January 19th 2017

Karen Kharatyan
Manager of Licensing
Nunavut Water Board
P.O. Box 119
Gjoa Haven, NU
X0B 1J0

Re: Water License 2AM-MEL1631 Part D, Items 1&2 - Submission of Final Design and Construction Drawings for the Sewage Treatment Plant

Mr. Kharatyan,

Agnico Eagle Mines Limited is developing the Meliadine Project, a gold mine located approximately 25 km north from Rankin Inlet, and 80 km southwest from Chesterfield Inlet in the Kivalliq Region of Nunavut. Situated on the western shore of Hudson Bay, the Project site is located on a peninsula between the east, south, and west basins of Meliadine Lake (63°1'23.8'' N, 92°13'6.42"W) on Inuit Owned Land.

Facilities that are planned to be constructed for the operation of the future Meliadine Mine include a mill, power plant, maintenance facilities, tank farm for fuel storage, water treatment plant, sewage treatment plant, and accommodation and kitchen facilities for 520 people.

In accordance with Water License 2AM-MEL1631, Part D, Items 1 and 2, please find enclosed with this letter, a copy of the final design and construction drawings for the Sewage Treatment Plant.

Should you have any questions regarding this submission, please contact me.

Regards,

Agnico Eagle Mines Limited – Meliadine Division

Manon Turmel
manon.turmel@agnicoeagle.com
819-759-3555 x8025
Environmental Compliance Counselor

cc: *Ian Parsons, Indigenous and Northern Affairs Canada*
Luis Manzo, Kivalliq Inuit Association

Meliadine Sewage Treatment Plant

30-Day Notice to Nunavut Water Board
In Accordance with Water License 2AM-MEL1631 (Part D, item 1)

Prepared by:
Agnico Eagle Mines Limited – Meliadine Division

January 2017

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1 INTRODUCTION

1.1 SITE LOCATION AND ACCESS

Agnico Eagle Mines Limited (Agnico Eagle) is developing the Meliadine Project (the Project), a gold mine located approximately 25 km north from Rankin Inlet, and 80 km southwest from Chesterfield Inlet in the Kivalliq Region of Nunavut. Situated on the western shore of Hudson Bay, the Project site is located on a peninsula between the east, south, and west basins of Meliadine Lake (63°1'23.8'' N, 92°13'6.42"W) on Inuit Owned Land.

The area is accessible from the all-weather gravel road linking the existing exploration camp with Rankin Inlet.

1.2 EXISTING AND FUTURE SITE FACILITIES

Current facilities at the Meliadine Project site include the exploration camp located on the shore of Meliadine Lake, approximately 3.5 km south-east of the future accommodations. The self-contained exploration camp consists of four wings of new trailers that can accommodate up to 200 people and includes kitchen facilities, complete with diesel generators. Power for the exploration camp is currently provided by diesel generators. Potable water for the exploration camp is pumped from Meliadine Lake.

Facilities that are planned to be constructed for the operation of the future Meliadine Mine include a mill, power plant, maintenance facilities, tank farm for fuel storage, water treatment plant, sewage treatment plant, and accommodation and kitchen facilities for 520 people.

The Nunavut Water Board (NWB) has issued Type A Water License 2AM-MEL1631 to Agnico Eagle Mines Limited (Agnico Eagle) for the Meliadine Gold Project site authorizing the use of water and the disposal of waste required by mining and milling and associated uses.

This report includes the final design and construction drawings for the sewage treatment plant (STP), as specified under Water License 2AM-MEL1631 Part D, Item 1.

Figure 1 shows the location of the future STP and pipeline to CP1 for final discharge.

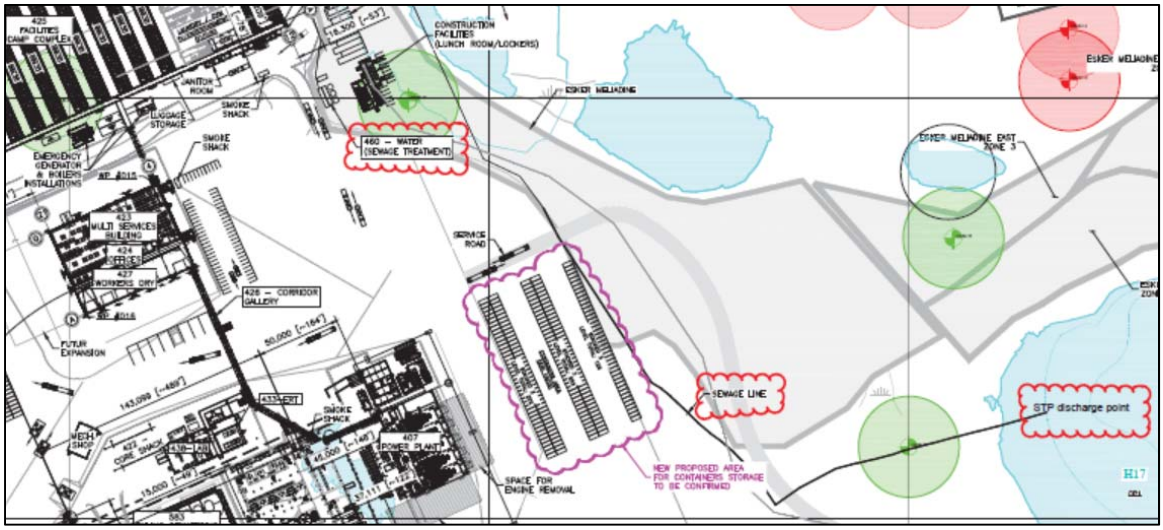


Figure 1 **–Location of Meliadine STP and effluent pipeline to CP1 (former dewatered Pond H17)**

2 DESIGN

2.1 WATER MANAGEMENT STRATEGY

Sewage will be collected from the new facilities and pumped to the new STP. In addition to the sewage generated from the buildings connected to this STP, a sewage vacuum truck will collect sewage from storage tanks at different temporary or remote buildings such as the emulsion plant, the paste plant, the crusher building, the portal #1 and construction offices. This material will be directly deposited into in the STP equalization tanks.

The objective of the STP is to treat sewage to an acceptable level for discharge to CP1 via a sewage water discharge pipeline. The STP is housed in a prefabricated (modular) structure, located on the east side of the industrial pad (Figure 1). The sewage treatment system is designed for a maximum daily flow rate of 216 m³ and a peak hour flow of 106 m^3, and an average Biological Oxygen Demand (BOD) in the influent of 200-360 mg/L.

The treated sewage from the STP will be pumped through a heat traced insulated pipeline to CP1 pond which is designed to receive all the surface contact waters on site. This water is pumped to the final effluent treatment plant for TSS control prior to discharge into Meliadine Lake.

The composition of the sewage and grey water entering the plant and the composition water exiting the units will be monitored on a regular basis to determine plant efficiencies.

Sewage sludge removed from the STP will be added to the landfarm as nutrient amendment on an as needed basis. Excess sludge will be disposed of in the Tailings Storage Facility (TSF) or shipped south for disposal.

2.2 DESCRIPTION OF SEWAGE TREATMENT SYSTEM

The STP relies on bacterial activity. The process is composed of five (5) steps described below: screening and flow equalization, aerobic biological treatment, membrane filtration, ultraviolet disinfection, and sludge handling. The flow diagram is available in Appendix B.

2.2.1 Screening and Flow Equalization

Influent wastewater is pumped to the two (2) aerated equalization tanks. The equalization system is able to manage a variation in flows. It provides raw wastewater storage of up to 50% of the design flow to store feed during high flow periods and to ensure feed supplementation during low flow periods. It provides a stable and consistent raw feed for the downstream processes. Equalized water is pumped via two (2) equalization pumps into a standpipe inside the second tank and flows from that pipe by gravity to the fine screens. The fine screens are rotary drum screens with 2 mm perforated plate openings that operate continuously. The screens will ensure the removal of large debris to protect downstream equipment. Pressurized wash water is used intermittently to clean the screens and screenings.

2.2.2 Aerobic Biological Treatment

Screened raw water falls by gravity from the screens into the sump tank, where it is pumped to the aerobic tank, which is located outdoors. Aerobic biological treatment remove the organic load (measured as BOD) of the wastewater. Bacteria grown in the bioreactor remove unwanted organic pollutants to produce a treated water of high quality. Oxygen is supplied by regenerative blowers and is injected by fine bubble diffusers in the tank. The diffusers are designed for a wide range of air flows, according to the system's demand in oxygen. It keeps a dissolved oxygen concentration of at least 2 mg/L at any time to satisfy the needs of the biomass. The mixed liquor suspended solids (MLSS) overflows into a standpipe inside the tank and flows by gravity to the membrane filtration trains.

The dry bacteria product, BEC105, could be used in the treatment process to stimulate biological activity when needed.

2.2.3 Membrane Filtration System

Membrane filtration is used to separate the bacteria from the water to ensure keeping them in the process at the desired concentration. Activated sludge is returned at a constant flow rate to the aerobic tank to prevent a build-up of sludge in the membrane tank. The return activated sludge (RAS) is pumped at a higher flow rate than the design flow rate of the plant, to make sure that there is good circulation in the whole system and that there is no accumulation of solids.

The membranes are totally submerged and have a pore size of 0.4 microns, which remove all suspended solids in the effluent.

Permeation pumps are provided to suction the effluent through the membrane modules and transport it to the permeate tank. Permeation pumps are supplied with variable speed drives to overcome any changes in transmembrane pressure and achieve the design at all times.

The operating cycle for the selected modules is to suction effluent water for seven (7) minutes and to relax the membrane for one (1) minute. The cycle optimizes the long-term operation of the membrane modules. The housings are constructed with an integrated diffuser at the bottom to aerate continuously the membrane and prevent clogging and accumulation of sludge. The relaxation of the membranes allows extending the interval between cleanings (CIP or Clean-In-Place). CIP cleans are done about twice a year. Washes are performed with permeate stored in the permeate storage tank while a cleaning chemical (either sodium hypochlorite or citric acid) is added. Chemical solutions are reverse flowing through the membranes, which are soaked for a few hours after. After washing, the permeation is restarted. While a train is washing, the other train can continue to treat water and ensure a continuous production of effluent.

Once a week, a chemically enhanced backpulse (CEB) should be performed on the membrane modules with sodium hypochlorite to mitigate membrane fouling. Permeate flow is reversed to flow back into the membranes while the cleaning chemical is added inline.

2.2.4 UV Disinfection System

From the permeate pumps, each membrane bioreactor train sends permeate through an inline ultraviolet disinfection system. It is a physical process that inactivates instantaneously microorganisms. The UV system process adds no chemicals to the water, and therefore, has no impact on the chemical composition of the effluent. From here, effluent is sent to a common permeate storage tank. The permeate tank acts as a reservoir for treated water that is pumped to a discharge location. This tank can also be used for CEB and CIP process, as previously mentioned.

2.2.5 Sludge Handling System

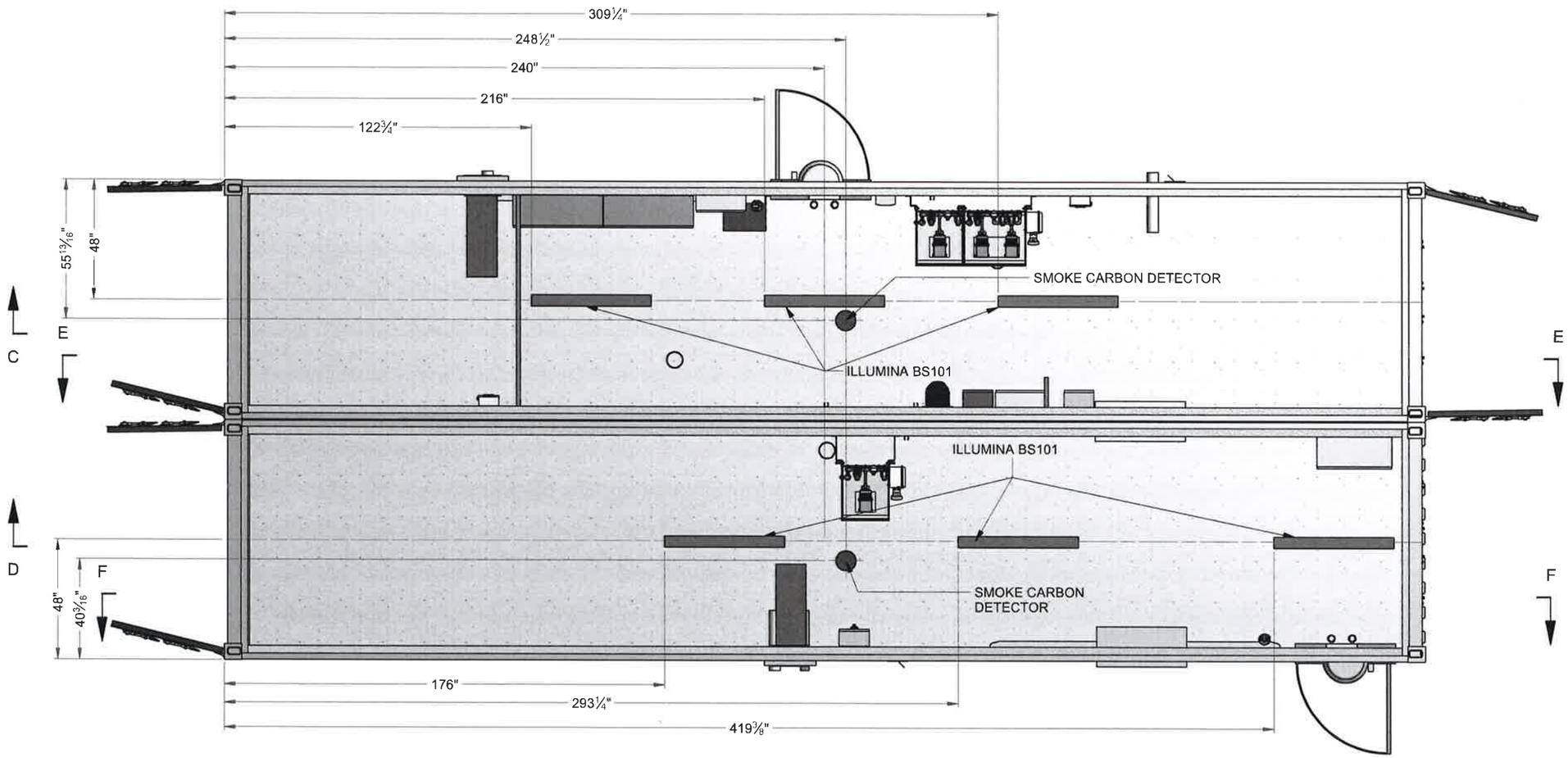
Since bacteria continue to reproduce as the consume organics and nutrients, the concentration of biomass, measured as Mixed Liquor Suspended Solids (MLSS), increases with time. Periodic sludge wasting is required to control the MLSS concentration in the bioreactor tanks.

Sludge is sent to the sludge storage tank by redirecting the flow of the RAS pump. A blower and coarse bubble diffuser system maintains an aerobic environment within the sludge tank to minimize the proliferation of odours. Periodic settling is used to facilitate the thickening of the waste activated sludge. The supernatant (upper portion of the tank) is sent back to the sump tank by opening a valve, where it will re-enter the treatment process. This operation (called decanting) reduces the volume of sludge that needs to be handled and extends the period of time that the sludge tank can be used before thickened sludge is disposed.

3 DRAWINGS AND SKETCHES

Drawings of the new STP are available in Appendix A.

Appendix A: Sewage Treatment Plant Design Drawings



TOP VIEW
ÉLECTRICAL COMPONENTS

AGNICO EAGLE — Vendor Document Status

1 ☐ Proceed to next submission and status.

2 ☐ Proceed with exceptions as noted to next submission and status.

3 ☐ Do not proceed. Revise as noted and resubmit next submission and status.

4 ☐ Complete, no further submission required.

By: Date:

Review and authorization to fabricate are only for general conformance with the design concept of the Project as expressed in the Contract Documents. Sole responsibility for the accuracy and completeness of this document, including but not limited to dimensions and quantities, remains with the Supplier/Contractor. Agnico Eagle does not warrant the accuracy or completeness of any of the information contained herein, nor does Agnico Eagle authorize or approve any construction means, methods, techniques, sequences or any safety precautions or procedures.

Agnico Eagle No. 6515-C-250-010-275-DGM-0015 R: Sub001

DOCUMENT FOR INFORMATION

REGISTERED PROFESSIONAL ENGINEER — R. DESGAGNÉ — LICENSEE — NTNU

26/10/2016

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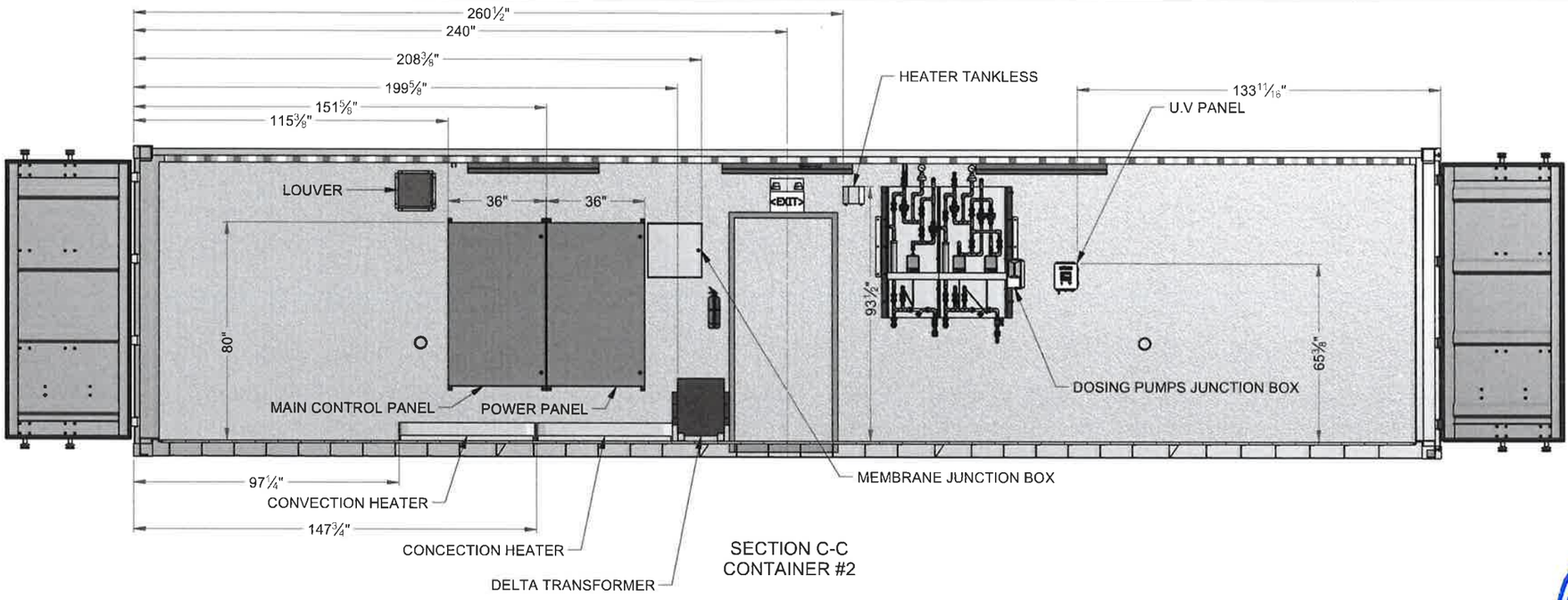

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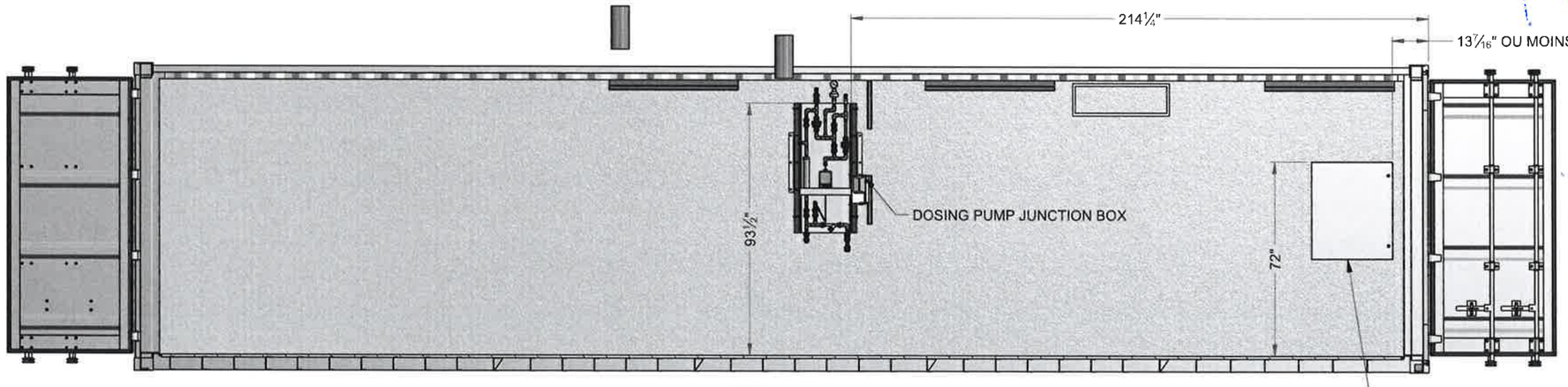

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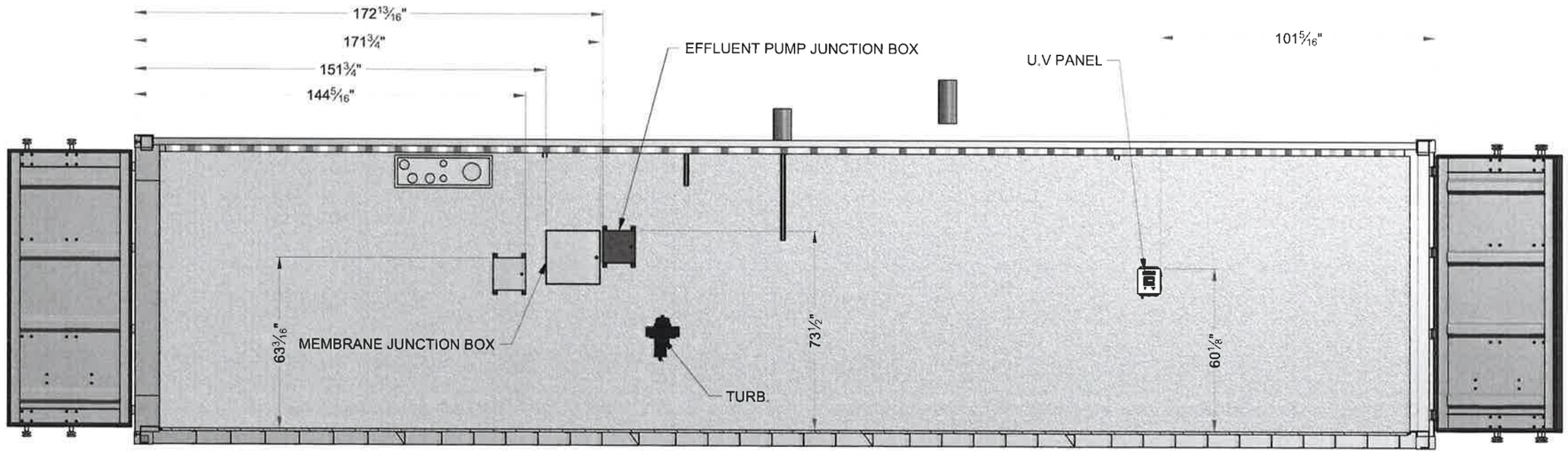

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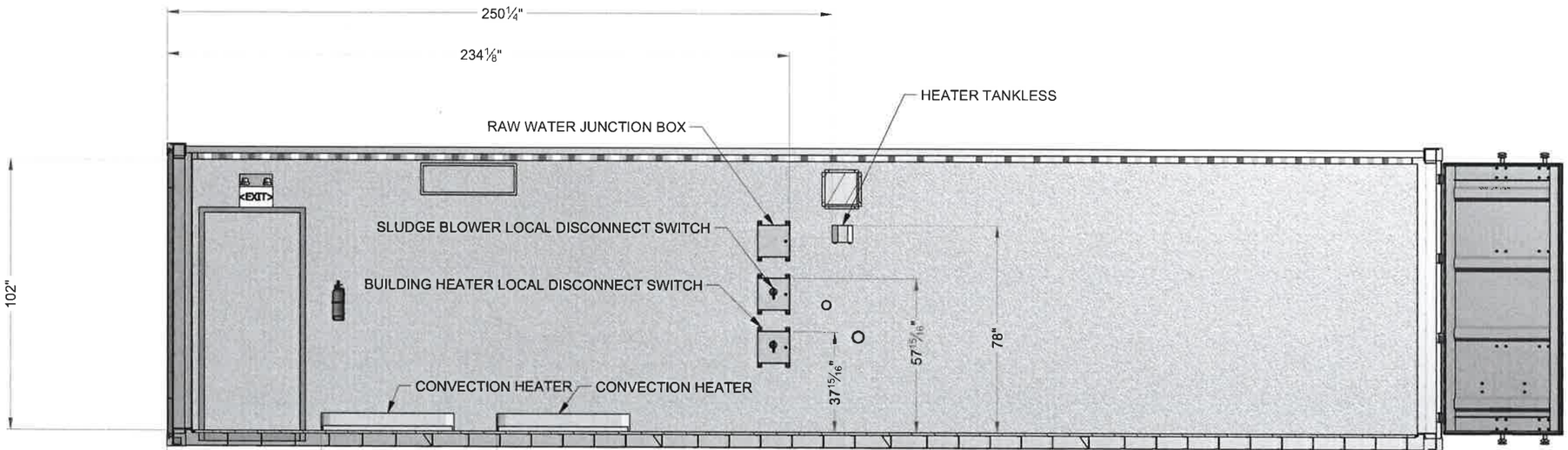

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DECIMALS .X ±0.030
.XX ±0.010
ANGLES ±0°
HOLE SIZE ±1/64"
HOLE CENTERS ±1/64"
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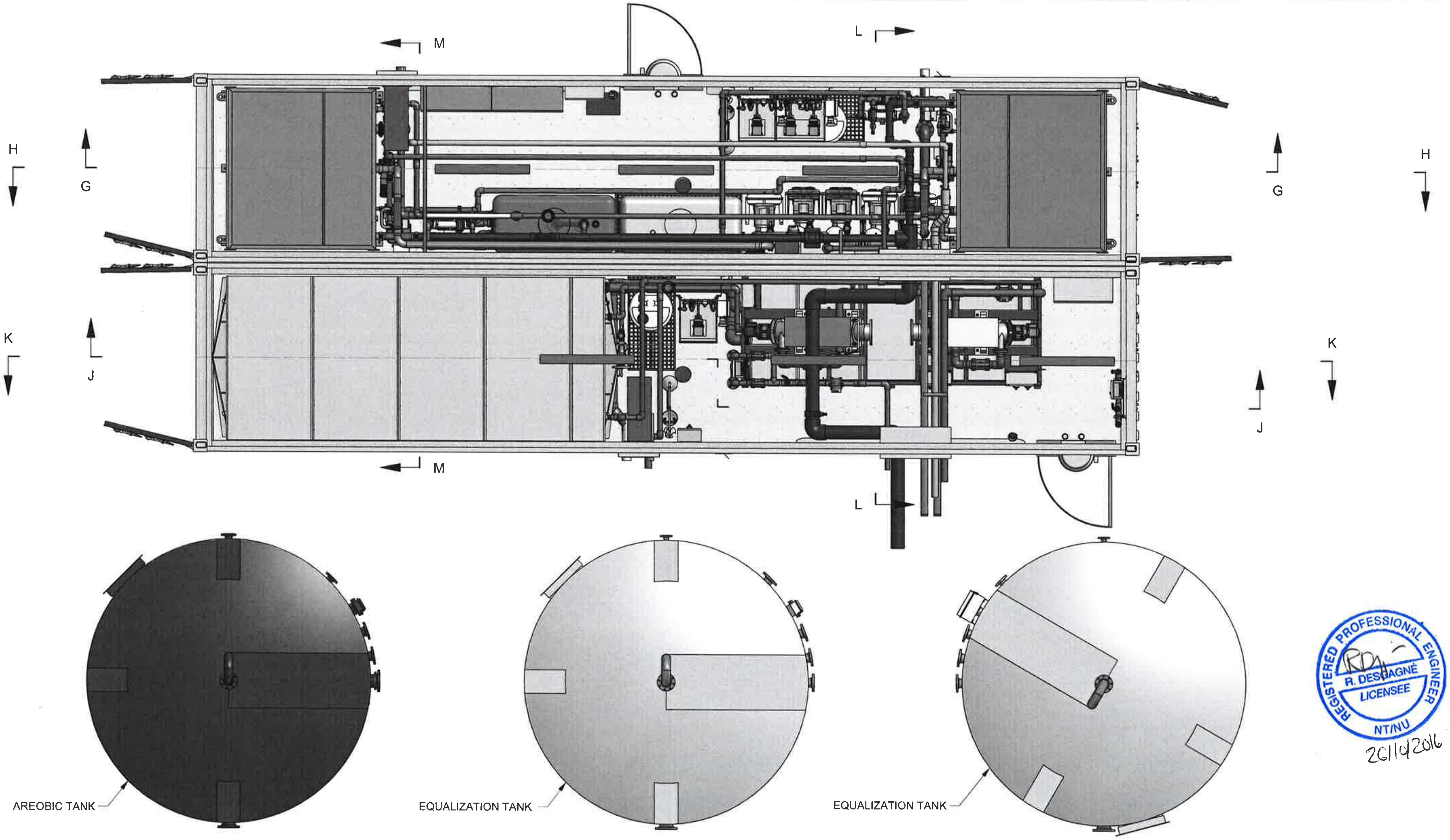

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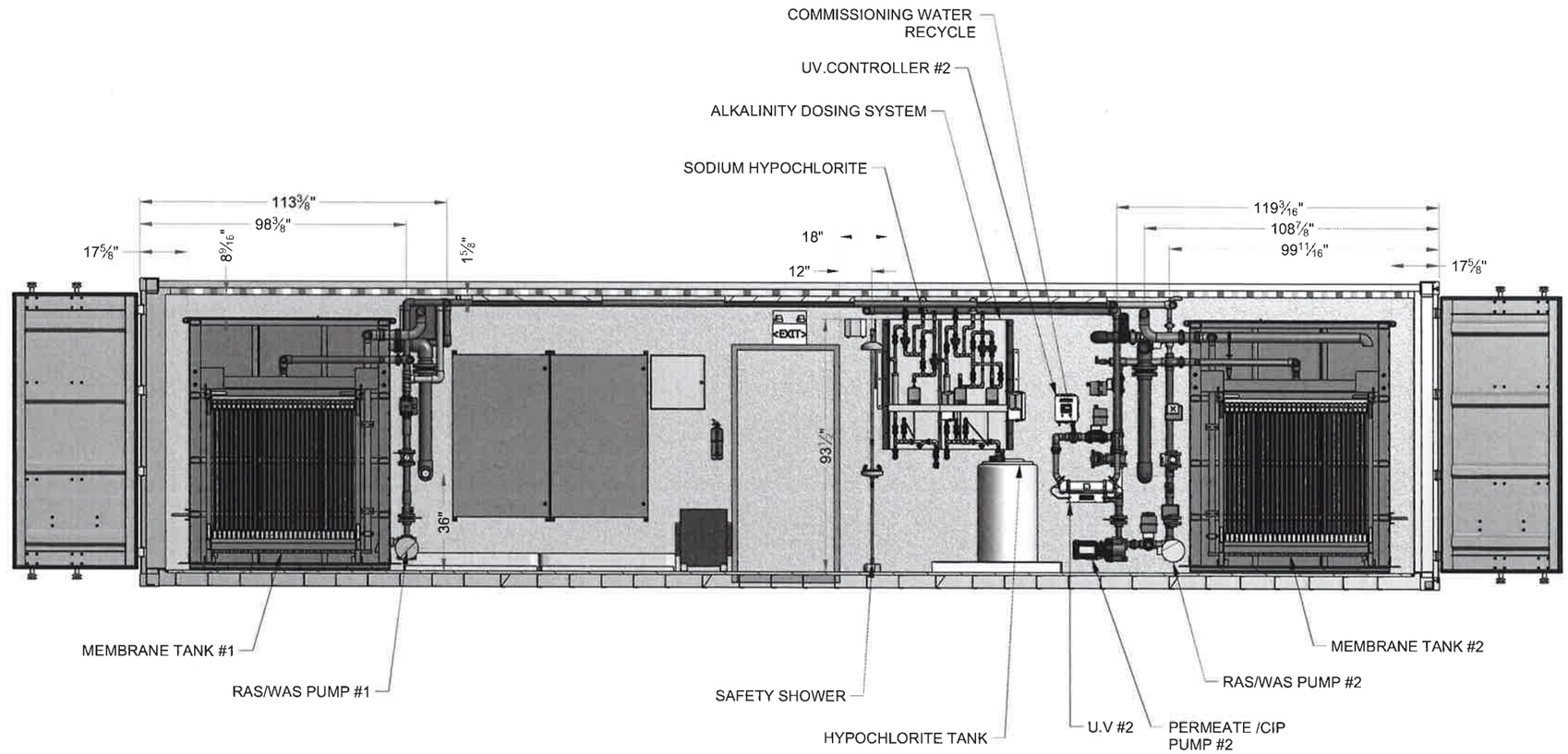

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TOLERANCES
FRACTIONS
DECIMALS X.X
X.XX
X.XXX
ANGLES
HOLE SIZES
HOLE CENTERS
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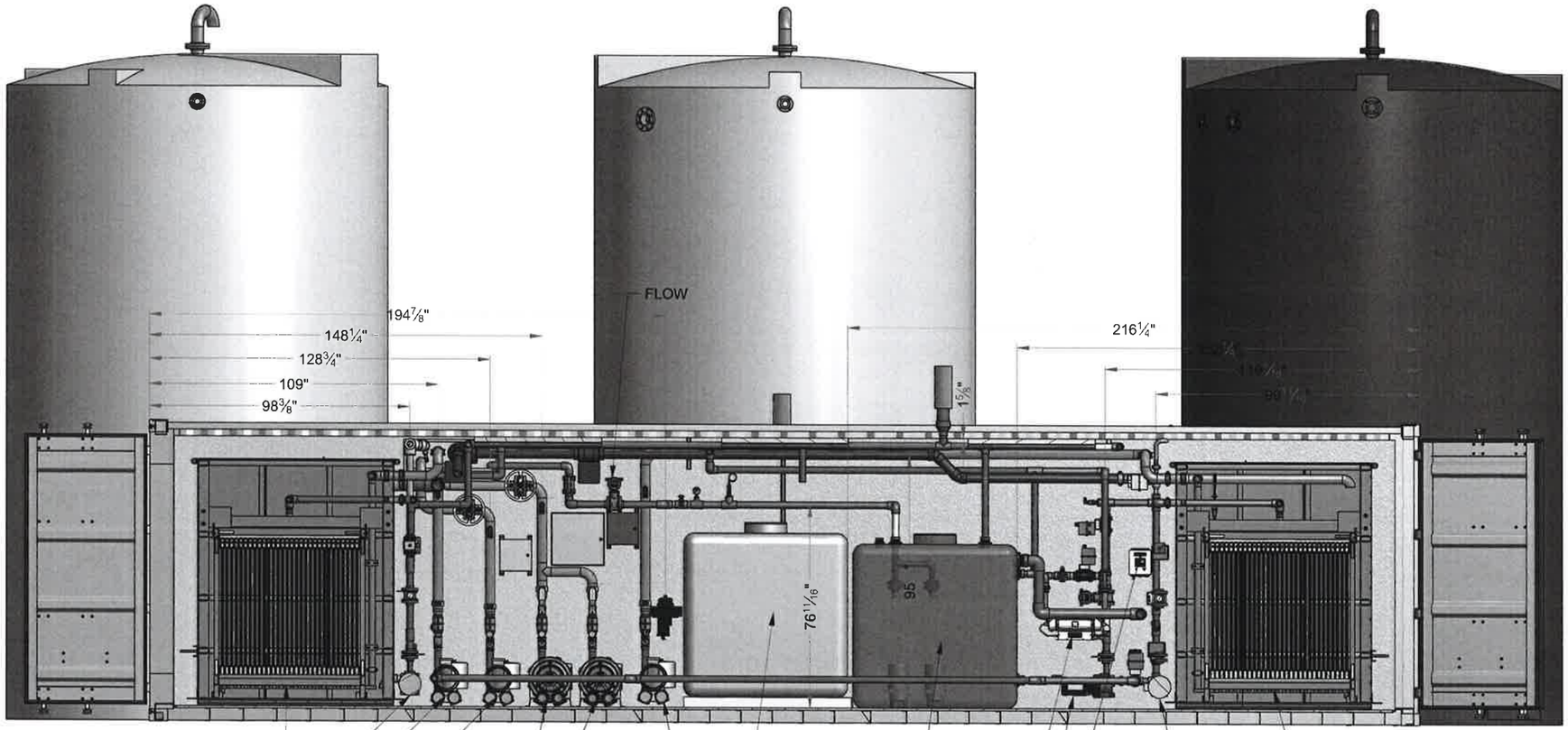

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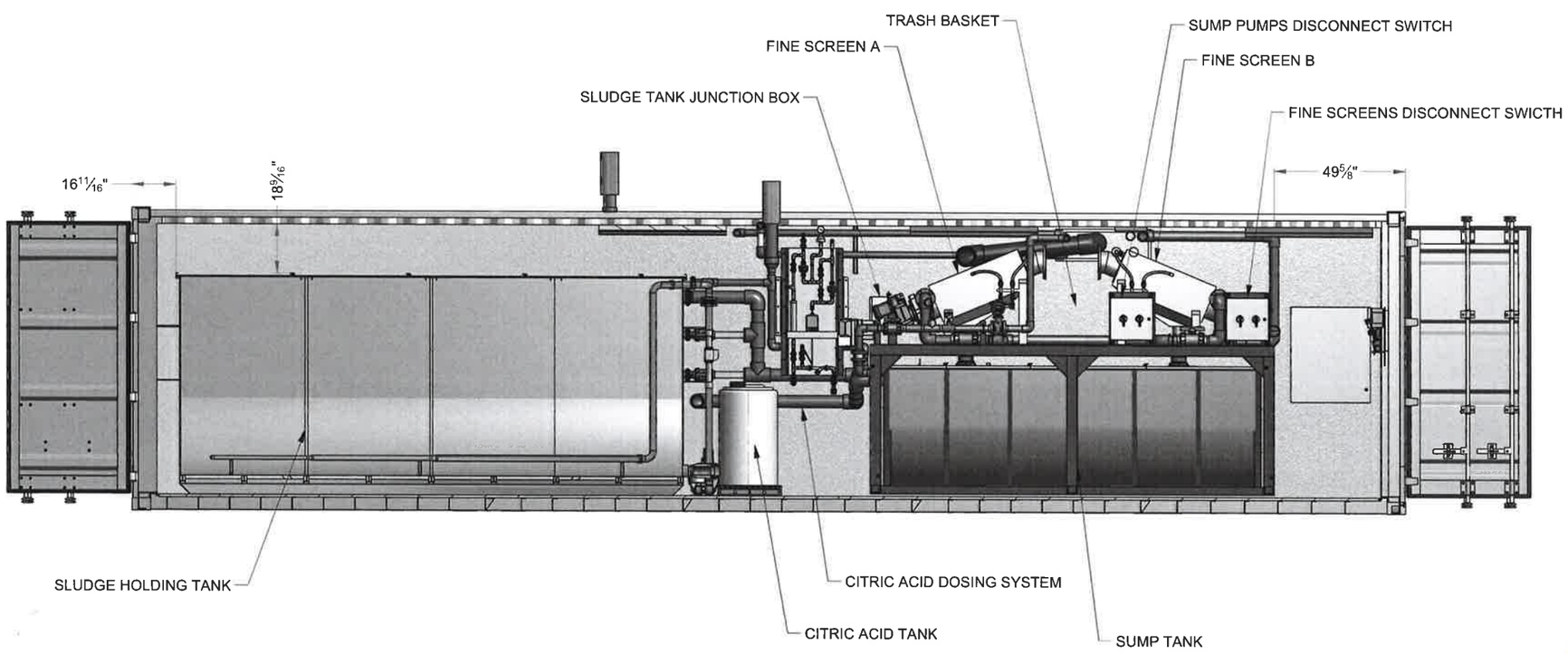

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HOLE SIZES ±.005"
HOLE CENTERS ±.010"
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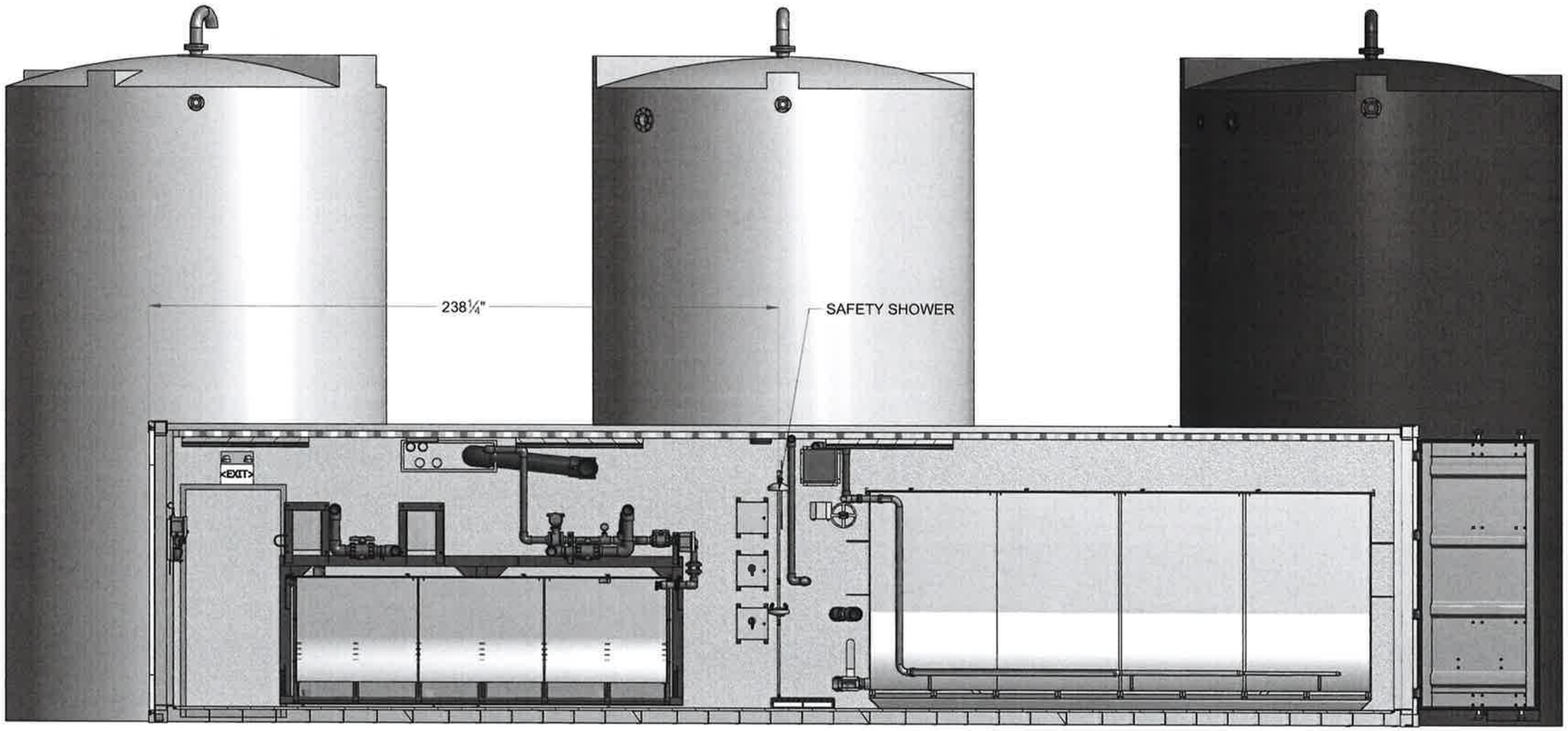

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TOLERANCES
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DECIMALS .XX ±0.010
.XXX ±0.005
ANGLES ±0.5°
HOLE SIZES ±.01
HOLE CENTERS ±.01
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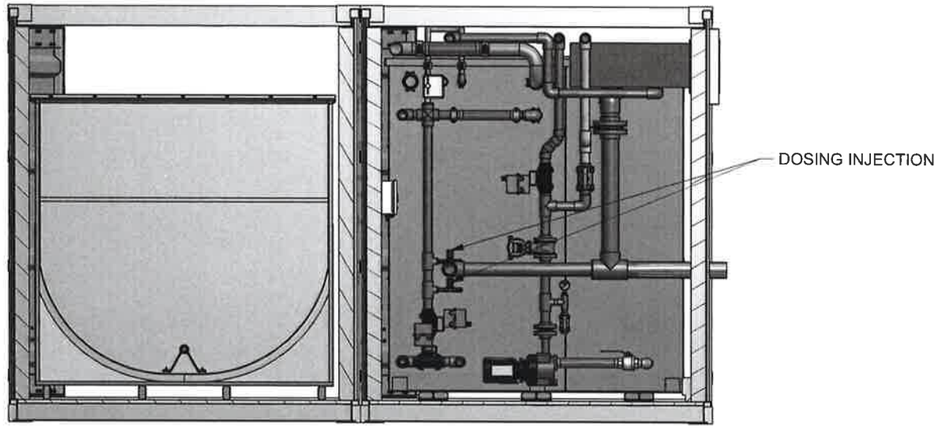

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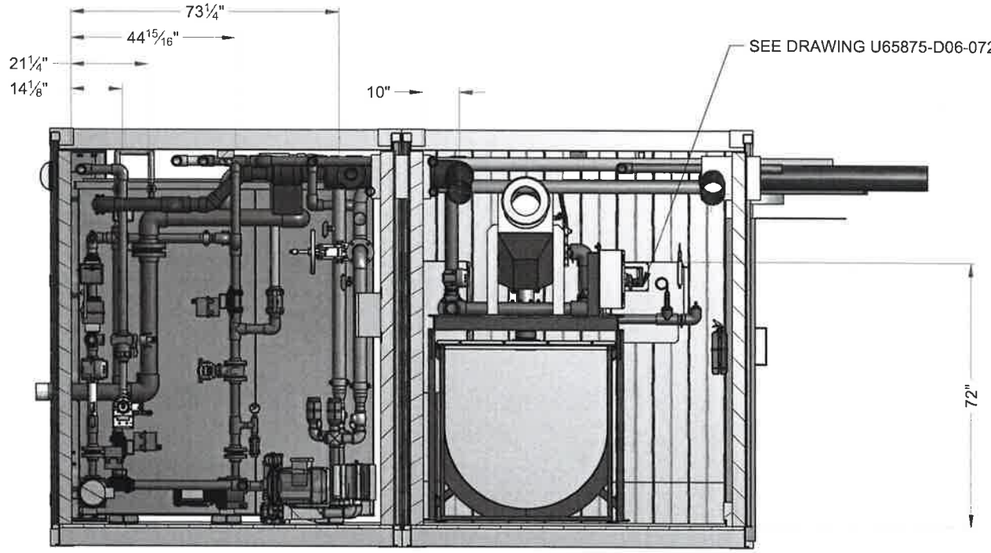

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TOLERANCES
FRACTIONS ±1/64
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.0 XX ±0.01
ANGLES ±0.5°
HOLE SIZES ±.127
HOLE CENTERS ±.127
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MELIADINE, NU

216 m3/day

TITLE:
WASTE WATER CONTAINER
ELECTRICAL GENERAL ARRANGEMENT

SCALE:	DRAWING NUMBER:	REVISION
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PROCESS AND INSTRUMENTION DIAGRAMS LEGEND

VALVE SYMBOLS

N.OPEN N.CLOSED

- BALL
- V-BALL
- BUTTERFLY
- DIAPHRAGM
- GATE
- GLOBE
- NEEDLE
- PLUG
- SAMPLE/DRAIN
- CHECK
- BACKFLOW PREVENTER
- INJECTION QUILL
- 3-WAY, 4-WAY
- PRESSURE REGULATING
- BACK PRESSURE REGULATING
- FLOW CONTROL
- 2-WAY SOLENOID
- 3-WAY SOLENOID (EXH)
- 4-WAY SOLENOID (EXH)
- AIR RELEASE
- VACUUM BREAKER
- PRESSURE RELEASE
- SLUICE GATE/WEIR

VALVE ACTUATOR SYMBOLS

- PNEUMATIC (FAIL LAST POSITION)
- PNEUMATIC FAIL CLOSE (F.C.)
- PNEUMATIC FAIL OPEN (F.O.)
- ELECTRIC
- DIAPHRAGM
- POSITIONER (ANY ACTUATOR TYPE)
- HAND OVERRIDE (ANY ACTUATOR TYPE)
- TRAVEL STOPS (ANY ACTUATOR TYPE)

FLOWMETER SYMBOLS

- ROTAMETER (FI nnnnn)
- ROTAMETER W/ INTEGRAL NEEDLE VALVE (FI nnnnn)
- THERMAL (FT nnnnn)

INTEGRAL / REMOTE

- MAGNETIC
- PADDLE
- VORTEX
- DP/ORIFICE

INSTRUMENTATION SYMBOLS

LOCALLY MOUNTED	IN CONTROL PANEL	DESCRIPTION
X nnnnn	X nnnnn	DISCRETE INSTRUMENT
	X nnnnn	PRIMARY PLC OR DCS SHARED CONTROL
	X nnnnn	SECONDARY PLC OR DCS SHARED CONTROL
	X nnnnn	COMPUTER FUNCTION

INSTRUMENT FUNCTIONS

- K — SIGNAL PROCESSING FUNCTION
- A/M — AUTO/MANUAL
- Σ — ADDITION/SUMMATION
- Δ — DIFFERENTIAL
- INTERLOCK LOGIC FUNCTION
- AVERAGING

INSTRUMENT CONNECTIONS

THREADED — SOCKETWELD — WELDED

PIPING CONNECTIONS & SYMBOLS

- FLANGE
- THREADED CONNECTION
- UNION
- BLIND FLANGE
- CAPPED END
- REDUCER
- ECCENTRIC REDUCER
- DRAIN OUTLET
- QUICK DISCONNECT HOSE/TUBE
- EXPANSION/FLEXIBLE/ ISOLATION JOINT
- GROOVED COUPLING
- DOUBLE CONTAINMENT
- INSULATION (x" INSULATION THICKNESS)
- HEAT TRACING (x" INSULATION THICKNESS; E=ELECTRIC S=STEAM G=GLYCOL)

PIPING ABBREVIATIONS

316 SS	316 STAINLESS STEEL
304 SS	304 STAINLESS STEEL
316L SS	LOW CARBON 316 STAINLESS STEEL
304L SS	LOW CARBON 304 STAINLESS STEEL
CPVC	CHLORINATED POLYVINYL CHLORIDE
CS	CARBON STEEL
DI	DUCTILE IRON
HDPE	HIGH-DENSITY POLYETHYLENE
PE	POLYETHYLENE
PVC	POLYVINYL CHLORIDE
RLCS	RUBBER LINED CARBON STEEL
SCH.	SCHEDULE
SDR	STANDARD DIMENSION RATIO

LINE SYMBOLOGY

- MAIN PROCESS LINE
- SECONDARY PROCESS LINE
- PROCESS LINE, BY OTHERS
- COMM LINK (EX. PLC TO HMI)
- COMM LINK (EX. PLC TO DCS)
- ELECTRIC WIRING
- PNEUMATIC LINE
- LINE JUMPER
- PIPE DISCONTINUATION
- FLOW DIRECTION ARROWS
- 4" 316 SS SCH.10 — LINES SIZE/ MATERIAL IDENTIFIER
- SKID BOUNDARY — SKID BY H_2O Innovation / NOT BY H_2O Innovation
- REVISION
- LINES TO/FROM OTHER SHEETS — DESCRIPTION — C01-0001 SHT 1 — DESTINATION

PUMP SYMBOLS

- CENTRIFUGAL
- CHEMICAL METERING
- DIAPHRAGM
- POSITIVE DISPLACEMENT
- VACUUM
- SUBMERSIBLE OR FLOATING
- VERTICAL TURBINE
- PERISTALTIC/HOSE

MISCELLANEOUS EQUIPMENT SYMBOLS

- CARTRIDGE FILTER HOUSING
- AUTOMATIC STRAINER
- SILENCER
- MOTORIZED MIXER
- STATIC MIXER
- RESIN TRAP
- MOTOR
- EDUCTOR OR VENTURI
- Y STRAINER
- CONICAL OR TEMPORARY STRAINER
- PULSATION DAMPENER
- DIAPHRAGM
- FLOW ORIFICE
- RUPTURE DISK (PRESSURE)
- RUPTURE DISK (VACUUM)
- SPECTACLE BLIND (NORMALLY OPEN, NORMALLY CLOSED)
- COARSE BUBBLE DIFFUSER
- FINE BUBBLE DIFFUSER
- FILTER
- TURBOCHARGER
- MANWAY
- TANK
- IMMERSED HEATER (TC nnnnn)
- IN-LINE HEATER (TC nnnnn)
- ULTRASONIC LEVEL TRANSMITTER (LT nnnnn)
- FLOAT-STYLE LEVEL SWITCH (LS nnnnn)
- CHEMICAL CONTAINMENT (ST-nnnnn)
- CALIBRATION COLUMN
- MEMBRANE
- UV STERILIZER
- AIR COMPRESSOR
- POSITIVE DISPLACEMENT BLOWER
- REGENERATIVE BLOWER
- CENTRIFUGAL BLOWER
- REFRIGERATED AIR DRYER
- FLOW CHAMBER
- BIO-WHEEL

FLOW INSTRUMENTS

FAH	FLOW ALARM HIGH
FAL	FLOW ALARM LOW
FCV	FLOW CONTROL VALVE
FE	FLOW ELEMENT
FI	FLOW INDICATOR
FIC	FLOW INDICATING CONTROLLER
FIT	FLOW INDICATING TRANSMITTER
FR	FLOW RECORDING
FSH	FLOW SWITCH HIGH
FSL	FLOW SWITCH LOW
FV	FLOW CONTROL OR ON/OFF VALVE
FQ	FLOW TOTALIZER
FY	FLOW SIGNAL CONVERT, I/P, OR SOLN

PRESSURE INSTRUMENTS

PAH	PRESSURE ALARM HIGH
PAL	PRESSURE ALARM LOW
PC	PRESSURE CONTROLLER
PCV	SELF REG PRESS CONTROL VALVE
PDH	DIFFERENTIAL PRESSURE HIGH
PDI	DIFFERENTIAL PRESSURE INDICATOR
PDIT	DIFF PRESS INDICATING TRANSMITTER
PDSH	DIFFERENTIAL PRESS SWITCH HIGH
PG	PRESSURE GAUGE
PI	PRESSURE INDICATOR
PIC	PRESSURE INDICATING CONTROLLER
PIT	PRESSURE INDICATING TRANSMITTER
PSH	PRESSURE SWITCH HIGH
PSL	PRESSURE SWITCH LOW
PSV	SELF REG PRESS SAFETY VALVE
PT	PRESSURE TRANSMITTER
PY	PRESS SIGNAL CONVERT, I/P, OR SOLN
PSLH	PRESSURE SWITCH LOW HIGH

LEVEL INSTRUMENTS

LAH	LEVEL ALARM HIGH
LAL	LEVEL ALARM LOW
LCV	SELF REG LEVEL CONTROL VALVE
LE	LEVEL ELEMENT
LG	LEVEL GAUGE
LI	LEVEL INDICATOR
LIC	LEVEL INDICATING CONTROLLER
LIT	LEVEL INDICATING TRANSMITTER
LSH	LEVEL SWITCH HIGH
LSL	LEVEL SWITCH LOW
LT	LEVEL TRANSMITTER
LV	LEVEL CONTROL OR ON/OFF VALVE
LY	LEVEL SIGNAL CONVERT, I/P, OR SOLN

TEMPERATURE INSTRUMENTS

TAH	TEMPERATURE ALARM HIGH
TAL	TEMPERATURE ALARM LOW
TC	TEMPERATURE CONTROLLER
TE	TEMPERATURE ELEMENT
TG	TEMPERATURE GAUGE
TI	TEMPERATURE INDICATOR
TIC	TEMP INDICATING CONTROLLER
TIT	TEMP INDICATING TRANSMITTER
TSH	TEMPERATURE SWITCH HIGH
TSL	TEMPERATURE SWITCH LOW
TT	TEMPERATURE TRANSMITTER
TV	TEMP CONTROL OR ON/OFF VALVE
TY	TEMP SIGNAL CONVERT, I/P, OR SOLN

ELECTRICAL ABBREVIATIONS

JB	JUNCTION BOX
MCP	MAIN CONTROL PANEL
RIO	REMOTE I/O PANEL
PP	POWER PANEL
VFD	VARIABLE FREQUENCY DRIVE
HOA	HAND-OFF-AUTO

ANALYTICAL INSTRUMENTS

AAH	ANALYTICAL ALARM HIGH
AAL	ANALYTICAL ALARM LOW
AE	ANALYTICAL ELEMENT
AI	ANALYTICAL INDICATOR
AIC	ANAL INDICATING CONTROLLER
AIT	ANAL INDICATING TRANSMITTER
ASH	ANALYTICAL SWITCH HIGH
ASL	ANALYTICAL SWITCH LOW
AT	ANALYTICAL TRANSMITTER
AY	ANALYTICAL SIGNAL CONVERT, I/P, OR SOL

MISCELLANEOUS INSTRUMENTS

HS	HAND SWITCH
HI	HAND SWITCH POSITION INDICATOR
II	CURRENT INDICATOR
QQI	TOTALIZER INDICATOR
SC	SPEED CONTROLLER
SI	SPEED INDICATOR
YA	MOTOR ALARM
YC	MOTOR CONTROL
YI	MOTOR ON/OFF INDICATOR
ZI	POSITION INDICATOR
ZIC	SWITCH CLOSE INDICATOR
ZIO	SWITCH OPEN INDICATOR
ZSC	POSITION SWITCH CLOSED
ZSO	POSITION SWITCH OPEN
ZT	POSITION TRANSMITTER
ZY	POSITIONER

VALVES & EQUIPMENT

AC	AIR COMPRESSOR
ARV	AIR RELEASE VALVE
AS	AIR SUPPLY
B	BLOWER
BT	BULK TOTE
CBD	COARSE BUBBLE DIFFUSER
CV	CHECK VALVE
ED	EDUCTOR
F	FILTER
FBD	FINE BUBBLE DIFFUSER
FL	FAIL LAST (DEFAULT IF NOT SHOWN)
FC	FAIL CLOSED
FO	FAIL OPEN
FQG	CALIBRATION COLUMN
H	HEATER
HCV	HAND CONTROL VALVE
HTR	HEATER
HV	HAND VALVE
M	MOTOR
MX	MIXER
P	PUMP
RT	RESIN TRAP
[illegible]	SPILL TANK
STR	STRAINER
T	TANK
UV	ULTRAVIOLET
[illegible]	HAND VALVE
MV	MULTIFUNCTION VALVE

OTHER ABBREVIATIONS

[illegible]	CAPACITANCE
CIP	CLEAN-IN-PLACE
COND	CONDUCTIVITY
DO_2	DISSOLVED OXYGEN
ESP	EMERGENCY STOP
IA	INSTRUMENT AIR
I/P	CURRENT TO PNEUMATIC CONVERTER
ORP	OXIDATION REDUCTION POTENTIAL
pH	HYDROGEN ION
RES	RESISTIVITY
RTD	RESISTANCE TEMP DETECTOR
SOL	SOLENOID
SP	SET POINT
uS	MICROSIEMENS

REGISTERED PROFESSIONAL ENGINEER — R. DESGAGNÉ — LICENSEE — NT/NU — 29/09/2016

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DRAWING REVISION

REV	DATE	REVISION DESCRIPTION	DRAWN	CHKD	ENG	APPVD
03	09/08/2016	AS BUILT	M.P.	S.B.	R.D.	A.M.
02	25/07/2016	REVISED AS PER COMMENTS	M.P.	S.B.	R.D.	A.M.
01	29/06/2016	AS PER COMMENTS	M.P.	S.B.	R.D.	A.M.
00	13/06/2016	INITIAL RELEASE	M.P.	S.B.	R.D.	A.M.

h2O innovation — knowledge to share. du savoir à partager

UNLESS NOTED OTHERWISE — INTERPRETATION ANSI Y14.5 — TOLERANCES: FRACTIONS, DECIMALS .0X ±0.030, .0XX ±0.015, ANGLES ±0.5°, HOLE SIZES, HOLE CENTERS — DO NOT SCALE PRINTS

MELIADINE

WTP CONTAINERIZED UNIT

TITLE: PROCESS AND INSTRUMENTION DIAGRAMS LEGEND

SCALE: N/A | DRAWING NUMBER: P65873-C01-0001 | SHEET: 1 of 1 | REVISION: 03

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1 ☐ Proceed to next submission and status.
2 ☐ Proceed with exceptions as noted to next submission and status.
3 ☐ Do not proceed. Revise as noted and resubmit next submission and status.
4 ☐ Complete, no further submission required.

By: Date:

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Agnico Eagle No. 6515-C-250-010-205-PID-0002 R: Sub002

DOCUMENT FOR INFORMATION

VALVE SYMBOLS

N.OPEN / N.CLOSED

- BALL
- V-BALL
- BUTTERFLY
- DIAPHRAGM
- GATE
- GLOBE
- NEEDLE
- PLUG
- SAMPLE/DRAIN
- CHECK
- BACKFLOW PREVENTER
- 3-WAY, 4-WAY
- PRESSURE REGULATING
- BACK PRESSURE REGULATING
- FLOW CONTROL
- 2-WAY SOLENOID
- 3-WAY SOLENOID (EXH)
- 4-WAY SOLENOID (EXH)
- AIR RELEASE
- VACUUM BREAKER
- PRESSURE RELEASE
- SLUICE GATE/WEIR

VALVE ACTUATOR SYMBOLS

- PNEUMATIC (FAIL LAST POSITION)
- PNEUMATIC FAIL CLOSE
- PNEUMATIC FAIL OPEN
- ELECTRIC
- DIAPHRAGM
- POSITIONER (ANY ACTUATOR TYPE)
- HAND OVERRIDE (ANY ACTUATOR TYPE)
- TRAVEL STOPS (ANY ACTUATOR TYPE)

FLOWMETER SYMBOLS

INTEGRAL / CLOSE COUPLED / REMOTE

- MAGNETIC
- PADDLE
- VORTEX
- DP/ORIFICE
- THERMAL
- ROTAMETER

INSTRUMENTATION SYMBOLS

LOCALLY MOUNTED	IN CONTROL PANEL	DESCRIPTION
X	X	DISCRETE INSTRUMENT
	X	PRIMARY PLC OR DCS SHARED CONTROL
	X	SECONDARY PLC OR DCS SHARED CONTROL
	X	COMPUTER FUNCTION

INSTRUMENT FUNCTIONS

- K — SIGNAL PROCESSING FUNCTION
- A/M — AUTO/MANUAL
- Σ — ADDITION/SUMMATION
- Δ — DIFFERENTIAL
- INTERLOCK LOGIC FUNCTION
- AVERAGING

INSTRUMENT CONNECTIONS

- SOCKETWELD
- THREADED
- WELDED

PIPING SYMBOLS

- FLANGED CONNECTION
- THREADED CONNECTION
- BLIND FLANGE
- DOUBLE CONTAINMENT
- QUICK DISCONNECT VICTAULIC
- X" INSULATION THICKNESS — INSULATION
- QUICK DISCONNECT CAMLOK
- X" INSULATION THICKNESS — HEAT TRACING E=ELECTRIC S=STEAM G=GLYCOL
- CAPPED PIPE END
- UNION
- DRAIN OUTLET
- EXPANSION/FLEXIBLE/ ISOLATION JOINT
- REDUCER ECCENTRIC REDUCER

PIPING ABBREVIATIONS

316 SS	316 STAINLESS STEEL
304 SS	304 STAINLESS STEEL
316L SS	LOW CARBON 316 STAINLESS STEEL
304L SS	LOW CARBON 304 STAINLESS STEEL
CPVC	CHLORINATED POLYVINYL CHLORIDE
CS	CARBON STEEL
DI	DUCTILE IRON
HDPE	HIGH-DENSITY POLYETHYLENE
PE	POLYETHYLENE
PVC	POLYVINYL CHLORIDE
RLCS	RUBBER LINED CARBON STEEL
SCH.	SCHEDULE
SDR	STANDARD DIMENSION RATIO
CML	CEMENT MORTAR LINED

LINE SYMBOLOGY

- MAIN PROCESS LINE
- SECONDARY PROCESS LINE
- PROCESS LINE, BY OTHERS
- COMM LINK (EX. PLC TO HMI)
- COMM LINK (EX. PLC TO DCS)
- ELECTRIC WIRING
- PNEUMATIC LINE
- LINE JUMPER
- PIPE DISCONTINUATION
- FLOW DIRECTION ARROWS
- 4" 316 SS SCH.10 — LINES SIZE/ MATERIAL IDENTIFIER
- SKID BOUNDARY — BY OTHERS / SKID BY H_2O Innovation
- REVISION
- LINES TO/FROM OTHER SHEETS: DESCRIPTION / C01-0001 SHT 1 / DESTINATION

PUMP SYMBOLS

- CENTRIFUGAL
- CHEMICAL METERING
- DIAPHRAGM
- POSITIVE DISPLACEMENT
- VACUUM
- SUBMERSIBLE OR FLOATING
- VERTICAL TURBINE
- PERISTALTIC/HOSE

MISCELLANEOUS EQUIPMENT SYMBOLS

- CARTRIDGE FILTER HOUSING
- AUTOMATIC STRAINER
- SILENCER
- MIXER
- STATIC MIXER
- RESIN TRAP
- MOTOR
- EDUCTOR OR VENTURI
- Y STRAINER
- CONICAL OR TEMPORARY STRAINER
- PULSATION DAMPENER
- DIAPHRAGM
- FLOW ORIFICE
- AIR COMPRESSOR
- RUPTURE DISK (PRESSURE)
- RUPTURE DISK (VACUUM)
- SPECTACLE BLIND (NORMALLY OPEN, NORMALLY CLOSED)
- INJECTION QUILL
- FILTER
- REFRIGERATED AIR DRYER
- TANK
- MMF TANK
- IMMERSED HEATER
- IN-LINE HEATER
- ULTRASONIC LEVEL TRANSMITTER
- FLOAT-STYLE LEVEL TRANSMITTER
- CHEMICAL CONTAINMENT (ST-nnnnn)
- CALIBRATION COLUMN
- MEMBRANE
- UV STERILIZER
- DIFFUSERS: COARSE BUBBLE
- FINE BUBBLE
- POSITIVE DISPLACEMENT BLOWER
- REGENERATIVE BLOWER
- CENTRIFUGAL BLOWER
- TURBOCHARGER
- BIO-WHEEL
- MANWAY

FLOW INSTRUMENTS

FAH	FLOW ALARM HIGH
FAL	FLOW ALARM LOW
FCV	FLOW CONTROL VALVE
FE	FLOW ELEMENT
FI	FLOW INDICATOR
FIC	FLOW INDICATING CONTROLLER
FIT	FLOW INDICATING TRANSMITTER
FR	FLOW RECORDING
FSH	FLOW SWITCH HIGH
FSL	FLOW SWITCH LOW
FV	FLOW CONTROL OR ON/OFF VALVE
FQ	FLOW TOTALIZER
FX	ELEMENT CONTROLLED BY FLOW
FY	FLOW SIGNAL CONVERT, I/P, OR SOLN

PRESSURE INSTRUMENTS

PAH	PRESSURE ALARM HIGH
PAL	PRESSURE ALARM LOW
PC	PRESSURE CONTROLLER
PCV	SELF REG PRESS CONTROL VALVE
PDH	DIFFERENTIAL PRESSURE HIGH
PDI	DIFFERENTIAL PRESSURE INDICATOR
PDIT	DIFF PRESS INDICATING TRANSMITTER
PDSH	DIFFERENTIAL PRESS SWITCH HIGH
PG	PRESSURE GAUGE
PI	PRESSURE INDICATOR
PIC	PRESSURE INDICATING CONTROLLER
PIT	PRESSURE INDICATING TRANSMITTER
PSH	PRESSURE SWITCH HIGH
PSL	PRESSURE SWITCH LOW
PSV	SELF REG PRESS SAFETY VALVE
PT	PRESSURE TRANSMITTER
PX	ELEMENT CONTROLLED BY PRESSURE
PY	PRESS SIGNAL CONVERT, I/P, OR SOLN
PSLH	PRESSURE SWITCH LOW HIGH

LEVEL INSTRUMENTS

LAH	LEVEL ALARM HIGH
LAL	LEVEL ALARM LOW
LCV	SELF REG LEVEL CONTROL VALVE
LE	LEVEL ELEMENT
LG	LEVEL GAUGE
LI	LEVEL INDICATOR
LIC	LEVEL INDICATING CONTROLLER
LIT	LEVEL INDICATING TRANSMITTER
LSH	LEVEL SWITCH HIGH
LSL	LEVEL SWITCH LOW
LT	LEVEL TRANSMITTER
LV	LEVEL CONTROL OR ON/OFF VALVE
LX	ELEMENT CONTROLLED BY LEVEL
LY	LEVEL SIGNAL CONVERT, I/P, OR SOLN

TEMPERATURE INSTRUMENTS

TAH	TEMPERATURE ALARM HIGH
TAL	TEMPERATURE ALARM LOW
TC	TEMPERATURE CONTROLLER
TE	TEMPERATURE ELEMENT
TG	TEMPERATURE GAUGE
TI	TEMPERATURE INDICATOR
TIC	TEMP INDICATING CONTROLLER
TIT	TEMP INDICATING TRANSMITTER
TSH	TEMPERATURE SWITCH HIGH
TSL	TEMPERATURE SWITCH LOW
TT	TEMPERATURE TRANSMITTER
TV	TEMP CONTROL OR ON/OFF VALVE
TX	ELEMENT CONTROLLED BY TEMP
TY	TEMP SIGNAL CONVERT, I/P, OR SOLN

ELECTRICAL ABBREVIATIONS

JB	JUNCTION BOX
MCP	MAIN CONTROL PANEL
RIO	REMOTE I/O PANEL
PP	POWER PANEL
VFD	VARIABLE FREQUENCY DRIVE
HOA	HAND-OFF-AUTO

ANALYTICAL INSTRUMENTS

AAH	ANALYTICAL ALARM HIGH
AAL	ANALYTICAL ALARM LOW
AE	ANALYTICAL ELEMENT
AI	ANALYTICAL INDICATOR
AIC	ANAL INDICATING CONTROLLER
AIT	ANAL INDICATING TRANSMITTER
ASH	ANALYTICAL SWITCH HIGH
ASL	ANALYTICAL SWITCH LOW
AT	ANALYTICAL TRANSMITTER
AX	ELEMENT CONTROLLED BY ANALYTICAL
AY	ANALYTICAL SIGNAL CONVERT, I/P, OR SOL

MISCELLANEOUS INSTRUMENTS

HS	HAND SWITCH
HI	HAND SWITCH POSITION INDICATOR
II	CURRENT INDICATOR
QQI	TOTALIZER INDICATOR
SC	SPEED CONTROLLER
SI	SPEED INDICATOR
YA	MOTOR ALARM
YC	MOTOR CONTROL
YI	MOTOR ON/OFF INDICATOR
ZIC	SWITCH CLOSE INDICATOR
ZIO	SWITCH OPEN INDICATOR
ZSC	POSITION SWITCH CLOSED
ZSO	POSITION SWITCH OPEN
ZT	POSITION TRANSMITTER
ZI	POSITION INDICATOR

VALVES & EQUIPMENT

AC	AIR COMPRESSOR
ARV	AIR RELEASE VALVE
AS	AIR SUPPLY
B	BLOWER
BT	BULK TOTE
CBD	COARSE BUBBLE DIFFUSER
CV	CHECK VALVE
ED	EDUCTOR
F	FILTER
FBD	FINE BUBBLE DIFFUSER
FL	FAIL LAST (DEFAULT IF NOT SHOWN)
FC	FAIL CLOSED
FO	FAIL OPEN
FQG	CALIBRATION COLUMN
H	HEATER
HCV	HAND CONTROL VALVE
HTR	HEATER
HV	HAND VALVE
M	MOTOR
MX	MIXER
P	PUMP
RT	RESIN TRAP
ST	DESSICANT TANK
STR	STRAINER
T	TANK
UV	ULTRAVIOLET
HV	HAND VALVE
MV	MULTIFUNCTION VALVE

OTHER ABBREVIATIONS

CAP	CAPACITANCE
CIP	CLEAN-IN-PLACE
COND	CONDUCTIVITY
DO2	DISSOLVED OXYGEN
ESP	EMERGENCY STOP
IA	INSTRUMENT AIR
I/P	CURRENT TO PNEUMATIC CONVERTER
ORP	OXIDATION REDUCTION POTENTIAL
pH	HYDROGEN ION
RES	RESISTIVITY
RTD	RESISTANCE TEMP DETECTOR
SOL	SOLENOID
SP	SET POINT
uS	MICROSIEMENS
MIT	MEMBRANE INTEGRITY TEST

REGISTERED PROFESSIONAL ENGINEER — LICENSEE — NWT/NU (stamp) — 21/10/2016

Agnico Eagle — Vendor Document Status

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2. Proceed with exceptions as noted to next submission and status.
3. Do not proceed. Revise as noted and resubmit next submission and status.
4. Complete, no further submission required.

6515-C-250-010-205-PID-0003 — Sub002

DOCUMENT FOR INFORMATION

DRAWING REVISION

REV	DATE	REVISION DESCRIPTION	DRAWN	CHKD	ENG	APPVD
05	21/09/2016	REVISED AS BUILT	M.P.	H.S.	H.C.	R.D.
04	08/02/2016	REVISED AS PER COMMENT	M.P.	H.S.	H.C.	H.C.
03	25/07/2016	REVISED AS PER COMMENT	M.P.	H.S.	H.C.	H.C.
02	13/07/2016	REVISED AS PER COMMENT	M.P.	H.S.	H.C.	H.C.
01	11/07/2016	CHANGE SUMP TANK BALL TO GATE VALVE,SOLENOID TO ELECTRIC VALVE,TURBIDITY METER TO 120V	M.P.	H.S.	H.C.	H.C.

h2o innovation — knowledge to share / du savoir à partager

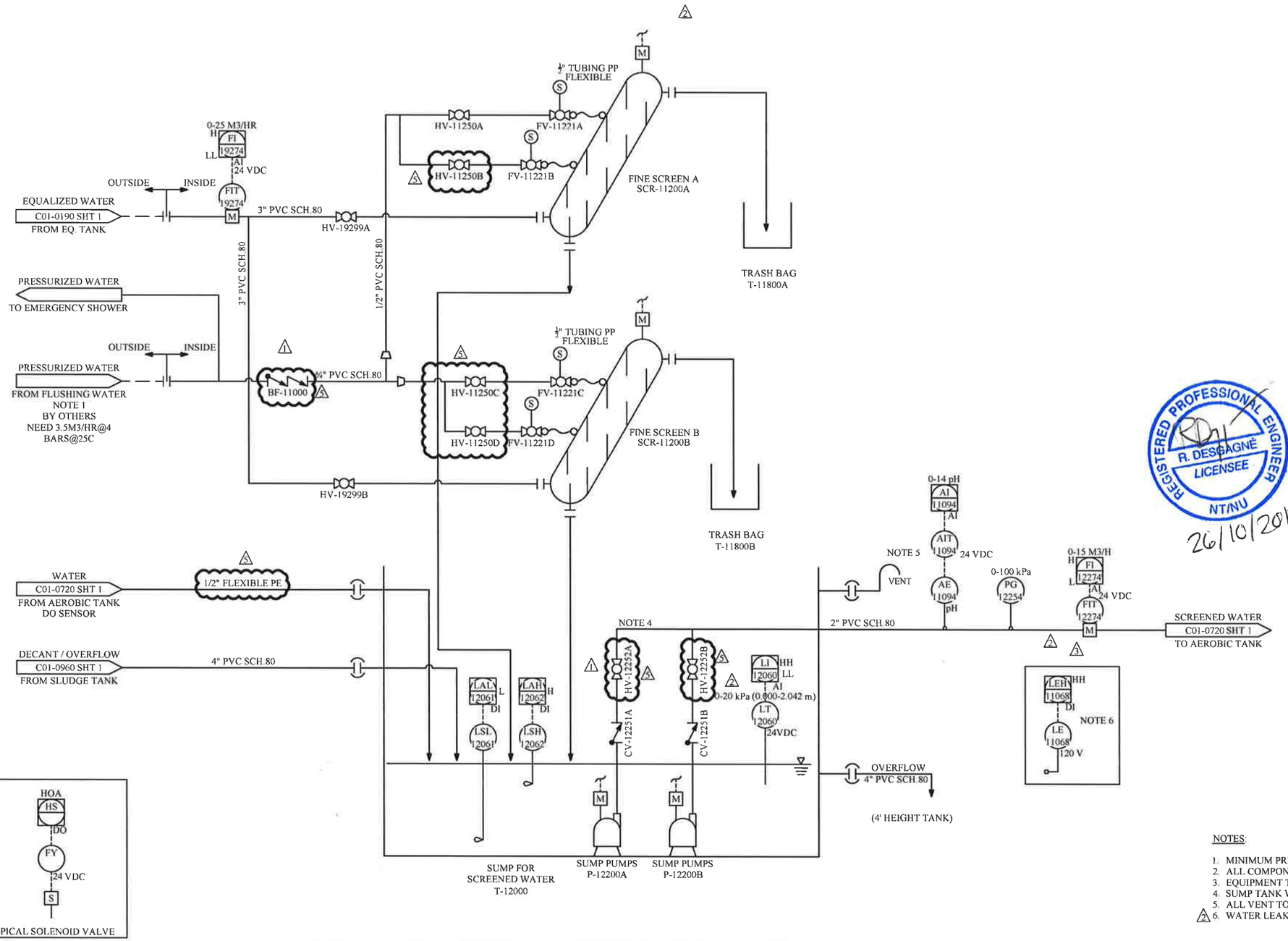
UNLESS NOTED OTHERWISE — DO NOT SCALE PRINTS

MELIADINE STP

216 M3/DAY

TITLE: PROCESS AND INSTRUMENTION DIAGRAMS LEGEND

SCALE: N/A | DRAWING NUMBER: U65875--C01-0001 | REVISION: 05 | SHEET: 1 of 1



NOTES:

1. MINIMUM PRESSURE OF 40 PSIG REQUIRED.
2. ALL COMPONANTS GOING IN TO THE RIO-101.
3. EQUIPMENT TO BE PLACED IN CONTAINER #1.
4. SUMP TANK WITH COVER.
5. ALL VENT TO OUTSIDE.
6. WATER LEAK DETECTOR.

REGISTERED PROFESSIONAL ENGINEER
R. DESGAGNÉ
LICENSEE
NT/NU
26/10/2016

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DRAWING REVISION

REV	DATE	REVISION DESCRIPTION	DRAWN	CHKD	ENG	APPVD
05	21/09/2016	REVISED AS BUILT	M.P.	H.S.	H.C.	R.D.
04	08/02/2016	REVISED AS PER COMMENT	M.P.	H.S.	H.C.	H.C.
03	25/07/2016	REVISED AS PER COMMENT	M.P.	H.S.	H.C.	H.C.
02	13/07/2016	REVISED AS PER COMMENT	M.P.	H.S.	H.C.	H.C.
01	11/07/2016	CHANGE SUMP TANK BALL TO GATE VALVE,SOLENOID TO ELECTRIC VALVE,TURBIDITY METER TO 120V	M.P.	H.S.	H.C.	H.C.

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knowledge to share.du savoir à partager

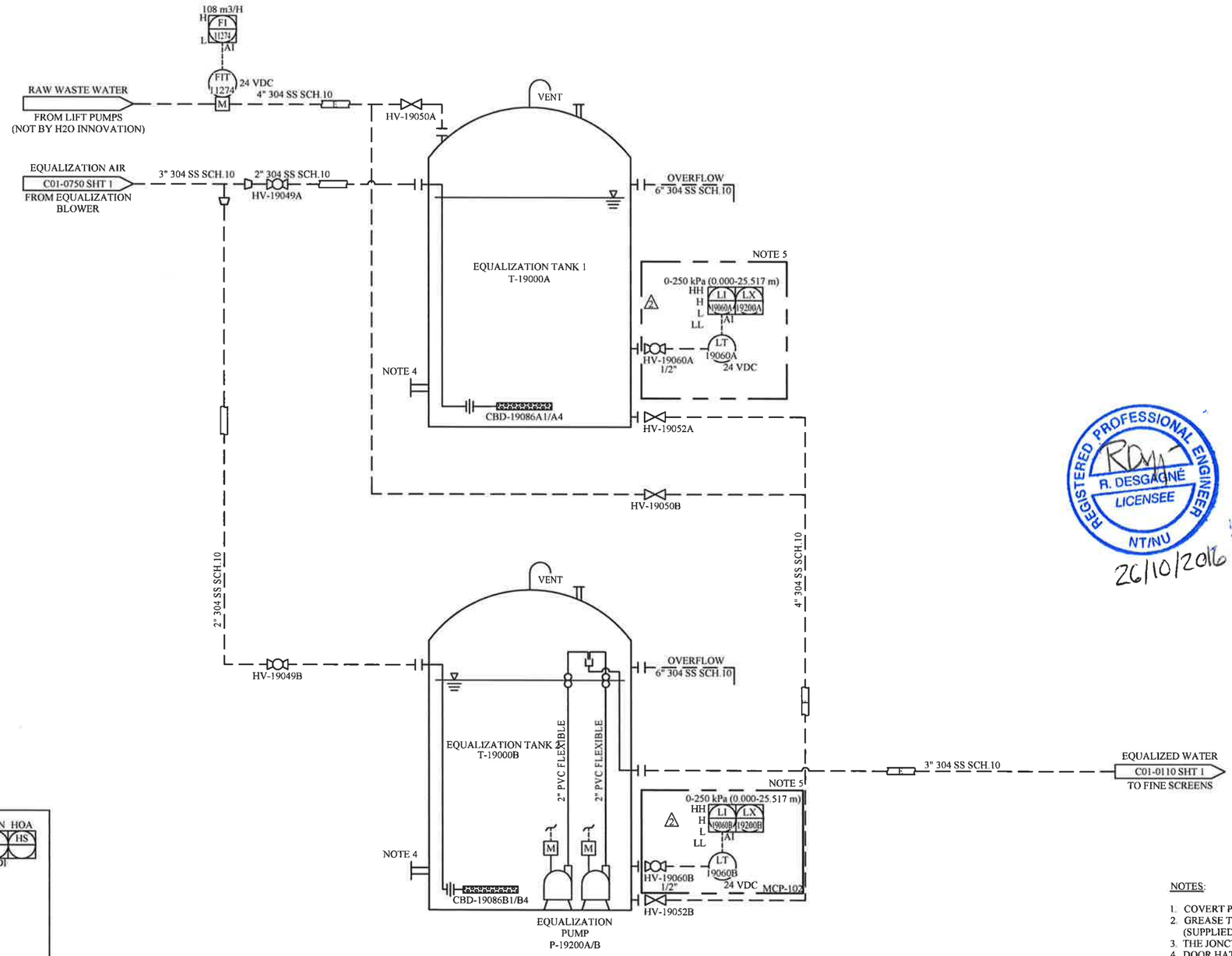
UNLESS NOTED OTHERWISE
INTERPRETATION ANSI Y14.5
TOLERANCES
FRACTIONS ±1/16
DECIMALS 0.X ±0.030
0.XX ±0.015
ANGLES ±0.5°
HOLE SIZES ±1/32
HOLE CENTERS ±1/32
DO NOT SCALE PRINTS

MELIADINE STP

216 M3/DAY

TITLE:
RAW WATER SCREENING
PROCESS & INSTRUMENTATION DIAGRAM

SCALE:	DRAWING NUMBER:	REVISION
N/A	U65875-C01-0110	05
	SHEET: 1 of 1	



REGISTERED PROFESSIONAL ENGINEER
R. DESGAGNÉ
LICENSEE
NT/NU
26/10/2016

NOTES:

1. COVERT PROVIDE BUT NOT INSTALL.
2. GREASE TRAP TO BE INSTALLED UPSTREAM OF STP (SUPPLIED BY H2O INNOVATION, INSTALLED BY OTHERS)
3. THE JONCTION BOX IS HOOK ON THE EQUALIZATION TANK.
4. DOOR HATCH ACCESS.
5. PROTECTION COVER.
6. ALL COMPONANTS GOING INTO THE MCP-102

DRAWING REVISION

REV	DATE	REVISION DESCRIPTION	DRAWN	CHKD	ENG	APPVD
05	21/09/2016	REVISED AS BUILT	M.P.	H.S.	H.C.	R.D.
04	08/02/2016	REVISED AS PER COMMENT	M.P.	H.S.	H.C.	H.C.
03	25/07/2016	REVISED AS PER COMMENT	M.P.	H.S.	H.C.	H.C.
02	13/07/2016	REVISED AS PER COMMENT	M.P.	H.S.	H.C.	H.C.
01	11/07/2016	CHANGE SUMP TANK BALL TO GATE VALVE,SOLENOID TO ELECTRIC VALVE,TURBIDITY METER TO 120V	M.P.	H.S.	H.C.	H.C.

h2o innovation
knowledge to share du savoir à partager

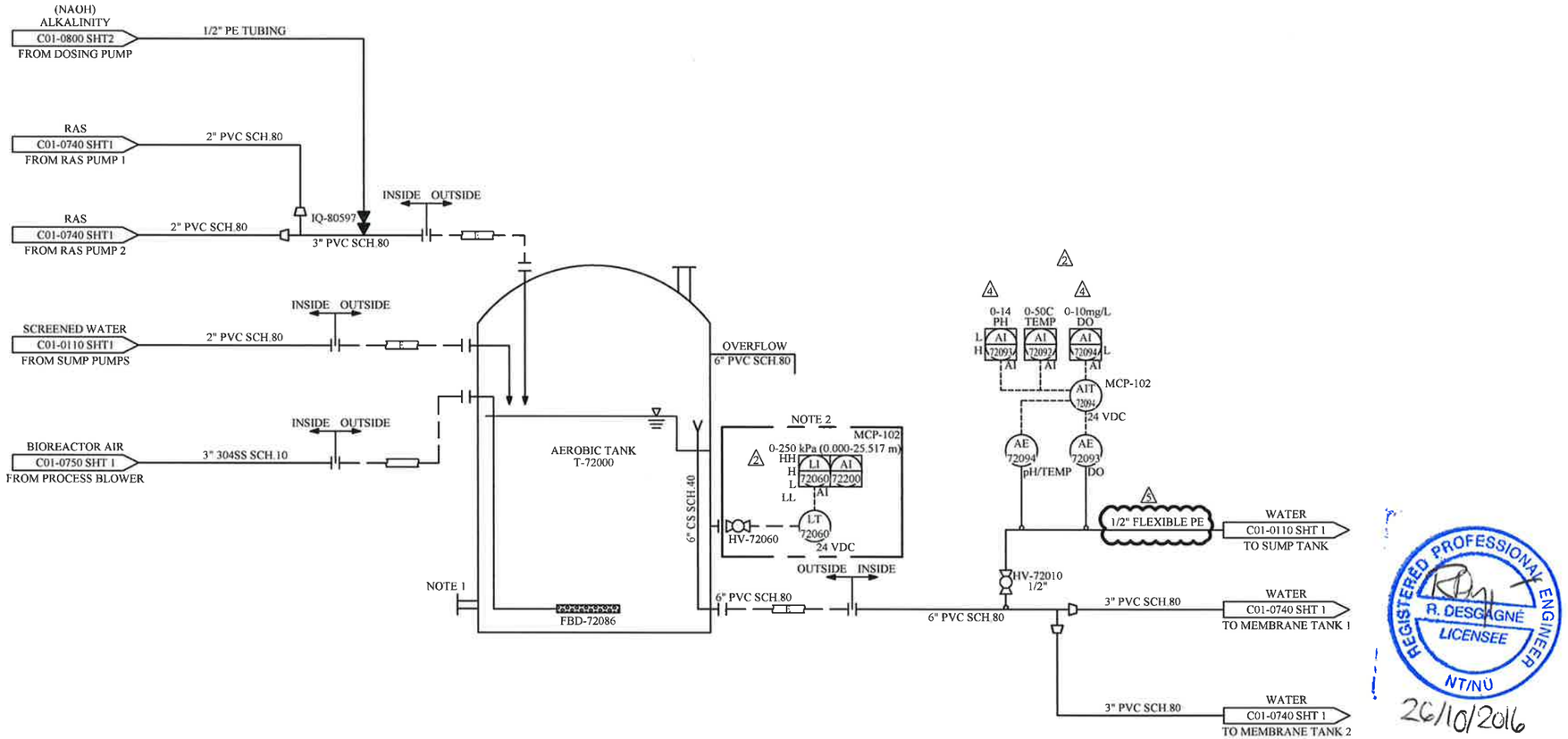
UNLESS NOTED OTHERWISE
INTERPRETATION ASME Y14.5
TOLERANCES
FRACTIONS ±1/64
DEC MALS 0.X ±0.030
0.XX ±0.015
ANGLES ±0.5°
HOLE SIZES ±1/64
HOLE CENTERS ±1/32
DO NOT SCALE PRINTS

MELIADINE STP

216 M3/DAY

TITLE:
FEED WATER EQUALIZATION
PROCESS & INSTRUMENTATION DIAGRAM

SCALE:	DRAWING NUMBER:	REVISION
N/A	U65875-C01-0190	05
	SHEET: 1 of 1	



REGISTERED PROFESSIONAL ENGINEER
R. DESGAGNÉ
LICENSEE
NT/NU
26/10/2016

NOTES:

1. DOOR HATCH ACCESS.
2. PROTECTION COVER.

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INTERPRETATION ANSI Y14.5
TOLERANCES
FRACTIONS ±1/64
DECIMALS .X ±0.030
.XX ±0.015
ANGLES ±0.5°
HOLE SIZES ±1/64
HOLE CENTERS ±1/64
DO NOT SCALE PRINTS

MELIADINE STP

216 M3/DAY

TITLE:
AEROBIC TANK
PROCESS & INSTRUMENTATION DIAGRAM

SCALE: N/A

DRAWING NUMBER: U65875-C01-0720

SHEET: 1 of 1

REVISION 05

CITRIC ACID
C01-0800 SHT 1
FROM DOSING PUMP

HYPOCHLORITE
C01-0800 SHT 1
FROM DOSING PUMP

FV-83798-T
FV-83598-T
1/2" PE TUBING
1/2" PE TUBING

NOTE 3

FV-31026-T
1"
120V

-100 to 100 kPa
PI 79045-T AI
DP 79045-T TMP
HH H L LL
PT 79045-T 24VDC

2" PVC SCH.80
TQ-83597-T
TQ-83797-T

2" PVC FLEXIBLE VACUUM HOSE

FV-79001-T
2" PVC SCH.80
PERMEATE/CIP PUMP P-79000-T
CV-79051-T
0-100 kPa PG 79054-T
0-15 m3/Hr FI 79074-T FX 79000-T AI
FIT 79074-T 24 VDC
FV-79099-T
FV-79098-T
HV-79201-T
2" PVC SCH.80
1½" PVC SCH.80
1½" HOSE
COMMISSIONING WATER RECYCLE

UV INTENSITY 0-160 mW/cm2
FAULT XIW 91000 DI
START YC 91000 DO
XIF 91000 AI
UV CONTROLLER 120VAC, 1PH,60Hz
UV-91000-T
HV-79052-T
PERMEATE C01-0790 SHT 1 TO PERMEATE TANK

0-100 kPa (0.00-10.207 m)
LI 74060-T LX 79000-T AI
HH H L LL
LT 74060-T 24 VDC

VENT NOTE 6
FV-79002-T
2" PVC SCH.80
CIP WATER C01-0790 SHT 1 FROM PERMEATE TANK

HV-74023-T
CV-74028-T
4" PVC SCH.80
MEMBRANE AIR SCOUR C01-0750 SHT 2 FROM MEMBRANE BLOWER
3" 304LSS SCH.10
PRETREATED WATER C01-0720 SHT 1 FROM AEROBIC TANK
3" PVC SCH.80
FV-74050-T

MEMBRANE TANK T-74000-T NOTE 5
F-74000-T
HV-74051-T

RAS/WAS PUMP P-74600-T
CV-74651-T
0-100 kPa PG 74654-T
0-25 m3/Hr FI 74674-T FX 74600-T AI
FIT 74674-T 24 VDC
2" PVC SCH.80
HV-74652-T
2" PVC SCH.80
RAS C01-0720 SHT 1 TO AEROBIC TANK

HV-74629-T 1"

LEH 74068 HH DI
LE 74068 120 V
NOTE 8

FV-96001-T
2" PVC SCH.80
WAS C01-0960 SHT 1 TO SLUDGE TANK

SIGNAL FROM PROCESS VARIABLE
PID SPD START FLT RUN HOA
PIC SI YC YA YI HS
AO AI DO DI DI
SC
M 600 VAC, 3 PH, 60 Hz
TYPICAL PUMP MOTOR (WITH VFD)

START FLT RUN HOA
YC YA YI HS
DO DI DI
M 600 VAC, 3PH, 60HZ
TYPICAL RAS / WAS PUMP MOTOR

HOA
HSC HSO
DO DO
M 120 VAC, 1 PH, 60 Hz
TYPICAL ELECTRIC VALVE

HOA
HS
DO
FY
24 VDC
S
TYPICAL SOLENOID VALVE

NOTES:

1. DRAWING TYPICAL FOR A SINGLE TRAIN. A TOTAL OF 2 TRAINS ARE PROVIDED.
2. TAG NUMBERS OF EQUIPMENT ON EACH TRAIN TO SUBSTITUTE TRAIN NUMBER FOR 'T'.
3. HEIGHT OF 4.6 FT REQUIRED ABOVE MEMBRANE TANK LIQUID.
4. ALL COMPONANTS GOING INTO MCP-102.
5. MBR TANK WITH COVER.
6. ALL VENT TO OUTSIDE
7. EQUIPMENT TO BE PLACED IN CONTAINER #2.
8. WATER LEAK DETECTOR.

REGISTERED PROFESSIONAL ENGINEER
R. DESGAGNÉ
LICENSEE
NT/NU
26/10/2016

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01	11/07/2016	CHANGE SUMP TANK BALL TO GATE VALVE,SOLENOID TO ELECTRIC VALVE,TURBIDITY METER TO 120V	M.P.	H.S.	H.C.	H.C.

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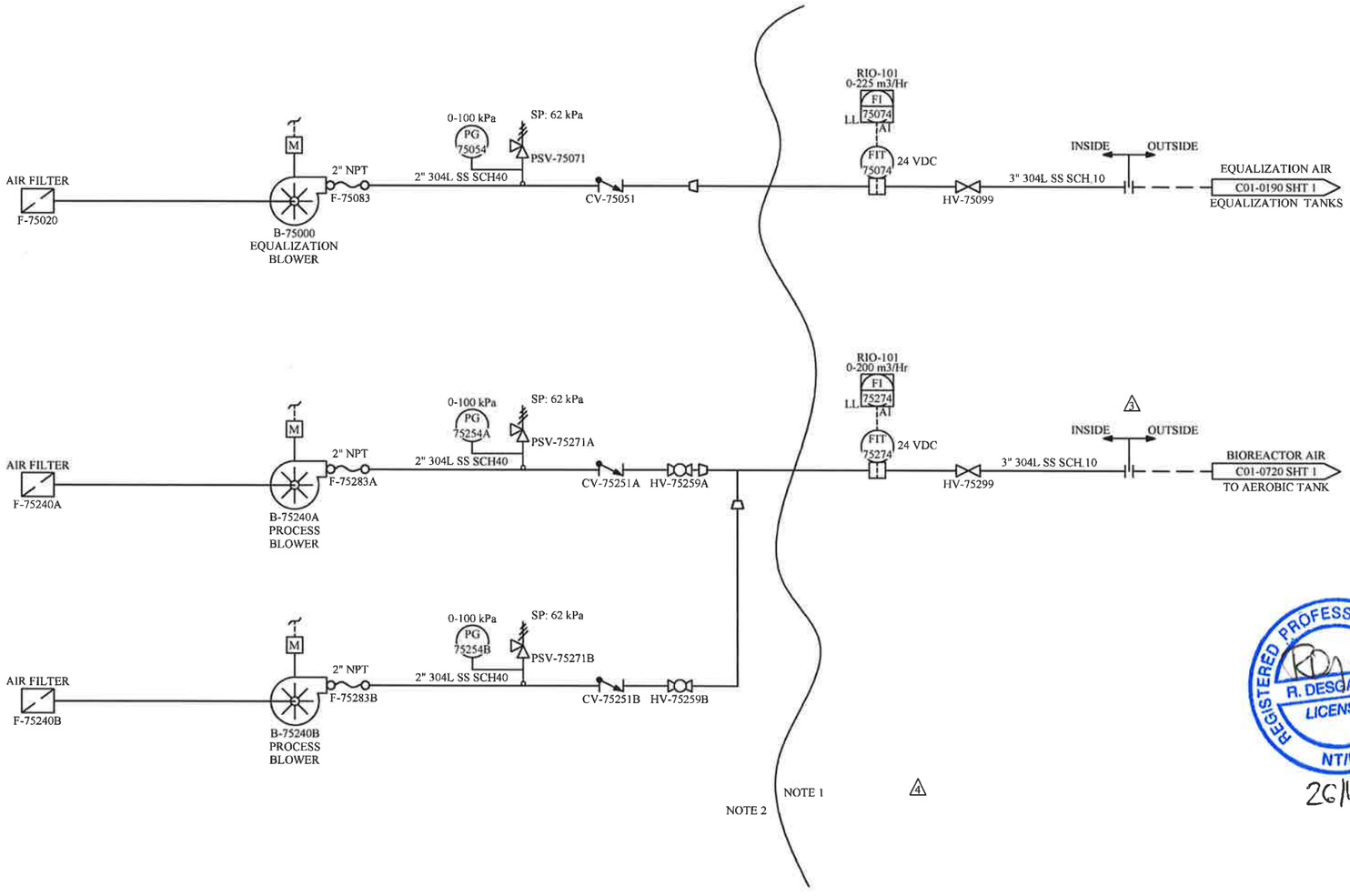
UNLESS NOTED OTHERWISE
INTERPRETATION ANSI Y14.5
TOLERANCES
FRACTIONS ±1/16"
DECIMALS .X ±0.030
.XX ±0.015
ANGLES ±0.5°
HOLE SIZES ±1/32"
HOLE CENTERS ±1/32"
DO NOT SCALE PRINTS

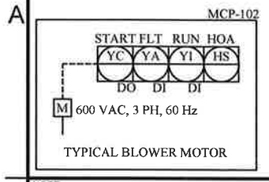
MELIADINE STP

216 M3/DAY

TITLE:
MEMBRANE FILTRATION
PROCESS & INSTRUMENTATION DIAGRAM

SCALE:	DRAWING NUMBER:	REVISION
N/A	U65875-C01-0740 SHEET: 1 of 1	05





4

NOTES:

1. EQUIPMENT TO BE PLACED IN CONTAINER #1.
2. EQUIPMENT TO BE PLACED IN CONTAINER #2.

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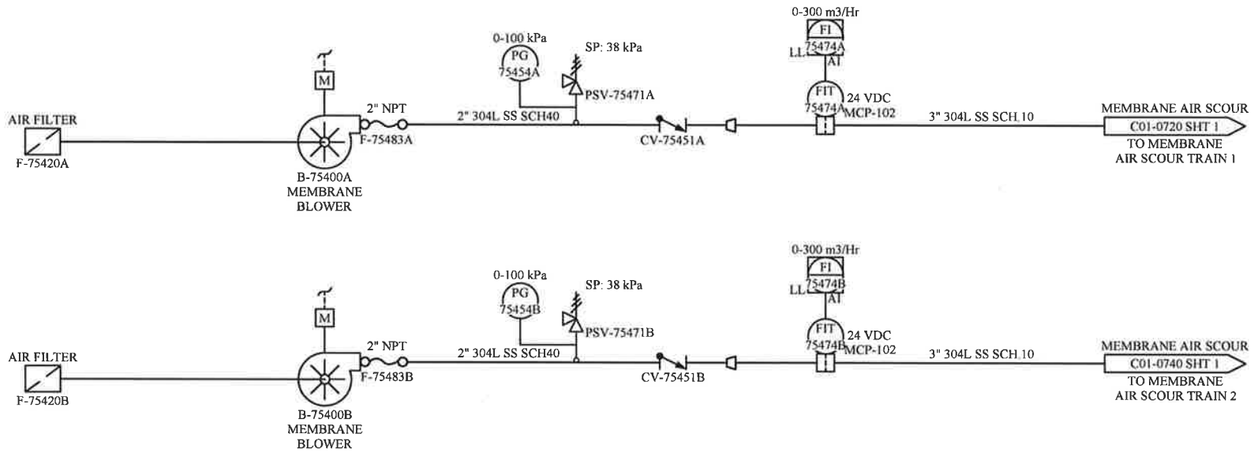
UNLESS NOTED OTHERWISE
INTERPRETATION ANSIY14.5
TOLERANCES
FRACTIONS ±1/64"
DECIMALS 0.X ±0.030
0.XX ±0.015
ANGLES ±0.5°
HOLE SIZES ±1/64"
HOLE CENTERS ±1/32"
DO NOT SCALE PRINTS

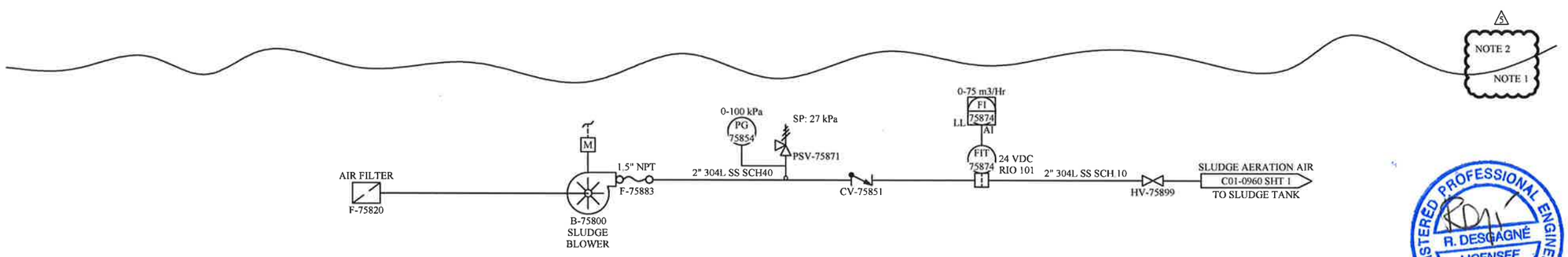
MELIADINE STP

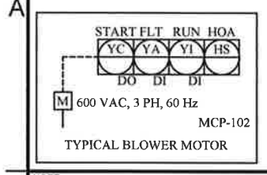
216 M3/DAY

TITLE:
BLOWERS FOR MBR SYSTEM
PROCESS & INSTRUMENTATION DIAGRAM

SCALE:	DRAWING NUMBER:	REVISION
N/A	U65875-C01-0750 SHEET: 1 of 2	05







REGISTERED PROFESSIONAL ENGINEER
R. DESGAGNÉ
LICENSEE
NT/NU
26/10/2016

5

NOTES:
1. EQUIPMENT TO BE PLACED IN CONTAINER #1.
2. EQUIPMENT TO BE PLACED IN CONTAINER #2.

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01	11/07/2016	CHANGE SUMP TANK BALL TO GATE VALVE,SOLENOID TO ELECTRIC VALVE,TURBIDITY METER TO 120V	M.P.	H.S.	H.C.	H.C.

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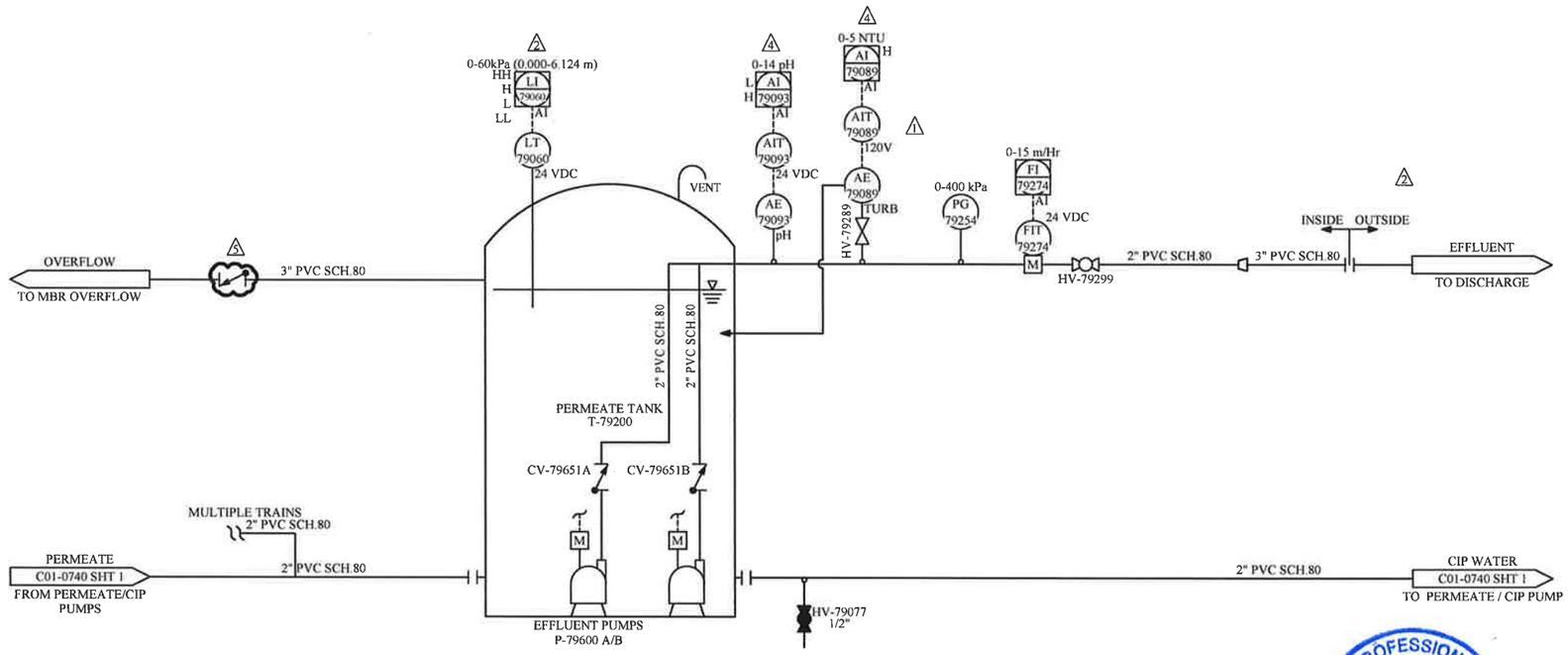
UNLESS NOTED OTHERWISE
INTERPRETATION AND Y14.5
TOLERANCES
FRACTIONS ±1/16"
DECIMALS 0.X ±0.030
0.XX ±0.015
ANGLES ±0.5°
HOLE SIZES ±1/64"
HOLE CENTERS ±1/64"
DO NOT SCALE PRINTS

MELIADINE STP

216 M3/DAY

TITLE:
BLOWERS FOR MBR SYSTEM
PROCESS & INSTRUMENTATION DIAGRAM

SCALE:	DRAWING NUMBER:	REVISION
N/A	U65875-C01-0750 SHEET: 2 of 2	05



START FLT RUN HOA
YC YA YI HS
DO DI DI
M 600 VAC, 3 PH, 60 Hz
TYPICAL PUMP MOTOR

REGISTERED PROFESSIONAL ENGINEER
R. DESGAGNÉ
LICENSEE
NT/NU
26/10/2016

NOTES:

1. ALL COMPONANTS GOING INTO MCP-102.
2. EQUIPMENT TO BE PLACED IN CONTAINER #2.

DRAWING REVISION

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UNLESS NOTED OTHERWISE
INTERPRETATION ANSI Y14.5
TOLERANCES
FRACTIONS ±1/64"
DECIMALS 0.X ±0.030
0.XX ±0.015
0.XXX ±0.005
ANGLES ±0.5°
HOLE SIZES ±1/32"
HOLE CENTERS ±1/32"
DO NOT SCALE PRINTS

MELIADINE STP

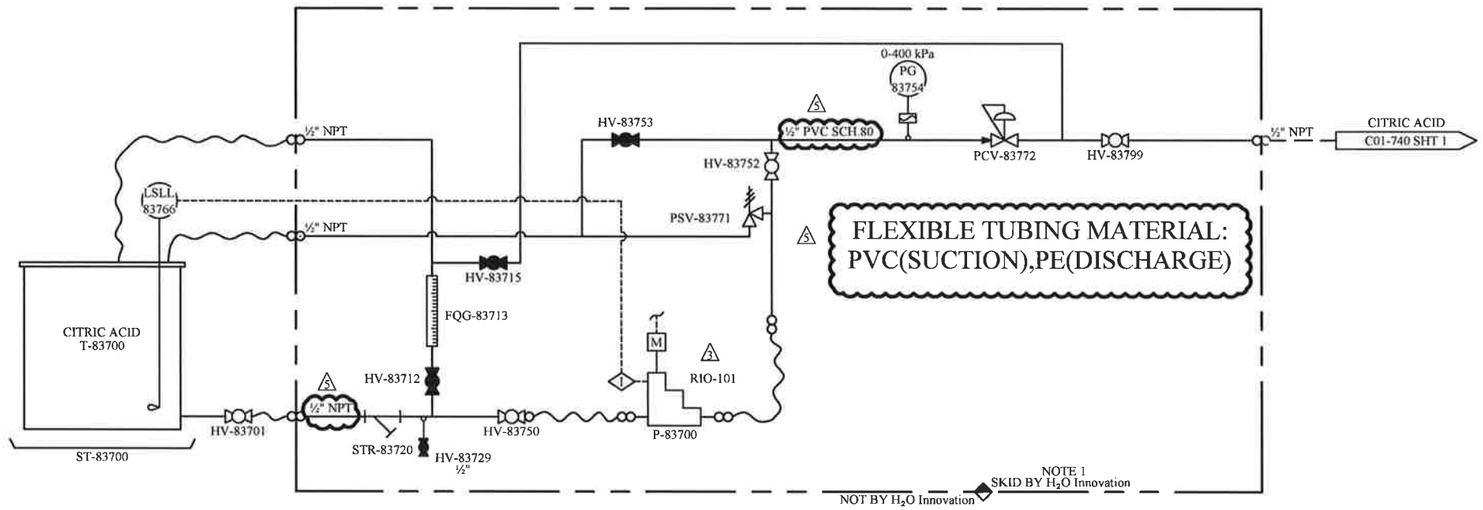
216 M3/DAY

TITLE:
PERMEATE TANK
PROCESS & INSTRUMENTATION DIAGRAM

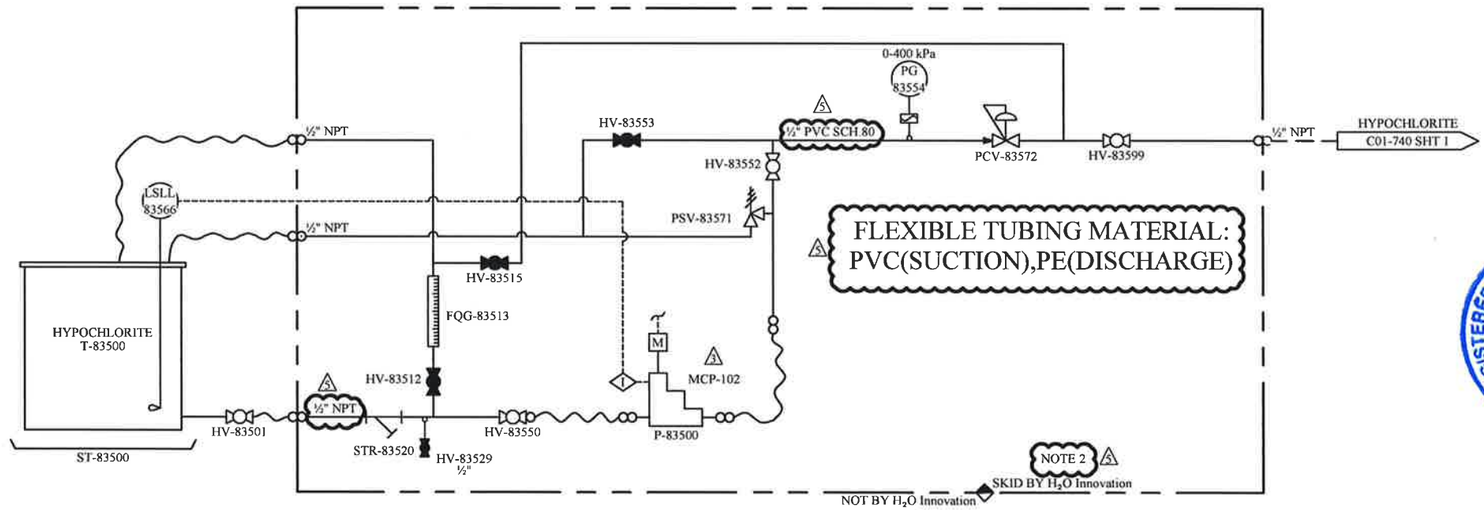
SCALE: N/A

DRAWING NUMBER: U65875-C01-0790
SHEET: 1 of 1

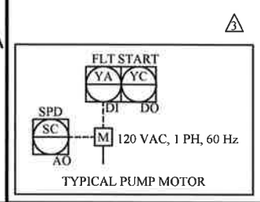
REVISION: 05



CITRIC ACID, 50 % SOLUTION DOSING SYSTEM



SODIUM HYPOCHLORITE, 10.3 % DOSING SYSTEM



TYPICAL PUMP MOTOR

NOTE 1
NOTE 2

NOTES:
1. EQUIPMENT TO BE PLACED IN CONTAINER #1
2. EQUIPMENT TO BE PLACED IN CONTAINER #2

REGISTERED PROFESSIONAL ENGINEER
R. DESGAGNÉ
LICENSEE
NT/NU
26/10/2016

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UNLESS NOTED OTHERWISE
INTERPRETATION ANSI Y14.5
TOLERANCES
FRACTIONS ±1/16
DECIMALS X.X ±0.030
X.XX ±0.015
ANGLES ±0.5°
HOLE SIZES ±1/64
HOLE CENTERS ±1/32
DO NOT SCALE PRINTS

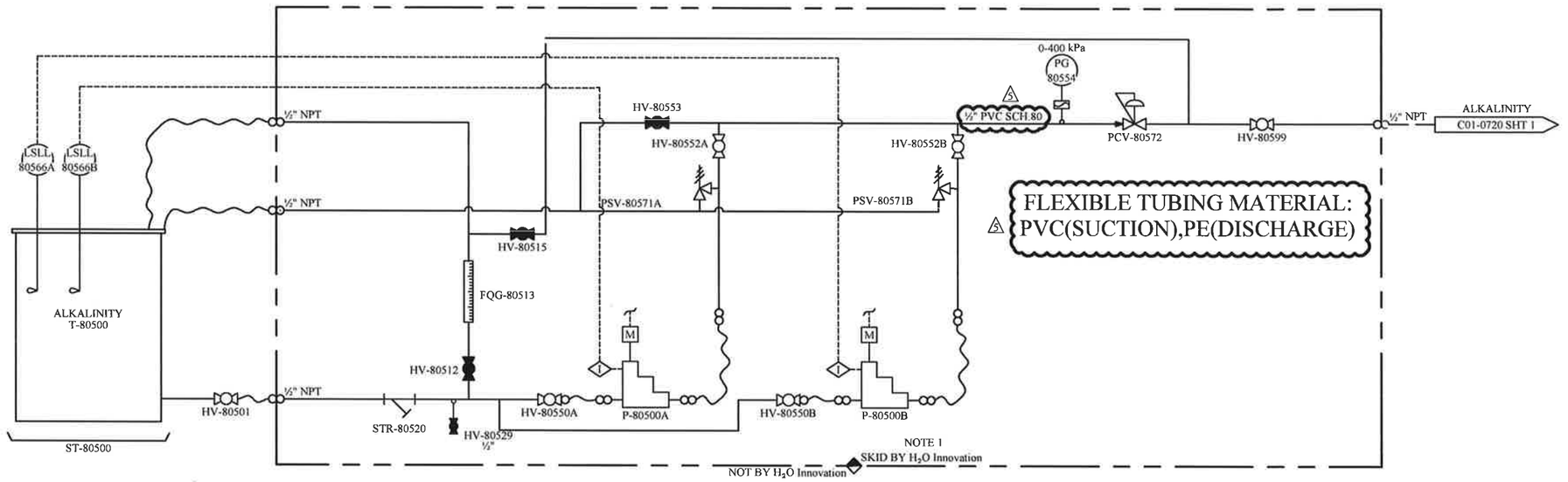
MELIADINE STP

216 M3/DAY

TITLE:
DOSING SKIDS - CLEANING CHEMICALS
PROCESS & INSTRUMENTATION DIAGRAM

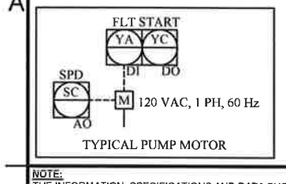
SCALE:	DRAWING NUMBER:	REVISION
N/A	U65875-C01-0800	05

SHEET: 1 of 2



HYDROXYDE DE SODIUM, 25%, ALKALINITY ADJUSTMENT CHEMICAL DOSING SYSTEM

MCP-102



R. DESJAGNÉ LICENSEE NT/NU
REGISTERED PROFESSIONAL ENGINEER
26/10/2016

NOTES:

1. EQUIPMENT TO BE PLACED IN CONTAINER #2.

DRAWING REVISION

REV	DATE (dd/mm/yyyy)	REVISION DESCRIPTION	DRAWN	CHKD	ENG	APPVD
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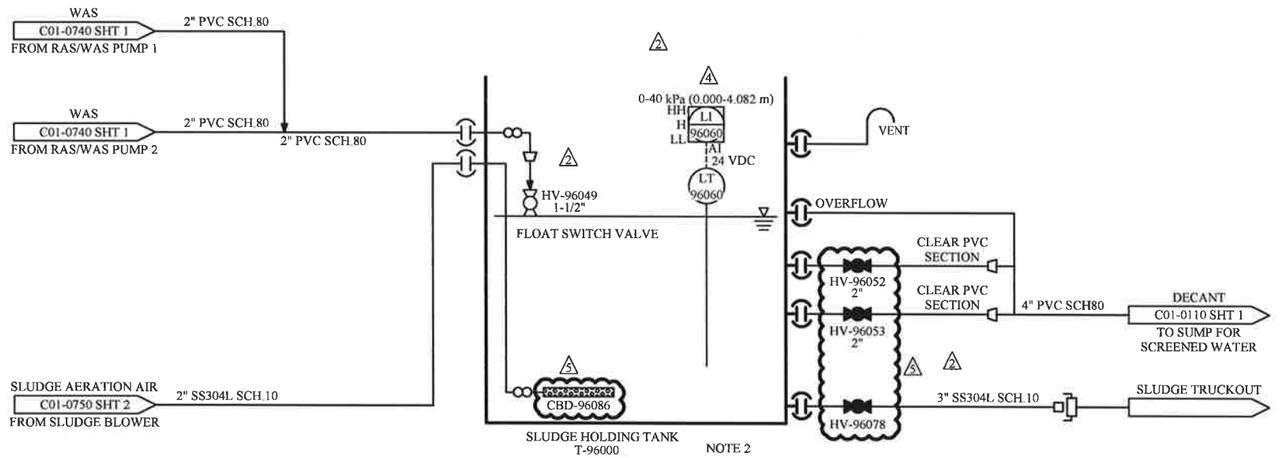
UNLESS NOTED OTHERWISE
INTERPRETATION ANSI Y14.5
TOLERANCES
FRACTIONS ±1/64"
DECIMALS X.X ±0.030
X.XX ±0.015
X.XXX ±0.5°
ANGLES ±1/64"
HOLE SIZES ±1/64"
HOLE CENTERS
DO NOT SCALE PRINTS

MELIADINE STP

216 M3/DAY

TITLE:
DOSING SKIDS - ALKALINITY
PROCESS & INSTRUMENTATION DIAGRAM

SCALE:	DRAWING NUMBER:	REVISION
N/A	U65875-C01-0800 SHEET: 2 of 2	05



REGISTERED PROFESSIONAL ENGINEER
R. DESGAGNÉ
LICENSEE
NT/NU
26/10/2016

NOTES:

1. ALL COMPONANTS GOING INTO RIO 101.
2. SLUDGE HOLDING TANK WITH COVER.
3. ALL VENT TO OUTSIDE.

DRAWING REVISION

REV	DATE (DD/MM/YYYY)	REVISION DESCRIPTION	DRAWN	CHKD	ENG	APPVD
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UNLESS NOTED OTHERWISE
INTERPRETATION ANSI Y14.5
TOLERANCES
FRACTIONS ±1/64
DECIMALS X.X ±0.030
X.XX ±0.015
ANGLES ±0.5°
HOLE SIZES ±1/64
HOLE CENTERS ±1/64
DO NOT SCALE PRINTS

MELIADINE STP

216 M3/DAY

TITLE:
SLUDGE HANDLING SYSTEM
PROCESS & INSTRUMENTATION DIAGRAM

SCALE:	DRAWING NUMBER:	REVISION
N/A	U65875-C01-0960	05

SHEET: 1 of 1

CONTINUED
NOTE 2

RAW WATER
M
120V
FV-10001
2" PVC SCH.80
TREATED WATER
C01-0910 SHT1
FROM CHLORINE
SENSOR BLEED LINE
VENT
FILTERED WATER
C01-0400 SHT 1
FROM TURBIDITY SENSOR
RAW WATER
STORAGETANK
T-10000
HH
H
L
LL
0-2.00m
LI
10060
LX
10001
AI
LT
10060
24 VDC
HV-10060
2" PVC SCH.80
HV-10250A
HV-10228A
1/2"
P-10200A
CV-10251A
HV-10252A
0-1000kPa
PI
10259
0-690kPa
PG
10254
PT
10259
24 VDC
2" PVC SCH.80
20 m3/h
FI
10274
FX
10276
FIT
10274
24 VDC
FV-10299
HCV-10276
RAW WATER
C01-0400 SHT 1
TO CARTRIDGE FILTERS
3" PVC SCH.80
HV-10078
HV-10250B
HV-10228B
1/2"
RAW WATER PUMPS
P-10200B
CV-10251B
HV-10252B
RAW WATER
TO FIRE PUMP
6" PVC SCH.80
DRAIN/OVERFLOW
LEH
11068
DI
LE
10068
120 V
NOTE 3
NOT BY H_2O Innovation
BY H_2O Innovation
CONTINUED

START FLT RUN HOA
YC YA YI HS
DO DI DI
M 600V
TYPICAL PUMP MOTOR

HOA
HSC HSO
DO DO
M 120 VAC, 1 PH, 60 Hz
TYPICAL ELECTRIC VALVE

REGISTERED PROFESSIONAL ENGINEER
R. DESGAGNÉ
LICENSEE
NTNU
20/09/2016

NOTES:

1. ALL SIGNALS GOING INTO MCP-101.
2. EQUIPEMENT TO BE PLACED IN CONTAINER #1.
3. WATER LEAK DETECTOR

DRAWING REVISION

REV	DATE	REVISION DESCRIPTION	DRAWN	CHKD	ENG	APPVD
03	09/08/2016	AS BUILT	M.P.	S.B.	R.D.	A.M.
02	25/07/2016	REVISED AS PER COMMENTS	M.P.	S.B.	R.D.	A.M.
01	29/06/2016	AS PER COMMENTS	M.P.	S.B.	R.D.	A.M.
00	13/06/2016	INITIAL RELEASE	M.P.	S.B.	R.D.	A.M.

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UNLESS NOTED OTHERWISE
INTERPRETATION ANSI Y14.5
TOLERANCES
FRACTIONS ±1/16
DECIMALS 0 X ±0.030
0 XX ±0.015
ANGLES ±0.5°
HOLE SIZES ±1/64
HOLE CENTERS ±1/32
DO NOT SCALE PRINTS

MELIADINE

WTP CONTAINERIZED UNIT

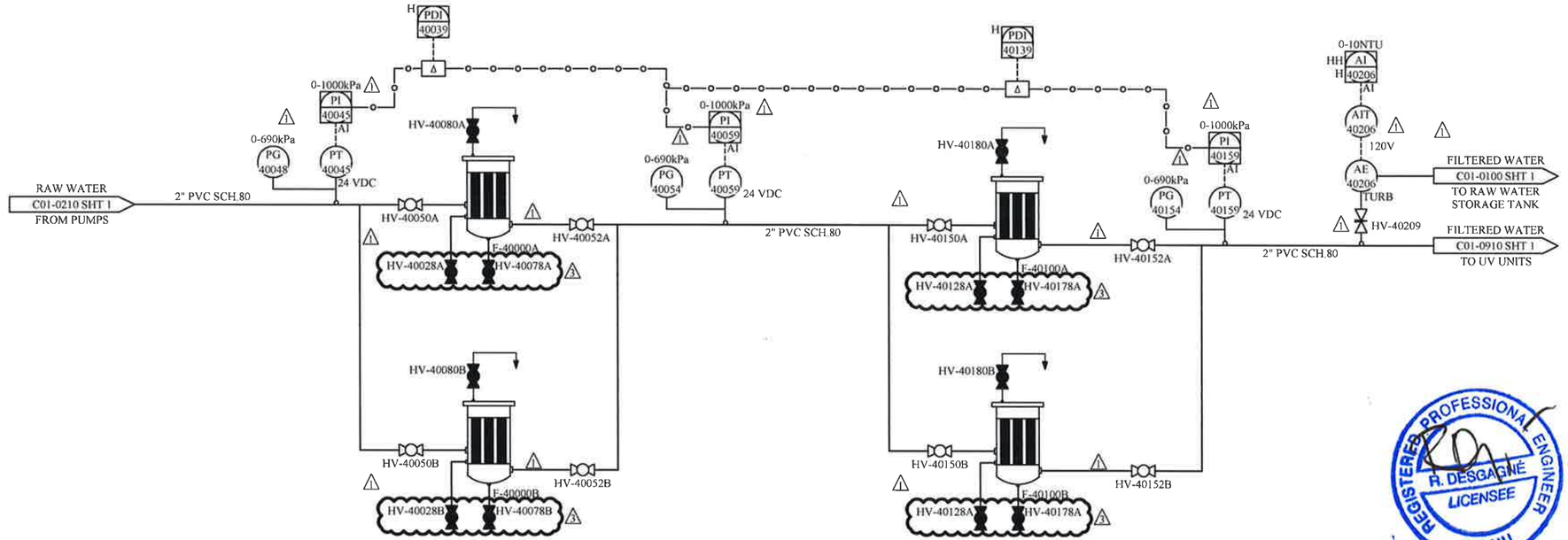
TITLE:
RAW WATER FEED SYSTEM
PROCESS & INSTRUMENTATION DIAGRAM

SCALE: N/A
DRAWING NUMBER: P65873-C01-0100
SHEET: 1 of 1
REVISION 03

CONTINUES

CONTINUES

NOTE 2 ⚠



5 MICRONS CARTRIDGE FILTERS

1 MICRON CARTRIDGE FILTERS

REGISTERED PROFESSIONAL ENGINEER
R. DESGAGNÉ
LICENSEE
NTNU
29/09/2016

CONTINUES

NOT BY H_2O Innovation

BY H_2O Innovation

CONTINUES

NOTES:

1. ALL SIGNALS GOING INTO MCP-101.
2. EQUIPEMENT TO BE PLACED IN CONTAINER #1. ⚠

DRAWING REVISION

REV	DATE (DD/MM/YYYY)	REVISION DESCRIPTION	DRAWN	CHKD	ENG	APPVD
03	09/08/2016	AS BUILT	M.P.	S.B.	R.D.	A.M.
02	25/07/2016	REVISED AS PER COMMENTS	M.P.	S.B.	R.D.	A.M.
01	29/06/2016	AS PER COMMENTS	M.P.	S.B.	R.D.	A.M.
00	13/06/2016	INITIAL RELEASE	M.P.	S.B.	R.D.	A.M.

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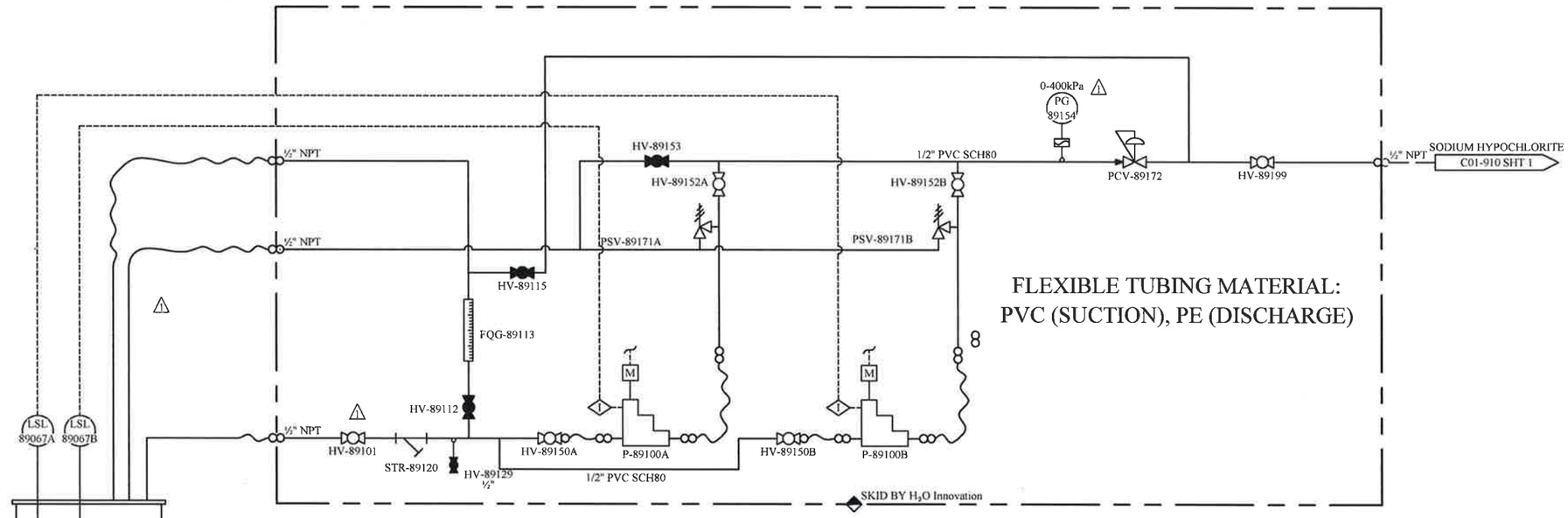
UNLESS NOTED OTHERWISE
INTERPRETATION ANSI Y14.5
TOLERANCES
FRACTIONAL ±
DECIMALS .X ±0.1
.XX ±0.01
ANGULAR ±0.5
HOLE SIZES ±
HOLE CENTERS ±
DO NOT SCALE PRINTS

MELIADINE

WTP CONTAINERIZED UNIT

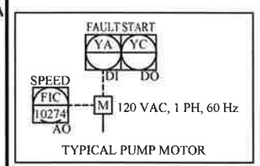
TITLE:
CARTRIDGE FILTERS
PROCESS & INSTRUMENTATION DIAGRAM

SCALE:	DRAWING NUMBER:	REVISION
N/A	P65873-C01-0400 SHEET: 1 of 1	03



SODIUM HYPOCHLORITE, 12 % DOSING SYSTEM

NOTE 2 ⚠



TYPICAL PUMP MOTOR

NOTES:

1. ALL SIGNALS GOING INTO MCP-101.
2. EQUIPEMENT TO BE PLACED IN CONTAINER #1. ⚠

DRAWING REVISION

REV	DATE (DD/MM/YYYY)	REVISION DESCRIPTION	DRAWN	CHKD	ENG	APPVD
03	09/08/2016	AS BUILT	M.P.	S.B.	R.D.	A.M.
02	25/07/2016	REVISED AS PER COMMENTS	M.P.	S.B.	R.D.	A.M.
01	29/06/2016	AS PER COMMENTS	M.P.	S.B.	R.D.	A.M.
00	13/06/2016	INITIAL RELEASE	M.P.	S.B.	R.D.	A.M.

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UNLESS NOTED OTHERWISE
INTERPRETATION AND Y14.5
TOLERANCES
FRACTIONS ±1/64
DECIMALS 0.X ±0.030
0.XX ±0.015
ANGLES ±0.5°
HOLE SIZES ±1/64
HOLE CENTERS ±1/64
DO NOT SCALE PRINTS

MELIADINE

WTP CONTAINERIZED UNIT

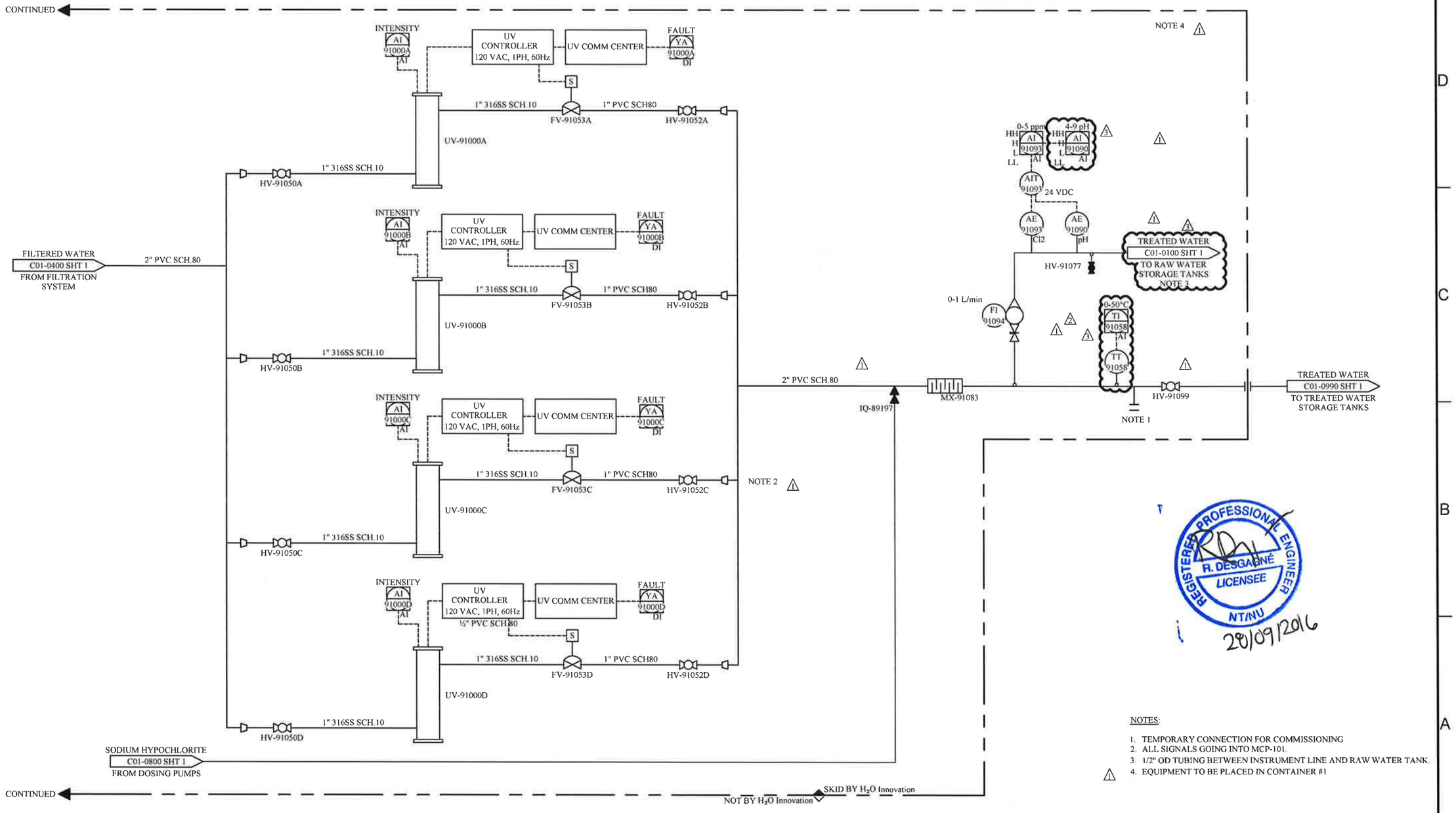
TITLE:
DOSING SKIDS - DUPLEX SOLENOID
PROCESS & INSTRUMENTATION DIAGRAM

SCALE: N/A

DRAWING NUMBER: P65873-C01-0800

SHEET: 1 of 1

REVISION 03



REGISTERED PROFESSIONAL ENGINEER
R. DESGAGNÉ
LICENSEE
NT/NU
29/09/2016

NOTES:

1. TEMPORARY CONNECTION FOR COMMISSIONING
2. ALL SIGNALS GOING INTO MCP-101.
3. 1/2" OD TUBING BETWEEN INSTRUMENT LINE AND RAW WATER TANK.
4. EQUIPMENT TO BE PLACED IN CONTAINER #1

DRAWING REVISION

REV	DATE	REVISION DESCRIPTION	DRAWN	CHKD	ENG	APPVD
03	09/08/2016	AS BUILT	M.P.	S.B.	R.D.	A.M.
02	25/07/2016	REVISED AS PER COMMENTS	M.P.	S.B.	R.D.	A.M.
01	29/06/2016	AS PER COMMENTS	M.P.	S.B.	R.D.	A.M.
00	13/06/2016	INITIAL RELEASE	M.P.	S.B.	R.D.	A.M.

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UNLESS NOTED OTHERWISE
INTERPRETATION ANSI Y14.5
TOLERANCES
FRACTIONS ±1/64
DECIMALS 0.X ±0.100
0.XX ±0.010
0.XXX ±0.005
ANGLES ±0.5°
HOLE SIZES ±1/64
HOLE CENTERS ±1/32
DO NOT SCALE PRINTS

MELIADINE

WTP CONTAINERIZED UNIT

TITLE:
UV TREATMENT UNITS
PROCESS & INSTRUMENTATION DIAGRAM

SCALE:	DRAWING NUMBER:	REVISION
N/A	P65873-C01-0910 SHEET: 1 of 1	03

TREATED WATER
C01-0910 SHT 1
FROM UV UNITS

2" PVC SCH.80

VENT

TREATED WATER
STORAGETANK
T-99000

NOTE 1

HH 0-2.00m
H
L LI 99259 AI
LL

LT 99259 24 VDC

HV-99259

4" PVC SCH.80

HV-99078

3" PVC SCH.80

HV-99250A

HV-99228A 1/2"

M

P-99200A

CV-99251A

HV-99252A

HYDROPNEUMATIC TANK T-99300

HV-99301 1-1/4"

3" PVC SCH.80

0-600kPa
HH
H PI 99259 PX 99200
L AI
LL

0-690kPa PG 99254

PT 99259 24 VDC

0-45 m3/Hr
LL FI 99274 AI

FIT 99274 24 VDC

M

NOTE 3

NOTE 4

TREATED WATER
TO EMERGENCY SHOWER

HV-99299

TREATED WATER
TO DISTRIBUTION

HV-99277
1/2"

2

LEH 99068 HH
DI

LE 99068
120 V

NOTE 5

3" PVC SCH.80

HV-99250B

HV-99228B 1/2"

M

TREATED WATER
DISTRIBUTION PUMPS
P-99200B

CV-99251B

HV-99252B

BY OTHERS

BY H_2O Innovation

DRAIN/OVERFLOW

REGISTERED PROFESSIONAL ENGINEER
R. DESGAGNÉ
LICENSEE
NT/NU
29/09/2016

SIGNAL
FROM PROCESS VARIABLE

PID	SPD	START	FLT	RUN	HOA
PIC	SI	YC	YA	YI	HS
AO	AI	DO	DI	DI	

SC

M 600 VAC, 3 PH, 60 Hz

TYPICAL PUMP MOTOR (WITH VFD)

NOTES:

1. 5 TANKS IN SERIES LINKED TOGETHER
2. ALL SIGNALS GOING INTO MCP-101.
3. EQUIPMENT TO BE PLACED IN CONTAINER #2.
4. EQUIPMENT TO BE PLACED IN CONTAINER #1.
5. WATER LEAK DETECTOR

DRAWING REVISION

REV	DATE	REVISION DESCRIPTION	DRAWN	CHKD	ENG	APPVD
03	09/08/2016	AS BUILT	M.P.	S.B.	R.D.	A.M.
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UNLESS NOTED OTHERWISE
INTERPRETATION ANSI Y14.5
TOLERANCES
FRACTIONS ±1/16
DECIMALS 0.X ±0.030
0.XX ±0.015
0.XXX ±0.5
ANGLES ±0.5°
HOLE SIZES +1/16 -0
HOLE CENTERS ±1/16
DO NOT SCALE PRINTS

MELIADINE

WTP CONTAINERIZED UNIT

TITLE:
TREATED WATER DISTRIBUTION SYSTEM
PROCESS & INSTRUMENTATION DIAGRAM

SCALE: N/A

DRAWING NUMBER: P65873-C01-0990

SHEET: 1 of 1

REVISION 03