UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

Klamath River Renewal Corporation	**Project Nos. 14803-001;**
PacifiCorp	**2082-063**

AMENDED APPLICATION FOR SURRENDER OF LICENSE FOR MAJOR PROJECT AND REMOVAL OF PROJECT WORKS

EXHIBIT R
100% Design Report
(Part 8 of 12)

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BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

Klamath River Renewal Corporation	**Project Nos. 14803-001;**
PacifiCorp	**2082-063**

AMENDED APPLICATION FOR SURRENDER OF LICENSE FOR MAJOR PROJECT AND REMOVAL OF PROJECT WORKS

EXHIBIT R-5
Fall Creek Hatchery
(continued)

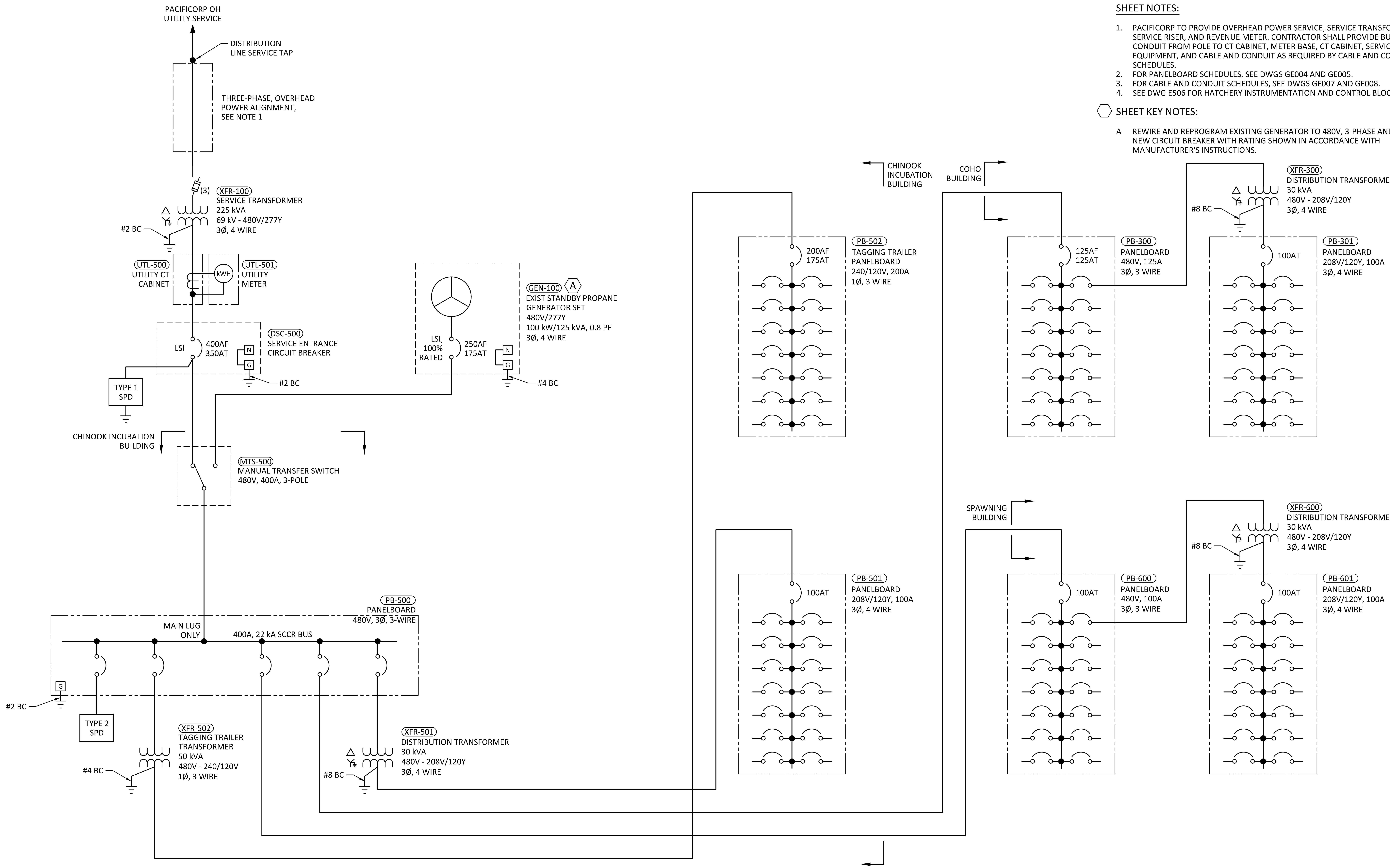
Fall Creek Hatchery 100% Design Drawings (continued)

SHEET NOTES:

1. PACIFICORP TO PROVIDE OVERHEAD POWER SERVICE, SERVICE TRANSFORMER, SERVICE RISER, AND REVENUE METER. CONTRACTOR SHALL PROVIDE BURIED CONDUIT FROM POLE TO CT CABINET, METER BASE, CT CABINET, SERVICE EQUIPMENT, AND CABLE AND CONDUIT AS REQUIRED BY CABLE AND CONDUIT SCHEDULES.
2. FOR PANELBOARD SCHEDULES, SEE DWGS GE004 AND GE005.
3. FOR CABLE AND CONDUIT SCHEDULES, SEE DWGS GE007 AND GE008.
4. SEE DWG E506 FOR HATCHERY INSTRUMENTATION AND CONTROL BLOCK DIAGRAM.

SHEET KEY NOTES:

A REWIRE AND REPROGRAM EXISTING GENERATOR TO 480V, 3-PHASE AND PROVIDE NEW CIRCUIT BREAKER WITH RATING SHOWN IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.



REV	DATE	BY	DESCRIPTION
0	10/28/20	MDM	ISSUED FOR CONSTRUCTION

REGISTERED PROFESSIONAL ENGINEER
JOHN ARNE BAKKEN
No. E-16301
ELECTRICAL
STATE OF CALIFORNIA
October 28, 2020

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

McMILLEN JACOBS ASSOCIATES

KLAMATH RIVER RENEWAL CORPORATION

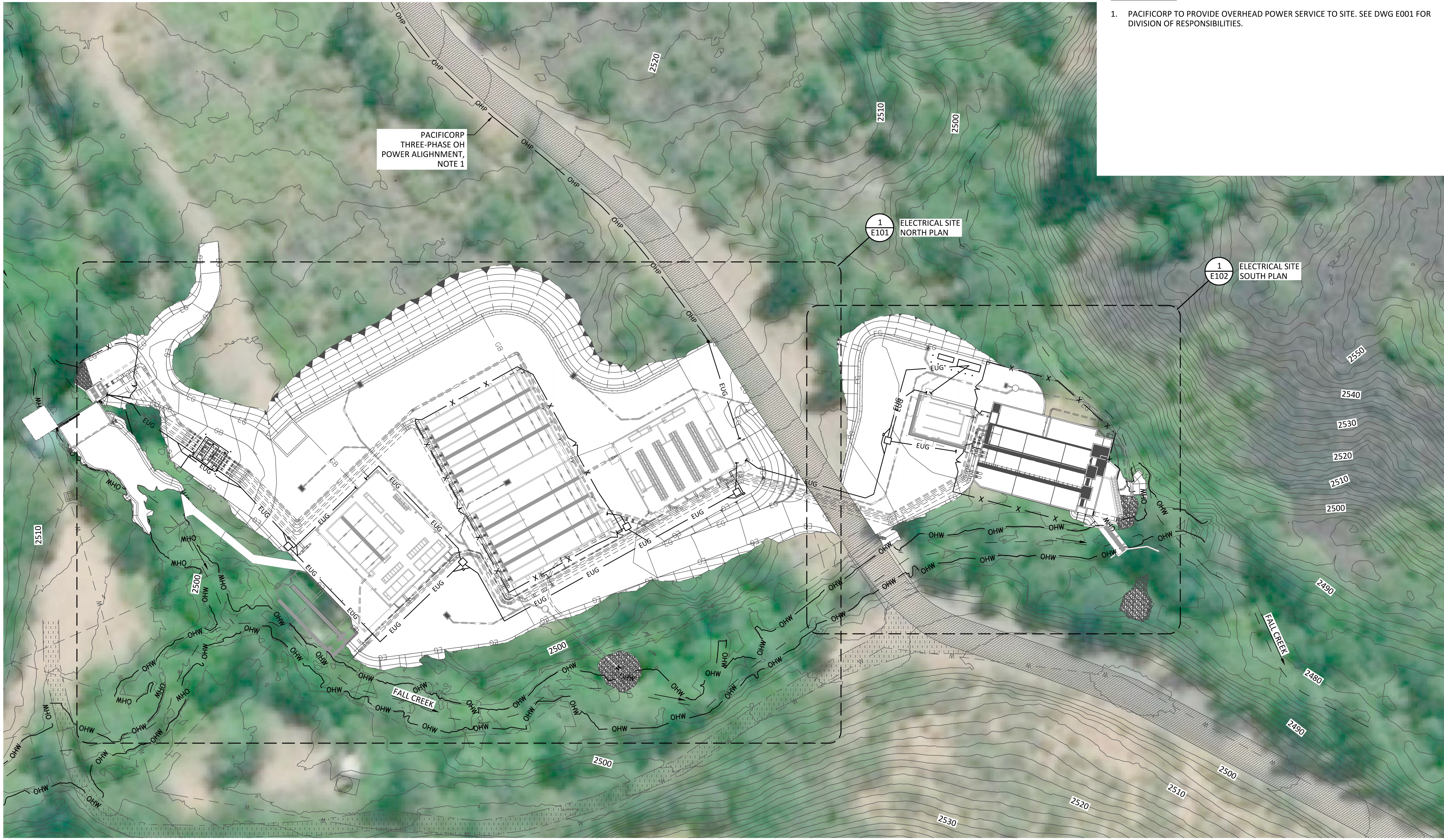
KLAMATH RIVER RENEWAL CORPORATION
FALL CREEK FISH HATCHERY
ELECTRICAL
OVERALL ONE-LINE DIAGRAM

DESIGNED M. SKELTON
DRAWN D. JOHNSTON
CHECKED J. BAKKEN
PROJECT DATE 10/28/20

DRAWING
E001

SHEET NOTES:

1. PACIFICORP TO PROVIDE OVERHEAD POWER SERVICE TO SITE. SEE DWG E001 FOR DIVISION OF RESPONSIBILITIES.



OVERALL ELECTRICAL SITE KEY PLAN

SCALE: 1"= 30'

0' 30' 60'

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KLAMATH RIVER RENEWAL CORPORATION

FALL CREEK FISH HATCHERY

OVERALL ELECTRICAL SITE KEY PLAN

DESIGNED M. SKELTON

DRAWN D. JOHNSTON

CHECKED J. BAKKEN

PROJECT DATE 10/28/20

DRAWING

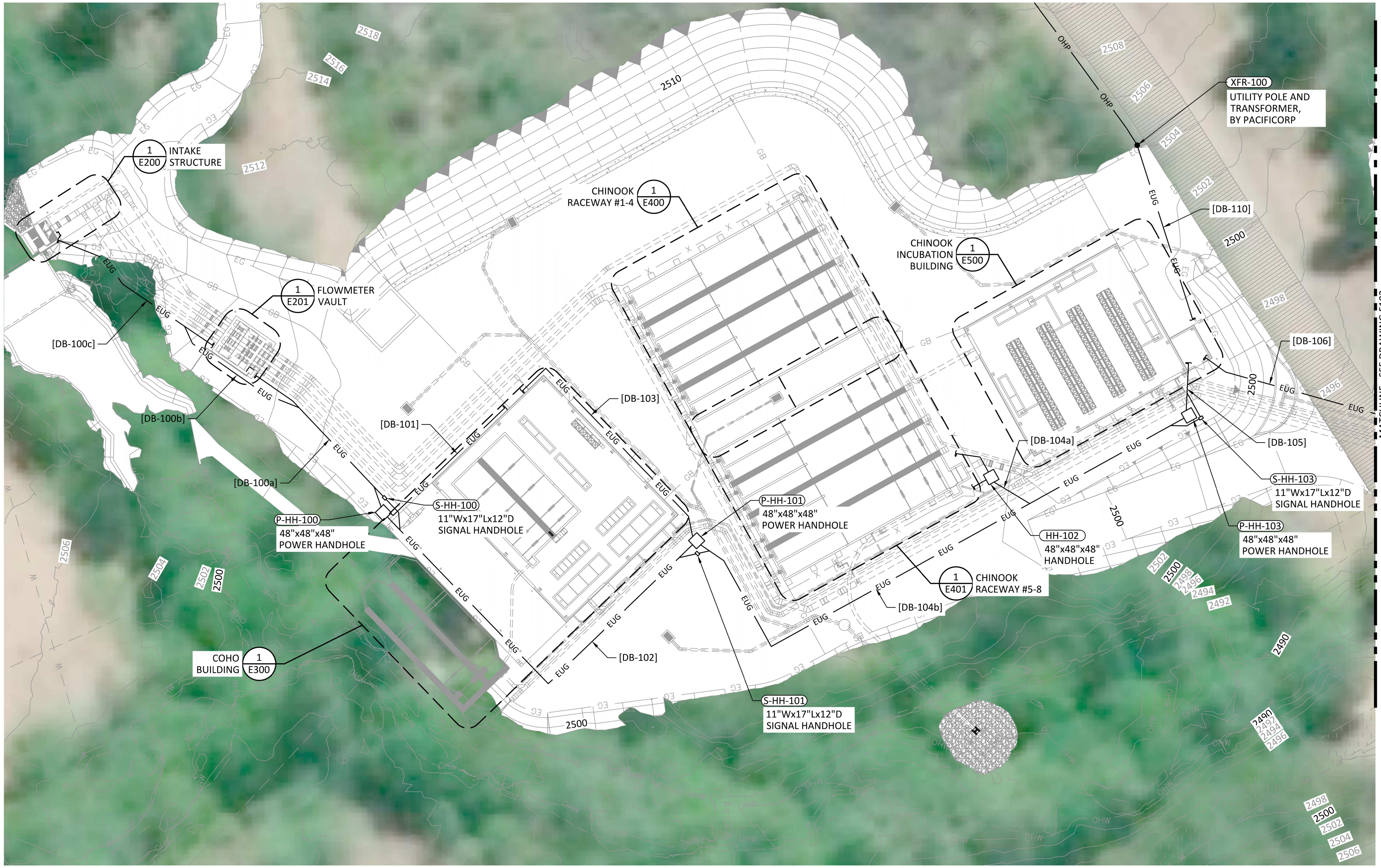
E100

JOB NO: 000000

Path: C:\Vault20\Klamath River Renewal Corp\Fall Creek Facility\E100.dwg Plot date: Oct 27, 2020 10:53am, CAD User: Guerrero

SHEET NOTES:

1. SEE DWG GE006 FOR DUCT BANK SCHEDULE.



ELECTRICAL SITE NORTH PLAN 1 E100

SCALE: 1"= 20'

0" 20' 40'

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KLAMATH RIVER RENEWAL CORPORATION

KLAMATH RIVER RENEWAL CORPORATION

FALL CREEK FISH HATCHERY

ELECTRICAL SITE NORTH PLAN

DESIGNED M. SKELTON

DRAWN D. JOHNSTON

CHECKED J. BAKKEN

PROJECT DATE 10/28/20

DRAWING

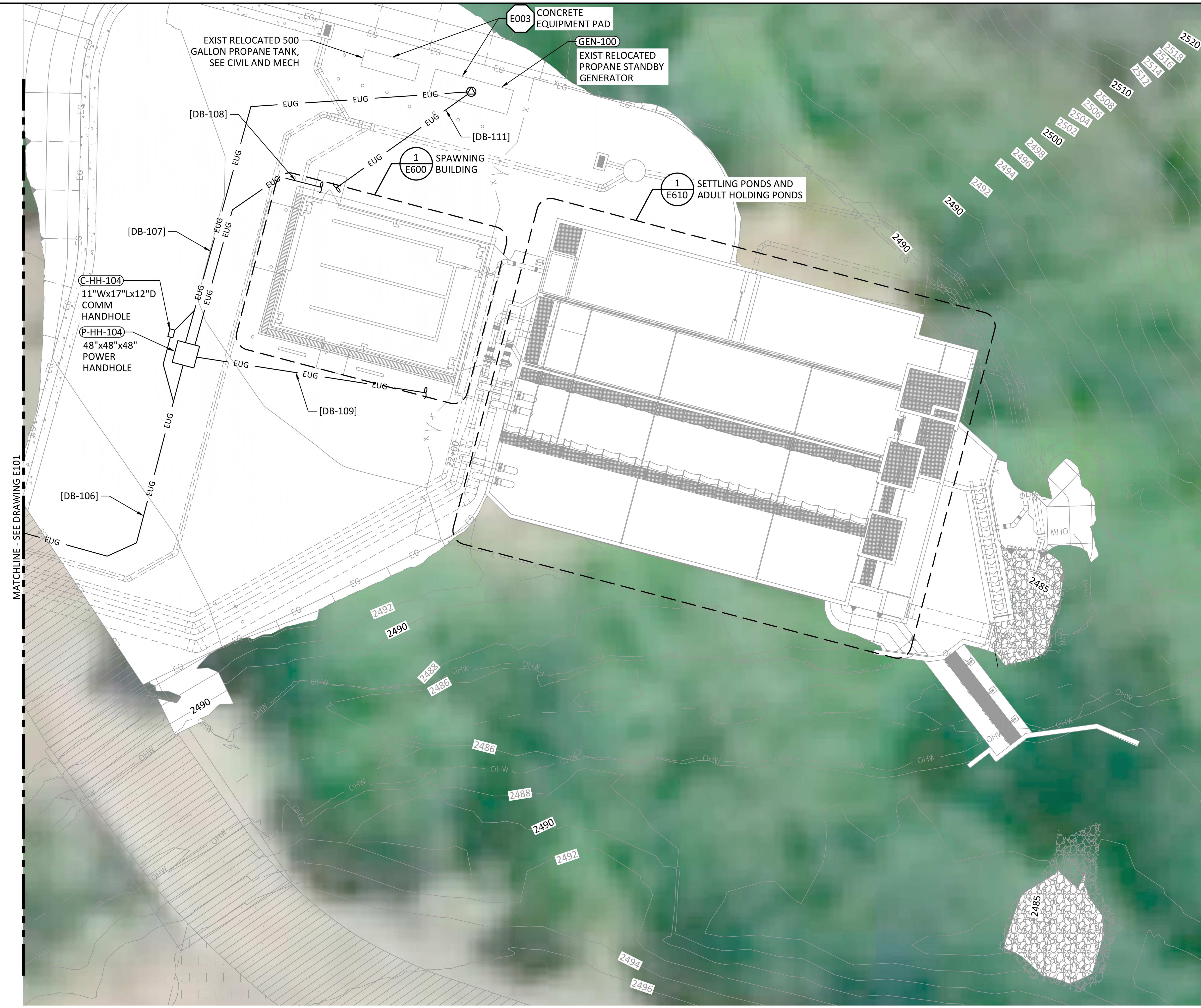
E101

Path: C:\Vault20\Klamath River Renewal Corp\Fall Creek Facility\E101.dwg Plot date: Oct 27, 2020 10:53am, CAD User: Guerrero

JOB NO: 000000

SHEET NOTES:

1. SEE DWG GE006 FOR DUCT BANK SCHEDULE.



ELECTRICAL SITE SOUTH PLAN

SCALE: 1"= 10'

0" 10' 20'

1 E100

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STATE OF CALIFORNIA
October 28, 2020

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McMILLEN JACOBS ASSOCIATES

KLAMATH RIVER RENEWAL CORPORATION

KLAMATH RIVER RENEWAL CORPORATION

FALL CREEK FISH HATCHERY

ELECTRICAL SITE SOUTH PLAN

DESIGNED M. SKELTON

DRAWN D. JOHNSTON

CHECKED J. BAKKEN

PROJECT DATE 10/28/20

DRAWING

E102

JOB NO: 000000

Path: C:\Vault20\Klamath River Renewal Corp\Fall Creek Facility\E102.dwg Plot date: Oct 27, 2020 10:54am, CAD User: Guerrero

SHEET NOTES:

1. SEE DWG GE004 FOR PANEL SCHEDULES AND LUMINAIRE SCHEDULE.
2. SEE DWGS GE007 AND GE008 FOR CONDUIT AND CABLE SCHEDULES.
3. SEE DWGS E503 THROUGH E505 FOR SCADA CONTROL DIAGRAMS.

SHEET KEY NOTES:

A INSTALL IN STILLING WELL MOUNTED TO INSIDE WALL OF STRUCTURE. PROVIDE PULLBOX ON TOP OF STILLING WELL AND ROUTE MFR-SUPPLIED CABLE TO TRAVELING SCREEN CONTROL PANEL FOR DIFFERENTIAL PRESSURE CONTROL OF SCREENS.

INTAKE STRUCTURE POWER AND LIGHTING PLAN 1 E101

SCALE: 1"= 2'

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McMILLEN JACOBS ASSOCIATES

KLAMATH RIVER RENEWAL CORPORATION

KLAMATH RIVER RENEWAL CORPORATION

FALL CREEK FISH HATCHERY

INTAKE STRUCTURE
POWER AND LIGHTING PLAN

DESIGNED M. SKELTON
DRAWN D. JOHNSTON
CHECKED J. BAKKEN
PROJECT DATE 10/28/20

DRAWING E200

JOB NO: 000000

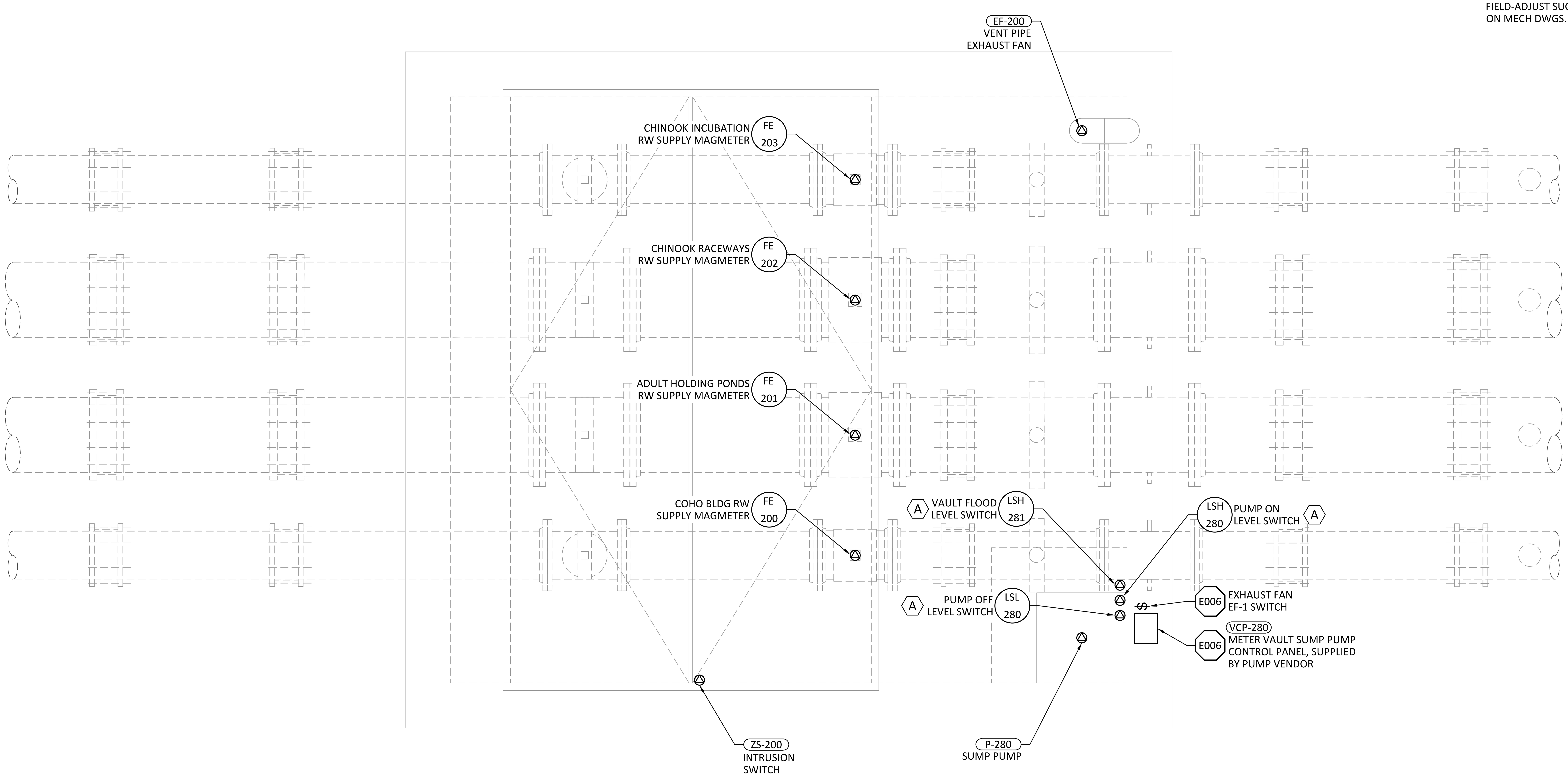
Path: C:\Vault20\Klamath River Renewal Corp\Fall Creek Facility\E200.dwg Plot date: Oct 27, 2020 10:55am, CAD User: Guerrero

SHEET NOTES:

1. SEE DWG E200 FOR INSTRUMENT TRANSMITTERS LOCATION.
2. SEE DWGS GE007 AND GE008 FOR CONDUIT AND CABLE SCHEDULES.
3. SEE DWGS E503 THROUGH E505 FOR SCADA CONTROL DIAGRAMS.

SHEET KEY NOTES:

A AFFIX TO PUMP DISCHARGE PIPE USING MFR-SUPPLIED HARDWARE. FIELD-ADJUST SUCH THAT SWITCHES ACTUATE AT ELEVATIONS SHOWN ON MECH DWGS.



METER VAULT POWER PLAN

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

0' 1' 2'

1
E101

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JOHN ARNE BAKKEN
No. E-16301
ELECTRICAL
STATE OF CALIFORNIA
October 28, 2020

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McMILLEN JACOBS ASSOCIATES

KLAMATH RIVER RENEWAL CORPORATION

KLAMATH RIVER RENEWAL CORPORATION

FALL CREEK FISH HATCHERY

METER VAULT
POWER PLAN

DESIGNED M. SKELTON

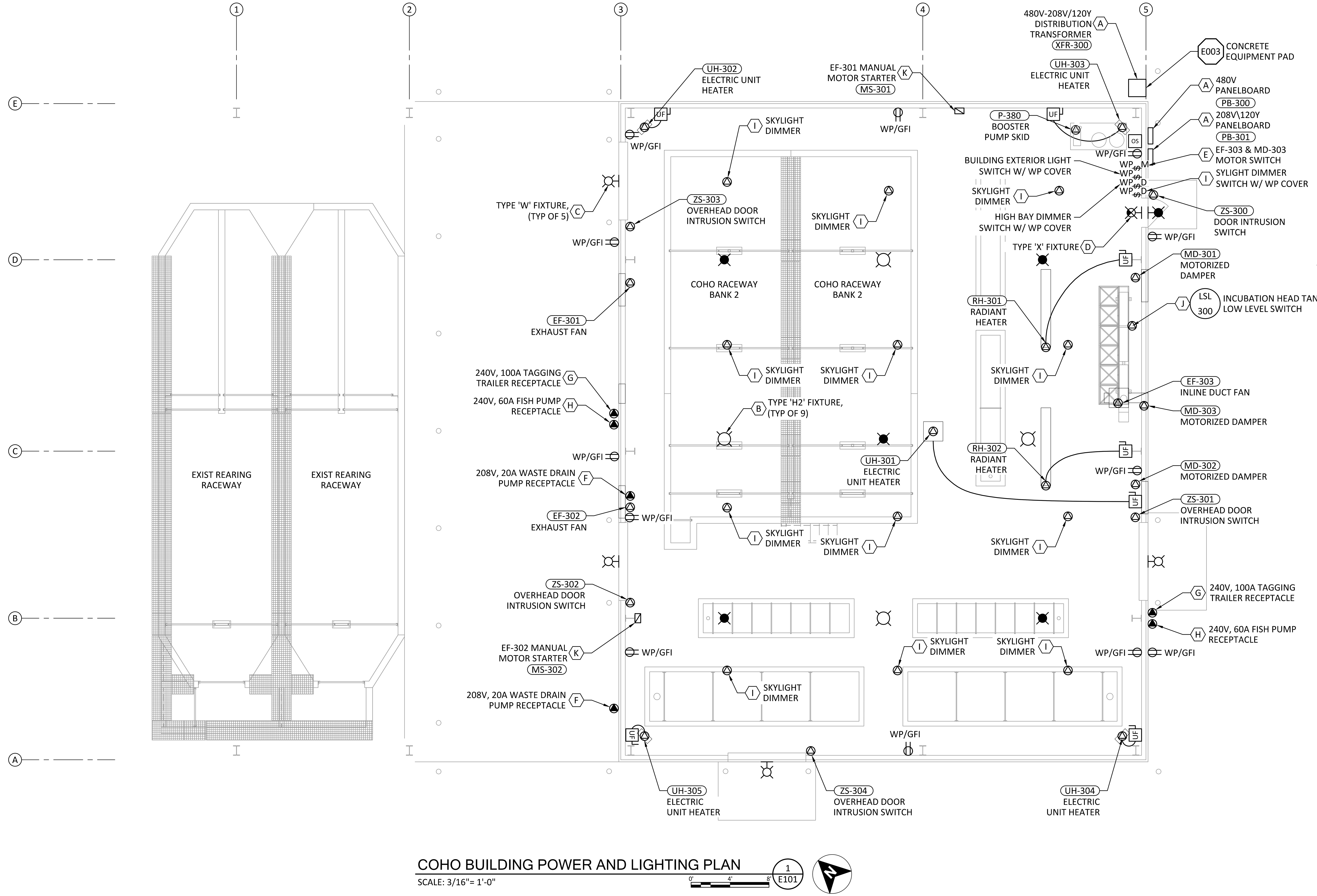
DRAWN D. JOHNSTON

CHECKED J. BAKKEN

PROJECT DATE 10/28/20

DRAWING

E201



COHO BUILDING POWER AND LIGHTING PLAN (1 / E101)

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

SHEET NOTES:

1. SEE DWGS GE004 AND GE005 FOR LUMINAIRE AND PANELBOARD SCHEDULES.
2. SEE DWGS GE007 AND GE008 FOR CONDUIT AND CABLE SCHEDULES.
3. SEE DWGS E503 THROUGH E505 FOR SCADA CONTROL DIAGRAMS.
4. CONDUIT, JUNCTION BOXES, AND 120V WIRING SHALL BE PROVIDED BY DIV 26. HVAC CONTRACTOR SHALL PROVIDE T-STATS, HVAC-RELATED OCCUPANCY SENSORS, HVAC EQUIPMENT, AND LOW VOLTAGE WIRING. REFER TO DIV 23 AND 26 SPECS FOR SPECIFIC REQUIREMENTS. COORDINATE BETWEEN TRADES TO PROVIDE A COMPLETE HVAC SYSTEM.
5. EQUIPMENT WEIGHING 100 LBS AND LESS SHALL BE ALLOWED TO BE HANGED FROM WALL USING STANDARD METHODS. EQUIPMENT OVER 100 LBS INTENDED FOR WALL MOUNTING SHALL BE INSTALLED ON FRAMING CHANNEL SUPPORTED FROM THE FLOOR IN ACCORDANCE WITH STANDARD DETAIL E006. CONTRACTOR SHALL COORDINATE INSTALLATIONS OF EQUIPMENT TO BE INSTALLED IN SUCH A MANNER WITH BUILDING SUPPLIER AND OWNER'S REPRESENTATIVE.

SHEET KEY NOTES:

A. PROVIDE PANELBOARDS AND TRANSFORMER IN NEMA 3R WEATHERPROOF ENCLOSURES.

B. MOUNT HIGH BAY FIXTURES AT 14' AFF USING CHAIN. PROVIDE SAFETY CABLE AND CORD LENGTH AS REQUIRED. PROVIDE BATTERY BACKUP IN FIXTURES AS SHOWN.

C. MOUNT 6" ABOVE DOOR FRAME, CENTERED. PROVIDE CODE REQUIRED BATTERY BACKUP IN FIXTURES ABOVE PERSONNEL DOORS ONLY. ALL EXTERIOR LIGHTS SHALL BE WIRED FOR CONTROL FROM A SINGLE, MANUAL SWITCH.

D. MOUNT EXIT SIGN 6" ABOVE DOOR, CENTERED.

E. NEMA 4 ENCLOSED MOTOR STARTER WITH HAND-OFF-AUTO SWITCHING, ELECTRONIC OVERLOAD, REMOTE RUN INPUT, AND NORMALLY OPEN AUX CONTROL CONTACT. INSTALL IN SINGLE-GANG JUNCTION BOX. MOTOR STARTER SHALL BE GREENHECK #MS-1P OR EQUAL.

F. PROVIDE TWIST-LOCK, WATERTIGHT NEMA L6-20R OUTLET FOR PORTABLE WASTE DRAIN PUMP. RECEPTACLE SHALL BE HUBBELL OR EQUAL.

G. PROVIDE 3-WIRE, 4-POLE RECEPTACLE FOR TAGGING TRAILER WITH SCREW COVER AND MOUNTING BOX WITH 1-1/2" HUB. RECEPTACLE SHALL BE APPLETON POWERTITE #ADJA1034-150.

H. PROVIDE 3-WIRE, 4-POLE RECEPTACLE FOR FISH PUMP WITH SCREW COVER AND MOUNTING BOX WITH 1-1/4" HUB. RECEPTACLE SHALL BE APPLETON POWERTITE #ADJA6034-125.

I. SEE ARCHITECTURAL DRAWINGS AND SPECIFICATION SECTION 08 62 00 FOR SKYLIGHT REQUIREMENTS. CONNECT SKYLIGHT DIMMERS THROUGH 0-10V DIMMER SWITCH.

J. PROVIDE 4"X4"X3"H NONMETALLIC WATERTIGHT BOX FOR SPLICING OF CONDUCTORS. SEE MECH FOR MOUNTING DETAILS FOR BOX AND SWITCH. SWITCH HEIGHT SHALL BE ADJUSTED IN FIELD TO OPEN CONTACT APPROX 1-1/2" BELOW TOP OF STANDPIPE. PROVIDE LIQUIDTIGHT FLEXIBLE CONDUIT FOR CONNECTION TO BOX ON HEAD TANK AND WATERTIGHT CONNECTIONS.

K. NEMA 4 ENCLOSED MANUAL MOTOR STARTER WITH TOGGLE SWITCH AND RED PILOT LIGHT. STARTER SHALL BE SINGLE-POLE AND RATED FOR 1 HP AT 120V. STARTER SHALL BE SQUARE D #2510FW1P OR APPROVED EQUAL.

Path: C:\Vault20\Klamath River Renewal Corp\Fall Creek Facility\E300.dwg Plot date: Oct 27, 2020 10:55am, CAD User: Guerrero

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REGISTERED PROFESSIONAL ENGINEER JOHN ARNE BAKKEN No. E-16301 ELECTRICAL STATE OF CALIFORNIA October 28, 2020

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McMILLEN JACOBS ASSOCIATES

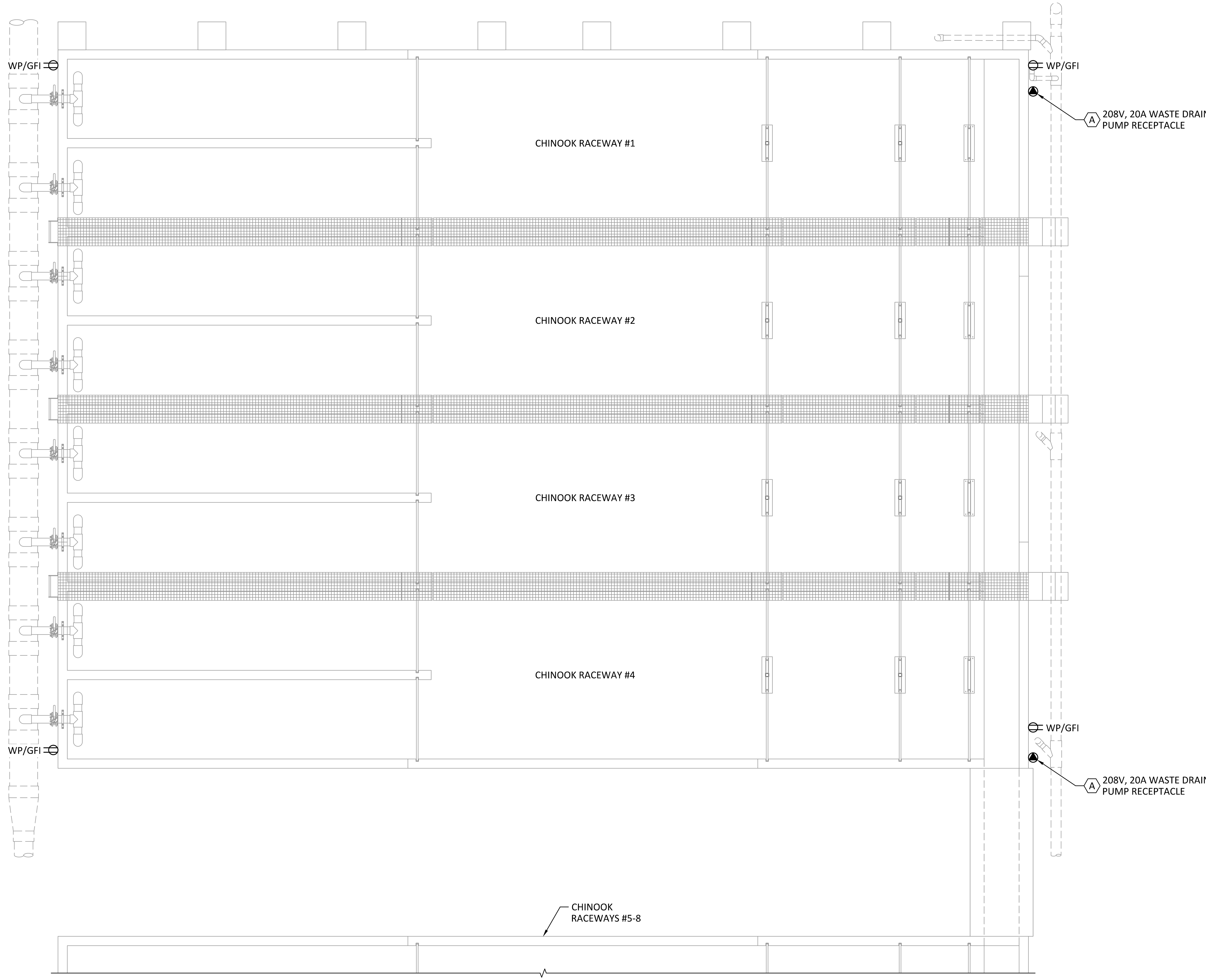
KLAMATH RIVER RENEWAL CORPORATION

KLAMATH RIVER RENEWAL CORPORATION
FALL CREEK FISH HATCHERY
COHO BUILDING POWER AND LIGHTING PLAN

DESIGNED M. SKELTON
DRAWN D. JOHNSTON
CHECKED J. BAKKEN
PROJECT DATE 10/28/20

DRAWING E300

JOB NO: 000000



SHEET KEY NOTES:

A PROVIDE TWIST-LOCK, WATERTIGHT NEMA L6-20R OUTLET FOR PORTABLE WASTE DRAIN PUMP. RECEPTACLE SHALL BE HUBBELL OR EQUAL.

CHINOOK RACEWAYS #1-4 POWER PLAN 1 / E101

SCALE: 1/4"= 1'-0" 0' 4' 8'

Path: C:\Vault20\Klamath River Renewal Corp\Fall Creek Facility\E400.dwg Plot date: Oct 27, 2020 10:55am, CAD User: Guerrero

REV	DATE	BY	DESCRIPTION
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McMILLEN JACOBS ASSOCIATES

KLAMATH RIVER RENEWAL CORPORATION

KLAMATH RIVER RENEWAL CORPORATION

FALL CREEK FISH HATCHERY

CHINOOK RACEWAYS #1-4 POWER PLAN

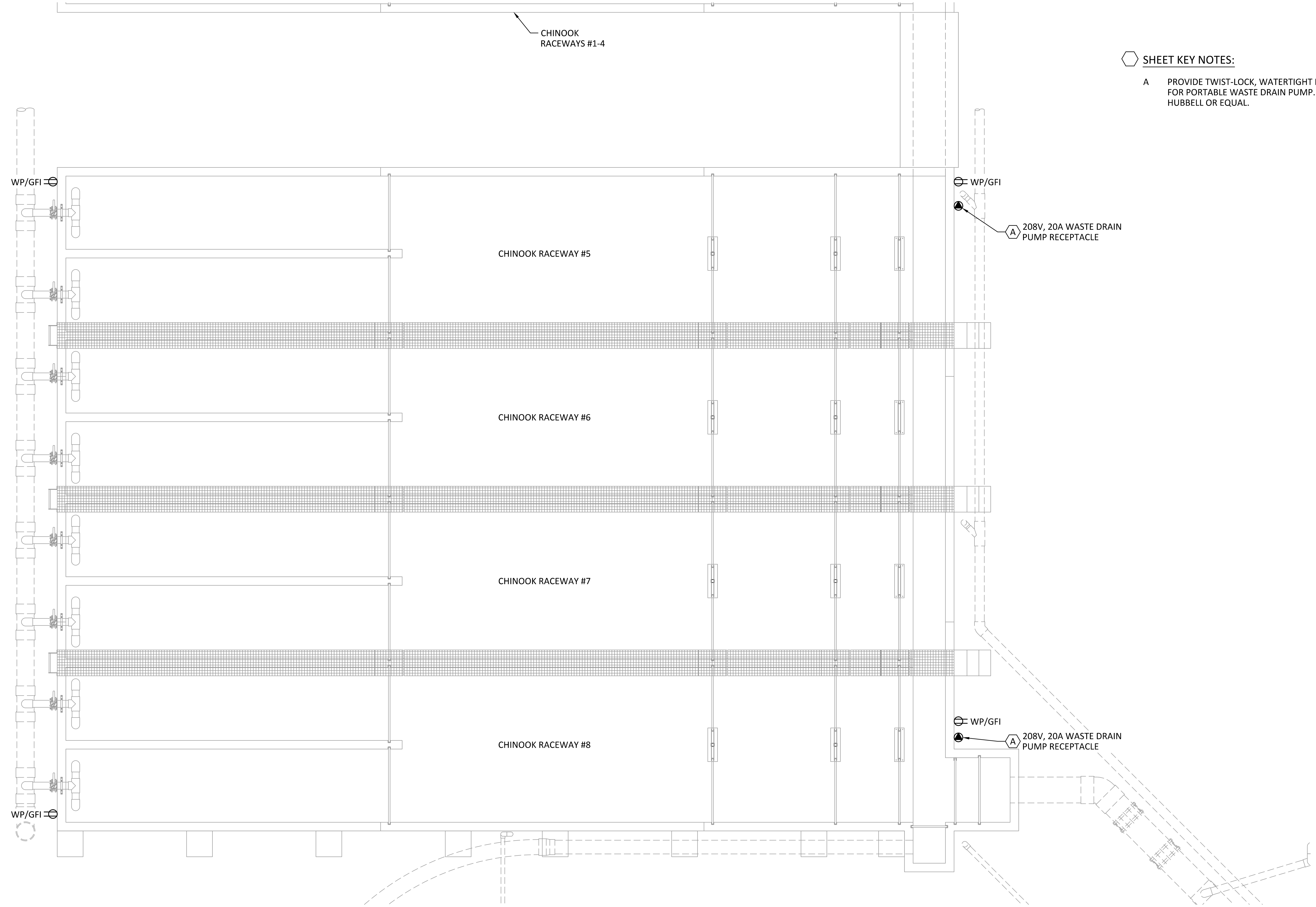
DESIGNED M. SKELTON
DRAWN D. JOHNSTON
CHECKED J. BAKKEN
PROJECT DATE 10/28/20

DRAWING E400

JOB NO: 000000

SHEET KEY NOTES:

A PROVIDE TWIST-LOCK, WATERTIGHT NEMA L6-20R OUTLET FOR PORTABLE WASTE DRAIN PUMP. RECEPTACLE SHALL BE HUBBELL OR EQUAL.



CHINOOK RACEWAYS #5-8 POWER PLAN

1 / E101

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

0' 4' 8'

REV	DATE	BY	DESCRIPTION
0	10/28/20	MDM	ISSUED FOR CONSTRUCTION

REGISTERED PROFESSIONAL ENGINEER
JOHN ARNE BAKKEN
No. E-16301
ELECTRICAL
STATE OF CALIFORNIA
October 28, 2020

WARNING

0 1/2 1

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KLAMATH RIVER RENEWAL CORPORATION

KLAMATH RIVER RENEWAL CORPORATION

FALL CREEK FISH HATCHERY

CHINOOK RACEWAYS #5-8
POWER PLAN

DESIGNED M. SKELTON

DRAWN D. JOHNSTON

CHECKED J. BAKKEN

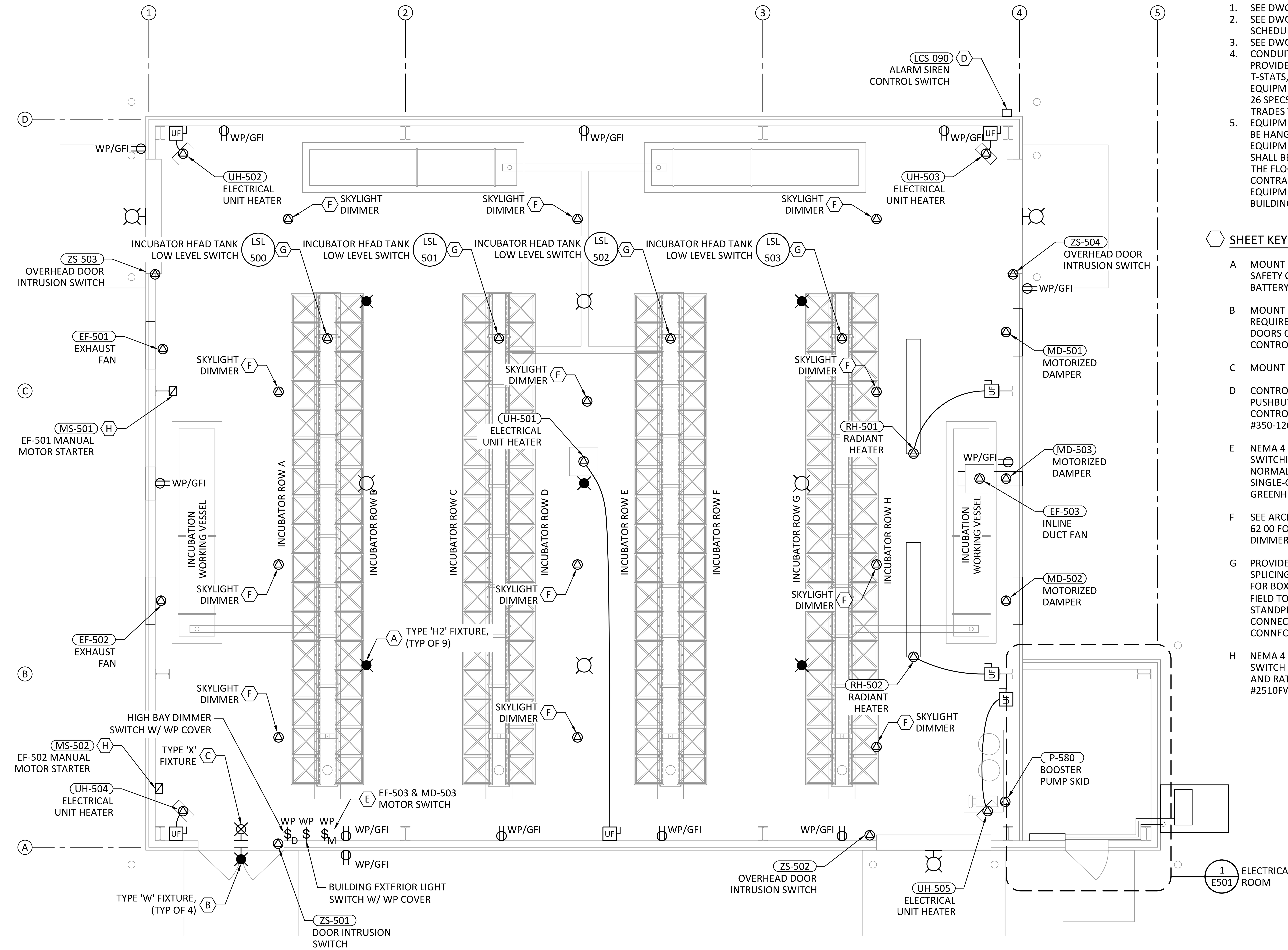
PROJECT DATE 10/28/20

DRAWING

E401

Path: C:\Vault20\Klamath River Renewal Corp\Fall Creek Facility\E401.dwg Plot date: Oct 27, 2020 10:55am, CAD User: Guerrero

JOB NO: 000000



CHINOOK INCUBATION BUILDING POWER AND LIGHTING PLAN

1 / E101

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

0' 4' 8'

SHEET NOTES:

1. SEE DWG GE004 FOR LUMINAIRE SCHEDULE.
2. SEE DWGS GE007 AND GE008 FOR CONDUIT AND CABLE SCHEDULES.
3. SEE DWGS E503 THROUGH E505 FOR SCADA CONTROL DIAGRAMS.
4. CONDUIT, JUNCTION BOXES, AND 120V WIRING SHALL BE PROVIDED BY DIV 26. HVAC CONTRACTOR SHALL PROVIDE T-STATS, HVAC-RELATED OCCUPANCY SENSORS, HVAC EQUIPMENT, AND LOW VOLTAGE WIRING. REFER TO DIV 23 AND 26 SPECS FOR SPECIFIC REQUIREMENTS. COORDINATE BETWEEN TRADES TO PROVIDE A COMPLETE HVAC SYSTEM.
5. EQUIPMENT WEIGHING 100 LBS AND LESS SHALL BE ALLOWED TO BE HANGED FROM WALL USING STANDARD METHODS. EQUIPMENT OVER 100 LBS INTENDED FOR WALL MOUNTING SHALL BE INSTALLED ON FRAMING CHANNEL SUPPORTED FROM THE FLOOR IN ACCORDANCE WITH STANDARD DETAIL E006. CONTRACTOR SHALL COORDINATE INSTALLATIONS OF EQUIPMENT TO BE INSTALLED IN SUCH A MANNER WITH BUILDING SUPPLIER AND OWNER'S REPRESENTATIVE.

SHEET KEY NOTES:

A. MOUNT HIGH BAY FIXTURES AT 12' AFF USING CHAIN. PROVIDE SAFETY CABLE AND CORD LENGTH AS REQUIRED. PROVIDE BATTERY BACKUP IN FIXTURES AS SHOWN.

B. MOUNT 6" ABOVE DOOR FRAME, CENTERED. PROVIDE CODE REQUIRED BATTERY BACKUP IN FIXTURES ABOVE PERSONNEL DOORS ONLY. ALL EXTERIOR LIGHTS SHALL BE WIRED FOR CONTROL FROM A SINGLE, MANUAL SWITCH.

C. MOUNT EXIT SIGN 6" ABOVE DOOR, CENTERED.

D. CONTROL STATION CONTAINING ALARM SIREN AND SILENCE PUSHBUTTON. SEE DWGS E503 THROUGH E505 FOR RELATED CONTROL DIAGRAMS. SIREN SHALL BE FEDERAL SIGNAL #350-120-30 OR EQUAL.

E. NEMA 4 ENCLOSED MOTOR STARTER WITH HAND-OFF-AUTO SWITCHING, ELECTRONIC OVERLOAD, REMOTE RUN INPUT, AND NORMALLY OPEN AUX CONTROL CONTACT. INSTALL IN SINGLE-GANG JUNCTION BOX. MOTOR STARTER SHALL BE GREENHECK #MS-1P OR EQUAL.

F. SEE ARCHITECTURAL DRAWINGS AND SPECIFICATION SECTION 08 62 00 FOR SKYLIGHT REQUIREMENTS. CONNECT SKYLIGHT DIMMERS THROUGH 0-10V DIMMER SWITCH.

G. PROVIDE 4"X4"X3"H NONMETALLIC WATERTIGHT BOX FOR SPLICING OF CONDUCTORS. SEE MECH FOR MOUNTING DETAILS FOR BOX AND SWITCH. SWITCH HEIGHT SHALL BE ADJUSTED IN FIELD TO OPEN CONTACT APPROX 1-1/2" BELOW TOP OF STANDPIPE. PROVIDE LIQUIDTIGHT FLEXIBLE CONDUIT FOR CONNECTION TO BOX ON HEAD TANK AND WATERTIGHT CONNECTIONS.

H. NEMA 4 ENCLOSED MANUAL MOTOR STARTER WITH TOGGLE SWITCH AND RED PILOT LIGHT. STARTER SHALL BE SINGLE-POLE AND RATED FOR 1 HP AT 120V. STARTER SHALL BE SQUARE D #2510FW1P OR APPROVED EQUAL.

Path: C:\Vault20\Klamath River Renewal Corp\Fall Creek Facility\E500.dwg Plot date: Oct 27, 2020 10:55am, CAD User: Guerrero

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REGISTERED PROFESSIONAL ENGINEER JOHN ARNE BAKKEN No. E-16301 ELECTRICAL STATE OF CALIFORNIA October 28, 2020

WARNING

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McMILLEN JACOBS ASSOCIATES

KLAMATH RIVER RENEWAL CORPORATION

KLAMATH RIVER RENEWAL CORPORATION

FALL CREEK FISH HATCHERY

CHINOOK INCUBATION BUILDING POWER AND LIGHTING PLAN

DESIGNED M. SKELTON

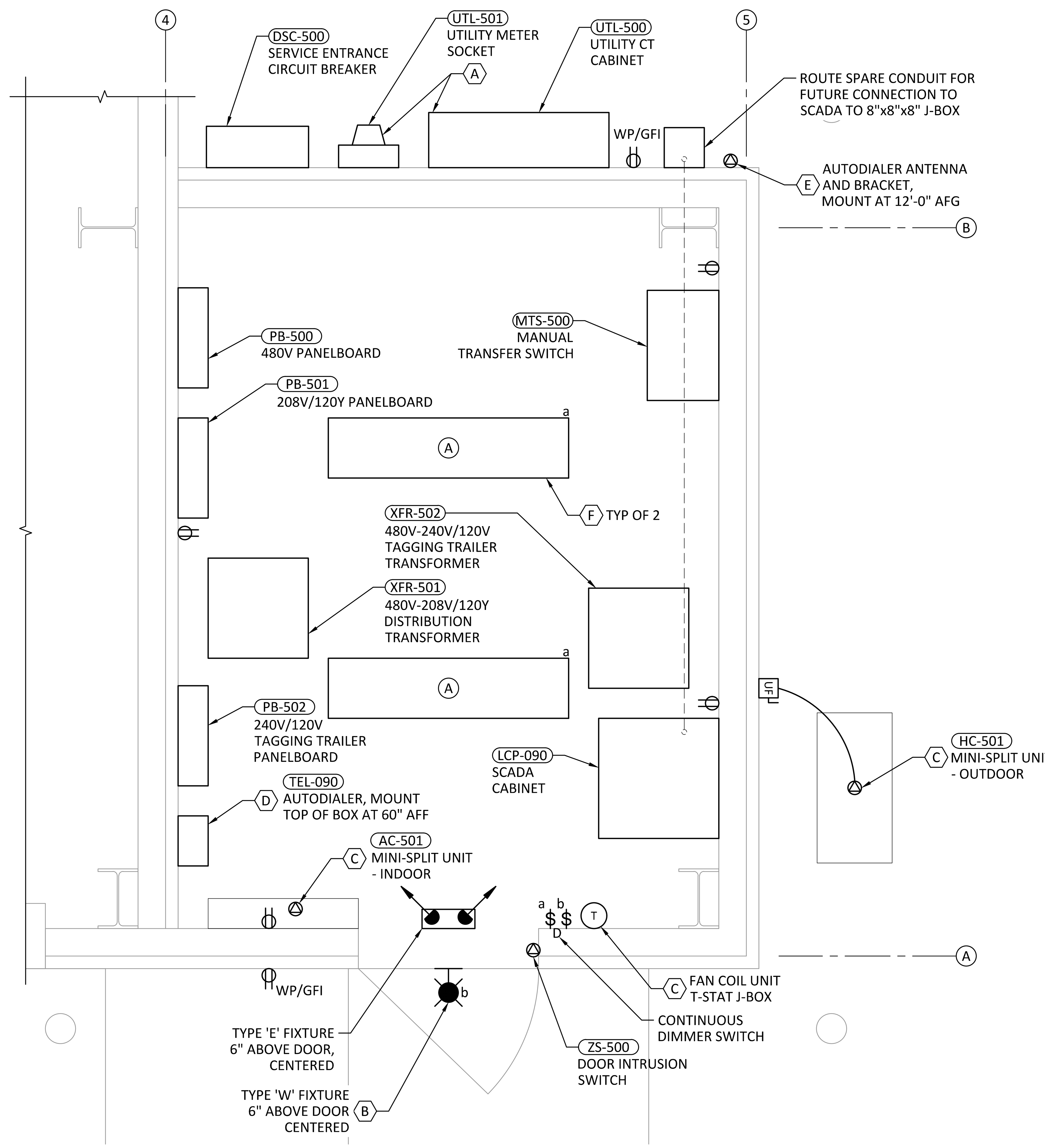
DRAWN D. JOHNSTON

CHECKED J. BAKKEN

PROJECT DATE 10/28/20

DRAWING E500

JOB NO: 000000



CHINOOK INCUBATION BUILDING ELEC ROOM POWER AND LIGHTING PLAN

1
E500

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

0' 1' 2'

SHEET NOTES:

1. SEE DWG E001 FOR OVERALL ONE-LINE DIAGRAM.
2. SEE DWGS GE004 AND GE005 FOR LUMINAIRE AND PANELBOARD SCHEDULES.
3. SEE DWGS GE007 AND GE008 FOR CONDUIT AND CABLE SCHEDULES.
4. SEE DWGS E503 THROUGH E505 FOR SCADA CONTROL DIAGRAMS.
5. SEE DWG E506 FOR HATCHERY INSTRUMENTATION AND CONTROL BLOCK DIAGRAM.
6. EQUIPMENT WEIGHING 100 LBS AND LESS SHALL BE ALLOWED TO BE HANGED FROM WALL USING STANDARD METHODS. EQUIPMENT OVER 100 LBS INTENDED FOR WALL MOUNTING SHALL BE INSTALLED ON FRAMING CHANNEL SUPPORTED FROM THE FLOOR IN ACCORDANCE WITH STANDARD DETAIL E006. CONTRACTOR SHALL COORDINATE INSTALLATIONS OF EQUIPMENT TO BE INSTALLED IN SUCH A MANNER WITH BUILDING SUPPLIER AND OWNER'S REPRESENTATIVE.

SHEET KEY NOTES:

A CONTRACTOR TO PROVIDE METER SOCKET, CT CABINET WITH CT MOUNTING BASE, CONDUIT, AND LOAD-SIDE CONNECTORS PER PACIFICORP REQUIREMENTS. PACIFICORP TO PROVIDE CURRENT TRANSFORMERS, METER, METER TEST SWITCH, AND SECONDARY METERING WIRING. COORDINATE WITH PACIFICORP.

B LIGHT SHALL ONLY TURN ON BY MANUAL SWITCH OR UPON LOSS OF NORMAL POWER.

C CONDUIT, JUNCTION BOXES, AND 120V WIRING SHALL BE PROVIDED BY DIV 26. HVAC CONTRACTOR SHALL PROVIDE T-STAT, HVAC EQUIPMENT, AND LOW VOLTAGE WIRING. REFER TO DIV 23 AND 26 SPECS FOR SPECIFIC REQUIREMENTS. COORDINATE BETWEEN TRADES TO PROVIDE A COMPLETE HVAC SYSTEM.

D PROVIDE CELLULAR-BASED AUTODIALER WITH 8 INPUT CHANNELS MINIMUM AT 24 VDC IN ENCLOSURE WITH CLEAR LID. AUTODIALER SHALL BE OMNISITE #XR50-ENCV-120 OR APPROVED EQUAL. COORDINATE WIRELESS SERVICE WITH MANUFACTURER AND OWNER AND PROVIDE SERVICE AND PROGRAMMING TO IMPLEMENT ALARM CALLOUT AS REQUIRED BY OWNER.

E PROVIDE OUTDOOR ANTENNA WITH BRACKET AND MANUFACTURER-SUPPLIED COAXIAL CABLE. ANTENNA AND BRACKET SHALL BE OMNISITE OUTDOOR PHANTOM KIT OR APPROVED EQUAL. PROVIDE 50 FEET OF COAXIAL CABLE MINIMUM.

F MOUNT FIXTURES AT 12' AFF USING CHAIN. PROVIDE SAFETY CABLE AND CORD LENGTH AS REQUIRED.

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KLAMATH RIVER RENEWAL CORPORATION
FALL CREEK FISH HATCHERY
CHINOOK INCUBATION BUILDING ELEC ROOM POWER AND LIGHTING PLAN

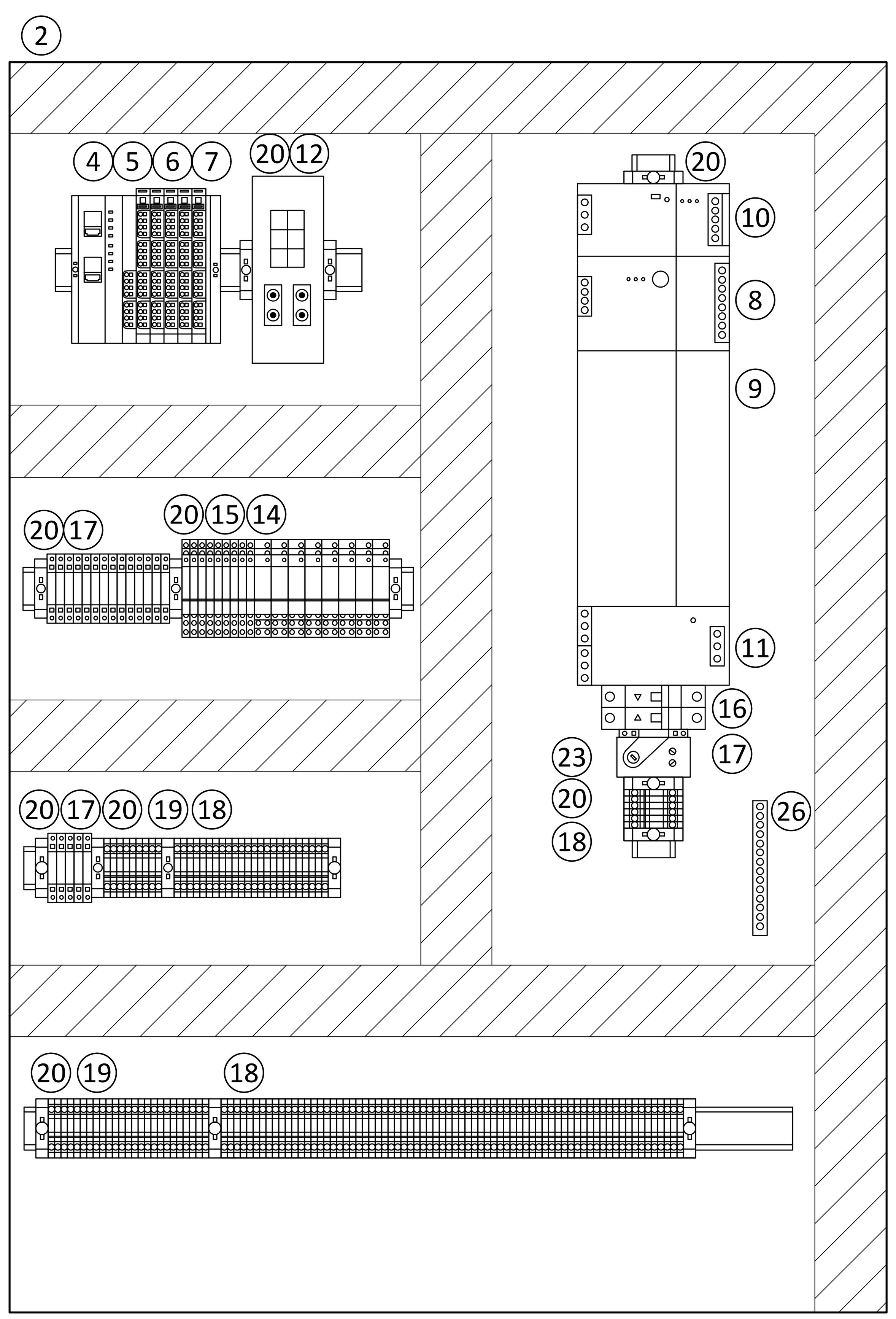
DESIGNED M. SKELTON
DRAWN D. JOHNSTON
CHECKED J. BAKKEN
PROJECT DATE 10/28/20

DRAWING
E501

Path: C:\Vault20\Klamath River Renewal Corp\Fall Creek Facility\E501.dwg Plot date: Oct 27, 2020 10:55am, CAD User: Guerrero

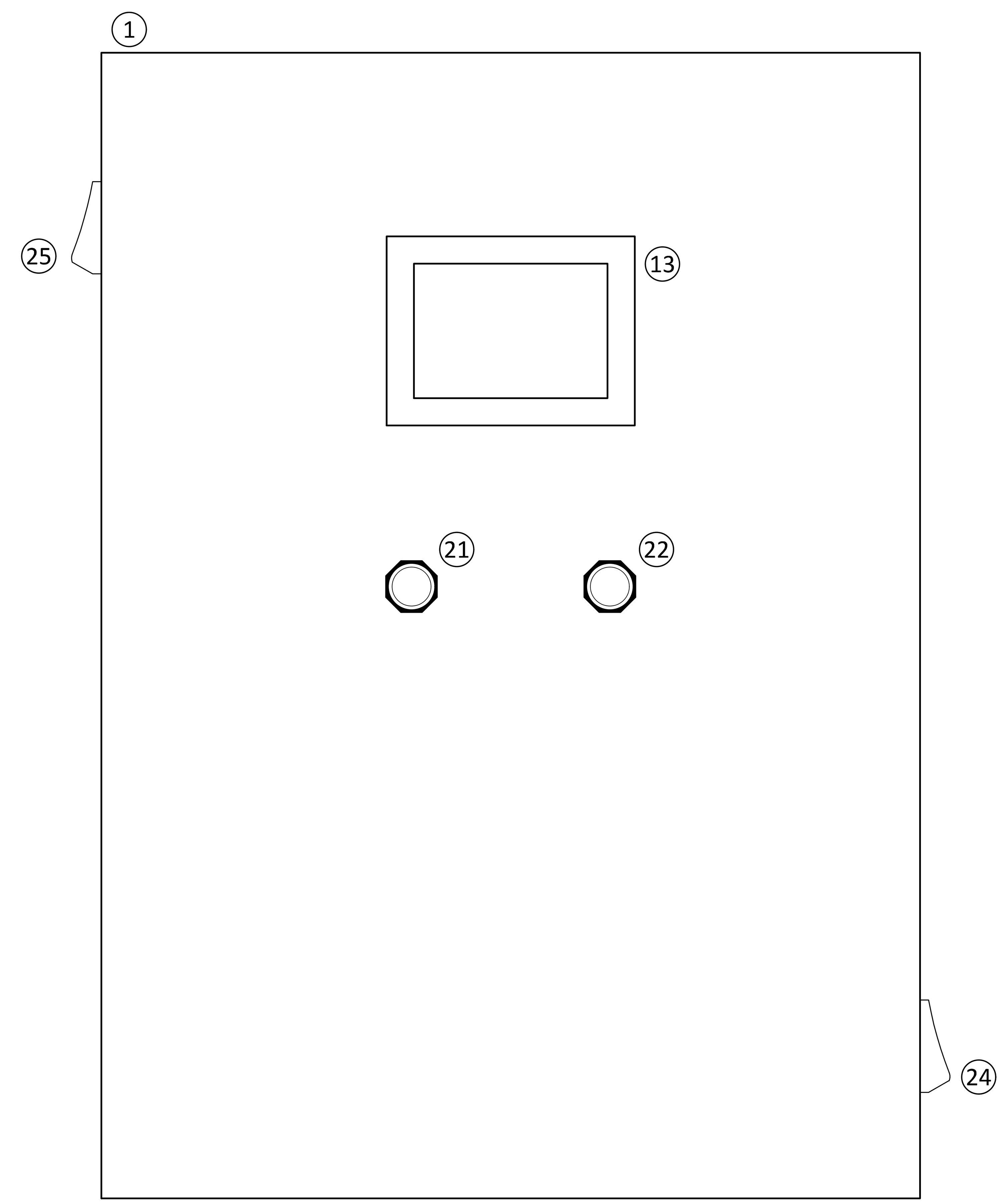
JOB NO: 000000

BILL OF MATERIALS					
ITEM	QTY	DESCRIPTION	TAG	MFR	PART NO.
1	1	ENCLOSURE, 42"H x 30"W x 10"D, NEMA 12, PAINTED MILD STEEL	LCP-090	HOFFMAN	CSD423010
2	1	BACKPANEL, 40.2" X 28.2", WHITE, 12 GA.	-	HOFFMAN	CP4230
3	1	DOOR STOP KIT	-	HOFFMAN	ADSTOPK
4	1	PROGRAMMABLE LOGIC CONTROLLER, DIN RAIL MOUNT, ETHERNET/IP, 2-RJ45	PLC-090	EMERSON	EPXEIP001
5	2	DISCRETE INPUT MODULE, 16 CH, POSITIVE LOGIC, 1-WIRE	-	EMERSON	EP-125F
6	1	DISCRETE OUTPUT MODULE, 8 CH, POSITIVE LOGIC, 2-WIRE	-	EMERSON	EP-2218
7	2	ANALOG INPUT MODULE, 4 CH, 4-20 mA, 2- OR 3-WIRE, DIAGNOSTICS	-	EMERSON	EP-3264
8	1	UNINTERRUPTIBLE POWER SUPPLY, 10A, 24 VDC	UPS-090	SOLA HD	SDU 10-24
9	1	BATTERY FOR UPS	-	SOLA HD	SDU 24-BAT
10	1	POWER SUPPLY, 240W 24 VDC/10A OUT, 120 VAC IN	PS-090	SOLA HD	SDN 10-24-100C
11	1	SURGE PROTECTION DEVICE, DIN RAIL MOUNT, 120 VAC	SPD-090	SOLA HD	STV 25K-10S
12	1	ETHERNET SWITCH, MANAGED, 6-RJ45, 2-FIBER SC 15km	MES-090	RED LION	708FXE2-SC-15
13	1	HUMAN MACHINE INTERFACE, 8.4" COLOR TFT, 1-RJ45	HMI-090	IDEC	HG3G-V8XT22MF-B
14	8	CONTROL RELAY, DPDT, 24 VDC COIL	-	PHOENIX CONTACT	2967060.0000
15	9	CONTROL RELAY, SPDT, 24 VDC COIL	-	PHOENIX CONTACT	2966171.0000
16	2	CIRCUIT BREAKER, 1 POLE	-	EATON	FAZ SERIES
17	20	FUSE MODULAR TERMINAL BLOCK	-	PHOENIX CONTACT	321 SERIES
18	100	TERMINAL BLOCK, FEED-THROUGH, SPRING CONNECTION	-	PHOENIX CONTACT	303 SERIES
19	35	GROUND TERMINAL BLOCK, FEED-THROUGH, SPRING CONNECTION	-	PHOENIX CONTACT	303 SERIES
20	15	END STOP	-	PHOENIX CONTACT	0800886
21	1	PUSH-TO-TEST LIGHT, 30 MM, LED, 24 VDC, AMBER	-	ALLEN BRADLEY	800T-QTH2A
22	1	PUSH-TO-TEST LIGHT, 30 MM, LED, 24 VDC, BLUE	-	ALLEN BRADLEY	800T-QTH2B
23	1	THERMOSTAT, 1 NO CONTACT, ADJUSTABLE 32 - 140 DEGREES F	-	STEGO	011419-00
24	1	FAN, 120 VAC, NEMA 12	-	HOFFMAN	60715141.0000
25	1	EXHAUST, NEMA 12	-	HOFFMAN	60715156.0000
26	1	GROUND BAR, 10 TERMINALS, #14 - #10	-	EATON	GBK10



SCADA CABINET BACKPANEL LAYOUT

SCALE: 3"= 1'-0"



SCADA CABINET DOOR LAYOUT

SCALE: 3"= 1'-0"

REV	DATE	BY	DESCRIPTION
0	10/28/20	MDM	ISSUED FOR CONSTRUCTION

REGISTERED PROFESSIONAL ENGINEER
JOHN ARNE BAKKEN
No. E-16301
ELECTRICAL
STATE OF CALIFORNIA
October 28, 2020

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

McMILLEN JACOBS ASSOCIATES

KLAMATH RIVER RENEWAL CORPORATION

KLAMATH RIVER RENEWAL CORPORATION

FALL CREEK FISH HATCHERY

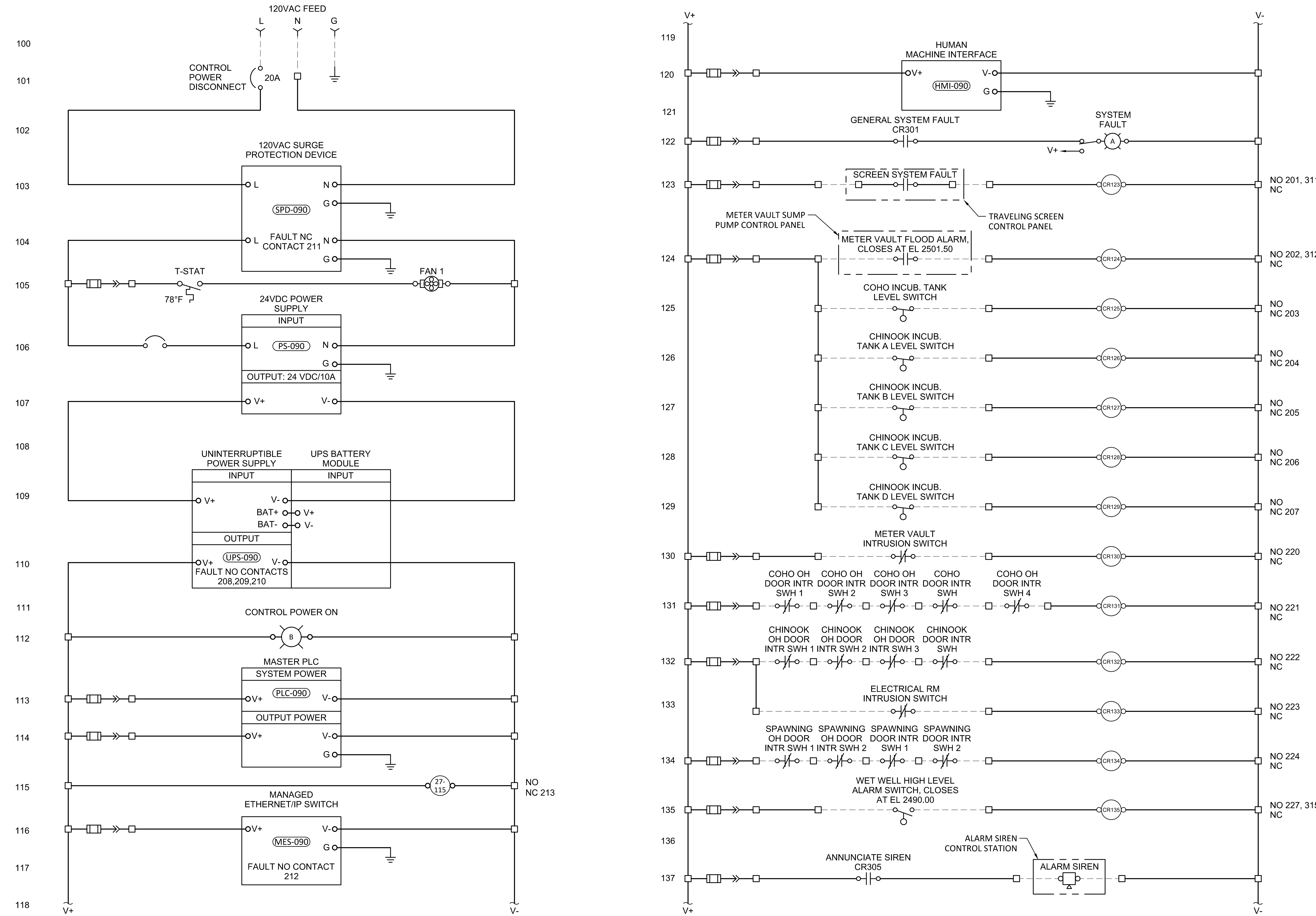
SCADA CABINET LAYOUT AND BILL OF MATERIALS

DESIGNED M. SKELTON
DRAWN B. ROONEY
CHECKED J. BAKKEN
PROJECT DATE 10/28/20

DRAWING
E502

JOB NO: 000000

Path: C:\Vault20\Klamath River Renewal Corp\Fall Creek Facility\E502.dwg Plot date: Oct 27, 2020 10:55am, CAD User: Guerrero



0	10/28/20	MDM	ISSUED FOR CONSTRUCTION
REV	DATE	BY	DESCRIPTION

REGISTERED PROFESSIONAL ENGINEER
JOHN ARNE BAKKEN
No. E-16301
ELECTRICAL
STATE OF CALIFORNIA
October 28, 2020

WARNING
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McMILLEN JACOBS ASSOCIATES

KLAMATH RIVER RENEWAL CORPORATION

KLAMATH RIVER RENEWAL CORPORATION
FALL CREEK FISH HATCHERY

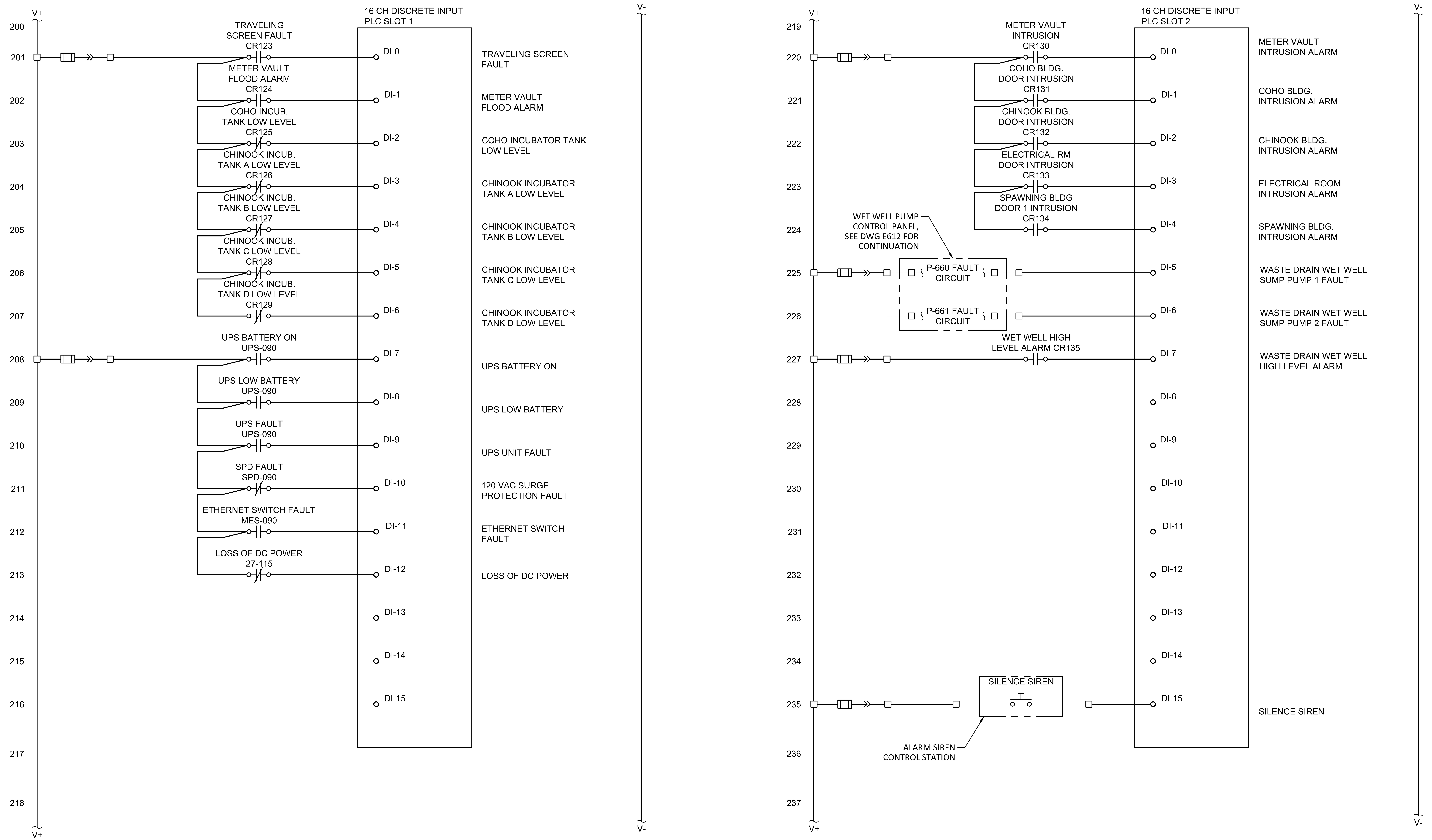
SCADA CABINET
CONTROL DIAGRAM 1

DESIGNED M. SKELTON
DRAWN B. ROONEY
CHECKED J. BAKKEN
PROJECT DATE 10/28/20

DRAWING
E503

JOB NO: 000000

Path: C:\Vault20\Klamath River Renewal Corp\Fall Creek Facility\E503.dwg Plot date: Oct 27, 2020 10:56am, CAD User: Guerrero



REV	DATE	BY	DESCRIPTION
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REGISTERED PROFESSIONAL ENGINEER JOHN ARNE BAKKEN No. E-16301 ELECTRICAL STATE OF CALIFORNIA
October 28, 2020

WARNING
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McMILLEN JACOBS ASSOCIATES

KLAMATH RIVER RENEWAL CORPORATION

KLAMATH RIVER RENEWAL CORPORATION
FALL CREEK FISH HATCHERY

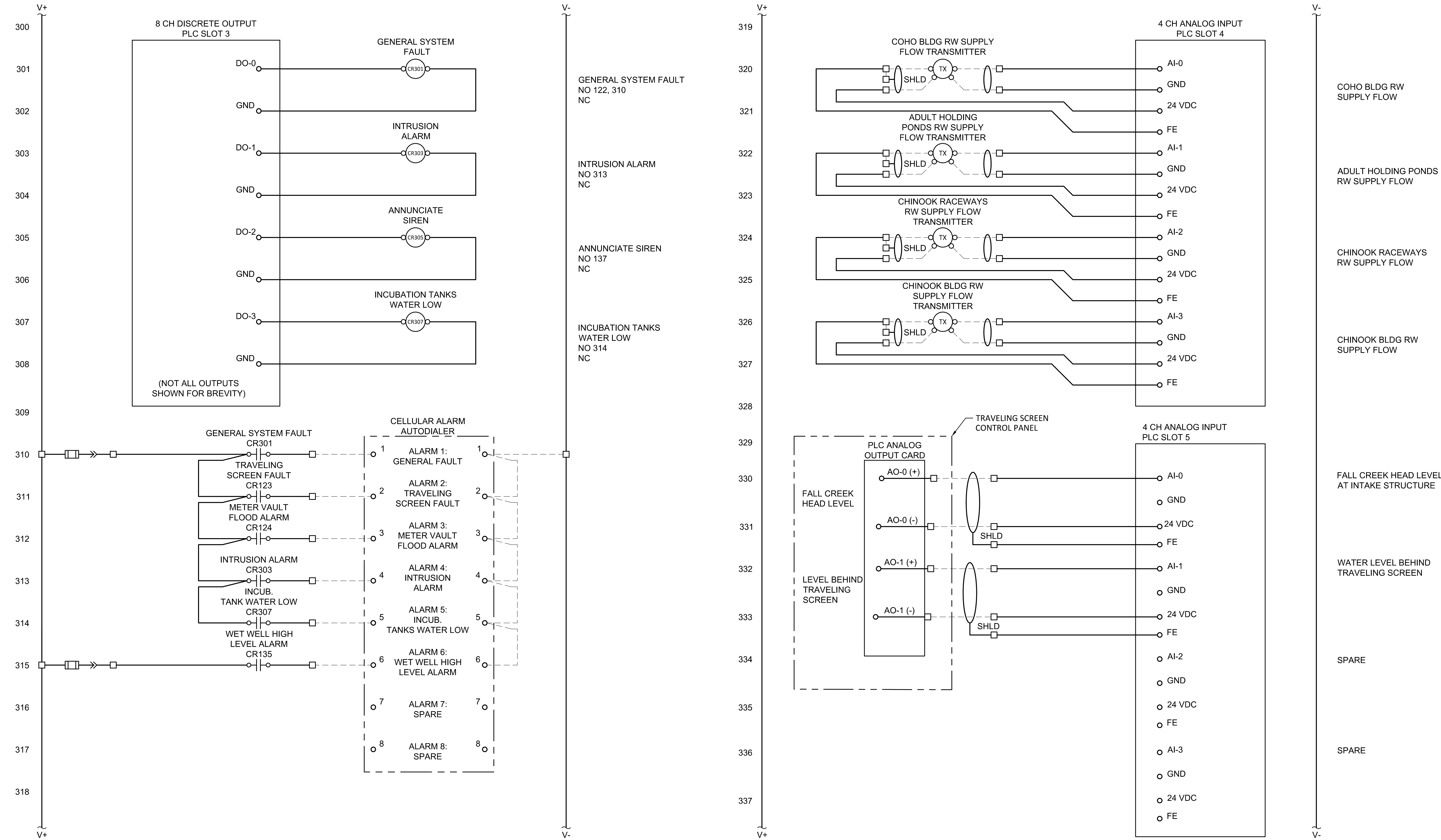
SCADA CABINET
CONTROL DIAGRAM 2

DESIGNED M. SKELTON
DRAWN B. ROONEY
CHECKED J. BAKKEN
PROJECT DATE 10/28/20

DRAWING
E504

JOB NO: 000000

Path: C:\Vault20\Klamath River Renewal Corp\Fall Creek Facility\E504.dwg Plot date: Oct 27, 2020 10:56am, CAD User: Guerrero



REV	DATE	BY	DESCRIPTION
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REGISTERED PROFESSIONAL ENGINEER
JOHN ARNE BAKKEN
No. E-16301
ELECTRICAL
STATE OF CALIFORNIA
October 28, 2020

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McMILLEN JACOBS ASSOCIATES

KLAMATH RIVER RENEWAL CORPORATION

KLAMATH RIVER RENEWAL CORPORATION
FALL CREEK FISH HATCHERY

SCADA CABINET
CONTROL DIAGRAM 3

DESIGNED M. SKELTON
DRAWN B. ROONEY
CHECKED J. BAKKEN
PROJECT DATE 10/28/20

DRAWING
E505

JOB NO: 000000

Path: C:\Vault20\Klamath River Renewal Corp\Fall Creek Facility\E505.dwg Plot date: Oct 27, 2020 10:56am, CAD User: Guerrero

Path: C:\Vault20\Klamath River Renewal Corp\Fall Creek Facility\E506.dwg Plot date: Oct 27, 2020 10:56am, CAD User: Guerrero

REV	DATE	BY	DESCRIPTION
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REGISTERED PROFESSIONAL ENGINEER
JOHN ARNE BAKKEN
No. E-16301
ELECTRICAL
STATE OF CALIFORNIA
October 28, 2020

WARNING
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McMILLEN JACOBS ASSOCIATES

KLAMATH RIVER RENEWAL CORPORATION

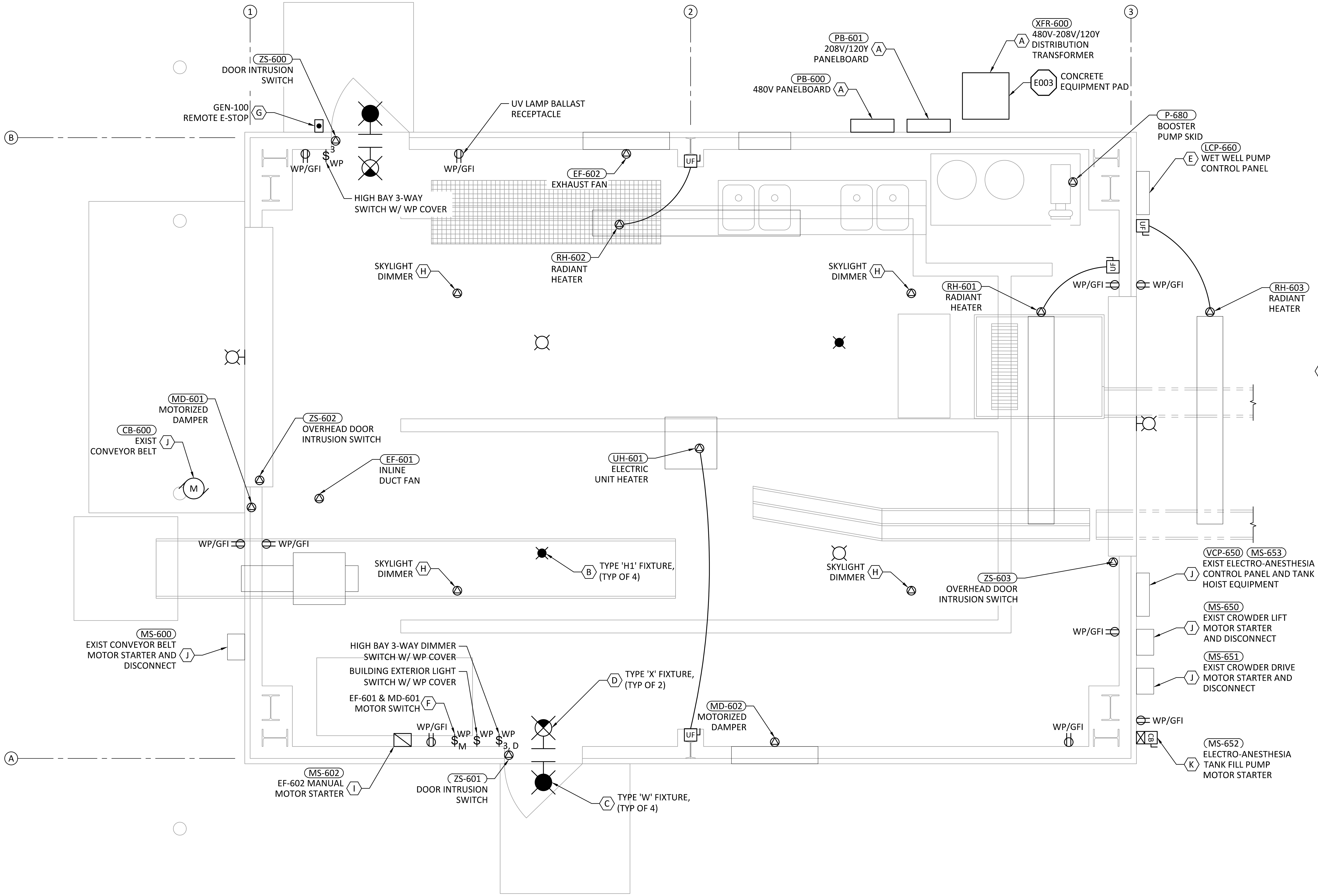
KLAMATH RIVER RENEWAL CORPORATION
FALL CREEK FISH HATCHERY

HATCHERY INSTRUMENTATION AND CONTROL BLOCK DIAGRAM

DESIGNED M. SKELTON
DRAWN D. JOHNSTON
CHECKED J. BAKKEN
PROJECT DATE 10/28/20

DRAWING
E506

JOB NO: 000000



SPAWNING BUILDING POWER AND LIGHTING PLAN 1 E102

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

0' 2' 4'

SHEET NOTES:

1. SEE DWGS GE004 AND GE005 FOR LUMINAIRE AND PANELBOARD SCHEDULES.
2. SEE DWGS GE007 AND GE008 FOR CONDUIT AND CABLE SCHEDULES.
3. SEE DWGS E503 THROUGH E505 FOR SCADA CONTROL DIAGRAMS.
4. PRIOR TO RELOCATION OF EXISTING SYSTEMS FOR THE SPAWNING BUILDING AND HOLDING PONDS, CONTRACTOR SHALL FIELD VERIFY EXISTING CONTROL AND WIRING SYSTEMS AND CREATE POINT-TO-POINT WIRING DIAGRAMS AND PHOTO DOCUMENTATION OF EACH COMPONENT FOR SUBMITTAL TO OWNER AND OWNER'S REPRESENTATIVE. CONTRACTOR MAY PROCEED WITH RELOCATION OF THESE SYSTEMS ONLY AFTER ACCEPTANCE OF THESE SUBMITTALS.
5. CONDUIT, JUNCTION BOXES, AND 120V WIRING SHALL BE PROVIDED BY DIV 26. HVAC CONTRACTOR SHALL PROVIDE T-STATS, HVAC-RELATED OCCUPANCY SENSORS, HVAC EQUIPMENT, AND LOW VOLTAGE WIRING. REFER TO DIV 23 AND 26 SPECS FOR SPECIFIC REQUIREMENTS. COORDINATE BETWEEN TRADES TO PROVIDE A COMPLETE HVAC SYSTEM.
6. EQUIPMENT WEIGHING 100 LBS AND LESS SHALL BE ALLOWED TO BE HANGED FROM WALL USING STANDARD METHODS. EQUIPMENT OVER 100 LBS INTENDED FOR WALL MOUNTING SHALL BE INSTALLED ON FRAMING CHANNEL SUPPORTED FROM THE FLOOR IN ACCORDANCE WITH STANDARD DETAIL E006. CONTRACTOR SHALL COORDINATE INSTALLATIONS OF EQUIPMENT TO BE INSTALLED IN SUCH A MANNER WITH BUILDING SUPPLIER AND OWNER'S REPRESENTATIVE.

SHEET KEY NOTES:

A PROVIDE PANELBOARDS AND TRANSFORMER IN NEMA 3R WEATHERPROOF ENCLOSURES.

B MOUNT HIGH BAY FIXTURES AT 14' AFF USING CHAIN. PROVIDE SAFETY CABLE AND CORD LENGTH AS REQUIRED. PROVIDE BATTERY BACKUP IN FIXTURES AS SHOWN.

C MOUNT 6" ABOVE DOOR FRAME, CENTERED. PROVIDE CODE REQUIRED BATTERY BACKUP IN FIXTURES ABOVE PERSONNEL DOORS ONLY. ALL EXTERIOR LIGHTS SHALL BE WIRED FOR CONTROL FROM A SINGLE, MANUAL SWITCH.

D MOUNT EXIT SIGN 6" ABOVE DOOR, CENTERED.

E CONTAINS MOTOR STARTING, PROTECTION, AND CONTROL EQUIPMENT FOR WET WELL PUMPS. PUMPS SHALL OPERATE IN ALTERNATING LEAD-LAG CONTROL SCHEME. SEE DWG E611 FOR LAYOUT AND BILL OF MATERIAL. SEE DWG E612 FOR CONTROL DIAGRAM.

F NEMA 4 ENCLOSED MOTOR STARTER WITH HAND-OFF-AUTO SWITCHING, ELECTRONIC OVERLOAD, REMOTE RUN INPUT, AND NORMALLY OPEN AUX CONTROL CONTACT. INSTALL IN SINGLE-GANG JUNCTION BOX. MOTOR STARTER SHALL BE GREENHECK #MS-1P OR EQUAL.

G PROVIDE WEATHERPROOF E-STOP CONTROL STATION FOR SHUTTING DOWN THE PRIME MOVER OF THE STANDBY GENERATOR. E-STOP SHALL BE MOMENTARY PUSH-PULL TYPE AND HAVE 1 NC AND 1 NO CONTACT. CONTROL STATION SHALL BE SURFACE MOUNT WITH CLEAR COVER. E-STOP SHALL BE CLEARLY LABELED WITH "EMERGENCY STOP" AND "STANDBY GENERATOR". E-STOP CONTROL STATION SHALL BE STI #SS2274ES-EN OR APPROVED EQUAL.

H SEE ARCHITECTURAL DRAWINGS AND SPECIFICATION SECTION 08 62 00 FOR SKYLIGHT REQUIREMENTS. CONNECT SKYLIGHT DIMMERS THROUGH 0-10V DIMMER SWITCH.

I NEMA 4 ENCLOSED MANUAL MOTOR STARTER WITH TOGGLE SWITCH AND RED PILOT LIGHT. STARTER SHALL BE SINGLE-POLE AND RATED FOR 1 HP AT 120V. STARTER SHALL BE SQUARE D #2510FW1P OR APPROVED EQUAL.

J RELOCATE FROM IRON GATE FISH HATCHERY.

K PROVIDE NEMA 4 ENCLOSED COMBINATION FVNR MOTOR STARTER WITH MOTOR CIRCUIT PROTECTOR, HAND-OFF-AUTO CONTROL SWITCH, AND RED PILOT LIGHT. STARTER SHALL BE 480V, 3-POLE AND RATED FOR 2 HP AT 480V. STARTER SHALL ACCEPT REMOTE RUN INPUT FROM SPAWNING AREA CONTROL STATION. STARTER SHALL BE SQUARE D OR APPROVED EQUAL.

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REGISTERED PROFESSIONAL ENGINEER JOHN ARNE BAKKEN No. E-16301 ELECTRICAL STATE OF CALIFORNIA October 28, 2020

WARNING
0 1/2 1
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McMILLEN JACOBS ASSOCIATES

KLAMATH RIVER RENEWAL CORPORATION

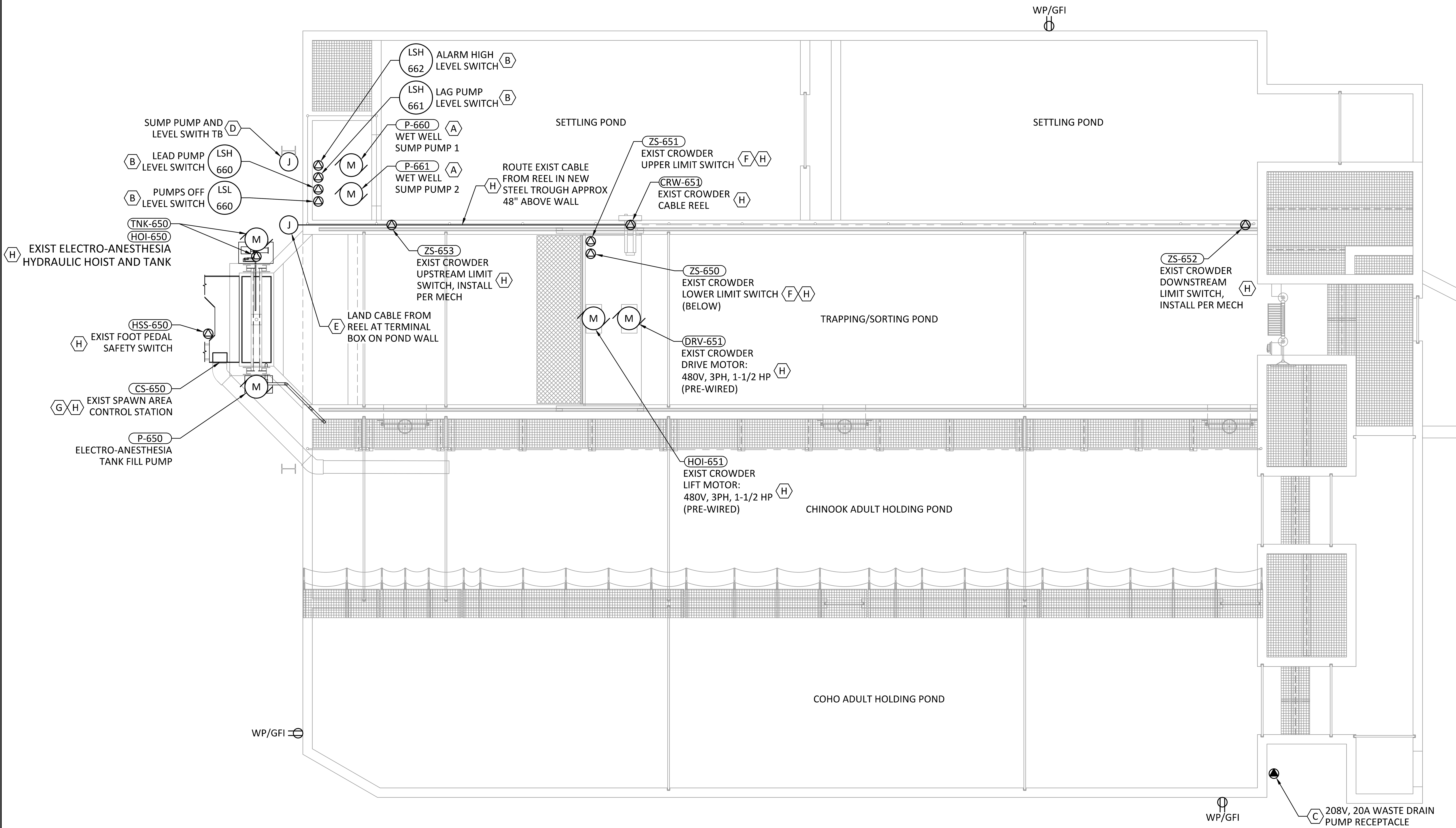
KLAMATH RIVER RENEWAL CORPORATION
FALL CREEK FISH HATCHERY
SPAWNING BUILDING
POWER AND LIGHTING PLAN

DESIGNED M. SKELTON
DRAWN D. JOHNSTON
CHECKED J. BAKKEN
PROJECT DATE 10/28/20

DRAWING
E600

JOB NO: 000000

Path: C:\Vault20\Klamath River Renewal Corp\Fall Creek Facility\E600.dwg Plot date: Oct 27, 2020 10:56am, CAD User: Guerrero



SETTLING PONDS AND ADULT HOLDING PONDS POWER PLAN

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

0' 4' 8'

1 / E102

SHEET NOTES:

1. SEE DWGS GE007 AND GE008 FOR CONDUIT AND CABLE SCHEDULES.
2. RECEPTACLE CIRCUITS SHALL BE #12 AWG MINIMUM.
3. SEE DWGS E503 THROUGH E505 FOR SCADA CONTROL DIAGRAMS.
4. PRIOR TO RELOCATION OF EXISTING SYSTEMS FOR THE SPAWNING BUILDING AND HOLDING PONDS, CONTRACTOR SHALL FIELD VERIFY EXISTING CONTROL AND WIRING SYSTEMS AND CREATE POINT-TO-POINT WIRING DIAGRAMS AND PHOTO DOCUMENTATION OF EACH COMPONENT FOR SUBMITTAL TO OWNER AND OWNER'S REPRESENTATIVE. CONTRACTOR MAY PROCEED WITH RELOCATION OF THESE SYSTEMS ONLY AFTER ACCEPTANCE OF THESE SUBMITTALS.

SHEET KEY NOTES:

A MOTOR STARTING, PROTECTION, AND CONTROL EQUIPMENT FOR WET WELL PUMPS IS LOCATED IN LCP-660. PUMPS SHALL OPERATE IN ALTERNATING LEAD-LAG CONTROL SCHEME, BASED ON LEVEL SWITCHES IN SUMP. SEE DWG E612 FOR WET WELL PUMP CONTROL DIAGRAM.

B LEVEL SWITCHES SHALL BE PROVIDED PER MECH REQUIREMENTS. SPLICE SWITCH CABLES AT INTERMEDIATE TERMINAL BOX ABOVE WET WELL, THEN CONTINUE AS REQUIRED BY CONDUIT AND CABLE SCHEDULES.

C PROVIDE TWIST-LOCK, WATERTIGHT NEMA L6-20R OUTLET FOR PORTABLE WASTE DRAIN PUMP. RECEPTACLE SHALL BE HUBBELL OR EQUAL.

D PROVIDE NEMA 3R TERMINAL BOX FOR LANDING SUMP PUMP AND LEVEL SWITCH CABLES AT TERMINAL BLOCKS. MOUNT BOX ON NEARBY STRUCTURAL MEMBER USING STAINLESS STEEL HARDWARE.

E PROVIDE NEMA 3R TERMINAL BOX FOR LANDING CROWDER REEL CABLE AT TERMINAL BLOCKS. MOUNT USING FRAMING CHANNEL AND STAINLESS STEEL HARDWARE. EXISTING CABLE CONTAINS 12 #16 AWG 600V CONDUCTORS FOR TWO MOTORS AND TWO LIMIT SWITCHES. PROVIDE CABLE STRAIN RELIEF AT EDGE OF POND AND CABLE GLAND ENTRY TO SIDE OF BOX TO PREVENT CABLE DAMAGE DURING NORMAL OPERATION.

F RELOCATE LIMIT SWITCHES PER MECH REQUIREMENTS. REWIRE TO CABLE REEL FROM NEW LOCATIONS. PROVIDE HEAT SHRINK BUTT SPLICES WHERE SPLICING IS REQUIRED.

G INCLUDES EXIST CONTROLS FOR CROWDER DRIVE, CROWDER LIFT, ELECTRO-ANESTHESIA TANK HOIST, AND FILL PUMP.

H RELOCATE FROM IRON GATE FISH HATCHERY.

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REGISTERED PROFESSIONAL ENGINEER JOHN ARNE BAKKEN No. E-16301 ELECTRICAL STATE OF CALIFORNIA
October 28, 2020

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McMILLEN JACOBS ASSOCIATES

KLAMATH RIVER RENEWAL CORPORATION

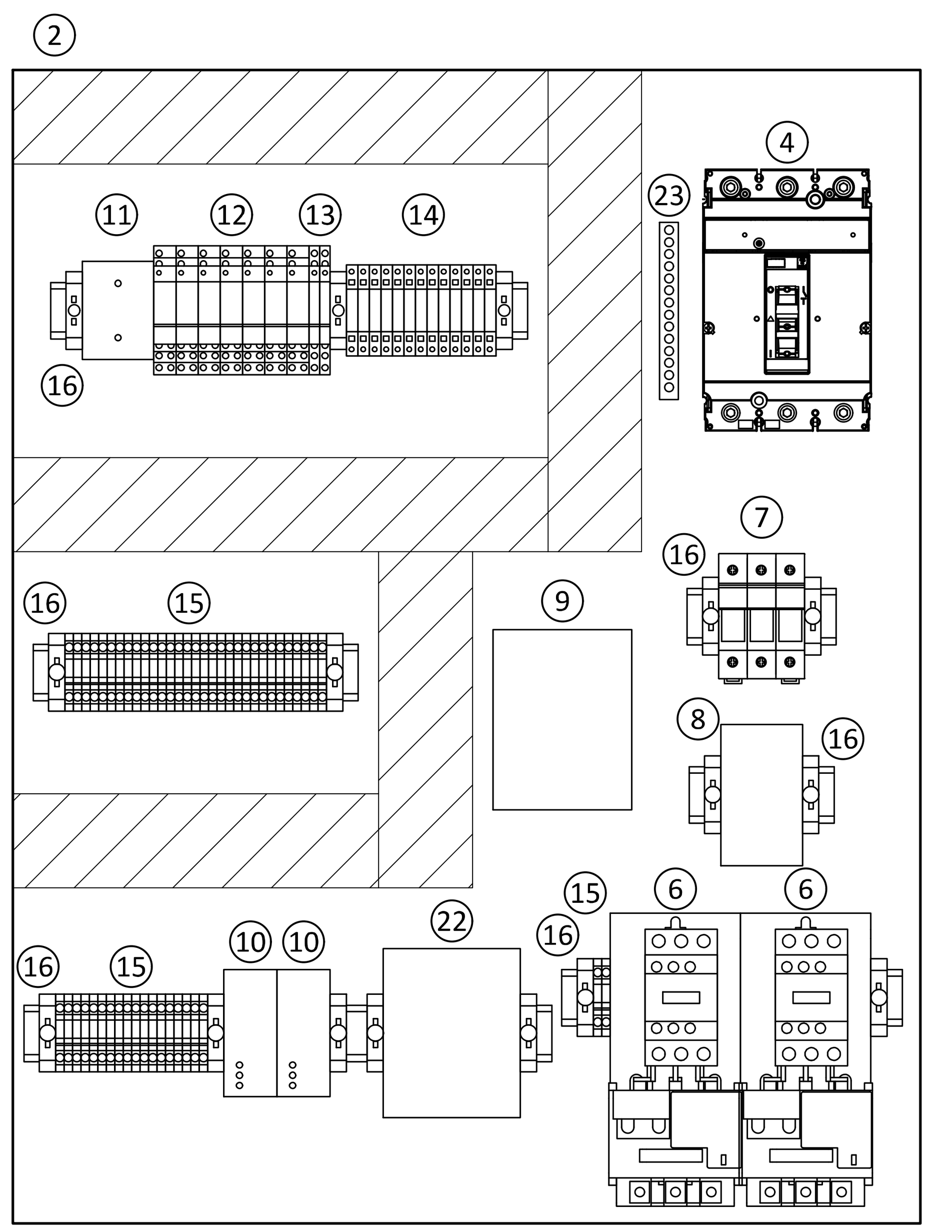
KLAMATH RIVER RENEWAL CORPORATION
FALL CREEK FISH HATCHERY
SETTLING PONDS AND ADULT HOLDING PONDS POWER PLAN

DESIGNED M. SKELTON
DRAWN D. JOHNSTON
CHECKED J. BAKKEN
PROJECT DATE 10/28/20

DRAWING E610

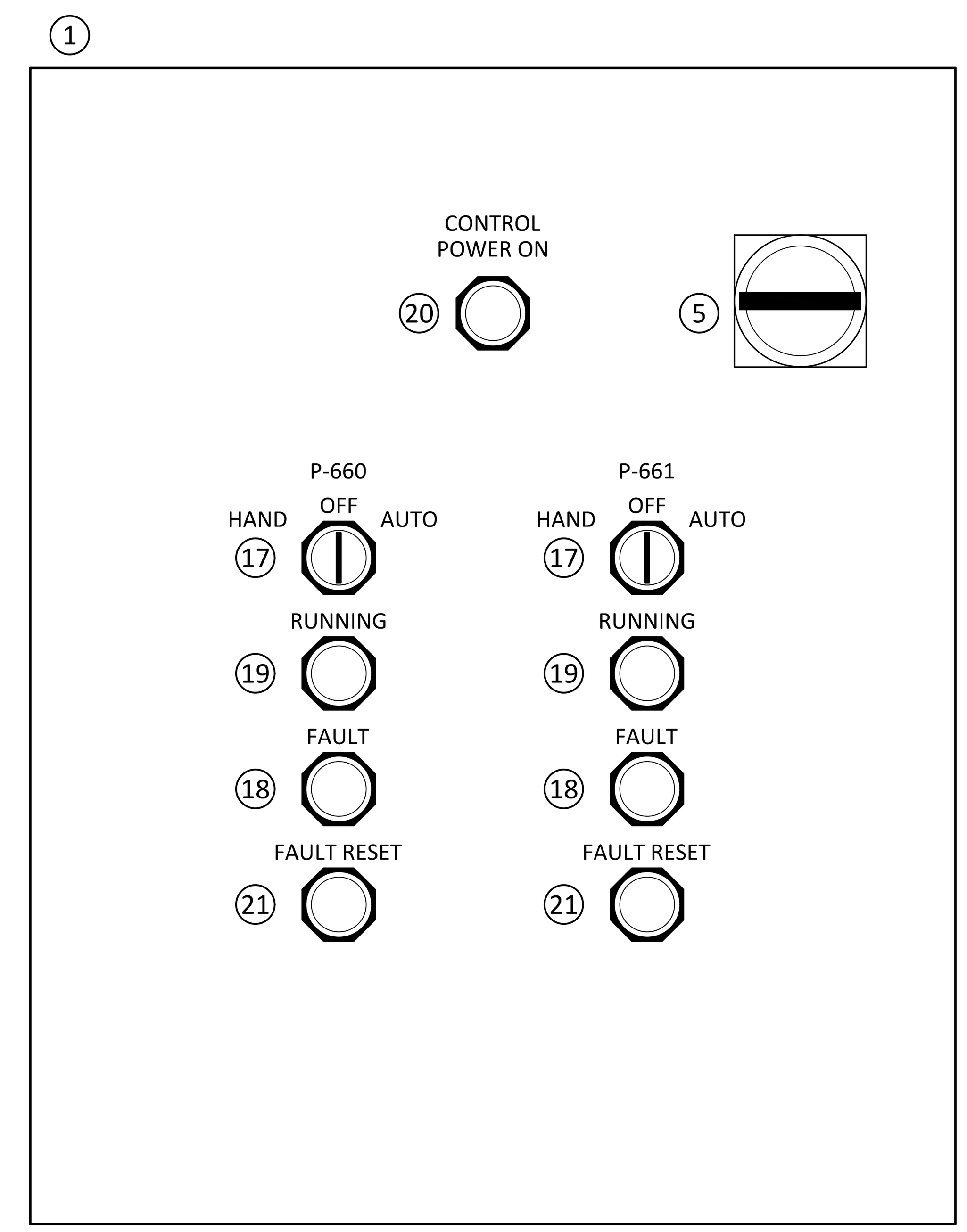
JOB NO: 000000

Path: C:\Vault20\Klamath River Renewal Corp\Fall Creek Facility\E610.dwg Plot date: Oct 27, 2020 10:56am, CAD User: Guerrero



PUMP CONTROL PANEL BACKPANEL LAYOUT

SCALE: 3"= 1'-0"



PUMP CONTROL PANEL DOOR LAYOUT

SCALE: 3"= 1'-0"

BILL OF MATERIALS

ITEM	QTY	DESCRIPTION	TAG	MFR	PART NO.
1	1	ENCLOSURE, 30"H x 24"W x 10"D, NEMA 12, PAINTED MILD STEEL	LCP-660	HOFFMAN	CSD302410
2	1	BACKPANEL, 28.2" X 22.2", WHITE, 12 GA.	-	HOFFMAN	CP3024
3	1	DOOR STOP KIT	-	HOFFMAN	ADSTOPK
4	1	CIRCUIT BREAKER, 480V, 3 POLE, 15A	-	SQUARE D	HGL36030M38X
5	1	ROTARY DISCONNECT MECHANISM, SHAFT, & HANDLE	-	SQUARE D	S29340
6	2	"FVNR STARTER, 480V, 3-POLE, NEMA 00, 120V COIL, 1 NO; OVERLOAD RELAY, SOLID STATE, 4-20A, 1 NO, 1NC"	-	SQUARE D	T36AN13G7
7	1	FUSE HOLDER, 3P, INDICATING	-	LITTELFUSE	LPSM003ID
8	1	PHASE & VOLTAGE MONITORING RELAY, 480V, 2 NO	-	EATON	D65VMLS480C
9	1	CONTROL POWER TRANSFORMER, 480V-120V, PRIMARY AND SECONDARY FUSING W/ COVERS	-	SOLA HD	SBE SERIES
10	2	MOTOR PROTECTION RELAY, SEAL/LEAK, 120V	-	PUMP SUPPLIER	AS REQUIRED
11	1	DUPLEX ALTERNATING RELAY, DPDT, LEAD-LAG, 120V	-	MACROMATIC	ARP120A3
12	7	CONTROL RELAY, DPDT, 24 VDC COIL	-	PHOENIX CONTACT	2967060.0000
13	2	CONTROL RELAY, SPDT, 24 VDC COIL	-	PHOENIX CONTACT	2966171.0000
14	13	FUSE MODULAR TERMINAL BLOCK	-	PHOENIX CONTACT	321 SERIES
15	51	TERMINAL BLOCK, FEED-THROUGH, SPRING CONNECTION	-	PHOENIX CONTACT	303 SERIES
16	15	END STOP	-	PHOENIX CONTACT	0800886
17	2	CONTROL SWITCH, 30 MM, 3-POS, 120V, 1 NO, 1 NC	-	ALLEN BRADLEY	800T-J2A
18	2	PUSH-TO-TEST LIGHT, 30 MM, LED, 120V, AMBER	-	ALLEN BRADLEY	800T-QTH2A
19	2	PUSH-TO-TEST LIGHT, 30 MM, LED, 120V, RED	-	ALLEN BRADLEY	800T-QTH2R
20	1	PUSH-TO-TEST LIGHT, 30 MM, LED, 120V, BLUE	-	ALLEN BRADLEY	800T-QTH2B
21	2	PUSHBUTTON, 30 MM, 1 NC, MOMENTARY, BLACK FLUSH	-	ALLEN BRADLEY	800T-A2D2
22	1	HEATER, 250W, FIXED SETPOINT AT 41 F, 120V	-	STEGO	CSF 02821.9-06
23	1	GROUND BAR, 10 TERMINALS, #14 - #10	-	EATON	GBK10

Path: C:\Vault20\Klamath River Renewal Corp\Fall Creek Facility\E611.dwg Plot date: Oct 27, 2020 10:56am, CAD User: Guerrero

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REGISTERED PROFESSIONAL ENGINEER
JOHN ARNE BAKKEN
No. E-16301
ELECTRICAL
STATE OF CALIFORNIA
October 28, 2020

WARNING

0 1/2 1

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McMILLEN JACOBS ASSOCIATES

KLAMATH RIVER RENEWAL CORPORATION

KLAMATH RIVER RENEWAL CORPORATION

FALL CREEK FISH HATCHERY

WET WELL PUMP CONTROL PANEL LAYOUT AND BILL OF MATERIALS

DESIGNED M. SKELTON

DRAWN D. JOHNSTON

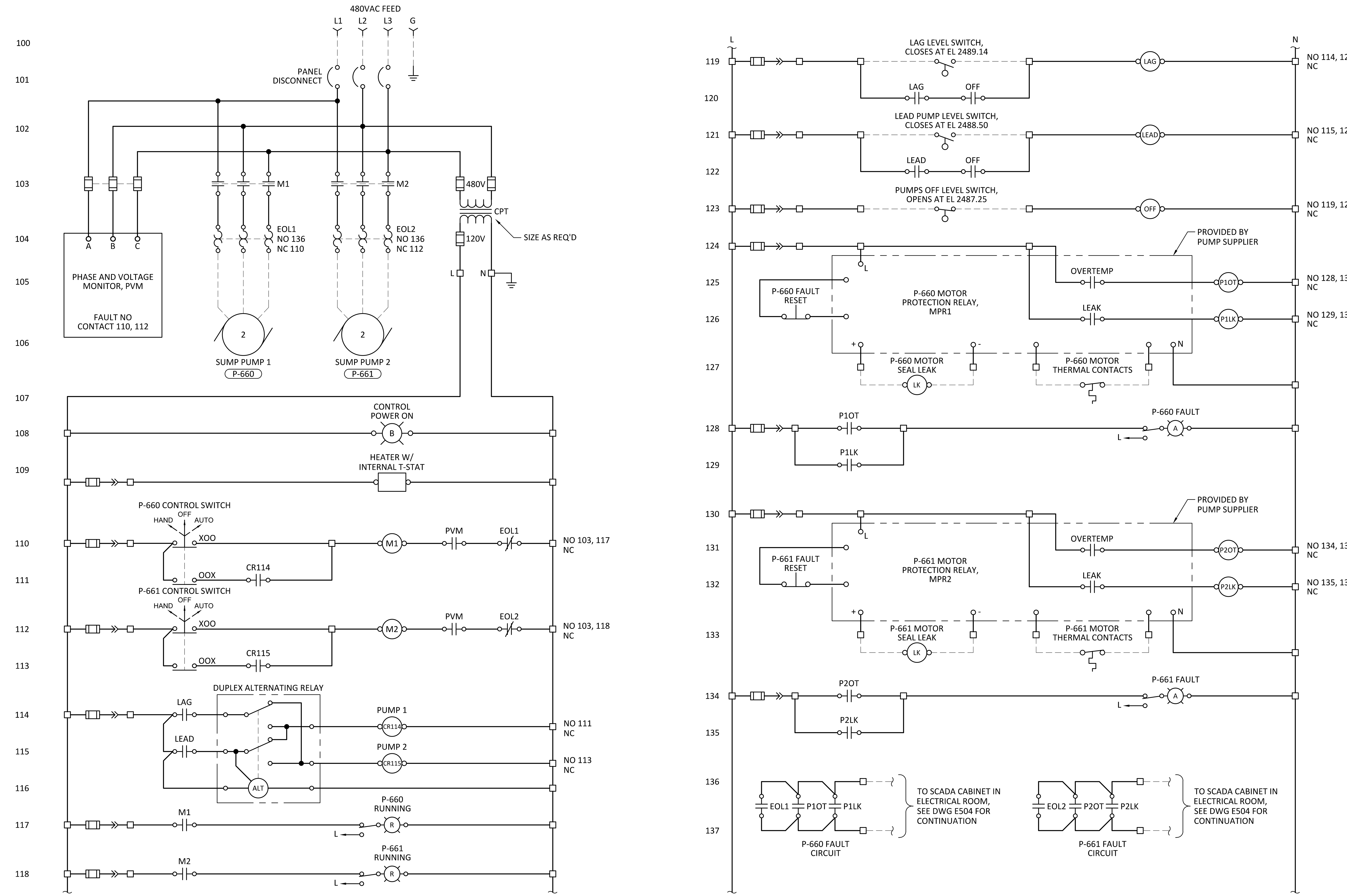
CHECKED J. BAKKEN

PROJECT DATE 10/28/20

DRAWING

E611

JOB NO: 000000



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ELECTRICAL
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October 28, 2020

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McMILLEN JACOBS ASSOCIATES

KLAMATH RIVER RENEWAL CORPORATION

KLAMATH RIVER RENEWAL CORPORATION

FALL CREEK FISH HATCHERY

WET WELL PUMP CONTROL PANEL
CONTROL DIAGRAM

DESIGNED M. SKELTON
DRAWN D. JOHNSTON
CHECKED J. BAKKEN
PROJECT DATE 10/28/20

DRAWING
E612

JOB NO: 000000

Path: C:\Vault20\Klamath River Renewal Corp\Fall Creek Facility\E612.dwg Plot date: Oct 27, 2020 10:56am, CAD User: Guerrero

INSTRUMENTATION / EQUIPMENT TAGS

EXAMPLE INSTRUMENT CALLOUT

INSTRUMENT IDENTIFICATION — EEE / FPU — BBB — CLARIFYING P&ID ABBREVIATIONS — DEVICE TAG NUMBER

EXAMPLE EQUIPMENT CALLOUT

EQUIPMENT IDENTIFICATION — EEE-FPU — DEVICE TAG NUMBER

EXAMPLE TAG

PROJECT DESIGNATION — FCFH - EEE - F P U

- INSTRUMENT / EQUIPMENT IDENTIFICATION(1 TO 3 CHARACTERS)
- DEVICE TAG NUMBER (3 DIGIT)
- UNIT NUMBER IN SEQUENCE (1 DIGIT)
- PROCESS NUMBER (1 DIGIT)
- FEATURE NUMBER (1 DIGIT)

FEATURE NUMBER:

0 - COMMON
1 - SITE
2 - INTAKE STRUCTURE
3 - COHO BUILDING
4 - CHINOOK RACEWAYS
5 - CHINOOK INCUBATION BUILDING
6 - SPAWNING BUILDING/SETTLING & HOLDING PONDS

PROCESS NUMBER:

0 - COMMON
1 - INCUBATION
2 - REARING
3 - FEEDING
4 - ADULT
5 - TRAPPING/SORTING
6 - SETTLING/WASTE
7 - BLANK; FUTURE
8 - PLUMBING
9 - CONTROLS/INSTRUMENTATION

NOTE:

PROJECT DESIGNATION FOR ALL COMPONENTS ON THIS FEATURE SET SHALL BE "FCFH". THIS HAS BEEN OMITTED ON THE DRAWINGS FOR BREVITY.

GENERAL INSTRUMENT OR FUNCTIONAL SYMBOLS

	FIELD MOUNTED	PRIMARY OR PANEL MOUNTED - ACCESSIBLE (1)	PRIMARY OR PANEL MOUNTED - INACCESSIBLE (2)	SECONDARY OR MCC MOUNTED - ACCESSIBLE (1)	SECONDARY OR MCC MOUNTED - INACCESSIBLE (2)
INSTRUMENT	EEE PLU	EEE PLU	EEE PLU	EEE PLU	EEE PLU
SHARED DISPLAY SHARED CONTROL OR HMI	EEE PLU	EEE PLU	EEE PLU	EEE PLU	EEE PLU
INDICATING LIGHTS	EEE PLU	EEE PLU	N/A	EEE PLU	N/A

(1) NORMALLY ACCESSIBLE TO OPERATOR
(2) NORMALLY INACCESSIBLE TO OPERATOR (BEHIND-THE-PANEL)

SPECIAL CASE INSTRUMENT OR FUNCTIONAL SYMBOLS

- SINGLE INSTRUMENT OR OTHER COMPONENT HAVING MULTIPLE FUNCTIONS
- I — RELAY INTERLOCK LOGIC - SEE SCHEMATICS OR SPECIFICATIONS FOR MORE INFORMATION
- LSH PLU — LEVEL (FLOAT)
- LE PLU — LEVEL (ULTRASONIC)
- 24 VDC — POWER SUPPLY (SIZE AS NOTED)
- AS — AIR SUPPLY
- PRIMARY ELECTRICAL POWER (120V / 60 HZ UNLESS INDICATED OTHERWISE)
- * — INDICATES VENDOR PACKAGE
- CR — CONTROL RELAY
- LIGHTNING SURGE ARRESTOR
- M — MOTOR

SIGNAL SYSTEM INTERFACES

- AA PLU — ANALOG INPUT
- AA PLU — ANALOG OUTPUT
- AA PLU X — DISCRETE INPUT
- AA PLU X — DISCRETE OUTPUT
- AA PLU YY — DIGITAL DATA SIGNAL

AA = I/O DESIGNATION (MV = MULTIVARIABLE)

YY = DIGITAL PROTOCOL

X: H-MAINTAINED/LATCHING
M = MOMENTARY/FOLLOWER

ANALOG I/O DESIGNATORS

CR	CHLORINE RESIDUAL
DO	DISSOLVED OXYGEN
DP	DIFFERENTIAL PRESSURE
FL	FLOW
LE	LOWER EXPLOSIVE LIMIT
LV	LEVEL
MO	MANIPULATED OUTPUT
PH	ACIDITY
PO	POSITION
PR	PRESSURE
PV	PROCESS VARIABLE
SP	SPEED
TE	TEMPERATURE
TU	TURBIDITY

DIGITAL PROTOCOL DESIGNATORS

DN	DEVICENET
IP	ETHERNET /IP
MB	MODBUS RTU
PB	PROFIBUS
PL	PARALLEL
SL	SERIAL
TC	MODBUS TCP

DISCRETE I/O DESIGNATORS

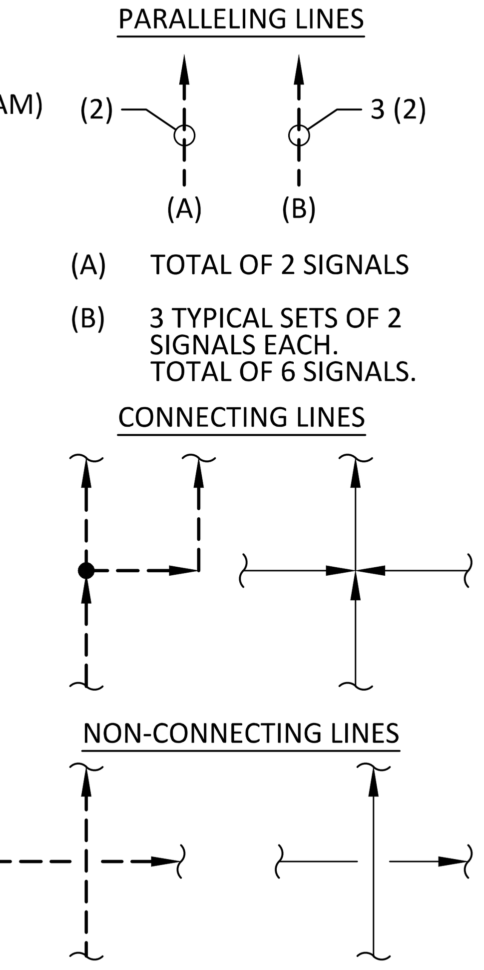
AM	AUTO-MANUAL
AU	AUTO
CL	CLOSED
EN	ENABLE
EL	POWER AVAILABLE
FA	FIRE ALARM
FW	FORWARD / REVERSE
HH	HI-HI LEVEL
HI	HI LEVEL
LL	LOW-LOW LEVEL
LO	LOW LEVEL
MN	MANUAL
OO	ON-OFF
OP	OPEN
RB	RUN BOOSTER
RC	RUN CLOSED
RE	REMOTE
RF	RUN FORWARD
RG	RUNNING
RN	RUN-STOP
RO	RUN-OPEN
RR	RUN-REVERSE
RV	REVERSE
YA	FAULT
SU	SUPERVISORY
SW	SELECTION
TR	TROUBLE

INSTRUMENTATION IDENTIFICATION TABLE (ISA)

	FIRST LETTER		SUCCEEDING LETTER(S)		
LETTER	MEASURED INITIATING VARIABLE	VARIABLE MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT OR ACTIVE FUNCTION	FUNCTION MODIFIER
A	ANALYSIS (+)		ALARM		
B	BURNER, COMBUSTION				
C	CONDUCTIVITY			CONTROL	CLOSED
D	DENSITY (S.G.)	DIFFERENTIAL			
E	VOLTAGE		SENSOR (PRIMARY ELEMENT)		
F	FLOW RATE	RATIO (FRACTION)			
G	GAUGE		GLASS, GAUGE, VIEWING DEVICE	GATE	
H	HAND (MANUAL)				HIGH
I	CURRENT (ELECTRICAL)		INDICATE		
J	POWER	SCAN			
K	TIME, TIME SCHEDULE	TIME RATE OF CHANGE		CONTROL STATION	
L	LEVEL		LIGHT (PILOT)		LOW
M	MOTION	MOMENTARY			MIDDLE, INTERMEDIATE
N	TORQUE		ISOLATE	ISOLATOR	
O	USER CHOICE		ORIFICE, RESTRICTION		OPEN
P	PRESSURE (VACUUM), PNEUMATIC		POINT (TEST) CONNECTION		
Q	QUANTITY	INTEGRATE, TOTALIZE			
R	RADIATION/ RESISTANCE (ELECTRICAL)		RECORD OR PRINT		
S	SPEED, FREQUENCY	SAFETY		SWITCH	
T	TEMPERATURE			TRANSMIT	
U	MULTI VARIABLE		MULTIFUNCTION	MULTIFUNCTION	MULTIFUNCTION
V	VIBRATION, MECHANICAL ANALYSIS			VALVE, DAMPER, LOUVER	
W	WEIGHT, FORCE		WELL		
X	INTRUSION	X-AXIS			
Y	EVENT, STATE OR PRESENCE	Y-AXIS		RELAY, COMPUTE, CONVERT	
Z	POSITION, DIMENSION	Z-AXIS		DRIVER, ACTUATOR, FINAL CONTROL ELEMENT	

INSTRUMENTATION LINE SYMBOLOGY

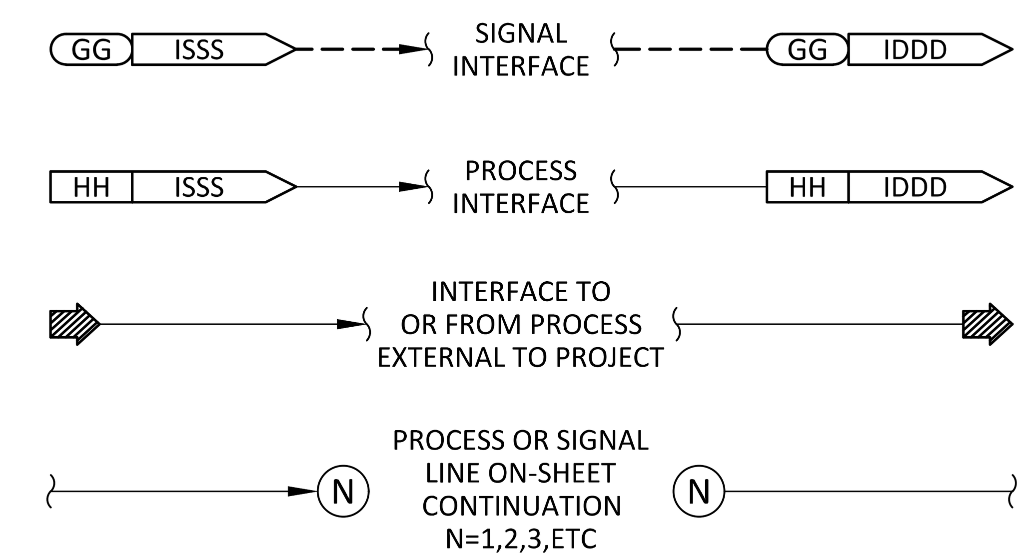
- PRIMARY PROCESS (CLOSED CONDUIT, DASHED LINE INDICATES ALTERNATE FLOW STREAM)
- PRIMARY PROCESS (OPEN CHANNEL)
- ANALOG SIGNAL, (4 TO 20 mAdc, ECT)
- DISCRETE SIGNAL, (ON/OFF, ECT)
- PNEUMATIC SIGNAL
- FILLED SYSTEM SIGNAL
- HYDRAULIC SYSTEM SIGNAL
- DIGITAL DATA LINK
- PACKAGE SYSTEM EQUIPMENT
- STRUCTURE/FACILITY BOUNDARY
- CABLE FURNISHED WITH EQUIPMENT
- MECHANICAL POWER/LINKAGE
- ELECTRICAL POWER



(A) TOTAL OF 2 SIGNALS

(B) 3 TYPICAL SETS OF 2 SIGNALS EACH. TOTAL OF 6 SIGNALS.

SYSTEM CONTINUATION INTERFACES



GG	SIGNAL INTERFACE NO.
HH	PROCESS INTERFACE NO.
DDD	DESTINATION DRAWING NO.
SSS	SOURCE DRAWING NO.

P&ID ABBREVIATIONS

AC	ALTERNATING CURRENT
AM	AUTO-MANUAL
COD	CHEMICAL OXYGEN DEMAND
DEV	DEVIATION
DC	DIRECT CURRENT
DO	DISSOLVED OXYGEN
ECS	ENVIRONMENTAL CONTROL SYSTEM (HVAC)
EPO	EMERGENCY POWER OFF
FOC	FIBER OPTIC CABLE
FOS	FAST-OFF-SLOW
FOSA	FAST-OFF-SLOW-AUTO
FOSR	FAST-OFF-SLOW-REMOTE
HI	HIGH
HML	HIGH-MID-LOW
HOA	HAND-OFF-AUTO
HOR	HAND-OFF-REMOTE
ISR	INTRINSICALLY SAFE RELAY
LEL	LOWER EXPLOSIVE LIMIT
LO	LOW
LOR	LOCAL-OFF-REMOTE
LOS	LOCKOUT STOP
LR	LOCAL-REMOTE
MC	MODULATE-CLOSE
MOA	MANUAL-OFF-AUTO
MSC	MANUFACTURER SUPPLIED CABLE
NC	NORMALLY CLOSED
NO	NORMALLY OPEN
OC	OPEN-CLOSE(D)
OCA	OPEN-CLOSE-AUTO
OCR	OPEN-CLOSE-REMOTE
OI	OPERATOR INTERFACE
OO	ON-OFF
OOA	ON-OFF-AUTO
OOR	ON-OFF-REMOTE
ORP	OXIDATION REDUCTION POTENTIAL
OSC	OPEN-STOP-CLOSE
PC	PERSONAL COMPUTER
PCS	PLANT CONTROL SYSTEM
pH	HYDROGEN ION CONCENTRATION
PID	PROPORTIONAL INTEGRAL DERIVATIVE CONTROL
POT	POTENTIOMETER
RC	RUN CLOSE
RO	RUN OPEN
RL	RAISE-LOWER
RM	REMOTE MULTIPLEXING MODULE
RSL	RAISE-STOP-LOWER
RVSS	REDUCED VOLTAGE SOLID-STATE STARTER
SCADA	SUPERVISORY CONTROL AND DATA ACQUISITION
SEL	SELECT
SET	SET POINT
SF	SLOWER-FASTER
SHC	SODIUM HYPOCHLORITE
SR	START-RESET
SS	START-STOP
SSC	SUPERVISORY SET POINT CONTROL
ST	START
SW	SEAL WATER
TC	THERMOCOUPLE
TCR	TOTAL CHLORINE RESIDUAL
TEMP	TEMPERATURE
TSP	TWISTED SHIELD PAIR
TURB	TURBIDITY
VHC	VOLATILE HYDROCARBONS
VIB	VIBRATION
VSP	VENDOR SUPPLIED PANEL
VTO	VENT TO OUTSIDE
WSEL	WATER SURFACE ELEVATION

EQUIPMENT IDENTIFICATION TABLE

AC	AIR COMPRESSOR	G	GATE	PS	POWER SUPPLY / ISOLATOR / CONVERTER
ACC	ACCUMULATOR	GBK	GENERATOR BRAKE	PV	PHOTOVOLTAIC
ACT	ACTUATOR	GEN	GENERATOR	RCT	RECTIFIER
AF	AIR FILTER	GSU	GENERATOR STEP-UP TRANSFORMER	RIO	REMOTE I/O UNIT
AFD	ADJUSTABLE FREQUENCY DRIVE	GTC	GENERATOR POWER TERMINAL CABINET	RTD	RESISTANCE TEMPERATURE DETECTOR
AH	AIR HANDLING UNIT	HB	HOSE BIB	RTU	REMOTE TELEMETRY UNIT
ATS	AUTOMATIC TRANSFER SWITCH	HMI	HUMAN-MACHINE INTERFACE	SEC	SECURITY CONTROL PANEL
BAT	BATTERY	HOI	HOIST/CRANE	SEP	SEPTIC SYSTEM
BC	BATTERY CHARGER	HPU	HYDRAULIC POWER UNIT	SNK	SINK
BRG	BEARING	HTR	HEATER	SPD	SURGE PROTECTION DEVICE
BRK	BREAKER	INV	INVERTER	SPU	SPEED PICKUP SENSOR
CAM	CAMERA	LCP	LOCAL CONTROL PANEL	STR	STRAINER
CSE	COMBINATION SERVICE ENCLOSURE	LCS	LOCAL CONTROL STATION	SWG	SWITCHGEAR
CU	CONDENSING UNIT	LPU	LUBRICATING OIL PUMP CONTROL UNIT	TEL	TELECOM EQUIPMENT
CV	CHECK VALVE	MB	METER BASE	TIV	TURBINE INLET VALVE
D	DAMPER	MC	MECHANICAL COUPLING	TNK	TANK
DCU	DISTRIBUTED CONTROL UNIT	MCC	MOTOR CONTROL CENTER	TOI	WATER CLOSET
DS	DISCONNECT	MCP	MAIN CONTROL PANEL	TRS	TRAVELING SCREEN
EAP	ENGINEERING ACCESS POINT	MES	MANAGED ETHERNET SWITCH	TUR	TURBINE
ECP	ENVIRONMENTAL CONTROL PANEL (HVAC)	MOV	MOTOR OPERATED VALVE	UPS	UNINTERRUPTABLE POWER SUPPLY
EEW	EMERGENCY EYEWASH STATION	MS	MOTOR STARTER	UVR	UV REACTOR
EF	EXHAUST FAN	MTR	MOTOR	V	VALVE
EXC	EXCITER	MTS	MANUAL TRANSFER SWITCH	VCP	VENDOR CONTROL PANEL
FAS	FIRE ALARM SYSTEM	NET	NETWORK / COMMUNICATIONS RACK	VFD	VARIABLE FREQUENCY DRIVE
FCO	FLOOR CLEAN OUT	OWS	OIL WATER SEPARATOR	VL	VENTILATION LOUVER
FCU	FAN COIL UNIT	P	PUMP	VSP	VENDOR SUPPLIED PANEL
FD	FLOOR DRAIN	PB	PANELBOARD / LOAD CENTER	WS	WATER SOFTENER
FIL	FILTER	PCP	PLANT CONTROL PANEL	XFR	TRANSFORMER
FOR	FIBER OPTIC REPEATER	PCU	POWER CONTROL UNIT	XVR	TRANSCEIVER
FOT	FIBER OPTIC TRANSCEIVER	PLC	PROGRAMMABLE LOGIC CONTROLLER	YLT	EVENT PILOT LIGHT
FPP	FIBER PATCH PANEL / CONNECTOR HOUSING	PRV	PRESSURE REDUCING VALVE	ZZK	SECURITY GATE INTERFACE

NOTES:

1. FOR MECHANICAL ELEMENT SYMBOLS, SEE MECHANICAL LEGEND.
2. FOR ELECTRICAL ELEMENT SYMBOLS, SEE ELECTRICAL LEGEND.

REV	DATE	BY	DESCRIPTION
0	10/28/20	MDM	ISSUED FOR CONSTRUCTION

REGISTERED PROFESSIONAL ENGINEER
JOHN ARNE BAKKEN
No. E-16301
ELECTRICAL
STATE OF CALIFORNIA
October 28, 2020

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

McMILLEN JACOBS ASSOCIATES

KLAMATH RIVER RENEWAL CORPORATION

KLAMATH RIVER RENEWAL CORPORATION

FALL CREEK FISH HATCHERY

INSTRUMENTATION AND EQUIPMENT LEGEND

DESIGNED C. CURTIS
DRAWN B. ROONEY
CHECKED J. BAKKEN
PROJECT DATE 10/28/20

DRAWING
GI001

JOB NO: 000000

Path: C:\Vault20\Klamath River Renewal Corp\Fall Creek Facility\GI001.dwg Plot date: Oct 27, 2020 10:56am, CAD User: Guerrero

VALVE AND GATE ACTUATORS

E — ELECTRIC ACTUATOR
H — HYDRAULIC ACTUATOR
P — PNEUMATIC ACTUATOR
S — SOLENOID ACTUATOR
M — MOTOR OPERATOR
HAND / MANUAL ACTUATOR

GATES

WHEEL GATE (CAST IRON, ALUMINUM OR STAINLESS STEEL)
STOP GATE OR SHEAR GATE

FITTINGS AND ACCESSORIES

ANNULAR SEAL
ATMOSPHERIC VENT
BLIND FLANGE
CAP (THREAD-ON)
CAP (WELD-ON)
QUICK DISCONNECT
MALE QUICK DISCONNECT WITH CAP
FEMALE QUICK DISCONNECT WITH CAP
T — CONDENSATE TRAP
INJECTOR/EDUCTOR
OR — LEVEL SWTICH
IN-LINE STATIC MIXER
FOOT VALVE WITH STRAINER

VALVES

3 WAY MULT-PORT VALVE
4 WAY MULTI-PORT VALVE
AIR VACUUM, AIR RELEASE, OR AIR VACUUM AND AIR RELEASE ASSEMBLY
ANGLE VALVE
ANGLE CHECK VALVE
BACKFLOW PREVENTER VALVE
BACKWATER VALVE
BALL VALVE
BALL CHECK VALVE
BUTTERFLY VALVE
OR — CHECK VALVE
CONE VALVE
FLAP VALVE
GATE VALVE
DIAPHRAGM VALVE
ECCENTRIC PLUG VALVE
GLOBE VALVE
HB
HB OR HB — HOSE BIBB FROM TOP, FRONT AND SIDE VIEW
HB
WH
WH OR WH — WHARF HYDRANT FROM TOP, FRONT AND SIDE VIEW
WH
NEEDLE VALVE
PRESSURE REGULATING VALVE
PRESSURE RELIEF VALVE
ORIFICE VALVE
STOP CHECK VALVE
TELESCOPING VALVE
PINCH VALVE
HOSE BIB

FITTINGS AND ACCESSORIES

CALIBRATION COLUMN
~ — FLOW METER
UM — ULTRASONIC METER
DIAPHRAGM SEAL
DRAIN
EXPANSION JOINT
OR — FLEXIBLE CONNECTION
FCO / FCO — FLOOR CLEANOUT
FLOOR DRAIN
FLOOR SINK
HUB DRAIN
LEVEL TRANSMITTER
VOLUMETRIC FEEDER
MECHANICAL TYPE COUPLING
PIPE SUPPORT (PLAN)
PULSATION DAMPENER
REDUCER - CONCENTRIC
REDUCER - ECCENTRIC
REMOVABLE SPOOL PIECE
SLEEVE TYPE COUPLING
STRAINER - WYE TYPE
G — PRESSURE GAGE
G S — PRESSURE GAGE AND SWITCH WITH DIAPHRAGM SEALS
T — TRAP
UNION
WCO / WCO — WALL CLEANOUT
VERT ELBOW DOWN
VERT ELBOW UP
VERT TEE UP
VERT TEE DOWN

PUMPS & COMPRESSORS

HORIZONTAL ANSI END SUCTION PUMP
CENTRIFUGAL PUMP
CHEMICAL METERING PUMP
CIRCULATING PUMP
DRUM PUMP
GEAR PUMP OR ROTARY POSITIVE DISPLACEMENT BLOWER
HOSE PUMP
PROGRESSIVE CAVITY PUMP
ROTARY LOBE PUMP
SUBMERSIBLE PUMP
VERTICAL TURBINE PUMP
PISTON DRIVEN COMPRESSOR
COMPRESSOR
M — MOTORIZED MIXER
LEVEL TRANSMITTER
DIAPHRAGM PUMP
CHEMICAL METERING/TUBING PUMP
CENTRIFUGAL PUMP

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October 28, 2020

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McMILLEN JACOBS ASSOCIATES

KLAMATH RIVER RENEWAL CORPORATION

KLAMATH RIVER RENEWAL CORPORATION
FALL CREEK FISH HATCHERY
GENERAL MECHANICAL PROCESS LEGEND

DESIGNED C. CURTIS
DRAWN B. ROONEY
CHECKED J. BAKKEN
PROJECT DATE 10/28/20

DRAWING
GI002

JOB NO: 000000

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ELECTRICAL
STATE OF CALIFORNIA
October 28, 2020

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McMILLEN JACOBS ASSOCIATES

KLAMATH RIVER RENEWAL CORPORATION

KLAMATH RIVER RENEWAL CORPORATION
FALL CREEK FISH HATCHERY
PROCESS & INSTRUMENTATION DIAGRAM INTAKE

DESIGNED M. SKELTON
DRAWN B. ROONEY
CHECKED J. BAKKEN
PROJECT DATE 10/28/20

DRAWING
I200

JOB NO: 000000

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SHEET NOTES:

1. TO UTILITY WATER SYSTEM FOR COHO BUILDING. SEE MECHANICAL DRAWINGS FOR FLOW SCHEMATICS.

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REGISTERED PROFESSIONAL ENGINEER
JOHN ARNE BAKKEN
No. E-16301
ELECTRICAL
STATE OF CALIFORNIA
October 28, 2020

WARNING

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McMILLEN JACOBS ASSOCIATES

KLAMATH RIVER RENEWAL CORPORATION

KLAMATH RIVER RENEWAL CORPORATION

FALL CREEK FISH HATCHERY

PROCESS & INSTRUMENTATION DIAGRAM
COHO BUILDING

DESIGNED M. SKELTON
DRAWN B. ROONEY
CHECKED J. BAKKEN
PROJECT DATE 10/28/20

DRAWING
I300

JOB NO: 000000

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JOHN ARNE BAKKEN
No. E-16301
ELECTRICAL
STATE OF CALIFORNIA
October 28, 2020

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McMILLEN JACOBS ASSOCIATES

KLAMATH RIVER RENEWAL CORPORATION

KLAMATH RIVER RENEWAL CORPORATION
FALL CREEK FISH HATCHERY

PROCESS & INSTRUMENTATION DIAGRAM
CHINOOK RACEWAYS

DESIGNED M. SKELTON
DRAWN B. ROONEY
CHECKED J. BAKKEN
PROJECT DATE 10/28/20

DRAWING
I400

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JOB NO: 000000

SHEET NOTES:

1. TO UTILITY WATER SYSTEM FOR CHINOOK INCUBATION BUILDING. SEE MECHANICAL DRAWINGS FOR FLOW SCHEMATICS.

REV	DATE	BY	DESCRIPTION
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REGISTERED PROFESSIONAL ENGINEER
JOHN ARNE BAKKEN
No. E-16301
ELECTRICAL
STATE OF CALIFORNIA
October 28, 2020

WARNING
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McMILLEN JACOBS ASSOCIATES

KLAMATH RIVER RENEWAL CORPORATION

KLAMATH RIVER RENEWAL CORPORATION

FALL CREEK FISH HATCHERY

PROCESS & INSTRUMENTATION DIAGRAM
CHINOOK INCUBATION BUILDING

DESIGNED M. SKELTON
DRAWN D. JOHNSTON
CHECKED J. BAKKEN
PROJECT DATE 10/28/20

DRAWING
I500

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JOB NO: 000000

SHEET NOTES:

1. TO UTILITY WATER SYSTEM FOR SPAWNING BUILDING. SEE MECHANICAL DRAWINGS FOR FLOW SCHEMATICS.
2. EXISTING CONTROLS AND STARTERS INTERCONNECT WITH EACH OTHER AT IRON GATE FISH HATCHERY. FIELD VERIFY EXACT WIRING AND RECONNECT IDENTICALLY AT FALL CREEK.

REV	DATE	BY	DESCRIPTION
0	10/28/20	MDM	ISSUED FOR CONSTRUCTION

REGISTERED PROFESSIONAL ENGINEER JOHN ARNE BAKKEN No. E-16301 ELECTRICAL STATE OF CALIFORNIA
October 28, 2020

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KLAMATH RIVER RENEWAL CORPORATION

KLAMATH RIVER RENEWAL CORPORATION
FALL CREEK FISH HATCHERY

PROCESS & INSTRUMENTATION DIAGRAM
SETTLING AND ADULT HOLDING PONDS

DESIGNED M. SKELTON
DRAWN D. JOHNSTON
CHECKED J. BAKKEN
PROJECT DATE 10/28/20

DRAWING
I600

JOB NO: 000000

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