PROCESS DEVICE TAG BREAKDOWN

POWERED EQUIPMENT TAGS
- EQUIPMENT ABBREVIATION
- MOTOR(M), OR SOLENOID(S), OR GENERIC EQUIPMENT (EQ).
- UNIT NUMBER

INSTRUMENTATION

FORMAT LIT 2030

- INSTRUMENT TYPE
- INSTRUMENT DEVICE ID

MECHANICAL

FORMAT VFC 2001

- PROCESS/ MECH. DEVICE IDENTIFIER
- MECH. DEVICE ID

TANKS

FORMAT TH 6010

- TANK TYPE
- TANK ID

PROCESS/MECHANICAL ABBREVIATIONS

BOP - BOTTOM OF PIPE
COP - CENTRE OF PIPE
INV - INVERT
BOD - BOTTOM OF DUCT
BOE - BOTTOM OF EQUIPMENT
C/W - COMPLETE WITH
NTS - NOT TO SCALE

TP INDICATES TIE POINTS WITH EXISTING PIPING OR PACKAGED EQUIPMENT

PROCESS AND MECHANICAL EQUIPMENT IDENTIFIERS

PROCESS EQUIPMENT
BL - BLOWER
BS - BAR SCREEN
CL2 - CHLORINATOR
CP - COMPRESSOR
CNT - CENTRIFUGE
F - FILTER
HX - HEAT EXCHANGER
MIX - GENERIC MIXER
MS - MECHANICAL SCREEN
P - PUMP
SCV - SCREW CONVEYOR
SG - SLIDE / SLUICE GATE
SGA - SLIDE / SLUICE GATE (AUTOMATED)
SL - STOP LOG
SMC - SAMPLE CHILLER
SWC - SHAFTLESS WASHER / COMPACTOR
UVD - ULTRA-VIOLET DEVICE
WSC - WEIR - BROAD-CRESTED
WSS - WEIR - SHARP-CRESTED
WVN - WEIR - V-NOTCH

VALVES
VB - VALVE: BALANCING VALVE
VBF - VALVE: BACKFLOW PREVENTER
VBP - VALVE: BACKPRESSURE RELIEF
VC - VALVE: CHECK
VF - VALVE: FLOW ISOLATION
VFC - VALVE: FLOW CONTROL
VPC - VALVE: PRESSURE REGULATING VALVE
VPR - VALVE: PRESSURE RELIEF
VVR - VALVE: VACUUM REGULATOR

TANKS
TH - TANK: HOLDING
TM - TANK: MIXING

VENTILATION EQUIPMENT
AC - AIR CONDITIONING UNIT
CND - CONDENSER
EF - EXHAUST FAN
FC - FAN COIL
FH - FUME HOOD
HRV - HEAT RECOVERY VENTILATOR
MD - MOTORIZED DAMPER
SF - SUPPLY FAN
TF - TRANSFER FAN

HEATING EQUIPMENT
BB - BASEBOARD HEATER
CUH - CABINET UNIT HEATER
HC - HEATING COIL
RA - CONVECTOR
UH - UNIT HEATER
WH - WATER HEATER (INSTANTANEOUS)
WHT - WATER HEATING TANK

PLUMBING EQUIPMENT
BFP - BACKFLOW PREVENTER
C.O. - CLEAN OUT
FD - FLOOR DRAIN
FFD - FUNNEL FLOOR DRAIN
HB - HUB DRAIN
RD - ROOF DRAIN

ROTATING EQUIPMENT

CENTRIFUGAL BLOWER

CENTRIFUGAL PUMP (GENERIC)

SANITARY SUMP PUMP

VALVES

GATE (GENERIC)
DIAPHRAGM
GATE, ANGLE
LUBRICATED PLUG VALVE
3 WAY (GENERIC)
ECCENTRIC PLUG
GLOBE VALVE
BALL VALVE
BUTTERFLY VALVE
PRESSURE REDUCING VALVE
BACK PRESSURE VALVE
VACUUM BREAKER
THERMOSTATIC SELF ACTING VALVE
TRIPLE DUTY CHECK VALVE

VACUUM RELIEF VALVE
PRESSURE RELIEF VALVE
CHECK VALVE
FLOAT CONTROL SHUT-OFF VALVE
CIRCUIT BALANCING VALVE
REDUCED PRESSURE BACKFLOW PREVENTER
DOUBLE CHECK BACKFLOW PREVENTER
SLUICE GATE
HAND GATE
HAND GATE (FRAME ONLY)

PIPE SYMBOLS

CONCENTRIC REDUCER
ECCENTRIC REDUCER
UNION, SCREWED
UNION, FLANGED
PIPE BREAK
PIPE DROP
PIPE RISE

PIPE TEE DOWN
PIPE TEE UP
ANCHOR, INTERMEDIATE
ANCHOR, MAIN
PIPE CAP
DRAIN (TO DRAIN)
QUICK CONNECT COUPLING

PIPE TAG LEGEND

S-XX-YY — LINE NO.
S-XX-YY — EXISTING LINE NO.

W-ERE:
S = NOMINAL SIZE
XX = MATERIAL
YY = SYSTEM IDENTIFIER

SYSTEM IDENTIFIERS

AA AQUEOUS AMMONIA
AL ALUMINUM SULFATE
BW BACKWASH WATER
BWR BACKWASH RESIDUAL WATER
BYP BYPASS
CA COMPRESSED AIR
CIT CITRIC ACID
CL CHLORINE
CL2 TOTAL CHLORINE
CR CLARIFIER RESIDUALS
CNT CENTRATE
COAG COAGULANT
DCW DOMESTIC COLD WATER
DHW DOMESTIC HOT WATER
DR DRAIN
DWV DRAIN / WASTE / VENT
EA EXHAUST AIR
ECND EXHAUST CONDENSATE
EQL EQUALIZATION
FCL FERRIC CHLORIDE
FOF FUEL OIL FILL
FOR FUEL OIL RETURN
FOS FUEL OIL SUPPLY
FOV FUEL OIL VENT
FS FIRE STANDPIPE
FW FILTERED WATER
GLR GLYCOL RETURN
GLS GLYCOL SUPPLY
HWR HEATING WATER RETURN
HWS HEATING WATER SUPPLY
LIME LIME
MUA MAKE UP AIR
MW MUNICIPAL WATER
NG NATURAL GAS
OA OUTSIDE AIR
ODR ODOUR CONTROL EXHAUST AIR
OF OVERFLOW
OIL LUBE OIL PIPING
PA PROCESS AIR
PLY POLYMER
RA RETURN AIR
RECIR DOMESTIC HOT WATER RECIRCULATION
RJW REJECT WATER
RL REFRIGERANT LIQUID
RS REFRIGERANT SUCTION
RW RAW WATER
SA SUPPLY AIR
SAN SANITARY DRAIN
SBI SODIUM BISULPHITE
SCL SODIUM HYPOCHLORITE
SHW SEPARATED HOT WATER
SMB SODIUM METABISULPHITE
SN SUPERNATENT
STM STORM DRAIN
SW SERVICE WATER
(MUNICIPAL WATER DOWNSTREAM OF A BPP)
TW TREATED WATER
VNT VENT

PIPE MATERIAL ABBREVIATIONS

AL ALUMINUM
CI CAST IRON
CONC CONCRETE (CHANNEL)
CP CONCRETE PIPE
CPP CONCRETE PRESSURE PIPE
CPVC CHLORINATED POLYVINYL CHLORIDE
CS CARBON STEEL
CU COPPER
DI DUCTILE IRON
DIG GLASS LINED DUCTILE IRON
GF GLASS FIBRE
GS GALVANIZED STEEL
HDPE HIGH DENSITY POLYETHYLENE
HYP HYPRESCON
PE POLYETHYLENE
PVC POLYVINYL CHLORIDE
RCP REINFORCED CONCRETE PIPE
SS STAINLESS STEEL
TYG TYGON TUBE
UP UNECON INSULATED PIPE

FLOW MEASUREMENT DEVICES

ORIFICE PLATE
M MAGNETIC FLOW METER
D DENSITY METER
PARSHALL FLUME
WEIR, V-NOTCH
WEIR
VARIABLE AREA FLOW METER
VENTURI

INSTRUMENT SOCIETY OF AMERICA TABLE

LETTER	FIRST LETTER(S): PROCESS OR INITIATING VARIABLE	MODIFIER	SUCCEEDING LETTERS: READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A	ANALYSIS		ALARM		
B	BURNER FLAME			CONTROL	
C	CONDUCTIVITY			CONTROL	
D	DENSITY (S.G.)	DIFFERENTIAL			DIFFERENTIAL
E	VOLTAGE		PRIMARY ELEMENT		
F	FLOW RATE	RATIO			RATIO
G	GAUGE		GLASS	GATE	
H	HAND (MANUAL)				HIGH
I	CURRENT		INDICATE		
J	POWER	SCAN			SCAN
K	TIME or SCHEDULE			CONTROL STATION	
L	LEVEL		LIGHT (PILOT)		LOW
M	MOTION				MIDDLE
N	TURBIDITY				
O					
P	PRESSURE (or VACUUM)		POINT (TEST CONNECTION)		
Q	QUANTITY or EVENT	INTEGRATE	INTEGRATE		
R				RESISTOR	
S	SPEED or FREQUENCY	SAFETY		SWITCH	SAFETY
T	TEMPERATURE			TRANSMIT	
U	MULTIVARIABLE		MULTIFUNCTION	MULTIFUNCTION	MULTIFUNCTION
V	VISCOSITY			VALVE OR DAMPER	
W	WEIGHT or FORCE		WELL		
X					
Y	STATUS			RELAY or COMPUTE DRIVE, ACTUATE	
Z	POSITION				

INSTRUMENT IDENTIFICATION

POWER (NOT USED IF LOOP DIAGRAMS ARE PROVIDED)
FIRST LETTER(S)
SUCCEEDING LETTERS
OPERATION (SEE ABBREVIATIONS)
SET NUMBER
UNIT NUMBER
LOOP NUMBER
UNIT PROCESS NUMBER

INSTRUMENT (FIELD MOUNTED)
INSTRUMENT (MOUNTED AT REAR OF PANEL)
INSTRUMENT (MOUNTED ON ACP, FCP FACE)
INSTRUMENT (MOUNTED ON MCC)
PILOT LIGHT (FIELD MOUNTED)

ABBREVIATIONS

XXV XX VOLT AC - AS INDICATED
XXV XX VOLT DC - AS INDICATED
AC ALTERNATING CURRENT
ACK ACKNOWLEDGE ALARM
ALKY ALKALINITY
AM AUTO-MANUAL
AOT AUTO-OFF-TEST
CC CORPORATION COCK
CL2 CHLORINE (TYP)
CM COMPUTER-MANUAL
COD CHEMICAL OXYGEN DEMAND
CF-# CONTROL PANEL No. _
CS LOCATE ON CONTROL STATION
DC DIRECT CURRENT
DO DISSOLVED OXYGEN
DO2 DECOMPOSED WATER
DPHT DRAIN TO PROCESS HOLDING TANK
FOS FAST-OFF-SLOW
FOSA FAST-OFF-SLOW-AUTO
FOSR FAST-OFF-SLOW-REMOTE
FP-X-Y FIELD PANEL No. XY (X=UNIT PROCESS #, Y=PANEL #)
FR FORWARD-REVERSE
H2S HYDROGEN SULPHIDE
HOA HAND-OFF-AUTO
HOR HAND-OFF-REMOTE IS INTRINSIC SAFETY RELAY
IS INTRINSIC SAFETY RELAY
LA LIGHTNING ARRESTOR
LCP LOCAL CONTROL PANEL
LHOA LOW SPEED-HIGH SPEED-OFF-AUTO
LOS LOCKOUT STOP
LR LOCAL-REMOTE
MA MANUAL-AUTO
MC MODULATE-CLOSE
MCC-# MOTOR CONTROL CENTRE No. _
OC OPEN-CLOSE (D)
OCR OPEN-CLOSE-REMOTE
OCA OPEN-CLOSE-AUTO
OI OPERATOR INTERFACE
OO ON-OFF
OOA ON-OFF-AUTO
OOR ON-OFF-REMOTE
OP ORTHO PHOSPHOROUS
OSC OPEN-STOP-CLOSE
pH HYDROGEN ION CONCENTRATION
PLC PROGRAMMABLE LOGIC CONTROLLER
RM-# REMOTE MULTIPLEXING MODULE No. _
RTU-# REMOTE TELEMETRY UNIT No. _
SS START-STOP
TCL2 TOTAL CHLORINE RESIDUAL
TOD TOTAL OXYGEN DEMAND
TURB TURBIDITY
VFD VARIABLE FREQUENCY DRIVE
D DIFFERENCE
Σ SUM
X MULTIPLY
÷ DIVIDE
f(x) CHARACTERIZED
x^n RAISED TO THE Nth POWER
O SQUARE ROOT
AVE AVERAGE
1:1 REPEAT OR BOOST
> SELECT HIGHEST SIGNAL
< SELECT LOWEST SIGNAL
± BIAS
% GAIN OR ATTENUATE
ACP-# LOCATE ON AREA CONTROL PANEL No. _
D LOCATE ON MCC

TRANSDUCERS

A ANALOG
D DIGITAL
E VOLTAGE
F FREQUENCY
H HYDRAULIC
I CURRENT
P PNEUMATIC
PF PULSE FREQUENCY
PD PULSE DURATION
R RESISTANCE

CURRENT TO PNEUMATIC TRANSDUCER (PANEL MOUNTED)
CONNECTING LINES
NON-CONNECTING LINES

INTERFACE SYMBOLS

A = CONNECTION I.D.
X = PROCESS ABBREVIATION
Y = DESTINATION/INCOMING DRAWING
Z = DESCRIPTION

DISCRETE INPUT
DISCRETE OUTPUT
ANALOG INPUT
ANALOG OUTPUT
PLUG AND JACK
INTERCONNECTION
PROCESS SERVICES
INTERFACE TO OR FROM PROCESS EXTERNAL TO PROJECT
DEVICENET NODE
GENERIC DEVICENET NODE
VFD EQUIPMENT CAN DEVICENET NODE

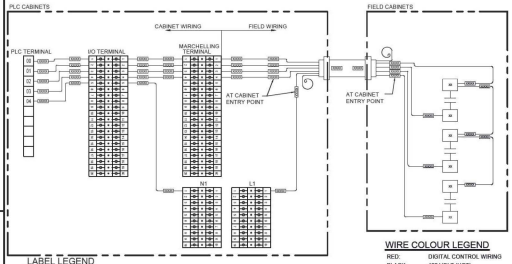
PLC IDENTIFICATION

ALARM / FUNCTION
CONNECTED PANEL
ISA FUNCTION
ANALOG OR DIGITAL INPUT/OUTPUT

LINE LEGEND

	NEW LINE	EXISTING LINE	DEMOLITION LINE
PROCESS (OPEN CHANNEL)			
ANALOG SIGNAL (AC) (4-20mAdc, etc.)			
DISCRETE SIGNAL (Dc) (ON/OFF, etc.)			
PULSE DURATION SIGNAL	PD	PD	PD
PULSE FREQUENCY SIGNAL	PF	PF	PF
PNEUMATIC SIGNAL			
FILLED SYSTEM SIGNAL	X	X	X
HYDRAULIC SYSTEM SIGNAL	L	L	L
NETWORK COMMUNICATION	I	I	I
PRIMARY PROCESS			
SECONDARY / UTILITY PROCESS			
PACKAGE SYSTEM BOUNDARY			
PANEL LINE			
DATA HIGHWAY	DH	DH	DH
DEVICENET FIELDBUS NETWORK	DN	DN	DN
CAT6 ETHERNET NETWORK	Cat 6	Cat 6	Cat 6
FIBRE OPTIC ETHERNET NETWORK	FBR	FBR	FBR
MODBUS NETWORK	MOD	MOD	MOD
RS-232 NETWORK	232	232	232
RS-485 NETWORK	485	485	485

TYPICAL CABLE WIRING AND LEGEND



LABEL LEGEND

XX XXX
- BRANCH ITEM NUMBER
- PROCESS BRANCH NUMBER
- SERIES PROCESS NUMBER
- Dc: DIGITAL CABLE
- Ac: ANALOG CABLE
- Pw: POWER CABLE

WIRE COLOUR LEGEND

RED:	DIGITAL CONTROL WIRING
BLACK:	120 VOLT (HOT)
WHITE:	120 V NEUTRAL
YELLOW:	24 V (+)
BROWN:	24 V (-)
GREEN:	GROUND
BLUE:	INTRINSIC SAFETY

FIRE PROTECTION

FIRE EXTINGUISHER

PANEL TAGGING

XX-XXXX
- SEQUENTIAL NUMBER: 00 TO 99
- SUB PROCESS
- MAJOR PROCESS
- ALPHABETIC PORTION OF TAG EX: LP, FCP, CP, LCP, DP, dlp, dfd, dfp, IT

MAJOR PROCESS: REFER TO PID 01, USE 9 FOR GENERAL PANELS
SUB PROCESS: 0 FOR GENERAL PROCESS PANELS; 9 FOR BUILDING SERVICES GENERAL PANELS

HEATING EQUIPMENT

UNIT HEATER
CABINET UNIT HEATER
BASEBOARD HEATER

PIPING SPECIALTIES

AIR VENT, MANUAL
AIR VENT, AUTOMATIC
AIR VACUUM RELEASE
WYE TYPE STRAINER
EXPANSION JOINT
FLEXIBLE CONNECTION
NATURAL GAS METER
THERMOSTAT, ELECTRIC
THERMOSTAT, PNEUMATIC
FLUSHING CONNECTION
FEED POINT
DRAIN
HOSE BIBB
WALL HYDRANT

FLOOR DRAIN
FUNNEL FLOOR DRAIN
CLEANOUT

AIR MOVING EQUIPMENT

FAN
MOTORIZED DAMPER
FIRE DAMPER
BALANCING DAMPER
BACK DRAFT DAMPER
ROOFTOP FAN
GENERIC GRILLE/DIFFUSER
LOUVRE

DIFFUSER TAG
DIFFUSER TYPE
FLOW RATE
DIFFUSER SIZE
CONNECTION SIZE

Tab of
FLOW RATE
FLOW RATE
FLOW RATE

No.	ISSUE / REVISION	DD/MM/YY
1	ISSUED FOR CONSTRUCTION	12/06/23
0	ISSUED FOR TENDER	31/03/23

VERIFY SHEET SIZE AND SCALE. THE BAR TO THE RIGHT IS 25mm IF THIS IS A FULL SIZE DRAWING. 0 25mm

SCALE: NTS

CLIENT: Town of North Dundas

CONSULTANT: J.L.Richards ENGINEERS · ARCHITECTS · PLANNERS www.jlrichards.ca

CONSULTANT:

PROJECT NORTH:

PROFESSIONAL STAMP: LICENSED PROFESSIONAL ENGINEER J.W. WOZNIAK 100062025 2023-06-12 PROVINCE OF ONTARIO

PROJECT: CHESTERVILLE DRINKING WATER SUPPLY SYSTEM UPGRADES

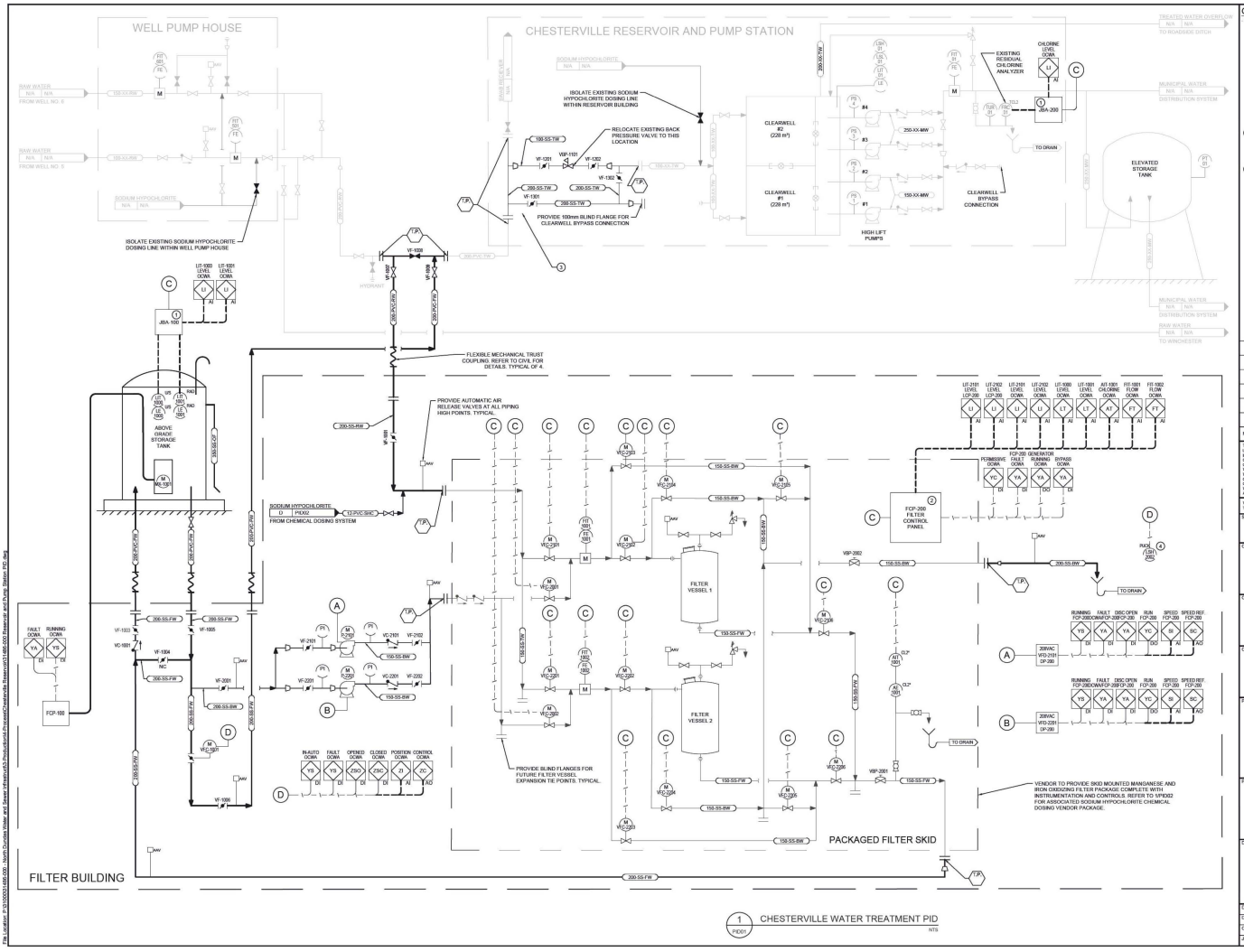
VILLAGE OF CHESTERVILLE, ONTARIO

DRAWING: P&ID LEGEND

DESIGN: JW
DRAWN: JV
CHECKED: ADLO
J.L.R.#: 31495-000
DRAWING #: PID00

PLOT DATE: June 9, 2023 8:32:36 AM

File Location: P:\31000\31495-000 - North Dundas Water and Sewer Infrastructure\5-Production\Preliminary Reservoir\00-PID - EQ\PID_Eng



1 CHESTERVILLE WATER TREATMENT PID
PID01 NTS

GENERAL NOTE:

A. REFER TO NEW PANEL IO TABLES IN SPECIFICATION APPENDICES.

DRAWING NOTES:

1. DEMOLISH EXISTING CONDUCTORS AND CONDUIT. PROVIDE ANALOG SIGNAL DUPLICATOR TO BUIT. ONE SIGNAL TO FEED OCWA PANEL THE OTHER TO FEED FILTER SKID CONTROL PANEL.
2. PROVIDE ANALOG SIGNAL DUPLICATORS TO RELAY ABOVE GROUND STORAGE TANK ANALOG LEVEL STATUS TO OCWA PANEL. PROVIDE ANALOG SIGNAL DUPLICATORS TO RELAY CHEMICAL TANK LEVEL STATUS TO OCWA PANEL AND LCP-200.
3. FLOOR PLAN LAYOUT OF PLANT HEADER WITHIN CHESTERVILLE RESERVOIR AND PUMP STATION BUILDING IS NOT PROVIDED. CONTRACTOR TO TAKE SITE MEASUREMENTS AND CONSTRUCT NEW HEADER IN ACCORDANCE WITH THIS SCHEMATIC DRAWING.
4. PROVIDE FLOOR FLOOD MOISTURE SENSING PUCK LOCATED IN A SUITABLE LOCATION TO PREVENT FALSE ALARMS.

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VERIFY SHEET SIZE AND SCALE. THE BAR TO THE RIGHT IS 25mm IF THIS IS A FULL SIZE DRAWING. 25mm

SCALE: NTS

CLIENT: Town of North Dundas

CONSULTANT: www.jlrichards.ca — J.L.Richards ENGINEERS · ARCHITECTS · PLANNERS

CONSULTANT:

PROJECT NORTH:

PROFESSIONAL STAMP: LICENSED PROFESSIONAL ENGINEER — Andrew W. Woznjak — 100050525 — 2023-06-12 — PROVINCE OF ONTARIO

PROJECT:

CHESTERVILLE DRINKING WATER SUPPLY SYSTEM UPGRADES

VILLAGE OF CHESTERVILLE, ONTARIO

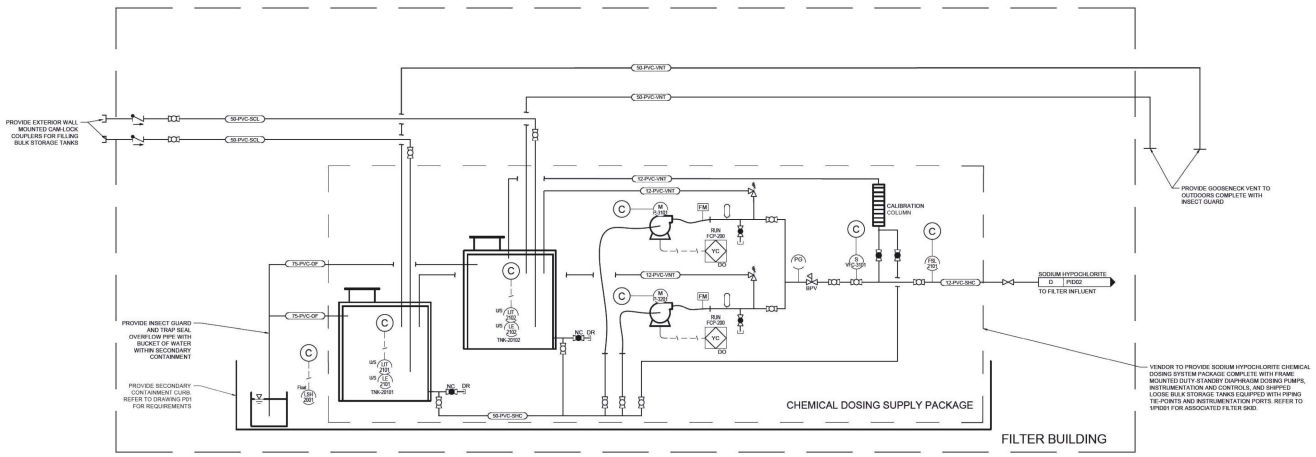
DRAWING:

CHESTERVILLE RESERVOIR PID

DESIGN: ADJ/WSB	DRAWING #:
DRAWN: BKJ/VNB	PID01
CHECKED: ADJ/LO	
J.L.R #: 31495-000	

PLOT DATE: June 9, 2023 8:36:19 AM

File Location: P:\31000\31495-000 - North Dundas Water and Sewer Infrastructure\Production\Preparation\Chesterville Reservoir\31495-000 Reservoir and Pump Station PID.dwg



1 PID02 SODIUM HYPOCHLORITE DOSING SYSTEM PID

NTS

PUMP SCHEDULE															
I.D.	DESCRIPTION	MANUF./MODEL	TYPE	DUTY POINT			DISPLACEMENT DATA			FLUID	MOTOR			RPM	COMMENTS
				FLOW	TDH	HYD EFF.	STROKE RATE	SUCTION LIFT	MAX PRESSURE		HP	VOLT	PH		
				L/s	m	%	strokes	m	psig						
P-2101 & P-2201	BACKWASH PUMPS (DUTY & STANDBY)	PEERLESS SUMMIT PUMP FM SERIES OR APPROVED EQUIVALENT	CENTRIFUGAL END SUCTION	30.6	27.7	78.2	N/A	N/A	N/A	WATER	20	600	3	1880	
P-3101 & P-3201	CHEMICAL DOSING PUMPS (DUTY & STANDBY)	PROMINENT GAMMA X SERIES	SOLENOID-DRIVEN METERING	N/A	N/A	N/A	0.11	2.1	232	14% NaOCl SOLUTION	N/A	120	1	N/A	PUMPS SHALL BE EACH CAPABLE OF DELIVERING 8-4 L/h OF SOLUTION INTO THE SYSTEM

GENERAL NOTE:

A. REFER TO DRAWING PID01 FOR CONTINUATION OF SIGNALS (BUBBLE 'C') TO FCP-300 FILTER CONTROL PANEL

B. REFER TO NEW PANEL IO TABLES IN SPECIFICATION APPENDICES.

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SCALE: NTS

CLIENT: Municipality of North Dundas

CONSULTANT: www.jlrichards.ca J.L.Richards ENGINEERS · ARCHITECTS · PLANNERS

CONSULTANT:

PROJECT NORTH

PROFESSIONAL STAMP: LICENSED PROFESSIONAL ENGINEER J.W. WOZNIAK 100050262 2023-06-12 PROVINCE OF ONTARIO

PROJECT:

CHESTERVILLE DRINKING WATER SUPPLY SYSTEM UPGRADES

VILLAGE OF CHESTERVILLE, ONTARIO

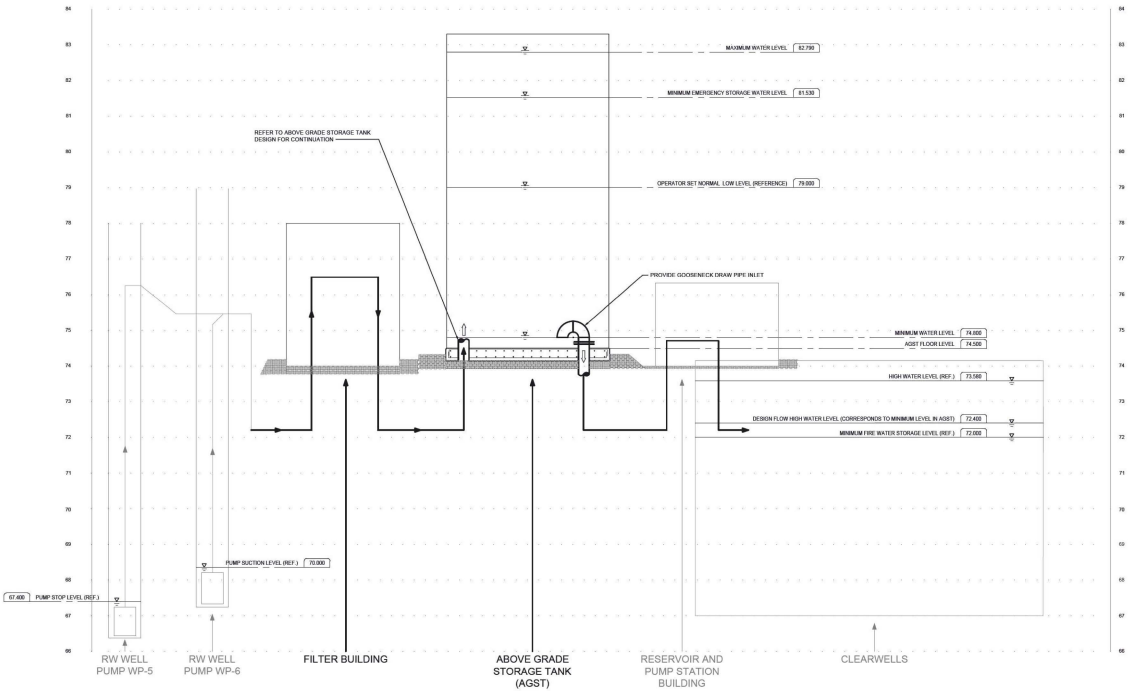
DRAWING:

SODIUM HYPOCHLORITE DOSING SYSTEM & PUMP SCHEDULE

DESIGN: ADJ/WISB	
DRAWN: BK/NB	DRAWING #:
CHECKED: ADJ/LO	PID02
J.L.R #: 31495-000	

PLOT DATE: June 9, 2023 2:28:32 PM

File Location: P:\31000\31495-000 - North Dundas Water and Sewer Infrastructure\3-Production\Chesterville Reservoir\31495-000 Reservoir and Pump Station PID.dwg



1 HP01 HYDRAULIC PROFILE
SCALE: VERTICAL 1:50, HORIZONTAL N.T.S

No.	ISSUE / REVISION	DD/MM/YY
1	ISSUED FOR CONSTRUCTION	12/06/23
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VERIFY SHEET SIZE AND SCALES. THE BAR TO THE RIGHT IS 25mm IF THIS IS A FULL SIZE DRAWING. 0 25mm

SCALE:

CLIENT: Township of North Dundas

CONSULTANT: www.jlrichards.ca
J.L.Richards ENGINEERS · ARCHITECTS · PLANNERS

CONSULTANT:

PROJECT NORTH

PROFESSIONAL STAMP: LICENSED PROFESSIONAL ENGINEER J.W. WOZNIAK 100053525 2023-06-12 PROVINCE OF ONTARIO

PROJECT:
CHESTERVILLE DRINKING WATER SUPPLY SYSTEM UPGRADES
VILLAGE OF CHESTERVILLE, ONTARIO

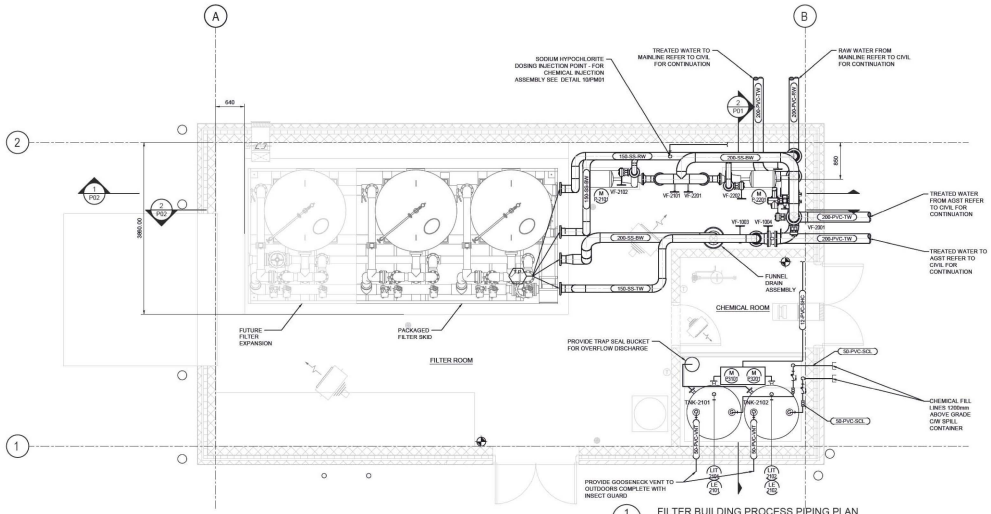
DRAWING:
HYDRAULIC PROFILE

DESIGN: JW
DRAWN: BK
CHECKED: AD
J.L.R #: 31495-000

DRAWING #: HP01

PLOT DATE: June 9, 2023 8:50:02 AM

File Location: \\Mississauga\Corp\Projects\31000\31495-000 - North Dundas Water and Sewer Infrastructure\Production\Chesterville Reservoir\31495-CHESTERVILLE_HYDRAULIC_PROFILE.dwg



1 P01 FILTER BUILDING PROCESS PIPING PLAN
SCALE: 1:40

2 P01 FILTER BUILDING SECTION
SCALE: 1:40

3 P01 SODIUM HYPOCHLORITE TANK DETAIL
SCALE: 1:20

SODIUM HYPOCHLORITE TANK NOZZLE SCHEDULE

TAG	SIZE (mm)	DESCRIPTION
1	50Ø	SUCTION
2	50Ø	FILL
3	50Ø	VENT
4	50Ø (REFERENCE)	TRANSMITTING LEVEL INDICATOR
5	50Ø (REFERENCE)	TRANSMITTING LEVEL INDICATOR
6	400Ø	LID WITH LOCKING STRAP
7	75Ø	OVERFLOW

NOTES:
1. NOMINAL TANK VOLUME: 1300 L
2. OPERATING LIQUID VOLUME: 1000 L

NOTE:
1. SUPPORT PROCESS PIPING FROM WALLS AND FLOORS.

No.	ISSUE / REVISION	DD/MM/YY
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0	ISSUED FOR TENDER	31/03/23

VERIFY SHEET SIZE AND SCALES. THE BAR TO THE RIGHT IS 25mm IF THIS IS A FULL SIZE DRAWING. 0 25mm

SCALE: AS NOTED

CLIENT: Township of North Dundas — www.jlrichards.ca

CONSULTANT: J.L.Richards ENGINEERS · ARCHITECTS · PLANNERS

CONSULTANT:

PROJECT NORTH

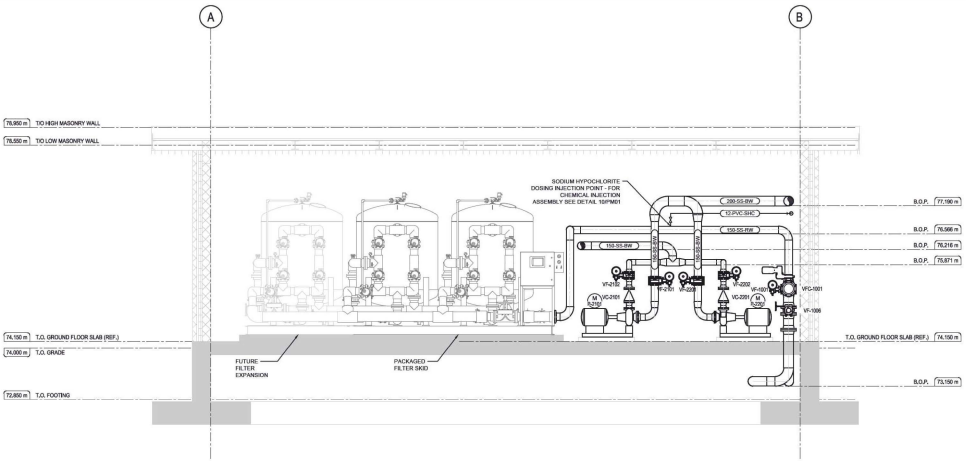
PROFESSIONAL STAMP: LICENSED PROFESSIONAL ENGINEER J.W. WOZNIAK 100053525 2023-06-12 PROVINCE OF ONTARIO

PROJECT:
CHESTERVILLE DRINKING WATER SUPPLY SYSTEM UPGRADES
VILLAGE OF CHESTERVILLE, ONTARIO

DRAWING:
FILTER BUILDING PLAN & SECTION

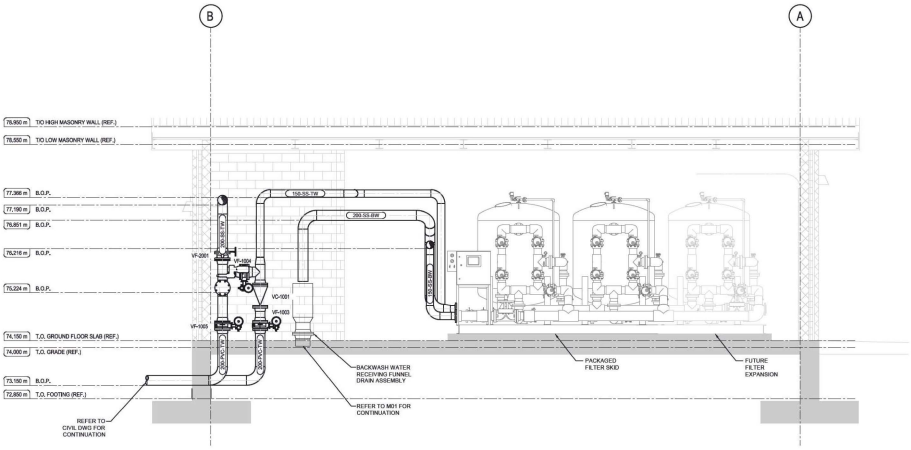
DESIGN: JW/EK
DRAWN: LB/JV
CHECKED: AD
J.L.R.#: 31486-000
DRAWING #: P01

PLOT DATE: 2023-06-12 AM



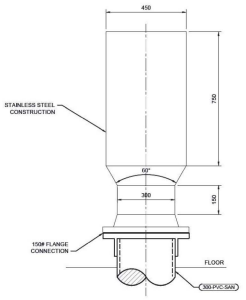
1 P02 FILTER BUILDING SECTION

SCALE: 1:40



2 P02 FILTER BUILDING SECTION

SCALE: 1:40



3 P02 FUNNEL DRAIN ASSEMBLY DETAIL

SCALE: NTS

NOTE:

1. SUPPORT PROCESS PIPING FROM WALLS AND FLOORS.

No.	ISSUE / REVISION	DD/MM/YY
1	ISSUED FOR CONSTRUCTION	12/06/23
0	ISSUED FOR TENDER	31/03/23

VERIFY SHEET SIZE AND SCALES. THE BAR TO THE RIGHT IS 25mm IF THIS IS A FULL SIZE DRAWING. 0 25mm

SCALE: AS NOTED

CLIENT: Municipality of North Dundas

CONSULTANT: www.jlrichards.ca J.L.Richards ENGINEERS · ARCHITECTS · PLANNERS

CONSULTANT:

PROJECT NORTH:

PROFESSIONAL STAMP: LICENSED PROFESSIONAL ENGINEER J.W. WOZNIAK 100053525 2023-06-12 PROVINCE OF ONTARIO

PROJECT:

CHESTERVILLE DRINKING WATER SUPPLY SYSTEM UPGRADES

VILLAGE OF CHESTERVILLE, ONTARIO

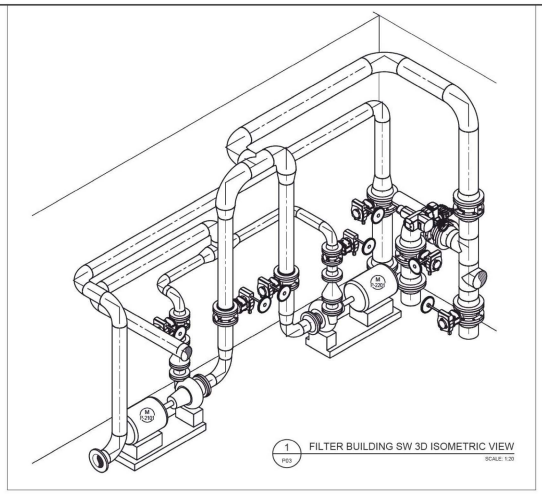
DRAWING:

FILTER BUILDING SECTIONS & DETAILS

DESIGN: JW/BK	
DRAWN: LB/JV	DRAWING #: P02
CHECKED: AD	
J.L.R. #: 31495-000	

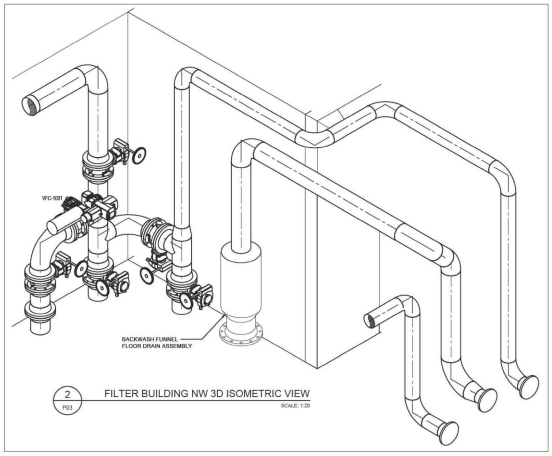
PLOT DATE: June 9, 2023 8:52:36 AM

File Location: P:\31000\31495-000 - North Dundas Water and Sewer Infrastructure\Production\Preliminary Research\31495-000 CHESTERVILLE RESERVOIR\Drawings\Figure P1 TER BLDG SECTION.dwg



1 P03 FILTER BUILDING SW 3D ISOMETRIC VIEW

SCALE: 1:30



2 P03 FILTER BUILDING NW 3D ISOMETRIC VIEW

SCALE: 1:30

DRAWING NOTES:

1. SHOWN FOR REPRESENTATION ONLY.

No.	ISSUE / REVISION	DD/MM/YY
1	ISSUED FOR CONSTRUCTION	12/06/23
0	ISSUED FOR TENDER	31/03/23

VERIFY SHEET SIZE AND SCALES. THE BAR TO THE RIGHT IS 25mm IF THIS IS A FULL SIZE DRAWING. 0 25mm

SCALE: 0 0.5 1 2 3m

CLIENT: Township of North Dundas

CONSULTANT: www.jlrichards.ca

J.L.Richards ENGINEERS · ARCHITECTS · PLANNERS

CONSULTANT:

PROJECT NORTH

PROFESSIONAL STAMP: LICENSED PROFESSIONAL ENGINEER J.W. WOZNIAK 100053525 2023-06-12 PROVINCE OF ONTARIO

PROJECT:

CHESTERVILLE DRINKING WATER SUPPLY SYSTEM UPGRADES

VILLAGE OF CHESTERVILLE, ONTARIO

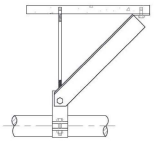
DRAWING:

FILTER BUILDING PROCESS PIPING 3D ISOMETRIC VIEWS

DESIGN: JW	
DRAWN: JV	DRAWING #:
CHECKED: AD	P03
J.L.R #: 31495-000	

PLOT DATE: June 9, 2023 8:52:36 AM

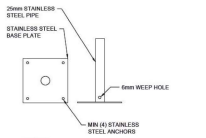
File Location: P:\31000\31495-000 - North Dundas Water and Sewer Master Plan\Production\Process\Chesterville Reservoir\31495-000-CHESTERVILLE RESERVOIR-Process\Drawings\31495-000 - SD-METRIC.dwg



APPLICATION:

1. PIPING SUBJECT TO LONGITUDINAL MOVEMENT DUE TO SEISMIC EVENT.
2. NOT TO BE USED AS AN ANCHOR FOR THERMAL EXPANSION.

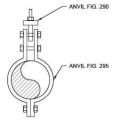
1 PM01 PIPING SWAY BRACE
SCALE: NTS



NOTES:

1. REFER TO DIV. 17 FOR INSTRUMENTATION LIST.
2. FOR INSTRUMENTATION MOUNTING WHERE APPLICABLE.

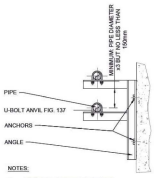
2 PM01 25mmØ STAINLESS STEEL PIPE SUPPORT FOR INSTRUMENTATION
SCALE: NTS



APPLICATION:

1. NO VERTICAL, HORIZONTAL, OR ANGULAR MOVEMENT.
2. UNINSULATED PIPE.

3 PM01 HANGER CLAMP
SCALE: NTS



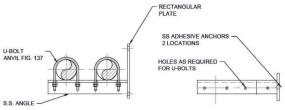
NOTES:

1. ROUND ALL EXPOSED CORNERS.

APPLICATION:

1. SMALL DIAMETER UNINSULATED PIPES SUPPORTED FROM WALL.

4 PM01 PIPE SUPPORT (B)
SCALE: NTS



NOTES:

1. ROUND ALL EXPOSED CORNERS.

APPLICATION:

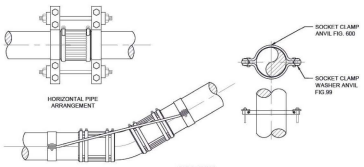
1. SMALL DIAMETER UNINSULATED PIPES SUPPORTED FROM WALL.

5 PM01 PIPE SUPPORT (A)
SCALE: NTS

APPLICATION:

1. PROVIDE FOR EACH PIPE SUPPORT WHERE VERTICAL ADJUSTMENT IS NOT AVAILABLE WITH THE PIPE SUPPORT.
2. ADJUST FOLLOWING INSTALLATION & WHEN PIPE IS AT OPERATING TEMPERATURE TO PROVIDE EVEN PIPE SUPPORT ALONG THE LENGTH OF THE PIPE.

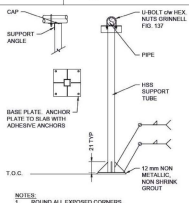
6 PM01 TURNBUCKLE
SCALE: NTS



APPLICATION:

1. RESTRAIN JOINTS OF SOCKET TYPE FITTINGS.
2. RESTRAIN JOINTS OF MECHANICAL TYPE JOINTS NOT PROVIDING LONGITUDINAL RESTRAINT.

7 PM01 THRUST RESISTANT PIPE SUPPORT
SCALE: NTS



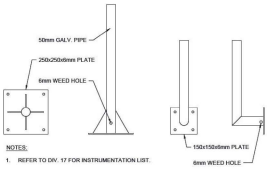
NOTES:

1. ROUND ALL EXPOSED CORNERS.

APPLICATION:

1. USE WHERE SUPPORT FROM WALL IS NOT PRACTICAL OR HANGER FROM CEILING IS EXCESSIVE (APPROX. 1.8 m OR LONGER).
2. PROVIDE LATERAL BRACING AS NECESSARY.

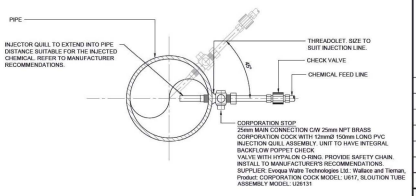
8 PM01 PIPE SUPPORT (E)
SCALE: NTS



NOTES:

1. REFER TO DIV. 17 FOR INSTRUMENTATION LIST.
2. FOR INSTRUMENTATION MOUNTING WHERE APPLICABLE.

9 PM01 50mmØ GALVANIZED PIPE SUPPORT FOR INSTRUMENTATION
SCALE: NTS

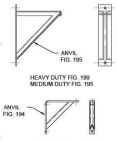


10 PM01 CHEMICAL INJECTION ASSEMBLY
SCALE: NTS

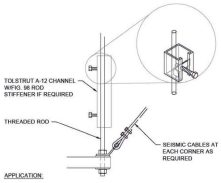
APPLICATION:

1. TO SUPPORT SINGLE PIPE'S FROM MASONRY WALLS.
2. USE WITH U-BOLT FOR SINGLE PIPE'S NOT SUBJECT TO MOVEMENT.
3. USE WITH ROLLER ASSEMBLY TO SUPPORT LONG PIPES SUBJECT TO THERMAL MOVEMENT.
4. USE WITH CLEVIS TYPE HANGERS FOR PIPES SUPPORTED FROM WALL.
5. EXAMPLE: (i) P-31: SMALL DIA. (LESS THAN 100mm) PLUMBING AND SERVICE LINES.

   (ii) P-32: MEDIUM DIA. SERVICE AND PROCESS LINES.
   (iii) P-33: HEAVY PROCESS AND DRAINAGE LINES, 300mm AND LARGER.



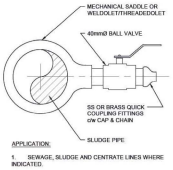
12 PM01 WELDED STEEL BRACKET SUPPORTS
SCALE: NTS



APPLICATION:

1. WHERE REQUIRED FOR SEISMIC RESTRAINT.

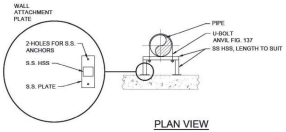
13 PM01 ROD STIFFENER ASSEMBLY
SCALE: NTS



APPLICATION:

1. SEWAGE, SLUDGE AND CENTRATE LINES WHERE INDICATED.

14 PM01 FLUSHING CONNECTION DETAIL
SCALE: NTS



PLAN VIEW

APPLICATION:

1. VERTICAL UNINSULATED PIPING AT CONCRETE WALLS.
2. NO VERTICAL MOVEMENT.

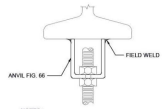
NOTES:

1. BACKING PLATE MAY BE REQUIRED FOR MASONRY WALL.

15 PM01 VERTICAL PIPE SUPPORT FROM WALL
SCALE: NTS

GENERAL NOTES:

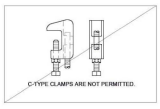
1. REFERENCE SPECIFICATIONS SECTIONS 15060 AND 15241.
2. SUPPORTS AND ATTACHMENTS PROVIDED ARE INTENDED TO ILLUSTRATE TYPICAL PIPE AND DUCT SUPPORT METHODS AVAILABLE TO THE CONTRACTOR AND ESTABLISH A MINIMUM STANDARD OF ACCEPTANCE.
3. REFER TO SPECIFICATION FOR DESIGN AND SUBMISSION REQUIREMENTS.
4. PIPING SUPPORT SYSTEM DESIGN IS THE RESPONSIBILITY OF THE CONTRACTOR. SUBMIT PIPING SUPPORT DESIGN DRAWINGS STAMPED BY A PROFESSIONAL ENGINEER.
5. MATERIALS:
   - 5.1. ALL SUPPORTS, RODS, ETC. INSTALLED IN PROCESS AREAS, PIPING GALLERIES AND OUTDOORS TO BE HOT DIPPED GALVANIZED.
   - 5.2. ALL SUPPORTS INSTALLED IN ENCLOSED TANKAGE AND CHANNELS TO BE 304 STAINLESS STEEL.
   - 5.3. ALL SUBMERGED SUPPORTS TO BE 304 STAINLESS STEEL.
   - 5.4. ALL BURIED PIPING SUPPORTS TO BE 304 STAINLESS STEEL.
   - 5.5. AS INDICATED IN INDIVIDUAL DESIGNS/DETAILS.
6. VALVE SUPPORTS: PROVIDE INDEPENDENT SUPPORT FOR EACH VALVE 150mm AND LARGER.
7. INLINE EQUIPMENT: PROVIDE INDEPENDENT SUPPORTS FOR ALL INLINE EQUIPMENT.
8. PROVIDE PIPING/DUCTING SUBJECT TO VERTICAL MOVEMENT, OR ATTACHED TO STRUCTURES SUBJECT TO VERTICAL MOVEMENT, WITH SPRING HANGER OR CONSTANT SUPPORT HANGER AS RECOMMENDED BY CONTRACTOR'S PIPE SUPPORT DESIGNER.
9. ALL HANGER RODS TO BE MINIMUM 12mm DIAMETER.
10. ALL VERTICAL SUPPORT HANGERS TO BE CAPABLE OF VERTICAL ADJUSTMENT.
11. WHERE ANGLE SIZES AND DIMENSIONS ARE INDICATED THEY ARE TO BE CONFIRMED BY SUPPORT DESIGNER. REFER TO SPECIFICATIONS.



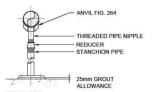
NOTES:

1. ROD 32mmØ AND SMALLER ONLY. REFER TO MANUFACTURER FOR ALTERNATE ARRANGEMENTS WHEN LARGER ROD IS REQUIRED.

16 PM01 PIPE SUPPORT BEAM ATTACHMENT
SCALE: NTS



17 PM01 UNIVERSAL C-TYPE CLAMP
SCALE: NTS



APPLICATION:

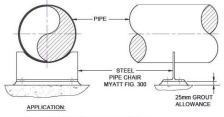
1. PIPE SUPPORTED FROM FLOOR WHERE VERTICAL ADJUSTMENT IS NECESSARY.
2. PIPING WHERE LATERAL SUPPORT IS NOT NECESSARY OR IS PROVIDED BY OTHER MEANS.

18 PM01 ADJUSTABLE PIPE SADDLE SUPPORT
SCALE: NTS

APPLICATION:

1. SUPPORT STEEL PIPING AT BOTTOM OF RISERS.
2. SUPPORT INLET AND DISCHARGE TO PUMPS AND EQUIPMENT AND WHERE PIPE RISES VERTICALLY.

19 PM01 ADJUSTABLE PIPE STANCHION
SCALE: NTS



APPLICATION:

1. PIPING NOT SUBJECT TO LONGITUDINAL MOVEMENT OR EXPANSION.
2. PIPING SUPPORTED FROM FLOOR.

20 PM01 PIPE SUPPORT (STEEL PIPE CHAIR)
SCALE: NTS

No.	ISSUE / REVISION	DD/MM/YY
1	ISSUED FOR CONSTRUCTION	12/06/23
0	ISSUED FOR TENDER	31/03/23

VERIFY SHEET SIZE AND SCALE. THE BAR TO THE RIGHT IS 25mm IF THIS IS A FULL SIZE DRAWING. 0 25mm

SCALE:

CLIENT: Municipality of North Dundas

CONSULTANT: www.jlrichards.ca
J.L.Richards ENGINEERS · ARCHITECTS · PLANNERS

CONSULTANT:

PROJECT NORTH:

PROFESSIONAL STAMP: LICENSED PROFESSIONAL ENGINEER J.W. WOZNIAK 100202025 2023-06-12 PROVINCE OF ONTARIO

PROJECT:
CHESTERVILLE DRINKING WATER SUPPLY SYSTEM UPGRADES
VILLAGE OF CHESTERVILLE, ONTARIO

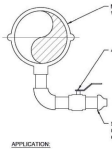
DRAWING:
PROCESS & MECHANICAL STANDARD DETAILS

DESIGN: JW
DRAWN: JV
CHECKED: AD
J.L.R.#: 31495-000

DRAWING #: PM01

File Location: P:\31000\31495-000 - North Dundas Water and Sewer Infrastructure\Production\Process\Chesterville Reservoir\Process & mechanical standard details.dwg

JW 2023-06-12 Jim Wozniak
JV 2023-06-12 Jim Vanderkooy

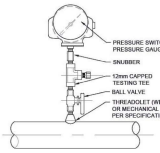


APPLICATION:

1. SEWAGE, SLUDGE AND CENTRATE LINES WHERE INDICATED AND AT LOW POINTS.
2. WHERE PRACTICAL COMBINE DRAIN & FLUSHING CONNECTION.
3. AT LOW POINTS INSTALL ONE ON EACH SIDE OF VALVES.
4. ORIENT FOR BEST ACCESS AND TO REDUCE RIPPING HAZARD, ETC.

1 PM02 DRAIN OR FLUSHING CONNECTION

SCALE: NTS



NOTES:

1. REFER TO DIVISION 17 FOR INSTRUMENTATION TABLES LISTING PRESSURE DEVICES.
2. GAUGES BY DIV. 15.

APPLICATION:

1. CLEAN LIQUIDS AND/OR GASSES.

2 PM02 PRESSURE SWITCH OR GAUGE INSTALLATION

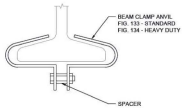
SCALE: NTS

APPLICATION:

1. SUPPORT HORIZONTAL UNINSULATED PIPING NOT SUBJECT TO THERMAL MOVEMENT.
2. ANVIL FIGURE 560 FOR DUCTILE OR CAST IRON PIPE.
3. ANVIL FIGURE CT-65, COPPER PLATED FINISH FOR COPPER TUBING.

3 PM02 ADJUSTABLE CLEVIS HANGER

SCALE: NTS

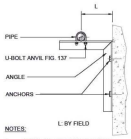


APPLICATION:

1. TO SUPPORT PIPING FROM STRUCTURAL I BEAMS AND OWSJ.
2. FOR OWSJ ATTACH AT PANEL POINTS ONLY.

4 PM02 PIPE SUPPORT BEAM CLAMP

SCALE: NTS



NOTES:

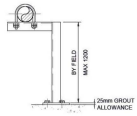
1. ROUND ALL EXPOSED CORNERS.

APPLICATION:

1. SMALL DIAMETER UNINSULATED PIPES SUPPORTED FROM WALL.
2. USE WITH ROD AND CLEVIS TYPE HANGERS AS WELL.

5 PM02 PIPE SUPPORT (C)

SCALE: NTS



NOTES:

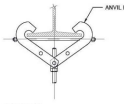
1. ROUND ALL EXPOSED CORNERS.

APPLICATION:

1. PIPING LESS THAN 125mmØ SUPPORTED FROM FLOOR.

6 PM02 PIPE SUPPORT (D)

SCALE: NTS



APPLICATION:

1. TO SUPPORT PIPING FROM STRUCTURAL I BEAMS AND OWSJ.
2. FOR OWSJ ATTACH AT PANEL POINTS ONLY.
3. ALTERNATE ANVIL FIG. 292, FIG.133, OR FIG. 134.
4. C-CLAMP TYPE SUPPORTS NOT ACCEPTABLE.

7 PM02 BEAM CLAMP

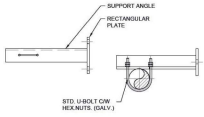
SCALE: NTS

APPLICATION:

1. UNINSULATED PIPING INSTALLED WITH BOP WITHIN 300mm OF FLOOR THAT CANNOT BE SUPPORTED FROM THE WALL.
2. PROVIDE CONCRETE PIER INSTEAD OF THIS SUPPORT WHERE CONCRETE IS INDICATED.

8 PM02 ADJUSTABLE PIPE SADDLE SUPPORT WITH U-BOLT

SCALE: NTS

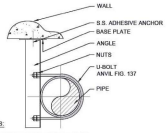


APPLICATION:

1. BRACING OF VERTICAL & HORIZONTAL PIPES FROM WALL.

9 PM02 PIPE BRACE

SCALE: NTS



NOTES:

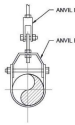
1. ROUND ALL EXPOSED CORNERS.

APPLICATION:

1. PIPING REQUIRING VERTICAL SUPPORT FROM WALL.
2. PIPING REQUIRING LATERAL SUPPORT FROM WALL.
3. NO THERMAL MOVEMENT.

10 PM02 VERTICAL PIPE SUPPORT (U-BOLT)

SCALE: NTS

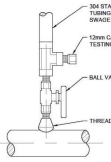


APPLICATION:

1. HEIGHT ADJUSTABLE WITH EYE BOLT CONNECTION, ANGULAR MOVEMENT.

11 PM02 CLEVIS HANGER

SCALE: NTS

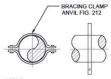


NOTES:

1. REFER TO DIVISION 17 FOR LIST OF ANALYZERS.

12 PM02 ANALYZER INSTALLATION

SCALE: NTS



NOTES:

1. TO BE USED WITH ANVIL FIG. 113.

APPLICATION:

1. PIPE BRACING DUE TO SEISMIC LOAD OR OTHER.

13 PM02 PIPE BRACE CLAMP

SCALE: NTS

APPLICATION:

1. PIPING REQUIRING LATERAL OR SEISMIC RESTRAINT.

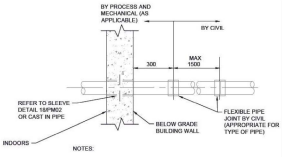
14 PM01 BRACE FITTING

SCALE: NTS

APPLICATION: PIPE ENTERING/LEAVING BUILDING WALL ABOVE GRADE.

15 PM02 TYPICAL PIPE ENTERING/LEAVING BUILDING THROUGH CONCRETE WALL

SCALE: N.T.S.

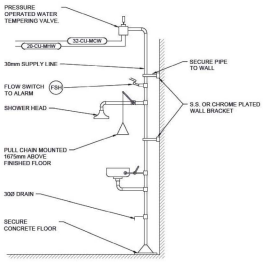


NOTES:

1. COORDINATE PIPES AND CONNECTIONS WITH CIVIL.

16 PM02 PIPE ENTERING/LEAVING BUILDING BELOW GRADE

SCALE: N.T.S.

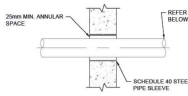


17 PM02 EMERGENCY EYE WASH & SHOWER

SCALE: N.T.S.

GENERAL NOTES:

1. REFERENCE SPECIFICATIONS SECTIONS 15000 AND 15241.
2. SUPPORTS AND ATTACHMENTS PROVIDED ARE INTENDED TO ILLUSTRATE TYPICAL PIPE AND DUCT SUPPORT METHODS AVAILABLE TO THE CONTRACTOR AND ESTABLISH A MINIMUM STANDARD OF ACCEPTANCE.
3. REFER TO SPECIFICATION FOR DESIGN AND SUBMISSION REQUIREMENTS.
4. PIPING SUPPORT SYSTEM DESIGN IS THE RESPONSIBILITY OF THE CONTRACTOR. SUBMIT PIPING SUPPORT DESIGN DRAWINGS STAMPED BY A PROFESSIONAL ENGINEER.
5. MATERIALS:
   - 5.1. ALL SUPPORTS, RODS, ETC. INSTALLED IN PROCESS AREAS, PIPING GALLERIES AND OUTDOORS TO BE HOT DIPPED GALVANIZED.
   - 5.2. ALL SUPPORTS INSTALLED IN ENCLOSED TANKAGE AND CHANNELS TO BE 304 STAINLESS STEEL.
   - 5.3. ALL SUBMERGED SUPPORTS TO BE 304 STAINLESS STEEL.
   - 5.4. ALL BURIED PIPING SUPPORTS TO BE 304 STAINLESS STEEL.
   - 5.5. AS INDICATED IN INDIVIDUAL DESIGNS/DETAILS.
6. VALVE SUPPORTS: PROVIDE INDEPENDENT SUPPORT FOR EACH VALVE 150mm AND LARGER.
7. INLINE EQUIPMENT: PROVIDE INDEPENDENT SUPPORTS FOR ALL INLINE EQUIPMENT.
8. PROVIDE PIPING/DUCTING SUBJECT TO VERTICAL MOVEMENT, OR ATTACHED TO STRUCTURES SUBJECT TO VERTICAL MOVEMENT, WITH SPRING HANGER OR CONSTANT SUPPORT HANGER AS RECOMMENDED BY CONTRACTORS PIPE SUPPORT DESIGNER.
9. ALL HANGER RODS TO BE MINIMUM 12mm DIAMETER.
10. ALL VERTICAL SUPPORT HANGERS TO BE CAPABLE OF VERTICAL ADJUSTMENT.
11. WHERE ANGLE SIZES AND DIMENSIONS ARE INDICATED THEY ARE TO BE CONFIRMED BY SUPPORT DESIGNER. REFER TO SPECIFICATIONS.

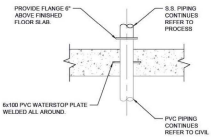


APPLICATION:

1. UNINSULATED PIPING THROUGH CONCRETE WALLS.

18 PM02 PIPE SLEEVE IN NEW CONCRETE FOUNDATION WALL

SCALE: N.T.S.



APPLICATION:

1. UNINSULATE PIPES THROUGH NEW CAST-IN-PLACE CONCRETE FLOOR SLAB

19 PM02 WATER PROOF CAST IN PIPE FOR NEW CONCRETE FLOOR SLAB

SCALE: N.T.S.

1	ISSUED FOR CONSTRUCTION	12/06/23
0	ISSUED FOR TENDER	31/03/23
No.	ISSUE / REVISION	DD/MM/YY

VERIFY SHEET SIZE AND SCALES. THE BAR TO THE RIGHT IS 25mm IF THIS IS A FULL SIZE DRAWING. 0 25mm

SCALE:

CLIENT: North Dundas

CONSULTANT: J.L.Richards ENGINEERS · ARCHITECTS · PLANNERS www.jlrichards.ca

CONSULTANT:

PROJECT NORTH:

PROFESSIONAL STAMP: LICENSED PROFESSIONAL ENGINEER J.W. WOZNIAK 100202525 2023-06-12 PROVINCE OF ONTARIO

PROJECT:

CHESTERVILLE DRINKING WATER SUPPLY SYSTEM UPGRADES

VILLAGE OF CHESTERVILLE, ONTARIO

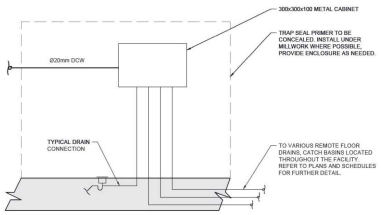
DRAWING:

PROCESS & MECHANICAL STANDARD DETAILS

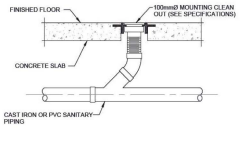
DESIGN: JW	DRAWING #:
DRAWN: JV	PM02
CHECKED: AD	
J.L.R. #: 31495-000	

PLOT DATE: June 6, 2023 8:32:46 AM

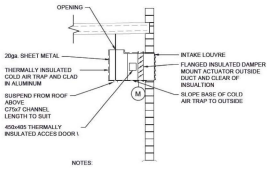
File Location: P:\31000\31495-000 - North Dundas Water and Sewer Infrastructure\Production\Drawings\PM02_PROCESS & MECHANICAL STANDARD DETAILS.dwg



1 PM03 TRAP SEAL PRIMER
SCALE: NTS



2 PM03 FLOOR CLEAN OUT
SCALE: NTS



NOTES:

1. ACTUATORS IN RATED AREAS TO BE ENCLOSED IN BOXES RATED FOR THE AREA CLASSIFICATION.

3 PM03 OUTDOOR AIR INTAKE DETAIL
SCALE: N.T.S.

GAS FIRED WATER HEATER SCHEDULE

I.D.	DESCRIPTION	MANUF. / MODEL	CAPACITY	NATURAL GAS CONNECTION					ELECTRICAL CONNECTION			COMMENTS
			GALLONS	INPUT (MBH)	MAX. PRESSURE	MIN. PRESSURE	SUPPLY VENT SIZE	EXHAUST VENT SIZE	POWER VOLTAGE	CONTROL VOLTAGE	TOTAL AMPS	
DHWT-9000	HOT WATER TANK	LOCHINVAR SW	90	150 (44 kW)	14" w.c.	4" w.c.	3"	3"	120V	24V	2.5A	

FAN SCHEDULE

I.D.	DESCRIPTION	LOCATION	MANUF./MODEL	TYPE	OPERATING POINT 'A'				SOUND POWER @ UNIT INLET	DRIVE	MOTOR			COMMENTS
					AIR FLOW	S.P.	FAN SPEED	EFF.						
					L/s	Pa	RPM	(%)	LwA		KW	VOLT	PH	
EF-9600	CHEMICAL ROOM EXHAUST FAN	CHEMICAL ROOM (RM. 101)	GREENHECK / SQ-85 VG	SQUARE INLINE	90	127	1550		68	DIRECT	0.07	120	1	

MOTORIZED DAMPER SCHEDULE

I.D.	DESCRIPTION	ACTUATOR MANUF. / MODEL	SIZE (mm)	AIR FLOW	ACTUATOR	ELECTRICAL			COMMENTS
					MIN. TORQUE	LOAD	VOLTS	PH	
				L/s	N·m	W	V		
MD-9000	FILTER ROOM O.A. INTAKE MOTORIZED DAMPER	BELIMO / LF120	400x400	90	4	5.5	120	1	
MD-9001	CHEM ROOM EXHAUST AIR MOTORIZED DAMPER	BELIMO / LF120	400x400	90	4	5.5	120	1	

UNIT HEATER SCHEDULE

I.D.	DESCRIPTION	MANUF. / MODEL	CAPACITY	FAN		FUEL	ELECTRIC POWER				NATURAL GAS						COMMENTS
				AIR FLOW	OUTPUT VELOCITY						SUPPLY				COMBUSTION AIR VENTING		
			kW	L/s	m/s		W	POWER VOLTAGE	CONTROL VOLTAGE	PH	SIZE	PRESSURE DROP	ENERGY DENSITY	S.G.	SUPPLY	EXHAUST	
UH-9000	FILTER ROOM UNIT HEATER #1	REZNOR UBZ 30	7.2	143	2.6	GAS	215	120	24	1	1/2"	0.3" w.c.	1050 BTU/FT³	0.6	4"	4"	
UH-9001	FILTER ROOM UNIT HEATER #2	REZNOR UBZ 30	7.2	143	2.6	GAS	215	120	24	1	1/2"	0.3" w.c.	1050 BTU/FT³	0.6	4"	4"	
UH-9002	CHEM ROOM UNIT HEATER	QUELLETE GAS	2	240	-	ELECTRICITY	25	600	600	3	N/A	N/A	N/A	N/A	N/A	N/A	

LOUVER SCHEDULE

I.D.	DESCRIPTION	AIR FLOW	MAX ΔP	FREE AREA	NOMINAL SIZE			COMMENTS
					WIDTH	HEIGHT	DEPTH	
		L/s	Pa	m²	mm	mm	mm	
L-9000	INTAKE LOUVER	90	2.5	0.7	400	400	100	VERIFY ALL DIMENSIONS PRIOR TO MANUFACTURING
L-9001	EXHAUST LOUVER	90	2.5	0.7	400	400	100	VERIFY ALL DIMENSIONS PRIOR TO MANUFACTURING

EXPANSION TANK SCHEDULE

I.D.	DESCRIPTION	TANK VOLUME	ACCEPTANCE VOLUME	ORIENTATION	DIAMETER	OPERATING PRESSURE	COMMENTS
		L	L	HORIZ/VERT.	mm	kPa	
ET-9000	DHW PIPING EXPANSION TANK	10	9.5	VERT.	356	414	

No.	ISSUE / REVISION	DD/MM/YY
1	ISSUED FOR CONSTRUCTION	12/06/23
0	ISSUED FOR TENDER	31/03/23

VERIFY SHEET SIZE AND SCALES. THE BAR TO THE RIGHT IS 25mm IF THIS IS A FULL SIZE DRAWING. 0 25mm

SCALE:

CLIENT: Municipality of North Dundas www.northdundas.ca

CONSULTANT: J.L.Richards ENGINEERS · ARCHITECTS · PLANNERS

CONSULTANT:

PROJECT NORTH:

PROFESSIONAL STAMP: LICENSED PROFESSIONAL ENGINEER J.W. WOZNIAK 100050262 2023-06-12 PROVINCE OF ONTARIO

PROJECT:

CHESTERVILLE DRINKING WATER SUPPLY SYSTEM UPGRADES

VILLAGE OF CHESTERVILLE, ONTARIO

DRAWING:

PROCESS & MECHANICAL STANDARD DETAILS AND SCHEDULES

DESIGN: JW/BK
DRAWN: JV
CHECKED: AD
J.L.R.#: 31495-000

DRAWING #: PM03

PLOT DATE: Jun 12, 2023 Jun 9, 2023 8:18:18 AM

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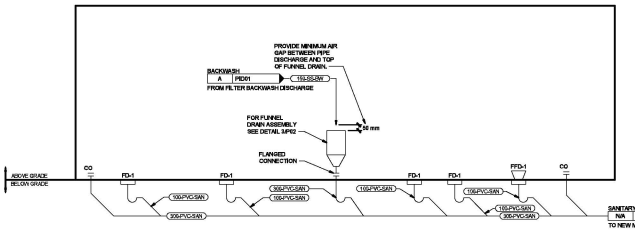
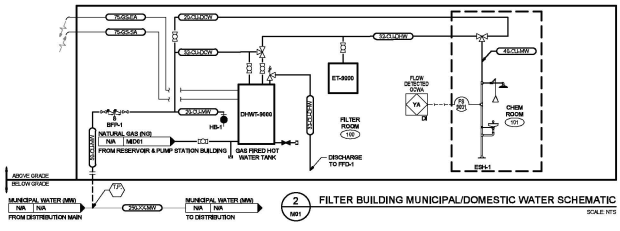


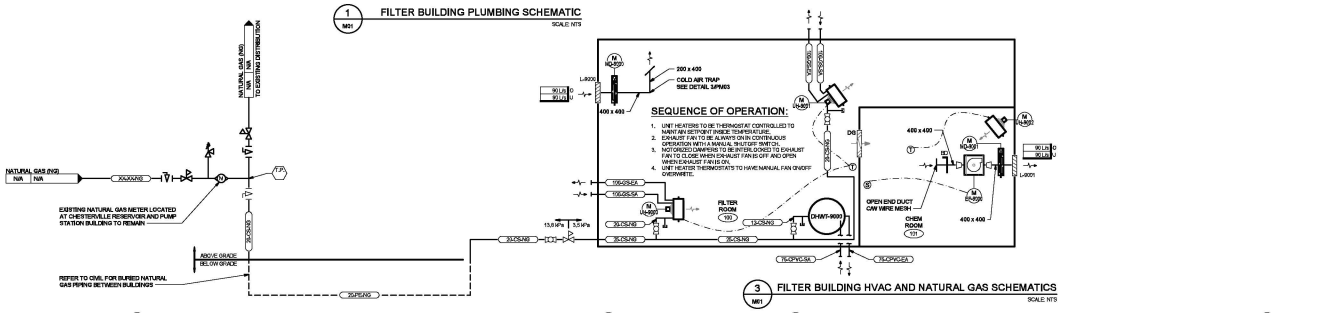
1 M01 FILTER BUILDING PLUMBING SCHEMATIC

SCALE NTS



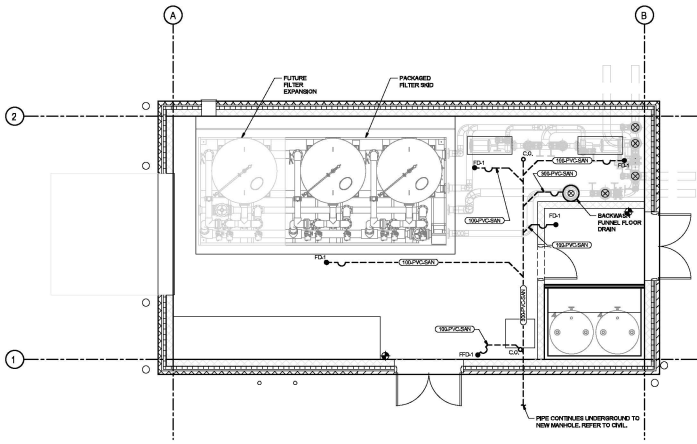
2 M01 FILTER BUILDING MUNICIPAL/DOMESTIC WATER SCHEMATIC

SCALE NTS



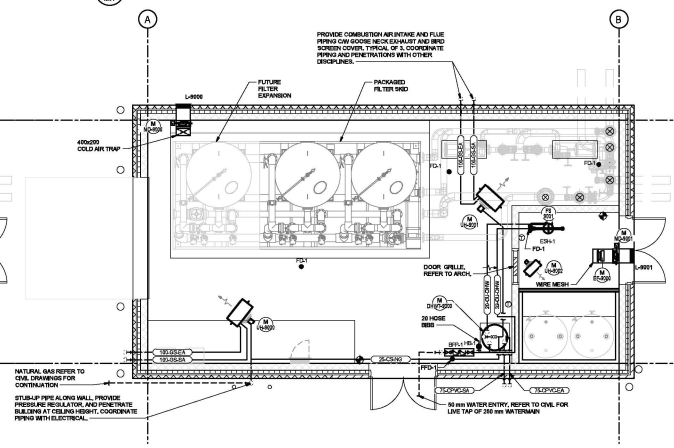
3 M01 FILTER BUILDING HVAC AND NATURAL GAS SCHEMATICS

SCALE NTS



4 M01 FILTER BUILDING PLUMBING LAYOUT BELOW SLAB

SCALE 1:50



5 M01 FILTER BUILDING MECHANICAL LAYOUT

SCALE 1:50

No.	ISSUE / REVISION	DD/MM/YY
1	ISSUED FOR CONSTRUCTION	12/06/23
0	ISSUED FOR TENDER	31/03/23

VERIFY SHEET SIZE AND SCALES, THE BAR TO THE RIGHT IS 25mm IF THIS IS A FULL SIZE DRAWING. 0 25mm

SCALE: AS INDICATED

CLIENT: Municipality of North Dundas

CONSULTANT: J.L.Richards ENGINEERS • ARCHITECTS • PLANNERS www.jlrichards.ca

CONSULTANT:

PROJECT NORTH

PROFESSIONAL STAMP: LICENSED PROFESSIONAL ENGINEER J.W. WOZNIAK 100050629 2023-06-12 PROVINCE OF ONTARIO

PROJECT:

CHESTERVILLE DRINKING WATER SUPPLY SYSTEM UPGRADES

VILLAGE OF CHESTERVILLE, ONTARIO

DRAWING:

FILTER BUILDING MECHANICAL LAYOUTS AND SCHEMATICS

DESIGN: JW	DRAWING #: M01
DRAWN: JV	
CHECKED: AD	
J.L.R. #: 31499-000	

PLOT DATE: June 6, 2023 12:51 PM

File Location: W:\Work\Civil\Projects\31499-000 - North Dundas Water and Sewer Infrastructure\Production\Chesterville Reservoir\M01 BUILDING MECHANICAL PLANS AND SCHEMATICS.dwg

GENERAL NOTES:

GENERAL NOTES APPLY TO ALL ELECTRICAL DRAWINGS

A. ALL E000 AND E001 SERIES DRAWINGS TO BE READ IN CONJUNCTION WITH THIS DRAWING. SYMBOLS AND NOTES SHOWN ON THIS DRAWING APPLIES TO THOSE DRAWINGS.

B. NOT ALL SYMBOLS USED IN THE E000 AND E001 SERIES DRAWINGS MAY BE SHOWN ON THIS LEGEND. IN SUCH CASES INDUSTRY STANDARD SYMBOLOGY WILL BE EMPLOYED AND A DESCRIPTION PROVIDED.

PROCESS PLANS

A. REFER TO THE SINGLE LINE DIAGRAMS AND PANEL SCHEDULES FOR WIRING REQUIREMENTS.

B. ALL MOUNTING BRACKETS (INCLUDING UNISTRUT) TO BE STAINLESS STEEL WITH STAINLESS STEEL HARDWARE.

C. COORDINATE ALL CORING WITH STRUCTURAL. X-RAY CONCRETE PRIOR TO CORING. ENSURE NO STRUCTURAL STEEL IS DAMAGED.

D. ANY CHANGES REQUIRED TO THE CABLING IDENTIFIED IN THESE DOCUMENTS ARE TO BE SUBMITTED FOR REVIEW PRIOR TO ORDERING ANY MATERIALS. ADJUSTMENTS TO THE CONTRACT WILL BE MADE FOR THE INCREASED COST IN MATERIALS ONLY, WHEN COMPARED WITH WHAT IS SPECIFIED IN THE CONTRACT DOCUMENTS. NO CONSIDERATION WILL BE GIVEN FOR ADDITIONAL COMPENSATION ARISING FROM THE CONTRACTORS FAILURE TO PLAN HIS WORK PRIOR TO ORDERING AND INSTALLING ANY MATERIALS.

E. UNLESS OTHERWISE INDICATED, SIZE ALL CONDUITS TO SUIT, IN ACCORDANCE WITH THE REQUIREMENTS OF THE OESC.

F. PROVIDE A GROUND WIRE IN EACH CONDUIT CONTAINING POWER OR CONTROL CONDUCTORS. SIZE GROUND WIRES IN ACCORDANCE WITH THE REQUIREMENTS OF THE OESC.

HOUSE SERVICES PLAN

A. COORDINATE LIGHTING MOUNTING HEIGHTS WITH MECHANICAL EQUIPMENT. LIGHTING NOT TO BE OBSTRUCTED OR INTERFERE WITH ANY MECHANICAL OR ELECTRICAL EQUIPMENT.

B. ALL RECEPTACLES IN THE PROCESS AREAS TO BE MOUNTED AT 1200mm A.F.F.

C. REFER TO E02 FOR HOUSES SERVICES CONDUIT REQUIREMENTS.

D. NO CABLING OR CONDUITS TO BE RUN ON ANY EXTERIOR WALL. PENETRATE EXTERIOR WALL AT LOCATION WHERE DEVICE IS TO BE MOUNTED. THERE SHOULD BE NO VISIBLE CABLING, CONDUITS OR CONDUIT FITTINGS ON BUILDING EXTERIOR.

E. REFER TO DRAWING E03 FOR FOR PANEL SCHEDULES.

F. UNLESS OTHERWISE INDICATED, SIZE ALL CONDUITS TO SUIT, IN ACCORDANCE WITH THE REQUIREMENTS OF THE OESC.

G. PROVIDE A GROUND WIRE IN EACH CONDUIT CONTAINING POWER OR CONTROL CONDUCTORS. SIZE GROUND WIRES IN ACCORDANCE WITH THE REQUIREMENTS OF THE OESC.

LINETYPE LEGEND

	NEW
	EXISTING
	DEMOLITION
	DISCRETE
	ANALOG
	INTEGRAL
	UNDERGROUND LINES

POWER SYMBOLS

	20A, 120V, 5-20R DUPLEX RECEPTACLE
GFCI WP	20A, 120V, 5-20R GROUND FAULT DUPLEX RECEPTACLE WITH WEATHER PROOF "IN USE" COVER
GFCI	20A, 120V, 5-20R DEDICATED GROUND FAULT DUPLEX RECEPTACLE
XX	THREE PHASE MOTOR INDICATED HP
XX	SINGLE PHASE MOTOR INDICATED HP
	JUNCTION BOX
	DISCONNECT SWITCH
	FUSIBLE DISCONNECT SWITCH
	LIGHTING OR POWER DISTRIBUTION PANEL
	CONTROL PANEL
	TRANSFORMER

LIGHTING SYMBOLS

$M	MOTOR RATED SWITCH
$	SWITCH (CIRCUIT AS INDICATED)
$3	3-WAY SWITCH (CIRCUIT AS INDICATED)
	EMERGENCY BATTERY BACKUP LIGHT
	CEILING-MOUNTED LIGHT FIXTURE (TYPE AS INDICATED)
	WALL-MOUNTED LIGHT FIXTURE (TYPE AS INDICATED)
	DOUBLE HEAD REMOTE EMERGENCY LIGHT

ABBREVIATIONS

A.F.F.	ABOVE FINISHED FLOOR
A.F.G.	ABOVE FINISHED GRADE
ATS	AUTOMATIC TRANSFER SWITCH
B.O.C	BOTTOM OF CONDUIT
B.O.F.	BOTTOM OF FLOAT
DTT	DRY TYPE TRANSFORMER
E	EMERGENCY POWER
EP	EXPLOSION PROOF
ES	ETHERNET SWITCH
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GND	GROUND CONDUCTOR
IG	ISOLATED GROUND
MCC	MOTOR CONTROL CENTRE
MCS	MOLDED CASE SWITCH
MIO	MODULAR PLC I/O
N	NORMAL POWER
NIC	NOT IN CONTRACT
N.T.S.	NOT TO SCALE
PLC	PROGRAMMABLE LOGIC CONTROLLER
PNL	PANEL
TL	TWIST LOCK
UPS	UNINTERRUPTIBLE POWER SUPPLY
WP	WEATHER PROOF
JB	JUNCTION BOX (COMBINED ANALOG AND DISCRETE)
JBA	ANALOG JUNCTION BOX
JBD	DISCRETE JUNCTION BOX

INSTRUMENTATION SYMBOLS

NIC AH-001	SIGNALLING DEVICE
M AH-001M	MOTORIZED EQUIPMENT
S VALVE-001M	SOLENOID VALVE
NIC PT-001	INSTRUMENT DEVICE

LUMINAIRE SCHEDULE

TYPE:		SPECIFIED PRODUCT:	LAMP TYPE:
EBI-X		120V EMERGENCY LIGHTING 12 VOLT BATTERY PACK c/w INTEGRAL AND REMOTE HEADS. SEALED LONG LIFE (10 YEARS) BATTERY SIZED TO MAINTAIN LOAD FOR 1/2 HOUR MINIMUM. READY-LITE: LDX13-395DLD9-XX STANPRO: SLC-12389-2594-L-WHT-XX AINLITE: EBRT-12305-2594-N-WHT-XX	LED EQUIVALENT TO 18 WATT HALOGEN
EBI-X		SURFACE MOUNTED REMOTE HEADS, SINGLE OR DOUBLE AS INDICATED. READY-LITE: RM2-LD9-XX STANPRO: N2-6-12-4-L-W-HX AINLITE: RMSM2-5-12-3W-L-WHT-X-X	LED EQUIVALENT TO 18 WATT HALOGEN
"A1"		7' x 4' POLYCARBONATE HOUSING AND LENS WITH SEAMLESS GASKET, HIGH PERFORMANCE METAL REFLECTOR,STAINLESS STEEL MOUNTING HARDWARE WITH TEN BUCKLE TYPE LATCHES, UV STABILIZED HIGH CLARITY LINEAR LENS, SEALED STRAIN RELIEF, CABLE GLAND KIT INCLUDED, INTEGRATED END ALIGNERS FOR ROW ALIGNMENT, SURFACE, CHAIN HUNG,IP66 RATED LED CW LED DRIVER LITHONIA: CSVT L48 5000LM MVOLT 40K 80CRI EATON METALUX: VVT2L24-5-DN-WA-WH-L840-CD1-WL-U HUBBELL LIGHTING: LXEM-4-40-ML-RFP-U-S3L	LED 4000K, 5000-6000 LUMENS OUTPUT, 80CRI, 57 W
"D1"		WALL MOUNTED LED LUMINAIRE WITH HEAVY-WALL, HIGH EFFICIENCY LED OPTICS TO SHAPE THE LIGHT OUTPUT, MAXIMIZING EFFICIENCY AND APPLICATION SPACING, FORWARD THROW DISTRIBUTION INFACT ELITE LED c/w PHOTOEYE, BRONZE FINISH. LITHONIA: DSXW1 LED 20 530 30K TFTM MVOLT PIR HUBBELL LIGHTING: LNC3-HL-070-FT-LED8 EATON : XTORB-W-MB-L20	LED 3000K, 4000-6000 LUMENS OUTPUT, MIN. 70 CRI,
EXIT		PICTOGRAM EXIT SIGN, THE SIGN SHALL BE SUITABLE FOR WALL, END, OR CEILING MOUNT, THE FRAME AND BACKPLATE SHALL EACH BE OF ONE-PIECE STEEL CONSTRUCTION, THE FACEPLATE(S) SHALL BE CONSTRUCTED OF ROBUST CLEAR POLYCARBONATE PANELS WITH AN OPAQUE BORDER COLOURED FACTORY-WHITE, THE LIGHT SOURCE SHALL BE WHITE LIGHT EMITTING DIODES (LED) AND SHALL PROVIDE EVEN ILLUMINATION IN NORMAL AND EMERGENCY OPERATION. MOUNTING, ARROWS AND FACES AS REQUIRED. SIGN TO OPERATE FOR MINIMUM OF 90 MINUTES DURING AC FAILURE. EMERGILITE: ESXW STANPRO: RMP-A-W-H-LDC-XX AINLITE: RPST-U-M-WHT-BAT OR APPROVED EQUAL	2.5 WATT LED PER FACE

CONTROLS SCHEMATICS SYMBOLS

FU	FUSE
GND	GROUND, CHASSIS OR FRAME
	LIGHT, INDICATING
M	MOTOR, THREE-PHASE, INDUCTION
OVRLD	OVERLOAD RELAY, THERMAL
	RESISTOR, ADJUSTABLE (RHEOSTAT)
	FLOAT SWITCH, CLOSING ON RISING LEVEL
	FLOAT SWITCH, OPENING ON RISING LEVEL
25	PRESSURE SWITCH, CLOSED BY RISING PRESSURE
	MOMENTARY OR SPRING RETURN, NORMALLY OPEN CIRCUIT CLOSING-MAKE
	MOMENTARY OR SPRING RETURN, NORMALLY OPEN AND NORMALLY CLOSED
	MOMENTARY OR SPRING RETURN, NORMALLY OPEN AND NORMALLY CLOSED, DOUBLE CIRCUIT
	MUSHROOM HEAD, APPLIED TO TWO CIRCUIT PUSHBUTTON
37	TEMPERATURE SWITCH, CLOSED BY RISING TEMPERATURE
37	TEMPERATURE SWITCH, OPENED BY RISING TEMPERATURE
	SINGLE POLE DOUBLE THROW SWITCH

PICTOGRAM RUNNING MAN EGRESS LEGEND

EGRESS SIGN TYPE #	EGRESS SIGN PICTOGRAM IMAGE GRAPHICAL SYMBOLS AND DESCRIPTION	LEGEND: FACEPLATE(S)	LEGEND: MOUNTING TYPE
		S - SINGLE SIDED D - DOUBLE SIDED	W - WALL MOUNTED C - CEILING MOUNTED WITH CANOPY E - END MOUNTED U - UNIVERSAL MOUNTED WITH CANOPY(S) ST - STEM MOUNTED WITH TIGHT RAIN FITTING
x1	RUNNING MAN IN DOORWAY		
x2	RUNNING MAN IN DOORWAY WITH PROGRESS TO THE RIGHT 90° DIRECTIONAL ARROW		
x3	RUNNING MAN IN DOORWAY WITH PROGRESS TO THE LEFT 90° DIRECTIONAL ARROW		

EGRESS SIGN IDENTIFICATION EXAMPLES

S-x-1-W

LETTER DENOTES FACEPLATE (SINGLE SIDED)

LETTER DENOTES MOUNTING TYPE (WALL MOUNTED)

x# DENOTES EGRESS SIGN FACE PLATE TYPE PICTOGRAM IMAGE

EXAMPLE #1

D-x-2-3-C

LETTER DENOTES FACEPLATE (DOUBLE SIDED)

LETTER DENOTES MOUNTING TYPE (CEILING MOUNTED WITH CANOPY)

x# / x# DENOTES EGRESS SIGN FACEPLATE TYPES PICTOGRAM IMAGE ON SIDE ONE AND PICTOGRAM IMAGE ON SIDE TWO

EXAMPLE #2

No.	ISSUE / REVISION	COMM/YY
1	ISSUED FOR CONSTRUCTION	12/09/23
0	ISSUED FOR TENDER	31/03/23

VERIFY SHEET SIZE AND SCALES, THE BAR TO THE RIGHT IS 20mm IF THIS IS A FULL SIZE DRAWING. 20mm

SCALE:

CLIENT: Municipality of North Dundas

CONSULTANT: www.jlrichards.ca J.L.Richards ENGINEERS • ARCHITECTS • PLANNERS

CONSULTANT:

PROJECT NORTH:

PROFESSIONAL STAMP: LICENSED PROFESSIONAL ENGINEER 2023-06-12 S. T. BUCKLEY 100117650 PROVINCE OF ONTARIO

PROJECT:

CHESTERVILLE DRINKING WATER SUPPLY SYSTEM UPGRADES

VILLAGE OF CHESTERVILLE, ONTARIO

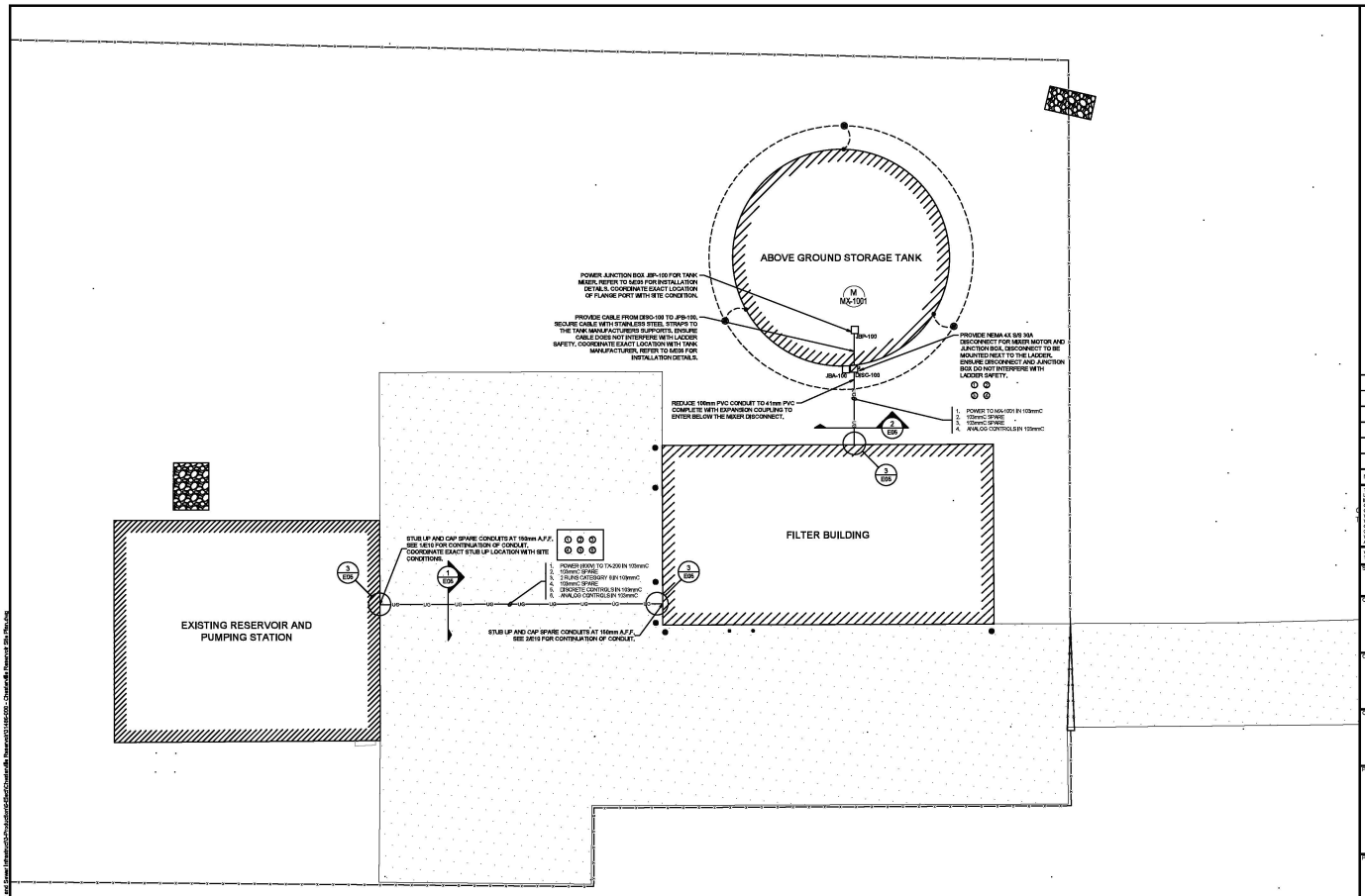
DRAWING:

ELECTRICAL LEGEND

DESIGN:	SB
DRAWN:	NB
CHECKED:	LG
J.L.R. #	31499-000
DRAWING #	E00

REVISION: 1

File Location: W:\Work\Civil\Projects\31000\499-000 - North Dundas Water and Sewer Infrastructure\Production\Electrical\Revision\31499-000 - Chesterville Reservoir Electrical Legend.dwg



1 E01 ELECTRICAL SITE PLAN
AS INDICATED

GENERAL NOTES:

A. REFER TO STRUCTURAL DRAWINGS FOR BOLLARD DETAILS.

B. COORDINATE EXACT ROUTING OF SITE CABLING WITH EXISTING SITE CONDITIONS AND OTHER DISCIPLINES.

C. THIS DRAWING TO BE READ IN CONJUNCTION WITH THE CIVIL DRAWINGS.

D. MAINTAIN A MINIMUM HORIZONTAL SEPARATION OF 300mm BETWEEN POWER AND COMMUNICATION CABLING. ELECTRICAL/COMMUNICATION CABLING NOT TO BE IN THE SAME VERTICAL PLANE AS OTHER BURIED SERVICES.

No.	ISSUE / REVISION	DD/MM/YY
1	ISSUED FOR CONSTRUCTION	12/06/23
0	ISSUED FOR TENDER	31/01/23

VERIFY SHEET SIZE AND SCALES, THE BAR TO THE RIGHT IS 20mm IF THIS IS A FULL SIZE DRAWING. 0 20mm

SCALE: 0 1 2 3 4 5m

CLIENT: Township of North Dundas

CONSULTANT: www.jlrichards.ca
J.L.Richards ENGINEERS • ARCHITECTS • PLANNERS

CONSULTANT:

PROJECT NORTH

PROFESSIONAL STAMP: LICENSED PROFESSIONAL ENGINEER 2023-06-12 S. T. BUCKLEY 100111650 PROVINCE OF ONTARIO

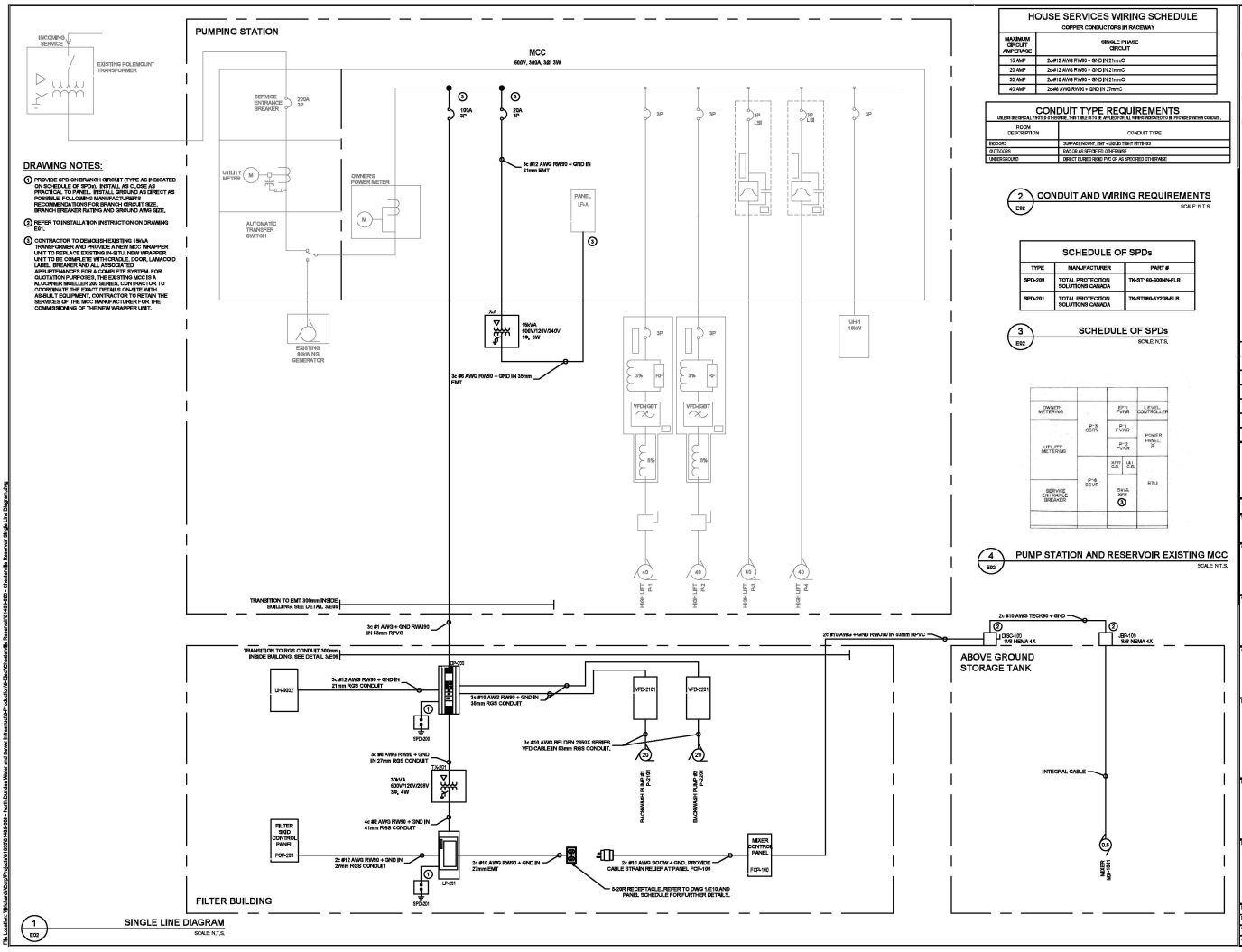
PROJECT:
CHESTERVILLE DRINKING WATER SUPPLY SYSTEM UPGRADES
VILLAGE OF CHESTERVILLE, ONTARIO

DRAWING:
ELECTRICAL SITE PLAN

DESIGN: SB	DRAWING #
DRAWN: NB	E01
CHECKED: LG	
J.L.R. #: 31499-000	

VERSION: 2023-06-12 11:36:17 AM

FILE LOCATION: P:\1100\31499\31499-000 - North Dundas Water and Sewer Infrastructure\Production\Drafting\Chesterville Reservoir\31499-000 - Chesterville Reservoir Site Plan.dwg



1 E02 SINGLE LINE DIAGRAM
SCALE: N.T.S.

DRAWING NOTES:

1. PROVIDE SFD ON BRANCH CIRCUIT (TYPE AS INDICATED ON SCHEDULE OF SPDs). INSTALL AS CLOSE AS PRACTICAL TO PANEL. INSTALL SHORTEST AS DIRECT AS POSSIBLE, FOLLOWING MANUFACTURER'S RECOMMENDATIONS FOR BRANCH CIRCUIT SIZE, BRANCH BREAKER RATING AND GROUND AWG SIZE.
2. REFER TO INSTALLATION INSTRUCTION ON DRAWING E01.
3. CONTRACTOR TO DEMOLISH EXISTING 15kVA TRANSFORMER AND PROVIDE A NEW MCC WRAPPER UNIT TO REPLACE EXISTING IN-SITU. NEW WRAPPER UNIT TO BE COMPLETE WITH CRADLE, DOOR, LAMACOID LABEL, BREAKER AND ALL ASSOCIATED APPURTENANCES FOR A COMPLETE SYSTEM. FOR QUOTATION PURPOSES, THE EXISTING MCC IS A KLOCKNER MOELLER 200 SERIES. CONTRACTOR TO COORDINATE THE EXACT DETAILS ON-SITE WITH AS-BUILT EQUIPMENT. CONTRACTOR TO RETAIN THE SERVICES OF THE MCC MANUFACTURER FOR THE COMMISSIONING OF THE NEW WRAPPER UNIT.

HOUSE SERVICES WIRING SCHEDULE

COPPER CONDUCTORS IN RACEWAY

MAXIMUM CIRCUIT AMPERAGE	SINGLE PHASE CIRCUIT
15 AMP	2x#12 AWG RW90 + GND IN 21mmC
20 AMP	2x#12 AWG RW90 + GND IN 21mmC
30 AMP	2x#10 AWG RW90 + GND IN 21mmC
40 AMP	2x#6 AWG RW90 + GND IN 27mmC

CONDUIT TYPE REQUIREMENTS

UNLESS SPECIFICALLY NOTED OTHERWISE, THE TABLE BELOW IS TO BE APPLIED FOR ALL WIRING INDICATED TO BE PROVIDED WITHIN CONDUIT.

ROOM DESCRIPTION	CONDUIT TYPE
INDOORS	SURFACE MOUNT, EMT + LIQUID TIGHT FITTINGS
OUTDOORS	RMC OR AS SPECIFIED OTHERWISE
UNDERGROUND	DIRECT BURIED RIGID PVC OR AS SPECIFIED OTHERWISE

2 E02 CONDUIT AND WIRING REQUIREMENTS
SCALE: N.T.S.

SCHEDULE OF SPDs

TYPE	MANUFACTURER	PART #
SFD-200	TOTAL PROTECTION SOLUTIONS CANADA	TN-ST160-600NH-FLB
SFD-201	TOTAL PROTECTION SOLUTIONS CANADA	TN-ST060-3Y208-FLB

3 E02 SCHEDULE OF SPDs
SCALE: N.T.S.

4 E02 PUMP STATION AND RESERVOIR EXISTING MCC
SCALE: N.T.S.

GENERAL NOTES:

A. MCC SUPPLIER TO IDENTIFY FINAL ARRANGEMENT OF COMPONENTS WITHIN MCC, SUBJECT TO APPROVAL OF THE ENGINEER.

B. MCC BREAKER SIZES SHOWN FOR QUOTATION PURPOSES ONLY. FINAL BREAKER SIZES TO BE DETERMINED BY MCC MANUFACTURER, SUBJECT TO APPROVAL OF THE ENGINEER.

C. REFER TO SECTION 16612 FOR VFD REQUIREMENTS.

D. EXISTING SINGLE LINE AND MCC DETAILS SHOWN FOR REFERENCE ONLY. COORDINATE ACTUAL DETAILS WITH THE AS-BUILT SITE CONDITIONS.

E. CONTRACTOR TO COORDINATE THE EXACT LOCATION OF NEW WRAPPER UNITS IN EXISTING MCCs WITH SITE CONDITIONS AND CONSULT THE MCC MANUFACTURER ACCORDINGLY. LOCATIONS OF NEW WRAPPER UNITS IN EXISTING MCCs SHOWN FOR REFERENCE ONLY.

No.	ISSUE / REVISION	DD/MM/YY
1	ISSUED FOR CONSTRUCTION	12/09/23
0	ISSUED FOR TENDER	31/01/23

VERIFY SHEET SIZE AND SCALES, THE BAR TO THE RIGHT IS 20mm IF THIS IS A FULL SIZE DRAWING. 20mm

SCALE:

CLIENT: Municipality of North Dundas www.jlrichards.ca

CONSULTANT: J.L.Richards ENGINEERS • ARCHITECTS • PLANNERS

CONSULTANT:

PROJECT NORTH:

PROFESSIONAL STAMP: LICENSED PROFESSIONAL ENGINEER 2023-06-12 S. T. BUCKLEY 100117650 PROVINCE OF ONTARIO

PROJECT:

CHESTERVILLE DRINKING WATER SUPPLY SYSTEM UPGRADES

VILLAGE OF CHESTERVILLE, ONTARIO

DRAWING:

SINGLE LINE DIAGRAM

DESIGN:	SB
DRAWN:	NB
CHECKED:	LG
J.L.R. #:	31499-000
DRAWING #:	E02

EXISTING 'LP-A'
120/240 VOLT, 1Ø, 3W
SURFACE MOUNTED
14 KAIC
100A MAINS

LOAD	DESCRIPTION	BKR	CCT				CCT	BKR	DESCRIPTION	LOAD
	CHART RECORDER RECEPTACLE	15A,1P	1	●			2	15A,1P	RECEPTACLES	
	TREATED WATER FLOWMETER	15A,1P	3		●		4	15A,1P	RECEPTACLES	
	RTU	15A,1P	5			●	6	15A,1P	LIGHTS	
	WATER HEATER	30A,2P	7	●			8	15A,1P	CHEMICAL PUMPS	
			9		●		10	15A,1P	BATTERY CHARGER	
	CHLORINE ANALYZER	15A,1P	11			●	12	15A,1P	VENTILATION	
	240V RECEPTACLE	15A,2P	13	●			14	15A,1P	BLOCK HEATER	
			15		●		16	15A,1P	GAS HEATER/EMERGENCY LIGHTS	
	TOWER LEVEL CHART	15A,1P	17			●	18	15A,1P	OUTPOST 5	
	BLANK	XXA,1P	19	●			20	15A,1P	SPARE	
	BLANK	XXA,1P	21		●		22	XXA,1P	BLANK	
	BLANK	XXA,1P	23			●	24	XXA,1P	BLANK	

TOTAL CONNECTED LOAD: 0 WATTS

PHASE LOAD TO BE FILLED IN BY CONTRACTOR:
LOAD PHASE A: _____ LOAD PHASE B: _____ LOAD PHASE C: _____

REMARKS
1. ALL LOADS ARE IN WATTS, UNLESS OTHERWISE NOTED.
2. † DEDICATED NEUTRAL
3. ✱ GFI
4. ■ LOCKED
5. ▲ INDICATED CIRCUITS MUST BE ON THE SAME PHASE AS INDICATED

1 E03 EXISTING PANEL LP-A SCHEDULE
SCALE: N.T.S.

LP-201
120/208 VOLT, 3Ø, 4W
SURFACE MOUNTED
14 KAIC
225A MAINS

	LOAD	DESCRIPTION	BKR	CCT				CCT	BKR	DESCRIPTION	LOAD	
		VFD-1101	15A,1P	1	●			2	20A,1P	FILTER SKID CONTROL PANEL (FCP-200)		
		LCP-201	20A,1P	3		●		4	20A,1P	EXTERIOR RECEPTACLES		
✱		NBER CONTROL PANEL (FCP-100)	20A,1P	5			●	6	20A,1P	RECEPTACLES (INTERIOR)		✱
		INTERIOR LIGHTS	15A,1P	7	●			8	20A,1P	RECEPTACLES (INTERIOR)		
		EXTERIOR LIGHTS	15A,1P	9		●		10	15A,1P	EF-8000, MD-8000, MD-9001		
†		UH-6001	15A,1P	11			●	12	15A,1P	DHW-6000		
†		UH-6001	15A,1P	13	●			14	20A,1P	SPARE		
†		CHEM SKID PUMP (P-3101)	15A,1P	15		●		16	15A,1P	SPARE		
†		CHEM SKID PUMP (P-3201)	15A,1P	17			●	18	20A,1P	SPARE		
		AREA LEAK ALARM CONTROL PANEL (FCP-600)	15A,1P	19	●			20	20A,1P	SPARE		
		SPARE	15A,1P	21		●		22	20A,1P	SPARE		
		SPARE	15A,1P	23			●	24	20A,1P	SPARE		
		SPARE	15A,1P	25	●			26	20A,1P	SPARE		
		SPARE	15A,1P	27		●		28	20A,1P	SPARE		
		SPARE	15A,1P	29			●	30	20A,1P	SPARE		
		SPARE	15A,1P	31	●			32	20A,1P	SPARE		
		SPARE	15A,1P	33		●		34	20A,1P	SPARE		
		SPARE	15A,1P	35			●	36	20A,1P	SPARE		
				37	●			38				
⑤		OVERHEAD DOOR	15A,3P	39		●		40	XXA,3P	SPD-201		①
				41			●	42				

TOTAL CONNECTED LOAD: 0 WATTS

PHASE LOAD TO BE FILLED IN BY CONTRACTOR:
LOAD PHASE A: _____ LOAD PHASE B: _____ LOAD PHASE C: _____

REMARKS
1. ALL LOADS ARE IN WATTS, UNLESS OTHERWISE NOTED.
2. † DEDICATED NEUTRAL
3. ✱ GFI
4. ■ LOCKED
5. ▲ INDICATED CIRCUITS MUST BE ON THE SAME PHASE AS INDICATED

2 E03 PANEL LP-201 SCHEDULE
SCALE: N.T.S.

DP-200
600 VOLT, 3Ø-3W
SURFACE MOUNTED
14kAIC
100 AMP MAIN BREAKER

	LOAD	DESCRIPTION	BKR	CCT				CCT	BKR	DESCRIPTION	LOAD	
				1	●			2				
		TX-201 (LP-201)	40A, 3P	3		●		4	15A, 3P	UH-9002		
				5			●	6				
				7	●			8				
②		VFD-2101 (P-2101)	50A, 3P	9		●		10	50A, 3P	VFD-2201 (P-2201)		②
				11			●	12				
				13	●			14				
		SPARE	15A, 3P	15		●		16	15A, 3P	SPARE		
				17			●	18				
				19	●			20				
		SPARE	15A, 3P	21		●		22	15A, 3P	SPARE		
				23			●	24				
				25	●			26				
		SPARE	15A, 3P	27		●		28	15A, 3P	SPARE		
				29			●	30				
				31	●			32				
		SPARE	15A, 3P	33		●		34	XXA,3P	SPD-200		①
				35			●	36				

TOTAL CONNECTED LOAD:

PHASE LOAD TO BE FILLED IN BY CONTRACTOR:
LOAD PHASE A: LOAD PHASE B: LOAD PHASE C:
REMARKS
1. ALL LOADS ARE IN WATTS, UNLESS OTHERWISE NOTED.
2. † DEDICATED NEUTRAL
3. ✱ GFI
4. ■ LOCKED
5. ▲ ARC FAULT CIRCUIT INTERRUPTER

NOTE: PROVIDE PADLOCKABLE CLASPS FOR ALL BREAKERS PROVIDED.

3 E03 PANEL DP-200 SCHEDULE
SCALE: N.T.S.

DRAWING NOTES:

1. PROVIDE SPD ON BRANCH CIRCUIT (TYPE AS INDICATED ON SCHEDULE OF SPDs). INSTALL AS CLOSE AS PRACTICAL TO PANEL. INSTALL GROUND AS DIRECT AS POSSIBLE, FOLLOWING MANUFACTURER'S RECOMMENDATIONS FOR BRANCH CIRCUIT SIZE. BRANCH BREAKER RATING AND GROUND AWG SIZE.
2. COORDINATE FINAL BREAKER SIZES WITH VFD MANUFACTURER PRIOR TO BREAKER PROCUREMENT.
3. COORDINATE FINAL BREAKER SIZE WITH OVERHEAD DOOR MANUFACTURER PRIOR TO BREAKER PROCUREMENT.

No.	ISSUE / REVISION	COMM'N'Y
1	ISSUED FOR CONSTRUCTION	12/09/23
0	ISSUED FOR TENDER	01/09/23

VERIFY SHEET SIZE AND SCALE, THE BAR TO THE RIGHT IS 25mm IF THIS IS A FULL SIZE DRAWING. 25mm

SCALE:

CLIENT:
COMMUNITY OF North Dundas
www.jlrichards.ca

CONSULTANT:
J.L.Richards ENGINEERS • ARCHITECTS • PLANNERS

CONSULTANT:

PROJECT NORTH:

PROFESSIONAL STAMP:
LICENSED PROFESSIONAL ENGINEER
2023-06-12
S. T. BUCKLEY
100117850
PROVINCE OF ONTARIO

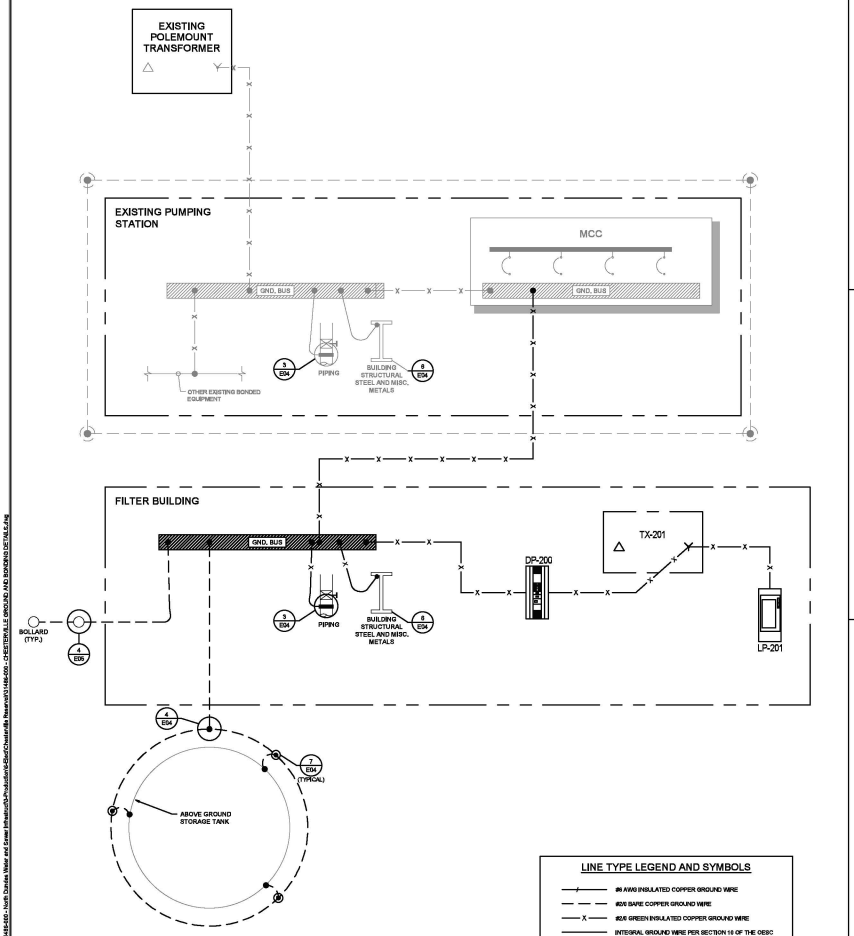
PROJECT:
CHESTERVILLE DRINKING WATER SUPPLY SYSTEM UPGRADES
VILLAGE OF CHESTERVILLE, ONTARIO

DRAWING:
PANEL SCHEDULES

DESIGN: SB	
DRAWN: NB	DRAWING #:
CHECKED: LO	E03
J.L.R. #: 31499-000	

VERSION: 2023-06-12 AT 4:14 PM

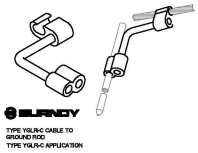
File Location: P:\31000\31499-000 - North Dundas - Water and Sewer Infrastructure\Production\Drafting\Revit\31499-000 - Chester Revit Panel Schedule.rvt



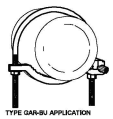
1 E04 FACILITY GROUNDING
SCALE: NTS

LINE TYPE LEGEND AND SYMBOLS

- #6 AWG INSULATED COPPER GROUND WIRE
- #2/0 BARE COPPER GROUND WIRE
- #2/0 GREEN INSULATED COPPER GROUND WIRE
- INTEGRAL GROUND WIRE PER SECTION 16 OF THE OESC
- BRAIDED LOW INDUCTANCE GROUND CABLE
- OESC COMPLIANT GROUND ROD AS PER OESC RULE 10-192

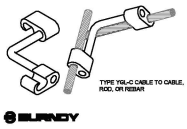


2 E04 CABLE TO ROD COMPRESSION CONNECTOR
SCALE: N.T.S.

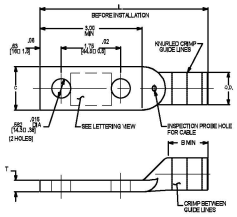


3 E04 CONDUCTOR TO PIPE
SCALE: N.T.S.

NOTE:
SELECT CATALOGUE # TO MATCH PIPE DIAMETER



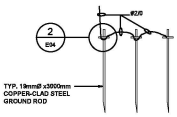
4 E04 CONDUCTOR TO CONDUCTOR COMPRESSION CONNECTOR
SCALE: N.T.S.



5 E04 CONDUCTOR TO FLAT SURFACE
SCALE: N.T.S.

NOTE:
BURNDY® YGHA-29-2N

6 E04 GROUND TO I-BEAM
SCALE: N.T.S.



NOTE:
NUMBER OF RODS AS INDICATED.

7 E04 GROUND ROD DETAIL
SCALE: N.T.S.

DRAWING NOTES:

1. COORDINATE BONDING WITH RESERVOIR MANUFACTURER.
2. BOND BUILDING PERIMETER BOLLARDS AND TRANSFORMER BOLLARDS. BONDING PER DETAIL 4/E06.

No.	ISSUE / REVISION	DD/MM/YY
1	ISSUED FOR CONSTRUCTION	12/09/23
0	ISSUED FOR TENDER	31/08/23

VERIFY SHEET SIZE AND SCALES. THE BAR TO THE RIGHT IS 20mm IF THIS IS A FULL SIZE DRAWING. 20mm

SCALE:

CLIENT:
Municipality of North Dundas
www.northdundas.ca

CONSULTANT:
J.L.Richards ENGINEERS • ARCHITECTS • PLANNERS
www.jlrichards.ca

CONSULTANT:

PROJECT NORTH:

PROFESSIONAL STAMP:
LICENSED PROFESSIONAL ENGINEER
2023-06-12
S. T. BUCKLEY
100117850
PROVINCE OF ONTARIO

PROJECT:
CHESTERVILLE DRINKING WATER SUPPLY SYSTEM UPGRADES
VILLAGE OF CHESTERVILLE, ONTARIO

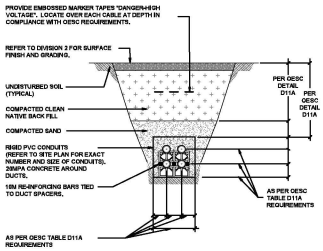
DRAWING:
GROUND AND BONDING DETAILS

DESIGN:	SB
DRAWN:	NB
CHECKED:	LO
J.L.R. #:	31495-000

DRAWING #: E04

File Location: K:\31000\31495-000 - North Dundas Water and Sewer Infrastructure Production\Sub-Divisions\Chesterville Reservoir\31495-000 - CHESTERVILLE BRIDGE AND BONDING DETAILS.dwg

Plot Date: June 6, 2023 12:43 PM

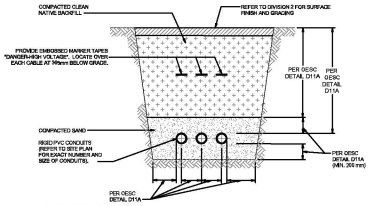


CONCRETE ENCASED DUCT BANK SCHEDULE		
DUCT TYPE	DUCT CONFIGURATION	UNDERGROUND AS PER DIAGRAM D11 (OESC)
8		SEE DETAIL 7
6H		SEE DETAIL 6
6W		SEE DETAIL 5
4		SEE DETAIL 4
3		SEE DETAIL 3
2		SEE DETAIL 2
1		SEE DETAIL 1

NOTES:

1. COMPACTED APPROVED NATIVE BACKFILL TO 95% MODIFIED PROCTOR DENSITY.
2. PROVIDE MINIMUM 50mm CONCRETE COVER OVER REINFORCING STEEL.
3. PROVIDE NYLON PULL-CORDS c/w 3 METERS OF EXTRA CORD TIED TO END CAPS AND STUFFED INTO DUCT ENDS IN ALL SPARE (EMPTY) DUCTS.
4. IF TRENCH IS TO BE USED AS FORMWORK FOR CONCRETE DUCTBANK PROVIDE 4 LAYERS OF 6mm POLYETHYLENE WRAP IN EXCAVATED TRENCH AS FORMWORK.
5. EXTEND AS NECESSARY TO PROVIDE MINIMUM CLEARANCE OF 300mm BETWEEN POWER AND COMMUNICATIONS LINES.
6. FOR ALL UNDERGROUND DUCTBANK SYSTEMS CARRYING 208 AND 600VOLT SERVICES, THE CONTRACTOR IS RESPONSIBLE TO ENSURE THAT THE INSTALLED DEPTH AND LAYOUT CONFIGURATIONS SHALL CONFORM TO ALL OESC REQUIREMENTS.

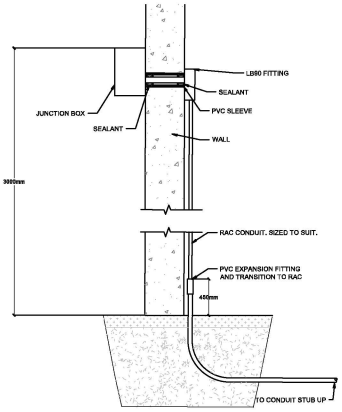
1 E05 CONCRETE ENCASED TRENCH DETAILS
SCALE: NTS



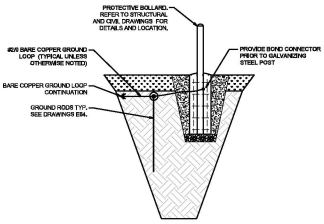
DETAIL NOTES:

1. COMPACTED APPROVED NATIVE BACKFILL TO 95% MODIFIED PROCTOR DENSITY.
2. PROVIDE MINIMUM 200mm SAND COVER OVER EACH BURIED SERVICE.
3. INSTALLATION TO THE LATEST REVISION OF THE ONTARIO ELECTRICAL SAFETY CODE.
4. PROVIDE ONE MARKER TAPE FOR EACH CABLE/CONDUIT IN THE TRENCH.
5. ARRANGE CABLES/CONDUITS TO SUIT.

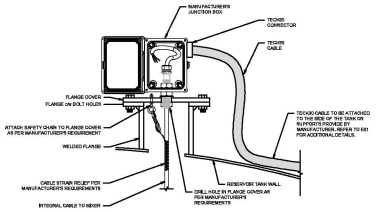
2 E05 DIRECT BURIED TRENCH DETAILS
SCALE: NTS



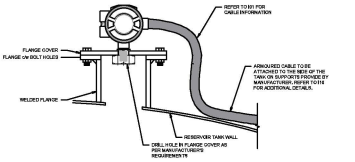
3 E05 CONDUIT PENETRATION DETAIL
SCALE: NTS



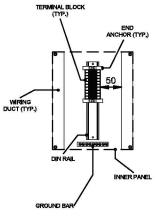
4 E05 BOLLARD GROUNDING DETAILS
SCALE: NTS



5 E05 ABOVE GROUND STORAGE TANK MIXER JUNCTION BOX DETAIL
SCALE: NTS



7 E05 ABOVE GROUND STORAGE TANK FLANGE MOUNT INSTRUMENT DETAIL
SCALE: NTS



GENERAL NOTES:

1. PROVIDE ENOUGH TERMINALS TO TERMINATE ALL CONDUCTORS OF ALL CABLES CONNECTED TO THE JUNCTION BOX, REFER TO CABLE SCHEDULE.
2. SIZE EACH JUNCTION BOX TO ACCOMMODATE THE NUMBER OF TERMINALS.
3. SIZE THE DIN RAIL TO ACCOMMODATE THE NUMBER OF TERMINALS.
4. ALTERNATIVE LAYOUT MAY BE CONSIDERED AT TIME OF SHOP DRAWINGS REVIEW.
5. PROVIDE AT LEAST 50mm SPACE BETWEEN WIRE DUCT AND TERMINAL.
6. TERMINAL BLOCKS TO BE LABELLED NUMERICALLY, STARTING AT 1 AND INCREMENTING BY 1.
7. JUNCTION BOX WIRING SHALL BE IP2X. PROVIDE ALL ACCESSORIES REQUIRED FOR A IP23 RATING.
8. PROVIDE A LAMACOID LABEL AS INDICATED ON THE DRAWINGS.
9. USE SUITABLE CONSTRUCTION GRADE ADHESIVE TO SECURE LAMACOID TO JUNCTION BOX. ENSURE ADHESIVE IS RATED FOR THE INTENDED ENVIRONMENTAL CONDITIONS. SCREWS, OR OTHER MEANS REQUIRING PUNCTURING OF THE ENCLOSURE, IS NOT ACCEPTABLE.
10. JUNCTION BOXES SERVICING POWER CABLES ARE TO HAVE TERMINAL BLOCKS SIZED TO SUIT.

BILL OF MATERIALS:

1. HAMMOND ECLIPSE ENSO SERIES ENCLOSURE. SIZE ENCLOSURE TO SUIT.
2. PHOENIX CONTACT UK 5 N TERMINAL BLOCKS.
3. PHOENIX CONTACT CLIPFIX 35 SNAP-ON END BRACKETS.
4. WIRE AND DUCT SIZED TO SUIT.
5. ALLEN-BRADLEY 199-DR1 35mm x 15mm ZINC PLATED DIN RAIL. PROVIDE MATCHING STAND-OFFS AS REQUIRED.
6. COPPER GROUND BAR.
7. PHOENIX CONTACT KLM + ESL 20X8 TERMINAL STRIP MARKERS / GROUP LABELS.
8. 50mm x 150mm LAMACOID WITH WHITE BACKGROUND AND BLACK 25mm HIGH CHARACTERS.

EXTERIOR JBs:

A. IN ADDITION TO THE ABOVE, PROVIDE THE FOLLOWING:
AA. NEMA 4X RPVC ENCLOSURE, IN LIEU OF NEMA 4.
AB. VENT DRAIN KIT, HAMMOND HDSMT SERIES.

6 E05 TYPICAL JUNCTION BOX DETAIL
SCALE: NTS

No.	ISSUE / REVISION	DD/MM/YY
1	ISSUED FOR CONSTRUCTION	12/09/23
0	ISSUED FOR TENDER	31/01/23

VERIFY SHEET SIZE AND SCALES. THE BAR TO THE RIGHT IS 20mm IF THIS IS A FULL SIZE DRAWING. 0 20mm

SCALE:

CLIENT: Municipality of North Dundas

CONSULTANT: www.jlrichards.ca
J.L.Richards ENGINEERS • ARCHITECTS • PLANNERS

CONSULTANT:

PROJECT NORTH:

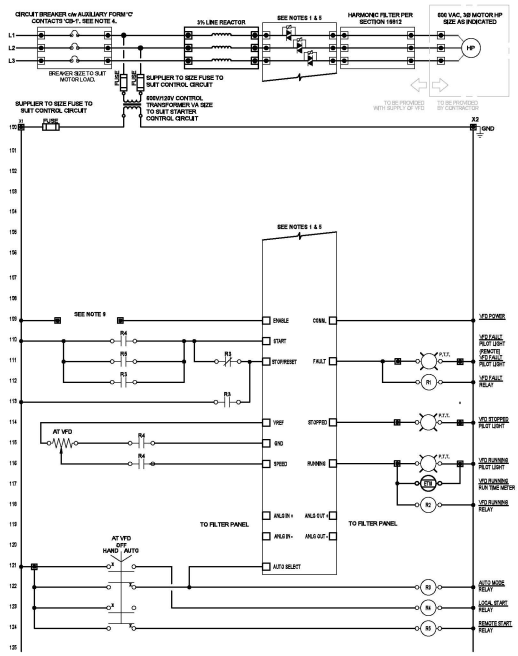
PROFESSIONAL STAMP: LICENSED PROFESSIONAL ENGINEER 2023-06-12 S. T. BUCKLEY 100117650 PROVINCE OF ONTARIO

PROJECT:
CHESTERVILLE DRINKING WATER SUPPLY SYSTEM UPGRADES
VILLAGE OF CHESTERVILLE, ONTARIO

DRAWING:
ELECTRICAL DETAILS

DESIGN: SB	
DRAWN: NB	DRAWING #: E05
CHECKED: LG	
J.L.R. #: 31499-000	

File Location: W:\Work\Civil\Projects\31000\31499-000 - North Dundas Water and Sewer Infrastructure\Production\Electrical\Reservoir\E05-E06 - Chesterville Reservoir Electrical Details.dwg



1 E09 **VFD STARTER**
SCALE N.T.S.

DETAIL NOTES:

1. ELECTRONIC VFD DRIVE AS, SPECIFIED IN SECTION 16912.
2. PILOT LIGHTS TO BE 'PUSH TO TEST' (P.T.T.) 120V LED LAMPS. LAMP COLOURS TO BE CONFIRMED PRIOR TO MANUFACTURING. REFER TO SECTION 16951.
3. PROVIDE TERMINAL BLOCKS (TB) AS INDICATED. NUMBER OF TERMINALS AND MARKINGS TO SUIT.
4. SIZE CIRCUIT BREAKERS TO SUIT MOTOR LOADS. CIRCUIT BREAKERS TO COME C/W WITH PADLOCKABLE DISCONNECT HANDLE MOUNTED TO THE VFD EXTERIOR.
5. STARTERS TO BE NEMA RATED, HEAVY DUTY. REFER TO SECTIONS 16901 AND 16912.
6. VFD FAULT RESET VIA PUSH BUTTON ON VFD DOOR.
7. RESERVED.
8. FOR STARTERS WITHOUT REMOTE CONTROL PANEL, ADD WIRE JUMPERS TO TERMINALS.
9. FOR EACH STARTER, PROVIDE TERMINALS TO INTERLOCK THE STARTER VIA EXTERNAL HARDWIRED SIGNALS. CONTRACTOR TO PROVIDE JUMPERS IF THE INTERLOCK IS NOT REQUIRED. PROGRAM THE STARTERS TO IMMEDIATELY SHUTDOWN IF THE INTERLOCK IS REMOVED. NOTE SUCH INTERPLOCKS MAY INCLUDE A LOCAL DISCONNECT; IN WHICH CASE AN EARLY BREAK CONTACT ON THE DISCONNECT WILL TRIGGER A SHUTDOWN OF THE STARTER AND THE STARTER SHOULD RESPOND ACCORDINGLY TO PREVENT EQUIPMENT DAMAGE.
10. RESERVED.
11. RESERVED.
12. ELECTRONIC VFD AS SPECIFIED IN SECTION 16951.
13. PROVIDE CT(S), MOVs AND OTHER APPURTENANCES TO SUIT.
14. RESERVED
15. RESERVED.
16. RESERVED.
17. ELECTRONIC OVERLOAD EQUIVALENT TO ALLEN-BRADLEY E300 PLUS OVERLOAD RELAY.
18. RESERVED.
19. RESERVED.
20. BREAKER TO BE UL 489 LISTED AS A BRANCH BREAKER – EQUIVALENT TO ALLEN-BRADLEY 1489-M SERIES.

GENERAL NOTES:

A. REFER TO SECTION 16901 AND SECTION 16912.

No.	ISSUE / REVISION	COMM/YY
1	ISSUED FOR CONSTRUCTION	12/09/23
0	ISSUED FOR TENDER	31/01/23

VERIFY SHEET SIZE AND SCALES, THE BAR TO THE RIGHT IS 20mm IF THIS IS A FULL SIZE DRAWING. 0 20mm

SCALE:

CLIENT:

Municipality of North Dundas

CONSULTANT: www.jlrichards.ca

J.L.Richards ENGINEERS • ARCHITECTS • PLANNERS

CONSULTANT:

PROJECT NORTH:

PROFESSIONAL STAMP: LICENSED PROFESSIONAL ENGINEER 2023-06-12 S. T. BUCKLEY 100111650 PROVINCE OF ONTARIO

PROJECT:

CHESTERVILLE DRINKING WATER SUPPLY SYSTEM UPGRADES

VILLAGE OF CHESTERVILLE, ONTARIO

DRAWING:

MOTOR STARTER SCHEMATICS

DESIGN: SB	
DRAWN: NB	DRAWING #: E06
CHECKED: LG	
J.L.R. #: 31499-000	

VERSION: 2023-12-12 11:11 AM

File Location: K:\31000\31499-000 - North Dundas Water and Sewer Infrastructure\Production\Sub\Chesterville Reservoir\31499-000 - Chesterville Reservoir Motor Starter Schematics.dwg

MOTOR STARTER AND CONTROL LIST

1-DIVISION 1
11-DIVISION 11
21-DIVISION 21
22-DIVISION 22
23-DIVISION 23

25-DIVISION 25
27-DIVISION 27
C-BAS TRADE
Cx-COMMISSIONING AGENT
E-ELECTRICAL TRADE

G-GENERAL TRADE
M-MECHANICAL TRADE
O-OWNER
X-EXISTING

FVNR - FULL VOLTAGE NON-REVERSING
FVR - FULL VOLTAGE REVERSING
HMI - HUMAN MACHINE INTERFACE
MCA - MINIMUM CIRCUIT AMPACITY
MCC - MOTOR CONTROL CENTER

MOCP - MAXIMUM OVER-CURRENT PROTECTION
SPD - SURGE PROTECTION DEVICE

A1 - CURRENT SENSING
A2 - FIRE ALARM HARDWIRED CONTACTS
A3 - DOOR SWITCH
A4 - HARDWIRED FREEZE PROTECTION
A5 - THERMISTORS

A6 - REMOTE STATION TERMINATIONS (LCP)
A7 - PLC / BAS TERMINATIONS
A8 - ELECTRONIC OVERLOAD
A9 - SPEED POTENTIOMETER
A10 - HIGH TEMP. / LEAK DETECTION RELAY (MINICAS / MAS)

C1 - REMOTE 2 STAGE 120V THERMOSTAT
C2 - INTEGRAL 2 STAGE 120V THERMOSTAT
C3 - INTERLOCKED WITH 120V MOTORIZED EXHAUST AIR DAMPER
C4 - INTERLOCKED WITH 120V MOTORIZED OUTSIDE AIR DAMPER
C5 - INTERLOCKED WITH OTHER EQUIPMENT, REFER TO NOTES

C6 - REMOTE 120V TIME CLOCK
C7 - INTEGRAL ON / OFF FLOAT SWITCH
C8 - REMOTE CONTROL PANEL PROVIDED BY THE MANUFACTURER
C9 - DUPLEX PUMP CONTROLLER PROVIDED BY THE MANUFACTURER
C10 - TRIPLEX PUMP CONTROLLER PROVIDED BY THE MANUFACTURER

C11 - REMOTE HIGH LEVEL HUMIDISTAT AND FLOW SENSOR
C12 - REMOTE PRESSURE SWITCH
C13 - REMOTE TEMPERATURE SENSOR
C14 - REMOTE BOILER CONTROL PANEL
C15 - RESERVED

C20 - FILTER SKID CONTROL PANEL
C21 - THERMOSTAT

MSCL TAG	EQUIPMENT INFORMATION														
								Power Requirements							
EQUIPMENT IDENT. TAG	EQUIPMENT DESCRIPTION	LOCATION / ROOM No.	Supplied BY	Installed BY	Power Wiring BY	Start Up BY	Commissioned BY	POWER PANEL	POWER FEEDER	LOAD	MCA (Amps)	MOCP (Amps)	VOLTAGE	PHASE
P-2101	BACKWASH PUMP #1	FILTER BUILDING	M	M	E	E	G	DP-200		20 HP			600	3
P-2201	BACKWASH PUMP #2	FILTER BUILDING	M	M	E	E	G	DP-200		20 HP			600	3
DHWT-9000	DOMESTIC HOT WATER TANK	FILTER BUILDING	M	M	E	E	G	LP-201			2.5		120	1
EF-9000	CHEMICAL ROOM EXHAUST FAN	FILTER BUILDING	M	M	E	E	G	LP-201		0.07 kW			120	1
MD-9000	FILTER ROOM INTAKE MOTORIZED DAMPER	FILTER BUILDING	M	M	E	E	G	LP-201		5.5 W			120	1
MD-9001	FILTER ROOM INTAKE MOTORIZED DAMPER	FILTER BUILDING	M	M	E	E	G	LP-201		5.5 W			120	1
MX-1001	ABOVE GROUND STORAGE TANK MIXER	A. G. STORAGE TANK	M	M	E	E	G	FCP-100		0.5 HP			120	1
OHD-9000	OVERHEAD DOOR	FILTER BUILDING	G	G	E	E	G	LP-201					208	3
UH-9000	FILTER ROOM UNIT HEATER #1	FILTER BUILDING	M	M	E	E	G	LP-201		215 W			120	1
UH-9001	FILTER ROOM UNIT HEATER #2	FILTER BUILDING	M	M	E	E	G	LP-201		215 W			120	1
UH-9002	CHEM ROOM HEATER	FILTER BUILDING	E	E	E	E	G	DP-200		2 kW			600	3
VFC-1001	FILTRATION RAW WATER INLET VALVE	FILTER BUILDING	M	M	E	E	G	LP-201		0.03 kW			120	1

	STARTER INFORMATION																																							
	Location						Manual Start				Magnetic Starter						Soft Start			VFD Starter								Starter Options					Notes							
EQUIPMENT IDENT. TAG	Starter Not Required	Integral with Equipment	MCC	Remote	At Equipment		Toggle Switch	Key Operated	Rheostat		FVNR	FVR	Two speed	Control Transformer	Combination		HMI	Bypass		HMI	Bypass Selector Switch	Line Reactor	Harmonic Mitigation	Output Reactor	DV/DT Input Filter			ON / OFF Switch	Push Button	Pilot Light	HOA Selector Switch		LEGEND NOTE	LEGEND NOTE	Starter schematic Reference	Supplied BY	Installed BY	Wired BY	Start Up BY	Commissioned BY
P-2101																						•		•						•	•					E	E	E	E	G
P-2201																						•		•						•	•					E	E	E	E	G
DHWT-9000																																								
EF-9000		•																																						
MD-9000		•																																						
MD-9001		•																																						
MX-1001				•																																				
OHD-9000		•																																						
UH-9000		•																																						
UH-9001		•																																						
UH-9002		•																																						
VFC-1001		•																																						

	LOCAL DISCONNECT										CONTROL												
EQUIPMENT IDENT. TAG	Integral to Equipment	Motor Rated Toggle	NEMA 1 Rated	NEMA 3R Rated	Junction Box	Receptacle for Equipment Plug	Auxiliary contacts for VFD Interlock	Supplied BY	Installed BY	Wired BY	Manual Control	Automatic Control	BAS Control	BAS Monitoring	LEGEND NOTE	LEGEND NOTE	LEGEND NOTE	Supplied BY	Installed BY	Wired BY	Start Up BY	Commissioned BY	NOTES
P-2101								E	E	E					C20			M	M	E	E	G	REFER TO DRAWING E06
P-2201								E	E	E					C20			M	M	E	E	G	REFER TO DRAWING E06
DHWT-9000		•	•			•		E	E	E								M	M	E	E	G	
EF-9000		•	•					E	E	E					C21			M	M	E	E	G	
MD-9000		•	•					E	E	E					C21			M	M	E	E	G	
MD-9001		•	•					E	E	E					C21			M	M	E	E	G	
MX-1001						•		E	E	E		•			C8			M	E	E	E	G	
OHD-9000	•							G	G	E													
UH-9000		•	•					E	E	E					C21			M	M	E	E	G	NATURAL GAS UNIT HEATER
UH-9001		•	•					E	E	E					C21			M	M	E	E	G	NATURAL GAS UNIT HEATER
UH-9002		•	•					E	E	E					C21			E	E	E	E	G	ELECTRIC UNIT HEATER
VFC-1001	•							E	E	E					C20			E	E	E	E	G	

1
E07

MOTOR STARTER CONTROL LIST

SCALE: NTS

TABLE OF DEVICES

DEVICE TAG IDENTIFIER	PREVIOUS TAG	COMPONENT CODE	DEVICE DESCRIPTION	INS. TYPE	LOCATION	OPERATION	NOTES	FIELD WORK			
								SUPPLY BY	INSTALL BY	WIRE BY	COMM. BY
AIT-1001			ANALYZER TRANSMITTER	CL2*	PACKAGED FILTER SKID	4-20mA		FES	FES	FES	G
HD-9000		T50	HEAT DETECTOR	HEAT	FILTER BUILDING	FORM C		CSS	E	E	G
FIT-1001			FLOW TRANSMITTER		PACKAGED FILTER SKID	4-20mA		FES	FES	FES	G
FIT-1002			FLOW TRANSMITTER		PACKAGED FILTER SKID	4-20mA		FES	FES	FES	G
FRC-01			EXISTING RESIDUAL CHLORINE ANALYZER	TCL2	RESERVOIR AND PUMPING STATION	4-20mA		EX	EX	EX	G
FS-9001			EYE WASH STATION FLOW SWITCH		FILTER BUILDING			M	M	E	G
FSL-2101			FLOW SWITCH		CHEMICAL DOSING SUPPLY PACKAGE			FES	FES	FES	G
LIT-1000		L01	ULTRASONIC LEVEL TRANSMITTER	U/S	ABOVE GROUND STORAGE TANK	4-20mA	RANGE: 0-12m	CSS	E	E	G
LIT-1001		L02	RADAR LEVEL TRANSMITTER	RAD	ABOVE GROUND STORAGE TANK	4-20mA	RANGE: 0-12m	CSS	E	E	G
LIT-2101			LEVEL TRANSMITTER		CHEMICAL DOSING SUPPLY PACKAGE	4-20mA		FES	FES	FES	G
LIT-2102			LEVEL TRANSMITTER		CHEMICAL DOSING SUPPLY PACKAGE	4-20mA		FES	FES	FES	G
LSH-2001		L03	FLOOD DETECTION SWITCH	FLOAT	FILTER BUILDING	FORM C	MOUNT A.F.F.	CSS	E	E	G
LSH-2002		L04	FLOOD DETECTION SWITCH	PUCK	FILTER BUILDING	FORM C	MOUNT A.F.F.	CSS	E	E	G
TIT-9000		T01	TEMPERATURE TRANSMITTER	RTD	FILTER BUILDING	4-20mA	RANGE: -20-50°C	CSS	E	E	G
UAL-2001		O01	TANK 20101 WARNING LEVEL STACK LIGHT	RED	OUTSIDE FILTER BUILDING			CSS	E	E	G
UAL-2002		O01	TANK 20101 WARNING LEVEL STACK LIGHT	AMBER	OUTSIDE FILTER BUILDING			CSS	E	E	G
UAL-2003		O01	TANK 20102 WARNING LEVEL STACK LIGHT	RED	OUTSIDE FILTER BUILDING			CSS	E	E	G
UAL-2004		O01	TANK 20102 WARNING LEVEL STACK LIGHT	AMBER	OUTSIDE FILTER BUILDING			CSS	E	E	G
YA-2001		O01	TANK 20101 WARNING LEVEL STACK LIGHT	HORN	OUTSIDE FILTER BUILDING			CSS	E	E	G
YA-2002		O01	TANK 20102 WARNING LEVEL STACK LIGHT	HORN	OUTSIDE FILTER BUILDING			CSS	E	E	G
ZS-9000		Z01	FILTER BUILDING DOOR #1		FILTER BUILDING	FORM C		CSS	E	E	G
ZS-9001		Z01	FILTER BUILDING DOOR #1		FILTER BUILDING	FORM C		CSS	E	E	G
ZS-9002		Z01	FILTER BUILDING DOOR #2		FILTER BUILDING	FORM C		CSS	E	E	G
ZS-9003		Z01	FILTER BUILDING DOOR #2		FILTER BUILDING	FORM C		CSS	E	E	G
ZS-9004		Z02	FILTER BUILDING OVERHEAD DOOR		FILTER BUILDING	FORM C		CSS	E	E	G

2
E07

TABLE OF DEVICES

SCALE: NTS

TABLE OF PANELS AND ELECTRICAL EQUIPMENT

DEVICE TAG IDENTIFIER	SERVICE DESCRIPTION	LOCATION	DWG DETAIL	DEVICE		FIELD WORK			
				VOLTS	Ø	SUPPLY BY	INSTALL BY	WIRE BY	COMM. BY
DP-200	DISTRIBUTION PANEL	FILTER BUILDING	E02	600	3	E	E	E	G
DISC-100	DISCONNECT	ABOVE GRADE STORAGE TANK	E02	120	1	E	E	E	G
FCP-100	MIXER CONTROL PANEL	FILTER BUILDING	E10	120	1	M	E	E	G
FCP-200	FILTER SKID CONTROL PANEL	FILTER BUILDING	E10	120	1	FES	E	E	G
FCP-904	AREA LEAK ALARM CONTROL PANEL	FILTER BUILDING	I01	120	1	CSS	E	E	G
JBA-100	ANALOG JUNCTION BOX	ABOVE GRADE STORAGE TANK	I01			CSS	E	E	G
JBA-101	ANALOG JUNCTION BOX	FILTER BUILDING	I01			CSS	E	E	G
JBA-200	ANALOG JUNCTION BOX	EXISTING PUMPING STATION	I01			CSS	E	E	G
JBD-200	DISCRETE JUNCTION BOX	FILTER BUILDING	I01			CSS	E	E	G
JBD-900	DISCRETE JUNCTION BOX	FILTER BUILDING	I01			CSS	E	E	G
JBD-901	DISCRETE JUNCTION BOX	FILTER BUILDING	I01			CSS	E	E	G
JBD-902	DISCRETE JUNCTION BOX	FILTER BUILDING	I01			CSS	E	E	G
JBD-903	DISCRETE JUNCTION BOX	FILTER BUILDING	I01			CSS	E	E	G
JBD-904	DISCRETE JUNCTION BOX	FILTER BUILDING	I01			CSS	E	E	G
JBP-100	POWER JUNCTION BOX	FILTER BUILDING	E01			CSS	E	E	G
LCP-200	CHEMICAL SKID LOCAL CONTROL PANEL	FILTER BUILDING	I10			CSS	E	E	G
LP-A	LIGHTING CONTROL PANEL	EXISTING PUMPING STATION	E03	240	1	EX	EX	E	G
LP-201	LIGHTING CONTROL PANEL	FILTER BUILDING	E03	208	3	E	E	E	G
MCC	MOTOR CONTROL CENTER	EXISTING PUMPING STATION	E02	600	3	EX	EX	E	G
OCWA	OCWA PANEL	EXISTING PUMPING STATION	I01			EX	EX	E	G
SPD-201	SURGE PROTECTIVE DEVICE	FILTER BUILDING	E02	208	3	E	E	E	G
TX-201	TRANSFORMER	FILTER BUILDING	E02	600-208/120	3	E	E	E	G
TX-A	TRANSFORMER	EXISTING PUMP STATION	E02	600-240/120	3	E	E	E	G
VFD-2101	BACKWASH PUMP 1 VFD	FILTER BUILDING	E06	600	3	E	E	E	G
VFD-2201	BACKWASH PUMP 2 VFD	FILTER BUILDING	E06	600	3	E	E	E	G

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E07

TABLE OF PANELS AND ELECTRICAL EQUIPMENT

SCALE: NTS

GENERAL

M	=>	Mechanical trade
E	=>	Electrical trade
G	=>	General Contractor
CSS	=>	Control System Specialist
FES	=>	Filter Skid Equipment Supplier
EX	=>	Existing
N/A	=>	Not Applicable
CP	=>	Control Panel
I	=>	Integral to Equipment
O	=>	By Others

File Location: \\jlrichards\Corp\Projects\31000\31486-000 - North Dundas Water and Sewer Infrastruct\3-Production\6-Elect\Chesterville Reservoir\31486-000 - Chesterville Reservoir MSCL and Equipment Tables.dwg

GENERAL NOTES:

A. REFER TO SECTION 17100 FOR DESCRIPTION OF COMPONENT CODE.

No.	ISSUE / REVISION	DD/MM/YY
1	ISSUED FOR CONSTRUCTION	12/06/23
0	ISSUED FOR TENDER	31/03/23

VERIFY SHEET SIZE AND SCALES. THE BAR TO THE RIGHT IS 25mm IF THIS IS A FULL SIZE DRAWING. 0 25mm

SCALE:

CLIENT:
TOWNSHIP OF North Dundas

CONSULTANT: www.jlrichards.ca
J.L.Richards
ENGINEERS · ARCHITECTS · PLANNERS

CONSULTANT:

PROJECT NORTH

PROFESSIONAL STAMP
LICENSED PROFESSIONAL ENGINEER
2023-06-12
S. T. BUCKLEY
100517850
PROVINCE OF ONTARIO

PROJECT:

CHESTERVILLE DRINKING WATER SUPPLY SYSTEM UPGRADES

VILLAGE OF CHESTERVILLE, ONTARIO

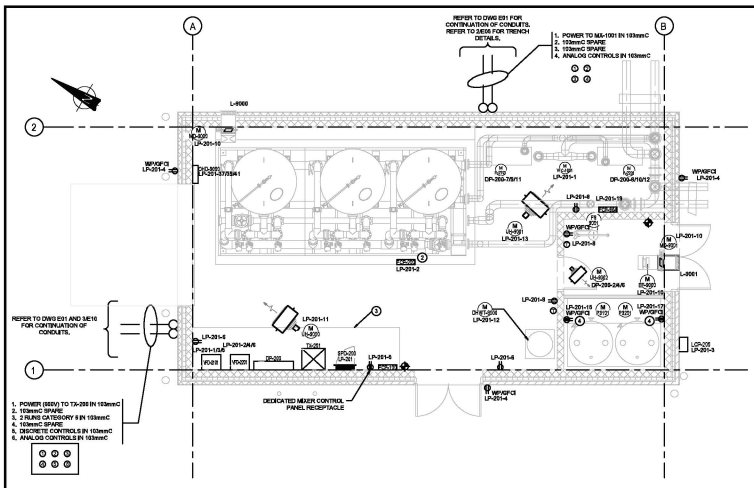
DRAWING:

MOTOR STARTER CONTROL LIST AND TABLE OF DEVICES

DESIGN: SB
DRAWN: NB
CHECKED: LO
JLR #: 31486-000

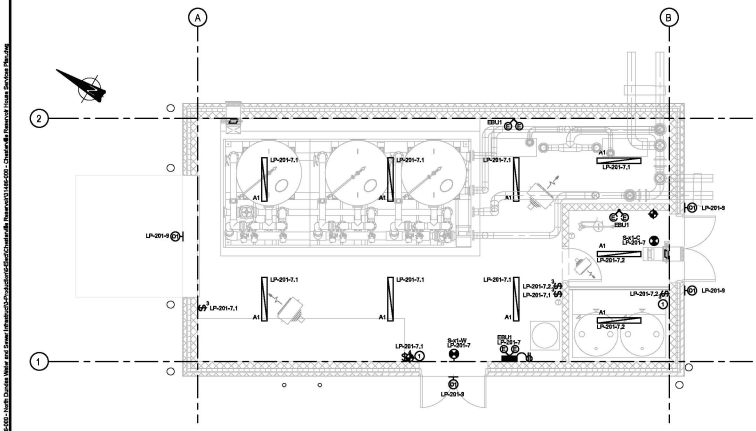
DRAWING #: E07

PLOT DATE: June 9, 2023 8:34:29 AM



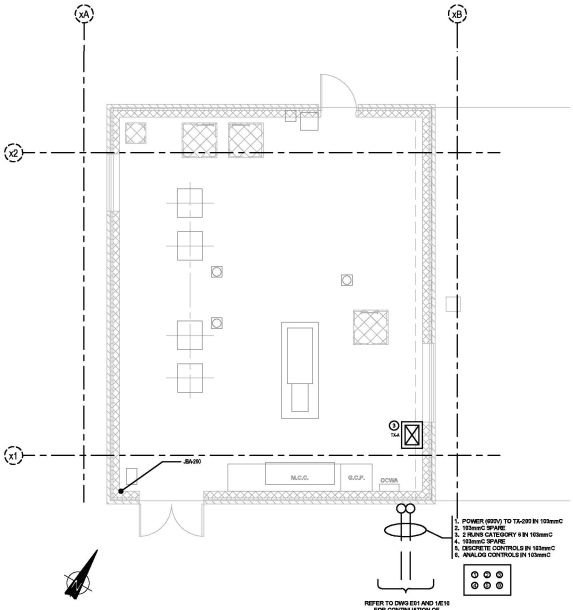
1 E10 FILTER BUILDING - POWER ARRANGEMENT

SCALE: AS INDICATED



2 E10 FILTER BUILDING - LIGHTING ARRANGEMENT

SCALE: AS INDICATED



3 E10 PUMPING STATION/RESERVOIR - GENERAL ARRANGEMENT

SCALE: AS INDICATED

GENERAL NOTES:

A. TYPE A1 LIGHTING FIXTURE TO BE CHAIN HUNG AT 3600mm A.F.F.

B. TYPE O1 LIGHTING FIXTURE TO BE MOUNTED AT A MINIMUM HEIGHT OF 3000mm A.F.G.

DRAWING NOTES:

1. COORDINATE FINAL LIGHT SWITCH LOCATION WITH ACTIVE DOOR LEAF. SWITCH TO BE LOCATED AT ACTIVE DOOR LEAF.
2. COORDINATE EXACT PANEL LOCATION WITH MANUFACTURER DOCUMENTATION.
3. REFER TO STRUCTURAL DRAWING S04 FOR HOUSEKEEPING PAD DETAIL.
4. COORDINATE FINAL RECEPTACLE LOCATION WITH CHEMICAL PUMPS.

No.	ISSUE / REVISION	DD/MM/YY
1	ISSUED FOR CONSTRUCTION	12/06/23
0	ISSUED FOR TENDER	31/03/23

VERIFY SHEET SIZE AND SCALES, THE BAR TO THE RIGHT IS 25mm IF THIS IS A FULL SIZE DRAWING. 25mm

SCALE: AS INDICATED

CLIENT: Municipality of North Dundas

CONSULTANT: J.L.Richards ENGINEERS • ARCHITECTS • PLANNERS www.jlrichards.ca

CONSULTANT:

PROJECT NORTH:

PROFESSIONAL STAMP: LICENSED PROFESSIONAL ENGINEER 2023-06-12 S. T. BUCKLEY 100117850 PROVINCE OF ONTARIO

PROJECT: CHESTERVILLE DRINKING WATER SUPPLY SYSTEM UPGRADES

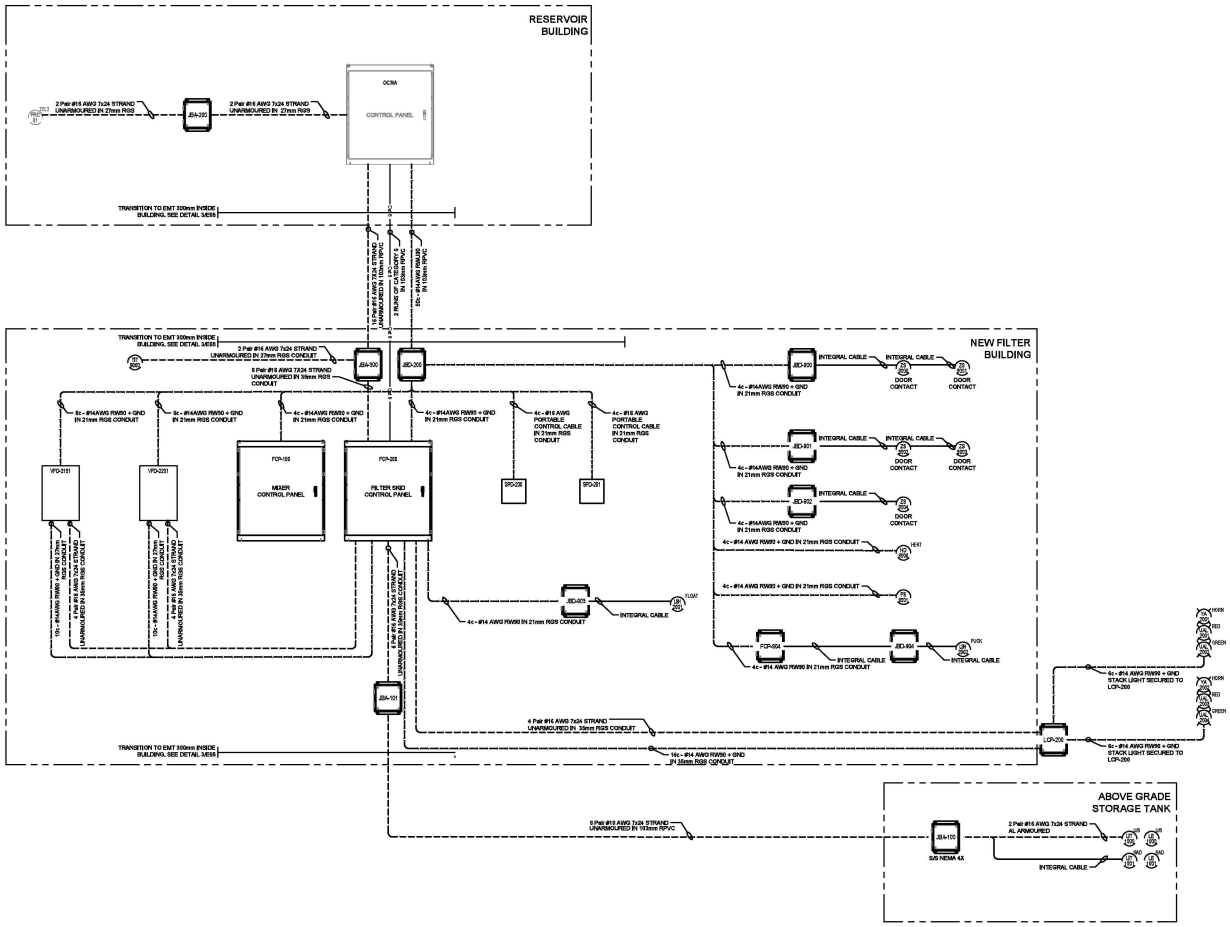
VILLAGE OF CHESTERVILLE, ONTARIO

DRAWING: HOUSE SERVICES PLAN

DESIGN: SB	DRAWING #: E10
DRAWN: NB	
CHECKED: LG	
J.L.R. #: 31499-000	

File Location: P:\31000\31499-000 - North Dundas Water and Sewer Infrastructure\Production\Civil\Contract\R - Research House Services Plan.dwg

PLOT DATE: June 6, 2023 8:34:06 AM



GENERAL NOTES:

A. REFER TO DRAWING PD040 FOR PROCESS AND INSTRUMENTATION LEGEND.

B. THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL CONTROL WIRING DIAGRAMS, P&ID AND PROCESS LAYOUT DRAWINGS. REFER TO NEW PANEL IO TABLES IN SPECIFICATION APPENDICES.

C. CONTRACTOR TO ORDER APPROPRIATE LENGTH OF INTEGRAL CABLE.

D. ADDITIONAL CABLE REQUIREMENTS:
- MULTI-CONDUCTOR ARMOURED CABLES: ANIXTER 7TO SERIES, 600VAC, AL ARMOURED
- MULTI-PAIR ARMOURED CABLES: ANIXTER 3234S6-16XX SERIES
- MULTI-PAIR UNARMOURED CABLES: ANIXTER 325-731-16XX SERIES
- PORTABLE CONTROL CABLES: ANIXTER 4DS SERIES 600W

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SCALE:

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CONSULTANT:

PROJECT NORTH:

PROFESSIONAL STAMP: LICENSED PROFESSIONAL ENGINEER 2023-06-12 S. T. BUCKLEY 100111650 PROVINCE OF ONTARIO

PROJECT:

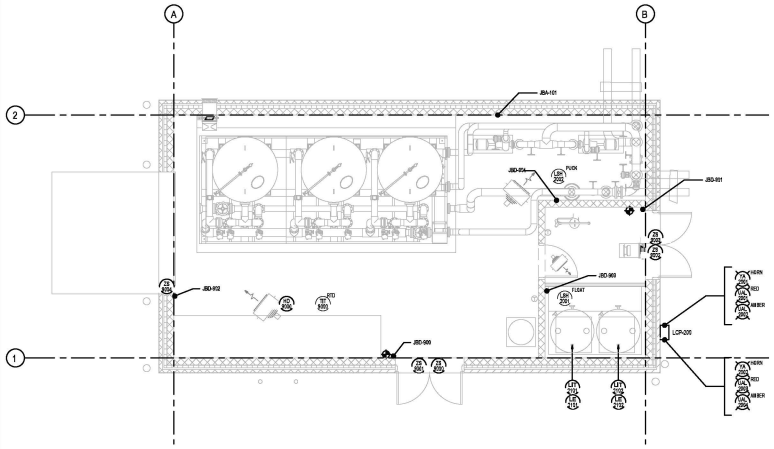
CHESTERVILLE DRINKING WATER SUPPLY SYSTEM UPGRADES

VILLAGE OF CHESTERVILLE, ONTARIO

DRAWING:

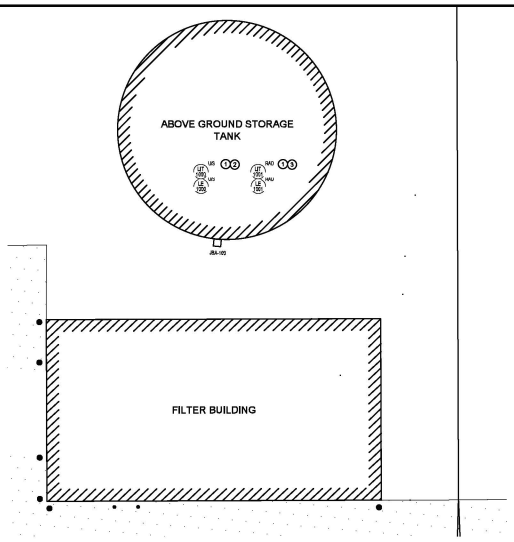
CONTROL BLOCK DIAGRAM

DESIGN:	SB
DRAWN:	NB
CHECKED:	LO
J.L.R. #:	31499-000
DRAWING #:	I01



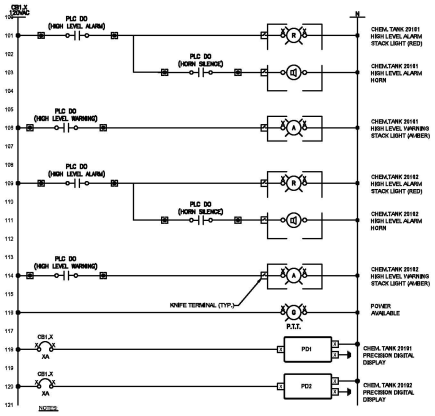
1 I10 FILTER BUILDING - INSTRUMENTATION PLAN

SCALE: AS INDICATED



2 I10 SITE - INSTRUMENTATION PLAN

SCALE: AS INDICATED



NOTES:

A. WARNING AND HIGH LEVEL SIGNALS TO BE CONTROLLED FROM THE FILTER CONTROL PANEL (FCP-200) PLC.

B. PROVIDE A DEDICATED CIRCUIT FOR THE STACK LIGHT FROM LP-201, REFER TO PANEL SCHEDULE ON E03.

C. PROVIDE A KNIFE STYLE TERMINAL BLOCK FOR EACH STACK LIGHT AS WELL AS THE HORN. KNIFE TERMINAL TO ACT AS A DISCONNECT.

D. 4-20mA SIGNAL TO PD1 AND PD2 FROM THE SIGNAL SPLITTERS ON FCP-200

3 I10 LCP-200 WIRING LOGIC

SCALE: AS INDICATED

PANELS BILL OF MATERIALS

HAMMOND	ECLIPSE, EN4SD SERIES	NEMA 4X, STAINLESS STEEL, WALL MOUNT ENCLOSURE c/w MATCHING WHITE REAR PANEL. SIZE ENCLOSURE TO SUIT.	1. JUNIOR ECLIPSE EJ SERIES IS ACCEPTABLE. 2. HOFFMAN EQUIVALENT IS ACCEPTABLE.
HAMMOND	H20M6T SERIES	CONTROL PANEL VENT DRAIN	
PHOENIX CONTACT	USLKG 5	GROUND TERMINAL BLOCK, SCREW CONNECTION	
		LAMACOID WITH WHITE BACKGROUND AND BLACK 5mm HIGH CHARACTERS	1. SIZE LAMACOID TO SUIT.
ALLEN-BRADLEY	199-DR1	35mm X 15mm SYMMETRICAL ZINC PLATED DIN RAIL. PROVIDE MATCHING STAND-OFFS AS REQUIRED TO RAISE HEIGHT OF COMPONENTS.	1. PHOENIX CONTACT EQUIVALENT IS ACCEPTABLE.
ALLEN-BRADLEY	800TC SERIES	FINGER-SAFE PUSH-TO-TEST PILOT LIGHT c/w 800T SERIES ALUMINUM LEGEND PLATE	
ALLEN-BRADLEY	800T SERIES	ALUMINUM LEGEND PLATE (STANDARD SIZE). ENGRAVED BY MANUFACTURER.	
PRECISION DIGITAL	PD8000 SERIES	DIGITAL DATA DISPLAY c/w SUNBRIGHT 0.4" DUAL LINE, 6 DIGIT, LED DISPLAY; 4 RELAYS AND 4-20 mA OUTPUT.	1. VOLTAGE TO SUIT.
ALLEN-BRADLEY	855T SERIES (70mm)	STACK LIGHTS	
ALLEN-BRADLEY	1489-M SERIES	CIRCUIT BREAKER (120VAC)	1. SCHNEIDER EQUIVALENT IS ACCEPTABLE.
ALLEN-BRADLEY	1492-SP SERIES	SUPPLEMENTARY PROTECTOR (24VDC)	1. SCHNEIDER EQUIVALENT IS ACCEPTABLE.
ILSCO		COPPER LUG FOR TWO (2) 12AWG TO 2/0 GROUND WIRE	

GENERAL NOTES FOR PANEL:

A. REFER TO PANEL WIRING LOGIC DIAGRAMS.

B. PROVIDE SHOP DRAWINGS FOR PANEL. SHOP DRAWING PACKAGE TO INCLUDE DETAILED PROPOSED FACEPLATE AND REAR PANEL LAYOUTS, DETAILED WIRING DIAGRAMS AND DATASHEETS FOR EACH PROPOSED COMPONENT.

C. THE PANEL BUILDER IS RESPONSIBLE FOR THE REAR PANEL LAYOUTS.

D. WIRE EACH PANEL PER THE INTENT OF THE WIRING LOGIC PROVIDED.

E. PROVIDE A LAMACOID FOR EACH PRECISION DIGITAL DISPLAY. PROVIDE A DESCRIPTION OF THRESHOLD TANK LEVELS, PRINTED ON LAMACOID LABELS, WHICH TRIGGER BOTH WARNING AND ALARM CONDITIONS AND PROGRAM THE DISPLAYS TO SUIT.

F. FOR EACH 800T SERIES OPERATOR INTERFACE DEVICE PROVIDE THE CORRESPONDING MANUFACTURER ENGRAVED LEGEND PLATE.

G. PROVIDE TERMINAL BLOCKS, WIRE DUCTS, GROUND BARS AND OTHER ACCESSORIES, AS REQUIRED, FOR A COMPLETE INSTALLATION. PROVIDE END ANCHORS TO SECURE TERMINALS.

H. PROVIDE ENOUGH TERMINAL BLOCKS TO TERMINATE ALL CONDUCTORS OF ALL CABLES CONNECTED TO THE PANEL. REFER TO BLOCK DIAGRAMS AND OTHER PERTINENT DRAWINGS.

I. SIZE DIN RAILS TO ACCOMMODATE ALL THE TERMINALS AND COMPONENTS PLUS 10% SPARE.

J. LABEL TERMINAL BLOCKS NUMERICALLY, STARTING AT 1 AND INCREMENTING BY 1.

K. PROVIDE AT LEAST 50mm SPACE BETWEEN WIRE DUCT AND TERMINALS.

4 I10 LCP-200 BILL OF MATERIALS

SCALE: AS INDICATED

GENERAL NOTES:

A. REFER TO DETAIL 2816 FOR THE REQUIRED HARDWIRED LOGIC FOR CONTROLLING THE ASSOCIATED STACK LIGHTS AND HORNS.

DRAWING NOTES:

1. PROVIDE MOUNTING FLANGE AND ASSOCIATED APPURTENANCE. REFER TO DETAIL 7E05
2. REFER TO CONTROL BLOCK DIAGRAM FOR CABLING REQUIREMENTS. SECURE CABLE WITH STAINLESS STEEL STRAPS TO THE TANK MANUFACTURERS SUPPORTS. ENSURE CABLE DOES NOT INTERFERE WITH LADDER SAFETY. COORDINATE EXACT LOCATION WITH TANK MANUFACTURER, REFER TO 7E05 FOR INSTALLATION DETAILS.
3. REFER TO CONTROL BLOCK DIAGRAM FOR CABLING REQUIREMENTS. ORDER CABLE LENGTH TO SUIT. PROVIDE CABLE FROM INSTRUMENT TO JBA-100. PROVIDE ALUMINUM UNISTRUT STAND TO SUPPORT AND MECHANICALLY PROTECT CABLE FROM JUNCTION BOX TO INSTRUMENT. SECURE STAND WITH STAINLESS STEEL HARDWARE TO THE TANK MANUFACTURERS SUPPORTS. ENSURE STAND DOES NOT INTERFERE WITH LADDER SAFETY. COORDINATE EXACT LOCATION WITH TANK MANUFACTURER, REFER TO 7E05 FOR INSTALLATION DETAILS.

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CONSULTANT:

PROJECT NORTH

PROFESSIONAL STAMP: LICENSED PROFESSIONAL ENGINEER 2023-06-12 S. T. BUCKLEY 100511650 PROVINCE OF ONTARIO

PROJECT: CHESTERVILLE DRINKING WATER SUPPLY SYSTEM UPGRADES

VILLAGE OF CHESTERVILLE, ONTARIO

DRAWING: INSTRUMENTATION PLAN

DESIGN: SB	DRAWING #: I10
DRAWN: NB	
CHECKED: LG	
J.L.R. #: 31499-000	

REVISION: 1

FILE LOCATION: K:\31499\31499-000 - North Dundas Water and Sewer Infrastructure Study\Production\Sub\Chesterville Reservoir\31499-000 - Chesterville Reservoir Instrumentation.dwg