REQUEST FOR TENDER No. 21-008

WCWSA Production Well Site Construction

Addendum 2
(19 pages)

Issued: February 25, 2021

Closing Date & Time: on or before 3:00 PM Pacific Time on March 4, 2021

1. Enclosed is Addendum 2 from the Project Engineer, MPE Engineering Ltd.

2. Reminder:

   Bidders must supply with their Tenders a **verifiable digital Bid Bond (e-bond) and a verifiable digital Consent of Surety** as defined by the Surety Association of Canada. Scanned copies are not acceptable.

   https://suretycanada.com/SAC/Surety-Bonds/E-Bonding.aspx

End of Addendum 2

Addendum # 2

To the Contract Specifications and Drawings for:
Regional District of Nanaimo
#21-008 WCWSA Production Well Site

MPE Engineering Ltd.
Suite 320, 6715 – 8 Street NE
Calgary, AB T2E 7H7

February 25, 2021

File: 9794-003-00

1. Precedence

This Addendum forms an integral part of the Contract Specifications and Drawings covering all aspects of this job and is to be read in conjunction therewith. However, should points arise which are at variance, this Addendum shall take precedence, unless otherwise clarified by the Engineer.

2. Purpose

This addendum provides specific clauses to add to and/or amend the specifications and/or drawings.

3. Schedule of Quantities and Prices

Remove and Replace: Under Division 33, Item 33.3: the quantity for the 75 mm HDPE DR 11 Water Main is to be changed from *25 m* to *40 m.*

4. Owner Supplied Equipment

Clarification: Owner will be supplying the Turbidity Meter and the Chlorine Pump as follows:

- Chlorine Pump: Prominent Gamma 4/W
- Turbidity meter: Hach 1720 E Low range Turbidimeter with SC200 Controller

Contractor is responsible for installation, start-up and commissioning of the equipment including but not limited to tubing, needle valves, ball vales, flow control valve, PRV and supports as required.

5. Specification Section General Conditions 18.6.3S – Letter of Credit

Clarification: A bank draft is acceptable in lieu of a letter of credit.

6. Specification Section 01 33 00 – Survey Requirements

Clarification: Only a post construction survey will be required for record purposes. A control point will be provided at the entrance to the site.

7. Specification Section 01 91 00 – General Commissioning Requirements

Add: *General Commissioning Requirements Section 01 91 00* to the Specifications, see attached. Items required to complete the work to be included under Divisions 26, 33 and 40.

8. Specification Section 26 11 16 – Service and Distribution

Add: *Service and Distribution Section 26 11 16* to the Specifications, see attached.

9. Specification Section 40 80 01 – Disinfection, Hydrostatic and Pressure Testing

Clarification: Raw well water is acceptable to be used for chlorination purposes. No trucking of water is required. Testing water may be discharged onto the site provided that the water is de-chlorinated and any sediment is filtered out.

10. Specification Section 46 66 13 – Ultraviolet Disinfection System

Clarification: Mounting brackets for the UV units are to be supplied by the UV supplier. Contractor will be responsible for connection of the brackets to the floor as required.

11. Drawing P12.1 – Process & Instrumentation Diagram – Well Site

Add: Reducer symbol after each UV unit.
Clarification: discharge from UV units is 100 mm which will be reduced to the 75 mm pipe.
Add: Sample port to common pipe after the UV units and modulating valves.
Clarification: Sample port to consist of 12.5 mm PVC piping with ball valve to allow for manual samples to be collected.
Replace: "RW" with "TW" on the piping leaving the UV units.

12. Drawing P13.2 – Well Kiosk Section

Clarification: Sample port that appears on the reducer after the UV unit is to be on the common pipe after the UV units and modulating valves.
Replace: "RW" with "TW" on the piping leaving the UV units.
Add: *"Note 6. Ball valve, tubing, injection quill and supports for the owner supplied chlorine pump to be supplied and installed by Contractor. Injection Quill to be SAF-T-Flow (EB-162 Series), SCH 80 PVC Injection Quill, 12 mm (1/2"), Port Threads: NPT, End Style: Bayonet (45°Bevel), pressure range 0-150 psig."*

13. Drawing P22.1 – Process & Instrumentation Diagram – Reservoir and Pump Station

Add: CL2 superscript to AIT 236 to denote this analyzer is for chlorine.

14. Drawing E11.2 – Well Kiosk Floor Plan

Delete: Reference to Note 4.
Delete: 27Ø diameter RPVC conduit for 120VAC power from kiosk to generator.

15. Drawing E12.2 – Wells – Panel Schedule

Change: Panel 2B circuits 14, 16 and 18 to Spare.

16. Drawing E12.4 – Wells Cable Schedule

Delete: Cable G270-PC2.

17. Drawing E13.11 – Wells PLC Analog Input/Output Modules

Change: On AI-01 change "OUT" label on each card terminal to "IN".

18. Drawing E22.4 – Pump Station Cable Schedule

Replace: Drawing with the attached.

19. Drawing E23.2 – Pump Station Control Panel Layout

Replace: Drawing with the attached.

20. Drawing E23.3 – Pump Station Control Panel Bill of Materials & Label Schedule

Replace: Drawing with the attached.

21. Drawing E23.4 – Pump Station Control Panel Bill Terminal Strip Layout

Replace: Drawing with the attached.

22. Drawing E23.5 – Pump Station Control Panel Power Distribution

Replace: Drawing with the attached.

23. Drawing E23.11– Pump Station PLC Analog Input, Module 1

Replace: Drawing with the attached.

24. Drawing E23.15– Pump Station PLC Digital Output Module 1

Add: New drawing.

END OF ADDENDUM

1. GENERAL

1.1 SECTION INCLUDES:

.1 Requirements for placing Work in a state of readiness for acceptance by Owner.

.2 Section supplements, but does not supersede, specific requirements of other sections.

1.2 INTENT

The Contractor is responsible for all phases of commissioning**.** The Owner's representative will supply a commissioning manager that will assist the Contractor to fully commission all aspects of the facility**.** The Commissioning Manager will coordinate full systems commissioning including scheduling, direction of commissioning activities, and informing the Contractor when the applicable equipment manufacturer's representatives are required on site**.** The Contractor shall supply qualified personnel to assist the Commissioning Manager through all phases of commissioning**.** The Contractor shall bear the cost of equipment manufacturer's technical representatives on site representation**.** The Commissioning Manager will be the sole judge of the competence and qualifications required of the equipment manufacturer's technical representative.

2. SCHEDULE

.1 Contractor to allow sufficient time for total systems commissioning and include in the overall project schedule.

3. DEFINITIONS AND PROCEDURES

.1 Prestart-up: consists of the non-operating functions required to bring Work to a state of readiness for placing systems into service**.** Related testing includes but is not limited to hydrostatic and pressure testing, disinfection and completion of Owner supplied installation checklists as documented by the attached Form, labeling, wiring, loop wiring and megger checks on equipment as described in the contract document.

.1 Fill out equipment installation checkout lists for all process mechanical, building mechanical, instrumentation and controls and electrical equipment. Group listing into logical systems or sub-systems for orderly progression of activities during start-up.

.2 To extent practical, remove all scaffolding, debris, planks tools and other construction related material.

.3 Remove all sand, silt, dirt and debris from tanks, channels, chambers, instrumentation and control panels and electrical panels and vacuum clean.

.4 Clean all surfaces of tanks and conduits, including walls, roofs, floors and columns and as specified in individual Sections.

.5 Clean interior of all pipes and fluid-carrying equipment, including pumps and inspect with Owner's Representative present.

.6 Conduct leakage and pressure tests in accordance with individual Sections.

.7 Conduct disinfection procedures in accordance with requirements of individual Sections.

.8 Submit all installation, programming and maintenance manuals for applicable equipment prior to Start-up as deemed necessary by the Owner's Commissioning Manager. Ensure that this documentation is included in the O&M manuals as laid out in Section 01 33 01 Project Record Documents.

.2 Start-up: Includes but is not limited to programming, calibration or balancing of instruments and equipment, filling out Start-up instrument and equipment setup sheets and confirming operation of control systems and protective devices and performance testing prior to placing equipment in service.

.1 The Manufacturer's technical representatives, in accordance with the requirements of individual Sections, shall be on site for full duration of Start-up of applicable equipment in a system. Supply at this time all documentation relating to testing of equipment and supplier's certification of satisfactory installation.

.2 The Commissioning Manager shall assist the Contractor in programming and setting up the instrumentation in Section 40 91 00 with exceptions as directed in Section 40 91 00.

.3 The Commissioning Manager shall assist the Contractor in filling out Start-up instrument and equipment setup sheets and confirming operation of control systems and protective devices prior to placing equipment in service. Equipment start-up sheets to be included in the O&M manual.

.3 System Start-up:

.1 Includes but is not limited to placing the system or systems into operation, re-confirming all equipment test results, performing any tests not yet carried out which may be deemed necessary by the Owner's Representative to demonstrate satisfactory performance of equipment.

.2 Start-up of systems shall take place in an orderly manner. Coordination of start-up shall take place so that adequate staff is available and that conflicts do not occur due to multiple start-ups at the same time.

.4 Commissioning:

.1 Commissioning includes but is not limited to all the procedures and events included under Prestart-up, Start-up, System Start-up and Operator training of systems.

.2 Commissioning is deemed complete when all systems have been operating continuously without fault and all process, mechanical and electrical equipment is free of vibration, overloading or overheating, is functioning in accordance with specified rates, methods and performance and all documentation has been completed submitted and reviewed to the satisfaction of the Commissioning Manager.

.3 The period for continuous operation for completion of commissioning shall be 80 hours, during which time the system shall operate without fault or failure as

described above. Provide competent staff to oversee the operation and arrange for manufacturer's service personnel and subcontractors' personnel, if so required, to attend to any problems that arise. Failure of any part of the Works during this period will require restart of the 80 hour period following rectification of the fault or failure.

.4 Provide sufficient qualified manpower for duration of the entire commissioning period. Make necessary adjustments during commissioning to enable the Works to be put into continuous operation.

.5 Operator Training:

.1 Special training of facility staff to take place following successful start-up of all systems, during commissioning period. Coordinate visits of equipment suppliers' supervisors and schedule mutually agreeable times for special training periods.

.6 System:

.1 A "system" is defined as an integral operating entity or loop in a process.

.7 Manufacturer's Technical Representative:

.1 The equipment manufacturer's technical representative shall be familiar with the equipment supplied and shall come prepared with both knowledge and equipment to perform and interpret the test, inspections and procedures recommended by the manufacturer for the starting of equipment that has not previously been run.

.2 The equipment manufacturer's technical representative shall, immediately after completion of the inspection, convey to the Owner's Representative in writing, confirmation of the tests and inspections carried out and the result of this examination of the work.

.3 If the inspection reveals defects in the Work, correct as soon as possible and repeat the entire inspection procedure. Repeat until the Work passes the inspection.

.4 Document the results of the inspection by the equipment manufacturer's representative.

.5 Ensure the installation meets all manufacturer's requirements for durable and trouble-free operation.

4. SEQUENCE OF EVENTS

.1 Installation and Pre-Operational Checks:

.1 Ensure equipment is installed in accordance with the manufacturer's instructions. Allow for sufficient days on-site by equipment supplier's qualified technician to instruct installer and inspect installation.

.2 Receive instruction from manufacturers in the methods and precautions to be followed in the installation of the equipment.

.2 Prestart-up:

.1 On completion of construction of a system, test and otherwise check the system as defined in definitions and as directed by commissioning manager and be satisfied that it is ready for pre start-up. Note all deficiencies brought to light by Prestart-up activities and rectify before moving to Start-up activities.

.2 Cleaning, leakage testing and disinfection of all systems is required prior to Start-up activities.

.3 Start-up:

.1 On completion of Prestart-up, the Commissioning Manager in conjunction with the Contractor shall Start-up and otherwise check the equipment and instrumentation in the system as defined in definitions. Note all deficiencies brought to light by Start-up activities and rectify before proceeding to System Startup and placing into operation.

.2 Correct any deficiencies uncovered during Start-up before proceeding to System Start-up activities. Retesting shall be conducted, when required, as determined by the Commissioning Manager.

.4 System Start-up:

.1 On satisfactory completion of Start-up of the devices in a system and after the documentation has been completed, submitted and reviewed and after deficiencies have been rectified to the satisfaction of the Owner's Commissioning Manager, the system shall be deemed ready to System Start-up.

.2 Notify the Operations staff in writing 48 hours prior to a System Start-up.

.3 The following constraints during System Start-up will be taken into account:

.1 Cleaning and disinfection of all systems is required prior to System Start-ups.

.2 System Start-ups to be done in an orderly manner following a written procedure authored by the Commissioning Manager so that all the various systems of the Works can be placed into simultaneous continuous operation.

.3 A complete simulated System Start-up or parts of the system may be required to reconfirm the equipment prestart test results, particularly in the case of, but not limited to, chemical or hazardous materials and shall be determined by the Owner's Commissioning Manager. (e.g. filling a chemical tank with water to confirm the accuracy and/or settings of a level transmitter prior to filling with chemical.)

.4 In the event that further deficiencies arise during System Start-up, immediately rectify and if of a sufficiently serious nature, stop the Start-up of the system till such time as deficiencies are rectified.

.5 Place the system or systems and place into operation as defined in Start-up and commissioning.

5. RESPONSIBILITY

.1 Be responsible for overall commissioning and continuous operation as defined in definitions.

.2 Coordinate equipment suppliers' representatives and all sub-trades personnel for start-up and commissioning as directed by Owner's Commissioning Manager.

.3 Arrange for the services of the equipment manufacturer's technical representative, when equipment installation has been completed as directed by Owner's Commissioning Manager.

.4 Equipment manufacturer's technical representative to inspect installation to ensure that equipment has been installed in accordance with manufacturer's requirements. Make adjustments in accordance with instructions of equipment manufacturer's technical representative.

.5 Advise Owner's Representative in writing that installation of equipment has been checked, installed correctly and is in working order following satisfactory System Start-up.

.6 Cost of equipment manufacturer's representative shall be borne by Contractor. Do not designate a subtrade as a representative during construction, Prestart-up, Start-up, System Start-up and continuous operation. In the event that the Work is phased and the equipment manufacturer's representative is required to make additional trips to site, the additional costs shall be borne by the Contractor.

.7 Owner's Commissioning Manager will request that equipment be operated to demonstrate that it will perform as specified. Commissioning Manager will note deficiencies. Correct deficiencies immediately. Advise Owner's Commissioning Manager in writing when deficiencies have been corrected.

.8 If deficiencies are of a sufficiently serious nature as determined by the Commissioning Manager that manufacturers' representatives are required to make additional visits, additional costs shall be borne by Contractor.

.9 If it is necessary to suspend start-up, or commissioning, or continuous operation due to deficiencies in any system, the full cost of interruption, call back and resumption of start-up, or commissioning, or continuous operation shall be paid by Contractor.

.10 Commission and operate the Works during continuous operating period. Operation personnel may observe and assist during commissioning and continuous operating period.

.11 The lack of availability of equipment manufacturer's representatives shall not result in an extension to the contract.

6. SYSTEMS DEMONSTRATION

.1 Special training of RDN staff shall take place following successful System Start-up of all systems, during the commissioning period. Coordinate visits of equipment suppliers' supervisors with Operations Staff and schedule mutually agreeable times for special training periods.

.2 Demonstrate operation, control, adjustment, trouble-shooting, servicing, and maintenance of each item of equipment at agreed upon times.

.3 Owner will provide list of personnel to receive instructions, and will coordinate their attendance at agreed upon times.

.4 Instruct personnel in all phases of operation and maintenance using operation and maintenance manuals as the basis of instruction.

.5 Review contents of manual in detail to explain all aspects of operation and maintenance.

.6 Prepare and insert additional data in operations and maintenance manuals when the need for additional data becomes apparent.

.7 The individuals providing training on equipment must be a manufacturer's certified technician with competent instructional skills and fully familiar with the detailed operation and maintenance of the provided equipment. The Owner will be the sole judge of the competence of the instructor and quality of instruction. The Owner reserves the right to withhold any amount of payment up to a maximum of $15,000 until the Contractor provides training to the satisfaction of the Owner.

.8 Training to cover the following items:

.1 Overview of equipment;

.2 Review of Operations and Maintenance Manual documentation for the equipment;

.3 Instruction and demonstration of operation. Includes start up, shut down, all possible equipment faults and possible rectification.

.4 Instruction and demonstration of maintenance to include daily, weekly, monthly, quarterly and annual preventative maintenance checks/actions as recommended by the manufacturer as well as trouble shooting summarized clearly on trouble shooting sheets for the specific model of each major piece of equipment.

.9 All instructional training, supplemented by training and manual handouts, must be in sufficient detail to cover all Owner responsible operations and maintenance requirements to maintain manufacturers' warranties in tack. Training and documentation must highlight specific requirements that if completed or not completed may or would, void or jeopardize the equipment warranty.

.10 Refer to specific equipment section for additional training requirements.

END OF SECTION

1. GENERAL

Not used.

2. PRODUCTS

2.1 SERVICE

.1 Not Applicable.

2.2 METERING

.1 Not Applicable.

2.3 SERVICE EQUIPMENT

.1 Not Applicable.

2.4 PANELBOARDS

.1 Panelboards: to CSA C22.2 No. 29-M1989 and as follows:

.1 Bus Characteristics:

.1 Construction: Copper with rectangular section copper plated joints

.2 Bracing: 10,000 Amperes symmetrical

.3 Neutral: full capacity, solid neutral

.4 Ground Bus: copper

.2 Enclosure:

.1 Prefinished painted sheet steel

.2 Surface mount unless indicated differently on drawings

.3 Trim: Screw-on, concealed hinges and mounting screws, hinged locking door and flush catch.

.3 Overcurrent Protective Devices: Bolt-on type breakers

.4 Panel Quantity and Size: as indicated on drawings

2.5 SURGE PROTECTION DEVICE

.1 As shown on drawings.

2.6 VOLTAGE MONITOR

.1 Monitoring of Phase Loss, Phase Reversal, Phase Unbalance, Under/Over Voltage.

.2 Settings to be adjustable.

.3 Relay contact will change state when any of the five monitoring conditions are abnormal. Relay contact will automatically reset when conditions return to normal.

.4 Acceptable Manufacturers: Eaton D65VML series or approved equivalent.

3. EXECUTION

3.1 SERVICE

.1 Not Applicable.

3.2 PANELBOARDS

.1 Install panelboards securely, plumb and square to adjoining surfaces.

.2 Mount panelboards at 1800mm to top of trim above finished floor.

.3 Connect loads to circuits as indicated on drawings.

.4 Adjust circuits to optimize phase current balance.

.5 Number of breakers and sizes as indicated on panel schedule.

3.3 CONNECTION OF NON-MOTORIZED EQUIPMENT

.1 Connect all equipment with electrical requirements specified in other Divisions

END OF SECTION

CABLE SCHEDULE												
REF	TAG NUMBER	FROM	TO	CONDUCTOR DETAILS			CONDUIT/CABLE	VOLTAGE	LENGTH	Notes	REV#
		EQUIP TAG	EQUIP TAG	NO.	SIZE AWG	TYPE			(Meters)		
	MCP-PC	EDP	MCP	4C	12	R90		120VAC	TBD	2 PWR CIRCUITS	
	AIT236-IP	MCP	AIT236	2C	16	R90		120VAC	TBD	PWR	
	AIT236-IC	MCP	AIT236	1PR	18	R90		24VDC	TBD	1-AI	
	LT224-IC	MCP	LT222	1PR	18	R90		24VDC	TBD	1-AI	
	LVLCTRL-IC	MCP	LVLCTRL	1PR	18	R90		24VDC	TBD	LT224 LOOP THROUGH	2
	PT237-IC	MCP	PT237	1PR	18	R90		24VDC	TBD	1-AI	
	PUMPCTRL-IC	MCP	PUMPCTRL	1PR	18	R90		24VDC	TBD	PT237 LOOP THROUGH	
	LS223JBIC	MCP	LS223JB	4C	16	R90		24VDC	TBD	2-DI	
	SECURPNL-IC	MCP	SECURPNL	2PR	18	R90		24VDC	TBD	1-DO ALARM CALLOUT	2
	ISP-NET	MCP	ISP			COAX				INTERNET SERVICE PROVIDER	

NOTES:

1. FOR INFORMATION REGARDING GENERAL NOTES, ABBREVIATIONS, AND SYMBOLS, REFER TO THE LEGEND DRAWINGS.
2. SCHEDULE DOES NOT SHOW ALL CABLES.
3. ALL CABLES TO INCLUDE A GROUND CONDUCTOR.

THIS DRAWING MAY HAVE BEEN MODIFIED FROM ITS ORIGINAL SIZE. ALL SCALE NOTATIONS INDICATED (i.e. 1:1000 etc) ARE BASED ON 22"x34" FORMAT DRAWINGS

ISSUE	YY-MM-DD	REVISION
2	21-02-23	FOR TENDER ADDENDUM
1	21-01-22	FOR TENDER

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
P.F. GOERTZEN
48152

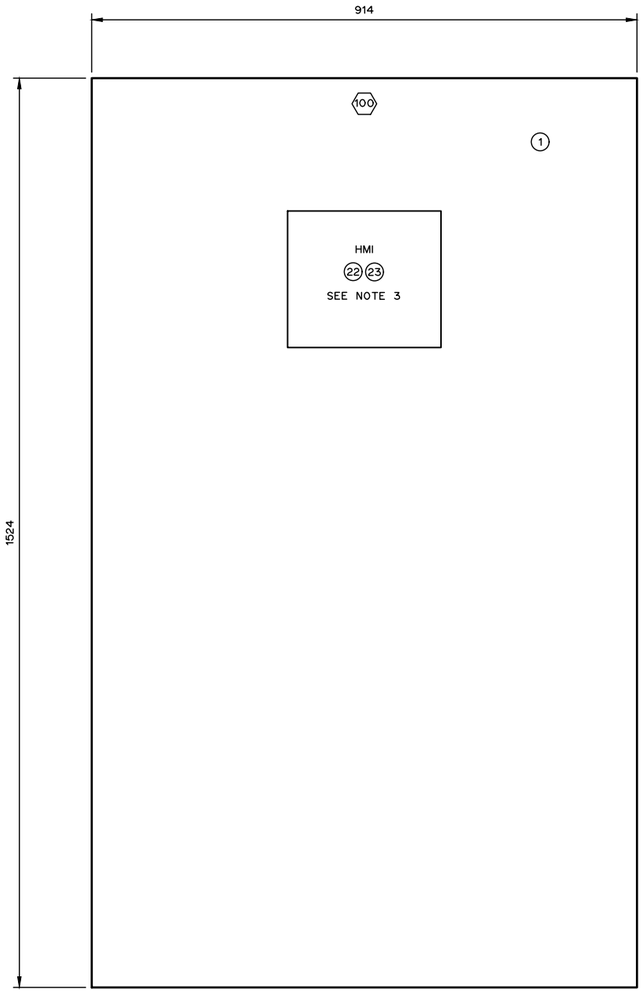
February 25, 2021

MPE Engineering Ltd.

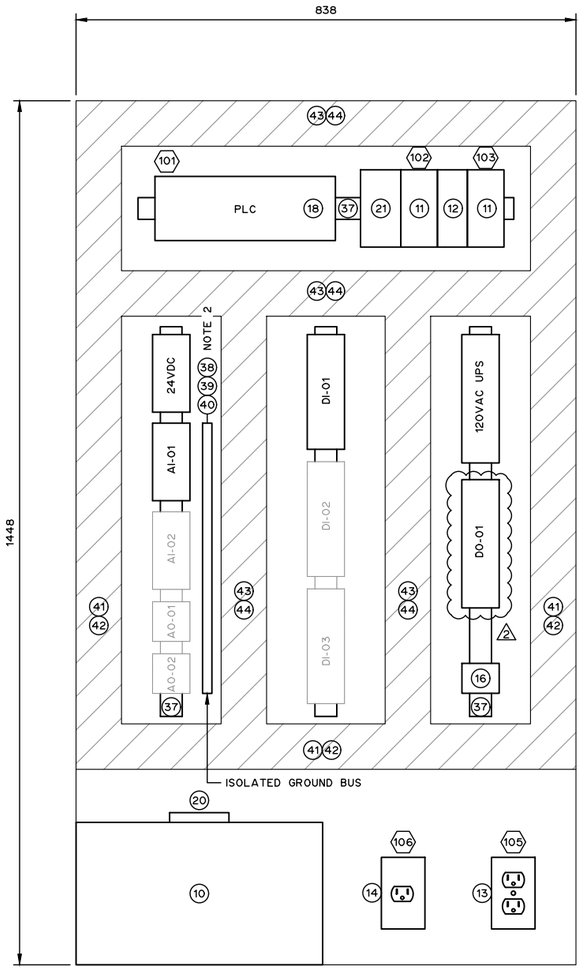
REGIONAL DISTRICT OF NANAIMO

WHISKEY CREEK PHASE 1A
ELECTRICAL
PUMP STATION CABLE SCHEDULE

DESIGNED	G.B.P.	JOB	9794-003-00
DRAWN	Y.F.S.	SCALE	NTS
DATE	JANUARY 2021	DRAWING	E22.4



CONTROL PANEL EXTERIOR



CONTROL PANEL INTERIOR

PLC LAYOUT

NOTES:

1. ALL DIMENSIONS IN MILLIMETRES UNLESS NOTED OTHERWISE.
2. ISOLATED GROUND BUS TO BE CONNECTED TO GROUND GRID.
3. CENTRE OF OPERATOR INTERFACE TO BE 1500AFF.

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February 25, 2021

MPE Engineering Ltd.

REGIONAL DISTRICT OF NANAIMO

WHISKEY CREEK PHASE 1A
ELECTRICAL
PUMP STATION CONTROL PANEL
LAYOUT

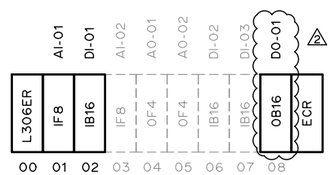
DESIGNED	G.B.P.	JOB	9794-003-00
DRAWN	Y.F.S.	SCALE	NTS
DATE	JANUARY 2021	DRAWING	E23.2

BILL OF MATERIALS

ITEM	QTY	DESCRIPTION	MANUFACTURER	CATALOGUE No.	
1	1	ENCLOSURE – SINGLE DOOR 60"x36"x12" C/W 3 POINT LATCH	HOFFMAN	A60H36DLP3PT	
2	1	ENCLOSURE – BACK MOUNTING PLATE	HOFFMAN	A60P36	
3					
4					
5					
6					
7					
8					
9					
10	1	UPS 1500 VA/120VAC SIDE MOUNTING DISPLAY	ALWAYS ON	GES152N WITH OPTIONS	NOTE 2
11	2	POWER SUPPLY 24VDC 5A	PHOENIX CONTACT	2903148	
12	1	DIODE MODULE	PHOENIX CONTACT	2907380	
13	1	DUPLEX RECEPTACLE (ORANGE)			
14	1	SIMPLEX RECEPTACLE			
15					
16	1	DB25 TO TERMINALS INTERFACE	PHOENIX CONTACT	2315188	
17	1	DB25 SOCKET TO DB25 PIN CABLE LENGTH AS APPROPRIATE			
18	1	PLC	ROCKWELL	SEE LAYOUT	
19					
20	1	ROUTER	CISCO	MERAKI Z3 C/W 5 YEAR ENTERPRISE SUPPORT	
21	1	ETHERNET SWITCH 18 PORTS. 16 CU / 1 MULTIMODE FIBER	ROCKWELL	1783-US16T2S, 1783-SFP100FX	
22	1	HMI PANELVIEW PLUS 12" WIDESCREEN	ROCKWELL	2711P-T12W22D9P	
23	1	HMI MEMORY CARD 2GB	ROCKWELL	1784-SD2	
24					
25					
26	A/R	ELECTRONIC CIRCUIT BREAKER 24VDC 1-3A	PHOENIX CONTACT	2909909	
27					
28	A/R	THERMAL MAGNETIC CIRCUIT BREAKER 120VAC 2A TMC 81C02A	PHOENIX CONTACT	2907559	
29					
30	A/R	TERMINAL, PT4	PHOENIX CONTACT	3211757	
31					
32					
33	A/R	GROUND TERMINAL PT4-PE	PHOENIX CONTACT	3044128	
34	A/R	END BRACKET, CLIP FIX 35-5	PHOENIX CONTACT	3211776	
35	A/R	END PLATE, DU-T	PHOENIX CONTACT	3047028	
36	A/R	TAG CARRIER, KLM 3-L	PHOENIX CONTACT	0814788	
37	A/R	MOUNTING RAIL	PHOENIX CONTACT		
38	1	BUS BAR, PERFORATED, NSCH 15x2	WEIDMULLER		
39	A/R	PRESSURE PIECE, DKSUE	WEIDMULLER		
40	A/R	CLAMPING SCREW, BFSC M5x8	WEIDMULLER		
41	A/R	2" X 3" NARROW FINGER SLOTTED WIRING DUCT, WHITE	PANDUIT	F2X3WH6	
42	A/R	2" WIRING DUCT COVER, WHITE	PANDUIT	C2WH6	
43	A/R	3" X 3" NARROW FINGER SLOTTED WIRING DUCT, WHITE	PANDUIT	F3X3WH6	
44	A/R	3" WIRING DUCT COVER, WHITE	PANDUIT	C3WH6	
45	A/R	4" X 3" NARROW FINGER SLOTTED WIRING DUCT, WHITE	PANDUIT	F4X3WH6	
46	A/R	4" WIRING DUCT COVER, WHITE	PANDUIT	C4WH6	
47					
48					
49					
50	A/R	TERMINAL JUMPER 2 POSITION RED	PHOENIX CONTACT	3030336	
51	A/R	TERMINAL JUMPER No. POSITION AND COLOUR AS NEEDED	PHOENIX CONTACT		
52					
53					
54					
55					
56					
57					
58					
59					
60					
61					
62					

LAMICOID/LABEL SCHEDULE

ITEM	QTY	DESCRIPTION	TYPE	SIZE
100		CONTROL PANEL	LAMICOID	25x50
101		PLC RACK 0	LAMICOID	25x50
102		POWER SUPPLY A	LAMICOID	25x50
103		POWER SUPPLY B	LAMICOID	25x50
104				
105		UPS RECEPTACLE	LAMICOID	25x50
106		UPS FEED	LAMICOID	25x50
107				
108				
109				
110				
111				
112				
150				
151		120VAC UPS	LABEL	TO FIT
152		24 VDC	LABEL	TO FIT
153		DI-01	LABEL	TO FIT
154				
155				
156		DO-01	LABEL	TO FIT 2
157		AI-01	LABEL	TO FIT
158				
159				



PLC LAYOUT

5069-L306ER	COMPACT LOGIX PROGRAMMABLE LOGIC CONTROLLER
5069-IF8	COMPACT LOGIX ANALOG INPUT (8)
5069-IB16	COMPACT LOGIX DISCRETE DC INPUT (16) 24VDC
5069-OF4	COMPACT LOGIX ANALOG OUTPUT (4)
5069-OB16	COMPACT LOGIX DISCRETE DC OUTPUT (16) 24VDC
5069-ECR	COMPACT LOGIX END CAP

NOTES:

1. FOR INFORMATION REGARDING GENERAL NOTES, UTILITIES, AND SYMBOLS, REFER TO THE LEGEND AND ABBREVIATION DRAWINGS.
2. UPS WITH DISPLAY SIDE MOUNTED.
   - 2.1. 30300 (GES-152N 120V)
   - 2.2. 00987 (AS400 RELAY COMMUNICATION CARD)
   - 2.3. 30080 (FACE PLATE SIDE MOUNT OPTION 701N-152N)

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1	21-01-22	FOR TENDER
ISSUE	YY-MM-DD	REVISION

PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA P.P. GOERTZEN #46152

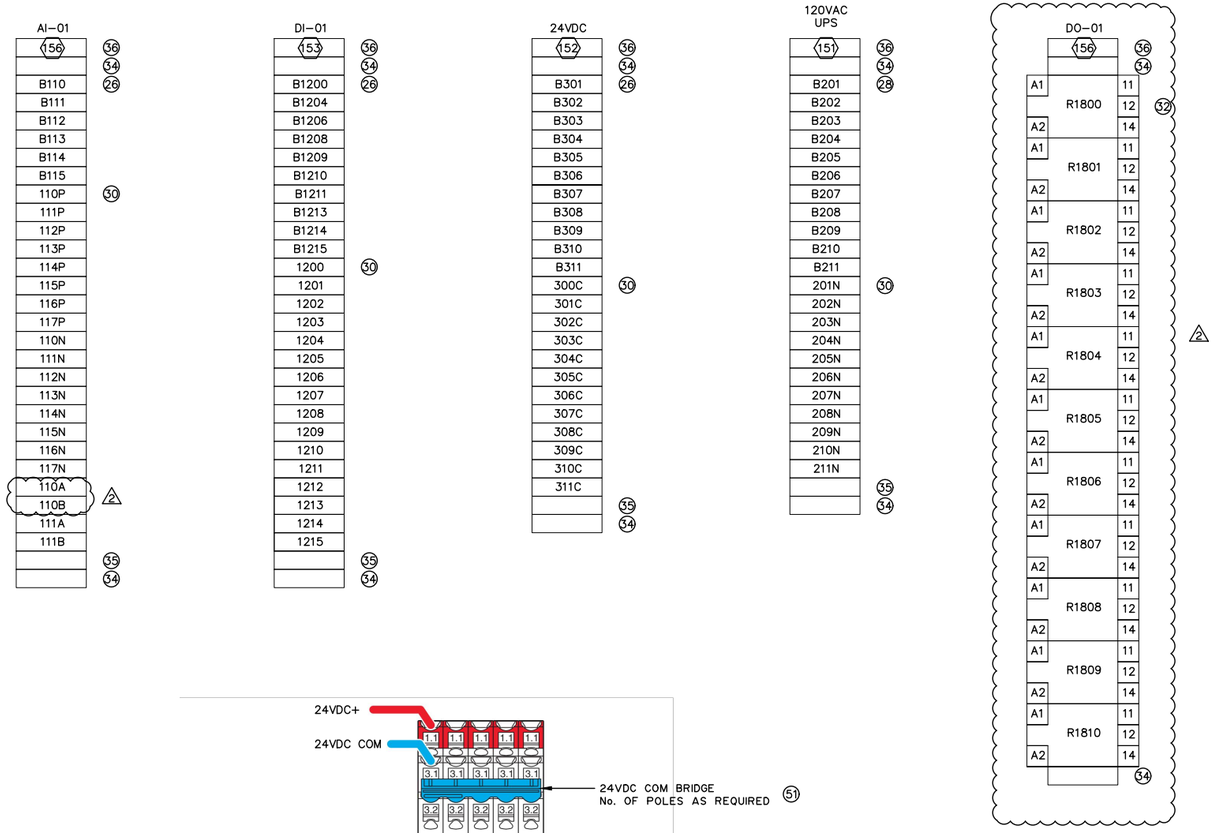
February 25, 2021

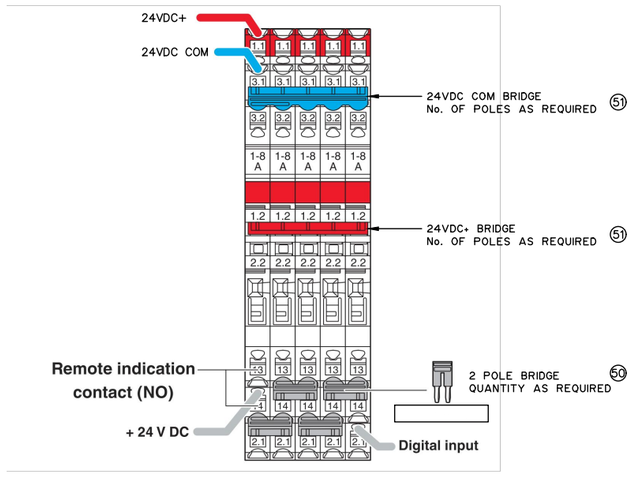
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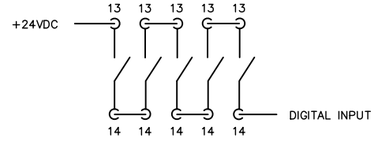
REGIONAL DISTRICT OF NANAIMO

WHISKEY CREEK PHASE 1A ELECTRICAL PUMP STATION CONTROL PANEL BILL OF MATERIALS & LABEL SCHEDULE

DESIGNED	G.B.P.	JOB	9794-003-00
DRAWN	Y.F.S.	SCALE	NTS
DATE	JANUARY 2021	DRAWING	E23.3







24VDC CIRCUIT BREAKER DETAIL

NOTES:

1. FOR INFORMATION REGARDING GENERAL NOTES, UTILITIES, AND SYMBOLS, REFER TO THE LEGEND AND ABBREVIATION DRAWINGS.
2. ADJACENT JUMPERED TERMINALS TO BE IMPLEMENTED WITH MANUFACTURER PROVIDED BRIDGES.
3. 24VDC CIRCUIT BREAKERS TO BE SUPPLIED WITH BOTH 24VDC+ AND 24VDC COM. CIRCUIT BREAKERS FOR 24VDC AND DIGITAL INPUT TERMINAL STRIPS TO BE MONITORED BY PLC INPUTS. MONITORING CONTACTS OF EACH GROUP INDICATED TO BE CONNECTED IN SERIES WITH MANUFACTURER 2 POLE BRIDGES. SEE DETAIL.

THIS DRAWING MAY HAVE BEEN MODIFIED FROM ITS ORIGINAL SIZE. ALL SCALE NOTATIONS INDICATED (i.e. 1:1000 etc) ARE BASED ON 22"x34" FORMAT DRAWINGS

2	21-02-23	FOR TENDER ADDENDUM
1	21-01-22	FOR TENDER
ISSUE	YY-MM-DD	REVISION

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
P.F.GOERTZEN
48152

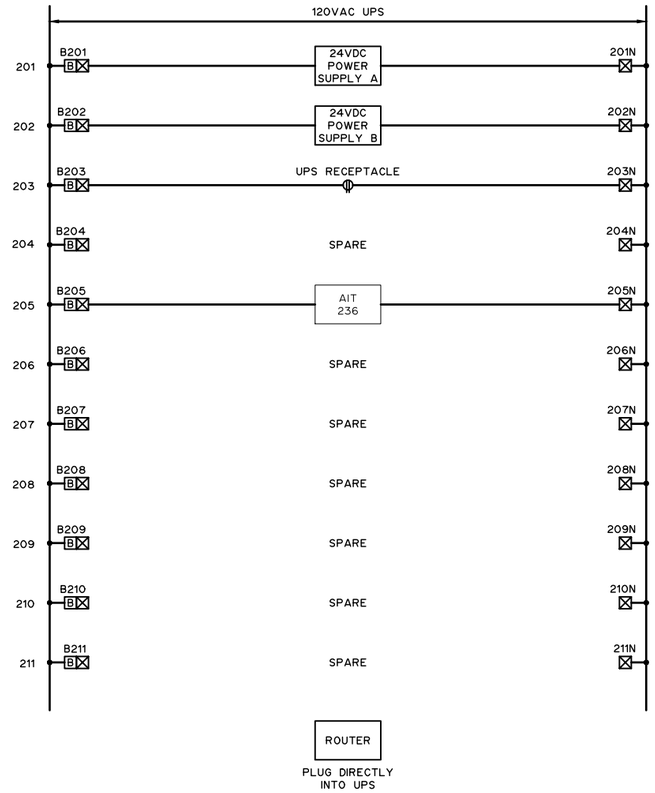
February 25, 2021

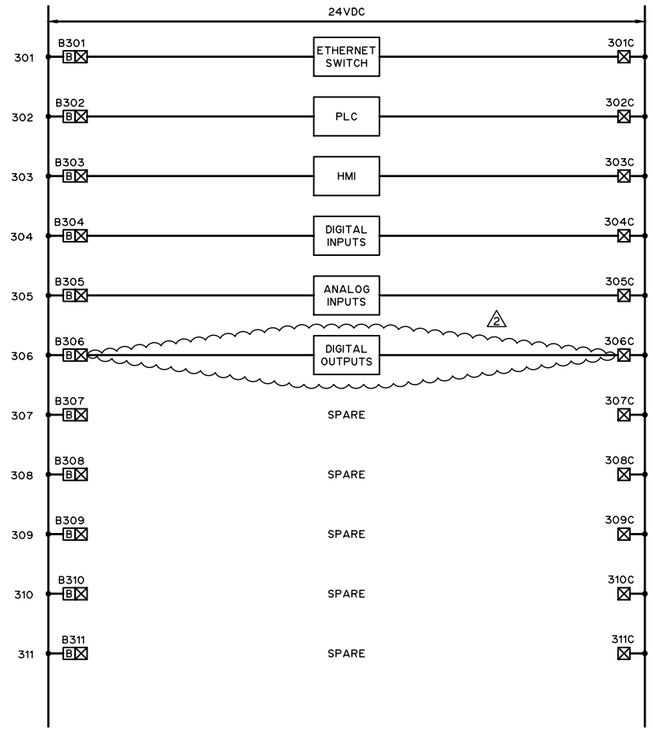
MPE Engineering Ltd.

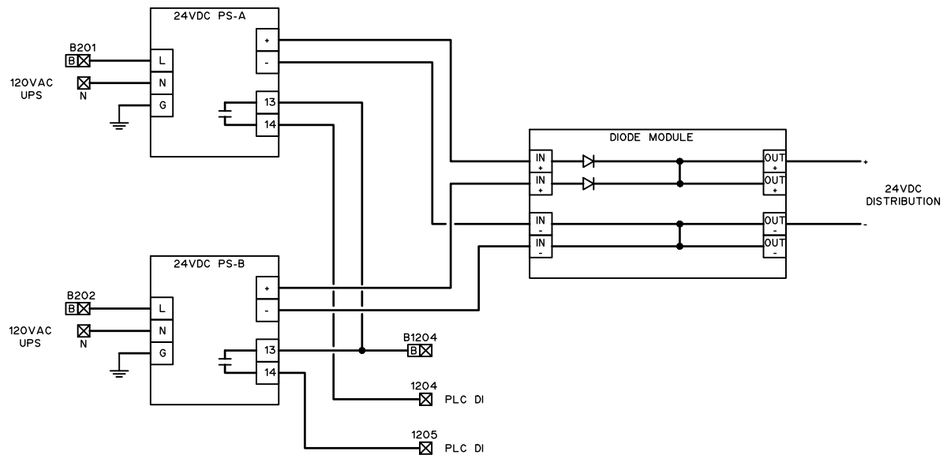
REGIONAL DISTRICT OF NANAIMO

WHISKEY CREEK PHASE 1A
ELECTRICAL
PUMP STATION CONTROL PANEL
TERMINAL STRIP LAYOUT

DESIGNED	G.B.P.	JOB	9794-003-00
DRAWN	Y.F.S.	SCALE	NTS
DATE	JANUARY 2021	DRAWING	E23.4







POWER SUPPLY SCHEMATIC

NOTES:

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1	21-01-22	FOR TENDER
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PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA G.B.P. GOERTZEN # 48152

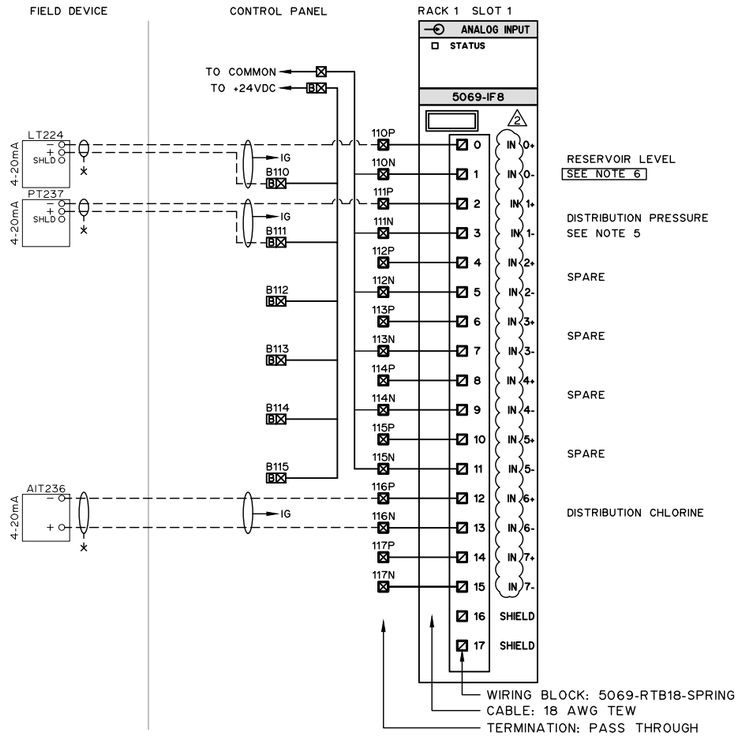
February 25, 2021

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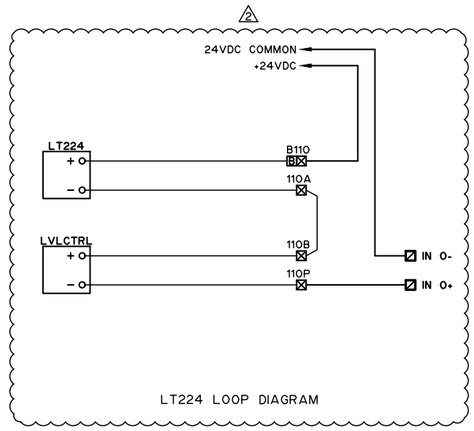
REGIONAL DISTRICT OF NANAIMO

WHISKEY CREEK PHASE 1A
ELECTRICAL
PUMP STATION CONTROL PANEL
POWER DISTRIBUTION

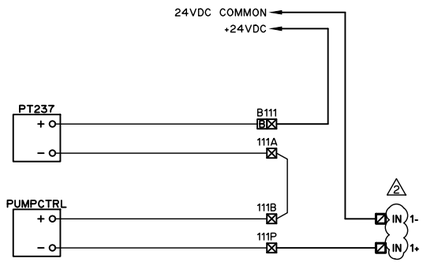
DESIGNED	G.B.P.	JOB	9794-003-00
DRAWN	Y.F.S.	SCALE	NTS
DATE	JANUARY 2021	DRAWING	E23.5



AI-01



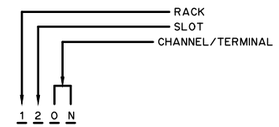
LT224 LOOP DIAGRAM



PT237 LOOP DIAGRAM

NOTES:

1. FOR INFORMATION REGARDING GENERAL NOTES, ABBREVIATIONS, AND SYMBOLS, REFER TO THE LEGEND DRAWINGS.
2. REFER TO BILL OF MATERIALS AND LABEL SCHEDULE DRAWING.
3. REFER TO CONTROL PANEL ENCLOSURE DRAWING FOR TERMINAL STRIP LOCATION.
4. CIRCUIT BREAKERS 1AMP UNLESS NOTED OTHERWISE.
5. SIGNAL TO LOOP THROUGH EXISTING PUMP CONTROLLER. SEE PT237 LOOP DIAGRAM.
6. SIGNAL TO LOOP THROUGH EXISTING LEVEL CONTROLLER. SEE LT224 LOOP DIAGRAM. (2)



THIS DRAWING MAY HAVE BEEN MODIFIED FROM ITS ORIGINAL SIZE. ALL SCALE NOTATIONS INDICATED (i.e. 1:1000 etc) ARE BASED ON 22"x34" FORMAT DRAWINGS

(2)	21-02-23	FOR TENDER ADDENDUM
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ISSUE	YY-MM-DD	REVISION



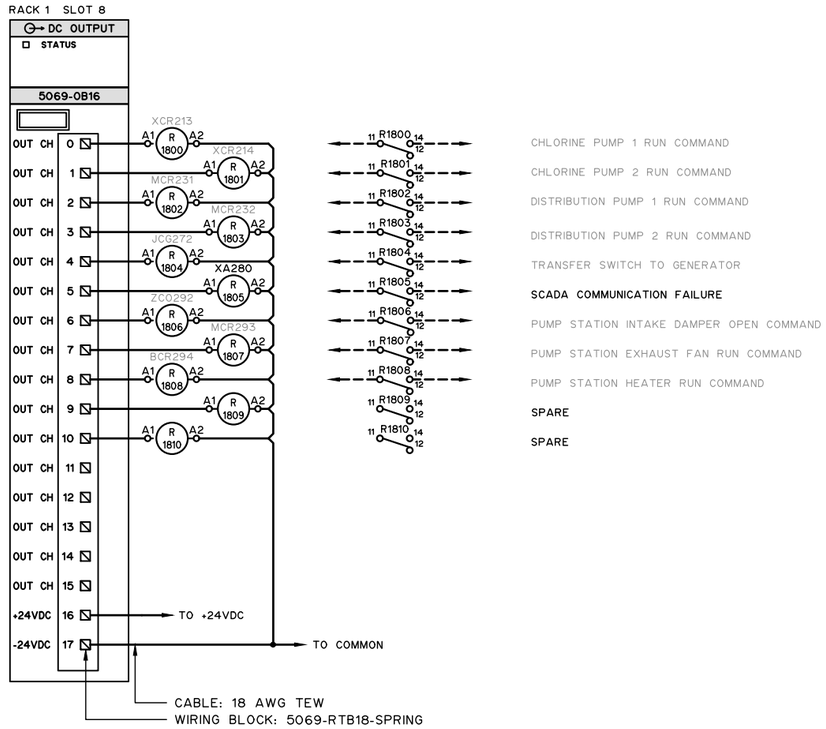
February 25, 2021

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REGIONAL DISTRICT OF NANAIMO

WHISKEY CREEK PHASE 1A
ELECTRICAL
PUMP STATION PLC ANALOG INPUT MODULE 1

DESIGNED	G.B.P.	JOB	9794-003-00
DRAWN	Y.F.S.	SCALE	NTS
DATE	JANUARY 2021	DRAWING	E23.11



CHLORINE PUMP 1 RUN COMMAND

CHLORINE PUMP 2 RUN COMMAND

DISTRIBUTION PUMP 1 RUN COMMAND

DISTRIBUTION PUMP 2 RUN COMMAND

TRANSFER SWITCH TO GENERATOR

SCADA COMMUNICATION FAILURE

PUMP STATION INTAKE DAMPER OPEN COMMAND

PUMP STATION EXHAUST FAN RUN COMMAND

PUMP STATION HEATER RUN COMMAND

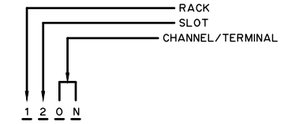
SPARE

SPARE

DO-01

NOTES:

1. FOR INFORMATION REGARDING GENERAL NOTES, ABBREVIATIONS, AND SYMBOLS, REFER TO THE LEGEND DRAWINGS.
2. REFER TO BILL OF MATERIALS AND LABEL SCHEDULE DRAWING.
3. REFER TO CONTROL PANEL ENCLOSURE DRAWING FOR TERMINAL STRIP LOCATION.



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February 25, 2021

MPE Engineering Ltd.

REGIONAL DISTRICT OF NANAIMO

WHISKEY CREEK PHASE 1A
ELECTRICAL
PUMP STATION PLC DIGITAL
OUTPUT MODULE 1

DESIGNED	G.B.P.	JOB	9794-003-00
DRAWN	Y.F.S.	SCALE	NTS
DATE	JANUARY 2021	DRAWING	E23.15