

G: \2011\8011\8011-116\WBBP\New Pumping Station\Electrical\8011-116\_E1\_R00.dwg

FIXTURE SCHEDULE				
SYMBOL	TYPE	DESCRIPTION		
	A	1391mm x 210mm VAPOUR PROOF LED  - 44W LED LAMP  - FROSTED POLYCARBONATE HOUSING WITH CONTINUOUS POUREDIN—PLACE, CLOSED GASKET.  - IMPACT—RESISTANT, CLEAR TRANSPARENT POLYCARBONATE LEN.  - 120V OPERATED  - CHAIN SUPPORT		
Ø	В	WALL MOUNTED LED DOWNLIGHT  - 72W LED LAMP  - WEATHER RESISTANT DIE CAST ALUMINUM HOUSING  - PROTECTIVE GLASS LEN  - 120V OPERATED  - C/W VANDAL GUARD		
ğ	<b>(c)</b>	VAPOUR LIGHT FIXTURE  - 39W LED LAMP  - WEATHER RESISTANT DIE CAST ALUMINUM HOUSING WITH CORROSION—RESISTNT PAINT  - SEALED GASKET AGAINST MOISTURE AND DUST  - FROSTED GLASS DIFFUSER - 120V OPERATED - C/W VANDAL GUARD		

	LEGEND				
SYMBOL	DESCRIPTION		DESCRIPTION		
	FIRE ALARM PULL STATION	M	METER HEAD		
•	FIRE ALARM HEAT DETECTOR	J.B.	JUNCTION BOX		
<u>(S)</u>	FIRE ALARM HORN AND STROBE	С	CONTACTOR		
<i>uuuun</i>	FIRE ALARM CONTROL PANEL	PC	PHOTOCELL		
<b>事</b> 3	LIGHT SWITCH ( 3 INDICATES 3-WAY)		BREAKER PANEL		
#	DOUBLE-GANG LIGHT SWITCH		WALL MOUNTED TELEPHONE OUTLET PROVIDE 119mm BOX C/W SINGLE GANG PLASTER		
	1' x 4' LIGHT FIXTURE	▼	RING (RAISED 13mm) AND 19mm EMT C. (C/W INSULATED BUSHINGS) REACHING THE TELEPHONE SERVICE		
+Ø	WALL MOUNTED LIGHT FIXTURE		ENTRANCE. COORDINATE EXACT LOCATION /W LOCAL AUTHORITY		
<u>⊠</u> <u>⊠</u>  ⊠	CEILING MOUNTED BILINGUAL EXIT SIGNS	•	GROUND ROD		
	EMERGENCY BATTERY UNIT C/W HEADS	<u></u>	GROUND		
<b>Q.O.Q.</b>	EMERGENCY REMOTE HEADS - WALL MOUNTED		CIRCUIT BREAKER		
Ф	DUPLEX RECEPTACLE	1>	REFER TO NOTE 1		
<b>⊘</b>	DIRECT CONNECTION	A	FIXTURE TYPE 'A'		
VFD	VARIABLE FREQUENCY DRIVE	GFI	DENOTES GROUND FAULT INTERRUPT		
	DISCONNECT SWITCH	WP	DENOTES WEATHER PROOF		
⊠h	MOTOR STARTER PROTECTOR				

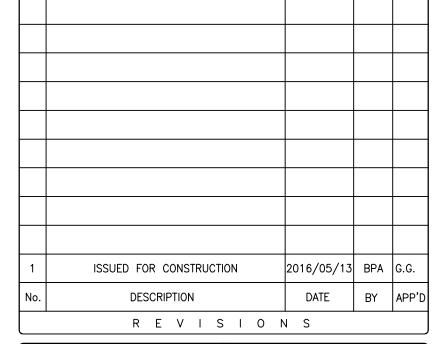




2016-05-12 Date: PERMIT NUMBER: P717 NWT/NU Association of Professional **Engineers and Geoscientists** 



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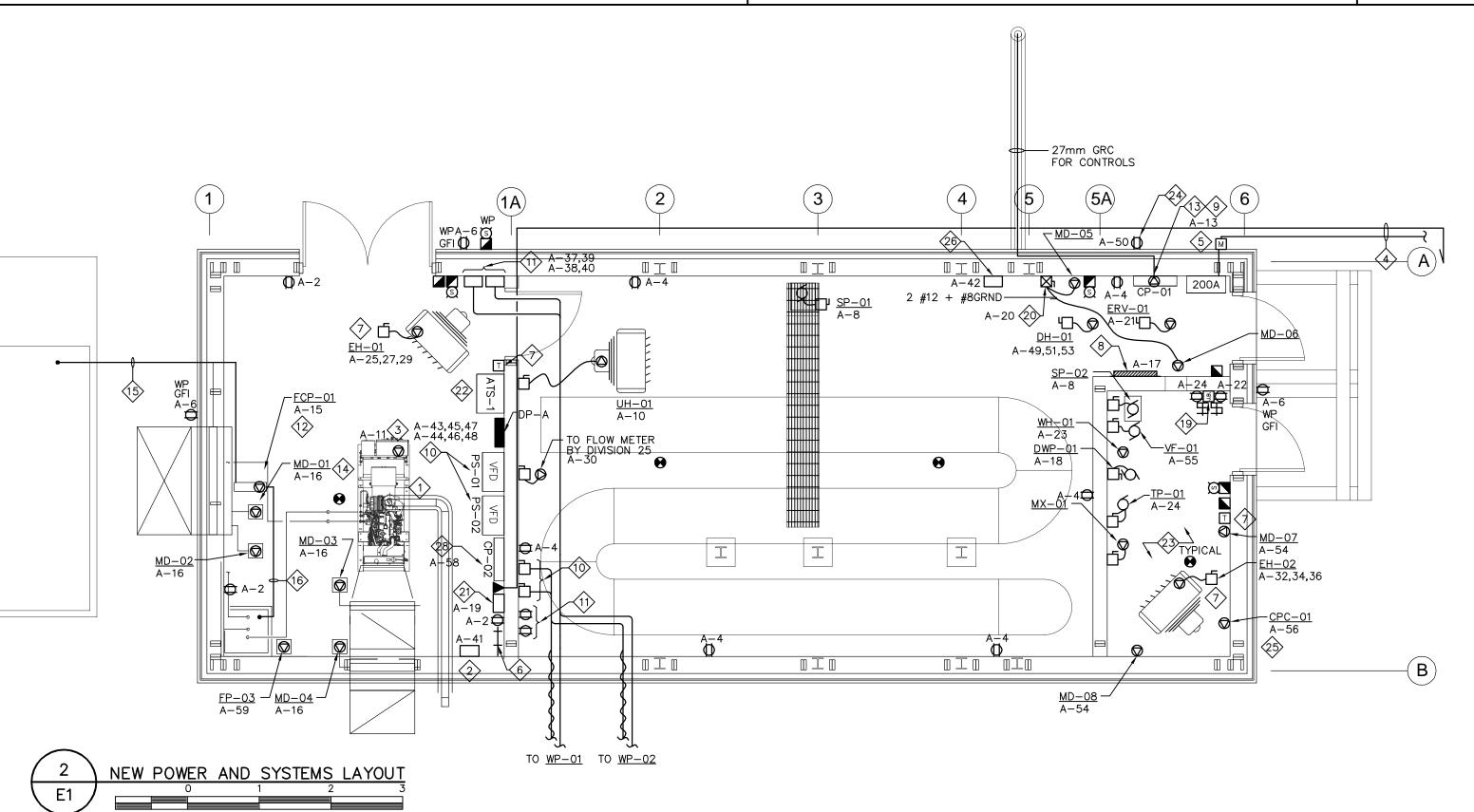


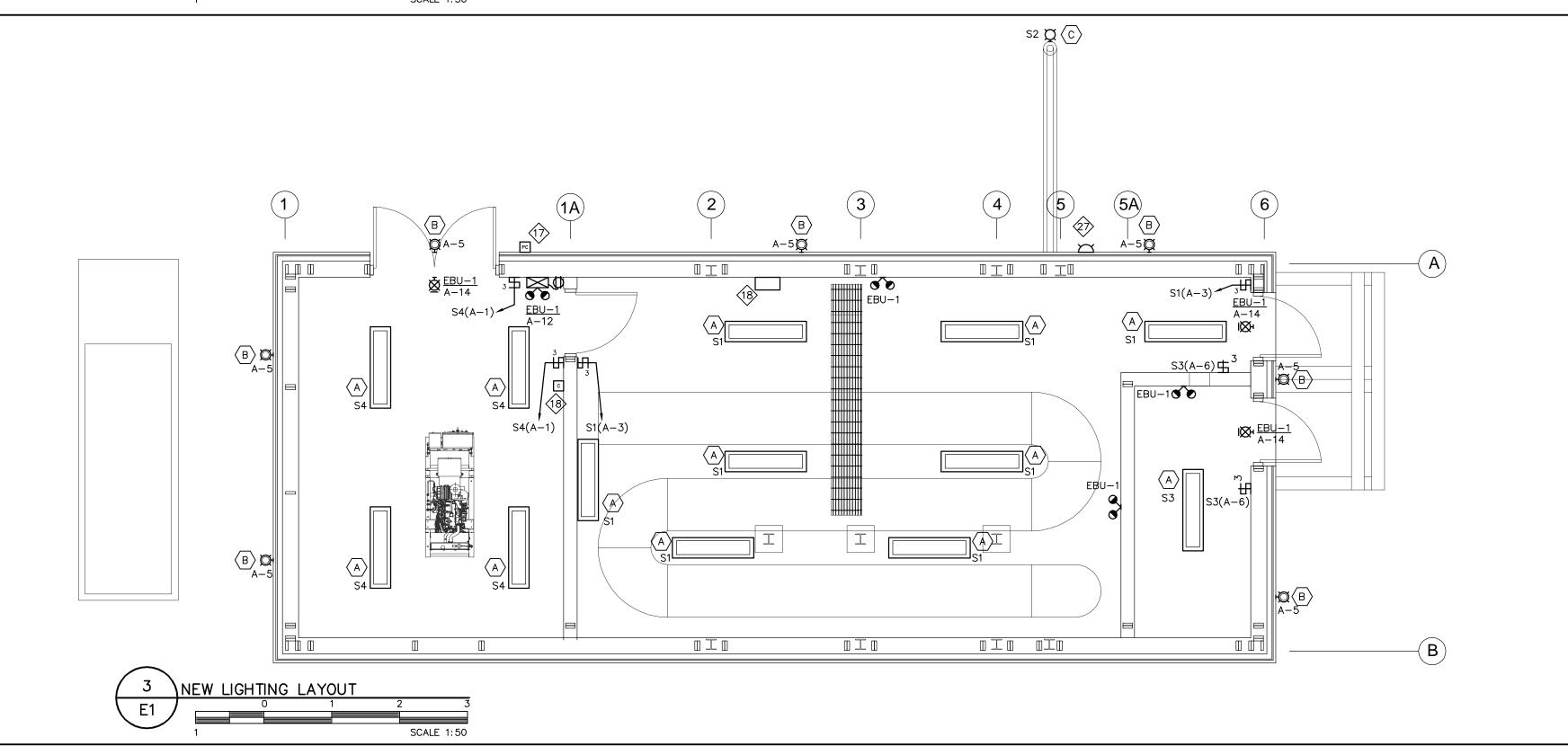
GOVERNMENT OF NUNAVUT DEPARTMENT OF COMMUNITY AND GOVERNMENT SERVICES

CORAL HARBOUR, NUNAVUT NEW PUMPING STATION

ELECTRICAL NEW POWER AND LIGHTING LAYOUT

design by	A.WADDELL	project no. 8011-116
drawn by	M.STEVENSON	drawing no.
checked by	G.GODIN	☐ F1
date	NOVEMBER 2015	
	AS SHOWN	



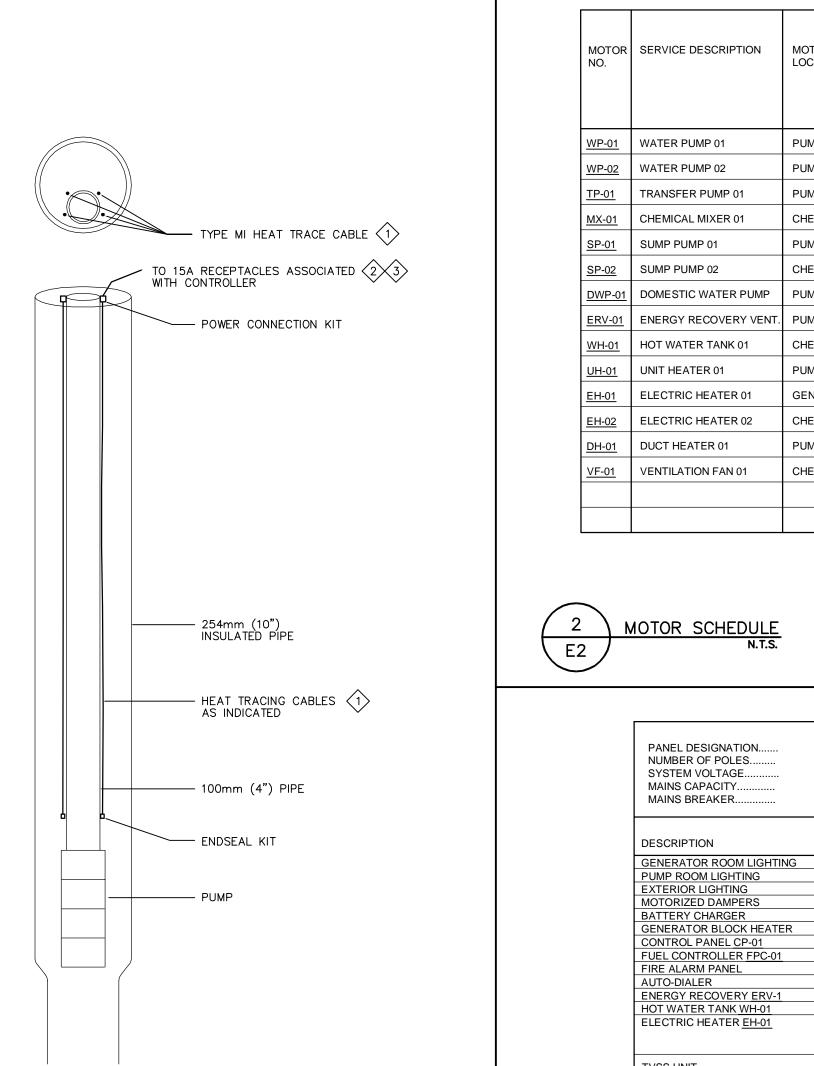


## **GENERAL NOTES:**

- PERFORM COMPLETE INSTALLATION OF EQUIPMENT IN STRICT ACCORDANCE, AND SHALL MEET THE MOST STRINGENT REQUIREMENTS OF THE FOLLOWING STANDARDS:
  - 1. CSA C22.1 -15 CANADIAN ELECTRICAL CODE, PART 1 (23RD EDITION).
  - 2. GOVERNMENT OF NUNAVUT'S GOOD BUILDING PRACTICES GUIDELINES SECOND EDITION DECEMBER, 2005. 3. DEPARTMENT OF COMMUNITY AND GOVERNMENT SERVICES - PROTECTION SERVICES DIVISION - GN ELECTRICAL BULLETINS OFFICE OF THE NUNAVUT FIRE MARSHALL TECHNICAL BULLETINS.
- VERIFY WITH THE ELECTRICAL INSPECTION DEPARTMENT THE ACCEPTABILITY OF ANY PRE-WIRING DONE OUTSIDE THE PROVINCE OF NUNAVUT AND ENSURE THAT A PERMIT IS ACQUIRED.
- PROVIDE AND INSTALL NEW 50kW/60kVA, 120/208V, 3Ø, 4W EMERGENCY GENERATOR G1.
- PROVIDE AND INSTALL BATTERY CHARGER AS INDICATED. COMPLETE CONNECTION FROM CHARGER TO BATTERIES AT GENERATOR.
- FEED BLOCK HEATER TERMINAL BOX FROM PANEL DP-A AS INDICATED. REFER TO PANEL SCHEDULE.
- OVERHEAD INCOMING POWER AND COMMUNICATION SERVICE. PROVIDE ONE (1) 38mm RIGID GALVANIZED CONDUIT STUB TO EXTERIOR OF BUILDING FOR SERVICE ENTRANCE AND SEAL.
- PROVIDE MAIN INCOMING FEEDER BREAKER AS INDICATED. REFER TO SINGLE LINE DIAGRAM FOR DETAILS.
- **6** PROVIDE GROUND BUS IN NEW GENERATOR ROOM AS INDICATED. REFER TO 1/E3 FOR DETAILS.
- PROVIDE 120/208V, 3Ø ELECTRIC UNIT HEATER EQUIPPED WITH RELAY BASE AS INDICATED. PROVIDE CONDUIT AND WIRE TO THERMOSTAT AS INDICATED. COORDINATE CONNECTION WITH MECHANICAL. REFER TO PANEL SCHEDULE FOR CIRCUIT DETAILS. EH-01: 3 kW. EH-02: 5 kW.
- PROVIDE FIRE ALARM CONTROL PANEL AND ASSOCIATED FIRE DETECTING DEVICES AND ALARMS AS INDICATED.
- PROVIDE POWER FROM PANEL  $\underline{DP-A}$  TO CONTROL PANEL  $\underline{CP-01}$  PROVIDED BY DIVISION 23. PROVIDE TWO (2) 27mmC EMT CONDUIT FROM CONTROL PANEL TO WATER PUMP STARTERS TO CONTROL THEIR OPERATION. COORDINATE CONNECTION WITH MECHANICAL.
- PROVIDE TWO (2) PUMP STARTERS COMPLETE WITH 50m OF 3 x 3 AWG TECK CABLE FED FROM PANEL  $\underline{DP-A}$  TO FEED WATER PUMPS WP-01 AND WP-02 AS INDICATED. COORDINATE CONNECTION WITH MECHANICAL. PROVIDE 100A FRAMEDISCONNECTS IN MAIN PUMPING ROOM.
- PROVIDE HEAT TRACE CONTROLLERS AND 6 x 15A-208V RECEPTACLES TO MATCH THE HEAT TRACE CABLE'S PLUG. PROVIDE GFI BREAKERS ON ASSOCIATED CIRCUITS. REFER TO DETAIL 1/E2.
- PROVIDE POWER FROM PANEL <u>DP-A</u> TO FUEL CONTROL PANEL <u>FCP-01</u> AS INDICATED. TWO (2) FUEL TRANSFER PUMPS AND ONE (1) CONTROL PANEL PROVIDED BY DIVISION 23. FEED EACH PUMP WITH SEPARATE FEEDER FROM CONTROL PANEL IN LIQUID TIGHT FLEX CONDUIT. COORDINATE CONNECTIONS WITH DIVISION 23.
- PROVIDE 120V CIRCUIT TO LOW VOLTAGE TRANSFORMER FOR CONTROL CONNECTIONS PROVIDED BY DIVISION 23. COORDINATE CONNECTIONS WITH MECHANICAL.
- PROVIDE 120V CONNECTION FROM PANEL  $\overline{DP-A}$  TO DAMPER MOTORS AS INDICATED. TYPICAL FOR ALL DAMPER MOTOR CONNECTIONS. MOTORIZED DAMPERS SUPPLIED AND INSTALLED BY DIVISION 23.
- PROVIDE ONE (1) 27mm RIGID PVC CONDUIT FOR CONTROL WIRING FROM FUEL CONTROL PANEL TO MAIN TANK AS
- INDICATED. COORDINATE CONDUIT RUN WITH MECHANICAL AND STRUCTURAL DIVISION.
- PROVIDE ONE (1) 27mm EMT CONDUIT FOR CONTROL WIRING FROM FUEL CONTROL PANEL TO DAYTANK DT-01 AS
- INDICATED. COORDINATE CONDUIT RUN WITH MECHANICAL.
- PROVIDE PHOTOCELL AS INDICATED TO CONTROL TYPE B EXTERIOR LIGHTS.
- PROVIDE LIGHTING CONTROL CONTACTOR FOR OUTDOOR LIGHTING COMPLETE WITH HAND-OFF-AUTO CONTROL. CONNECT TO PHOTOCELL.
- PROVIDE UNISTRUT CHANNEL COMPLETE WITH TWO (2) 20A OUTLETS AND TWO (2) HP RATED TOGGLE SWITCHES AS INDICATED, TO POWER AND CONTROL THE OPERATION OF MIXER MX-01 AND PUMP TP-01 PROVIDED BY OTHERS. LABEL CIRCUITS ACCORDINGLY. COORDINATE LOCATION WITH WINDOW.
- PROVIDE ONE (1) STARTER COMPLETE WITH WIRE AND CONDUIT AS INDICATED, TO FEED DAMPERS MD-05 AND MD-06. CONNECT TO REMOTE SIGNAL PROVIDED BY DIVISION 23, INTERLOCKED TO ERV-01.
- PROVIDE EIGHT (8) CHANNEL AUTO-DIALER COMMUNICATION MODULE AS INDICATED INCLUDING SIGNAL WIRING IN 21mm CONDUIT, AND DRY CONTACTS TO DIAL OUT MAJOR ALARMS AS FOLLOWS:

PROVIDE FIBREGLASS REINFORCED POLYESTER (FRP) BACKBOXES AND JUNCTION BOXES FOR ALL DEVICES

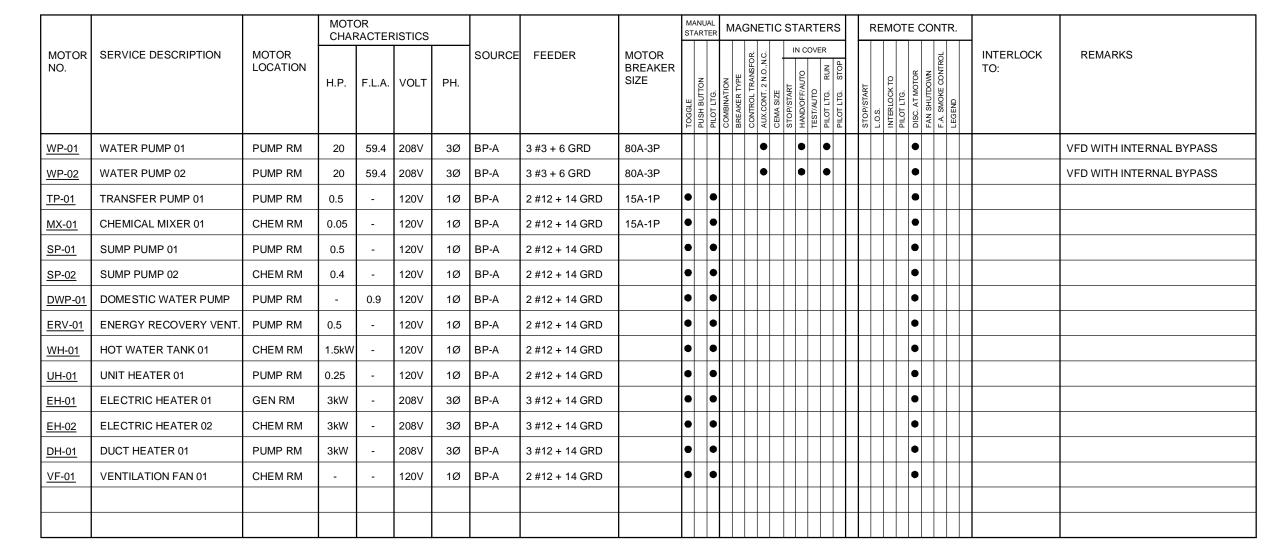
- ONE PAIR: 3 #14 TO SIGNAL GENERATOR ON - ONE PAIR: 3 #14 TO SIGNAL GENERATOR TROUBLE/FAILURE
- ONE PAIR: 3 #14 TO SIGNAL LOW BUILDING TEMP - ONE PAIR: 3 #14 TO SIGNAL FIRE ALARM ACTIVATION
- AUTO DIALER TO HAVE BATTERY BACK-UP FOR 24 HOURS OF MONITORING.
- PROVIDE 200A, 120/208V, 3ø, 4W ATS, COMPLETE WITH SWITCHABLE NEUTRAL.
- INSTALLED INSIDE THE CHEMICAL ROOM. PROVIDE PVC CONDUIT FOR ALL CIRCUITS ENTERING THE CHEMICAL ROOM.
- PROVIDE SPLIT PARKING RECEPTACLE IN WEATHERPROOF ENCLOSURE ON EXTERIOR WALL OF BUILDING FOR MAINTENANCE STAFF.
- PROVIDE POWER FROM PANEL  $\underline{DP-A}$  TO CHLORINE PUMP CONTROLLER  $\underline{CPC-01}$  AS INDICATED. FIVE (5) CHLORINE DOSING PUMPS AND ONE (1) CONTROL PANEL PROVIDED BY DIVISION 23. FEED EACH PUMP WITH SEPARATE FEEDER FROM CONTROL PANEL IN LIQUID TIGHT FLEX CONDUIT. COORDINATE CONNECTIONS WITH DIVISION 23.
- PROVIDE 8m OF RAYCHEM TYPE 3BTV1-CR HEAT TRACE CABLING WRAPPED AROUND THE TRUCK FILL ARM.
- CONTROL LIGHT FOR INDICATING SEWAGE TANKS ARE FULL. COORDINATE WITH CONTROLS DIVISION. SEE DRAWING
- PROVIDE CIRCUIT FOR CONTROLS CONNECTION.



HEAT TRACE CABLE DETAIL
N.T.S.

E2

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- PROVIDE 4 HDPE COATED MINERAL INSULATED HEAT TRACE CABLES. PENTAIR D/32HE3200/230/942/208/20/Y/N12. PROVIDE PROPER SUPPORT AS PER MANUFACTURERS RECOMMENDATIONS TO FIX THE HEAT TRACE CABLE TO THE PIPE.
- PROVIDE TWO 920 CONTROLLERS WITH SUPPLY MODULES TO SUPPORT UP TO 3 MI HEAT TRACE CABLES AT ONE TIME. CONNECT CONTROLLERS TO THREE FEMALE 15A TWIST LOCK RECEPTACLES. THE CONTROLLERS ARE TO BE ABLE TO ANNUNCIATE AN ALARM IN THE EVENT OF A CABLE FAULT.
- PROVIDE TWO RTD THERMISTORS TO BE INSTALLED 40M DOWN THE PIPE. THERMISTORS ARE TO BE TIED INTO THE CONTROLLER.

WATTS

1500

15000

400

400

400

1500

11000

10000 40200

TOTAL WATTS

DO NOT CONNECT THE BOND BETWEEN THE NEUTRAL CONDUCTOR AND GROUND AT THE GENERATOR. NEUTRAL AND GROUND TO REMAIN



PERMIT TO PRACTICE BOUTHILLETTE PARIZEAU INC.

| Signature:\_ 2016-05-12 Date:

> PERMIT NUMBER: P717 NWT/NU Association of Professional **Engineers and Geoscientists**



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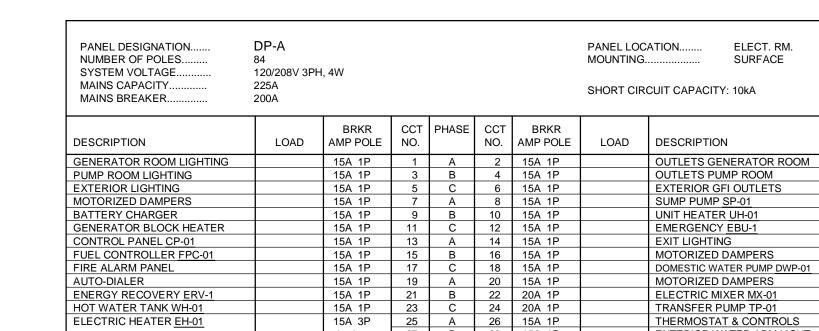


GOVERNMENT OF NUNAVUT DEPARTMENT OF COMMUNITY AND GOVERNMENT SERVICES

CORAL HARBOUR, NUNAVUT NEW PUMPING STATION

ELECTRICAL SINGLE LINE DIAGRAM, SCHEDULES AND DETAILS

design by	A.WADDELL	project no. 8011-116
Irawn by	M.STEVENSON	drawing no.
checked by	G.GODIN	F2
date	NOVEMBER 2015	
	AS SHOWN	



EXTERIOR LIGHTING	1	15A 1P	5	C	l b	15A 1P		EXTERIOR GFLOUTLETS
MOTORIZED DAMPERS		15A 1P	7	Α	8	15A 1P		SUMP PUMP SP-01
BATTERY CHARGER		15A 1P	9	В	10	15A 1P		UNIT HEATER UH-01
GENERATOR BLOCK HEATER		15A 1P	11	С	12	15A 1P		EMERGENCY EBU-1
CONTROL PANEL CP-01		15A 1P	13	Α	14	15A 1P		EXIT LIGHTING
FUEL CONTROLLER FPC-01		15A 1P	15	В	16	15A 1P		MOTORIZED DAMPERS
FIRE ALARM PANEL		15A 1P	17	С	18	15A 1P		DOMESTIC WATER PUMP <u>DWP-01</u>
AUTO-DIALER		15A 1P	19	Α	20	15A 1P		MOTORIZED DAMPERS
ENERGY RECOVERY ERV-1		15A 1P	21	В	22	20A 1P		ELECTRIC MIXER MX-01
HOT WATER TANK WH-01		15A 1P	23	С	24	20A 1P		TRANSFER PUMP TP-01
ELECTRIC HEATER EH-01		15A 3P	25	Α	26	15A 1P		THERMOSTAT & CONTROLS
		* *	27	В	28	15A 1P		EXTERIOR WATER ARM LIGHT
		* *	29	С	30	15A 1P		FLOW METER
TVSS UNIT		40A 3P	31	Α	32	30A 3P		ELECTRIC HEATER <u>EH-02</u>
1 700 01111		* *	33	В	34	* *		
		* *	35	С	36	* *		
HEAT TRACE FOR WP-01 (GFI)		30A 2P	37	Α	38	30A 2P		HEAT TRACE FOR WP-02 (GFI)
TIEAT TRACE FOR WI-OT (OF)		* *	39	В	40	* *		TIEAT TRACE FOR WF-02 (GFI)
BATTERY CHARGER		15A 1P	41	С	42	15A 1P		HEAT TRACE TRUCK FILL (GFI)
WATER PUMP WP-01		80A 3P	43	Α	44	80A 3P		WATER PUMP WP-02
WATERT OWN WIT-OT		* *	45	В	46	* *		WATERT OWN WI -02
		* *	47	С	48	* *		
DUCT HEATER DH-01		15A 3P	49	Α	50	15A 2P		EXTERIOR VEHICLE OUTLET
BOOT HEATER BITOT		* *	51	В	52	* *		
		* *	53	С	54	15A 1P		MOTORIZED DAMPERS
VENTILATION FAN VF-01		15A 1P	55	Α	56	15A 1P		CHLORINE CONTROLLER CPC-01
SUMP PUMP SP-02		15A 1P	57	В	58	15A 1P		CP-02
UH-01FUEL PUMP FP-03		15A 1P	59	С	60	15A 1P		SPARE
SPARE		15A 1P	61	Α	62	15A 1P		SPARE
CDADE	1 1	15A 1D	62		64	15A 1D	1	CDADE

	SPARE
(3)	PANEL SCHEDULE
E2 /	N.T.S.

SPARE

SPARE SPARE SPARE

LOAD SUMMARY

E2

PUMP STATION LOAD SUMMARY

GENERAL RECEPTACLES AND LIGHTING (25W/m2)

WATER PUMPS (1 @ 20HP = 15000Watts/ea.)

ENERGY RECOVERY UNIT (1 @ 0.5HP)

TOTAL AREA...... 60m2

TRANSFER PUMP (1 @ 0.5HP)

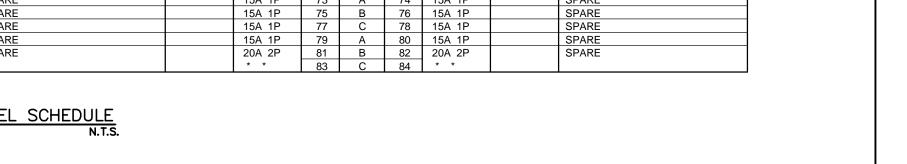
DOMESTIC WATER PUMP

HOT WATER TANK

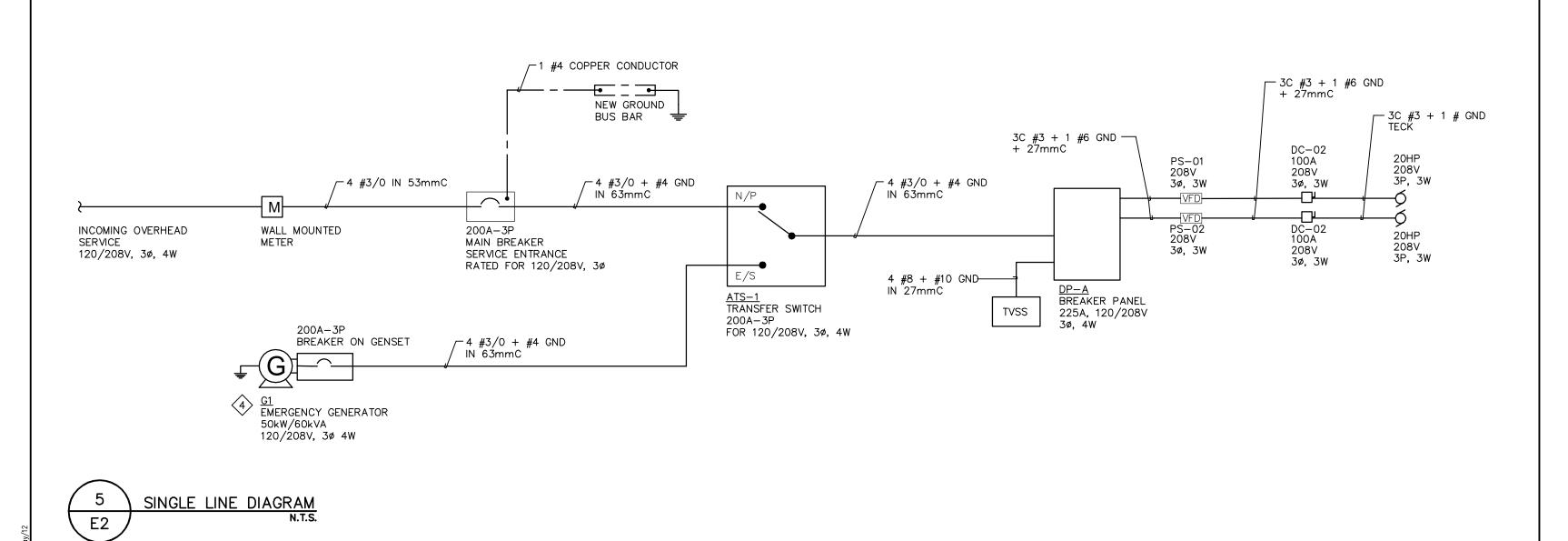
HEAT TRACE (x2)

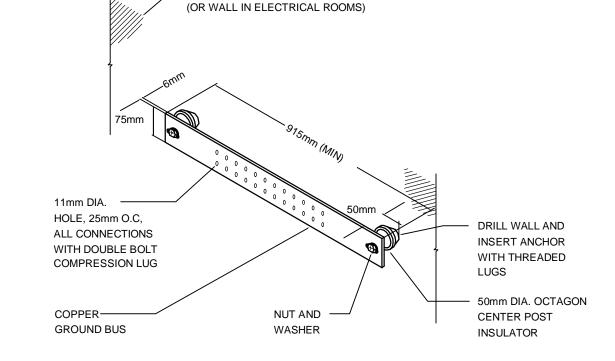
ELECTRIC HEATER (x3)

DESCRIPTION



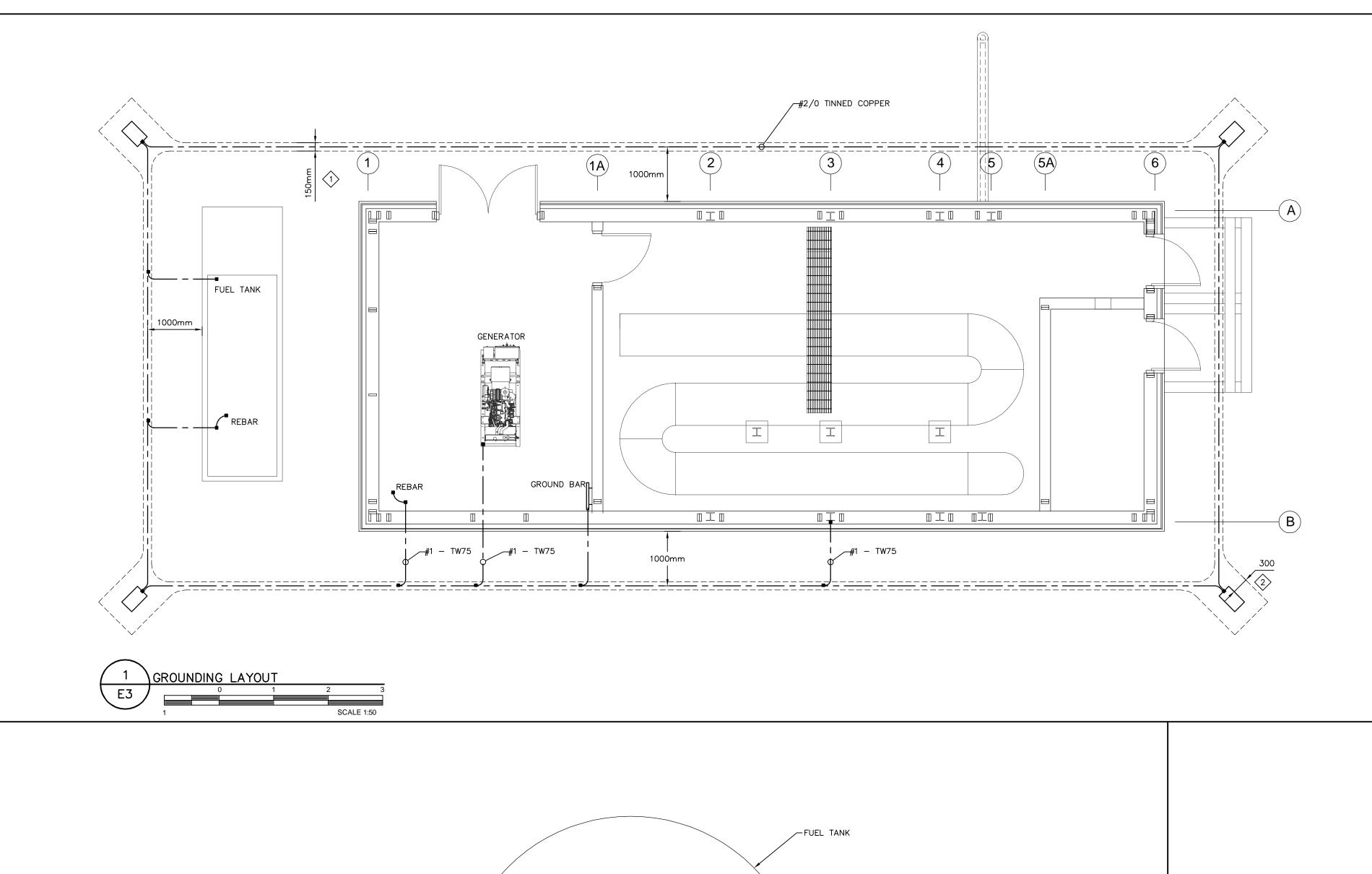
SPARE SPARE SPARE SPARE





SLAB UNDER RAISED FLOOR

GROUND BUS DETAIL
N.T.S.



NOTES:

- 150mm x 750mm TRENCH WITH 50mm THICK GROUND ENHANCEMENT MATERIAL (GEM), ERICO GEM25A AROUND GROUND CABLE LOOP.
- LAY A 406mm x 254mm, GALVANIZED STEEL GROUND PLATE (ERICO EGGPC) 750mm DEEP, EMBEDDED WITHIN 50mm OF GEM. EXTEND GEM 300mm AROUND PLATE.
- IEEE 837 COMPRESSION FITTING



PERMIT TO PRACTICE BOUTHILLETTE PARIZEAU INC.

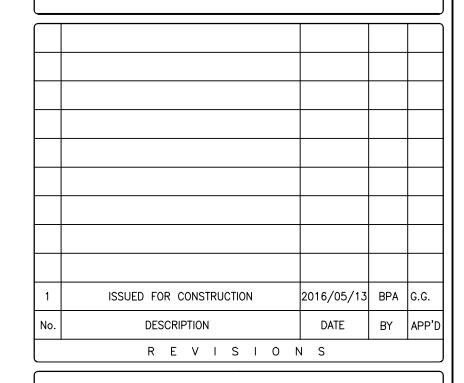
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NORTH



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Consulting Engineers



GOVERNMENT OF NUNAVUT DEPARTMENT OF COMMUNITY AND GOVERNMENT SERVICES

PROJECT

CORAL HARBOUR, NUNAVUT NEW PUMPING STATION

ELECTRICAL
GROUNDING LAYOUT AND
DETAILS

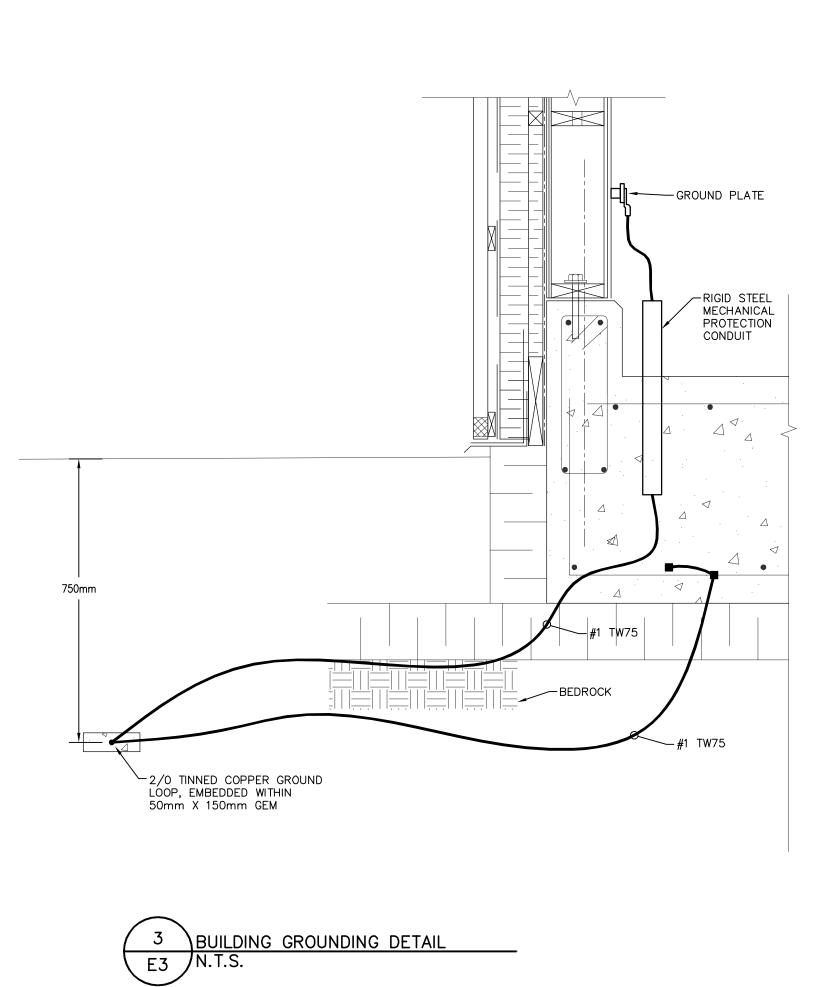
drawn by G.GODIN project no. 8011-116

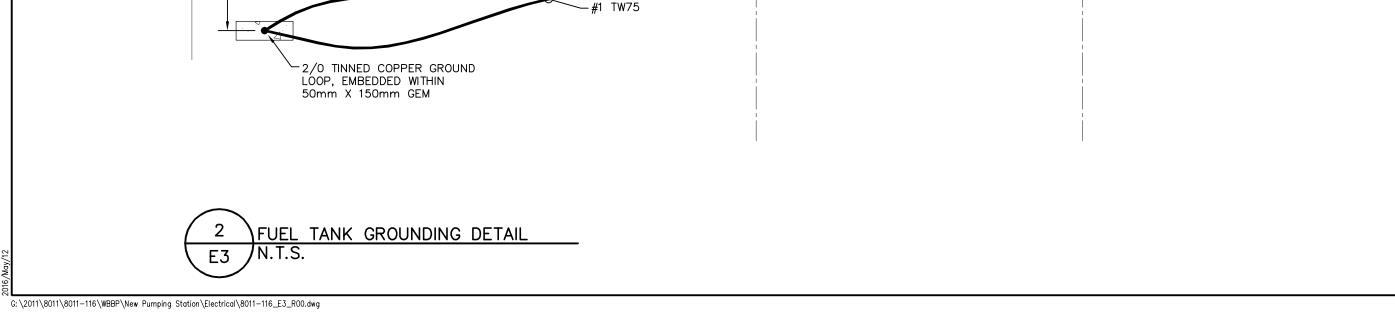
drawn by M.STEVENSON

checked by G.GODIN

date NOVEMBER 2015

AS SHOWN





COMPRESSION FITTING TO 2 REBARS

2 HOLES, DRILL AND TAP INTO — TANK SUPPORT IEEE 837 COMPRESSION LUG

27mm RIGID STEEL MECHANICAL — PROTECTION CONDUIT