MEMO

From	Macoura Koné, Manager Environment, B2Gold Nunavut
To	Sergey Kuflevskiy, Technical Advisor, Nunavut Water Board
Cc	Ali Shaikh, Technical Advisor, Nunavut Water Board Richard Dwyer, Manager of Licensing, Nunavut Water Board Dan Gagnon, General Manager, B2Gold Nunavut Jamie Richards, Operations Manager, B2Gold Nunavut
Ref.	Notice of Construction under Parts D of Water License 2AM-BRP1831 (Amendment No.1)
Date	September 19, 2026
Subject	**Construction of a New Desalination Plant at the Allen Kapolak Marine Laydown Area**

Dear Mr. Kuflevskiy,

As you requested, please find attached a technical memo that outlines B2Gold Nunavut's proposal to replace an existing undersized desalination plant which is already included within the scope of the Water Licence 2AM-BRP1831. The new desalination plant will use the existing marine intake and brine discharge infrastructure with no increase to the approved intake or discharge volumes. This memo is intended to address the applicable requirements of Part D, Item 3 of B2Gold Nunavut's Back River Project Type A Water License (2AM-BRP1831 Amendment No. 1). For ease of review, a concordance table that outlines the regulatory requirements with section to which the information is discussed in the technical memo is provided below.

Table 1- Compliance Requirement Concordance Table

Approval Section	Approval Requirements	Report Sub-section
Part D, Item 3		
The detailed reports referred to in Part D, Item 2 shall include:		
3a	Design rational, requirements, criteria, parameters, standards analysis, methods, assumptions and limitations;	Sections 3 & Appendix A
3b	Site specific data and analysis to support the design and management decisions;	Section 4 & Appendix A
3c	Geochemical analysis of Waste Rock and fill, demonstrating their Acid Rock Drainage and Metal Leaching characteristics;	Section 5
3d	Construction methods and procedures regarding how infrastructure will be put in place, including quality assurance and quality control measures and equipment to be used;	Section 6 & Appendix B
3e	Technical specifications for sedimentation, erosion control and bank stabilization measures, including proposed materials, location and extent, place methods and quantities required;	Section 7
3f	Timetable for submission, including date of Construction and proposed date of	Section 8

Approval Section	Approval Requirements	Report Sub-section
	commissioning of infrastructure; and	
3g	Where required, signature and seal of the appropriately qualified Engineer.	Section 9

We trust that this information meets the requirements to speed up the review and for B2Gold Nunavut to get the Approval needed to construct the new desalination plant at the AKMLA. Should you have any questions, or require additional information, please do not hesitate to contact us.

Sincerely,



Macoura Koné, PhD., PGeol., PGeo.
Manager, Environment
B2Gold Nunavut

1. INTRODUCTION

The Back River Project (the Project) is a gold project owned by the B2Gold Back River Corporation (B2Gold Nunavut) within the West Kitikmeot region of southwestern Nunavut. It is situated approximately 400 kilometres (km) southwest of Cambridge Bay, 95 km southeast of the southern end of Bathurst Inlet (Kingaok), and 520 km Northeast of Yellowknife, Northwest Territories (Figure 1). The Project is located predominantly within the Queen Maud Gulf Watershed (Nunavut Water Regulations, Schedule 4). The Project is comprised of two main areas, Goose Property, and the Marine Laydown Area or AKMLA (recently referred to as Allen Kapolak Marine Laydown Area, AKMLA), with a seasonal 160 km long interconnecting winter ice road or WIR. The Goose property started to be developed in 2017. The Project achieved commercial production in October 2025. The Project is currently accessed and supplied using a combination of both seasonal winter roads and all-weather airstrips at the Goose Site.

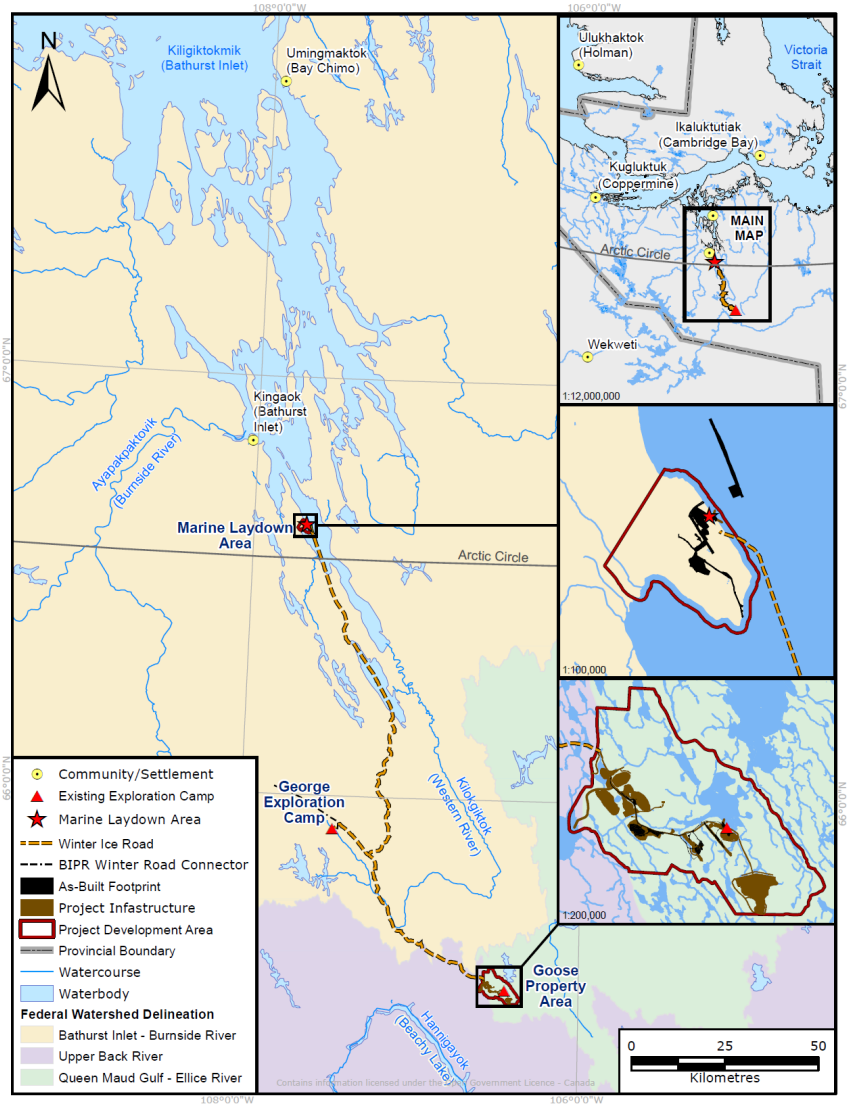


Figure 1: Back River Project Overview

2. PURPOSE

The purpose of this memo is to seek an authorization to replace the existing undersized desalination plant with a new and efficient self-contained unit to increase capacity to meet the freshwater demand of the anticipated 350+ person. The locations of the existing and new proposed desalination plants are provided in Figure 2. Raw water pump house and seawater feed inlet locations are provided in Figure 3.



Figure 2: Locations of Existing and New Desalination Plants



Figure 3: Location of Seawater Feed Inlet and Raw Water Pump House

3. DESIGN PARAMETERS AND TECHNICAL INFORMATION

The technical information including design rational, requirements, criteria, parameters, process description, standards analysis, methods, assumptions and limitations are provided in Appendix A.

4. SITE SPECIFIC DATA AND ANALYSIS

Site specific data of the inlet water quality from BRP-40 desalination intake and analysis to support the design and quality assurance report are discussed in Appendix A.

5. GEOCHEMICAL ANALYSIS OF WASTE ROCK & FILL

The Geochemical analysis of Waste Rock and fill, demonstrating their Acid Rock Drainage and Metal Leaching characteristics is not required. No waste rock or fill will be used. The new proposed desalination plant will be installed on existing pad.

6. CONSTRUCTION METHOD AND PROCEDURE

The system layout including civil construction, mechanical, commissioning notes and drawings of the proposed new desalination plant as well as structural design, foundations and slab on grade, concrete and reinforcing steel, inspection and testing notes are provided in Appendix B.

7. SEDIMENTATION AND EROSION CONTROL

Technical specifications for sedimentation, erosion control and bank stabilization measures will be employed during construction and these will include:

- Erosion and sediment control fence will be installed at the toe of slope of the pad to prevent sedimentation into tundra.
- Silt fences will be used in areas of cuts and excavations, downslope from exposed or erodible areas to prevent sedimentation of waterbodies.
- Effective erosion and sediment control measures will be installed before starting work to prevent sediment from entering any waterbodies.
- Landscape disturbance will be minimized, and restoration will occur as soon as possible in order to minimize erosion potential.
- Regular inspection and maintenance of erosion and sediment control measures and structures will be conducted during construction.

8. COMMISSIONING DATE

The proposed date of commissioning of the new desalination plant is October 2026.

9. SIGNATURE AND SEAL

The drawings included in Appendix A are for review. Final drawings for construction that are signed and sealed will be provided upon request.

APPENDIX A

3 Technical Section

Design Basis

Design Parameters

PARAMETER	DESIGN VALUE	UNIT
Source water	Arctic Ocean seawater	---
Inlet water flow required (by others)	68	GPM
Inlet water pressure required (by others)	50	PSI
Required treated water flowrate (RO permeate flow)	100	m^3/day
Expansion capacity	150	m^3/day
Number of MMF treatment trains required	3x50%	---
Number of RO treatment trains required	2x100%	---
Permeate water pressure from RO	10-20	PSIG
Site power	Three-phase, 480V, 60Hz Maximum Available Fault Current: 10,000 Symmetrical RMS Amps (Newterra's default design standard)	
System area classification	Non-hazardous location	
Project Location	Back River, Nunavut, Canada	
Ambient temperatures	-40 to 20	°C
Elevation	10	m
Design Water temperature	1 to 10	°C
System installation location	Climate Controlled Indoor Location	---

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Inlet Water Quality from BRP-40 Desal Intake Data Spreadsheet

Parameter	Units	Design Value
Alkalinity	mg/L (Total as CaCO3)	120
Aluminum Total (assumed)	mg/L	0.05
Bicarbonate (HCO3)	mg/L	150
Boron, Dissolved	mg/L	2.9
Calcium, Dissolved	mg/L	297
Carbon, Dissolved Organic	mg/L	2.94
Chloride, Dissolved	mg/L	14,000
Coliforms, Total	mg/L	27.9
Conductivity	µS/cm	40,000
Cyanide	mg/L	0.003
Fluoride, Dissolved	mg/L	0.74
Hardness Total (CaCO3)	mg/L	4,520
Iron, Dissolved (See Note 3)	mg/L	0.25
Lithium, Total (See Note 4)	mg/L	0.105
Magnesium, Dissolved	mg/L	886
Nitrate, Dissolved	mg/L	0.33
Organic Carbon, Total (assumed) (See Note 5)	mg/L	<5
pH	---	7.67
Phosphorus, Total	mg/L	0.024
Potassium, Total	mg/L	274
Silica (assumed) SiO2	mg/L	12
Sodium (adjusted)	mg/L	14,000
Strontium, Total	mg/L	5.84
Sulphate, Dissolved	mg/L	2,000
TDS	mg/L	38,200
TSS	mg/L	22
Turbidity	NTU	6.7

Please note:

1) *The data from the RFP document were considered, in addition to a spreadsheet provided by the customer that provided additional data. Newterra has considered maximum concentrations of the parameters for the design. The parameters of concern are mentioned in the Inlet Water Quality from BRP-40 Desal Intake Data Spreadsheet table (above) and all other parameters that could scale or foul the elements are below the limit. Any other parameters not listed are considered absent.*
2) *Water chemistry is adjusted or is balanced by adding sodium or chloride in Newterra's design.*
3) *Newterra assumes Iron at 0.25 mg/L in the feed water is an outlier because this is the lowest detection limit. If this is not the case, then please notify Newterra because this could potentially foul the membranes.*
4) *Newterra assumes Lithium at 0.105 mg/L in the feed water is an outlier. Customer to confirm.*
5) *Since TOC detection limit is 5 mg/L, Newterra assumes that TOC is less than 5 mg/L.*

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Product Water Quality

Parameter	Units	Design Value
TDS	mg/L	≤ 500
Chloride	mg/L	≤ 250
Sulphate	mg/L	≤ 500

Please note:

1) The parameters listed here follow the Canadian Drinking Water Guidelines.

Chemical Consumption

CHEMICAL	CONCENTRATION	FUNCTION	DESIGN VALUE	UNIT
Antiscalant	100% Solution	Prevent membrane fouling	387	L/year
Sodium Hypochlorite	12% Solution	Effluent chlorination	1,202	L/day
Soda Ash	15% Solution	pH Correction / Alkalinity addition	1,338	L/day

Please note:

1) Chemical consumption values are estimated based on the system operating at 150 m3/day production rate and average loading will vary based on actual operational conditions.

2) Chemicals are to be provided by and handled by others.

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Results of Chemical Analyses of Water Per Customer RFP

RESULTS OF CHEMICAL ANALYSES OF WATER

Bureau Veritas ID		DUC446		DUC447		
Sampling Date		2025/09/30 07:15		2025/09/30 07:30		
COC Number		1OF1		1OF1		
	UNITS	**BRP-40**	**QC Batch**	**BRP-41**	**RDL**	**QC Batch**
Calculated Parameters						
Salinity	N/A	19	C109774	20	2.0	C109774
Field Parameters						
Field pH	pH	7.66	ONSITE	7.75	N/A	ONSITE
Field Redox Potential	mV	263.70	ONSITE	247.70	N/A	ONSITE
Field Temperature (Fd)	deg. C	7.7	ONSITE	7.7	N/A	ONSITE
Misc. Inorganics						
Conductivity	uS/cm	31000	C116031	33000	2.0	C116031
pH	pH	7.58	C113406	7.67	N/A	C113406
Total Dissolved Solids	mg/L	17000 (1)	C112003	19000 (1)	17	C112003
Total Suspended Solids	mg/L	8.7	C109867	6.9	1.0	C109867
Anions						
Alkalinity (PP as CaCO3)	mg/L	<1.0	C113397	<1.0	1.0	C113397
Alkalinity (Total as CaCO3)	mg/L	70	C113397	75	1.0	C113397
Bicarbonate (HCO3)	mg/L	85	C113397	92	1.0	C113397
Carbonate (CO3)	mg/L	<1.0	C113397	<1.0	1.0	C113397
Fluoride (F)	mg/L	0.41	C113522	0.56	0.050	C113127
Hydroxide (OH)	mg/L	<1.0	C113397	<1.0	1.0	C113397
Chloride (Cl)	mg/L	12000	C114091	12000	50	C111745
Sulphate (SO4)	mg/L	1500	C114091	1600	13	C111745
Physical Properties						
Turbidity	NTU	4.5	C109872	5.4	0.10	C109872

RDL = Reportable Detection Limit
N/A = Not Applicable
(1) Detection limit raised based on sample volume used for analysis.

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Quality Assurance Report Per Customer RFP

Bureau Veritas Job #: C583052
Report Date: 2025/10/10

QUALITY ASSURANCE REPORT

B2Gold Back River Corp.
Client Project #: B2GOLD NUNAVUT
Site Location: BACK RIVER MINE
Your P.O. #: 17964
Sampler Initials: JW

			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
C109867	Total Suspended Solids	2025/10/03	93	80 - 120	98	80 - 120	<1.0	mg/L	7.2	20
C109872	Turbidity	2025/10/03			100	80 - 120	<0.10	NTU	2.4	20
C111745	Chloride (Cl)	2025/10/04	100	80 - 120	102	80 - 120	<0.50	mg/L	2.0	20
C111745	Sulphate (SO4)	2025/10/04	83	80 - 120	98	80 - 120	<0.50	mg/L	2.6	20
C112003	Total Dissolved Solids	2025/10/06	NC	80 - 120	94	80 - 120	<10	mg/L	15	20
C113127	Dissolved Fluoride (F)	2025/10/06	114	80 - 120	98	80 - 120	<0.050	mg/L		
C113127	Fluoride (F)	2025/10/06							NC	20
C113397	Alkalinity (PP as CaCO3)	2025/10/06					<1.0	mg/L	NC	20
C113397	Alkalinity (Total as CaCO3)	2025/10/06			94	80 - 120	<1.0	mg/L	2.3	20
C113397	Bicarbonate (HCO3)	2025/10/06					<1.0	mg/L	2.3	20
C113397	Carbonate (CO3)	2025/10/06					<1.0	mg/L	NC	20
C113397	Hydroxide (OH)	2025/10/06					<1.0	mg/L	NC	20
C113406	pH	2025/10/06			100	97 - 103			0.83	N/A
C113522	Dissolved Fluoride (F)	2025/10/07			95	80 - 120	<0.050	mg/L		
C114091	Chloride (Cl)	2025/10/07	NC	80 - 120	100	80 - 120	<0.50	mg/L	6.0	20
C114091	Sulphate (SO4)	2025/10/07	NC	80 - 120	97	80 - 120	<0.50	mg/L	2.1	20
C116031	Conductivity	2025/10/08			101	90 - 110	<2.0	uS/cm	0.55	10

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

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Process Description

Multi-media Filters

The feed water from the Arctic Ocean to the multimedia filters will enter the top of the filter vessels and be distributed evenly throughout the vessels. The water flows through different layers of filtration media and is then collected at the bottom of the filter through a collection lateral system. Suspended solids are entrained within the filtration media and are thus removed from the water.

Eventually the solids holding capacity of the media filters is exhausted and a backwash operation must be performed to remove the entrained solids from the filter. During backwash, feed water will enter the bottom of the vessel and be discharged through the top. The water fluidizes the media as it enters the vessel which allows entrained solids to be released and conveyed out of the filter with the backwash water to waste. After the backwash, the media settles back to the bottom of the filter. Due to the varying densities of the media the finer media settles below the lighter media.

The filter media is said to stratify into different layers. The upper layers provide solids holding capacity while the lower layers are used to provide fine filtration. Filtered water from the multi-media filtration units will then be sent through the downstream system as needed.

Three (3) vertical filters are provided with 3 X 50% configuration. The backwash water for one MMF is provided by the other two, so when one filter goes into backwash mode, the system will stop producing potable water until the backwash sequence is finished. Due to high TSS, expect frequent backwashing sequences.

Reverse Osmosis Unit

Filtered feed after the media filters will then be sent through a pre-treatment cartridge filter which act as a safeguard to remove any residual suspended solids. The water is then re-pressurized and sent through the RO unit. Eventually the solids holding capacity of the cartridge filter elements will be exceeded at which point the elements must be manually replaced. Antiscalant will be dosed as required upstream of a cartridge filter. The Antiscalant is to reduce the fouling potential of the water due to scaling.

Reverse Osmosis (RO) uses semi-permeable membranes with very small pores, smaller than 0.001 µm. Water can diffuse across the membrane much more readily than dissolved solutes (salts). High feed water pressure is used to counteract the natural osmotic pressure enabling the passage of water from the side of high concentration (feed) of the membrane to the side of low concentration (permeate). A percentage of the water fed to the RO is discarded, as it will contain the salts rejected by the RO membrane.

RO membranes experience fouling over time. As such, they require periodic cleaning using a clean-in-place system. The clean-in-place system is used to prepare a warm chemical cleaning solution which is circulated through the RO system. This removes accumulated solids or other foulants on the membrane. The proposed CIP system consists of a solution tank, cartridge filter, electric heater, pump, and associated piping and instruments. The cleaning operation is a semi-automated process. Cleaning chemicals (acid or caustic) are added via chemical dosing pumps to the CIP tank along with permeate water via the RO permeate forwarding pumps. Once the water is added, the tank is mixed by pump, and heated (using an in-tank electric heater). The heater is moved out of service once the targeted temperature has been reached indicating that the cleaning procedure can begin. The operator will then proceed with the CIP as detailed in the operating manual.

When trended differential pressure, flow and conductivity measurements indicate that a cleaning is required the operator will take the RO unit out of service to perform a cleaning operation. The cleaning operation is a

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semi-automated process. The operator manually adds the necessary cleaning chemicals to the CIP tank and clean or permeate water. Then the water is mixed by pump then the cleaning procedure can begin.

Two (2x100%) RO units are included, each designed to produce 29 GPM of clean permeate with a total RO recovery of 43%.

Potable Water Distribution Unit

Water from the potable water storage tank will be pressurized by duty/standby (sometimes both working) potable water distribution pumps. The pumps will be controlled by VFD to ramp up and down as needed.

Finally, a small flow of water will continuously circulate back from the pump outlet upstream of the disinfection processes (UV and sodium hypochlorite) so that during long periods of no water usage the disinfectant concentration can be maintained, and the UV unit can be prevented from over-heating as they are on continuously even when system is not producing any water.

Control System

The water treatment system will be controlled by one PLC and HMI located in the main control panel. The PLC will have an Ethernet port to connect to the plant control system.

Newterra's control and automation system combines a high level of instrumentation, an advanced PLC, and in-house custom programming to deliver a system that offers tremendous optimization capabilities yet requires minimal operator intervention for day-to-day operation. The user interface can be accessed on-site from control panel mounted touchscreen (HMI) or remotely from a computer over the internet with purchase of a telemetry package. Also with the telemetry package, alarm messages can be transmitted by email or text message to alert operators to issues, even when the operators are not on site.

All important information is logged so trends can be monitored to ensure the long-term successful operation of the Newterra system.

Modular Building

With over 25 years of experience containerizing equipment Newterra has developed a modular building system that includes insulation, HVAC, interior and exterior lighting, spill containment and sumps, access doors, and other features facilitating operations.

All equipment installation, wiring, and piping internal to a container is done in the ideal conditions of our climate-controlled, manufacturing facility with full access to proper tools, equipment, and engineering support.

The full system will be assembled and undergo comprehensive Factory Acceptance Testing (FAT) before it leaves our facility. This rigorous testing prior to shipping helps eliminate downtime when the system arrives on site.

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Scope of Supply

Multimedia (MMF) Filters Module

- Three (3) FRP vessel with Ø30", non-ASME, rated for 150PSI (Pentair or equal), with:
  - PVC internals
  - Filtration media (anthracite, sand, garnet, gravel)
- On/Off electrically actuated ball valves (Praher or equal), lug, PVC, solenoid valve (ASCO or equal), without limit switches:
  - One (1) service inlet
  - One (1) service outlet
  - One (1) backwash inlet
  - One (1) backwash outlet
  - One (1) rinse outlet
- Manual isolation valves for each vessel (PMP or equal)
- PVC manual flow control valve for common backwash line
- Double door, wafer type check valve with DI body for service out and backwash out lines (PMP or equal)
- Sample, vent and drain valves
- Inlet and outlet pressure gauges for each vessel (Ashcroft or equal)
- Inlet and outlet pressure transmitters for common feed and common outlet lines (Rosemount, E+H, or equal)
- One (1) Mag flow meter for feed of each vessel (E+H or equal)
- Sch 80 PVC face piping

Please note:

1) *The backwash water for one MMF is provided by the other two, so when one filter goes into backwash mode, the system will stop producing potable water for about 10 minutes per MMF until the backwash sequence is finished.*

Antiscalant Addition Module

2 Trains, each train to include:

- One (1) diaphragm type chemical dosing pump (Grundfos or equal) with fittings and multifunction valve
- Plastic tubing
- Chemical supply and chemical daily tote by others

RO Cartridge Filter Module

2 Trains, each train to include:

- One (1) vertical orientation cartridge filter with FRP filter housing, 150 PSIG design, non-ASME, complete with:
  - 5-micron high flow cartridge filter element
  - Isolation valves
  - Vent and drain valves
  - Inlet/outlet pressure gauges (Ashcroft or equal)
- Sch 80 PVC piping

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One (1) Pass – Three (3) Stage Seawater Reverse Osmosis (SWRO) Module

2 Trains, each train to include:

- One (1) high-pressure centrifugal pump super duplex SS 2205 (Danfoss or equal), 25 HP 3P 230/460V, complete with:
  - NEMA 4X VFD (Danfoss or equal)
  - Discharge duplex check valve (see Note)
  - Discharge pressure gauge
  - Suction and discharge pressure transmitter (Rosemount, E+H, or equal)
  - Suction temperature transmitter (Rosemount, E+H, or equal)
  - Discharge pressure gauge (Ashcroft or equal)
  - Fittings
- One (1) energy recovery device (Danfoss iSave or equal), SS duplex 2205, 10 HP 3P 230/460V, complete with:
  - Mag flowmeter for energy recovery device line (E+H or equal)
- Three stage configuration with a 2x2 → 2x2 → 2x2 array (RO housings x RO membranes)
- Six (6) FRP based RO membrane housings (Codeline, Protec or equal) at 1200 PSI design to house two (2) RO membranes each, non-code
- Twelve (12) 8” diameter x 40” long, seawater membranes (Hydranautics or equal)
- Mag flowmeter for feed and concentrate lines (E+H or equal)
- Conductivity analyzer for feed and permeate lines (Rosemount, E+H, or equal)
- On/Off electrically actuated ball valve (Pratt Industries or equal), Rilsan coated, SS 416 stem, without limit switches for:
  - One (1) permeate flush
- On/Off electrically actuated ball valve, duplex SS 2205, without limit switches for:
  - One (1) feed
- Manual CIP valves for each stage cleaning
- Check valve for feed line
- Manual flow control valve on energy recovery line
- Manual isolation valves
- RO vessel permeate sample valves and check valves
- PVC Sch 80 process piping for low pressure lines and duplex SS 2205 piping for high pressure lines

Please note:

1) *In order to meet the schedule requirements and considering the long lead time of duplex valves, Newterra will install 316SS valves initially, provide the duplex valves (loose), and at a later date, the valves can be swapped by others.*

CIP Module

- One (1) 155 US gallon flat bottom cylindrical polyethylene tank complete with:
  - Level switches
- One (1) In-Tank electric heater (Heat up solution in 2 hrs)
- One (1) centrifugal, vertical CIP pump (Goulds or equal), 316 SS, 7.5 HP 3P 460V, complete with:
  - Motor starter
  - Discharge pressure gauge (Ashcroft or equal)
  - PVC check valve and isolation valves

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- One (1) vertical orientation cartridge filter with FRP filter housing, 150 PSIG design, complete with:
  - 5-micron cartridge filter element
  - Isolation valves
  - Vent and drain valves
  - Inlet/outlet pressure gauges (Ashcroft or equal)
- One (1) Mag flowmeter (E+H or equal)
- PVC Process and isolation valves
- PVC Eductor assembly
- PVC, Sch 80 process piping

Please note:

1) Chemical addition/handling by others.

UV Disinfection Unit

- Three (3) Disinfection UV reaction chambers, 2 duty 1 standby, complete with control panel and reactors, Minimum dosage of 40 mJ/cm2
- Manual isolation valves
- Inlet/outlet pressure gauges
- PVC Sch 80 piping

Soda Ash Addition Module

- Two (2) diaphragm type chemical dosing pumps (Grundfos or equal), 1 duty 1 standby, with fittings and multifunction valve
- Plastic tubing
- Chemical supply and chemical daily tote by others
- One (1) pH transmitter (Rosemount, E+H, or equal)

NaOCl Addition Module

- Two (2) diaphragm type chemical dosing pumps (Grundfos or equal), 1 duty 1 standby, with fittings and multifunction valve
- Plastic tubing
- One (1) static mixer
- Chemical supply and chemical daily tote by others

RO Concentrate Tank Module

- One (1) 720 US gallon, 48” diameter, closed top, flat bottom, cylindrical HDPE tank complete with:
  - Level switches
  - Fittings
- One (1) centrifugal pump, AISI 904L, (Grundfos or equal), 4 HP 3P 460V, complete with:
  - VFD
  - Discharge pressure gauge (Ashcroft or equal)
  - PVC check valve and isolation valves
- Line to include a tee with a port for seawater intake as needed (pump by others)
- PVC Sch 80 process piping

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Distribution Pumps Module

- One (1) centrifugal pump, AISI 904L, (Grundfos or equal), 15 HP 3P 230/460V, complete with:
  - VFD
  - Discharge pressure gauge (Ashcroft or equal)
  - PVC check valve and isolation valves

System Enclosure Module

- Two (2) 40’ high cube modified shipping containers cMET certified, built to CEC standards with all wiring complete and all equipment pre-piped factory tested and mounted in enclosure.
  - Spray foam insulation for walls and ceilings
  - Spray foam insulation for floor
  - Exterior paint
  - Hatches to lead media to the vessels
  - Lifting eyes on upper corners
  - Coated plywood wall and ceiling
  - Coated gator guard floor
  - Sump basins with level switch
  - Welded steel single man door(s) with safety window and push/crash bar lever
  - Barn-style double doors
  - Lighting
  - Ventilation fans
  - Passive vent louvers with hoods
  - Heater with thermostat
  - Emergency lighting

Control System Module

Main Power distribution - We will be expecting a 480V power drop to each motor requiring this voltage

PLC based control panels with the following standard features:

- Control panels are certified to CSA C22.2 No. 14 by cMET
- NEMA 4 panel enclosure
- Primary circuit protection
- Main power block
- Branch circuit protection with circuit breakers for motors
- Motor starters with overload protection
- Variable frequency drives where stated above
- Branch circuit protection with circuit breakers for powered devices
- Two (2) power panels
- Two (2) control panels including Allen Bradley Compact Logix PLC controller and Red Lion HMI
- NEMA 3R transformer for 120V
- Ethernet/IP Communication protocol between PLC and client’s DCS
- UPS
- Dry contacts to allow interlock with system inlet pumps
- Wired and installed

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- Factory tested prior to shipping

Outside cover of panel to contain the following:

- System ready light
- Red alarm indicator light
- 10” Programmable touch screen with:
    - Color P&ID display
    - Display of measurements recorded from any transmitters present in system
    - System on/off control
    - Safety control over all valves and motors with timed delay when in Hand position
    - Timers for solenoid valves and motors present in system
    - Alarm indicators with reset function
    - Run indicators for system components
    - Alarm reset button
- Emergency stop button

Operation and Maintenance Manual

- Operating instructions for all treatment system components
- Copy of operating manual for each piece of equipment (Digital copy only)
- Summary of system components
- Summary of system operation principles
- Summary of operation controls and fail safes
- Summary of maintenance requirements for each piece of equipment
- All documentation provided in English

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Optional Scope of Supply

Recommended Spare Parts and Consumables

- 1 Set of spare parts for RO Booster Pump
- 1 Set of spare parts for iSave Energy Recovery Pump
- 4 Cartridge filters
- 4 Pressure gauges
- 2 Sets of SWRO membranes (12 total)
- 3 Fuses

Services Scope

Site Acceptance Testing (SAT)

Typical SAT includes the following:

- Assembly/Installation verification
    - Includes electrical & mechanical check
- SAT summary & deviation report/list of corrective actions

NOTES:

1. Newterra SAT does not relieve another party from warranty issues arising from their scope of work.
2. Newterra will not begin formal start-up until SAT is complete and signed off by all parties.

System Startup/Commissioning

Typical System Startup/Commissioning includes the following:

- Equipment check
- Electrical, mechanical, and controls
- Functional test
- Equipment and control system
- Hydraulic test

Training

On-site operator training including the following topics:

- General system theory & process
- Specific system instruction
    - Components
    - Controls and operating philosophy
    - Alarms and alarm troubleshooting
    - Maintenance
    - Troubleshooting

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Customer's Scope of Supply

Clearly defining and coordinating responsibilities with our equipment is Newterra's goal and is essential for ensuring a well-structured and timely completion, effective collaboration and strong communication with our valued customers. To ensure seamless execution with Newterra the following points are to be included in the customer's scope of work (as required) and are excluded from Newterra's responsibilities:

- Offloading or storing system components at site
- System components placement at site including leveling, anchoring, erection, installation with the use of heavy equipment such as cranes, forklifts, man-lifts, trucks or similar
- Installation of loose shipped tanks, vessels, media, membranes, assemblies and accessories supplied by Newterra
- Utilities supply and connection to system (ie: power, compressed air, water, gas, etc)
- Design, supply and installation of piping and wiring to interconnect Newterra equipment and electrical panels with all relevant onsite infrastructure, systems, and utilities
- Installation of Newterra supplied interconnecting piping and wiring between modular buildings
- Design, supply and installation of all interconnecting piping and wiring between Newterra supplied modular buildings and loose equipment, including wall penetrations
- Design, supply and installation of all interconnecting piping and wiring between Newterra supplied skids and loose equipment
- Freeze protection including heat tracing, piping insulation, and equipment insulation
- Sunshades, canopies, or enclosures for skidded or ship loose equipment
- Supply and installation of all walkways, ladders, stairs, pipe and conduit supports, etc. which are not described in Newterra's scope of supply
- All onsite civil work, including design, required for system installation and functionality
- All chemical supply, addition, handling, and storage compliant with site specific safety requirements. Newterra can provide pricing for specific safety requirements upon request.
- All other consumables not included in Newterra's scope of supply that are required for the system to operate (ie: filter elements, media, seed sludge, etc.)
- Obtaining all local, state/provincial or federal permits and approvals as required for system installation and operation
- Influent and discharge water analytical or laboratory sampling and testing
- Disposal or neutralization of treated discharge and waste products (ie: brine, screenings, sludge, etc.)
- Qualified operators
- Anything not mentioned in "Scope of Supply" above

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Newterra Digital Service

Remote Data Collection and Analysis Technology



Welcome to Newterra Digital Service!

Newterra Digital Service™ is an advanced cloud-based data acquisition and customer portal for monitoring the operation of Newterra Systems and equipment in real-time. Accessible from any device with internet access, you can monitor all aspects of your systems, keep your team connected, and optimize performance with ease.

Services Offered	Access	Access & Control
Remote Software Updates	✔	✔
Unlimited Users	✔	✔
Historical Data Logging	✔	✔
Email Alarm Notifications – First Tier	✔	✔
Email Daily Reporting	✔	✔
System Documentation Access *(Manual, P&ID, Electrical)*	✔	✔
Newterra Experts Upon Request	✔	✔
Control System Remotely – Full Control of HMI		✔

Key Features and Benefits

- Real-time visibility to system performance
- Real-time system control
- Alarm notifications
- Mobile app
- Current operational data and historical trends for data analysis
- Security with multi-level user access
- Maintenance logs
- Direct connection to Newterra's Technical Service team

Why Choose Newterra Digital Service™?

Investing in Newterra Digital Service™ offers numerous benefits that enhance the efficiency and longevity of your water treatment systems. Here's why you should consider incorporating this advanced service into your operations:

1. **Reduced System Downtime**: With real-time monitoring and alerts, potential issues can be identified and addressed promptly, minimizing system downtime and ensuring continuous operation.
2. **Reduced Operator Visits**: Remote access to system performance data means fewer on-site visits are necessary, saving time and reducing operational costs.
3. **Better System Performance**: Access to current and historical operational data allows for detailed analysis and optimization, resulting in improved system performance and efficiency.
4. **Increased Equipment Lifespan**: Proactive maintenance and timely interventions help extend the life of your equipment, protecting your investment and reducing long-term costs.
5. **Enhanced Security**: Multi-level user access ensures that only authorized personnel can access critical system data, maintaining the integrity and security of your operations.
6. **Comprehensive Support**: Direct connection to Newterra's Technical Service team provides expert support and guidance, ensuring your systems operate at their best.
7. **Convenient Access**: The cloud-based portal is accessible from any device with internet connectivity, giving you the flexibility to monitor your systems from anywhere, at any time.

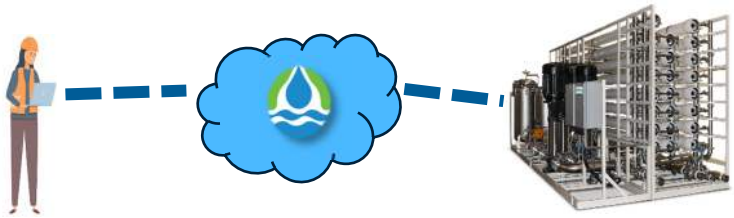
By choosing Newterra Digital Service™, you are not just opting for a monitoring solution; you are empowering your team, optimizing your operations, and securing the future of your water treatment systems.

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Elevate Your Operations with Newterra Digital Service™

Good news! Your system will be built with the hardware for Newterra Digital Service™ included giving you the opportunity to elevate your operations, empower your team, and ensure the longevity of your systems with our state-of-the-art digital solution. It's easy, during startup Newterra will set up your free 1-year subscription of Control and Access services.

For added peace of mind, you have the flexibility to use the built-in VPN security switch on the device to disable outside-in connections, ensuring that the Newterra Digital Service™ can be tailored to meet your site's specific security requirements.



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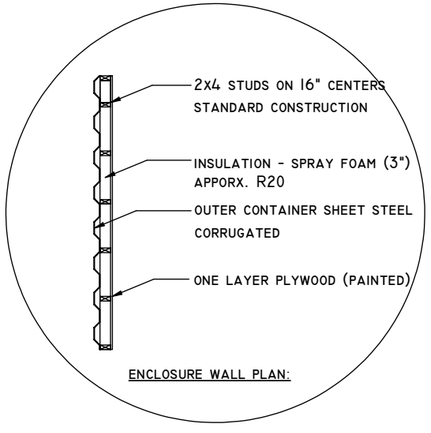
APPENDIX B

Civil Construction Notes:
- Install grating between building fans and outside louvers.
- Thermal insulation on walls and ceiling, Spray Foam
- Door color to be: White
- Exterior color to be: White
- Interior floor to be: Marine Grade Plywood
- Interior floor to be painted: Gator Guard
- Exterior floor to be insulated with 3" of Spray Foam.

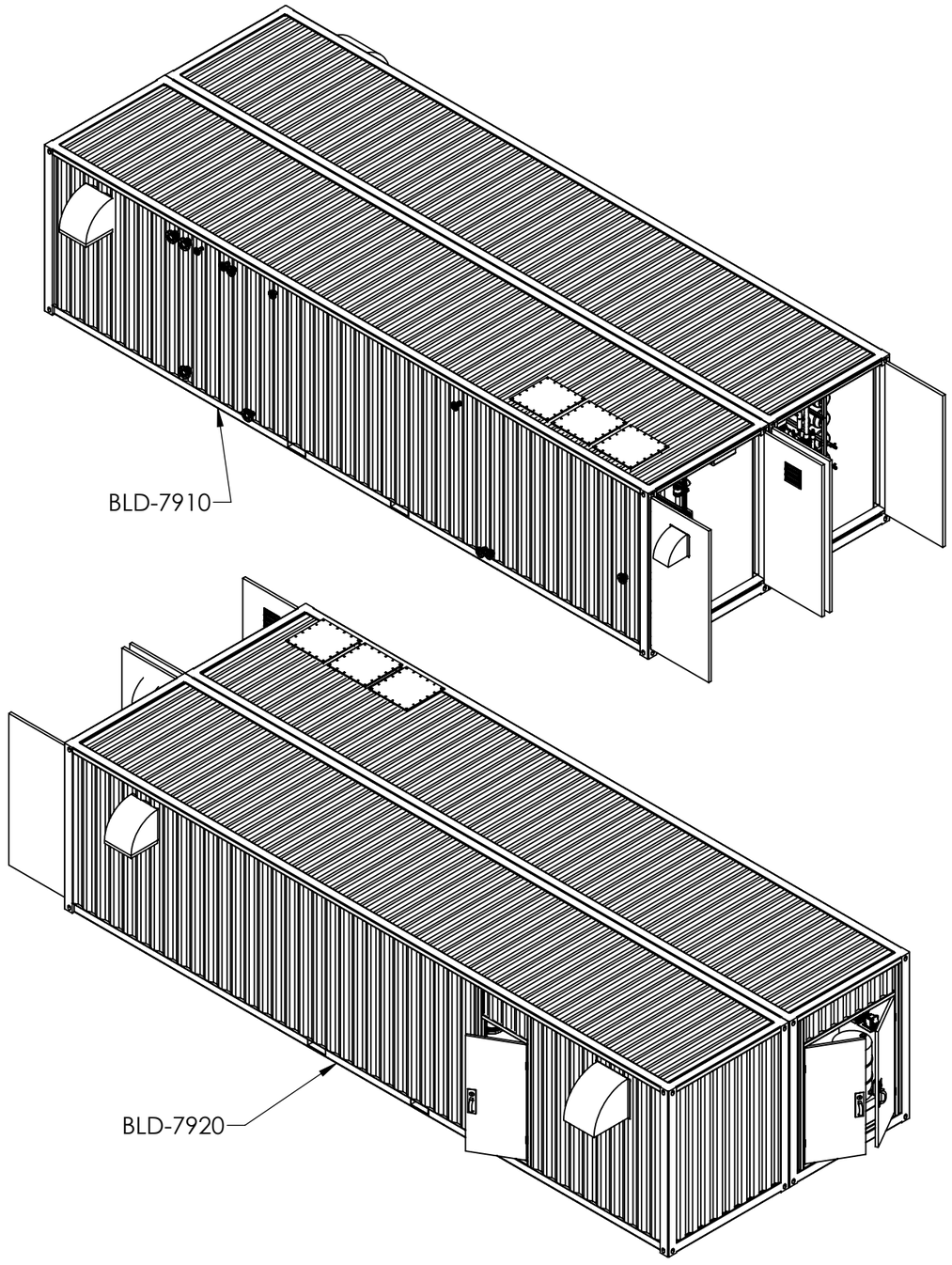
Mechanical Notes:
- Locate cooling thermostat in the warmest location at ceiling level.
- Locate heating thermostat at floor level.
- Maximum width for shipping is 102". This includes all connections that protrude through the sides of the enclosure (applies to containers only).

Commissioning Notes:
- Fan and louver hoods need to be installed on site. System cannot ship with hoods attached.
- Some flow meters will be shipped with unions in the process piping loosened to ensure meters are not damaged during shipment.
- Building need to be shimmed on site with 1/2"t x 3"w steel flat bar to allow doors to open freely.
- Please have shimming material ready during building installation.
- newterra recommends pad be at least 12" larger than enclosure in all directions. Local codes may require alternate dimensions.

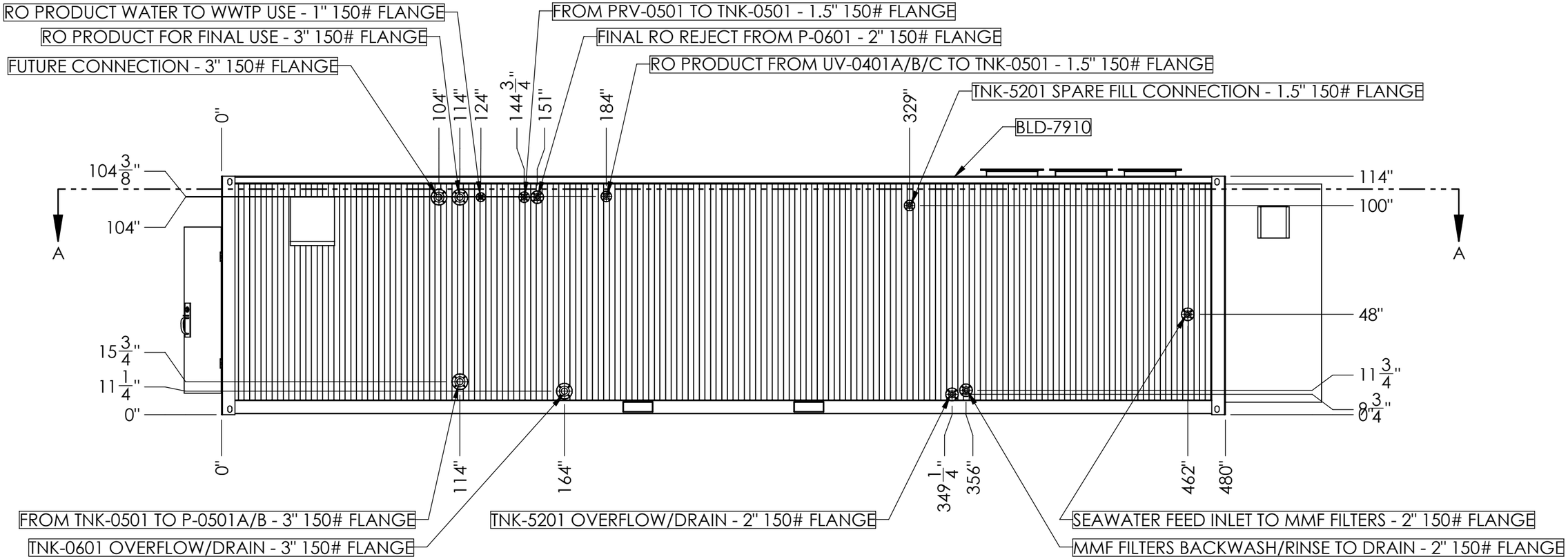
newterra Standard System Labels:
- Flow direction labels
- Air line labels
- Water line labels
- Air/Water line labels
- Hot surface labels (lines >=140 F)
- Hearing protection labels
- Warning label: This machine is automatically controlled
- Arc flash warning label

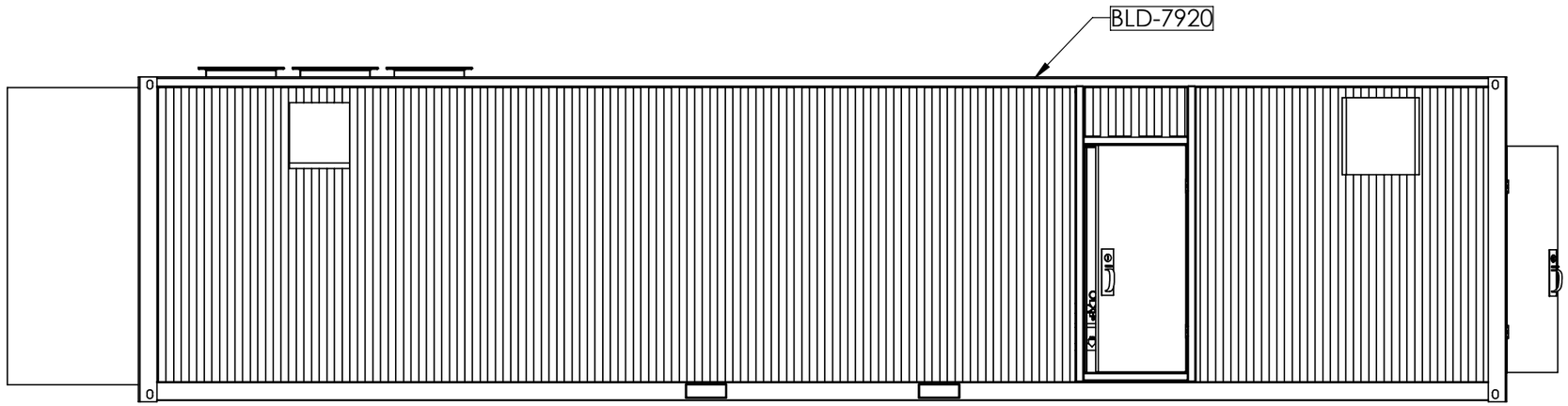


ENCLOSURE WALL PLAN:



STATUS: For Review			DRAWING TITLE: System Layout Drawing
REVISION LEVEL: A-01	REVISED BY: OM	REVISED ON: 25/02/2026	PROJECT TITLE: B2Gold Black River Mine, Salt Water RO PWTP
THIS INFORMATION IS THE PROPERTY OF NEWTERRA AND CANNOT BE REUSED OR REPRODUCED WITHOUT THE WRITTEN CONSENT OF NEWTERRA.			CUSTOMER: Nahanni Construction
			PROJECT NUMBER: 2509249 — SHEET 1 OF 5





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STATUS: For Review

REVISION LEVEL:	REVISED BY:	REVISED ON: (DD/MM/YYYY)
A-01	OM	25/02/2026

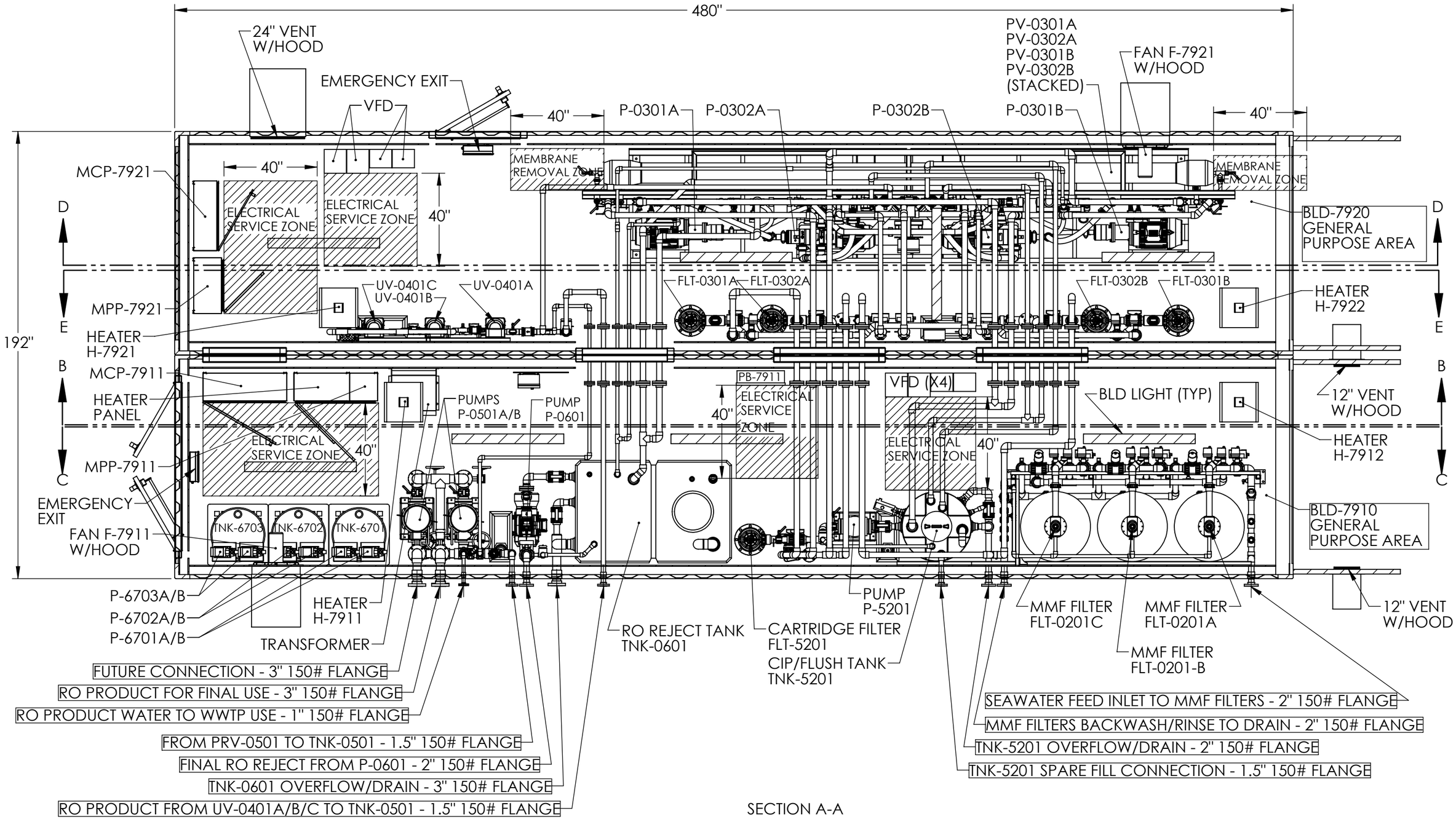
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DRAWING TITLE: System Layout Drawing

PROJECT TITLE: B2Gold Black River Mine, Salt Water RO PWTP

CUSTOMER: Nahanni Construction

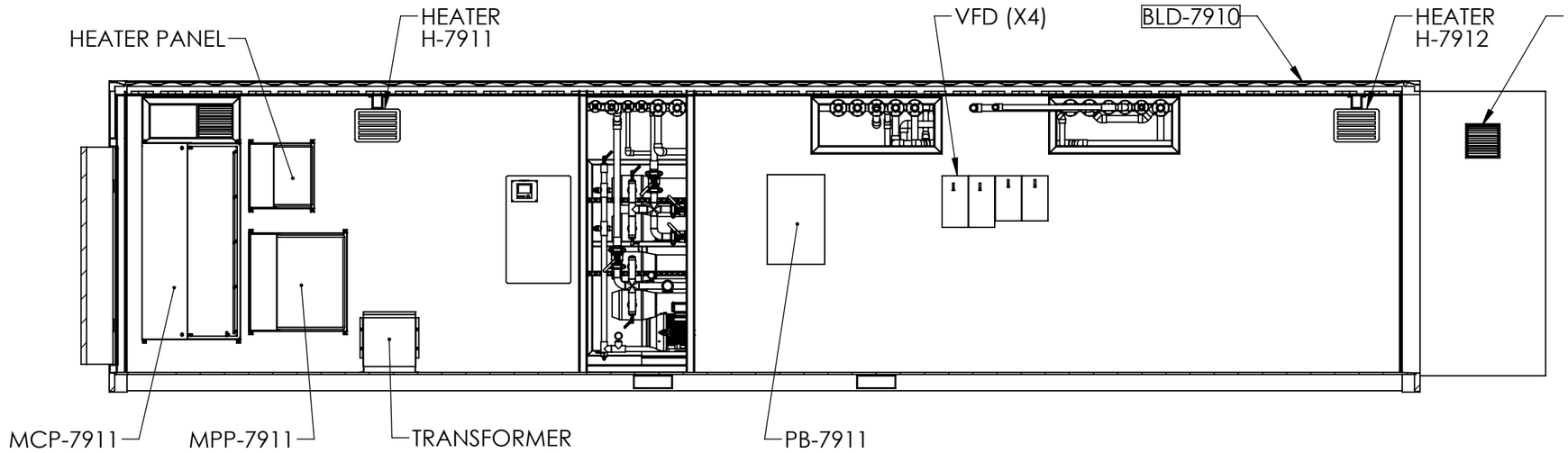
PROJECT NUMBER: 2509249



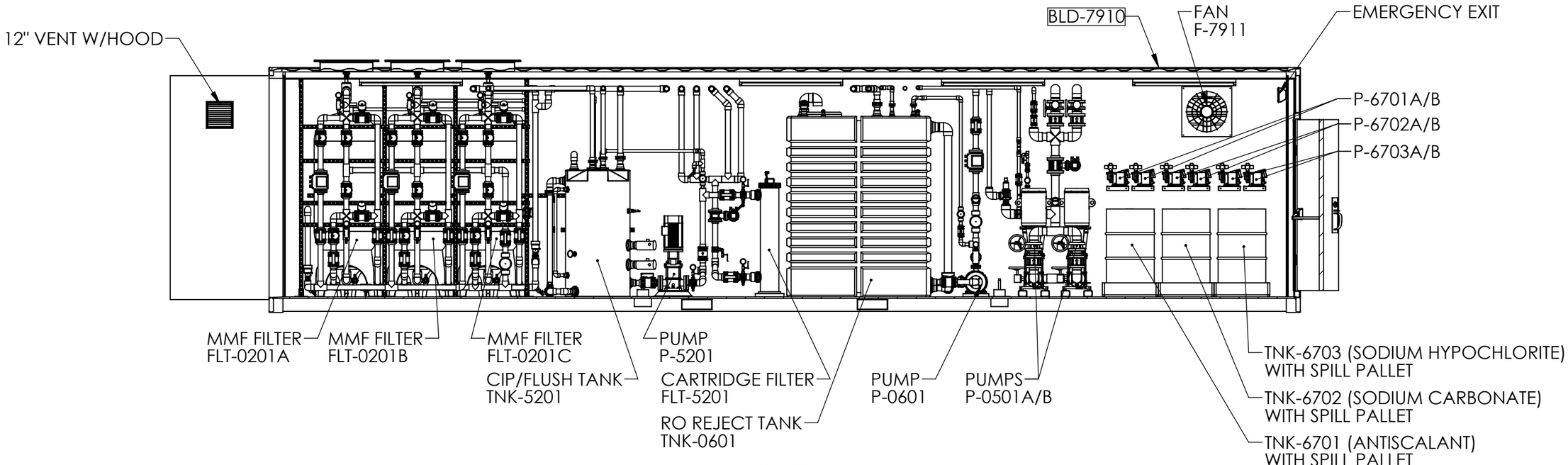
SECTION A-A

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REVISION LEVEL: A-01	REVISED BY: OM	REVISED ON: 25/02/2026	PROJECT TITLE: B2Gold Black River Mine, Salt Water RO PWTP
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			PROJECT NUMBER: 2509249



SECTION B-B
SCALE 1 : 50



SECTION C-C
SCALE 1 : 50
(ROTATED 180°)

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STATUS: For Review

REVISION LEVEL:	REVISED BY:	REVISED ON: (dd/mm/yyyy)
A-01	OM	25/02/2026

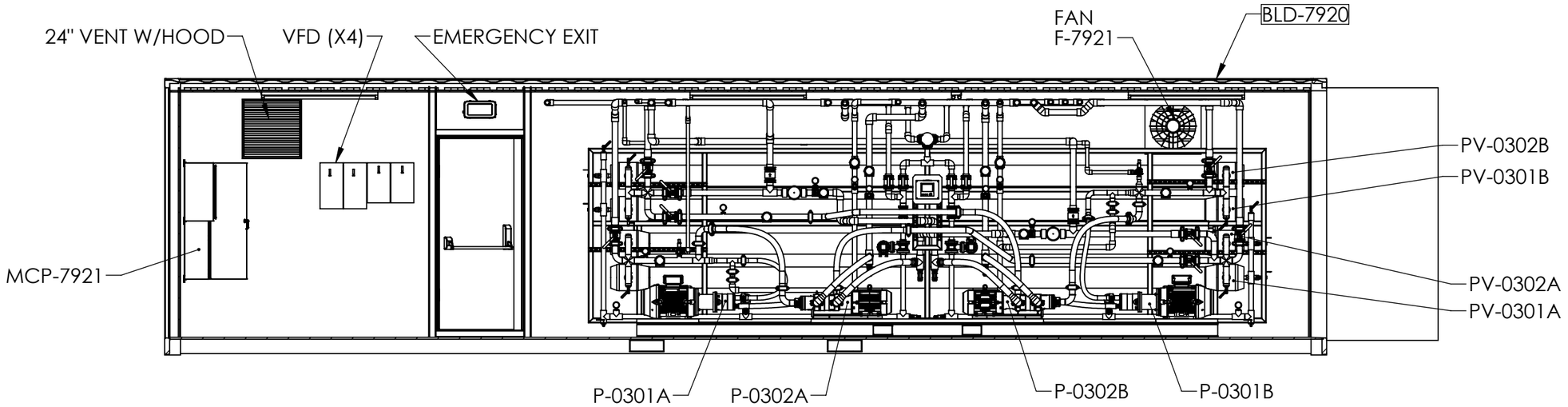
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DRAWING TITLE: System Layout Drawing

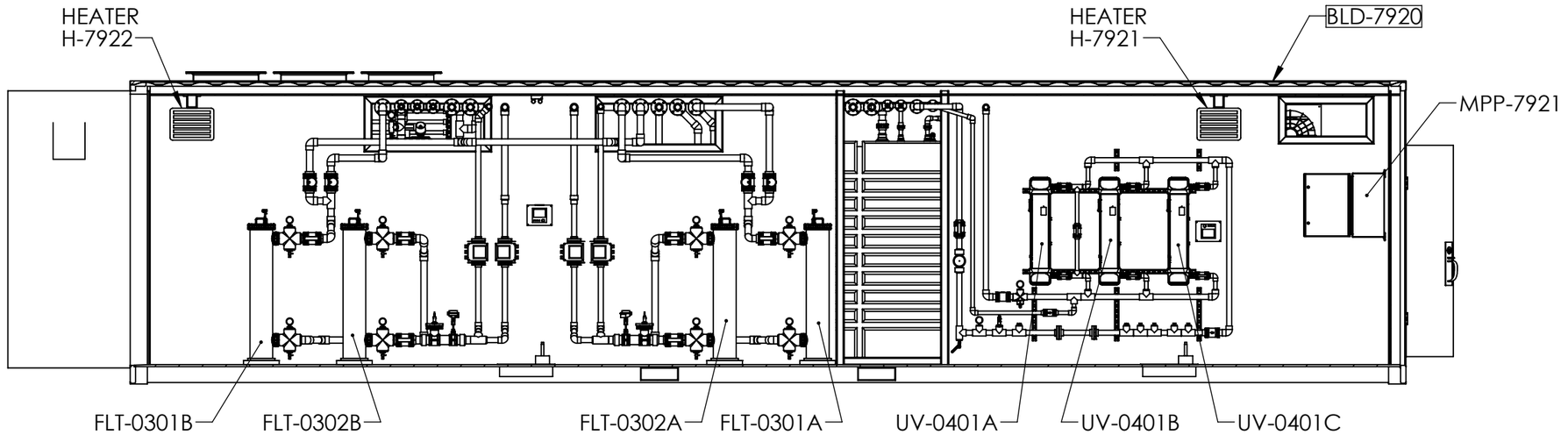
PROJECT TITLE: B2Gold Black River Mine, Salt Water RO PWTP

CUSTOMER: Nahanni Construction

PROJECT NUMBER: 2509249



SECTION D-D
SCALE 1 : 50



SECTION E-E
SCALE 1 : 50
(ROTATED 180°)

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STATUS: For Review

REVISION LEVEL:	REVISED BY:	REVISED ON: (dd/mm/yyyy)
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DRAWING TITLE: System Layout Drawing

PROJECT TITLE: B2Gold Black River Mine, Salt Water RO PWTP

CUSTOMER: Nahanni Construction

PROJECT NUMBER: 2509249

STRUCTURAL GENERAL NOTES

1. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS, EQUIPMENT LOCATIONS, SUPPORT LOCATIONS, AND DETAILS SHOWN ON THE STRUCTURAL DRAWINGS FOR COMPATIBILITY WITH THE EQUIPMENT SUPPLIER'S REQUIREMENTS, SITE CONDITIONS, AND OTHER CONSULTANTS' DRAWINGS PRIOR TO COMMENCING WORK. ANY DISCREPANCIES SHALL BE REPORTED TO THE STRUCTURAL ENGINEER PRIOR TO CONSTRUCTION.
2. THE CONTRACTOR SHALL INFORM THE STRUCTURAL ENGINEER OF RECORD (EOR) OF ANY DISCREPANCIES, OMISSIONS, OR VARIATIONS BETWEEN THE DRAWINGS, SPECIFICATIONS, EQUIPMENT INFORMATION, AND ACTUAL SITE CONDITIONS PRIOR TO PROCEEDING WITH THE AFFECTED WORK.
3. NO STRUCTURAL MODIFICATIONS, SUBSTITUTIONS, OR DEVIATIONS FROM THESE DRAWINGS SHALL BE MADE WITHOUT PRIOR WRITTEN ACCEPTANCE BY THE STRUCTURAL ENGINEER.
4. ALL WORK SHALL COMPLY WITH THE APPLICABLE BUILDING CODES, STANDARDS, REGULATIONS, PROJECT REQUIREMENTS, AND SITE SAFETY REQUIREMENTS.
5. DIMENSIONS AND EQUIPMENT INFORMATION SHOWN ON THESE DRAWINGS ARE BASED ON INFORMATION PROVIDED BY THE CLIENT AND/OR EQUIPMENT SUPPLIERS. THE CONTRACTOR SHALL VERIFY ALL EQUIPMENT DIMENSIONS AND SUPPORT LOCATIONS PRIOR TO CONSTRUCTION.
6. ELEMENT CONSULTING ENGINEERS LTD. IS RESPONSIBLE ONLY FOR THE STRUCTURAL ITEMS SPECIFICALLY SHOWN AND DETAILED ON THESE DRAWINGS.
7. DO NOT USE THESE DRAWINGS FOR CONSTRUCTION UNLESS MARKED "ISSUED FOR CONSTRUCTION" IN THE DRAWING REVISION TABLE OR OTHERWISE AUTHORIZED IN WRITING BY ELEMENT CONSULTING ENGINEERS LTD.
8. PRIOR TO COMMENCING CONSTRUCTION, THE CONTRACTOR SHALL CONFIRM THAT THE LATEST ISSUED REVISION OF THE STRUCTURAL DRAWINGS IS BEING USED.
9. SUPERSEDED DRAWINGS SHALL NOT BE USED FOR CONSTRUCTION.
10. THE CONTRACTOR SHALL COORDINATE ALL EQUIPMENT ANCHOR BOLTS, EMBEDDED ITEMS, PENETRATIONS, CONDUITS, AND OPENINGS WITH THE FINAL EQUIPMENT SUPPLIER'S REQUIREMENTS PRIOR TO CONCRETE PLACEMENT.

INSPECTION AND TESTING

1. MATERIAL TESTING SHALL BE PERFORMED BY A QUALIFIED TESTING AGENCY IN ACCORDANCE WITH THE PROJECT REQUIREMENTS AND APPLICABLE CSA STANDARDS.
2. THE CONTRACTOR SHALL PRE-INSPECT THE WORK AND PROVIDE THE STRUCTURAL ENGINEER WITH A MINIMUM OF 24 HOURS' NOTICE FOR REQUIRED FIELD REVIEWS PRIOR TO CONCEALMENT OR CONCRETE PLACEMENT.
3. CONCRETE SAMPLING AND TESTING SHALL BE IN ACCORDANCE WITH CAN/CSA A23.2-19.
4. THE FOLLOWING ITEMS SHALL BE AVAILABLE FOR REVIEW PRIOR TO CONCRETE PLACEMENT, AS APPLICABLE:
   - SLAB DIMENSIONS AND THICKNESS;
   - REINFORCEMENT SIZE, SPACING, LOCATION, AND CLEAR COVER;
   - ANCHOR BOLTS AND OTHER EMBEDDED ITEMS;
   - EQUIPMENT SUPPORT/ANCHOR LOCATIONS; AND
   - CONFIRMATION THAT SUBGRADE, SURFACING MATERIAL, AND FOUNDATION PAD PREPARATION HAVE BEEN ACCEPTED IN ACCORDANCE WITH THE GEOTECHNICAL REQUIREMENTS.
5. REVIEW BY THE STRUCTURAL ENGINEER DOES NOT RELIEVE THE CONTRACTOR OF RESPONSIBILITY FOR CONSTRUCTION METHODS, QUALITY CONTROL, DIMENSIONAL ACCURACY, OR COMPLIANCE WITH THE CONTRACT DOCUMENTS.
6. GEOTECHNICAL SUBGRADE, FILL PLACEMENT, COMPACTION, AND FOUNDATION PAD ACCEPTANCE ARE OUTSIDE THE STRUCTURAL ENGINEER'S SCOPE UNLESS SPECIFICALLY NOTED OTHERWISE.

STRUCTURAL DESIGN

1. THE STRUCTURAL WORK SHOWN ON THESE DRAWINGS HAS BEEN DESIGNED IN ACCORDANCE WITH THE APPLICABLE REQUIREMENTS OF:
   - NATIONAL BUILDING CODE OF CANADA 2020;
   - CAN/CSA A23.1-19 — CONCRETE MATERIALS AND METHODS OF CONCRETE CONSTRUCTION;
   - CAN/CSA A23.2-19 — TEST METHODS AND STANDARD PRACTICES FOR CONCRETE; AND
   - CAN/CSA A23.3-19 — DESIGN OF CONCRETE STRUCTURES.
2. EQUIPMENT WEIGHTS USED AS THE BASIS OF DESIGN ARE AS FOLLOWS:
   PDC: APPROX. 14,000 lb (6,350 kg) TOTAL UNIT WEIGHT;
   WWTP: 12,880 kg MAXIMUM PER UNIT, 5 UNITS;
   DESAL: 10,890 kg MAXIMUM PER UNIT, 2 UNITS.
3. THE ABOVE EQUIPMENT WEIGHTS SHALL BE CONFIRMED BY THE EQUIPMENT SUPPLIER PRIOR TO INSTALLATION.
4. FINAL EQUIPMENT SUPPORT CONFIGURATIONS, SKID/RAIL LOCATIONS, CONCENTRATED SUPPORT REACTIONS, AND ANCHORAGE LOADS SHALL BE SUBMITTED TO ELEMENT CONSULTING ENGINEERS LTD. FOR REVIEW PRIOR TO EQUIPMENT INSTALLATION.
5. EQUIPMENT SHALL NOT BE INSTALLED WHERE THE FINAL SUPPORT ARRANGEMENT OR LOADS EXCEED THE DESIGN BASIS SHOWN ON THESE DRAWINGS WITHOUT PRIOR STRUCTURAL REVIEW.

FOUNDATIONS AND SLAB ON GRADE

1. THE SITE IS LOCATED WITHIN A REGION OF CONTINUOUS PERMAFROST. FOUNDATION AND PAD CONSTRUCTION SHALL BE CARRIED OUT IN ACCORDANCE WITH THE PROJECT GEOTECHNICAL REPORTS AND SPECIFICATIONS.
2. FOUNDATION SUBGRADE, RUN-OF-QUARRY (ROQ) ROCK FILL, SURFACING MATERIAL, FILL PLACEMENT, AND COMPACTION SHALL CONFORM TO THE GEOTECHNICAL REQUIREMENTS.
3. PROVIDE A MINIMUM 150 mm THICK COMPACTED SURFACING LAYER BELOW THE CONCRETE SLAB OVER THE COMPACTED ROQ ROCK FILL PAD, UNLESS NOTED OTHERWISE.
4. ROQ PAD THICKNESS, PREPARATION, PLACEMENT, AND COMPACTION SHALL BE IN ACCORDANCE WITH THE GEOTECHNICAL REQUIREMENTS.
5. THE CONTRACTOR SHALL NOT SUBSTITUTE FOUNDATION PAD MATERIALS OR MODIFY PAD THICKNESSES WITHOUT ACCEPTANCE BY THE GEOTECHNICAL ENGINEER.
6. THE GEOTECHNICAL ENGINEER SHALL CONFIRM THAT THE FOUNDATION PAD AND SUBGRADE ARE SUITABLE PRIOR TO CONCRETE PLACEMENT, WHERE REQUIRED BY THE PROJECT QUALITY CONTROL/QUALITY ASSURANCE PROGRAM.
7. THE FOUNDATION SYSTEM SHALL BE CONSTRUCTED TO MINIMIZE THAW OR DEGRADATION OF THE UNDERLYING PERMAFROST.
8. PROVIDE POSITIVE DRAINAGE AWAY FROM ALL SLABS AND FOUNDATION PADS. WATER SHALL NOT BE ALLOWED TO POND ADJACENT TO OR BENEATH THE SLABS.
9. WHERE THE EQUIPMENT OR ENCLOSURE IS HEATED, THE GEOTECHNICAL ENGINEER SHALL CONFIRM THE REQUIRED FOUNDATION AND THERMAL PROTECTION SYSTEM PRIOR TO CONSTRUCTION.
10. FOUNDATIONS ARE DESIGNED FOR A BEARING CAPACITY OF 200kPa (4177psf).

CONCRETE AND REINFORCING STEEL NOTES:

1. ALL CONCRETE SHALL CONFORM TO CAN/CSA A23.1-19.
2. CONCRETE FOR EXTERIOR SLABS-ON-GRADE SHALL HAVE:
   - MINIMUM SPECIFIED 28-DAY COMPRESSIVE STRENGTH: 35 MPa;
   - MAXIMUM WATER-TO-CEMENTING MATERIALS RATIO: 0.45;
   - AIR ENTRAINMENT IN ACCORDANCE WITH CAN/CSA A23.1 FOR THE SPECIFIED EXPOSURE CLASS; AND
   - NORMAL-WEIGHT AGGREGATE SUITABLE FOR THE INTENDED EXPOSURE..
3. CONCRETE EXPOSURE CLASS SHALL BE F-2, UNLESS NOTED OTHERWISE OR A MORE SEVERE EXPOSURE CLASS IS REQUIRED BY THE PROJECT SPECIFICATIONS.
4. NOMINAL MAXIMUM AGGREGATE SIZE SHALL BE 20 mm (3/4 in.), UNLESS OTHERWISE ACCEPTED.
5. ALL REINFORCING STEEL SHALL CONFORM TO CSA G30.18, GRADE 400W, UNLESS NOTED OTHERWISE.
6. PROVIDE 75 mm [3"] MINIMUM CLEAR CONCRETE COVER TO ALL REINFORCEMENT IN SLABS-ON-GRADE, UNLESS NOTED OTHERWISE.
7. REINFORCEMENT SHALL BE SECURELY SUPPORTED ON APPROVED CHAIRS OR SUPPORTS TO MAINTAIN THE SPECIFIED LOCATION AND CLEAR COVER DURING CONCRETE PLACEMENT.
8. REINFORCEMENT SHALL NOT BE LIFTED OR PULLED INTO POSITION DURING OR AFTER CONCRETE PLACEMENT.
9. 20M REINFORCING BAR LAP SPLICES: 800 mm [32"] MIN.
10. ALL CONSTRUCTION JOINTS, SAW-CUT CONTROL JOINTS, AND POUR BREAKS SHALL BE LOCATED AS SHOWN ON THE DRAWINGS OR APPROVED BY THE STRUCTURAL ENGINEER PRIOR TO CONCRETE PLACEMENT.
11. NO UNAPPROVED CONSTRUCTION JOINTS SHALL BE INTRODUCED.
12. HOT- AND COLD-WEATHER CONCRETING SHALL BE IN ACCORDANCE WITH CAN/CSA A23.1.
13. CONCRETE SHALL NOT BE PLACED ON FROZEN, SNOW-COVERED, ICE-COVERED, DISTURBED, OR UNSUITABLE SUBGRADE OR SURFACING MATERIAL.
14. THE CONTRACTOR SHALL PROTECT FRESH CONCRETE FROM FREEZING AND MAINTAIN THE REQUIRED CURING TEMPERATURE AND CURING PERIOD IN ACCORDANCE WITH CAN/CSA A23.1.
15. FORMWORK DESIGN, CONSTRUCTION, BRACING, AND REMOVAL ARE THE RESPONSIBILITY OF THE CONTRACTOR. FORMWORK SHALL HAVE SUFFICIENT STRENGTH AND STIFFNESS TO MAINTAIN THE REQUIRED DIMENSIONS, ALIGNMENT, AND ELEVATIONS.

ANCHOR BOLTS AND EMBEDDED ITEMS:

1. EQUIPMENT ANCHORS SHALL BE LOCATED IN ACCORDANCE WITH THE FINAL APPROVED EQUIPMENT SUPPLIER'S DRAWINGS AND STRUCTURAL DETAILS.
2. ALL CAST-IN ANCHOR BOLTS SHALL BE INSTALLED USING A RIGID TEMPLATE AND SECURELY HELD IN POSITION DURING CONCRETE PLACEMENT.
3. ANCHOR BOLT DIAMETER, MATERIAL, EMBEDMENT, EDGE DISTANCE, SPACING, PROJECTION, AND ANCHORAGE SHALL BE AS SHOWN ON THE STRUCTURAL DRAWINGS.
4. FIELD DRILLING, CUTTING, RELOCATING, OR MODIFYING ANCHOR BOLTS SHALL NOT BE PERMITTED WITHOUT PRIOR ACCEPTANCE BY THE STRUCTURAL ENGINEER.
5. POST-INSTALLED ANCHORS, IF REQUIRED, SHALL BE INSTALLED IN ACCORDANCE WITH THE SPECIFIED MANUFACTURER'S REQUIREMENTS AND THE STRUCTURAL DETAILS.

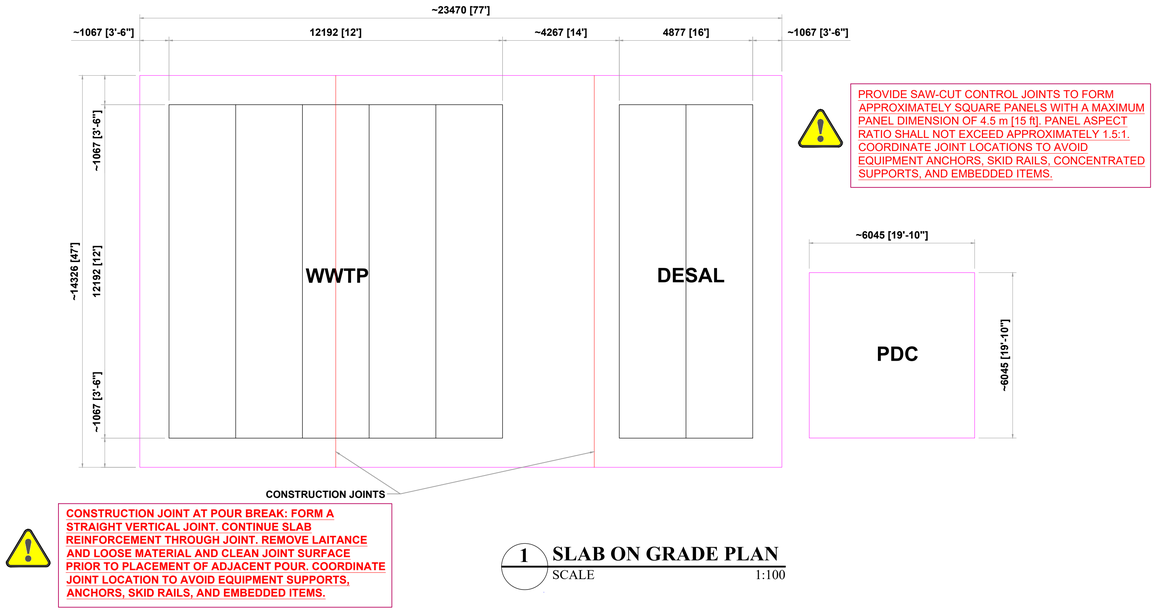
NOTE:
- THE STRUCTURAL DESIGN OF THE SLABS-ON-GRADEs DOES NOT INCLUDE FORCES OR DEFORMATIONS RESULTING FROM DIFFERENTIAL SETTLEMENT OR MOVEMENT OF THE SUPPORTING SUBGRADE OR FOUNDATION PAD.

- FINAL EQUIPMENT SUPPORT LOCATIONS, SKID/RAIL CONFIGURATIONS, CONCENTRATED SUPPORT REACTIONS, AND ANCHORAGE LOADS SHALL BE SUBMITTED TO ELEMENT CONSULTING ENGINEERS LTD. FOR REVIEW PRIOR TO EQUIPMENT INSTALLATION.

- THE OWNER/CONTRACTOR SHALL CONFIRM WHETHER THE PDC, WWTP, AND DESAL EQUIPMENT OR ASSOCIATED ENCLOSURES ARE HEATED OR OTHERWISE TRANSFER SIGNIFICANT HEAT TO THE FOUNDATION. WHERE HEAT TRANSFER MAY AFFECT THE UNDERLYING PERMAFROST, THE REQUIRED FOUNDATION AND THERMAL PROTECTION SYSTEM SHALL BE CONFIRMED BY THE GEOTECHNICAL ENGINEER PRIOR TO CONSTRUCTION.

- PROVIDE POSITIVE DRAINAGE AWAY FROM ALL SLABS AND FOUNDATION PADS. WATER SHALL NOT BE ALLOWED TO POND ADJACENT TO OR BENEATH THE SLABS.

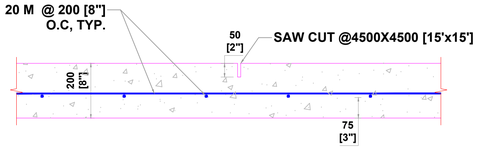
- EQUIPMENT-SPECIFIC SLAB FLATNESS, LEVELNESS, SURFACE FINISH, AND INSTALLATION TOLERANCES SHALL BE CONFIRMED WITH THE EQUIPMENT SUPPLIER UNLESS SPECIFICALLY SHOWN ON THE STRUCTURAL DRAWINGS.



PROVIDE SAW-CUT CONTROL JOINTS TO FORM APPROXIMATELY SQUARE PANELS WITH A MAXIMUM PANEL DIMENSION OF 4.5 m [15 ft]. PANEL ASPECT RATIO SHALL NOT EXCEED APPROXIMATELY 1.5:1. COORDINATE JOINT LOCATIONS TO AVOID EQUIPMENT ANCHORS, SKID RAILS, CONCENTRATED SUPPORTS, AND EMBEDDED ITEMS.

CONSTRUCTION JOINT AT POUR BREAK: FORM A STRAIGHT VERTICAL JOINT. CONTINUE SLAB REINFORCEMENT THROUGH JOINT. REMOVE LAITANCE AND LOOSE MATERIAL AND CLEAN JOINT SURFACE PRIOR TO PLACEMENT OF ADJACENT POUR. COORDINATE JOINT LOCATION TO AVOID EQUIPMENT SUPPORTS, ANCHORS, SKID RAILS, AND EMBEDDED ITEMS.

1 SLAB ON GRADE PLAN
SCALE 1:100



2 SLAB ON GRADE TYPICAL SECTION
SCALE 1:10

PERMIT TO PRACTICE
ELEMENT CONSULTING ENGINEERS LTD.
Signature _____
Date _____
PERMIT NUMBER: P 1790
NT/NU Association of Professional Engineers and Geoscientists

PERMIT NUMBER: P 1790

NAHANNI NUNAVUT CONSTRUCTION LTD.

Revision - 2			
Revision - 1	RE-ISSUED FOR REVIEW	MAS	09/02/2026
Revision - 0	ISSUED FOR REVIEW	MAS	09/02/2026

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			By	Date
Client	NAHANNI CONSTRUCTION LTD.	Drawn	-	09/01/2026
Project	MLA CONC SLAB DSGN	Checked	MAS	09/01/2026
Subject	GENERAL NOTES SLAB ON GRADE PLAN AND SECTION			
Location	GOOSE MINE SITE, NU			
Scale	AS SHOWN	Project No. SD2439	Drwg. No. SD-1	

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