Electrical Abbreviations & Symbol Legend

Abbreviations

A	AMPERE
AC	ALTERNATING CURRENT, AIR CONDITIONING UNIT
AHJ	AUTHORITY HAVING JURISDICTION
AI	ANALOG INPUT
AIC	AVAILABLE INTERRUPTING CAPACITY
AF	AMPERE FRAME / AMPERE FUSED
AFC	ABOVE FINISHED CEILING
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
AO	ANALOG OUTPUT
ARMS	ARC FLASH REDUCTION MAINTENANCE SYSTEM
AT	AMPERE TRIP
AV	AUDIO / VIDEO
AWG	AMERICAN WIRE GAUGE
BAS	BUILDING AUTOMATION SYSTEM
BFG	BELOW FINISHED GRADE
BLDG	BUILDING
C	CONDUIT
CAT	CATEGORY
CB	CIRCUIT BREAKER
CFCI	CONTRACTOR FURNISHED, CONTRACTOR INSTALLED
CFOI	CONTRACTOR FURNISHED, OWNER INSTALLED
CKT	CIRCUIT
CPT	CONTROL POWER TRANSFORMER
CR	CONTROL RELAY
CU	COPPER
dB	DECIBAL
DC	DIRECT CURRENT
DI	DIGITAL INPUT
DIM	DIMENSION
DIV	DIVISION
DO	DIGITAL OUTPUT
DTL	DETAIL
DWG	DRAWING
EIP	ETHERNET IP
EL	ELEVATION
EMT	ELECTRICAL METALLIC TUBING
EOLR	END OF LINE RESISTOR
ETR	EXISTING DEVICE SHALL REMAIN
FACP	FIRE ALARM CONTROL PANEL
FF	FINISH FLOOR
FLA	FULL LOAD AMPERES
FT	FOOT, FEET
FBO	FURNISHED BY OTHERS
G, GND	GROUND
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
HH	HAND HOLE
HP	HORSEPOWER
ID	IDENTIFICATION
IDC	INITIATING DEVICE CIRCUIT
IDF	INTERMEDIATE DISTRIBUTION FRAME
IEEE	INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS
IG	ISOLATED GROUND
IT	INFORMATION TECHNOLOGY
JB	JUNCTION BOX
KAIC	THOUSAND AMPS INTERRUPTING CURRENT
KCMIL	THOUSAND CIRCULAR MILS
KVA	KILOVOLT-AMPERE
KW	KILOWATT
LAN	LOCAL AREA NETWORK
LED	LIGHT EMITTING DIODE
LS	LIMIT SWITCH
LSI	ELECTRONIC TRIP UNIT ADJUSTABLE LONG TIME DELAY, SHORT TIME DELAY, INSTANTANEOUS TRIP
LSIG	ELECTRONIC TRIP UNIT WITH ADJUSTABLE LONG TIME DELAY, SHORT TIME DELAY, INSTANTANEOUS TRIP, AND GROUND FAULT
LV	LOW VOLTAGE
MCA	MINIMUM CIRCUIT AMPACITY
MCC	MOTOR CONTROL CENTER
MCP	MOTOR CIRCUIT PROTECTOR
MDF	MAIN DISTRIBUTION FRAME
MHz	MEGAHERTZ
MISC	MISCELLANEOUS
MLO	MAIN LUGS ONLY
MOCP	MAXIMUM OVERCURRENT PROTECTION
N	NEUTRAL
NAC	NOTIFICATION APPLIANCE CIRCUIT
N/A	NOT APPLICABLE
NC	NORMALLY CLOSED
NEC	NATIONAL ELECTRICAL CODE
NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
NEX	REPLACE EXISTING WIRING DEVICE AND FACEPLATE WITH NEW. BACK BOX AND CONDUIT SHALL REMAIN.
NL	NIGHT LIGHT
NO	NORMALLY OPEN
NTS	NOT TO SCALE
OC	ON CENTER
OFCI	OWNER FURNISHED, CONTRACTOR INSTALLED
OFOI	OWNER FURNISHED, OWNER INSTALLED
Ø	PHASE
PB	PULL BOX, PANIC BUTTON, PUSH BUTTON
PDP	PUMP DISCONNECT PANEL
PE	PHOTE EYE
PNL	PANEL
POE	POWER OVER ETHERNET
PTZ	PAN, TILT, ZOOM
RD	LOCATION OF RELOCATED DEVICE / EQUIPMENT
REX	REMOVE EXISTING DEVICE / EQUIPMENT
RF	RADIO FREQUENCY
RFI	REQUEST FOR INFORMATION
RR	REMOVE AND RELOCATE EXISTING DEVICE / EQUIPMENT
SLC	SIGNALING LINE CIRCUIT
SPD	SURGE PROTECTION DEVICE
STD	STANDARD
SW	SWITCH
T/M	THERMAL MAGNETIC CIRCUIT BREAKER
TBD	TO BE DETERMINED
TV	TELEVISION / MONITOR OUTLET
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR
TYP	TYPICAL
UH	UNIT HEATER
UG	UNDERGROUND
UL	UNDERWRITERS LABORATORIES
UPS	UNINTERRUPTIBLE POWER SUPPLY
UON	UNLESS OTHERWISE NOTED
USB	UNIVERSAL SERIAL BUS
V	VOLTS, VOLTAGE
VA	VOLT-AMPERE
VFD	VARIABLE FREQUENCY DRIVE
W	WATT, WIRE
WAN	WIDE AREA NETWORK
WAP	WIRELESS ACCESS POINT
WI-FI	WIRELESS FIDELITY
W/	WITH
W/O	WITHOUT
WP	WEATHERPROOF
XFMR	TRANSFORMER
Y	WYE
+72	MOUNTING UNITS EXPRESSED IN INCHES TO CENTERLINE ABOVE FINISHED FLOOR OR GRADE.
1P	ONE POLE
2P	TWO POLE
3P	THREE POLE
4P	FOUR POLE

General Electrical Notes

1. ALL LIGHTING BRANCH CIRCUITS SHALL BE 2#10, 1#10G IN 3/4" CONDUIT, UON.
2. ALL 20-AMP RECEPTACLE AND HARDWIRED BRANCH CIRCUITS SHALL BE 2#12, 1#12G IN 3/4" CONDUIT, UON.
3. ALL EXIT SIGNS SHALL BE WIRED TO THE LOCAL LIGHTING BRANCH CIRCUIT AHEAD OF ALL SWITCHING.

Annotation

(N)	INDICATES NEW EQUIPMENT.
(E)	INDICATES EXISTING EQUIPMENT TO REMAIN.
(D)	INDICATES EXISTING EQUIPMENT TO BE DEMOLISHED.
(RP)	INDICATES EXISTING EQUIPMENT TO BE REMOVED AND REINSTALLED
P/XXX	CONDUIT & CONDUCTOR CALLOUT. REFER TO CONDUIT & CONDUCTOR SCHEDULE.
XX	KEYED NOTE CALLOUT. REFER TO CORRESPONDING SHEET KEYNOTES.
XX	KEYED NOTE CALLOUT. REFER TO CORRESPONDING SHEET KEYNOTES.
XX	KEYED NOTE CALLOUT. REFER TO CORRESPONDING SHEET KEYNOTES.
XX-XX	MECHANICAL EQUIPMENT CALLOUT. REFER TO MECHANICAL EQUIPMENT CONNECTION SCHEDULE.
X / EX.X	DETAIL CALLOUT. REFER TO DETAIL AND SHEET AS INDICATED ON CALLOUT.
XX'-XX"	FIXTURE MOUNTING CALLOUT. HEIGHT ABOVE FINISHED FLOOR (A.F.F.)
XXXXX	EQUIPMENT CALLOUT. REFER TO NEMA CONNECTION SCHEDULE.
X / EX.X	SECTION CALLOUT. REFER TO SECTION AND SHEET AS INDICATED ON CALLOUT.
X / EX.X	ELEVATION CALLOUT. REFER TO ELEVATION AND SHEET AS INDICATED ON CALLOUT.
# EX.XX #	INTERIOR ELEVATION CALLOUT. REFER TO ELEVATION AND SHEET AS INDICATED ON CALLOUT.

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OREGON
MAY 08, 2012
BENJAMIN E. PERRY
EXPIRES: 12-31-2020

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ELECTRICAL ABBREVIATIONS

JOB NUMBER 519-14-18-18
DRAWING NUMBER E01
SHEET NUMBER 41 OF 59
REVISION

Drawing Symbol Variables

3	THREE WAY SWITCH.
4	FOUR WAY SWITCH.
#J	QUANTITY OF JACKS AND HORIZONTAL CABLES.
AV	MOUNTED ADJACENT TO SMARTBOARD.
C	MOUNTED HORIZONTALLY AT 4" ABOVE COUNTERTOP.
CL	CLOCK.
DR	DUAL RELAY.
E	RED EMERGENCY SWITCH.
EL	ELEVATOR RECALL.
LF	LOW FREQUENCY.
LV	LOW VOLTAGE SWITCH.
M	MOTOR RATED TOGGLE SWITCH.
O	INTEGRAL OCCUPANCY SENSOR.
P	ADA PHONE, VERIFY HEIGHT WITH ARCHITECT / OWNER.
TK	MOUNTED IN TOE KICK OF CASEWORK.
TV	MOUNTED ADJACENT TO TV AT 60" AFF, UON.
V	VANDAL RESISTANT.
WG	WIREGUARD.
WP	WEATHERPROOF SWITCH.

One-Line Diagram

- CIRCUIT BREAKER.
- DRAWOUT CIRCUIT BREAKER.
- ENCLOSED CIRCUIT BREAKER.
- MOTOR STARTER CONTACT.
- DISCONNECT SWITCH.
- ENCLOSED DISCONNECT SWITCH.
- FUSED DISCONNECT SWITCH.
- ENCLOSED FUSED DISCONNECT SWITCH.
- CURRENT TRANSFORMER METER.
- FUSE, RATING AS SHOWN ON DRAWINGS.
- GENERATOR, CONFIGURATION AS SHOWN ON DRAWING.
- GROUND ROD.
- GROUND.
- MOTOR, RATED AS SHOWN ON DRAWINGS.
- NEMA CONNECTION.
- PANEL.
- MINI POWER CENTER.
- SHUNT TRIP
- HEATER.
- REMOTE ANNUNCIATOR.
- BATTERY CHARGER.
- SURGE SUPPRESSION DEVICE
- DIGITAL METER
- TRANSFORMER
- VARIABLE FREQUENCY DRIVE
- SOFT STARTER
- TRANSFER SWITCH, WITH FUSES OR BREAKERS AS SHOWN ON DRAWINGS.

Raceways

- CONDUIT AND/OR CONDUCTORS INSTALLED ABOVE GRADE, CONCEALED IN WALL OR CEILING SPACE.
- CONDUIT AND/OR CONDUCTORS INSTALLED BELOW GRADE, BELOW SLAB.
- CONDUIT TURNED DOWN.
- CONDUIT TURNED UP.
- CONDUIT STUBBED AND CAPPED.
- CONDUIT DIRECT CONNECTION TO EQUIPMENT.
- FLEXIBLE CONNECTION TO EQUIPMENT.
- CONDUIT / WIRING CONTINUATION.
- HOMERUN TO PANELBOARD.
- CABLE TRAY. SIZE AND TYPE AS INDICATED ON DRAWINGS.

Low Voltage

- ETHERNET OUTLET MOUNTED AT 18" AFF, UON.
- COAXIAL OUTLET MOUNTED AT 18" AFF, UON.
- PHONE OUTLET MOUNTED AT 18" AFF, UON.
- ETHERNET OUTLET CEILING MOUNTED.
- COAXIAL OUTLET CEILING MOUNTED.
- PHONE OUTLET CEILING MOUNTED.
- WIRELESS ACCESS POINT CEILING MOUNTED.
- WIRELESS ACCESS POINT WALL MOUNTED.
- DIGITAL CLOCK.
- FLOORBOX DATA.
- POKETHRU DATA.

Access Control & Security

- ACCESS CONTROL - DOOR CONTACT. PROVIDE 3/4" CONDUIT FROM DOOR FRAME TO ACCESSIBLE CEILING OR SECURITY JUNCTION BOX AS SHOWN ON THE DRAWINGS.
- ACCESS CONTROL - CARD READER. PROVIDE 3/4" CONDUIT FROM DOOR FRAME TO ACCESSIBLE CEILING OR SECURITY JUNCTION BOX AS SHOWN ON THE DRAWINGS.
- ACCESS CONTROL - ELECTRIC STRIKE. PROVIDE 3/4" CONDUIT FROM DOOR FRAME TO ACCESSIBLE CEILING OR SECURITY JUNCTION BOX AS SHOWN ON THE DRAWINGS.
- ACCESS CONTROL - KEY PAD. PROVIDE 3/4" CONDUIT FROM DOOR FRAME TO ACCESSIBLE CEILING OR SECURITY JUNCTION BOX AS SHOWN ON THE DRAWINGS.
- ACCESS CONTROL - MAGNETIC LOCK. PROVIDE 3/4" CONDUIT FROM DOOR FRAME TO ACCESSIBLE CEILING OR SECURITY JUNCTION BOX AS SHOWN ON THE DRAWINGS.
- ACCESS CONTROL - REQUEST TO EXIT. PROVIDE 3/4" CONDUIT FROM DOOR FRAME TO ACCESSIBLE CEILING OR SECURITY JUNCTION BOX AS SHOWN ON THE DRAWINGS.
- ACCESS CONTROL - SECURITY JUNCTION BOX. SIZED AS RECOMMENDED BY SECURITY SYSTEM MANUFACTURER.
- ACCESS CONTROL - CAMERA / INTERCOM.
- ACCESS CONTROL - PANIC BUTTON.
- SECURITY CAMERA - CEILING MOUNTED. PROVIDE ONE (1) CAT6.
- SECURITY CAMERA - WALL MOUNTED. PROVIDE ONE (1) CAT6.
- 360° SECURITY CAMERA - CEILING MOUNTED. PROVIDE ONE (1) CAT6.
- INTRUSION SENSOR - CEILING MOUNTED.
- INTRUSION SENSOR - WALL MOUNTED.

Power Distribution

- DUPLEX RECEPTACLE, MOUNTED AT 18" AFF, UON.
- SIMPLEX RECEPTACLE, MOUNTED AT 18" AFF, UON.
- QUADPLEX RECEPTACLE, MOUNTED AT 18" AFF, UON.
- GFCI DUPLEX RECEPTACLE, MOUNTED AT 18" AFF, UON.
- GFCI QUADPLEX RECEPTACLE, MOUNTED AT 18" AFF, UON.
- TAMPERPROOF DUPLEX RECEPTACLE, MOUNTED AT 18" AFF, UON.
- SWITCHED DUPLEX RECEPTACLE, MOUNTED AT 18" AFF, UON.
- EMERGENCY DUPLEX RECEPTACLE, MOUNTED AT 18" AFF, UON.
- EMERGENCY DUPLEX GFCI RECEPTACLE, MOUNTED AT 18" AFF, UON.
- EMERGENCY QUADPLEX RECEPTACLE, MOUNTED AT 18" AFF, UON.
- NEMA SPECIAL RECEPTACLE, MOUNTED AT 18" AFF, UON. NEMA CONFIGURATION AS INDICATED.
- DUPLEX RECEPTACLE, MOUNTED ON CEILING.
- QUADPLEX RECEPTACLE, MOUNTED ON CEILING.
- DISCONNECT SWITCH.
- FUSED DISCONNECT SWITCH.
- ENCLOSED CIRCUIT BREAKER.
- COMBINATION STARTER.
- FLOORBOX COMBINATION POWER & DATA.
- FLOORBOX POWER.
- POKETHRU COMBINATION POWER & DATA.
- POKETHRU POWER.
- POWER POLE.
- PANELBOARD SURFACE MOUNT.
- PANELBOARD FLUSH MOUNT.
- MAIN DISTRIBUTION PANEL.
- MOTOR CONTROL CENTER (MCC).
- MOTOR CONTROL CENTER (MCC) TRANSITION.
- UTILITY CT METER.

Switches

- SINGLE POLE SWITCH - MOUNTED AT 42" AFF, UON.
- MULTILEVEL SWITCH - MOUNTED AT 42" AFF, UON.
- LOW VOLTAGE 0-10 VOLT DIMMING SWITCH - MOUNTED AT 42" AFF, UON.
- OCCUPANCY SENSOR - CEILING OR WALL MOUNTED.
- OCCUPANCY SENSOR POWER PACK.
- PHOTOCELL - CEILING OR WALL MOUNTED.
- ADA DOOR PUSHPLATE.
- EMERGENCY STOP SWITCH, MUSHROOM HEAD.
- PUSHBUTTON, SINGLE.
- PUSHBUTTON, DOUBLE.

Lighting

- LUMINAIRE, SURFACE OR RECESS MOUNTED AS INDICATED ON THE DRAWINGS.
- LUMINAIRE WITH MULTILEVEL SWITCHING, SURFACE OR RECESS MOUNTED AS INDICATED ON THE DRAWINGS.
- LUMINAIRE WIRED TO EMERGENCY CIRCUIT, SURFACE OR RECESS MOUNTED AS INDICATED ON THE DRAWINGS.
- LUMINAIRE WIRED TO NIGHTLIGHT CIRCUIT, SURFACE OR RECESS MOUNTED AS INDICATED ON THE DRAWINGS.
- DOWNLIGHT LUMINAIRE, SURFACE, RECESS, OR PENDANT MOUNTED AS INDICATED ON THE DRAWINGS.
- DOWNLIGHT LUMINAIRE WIRED TO EMERGENCY CIRCUIT, SURFACE OR RECESS MOUNTED AS INDICATED ON THE DRAWINGS.
- DOWNLIGHT LUMINAIRE WIRED TO NIGHTLIGHT CIRCUIT, SURFACE OR RECESS MOUNTED AS INDICATED ON THE DRAWINGS.
- UNDERCABINET LUMINAIRE.
- EMERGENCY BATTERY PACK LUMINAIRE, WALL OR CEILING MOUNTED
- LUMINAIRE, PENDANT MOUNTED.
- LUMINAIRE WITH MULTILEVEL SWITCHING, PENDANT MOUNTED.
- LUMINAIRE WIRED TO EMERGENCY CIRCUIT, PENDANT MOUNTED.
- LINEAR WALL MOUNTED LUMINAIRE.
- BOLLARD LUMINAIRE.
- BOLLARD LUMINAIRE WIRED TO NIGHTLIGHT CIRCUIT.
- SITE LUMINAIRE POLE MOUNTED. NUMBER OF HEADS AS SHOWN.
- TRACK LUMINAIRE.
- SPOT LUMINAIRE.
- LUMINAIRE WALL MOUNTED.
- EXIT SIGN, WALL OR CEILING MOUNTED, SINGLE FACE WITH DIRECTIONAL CHEVRONS AS SHOWN ON DRAWINGS.
- EXIT SIGN, WALL OR CEILING MOUNTED, DOUBLE FACE WITH DIRECTIONAL CHEVRONS AS SHOWN ON DRAWINGS.

Miscellaneous

- JUNCTION BOX (ROUND, SQUARE, OCTAGONAL).
- THERMOSTAT.
- RELAY.
- CORD REEL.
- MOTOR / EXHAUST FAN.
- CEILING FAN.
- UTILITY POLE.
- WEATHERHEAD.
- GROUND ROD.
- GROUND ROD WITH TEST WELL.
- SURFACE RACEWAY / WIREMOLD.
- FIRE RATED BACKBOARD.

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ELECTRICAL SYMBOL LEGEND

JOB NUMBER 519-14-18-18
DRAWING NUMBER E02
SHEET NUMBER 42 OF 59
REVISION

GENERAL SHEET NOTES

1. REFERENCE SPECIFICATION SECTION 11347 FOR REQUIREMENTS ON THE PUMP DISCONNECT PANEL.
2. UTILIZE THE CONDUIT DRAIN SYSTEM FOR CONDUITS IN THE VALVE VAULT AND THE MANHOLE NEXT TO THE OVERFLOW SITE.

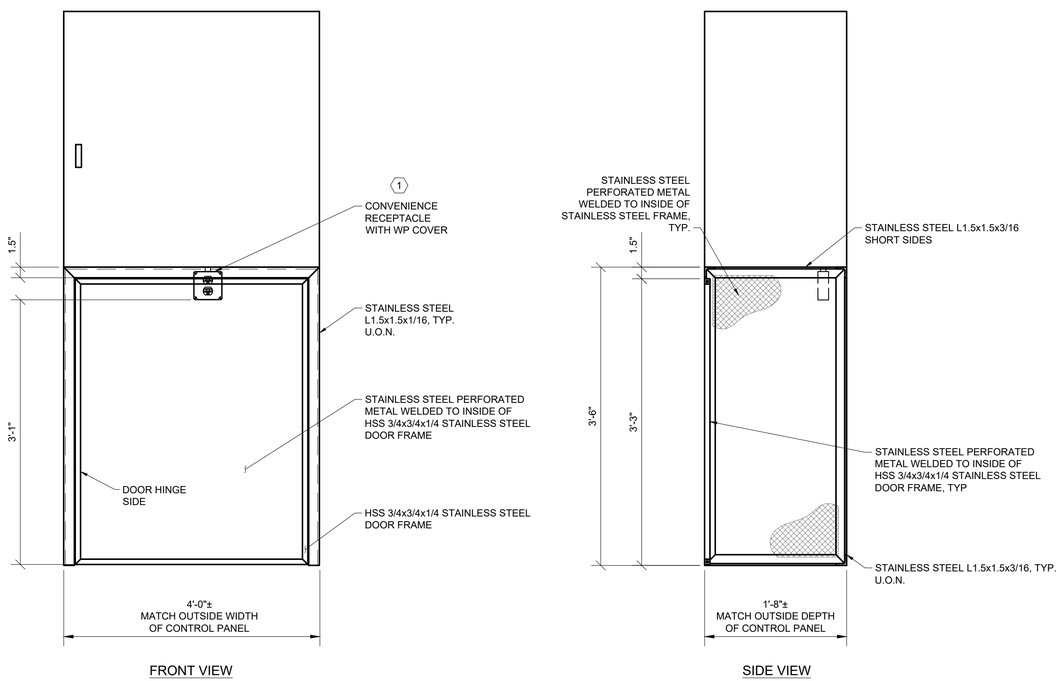
REFERENCE KEY NOTES

DIVISION 16 - ELECTRICAL

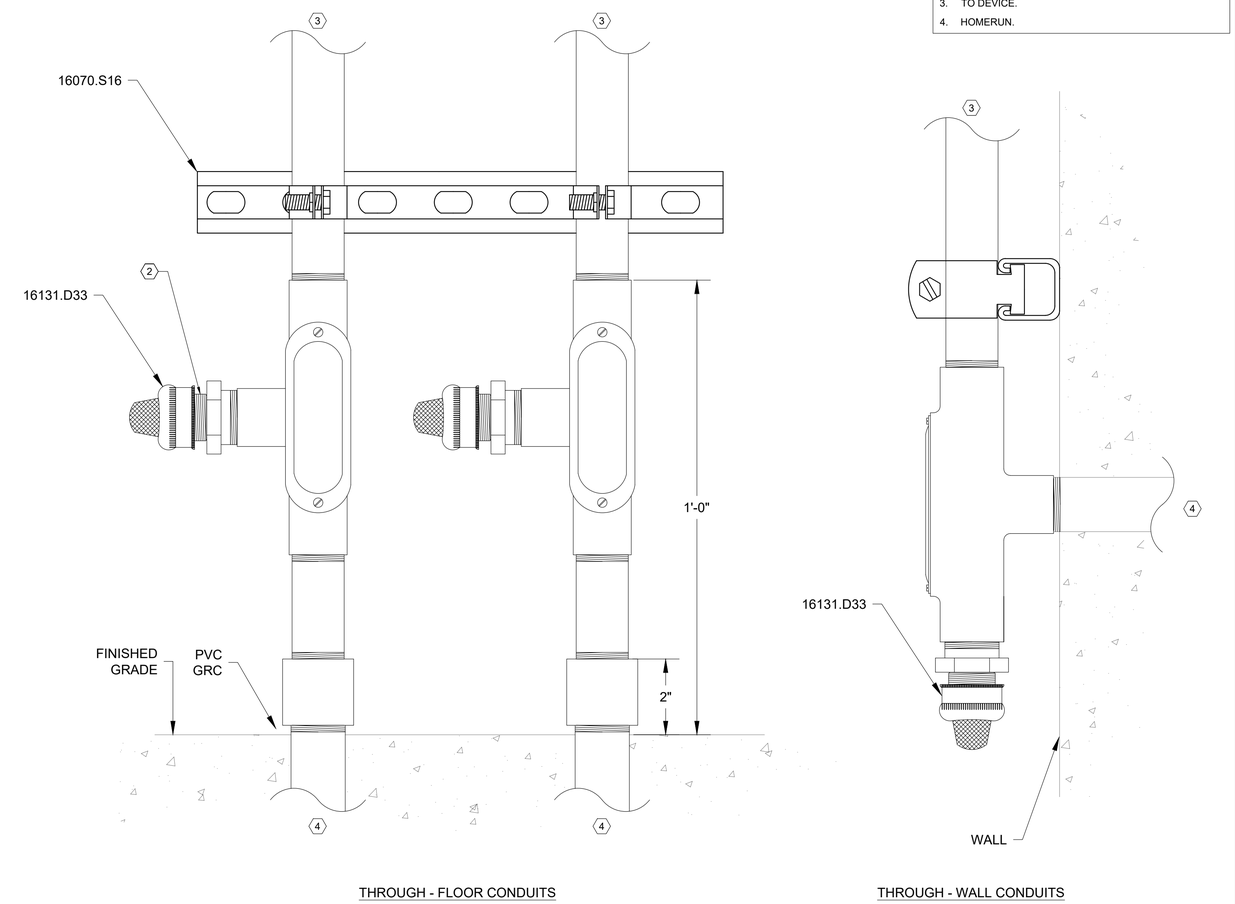
16070.S16 STAINLESS STEEL STRUT CHANNEL
16131.D33 CONDUIT SYSTEM DRAIN

SHEET KEY NOTES

1. THE RECEPTACLE SHALL BE MOUNTED DIRECTLY BELOW THE PUMP DISCONNECT PANEL (PDP) VIA A CLOSE NIPPLE. THE BOTTOM OF THE DEVICE SHALL BE 37" AFG MINIMUM. THE DEVICE BOX AND COVER SHALL BE PVC COATED GRC TYPE. THE RECEPTACLE COVER SHALL BE IN-USE TYPE.
2. REDUCING BUSHING.
3. TO DEVICE.
4. HOMERUN.



1 PUMP DISCONNECT PANEL DETAILS
SCALE: NTS



2 CONDUIT DRAIN DETAIL
SCALE: NTS

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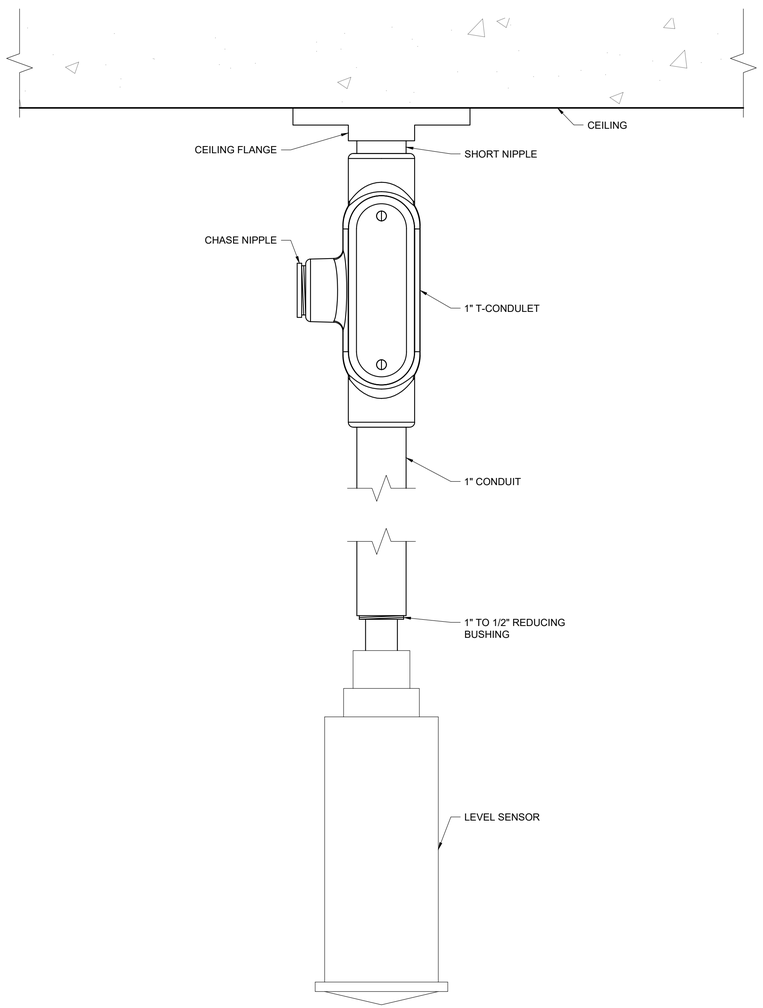
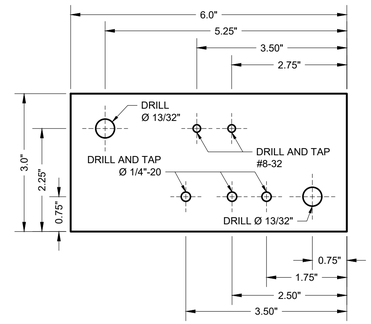
ELECTRICAL DETAILS

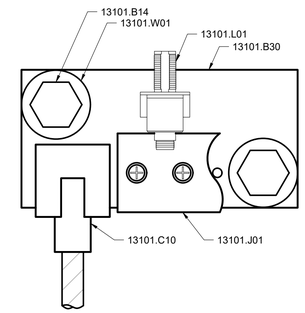
JOB NUMBER 519-14-18-18
DRAWING NUMBER **E03**
SHEET NUMBER 43 OF 59
REVISION



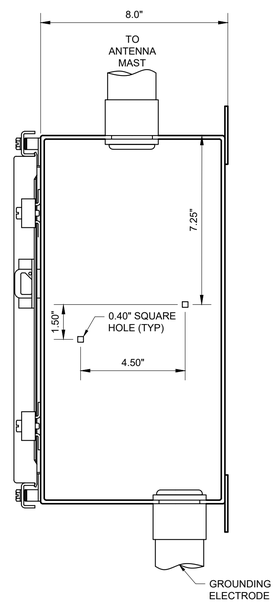
1 INSTRUMENT MOUNTING DETAIL
SCALE: NTS



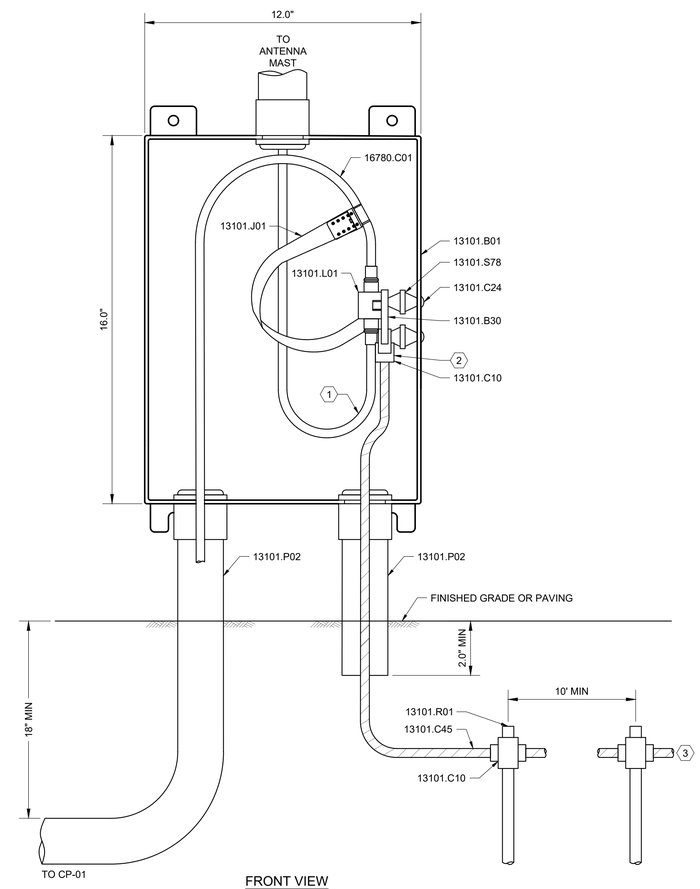
COPPER BAR DRILLING DETAIL



EQUIPMENT MOUNTING DETAIL



SIDE VIEW



FRONT VIEW

2 LIGHTNING PROTECTION J-BOX
SCALE: NTS

REFERENCE KEY NOTES

DIVISION 13 - SPECIAL CONSTRUCTION

13101.B01 LIGHTING PROTECTION J-BOX
13101.B14 BOLTS
13101.B30 COPPER BAR
13101.C10 WELDED ELECTRICAL CONNECTIONS
13101.C24 CARRIAGE BOLTS
13101.C45 GROUNDING CONDUCTORS
13101.J01 ANTENNA CABLE SHIELD GROUND KIT
13101.L01 LIGHTNING ARRESTER
13101.P02 PVC CONDUIT AND FITTINGS
13101.R01 SUPPLEMENTAL GROUND RODS
13101.S78 STANDOFF INSULATORS
13101.W01 WASHERS

DIVISION 16 - ELECTRICAL

16060.G01 GROUND ROD
16780.C01 ANTENNA CABLE

SHEET KEY NOTES

1. ANTENNA CABLE.
2. CADWELD GROUNDING CONDUCTOR TO COPPER BUS BAR.
3. TO GROUND ELECTRODE SYSTEM.

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ELECTRICAL DETAILS

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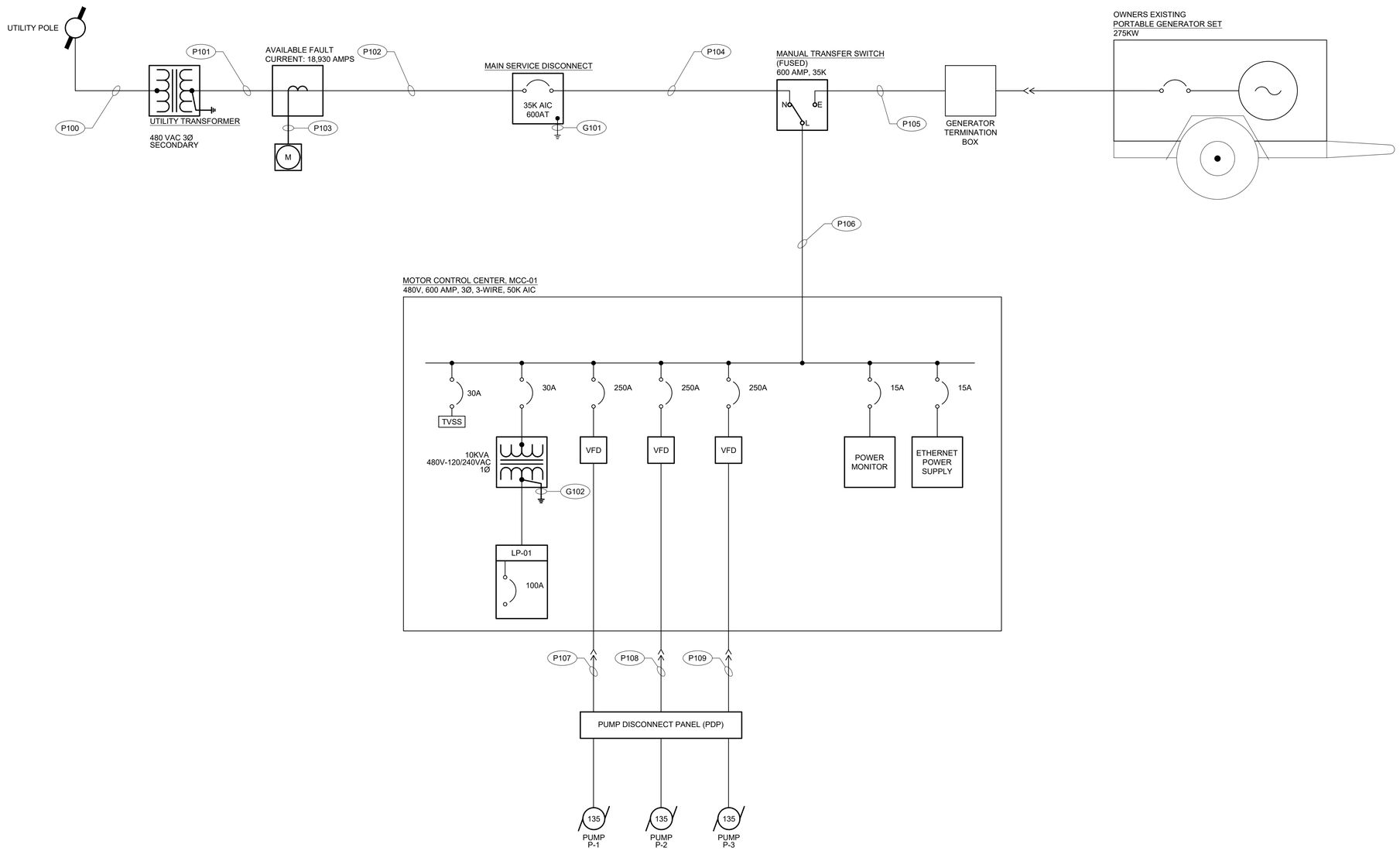
DRAWING NUMBER **E04**
SHEET NUMBER 44 OF 59
REVISION



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Inc. 1864

CITY OF ALBANY
RIVERFRONT INTERCEPTOR SEWER
LIFT STATION AND FORCE MAIN

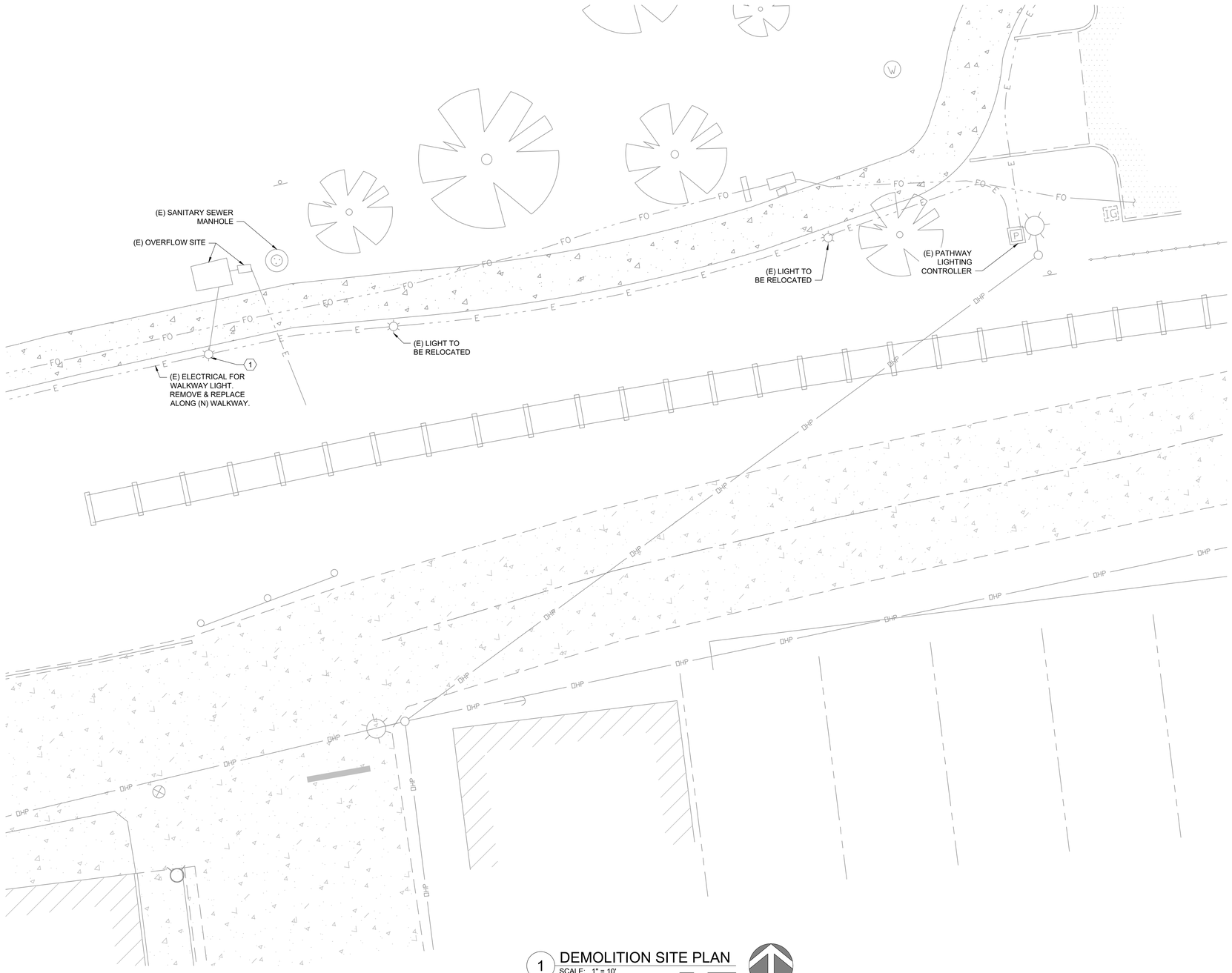
ONE-LINE DIAGRAM

JOB NUMBER
519-14-18-18

DRAWING NUMBER
E09

SHEET NUMBER
45 OF 59

REVISION



1 DEMOLITION SITE PLAN
SCALE: 1" = 10'
0' 5' 10'

GENERAL SHEET NOTES

1. CONTRACTOR SHALL MAINTAIN LIGHTING ON PATH DURING CONSTRUCTION. TEMPORARY WIRING SHALL BE BURIED BELOW GRADE.

SHEET KEY NOTES

1. OWNER TO REMOVE AND RELOCATE ANTENNA AND ASSOCIATED HARDWARE. CONTRACTOR TO REMOVE ANTENNA (LIGHT POLE) BASE AND DELIVER TO OWNER AT THEIR SHOP.

REGISTERED PROFESSIONAL ENGINEER
86683
Digital Signature
OREGON
MAY 08, 2012
BENJAMIN E. PERRY
EXPIRES: 12-31-2020

QC REVIEW: _____

DATE: _____

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IF NOT SCALE ACCORDINGLY

SCALE : AS SHOWN
DRAWN BY : EJC
DESIGNED BY : MB
PROJ. MGR. : GL

No.	ZONE	REVISIONS	BY	DATE

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4949 Meadows Road
Suite 125
Lake Oswego, Oregon 97035
(503) 451-4500
FAX (530) 756-4991

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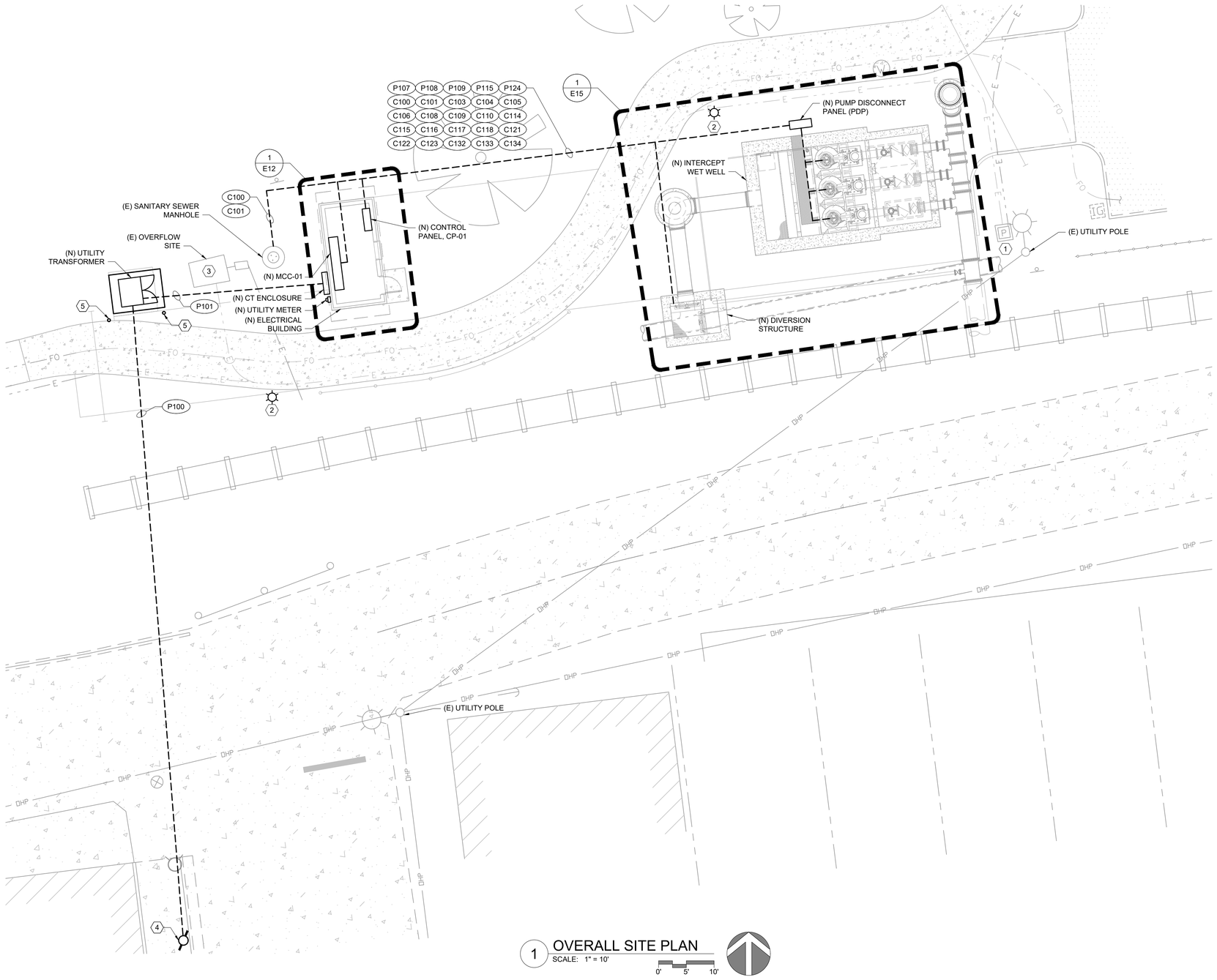
LIFT STATION AND FORCE MAIN

DEMOLITION SITE PLAN

JOB NUMBER 519-14-18-18
DRAWING NUMBER **E10**
SHEET NUMBER 46 OF 59
REVISION



1 OVERALL SITE PLAN
SCALE: 1" = 10'
0' 5' 10'

SHEET KEY NOTES

1. PATHWAY LIGHTING CONTROL PANEL.
2. REINSTALL THE TWO LIGHTS & POLES REMOVED DURING DEMOLITION PHASE AND USE 1" CONDUIT AND #10 AWG CONDUCTORS TO TIE BACK INTO EXISTING PATHWAY LIGHT CIRCUIT AND BACK INTO PATHWAY LIGHTING CONTROL PANEL.
3. OWNER TO SALVAGE RTU & OTHER COMPONENTS FROM OVERFLOW SITE. CONTRACTOR TO COORDINATE THEIR REMOVAL.
4. COORDINATE UTILITY POLE LOCATION WITH THE UTILITY.
5. PROVIDE REMOVABLE BOLLARDS PER THE UTILITIES REQUIREMENTS. 24" MINIMUM FROM TRANSFORMER.

REGISTERED PROFESSIONAL ENGINEER 86683 OREGON MAY 08, 2012 BENJAMIN E. PERRY
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EXPIRES: 12-31-2020

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CITY OF ALBANY
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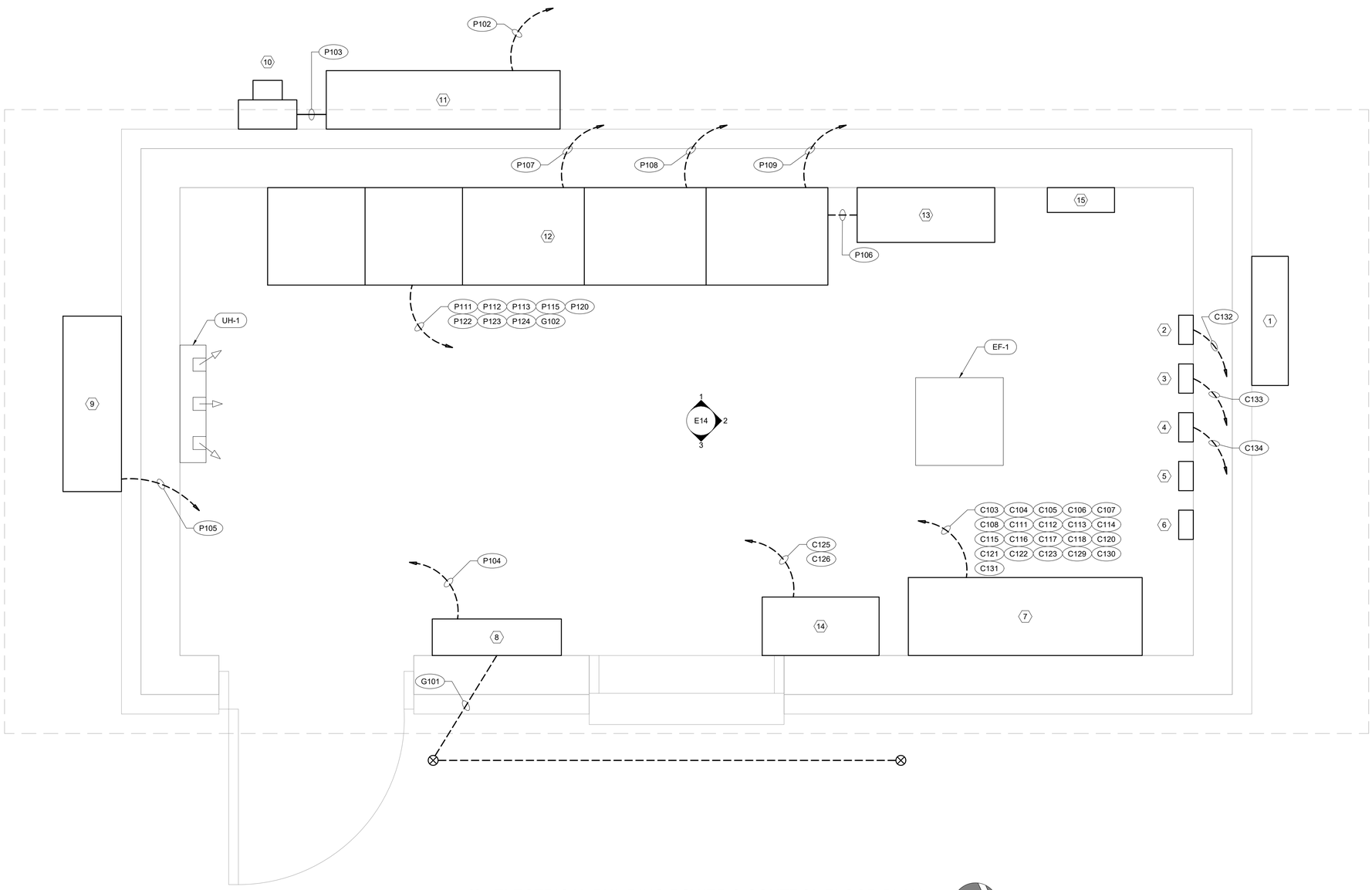
LIFT STATION AND FORCE MAIN

OVERALL SITE PLAN

JOB NUMBER 519-14-18-18
DRAWING NUMBER E11
SHEET NUMBER 47 OF 59
REVISION



1 ELECTRICAL BUILDING POWER & CONTROL FLOOR PLAN

SCALE: 1" = 1'-0"

SHEET KEY NOTES

1. LIGHTNING PROTECTION BOX. EXTEND 2" CONDUIT UP THROUGH ROOF WITH ROOF JACK TO A POINT 15' ABOVE FINISHED GRADE AND INSTALL A WEATHERHEAD. OWNER WILL RELOCATE EXISTING ANTENNA TO THIS ANTENNA MAST AND PROVIDE AND INSTALL ANTENNA CABLE AND CONNECTORS. REFERENCE LIGHTNING PROTECTION BOX DETAIL DRAWING ON SHEET E04. CONTRACTOR SHALL BE RESPONSIBLE TO PAINT THE ANTENNA MAST, WEATHERHEAD, AND ASSOCIATED MOUNTING HARDWARE WITH A POWDER COATED BLACK PAINT APPROVED BY THE OWNER.
2. PUMP, P-1 FLOWMETER TRANSMITTER, FIT-01.
3. PUMP, P-2 FLOWMETER TRANSMITTER, FIT-02.
4. PUMP, P-3 FLOWMETER TRANSMITTER, FIT-03.
5. DIVERSION STRUCTURE LEVEL TRANSMITTER, LIT-01.
6. WET WELL LEVEL TRANSMITTER, LIT-02.
7. OWNER SUPPLIED, CONTRACTOR INSTALLED CONTROL PANEL, CP-01.
8. MAIN SERVICE DISCONNECT.
9. GENERATOR TERMINATION BOX.
10. CT METER.
11. CT ENCLOSURE.
12. MOTOR CONTROL CENTER, MCC-01.
13. MANUAL TRANSFER SWITCH.
14. OWNER SUPPLIED, CONTRACTOR INSTALLED, MAS711 ENCLOSURE 24" X 24" X 12" D.
15. CONTRACTOR TO PROVIDE ENCLOSURE WITH KEYED LATCH AND HINGED COVER TO HOUSE TWO LIGHTING CONTACTORS AS SPECIFIED IN SECTION 13430.L37. ONE CONTACTOR SHALL BE TO CONTROL THE EXHAUST FAN WITH A 120 VOLT OUTPUT FROM CP-01 TO ENEREGIZE THE COIL. THE SECOND CONTACTOR SHALL BE FOR UNIT HEATER UH-1 WITH 120 VOLT OUTPUT FROM CP-01 ENERGIZING THE COIL. ROUTE CIRCUITS FROM LP-01 TO THE CONTACTORS AND THEN ROUTE TO RESPECTIVE LOAD.

REGISTERED PROFESSIONAL ENGINEER 86683 OREGON MAY 08, 2012 BENJAMIN E. PERRY
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EXPIRES: 12-31-2020

QC REVIEW: _____

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4949 Meadows Road
Suite 125
Lake Oswego, Oregon 97035
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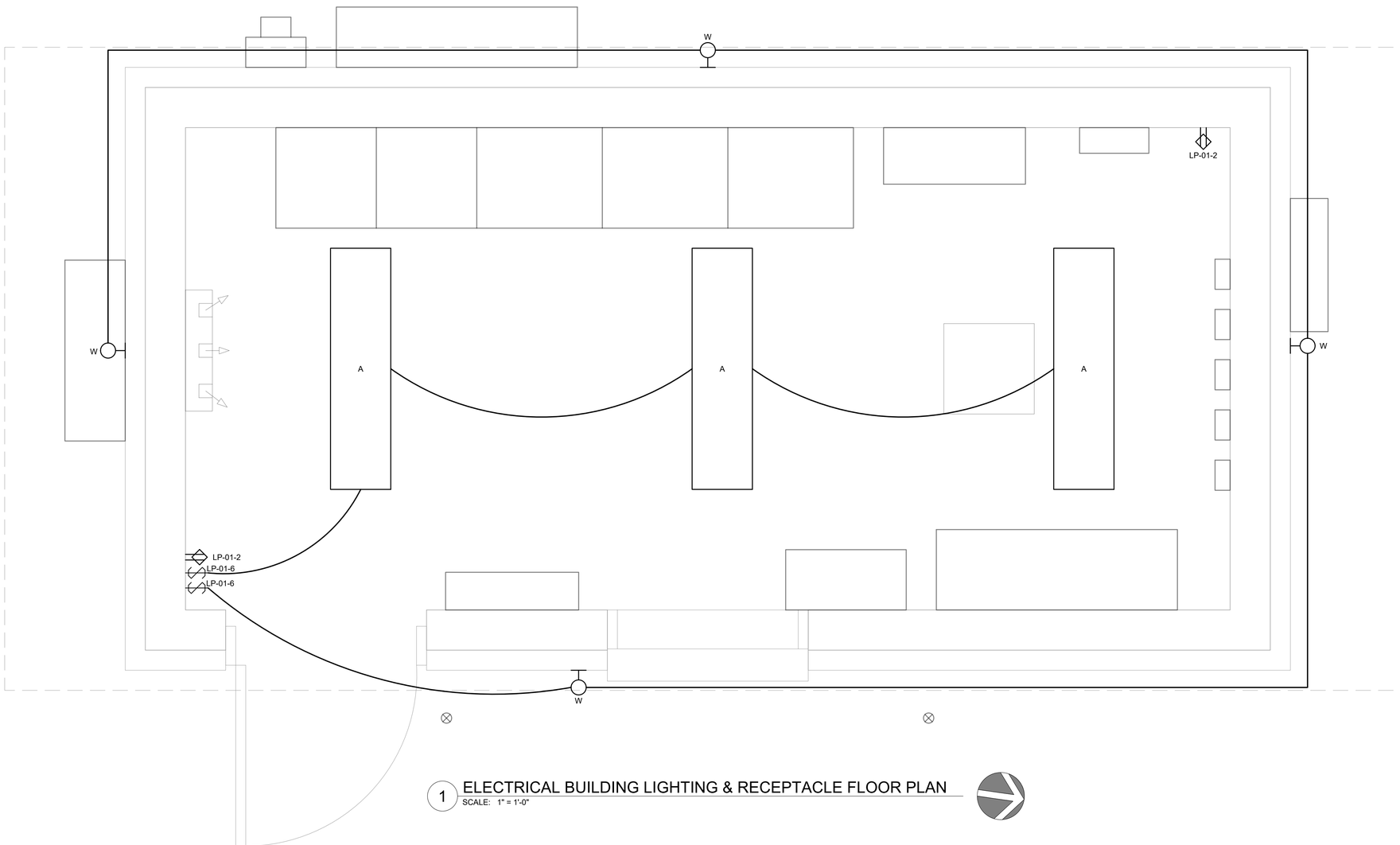
CITY OF ALBANY
RIVERFRONT INTERCEPTOR SEWER
LIFT STATION AND FORCE MAIN
ELECTRICAL BUILDING POWER & CONTROL FLOOR PLAN

JOB NUMBER 519-14-18-18
DRAWING NUMBER **E12**
SHEET NUMBER 48 OF 59
REVISION

LUMINAIRE SCHEDULE

FIXTURE NO.	DESCRIPTION	LAMP TYPE	LUMEN OUTPUT	CRI	COLOR TEMP.	DRIVER	EMERGENCY DRIVER	INTEGRAL MOTION/PHOTO SENSOR	VOLTS	LOAD	MANUFACTURER	MODEL NUMBER
A	SURFACE MOUNTED 48" x 7" x 6" VAPOR TIGHT LUMINAIRE WITH FIBERGLASS HOUSING, GASKETED FROSTED POLYCARBONATE LENS, STAINLESS STEEL LATCHES, AND WET LOCATION LISTED AND LABEL. PROVIDE WITH EMERGENCY BATTERY PACK, 15 WATT, CONSTANT POWER.	LED	6,000 LM	80	4000K	STANDARD 0-10V	YES	NO	UNV	49 WATTS	LITHONIA	VAP LED SERIES
W	EXTERIOR WALL MOUNTED 16.5" x 9" x 7" TRAPEZOID LUMINAIRE WITH HEAVY-WALL DIE-CAST ALUMINUM HOUSING, TYPE III OPTICS, 350 mA DRIVE CURRENT, BLACK FINISH, BATTERY PACK WITH BACK BOX, MOTION SENSOR FOR DIMMING WITH INTEGRAL PHOTOCELL, TAMPER RESISTANT HARDWARE, AND WET LOCATION LISTED. MOUNT FIXTURES AT 7'-6" A.F.G.	LED	2,360 LM	70	3000K	STANDARD 0-10V	YES	YES	UNV	20 WATTS	MCGRAW EDISON	IST SERIES



1 ELECTRICAL BUILDING LIGHTING & RECEPTACLE FLOOR PLAN
SCALE: 1" = 1'-0"

REGISTERED PROFESSIONAL ENGINEER 86683 Digital Signature OREGON MAY 08, 2012 BENJAMIN E. PERRY
EXPIRES: 12-31-2020

QC REVIEW: _____
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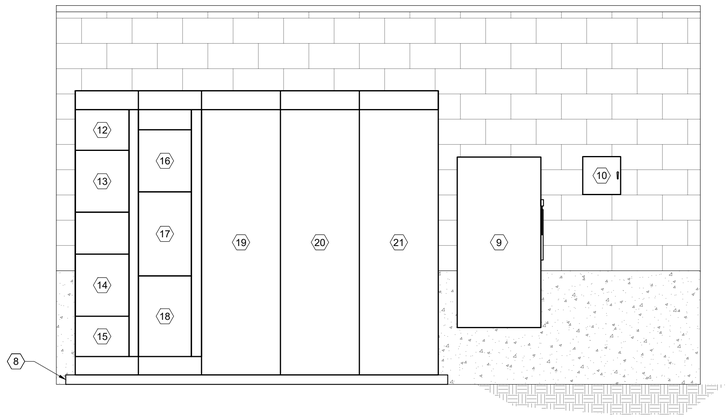
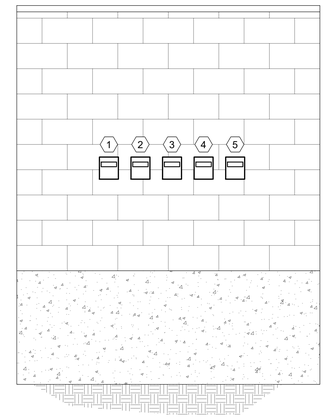
LIFT STATION AND FORCE MAIN
ELECTRICAL BUILDING LIGHTING & RECEPTACLE FLOOR PLAN

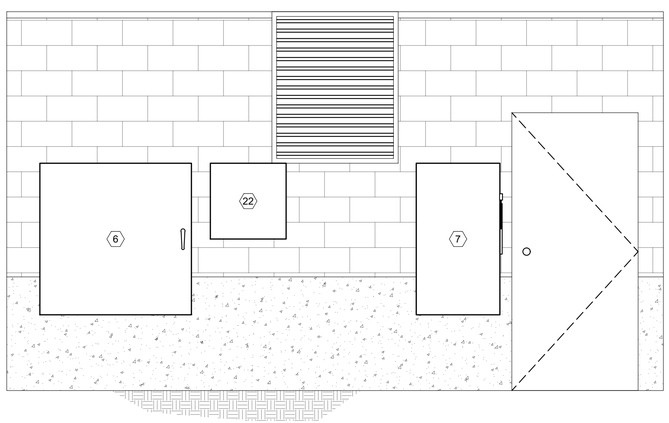
JOB NUMBER 519-14-18-18
DRAWING NUMBER **E13**
SHEET NUMBER 49 OF 59
REVISION



1 WEST ELECTRICAL ROOM ELEVATION
SCALE: NTS



2 NORTH ELECTRICAL ROOM ELEVATION
SCALE: NTS



3 EAST ELECTRICAL ROOM ELEVATION
SCALE: NTS

SHEET KEY NOTES

1. PUMP, P-1 FLOWMETER TRANSMITTER, FIT-01.
2. PUMP, P-2 FLOWMETER TRANSMITTER, FIT-02.
3. PUMP, P-3 FLOWMETER TRANSMITTER, FIT-03.
4. DIVERSION STRUCTURE LEVEL TRANSMITTER, LIT-01.
5. WET WELL LEVEL TRANSMITTER, LIT-02.
6. CONTROL PANEL, CP-01.
7. MAIN SERVICE DISCONNECT.
8. MCC HOUSEKEEPING PAD, SEE CIVIL DRAWINGS FOR DETAILS.
9. MANUAL TRANSFER SWITCH.
10. LIGHTING & HVAC CONTROLLER.
11. NOT USED.
12. MAIN LUGS.
13. POWER MONITOR.
14. ETHERNET POWER SUPPLY.
15. ETHERNET SWITCH.
16. SURGE PROTECTION.
17. PANEL LP-01.
18. 10 KVA TRANSFORMER.
19. PUMP P-1 VFD.
20. PUMP P-2 VFD.
21. PUMP P-3 VFD.
22. MAS711 ENCLOSURE.

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OREGON
MAY 08, 2012
BENJAMIN E. PERRY
EXPIRES: 12-31-2020

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Lake Oswego, Oregon 97035
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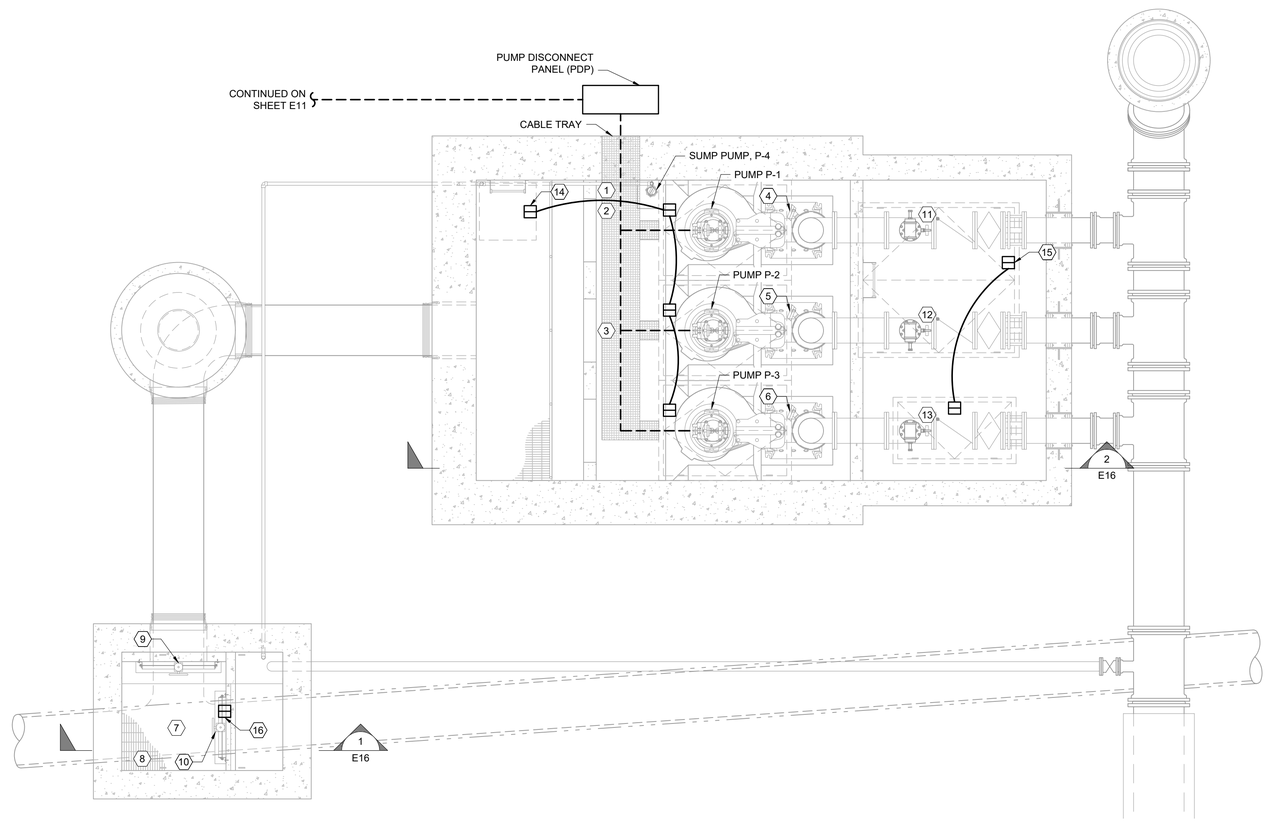
CITY OF ALBANY
RIVERFRONT INTERCEPTOR SEWER
LIFT STATION AND FORCE MAIN

ELECTRICAL BUILDING ELEVATION

JOB NUMBER 519-14-18-18
DRAWING NUMBER E14
SHEET NUMBER 50 OF 59
REVISION

SHEET KEY NOTES

1. WET WELL HIGH LEVEL FLOAT SWITCH, LSH-02.
2. WET WELL LOW LEVEL FLOAT SWITCH, LSL-02.
3. WET WELL LEVEL ELEMENT, LE-02. REFERENCE SHEET E16 FOR ELEVATION.
4. FLOWMETER, FE-01.
5. FLOWMETER, FE-02.
6. FLOWMETER, FE-03.
7. DIVERSION STRUCTURE LEVEL ELEMENT, LE-01.
8. DIVERSION STRUCTURE HIGH LEVEL FLOAT SWITCH, LSH-01.
9. DIVERSION STRUCTURE SLIDE GATE ACTUATOR, FCV-02.
10. DIVERSION STRUCTURE SLIDE GATE ACTUATOR, FCV-01.
11. PRESSURE TRANSDUCER, PI-01.
12. PRESSURE TRANSDUCER, PI-02.
13. PRESSURE TRANSDUCER, PI-03.
14. WET WELL HATCH LIMIT SWITCHES FOR SECURITY. WIRE LIMIT SWITCHES IN SERIES.
15. VALVE VAULT HATCH LIMIT SWITCHES FOR SECURITY. WIRE LIMIT SWITCHES IN SERIES.
16. DIVERSION STRUCTURE LIMIT SWITCH FOR SECURITY.



1 LIFT STATION POWER & CONTROL FLOOR PLAN
SCALE: 1/4" = 1'-0"

REGISTERED PROFESSIONAL ENGINEER
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MAY 08, 2012
BENJAMIN E. FERRY
EXPIRES: 12-31-2020

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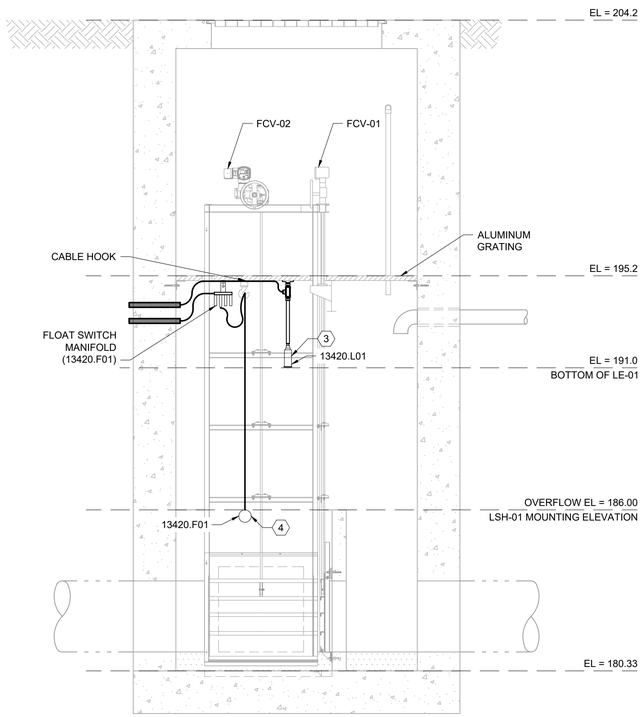
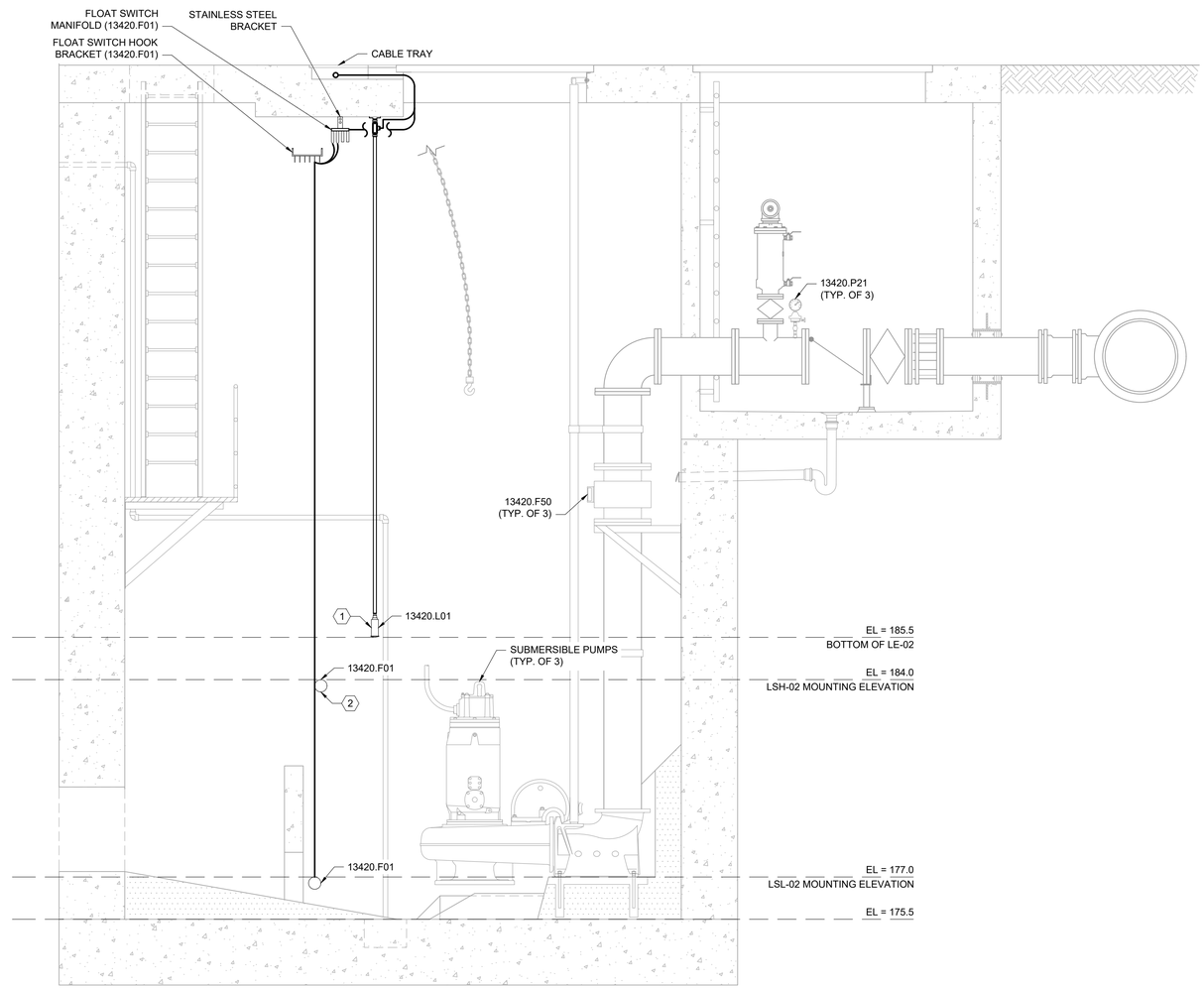
RIVERFRONT INTERCEPTOR SEWER
LIFT STATION AND FORCE MAIN
LIFT STATION POWER & CONTROL FLOOR PLAN

JOB NUMBER 519-14-18-18
DRAWING NUMBER **E15**
SHEET NUMBER 51 OF 59
REVISION



1 DIVERSION STRUCTURE SECTION
SCALE: NTS



2 WET WELL SECTION
SCALE: NTS

REFERENCE KEY NOTES

DIVISION 13 - SPECIAL CONSTRUCTION

13420.F01 FLOAT SWITCH CONNECTION SYSTEM
13420.F50 MAGNETIC FLOWMETER
13420.L01 RADAR LEVEL SENSOR & DISPLAY
13420.P21 PRESSURE TRANSMITTER

SHEET KEY NOTES

1. SEE SHEET E04 FOR DETAILS ON INSTALLATION. LE-02 SHALL BE CENTERED BETWEEN THE PUMP AND THE BAFFLE WALL.
2. LSH-02 AND LSL-02 SHALL BE SUSPENDED BY MSC VIA A STAINLESS STEEL BRACKET HOOK INSTALLED NEXT TO A HATCH AND AT LEAST 6'-0" AWAY FROM LE-02.
3. SEE SHEET E04 FOR DETAILS ON INSTALLATION LE-01 SHALL BE ATTACHED TO THE ALUMINUM GRATING. COORDINATE WITH PROCESS ENGINEER. LE-01 SHALL BE INSTALLED CENTERED IN THE SPACE BETWEEN THE DIVERSION STRUCTURE WALLS AND THE TWO GATES.
4. LSH-01 SHALL BE SUSPENDED BY THE MSC VIA STAINLESS STEEL CORD GRIP HUNG ON A STAINLESS STEEL HOOK ATTACHED TO THE GRATING. COORDINATE WITH THE PROCESS ENGINEER. LSH-01 SHALL BE INSTALLED IN THE CORNER OF THE DIVERSION STRUCTURE WHERE IT WILL NOT INTERFERE WITH THE OPERATION OF LE-01.

REGISTERED PROFESSIONAL ENGINEER 86683 Digital Signature OREGON MAY 08, 2012 BENJAMIN E. PERRY
EXPIRES: 12-31-2020

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CITY OF ALBANY
RIVERFRONT INTERCEPTOR SEWER
LIFT STATION AND FORCE MAIN
WET WELL & DIVERSION
STRUCTURE SECTION VIEWS

JOB NUMBER 519-14-18-18
DRAWING NUMBER **E16**
SHEET NUMBER 52 OF 59
REVISION

PANEL: PANEL LP-01

VOLT/PHASE: 240/120,1Ø

POLES: 18

AIC: 10000

NOTES:

REF. KEY NOTE #:

LOCATION: MCC-01

FED FROM: 10KVA TRANSFORMER

BREAKER MOUNTING: BOLTED

MAIN BREAKER AMPS 100

BUS RATING: 100

SPD: NO

NOTES	LOAD DESCRIPTION	LOAD TYPE	VA L1	VA L2	TRIP RATING AMPS	CIRCUIT NUMBER	CIRCUIT NUMBER	TRIP RATING AMPS	VA L1	VA L2	LOAD TYPE	LOAD DESCRIPTION	NOTES
	EXHAUST FAN, EF-1	H	480		20	1	2	20	360		R	ELECTRICAL BUILDING RECEPTACLES	
	CONTROL PANEL, CP-01	R		200	20	3	4	20		-		SPARE	
	PDP RECEPTACLE	R	180		20	5	6	20	227		L	ELECTRICAL BUILDING LIGHTS	
	SPARE	R		100	20	7	8	20		-		SPARE	
	SPARE	R	100		20	9	10	20	960		R	FCV-01	
	SPARE	R		100	20	11	12	20		1,500	H	UNIT HEATER, UH-1	
	FCV-02	R	960		20	13	14		1,500		H		
	PDP HEATER	R		500	20	15	16	20		-		SPARE	
	SPARE		-		20	17	18	20	-			SPARE	

TOTAL LOAD:	1,720	900	TOTAL LOAD:	3,047	1,500	
COMBINED LOAD:	4,767	2,400	CONNECTED LOAD:	7,167	DEMAND LOAD:	7,224
					DEMANDS AMPS:	30

Load Type Key		Demand Factor	Connected Load	Demand Load
R	General Purpose Receptacle	100% First 10kVA, 50% thereafter	3,460	3,460
L	Lighting	125% Load	227	284
M1	Largest Motor	125% FLA	0	0
M	Motor	100% Load	0	0
A	Appliance	50% Load	0	0
H	HVAC	100% Load	3,480	3,480
K	Kitchen	65% Load	0	0

NOTES:

REGISTERED PROFESSIONAL ENGINEER 86683 Digital Signature OREGON MAY 08, 2012 BENJAMIN E. PERRY
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LIFT STATION AND FORCE MAIN

PANEL SCHEDULE

JOB NUMBER 519-14-18-18
DRAWING NUMBER E25
SHEET NUMBER 53 OF 59
REVISION

SHEET KEY NOTES

1. PROVIDE CONDUIT PER ELECTRIC UTILITIES REQUIREMENTS.
2. REFERENCE MECHANICAL DRAWING FOR HVAC SCHEMATICS.
3. CONTRACTOR TO PROVIDE ENCLOSURE WITH KEYED LATCH AND HINGED COVER TO HOUSE TWO LIGHTING CONTACTORS AS SPECIFIED IN SECTION 13430.L37. ONE CONTACTOR SHALL BE TO CONTROL THE EXHAUST FAN WITH A 120 VOLT OUTPUT FROM CP-01 TO ENERGIZE THE COIL. THE SECOND CONTACTOR SHALL BE FOR UNIT HEATER UH-1 WITH 120 VOLT OUTPUT FROM CP-01 ENERGIZING THE COIL. ROUTE CIRCUITS FROM LP-01 TO THE CONTACTORS AND THEN ROUTE TO RESPECTIVE LOAD.
4. SHALL BE 3/0 COPPER RATED FOR 225 AMPS MINIMUM AT 30 DEGREE C AMBIENT.
5. ROUTE CONDUIT TO PUMP DISCONNECT PANEL (PDP) AND INSTALL CONDUIT SEAL OFFS. ROUTE CONDUCTORS TO INTRINSICALLY SAFE RELAY BEFORE CONTINUING TO VALVE ACTUATOR.

POWER CONDUIT / CONDUCTOR SCHEDULE

	CONDUIT		CONDUCTOR					FROM	TO	DESCRIPTION	SHEET KEY NOTE
	QUANTITY	SIZE	UNGROUNDED	GROUNDED	GROUNDING	CABLE	SPARE				
P100	1	6 INCH	-	-	-	-	-	UTILITY POLE	UTILITY TRANSFORMER	-	1
P101	4	4 INCH	-	-	-	-	-	UTILITY TRANSFORMER	CT ENCLOSURE	-	1
P102	3	2.5 INCH	3 - #3/0	1 - #3/0	-	-	-	CT ENCLOSURE	MAIN SERVICE DISCONNECT	-	-
P103	1	1.5 INCH	-	-	-	-	-	CT ENCLOSURE	UTILITY METER	-	1
P104	3	2.5 INCH	3 - #3/0	-	1 - #1	-	-	MAIN SERVICE DISCONNECT	MANUAL TRANSFER SWITCH	-	-
P105	3	2.5 INCH	3 - #3/0	-	1 - #1	-	-	GENERATOR TERMINATION BOX	MANUAL TRANSFER SWITCH	-	-
P106	3	2.5 INCH	3 - #3/0	-	1 - #1	-	-	MANUAL TRANSFER SWITCH	MCC-01	-	-
P107	1	2.5 INCH	-	-	-	1 - VFD	-	MCC-01	PUMP DISCONNECT PANEL	PUMP, P-1	4
P108	1	2.5 INCH	-	-	-	1 - VFD	-	MCC-01	PUMP DISCONNECT PANEL	PUMP, P-2	4
P109	1	2.5 INCH	-	-	-	1 - VFD	-	MCC-01	PUMP DISCONNECT PANEL	PUMP, P-3	4
P110	-	-	-	-	-	-	-	-	-	-	-
P111	1	0.75 INCH	1 - #12	1 - #12	1 - #12	-	-	LP-01	EXHAUST FAN, EF-1	CKT. 1	2,3
P112	1	0.75 INCH	1 - #12	1 - #12	1 - #12	-	-	LP-01	ELECTRICAL BUILDING RECEPTACLES	CKT. 2	-
P113	1	0.75 INCH	1 - #12	1 - #12	1 - #12	-	-	LP-01	CONTROL PANEL, CP-01	CKT. 3	-
P114	-	-	-	-	-	-	-	-	-	-	-
P115	1	0.75 INCH	1 - #10	1 - #10	1 - #10	-	-	LP-01	PDP RECEPTACLE	CKT. 5	-
P116	1	0.75 INCH	1 - #12	1 - #12	1 - #12	-	-	LP-01	ELECTRICAL BUILDING LIGHTS	CKT. 6	-
P117	-	-	-	-	-	-	-	-	-	-	-
P118	-	-	-	-	-	-	-	-	-	-	-
P119	-	-	-	-	-	-	-	-	-	-	-
P120	1	0.75 INCH	1 - #10	1 - #10	1 - #10	-	-	LP-01	FCV-01	CKT. 10	5
P121	-	-	-	-	-	-	-	-	-	-	-
P122	1	0.75 INCH	2 - #12	-	1 - #12	-	-	LP-01	UNIT HEATER, UH-1	CKT. 12 & 14	2,3
P123	1	0.75 INCH	1 - #10	1 - #10	1 - #10	-	-	LP-01	FCV-02	CKT. 13	5
P124	1	0.75 INCH	1 - #10	1 - #10	1 - #10	-	-	LP-01	PDP HEATER	CKT. 15	-
P125	-	-	-	-	-	-	-	-	-	-	-
P126	-	-	-	-	-	-	-	-	-	-	-
P127	-	-	-	-	-	-	-	-	-	-	-
P128	-	-	-	-	-	-	-	-	-	-	-

GROUNDING SCHEDULE

	CONDUIT		CONDUCTOR					FROM	TO	DESCRIPTION	SHEET KEY NOTE
	QUANTITY	SIZE	POWER	NEUTRAL	GROUND	CABLE	SPARE				
G101	1	1 INCH	-	-	1 - #1/0			MAIN SERVICE DISCONNECT	GROUNDING ELECTRODE CONDUCTOR	CONNECT TO THE GROUNDING ELECTRODE SYSTEM	
G102	1	1 INCH	-	-	1 - #8			10 KVA TRANSFORMER	GROUNDING ELECTRODE CONDUCTOR	CONNECT TO THE GROUNDING ELECTRODE SYSTEM	

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86683
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BENJAMIN E. FERRY
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4949 Meadows Road
Suite 125
Lake Oswego, Oregon 97035
(503) 451-4500
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CITY OF ALBANY
RIVERFRONT INTERCEPTOR SEWER
LIFT STATION AND FORCE MAIN

POWER CONDUIT SCHEDULE

JOB NUMBER 519-14-18-18
DRAWING NUMBER **E26**
SHEET NUMBER 54 OF 59
REVISION

CONTROL CONDUIT / CONDUCTOR SCHEDULE

	CONDUIT		CONDUCTOR					FROM	TO	DESCRIPTION	NOTES
	QUANTITY	SIZE	UNGROUNDED	GROUNDED	GROUNDING	CABLE	SPARE				
C100	1	1.0 INCH	8 - #14	-	1 - #14	-	-	EXISTING MANHOLE	CP-01	OVERFLOW SITE: FAIL, FLOOD, INTRUSION, LOSS OF ECHO	3
C101	1	0.75 INCH	-	-	-	1 - TSP	-	EXISTING MANHOLE	CP-01	OVERFLOW SITE: LEVEL	3
C102	1	-	-	-	-	-	-	-	-	-	-
C103	1	1.0 INCH	12 - #14	-	1 - #14	-	-	CP-01	FCV-01	DIVERSION STRUCTURE	3
C104	1	1.0 INCH	12 - #14	-	1 - #14	-	-	CP-01	FCV-02	DIVERSION STRUCTURE	3
C105	1	0.75 INCH	-	-	-	1 - MSC	-	CP-01	LSH-01	DIVERSION STRUCTURE: FLOAT SWITCH	5
C106	1	0.75 INCH	-	-	-	1 - TSP	-	CP-01	LIT-01	DIVERSION STRUCTURE: LEVEL TRANSMITTER	5
C107	1	0.75 INCH	-	-	-	1 - CAT6	-	CP-01	MCC-01	PROVIDE INDUSTRIAL GRADE CAT-6 NETWORK CABLE	-
C108	1	0.75 INCH	8 - #14	-	1 - #14	-	-	CP-01	MCC-01	HARDWIRE START & STOP FOR VFD 01 & VFD 02	8
C109	-	-	-	-	-	-	-	-	-	-	-
C110	-	-	-	-	-	-	-	-	-	-	-
C111	1	0.75 INCH	-	-	-	1 - TSP	-	CP-01	FIT-01	PUMP, P-1 FLOWMETER TRANSMITTER	-
C112	1	0.75 INCH	-	-	-	1 - TSP	-	CP-01	FIT-02	PUMP, P-2 FLOWMETER TRANSMITTER	-
C113	1	0.75 INCH	-	-	-	1 - TSP	-	CP-01	FIT-03	PUMP, P-3 FLOWMETER TRANSMITTER	-
C114	1	0.75 INCH	-	-	-	1 - TSP	-	CP-01	LIT-02	WET WELL: LEVEL TRANSMITTER	4
C115	1	1.0 INCH	-	-	-	2 - MSC	-	CP-01	LSL-02, LSH-02	WET WELL: FLOAT SWITCH	4
C116	1	0.75 INCH	-	-	-	1 - TSP	-	CP-01	PI-01	VALVE VAULT: PUMP, P-1 PRESSURE TRANSDUCER	5
C117	1	0.75 INCH	-	-	-	1 - TSP	-	CP-01	PI-02	VALVE VAULT: PUMP, P-2 PRESSURE TRANSDUCER	5
C118	1	0.75 INCH	-	-	-	1 - TSP	-	CP-01	PI-03	VALVE VAULT: PUMP, P-3 PRESSURE TRANSDUCER	5
C119	-	-	-	-	-	-	-	-	-	-	-
C120	1	2.0 INCH	-	-	-	-	-	CP-01	LIGHTNING PROTECTION BOX	FOR OWNER INSTALLED ANTENNA CABLE	-
C121	1	0.75 INCH	2 - #14	-	1 - #14	-	-	CP-01	DIVERSION STRUCTURE HATCH	LIMIT SWITCH FOR SECURITY	7
C122	1	0.75 INCH	2 - #14	-	1 - #14	-	-	CP-01	WET WELL HATCHES	LIMIT SWITCHES FOR SECURITY	7
C123	1	0.75 INCH	2 - #14	-	1 - #14	-	-	CP-01	VALVE VAULT HATCHES	LIMIT SWITCHES FOR SECURITY	7
C124	-	-	-	-	-	-	-	-	-	-	-
C125	1	3.0 INCH	-	-	-	3 - CABLES	-	MAS711 ENCLOSURE	PUMP DISCONNECT PANEL	PDP MAS CABLES	6
C126	1	1.5 INCH	30 - #14	-	1 - #14	-	-	MAS711 ENCLOSURE	MCC-01	-	9
C127	1	0.75 INCH	6 - #14	-	1 - #14	-	-	PUMP DISCONNECT PANEL	MCC-01	PARALLEL PUMP CABLES CONNECTED	-
C128	-	-	-	-	-	-	-	-	-	-	-
C129	1	0.75 INCH	2 - #14	-	1 - #14	-	-	CP-01	FIT-01	24 VDC POWER	-
C130	1	0.75 INCH	2 - #14	-	1 - #14	-	-	CP-01	FIT-02	24 VDC POWER	-
C131	1	0.75 INCH	2 - #14	-	1 - #14	-	-	CP-01	FIT-03	24 VDC POWER	-
C132	2	0.75 INCH	-	-	-	2 - MSC	-	FIT-01	FE-01	-	4
C133	2	0.75 INCH	-	-	-	2 - MSC	-	FIT-02	FE-02	-	4
C134	2	0.75 INCH	-	-	-	2 - MSC	-	FIT-03	FE-03	-	4

GENERAL SHEET NOTES

1. CONTRACTOR SHALL TERMINATE ALL CONDUCTORS AND CABLES IN CONTROL PANEL CP-01. CONTRACTOR SHALL LABEL ALL CONDUCTORS OR CABLES PER THE OWNERS DIRECTION. CONTRACTOR SHALL OBTAIN CP-01 DRAWINGS FROM OWNER.

SHEET KEY NOTES

1. NOT USED.
2. NOT USED.
3. ROUTE CONDUITS AND CABLE/CONDUCTORS TO PUMP DISCONNECT PANEL (PDP) AND TERMINATE CONDUCTORS ON INTRINSICALLY SAFE RELAYS/BARRIERS BEFORE ROUTING TO CP-01. COORDINATE THIS CONDUIT INSTALLATION WITH OWNER.
4. ROUTE CONDUITS AND CABLE/CONDUCTORS TO PUMP DISCONNECT PANEL. THE DEVICE/INSTRUMENT IS SUPPLIED WITH MANUFACTURER SUPPLIED CABLE (MSC). THE MSC IS ROUTED FROM THE WET WELL TO THE PDP IN THE CONCRETE TRENCH/TROUGH. TERMINATE MSC AT INTRINSICALLY SAFE RELAYS AND ROUTE REMAINING MSC TO TRANSMITTERS.
5. ROUTE CONDUIT AND CABLES FROM FLOAT SWITCHES/TRANSMITTERS/PRESSURE TRANSDUCERS TO PDP AND TERMINATE ON INTRINSICALLY SAFE RELAYS/BARRIERS THEN ROUTE CONDUIT AND CABLES TO CP-01.
6. PROVIDE THREE 12-CONDUCTOR SHIELDED PILOT SENSOR CABLES.
7. WIRE LIMIT SWITCHES IN SERIES. ROUTE CONDUCTORS TO INTRINSICALLY SAFE RELAY IN PDP AND THEN TO CP-01.
8. START SIGNALS FROM WET WELL HIGH LEVEL FLOAT SWITCH, LSH-02, VIA TIME DELAY RELAYS LOCATED IN CP-01. STOP SIGNALS FROM WET WELL LOW LEVEL FLOAT SWITCH, LSL-02, VIA RELAYS LOCATED IN CP-01.
9. MASGO INTERLOCK, MAS FAIL ALARM, CONTROL POWER FOR MAS POWER SUPPLY, VFD CT'S TO MAS BASE, AND VFD RUNNING INPUT TO MAS 711 BASE.

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Electrical Abbreviations & Symbol Legend

Abbreviations

A	AMPERE
AC	ALTERNATING CURRENT, AIR CONDITIONING UNIT
AHJ	AUTHORITY HAVING JURISDICTION
AIC	AVAILABLE INTERRUPTING CAPACITY
AF	AMPERE FRAME / AMPERE FUSED
AFC	ABOVE FINISHED CEILING
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
ARMS	ARC FLASH REDUCTION MAINTENANCE SYSTEM
AT	AMPERE TRIP
AV	AUDIO / VIDEO
AWG	AMERICAN WIRE GAUGE
BAS	BUILDING AUTOMATION SYSTEM
BFG	BELOW FINISHED GRADE
BLDG	BUILDING
C	CONDUIT
CAT	CATEGORY
CB	CIRCUIT BREAKER
CFCI	CONTRACTOR FURNISHED, CONTRACTOR INSTALLED
CFOI	CONTRACTOR FURNISHED, OWNER INSTALLED
CKT	CIRCUIT
CPT	CONTROL POWER TRANSFORMER
CR	CONTROL RELAY
CU	COPPER
dB	DECIBAL
DC	DIRECT CURRENT
DIM	DIMENSION
DIV	DIVISION
DTL	DETAIL
DWG	DRAWING
EL	ELEVATION
EMT	ELECTRICAL METALLIC TUBING
EOLR	END OF LINE RESISTOR
ETR	EXISTING DEVICE SHALL REMAIN
FACP	FIRE ALARM CONTROL PANEL
FF	FINISH FLOOR
FLA	FULL LOAD AMPERES
FT	FOOT, FEET
FBO	FURNISHED BY OTHERS
G, GND	GROUND
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
HH	HAND HOLE
HP	HORSEPOWER
ID	IDENTIFICATION
IDC	INITIATING DEVICE CIRCUIT
IDF	INTERMEDIATE DISTRIBUTION FRAME
IEEE	INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS
IG	ISOLATED GROUND
IT	INFORMATION TECHNOLOGY
JB	JUNCTION BOX
KAIC	THOUSAND AMPS INTERRUPTING CURRENT
KCMIL	THOUSAND CIRCULAR MILS
KVA	KILOVOLT-AMPERE
KW	KILOWATT
LAN	LOCAL AREA NETWORK
LED	LIGHT EMITTING DIODE
LS	LIMIT SWITCH
LSI	ELECTRONIC TRIP UNIT ADJUSTABLE LONG TIME DELAY, SHORT TIME DELAY, INSTANTANEOUS TRIP
LSIG	ELECTRONIC TRIP UNIT WITH ADJUSTABLE LONG TIME DELAY, SHORT TIME DELAY, INSTANTANEOUS TRIP, AND GROUND FAULT
LV	LOW VOLTAGE
MCA	MINIMUM CIRCUIT AMPACITY
MCC	MOTOR CONTROL CENTER
MCP	MOTOR CIRCUIT PROTECTOR
MDF	MAIN DISTRIBUTION FRAME
MHz	MEGAHERTZ
MISC	MISCELLANEOUS
MLO	MAIN LUGS ONLY
MOCP	MAXIMUM OVERCURRENT PROTECTION
N	NEUTRAL
NAC	NOTIFICATION APPLIANCE CIRCUIT
N/A	NOT APPLICABLE
NC	NORMALLY CLOSED
NEC	NATIONAL ELECTRICAL CODE
NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
NEX	REPLACE EXISTING WIRING DEVICE AND FACEPLATE WITH NEW. BACK BOX AND CONDUIT SHALL REMAIN.
NL	NIGHT LIGHT
NO	NORMALLY OPEN
NTS	NOT TO SCALE
OC	ON CENTER
OFCI	OWNER FURNISHED, CONTRACTOR INSTALLED
OFOI	OWNER FURNISHED, OWNER INSTALLED
Ø	PHASE
PB	PULL BOX, PANIC BUTTON, PUSH BUTTON
PE	PHOTE EYE
PNL	PANEL
POE	POWER OVER ETHERNET
PTZ	PAN, TILT, ZOOM
RD	LOCATION OF RELOCATED DEVICE / EQUIPMENT
REX	REMOVE EXISTING DEVICE / EQUIPMENT
RF	RADIO FREQUENCY
RFI	REQUEST FOR INFORMATION
RR	REMOVE AND RELOCATE EXISTING DEVICE / EQUIPMENT
SPD	SURGE PROTECTION DEVICE
STD	STANDARD
SW	SWITCH
T/M	THERMAL MAGNETIC CIRCUIT BREAKER
TBD	TO BE DETERMINED
TV	TELEVISION / MONITOR OUTLET
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR
TYP	TYPICAL
UH	UNIT HEATER
UG	UNDERGROUND
UL	UNDERWRITERS LABORATORIES
UPS	UNINTERRUPTIBLE POWER SUPPLY
UON	UNLESS OTHERWISE NOTED
USB	UNIVERSAL SERIAL BUS
V	VOLTS, VOLTAGE
VA	VOLT-AMPERE
VFD	VARIABLE FREQUENCY DRIVE
W	WATT, WIRE
WAN	WIDE AREA NETWORK
WAP	WIRELESS ACCESS POINT
WI-FI	WIRELESS FIDELITY
W/	WITH
W/O	WITHOUT
WP	WEATHERPROOF
XFMR	TRANSFORMER
Y	WYE
+72	MOUNTING UNITS EXPRESSED IN INCHES TO CENTERLINE ABOVE FINISHED FLOOR OR GRADE.
1P	ONE POLE
2P	TWO POLE
3P	THREE POLE
4P	FOUR POLE

CONTROL SYMBOL LEGEND

SYMBOL	DESCRIPTION
	CONTROL RELAY, NORMALLY CLOSED CONTACT.
	CONTROL RELAY, NORMALLY OPEN CONTACT.
	THERMOSTAT, CLOSE ON FALLING TEMPERATURE (HEATING)
	THERMOSTAT, NORMALLY OPEN. CLOSE ON TEMPERATURE RISE (COOLING)
	LIMIT SWITCH, NORMALLY CLOSED.
	LIMIT SWITCH, NORMALLY CLOSED, HELD OPEN.
	LIMIT SWITCH, NORMALLY OPEN.
	LIMIT SWITCH, NORMALLY OPEN, HELD CLOSED.
	FLOAT SWITCH, NORMALLY OPEN.
	FLOAT SWITCH, NORMALLY CLOSED
	FLOW SWITCH, NORMALLY CLOSED.
	FLOW SWITCH, NORMALLY OPEN.
FU# #AMPS	FUSE w/AMP RATING.
CR	CONTROL RELAY.
ETM	ELLAPSED TIME METER
XX	PHOTO ELECTRIC PROXIMITY SWITCH.
	PLC OUTPUT.
	MAGNETIC PROXIMITY SWITCH.
	DIFFERENTIAL PRESSURE SWITCH.
	PRESSURE SWITCH, NORMALLY CLOSED.
	PRESSURE SWITCH, NORMALLY OPEN.
	PRESSURE SWITCH, NORMALLY OPEN, HELD CLOSED.
	SOLENOID.
	TIME DELAY OFF, NORMALLY CLOSED CONTACT.
	TIME DELAY OFF, NORMALLY OPEN CONTACT.
	TIME DELAY ON, NORMALLY CLOSED CONTACT.
	TIME DELAY ON, NORMALLY OPEN CONTACT.

SYMBOL	DESCRIPTION
#M	MOTOR STARTER, NORMALLY CLOSED, AUXILIARY CONTACT.
#M	MOTOR STARTER, NORMALLY OPEN, AUXILIARY CONTACT.
#OL	OVERLOAD, NORMALLY CLOSED CONTACT.
#PB	PUSH BUTTON, NORMALLY CLOSED w/MUSHROOM HEAD.
PB#	PUSH BUTTON, NORMALLY CLOSED.
PB#	PUSH BUTTON, NORMALLY OPEN.
M#	MOTOR STARTER, COIL.
	PUSHBUTTON SWITCH (FOR PANEL LAYOUTS ONLY)
	SELECTOR SWITCH (FOR PANEL LAYOUTS ONLY)
	AUDIBLE ALARM (FOR PANEL LAYOUTS ONLY)
C	INDICATOR LIGHT w/COLOR A - AMBER G - GREEN B - BLUE R - RED C - CLEAR W - WHITE
	INDICATOR LIGHT w/PUSH-TO-TEST.
#ISR	CONTROL RELAY, INTRINSICALLY SAFE.
AH	AUDIBLE HORN.
NAME	GENERIC DEVICE.
	GROUND BUS BAR.
X X	2 POSITION SELECTOR SWITCH CONTACTS ARE CLOSED OR OPEN ONLY AND ARE SHOWN AS SUCH.
X X X	3 OR MORE POSITION SELECTOR SWITCH. X SHOWS CLOSED & 0 SHOWS OPEN FOR EACH SWITCH POSITION SHOWN ABOVE EACH X & O. WHEN USED, SCHEDULE IDENTIFIES OPERATION. SS#XX

	POSITION		
CIRCUIT	1	2	3
1	X	0	0
2	0	0	X

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INDICATORS

RUN YIR 200 — PANEL FRONT MOUNTED INDICATING LIGHT.

HOA HS 100 — PANEL FRONT MOUNTED OPERATOR DEVICE.

ZSO 100 — FIELD (EQUIPMENT) MOUNTED CONTROL DEVICE.

JA 250 — BACKPANEL MOUNTED CONTROL DEVICE.

LOGIC

I — CONTROL LOGIC GENERALIZED TO REPRESENT PLC and/or HARDWIRED RELAY LOGIC. REFERENCE LADDER DIAGRAM OR WRITTEN SPECIFICATIONS FOR DETAIL.

I — CONTROL LOGIC WITH DIGITAL and/or ANALOG SIGNAL INPUTS.

I — CONTROL LOGIC WITH DIGITAL and/or ANALOG SIGNAL OUTPUTS.

LEVEL LI 100 — CONTROL FUNCTION RESIDENT IN DCS or OIT (MMI) DEVICES. REFERENCE WRITTEN SPECIFICATIONS FOR COMPLETE DESCRIPTION.

VALVES

- GATE
- K — KNIFE GATE
- BUTTERFLY
- GLOBE
- BALL
- V — VEE-BALL
- PLUG
- SEAT PORT ECCENTRIC PLUG
- DIAPHRAGM
- PINCH
- NEEDLE
- SWING CHECK
- BALL CHECK
- PRESSURE RELIEF
- AIR AND/OR VACUUM RELEASE
- REGULATED SIDE
- PRESSURE CONTROL
- MULTI-PORT VALVES, BALL VALVE SHOWN. (FOR OTHER VALVE TYPES, APPROPRIATE VALVE SYMBOL SHOWN) ARROWS INDICATE FLOW PATTERN. SEAL PORTS ARE IMPLIED BY INDICATED FLOW PATTERN.
- S — SAMPLE
- MUD
- TELESCOPING VALVE

TRANSMITTERS

LS 100 — LEVEL FLOAT SWITCH

LT 100 — ULTRASONIC TRANSDUCER LEVEL TRANSMITTER

LT 100 — PRESSURE TRANSDUCER LEVEL TRANSMITTER

FE 200 / M — MAGNETIC FLOW METER

INTERFACE

N — N — PROCESS OR SIGNAL LINE CONTINUATION N=1,2,3, ETC.

INTERFACE TO OR FROM PROCESS EXTERNAL TO PROJECT

FROM WATER SUPPLY — PROCESS ENTRY/ EXIT POINTS.

CABLE SHIELD

- UNGROUNDED SHIELD
- SHIELD WITH GROUND CONNECTION POINT

ACTUATORS

- P Z XX — PNEUMATIC W/POSITIONER
- P S XX — PNEUMATIC W/SOLENOID
- E XX — ELECTRIC
- E Z XX — ELECTRIC W/POSITIONER
- EH XX — ELECTRO-HYDRAULIC
- H XX — HYDRAULIC
- P B XX — PNEUMATIC WITH VOLUME BOOSTER
- S — SOLENOID
- MANUAL

PRIMARY FLOW ELEMENTS

- PARSHALL FLUME
- VORTEX METER
- ROTAMETER
- ULTRASONIC FLOWMETER (INLINE)
- ELECTROMAGNETIC FLOWMETER
- PROPELLER OR TURBINE METER
- ULTRASONIC FLOWMETER (CLAMP-ON)

MISCELLANEOUS

- SIGHT GLASS
- DIAPHRAGM SEAL
- ANNULAR DIAPHRAGM SEAL
- BASKET STRAINER
- BLADDER TANK
- RUPTURE DISK
- OR — MIXER
- PRESSURE GAUGE
- PRESSURE ZONE

GATE VALVES

- SLUICE
- BUTTERFLY
- FLAP
- FABRICATED SLIDE
- SHEAR

PUMP & COMPRESSOR

- CENTRIFUGAL PUMP (DRY PIT)
- CHEMICAL FEED PUMP
- DIAPHRAGM PUMP
- GEAR PUMP OR BLOWER (POSITIVE DISPLACEMENT)
- VERTICAL TURBINE PUMP
- CENTRIFUGAL FAN
- COMPRESSOR (CENTRIFUGAL) BLOWER OR TURBINE
- EJECTOR
- SUBMERSIBLE PUMP
- M — SUBMERSIBLE PUMP AND MOTOR

INSTRUMENT IDENTIFICATION TAG LETTERS

	FIRST LETTER		SUCCEEDING LETTER(S)		
ID	MEASURED or INITIATING VARIABLE	MODIFIER	READOUT or PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A	ANALYSIS		ALARM		
B	BURNER FLAME		USER'S CHOICE	USER'S CHOICE	USER'S CHOICE
C	CONDUCTIVITY (ELECTRICAL)			CONTROLLER	
D	DENSITY	DIFFERENTIAL			
E	VOLTAGE (EMF)		PRIMARY ELEMENT		
F	FLOW	RATIO			
G	GAUGING (DIMENSIONAL)		GLASS		
H	HAND (MANUALLY INITIATED)				HIGH and HIGH-HIGH
I	CURRENT (ELECTRICAL)		INDICATE		
J	POWER	SCAN			
K	TIME or TIME SCHEDULE			CONTROL STATION	
L	LEVEL		LIGHT (PILOT)		LOW and LOW-LOW
M	MOISTURE or HUMIDITY				MID./ INTERMEDIATE
N	TORQUE		ISOLATOR		
O	USER'S CHOICE		ORIFICE		
P	PRESSURE or PNEUMATIC		POINT		
Q	QUANTITY	INTEGRATE TOTALIZE			
R	RADIOACTIVITY		RECORD or PRINT		
S	SPEED or FREQUENCY			SWITCH	
T	TEMPERATURE			TRANSMITTER	
U	MULTI-VARIABLE		MULTI-FUNCTION	MULTI-FUNCTION	MULTI-FUNCTION
V	VISCOSITY			VALVE DAMP./ LOUVER	
W	WEIGHT or FORCE		WELL		
X	UNCLASSIFIED		UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED
Y	EVENT, STATE or PRESENCE			RELAY or COMPUTE	
Z	POSITION				

REGISTERED PROFESSIONAL ENGINEER 86683 OREGON MAY 08, 2012 BENJAMIN E. PERRY
Digital Signature
EXPIRES: 12-31-2020

QC REVIEW: _____
DATE: _____

THIS LINE IS 1 INCH AT FULL SCALE IF NOT SCALE ACCORDINGLY

SCALE : AS SHOWN
DRAWN BY : EJC
DESIGNED BY : MB
PROJ. MGR. : GL

No.	ZONE	REVISIONS	BY	DATE

WEST YOST ASSOCIATES
4949 Meadows Road
Suite 125
Lake Oswego, Oregon 97035
(503) 451-4500
FAX (530) 756-4991

Landis Consulting
ENGINEERING SERVICES
6446 Fairway Ave. SE, Suite 220
Salem, OR 97306
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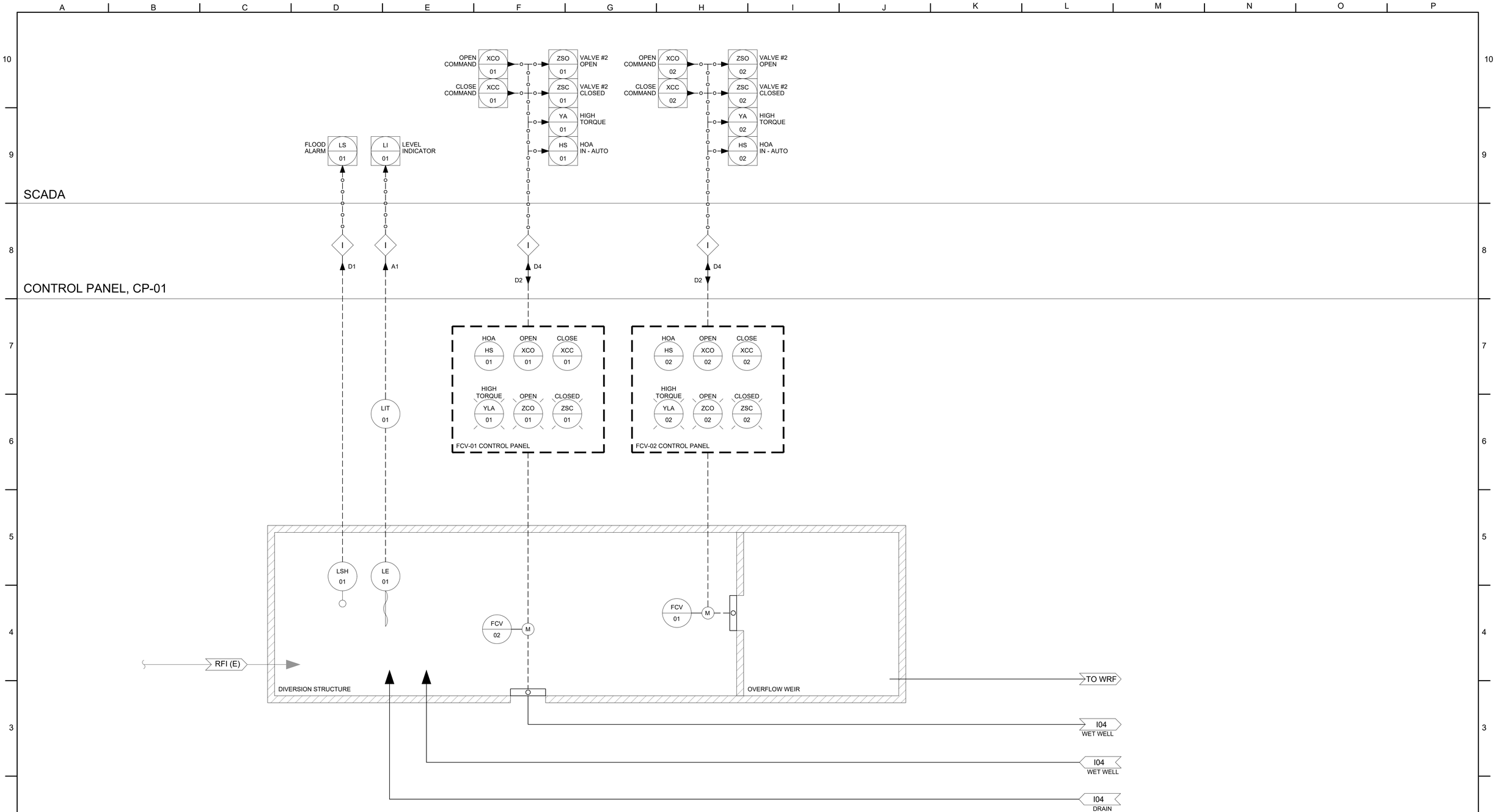
LIFT STATION AND FORCE MAIN
INSTRUMENTATION SYMBOL LEGEND

JOB NUMBER 519-14-18-18
DRAWING NUMBER **I02**
SHEET NUMBER 57 OF 59
REVISION



REGISTERED PROFESSIONAL ENGINEER
86683
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OREGON
MAY 08, 2012
BENJAMIN E. PERRY
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Suite 125
Lake Oswego, Oregon 97035
(503) 451-4500
FAX (530) 756-4991

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ENGINEERING SERVICES
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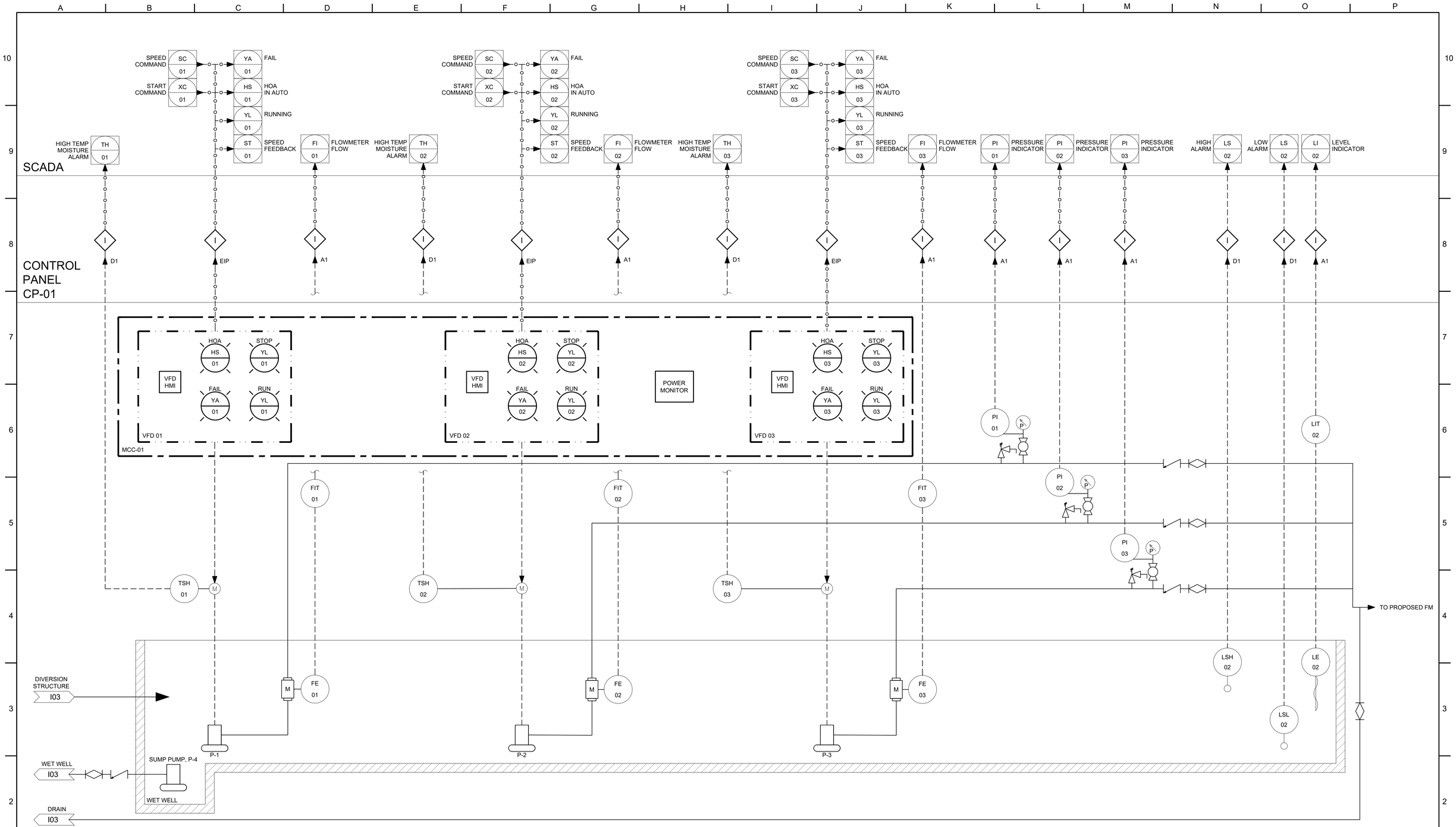
JOB NUMBER 519-14-18-18
DRAWING NUMBER **I03**
SHEET NUMBER 58 OF 59
REVISION



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MAY 08, 2012
BENJAMIN E. PERRY
EXPIRES: 12-31-2020

QC REVIEW: _____

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4949 Meadows Road
Suite 125
Lake Oswego, Oregon 97035
(503) 451-4500
FAX (530) 756-4991

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ENGINEERING SERVICES
6446 Fairway Ave. SE, Suite 220
Salem, OR 97306
503-584-1576
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JOB NUMBER 519-14-18-18
DRAWING NUMBER **I04**
SHEET NUMBER 59 OF 59
REVISION