|---|
| SCADA CONTRACTOR: | APCO, INC. | |
| | | |
| CONTACT INFORMATION: | (801) 519-9500 | |

| ENCLOSURE | SUPPLIED BY: | INSTALLED BY: |
|---|---|---|
| ENCLOSURE | CONTRACTOR | CONTRACTOR |
| INTERNAL PANEL | CONTRACTOR | CONTRACTOR |
| INTERNAL COMPONENTS | SCADA CONTR. | SCADA CONTR. |
| INTERNAL COMPONENT WIRING | SCADA CONTR. | SCADA CONTR. |
| | | |
| NG TO/FROM RTU ENCLOSURE | SUPPLIED BY: | INSTALLED BY: |
| POWER SOURCE | CONTRACTOR | CONTRACTOR |
| FIELD I/O TO ENCLOSURE TERMINALS | CONTRACTOR | CONTRACTOR |
| FIELD DEVICE TERMINATIONS | CONTRACTOR | CONTRACTOR |
| | | |
| COMPONENT | SUPPLIED BY: | INSTALLED BY: |
| PROGRAMMABLE LOGIC CONTROLLER | SCADA CONTR. | SCADA CONTR. |
| SEPARATE RTU CONTROLLER | - | - |
| | - | - |
| | | |
| RNAL WIRING INSIDE RTU | SUPPLIED BY: | INSTALLED BY: |
| FIELD DEVICE WIRING TERMINATION | - | SCADA CONTR. |
| | | |
| SIGNAL | SUPPLIED BY: | INSTALLED BY: |
| 1" CONDUIT FOR SCADA RADIO | CONTRACTOR | CONTRACTOR |
| DATA RADIO COAXIAL CABLE | SCADA CONTR. | SCADA CONTR. |
| ANTENNA SUPPORT (SEE PLANS) | CONTRACTOR | CONTRACTOR |
| DATA RADIO ANTENNA | SCADA CONTR. | SCADA CONTR. |

## CP-1 MAIN CONTROL PANEL I/O LIST

### DISCRETE INPUTS

| DESCRIPTION | FROM | TO | NOTES |
|---|---|---|---|
| ATS IN GENERATOR POSITION | ATS | CP-1 | |
| ATS IN UTILITY POSITION | ATS | CP-1 | |
| CHLORINE PUMP ON | PC-1 | CP-1 | |
| CHLORINE RM. EF RUNNING | CP-2 | CP-1 | |
| CHLORINE ROOM DOOR OPEN | SEC. PNL. | CP-1 | |
| CHLORINE SOLUTION TANK HIGH LEVEL | PC-1 | CP-1 | |
| CHLORINE SOLUTION TANK LOW LEVEL | PC-1 | CP-1 | |
| CHLORINE SYSTEM FLOW | PC-1 | CP-1 | |
| CHLORINE WEIGHT SCALE ALARM | PC-1 | CP-1 | |
| CP-1 POWER LOSS | CP-1 | CP-1 | |
| GATE CLOSED STATUS | SEC. PNL. | CP-1 | |
| GATE OPEN STATUS | SEC. PNL. | CP-1 | |
| GENERATOR FAULT | GEN | CP-1 | |
| GENERATOR ON | GEN | CP-1 | |
| PELLET CHLORINATOR ALARM | PC-1 | CP-1 | |
| PELLET CHLORINATOR ON | PC-1 | CP-1 | |
| SYSTEM VALVE FULL CLOSED POSITION | V-2 | CP-1 | |
| SYSTEM VALVE FULL SYSTEM POSITION | V-2 | CP-1 | |
| VFD ALARM RESET | VFD | CP-1 | |
| VFD FAULT | VFD | CP-1 | |
| VFD FILTER HIGH TEMPERATURE | VFD | CP-1 | |
| VFD HOA IN AUTO MODE | VFD | CP-1 | |
| VFD HOA IN HAND MODE | VFD | CP-1 | |
| VFD ON | VFD | CP-1 | |
| VFD READY-TO-START | VFD | CP-1 | |
| VFD SHUTDOWN RESET | VFD | CP-1 | |
| WASTE VALVE FULL CLOSED POSITION | V-1 | CP-1 | |
| WASTE VALVE FULL WASTE POSITION | V-1 | CP-1 | |
| WELL HIGH DISCHARGE PRESSURE | PSH-1 | CP-1 | |
| WELL ROOM FLOOR HIGH WATER | LSH-3 | CP-1 | |
| WELL ROOM MAINTENANCE DOOR A OPEN | SEC. PNL. | CP-1 | |
| WELL ROOM MAINTENANCE DOOR B OPEN | SEC. PNL. | CP-1 | |
| WELL ROOM MAN DOOR OPEN | SEC. PNL. | CP-1 | |
| WELL ROOM ROOF HATCH OPEN | SEC. PNL. | CP-1 | |
| WELL STOP | RTU | CP-1 | |
| | | | |

NOTES:
1)

### DISCRETE OUTPUTS

| DESCRIPTION | FROM | TO | NOTES |
|---|---|---|---|
| CHLORINE RM EXHAUST FAN RUN | CP-1 | CP-2 | |
| GATE CLOSE COMMAND | CP-1 | SEC. PNL. | |
| GATE OPEN COMMAND | CP-1 | SEC. PNL. | |
| PELLET CHLORINATOR REMOTE RUN | CP-1 | PC-1 | |
| PRE-LUBE SOLENOID VALVE OPEN | CP-1 | SV-2 | |
| SYSTEM VALVE OPEN COMMAND | CP-1 | V-2 | |
| VFD BACKSPIN TIME DELAY | CP-1 | VFD | |
| VFD FILTER CAPACITOR CONTROL | CP-1 | VFD | |
| VFD HP SHUTDOWN & INDICATION LIGHT | CP-1 | VFD | |
| VFD LOW LEVEL SHDN & INDICATION LIGHT | CP-1 | VFD | |
| VFD RUN | CP-1 | VFD | |
| VFD SHUTDOWN | CP-1 | VFD | |
| WASTE VALVE CLOSE COMMAND | CP-1 | V-1 | |
| | | | |

NOTES: 1)

### ANALOG INPUTS

| DESCRIPTION | FROM | TO | NOTES |
|---|---|---|---|
| CHLORINE ROOM TEMPERATURE | TT-2 | CP-1 | 1) |
| RESIDUAL CHLORINE | AIT-2 | CP-1 | 1) |
| STATION DISCHARGE PRESSURE | PT-1 | CP-1 | 1) |
| VFD RUNNING SPEED | VFD | CP-1 | 1) |
| WELL DISCHARGE FLOW | FIT-1 | CP-1 | 1) |
| WELL LEVEL | LT-1 | CP-1 | 1) |
| WELL DISCHARGE PRESSURE | PT-2 | CP-1 | 1) |
| WELL ROOM TEMPERATURE | TT-1 | CP-1 | 1) |
| WELL TURBIDITY | AIT-3 | CP-1 | 1) |
| | | | |

NOTES:
1) SIGNAL SHALL BE REPEATED AS PLC ANALOG OUTPUT TO RTU.

### ANALOG OUTPUTS

| DESCRIPTION | FROM | TO | NOTES |
|---|---|---|---|
| CHLORINE DOSE RATE (WELL FLOW) | CP-1 | PC-1 | |
| VFD COMMAND SPEED | CP-1 | VFD | |
| | | | |

NOTES: 1)

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 **20.025**

FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: **KEITH HEGERHORST**

## GENERAL NOTES:

1. INTERNAL COMPONENTS AND ARRANGEMENT NOT SHOWN ON THESE DRAWINGS AND SHALL BE PROVIDED BY APCO, THE CITY'S SCADA CONTRACTOR. APCO SHALL PROVIDE ALL INTERNAL COMPONENTS AND ALL PLC AND HMI PROGRAMMING.

## SHEET KEYNOTES:

1. 10" OPERATOR TOUCH SCREEN SHOWN. PROVIDED AND INSTALLED BY SCADA CONTRACTOR.
2. TYPICAL MAIN CONTROL PANEL SHOWN. MODIFY AS REQUIRED BY OWNER.
3. VFD READY-TO-START INDICATION AND START PUSHBUTTON.
4. CONTROL POWER INDICATION AND OFF/ON SELECTOR SWITCH.

REGISTERED PROFESSIONAL ENGINEER No. 86-171214-2202 KEITH B. HEGERHORST 1/20/2023 STATE OF UTAH

FILE NAME:
FILE DATE:

7/04

HANSEN ALLEN & LUCE Inc ENGINEERS

PROJECT ENGINEER

DESIGNED KBH
DRAFTED DAS
CHECKED KBH
DATE AUGUST 2020

| NO. | DATE | REVISIONS | BY | APVD. |
|---|---|---|---|---|
| 3 | | | | |
| 2 | | | | |
| 1 | | | | |

SCALE

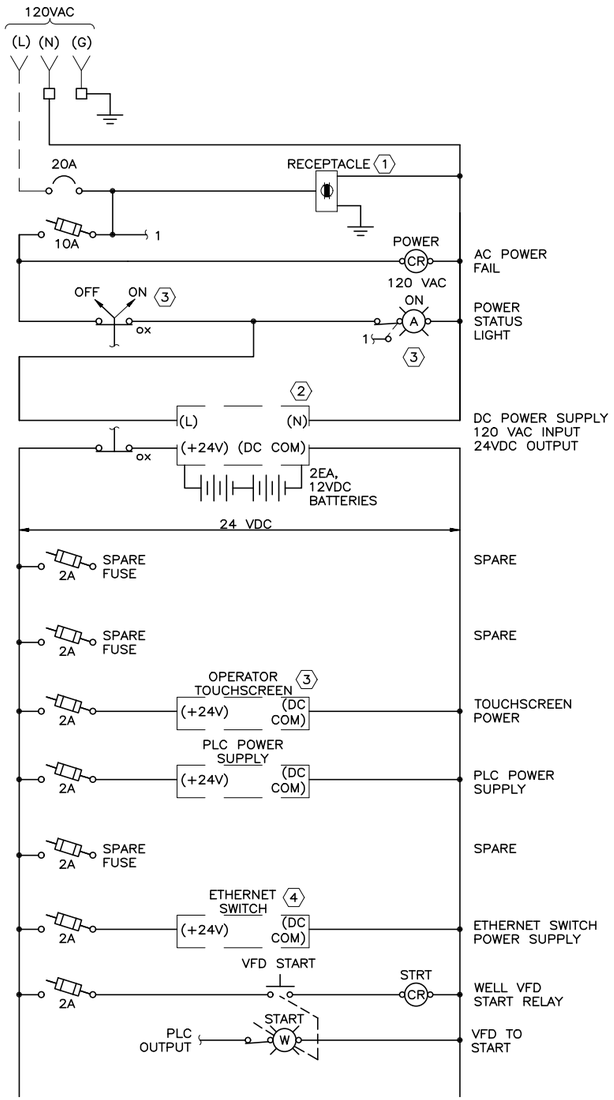
WEST JORDAN UTAH

WEST JORDAN CITY WELL #8
ELECTRICAL
CP-1 MAIN CONTROL PANEL

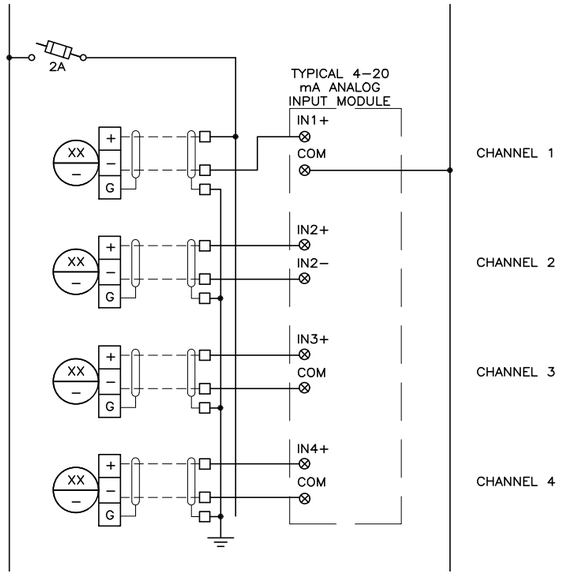
SHEET E605
089.29.100

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 **20.025**

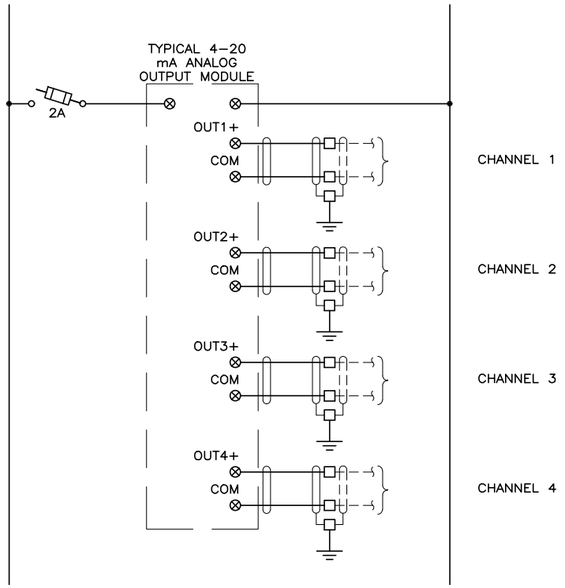
FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: **KEITH HEGERHORST**




POWER LOGIC 1
NONE —




ANALOG INPUT MODULE 2
NONE —



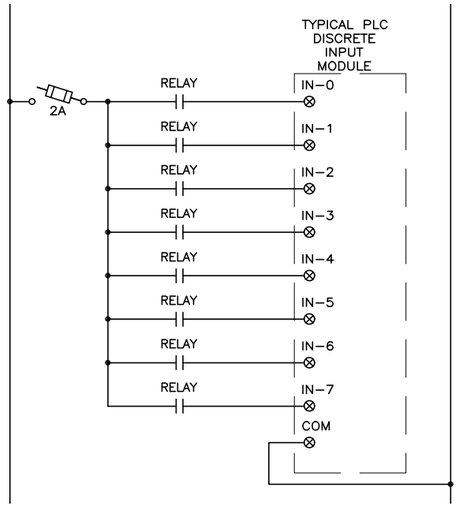

ANALOG OUTPUT MODULE 3
NONE —

## GENERAL NOTES:

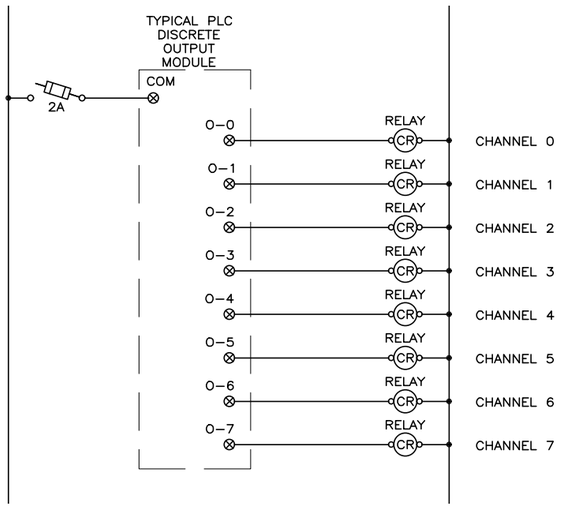
1. THIS DIAGRAM IS TYPICAL AND INDICATES THE BASIC CONTROL PANEL CONTROL DIAGRAM. THE CONTRACTOR SHALL MODIFY AS REQUIRED FOR THE DEVICES AND PLC MODULES USED.
2. CONTRACTOR SHALL PREPARE A CONTROL DIAGRAM BASED ON THE DEVICES SUPPLIED, INCLUDING WIRE, FUSE AND TERMINAL NUMBERS AS REQUIRED. THE PLC I/O SHOWN IS GENERIC.

## SHEET KEYNOTES:

1. PROVIDE A DUPLEX GFCI RECEPTACLE IN THE ENCLOSURE.
2. PROVIDE A 120VAC:24VDC POWER SUPPLY/BATTERY CHARGER COMPLETE WITH BATTERY CAPACITY TO PROVIDE 2 HOURS OF PANEL OPERATION UPON THE LOSS OF UTILITY POWER OR PROVIDE 120VAC UNINTERRUPTIBLE POWER SUPPLY.
3. DEVICE SHALL BE INSTALLED IN THE ENCLOSURE DOOR AND AVAILABLE TO THE OPERATOR.




DISCRETE INPUT MODULE F
NONE —




DISCRETE OUTPUT MODULE G
NONE —

FILE NAME:
FILE DATE:


HANSEN ALLEN & LUCE INC ENGINEERS

PROJECT ENGINEER

| | | | | | | |
|---|---|---|---|---|---|---|
| DESIGNED KBH | 3 | | | | | |
| DRAFTED DAS | 2 | | | | | |
| CHECKED KBH | 1 | | | | | |
| DATE AUGUST 2020 | NO. | DATE | REVISIONS | BY | APVD. | |

SCALE

WEST JORDAN UTAH

WEST JORDAN CITY WELL #8
ELECTRICAL
CP–1 CONTROL DIAGRAM SHT. 1

SHEET E606
089.29.100

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 **20.025**

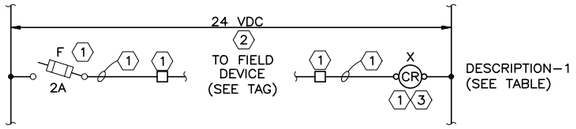
FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: **KEITH HEGERHORST**

## GENERAL NOTES:

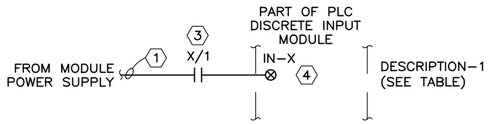
1. REFER TO E605 FOR TYPICAL CONTROL PANEL ARRANGEMENT.
2. KEYNOTES SHOWN AT EACH PLC MODULE DIAGRAM.

NOTES:

1. CONTRACTOR SHALL ASSIGN FUSE, RELAY, TERMINAL AND WIRE NUMBERS AS REQUIRED.
2. CONTRACTOR MAY COMBINE CONDUCTORS IN COMMON CONDUIT TO DEVICES IN SAME PROXIMITY.
3. PROVIDE AN INTERPOSING RELAY AND WIRE RELAY CONTACT TO PLC INPUT AS INDICATED.
4. CONTRACTOR SHALL ASSIGN PLC MODULE AND CHANNEL.




INTERPOSE RELAY LOGIC

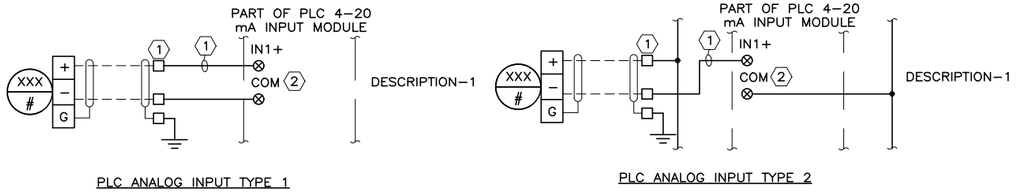



PLC DISCRETE INPUT LOGIC

## PLC DISCRETE INPUT WIRING 1
NONE —

NOTES:

1. CONTRACTOR SHALL ASSIGN FUSE, RELAY, TERMINAL AND WIRE NUMBERS AS REQUIRED.
2. CONTRACTOR SHALL ASSIGN PLC MODULE AND CHANNEL.

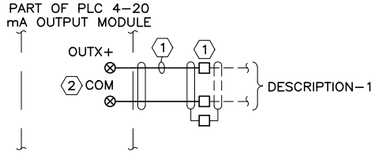



PLC ANALOG INPUT TYPE 1 PLC ANALOG INPUT TYPE 2

## PLC ANALOG INPUT WIRING 2
NONE —

NOTES:

1. CONTRACTOR SHALL ASSIGN FUSE, RELAY, TERMINAL AND WIRE NUMBERS AS REQUIRED.
2. CONTRACTOR SHALL ASSIGN PLC MODULE AND CHANNEL.

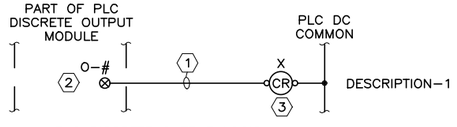



PLC ANALOG OUTPUT

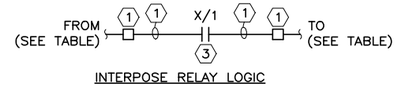
## PLC DISCRETE OUTPUT WIRING 3
NONE —

NOTES:

1. CONTRACTOR SHALL ASSIGN FUSE, RELAY, TERMINAL AND WIRE NUMBERS AS REQUIRED.
2. CONTRACTOR SHALL ASSIGN PLC MODULE AND CHANNEL.
3. PROVIDE AN INTERPOSING RELAY AND WIRE RELAY CONTACT TO PLC INPUT AS INDICATED.

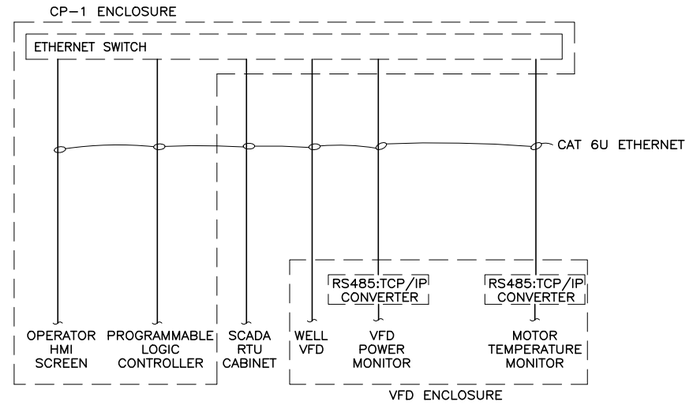



PLC DISCRETE OUTPUT LOGIC




INTERPOSE RELAY LOGIC

## PLC ANALOG OUTPUT WIRING 4
NONE —




ETHERNET SIGNAL DIAGRAM

FILE NAME:
FILE DATE:

HANSEN ALLEN & LUCE, Inc. ENGINEERS

REGISTERED PROFESSIONAL ENGINEER No. 86-171214-2202 KEITH B. HEGERHORST 1/20/2023 STATE OF UTAH

PROJECT ENGINEER

| | | | | | | |
|---|---|---|---|---|---|---|
| DESIGNED | KBH | 3 | | | | |
| DRAFTED | DAS | 2 | | | | |
| CHECKED | KBH | 1 | | | | |
| DATE | AUGUST 2020 | NO. | DATE | REVISIONS | BY | APVD. |

SCALE

WEST JORDAN UTAH

WEST JORDAN CITY WELL #8
ELECTRICAL
CP–1 CONTROL DIAGRAM SHT. 2

SHEET E607
089.29.100

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 **20.025**

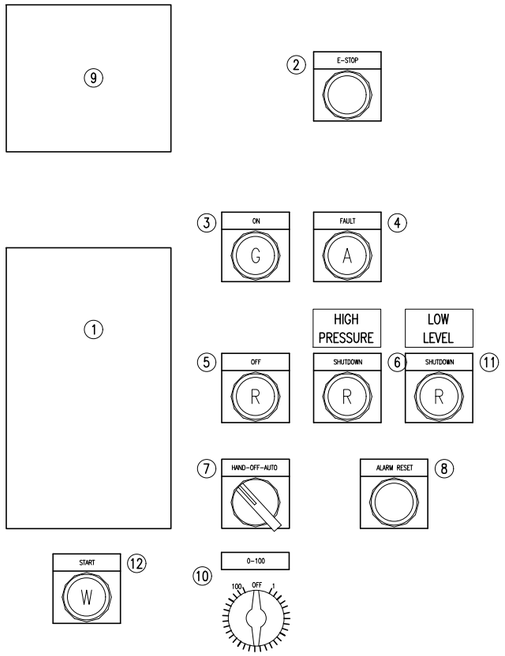
FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: **KEITH HEGERHORST**

## GENERAL NOTES:

1. ENCLOSURE DIMENSIONS SHOWN ARE TYPICAL AND SHALL BE MODIFIED BY THE CONTRACTOR AS REQUIRED FOR THE DEVICES USED.
2. WIRING DIAGRAM IN TYPICAL. MODIFY AS REQUIRED.

## SHEET KEYNOTES:

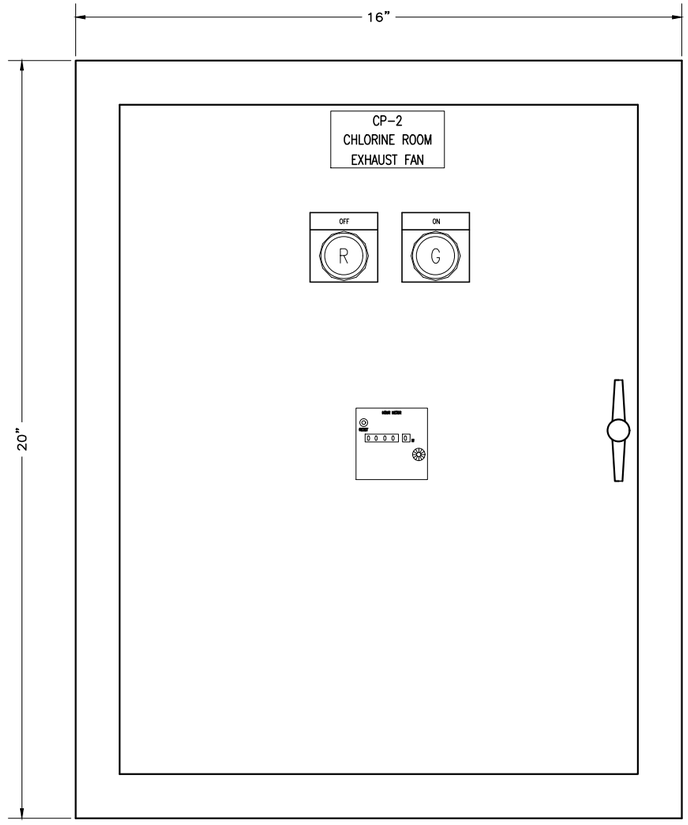
1. OFF–ON TOGGLE SWITCH WITH ROOM LIGHT SWITCH.



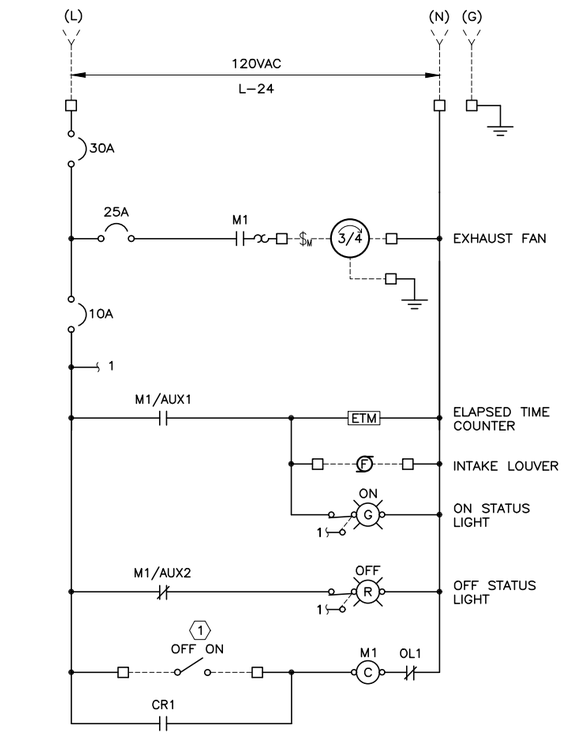

VFD CONTROLS A

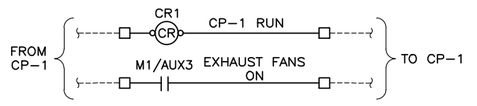
## VFD CONTROL LEGEND

1. VFD MEMBRAIN KEYPAD
2. VFD E–STOP MUSHROOM HEAD LATCHING PUSHBUTTON
3. VFD STATUS INDICATION LIGHT
4. VFD FAULT INDICATION LIGHT
5. VFD OFF INDICATION LIGHT
6. HIGH DISCHARGE PRESSURE SHUTDOWN INDICATION LIGHT
7. HAND–OFF–AUTO SELECTOR SWITCH
8. ALARM RESET PUSHBUTTON
9. POWER AND ENERGY METER (COMPTON INTEGRA 1530)
10. VFD SPEED POTENTIOMETER
11. LOW LEVEL SHUTDOWN INDICATION LIGHT
12. START PUSH BUTTON




CP–2 EXHAUST FAN CONTROL PANEL 1




EXHAUST FAN WIRING DIAGRAM B

FILE NAME:
FILE DATE:

REGISTERED PROFESSIONAL ENGINEER
No. 86–171214–2202
KEITH B. HEGERHORST
1/20/2023
STATE OF UTAH

HANSEN ALLEN & LUCE inc ENGINEERS

PROJECT ENGINEER

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| DESIGNED KBH | 3 | | | | | | |
| DRAFTED DAS | 2 | | | | | | |
| CHECKED KBH | 1 | | | | | | |
| DATE AUGUST 2020 | NO. | DATE | REVISIONS | | BY | APVD. | |

SCALE

WEST JORDAN UTAH

WEST JORDAN CITY WELL #8
ELECTRICAL
CP–2 EXHAUST FAN CONTROL PANEL

SHEET E608
089.29.100

7/04