

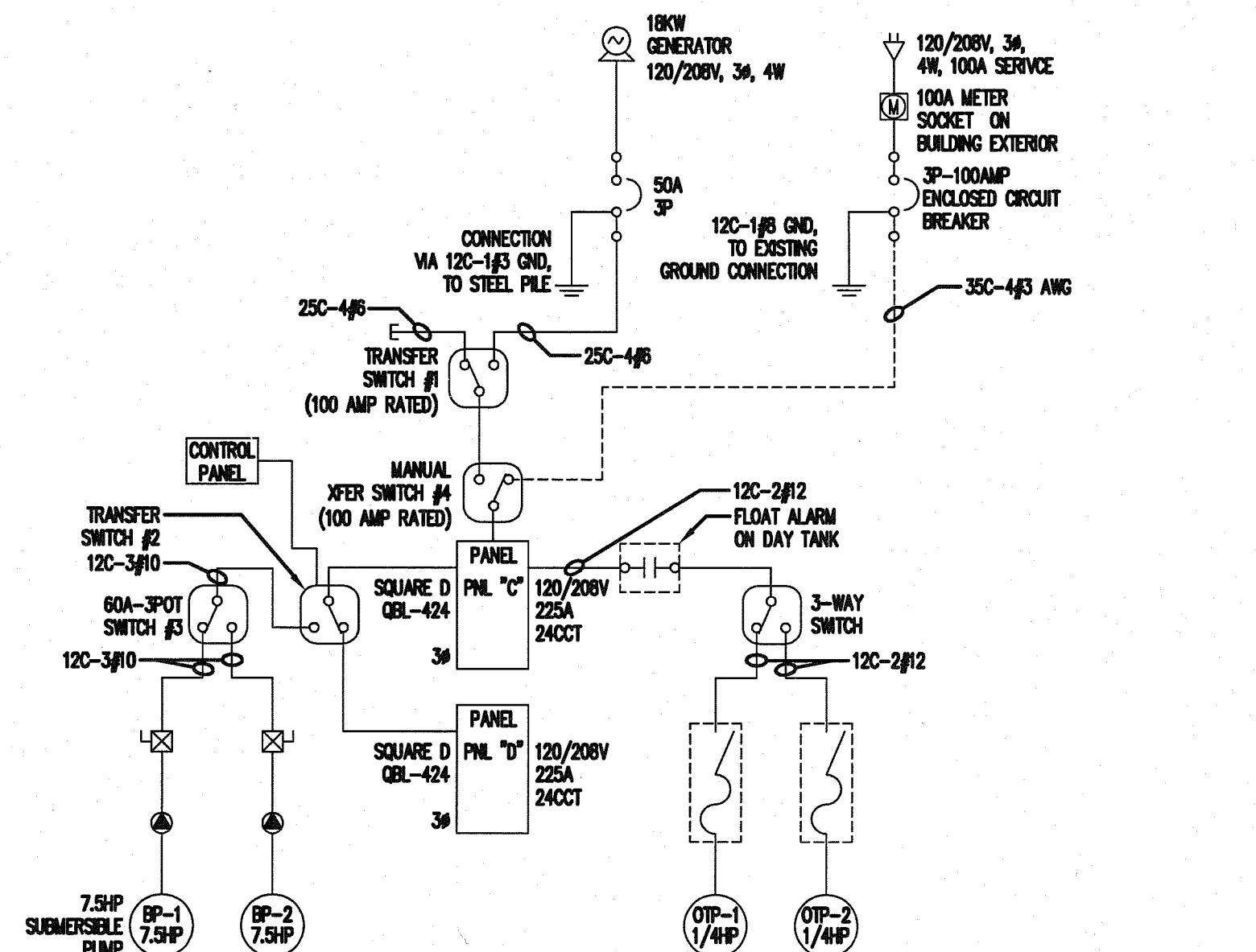
FROM TOL 14: $25W/m^2$ AREA = $49m^2$
BASIC LOAD: $25 \times 48 = 1,200W$
ADDITIONAL LOADS:
ELECTRIC SPACE HEATING $2,000W \times 3 \times 1000 = 6,000W$
BP-1 & BP-2 $5,582.7W \times 2 \times 1000 = 11,165.4W$
OTP-1 & OTP-2 $186.4W \times 2 \times 1000 = 372.8W$
TOTAL LOADING = $18,758.2W$
MINIMUM SERVICE CAPACITY:
 $18,758.2W / (208V \times 1.732) = 52.1A$
 $52.1A \times 125 = 65.1A$

PANEL: "C"	LOCATION	VOLTAGE	PHASE	WIRE	MAIN BKR.	INT. CAP.(RMS SYM.)	CIRCUITS	MOUNTING	FEEDER
	GENERATOR RM	120/208	3	4	225A	NONE	10,000 AMP	24	SURFACE

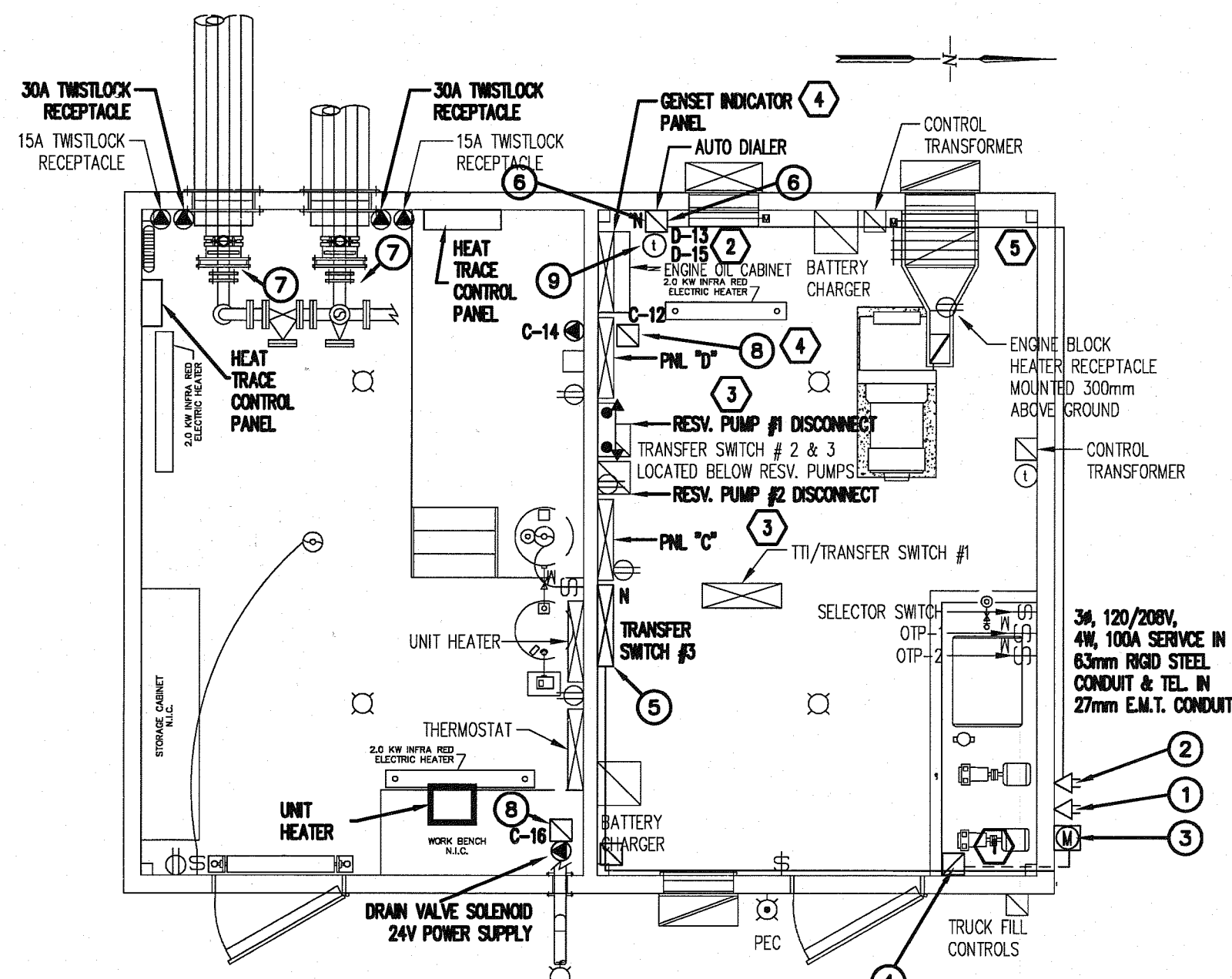
NOTES: PROVIDE BREAKERS INDICATED AS "NEW".

LOADS(KVA)			DESCRIPTION	POLE	AMP	CCT.			Ø	CCT.			AMP	POLE	DESCRIPTION	LOADS(KVA)		
A	B	C				No.	A	B		C	No.	A				B	C	A
			FUEL OIL PUMPS	1	15	1	+	-	-	-	2		3	SUBMERSIBLE SERVICE PUMPS				
			EMERGENCY LIGHTING	1	15	3	-	-	-	-	4			SUBMERSIBLE SERVICE PUMPS				
			LIGHTING	1	15	5	-	-	-	-	6	40		SUBMERSIBLE SERVICE PUMPS				
			CHLORINE INJECTOR PUMP	1	15	7	+	-	-	-	8	15	1	INDICATOR PANEL TRANSFORMER				
			DAMPER MOTORS , NEW GENERATORS	1	15	9	-	-	-	-	10	15	1	WATER METER				
			RECEPTACLES	1	15	11	-	-	-	-	12	15	1	DRAIN VALVE TRANSFORMER				
			CONTROL PANEL	2		13	+	-	-	-	14	15	1	-				
			CONTROL PANEL		15	15	-	-	-	-	16	15	1	-				
			BLOCK HEATER , NEW GENERATORS	1	15	17	-	-	-	-	18			-				
			BATTERY CHARGER , NEW GENERATORS	1	15	19	+	-	-	-	20			-				
			DAMPER CONTROLS , NEW GENERATORS	1	15	21	-	-	-	-	22		2	UNLABELLED				
					23		+	-	-	-	24	20		UNLABELLED				

PANEL: "D"			LOCATION	VOLTAGE	PHASE	WIRE	MAIN	MAIN BRK.	INT. CAP.(RMS SYM.)	GRDUTS	MOUNTING	FEEDER				
			GENERATOR RM	120/208	3	4	225A	NONE	10,000 AMP	24	SURFACE	EXISTING				
NOTES: PROVIDE BREAKERS INDICATED AS "NEW".																
LOADS(KVA)			DESCRIPTION	POLE	AMP	CCT. No.	#			CCT. No.	AMP	POLE	DESCRIPTION	LOADS(KVA)		
A	B	C					A	B	C					A	B	C
			GEN ROOM INFRARED HEATER	2	/	1	+	-	-	2	15	1	HEAT TRACE			
			GEN ROOM INFRARED HEATER		15	3	-	+	-	4	15	1	HEAT TRACE			
			PUMP ROOM INFRARED HEATER	2		5	-	-	+	6			-			
			PUMP ROOM INFRARED HEATER	/	15	7	+	-	-	8			-			
			PUMP ROOM INFRARED HEATER	2		9	-	+	-	10			-			
			PUMP ROOM INFRARED HEATER		15	11	-	-	+	12			-			
			AUTO DIALER	1	15	13	+	-	-	14			-			
			LOW BUILDING TEMPERATURE THERMOSTAT (NEW)	1	15	15	-	+	-	16			-			
			SPARE	1	15	17	-	-	+	18			-			
			-			19	+	-	-	20		3	OUTSIDE PLUG FOR SUBMERSIBLE PUMP			
			-			21	-	+	-	22			OUTSIDE PLUG FOR SUBMERSIBLE PUMP			
			-			23	-	-	+	24	50		OUTSIDE PLUG FOR SUBMERSIBLE PUMP			



2 NEW SINGLE LINE DIAGRAM
E-01 SCALE: NTS



4 NEW POWER & LIGHTING LAYOUT
E-01 SCALE: 1:100

- ① NEW 35mm POWER CONDUIT TO ENTER BUILDING THROUGH NORTH WALL OF GENERATOR ROOM. SURFACE RUN AT HIGH LEVEL (ABOVE DOOR) INSIDE GENERATOR ROOM TO FUTURE LOCATION OF TRANSFER SWITCH #4.
- ② ALARM SIGNAL FROM GENSET INDICATION PANEL. ASSUME EXISTING PANEL HAS OUTPUT SIGNALS FOR HIGH/LOW FUEL LEVEL, OR GENSET FAILURE. ALARM ON LOW BUILDING TEMPERATURE FROM THERMOSTAT (SETPOINT OF -10).
- ③ CLEAN DEBRIS FROM INSIDE RESERVOIR #2 DISCONNECT AND TRANSFER SWITCH #2 DEVICES. SECURE CONNECTIONS IN RESERVOIR #1 & 2 DISCONNECTS TO BACKPLATES.
- ④ PROVIDE CONNECTION TO GENSET INDICATION PANEL FROM A NEW 500VA RATED 24V TRANSFORMER, FED FROM NEW 15 AMP BREAKER ON CIRCUIT C-12 WA 2#12 IN 16mm CONDUIT.

LIST OF WATER TRUCK FILL STATION NEW ELECTRICAL EQUIPMENT		
NO.	QTY.	D E S C R I P T I O N
①	1	63mm POWER SERVICE ENTRANCE CAP AS PER NPC REQUIREMENTS
②	1	27mm TELEPHONE SERVICE ENTRANCE CAP AS PER NWTEL REQUIREMENTS
③	1	METER SOCKET OUTDOOR TYPE 100 AMP, 208V, 3ph, 4 WIRE AND AS PER LOCAL REQUIREMENTS. METER BY UTILITY CO.
④	1	TOTALLY ENCLOSED MAIN BREAKER, 3 POLE, 100AMP, CUTLER-HAMMER CAT.# WGDN100 WEATHER RESISTANT (NEMA 4) ENCLOSURE, FREEZE TESTED, SUITABLE FOR -40 C CONDITION. OBTAIN SPECIAL PERMISSION FROM LOCAL AUTHORITIES AS FREEZE TESTED NOT CSA CERTIFIED.
⑤	1	CUTLER-HAMMER WALL MOUNT AUTOMATIC TRANSFER SWITCH 100A, 3#, 120/208V CAT.# AT-H-M-F-A-3-0100-BJ-C
⑥	1	PARAVOX V0710 VOICE DIALER MODULE
⑦	2	7.5HP, 3ph, 208V SUBMERSIBLE PUMP BY OTHERS (TO UTILIZE EXISTING TWISTLOCK CONNECTIONS)
⑧	2	TRANSFORMER, 500 VA, 120V: 24V.
⑨	1	THERMOSTAT: HONEYWELL T63C1103 -34C TO +38C, FOR BUILDING LOW TEMP ALARM.

ELECTRICAL SYMBOL LEGEND	
DESCRIPTORS:	R1 = ORIGINAL LOCATION OF DEVICE TO BE RELOCATED R2 = FINAL LOCATION OF RELOCATED DEVICE N = DEVICE TO BE REMOVED N = NEW DEVICE, OUTLET OR FIXTURE
Ⓛ Ⓢ Ⓢ Ⓢ	LIGHT = INDICATIVE OF EXISTING DEVICES UNAFFECTED SHADE BY RENOVATION
Ⓛ	LUMINAIRE; INCANDESCENT SURFACE OR PENDANT MOUNT
Ⓛ	LUMINAIRE; INCANDESCENT; WALL MOUNT
Ⓛ	LUMINAIRE, H.L.D., WALL MOUNT
Ⓢ	SWITCH, SINGLE-POLE: 3 = 3 WAY SWITCH
Ⓢ	DUPLEX RECEPTACLE
Ⓢ	SPECIAL POWER CONNECTION, DESIGNATED SERVICE;
Ⓢ	MOTOR CONNECTION
Ⓢ	MOTOR STARTER - MANUAL
Ⓢ	LIGHT, EMERGENCY & BATTERY PACK, 2 LAMP HEADS
Ⓢ	THERMOSTAT - JOHNSON CONTROLS

1. NAME AND MAILING ADDRESS OF OWNER:
2. LOCATION OF BUILDING, EITHER THE STREET ADDRESS OR THE LEGAL ADDRESS
3. NAME AND MAILING ADDRESS THE PLAN REVIEW FEES ARE TO BE INVOICED TO

CONTRACTOR TO ENSURE ALL OF ABOVE IS FILLED OUT IN FULL
BEFORE SUBMITTAL TO GN C&GS SAFETY FOR PLAN REVIEW

21.0 DEMOLITION AND PHASING

- SECTION 1.0 GENERAL REQUIREMENTS
- 1.1.0 GENERAL
- 1.1.1 THE GENERAL CONDITIONS AND INSTRUCTIONS TO BIDDERS AS SET FORTH IN THE GENERAL CONTRACT SPECIFICATIONS AND ALL ADDENDA THERETO SHALL APPLY TO, AND GOVERN ALL, PORTIONS OF THE ELECTRICAL WORK.
- 1.1.2 POINTS NOT SPECIFICALLY MENTIONED SHALL BE IN STRICT ACCORDANCE WITH THE CANADIAN ELECTRICAL CODE (C22-1-02) AND REGULATIONS OF THE ELECTRICAL INSPECTION DEPARTMENT FROM WHICH THE PERMIT WAS OBTAINED. THE LATEST REVISIONS AND/OR AMENDMENTS TO THIS CODE, WITH APPLICABLE DATE RESTRICTIONS, SHALL ALSO GOVERN WORK ON THIS CONTRACT.
- 1.1.3 IT IS THE INTENT THAT THESE DRAWINGS AND SPECIFICATIONS PROVIDE FOR AN ELECTRICAL INSTALLATION COMPLETE AND IN OPERATING CONDITION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SUPPLYING AND INSTALLING ALL MATERIAL NECESSARY TO ACCOMPLISH THIS, EXCEPT WHERE SPECIFICALLY NOTED THAT SUCH WORK OR MATERIAL IS NOT INCLUDED.
- 1.1.4 WHERE THE WORDS "FURNISH", "PROVIDE", OR "INSTALL" APPEAR IN THIS DIVISION, OR A MANUFACTURER IS INDICATED WITH ITEM OR PRODUCT CATALOG NUMBER LISTED, IT IS THE CONTRACTOR'S RESPONSIBILITY TO FURNISH AND INSTALL THE ITEM COMPLETE AND OPERATING FOR THE PURPOSE OR FUNCTION INTENDED, UNLESS NOTED OTHERWISE.
- 1.2.0 CODES, PERMITS AND INSPECTIONS
- 1.2.1 THE INSTALLATION SHALL COMPLY WITH THE REQUIREMENTS OF THE CURRENT EDITION OF THE CANADIAN ELECTRICAL CODE AND THE REGULATIONS OF THE ELECTRICAL INSPECTION DEPARTMENT HAVING JURISDICTION.
- 1.2.2 THE ELECTRICAL TRADE SHALL OBTAIN ALL ELECTRICAL PERMITS REQUIRED AND, AFTER COMPLETION OF THE WORK, SHALL FURNISH TO THE ARCHITECT A CERTIFICATE OF FINAL INSPECTION AND APPROVAL FROM THE INSPECTION DEPARTMENT. ELECTRICAL TRADE SHALL OBTAIN ALL PERMITS AT THE BEGINNING OF THE WORK.
- 1.2.3 THE ELECTRICAL CONTRACTOR SHALL SUBMIT TWO (2) SETS OF DRAWINGS TO THE ELECTRICAL INSPECTION DEPARTMENT AND SHALL INCLUDE ALL COSTS FOR PRINTS, SURVEYS, ETC. IN THIS TENDER.
- 1.3.0 STANDARD OF MATERIAL AND WORKMANSHIP
- 1.3.1 ALL MATERIALS SUPPLIED BY THE CONTRACTOR SHALL BE NEW AND OF THE QUALITY SPECIFIED. ALL SUCH MATERIAL SHALL CONFORM TO THE STANDARDS OF THE CANADIAN STANDARDS ASSOCIATION AND SHALL BEAR THE NECESSARY CSA LABEL. FOR ANY MATERIAL NOT CSA APPROVED, THIS CONTRACTOR SHALL OBTAIN THE APPROVAL OF THE LOCAL INSPECTION AUTHORITY AND SHALL BEAR ALL INSPECTION CHARGES LEVIED AND ANY MODIFICATION COSTS REQUIRED.
- 1.3.2 ALL PHASES OF THE ELECTRICAL INSTALLATION SHALL BE EXECUTED IN A SATISFACTORY, WORKMANLIKE MANNER AND SHALL PRESENT A NEAT, MECHANICAL APPEARANCE WHEN COMPLETED. WORK NOT DEEMED SATISFACTORY TO THE ENGINEER SHALL BE CORRECTED AT THE CONTRACTOR'S EXPENSE.
- 1.3.3 THE CONTRACTOR SHALL KEEP ON THE JOB DURING ITS PROCESS, A COMPETENT FOREMAN AND NECESSARY QUALIFIED TRADESMEN, ALL SATISFACTORY TO THE ENGINEER. THE FOREMAN SHALL REPRESENT THE CONTRACTOR IN HIS ABSENCE, AND ALL DIRECTIONS GIVEN TO THE FOREMAN SHALL BE HELD AS BEING GIVEN TO THE CONTRACTOR. THE CONTRACTOR SHALL GIVE EFFICIENT SUPERVISION TO THE WORK, USING HIS BEST SKILL AND ATTENTION.
- 1.4.0 SETTING OUT OF THE WORK
- 1.4.1 THE ELECTRICAL TRADE SHALL BE RESPONSIBLE FOR CORRECTING ALL WORK COMPLETED CONTRARY TO THE INTENT OF THE DRAWINGS AND SPECIFICATIONS AND SHALL BEAR ALL COSTS FOR SAME. WHERE THE INTENT OF THE DRAWINGS AND SPECIFICATIONS IS NOT CLEAR, THE CONTRACTOR SHALL OBTAIN A CLARIFICATION FROM THE ENGINEER BEFORE PROCEEDING WITH THE WORK.
- 1.4.2 THE ELECTRICAL TRADE SHALL GIVE THE WORK HIS PERSONAL SUPERVISION, LAY OUT HIS OWN WORK, DO ALL NECESSARY LEVELING AND MEASURING OR EMPLOY A COMPETENT ENGINEER TO DO SO. FIGURES, FULL-SIZE DRAWINGS AND DETAILS SHALL TAKE PRECEDENCE OVER SCALE MEASUREMENTS.
- 1.4.3 WHERE ANY EQUIPMENT SUPPLIED BY THE ELECTRICAL TRADE MUST BE BUILT-IN WITH WORK OF OTHER CONTRACTORS, THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE SUPPLYING OF THE EQUIPMENT TO BE BUILT-IN OR ADDITIONALS TO ALLOW NECESSARY OPENINGS TO BE LEFT SO AS NOT TO HOLD UP THE WORK.
- 1.4.4 THE ELECTRICAL TRADE, IN SETTING OUT OF HIS WORK, SHALL MAKE REFERENCE TO ARCHITECTURAL, STRUCTURAL AND MECHANICAL DRAWINGS AND SPECIFICATIONS. HE SHALL CONSULT WITH THE RESPECTIVE TRADES IN SETTING OUT LOCATIONS FOR CONDUIT RUNS, LIGHTING FIXTURES, PANEL ASSEMBLIES, ETC., SO THAT CONFLICTS ARE AVOIDED AND SYMMETRICAL EVEN SPACING IS MAINTAINED.
- 1.4.5 BEFORE SUBMITTING TENDER, CAREFULLY EXAMINE THE SITE OF THE PROPOSED WORK SO AS TO ASCERTAIN ALL EXISTING CONDITIONS AFFECTING THE WORK. NO EXTRAS WILL BE ALLOWED FOR WORK NECESSITATED BY CONDITIONS ORIGINARILY EVIDENT ON THE SITE.
- 1.4.6 UPON INSTRUCTION FROM THE ENGINEER, AND PRIOR TO ORIGINAL INSTALLATION, OUTLETS MAY BE RELOCATED UP TO 3m FROM LOCATION SHOWN ON DRAWINGS, AT NO ADDITIONAL COST.
- 1.5.0 SUBSTITUTION
- 1.5.1 NO SUBSTITUTION WILL BE ALLOWED UNLESS WRITTEN ACCEPTANCE HAS BEEN OBTAINED FROM THE ENGINEER PRIOR TO TENDER CLOSING.
- 1.6.0 SHOP DRAWINGS
- 1.6.1 SUBMIT SETS OF MANUFACTURER'S DETAILED SHOP DRAWINGS (NUMBER OF SETS = 4), SPECIFICATIONS, DATA SHEETS, CATALOG CUTS, ETC., FOR EQUIPMENT INCLUDING BUT NOT LIMITED TO: DISTRIBUTION EQUIPMENT OR AS MAY BE CONSIDERED NECESSARY BY THE ENGINEER.
- 1.7.0 RECORD DRAWINGS
- 1.7.1 THE ENGINEER WILL FURNISH ONE SET OF BLUEPRINTS TO BE USED TO RECORD WORK AS ACTUALLY INSTALLED.
- 1.8.0 GUARANTEE/WARRANTY
- 1.8.1 THE ELECTRICAL TRADE SHALL FURNISH A WRITTEN GUARANTEE/WARRANTY COUNTERSIGNED AND GUARANTEED BY THE GENERAL CONTRACTOR, STATING:
1. THAT ALL WORK EXECUTED UNDER THIS CONTRACT WILL BE FREE FROM DEFECTS OF WORKMANSHIP AND MATERIALS FOR A PERIOD OF ONE (1) YEAR FROM THE DATE OF SUBSTANTIAL PERFORMANCE OF THIS WORK.
2. THE ABOVE PARTIES FURTHER AGREE THAT, AT THEIR OWN EXPENSE, REPAIR AND REPLACE ALL SUCH DEFECTIVE WORK AND OTHER WORK DAMAGED THEREBY WHICH FAILS OR BECOMES DEFECTIVE DURING THE TERM OF THE GUARANTEE/WARRANTY, PROVIDED THAT SUCH FAILURE IS NOT DUE TO IMPROPER USAGE.
3. THE PERIOD OF THE GUARANTEE SPECIFIED SHALL IN NO WAY SUPPLANT ANY OTHER GUARANTEE OF A LONGER PERIOD BUT SHALL BE BINDING ON WORK NOT OTHERWISE COVERED.

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2. The contractor shall verify all dimensions, levels, and datums on site and report any discrepancies or omissions to this office prior to construction.
3. This drawing is to be read and understood in conjunction with all other plans and documents applicable to this project.
4. Do not scale the drawings.

No.	Issue / Revision	Date
A	ISSUED FOR REVIEW	APRIL 12, 2006
B	PROGRESS REVIEW	APRIL 19, 2006
C	FINAL REVIEW	MAY 02, 2006
D	ISSUED FOR TENDER	JUNE 06, 2006
E	AS BUILT	JANUARY 2010

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GEOLOGISTS and GEOPHYSICISTS
OF THE NORTHWEST TERRITORIES
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NOTE:

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Project	WATER RESERVOIR, SEWAGE LAGOON AND LANDFILL IMPROVEMENTS QIKIQTARJUAQ, NUNAVUT
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ELECTRICAL MODIFICATIONS

Drawn By RAE	Checked By RSF
Scale AS SHOWN	Project No. 110840-10

Drawing No.
E-01