

CONSTRUCTION DRAWINGS
for
Fisheries and Oceans Canada
Chehalis River Hatchery - Wells PWC-2 and TWC-1 Upgrades
April 2018



CHEHALIS RIVER HATCHERY WELLS PWC-2 AND TWC-1 UPGRADES

MORRIS VALLEY RD.
AGASSIZ, BC

KEY MAP



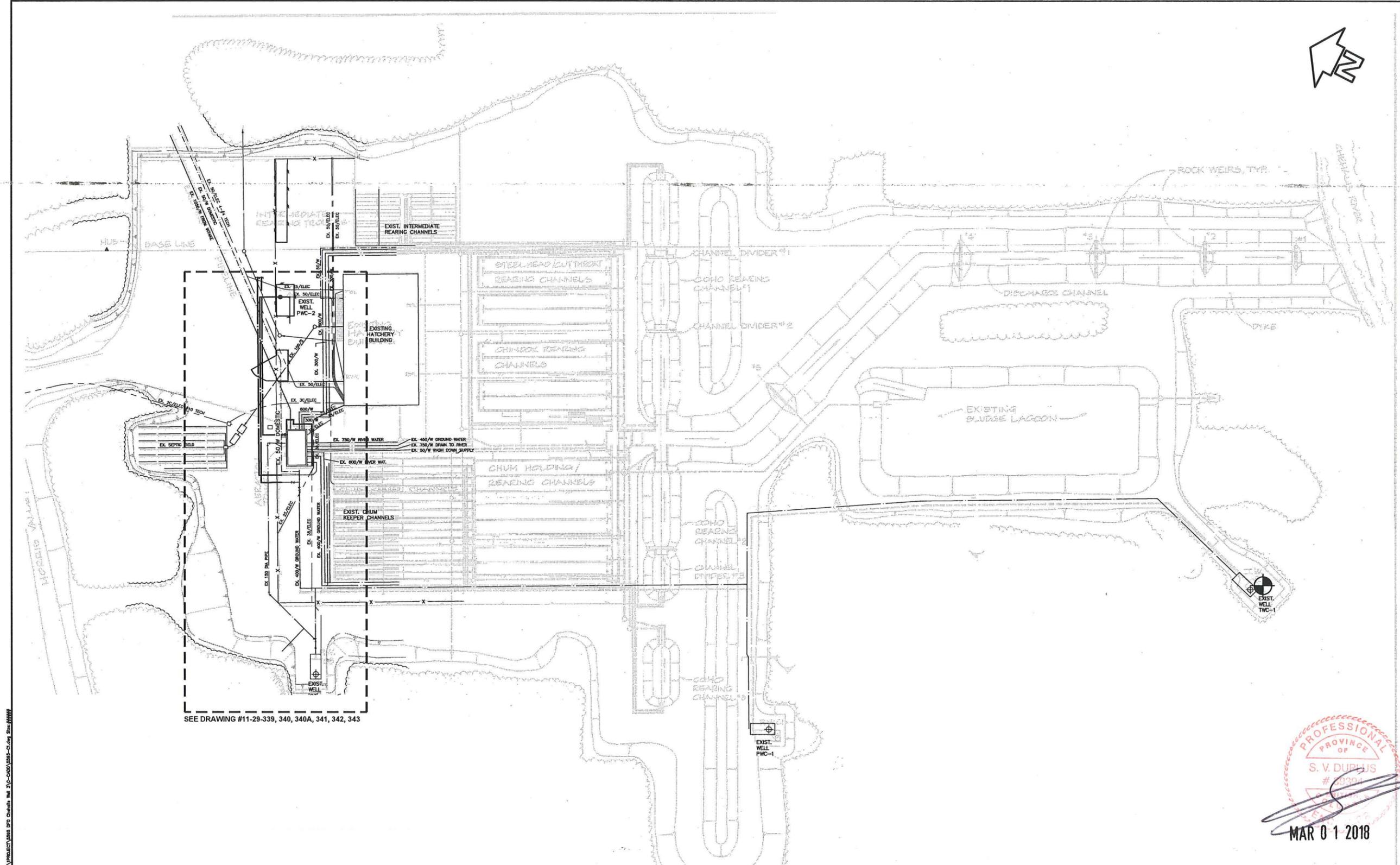
DRAWING LIST

DWG No.	DRAWING TITLE
COVER	DRAWING LIST, LOCATION MAP AND LEGEND
11-29-338	WELLS PWC-2 AND TWC-1 UPGRADES LOCATION PLAN
11-29-339	WELLS PWC-2 AND TWC-1 UPGRADES, WELL PWC-2 AND PIPELINES OVERALL SITE PLAN
11-29-340	WELLS PWC-2 AND TWC-1 UPGRADES, WELL PWC-2 AND PIPELINES UTILITY PLAN
11-29-340A	WELLS PWC-2 AND TWC-1 UPGRADES, WELL PWC-2 AND PIPELINES UTILITY PLAN
11-29-341	WELLS PWC-2 AND TWC-1 UPGRADES, WELL PWC-2 AND PIPELINES WELL PWC-2 DETAIL
11-29-342	WELLS PWC-2 AND TWC-1 UPGRADES WELL PWC-2 AND PIPELINES MISCELLANEOUS DETAILS 1
11-29-343	WELLS PWC-2 AND TWC-1 UPGRADES WELL PWC-2 AND PIPELINES MISCELLANEOUS DETAILS 2
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11-29-365	DETAILS - WELL PWC-2 VFD CONTROL DIAGRAM
11-29-366	DETAILS - WELL PWC-2 PLC POWER AND NW DIAGRAM
11-29-367	DETAILS - WELL PWC-2 SCADAPACK I/O MODULES
11-29-368	WIRING TERMINATIONS (SHEET 1 OF 2)
11-29-369	WIRING TERMINATIONS (SHEET 2 OF 2)

S. V. DUPLUS
39394
REGISTERED PROFESSIONAL ENGINEER
MAR 01 2018

DNA

project managers
planners
engineers
architects

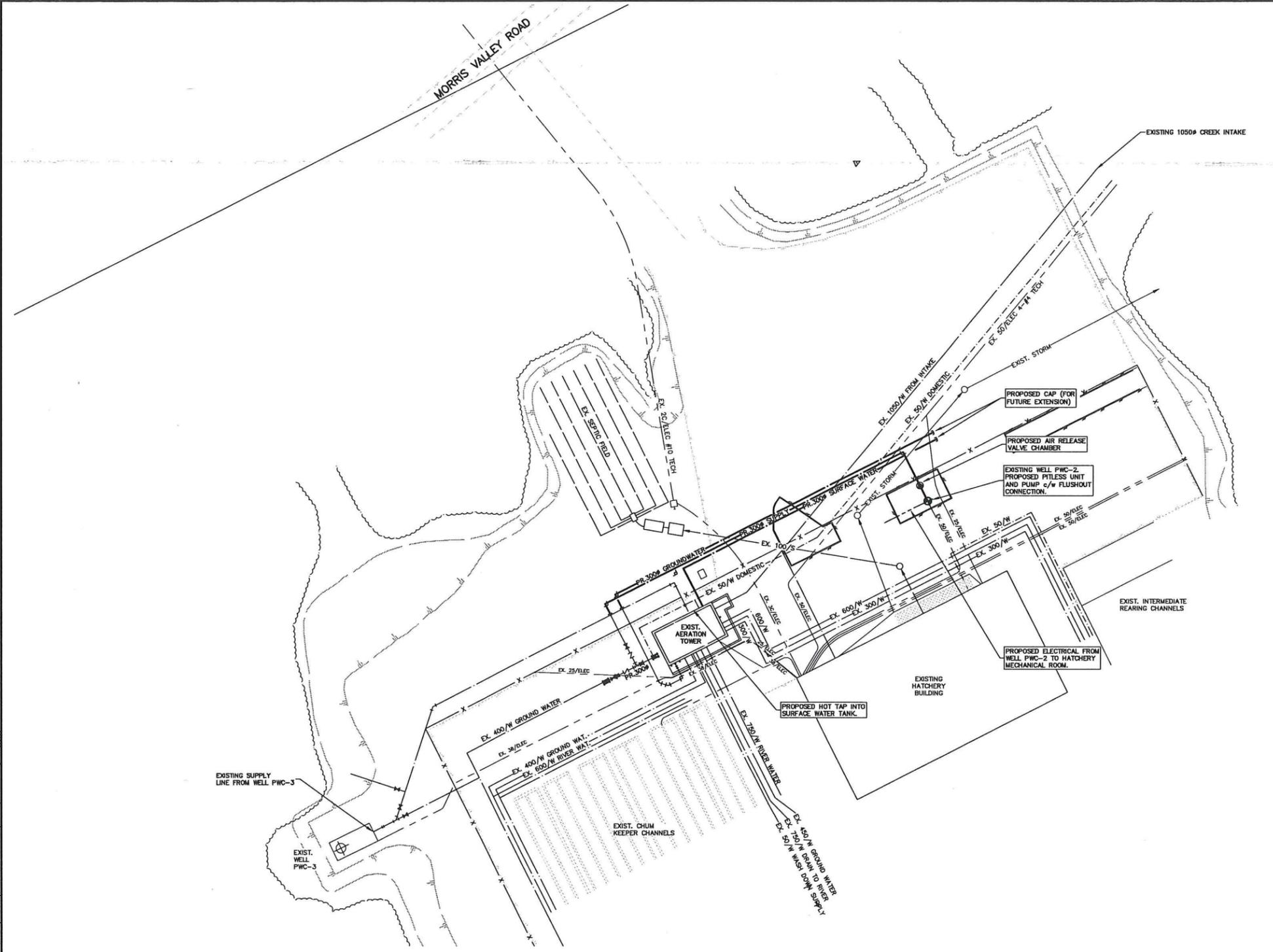


SEE DRAWING #11-29-339, 340, 340A, 341, 342, 343

PROFESSIONAL
 PROVINCE OF
 S. V. DUBUIS
 # 38394
 MAR 01 2018

		DESIGNED JM DRAWN JW CHECKED RECOMMENDED APPROVED		FISHERIES AND OCEANS CANADA REAL PROPERTY AND SAFETY AND SECURITY CHEHALIS RIVER HATCHERY WELLS PWC-2 AND TWC-1 UPGRADES LOCATION PLAN		SCALE 1:500 START DATE 2017-MAR-08 DRAWING NUMBER 11-29-338
DWG. NO.	DRAWING REFERENCES	NOTES	NO.	DATE	REVISIONS	
			1	2017-MAY-08	ISSUED FOR DFO REVIEW	

Plotted by: M. Maguire Plot: 2017-05-18 Path: \\server\projects\11-29-338\11-29-338.dwg Size: 1000x1000



GENERAL NOTES

1. EXISTING AERATION BUILDING LOCATION SHOWN APPROXIMATELY.
2. ALL ELEVATIONS AND DIMENSIONS SHOWN ARE IN METRIC.
3. CONTRACTOR TO LOCATE AND EXPOSE ALL EXISTING UTILITIES AFFECTED BY PROPOSED WORKS AND INFORM DFO REPRESENTATIVE OF ANY CONFLICTS.
4. CONTRACTOR TO CONFIRM ELEVATION AND LOCATION OF ALL EXISTING UTILITIES AFFECTED PROPOSED WORKS WITH DFO REPRESENTATIVE.
5. REFER TO ELECTRICAL DRAWINGS FOR ADDITIONAL ELECTRICAL WORK. ELECTRICAL CONNECTION CONDUITS AND TELEMETRY CONDUITS ARE REQUIRED FOR WELL PWC-2.
6. CONTRACTOR TO REINSTATE ALL FENCE, EXTRUDED CONCRETE CURB, AND PAVEMENT AFFECTED BY CONSTRUCTION TO AS GOOD OR BETTER THAN ORIGINAL CONDITION. REFER TO DRAWING 11-29-340 FOR DETAILS.
7. RECORD DRAWINGS REFERENCED IN THE CONTRACT DRAWINGS ARE FOUND IN THE SPECIFICATIONS.

WATERWORKS NOTES

1. WATERMANS TO BE PVC C900 UNLESS OTHERWISE NOTED.
2. MINIMUM COVER ON WATERMANS SHALL BE 1.5m, UNLESS OTHERWISE NOTED.
3. FOR PIPE COVER UNDER 1.5m, CONTRACTOR SHALL INSULATE PIPE AS SHOWN ON DETAIL, DRAWING 11-29-342.
4. WATERMANS SHALL HAVE A MINIMUM CLEARANCE OF 300mm FROM ALL UTILITIES CROSSED.
5. CONCRETE THRUST BLOCKS, IN ACCORDANCE WITH DETAIL ON DWG. 11-29-342 SHALL BE PROVIDED AT ALL FITTINGS.
6. VALVE STEMS AND STANDPIPES SHALL BE EXTENDED 0.6m ABOVE GROUND LEVEL WHEN SPECIFIED ON DRAWINGS. STANDPIPES SHALL BE FREE DRAINING.



MAR 0-1 2018

FISHERIES AND OCEANS CANADA
REAL PROPERTY AND TECHNICAL SUPPORT

CHEHALIS RIVER HATCHERY
WELLS PWC-2 AND TWC-1 UPGRADES
WELL PWC-2 AND PIPELINES
OVERALL SITE PLAN

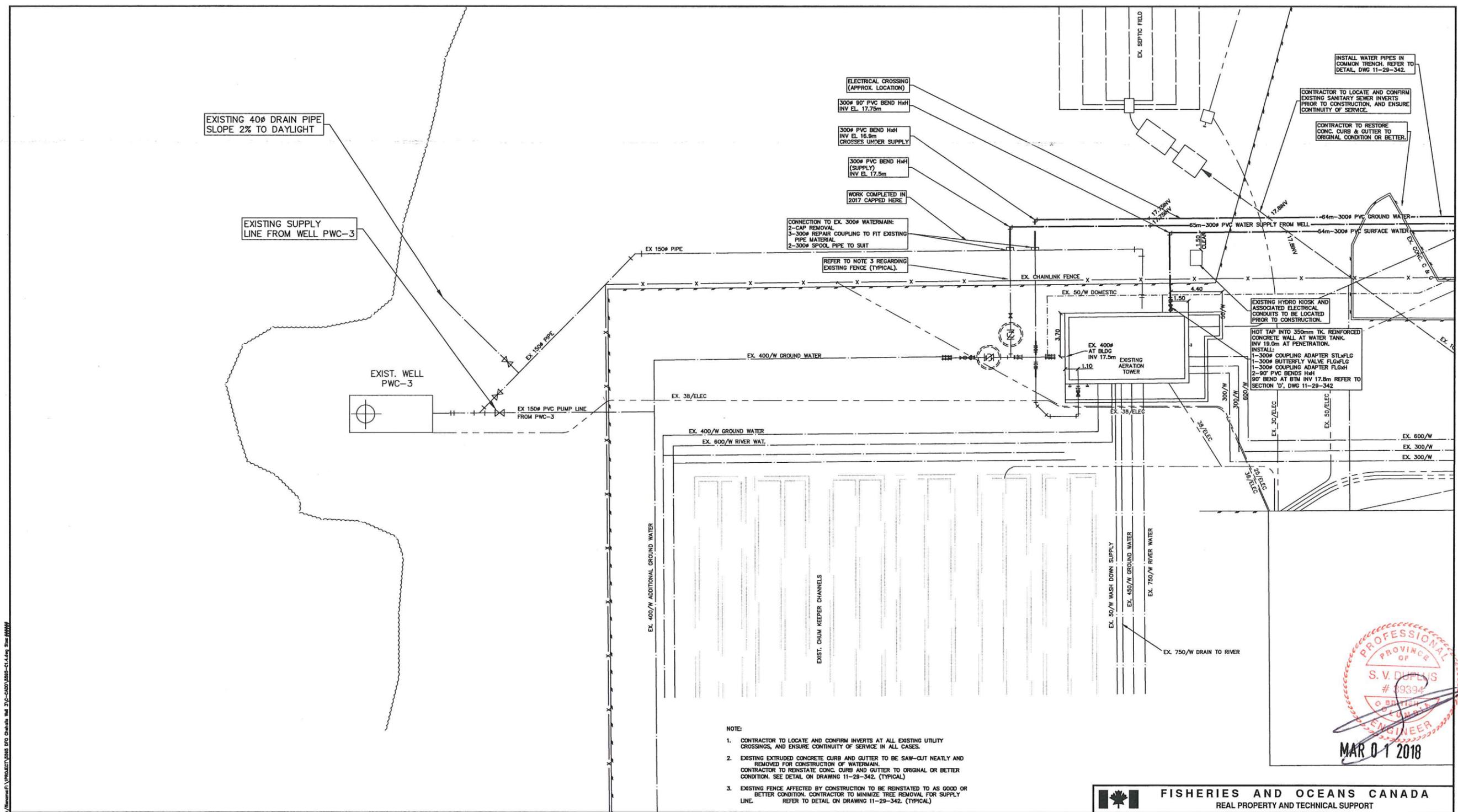
SCALE	1:300
DATE	19-Feb-18
DRAWING NUMBER	11-29-339
REVISION	2

NO.	DATE	REVISIONS
2	2016-SEP-06	ISSUED FOR TENDER
1	2015-JUN-23	ISSUED FOR DFO REVIEW

Plotted by: M. Maguire, File: 11-29-339-18, Path: \\hatchery\11-29-339-18.dwg, Date: 19-Feb-18, Scale: 1:300, Plot Date: 19-Feb-18, Plot Time: 10:52 AM

NOTES

Plotted by: M. Maguire, File: chehalis_18-feb-18_Pipe_Utility_Plan.dwg, Plot Date: 18-Feb-18, Plot Path: \\server01\projects\1802\chehalis_18-feb-18_Pipe_Utility_Plan.dwg



EXISTING 40# DRAIN PIPE
SLOPE 2% TO DAYLIGHT

EXISTING SUPPLY
LINE FROM WELL PWC-3

EXIST. WELL
PWC-3

ELECTRICAL CROSSING
(APPROX. LOCATION)

300# 90° PVC BEND HxH
INV. EL. 17.75m

300# PVC BEND HxH
INV. EL. 16.9m
CROSSES UNDER SUPPLY

300# PVC BEND HxH
(SUPPLY)
INV. EL. 17.5m

WORK COMPLETED IN
2017 CAPPED HERE

CONNECTION TO EX. 300# WATERMAIN:
2-CAP REMOVAL
3-300# REPAIR COUPLING TO FIT EXISTING
PIPE MATERIAL
2-300# SPOOL PIPE TO SUIT

REFER TO NOTE 3 REGARDING
EXISTING FENCE (TYPICAL).

INSTALL WATER PIPES IN
COMMON TRENCH. REFER TO
DETAIL, DWG 11-29-342.

CONTRACTOR TO LOCATE AND CONFIRM
EXISTING SANITARY SEWER INVERTS
PRIOR TO CONSTRUCTION, AND ENSURE
CONTINUITY OF SERVICE.

CONTRACTOR TO RESTORE
CONC. CURB & GUTTER TO
ORIGINAL CONDITION OR BETTER.

EXISTING HYDRO KIOSK AND
ASSOCIATED ELECTRICAL
CONDUITS TO BE LOCATED
PRIOR TO CONSTRUCTION.

HOT TAP INTO 350mm TK. REINFORCED
CONCRETE WALL AT WATER TANK.
INV. 19.0m AT PENETRATION.
INSTALL:
1-300# COUPLING ADAPTER STLxFLG
1-300# BUTTERFLY VALVE FLGxFLG
1-300# COUPLING ADAPTER FLGxH
2-90° PVC BENDS HxH
90° BEND AT 51M INV. 17.8m REFER TO
SECTION 'D', DWG 11-29-342

NOTE:

1. CONTRACTOR TO LOCATE AND CONFIRM INVERTS AT ALL EXISTING UTILITY CROSSINGS, AND ENSURE CONTINUITY OF SERVICE IN ALL CASES.
2. EXISTING EXTRUDED CONCRETE CURB AND GUTTER TO BE SAW-CUT NEATLY AND REMOVED FOR CONSTRUCTION OF WATERMAIN. CONTRACTOR TO REINSTATE CONC. CURB AND GUTTER TO ORIGINAL OR BETTER CONDITION. SEE DETAIL ON DRAWING 11-29-342. (TYPICAL)
3. EXISTING FENCE AFFECTED BY CONSTRUCTION TO BE REINSTATED TO AS GOOD OR BETTER CONDITION. CONTRACTOR TO MINIMIZE TREE REMOVAL FOR SUPPLY LINE. REFER TO DETAIL ON DRAWING 11-29-342. (TYPICAL)



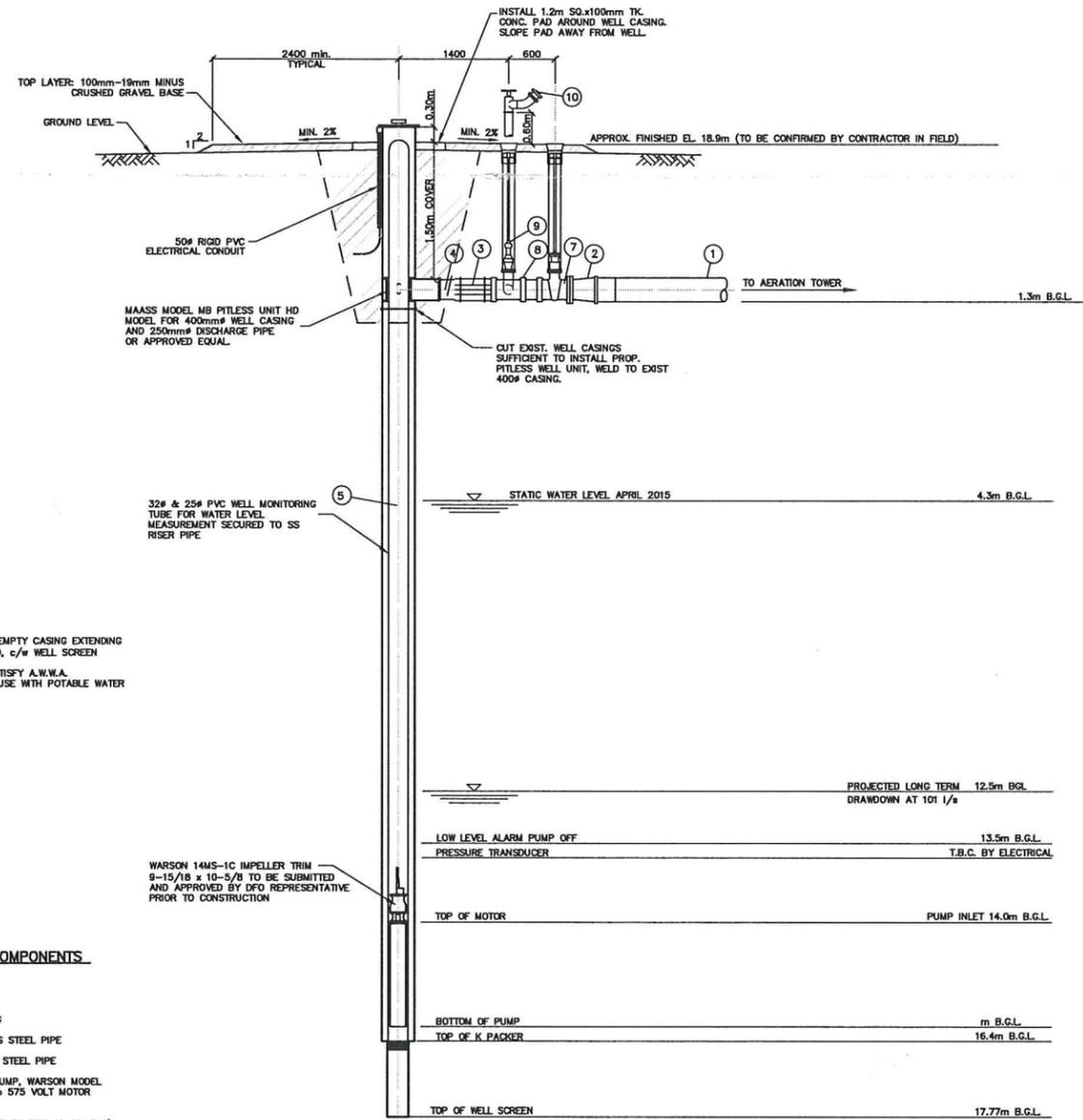
FISHERIES AND OCEANS CANADA
REAL PROPERTY AND TECHNICAL SUPPORT

CHEHALIS RIVER HATCHERY
WELLS PWC-2 AND TWC-1 UPGRADES
WELL PWC-2 AND PIPELINES
UTILITY PLAN

SCALE	1:150
DATE	18-Feb-18
DRAWING NUMBER	11-29-340A
REVISION	0

NO.	DATE	REVISIONS	DESIGNED	DRAWN	CHECKED	SD	RECOMMENDED	APPROVED

NOTES



- NOTES:**
- EXISTING WELL IS A 400# EMPTY CASING EXTENDING TO 0.700m ABOVE GROUND, c/w WELL SCREEN
 - ALL PIPING IN WELL TO SATISFY A.W.W.A. SPECIFICATION C900, FOR USE WITH POTABLE WATER SYSTEMS.

WELL "PWC2" UNIT COMPONENTS

- 300# PVC C900
- 250x300 PVC REDUCER
- 250# FLEXIBLE COUPLING
- 250# SCH. 40 STAINLESS STEEL PIPE
- 250# SCH. 40 STAINLESS STEEL PIPE
- SUBMERSIBLE TURBINE PUMP, WARSON MODEL 14MS-1C, 1760RPM, 40hp 575 VOLT MOTOR OR APPROVED EQUAL
- 250# GATE VALVE (REFER TO DWG 11-29-342)
- 300x300x100# TEE HxHxH
- 50# AUTOMATIC DRAIN VALVE IN 150# PVC PIPE
- WELL FLUSHOUT AND SELF-DRAINING VALVE (REFER TO DWG 11-29-342)

WELL PWC2 DETAIL
N.T.S.

NOTE: B.G.L. = BELOW GROUND LEVEL



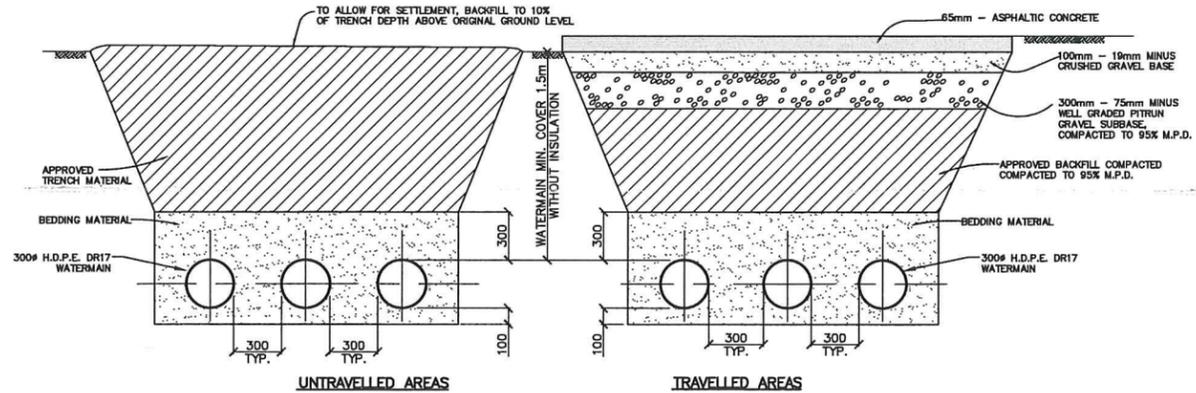
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NO.	DATE	REVISIONS
2	2016-SEP-06	ISSUED FOR TENDER
1	2015-JUN-23	ISSUED FOR DFO REVIEW

FISHERIES AND OCEANS CANADA
REAL PROPERTY AND TECHNICAL SUPPORT

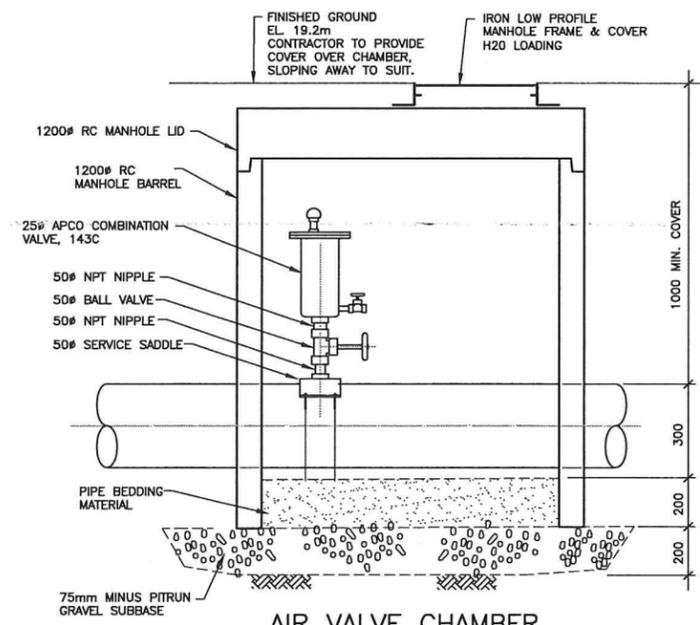
**CHEHALIS RIVER HATCHERY
WELLS PWC-2 AND TWC-1 UPGRADES
WELL PWC-2 AND PIPELINES
WELL PWC-2 DETAIL**

DESIGNED DC	SCALE N.T.S.
DRAWN DJS	DATE 31-May-17
CHECKED SD	DRAWING NUMBER 11-29-341
RECOMMENDED	REVISION 2
APPROVED	
APPROVED	

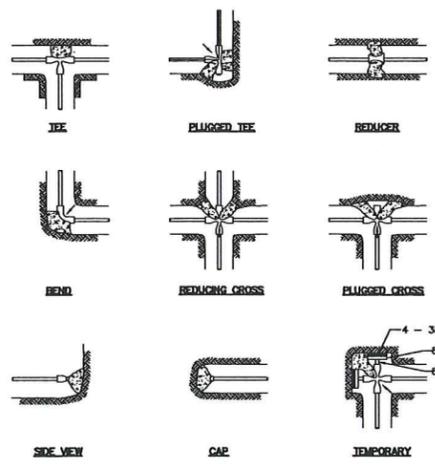


TYPICAL COMMON TRENCH DETAILS
N.T.S.

NOTE
ALL BACKFILL SHALL BE WELL COMPACTED EXCEPT WHERE ALLOWED OTHERWISE BY ENGINEER (ALL AREAS WITHIN DITCH LINES)
ALL TRENCHES SHALL BE EXCAVATED IN ACCORDANCE WITH W.C.B. REGULATIONS.



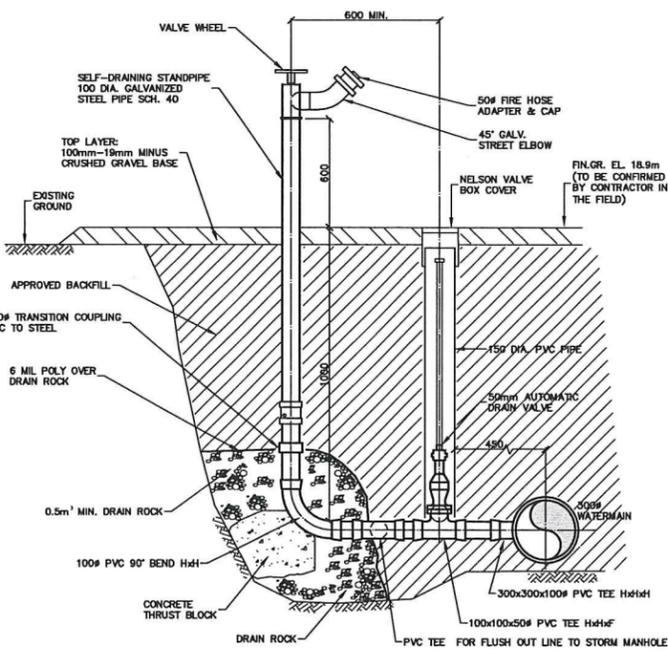
AIR VALVE CHAMBER
N.T.S.



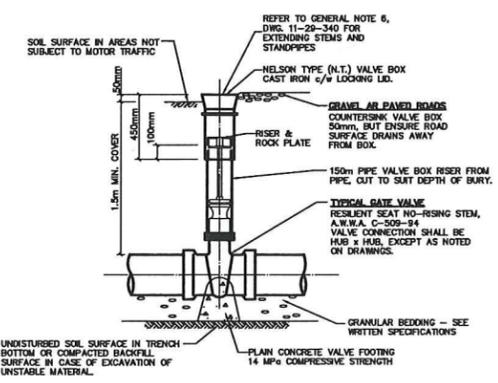
THRUST (kg) 690 kPa WATER PRESSURE				SAFE BEARING LOAD OF SOIL	
TABLE No.1				TABLE No.2	
SIZE OF PIPE	TEE	90°	BENDS 45° 22 1/2'	SOIL TYPE	LOAD (kg/m ²)
100	840	1184	644	MUCK PEAT ETC.	0
150	1724	2436	1320	SOFT CLAY	2450
200	2985	4218	2286	SAND	4900
250	4876	6895	3758	SAND & GRAVEL	7350
300	6945	9816	5316	SAND & GRAVEL WITH CLAY	9800
				SHALE	24,500

IF TEST PRESSURE IS 1034 kPa THEN ALL FIG. IN TABLE No.1 ARE MULTIPLIED BY 1.5.
NOTE:
- ALL THRUST BLOCKS TO EXTEND TO SOLID BEARING
- ALL LOCATIONS AND SIZES OF THRUST BLOCKS TO BE TO THE APPROVAL OF THE ENGINEER.
- CONCRETE TO BE IN ACCORDANCE WITH C.S.A. A-23 AS CURRENTLY IN FORCE AND SHALL HAVE A COMPRESSIVE STRENGTH OF 14 MPa AT 28 DAYS.

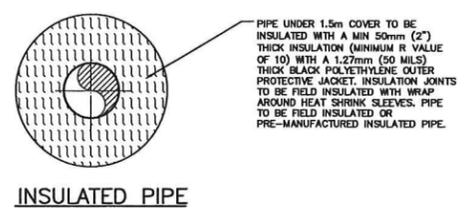
THRUST BLOCK



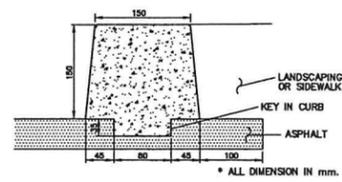
WELL FLUSHOUT AND SELF-DRAINING VALVE
N.T.S.



GATE VALVE DETAIL
N.T.S.



INSULATED PIPE



TYPICAL EXTRUDED CURB ON ASPHALT
N.T.S.



FISHERIES AND OCEANS CANADA
REAL PROPERTY AND TECHNICAL SUPPORT

DESIGNED		SCALE AS NOTED
DRAWN		
CHECKED		DATE
SD		18-Feb-18
RECOMMENDED		DRAWING NUMBER
APPROVED		11-29-342
APPROVED		REVISION
		2

CHEHALIS RIVER HATCHERY
WELLS PWC-2 AND TWC-1 UPGRADES
WELL PWC-2 AND PIPELINES
MISCELLANEOUS DETAILS
SHEET 1

Printed by: A. Magenta Date: 18-Feb-18 Path: P:\Projects\11-29-342\CAD\Drawings\11-29-342-01.dwg Scale: 1:1000

NO.	DATE	REVISIONS
2	2016-SEP-06	ISSUED FOR TENDER
1	2015-JUN-23	ISSUED FOR DFO REVIEW

NOTES

1. GENERAL REQUIREMENTS:

THE GENERAL CONDITIONS, AMENDMENTS AND SUPPLEMENTS AND ADDITIONS TO THE GENERAL CONDITIONS OF THE CONTRACT SHALL FORM AN INTEGRAL PART OF THIS DIVISION OF THE SPECIFICATIONS.

1.1 GENERAL REQUIREMENTS:

- IT IS THE INTENTION OF THE SPECIFICATIONS AND DRAWINGS TO CALL FOR FINISHED WORK, TESTED AND READY FOR OPERATION.
- UNLESS OTHERWISE NOTED OR SPECIFIED, PROVIDE ALL EQUIPMENT AND/OR MATERIALS SHOWN IN THE DRAWINGS AND DEFINED IN THE SPECIFICATIONS.
- ANY APPARATUS, APPLIANCES, MATERIALS, OR WORK NOT SHOWN ON THE DRAWINGS, BUT MENTIONED IN THE SPECIFICATIONS, OR VICE VERSA OR ANY INCIDENTAL ACCESSORIES NECESSARY TO MAKE THE WORK COMPLETE AND FULLY FUNCTIONAL AND READY FOR OPERATION, EVEN IF NOT PARTICULARLY SPECIFIED, SHALL BE FURNISHED, DELIVERED AND INSTALLED BY THE ELECTRICAL DIVISION WITHOUT ADDITIONAL EXPENSE TO THE OWNER.
- IT IS INTENDED THAT ALL WORK MENTIONED IN THE SPECIFICATIONS OR SHOWN ON THE DRAWINGS SHALL BE THE RESPONSIBILITY OF THE ELECTRICAL DIVISION UNLESS SPECIFICALLY NOTED AS THE WORK OF OTHERS. THOUGH NOT SPECIFICALLY MENTIONED, THE WORDS "PROVIDE", "SUPPLY", "FURNISH" AND "INSTALL" SHALL BE IMPLIED AND THE ELECTRICAL DIVISION SHALL PROVIDE ALL NECESSARY LABOR, MATERIALS, AND THE EQUIPMENT TO FURNISH AND INSTALL SUCH WORK AND TEST SAME TO THE SATISFACTION OF THE CONSULTANT.

2. LAWS, RULES, ORDINANCES AND INSPECTION:

- THE ENTIRE ELECTRICAL INSTALLATION SHALL COMPLY WITH THE LATEST ADOPTED REVISION OF PART 1 OF THE CANADIAN ELECTRICAL CODE; CURRENT EDITION OF THE "SAFETY STANDARD FOR ELECTRICAL INSTALLATION" AND THE B.C. PROVINCIAL AMENDMENTS TO THIS CODE AND THE NATIONAL BUILDING CODE, ALL LOCAL BYLAWS, RULES, AND ORDINANCES APPLICABLE TO THIS INSTALLATION.
- OBTAIN ALL NECESSARY PERMITS AND PAY ALL PERMIT FEES.
- UPON COMPLETION, PRESENT TO THE ENGINEER A CERTIFICATE OF APPROVAL FOR ALL ELECTRICAL WORK FROM THE ELECTRICAL INSPECTION DEPARTMENT HAVING JURISDICTION.

3. SITE INSPECTION:

- EXAMINE THE SITE AND THE LOCAL CONDITIONS AFFECTING THE WORK UNDER THIS CONTRACT. NO CLAIM SHALL BE CONSIDERED LATER DUE TO UNSATISFACTORY REVIEW OF EXISTING SITE CONDITIONS.

4. RESPONSIBILITY:

- SUPPLY AND INSTALLATION OF THE EQUIPMENT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE CONNECTION OF ALL EQUIPMENT MENTIONED IN THE DRAWINGS. COORDINATE WITH AND OBTAIN APPROVAL, FOR THE SCHEDULING OF THE ABOVE WORK.
- CUTTING, PATCHING SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
- ON COMPLETION OF THE WORK, THE ELECTRICAL CONTRACTOR SHALL CLEAN ALL EXPOSED SURFACES OF LIGHTING FIXTURES, LAMPS, PANEL BOARDS AND OTHER ELECTRICAL EQUIPMENT, OF DUST, PLASTER, PAINT (ETC).

5. TYPE AND QUALITY OF MATERIAL:

- EQUIPMENT AND MATERIALS SHALL BE NEW AND BEAR THE APPROVAL OF C.S.A. OR EQUIVALENT ULC TAGS.

6. IDENTIFICATION:

- ALL POWER OUTLETS, LIGHT SWITCHES, BREAKERS, PANEL BOARDS, DISCONNECTS, MOTOR STARTERS (ETC) SHALL BE SUITABLY IDENTIFIED WITH "LAMICOID" NAMEPLATES LABELLED WITH CIRCUIT NUMBER. TYPEWRITTEN PANEL BOARD DIRECTORIES SHALL BE PROVIDED.

7. GUARANTEE:

- THE ELECTRICAL CONTRACTOR SHALL GUARANTEE THE SATISFACTORY INSTALLATION OF ALL WORK AND APPARATUS AND REPLACE, AT NO ADDITIONAL COST TO THE OWNER, ANY PART WHICH MAY FAIL OR PROVE DEFECTIVE WITHIN A PERIOD OF TWELVE CALENDAR MONTHS AFTER THE FINAL ACCEPTANCE OF THE COMPLETE PROJECT.

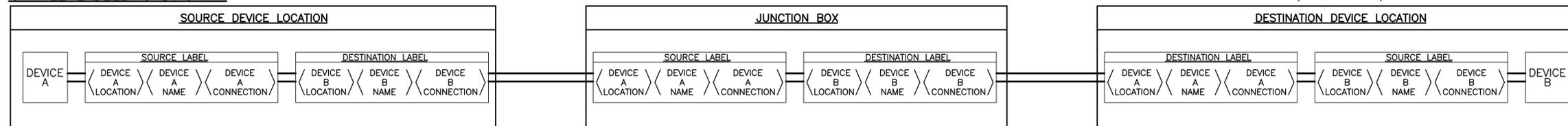
8. LABELING:

- LABEL ALL EQUIPMENT, CABLES, CONDUCTORS, PORTS, AND TERMINALS INCLUDING DEVICE NAME, DEVICE LOCATION, SOURCE, AND DESTINATION AS APPLICABLE.
- CABLES AND CONDUCTORS SHALL BE LABELED AS FOLLOWS:
 - INSTALL HEAT SHRINK SLEEVE LABELS ON ALL THE CABLES.
 - ALL ENDS OF WIRE SEGMENTS AND ALL ACCESS POINTS BETWEEN SOURCE AND DESTINATION SHALL BE LABELED.
 - BUNDLE TOGETHER AND LABEL CABLES AT TERMINATION POINTS.
- EQUIPMENT AND ENCLOSURES SHALL BE LABELED AS FOLLOWS:
 - LABEL EQUIPMENT ENCLOSURES USING LAMICOID STYLE LABEL N THE FRONT FACE OF EACH ENCLOSURE USE 10mm HIGH BLACK CHARACTERS ON WHITE BACKGROUND.
 - LABEL ALL OTHER EQUIPMENT AND TERMINALS USING SELF LAMINATING VINYL STYLE LABELS. USE 8mm HIGH BLACK CHARACTERS ON WHITE BACKGROUND.
- WIRING IDENTIFICATION:
 - USE COLOUR CODED WIRES IN COMMUNICATION CABLES, MATCHED THROUGHOUT SYSTEM.
- WIRING TERMINATIONS:
 - TERMINATE ALL CABLES AND WIRING AS PER MANUFACTURER SPECIFICATIONS.

9. COORDINATION:

- CONTRACTOR SHALL COORDINATE AND OBTAIN ALL PERMITS AS REQUIRED FOR THE WORK AT THE HATCHERY.

SAMPLE LABELLING DIAGRAM:



SYMBOL LEGEND	
SYMBOL	DESCRIPTION
•	CONDUIT STUB
✕	GROUND ELECTRODE/ROD
⊖	GROUNDING SYSTEM EXTENSION TAIL
⊕	DUPLEX RECEPTACLE 120V (GFCI)
⚡	SWITCH (LIGHTING)
Ⓜ	MOTOR
Ⓡ	INDICATOR LIGHT R=RED, A=AMBER, G=GREEN
⊥	GROUNDING
ⓧ	CONTACTOR/RELAY COIL
⊞	FUSE
Ⓜ	POWER TRANSFORMER
⊥	NORMAL OPEN CONTACT
⊞	NORMAL CLOSED CONTACT
⊞	CIRCUIT BREAKER
□	PANELBOARD, CONTROL PANEL
▨	FLUORESCENT FIXTURE - 48", 2 TUBES
Ⓧ	PRESSURE TRANSDUCER No. X
Ⓜ	ELAPSED TIME METER

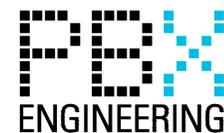
LINE TYPE LEGEND	
LINE	DESCRIPTION
—	120V CONDUIT/CABLE
- - -	COMMUNICATIONS OR LOW VOLTAGE CONDUIT/CABLE
— · —	347/600V CONDUIT/CABLE
- - - - -	GROUNDING
- - - - -	FIBRE OPTIC (RED)
- - - - -	ETHERNET (PURPLE)
- - - - -	PHONE LINE (GREEN)

ABBREVIATIONS:

ATS	AUTOMATIC TRANSFER SWITCH
C	COIL
CC	CONTROL CABINET
CEC	CANADIAN ELECTRICAL CODE, PART1, LATEST EDITION
CTRL	CONTROL
DET	DETAIL
ETM	ELAPSED TIME METER
F	FUSE
FMC	FLEXIBLE METAL CONDUIT
GEN	GENERATOR
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GRD	GROUNDING
H	HOT/ENERGIZED
HOA	HAND-OFF-AUTO CONTROL
HP	HORSE POWER
MGB	MASTER GROUND BAR
N	NEUTRAL
NIC	NOT IN CONTRACT
OL	OVERLOAD PROTECTION
PH, Ⓟ	PHASE
PLC	PROGRAMMABLE LOGIC CONTROLLER
PNL	PANEL
PT	PRESSURE TRANSMITTER
R	RELAY
RAC	RIGID ALUMINUM CONDUIT
REC	RECEPTACLES
RTU	REMOTE TERMINAL UNIT
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR
VFD	VARIABLE FREQUENCY DRIVE
W	WIRE
XFMR	TRANSFORMER

ISSUED FOR CONSTRUCTION

FISHERIES AND OCEANS CANADA REAL PROPERTY AND TECHNICAL SUPPORT	
CHEHALIS RIVER HATCHERY WELLS PWC-2 AND TWC-1 UPGRADES	SCALE N/A DATE 10-Apr-18
ELECTRICAL GENERAL NOTES, SYMBOLS AND ABBREVIATIONS	DRAWING NUMBER 11-29-345
	REVISION 1

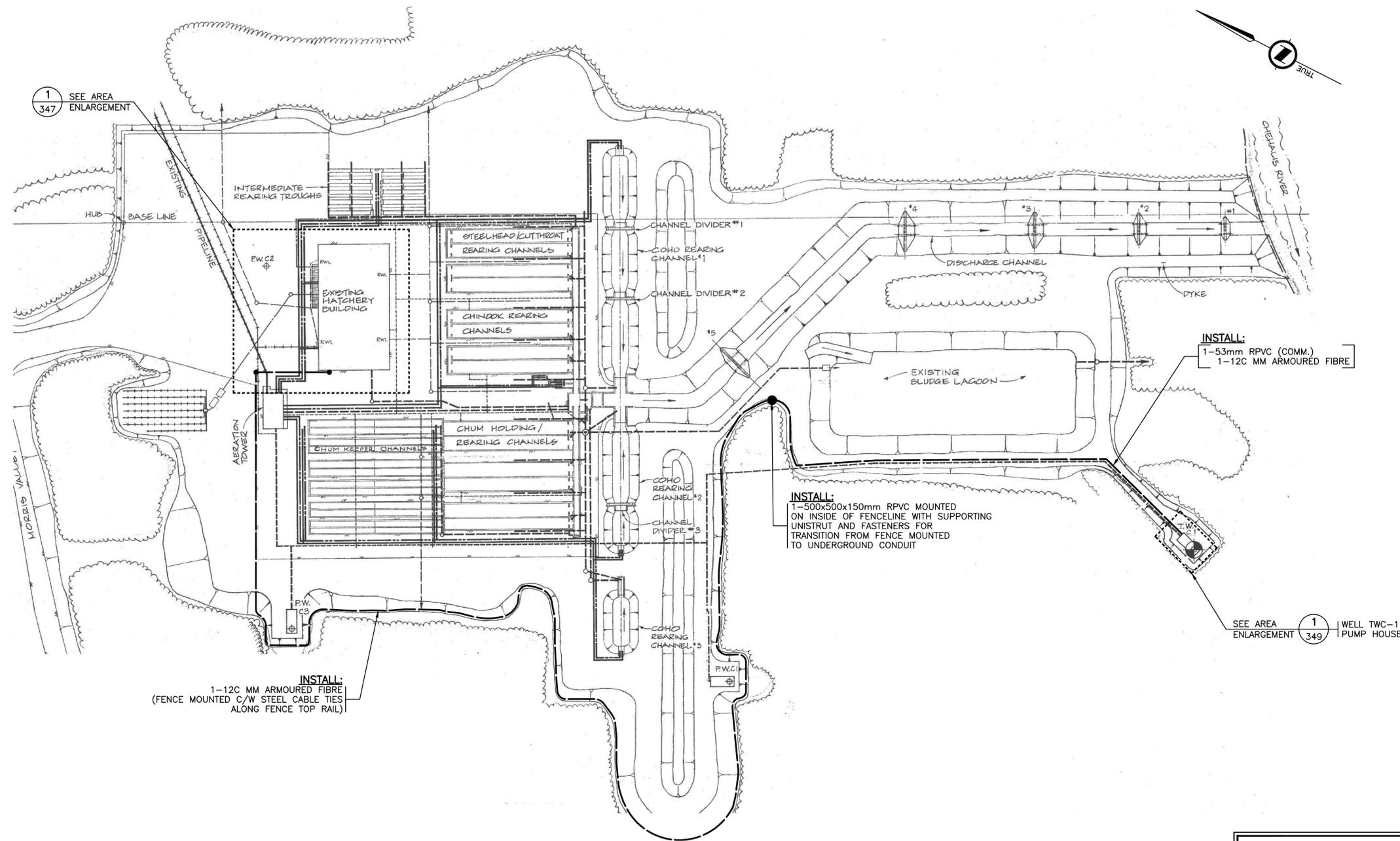


NO.	DATE	REVISIONS
1	2018-APR-04	ISSUED FOR CONSTRUCTION

DESIGNED	
AO	
DRAWN	
PBX	
CHECKED	
BW	
RECOMMENDED	
APPROVED	
APPROVED	

NOTES

P:\15127_BFO_Chehalis_Hatchery_Wells_Pump_01 - Well 4_Pump_Downing_ACAD\2-Well_3 - Site_Work\11-29-345-10/04/2018_8:39 AM - JORDAN MACRI



SITE PLAN
1:500

ISSUED FOR CONSTRUCTION

ALL EQUIPMENT IS EXISTING
UNLESS NOTED OTHERWISE



FISHERIES AND OCEANS CANADA
REAL PROPERTY AND TECHNICAL SUPPORT

CHEHALIS RIVER HATCHERY
WELLS PWC-2 AND TWC-1 UPGRADES

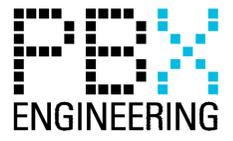
ELECTRICAL
SITE PLAN

SCALE
AS NOTED
DATE
10-Apr-18
DRAWING NUMBER
11-29-346
REVISION
1

DESIGNED
AO
DRAWN
PBX
CHECKED
BW
RECOMMENDED
APPROVED
APPROVED

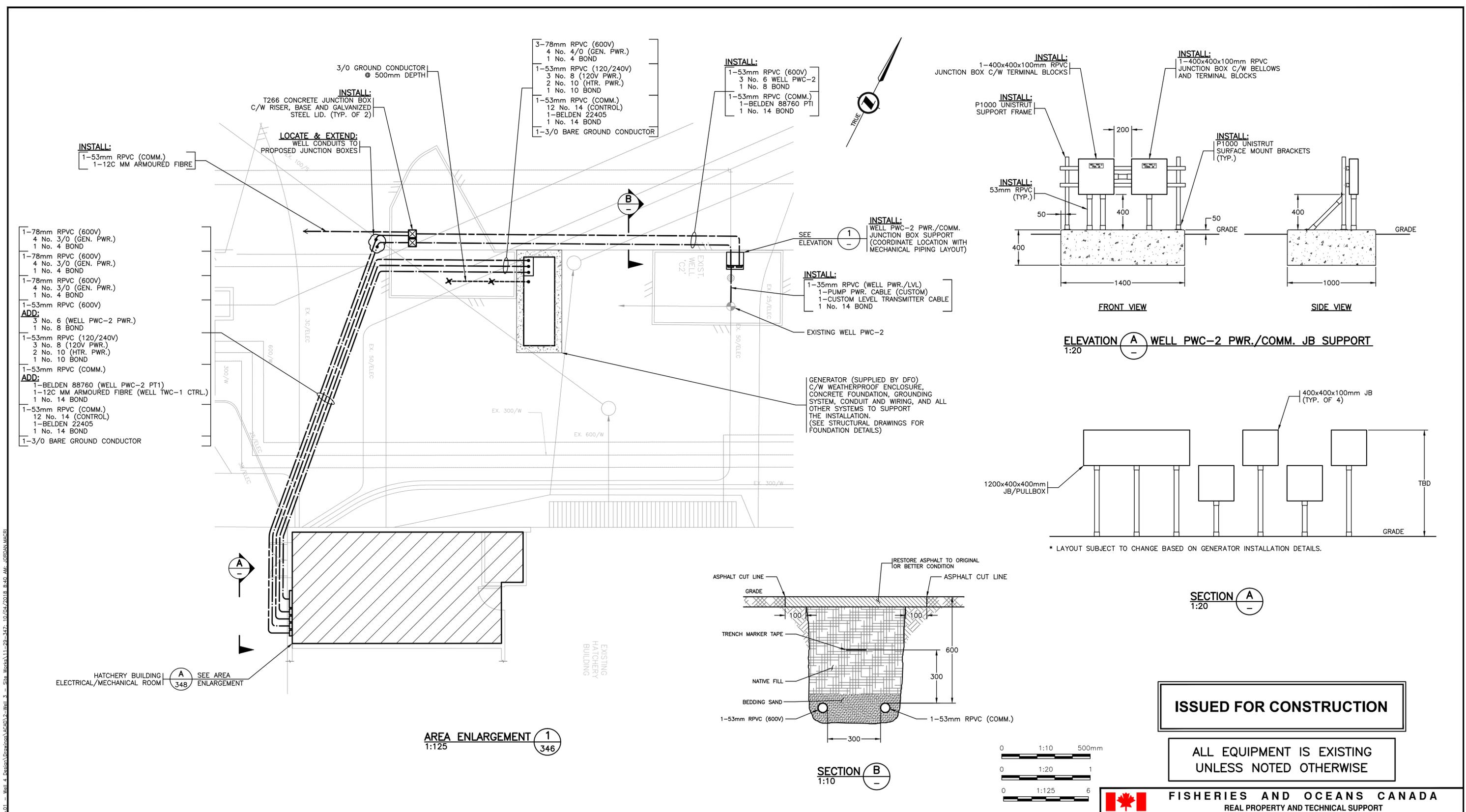
NO.	DATE	REVISIONS
1	2018-APR-04	ISSUED FOR CONSTRUCTION

NOTES



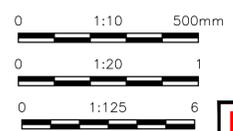
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P:\15127_BFO_Chehalis_Hatchery_Well_Pump_01 - Well_4_Peston_Downing_ACAD_2-Well_3 - Site_Work\11-29-347_10/04/2018_8:40 AM - JORDAN MACRI



ISSUED FOR CONSTRUCTION

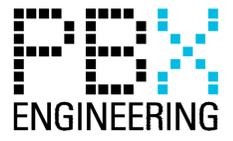
ALL EQUIPMENT IS EXISTING UNLESS NOTED OTHERWISE



FISHERIES AND OCEANS CANADA
 REAL PROPERTY AND TECHNICAL SUPPORT

CHEHALIS RIVER HATCHERY WELLS PWC-2 AND TWC-1 UPGRADES ELECTRICAL AREA ENLARGEMENT & SECTIONS	SCALE AS NOTED
	DATE 10-Apr-18
DRAWING NUMBER 11-29-347	REVISION 1

- NOTES:**
- CONTRACTOR SHALL SUPPLY AND INSTALL ELECTRICAL CONDUITS IN COMMON TRENCH WITH WATER PIPES WHERE FEASIBLE.
 - CONTRACTOR TO INVESTIGATE AND CONFIRM CONFLICTS WITHIN HATCHERY BUILDING ELEC. / MECH. ROOM ASSOCIATED WITH CONDUIT PENETRATION INTO BUILDING AND ADJUST AS REQUIRED.

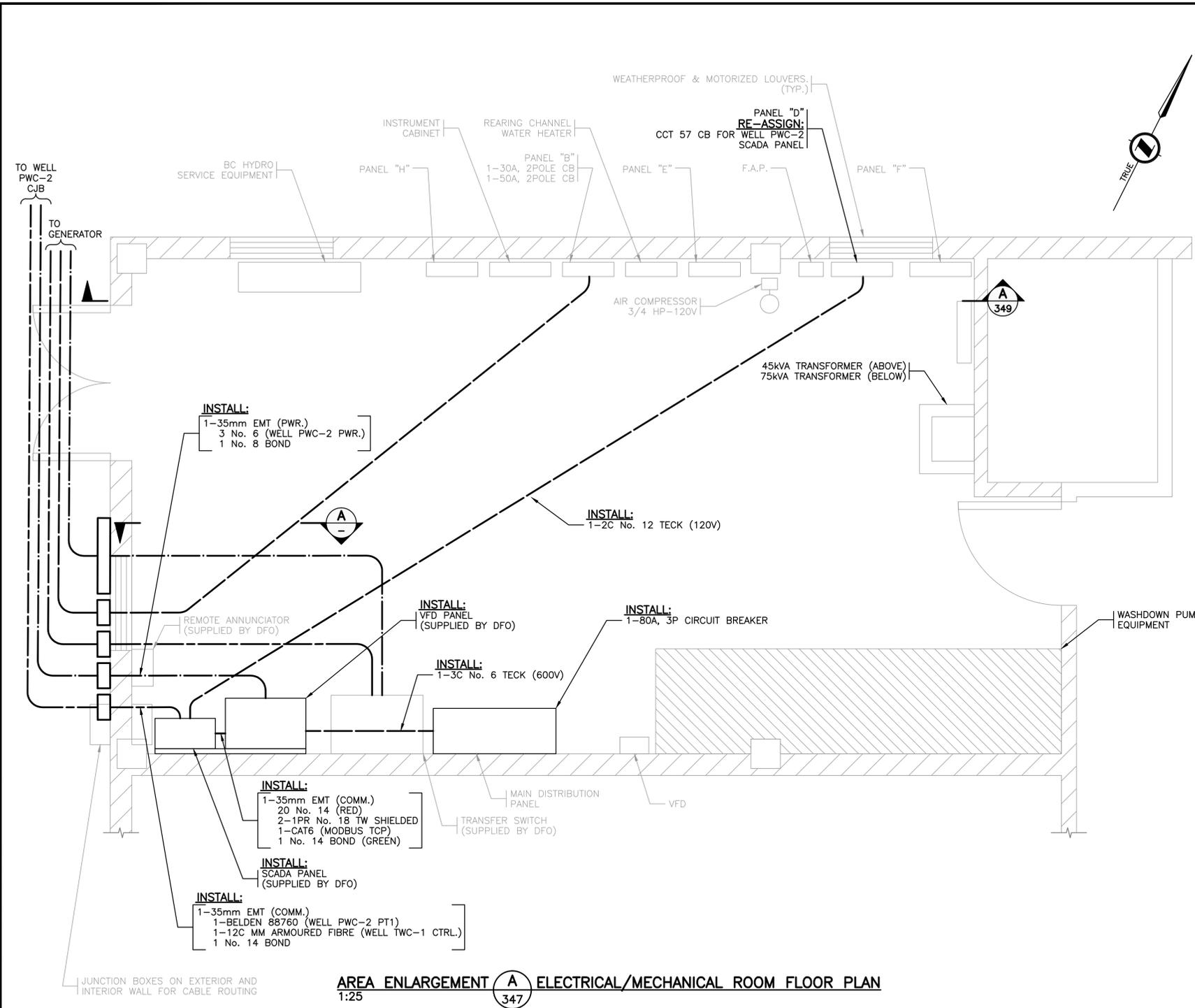


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RECOMMENDED	
APPROVED	
APPROVED	

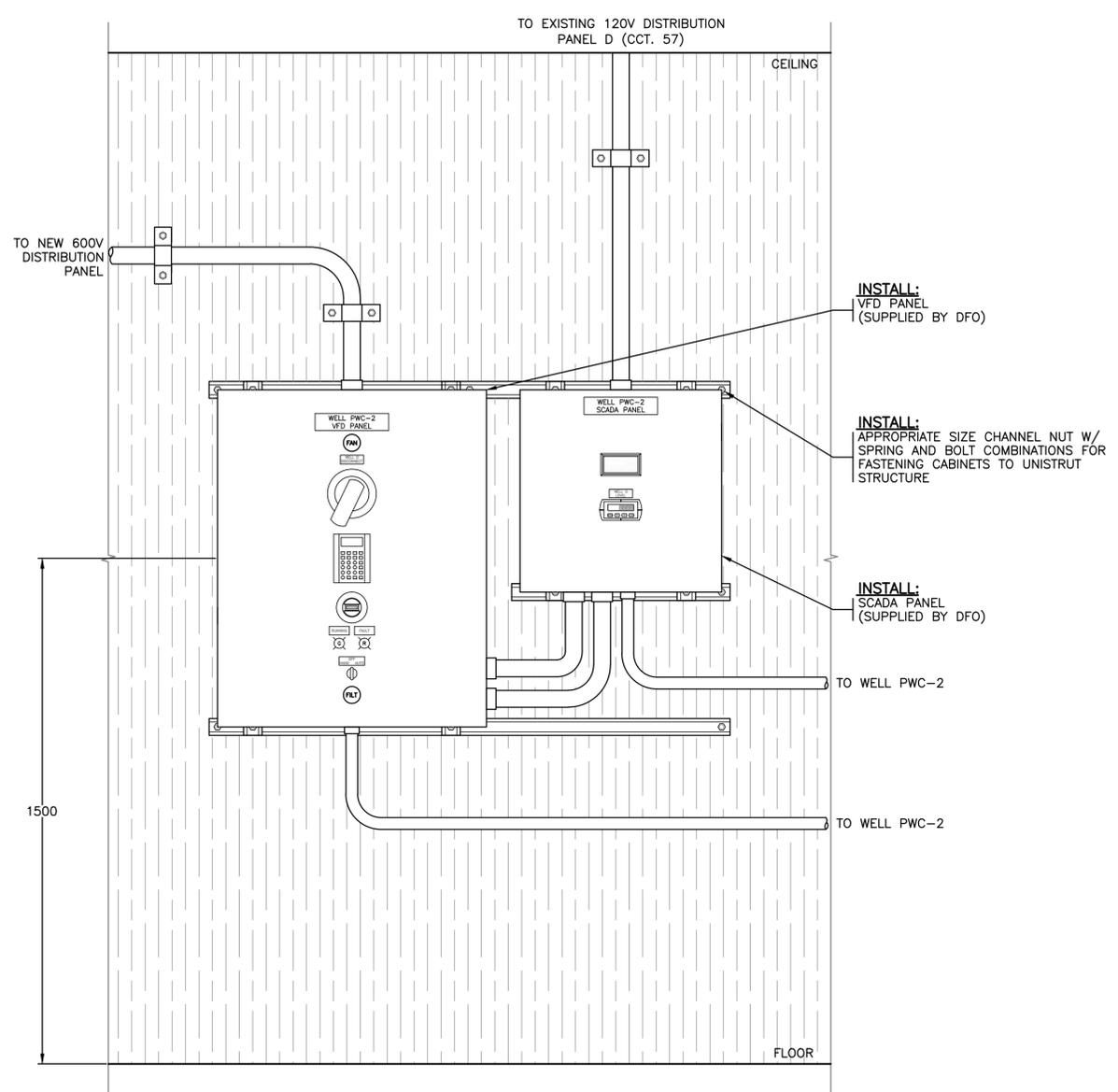
1	2018-APR-04	ISSUED FOR CONSTRUCTION
NO.	DATE	REVISIONS

NOTES

P:\15127_BFO_Chehalis_Hatchery_Well_Pump_01 - Well 4_Peston\Drawings\ACAD\2-Well_3 - Site_Works\11-29-348 - 10/04/2018_8:40 AM - JORDAN MACRI



AREA ENLARGEMENT A ELECTRICAL/MECHANICAL ROOM FLOOR PLAN
1:25



SECTION A VFD AND SCADA PANELS
1:10

ISSUED FOR CONSTRUCTION

ALL EQUIPMENT IS EXISTING
UNLESS NOTED OTHERWISE

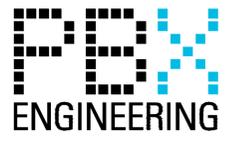


FISHERIES AND OCEANS CANADA
REAL PROPERTY AND TECHNICAL SUPPORT

CHEHALIS RIVER HATCHERY
WELLS PWC-2 AND TWC-1 UPGRADES

ELECTRICAL
AREA ENLARGEMENT
MAIN ELECTRICAL ROOM

SCALE	N/A
DATE	10-Apr-18
DRAWING NUMBER	11-29-348
REVISION	1

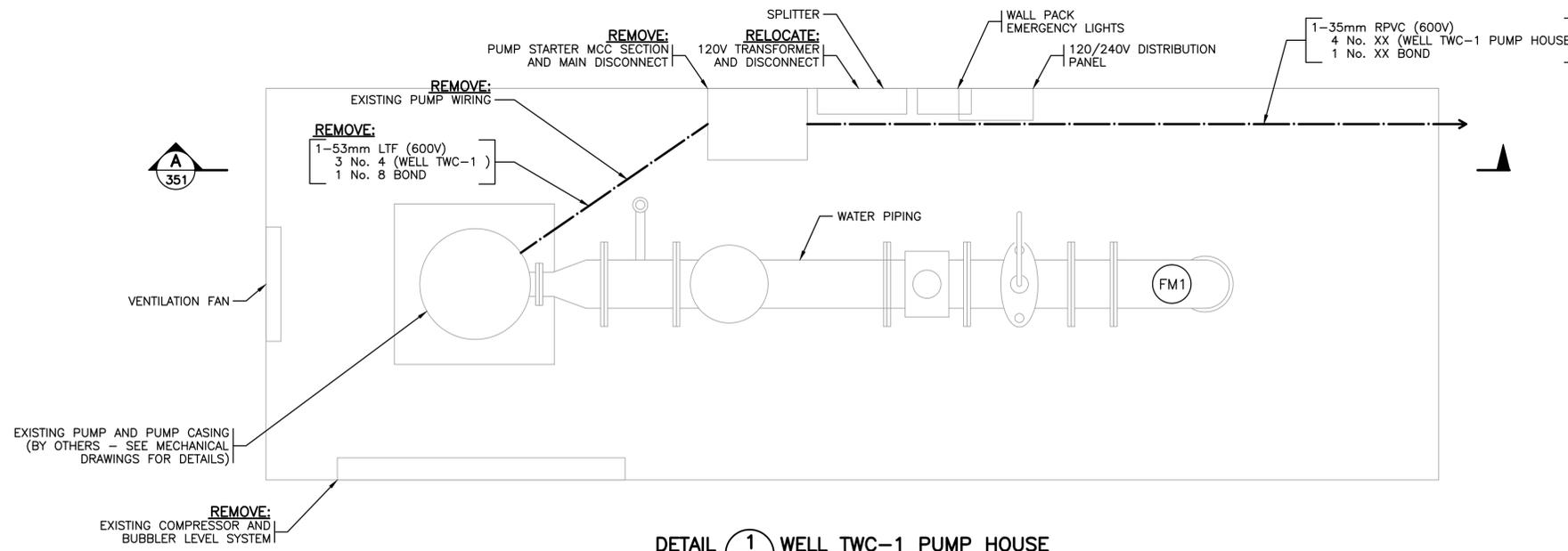


- NOTES:**
1. THE PROPOSED ELECTRICAL EQUIPMENT AND UNISTRUT SUPPORT STRUCTURE SHALL HAVE A MINIMUM 1000mm SEPARATION FROM ALL EXISTING EQUIPMENT AND WALLS, ON ALL SIDES.
 2. CONTRACTOR SHALL INSTALL ALL WIRING TO IMPLEMENT CONTROL AND POWER SYSTEM DETAILED IN THESE DRAWINGS.
 3. CONTRACTOR SHALL CONFIRM EQUIPMENT AND CABINET DIMENSIONS PRIOR TO FABRICATION OF UNISTRUT SUPPORT STRUCTURE.

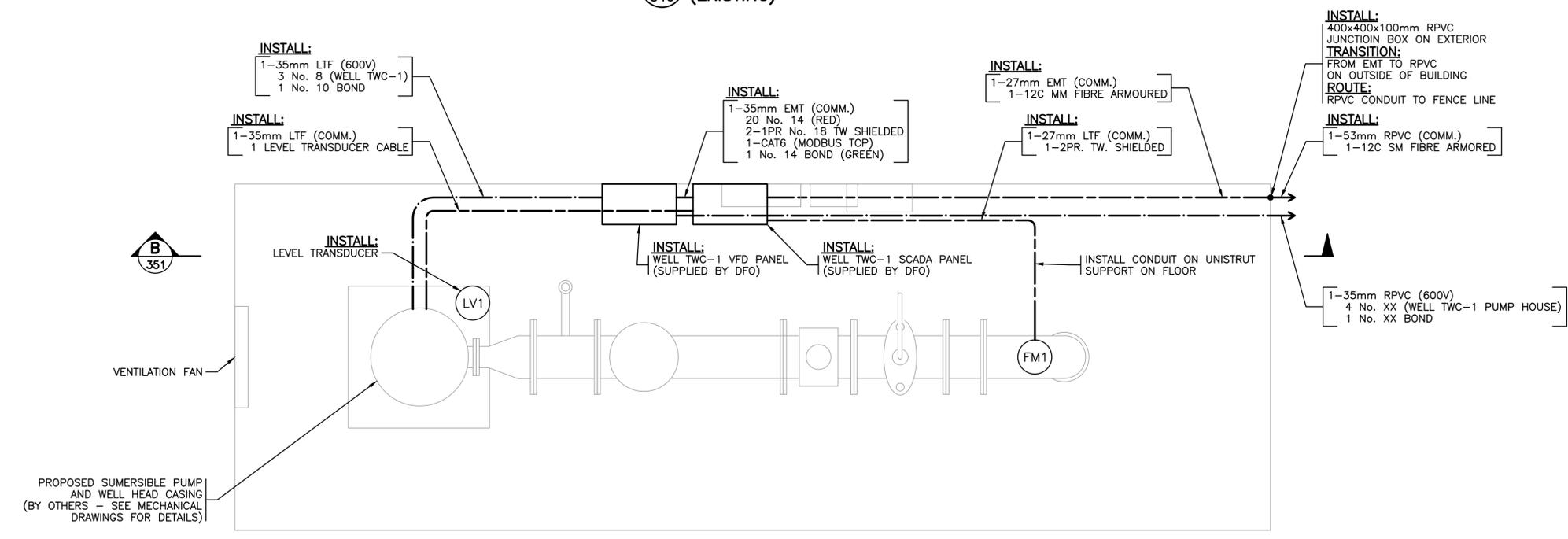
NO.	DATE	REVISIONS
1	2018-APR-04	ISSUED FOR CONSTRUCTION

DESIGNED
AO
DRAWN
PBX
CHECKED
BW
RECOMMENDED
APPROVED
APPROVED

NOTES



DETAIL 1 WELL TWC-1 PUMP HOUSE
1:20 (EXISTING)



DETAIL 2 WELL TWC-1 PUMP HOUSE
1:20 (PROPOSED)

ISSUED FOR CONSTRUCTION

ALL EQUIPMENT IS EXISTING
UNLESS NOTED OTHERWISE



FISHERIES AND OCEANS CANADA
REAL PROPERTY AND TECHNICAL SUPPORT

CHEHALIS RIVER HATCHERY
WELLS PWC-2 AND TWC-1 UPGRADES

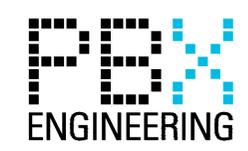
ELECTRICAL
AREA ENLARGEMENT
WELL TWC-1 PUMPHOUSE

SCALE
AS NOTED
DATE
10-Apr-18
DRAWING NUMBER
11-29-349
REVISION
1

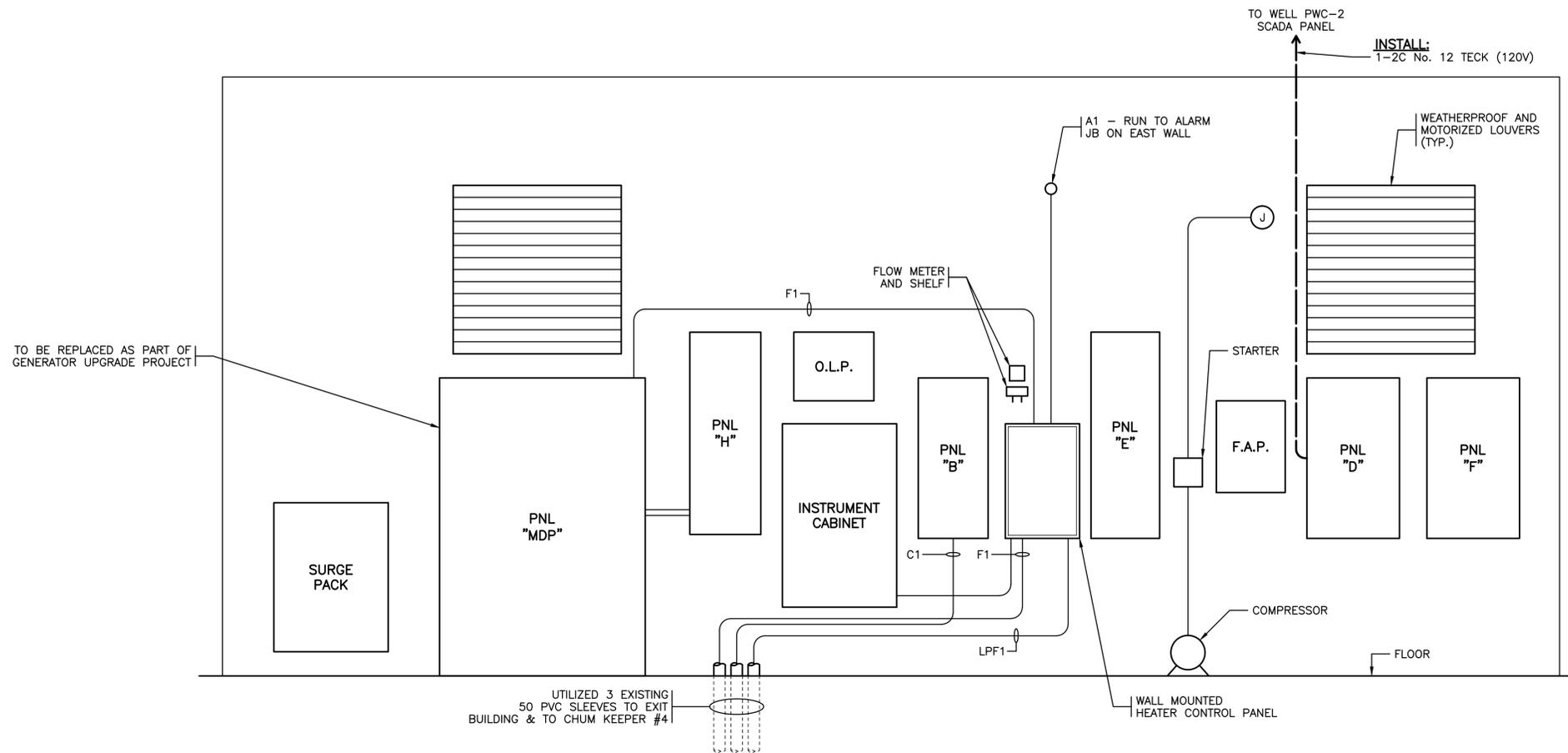
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APPROVED	

NO.	DATE	REVISIONS
1	2018-APR-04	ISSUED FOR CONSTRUCTION

NOTES



P:\15127_BFO_Chehalis_Hatchery_Well_Pump_01 - Well 4_Peston\Drawings\ACAD\2-Well_3 - Site_Works\11-29-349_10/04/2018_8:41 AM - JORDAN MACRI



ELEVATION **A** ELECTRICAL ROOM WEST WALL LAYOUT
N.T.S. **348**

ISSUED FOR CONSTRUCTION

ALL EQUIPMENT IS EXISTING
UNLESS NOTED OTHERWISE

 FISHERIES AND OCEANS CANADA REAL PROPERTY AND TECHNICAL SUPPORT	
CHEHALIS RIVER HATCHERY WELLS PWC-2 AND TWC-1 UPGRADES	
ELECTRICAL ELEVATION MAIN ELECTRICAL ROOM WEST WALL	
SCALE N.T.S.	DATE 10-Apr-18
DRAWING NUMBER 11-29-350	REVISION 1

NOTES:

1. CONDUIT SHALL BE SECURED TO WALL WITH CONDUIT CLAMPS EVERY 500mm.

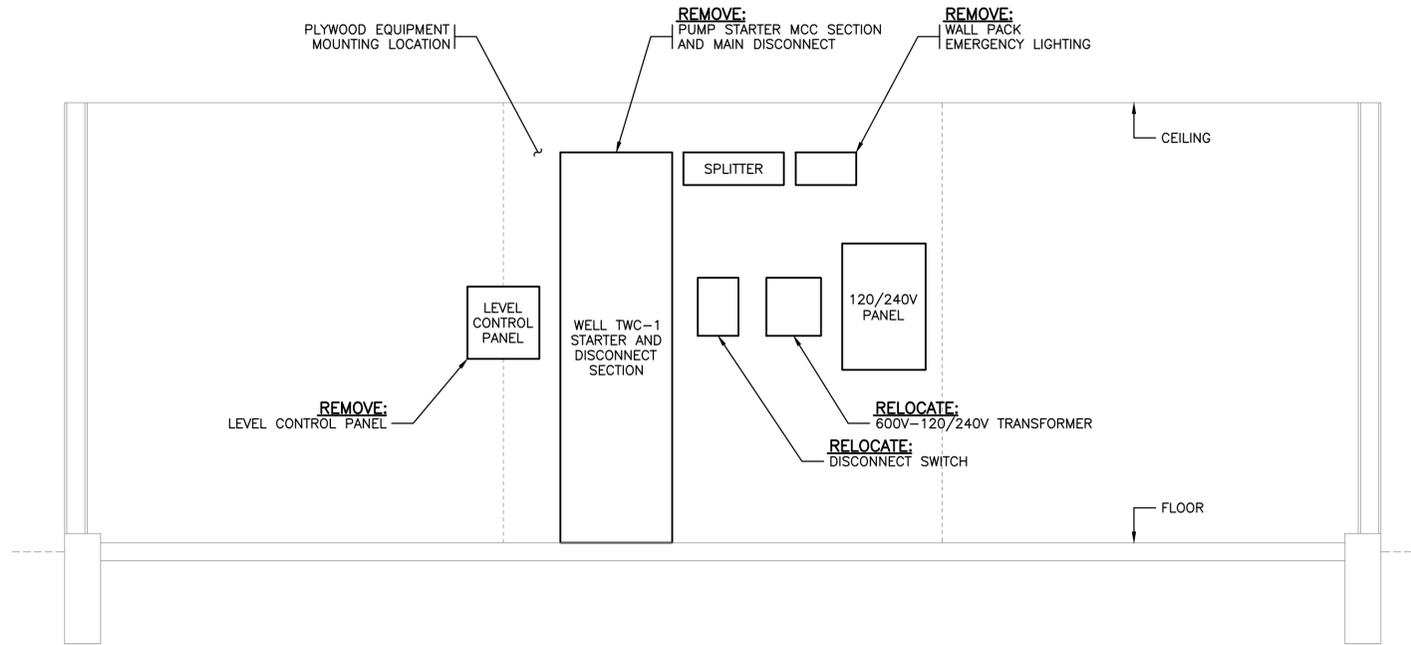
NOTES

NO.	DATE	REVISIONS
1	2018-APR-04	ISSUED FOR CONSTRUCTION

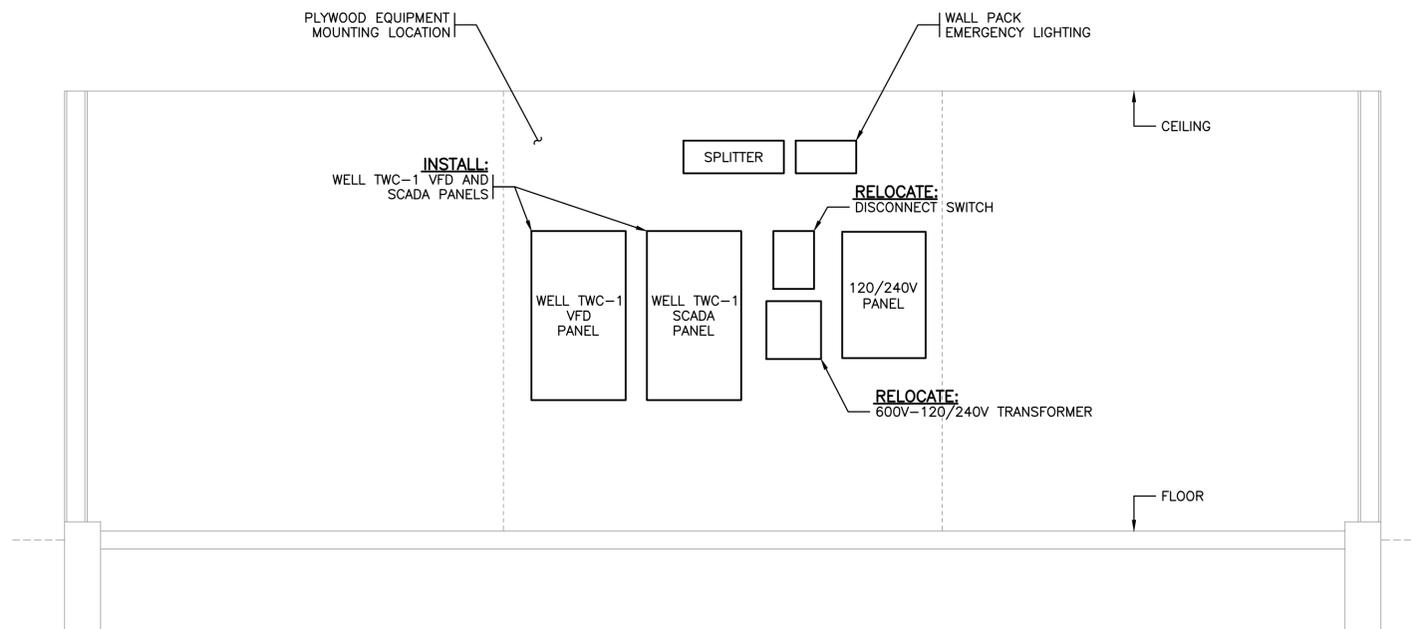
DESIGNED
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BW
RECOMMENDED
APPROVED
APPROVED



P:\15127_BFO_Chehalis_Hatchery_Well_Pump_01 - Well 4_Pump_Domains\CAD\2-Well_3 - Site_Work\11-29-350_10/04/2018_841_AW-JORDAN.MACRI



ELEVATION **A** WELL TWC-1 PUMP HOUSE
1:20 (349) (EXISTING)



ELEVATION **B** WELL TWC-1 PUMP HOUSE
1:20 (349) (PROPOSED)

ISSUED FOR CONSTRUCTION

ALL EQUIPMENT IS EXISTING
UNLESS NOTED OTHERWISE



FISHERIES AND OCEANS CANADA
REAL PROPERTY AND TECHNICAL SUPPORT

CHEHALIS RIVER HATCHERY
WELLS PWC-2 AND TWC-1 UPGRADES

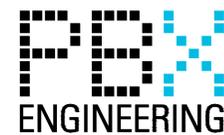
ELECTRICAL
ELEVATIONS
WELL TWC-1 PUMPHOUSE

SCALE	AS NOTED
DATE	10-Apr-18
DRAWING NUMBER	11-29-351
REVISION	1

DESIGNED	
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RECOMMENDED	
APPROVED	
APPROVED	

NO.	DATE	REVISIONS
1	2018-APR-04	ISSUED FOR CONSTRUCTION

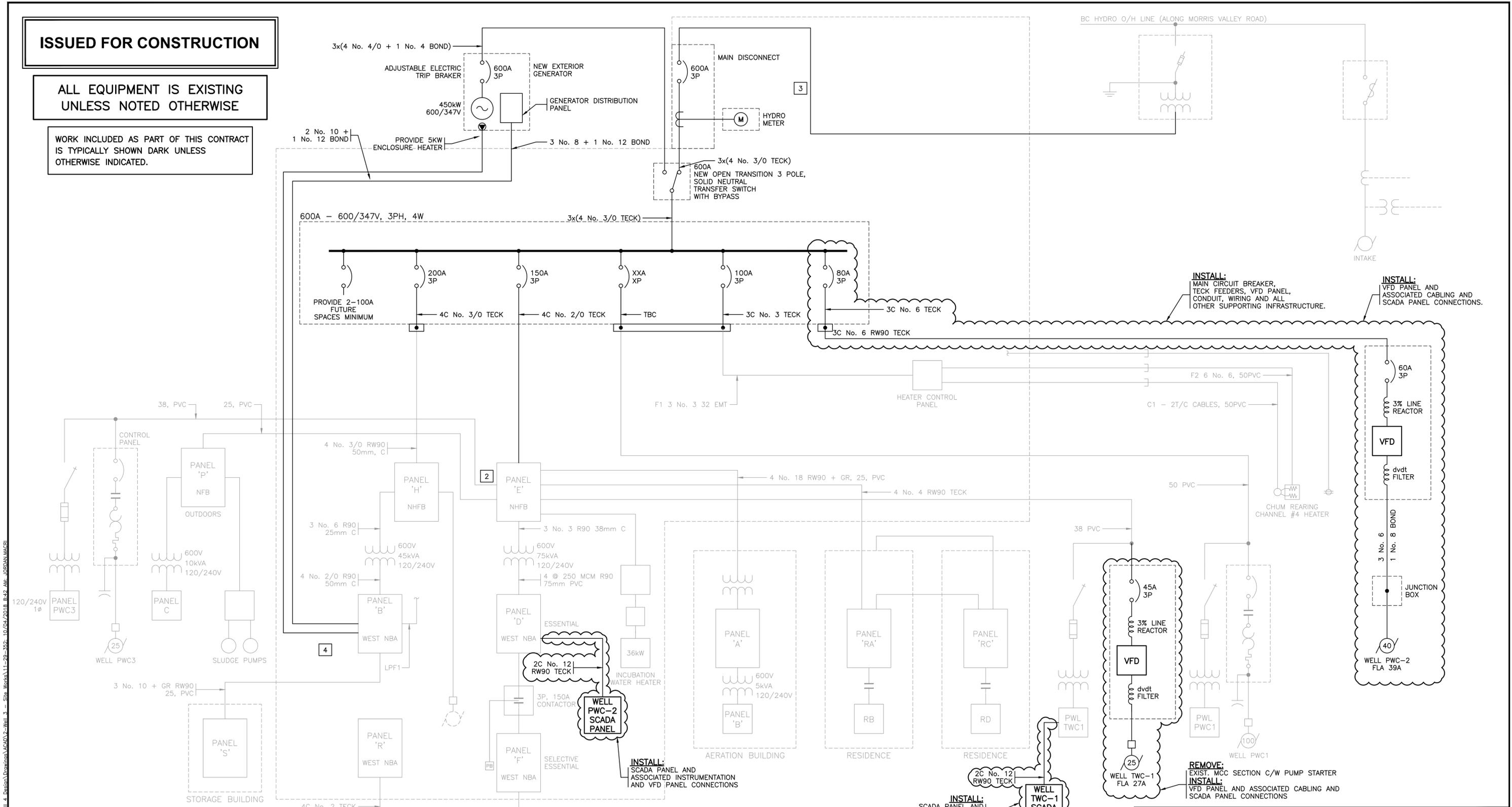
NOTES



ISSUED FOR CONSTRUCTION

ALL EQUIPMENT IS EXISTING UNLESS NOTED OTHERWISE

WORK INCLUDED AS PART OF THIS CONTRACT IS TYPICALLY SHOWN DARK UNLESS OTHERWISE INDICATED.



- NOTES:**
 *EQUIPMENT SIZE TO BE CONFIRMED BY EQUIPMENT MANUFACTURER.
- THIS DRAWING HAS BEEN CREATED FROM EXISTING DFO AS-BUILT DRAWINGS. ENGINEER TAKES NO RESPONSIBILITY FOR THE ACCURACY OR COMPLETENESS OF EXISTING EQUIPMENT SHOWN ON THIS DRAWING.
 - CONTRACTOR MUST COORDINATE POWER OUTAGES AS REQUIRED WITH FACILITY OPERATIONS A MINIMUM OF 2 WEEKS IN ADVANCE.

NOTES

NO.	DATE	REVISIONS
1	2018-APR-04	ISSUED FOR CONSTRUCTION

DESIGNED	
DRAWN	
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CHECKED	
BW	
RECOMMENDED	
APPROVED	
APPROVED	

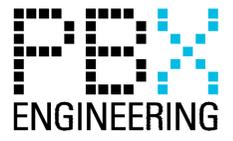
FISHERIES AND OCEANS CANADA
 REAL PROPERTY AND TECHNICAL SUPPORT

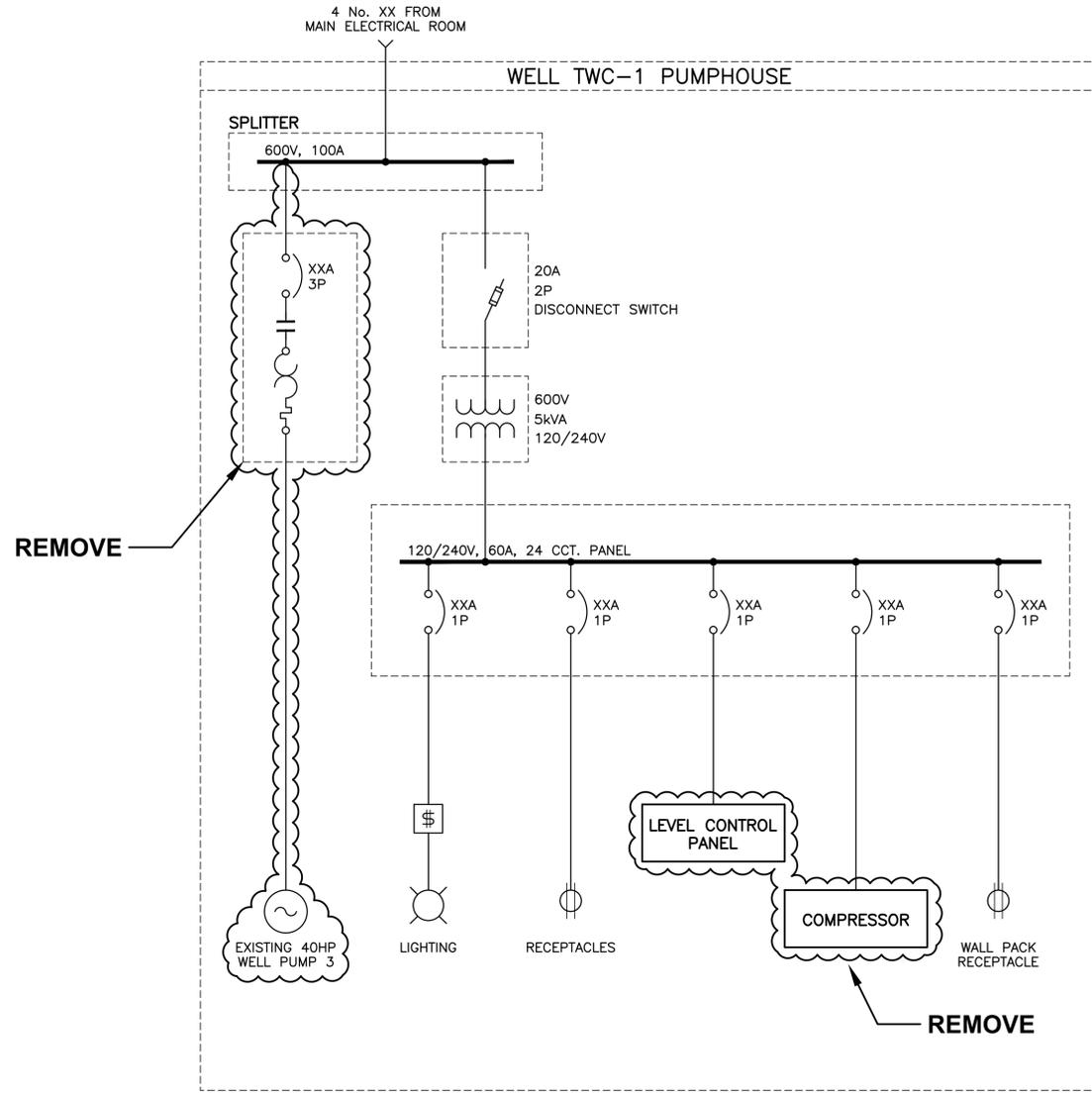
CHEHALIS RIVER HATCHERY
WELLS PWC-2 AND TWC-1 UPGRADES

ELECTRICAL
SINGLE LINE DIAGRAM
MAIN ELECTRICAL ROOM

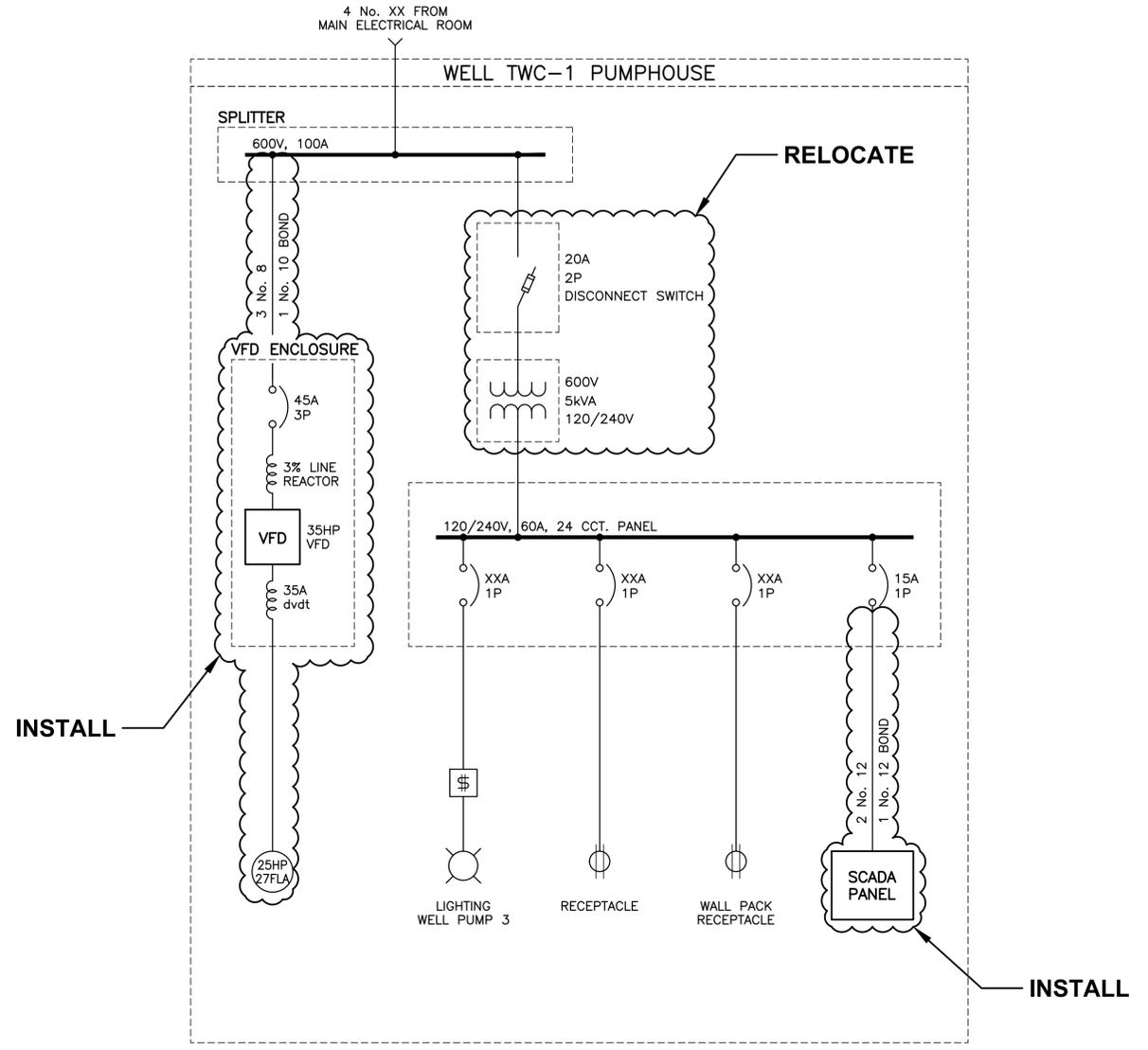
SCALE: N/A
 DATE: 15-Aug-17
 DRAWING NUMBER: 11-29-352
 REVISION: 1

P:\15177_BFO_Chehalis_Hatchery_Well_Pump_01 - Well_4_Personal_Downing_ACAD_2-Well_3 - Site_Work_11-29-352_10/04/2018_8:42 AM - JORDAN MACRI





EXISTING



PROPOSED

ISSUED FOR CONSTRUCTION

ALL EQUIPMENT IS EXISTING
UNLESS NOTED OTHERWISE

FISHERIES AND OCEANS CANADA
REAL PROPERTY AND TECHNICAL SUPPORT

CHEHALIS RIVER HATCHERY
WELLS PWC-2 AND TWC-1 UPGRADES

ELECTRICAL
SINGLE LINE DIAGRAM
WELL TWC-1 PUMPHOUSE

SCALE
N/A

DATE
10-Apr-18

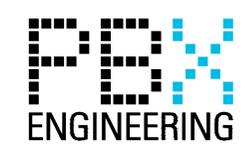
DRAWING NUMBER
11-29-353

REVISION
1

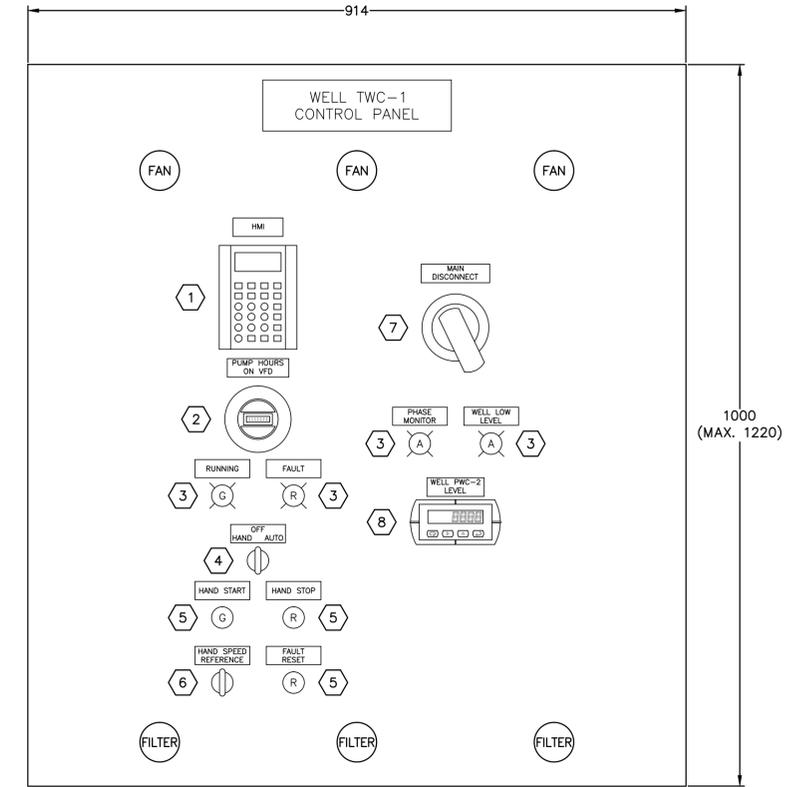
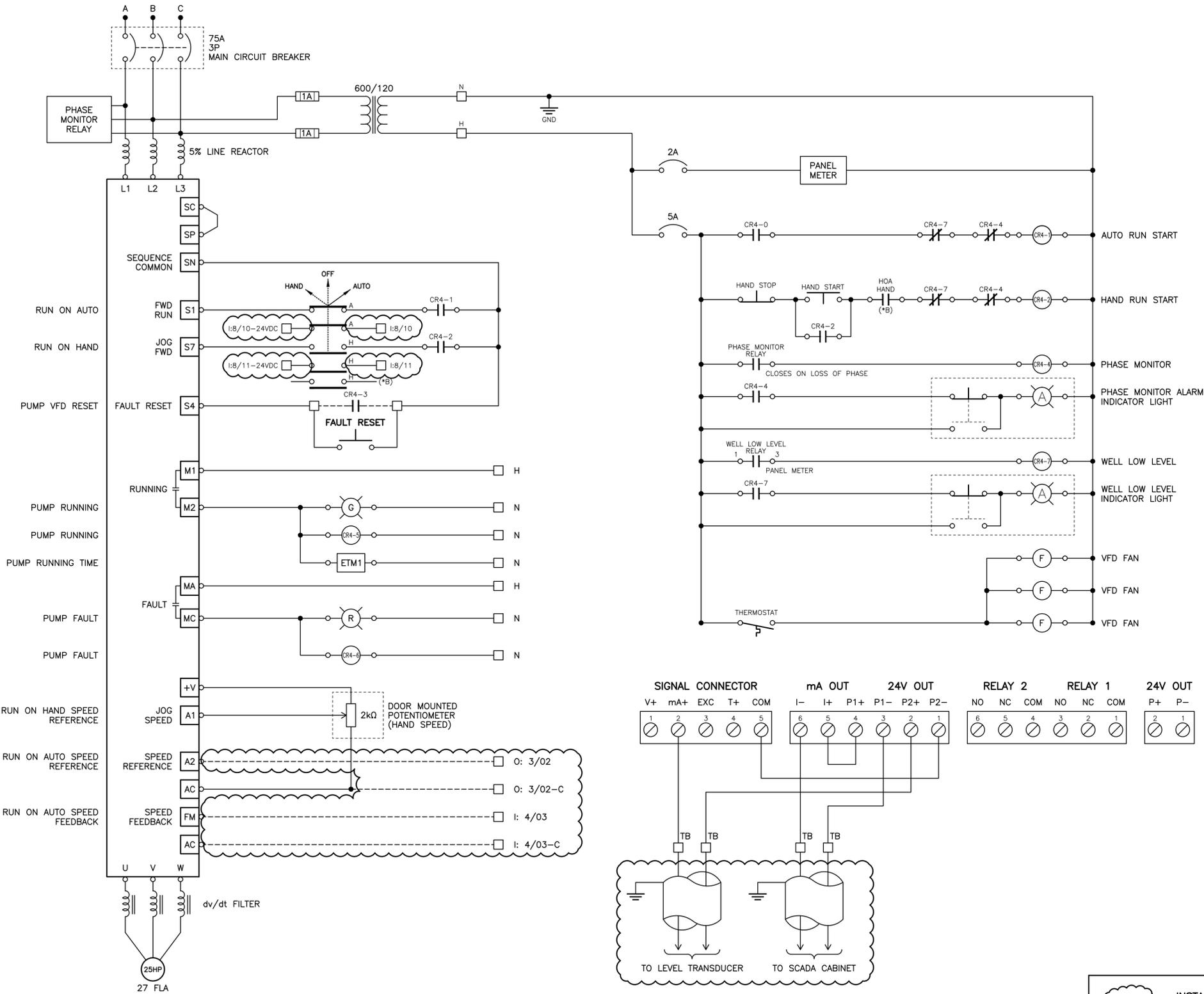
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RECOMMENDED
APPROVED
APPROVED

NO.	DATE	REVISIONS
1	2018-APR-04	ISSUED FOR CONSTRUCTION

NOTES



P:\15127_BFO_Chehalis_Hatchery_Well_Pump_01 - Well 4_Pump_01\Drawings\ACAD\2-Well_3 - Site_Works\11-29-353_10/04/2018_8:42 AM - JORDAN MACRI



DETAIL 1 VFD ENCLOSURE FRONT PANEL LAYOUT
1:5

EQUIPMENT LIST		
ITEM	DESCRIPTION	PART NUMBER
1	VFD HMI	PER VFD MANUFACTURER
2	PUMP HOUR METER	INTERMATIC
3	PILOT LIGHTS	EATON/OMRON 30MM
4	HOA SWITCH	EATON/OMRON 30MM
5	PUSH BUTTONS	EATON/OMRON 30MM
6	SPEED REFERENCE DIAL	EATON/OMRON 30MM (RANGE 0-100)
7	CIRCUIT BREAKER DISCONNECT	EATON
8	PANEL METER	TRIDENT PD765-6R5-10

ISSUED FOR CONSTRUCTION

ALL EQUIPMENT IS EXISTING UNLESS NOTED OTHERWISE

INSTALL FIELD WIRING CONNECTIONS AS REQUIRED

FISHERIES AND OCEANS CANADA
REAL PROPERTY AND TECHNICAL SUPPORT

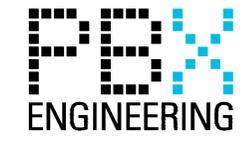
CHEHALIS RIVER HATCHERY
WELLS PWC-2 AND TWC-1 UPGRADES

ELECTRICAL DETAILS
WELL TWC-1 VFD CONTROL DIAGRAM

SCALE N.T.S.
DATE 10-Apr-18
DRAWING NUMBER 11-29-354
REVISION 1

NOTES:

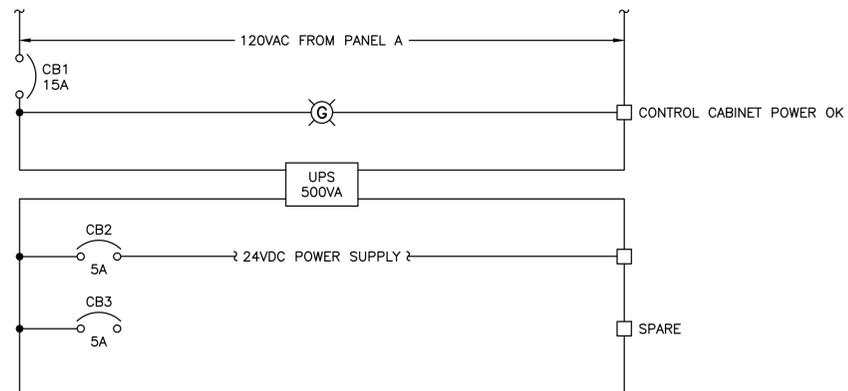
- DRAWINGS ARE DIAGRAMMATIC. REFER TO IITS SHOP DRAWINGS FOR EXACT TERMINAL NUMBERS AND CONNECTION DETAILS.
- CONTRACTOR TO INSTALL ALL FIELD WIRING BETWEEN VFD AND SCADA PANELS, AND FIELD INSTRUMENTATION AND PANELS.



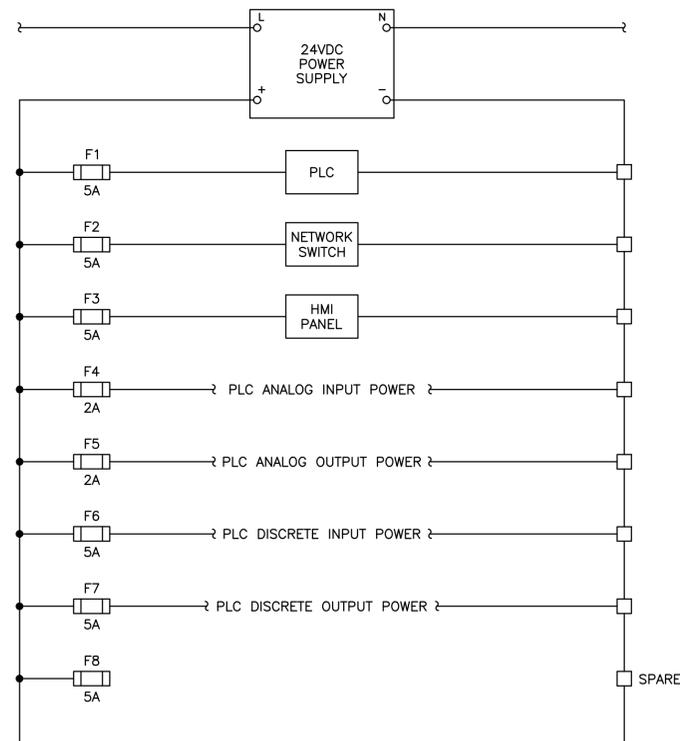
NO.	DATE	REVISIONS
1	2018-APR-04	ISSUED FOR CONSTRUCTION

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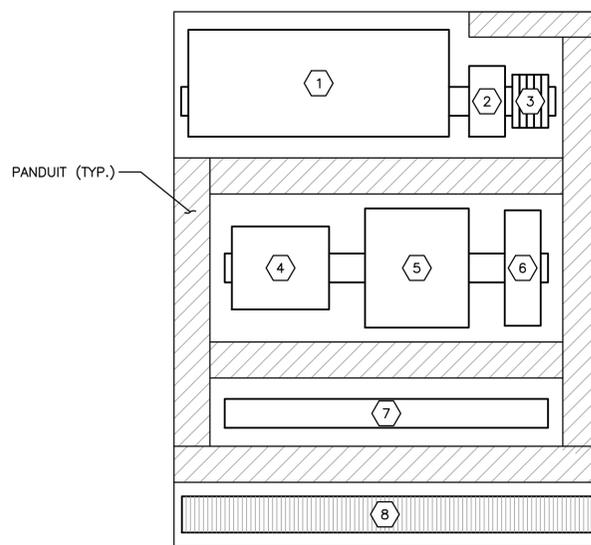
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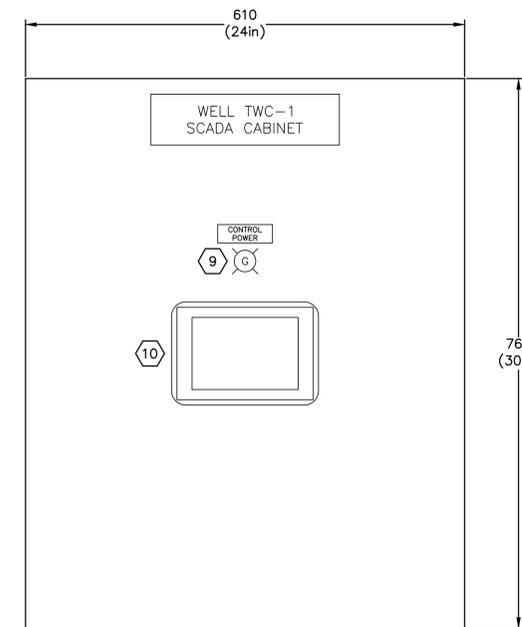
CONTROL CABINET POWER (120VAC)



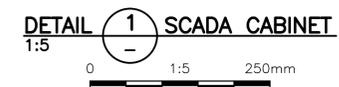
CONTROL CABINET POWER (24VDC)



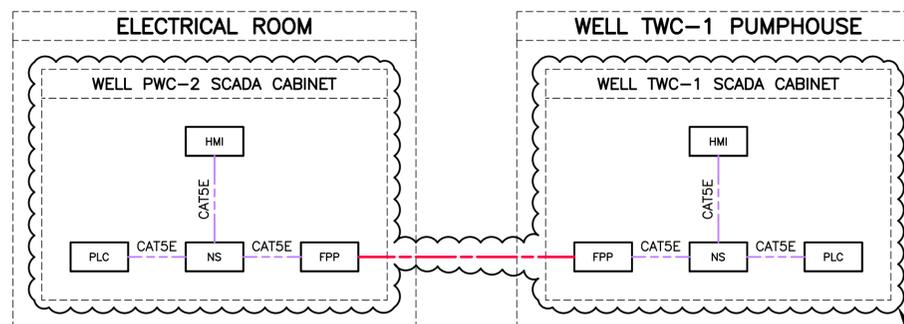
BACKPAN



FRONT PANEL



EQUIPMENT LIST		
ITEM	DESCRIPTION	PART NUMBER
1	UPS	APC SMART UPS DR500
2	POWER SUPPLY	PHOENIC CONTACT QUINT4-PS/1AC/24DC/10
3	CIRCUIT BREAKERS	ALLEN BRADLEY 1492-SP1BXXX
4	NETWORK SWITCH	FL SWITCH SF 77X/FXS7
5	PLC	SCADAPACK 334 C/W ANALOG OUTPUT
6	FIBRE PATCH PANEL	CORNING SPH-01P-DIN C/W SPLICE TRAY AND ST CONNECTOR PANEL
7	DIN RAIL	WEIDMULLER
8	TERMINAL BLOCKS	WEIDMULLER
9	PILOT LIGHT	OMRON A30NN TYPE
10	HMI PANEL	BEIJER X2 BASE 7



NETWORK TOPOLOGY

INSTALL

ISSUED FOR CONSTRUCTION

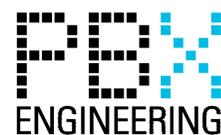
ALL EQUIPMENT IS EXISTING
UNLESS NOTED OTHERWISE

FISHERIES AND OCEANS CANADA
REAL PROPERTY AND TECHNICAL SUPPORT

CHEHALIS RIVER HATCHERY
WELLS PWC-2 AND TWC-1 UPGRADES

ELECTRICAL
DETAILS
WELL TWC-1 PLC POWER & N/W DIAGRAM

SCALE: N/A
DATE: 10-Apr-18
DRAWING NUMBER: 11-29-363
REVISION: 1



NOTES:

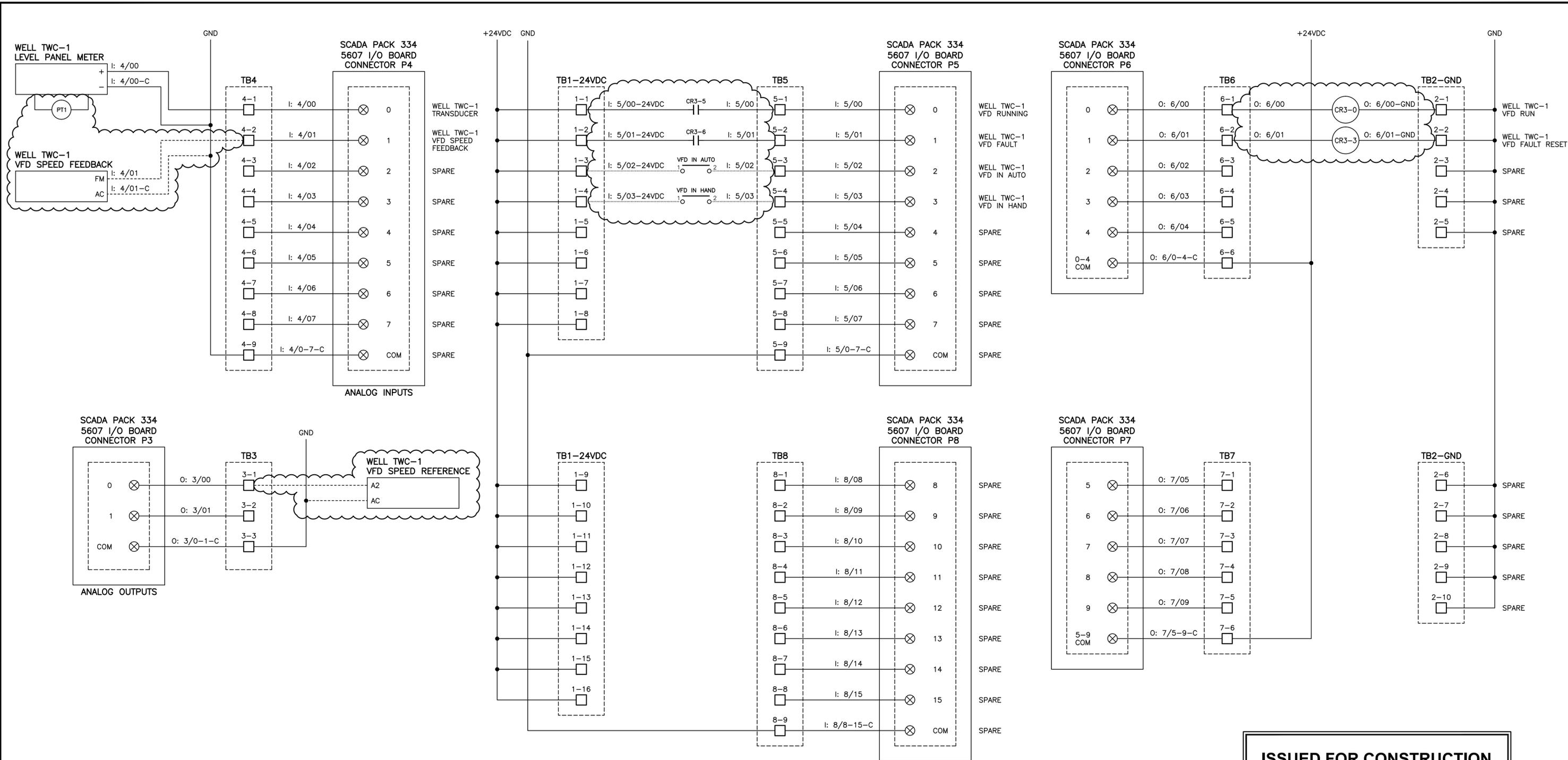
- DRAWINGS ARE DIAGRAMMATIC. REFER TO IITS SHOP DRAWINGS FOR EXACT TERMINAL NUMBERS AND CONNECTION DETAILS.
- CONTRACTOR TO INSTALL ALL FIELD WIRING BETWEEN VFD AND SCADA PANELS, AND FIELD INSTRUMENTATION AND PANELS.

NOTES

NO.	DATE	REVISIONS
1	2018-APR-04	ISSUED FOR CONSTRUCTION

DESIGNED
AO
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BW
RECOMMENDED
APPROVED
APPROVED

P:\15127_BFO_Chehalis_Hatchery_Well_Pump_01 - Well_4_Piston_Downing_ACAD_2-Well_3 - Site_Works\11-29-364-10/04/2018_8:45 AM- JORDAN MACRI



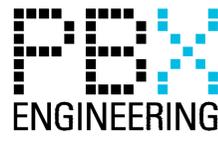
ISSUED FOR CONSTRUCTION

ALL EQUIPMENT IS EXISTING
UNLESS NOTED OTHERWISE

INSTALL FIELD WIRING
CONNECTIONS AS REQUIRED

FISHERIES AND OCEANS CANADA
REAL PROPERTY AND TECHNICAL SUPPORT

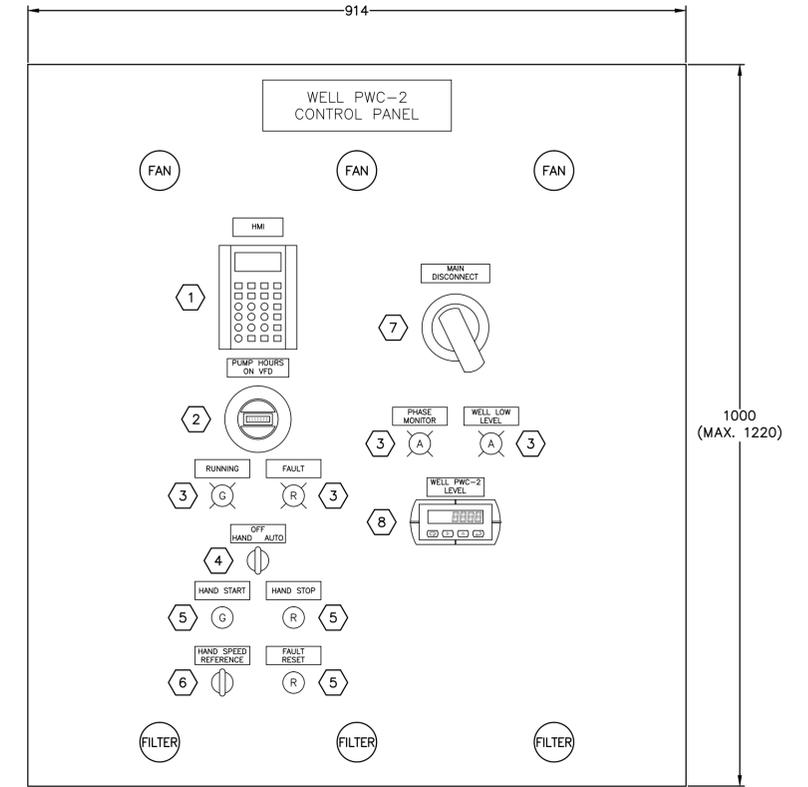
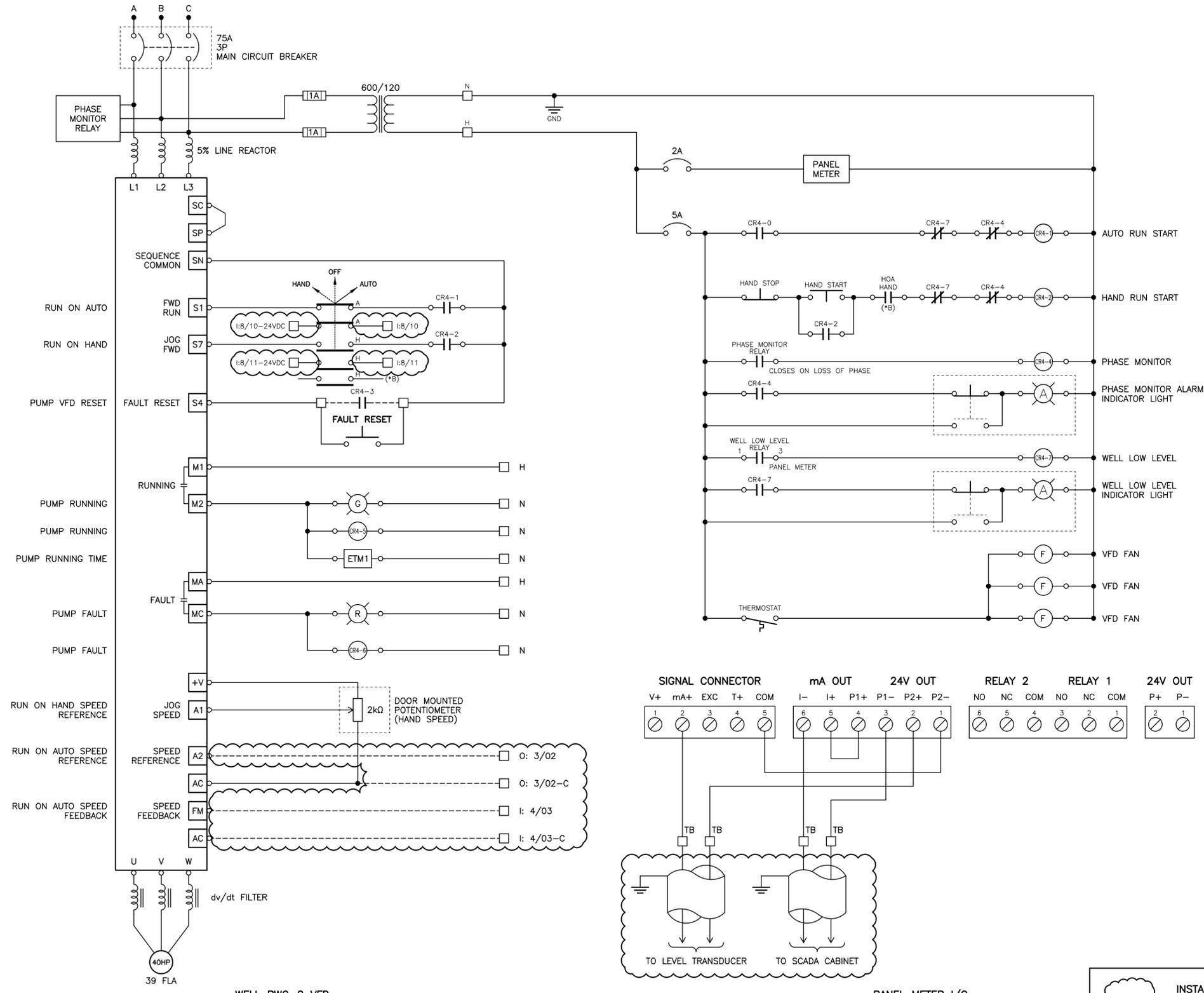
	CHEHALIS RIVER HATCHERY WELLS PWC-2 AND TWC-1 UPGRADES	SCALE N/A
ELECTRICAL DETAILS		DATE 10-Apr-18
WELL TWC-1 SCADAPACK I/O MODULES		DRAWING NUMBER 11-29-364
		REVISION 1



- NOTES:**
- DRAWINGS ARE DIAGRAMMATIC. REFER TO SHOP IITS DRAWINGS FOR EXACT TERMINAL NUMBERS AND CONNECTION DETAILS.
 - CONTRACTOR TO INSTALL ALL FIELD WIRING BETWEEN VFD AND SCADA PANELS, AND FIELD INSTRUMENTATION AND PANELS.

NO.	DATE	REVISIONS	DESIGNED	DRAWN	CHECKED	APPROVED
1	2018-APR-04	ISSUED FOR CONSTRUCTION				

NOTES



DETAIL 1 VFD ENCLOSURE FRONT PANEL LAYOUT
1:5

EQUIPMENT LIST		
ITEM	DESCRIPTION	PART NUMBER
1	VFD HMI	PER VFD MANUFACTURER
2	PUMP HOUR METER	INTERMATIC
3	PILOT LIGHTS	EATON/OMRON 30MM
4	HOA SWITCH	EATON/OMRON 30MM
5	PUSH BUTTONS	EATON/OMRON 30MM
6	SPEED REFERENCE DIAL	EATON/OMRON 30MM (RANGE 0-100)
7	CIRCUIT BREAKER DISCONNECT	EATON
8	PANEL METER	TRIDENT PD765-6R5-10

ISSUED FOR CONSTRUCTION

ALL EQUIPMENT IS EXISTING
UNLESS NOTED OTHERWISE

INSTALL FIELD WIRING
CONNECTIONS AS REQUIRED

FISHERIES AND OCEANS CANADA
REAL PROPERTY AND TECHNICAL SUPPORT

CHEHALIS RIVER HATCHERY
WELLS PWC-2 AND TWC-1 UPGRADES

ELECTRICAL
DETAILS
WELL PWC-2 VFD CONTROL DIAGRAM

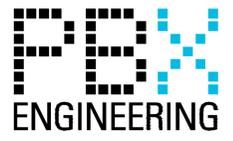
SCALE: N.T.S.
DATE: 10-Apr-18
DRAWING NUMBER: 11-29-365
REVISION: 1

NOTES:

- DRAWINGS ARE DIAGRAMMATIC. REFER TO IITS DRAWINGS FOR EXACT TERMINAL NUMBERS AND CONNECTION DETAILS.
- CONTRACTOR TO INSTALL ALL FIELD WIRING BETWEEN VFD AND SCADA PANELS, AND FIELD INSTRUMENTATION AND PANELS.

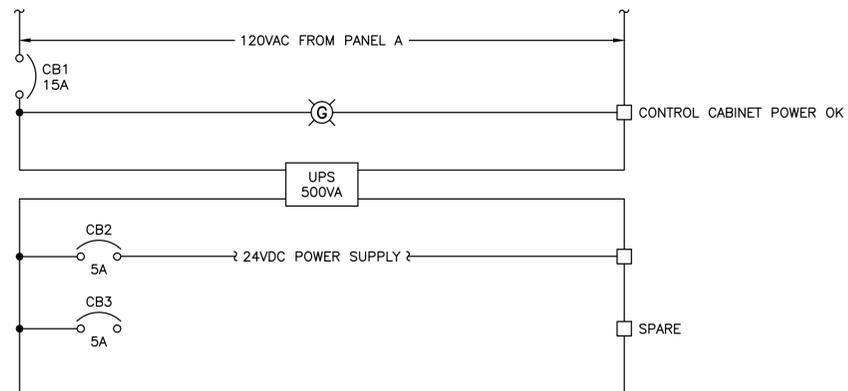
DESIGNED
AO
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RECOMMENDED
APPROVED
APPROVED

NO.	DATE	REVISIONS
1	2018-APR-04	ISSUED FOR CONSTRUCTION

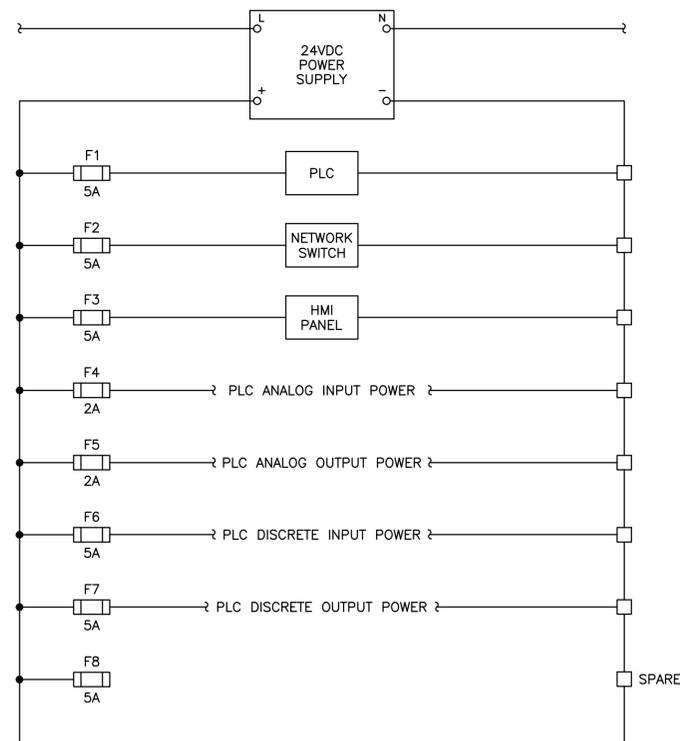


NOTES

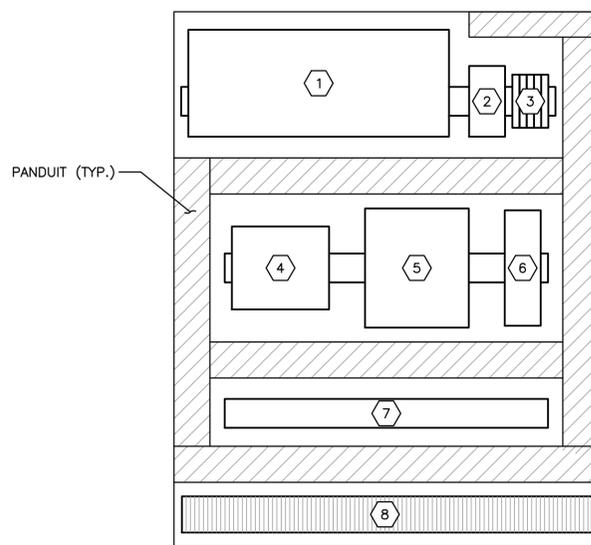
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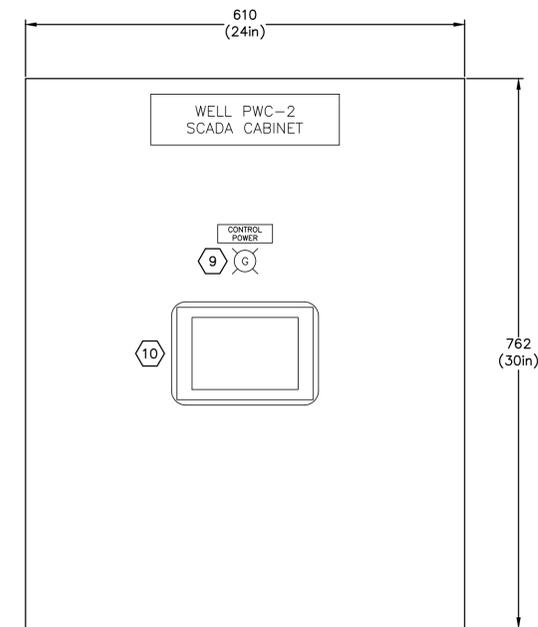
CONTROL CABINET POWER (120VAC)



CONTROL CABINET POWER (24VDC)



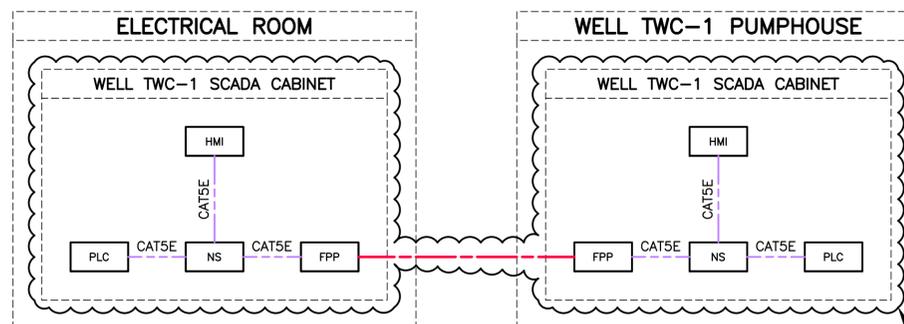
BACKPAN



FRONT PANEL

DETAIL 1 SCADA CABINET
1:5

EQUIPMENT LIST		
ITEM	DESCRIPTION	PART NUMBER
1	UPS	APC SMART UPS DR500
2	POWER SUPPLY	PHOENIC CONTACT QUINT4-PS/1AC/24DC/10
3	CIRCUIT BREAKERS	ALLEN BRADLEY 1492-SP1BXXX
4	NETWORK SWITCH	FL SWITCH SF 77X/FXS7
5	PLC	SCADAPACK 334 C/W ANALOG OUTPUT
6	FIBRE PATCH PANEL	CORNING SPH-01P-DIN C/W SPLICE TRAY AND ST CONNECTOR PANEL
7	DIN RAIL	WEIDMULLER
8	TERMINAL BLOCKS	WEIDMULLER
9	PILOT LIGHT	OMRON A30NN TYPE
10	HMI PANEL	BEIJER X2 BASE 7



NETWORK TOPOLOGY

INSTALL

ISSUED FOR CONSTRUCTION

ALL EQUIPMENT IS EXISTING
UNLESS NOTED OTHERWISE

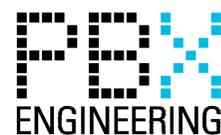
0 1:5 250mm

FISHERIES AND OCEANS CANADA
REAL PROPERTY AND TECHNICAL SUPPORT

CHEHALIS RIVER HATCHERY
WELLS PWC-2 AND TWC-1 UPGRADES

ELECTRICAL
DETAILS
WELL PWC-2 PLC POWER AND N/W DIAGRAM

SCALE: N/A
DATE: 10-Apr-18
DRAWING NUMBER: 11-29-366
REVISION: 1



NOTES:

- DRAWINGS ARE DIAGRAMMATIC. REFER TO IITS DRAWINGS FOR EXACT TERMINAL NUMBERS AND CONNECTION DETAILS.
- CONTRACTOR TO INSTALL ALL FIELD WIRING BETWEEN VFD AND SCADA PANELS, AND FIELD INSTRUMENTATION AND PANELS.

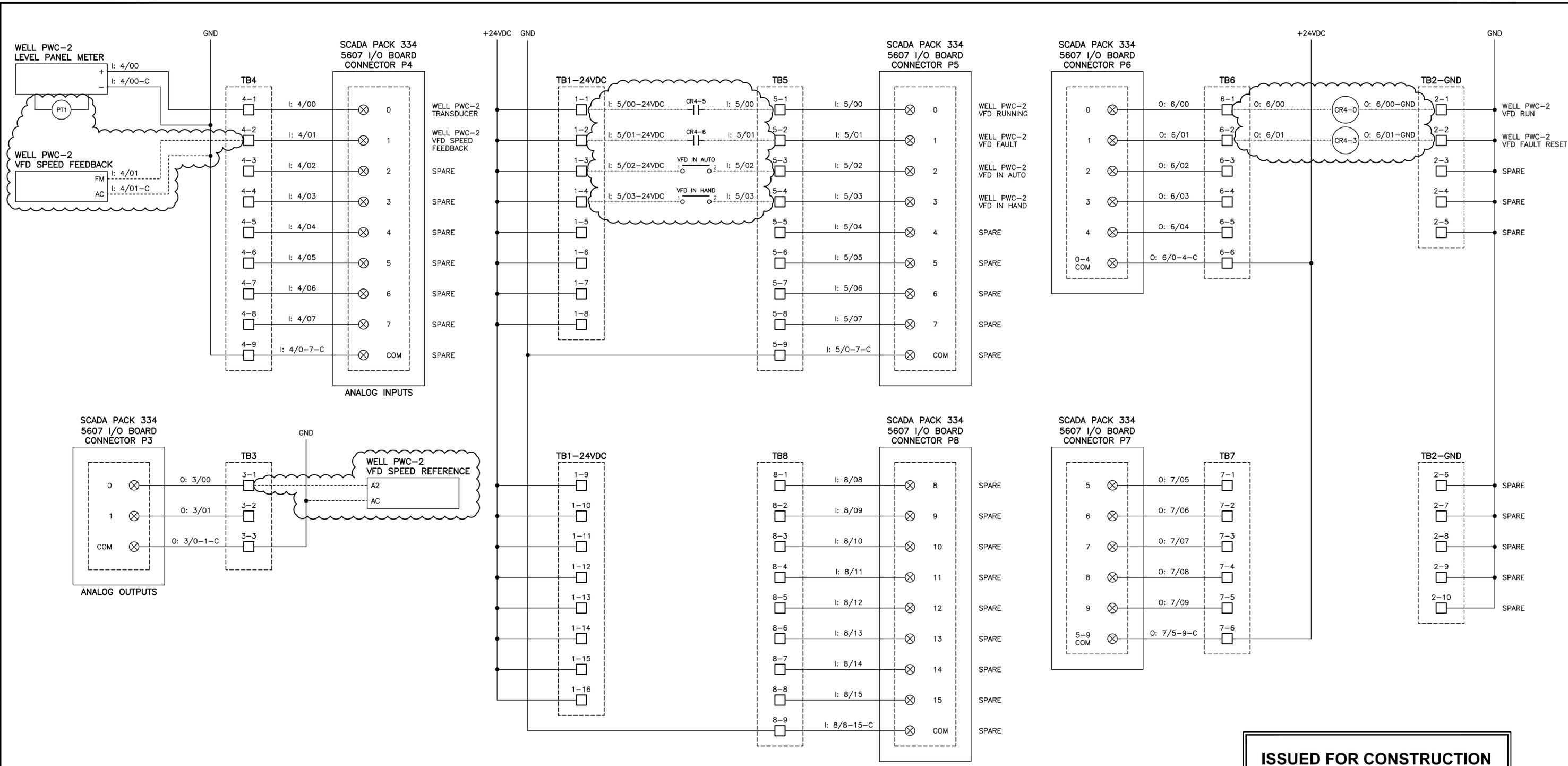
NOTES

NO.	DATE	REVISIONS
1	2018-APR-04	ISSUED FOR CONSTRUCTION

DESIGNED
AO
DRAWN
PBX
CHECKED
BW
RECOMMENDED
APPROVED
APPROVED

P:\15127_BFO_Chehalis_Hatchery_Well_Pump_01 - Well 4_Pump_Downing_ACAD_V2-Well_3 - Site_Works\11-29-366-10/04/2018_8:44 AM - JORDAN MACRI

P:\15127_BFO_Chehalis_Hatchery_Well_Pump_01 - Well_4_Personal\Drawings\CAD\2-Well_3 - Site_Works\11-29-367 - 10/04/2018_8:44 AM - JORDAN MACRI



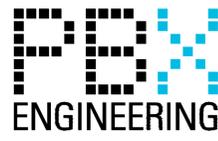
ISSUED FOR CONSTRUCTION

ALL EQUIPMENT IS EXISTING
UNLESS NOTED OTHERWISE

INSTALL FIELD WIRING
CONNECTIONS AS REQUIRED

FISHERIES AND OCEANS CANADA
REAL PROPERTY AND TECHNICAL SUPPORT

<p style="text-align: center;">CHEHALIS RIVER HATCHERY WELLS PWC-2 AND TWC-1 UPGRADES</p> <p style="text-align: center;">ELECTRICAL DETAILS WELL PWC-2 SCADAPACK I/O MODULES</p>	<p>SCALE N/A</p> <p>DATE 10-Apr-18</p> <p>DRAWING NUMBER 11-29-367</p> <p>REVISION 1</p>
---	--

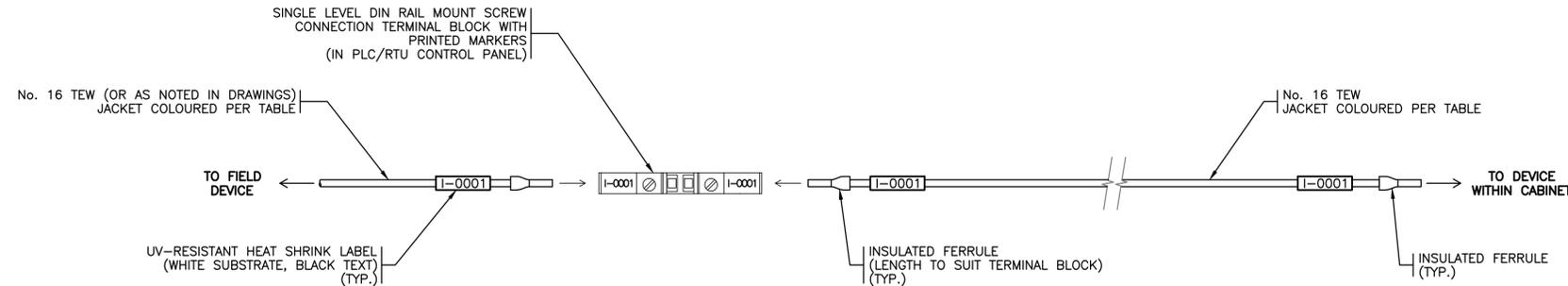


- NOTES:**
- DRAWINGS ARE DIAGRAMMATIC. REFER TO IITS DRAWINGS FOR EXACT TERMINAL NUMBERS AND CONNECTION DETAILS.
 - CONTRACTOR TO INSTALL ALL FIELD WIRING BETWEEN VFD AND SCADA PANELS, AND FIELD INSTRUMENTATION AND PANELS.

NO.	DATE	REVISIONS
1	2018-APR-04	ISSUED FOR CONSTRUCTION

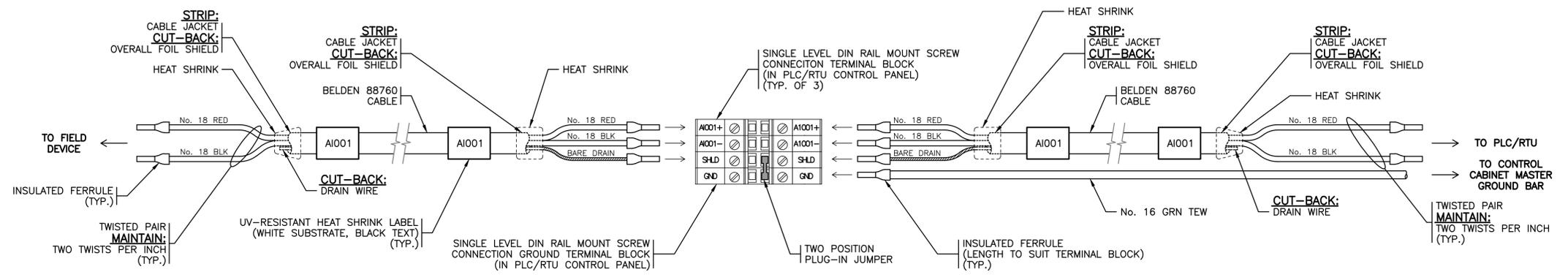
DESIGNED
AO
DRAWN
PBX
CHECKED
BW
RECOMMENDED
APPROVED
APPROVED

NOTES

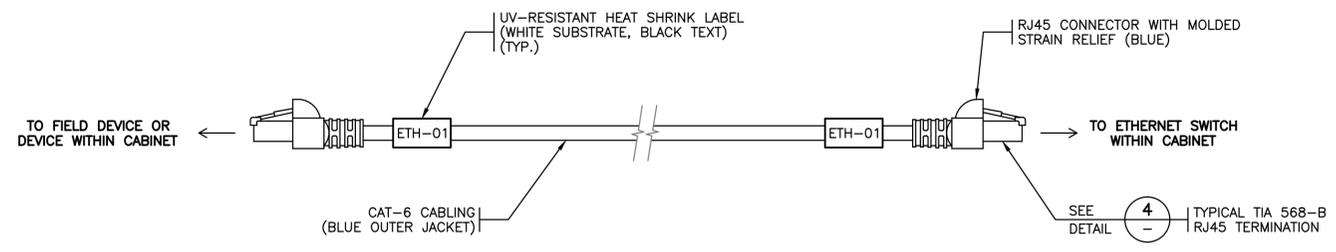


DISCRETE CONTROL CABLE COLOUR CODE LEGEND	
COLOUR	FUNCTION
YELLOW	BACKUP GENERATOR
RED	DC POSITIVE
BLUE	DC NEGATIVE
BLACK	AC HOT
WHITE	AC NEUTRAL
GREEN	ELECTRICAL GROUND

DETAIL 1 TYPICAL DISCRETE CONTROL FIELD WIRING TERMINATION METHOD
N.T.S.



DETAIL 2 TYPICAL ANALOG CONTROL FIELD WIRING TERMINATION METHOD
N.T.S.



PIN	COLOUR
1	WHT/ORG
2	ORG
3	WHT/GRN
4	BLU
5	WHT/BLU
6	GRN
7	WHT/BRN
8	BRN

DETAIL 3 TYPICAL ETHERNET CABLING TERMINATION METHOD
N.T.S.

DETAIL 4 TYPICAL TIA 568-B RJ45 TERMINATION (CLIP FACING AWAY)
N.T.S.

ISSUED FOR CONSTRUCTION

ALL EQUIPMENT IS PROPOSED UNLESS NOTED OTHERWISE

FISHERIES AND OCEANS CANADA
REAL PROPERTY AND TECHNICAL SUPPORT

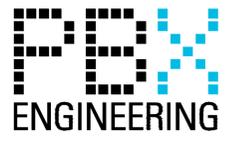
**CHEHALIS RIVER HATCHERY
WELLS PWC-2 AND TWC-1 UPGRADES**

**ELECTRICAL
WIRING TERMINATIONS
(SHEET 1 OF 2)**

SCALE: N.T.S.
DATE: 10-Apr-18
DRAWING NUMBER: 11-29-368
REVISION: 1

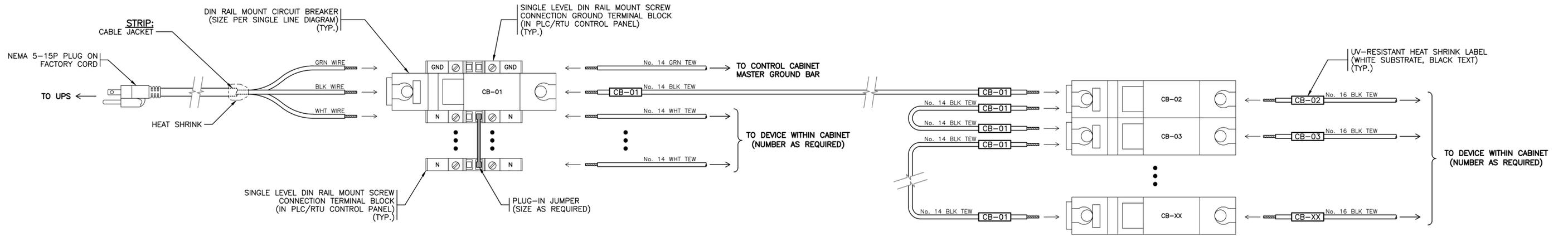
DESIGNED
AO
DRAWN
PBX
CHECKED
BW
RECOMMENDED
APPROVED
APPROVED

NO.	DATE	REVISIONS
1	2018-APR-04	ISSUED FOR CONSTRUCTION

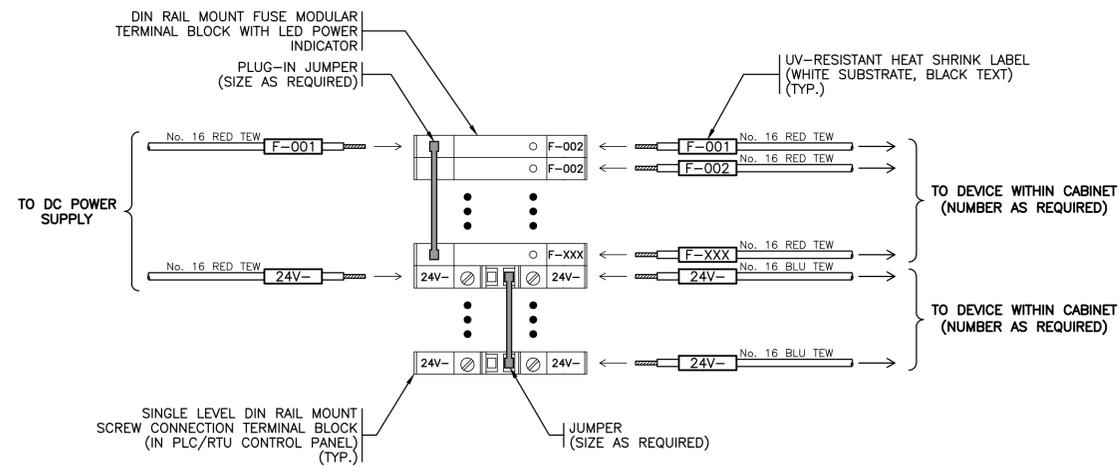


NOTES

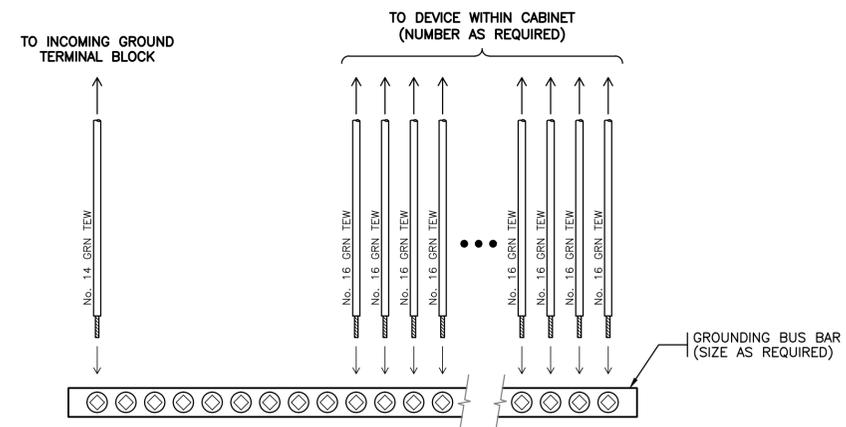
P:\15127_BFO_Chehalis_Hatchery_Wells_Pump_01 - Well_4_Pump_Domains_ACAD_2-Well_3 - Site_Works\11-29-368-10/04/2018_8:45 AM - JORDAN MACRI



DETAIL 1 TYPICAL 120V AC DISTRIBUTION
N.T.S. WIRING TERMINATION METHOD



DETAIL 2 TYPICAL DC DISTRIBUTION
N.T.S. WIRING TERMINATION METHOD



DETAIL 3 TYPICAL MASTER GROUND BUS
N.T.S. TERMINATION METHOD

ISSUED FOR CONSTRUCTION

ALL EQUIPMENT IS PROPOSED
UNLESS NOTED OTHERWISE

FISHERIES AND OCEANS CANADA
REAL PROPERTY AND TECHNICAL SUPPORT

CHEHALIS RIVER HATCHERY
WELLS PWC-2 AND TWC-1 UPGRADES

ELECTRICAL
WIRING TERMINATIONS
(SHEET 2 OF 2)

SCALE
N.T.S.
DATE
10-Apr-18
DRAWING NUMBER
11-29-369
REVISION
1

DESIGNED
AO
DRAWN
PBX
CHECKED
BW
RECOMMENDED
APPROVED
APPROVED

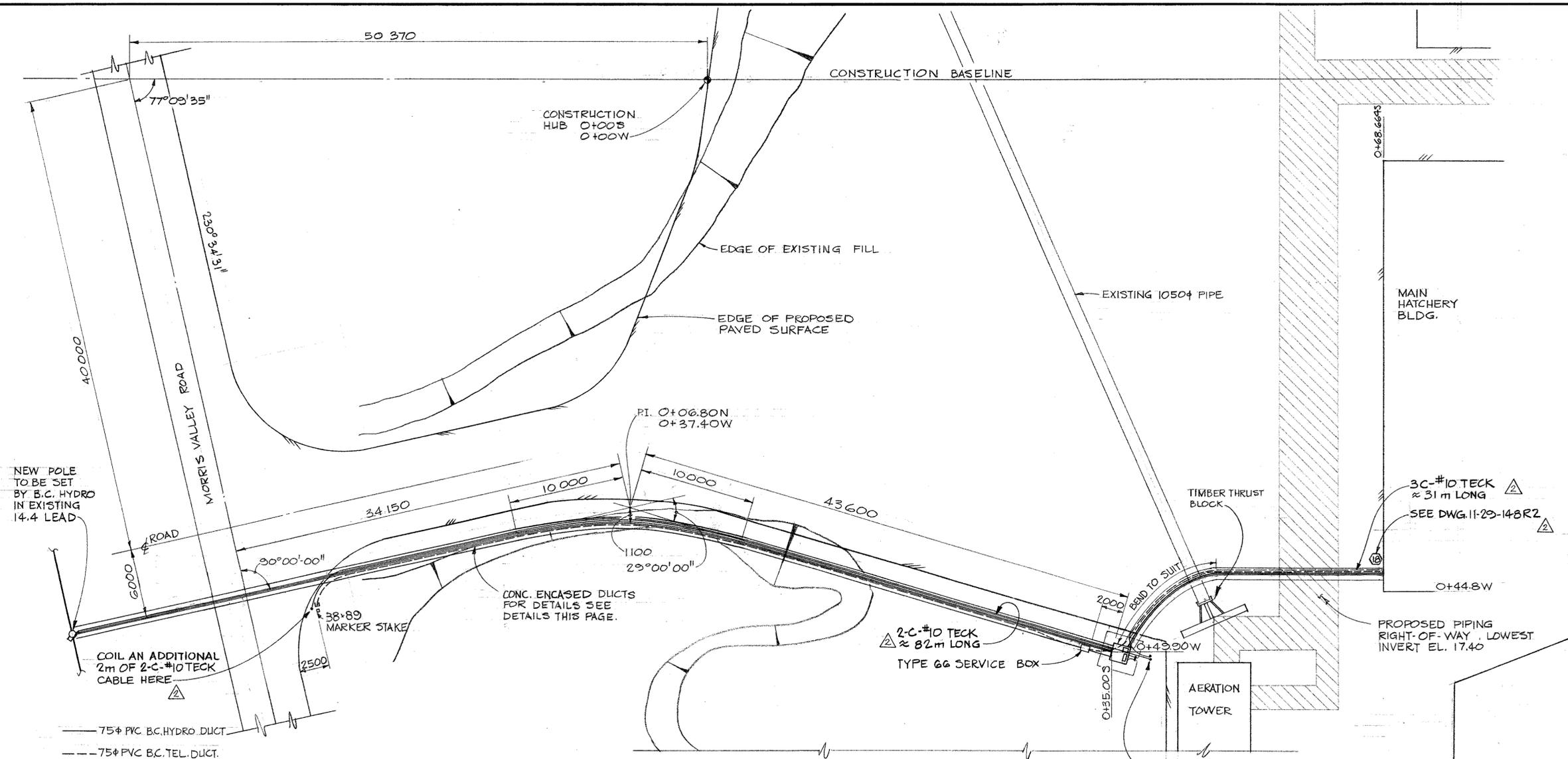
NO.	DATE	REVISIONS
1	2018-APR-04	ISSUED FOR CONSTRUCTION

NOTES

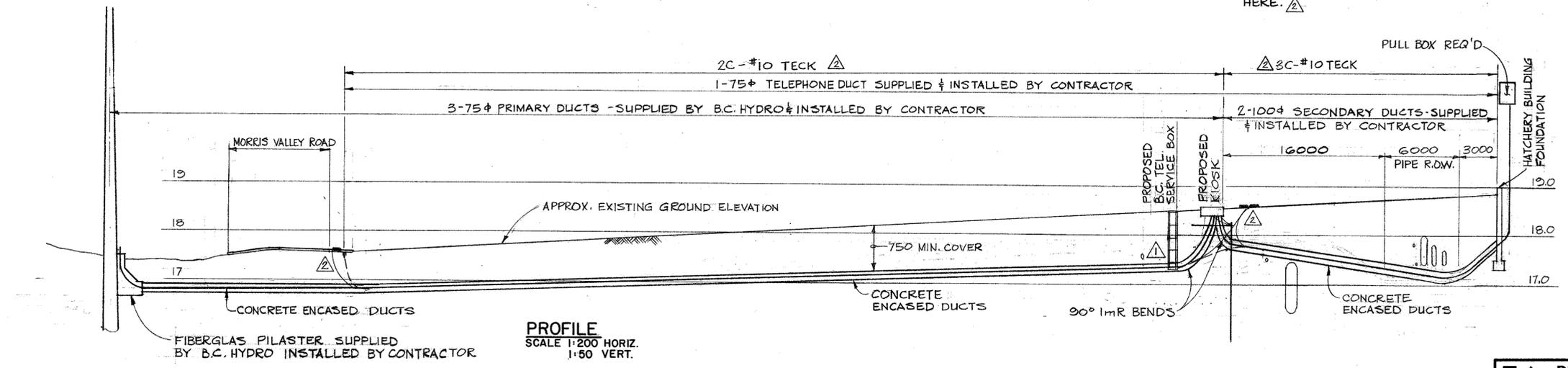


P:\15127_BFO_Chehalis_Hatchery_Wells_Pump_01 - Well 4_Piston_Dominos_ACAD_2-Well_3 - Site_Work\11-29-369_10/04/2018_8:45 AM - JORDAN MACRI

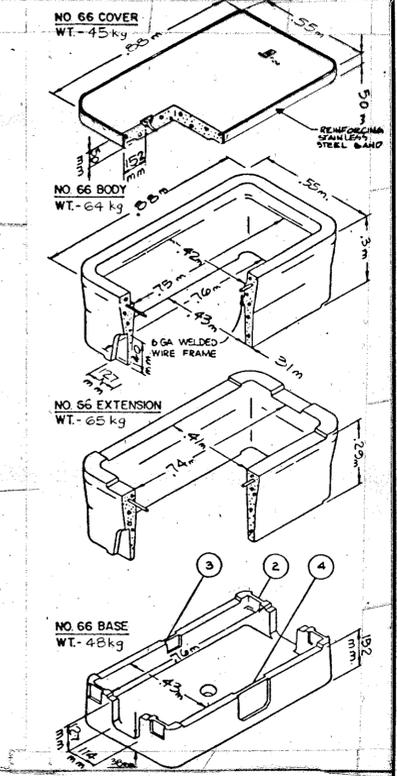
REFERENCE DRAWINGS
for
Fisheries and Oceans Canada
Chehalis River Hatchery - Wells PWC-2 and TWC-1 Upgrades
April 2018



PLAN
SCALE 1:200

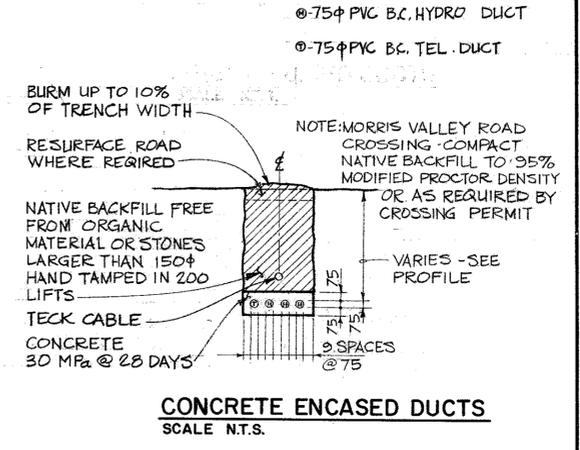


PROFILE
SCALE 1:200 HORIZ.
1:50 VERT.



NOTE:
1. EXTENSION IDENTICAL TO BODY EXCEPT AS NOTED
2. 70mm x 47mm KNOCKOUT EA. CORNER.
3. 70mm x 38mm KNOCKOUT.
4. 114mm x 114mm KNOCKOUT.
5. COVER MARKED TEL.
6. ADDITIONAL DEPTH AVAILABLE BY ADDING EXTENSION SECTIONS

TYPE 66 SERVICE BOX

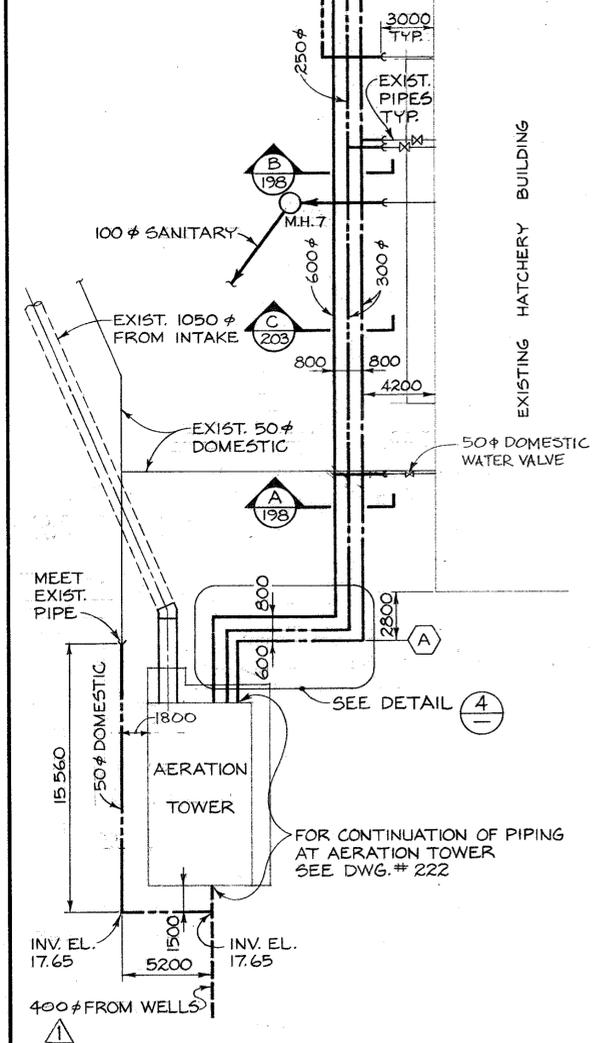
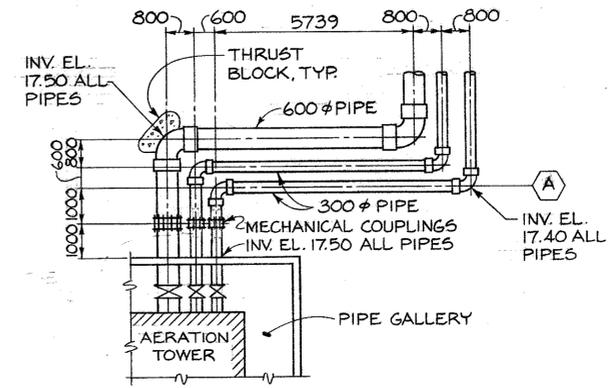
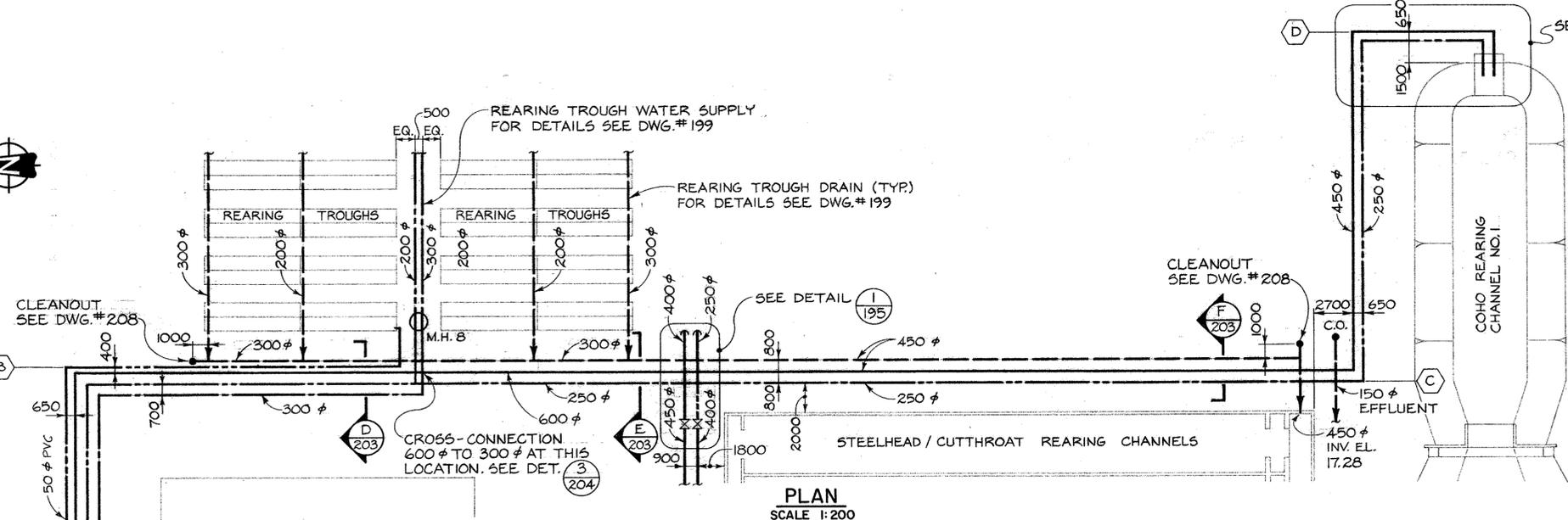


DEPARTMENT OF FISHERIES AND OCEANS SALMONID ENHANCEMENT PROGRAM	
CHEHALIS RIVER HATCHERY B.C. TEL. & B.C. HYDRO SERVICES TO HATCHERY BUILDING	
SCALE AS SHOWN	DATE JULY 1981
DRAWING NUMBER 11-29-149A	
REVISION	3

AS BUILT DRAWING
DATE
RESIDENT ENGINEER
PROJECT ENGINEER
DWG. NO.
REFERENCE DRAWINGS

NOTES
DESIGNED G.C.
DRAWN I.K.
CHECKED
RECOMMENDED
APPROVED
APPROVED

3	OCT. 1982	AS BUILT
2	26 AUG. 1981	TECK CABLES FOR LIGHTING ADDED
1	26 AUG. 1981	DUCTS LOWERED TO ACCOMMODATE PIPE
NO.	DATE	REVISIONS



AS BUILT DRAWING	DATE:
R.S. DEWITT	PROJECT ENGINEER
DWG. NO.	REFERENCE DRAWINGS

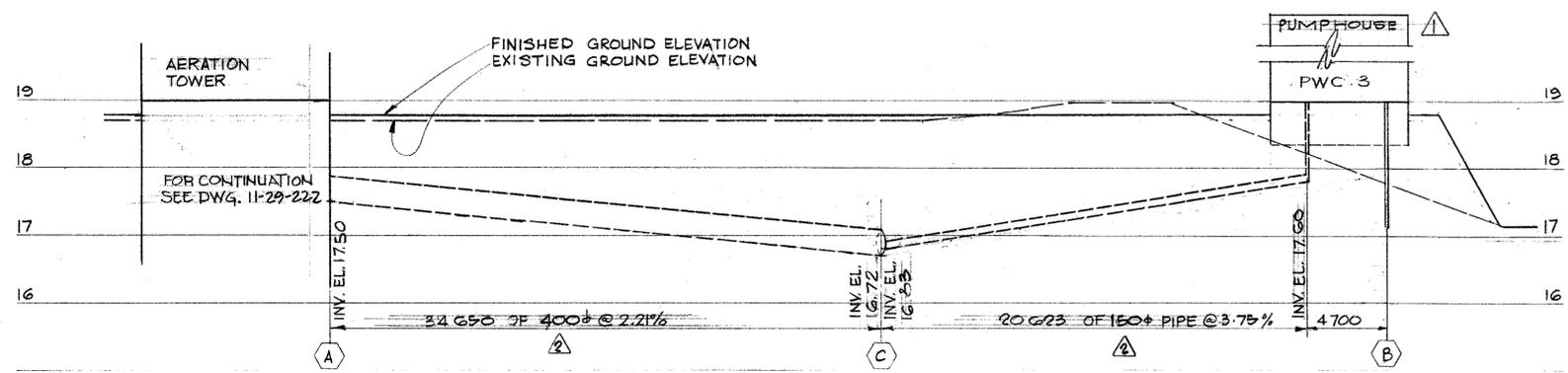
NOTES	NO.	DATE	REVISIONS
	2	NOV. 1983	'AS BUILT'
	1	FEB. 1982	PIPE SIZE CHANGED TO 400#

DESIGNED	A.M.
DRAWN	J.C.
CHECKED	
RECOMMENDED	
APPROVED	
APPROVED	

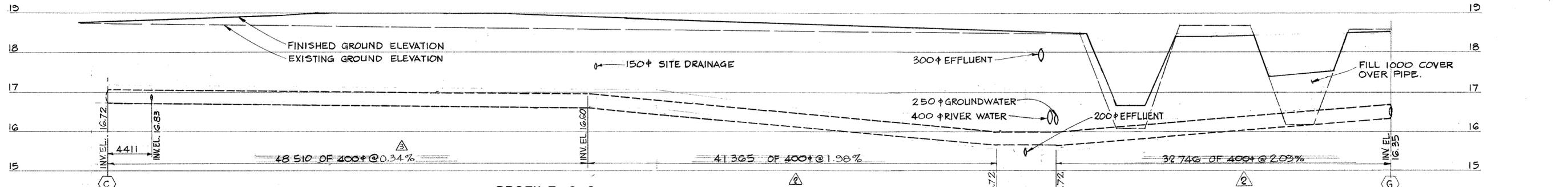
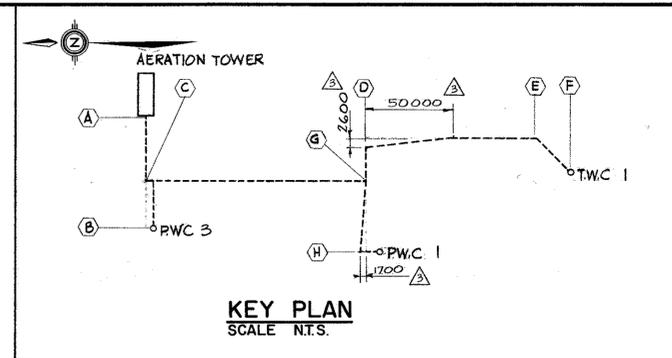
DEPARTMENT OF FISHERIES AND OCEANS
SALMONID ENHANCEMENT PROGRAM

CHEHALIS RIVER HATCHERY
CONTRACT NO. 8
REARING TROUGH & COHO PIPING
PLAN & PROFILES

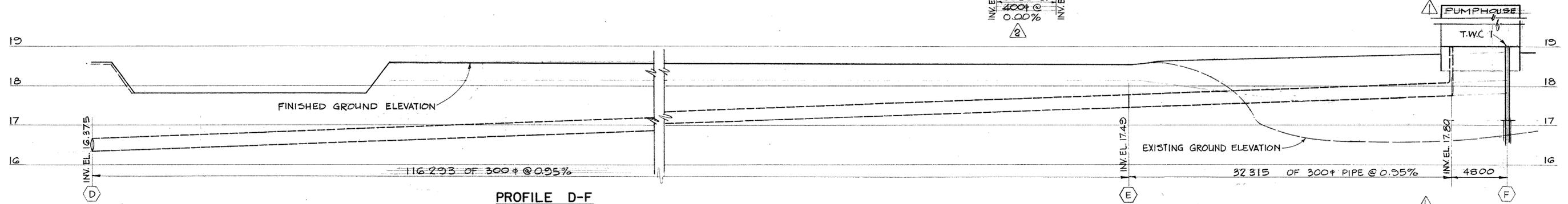
SCALE	AS SHOWN
DATE	AUGUST 1981
DRAWING NUMBER	11-29-197
REVISION	2



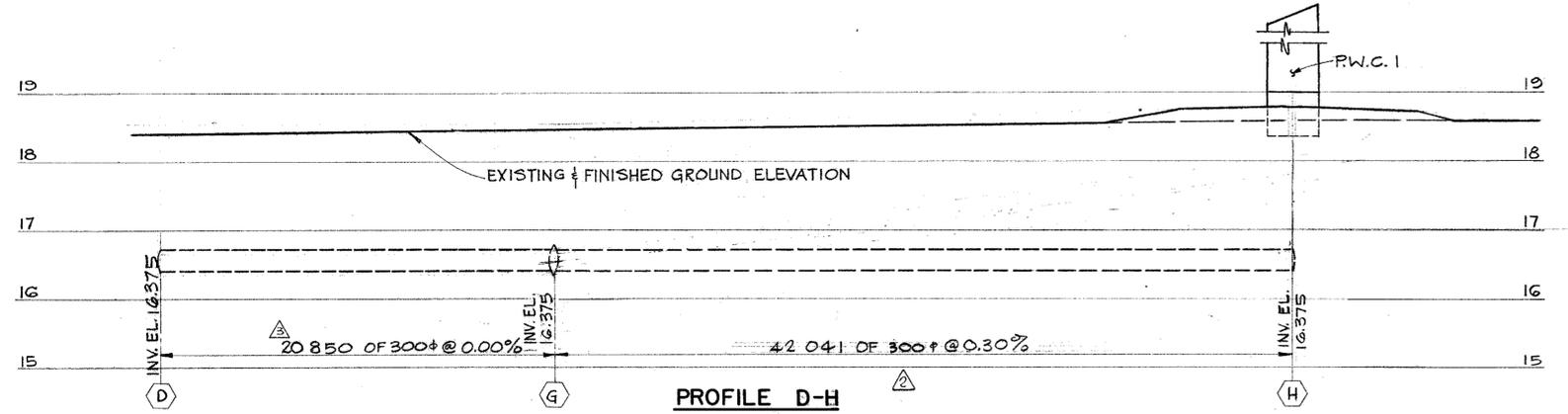
PROFILE A-B



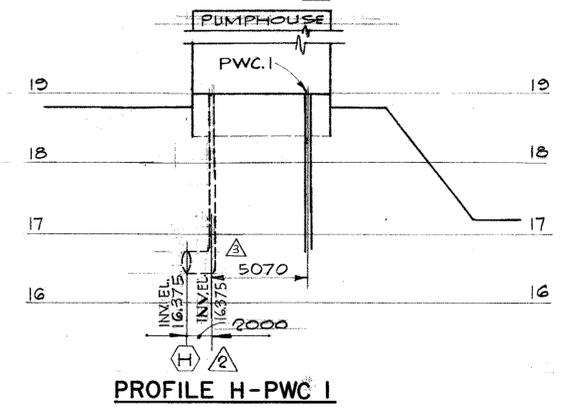
PROFILE C-G



PROFILE D-F



PROFILE D-H



PROFILE H-PWC 1

AS BUILT DRAWING	
DATE:	
RESIDENT ENGINEER:	
PROJECT ENGINEER:	
DWG. NO.	REFERENCE DRAWINGS

NO.	DATE	REVISIONS
3	NOV. 1983	'AS BUILT'
4	DEC. 8, 1981	PIPE SIZES INCREASED
5	SEPT. 17, 1981	THE WORD 'PUMP HOUSE' ADDED

DESIGNED A.M.
DRAWN I.K.
CHECKED B. Cam
RECOMMENDED V. Cam
APPROVED [Signature]
APPROVED [Signature]

DEPARTMENT OF FISHERIES AND OCEANS
SALMONID ENHANCEMENT PROGRAM

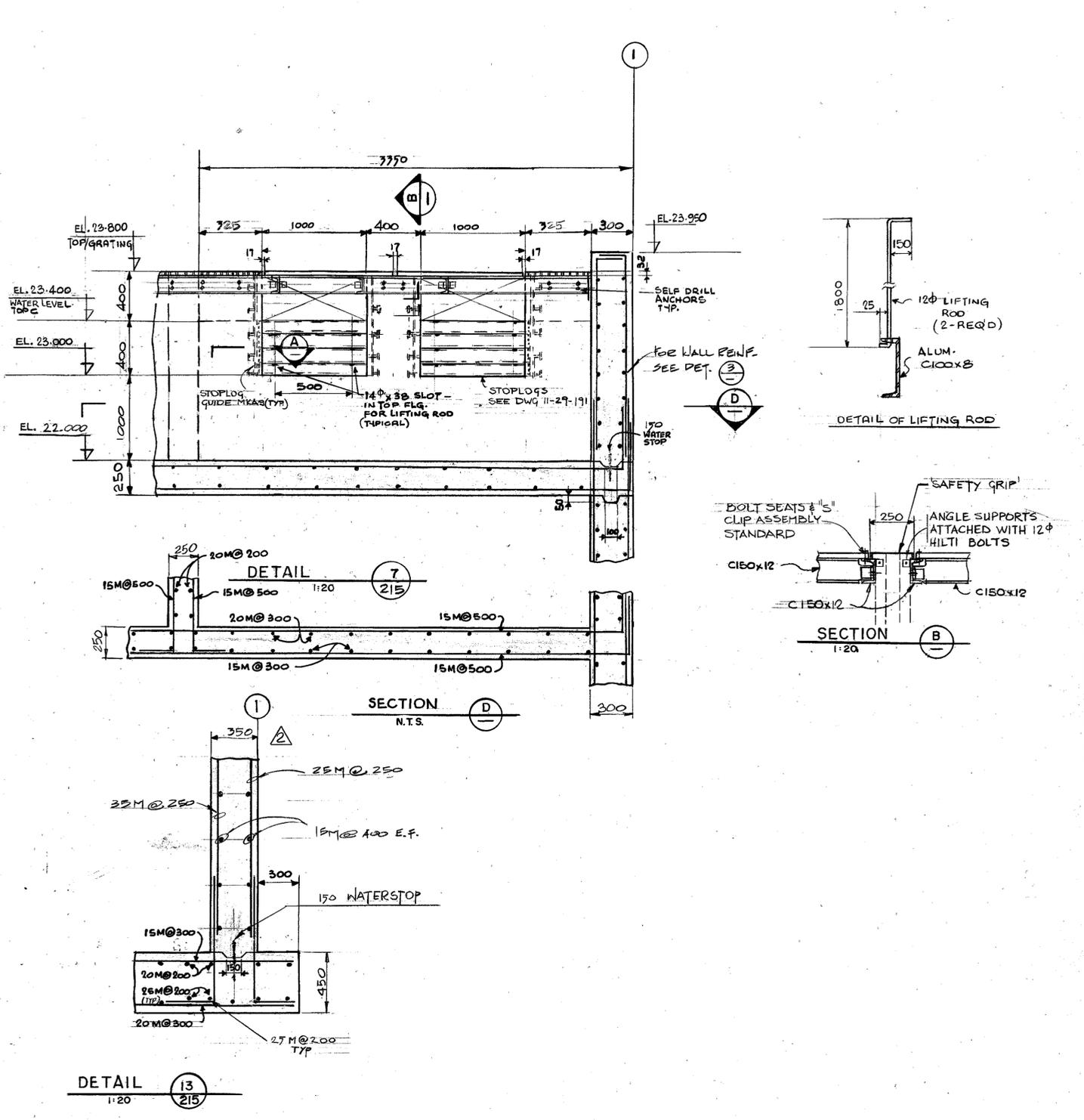
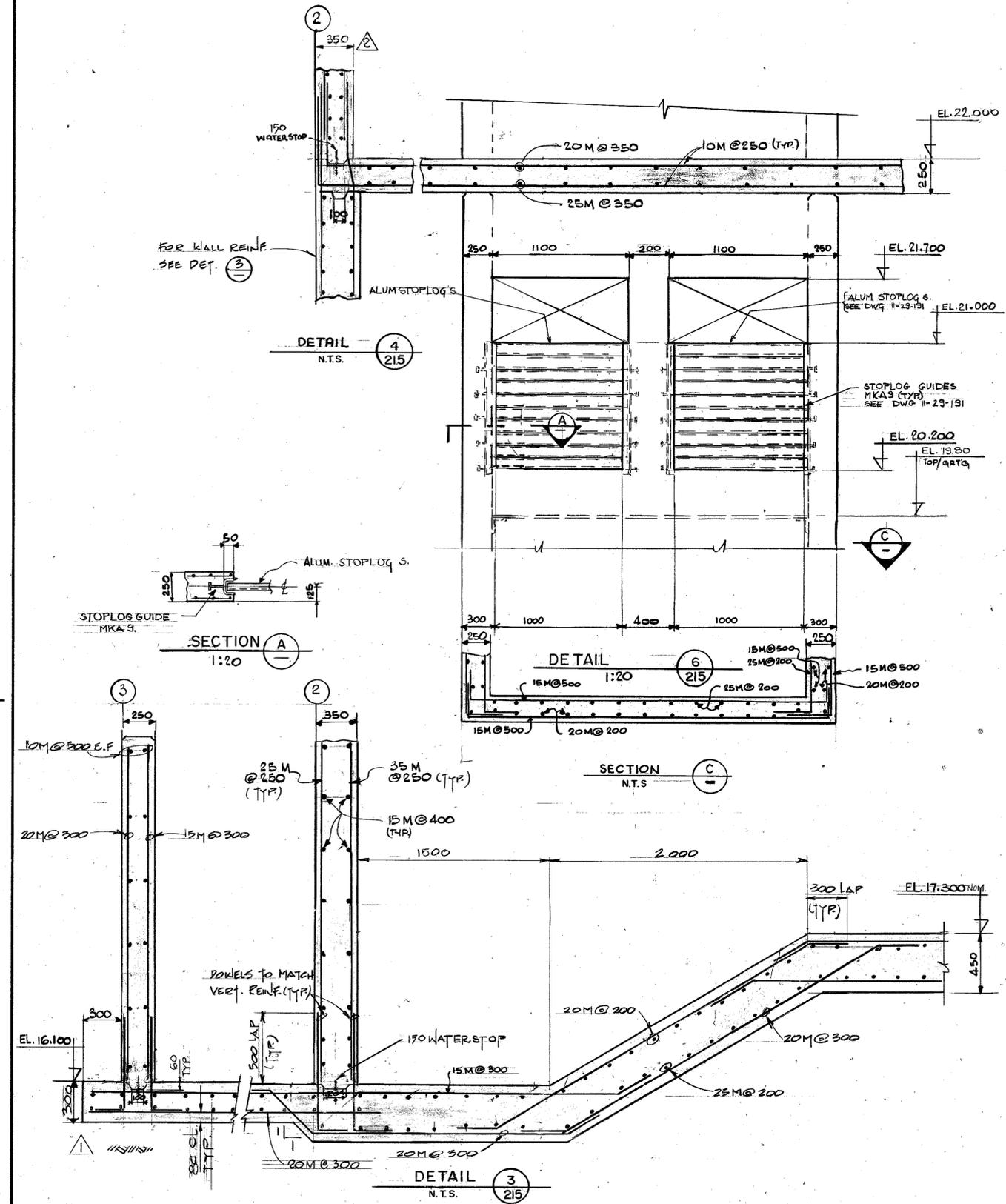
CHEHALIS RIVER HATCHERY
CONTRACT NO. 8
GROUNDWATER SUPPLY PIPING
PROFILES

SCALE
1:200 HORIZ.
1:50 VERT.

DATE
AUGUST 1981

DRAWING NUMBER
11-29-202

REVISION
3



AS BUILT DRAWING
 DATE: _____
 RESIDENT ENGINEER: _____
 PROJECT ENGINEER: _____

REFERENCE DRAWINGS

Underwood McLellan (1977) Ltd.
 Consulting Engineers and Planners
 British Columbia Alberta Saskatchewan
 Manitoba Ontario
 Yukon Territory Northwest Territories.

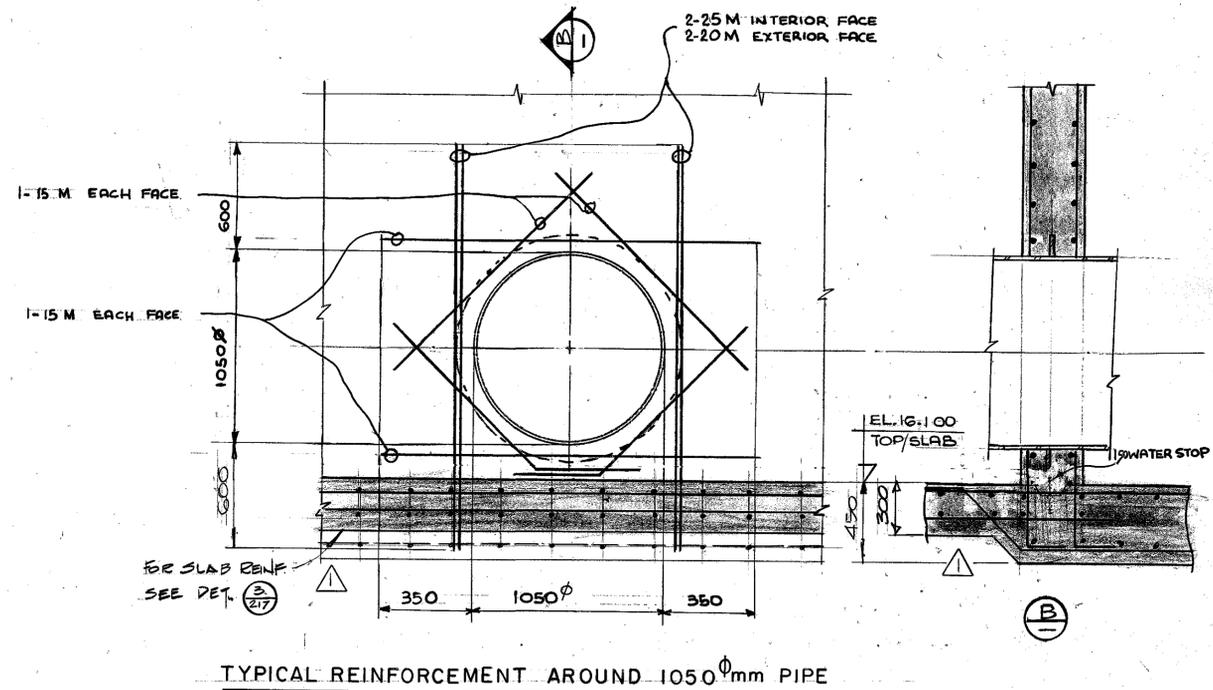
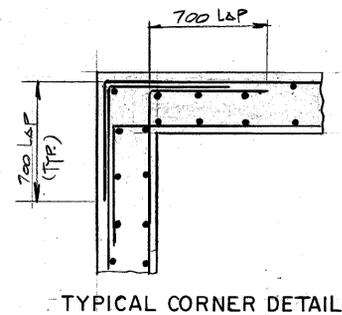
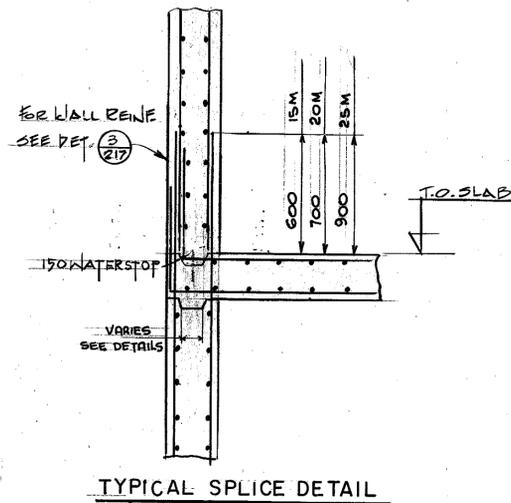
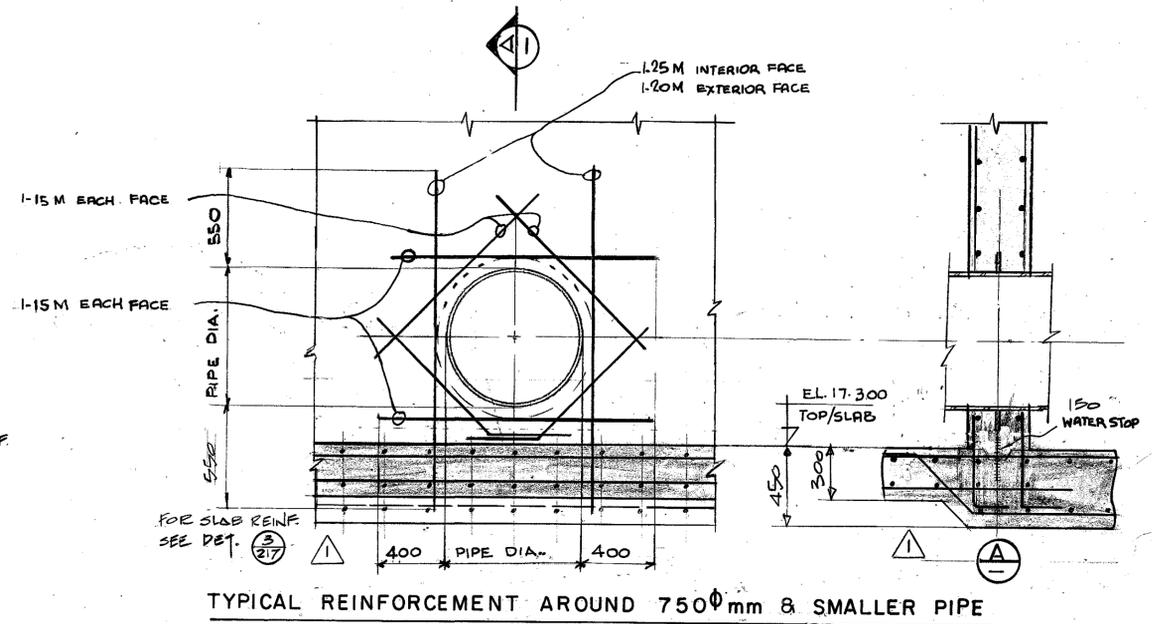
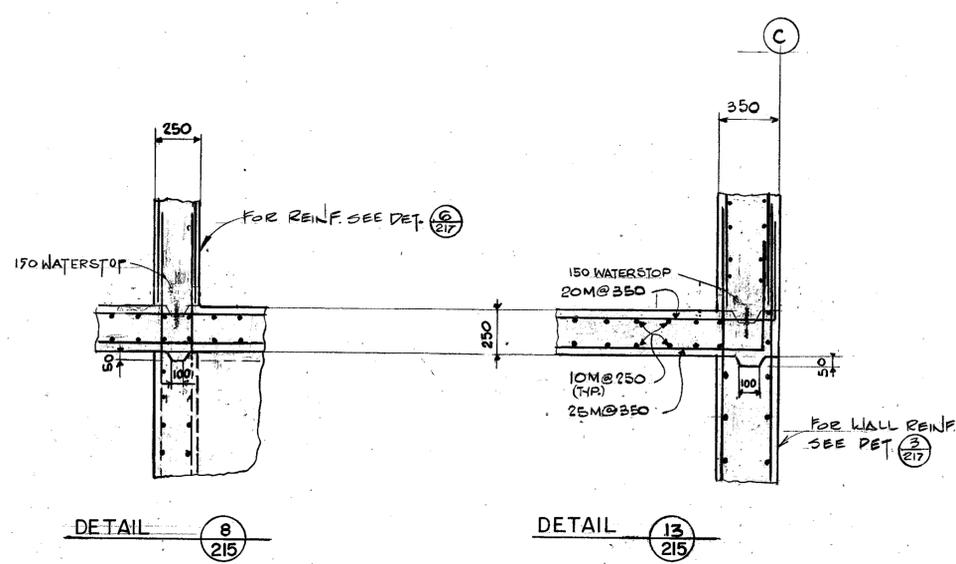
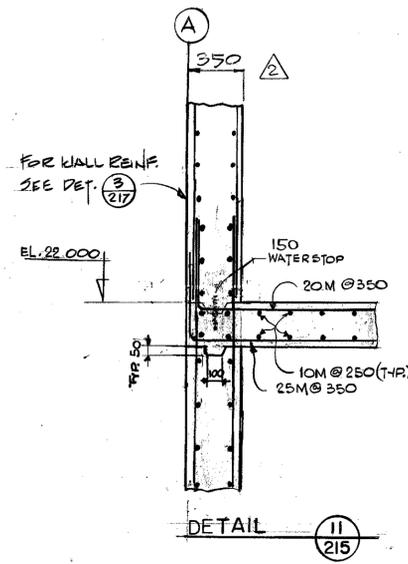
NO.	DATE	REVISIONS
3	DEC. 1983	'AS BUILT'
2	FEB. 1982	WALL THICKNESS CHANGED TO 350
1	SEPT. 17 1981	VALVE GALLERY BASE SLAB THICKNESS REDUCED & REINF. REVISED

DESIGNED: D. McC.
 DRAWN: W.C.
 CHECKED: D.M.C.
 RECOMMENDED: _____
 APPROVED: _____

DEPARTMENT OF FISHERIES AND OCEANS
 SALMONID ENHANCEMENT PROGRAM

**CHEHALIS RIVER HATCHERY
 CONTRACT NO 8
 AERATION TOWER
 REINFORCING**

SCALE: AS SHOWN
 DATE: AUGUST, 1981
 DRAWING NUMBER: 11-29-217
 REVISION: 3



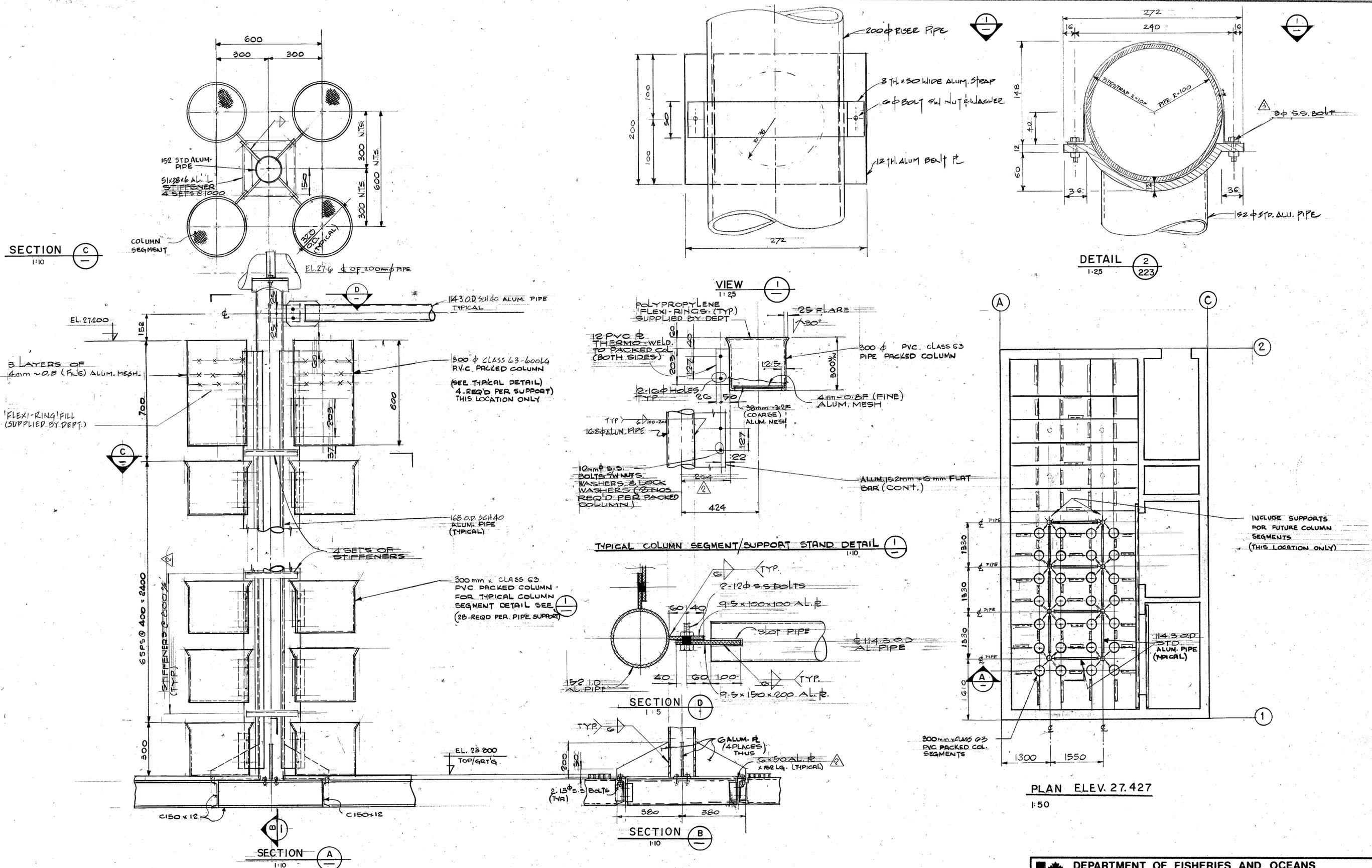
AS BUILT DRAWING
DATE:
RESIDENT ENGINEER:
PROJECT ENGINEER:
DWG. NO.
REFERENCE DRAWINGS

Underwood McLellan (1977) Ltd.
 Consulting Engineers and Planners
 British Columbia Alberta Saskatchewan
 Manitoba Ontario
 Yukon Territory Northwest Territories

NO.	DATE	REVISIONS
3	DEC. 1983	'AS BUILT'
2	FEB. 1982	WALL THICKNESS CHANGED TO 350
1	SEPT. 17 1981	VALVE GALLERY BASE SLAB THICKNESS REDUCED & REINF. REV.

DESIGNED
D. Mac
DRAWN
W.C.
CHECKED
D.M.C.
RECOMMENDED
APPROVED

DEPARTMENT OF FISHERIES AND OCEANS SALMONID ENHANCEMENT PROGRAM	
CHEHALIS RIVER HATCHERY CONTRACT NO. 8 AERATION TOWER REINFORCING DETAILS	
SCALE 1:20	DATE AUGUST, 1981
DRAWING NUMBER 11-29-218	REVISION 3



AS BUILT DRAWING
 DATE: _____
 RESIDENT ENGINEER: _____
 PROJECT ENGINEER: _____
 DWG. NO. _____ REFERENCE DRAWINGS _____

NOTES
 1. _____
 2. _____

Underwood McLellan (1977) Ltd.
 Consulting Engineers and Planners
 British Columbia Alberta Saskatchewan
 Manitoba Ontario
 Yukon Territory Northwest Territories

NO.	DATE	REVISIONS
3	DEC. 1983	'AS BUILT'
2	MAR 1982	DIMENSIONS REVISED
1	SEPT 1981	PACKED COLUMNS & COLUMN SUPPORTS REVISED

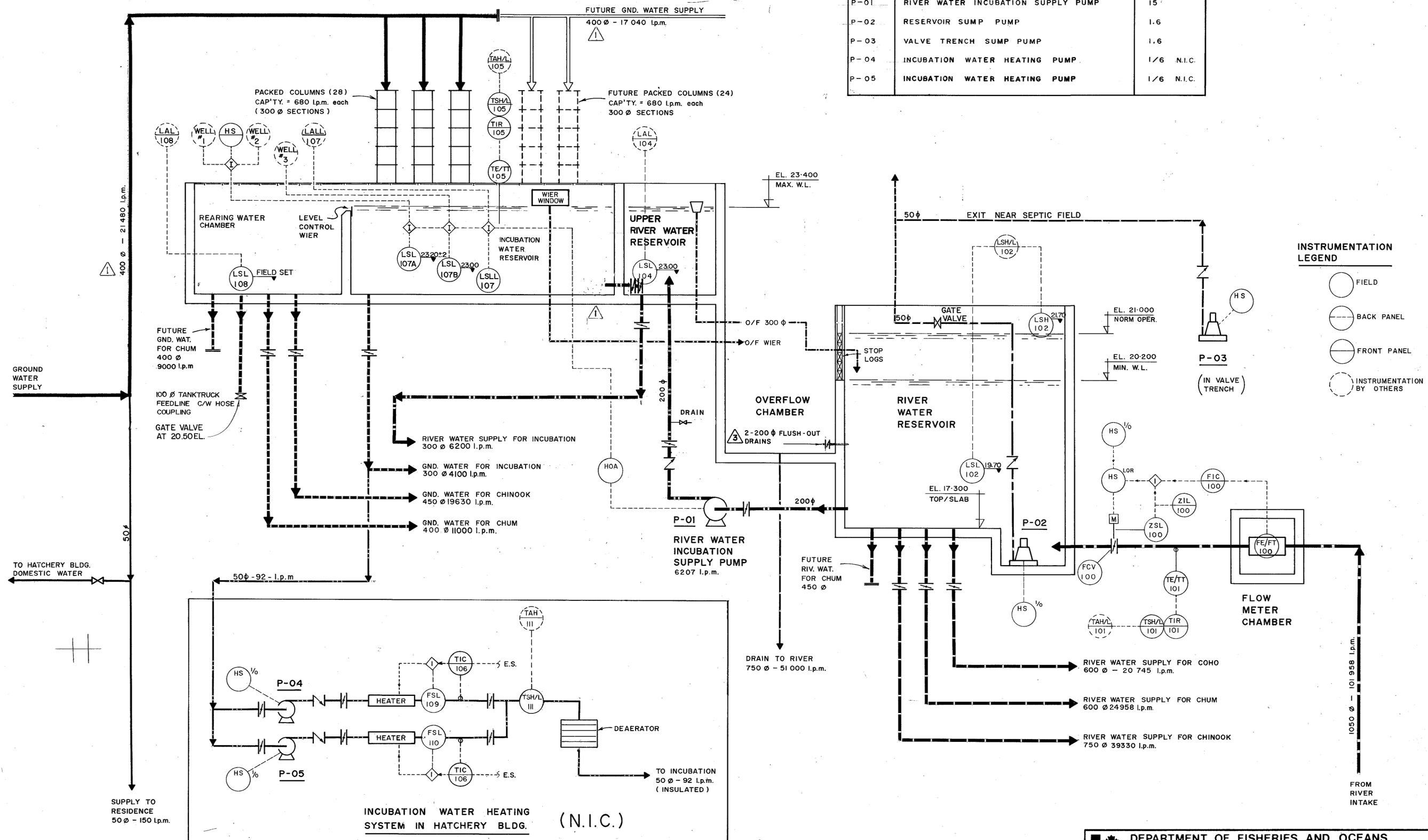
DESIGNED
D. Mc C.
 DRAWN
W. C.
 CHECKED
D. Mc C.
 RECOMMENDED
 APPROVED
 APPROVED

DEPARTMENT OF FISHERIES AND OCEANS
 SALMONID ENHANCEMENT PROGRAM

CHEHALIS RIVER HATCHERY
 CONTRACT NO 8
 AERATION TOWER
 PACKED COLUMNS

SCALE
 AS SHOWN
 DATE
 AUGUST, 1981
 DRAWING NUMBER
 11-29-220
 REVISION
 3

PUMP NUMBER	DESCRIPTION	HORSEPOWER
P-01	RIVER WATER INCUBATION SUPPLY PUMP	15
P-02	RESERVOIR SUMP PUMP	1.6
P-03	VALVE TRENCH SUMP PUMP	1.6
P-04	INCUBATION WATER HEATING PUMP	1/6 N.I.C.
P-05	INCUBATION WATER HEATING PUMP	1/6 N.I.C.



INSTRUMENTATION LEGEND

- FIELD
- BACK PANEL
- FRONT PANEL
- INSTRUMENTATION BY OTHERS

I-1	INSTRUMENTATION CONTROL PANEL
DWG. NO.	REFERENCE DRAWINGS

AS BUILT DRAWING
 DATE: _____
 RESIDENT ENGINEER: _____
 PROJECT ENGINEER: _____

Underwood McLellan (1977) Ltd.
 Consulting Engineers and Planners
 British Columbia Alberta Saskatchewan
 Manitoba Ontario
 Yukon Territory Northwest Territories

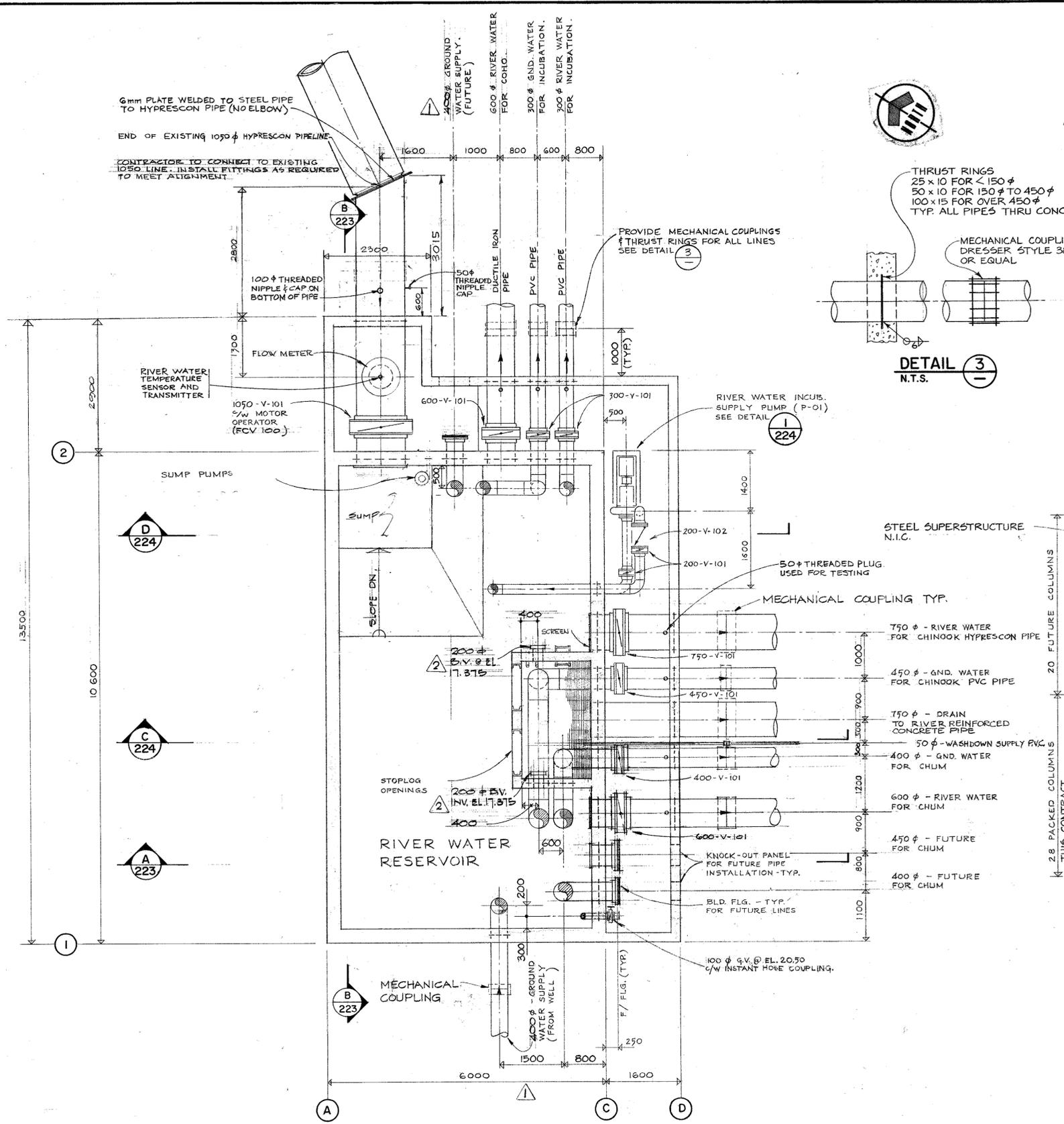
NO.	DATE	REVISIONS
3	MAY 1984	FLUSHOUT DRAINS ADDED
	DEC. 1983	AS BUILT!
	DEC. 8/81	PIPE SIZES INCREASED
	OCT. 26/81	SYMBOL (27) DELETED

DEPARTMENT OF FISHERIES AND OCEANS
 SALMONID ENHANCEMENT PROGRAM

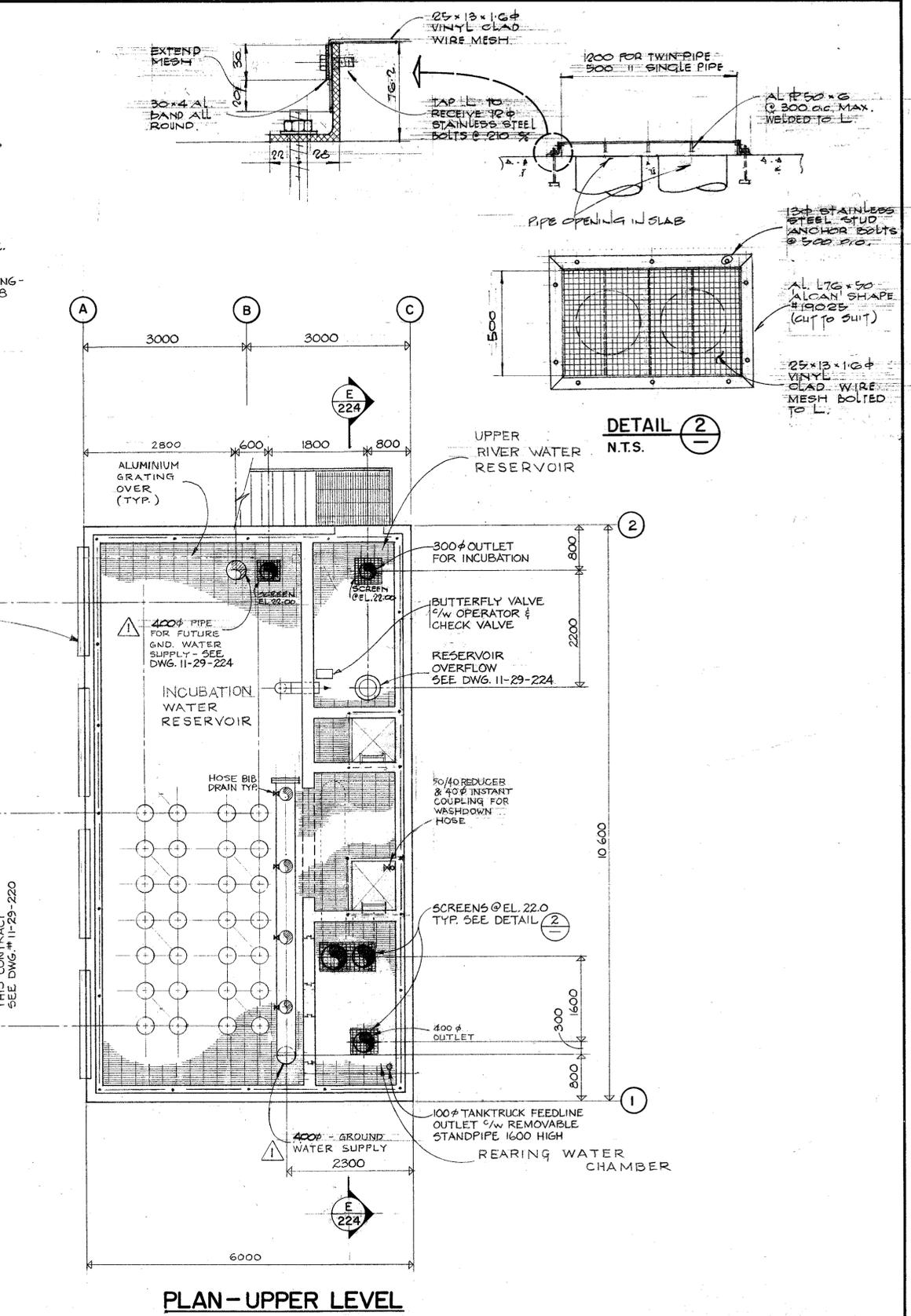
CHEHALIS RIVER HATCHERY
 CONTRACT NO 8
 AERATION TOWER

SCHEMATIC FLOW DIAGRAM

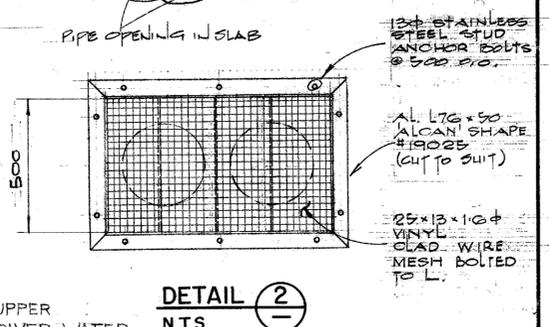
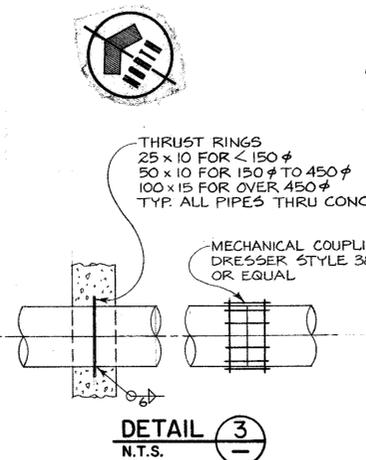
SCALE: _____
 DATE: AUGUST, 1981
 DRAWING NUMBER: 11-29-221
 REVISION: 3



PLAN - LOWER LEVEL
SCALE 1:50



PLAN - UPPER LEVEL
SCALE 1:50



Underwood McLellan (1977) Ltd.
Consulting Engineers and Planners
British Columbia Alberta Saskatchewan
Manitoba Ontario
Yukon Territory Northwest Territories

DESIGNED P.B.
DRAWN S.R.
CHECKED
RECOMMENDED
APPROVED
APPROVED

DEPARTMENT OF FISHERIES AND OCEANS SALMONID ENHANCEMENT PROGRAM	
CHEHALIS RIVER HATCHERY CONTRACT N° 8 AERATION TOWER	
SCALE AS SHOWN	DRAWING NUMBER 11-29-222
DATE AUG. 1981	REVISION 2

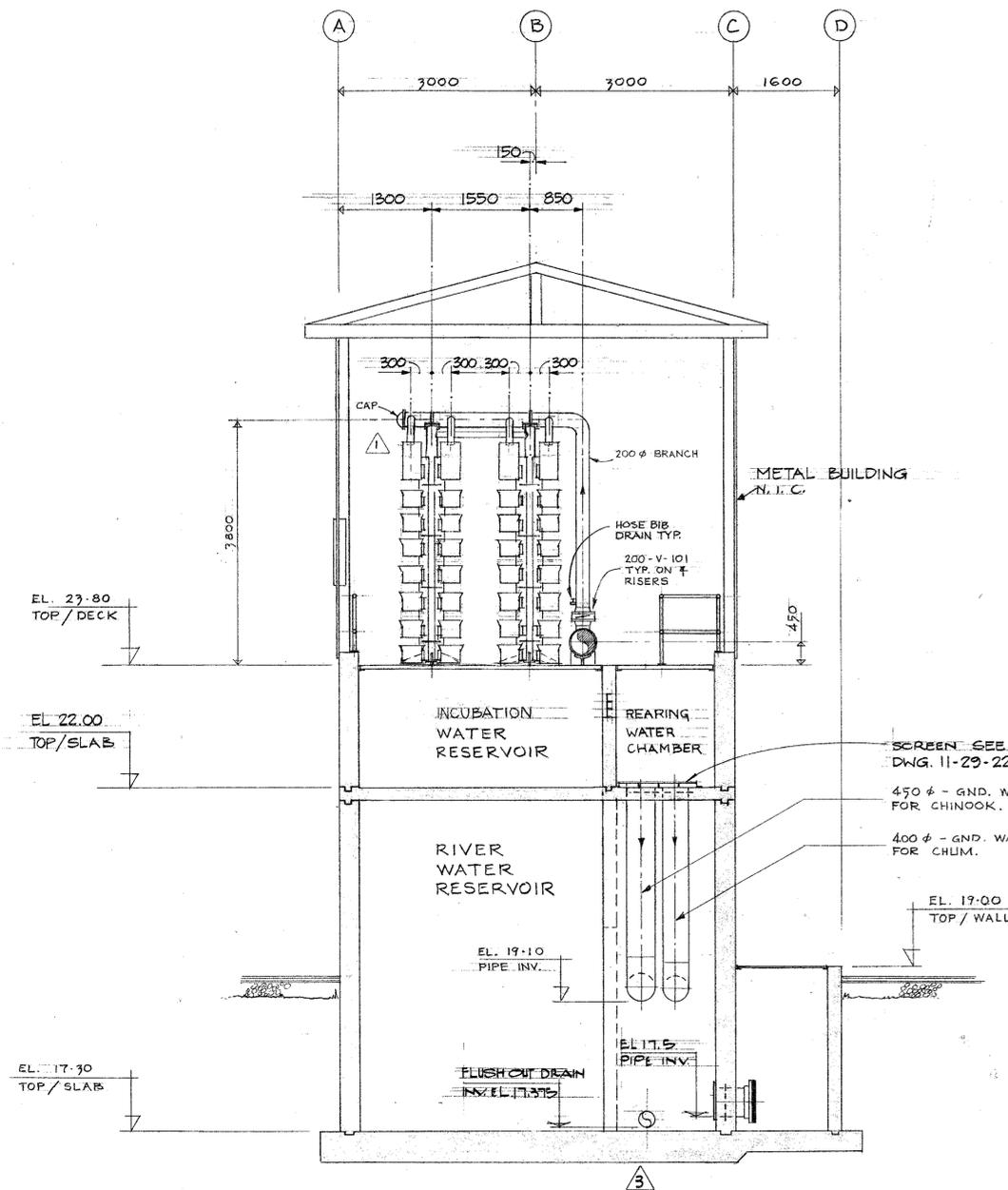
AS BUILT DRAWING	REFERENCE DRAWINGS
DATE	
RESIDENT ENGINEER	
PROJECT ENGINEER	
DWG. NO.	

NO.	DATE	REVISIONS
2	MAY 24 1981	PLUGHOUT DRAINS ADDED.
1	DEC. 8 1981	GRD. WATER SUPPLY LINES INCREASED TO 400φ.

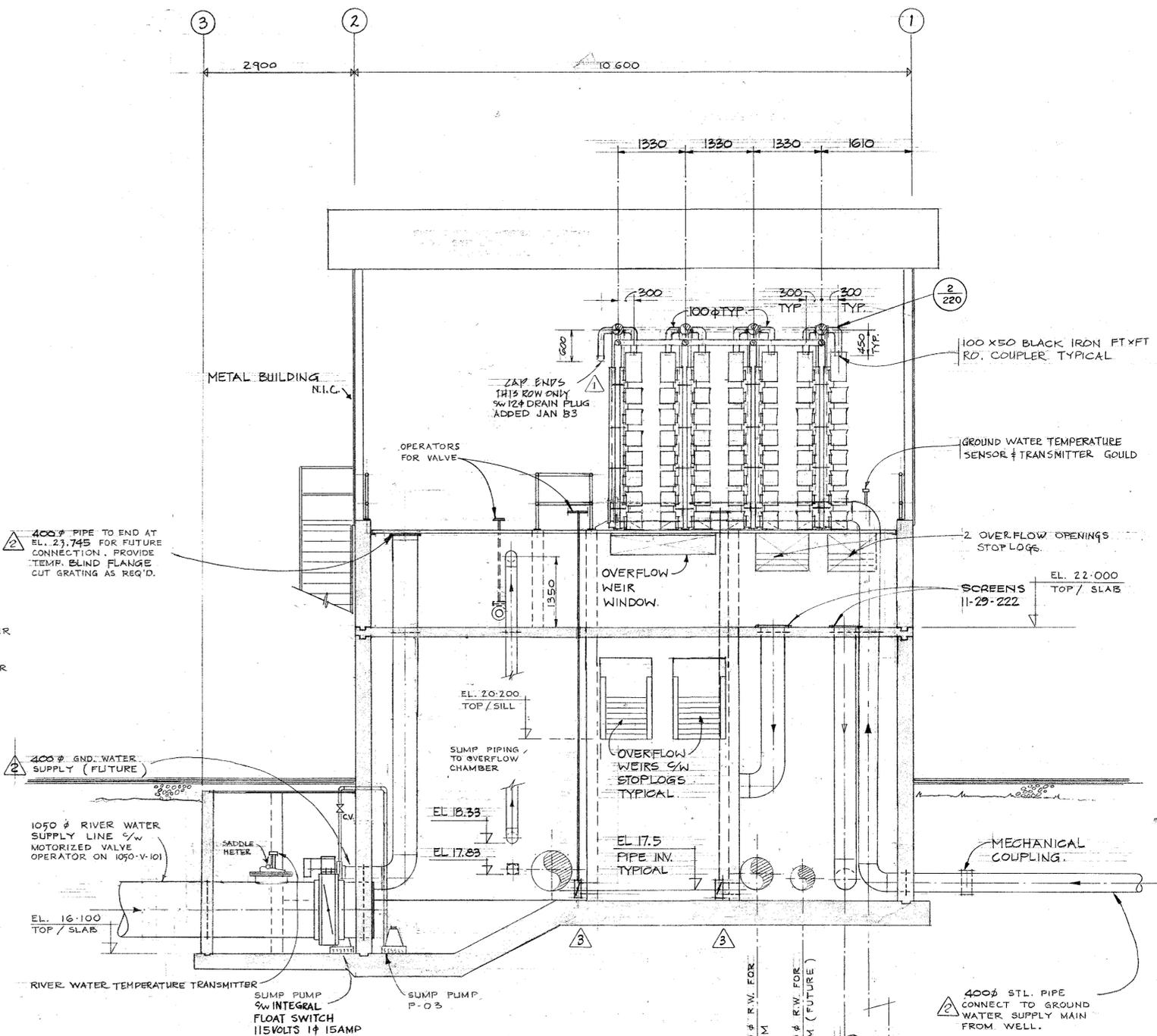
NOTES

×2

×2



SECTION A
SCALE 1:50
222



SECTION B
SCALE 1:50
222

AS BUILT DRAWING	
DATE:	
RESIDENT ENGINEER:	
PROJECT ENGINEER:	
DWG. NO.	REFERENCE DRAWINGS

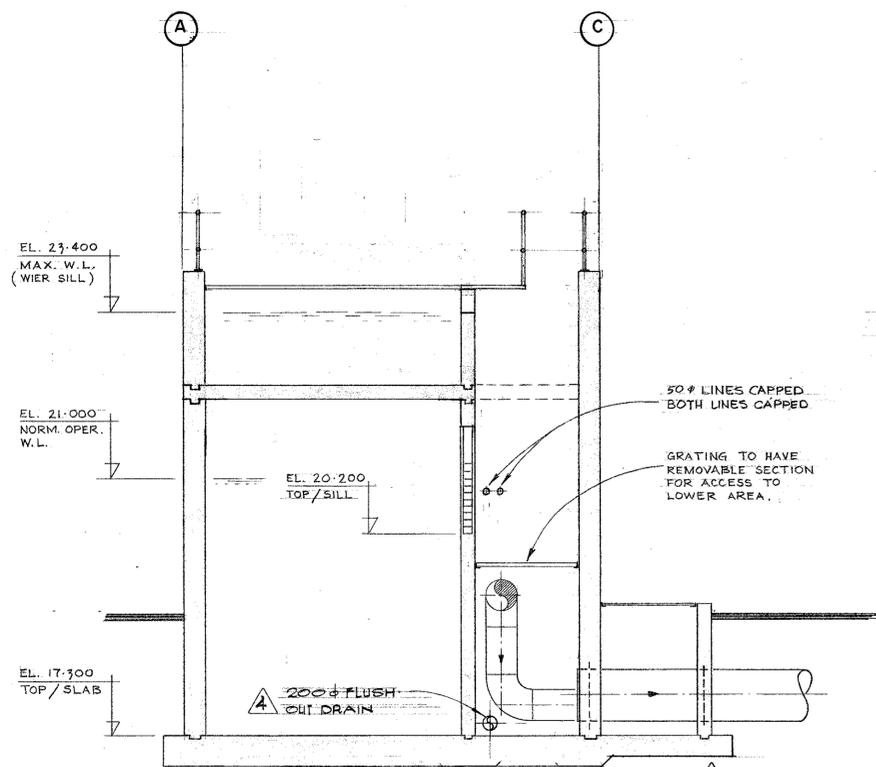
Underwood McLellan (1977) Ltd. Consulting Engineers and Planners British Columbia Alberta Saskatchewan Manitoba Ontario Yukon Territory Northwest Territories	
NO.	DATE

DESIGNED	P.B.
DRAWN	S.R.
CHECKED	
RECOMMENDED	
APPROVED	
APPROVED	

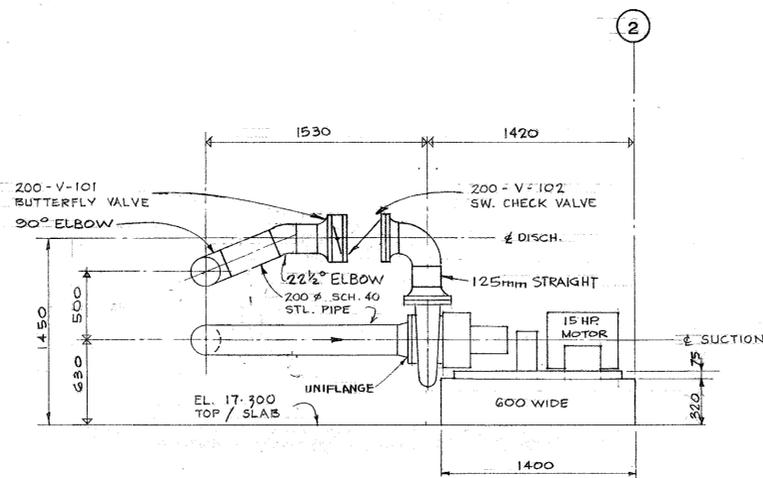
NO.	DATE	REVISIONS
3	84-09-15	FLUSHOUT DRAIN ADDED.
2	81-12-08	PIPE SIZES INCREASED.
1	81-9-17	PACKED COLUMNS + FEEDER PIPING

DEPARTMENT OF FISHERIES AND OCEANS SALMONID ENHANCEMENT PROGRAM	
CHEHALIS RIVER HATCHERY CONTRACT N° 8 AERATION TOWER	
SCALE	AS SHOWN
DATE	AUG 1981
DRAWING NUMBER	11-29-223
REVISION	3

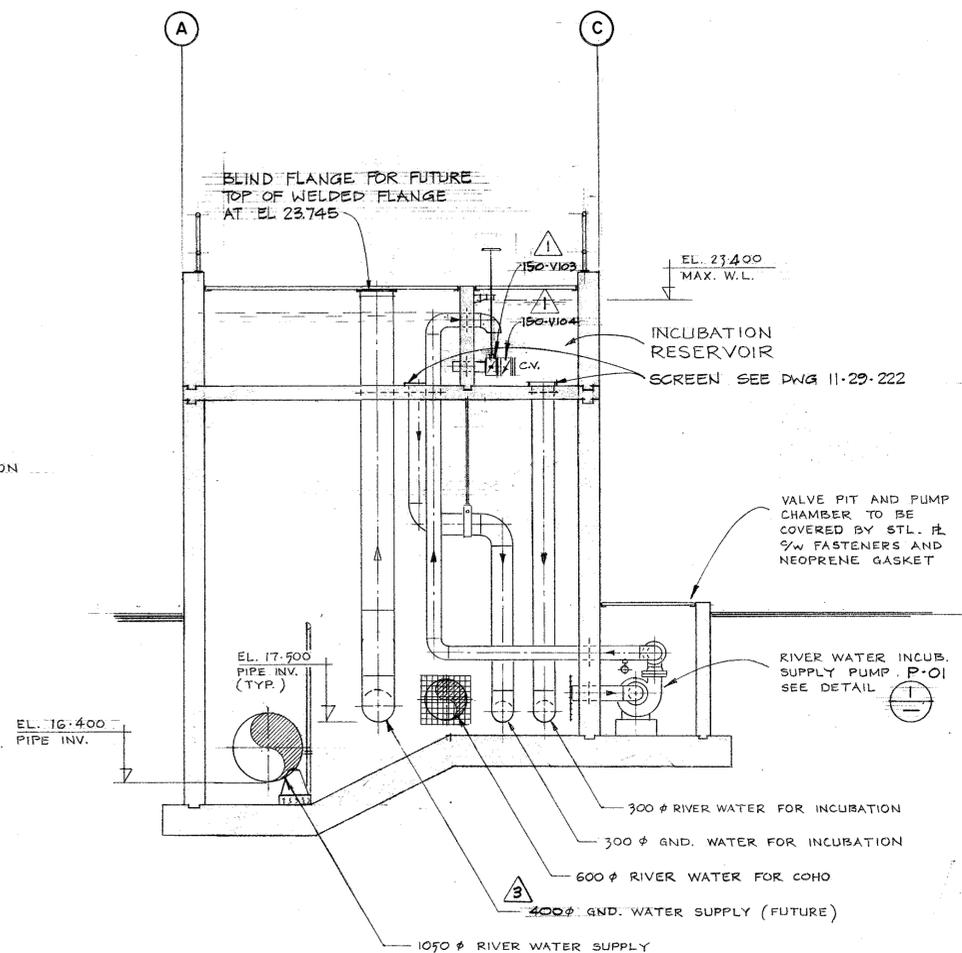
EQU 10/81 D.O.



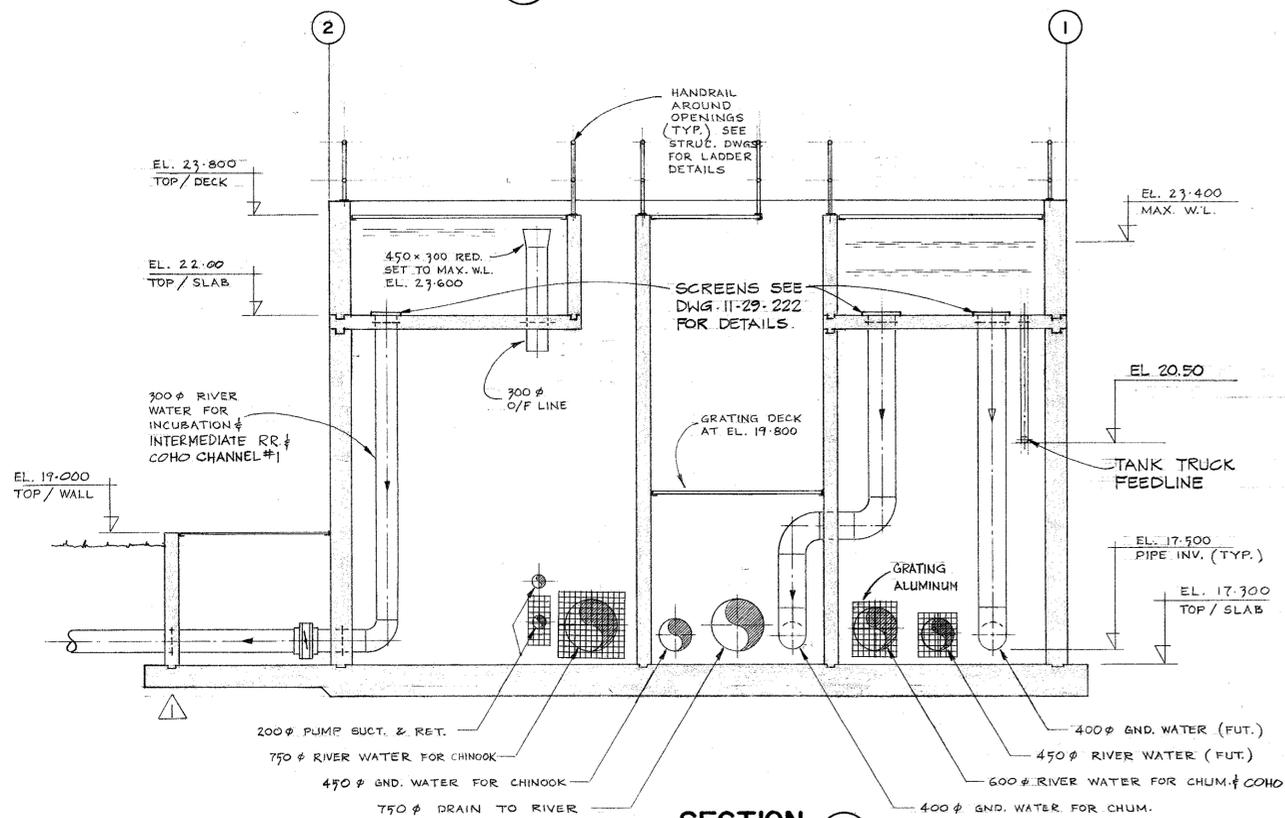
SECTION C
SCALE 1:50



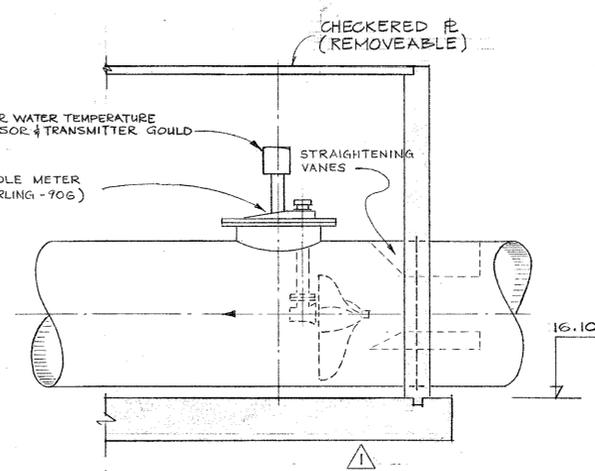
PUMP DETAIL
1:25



SECTION D
SCALE 1:50



SECTION E
SCALE 1:50



SECTION - METER CHAMBER
N.T.S.

AS BUILT DRAWING
DATE: _____
RESIDENT ENGINEER: _____
PROJECT ENGINEER: _____
DWG. NO. _____
REFERENCE DRAWINGS

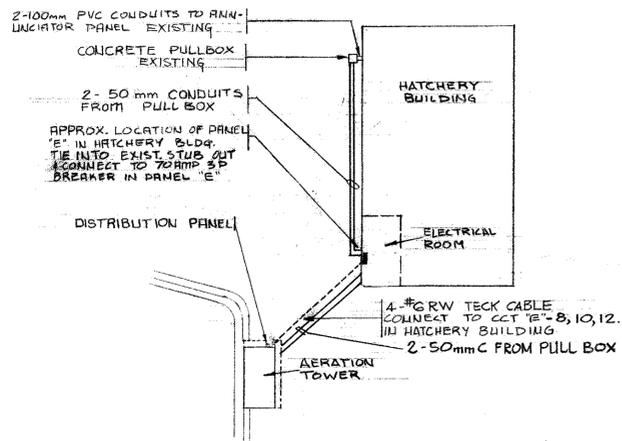
NOTES

Underwood McLellan (1977) Ltd
 Consulting Engineers and Planners
 British Columbia Alberta Saskatchewan
 Manitoba Ontario
 Yukon Territory Northwest Territories

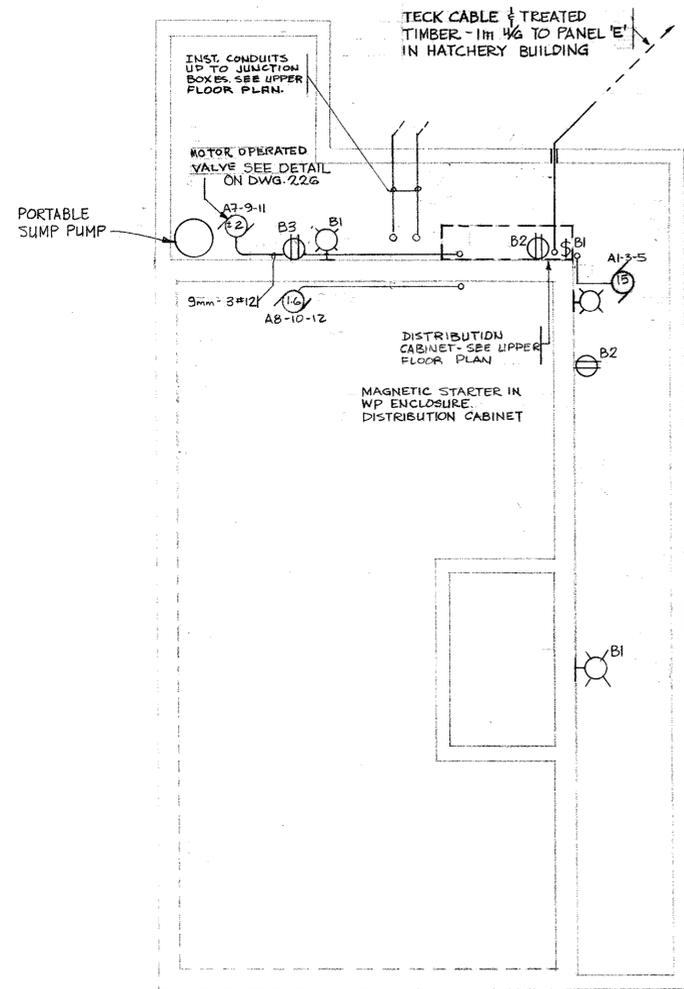
NO.	DATE	REVISIONS
4	MAY 1984	FLUSHOUT DRAIN ADDED
	DEC. 1983	AS BUILT
	DEC. 8 1981	PIPE SIZES INCREASED TO 400mm
	OCT. 26 1981	VALVE DESIGNATION OF V103 & V104
	SEPT. 17 1981	VALVE GALLERY BASE SLAB THICKNESS REDUCED.

DESIGNED P. B.
DRAWN S. R.
CHECKED
RECOMMENDED
APPROVED
APPROVED

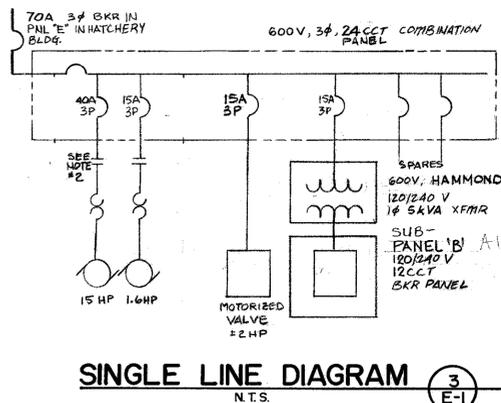
DEPARTMENT OF FISHERIES AND OCEANS SALMONID ENHANCEMENT PROGRAM	
CHEHALIS RIVER HATCHERY CONTRACT N° 8 AERATION TOWER	
SECTIONS & DETAILS MECHANICAL	
SCALE AS SHOWN	DATE AUG. 1981
DRAWING NUMBER	11-29-224
REVISION	4



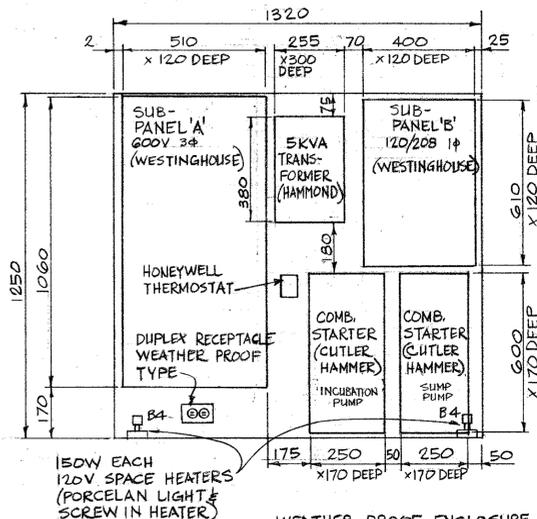
ELECTRICAL SITE PLAN 1:500



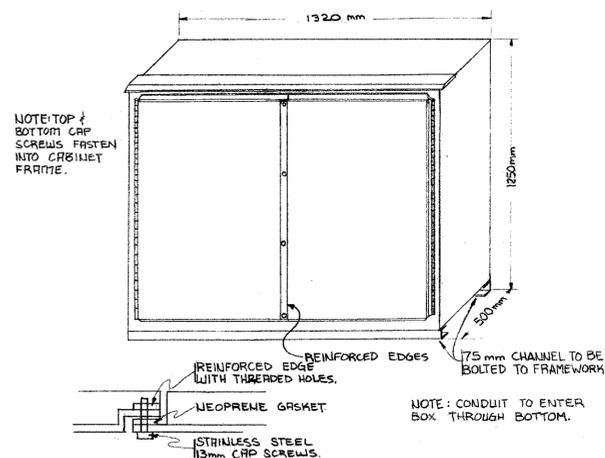
FLOOR PLAN-RIVER WATER RESERVOIR 1:50



SINGLE LINE DIAGRAM N.T.S.



DISTRIBUTION LAYOUT N.T.S.



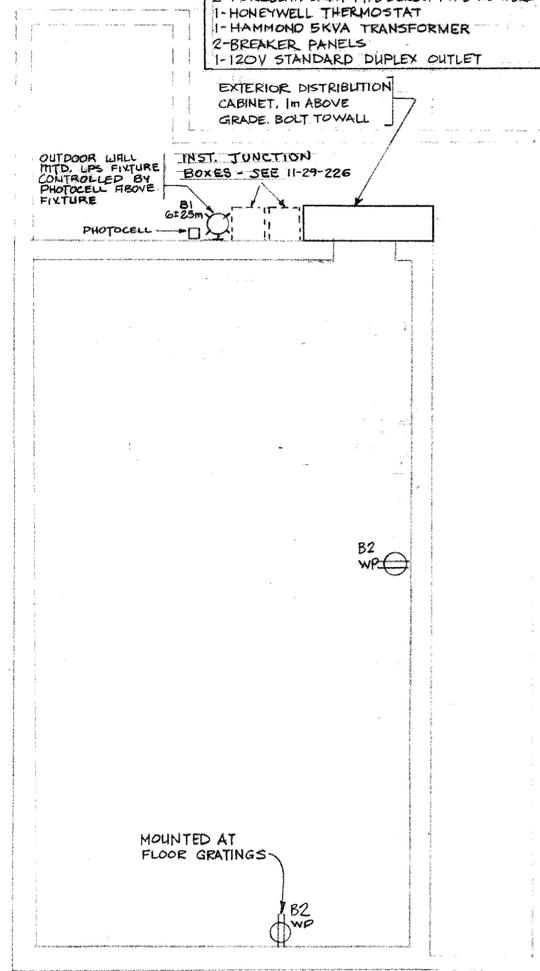
DISTRIBUTION CABINET DETAIL N.T.S.

SUB-PANEL 'B' A1 120/240V 1# 12 CCT

RECEPTACLES	15	1	2	15	SUMP PUMP
LIGHTS	15	3	4	15	STRIP HEATER
BLANK		5	6		BLANK
"		7	8		"
"		9	10		"
"		11	12		"

SUB-PANEL 'A' 600/347V 3# 24 CCT.

RIVER WATER SUMP PUMP	15	3	4	40	INCUBATION PUMP 15 H.P.
1050 CONTROL VALVE MOTOR	7	8	15		5 KVA TRANSFORMER
BLANK	11	12			BLANK
"	13	14			"
"	15	16			"
"	17	18			"
"	19	20			"
"	21	22			"
"	23	24			"



UPPER FLOOR PLAN 1:50

SYMBOL	LEGEND
[Symbol]	LIGHTING PANEL SURFACE MOUNTED
[Symbol]	LIGHTING PANEL RECESSED
[Symbol]	POWER PANEL SURFACE MOUNTED
[Symbol]	POWER PANEL RECESSED
[Symbol]	AUXILIARY PANEL SURFACE MOUNTED (AS NOTED ON DRAWINGS)
[Symbol]	AUXILIARY PANEL RECESSED (AS NOTED ON DRAWINGS)
[Symbol]	SURFACE OR SUSPENDED FLUORESCENT FIXTURE & TYPE
[Symbol]	RECESSED FLUORESCENT FIXTURE & TYPE
[Symbol]	SURFACE OR SUSPENDED FLUORESCENT STRIPLITE (1 LAMP & TYPE)
[Symbol]	SURFACE OR SUSPENDED FIXTURE & TYPE
[Symbol]	WALL MOUNTED FIXTURE & TYPE
[Symbol]	RECESSED FIXTURE & TYPE
[Symbol]	SURFACE MOUNTED EXIT LIGHT, TYPE & DIRECTION
[Symbol]	WALL MOUNTED EXIT LIGHT, TYPE & DIRECTION
[Symbol]	EMERGENCY BATTERY PACK (2 HEADS)
[Symbol]	REMOTE EMERGENCY FIXTURE HEAD SURFACE OR WALL MOUNTED
[Symbol]	REMOTE EMERGENCY FIXTURE HEAD RECESSED
[Symbol]	SINGLE POLE SWITCH (IDENTIFICATION 'A')
[Symbol]	DOUBLE POLE SWITCH
[Symbol]	THREE WAY SWITCH
[Symbol]	DIMMER SWITCH
[Symbol]	LOW VOLTAGE SWITCH AND/OR REMOTE SWITCH
[Symbol]	DUPLEX RECEPTACLE (WALL MOUNTED)
[Symbol]	DUPLEX RECEPTACLE (WEATHERPROOF)
[Symbol]	SPECIAL RAZOR OUTLET
[Symbol]	SPLIT CIRCUIT DUPLEX RECEPTACLE
[Symbol]	DUPLEX RECEPTACLE (UP 1075 MM OR ABOVE COUNTER)
[Symbol]	SINGLE RECEPTACLE OUTLET (WALL MOUNTED)
[Symbol]	DUPLEX RECEPTACLE (FLOOR MOUNTED)
[Symbol]	SPECIAL PURPOSE SINGLE PHASE OUTLET
[Symbol]	SPECIAL PURPOSE THREE PHASE OUTLET
[Symbol]	CEILING MOUNTED CLOCK OUTLET & HANGER
[Symbol]	WALL MOUNTED CLOCK OUTLET & HANGER
[Symbol]	JUNCTION BOX
[Symbol]	HOME RUN TO PANEL (2 CIRCUITS)
[Symbol]	CONDUIT UP
[Symbol]	CONDUIT DOWN
[Symbol]	CONDUIT RUN EXPOSED OR IN CEILING SPACE
[Symbol]	CONDUIT CONCEALED U/G, FLOOR, SLAB, WALLS ETC.
[Symbol]	UNDERFLOOR DUCT SYSTEM
[Symbol]	MOTOR LOCATION (MOTOR NUMBER THREE)
[Symbol]	THERMOSTAT LOCATION
[Symbol]	COMBINATION MAGNETIC STARTER
[Symbol]	MAGNETIC STARTER
[Symbol]	THERMAL MOTOR SWITCH WITH PILOT LIGHT
[Symbol]	THERMAL MOTOR SWITCH
[Symbol]	MANUAL DISCONNECT
[Symbol]	PUSH BUTTON STATION
[Symbol]	'START-STOP' PUSH BUTTON STATION
[Symbol]	HAND-OFF-AUTO CONTROL
[Symbol]	ON-OFF CONTROL
[Symbol]	TELEPHONE WALL OUTLET
[Symbol]	TELEPHONE OUTLET (FLOOR MOUNTED)
A6-A	PANEL "A", CIRCUIT "6", SWITCH "A"
(24)	ROOM NUMBER (24)
(B)	FIXTURE TYPE (B)

DEPARTMENT OF FISHERIES AND OCEANS
SALMONID ENHANCEMENT PROGRAM

CHEHALIS RIVER HATCHERY
CONTRACT No. 8
AERATION TOWER

FLOOR PLAN - ELECTRICAL

SCALE AS SHOWN
DATE AUGUST, 1981
DRAWING NUMBER 11-29-225
REVISION

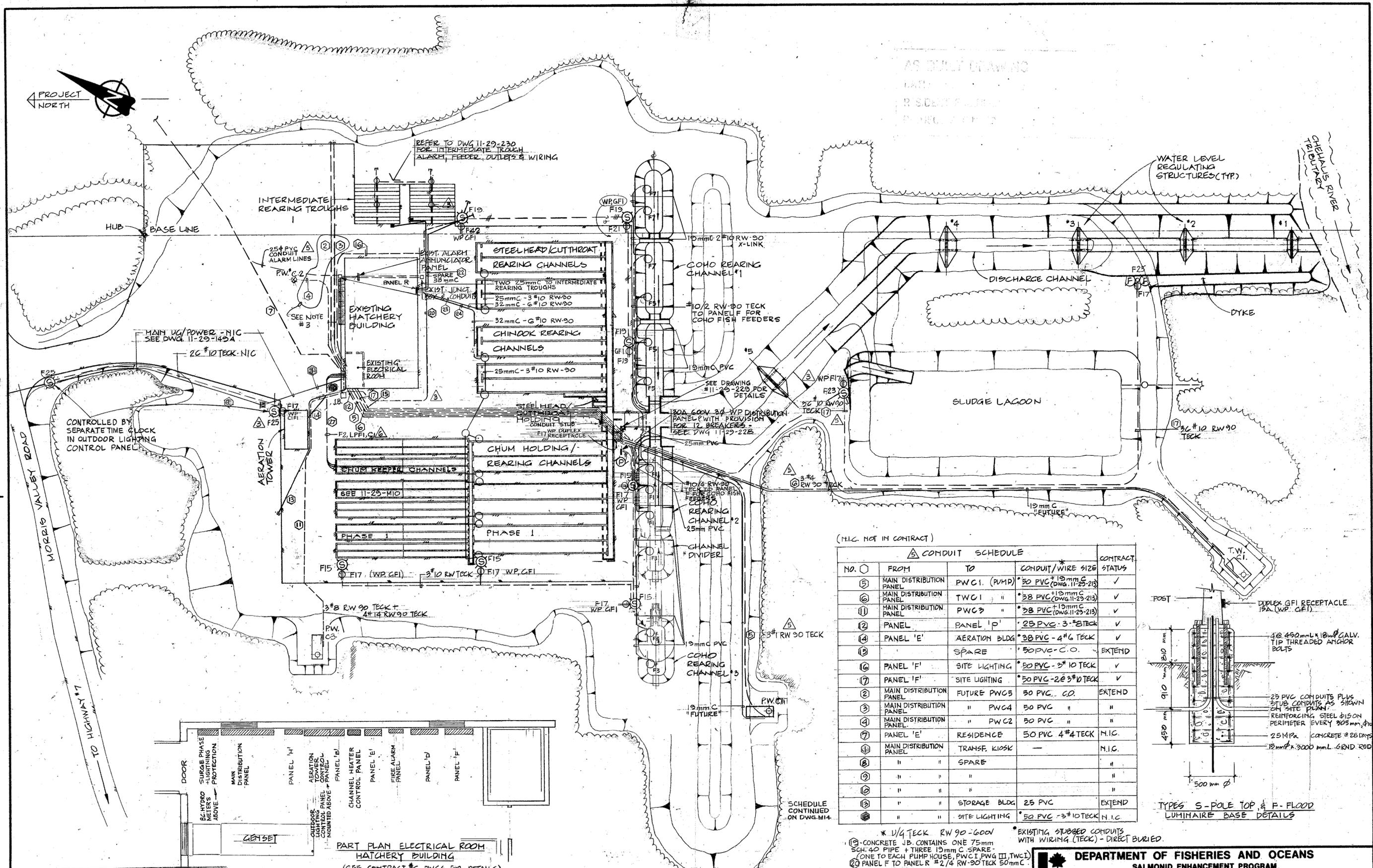
1-1	INSTRUMENTATION CONTROL PANEL
AS BUILT DRAWING	
DATE:	
RESIDENT ENGINEER:	
PROJECT ENGINEER:	
DWG. NO.	REFERENCE DRAWINGS

1. AN INSTRUMENTATION INTERLOCK CAUSES THE 15 H.P. PUMP TO SHUT DOWN ON POWER FAILURE

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Manitoba Ontario
Yukon Territory Northwest Territories

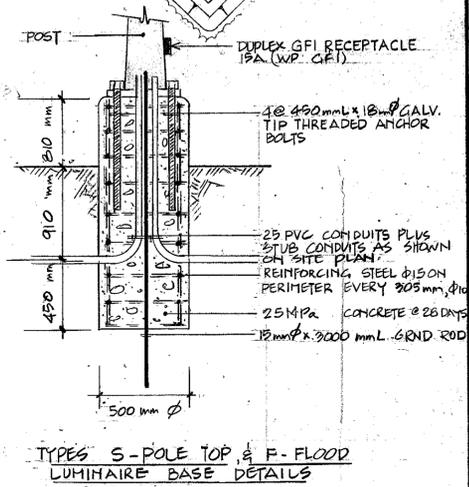
NOTES

DESIGNED	A.N.		
DRAWN	A.T.H.		
CHECKED			
RECOMMENDED			
APPROVED			
NO.	DATE	AS BUILT	REVISIONS
	FEB. 1983		



(N.I.C. NOT IN CONTRACT)

NO.	FROM	TO	CONDUIT/WIRE SIZE	CONTRACT STATUS
5	MAIN DISTRIBUTION PANEL	PWC1 (PUMP)	30 PVC (DWG. 11-29-213)	✓
6	MAIN DISTRIBUTION PANEL	TWC1	38 PVC (DWG. 11-29-213)	✓
11	MAIN DISTRIBUTION PANEL	PWC3	38 PVC (DWG. 11-29-213)	✓
2	PANEL	PANEL 'P'	25 PVC - 3#8 TECK	✓
4	PANEL 'E'	AERATION BLDG	25 PVC - 4#6 TECK	✓
19		SPARE	50 PVC - C.O.	EXTEND
16	PANEL 'F'	SITE LIGHTING	50 PVC - 3#10 TECK	✓
17	PANEL 'F'	SITE LIGHTING	50 PVC - 2#3#10 TECK	✓
2	MAIN DISTRIBUTION PANEL	FUTURE PWC5	30 PVC - C.O.	EXTEND
3	MAIN DISTRIBUTION PANEL	"	50 PVC	"
4	MAIN DISTRIBUTION PANEL	"	50 PVC	"
7	PANEL 'E'	RESIDENCE	50 PVC 4#4 TECK	N.I.C.
11	MAIN DISTRIBUTION PANEL	TRANSF. KIOSK	"	N.I.C.
8	"	SPARE	"	"
9	"	"	"	"
10	"	"	"	"
12	"	STORAGE BLDG	25 PVC	EXTEND
13	"	SITE LIGHTING	50 PVC - 3#10 TECK	N.I.C.



* 1/4 TECK RW 90 - 600' EXISTING STUBBED CONDUITS WITH WIRING (TECK) - DIRECT BURIED.
 13 - CONCRETE J.B. CONTAINS ONE 75mm SCH. 40 PIPE + THREE 19mm C. SPARE - (ONE TO EACH PUMP HOUSE, PWC1, PWC3, TWC1)
 19 - PANEL F TO PANEL R #2/4 RW-90 TECK 50mm C.

AS BUILT DRAWING
 DATE: _____
 R. S. DENT ENGINEER:
 PROJECT ENGINEER:
 DWG. NO. _____

1. FOR LEGEND OF SYMBOLS SEE 11-29-213
 2. SCHEMATIC ONLY SEE DRAWINGS 11-29-M14, 11-29-M15 AND 185 FOR ACCURATE CABLE LOCATIONS.
 3. STUB-UPS FOR RACEWAYS 2, 3, 4 WERE UTILIZED FOR THE CHANNEL HEATER FEEDERS - DEC. 97
 PREPARED BY L.G. SHANNON & ASSOC. LTD., VANCOUVER, B.C. 732-1288

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 Yukon Territory Northwest Territories

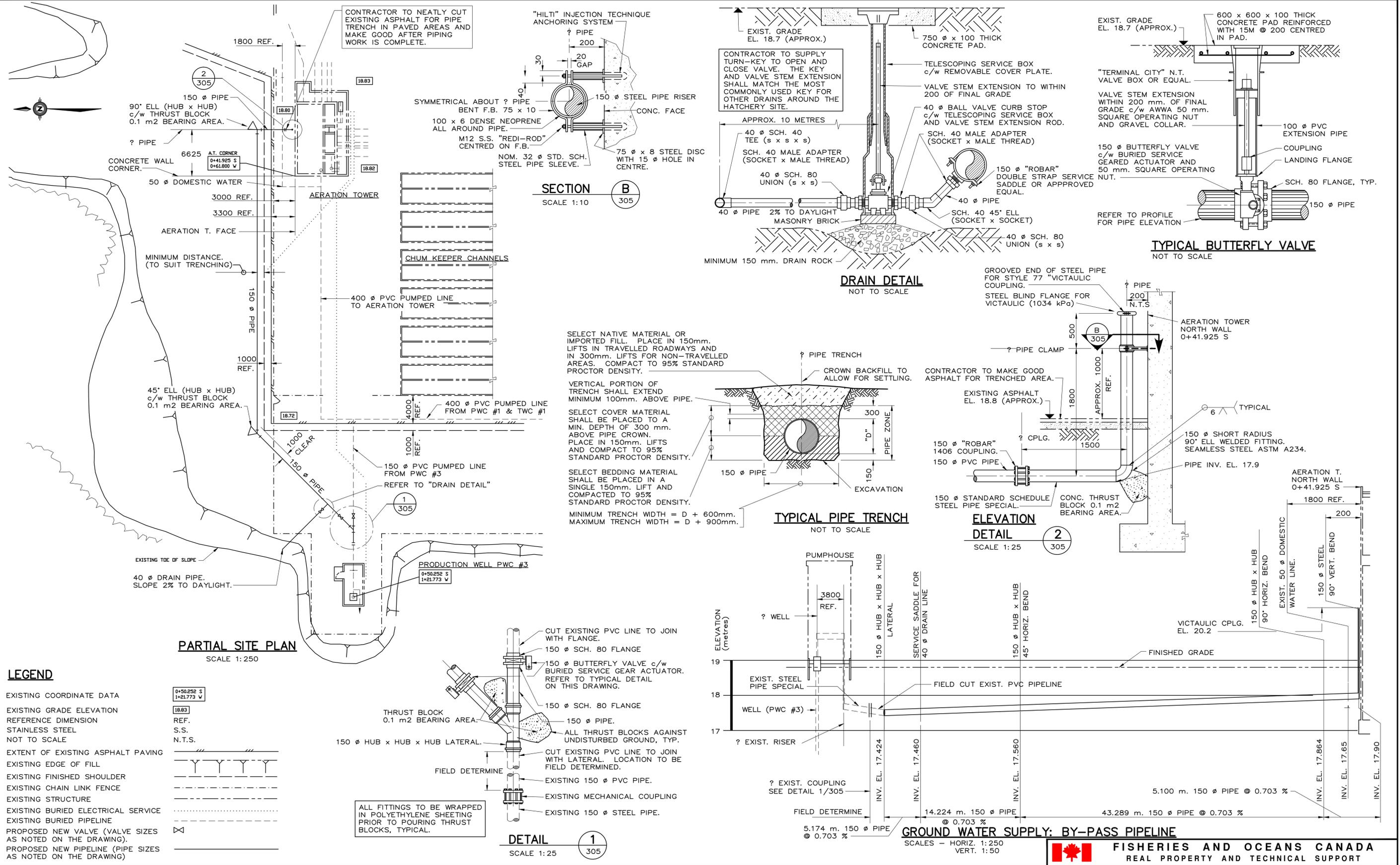
NO.	DATE	REVISIONS
1	MAY 7, 1986	REVISED TO AS BUILT
2	DEC. 15 1982	AS BUILT - AS CHECKED BY DOUG RODE (GENERAL REVISIONS)
3	APRIL 23 1982	CCTS. REVISED AND PANEL RE-LOCATED
4	OCT. 26 1981	NOTE REVISED
5	SEPT. 17 1981	NOTE ADDED

DEPARTMENT OF FISHERIES AND OCEANS
 SALMONID ENHANCEMENT PROGRAM

CHEHALIS RIVER HATCHERY
 CONTRACT NO. 8
 SITE LIGHTING & EQUIPMENT POWER

DESIGNED LGS
 DRAWN SAS/LGS
 CHECKED LGS
 RECOMMENDED
 APPROVED
 APPROVED

SCALE 1:500
 DATE AUG. 1981
 DRAWING NUMBER 11-29-227
 REVISION 6



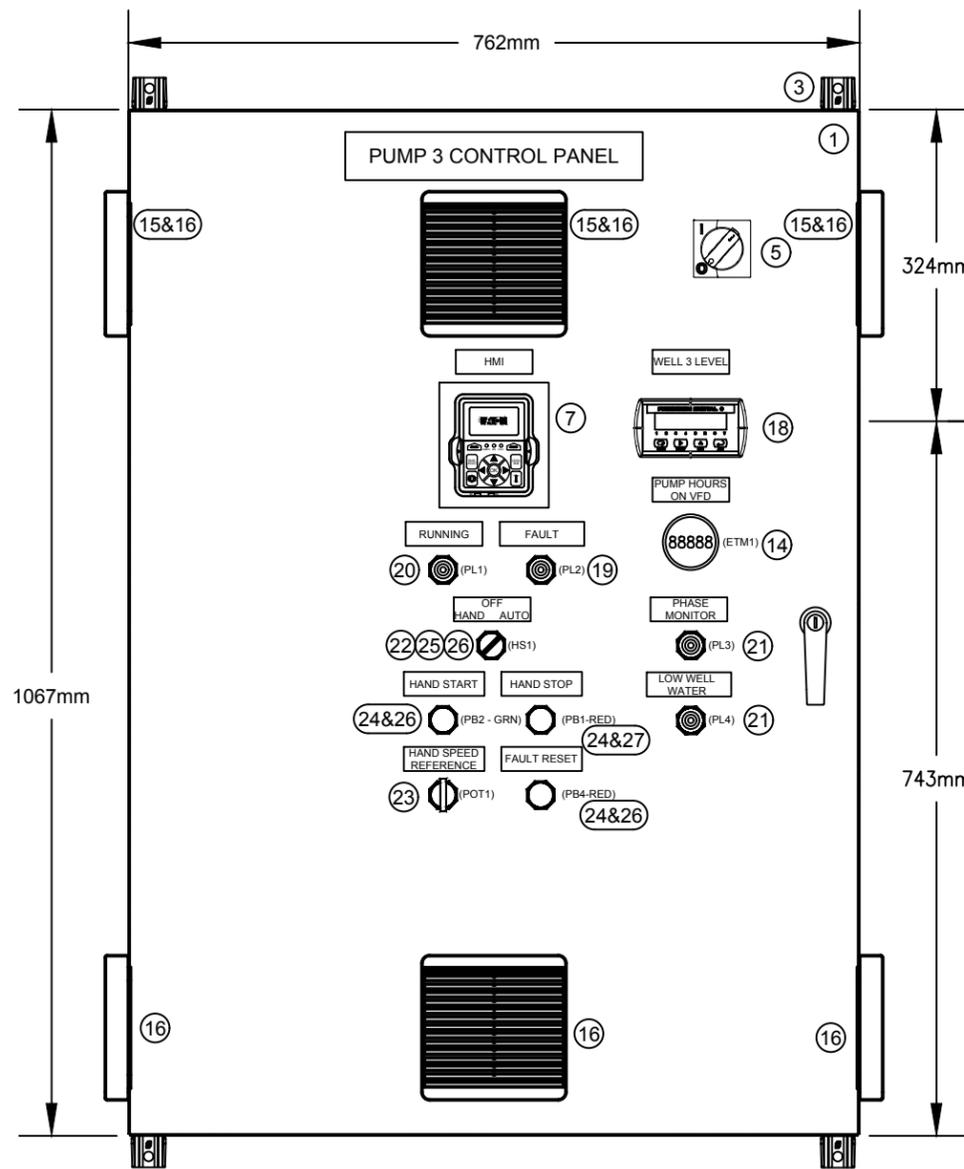
CHEHALIS RIVER HATCHERY
PRODUCTION WELL PWC-3
BY-PASS PIPELINE
PLAN, PROFILE, SECTIONS
AND DETAILS

DESIGNED
DRAWN W. LEUNG
CHECKED G. REICHHARDT
RECOMMENDED
APPROVED
APPROVED

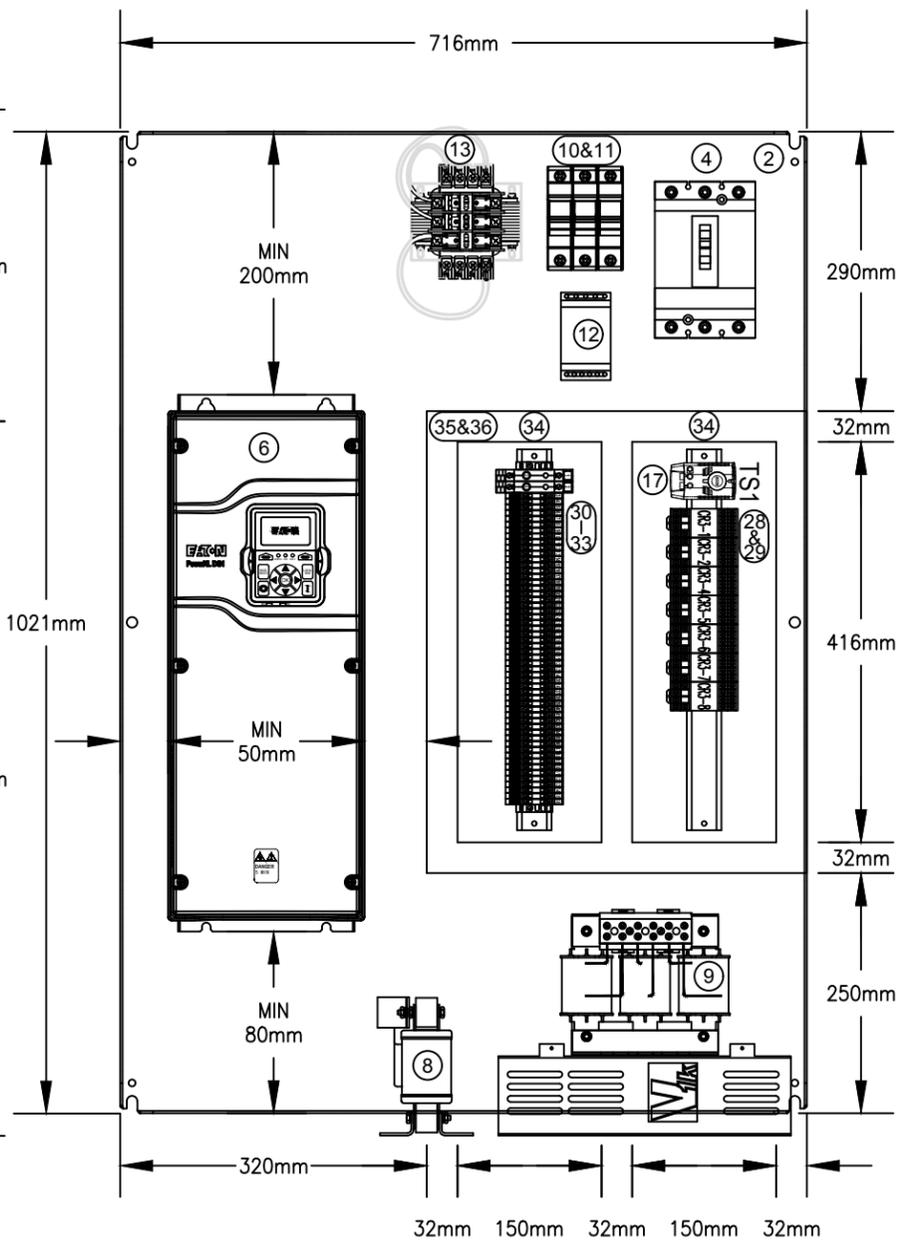
SCALE
AS SHOWN
DATE
JULY 1990
DRAWING NUMBER
11-29-305
REVISION

DWG. NO.
DRAWING REFERENCES

NO.
DATE
REVISIONS



FRONT DOOR VIEW



BACK PLATE VIEW

PLC PANEL BILL OF MATERIAL					
Item	Qty	Supplier	ERP	Part Number	Description
1	1	Guillevin	11937	EN4SD423012GY	Hammond Eclipse 42x30x12 Nema 4 Enclosure
2	1	Guillevin	11948	EP4230	Hammond Eclipse 42x30 Enclosure Backplate
3	1	Guillevin	11970	EZPMFHD	Hammond Eclipse Enclosure Plated Steel Footkit
4	1	Guillevin	HDL36045	HDL36045	Schneider 45A, 600V, 3P Breaker
5	1	Guillevin	14770	S29338	Schneider 45A, 600V, 3P Breaker Rotary Handle Kit
6	1	Wesco		DG1-35034FB-C21C	Eaton 30Hp, 600V DG1 VFD
7	1	Wesco		DXG-KEY-RMTKIT	Eaton DG1 VFD Remote Keypad Kit
8	1	Wesco		KDRD42L	TCI 35A, 3% Line Reactor
9	1	Wesco		V1K35A00	TCI 35A, dV/dt Output Filter
10	1	Guillevin	13413	CHM3D	Buss 30A, 600V, 3P Fuseholder
11	3	Guillevin	13413	LPCC2	Buss 2A, 600V T/D L/P Fuse
12	1	Wesco	11793	D65VMLS600C	Eaton 600V, 3P Voltage Monitor
13	1	Guillevin	14774	9070TF300D5	Schneider Electric 300VA, 600-120V Control Transformer c/w Fuse Kit
14	1	Guillevin	10769	3410-3000	Redington 120V Elapsed Time Meter
15	3	Guillevin	11825	DNMF100AC115	Hammond 4", 120Vac Fan
16	6			XPFA120GY	Fan Grill for 120 MM Fan / Gray
17	1	Guillevin		SKT011419NO	Hammond NO Thermostat in Fahrenheit
18	1	Precision Digital		PD765-6R5-10	Precision Digital 120Vac Powered Digital Indicator c/w Retransmission
19	1	Guillevin	13413	9001SKT38LRR31	Square D 30mm, Push-to-test, 120Vac, LED Pilot Light - Red
20	1	Guillevin	13413	9001SKT38LGG31	Square D 30mm, Push-to-test, 120Vac, LED Pilot Light - Green
21	2	Guillevin	13413	9001SKT38LYA31	Square D 30mm, Push-to-test, 120Vac, LED Pilot Light - Amber
22	1	Guillevin	13413	9001SKS43B	Square D 30mm 3-position Selector Switch
23	1	Guillevin	13413	9001SK2107	Square D 30mm 5K Ohm Potentiometer
24	3	Guillevin	13413	9001SKR1U	Square D 30mm Push Button
25	2	Guillevin	13413	9001KA1	Square D 30mm 1NO/1NC Contact Block
26	4	Guillevin	13413	9001KA2	Square D 30mm 1NO Contact Block
27	1	Guillevin	13413	9001KA3	Square D 30mm 1NC Contact Block
28	7	Wesco	13413	RU4S-A110	Idec 4PDT, 120Vac Ice Cube Relay
29	7	Wesco	13413	SY4S-05U	Idec 4PDT Ice Cube Relay Base
30	1	Westburne	13413	9101500000	Weidmuller 2 Ampere Breaker Terminal
31	1	Westburne	13413	9101800000	Weidmuller 5 Ampere Breaker Terminal
32	52	Westburne	13413	1020000000	Weidmuller WDU 2.5 Wiring Terminals
33	2	Westburne	13413	1010000000	Weidmuller WPE 2.5 Ground Terminals
34	0.5	Guillevin	13413	801733	Phoenix Contact TS35 DIN Rail (6 feet)
35	1	Guillevin	13413	TY1X2NPG6	T&B 1"W x 2"H Wireway (6 Feet Length)
36	1	Guillevin	13413	TY1CPG6	T&B 1"W Wireway Cover (6 Feet Length)
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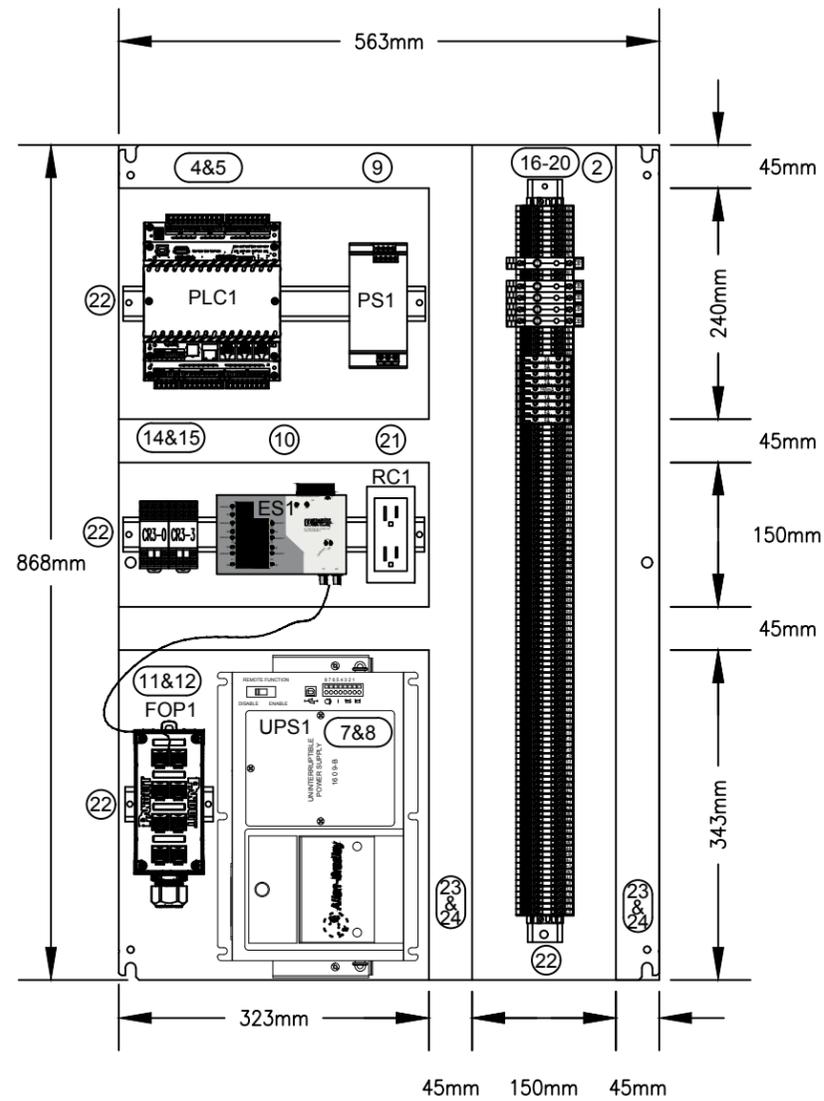
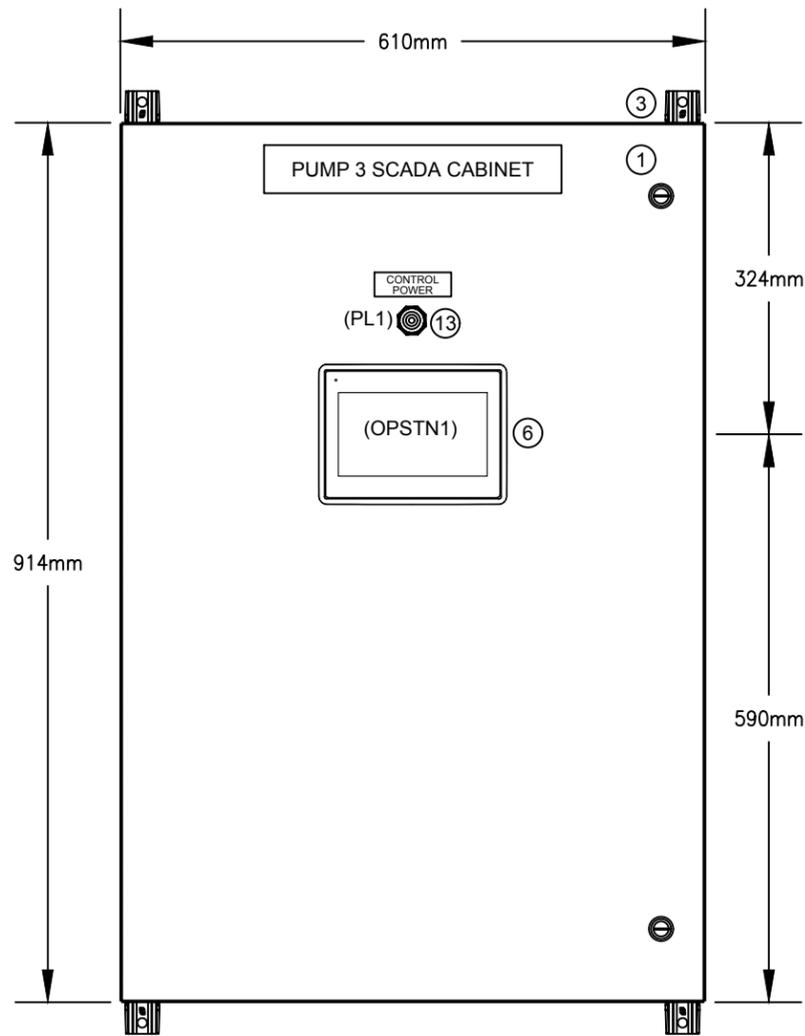
0	FOR APPROVAL	CM	SEP 25/17
No.	REVISION	BY	DATE

DWN	CM
DATE	SEP 25/17
DSG.	CM
CHK.	KH
SCALE	7.5:1
PROJ.	S017253

Interior Instruments
a division of CORIX
 1115 St. Paul Street, Kelowna, BC, V1Y 2C6
 Phone: (250) 717-8813 FAX: (250) 717-8814

FISHERIES AND OCEANS CANADA
 CHEHALIS RIVER HATCHERY – WATER SUPPLY FROM WELL 3
 PUMP MOTOR CONTROL PANEL LAYOUT

DRAWING NUMBER	REV
E01	0



PLC CONTROL PANEL BILL OF MATERIAL

Item	Qty	Supplier	ERP	Part Number	Description
1	1	Guillevin	11936	EN4SD362412GY	Hammond Eclipse 36x24x12 Nema 4 Enclosure
2	1	Guillevin	11947	EP3624	Hammond Eclipse 36x24 Enclosure Backplate
3	1	Guillevin	11970	EZPMFHD	Hammond Eclipse Enclosure Plated Steel Footkit
4	1	Simark	13466	TBUP334-1A20-AB00	Schneider SCADAPack 334 PLC c/w 24Vdc Inputs
5	1	Simark	14188	TBUM297190	Schneider SCADAPack 334/357 PLC 2 Channel AO Card
6	1	Mica Controls		630005205	Beijer X2 Base 7 Operator Interface
7	1	Westburne		1609-B600N	1609 Next Gen UPS, Basic model, 600 VA, 120V AC Input/Output
8	2		11756	D1250F2	12V 5.0Ah Battery F2 Spade Connector
9	1	Guillevin	15106	2866763	Phoenix Contact QUINT4-PS/1AC/24DC/10 Power Supply
10	1	Guillevin		2832577	Phoenix Contact FL Ethernet Switch SF 7TX/FX ST
11	2	Wesco		PC-4AL-PC-STST001	ST-ST MM FO 1m Patch Cable (Confirm part no.)
12	1	Wesco	13503	FDME8RG	Panduit 8-Port DIN Rail Fiber Optic Enclosure
13	1	Guillevin	13413	9001SKP38LGG31	Square D 30mm Green, 120Vac, LED Pilot Light
14	2	Wesco	13413	RU4S-D24	Idec 4PDT, 24Vdc Ice Cube Relay
15	2	Wesco	13413	SY4S-05U	Idec 4PDT Ice Cube Relay Base
16	2	Westburne	13413	9101500000	Weidmuller 2 Ampere Breaker Terminal
17	3	Westburne	13413	9101800000	Weidmuller 5 Ampere Breaker Terminal
18	9	Westburne	13413	1011300000	Weidmuller WSI 6/LD 10-36V DC/AC Fuse Terminals
19	88	Westburne	13413	1020100000	Weidmuller WDU 4 Wiring Terminals
20	13	Westburne	13413	1010100000	Weidmuller WPE 4 Ground Terminals
21	1	Westburne	13413	6720005430	Weidmuller DIN Rail Mount Duplex Receptacle
22	2	Guillevin	13413	801733	Phoenix Contact TS35 DIN Rail (6 feet)
23	2	Guillevin	13413	TY15X3NPG6	T&B 1.5"W x 3"H Wireway (6 Feet Length)
24	2	Guillevin	13413	TY15CPG6	T&B 1.5"W Wireway Cover (6 Feet Length)
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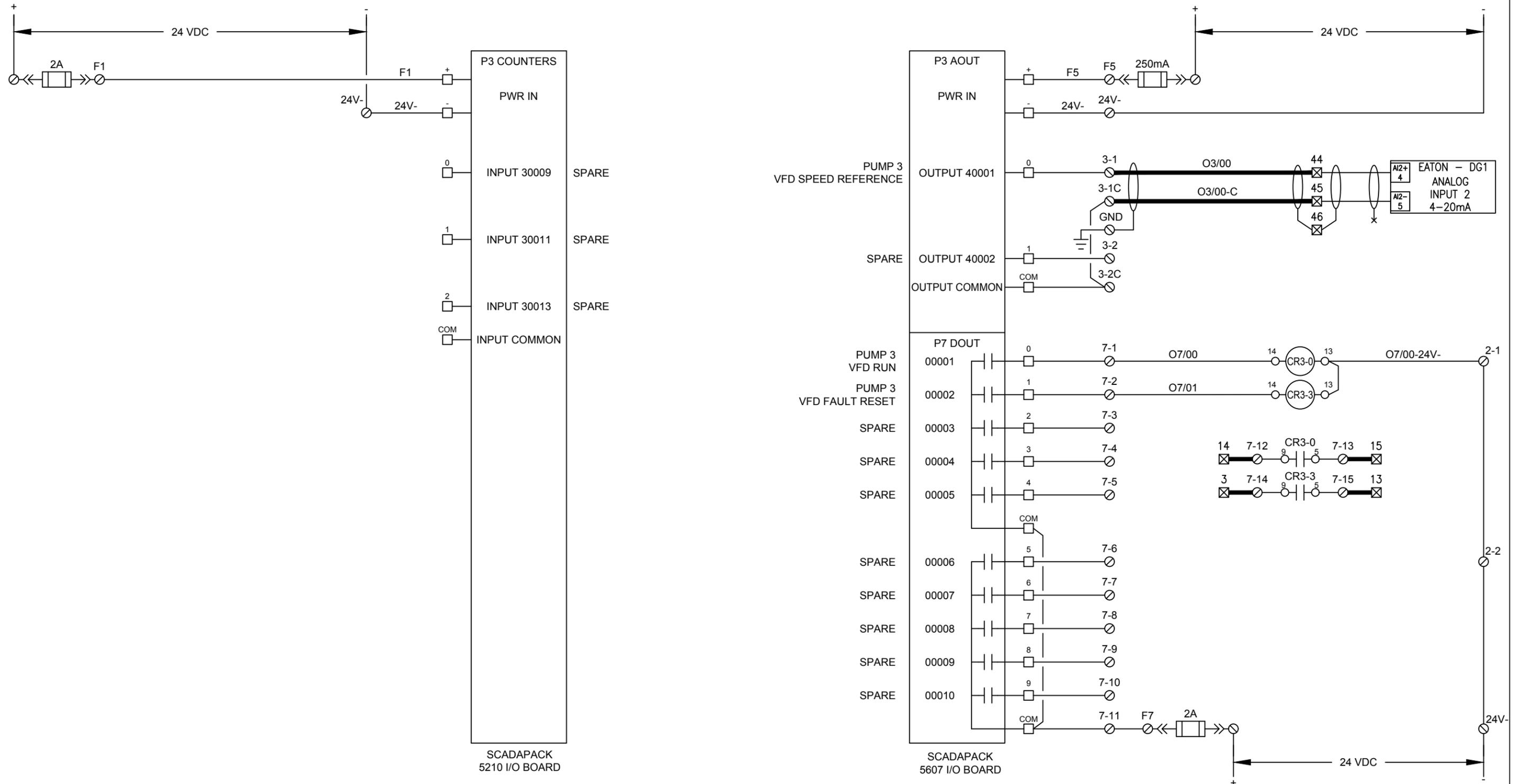
No.	REVISION	BY	DATE
0	FOR APPROVAL	CM	SEP 22/17

DWN	CM
DATE	SEP 22/17
DSG.	CM
CHK.	KH
SCALE	7.5:1
PROJ.	S017253

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FISHERIES AND OCEANS CANADA
 CHEHALIS RIVER HATCHERY – WATER SUPPLY FROM WELL 3
 PLC CONTROL PANEL LAYOUT

DRAWING NUMBER	REV
E03	0



SCADAPACK
5210 I/O BOARD

SCADAPACK
5607 I/O BOARD

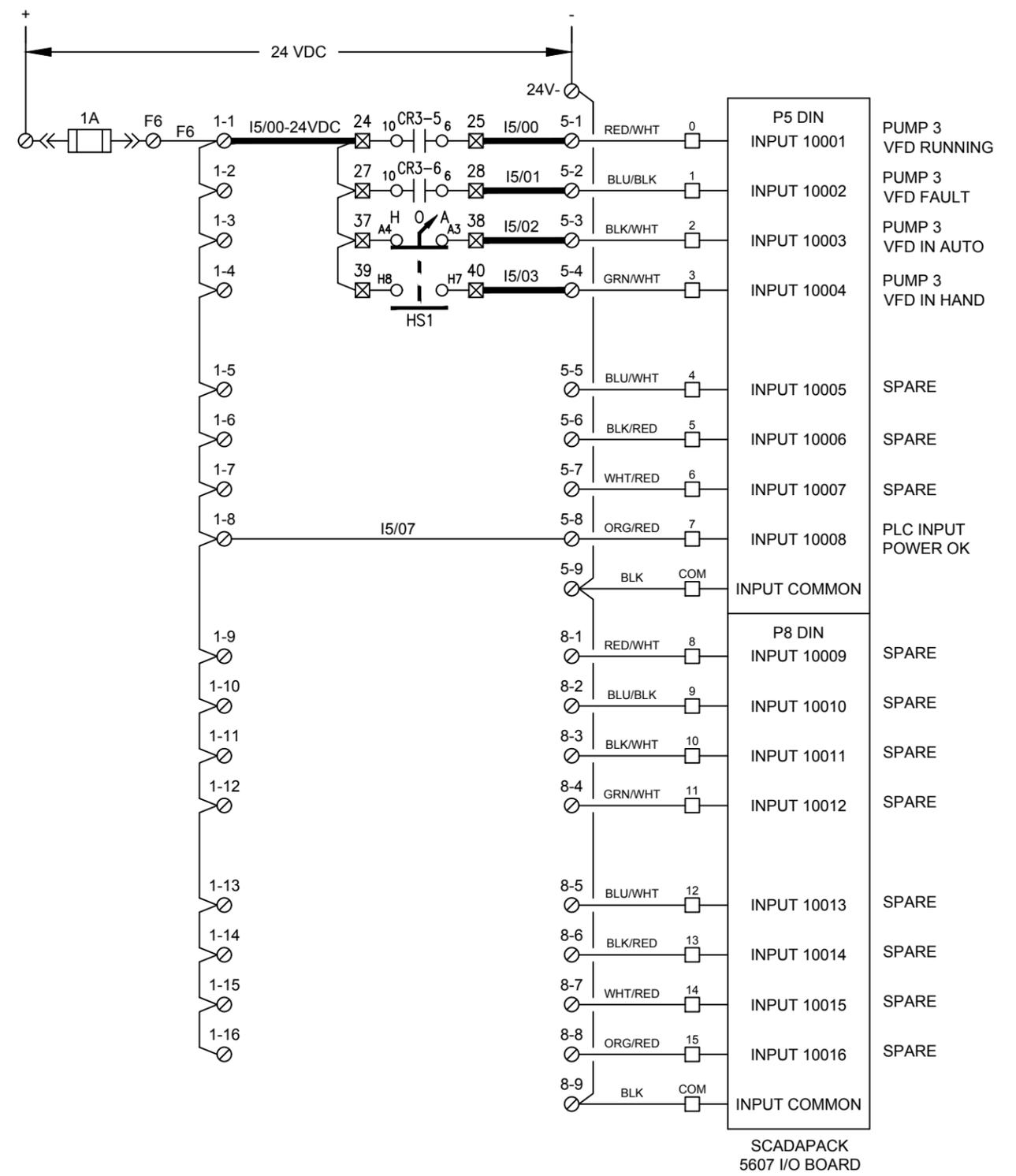
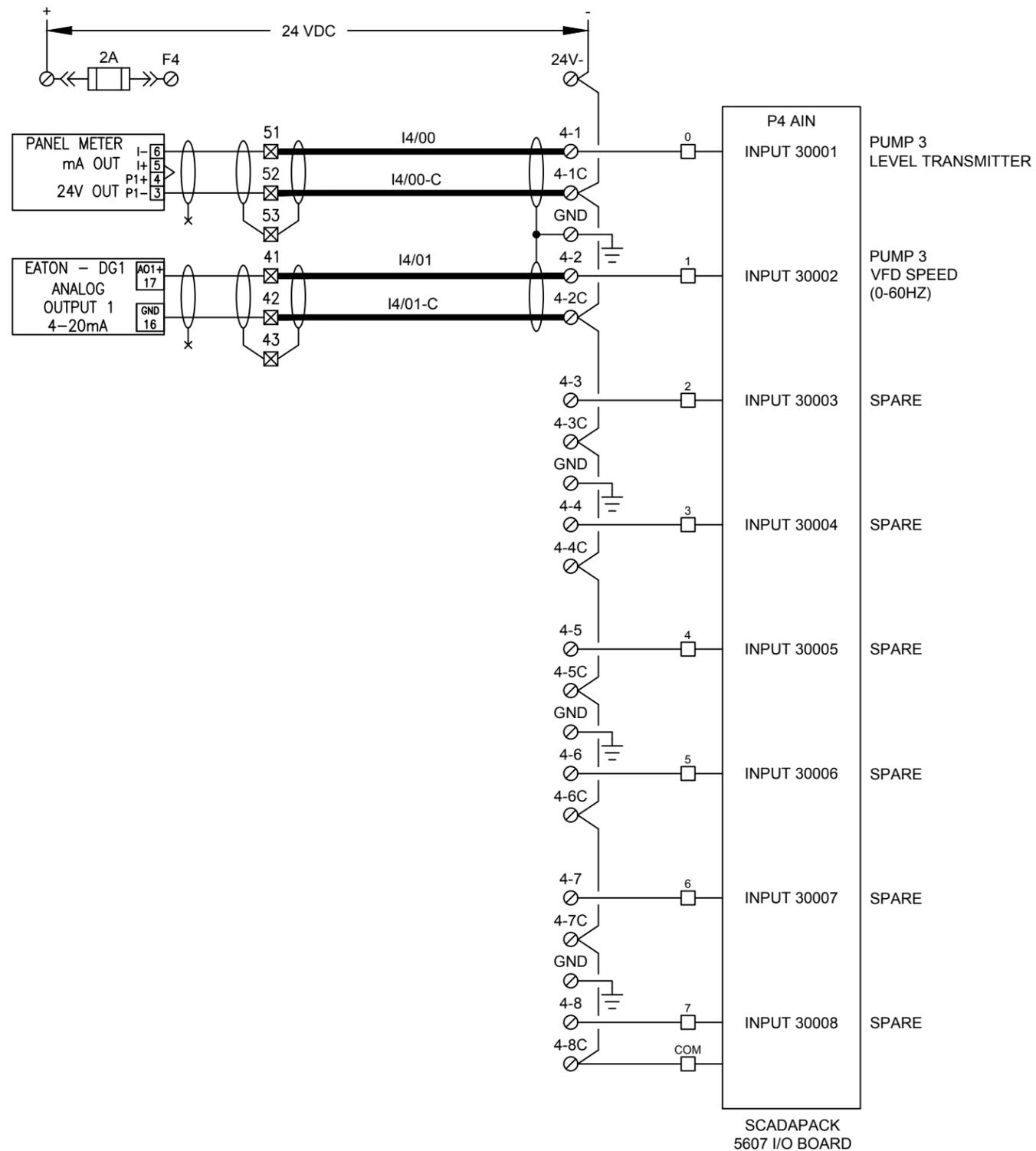
0	FOR APPROVAL	CM	SEP 22/17
No.	REVISION	BY	DATE

DWN	CM
DATE	SEP 22/17
DSG.	CM
CHK.	KH
SCALE	NTS
PROJ.	S017253

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FISHERIES AND OCEANS CANADA
 CHEHALIS RIVER HATCHERY – WATER SUPPLY FROM WELL 3
 PLC CONTROL WIRING SHEET 2 OF 3

DRAWING NUMBER	REV
E05	0



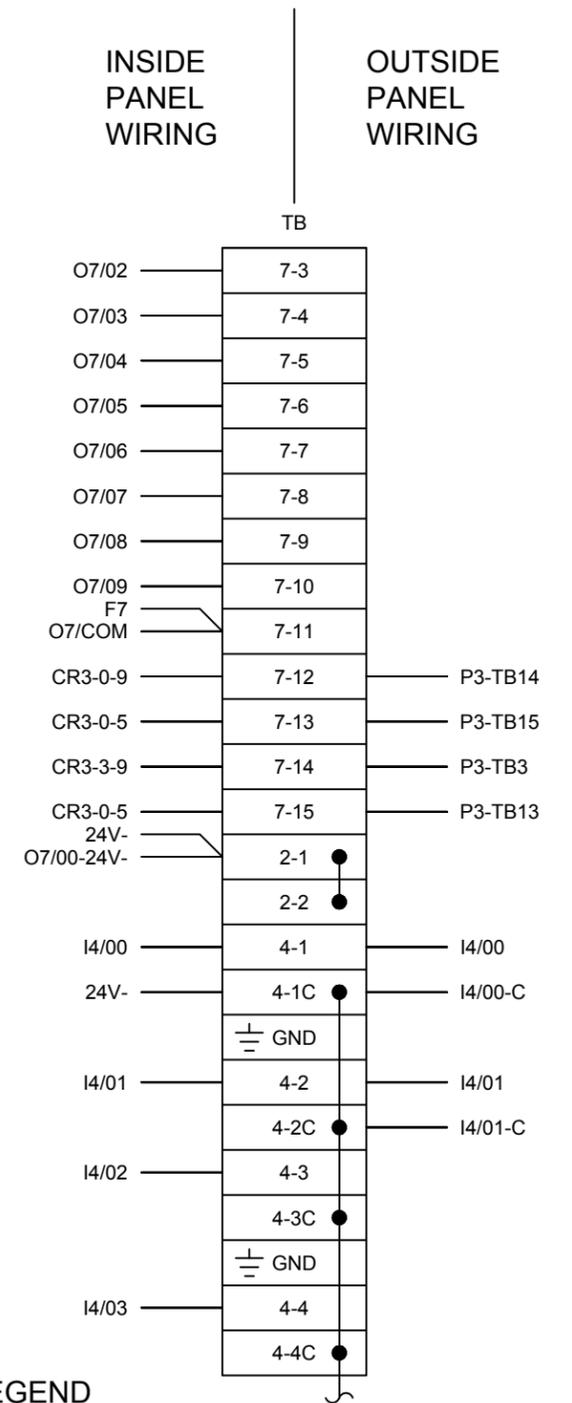
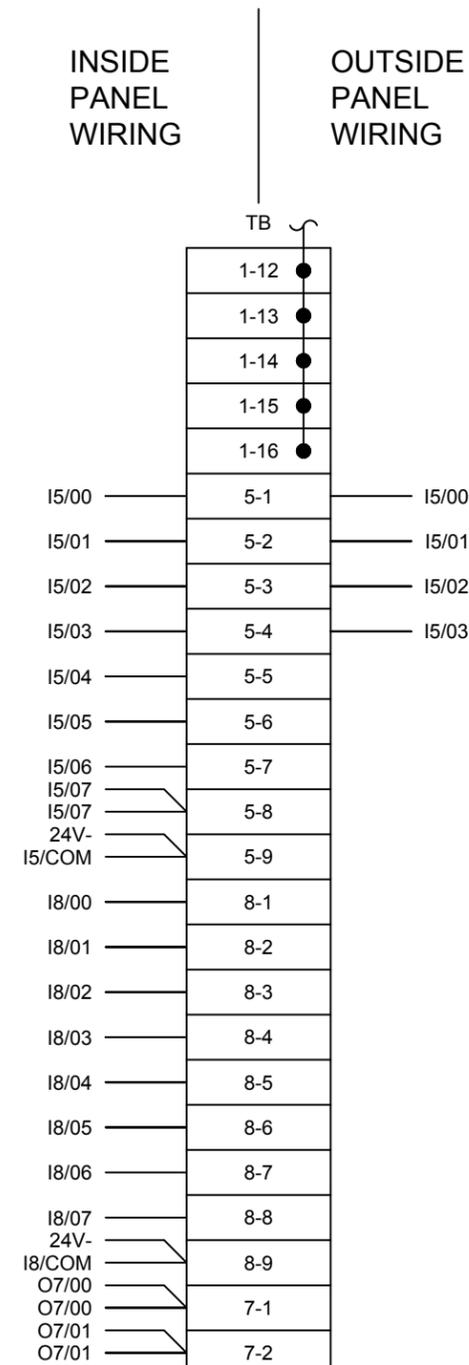
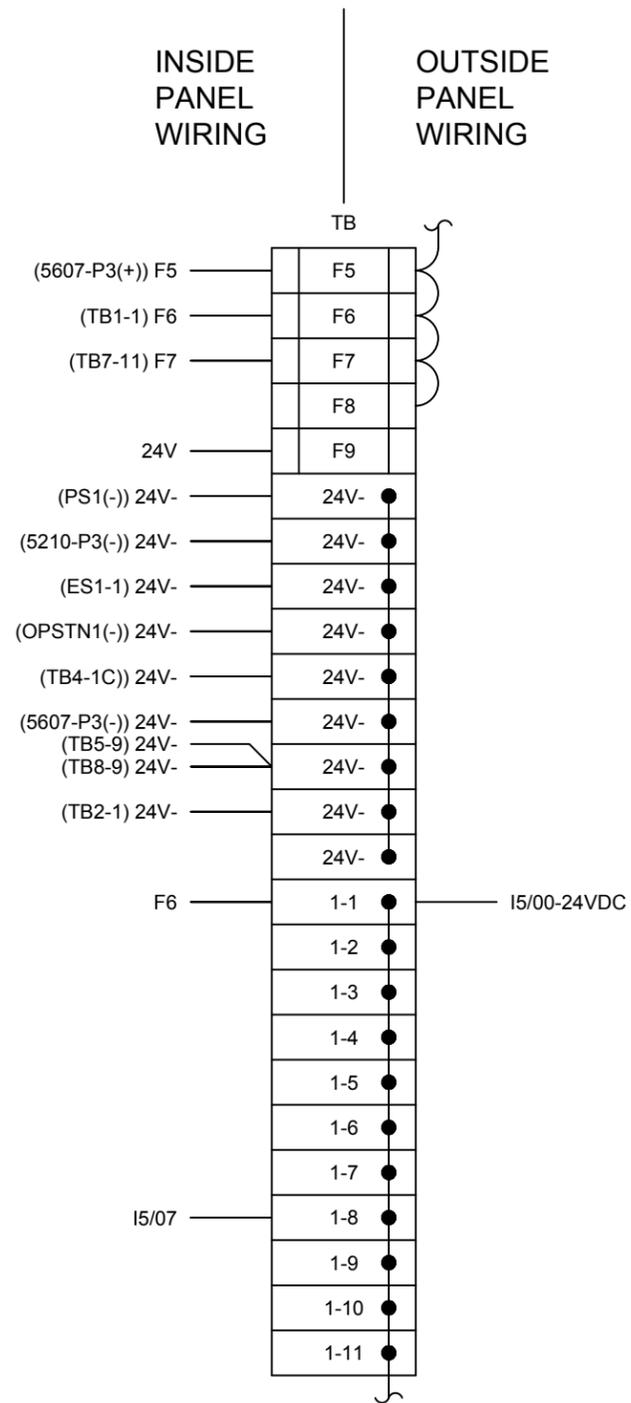
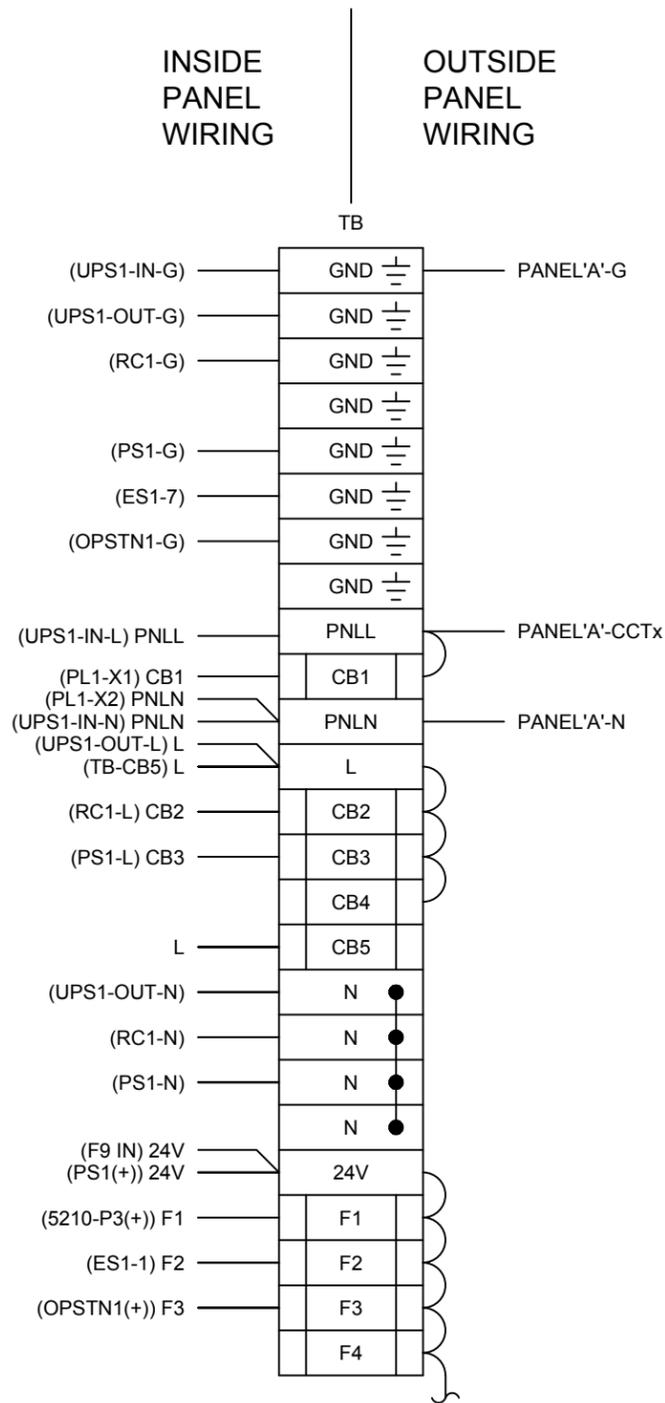
No.	REVISION	BY	DATE
0	FOR APPROVAL	CM	SEP 22/17

DWN	CM
DATE	SEP 22/17
DSG.	CM
CHK.	KH
SCALE	NTS
PROJ.	S017253

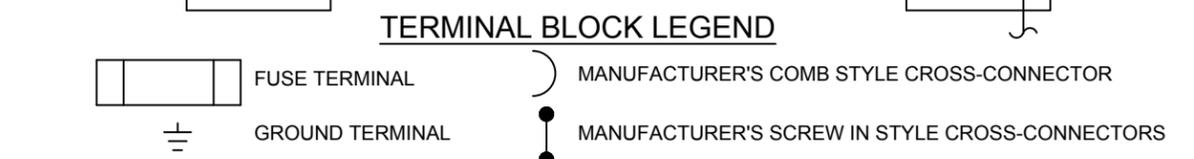
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FISHERIES AND OCEANS CANADA
 CHEHALIS RIVER HATCHERY – WATER SUPPLY FROM WELL 3
 PLC CONTROL WIRING SHEET 3 OF 3

DRAWING NUMBER	REV
E06	0



- NOTES:
- WHERE WIRE DESTINATION IS AMBIGUOUS, IT IS NOTED IN BRACKETS BESIDE THE LABEL.
E.G. (PS1(+)) 24V - THE DESTINATION IS THE (+) TERMINAL OF PS1, AND THE WIRE LABEL IS "24V".
 - IF THE WIRE IS TO BE UNLABELLED THE DESTINATION IS NOTED IN BRACKETS, AND NO LABEL IS GIVEN.



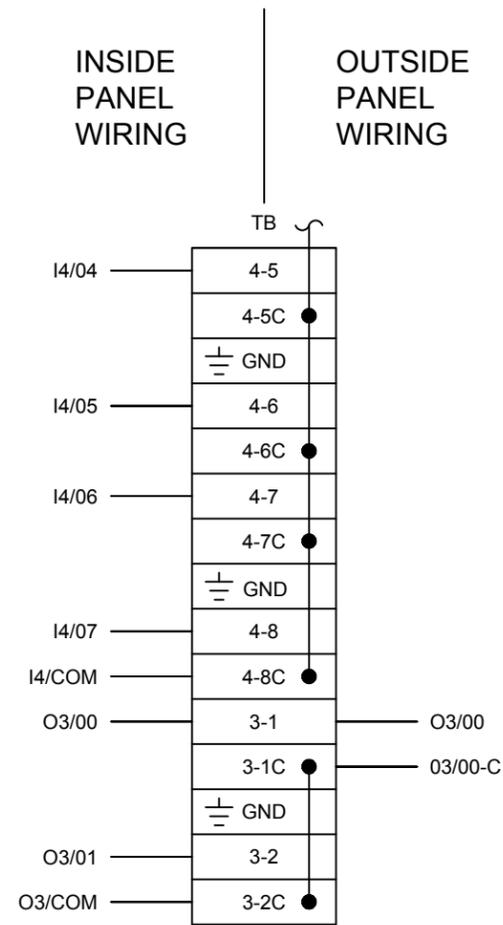
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No.	REVISION	BY	DATE

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	DATE	SEP 22/17
	DSG.	CM
	CHK.	KH
	SCALE	NTS
	PROJ.	S017253

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FISHERIES AND OCEANS CANADA
 CHEHALIS RIVER HATCHERY - WATER SUPPLY FROM WELL 3
 PLC TERMINAL BLOCK LAYOUT SHEET 1 OF 2

DRAWING NUMBER	REV
E07	0



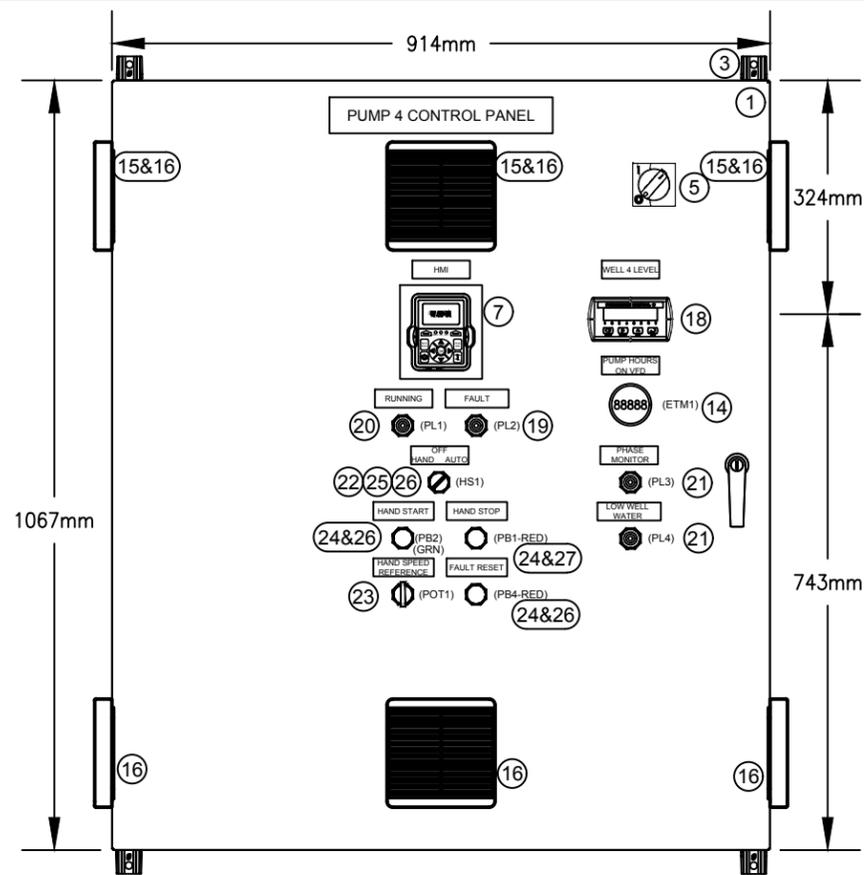
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No.	REVISION	BY	DATE

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	PROJ.	S017253

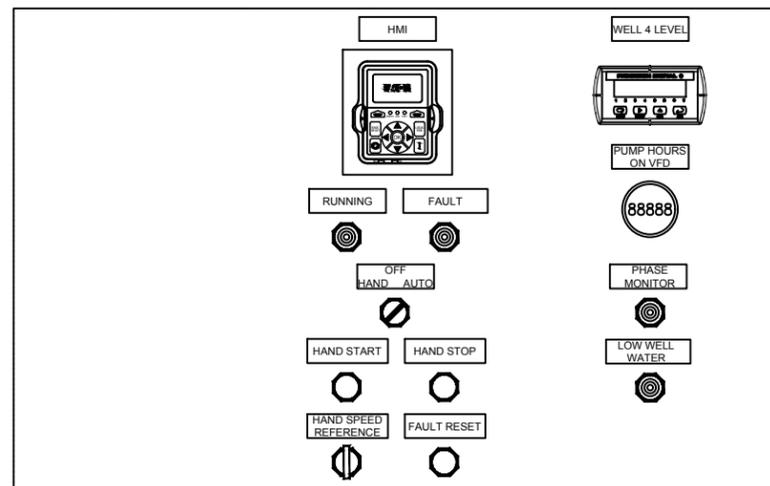
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FISHERIES AND OCEANS CANADA
 CHEHALIS RIVER HATCHERY – WATER SUPPLY FROM WELL 3
 PLC TERMINAL BLOCK LAYOUT SHEET 2 OF 2

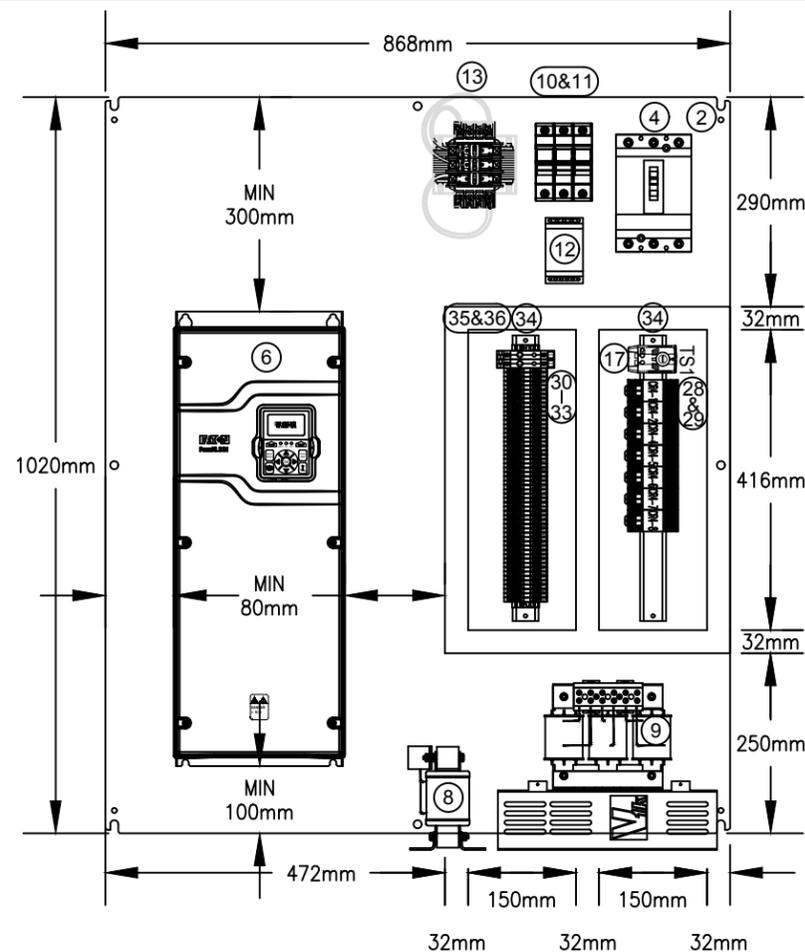
DRAWING NUMBER	REV
E08	0



FRONT DOOR VIEW



FRONT DOOR BUTTON LAYOUT
SCALE 7.5:1



BACK PLATE VIEW

PLC PANEL BILL OF MATERIAL					
Item	Qty	Supplier	ERP	Part Number	Description
1	1	Guillevin		EN4SD423612GY	Hammond Eclipse 42x36x16 Nema 4 Enclosure
2	1	Guillevin		EP4236	Hammond Eclipse 42x36 Enclosure Backplate
3	1	Guillevin	11970	EZPMFHD	Hammond Eclipse Enclosure Plated Steel Footkit
4	1	Guillevin		HDL36080	Schneider 80A, 600V, 3P Breaker
5	1	Guillevin	14770	S29338	Schneider 80A, 600V, 3P Breaker Rotary Handle Kit
6	1	Wesco		DG1-35052FN-C21C	Eaton 50Hp, 600V DG1 VFD
7	1	Wesco		DXG-KEY-RMTKIT	Eaton DG1 VFD Remote Keypad Kit
8	1	Wesco		KDRC44L	TCI 55A, 3% Line Reactor
9	1	Wesco		V1K55A00	TCI 55A, dV/dt Output Filter
10	1	Guillevin	13413	CHM3D	Buss 30A, 600V, 3P Fuseholder
11	3	Guillevin	13413	LPCC2	Buss 2A, 600V T/D L/P Fuse
12	1	Wesco	11793	D65VMLS600C	Eaton 600V, 3P Voltage Monitor
13	1	Guillevin	14774	9070TF300D5	Schneider Electric 300VA, 600-120V Control Transformer c/w Fuse Kit
14	1	Guillevin	10769	3410-3000	Redington 120V Elapsed Time Meter
15	3	Guillevin	11825	DNMF100AC115	Hammond 4", 120Vac Fan
16	6			XPFA120GY	Fan Grill for 120 MM Fan / Gray
17	1	Guillevin		SKT011419NO	Hammond NO Thermostat in Fahrenheit
18	1	Precision Digital		PD765-6R5-10	Precision Digital 120Vac Powered Digital Indicator c/w Retransmission
19	1	Guillevin	13413	9001SKT38LRR31	Square D 30mm, Push-to-test, 120Vac, LED Pilot Light - Red
20	1	Guillevin	13413	9001SKT38LGG31	Square D 30mm, Push-to-test, 120Vac, LED Pilot Light - Green
21	2	Guillevin	13413	9001SKT38LYA31	Square D 30mm, Push-to-test, 120Vac, LED Pilot Light - Amber
22	1	Guillevin	13413	9001SKS43B	Square D 30mm 3-position Selector Switch
23	1	Guillevin	13413	9001SK2107	Square D 30mm 5K Ohm Potentiometer
24	3	Guillevin	13413	9001SKR1U	Square D 30mm Push Button
25	2	Guillevin	13413	9001KA1	Square D 30mm 1NO/1NC Contact Block
26	4	Guillevin	13413	9001KA2	Square D 30mm 1NO Contact Block
27	1	Guillevin	13413	9001KA3	Square D 30mm 1NC Contact Block
28	7	Wesco	13413	RU4S-A110	Idec 4PDT, 120Vac Ice Cube Relay
29	7	Wesco	13413	SY4S-05U	Idec 4PDT Ice Cube Relay Base
30	1	Westburne	13413	9101500000	Weidmuller 2 Ampere Breaker Terminal
31	1	Westburne	13413	9101800000	Weidmuller 5 Ampere Breaker Terminal
32	52	Westburne	13413	1020000000	Weidmuller WDU 2.5 Wiring Terminals
33	2	Westburne	13413	1010000000	Weidmuller WPE 2.5 Ground Terminals
34	0.5	Guillevin	13413	801733	Phoenix Contact TS35 DIN Rail (6 feet)
35	1	Guillevin	13413	TY1X2NPG6	T&B 1"W x 2"H Wireway (6 Feet Length)
36	1	Guillevin	13413	TY1CPG6	T&B 1"W Wireway Cover (6 Feet Length)
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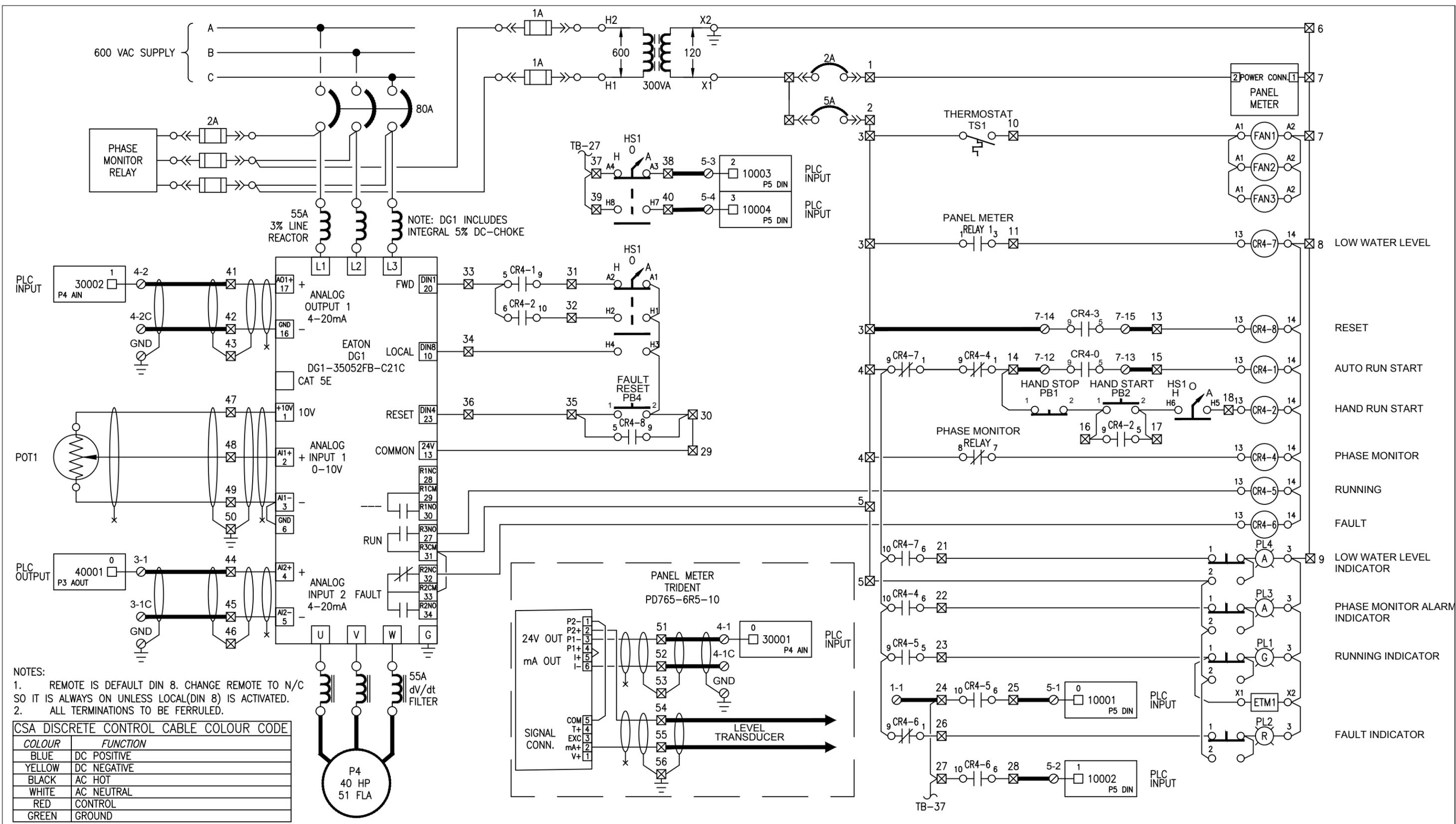
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CHK.	KH
SCALE	10:1
PROJ.	S017253

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FISHERIES AND OCEANS CANADA
CHEHALIS RIVER HATCHERY – WATER SUPPLY FROM WELL 4
PUMP MOTOR CONTROL PANEL LAYOUT

DRAWING NUMBER	REV
E01	0



NOTES:
 1. REMOTE IS DEFAULT DIN 8. CHANGE REMOTE TO N/C SO IT IS ALWAYS ON UNLESS LOCAL(DIN 8) IS ACTIVATED.
 2. ALL TERMINATIONS TO BE FERRULED.

CSA DISCRETE CONTROL CABLE COLOUR CODE	
COLOUR	FUNCTION
BLUE	DC POSITIVE
YELLOW	DC NEGATIVE
BLACK	AC HOT
WHITE	AC NEUTRAL
RED	CONTROL
GREEN	GROUND

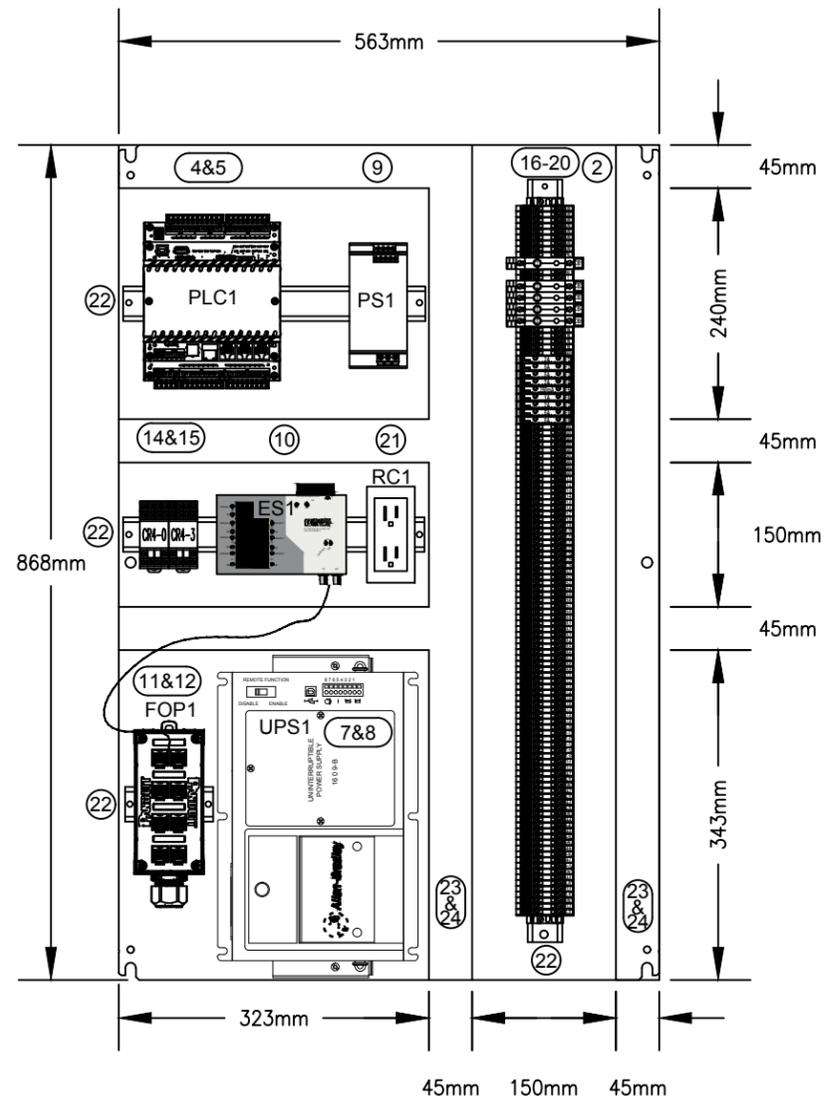
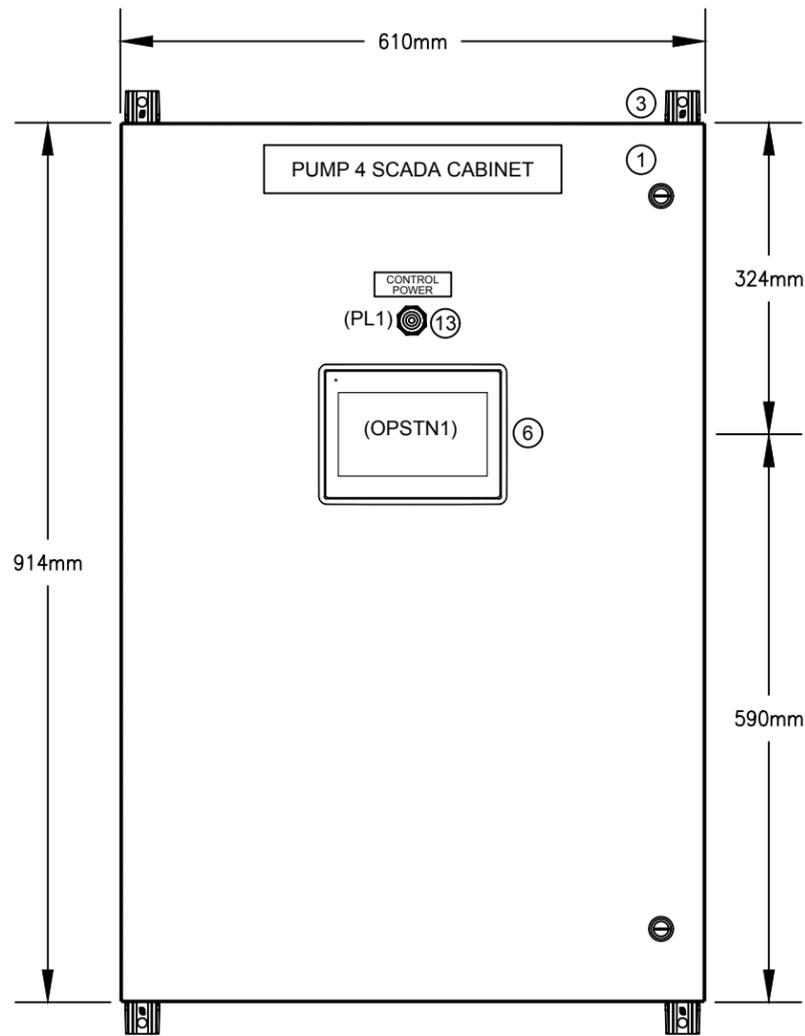
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CHK.	KH
SCALE	NTS
PROJ.	S017253

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FISHERIES AND OCEANS CANADA
 CHEHALIS RIVER HATCHERY – WATER SUPPLY FROM WELL 4
 PUMP MOTOR CONTROL WIRING

DRAWING NUMBER	REV
E02	0



PLC CONTROL PANEL BILL OF MATERIAL

Item	Qty	Supplier	ERP	Part Number	Description
1	1	Guillevin	11936	EN4SD362412GY	Hammond Eclipse 36x24x12 Nema 4 Enclosure
2	1	Guillevin	11947	EP3624	Hammond Eclipse 36x24 Enclosure Backplate
3	1	Guillevin	11970	EZPMFHD	Hammond Eclipse Enclosure Plated Steel Footkit
4	1	Simark	13466	TBUP334-1A20-AB00	Schneider SCADAPack 334 PLC c/w 24Vdc Inputs
5	1	Simark	14188	TBUM297190	Schneider SCADAPack 334/357 PLC 2 Channel AO Card
6	1	Mica Controls		630005205	Beijer X2 Base 7 Operator Interface
7	1	Westburne		1609-B600N	1609 Next Gen UPS, Basic model, 600 VA, 120V AC Input/Output
8	2		11756	D1250F2	12V 5.0Ah Battery F2 Spade Connector
9	1	Guillevin	15106	2866763	Phoenix Contact QUINT4-PS/1AC/24DC/10 Power Supply
10	1	Guillevin		2832577	Phoenix Contact FL Ethernet Switch SF 7TX/FX ST
11	2	Wesco		PC-4AL-PC-STST001	ST-ST MM FO 1m Patch Cable (Confirm part no.)
12	1	Wesco	13503	FDME8RG	Panduit 8-Port DIN Rail Fiber Optic Enclosure
13	1	Guillevin	13413	9001SKP38LGG31	Square D 30mm Green, 120Vac, LED Pilot Light
14	2	Wesco	13413	RU4S-D24	Idec 4PDT, 24Vdc Ice Cube Relay
15	2	Wesco	13413	SY4S-05U	Idec 4PDT Ice Cube Relay Base
16	2	Westburne	13413	9101500000	Weidmuller 2 Ampere Breaker Terminal
17	3	Westburne	13413	9101800000	Weidmuller 5 Ampere Breaker Terminal
18	9	Westburne	13413	1011300000	Weidmuller WSI 6/LD 10-36V DC/AC Fuse Terminals
19	88	Westburne	13413	1020100000	Weidmuller WDU 4 Wiring Terminals
20	13	Westburne	13413	1010100000	Weidmuller WPE 4 Ground Terminals
21	1	Westburne	13413	6720005430	Weidmuller DIN Rail Mount Duplex Receptacle
22	2	Guillevin	13413	801733	Phoenix Contact TS35 DIN Rail (6 feet)
23	2	Guillevin	13413	TY15X3NPG6	T&B 1.5"W x 3"H Wireway (6 Feet Length)
24	2	Guillevin	13413	TY15CPG6	T&B 1.5"W Wireway Cover (6 Feet Length)
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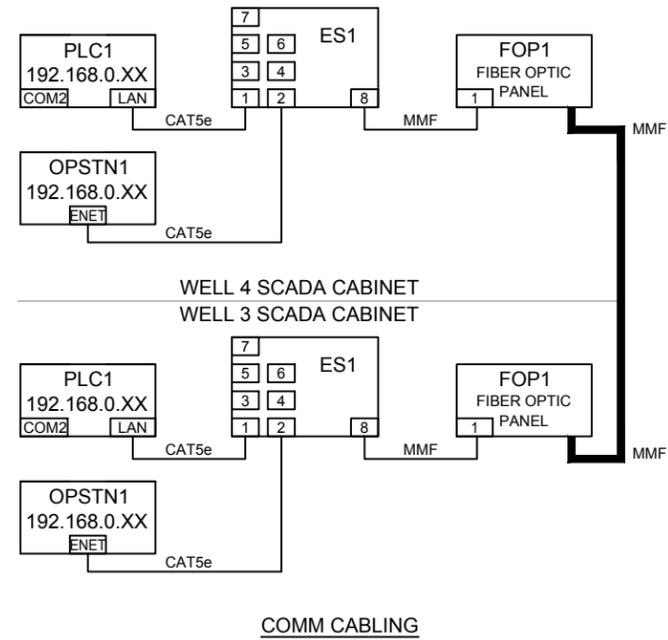
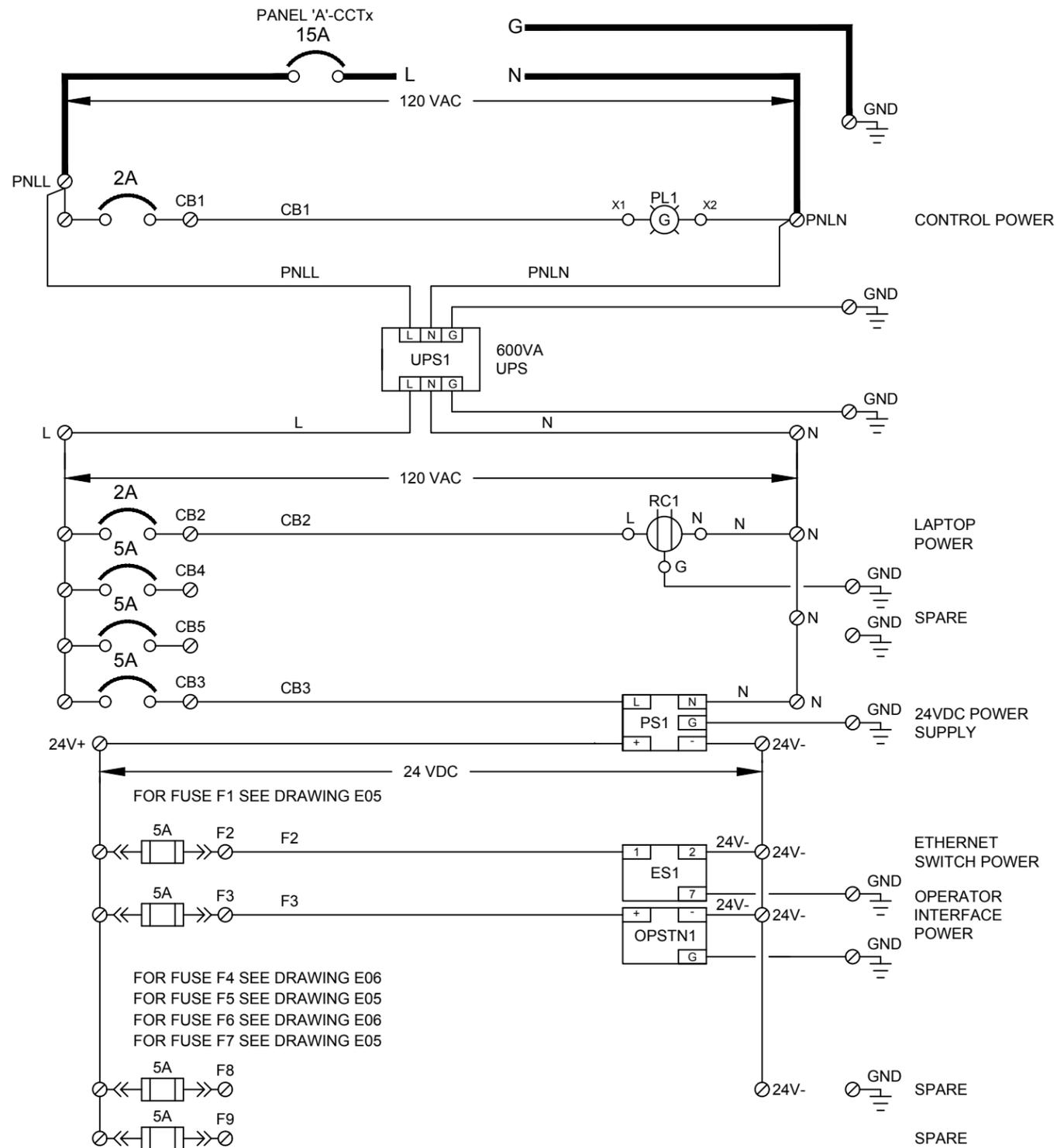
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DSG.	CM
CHK.	KH
SCALE	7.5:1
PROJ.	S017253

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FISHERIES AND OCEANS CANADA
 CHEHALIS RIVER HATCHERY – WATER SUPPLY FROM WELL 4
 PLC CONTROL PANEL LAYOUT

DRAWING NUMBER	REV
E03	0



NOTES:
1. ALL TERMINATIONS TO BE FERRULED.

CSA DISCRETE CONTROL CABLE COLOUR CODE	
COLOUR	FUNCTION
BLUE	DC POSITIVE
YELLOW	DC NEGATIVE
BLACK	AC HOT
WHITE	AC NEUTRAL
RED	CONTROL
GREEN	GROUND

TERMINAL & LINE LEGEND

- PLC PANEL INTERNAL WIRING
- PLC PANEL EXTERNAL WIRING
- TERMINAL IN PLC PANEL
- ⊠ TERMINAL IN WELL 4 VFD PANEL

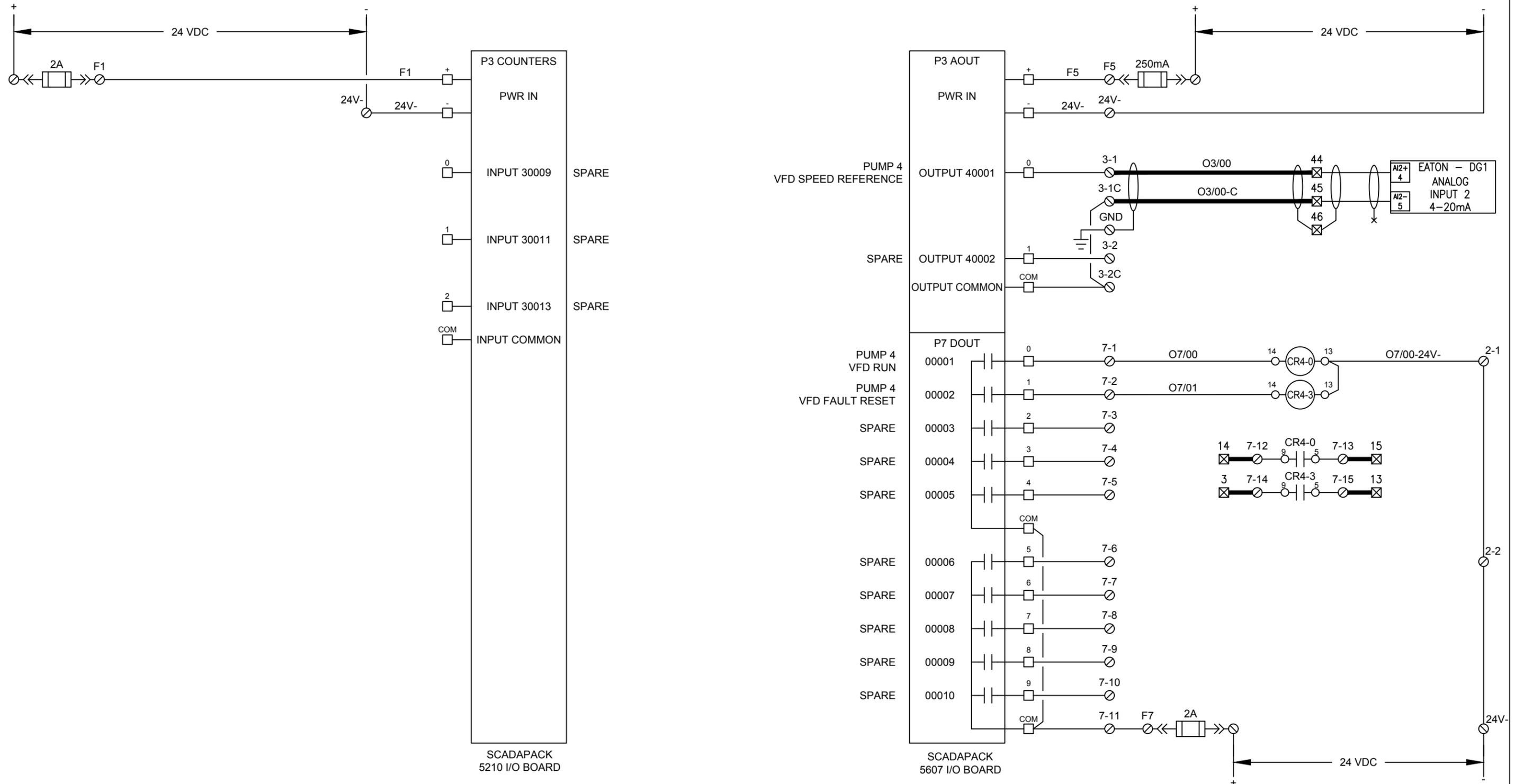
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DWN	CM
DATE	SEP 25/17
DSG.	CM
CHK.	KH
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FISHERIES AND OCEANS CANADA
CHEHALIS RIVER HATCHERY – WATER SUPPLY FROM WELL 4
PLC CONTROL SHEET WIRING 1 OF 3

DRAWING NUMBER	REV
E04	0



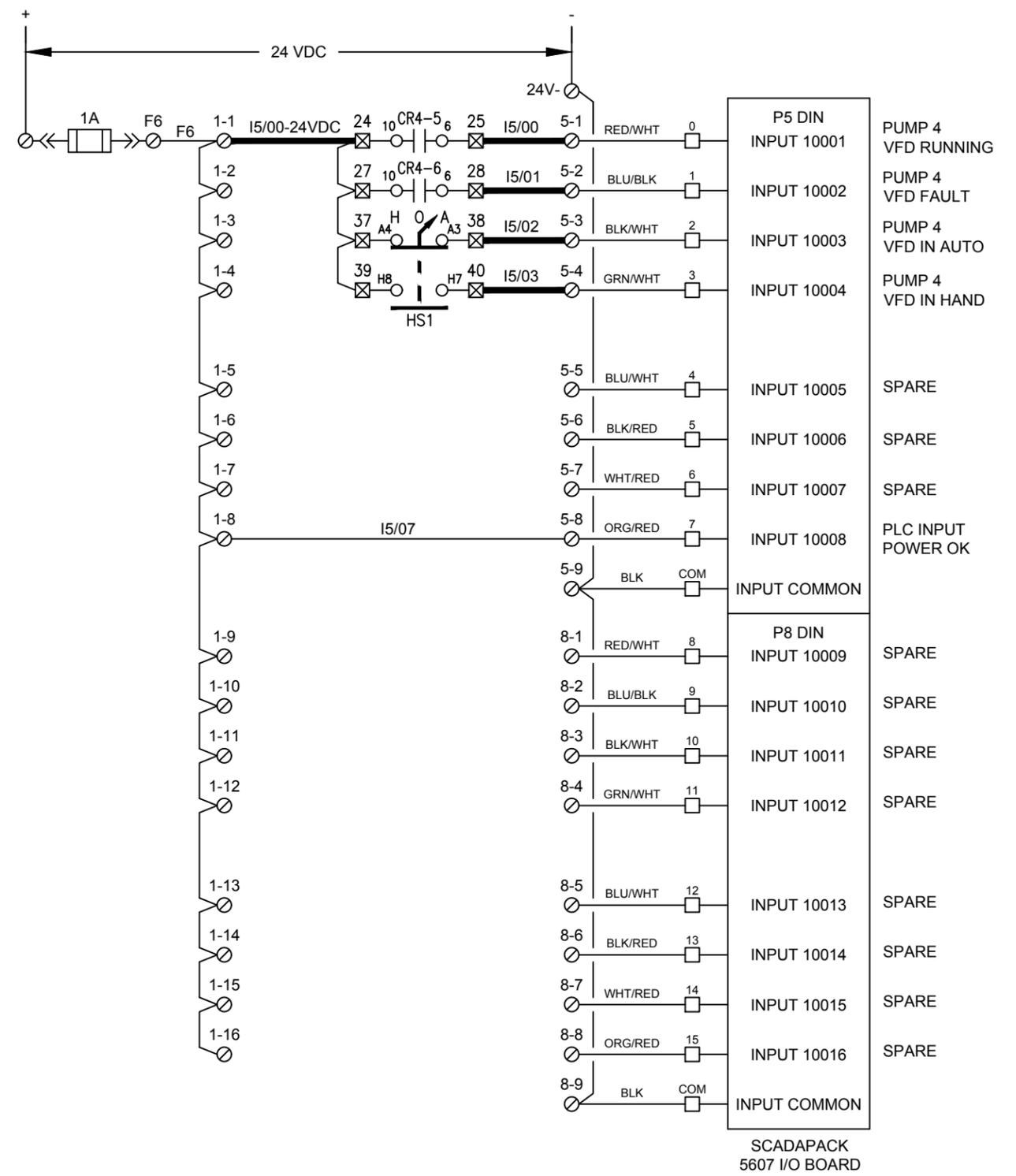
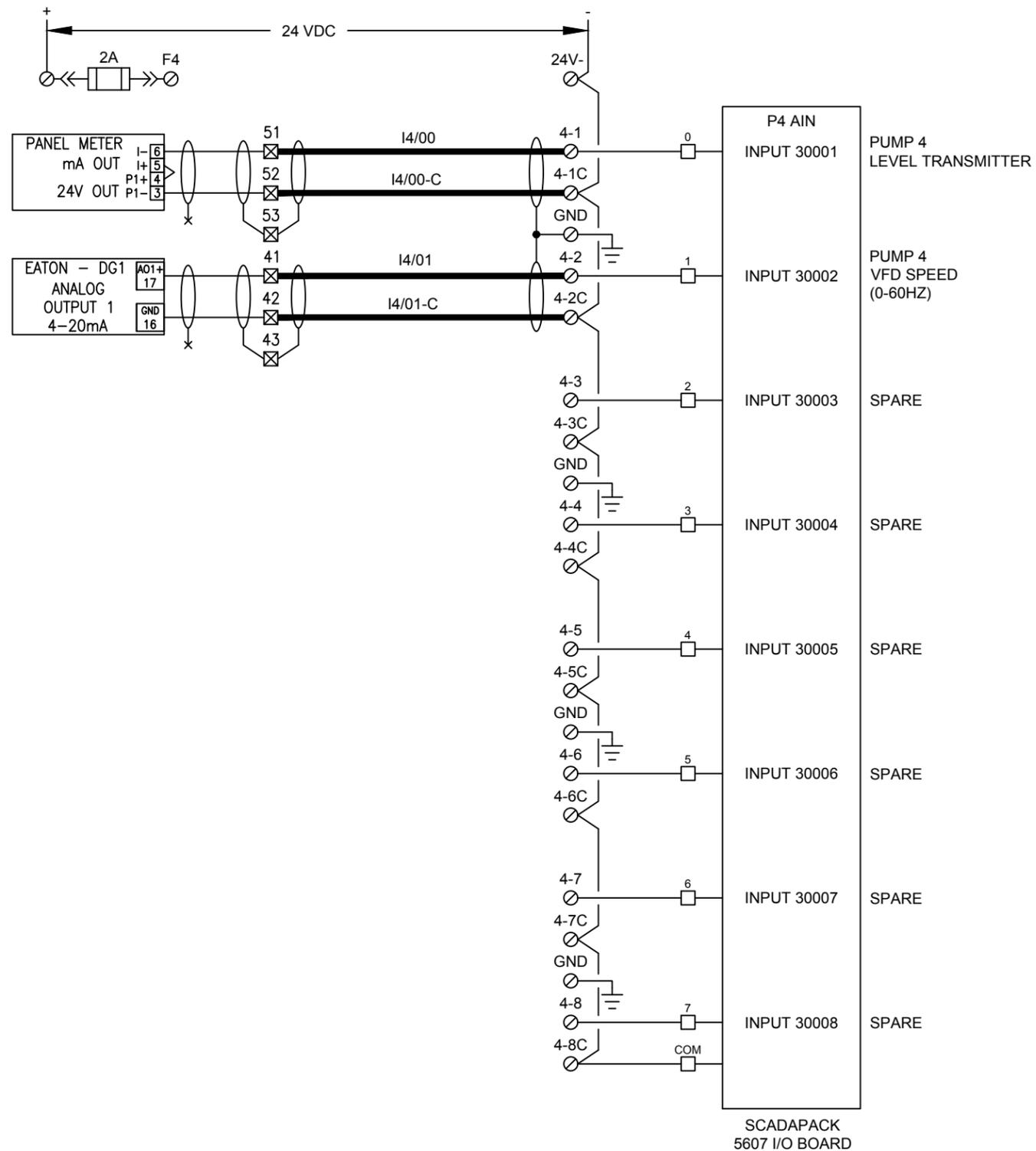
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DWN	CM
DATE	SEP 25/17
DSG.	CM
CHK.	KH
SCALE	NTS
PROJ.	S017253

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FISHERIES AND OCEANS CANADA
 CHEHALIS RIVER HATCHERY - WATER SUPPLY FROM WELL 4
 PLC CONTROL WIRING SHEET 2 OF 3

DRAWING NUMBER	REV
E05	0



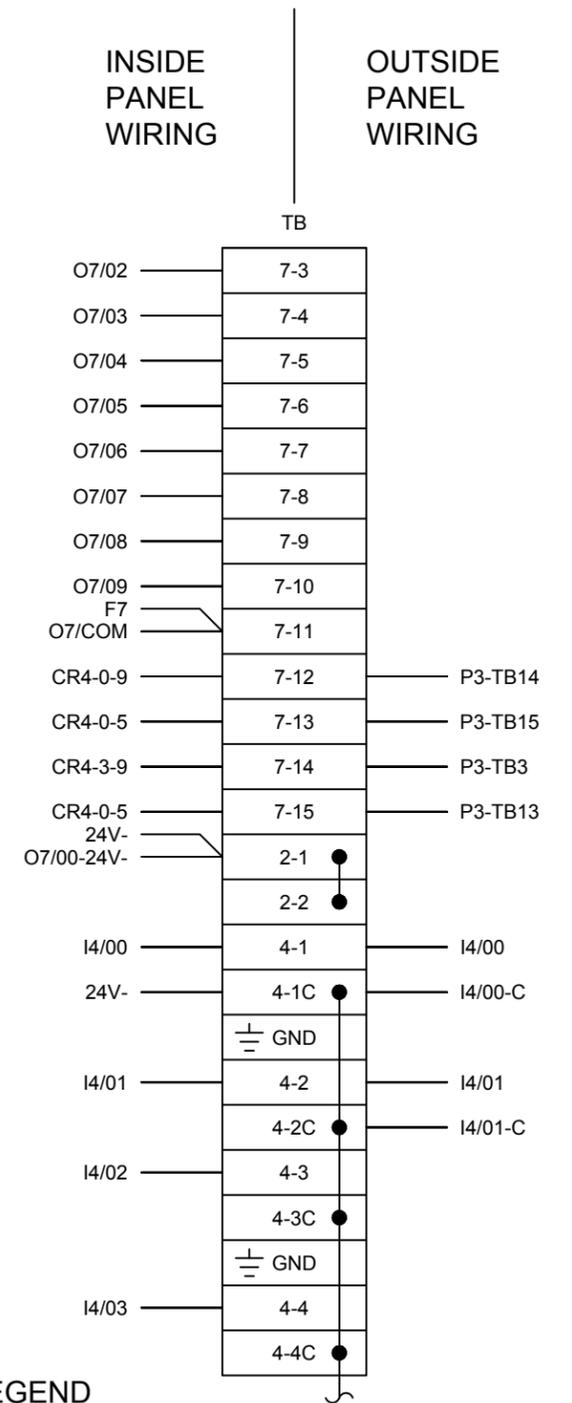
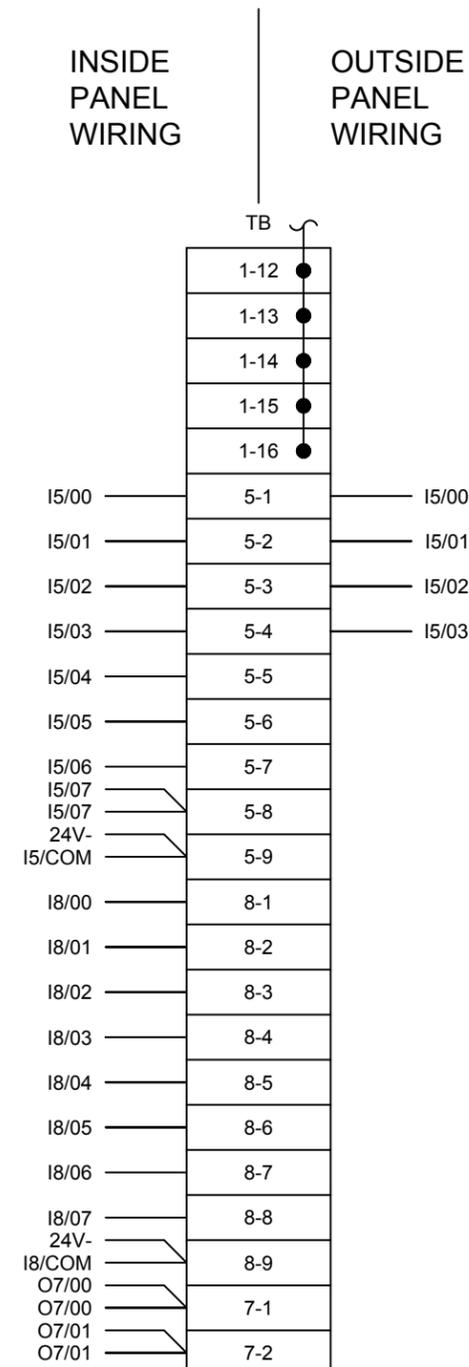
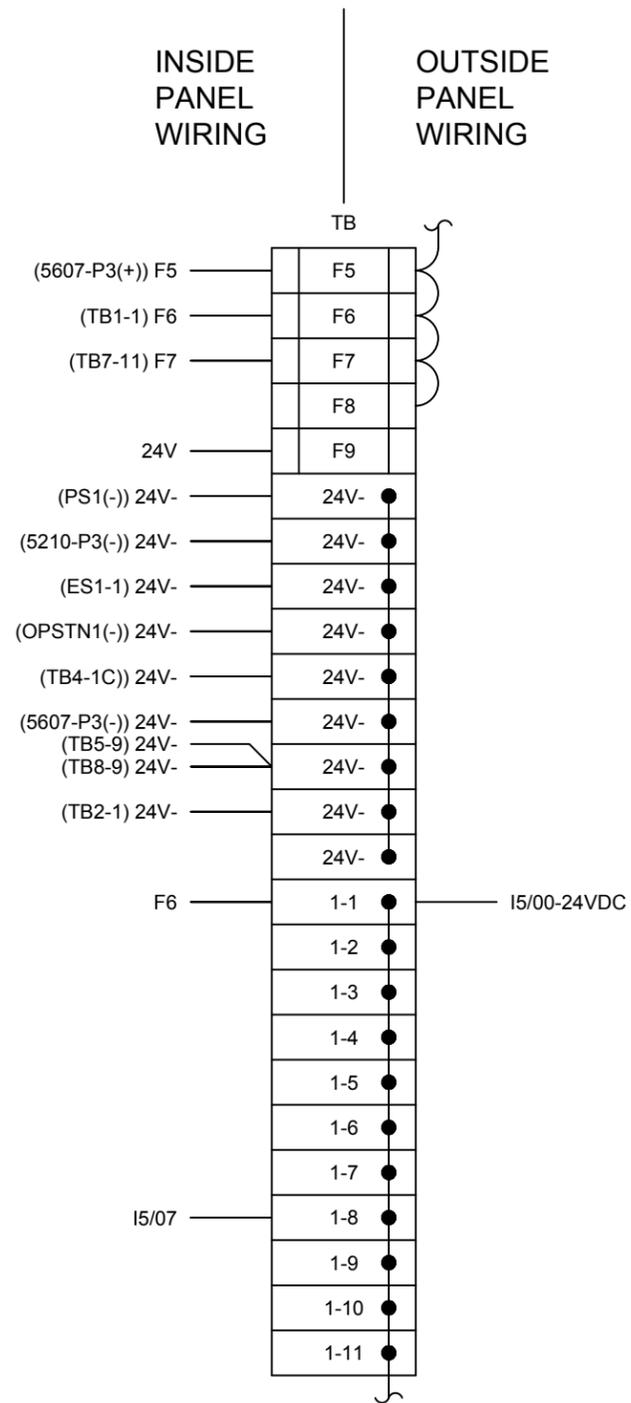
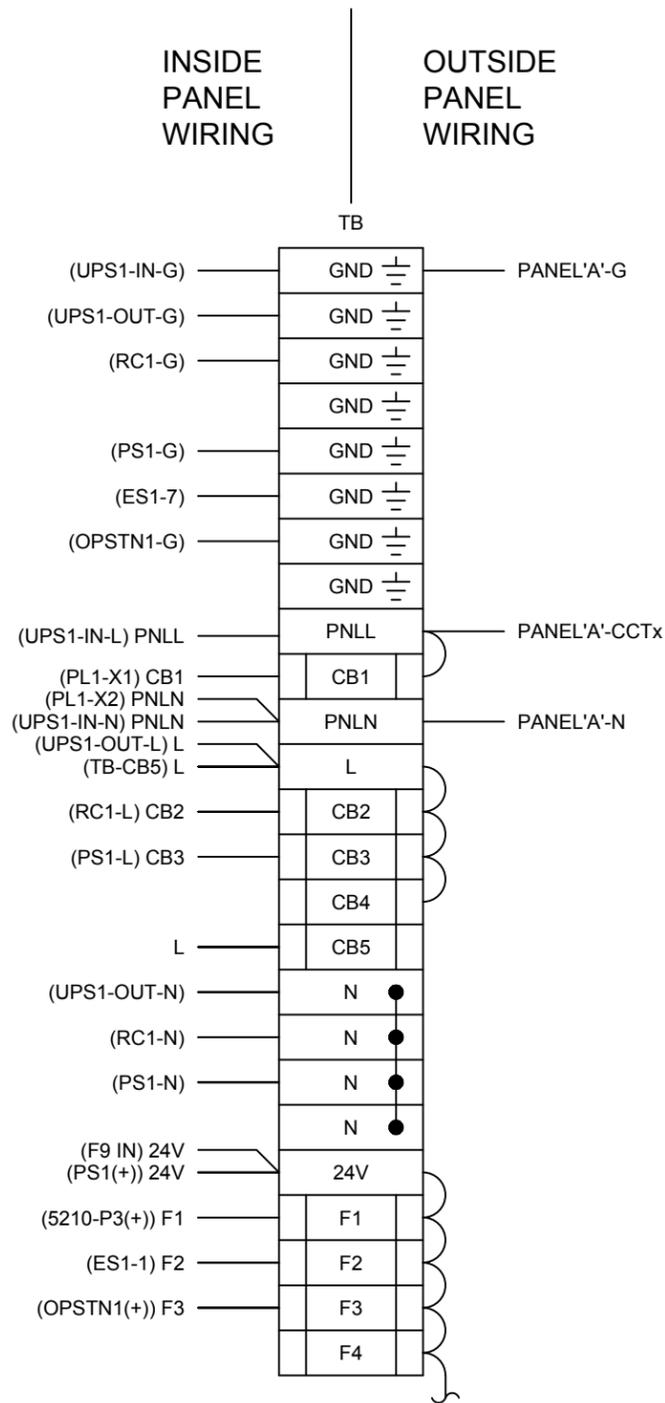
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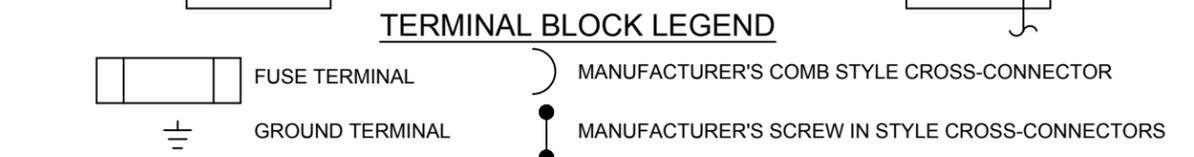
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FISHERIES AND OCEANS CANADA
 CHEHALIS RIVER HATCHERY – WATER SUPPLY FROM WELL 4
 PLC CONTROL WIRING SHEET 3 OF 3

DRAWING NUMBER	REV
E06	0



- NOTES:
- WHERE WIRE DESTINATION IS AMBIGUOUS, IT IS NOTED IN BRACKETS BESIDE THE LABEL.
E.G. (PS1(+)) 24V - THE DESTINATION IS THE (+) TERMINAL OF PS1, AND THE WIRE LABEL IS "24V".
 - IF THE WIRE IS TO BE UNLABELLED THE DESTINATION IS NOTED IN BRACKETS, AND NO LABEL IS GIVEN.



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FISHERIES AND OCEANS CANADA
 CHEHALIS RIVER HATCHERY - WATER SUPPLY FROM WELL 4
 PLC TERMINAL BLOCK LAYOUT SHEET 1 OF 2

DRAWING NUMBER	REV
E07	0

