

UNIVERSAL TRANSVERSE MERCATOR (UTM) COORDINATES ZONE 11, CENTRAL MERIDIAN 117° WEST (NAD83) NORTHING **EASTING** ELEVATION

7524100.15

ROCK BOLT

ELEVATIONS ARE ORTHOMETRIC.

NAD83 SUITABLE FOR GRADING ONLY. BUILDING IS TO BE LAID OUT IN GROUND COORDINATES.

ROCK BOLT CONNECTS "OLD PUMPHOUSE" ROCK ANCHORS TO BEDROCK

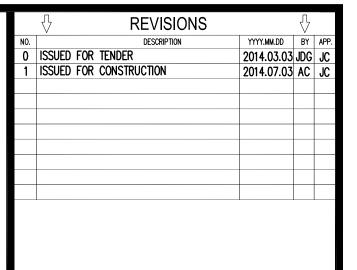
REFERENCE POINT IS WESTERNMOST OF TWO ROCK BOLTS AT THIS LOCATION.

580654.79



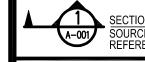
KEYNOTES:

- EXISTING WATER TREATMENT PLANT
- EXISTING STORAGE TANKS
- TRANSMISSION PIPELINE
- EXISTING HOLDING POND
- 5 NEW WATER TREATMENT PLANT
- PIPELINE TO/FROM EXISTING WATER TREATMENT PLANT
- 7 ACCESS VAULT
- AUXILIARY INTAKE LOCATION
- INTAKE PIPELINE
- (11) RIVER ACCESS ROAD
- (12) EXISTING PUMPHOUSE
- 3 EXISTING ACCESS VAULT 2
- 14) PUMPHOUSE ACCESS ROAD
- (105m) NEW ACCESS ROAD (105m)
- (16) OLD PUMPHOUSE
- 77) RF DRAINAGE POND APPROX LOCATION - FINAL LOCATION TO BE FIELD DETERMINED BY CONTRACTOR AND APPROVED BY ENGINEER TO ENSURE MIN PIPE SLOPE IS MAINTAINED.



DRAWING NO.	DESCRIPTOR
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FOR BEST PLOTTING RESULTS, BE SURE TO USE WILLIAMS ENGINEERING CANADA AUTOCAD PLOT CONFIGURATION FILES AVAILABLE FROM: www.williamsengineering.com



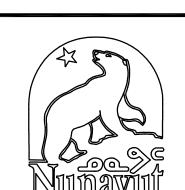
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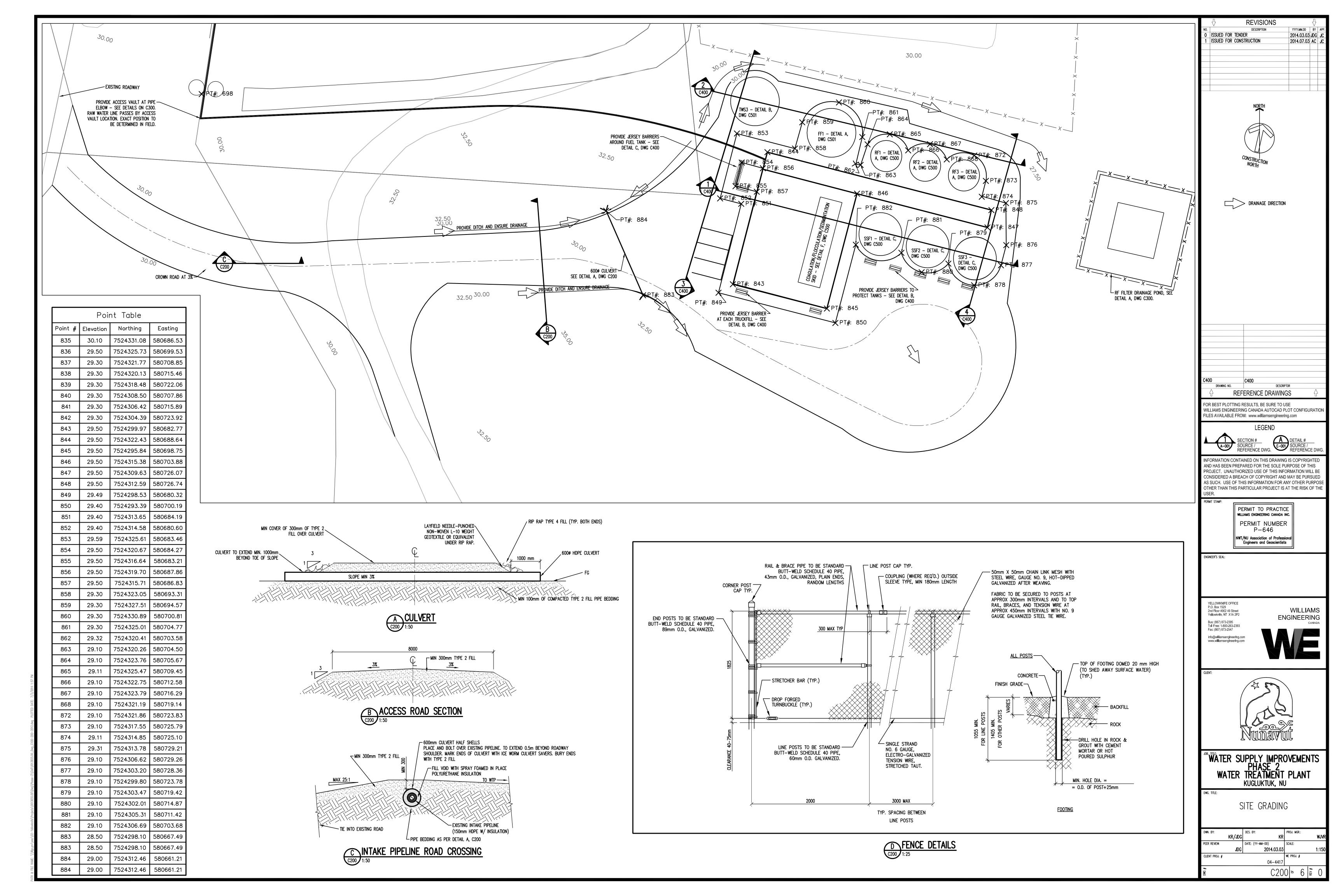
YELLOWKNIFE OFFICE P.O. Box 1529 2nd Floor 4902 49 Street Yellowknife, NT X1A 2P2 Bus: (867) 873-2395 Toll Free: 1-800-263-2393 Fax: (867) 873-2547 info@williamsengineering.com www.williamsengineering.com

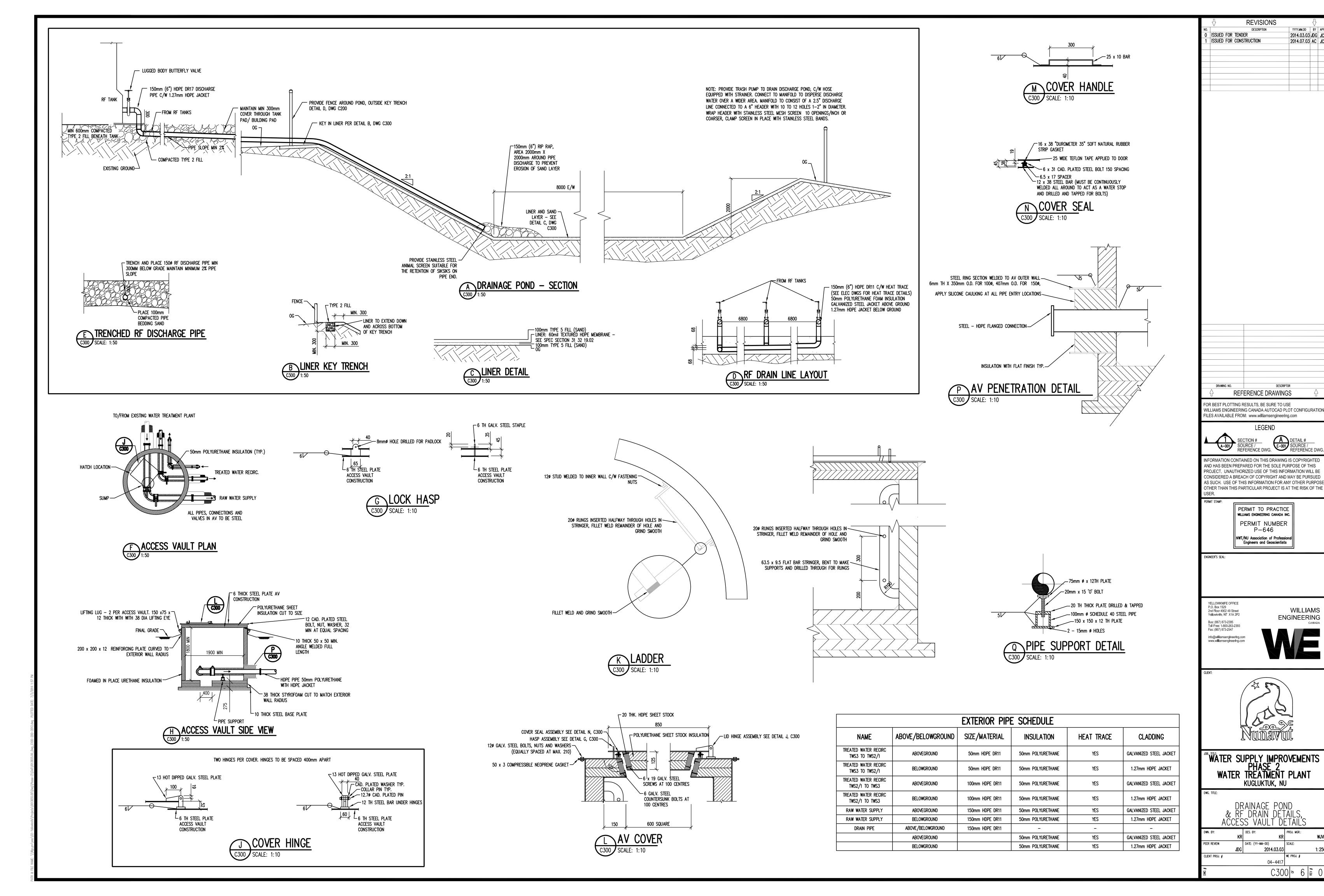






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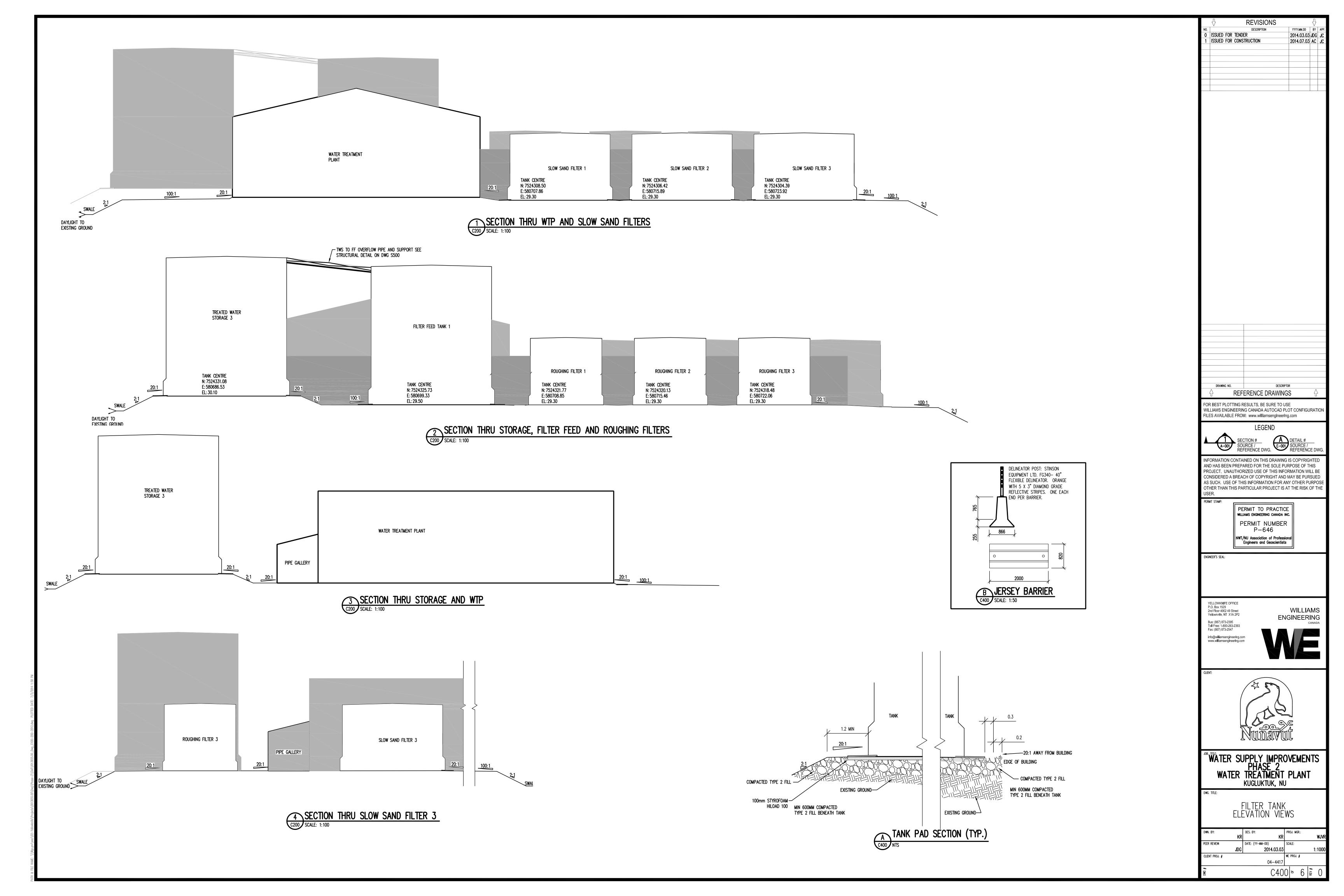


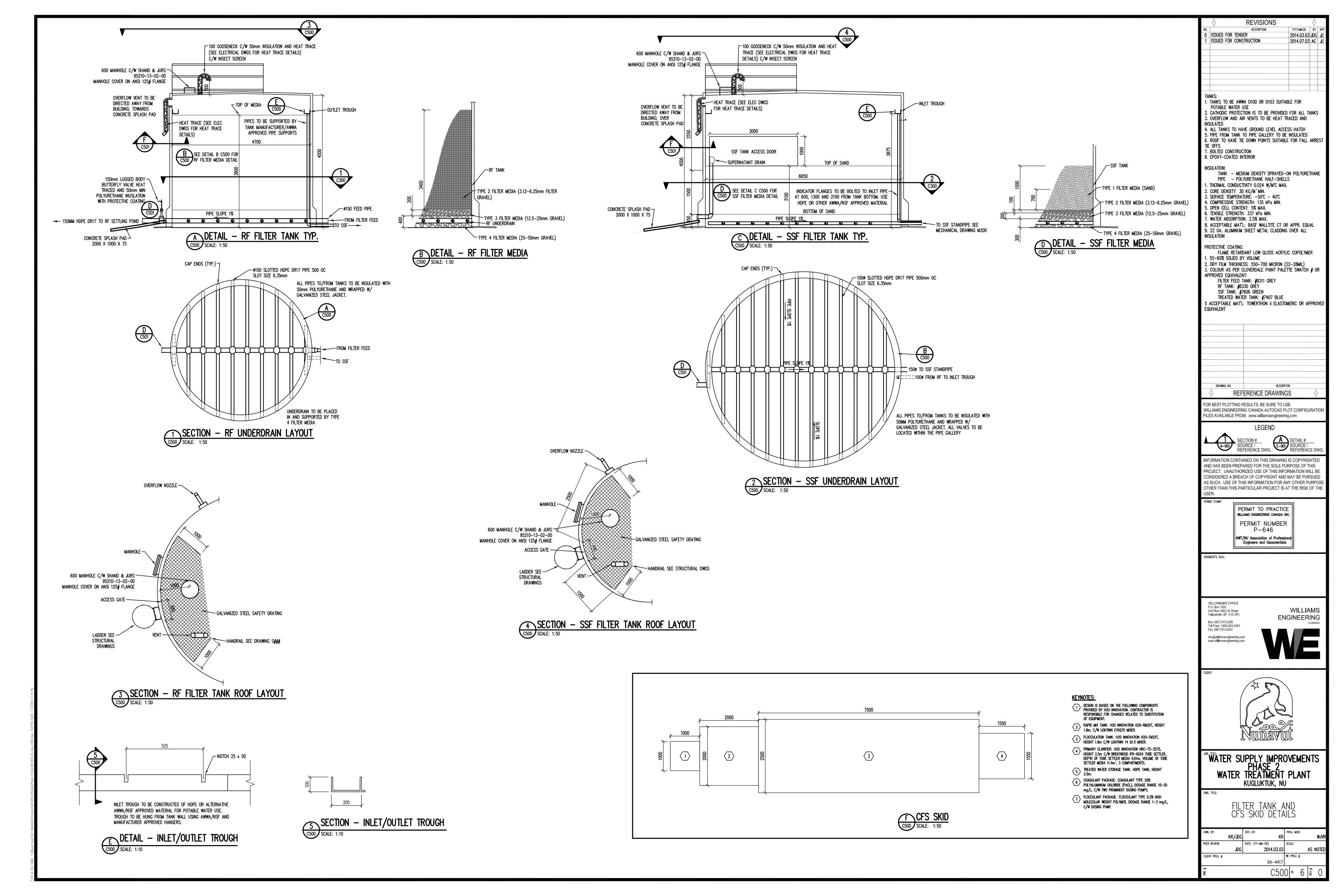
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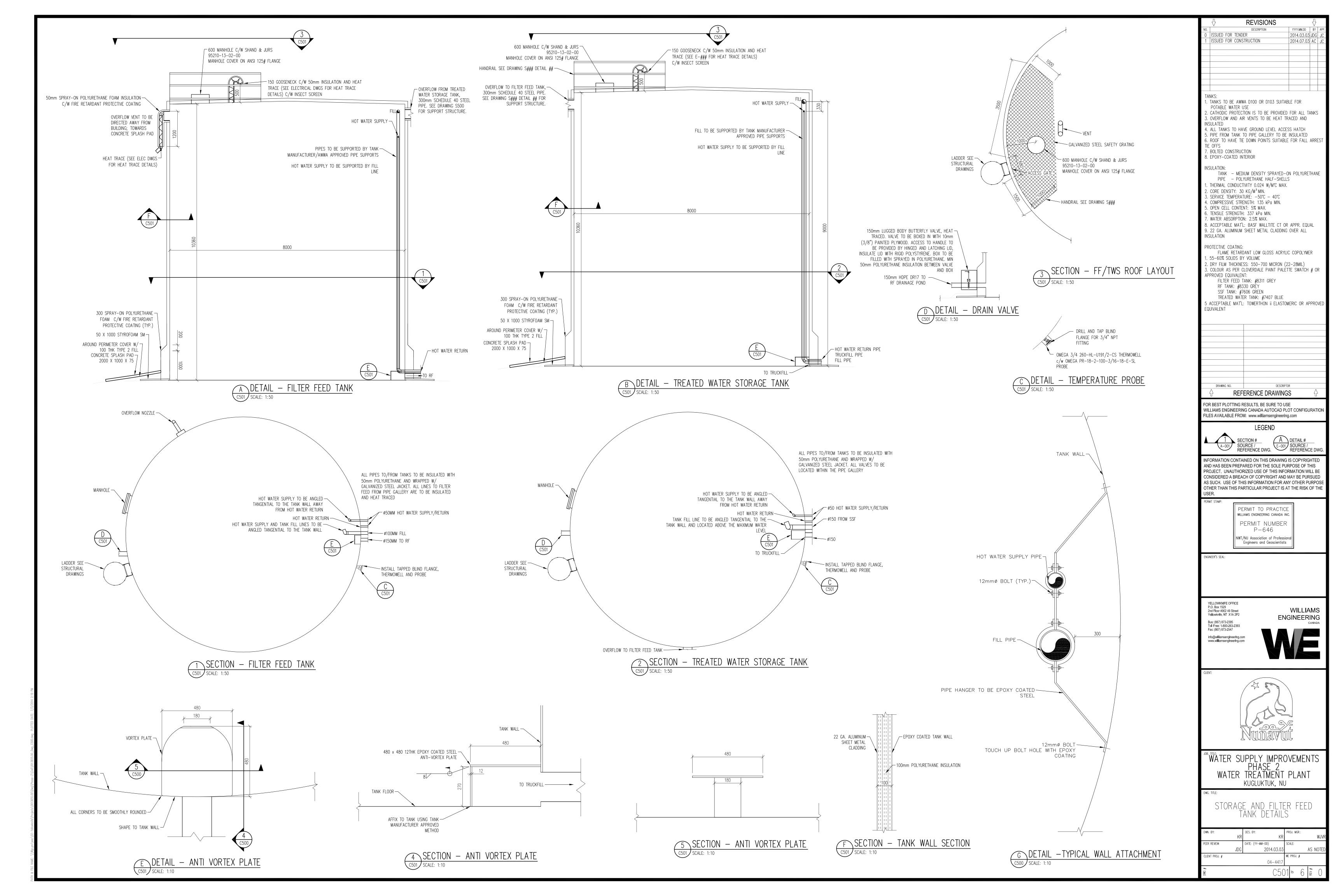
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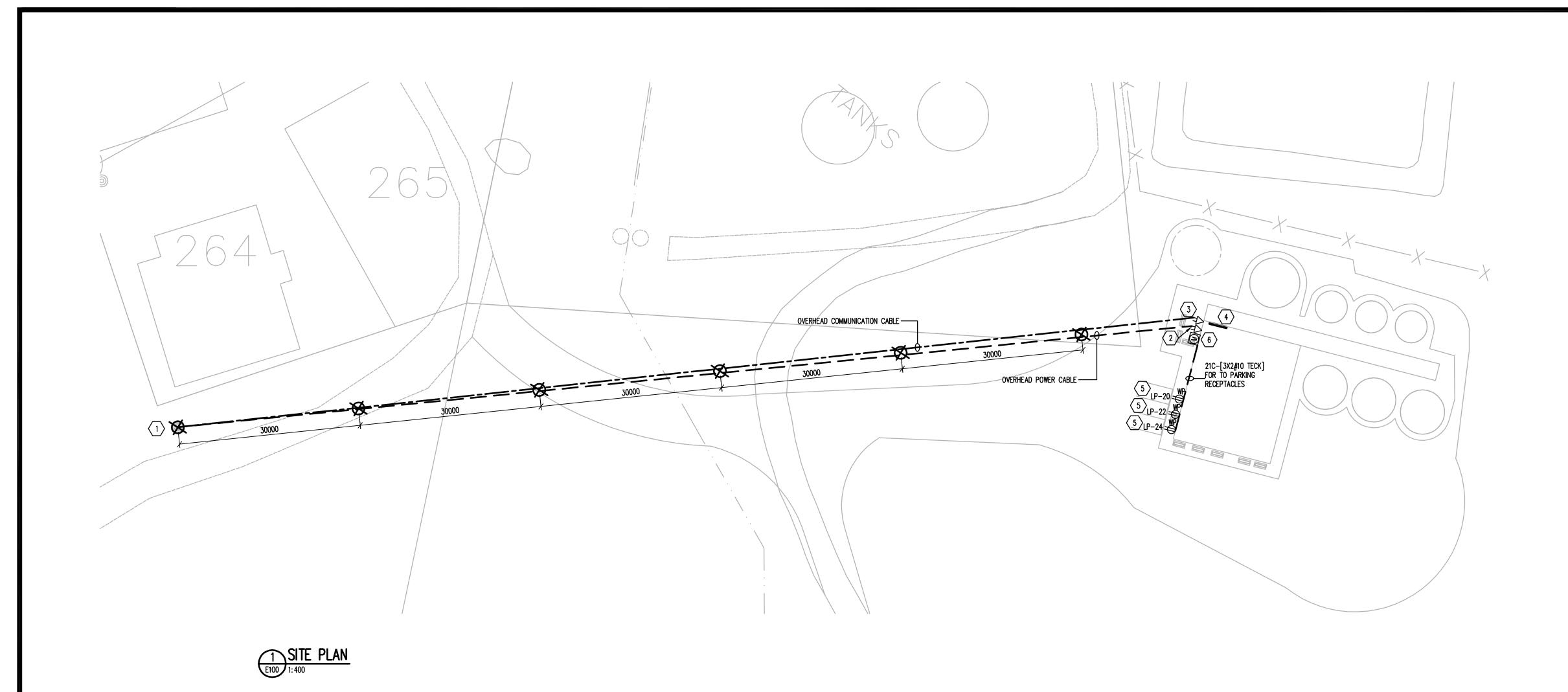
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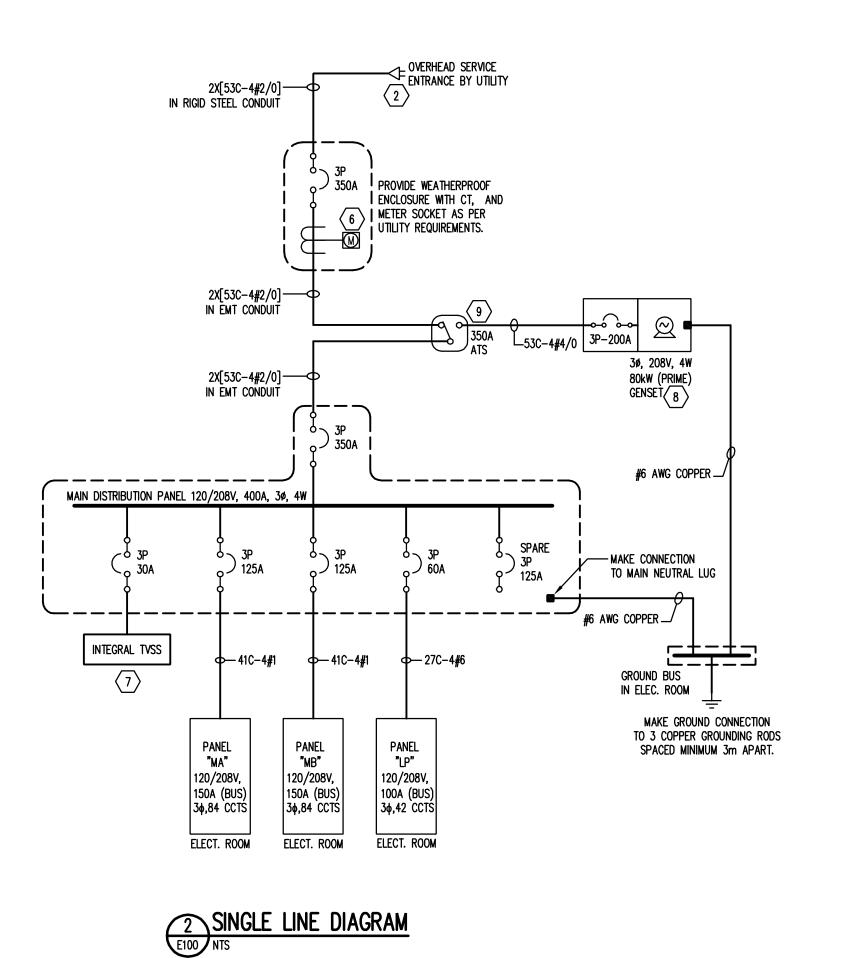
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LOAD CALCULATION 1. BUILDING AREA = $605m^2$ BASIC LOAD (CEC TABLE 14): 25W/m² 25W/m² X 605m² = 15,125 WATTS(i) 2. MECHANICAL LOAD = 60,000 WATTS(ii) = 18,781 WATTS(iii) 3. ADDITIONAL FUTURE LOADS (ASSUMED 25%) 4. TOTAL LOADING (i + ii + iii) = 93,906 WATTS 5. TOTAL AMPERES FOR 100% DEMAND LOAD: $93,906/(208 \times 1.73) = 260.9 \text{ AMPS}$ 6. TOTAL LOAD FOR SERVICE BY APPLYING CORRECTION FACTOR 0.8: 260.9/0.8 = 326.2 AMPS

7. RECOMMENDED BREAKER SIZE IS 350A AND CABLE SIZE 2X[53C-4#2/0].

GENERATOR TESTING PROCEDURE NOTES

- DO FIELD TESTING IN COMPLIANCE WITH CAN/CSA 282 AND PROVIDE TEST REPORT. TEST TO INCLUDE BUT NOT LIMITED TO THE FOLLOWING;
- .1 100% LOAD TEST FOR 24 HOURS. .2 110% LOAD TEST FOR 1 HOUR.

OVER-CRANK PROTECTION.

- .3 RECORD VOLTAGE, CURRENT, FREQUENCY, OIL TEMPERATURE AND
- PRESSURE AND BATTERY VOLTAGE EVERY HOUR. .4 AFTER COMPLETION OF TEST, DEMONSTRATE OIL OVER—TEMPERATURE PROTECTION, LOW OIL PRESSURE PROTECTION, OVER-SPEED, AND
- 2. PROVIDE FUEL REQUIRED FOR TESTING. ENGINEER IS TO WITNESS TEST.
- SUBMIT TEST REPORT TO ENGINEER WITHIN 72 HOURS OF COMPLETION OF
- MAKE ALL ADJUSTMENTS TO SYSTEMS AS REQUIRED, AND AS REQUESTED By Engineer.
- INSTRUCT OPERATING PERSONNEL ON COMPLETE OPERATION, TESTING, AND MAINTENANCE OF THE EMERGENCY GENERATOR SET.
- ALL TESTING TO BE COMPLETED WITH CONTRACTOR, MANUFACTURER'S FACTORY TRAINED REPRESENTATIVE AND ENGINEER PRESENT. MAKE ALL
- COMPLETE LOG/RECORD BOOK SHALL BE PROVIDED TO BE KEPT IN THE ENGINE GENERATOR ROOM IN ACCORDING WITH MANUFACTURES' RECOMMENDATIONS, AND SHALL INCLUDE THE FOLLOWING:
- .1 THE DATE OF WHICH WORK WAS DONE .2 THE NAME OF THE PERSON WHO PERFORMED THE WORK
- .3 ABNORMALITIES / CORRECTIONS ENTRY
- .4 PARTS REPLACEMENT ENTRY .5 SAFETY DEACTIVATION SWITCHES ENTRY DURING MAINTENANCE RESTORED TO FULL OPERATING CONDITIONS.

WIRING METHOD

- 1. ALL WIRING AND CONDUIT SHALL BE CONCEALED EXCEPT IN SERVICE ROOMS.
- 2. ALL FIXTURES RECESSED IN FIRE RATED WALLS OR CEILINGS SHALL ALSO BE FIRE RATED.
- 3. ALL TELEPHONE WIRING TO BE FT-4 RATED. GROUP CABLES WHERE POSSIBLE (NO MORE THAN 6) FOR PENETRATIONS THROUGH FIRE RATED WALLS/CEILING AND FIRE SEAL.
- 4. EMERGENCY LIGHTING D.C. WIRING IS TO BE #10 AWG.
- 5. ELECTRICAL DEVICES SHOULD NOT BE INSTALLED BACK TO BACK AND BE SEPARATED BY 300mm MINIMUM.
- 6. ALL PENETRATIONS THROUGH FIRE WALLS ARE TO BE

CIRCUITING GUIDELINES

- 1. LIGHTING CIRCUITS TO BE LOADED TO 1440 WATTS MAXIMUM, IF CIRCUIT BREAKER SIZE AS 15A IS MENTIONED.
- 2. EXIT SIGNS AND EMERGENCY LIGHTING TO BE ON THE SAME SINGLE DEDICATED CIRCUIT. PROVIDE VOLTAGE SENSING RELAYS TO MONITOR CIRCUITS IN AREA BEING SERVED. CONTRACTOR TO PROVIDE DC EMERGENCY POWER TO ALL EXIT SIGNS.
- 3. ALLOW MINIMUM OF 10% SPACES IN EACH ELECTRICAL DISTRIBUTION PANEL.

GENERAL NOTES:

- 1. ALL INSTALLATIONS TO MEET THE REQUIREMENT OF THE CANADIAN ELECTRICAL CODE, C22.1-12 AND THE LOCAL INSPECTION AUTHORITY HAVING JURISDICTION.
- 2. COORDINATE WITH OWNER TO ENSURE THAT GROUNDING AND BONDING SYSTEM WIRING IS PROVIDED AS REQUIRED BY CANADIAN ELECTRICAL CODE, C22.1-12.
- 3. PERFORM COMPLETE INSTALLATION AND EQUIPMENT IN STRICT ACCORDANCE TO THE MOST REQUIREMENTS OF

A) CSA C22.1-12-22ND EDITION OF CANADIAN ELECTRICAL CODE 2012. B) GOVERNMENT OF NUNAVUT'S GOOD BUILDING PRACTICES GUIDELINE 2005. C) GN - DEPARTMENT OF COMMUNITY & GOVERNMENT

SERVICES - PROTECTION SERVICES DIVISION

E	LECTRICAL SYMBOL LEGEND
<u> </u>	LUMINAIRE, FLUORESCENT, STRIP
0	LUMINAIRE, FLUORESCENT, SURFACE OR PENDANT MOUNT
	LUMINAIRE, FLUORESCENT, WALL MOUNT
ğ	LUMINAIRE, H.I.D., WALL MOUNT
F01	DESCRIPTOR-LUMINAIRE (FIXTURE TAG); E.G. F01 = LUMINAIRE TYPE F01
\$	SWTCH, SINGLE-POLE: 3 = 3 WAY SWTCH 4 = 4 WAY SWTCH a = LUMINAIRE SWTCHED
\$	SWITCH, TWO SINGLE POLE IN 2-GANG BOX
₽	DUPLEX RECEPTACLE DESCRIPTORS: c = MOUNTED ABOVE COUNTER GFCI = GROUND FAULT CIRCUIT INTERRUPTER WP = WATERPROOF
\$_M	MOTOR STARTER — MANUAL
\\ \\	SERVICE ENTRANCE WEATHERHEAD
M	UTILITY METER
	CIRCUIT BREAKER
	ELECTRICAL PANEL
00	SWITCH, AUTOMATIC TRANSFER
•	HARD WIRE CONNECTION
⊗	MOTOR CONNECTION
Đ	120V = LOCAL LINE VOLTAGE SMOKE/CO DETECTOR
4	JACK, TELEPHONE/DATA, WALL MOUNT:
	DETECTOR, MOTION
	KEYPAD, SYSTEM
•	SWITCH, DOOR POSITION (DPS)
×	LIGHT, EXIT, CEILING MOUNT
×	LIGHT, EXIT, WALL MOUNT
薆	LIGHT, EXIT, WALL MOUNT; ARROWS INDICATE DIRECTION OF EGRESS
• •	LIGHT, EMERGENCY & BATTERY PACK, 2 LAMP HEADS
4,4	LIGHT, EMERGENCY, 2 HEAD REMOTE

KEYNOTES:

- APPROXIMATE LOCATION OF THE EXISTING POWER POLE. NEW POWER POLES WILL BE REQUIRED MAXIMUM OF 30 METERS APART. PRIOR TO CONSTRUCTION, CONTRACTOR TO COORDINATE WITH POWER UTILITY FOR NEW SERVICE CONNECTION REQUIREMENTS.
- NEW OVERHEAD 120/208V, 3Ø, SERVICE. RUN IN RIGID STEEL CONDUIT. PRIOR TO CONSTRUCTION, CONTRACTOR TO COORDINATE WITH POWER UTILITY FOR NEW SERVICE CONNECTION REQUIREMENTS.
- NEW OVERHEAD TELEPHONE SERVICE, TO BE TERMINATED TO TTB IN ELECTRICAL ROOM. PRIOR TO CONSTRUCTION, CONTRACTOR TO COORDINATE WITH NORTHWEST, FOR TELEPHONE NEW SERVICE CONNECTION REQUIREMENTS
- PROVIDE 1200mm WIDE X 1200mm HIGH TELEPHONE TERMINATION BOARD (TTB) FOR TELEPHONE KEY SWITCH, PATCH PANEL, AND TERMINATION POINT FOR TELEPHONE. PAINTED 2 COATS FIRE RETARDANT PAINT, LIGHT GRAY. TERMINATE 53mm CONDUIT FROM OVERHEAD SERVICE HERE.
- PROVIDE NEW INTELLIGENT PARKING LOT CONTROLLER (IPLC) 125V, 15A WEATHER PROOF RECEPTACLES, COORDINATE WITH THE OWNER FOR THE PROGRAM PROFILE REQUIREMENTS.
- PROVIDE NEW 120/208V, 3ø, 400A UTILITY METER. COORDINATE WITH UTILITY.
- 7 PROVIDE A SURFACE MOUNT, 120/208V, 50kA PER PHASE SPD (SURGE PROTECTION DEVICE EATON MODEL# SPD50208Y2K) c/w NEMA 1 ENCLOSURE. TO BE CONNECTED WITH BREAKER. COORDINATE WITH SUPPLIER FOR THE CONNECTION REQUIREMENTS.
- PROVIDE NEW GENERATOR SIZED AS INDICATED WITH AUTO TRANSFER SWITCH (ATS), BATTERIES, CHARGER AND NECESSARIES REQUIREMENTS. TO BE TESTED AS PER MANUFACTURE REQUIREMENT AND AS INDICATED IN GENERATOR TESTING PROCEDURE NOTES.
- 9 PROVIDE NEW 30, 120/208V, AUTOMATIC TRANSFER SWITCH SIZED AS INDICATED.

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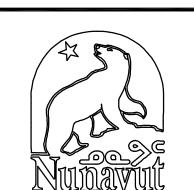
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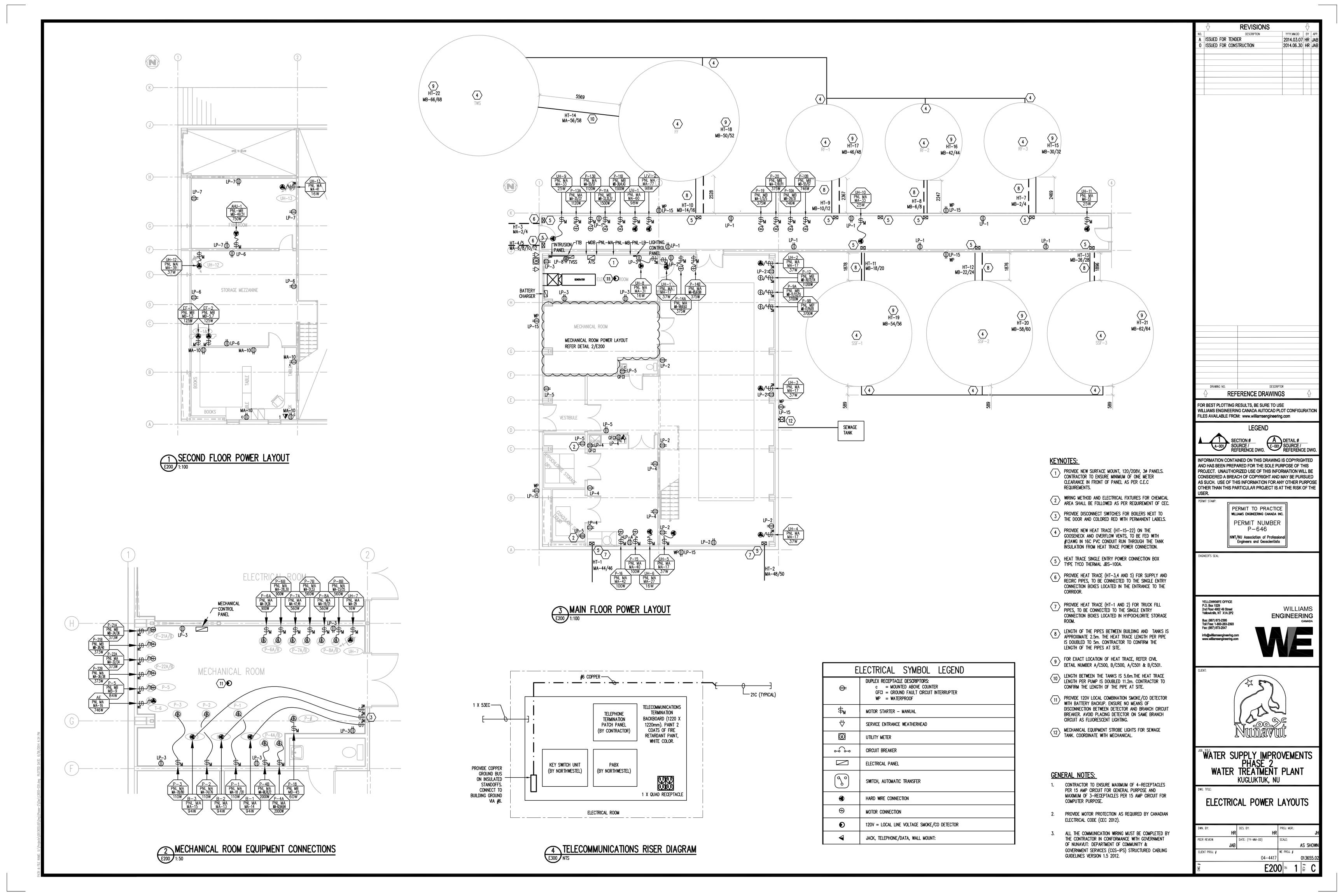
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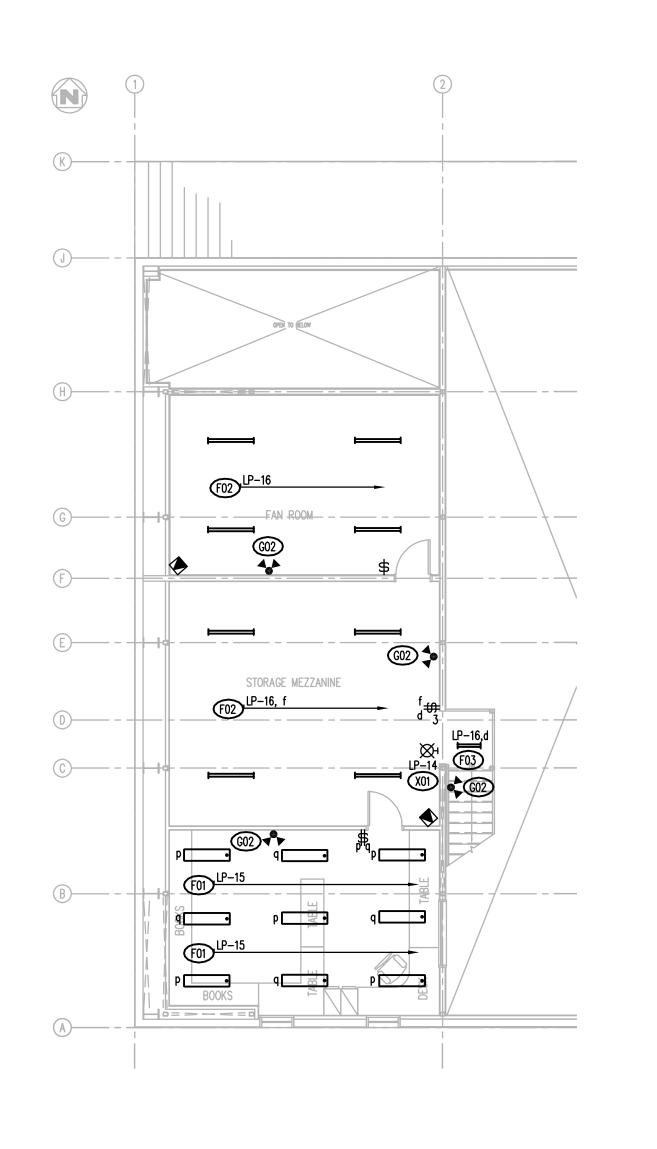


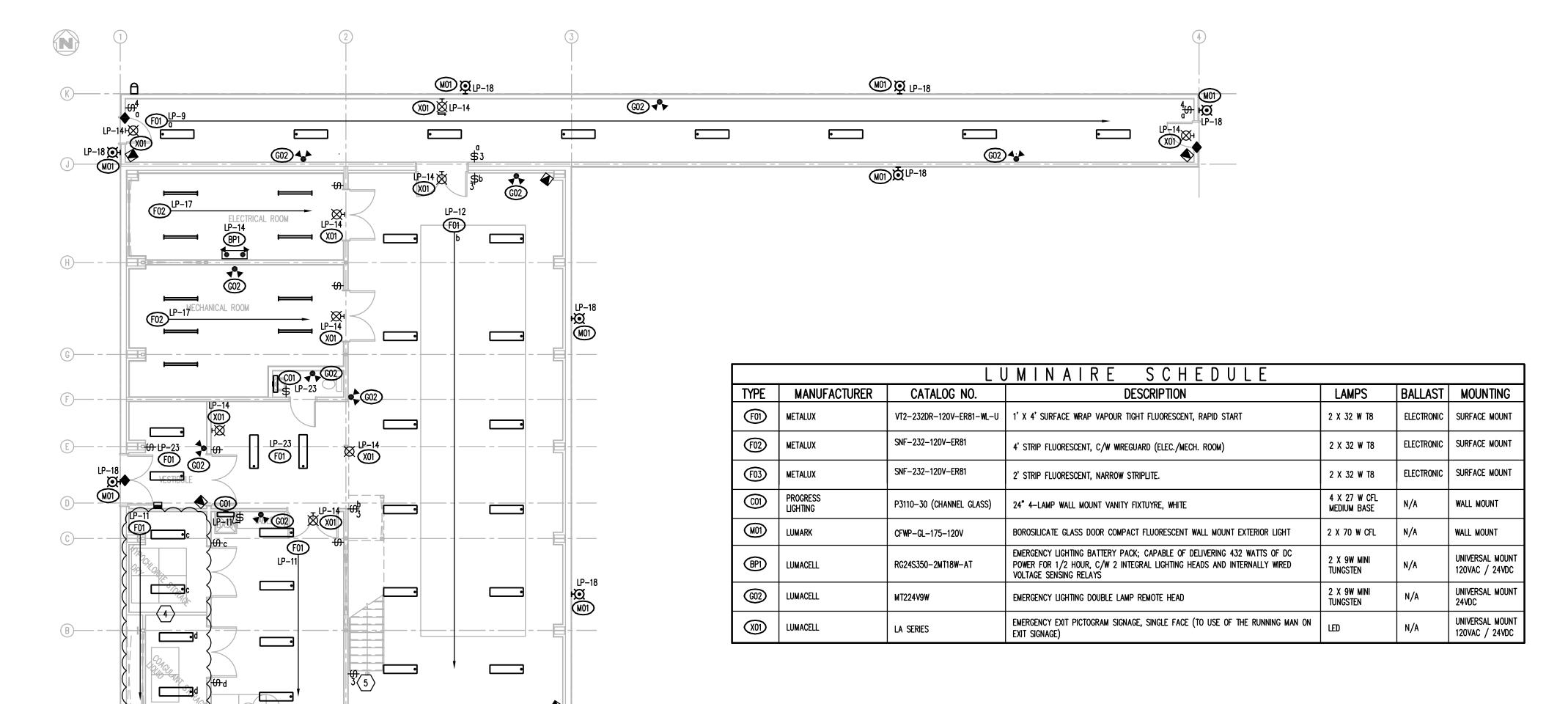
WATER TREATMENT PLANT KUGLUKTUK, NU

SITE PLAN

PROJ. MGR.: DATE: (YY-MM-DD) AS SHOW CLIENT PROJ. # WE PROJ. # 04-4417 013655.02

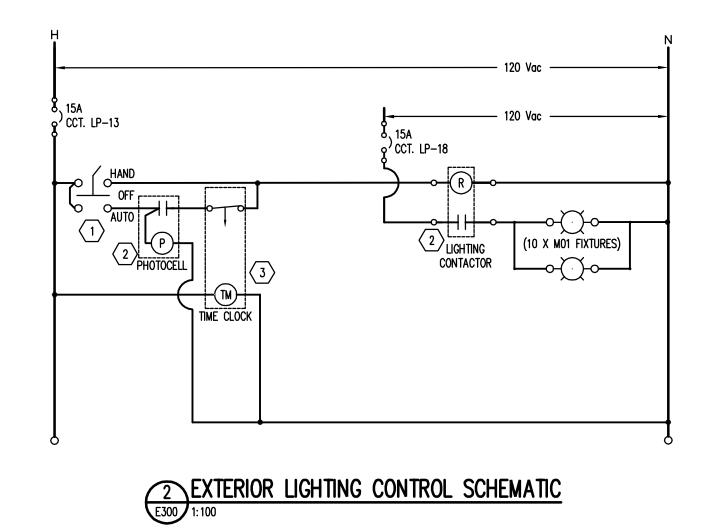












MAIN FLOOR LIGHTING LAYOUT 1:100

<u>KEYNOTES:</u>

LP-18 (M01)

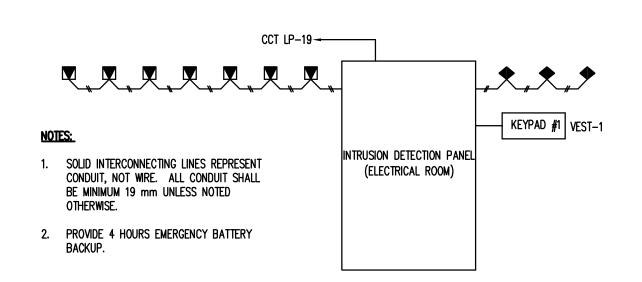
- EXTERIOR LIGHTING CONTROLLER C/W HAND/OFF/AUTO SWITCH.
- 2 PHOTOCELL TO TURN LIGHTS ON AT SUNSET, TURN LIGHTS OFF AT SUNRISE.
- TIMECLOCK TO TURN LIGHTS ON AND OFF. COORDINATE AT SITE WITH OWNER REQUIREMENTS.
- CHEMICAL AREA ELECTRICAL FIXTURES AND WIRING METHOD SHALL BE AS PER REQUIREMENT OF CEC.
- 5 PROVIDE A 3 WAY SWITCH FOR STAIR LIGHT

GENERAL NOTES:

CONTRACTOR TO ENSURE MAXIMUM "15 AMP" CIRCUIT LOADING FOR LIGHTING IS 1200 WATTS.

- 2. ALL THE AVERAGE MAINTAINED HORIZONTAL AND VERTICAL ILLUMINANCE LEVELS AT A SPECIFIED HEIGHT OR LOCATION SHALL CONFORM TO THE 10th EDITION OF "LIGHTING HANDBOOK" ILLUMINATING ENGINEERING SOCIETY (IES) AND NATIONAL ENERGY CODE FOR BUILDS 2011
- LUMINAIRE ALIGNMENT a) ALIGN LUMINARIES MOUNTED IN CONTINUOUS ROWS TO FORM STRAIGHT UNINTERRUPTED LINE. b) ALIGN LUMINARIES MOUNTED INDIVIDUALLY

	BATTERY PACK RELAY SCHEDULE
BATTERY PACK	CIRCUITS MONITORED BY RELAYS
BP1	LP-9, LP-11, LP-12, LP-15, LP-16, LP-17



SECURITY RISER DIAGRAM

NTS

LP-18 (M01)

E	LECTRICAL SYMBOL LEGEND
	LUMINAIRE, FLUORESCENT, STRIP
•	LUMINAIRE, FLUORESCENT, SURFACE OR PENDANT MOUNT
	LUMINAIRE, FLUORESCENT, WALL MOUNT
ğ	LUMINAIRE, H.I.D., WALL MOUNT
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\$	SWITCH, TWO SINGLE POLE IN 2-GANG BOX
	DETECTOR, MOTION
	KEYPAD, SYSTEM
♦	SWITCH, DOOR POSITION (DPS)
×	LIGHT, EXIT, CEILING MOUNT
\X	LIGHT, EXIT, WALL MOUNT
ኞ	LIGHT, EXIT, WALL MOUNT; ARROWS INDICATE DIRECTION OF EGRESS
6 6	LIGHT, EMERGENCY & BATTERY PACK, 2 LAMP HEADS
4,4	LIGHT, EMERGENCY, 2 HEAD REMOTE

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WILLIAMS **ENGINEERING**



WATER SUPPLY IMPROVEMENTS
PHASE 2
WATER TREATMENT PLANT KUGLUKTUK, NU

LIGHTING LAYOUTS

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P۸	NE	1	MB	LOCATION	VOLTAGE	_	ASE	W		BUS		MAIN E	BKR.	INT. CAP. (SYM RMS)			_	
ı <i>[</i>	114F		טוייו	ELECTRICAL ROOM	120/208V		3		4	150				10kVA	84	SURFACE	41C-	4#1
	NOTES	S :	[*] = PROVID	E BREAKER LOCK ON CIR	CUIT			[GFCI] = GR	OUND	FAULT	CIRCL	JIT BR	EAKER				
	DADS			DESCRIPTION		POLE	АМР	CCT.	1	ð	ССТ.	АМР	POLE	DESCRIPT	ION		LOADS	_
L1 62	L2	L3				2		NO.	•	<u> </u>	NO.	15				L	.1 L2 65	L3
_	62		EF-1, STORAC	SE MEZZANINE		Ż	15	3	1	\vdash	4	\overline{Z}	2	HT-7, TANK RF-3		165		
62		62	EF-2, STORAG	GE MEZZANINE		2	15	5		+	8	15	/	HT-8, TANK RF-2		<u> </u>	65	16
02	84		P-5, MECHAN	ICAL ROOM	1 15 9 10 15								- 1	165	;			
		1233				3	\angle	11	+	+	12	Z	2	HT-9, TANK RF-1				16
233	1233		P-9A, SKID A 	AREA			40	13 15			14	15	2	HT-10, TANK FF		10	65 165	+
	1200	1233				3		17	<u> </u>	_	18	15	Ż	HT-11, TANK SSF-1				16
233	1233		P-9B, SKID A	REA			40	19	•	\forall	20	15	2	711 11, 17,111 331		1	65 165	<u> </u>
	1233						40	21 23		\rightarrow	24	13	2	HT-12, TANK SSF-2		F	103	16
								25	•	+	26	15	\geq	HT-13, TANK SSF-3		1/	65	
		373				2		27 29			30	15	2				165	5 5
73		0,0	P-10A, PIPE	GALLERY			20	31	•	\dashv	32		2	HT-15, TANK RF-3		<u>;</u>	50	†
	500	500	D 444 DIDE	0411.507		3		33	+	+	34	15	2	P-21A, MECHANICAL ROOM			186	-
500		500	P-11A, PIPE	GALLERY			15	35 37			36 38	15				1	86	18
	500					3	\angle	39	+	\vdash	40		2	P-21B, MECHANICAL ROOM			186	<u>;</u>
500		500	P-11B, PIPE (GALLERY			15	41 43			42	15	2	HT-16, TANK RF-2		<u> </u>	50	5
,00	60		P-18, MECHANICAL ROOM			1	15	45	1	\dashv	46	15		LIT 17 TANK DE 1		- `	50	
						1	15	47	+	+	48	Z	2	HT-17, TANK RF-1		<u>_</u>		5
373	373		AHU-1, FAN	ROOM		2	15	49 51			50 52	15	2	HT-18, TANK FF		F:	50 50	+
			SPARE					53	+	-	54	15	\geq	HT-19, TANK SSF-1				5
373	373		P-10B, PIPE	GALLERY		2	20	55 57	•	\top	56 58	15	2	111 10, 17441 331 1		;	50 50	+
	3/3						20	59	_	_	60		2	HT-20, TANK SSF-2			- 30	5
								61	•	+	62	15	Ž	HT-21, TANK SSF-3		;	50	
								63 65			64 66	15	2				50	5
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								69	+	+	70 72	110	\angle	D 10 CVID ADEA		 	3734	-
								71 73			74	/	3	P-12, SKID AREA		3	734	37
								75	+	-	76						\pm	
			SPARE			2	15	77		+	78 80	15	1	SPARE SPARE		\longrightarrow	+	+
			00.455			2	13	79 81			82	15 15	1	SPARE		-+	+	+
			SPARE				15	83	+	-	84	15	1	SPARE			丰	
709	4418	3901				TOTAL	L PEAK	LOAN	28.08	32W AT	208V	. IMPI	JES 7	B.0A		50	045 5129	9 48

					MEC	HANICA	L EQUII	PMENT S	SCHEDU	JLE						
EQUIPMENT NO.	DESCRIPTION	LOCATION	W / HP / A	VOLT/ PHASE		S	1	ACCESSORIES			1	REMOTE CONTROL	MCC KEY	FUSE/ BREAKER	FEEDER	REMARKS
					SIZE	MAN.	MAG.	ON/OFF	P.L.	H.O.A.	V.F.D.	CONTROL	CCT. No.	SIZE		
B-1/2/3	OIL FIRED BOILERS	MECHANICAL ROOM	3 x 94W (282W)	120V/1ø				X					MA-13,14,15	1P-15A	16C-2 # 12	NOTE 1
UH-1/2/3/4/5	HORIZONTAL UNIT HEATERS	SKID AREA	5 X 37W (185W)	120V/1ø				X					MA-17	1P-15A	16C-2 # 12	NOTE 1
UH-6	HORIZONTAL UNIT HEATER	MIXING ROOM	16W	120V/1ø				X					MA-27	1P-15A	16C-2 # 12	NOTE 1
UH-7	HORIZONTAL UNIT HEATER	MECHANICAL ROOM	16W	120V/1ø				Х					MA-29	1P-15A	16C-2 # 12	NOTE 1
UH-8	HORIZONTAL UNIT HEATER	ELECTRICAL ROOM	16W	120V/1ø				Х					MA-31	1P-15A	16C-2 # 12	NOTE 1
UH-9/10/11	HORIZONTAL UNIT HEATERS	PIPE GALLEY	3 X 25W (75W)	120V/1ø				Х					MA-33	1P-15A	16C-2 # 12	NOTE 1
UH-12	HORIZONTAL UNIT HEATER	STORAGE MEZZANINE	37W	120V/1ø				Х					MA-39	1P-15A	16C-2 # 12	NOTE 1
UH-13	HORIZONTAL UNIT HEATER	FAN ROOM	16W	120V/1ø				Х					MA-41	1P-15A	16C-2 # 12	NOTE 1
AHU-1	AIR HANDLING UNIT	FAN ROOM	746W (1HP)	208V/1ø				Х					MB-49,51	2P-15A	16C-3 # 12	NOTE 1
EF-1	EXHAUST FAN-1	STORAGE MEZZANINE	125W	208V/1ø				х					MB-1,3	2P-15A	16C-3 # 12	NOTE 1
EF-2	EXHAUST FAN-2	STORAGE MEZZANINE	125W	208V/1ø				X					MB-5,7	2P-15A	16C-3 # 12	NOTE 1
P-1/2/3	BOILER PUMPS	MECHANICAL ROOM	3 x 110W (330W)	208V/1ø				Х					MA-18,20,74,76,78,80	2P-15A	16C-3 # 12	NOTE 1
P-4A/4B	HEAT LOOP PUMPS	MECHANICAL ROOM	2 x 2000W (4000W)	208V/3ø			Х						MA-62,64,66,68,70,72	3P-25A	16C-3 # 12	NOTE 1
P-5	GLYCOL MAKEPUP PUMP	MECHANICAL ROOM	84W (0.7A)	120V/1ø				х					MB-9	1P-15A	16C-2 # 12	NOTE 1
P-6A/6B	HX LOOP PUMPS	MECHANICAL ROOM	2 X 900W (1800W)	208V/1ø				x					MA-24,26,28,30	2P-25	16C-3 # 12	NOTE 1
P-7A/7B	FF HEAT EX PUMPS	MECHANICAL ROOM	2 X 560W (1120W)	208V/1ø				x					MA-47,49,51,53	2P-15A	16C-3 # 12	NOTE 1
P-8A/7B	TWS HEAT EX PUMPS	MECHANICAL ROOM	2 X 560W (1120W)	208V/1ø				x					MA-19,21,23,25	2P-15A	16C-3 # 12	NOTE 1
P-9A/9B	SKID TO FF PUMPS	SKID AREA	2 X 3700W (7400W)	208V/3ø				x					MB-11,13,15,17,19,21	3P-40A	16C-3 # 12	NOTE 1
P-10A/10B	SSF TO FF RETURN PUMPS	PIPE GALLERY	2 X 746W (1492W)	208V/1ø				х					MB-29,31,55,57	2P-20A	16C-3 # 12	NOTE 1
P-11A/11B	SSF TO TWS PUMPS	PIPE GALLERY	2 X 1500W (3000W)	208V/3ø				х					MB-33,35,37,39,41,43	3P-15A	16C-3 # 12	NOTE 1
P-12	TWS TO SSF BACK WASH	SKID AREA	15 HP (11200W)	208V/3ø			Х						MB-70,72,74	3P-110A	27C-3 # 6	NOTE 1
P-13A/13B	STORAGE RECIRC PUMPS	PIPE GALLERY	2 X 1120W (2240W)	208V/1ø				х					MA-35,37,55,57	2P-25A	16C-3 # 12	NOTE 1
P-14A/14B	TRUCK FILL PUMPS	SKID AREA	2 X 373W (746W)	208V/3ø				х					MA-59,61,63,65,67,69	3P-15A	16C-3 # 12	NOTE 1
P-15/16	CL INJECTION PUMP	MIXING ROOM	FRAC	120V/1ø				х					MA-40,42	1P-15A	16C-2 # 12	NOTE 1
P–17	NOT USED															
P-18	DCW TO HWT PUMP	MECHANICAL ROOM	60W	120V/1ø				х					MB-45	1P-15A	16C-2 # 12	NOTE 1
P-19/20	RF PUMPS	PIPE GALLERY	2 X 373W (746W)	208V/3ø				х					MA-1,3,5,7,9,11	3P-15A	16C-3 # 12	NOTE 1
P-21A/21B	FUEL PUMPS	MECHANICAL ROOM	2 X 373W (746W)	208V/1ø				х					MB-34,36,38,40	2P-15A	16C-3 # 12	NOTE 1
P-22A/22B	FUEL PUMPS	MECHANICAL ROOM	2 X 373W (746W)	208V/1ø				Х					MA-32,34,36,38	2P-15A	16C-3 # 12	NOTE 1
UV-1/2	ULTRA VIOLET LIGHT	PIPE GALLERY	98W	120V/1ø				Х					MA-60,77	1P-15A	16C-2 # 12	NOTE 1
AE	MIOX AE SYSTEM	MECHANICAL ROOM	746W	120V/1ø				Х					MA-16	1P-15A	16C-2 # 12	NOTE 1
HT-1/2	ELECTRIC HEAT TRACE	TRUCKFILL ARMS	2 X 165W (330W)	208V/1ø				Х					MA-44,46,48,50	2P-15A	16C-3 # 12	NOTE 1,2
HT-3	ELECTRIC HEAT TRACE	SUPPLY PIPE, (GALLERY)	5000W	208V/1ø				Х					MA-2,4	2P-30A	16C-3 # 10	NOTE 1,2
HT-4/5	ELECTRIC HEAT TRACE	RECIRC PIPE, (GALLERY)	2 x 5000W (10000W)	208V/1ø				Х					MA-6,8,10,12	2P-30A	16C-3 # 10	NOTE 1,2
HT-6	NOT USED															
HT-7/8/9/10/11/12/13	ELECTRIC HEAT TRACE	TANK PIPES	7 x 330W (2310W)	208V/1ø				X					MB-2,4,6,8,10,12,14,16,18,20 MB-22,24,26,28	2P-15A	16C-3 # 12	NOTE 1,2
HT-14	ELECTRIC HEAT TRACE	TANK PIPES (TWS & FF)		208V/1ø				X					MA-22,24,26,28	2P-15A	16C-3#12	NOTE 1,2
HT-15/16/17/18/19/20/21/22	ELECTRIC HEAT TRACE	TANK PIPES	8 x 100W (800W)	208V/1ø				X					MB-30,32,42,44,46,48,50,52 MB-54,56,58,60,62,64,66,68		16C-3#12	NOTE 1,2

NOTES: 1. PROVIDE DISCONNECTION SWITCH, PROTECTION AND CONTROL WIRING AS PER CEC; CONTROLS BY MECHANICAL 2. FEED POWER THROUGH GFI BREAKER

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D A	NIC		ΙP	LOCATION	VOLTAGE	PH	ASE	W	IRE	В	US	N	MAIN BKR.		INT. CAP. (SYM RMS) CIRC	UITS MOUNTI	NGF	EE	DEF
P	NE	_		ELECTRICAL ROOM	120/208V		3		4	1	00A				10KA 4	2 SURFACE	2	27C-4	# 6
	NOTES	È	[*] = PROVIDE	BREAKER LOCK ON CIRC	UIT			[GFC	l] =	GROUN	D FA	AULT	CIRCU	it br	EAKER				
L	OADS			OFFICE TOUR		50.5		ССТ.		ø		CCT.		DOL 5	DECODINE		l	.OADS	
L1	L2	L3		DESCRIPTION		POLE	АМР	NO.			_	NO.	AMP	POLE	DESCRIPTION		L1	L2	L3
1000			RECEPTACLES-	PIPE GALLEY		1	15	1	+		$+\Gamma$	2	15	1	RECEPTACLES-SKID AREA		1000		
	1000		RECEPTACLES-	MECHANICAL / ELECTRICA	L ROOM	1	15	3	1+	-	$+\Gamma$	4	15	1	RECEPTACLES-MIXING AREA			875	
		625	RECEPTACLES-	VESTIBLE, WASHROOM &	CHEMICAL ROOM	1	15	5]+	+	┢╴[6	15	1	RECEPTACLES-STORAGE MEZZANINE				500
500			RECEPTACLES-	FAN ROOM MEZZANINE		1	15	7]+	+	$+ \mathbb{L}$	8	15	1	RECEPTACLE-TTB		500		
	560		LIGHTS-PIPE G	ALLEY		1	15	9]+	•	$+ \lceil$	10	15	1	RECEPTACLES-OFFICE MEZZANINE			625	
		630	LIGHTS-MIXING	AREA		1	15	11	1+	+	┿┌	12	15	1	LIGHTS-SKID AREA				840
500			EXTERIOR LIGHT	TING CONTROLS		1	15	13]┿-		∔Γ	14	15	1	BP1-ELECTRICAL ROOM	[*]	500		
	630		LIGHTS-MEZZAN	NINE OFFICE		1	15	15	1+	-	∔Γ	16	15	1	LIGHTS-FAN ROOM & STORE MEZZAN	INE		630	
		630	LIGHTS-MECHAI	NICAL / ELECTRICAL ROO	V	1	15	17	1+	+	┢╌┌	18	15	1	LIGHTS-OUTSIDE				700
500			INTRUSION DET	ECTION PANEL		1	15	19]┢-	_	+Γ	20	15	1	PARKING RECEPTACLE	(IPLC)	650		
	875		RECEPTACLE-0	UTSIDE	[GFCI]	1	15	21	1+	-	$+\Gamma$	22	15	1	PARKING RECEPTACLE	(IPLC)		650	
		350	LIGHTS-WASHRO	ООМ		1	15	23]+	_	┿╌[24	15	1	PARKING RECEPTACLE	(IPLC)			650
								25]+		$+ \mathbb{L}$	26							
								27]+	-	$+ \mathbb{C}$	28							
								29]+	+-	- [30							
								31	•	+	+[32							
								33]+	-	1 L	34							
								35]+	-	- [36							
								37	J┿−	+	+[38							
			SPARE			1	15	39]+		+[40	15	1	SPARE				
			SPARE			1	15	41]+	<u> </u>	┵┌	42	15	1	SPARE				

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GENERAL REQUIREMENTS

IN THE FOLLOWING SECTIONS, "ENGINEER" REFERS TO THE STRUCTURAL DESIGN ENGINEER OF RECORD FOR THIS WORK.

PERFORM WORK IN ACCORDANCE WITH NATIONAL BUILDING CODE OF CANADA 2010; AND LOCAL CODES, BY-LAWS, ORDINANCES, AND SAFETY REGULATIONS. THE COMPLETE WORK UNDER THESE TRADES SHALL BE GOVERNED BY THE DICTATES OF GOOD PRACTICE IN ALL DETAILS OF MATERIALS AND METHODS, EVEN IF NOT MINUTELY SPECIFIED. PROPERLY COORDINATE THE WORK WITH THE REQUIREMENTS OF OTHER UNITS OF WORK SPECIFIED IN OTHER SECTIONS. THE DRAWINGS DESCRIBE THE COMPLETED PROJECT, AND DO NOT INDICATE COMPONENTS THAT MAY BE NECESSARY FOR CONSTRUCTION SAFETY. THE CONTRACTOR IS RESPONSIBLE FOR SAFETY IN-AND-ABOUT THE JOB SITE DURING CONSTRUCTION, AND THE DESIGN AND ERECTION OF ALL TEMPORARY STRUCTURES, FORMWORK, FALSEWORK, SHORING ETC., REQUIRED TO COMPLETE THE PROJECT. MAINTAIN THE WORK, INCLUDING ROOF AND BUILDING SYSTEMS, AT LEAST ON A DAILY BASIS, FREE FROM ACCUMULATIONS OF WASTE MATERIAL AND DEBRIS. IN PREPARATION FOR FINAL ACCEPTANCE OF THE PROJECT ON AN INTERIM, OR FINAL CERTIFICATE OF COMPLETION, PERFORM FINAL CLEANING.

1.2 STANDARDS:

- NATIONAL BUILDING CODE OF CANADA: NBC 2010
- CONCRETE MATERIALS AND METHODS OF CONCRETE CONSTRUCTION: CSA A23.1-09 METHODS OF TEST AND STANDARD PRACTICES FOR CONCRETE: CSA A23.2-09
- DESIGN OF CONCRETE STRUCTURES: CSA A23.3-04 (R2010)
- ACI BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE AND COMMENTARY: ACI 318-08
- CONCRETE FORMWORK: CSA S269.3-M92 (R2008) CARBON STEEL BARS FOR CONCRETE REINFORCEMENT: CSA G30.18-09
- .8 STANDARD SPECIFICATION FOR STEEL WELDED WIRE REINFORCEMENT, PLAIN, FOR CONCRETE: ASTM
- .9 STANDARD SPECIFICATION FOR STEEL WELDED WIRE REINFORCEMENT, DEFORMED, FOR CONCRETE: ASTM A497/A497M-07
- .10 STANDARD SPECIFICATION FOR EPOXY-COATED STEEL REINFORCING BARS: ASTM A775/A775M-07 DESIGN OF STEEL STRUCTURES: CSA S16-09
- .12 NORTH AMERICAN SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS: CSA
- .13 GENERAL REQUIREMENTS FOR ROLLED OR WELDED STRUCTURAL QUALITY STEEL/STRUCTURAL QUALITY STEEL: CSA G40.20-04/G40.21-04 (R2009)
- .14 STANDARD SPECIFICATION FOR STRUCTURAL BOLTS, STEEL, HEAT TREATED, 120/105 KSI MINIMUM TENSILE STRENGTH: ASTM A325-10/A325M-09
- .15 WELDED STEEL CONSTRUCTION (METAL ARC WELDING): W59-03 (R2008) .16 STANDARD SPECIFICATION FOR STEEL SHEET, ZINC-COATED OR ZINC-IRON ALLOY-COATED BY THE HOT-DIP
- PROCESS: A653-09/A653M-09 .17 STANDARD TEST METHODS FOR LABORATORY COMPACTION CHARACTERISTICS OF SOIL USING STANDARD EFFORT: ASTM D698-07
- .18 ENGINEERING DESIGN IN WOOD: CSA 086-01 (R2006)
- .19 CONSTRUCTION OF PRESERVED WOOD FOUNDATIONS: CSA S406-92 (R2008) WOOD PRESERVATION: CSA 080 SERIES-08
- .21 DOUGLAS FIR PLYWOOD: CSA 0121-08 .22 STANDARDS ON OSB AND WAFERBOARD: CSA 0437 SERIES-93 (R2006)

1.3 LIVE LOADS (SERVICE):

- .1 GROUND SNOW LOAD (Ss) 2.6 KPA
- RAIN LOAD (Sr) 0.1 KPA
- IMPORTANCE FACTOR FOR SNOW LOAD ULS: 1.25, SLS: 0.9 BASIC ROOF FACTOR FOR SNOW LOAD (Cb) - 0.8
- WIND EXPOSURE FACTOR FOR SNOW LOAD (Cw) 1.0
- ROOF DESIGN SNOW LOAD (DRIFT CONDITIONS ON DRAWINGS) 2.725 KPA
- WIND (1/50 HOURLY PRESSURE) 0.46 KPA
- IMPORTANCE FACTOR FOR WIND LOAD ULS: 1.25, SLS: 0.75 EXPOSURE FACTOR FOR WIND LOAD (Ce) - 0.9
- WIND UPLIFT (SERVICE) 1.52 KPA
- CORRIDORS, LOBBIES, AND AISLES 4.8 KPA
- WASHROOM 2.4 KPA
- .13 OFFICE AREAS 4.8 KPA
- .14 MECHANICAL AND EQUIPMENT ROOMS 3.6 KPA OR EQUIPMENT LOADS (WORST CASE) .15 STORAGE AREAS: 4.8 KPA OR EQUIPMENT LOADS (WORST CASE)
- HYPOCHLORITE STORAGE 20 KPA
- COAGULANT STORAGE 20 KPA .16 SKID PROCESS AREA - 25 KPA

1.4 DEAD LOADS (SERVICE):

- ROOF (UNLESS NOTED OTHERWISE): DEAD LOAD — 1.50 KPA
- SUPERIMPOSED DEAD LOAD 1.0 KPA
- .2 MEZZANINE (UNLESS NOTED OTHERWISE):
- DEAD LOAD 3.43 KPA SUPERIMPOSED DEAD LOAD - 1.0 KPA
- FLOOR (UNLESS NOTED OTHERWISE):
- DEAD LOAD 7.20 KPA SUPERIMPOSED DEAD LOAD - 0.5 KPA PARTITIONS: 1.00 KPA
- NOTE: SUPERIMPOSED DEAD LOADS ARE NON-STRUCTURAL DEAD LOADS DUE TO MECHANICAL, ELECTRICAL, TOPPINGS, AND MISCELLANEOUS LOADINGS.

1.5 SEISMIC DATA:

PGA

- Sa (0.5)
- Sa (1.0) Sa (2.0) 0.008

0.036

1.6 GEOTECHNICAL INFORMATION:

- .1 THE FOLLOWING INVESTIGATION REPORTS HAVE BEEN USED BY THE ENGINEER IN DESIGN AND PREPARATION OF GEOTECHNICAL EVALUATION FOR WATER TREATMENT PLANT, KUGLUKTUK, NT - (Y14101445.001) BY EBA ENGINEERING, DATED AUGUST 2012.
- .2 ALLOWABLE NET STATIC SOIL BEARING PRESSURE FOR FOOTINGS FOUNDED IN UNDISTURBED NATIVE MATERIAL (SFRVICE): STRIP FOOTINGS 130 KPA SPREAD FOOTINGS 130 KPA
- .3 SITE INVESTIGATION IS RECOMMENDED PRIOR TO CONSTRUCTION TO CONFIRM ALLOWABLE NET STATIC BEARING PRESSURE ASSUMED FOR DESIGN

1.7 ALL SHOP DRAWINGS:

SUBMIT ONE SET OF REPRODUCIBLE DRAWINGS WITH THREE SETS OF PRINTS. SHOP DRAWINGS NOT STAMPED, SIGNED, AND DATED AS REVIEWED BY THE CONTRACTOR WILL BE RETURNED WITHOUT BEING REVIEWED BY THE ENGINEER, AND SHALL BE CONSIDERED REJECTED. SHOP DRAWINGS FOR WORK DESIGNED BY FABRICATOR SHALL BEAR THE STAMP AND SIGNATURE OF A PROFESSIONAL ENGINEER REGISTERED IN THE NORTHWEST TERRITORIES & NUNAVUT..

2. EXCAVATING AND BACKFILLING

- SHOULD BE GRANITIC BEDROCK BLASTED FLAT, HOLLOWS FILLED WITH COMPACTED SHARP GRANULAR MATERIAL OF SAME ROCK TYPE.
- 2.2 UTILITY LINES: CONTACT ALL REQUIRED UTILITY COMPANIES PRIOR TO COMMENCING WORK, AND BECOME INFORMED OF EXACT LOCATION OF UTILITIES. PROTECT UTILITIES DURING CONSTRUCTION, AND ASSUME LIABILITY FOR DAMAGE TO UTILITIES.
- OBTAIN AND PAY FOR ANY NECESSARY PERMITS REQUIRED TO COMPLETE THE WORK.

2.4 INSPECTION AND TESTING:

- OWNER WILL PAY COSTS FOR PRE-APPROVED INSPECTION AND TESTING. EXCAVATED SURFACES: WHEN UNDISTURBED EXCAVATED SURFACE IS BEING PREPARED, MAKE A SERIES OF
- THREE TESTS OF SURFACE FOR EACH 500 SQ.M. AREA. .3 SIEVE ANALYSIS: PROPOSED FILL MATERIALS MAY BE TESTED TO CONFIRM SUITABILITY FOR INTENDED USE, AND
- CONFORMITY WITH SPECIFICATIONS. .4 FILLS UNDER SLABS ON GRADE: MAKE THREE TESTS FOR EVERY TWO LIFTS OF COMPACTED FILL FOR EACH
- .5 BACKFILLING AND COMPACTION DENSITIES NOT CONFORMING TO THE SPECIFICATIONS AND DRAWINGS. AS REPRESENTED BY TEST RESULTS. WILL BE REJECTED DURING THE PROGRESS OF THE WORK WHEN THE DEFECT IS DISCOVERED. REMOVE DEFECTIVE MATERIALS, REPLACE AND RE-TEST AT THE CONTRACTOR'S EXPENSE.

2.5 PROTECTION:

- .1 PROTECT BOTTOMS OF EXCAVATIONS FROM SOFTENING OR FREEZING. SHOULD SOFTENING OCCUR, REMOVE SOFTENED SOIL AND REPLACE WITH TYPE 1 FILL COMPACTED TO 98% MAXIMUM DRY DENSITY. (PER. ASTM D698-07e1 STANDARD TEST METHODS FOR LABORATORY COMPACTION CHARACTERISTICS OF SOIL USING STANDARD EFFORT (12400 ft lbf/ft (600 kN m/m))
- .2 PROTECT BOTTOMS OF EXCAVATIONS FROM PRECIPITATION, FREEZING TEMPERATURES, AND EXCESSIVE DRYNESS.
- .3 CONSTRUCT BANKS IN ACCORDANCE WITH LOCAL BYLAWS AND LOCAL SOIL CONDITIONS. PROTECT EXCAVATIONS BY SHORING, BRACING, OR BY OTHER METHODS, AS REQUIRED TO PREVENT CAVE-INS OR LOOSE DIRT FROM FALLING INTO THE EXCAVATION. ALL LOOSE MATERIAL, DISTURBED OR SLOUGHED MATERIAL IS TO BE CLEARED FROM THE EXCAVATION.
- .4 PROVIDE ADEQUATE PROTECTION AROUND BENCH MARKERS, LAY-OUT MARKERS, SURVEY MARKERS, AND GEODETIC DOCUMENTS.
- .5 PROVIDE PROTECTION TO ENSURE NO DAMAGE TO EXISTING FACILITIES AND EQUIPMENT SITUATED ON THE SITE.
- .6 MAINTAIN ADEQUATE BARRIERS AND CONSTRUCTION SIGNS TO PREVENT INJURY TO THE PUBLIC. .7 DO NOT STOCKPILE EXCAVATED MATERIAL TO INTERFERE WITH SITE OPERATIONS OR DRAINAGE.

2.6 MATERIALS:

- .1 ALL MATERIALS TO BE SUBJECT TO THE ENGINEER'S APPROVAL. GRADING OF GRANULAR MATERIALS TO SHOW NO MARKED FLUCTUATIONS BETWEEN OPPOSITE ENDS OF EXTREME LIMITS.
- .2 TYPE 1 FILL: CONTAINS CLEAN CRUSHED 20 MM GRAVEL COMPOSED OF SOUND, HARD PARTICLES FREE FROM FROZEN MATERIAL, FLAKY PARTICLES, SOFT SHALE, ORGANIC MATTER OR FOREIGN MATTER. TO ALSO BE FREE OF COAL, CLAY, ANY COATINGS OF CLAY, SILT OR OTHER DELETERIOUS MATERIALS. OF THE MATERIAL RETAINED, 60% MINIMUM SHOULD HAVE AT LEAST TWO FRESHLY CRUSHED FACES. TYPE 1 FILL TO MEET THE FOLLOWING REQUIREMENTS:

SIEVE SIZE (MM) PERCENT PASSING BY WEIGHT

12.5	60 - 95
5.0	40 - 65
1.25	20 - 40
0.315	10 - 25
0.08	2 - 8

TYPE 1 FILL SHOULD BE COMPACTED IN LIFTS NOT EXCEEDING 150 MM TO 100% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY. (PER. ASTM D698-07e1 STANDARD TEST METHODS FOR LABORATORY COMPACTION CHARACTERISTICS OF SOIL USING STANDARD EFFORT (12400 ft lbf/ft³ (600 kN m/m³))

.3 TYPE 2 FILL: CONTAINS PIT RUN GRAVEL COMPOSED OF SOUND, HARD PARTICLES FREE FROM FROZEN MATERIAL, FLAKY PARTICLES, SOFT SHALE, ORGANIC MATTER OR FOREIGN MATTER. TO ALSO BE FREE FROM ANY COATING AND ANY GRAVEL CONTAINING CLAY, LOAM OR OTHER DELETERIOUS MATERIALS. THERE SHOULD BE NO OVERSIZE MATERIALS. THE MATERIAL PASSING THE 0.08 MM SIEVE SHOULD NOT EXCEED 2/3 OF THE MATERIAL PASSING THE 0.4 MM SIEVE. TYPE 2 FILL TO MEET THE FOLLOWING REQUIREMENTS:

3 – 8

TYPE 2 FILL SHOULD BE COMPACTED IN LIFTS NOT EXCEEDING 150 MM TO 100% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY. (PER. ASTM D698-07e1 STANDARD TEST METHODS FOR LABORATORY COMPACTION CHARACTERISTICS OF SOIL USING STANDARD EFFORT (12400 ft lbf/ft³ (600 kN m/m³))

.4 TYPE 3 FILL: CONTAINS CLEAN, WASHED, COARSE SAND FREE FROM FROZEN MATERIAL, CLAY, SHALE, AND ORGANIC MATTER. IT IS TO MEET THE FOLLOWING REQUIREMENTS:

SIEVE SIZE (MM) PERCENT PASSING BY WEIGHT 80 - 100 50 - 85 30 - 65 10 - 30

.5 TYPE 4 FILL: EXCAVATED EARTH FREE FROM FROZEN MATERIAL, ROOTS, ROCKS LARGER THAN 75 MM IN SIZE, AND BUILDING DEBRIS AND ORGANIC MATERIAL. FILL UNDER LANDSCAPED AREAS TO BE FREE FROM ALKALI, SALT, PETROLEUM PRODUCTS, AND OTHER MATERIALS DETRIMENTAL TO PLANT GROWTH. USE SUBSOIL EXCAVATED FROM SITE ONLY IF APPROVED BY ENGINEER.

LANDSCAPE FILL SHOULD BE PLACED IN COMPACTED LIFTS NOT EXCEEDING 300 MM AND COMPACTED TO NO LESS THAN 90% OF THE MAXIMUM DENSITY.

.6 TYPE 5 FILL: IMPORTED EARTH FREE FROM FROZEN MATERIAL, ROOTS, ROCKS LARGER THAN 75 MM IN SIZE, IF APPROVED BY THE ENGINEER.

.7 TYPE 6 FILL: WASHED COARSE GRAVEL: CONTAINS ONLY WASHED CRUSHED STONE - SUITABLE FOR DRAINAGE LAYERS. CAN BE

SIEVE SIZE (MM)	PERCENT PASSING BY WEIGH
50 `	100
25	95-100
37.5	5

STOCKPILE FILL MATERIALS IN AREAS DESIGNATED BY THE ENGINEER. STOCKPILE GRANULAR MATERIALS IN A MANNER TO PREVENT SEGREGATION

2.7 EXCAVATING:

- STRIP ALL TOPSOIL OR ORGANIC MATERIAL FROM THE CONFINES OF THE BUILDING.
- STOCKPILE AND REMOVE ALL TOPSOIL WHICH IS UNSUITABLE FOR RE-GRADING. EXCAVATE TO ELEVATIONS AND DIMENSIONS INDICATED FOR INSTALLATION, CONSTRUCTION, AND INSPECTION OF WORK
- EXCAVATE TO WELL DEFINED LINES TO MINIMIZE QUANTITY OF FILL MATERIAL REQUIRED.
- REMOVE FROM THE SITE, AND DISPOSE OF SURPLUS OR UNSUITABLE MATERIAL NOT REQUIRED FOR BACKFILL OR EARTH BOTTOMS OF EXCAVATIONS TO BE DRY, UNDISTURBED SOIL, LEVEL, FREE FROM LOOSE OR ORGANIC MATTER.
- ALL LOOSE MATERIAL, DISTURBED OR SLOUGHED MATERIAL IS TO BE CLEARED FROM THE EXCAVATION. EXCAVATION MUST NOT INTERFERE WITH NORMAL 45' SPLAY OF BEARING FROM BOTTOM OF ANY FOOTING.
- WHEN COMPLETE, THE ENGINEER SHALL INSPECT EXCAVATIONS TO VERIFY SOIL BEARING CAPACITY, DEPTHS, AND
- .10 CORRECT UNAUTHORIZED EXCAVATION OR OVER-EXCAVATION AT NO EXTRA COST AS FOLLOWS:

FILL UNDER BUILDING FOOTPRINT WITH TYPE 6 FILL COMPACTED TO 100% DENSITY. FILL UNDER OTHER AREAS WITH TYPE 1 FILL COMPACTED TO 98%.

2.8 BACKFILLING AND COMPACTION:

- DO NOT COMMENCE BACKFILLING UNTIL AREAS OF WORK TO BE BACKFILLED HAVE BEEN INSPECTED BY THE ENGINEER. AREAS TO BE BACKFILLED SHALL BE FREE FROM DEBRIS, SNOW, ICE, WATER, OR FROZEN GROUND. COMPACTION DENSITIES ARE PERCENTAGES OF STANDARD PROCTOR MAXIMUM DRY DENSITY AT OPTIMUM MOISTURE CONTENT OBTAINABLE FROM ASTM D698-07. (PER. ASTM D698-07e1 STANDARD TEST METHODS FOR LABORATORY
- COMPACTION CHARACTERISTICS OF SOIL USING STANDARD EFFORT (12400 ft lbf/ft³ (600 kN m/m³)) .4 PLACE AND COMPACT FILL MATERIALS IN CONTINUOUS HORIZONTAL LAYERS NOT EXCEEDING 200 MM LOOSE DEPTH OR 150 MM COMPACTED DEPTH.
- IF, DURING PROGRESS OF WORK, TESTS INDICATE FILLS DO NOT MEET SPECIFIED REQUIREMENTS, REMOVE DEFECTIVE FILLS, REPLACE, AND RETEST AT NO EXTRA COST. WHERE TEMPORARY UNBALANCED EARTH PRESSURES ARE LIABLE TO DEVELOP ON WALLS OR OTHER STRUCTURES, USE EXTREME CAUTION DURING BACKFILL OPERATIONS.
- MAXIMUM UNBALANCED EARTH ELEVATIONS AGAINST FOUNDATIONS TO BE 300 MM UNLESS OTHERWISE APPROVED IN
- SHORE AS REQUIRED, SHORING TO BE THE RESPONSIBILITY OF THE CONTRACTOR. GRADE-SUPPORTED SLABS: PRIOR TO PLACING FILL, SCARIFY AND RECOMPACT TOP 200 MM OF EXISTING SUBGRADE TO 98% DENSITY. REMOVE "SOFT" MATERIAL, AND FILL WITH TYPE 1 FILL OR OTHER FILL MATERIALS (IF APPROVED), COMPACTED TO 100% DENSITY (PER. ASTM D698-07e1 STANDARD TEST METHODS FOR LABORATORY COMPACTION CHARACTERISTICS OF SOIL USING STANDARD EFFORT (12400 ft lbf/ft3 (600 kN m/m3)). USE TYPE 2 FILL OR TYPE 4 FILL (IF APPROVED) SUBBASE TO BASE COURSE LEVELS, COMPACT TO 100% DENSITY(PER. ASTM D698-07e1 STANDARD TEST METHODS FOR LABORATORY COMPACTION CHARACTERISTICS OF SOIL USING STANDARD EFFORT (12400 ft lbf/ft³ (600 kN m/m³)). 13 MM LAYER OF TYPE 3 FILL TO UNDERSIDE OF VAPOUR BARRIER.

2.10 DEWATERING:

- KEEP EXCAVATIONS DRY AT ALL STAGES OF CONSTRUCTION.
- CONTROL THE GRADING ADJACENT TO THE EXCAVATION TO PREVENT WATER RUNNING INTO EXCAVATED AREAS. IF TRENCHES ARE USED, ENSURE THAT TRENCH EXCAVATION DOES NOT INTERFERE WITH OR WEAKEN FOOTING BEARING
- PROVIDE SUITABLE EQUIPMENT, INCLUDING PUMPS, PIPING, TEMPORARY DRAINS, GRADING, TRENCHES, AND SUMPS TO KEEP EXCAVATIONS FREE FROM WATER UNTIL CONCRETE IS PLACED, CURED, AND STRUCTURAL ADEQUACY IS

CAST-IN-PLACE CONCRETE

3.1 FORMWORK MATERIALS

FORMWORK TO CSA A23.1-09; FORM OIL TO BE NON-STAINING AND NON-VOLATILE TYPE; VOID FORM TO BE BIODEGRADABLE CARDBOARD FORM CAPABLE OF SUPPORTING WET CONCRETE, POLYSTYRENE IS NOT ACCEPTABLE AS A

3.2 ERECTION OF CONCRETE FORMWORK:

DETERMINE THE REQUIREMENTS OF THE OTHER TRADES, INFORM ALL CONCERNED TRADES, AND ASSUME RESPONSIBILITY FOR LOCATION, INSTALLATION AND QUALITY OF ALL ITEMS WHICH AFFECT THE WORK OF THIS SECTION. CHECK LOCATIONS AND SIZES OF SLEEVES, OPENINGS, ETC., SHOWN ON STRUCTURAL DRAWINGS WITH ARCHITECTURAL, MECHANICAL, AND ELECTRICAL DRAWINGS. OBTAIN ENGINEER'S PERMISSION BEFORE FORMING OPENINGS, NOT INDICATED ON THE DRAWINGS, IN CONCRETE BEAMS OR COLUMNS.

3.3 CONCRETE: SUPPLY "CONTROLLED CONCRETE" AS DEFINED BY CSA A23.1-09 IN ACCORDANCE WITH THE FOLLOWING:

CONCRETE SLAB MIX DESIGN WILL BE PROVIDED BY ENGINEER ONCE TRIAL MIXES ARE COMPLETE. LOCAL COARSE AND FINE GRANULAR MATERIAL IS SPECIFIED IN THIS MIX.

3.4 CONCRETE ACCESSORIES:

- VAPOUR BARRIER: 0.15 MM THICK POLYETHYLENE SHEET TO CGSB 51.34-M86. LAP VAPOUR BARRIER A MINIMUM OF 300 MM. COMPRESSIBLE MATERIAL: PRE-FORMED FLEXIBLE JOINT FILLER CONSISTING OF ASPHALT, VEGETABLE FIBRE, AND MINERAL FILLERS SECURELY BONDED TOGETHER AND UNIFORMLY IMPREGNATED WITH A BITUMINOUS BINDER.
- LIQUID MEMBRANE CURING COMPOUND: CHLORINATED RUBBER TYPE COMPOUND TO CSA A23.1-09. .4 BITUMINOUS DAMP-PROOFING: WATERPROOF EMULSION COMPOSED OF ASPHALT DISPERSED IN A MINERAL COLLOID EMULSIFIER
- NON-SHRINK GROUT: TO BE "SIKAGROUT 212" AS MANUFACTURED BY THE SIKA CORPORATION.
- .6 BONDING AGENT: TO BE "SIKADUR 32 HI-MOD" EPOXY BONDING AGENT AS MANUFACTURED BY THE SIKA CORPORATION.

3.5 REINFORCING:

PROVIDE SHOP DRAWNGS INCLUDING PLACING DRAWNGS FOR ALL REINFORCEMENT. REINFORCING STEEL TO CSA G30.18—09; NEW BILLET STEEL, GRADE 400R DEFORMED BARS FOR 10M AND LARGER. WELDABLE REINFORCING STEEL TO CSA G30.18-09, NEW BILLET STEEL, GRADE 400R DEFORMED BARS. WELDED WIRE MESH TO ASTM A185/A185M-07 (PROVIDE IN FLAT SHEETS ONLY). DEFORMED WELDED WIRE MESH TO ASTM A497/A497M-07 (PROVIDE IN FLAT SHEETS ONLY). CHAIRS, BOLSTERS, BAR SUPPORTS, AND SPACERS TO BE ADEQUATE FOR STRENGTH AND SUPPORT OF REINFORCING, AND MUST NOT CAUSE STAINING OF EXPOSED CONCRETE. ALL SUPPORTS USED TO SUPPORT EPOXY COATED REINFORCING SHALL BE PLASTIC COATED. EPOXY COATINGS TO ASTM A775/A775M-07.

3.6 FABRICATION OF CONCRETE REINFORCEMENT:

HOOKS, BENDS, LAPS AND SIMILAR DETAILS TO ACI 318-08. USE SPLICES ONLY WHERE SHOWN ON THE DRAWNGS, OR AS APPROVED BY THE ENGINEER. FOR SPLICES NOT SHOWN ON THE DRAWINGS, USE CLASS "B" SPLICES FOR REINFORCEMENT BARS. ALL HORIZONTAL BARS IN WALLS SHALL BE CONSIDERED AS TOP REINFORCEMENT.

3.7 PLACING REINFORCING STEEL:

PLACE TO TOLERANCES IN ACCORDANCE WITH CSA A23.1-09. REINFORCING IS TO BE PLACED ON PURPOSE-MADE SUPPORTS. A REINFORCEMENT TECHNICIAN IS TO BE ON SITE DURING THE PLACEMENT OF CONCRETE FLOOR SLABS, AND IS TO RECHAIR AND/OR ADJUST SUPPORTS FOR REINFORCEMENT AS REQUIRED DURING THE PLACEMENT OF CONCRETE. WELDING OF REINFORCEMENT IS NOT PERMITTED, UNLESS OTHERWISE NOTED.

3.8 CLEAR COVER TO REINFORCEMENT:

PROVIDE MINIMUM CONCRETE COVER (DISTANCE FROM CONCRETE FACE TO NEAREST SURFACE OF BAR)

PLACEMENT CONDITION:	EXPOSED*	NOT EXPOSE
CAST AGAINST & PERMANENTLY EXPOSED TO EARTH	75mm	N/A
BEAMS, GIRDERS, COLUMNS AND PILES:		
PRINCIPAL REINFORCEMENT, No. 35 & SMALLER	50mm	40mm
TIES, STIRRUPS AND SPIRALS	40mm	30mm
SLABS, WALLS, JOINT SHELLS, AND FOLDED PLATES:		
No.20 AND SMALLER, 16mm WIRE	30mm	20mm
SLABS, ON GRADE (TOP SURFACE)	N/A	40
FOR BARS OF DIAMÈTER > THAN LISTED ABOVE:	60mm OR 1.5db	1.0db
MINIMUM RATIO OF COVER TO MAX. AGGREGATE SIZE	1.5	1.0

*EXPOSED EARTH, WEATHER, OR WATER NOTE: THE COVER FOR A BUNDLE OF BARS SHALL BE THE SAME AS THAT OF A SINGLE BAR WITH AN EQUIVALENT AREA

3.9 VAPOUR RETARDERS UNDER SLABS:

- VAPOUR PERMEANCE OF LESS THEN 0.2 PERMS (0.3 US PERMS) WHEN TESTED TO ASTM E 96. - 10MII (0.25mm) POLYETHYLENE SHEETS WILL MEET THIS REQUIREMENT - SUB-GRADE SHOULD BE ADEQUATELY COMPACTED. USE A CLEAN FINE-GRADED (PREFERABLY CRUSHED) GRANULAR MATERIAL WITH APPROXIMATELY 10 TO 30 PERCENT PASSING THE No. 100 (150mm) SIEVE AND FREE OF CLAY OR ORGANIC MATERIAL, IDEALLY INSTALL A 150mm TO 200mm LAYER OF COARSE GRAVEL AS A CAPILLARY BREAK, TOPPED
- WITH 50mm FINE-GRAINED COMPACTABLE FILL TO PREVENT DAMAGE TO THE VAPOUR RETARDER. - OVERLAP SHEETS OF VAPOUR RETARDER BY A MINIMUM OF 150mm & TAPE ALL SUCH JOINTS. - TAPE AND SEAL VAPOUR RETARDER SHEETS AROUND OPENINGS, DUCTS AND PIPES.
- 3.10 PLACING CONCRETE:

CONCRETE MUST BE PLACED WITHIN 60 MINUTES OF BEING MIXED AT THE PLANT. CLEAN PREVIOUSLY PLACED CONCRETE TO ENSURE BOND. MIX AND BRUSH ON BONDING AGENT, WHERE SPECIFIED, IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. PLACE CONCRETE AS A CONTINUOUS OPERATION. STOPPING ONLY AT CONSTRUCTION JOINTS INDICATED ON THE DRAWINGS, OR AS FOLLOWS: AT CENTRE OF SPAN OF SUSPENDED SLABS AND BEAMS; IN WALLS AND COLUMNS IMMEDIATELY ABOVE OR BELOW FLOOR CONSTRUCTION; AT CENTRE OF STEEL BEAM THAT SUPPORTS CONCRETE SLAB. USE WINTER CONCRETING METHODS IN ACCORDANCE WITH CSA A23.1-09 WHEN THE MEAN DAILY TEMPERATURE FALLS BELOW 50 USE HOT WEATHER CONCRETE METHODS IN ACCORDANCE WITH CSA A23.1-09 WHEN THE AIR TEMPERATURE IS AT OR ABOVE 25°C DURING THE PLACING OF THE CONCRETE. IF PLACING CONCRETE DURING COLD WEATHER FOLLOW APPROVED COLD

WEATHER CONCRETE PROCEDURES, WHICH WILL BE SUPPLIED TO CONTRACTOR BY ENGINEER AS REQUIRED. 3.11 FINISHING FORMED SURFACES AND FLATWORK:

- USE OF CALCIUM CHLORIDE IS NOT PERMITTED.
- ROUGH FINISH CONCRETE SURFACES NOT EXPOSED TO VIEW: CUT OFF FORM TIES A MINIMUM OF 10 MM BELOW CONCRETE SURFACE. PATCH TIE HOLES AND DEFECTS. GROUT CLEANED FINISH, EXTERIOR SURFACES, AND VERTICAL INTERIOR SURFACES EXPOSED TO VIEW: PLACE CONCRETE AGAINST PLYWOOD, STEEL, OR TEMPERED HARDBOARD. PATCH TIE HOLES AND DEFECTS. REMOVE FINS.
- RUB DOWN WITH CEMENT SAND SLURRY .4 UNLESS OTHERWISE NOTED, STEEL TROWEL CONCRETE SLABS TO A SMOOTH AND EVEN SURFACE. FOLLOW WITH A SECOND STEEL TROWELLING TO PRODUCE A SMOOTH BURNISHED SURFACE TO WITHIN 6 MM TOLERANCE WHEN MEASURED IN ANY DIRECTION USING A 3000 MM STRAIGHT EDGE. PROVIDE SAWN CONTROL JOINTS AT 4500 MM ON CENTRE (MAXIMUM). SAW CUT DEPTH SHALL BE 1/4 OF SLAB THICKNESS. SAWING SHALL BE DONE AS SOON AS THE CONCRETE HAS SUFFICIENTLY HARDENED TO PREVENT RAVELLING OF THE EDGES, BUT IN NO CASE LATER THAN
- 24 HOURS AFTER THE CONCRETE SLAB HAS BEEN PLACED. LIGHT BROOM FINISH ALL EXTERIOR CONCRETE SLABS. APPLY HARDENERS AND SEALERS TO LOCATIONS WHERE

- 3.12 TWO BASIC CURING METHODS: PREVENTING LOSS OF MOISTURE, OR
 - KEEPING EXPOSED SURFACES CONTINUOUSLY WET: PONDING OR CONTINUOUS SPRINKLING;
 - ABSORPTIVE MAT OR FABRIC KEPT CONTINUOUSLY WET: CURING COMPOUNDS SHALL BE MANUFACTURED TO COMPLY WITH ASTM C-309 TYPE 1 - STANDARD SPECIFICATION FOR LIQUID MEMBRANE-FORMING COMPOUNDS FOR CURING CONCRETE AASHTO M-148, TYPE 1 AND CGSB 90-GP-1A TYPE 1 (NO LONGER IN PRINT). [CURING COMPOUNDS SHALL NOT BE USED ON CONCRETE SURFACES TO RECEIVE TOPPING OR OTHER TYPE OF BONDED FINISH UNLESS APPROVED BY THE ENGINEER.]

POLYETHYLENE SHEET IS NOT AN ACCEPTABLE CURING METHOD FOR SLABS WHICH ARE TO BE EXPOSED. CURING TEMPERATURE RANGE: BETWEEN +10 AND +20 C.

TYPE GU (10): HYDRATED MIN. 7 DAYS TYPE MS OR MH (20): HYDRATED MIN. 14 DAYS TYPE HE (30): HYDRATED MIN. 3 DAYS UNTIL ATTAINING 70% OF SPECIFIED 28-DAY COMPRESSIVE STRENGTH

3.13 TESTING CONCRETE:

CONCRETE MUST BE TESTED BY AN APPROVED TESTING LABORATORY AT THE EXPENSE OF THE CONTRACTOR. NOTIFY THE ENGINEER 24 HOURS IN ADVANCE OF A POUR FOR REVIEW BEFORE PLACING CONCRETE. TESTING FIRM WILL TAKE THREE TEST CYLINDERS FROM EACH 50 CU.M OF CONCRETE, OR FRACTION THEREOF, OF EACH TYPE OF CONCRETE PLACED IN ANY ONE DAY. TESTING FIRM WILL MAKE AT LEAST ONE SLUMP TEST AND ONE ENTRAINED AIR TEST FOR EACH SET OF TEST CYLINDERS TAKEN. TESTING FIRM WILL TAKE ONE ADDITIONAL TEST CYLINDER WHEN THE TEMPERATURE IS LIKELY TO FALL BELOW O'C WITHIN 48 HOURS AFTER PLACING, AND NO PROVISIONS HAVE BEEN MADE TO HEAT THE CONCRETE TO GREATER THAN 10°C. TEST CYLINDER TO BE CURED ON JOBSITE UNDER SAME CONDITIONS AS CONCRETE IT REPRESENTS, AND TESTED IN 7 DAYS. RESULTS OF FIELD TESTS WILL BE REPORTED IMMEDIATELY TO THE CONTRACTOR BY THE FIELD REPRESENTATIVE OF THE TESTING FIRM. THESE RESULTS DO NOT IMPLY APPROVAL OR DISAPPROVAL OF THE WORK, BUT ARE FOR THE CONTRACTOR'S INFORMATION. A QUALIFIED PROFESSIONAL ENGINEER SHALL CERTIFY ALL TEST RESULTS OBTAINED AS PER THESE SPECIFICATIONS, AND THE CERTIFIED RESULTS SHALL BE SUBMITTED TO THE DIRECTOR NO LATER THAN 90 DAYS AFTER TESTING. CONCRETE THAT DOES NOT MEET THE SPECIFIED REQUIREMENTS SHALL BE REJECTED. PROVIDE AT LEAST ONE ASTM CUBE TEST ON GROUT USED UNDER BASE PLATES OR MACHINERY.

4.0 TIMBER - ROUGH CARPENTRY

4.1 MATERIALS:

- .1 SAWN LUMBER: TO NLGA STANDARD GRADING RULES FOR CANADIAN LUMBER FLOOR JOISTS & STUDS: MIN. S-P-F #1/#2 OR AS SPECIFIED
- BEAM & STRINGER, HEAVY TIMBER: MIN. S-P-F # 1 OR AS SPECIFIED PLYWOOD: IF D. FIR IS SPECIFIED: TO CSA 0121-08. IF CANADIAN SOFTWOOD PLY IS SPECIFIED: TO CSA 0151-04
- ORIENTED STRAND BOARD: TO CSA 0437 SERIES-93 (R2006), GRADE 0-2 (NOTE: USED FOR FORM WORK ONLY) PLYWOOD WEB AND PARALLEL LAMINATED VENEER LUMBER FLANGES: AS MANUFACTURED BY TRUSJOIST CANADA
- LTD... OR APPROVED ALTERNATE .5 PARALLEL LAMINATED VENEER LUMBER BEAMS: LUMBER AS MANUFACTURED BY TRUSJOIST CANADA LTD., OR APPROVED ALTERNATE
- ROUGH SAWN LUMBER: SPRUCE, PINE, FIR (S-P-F) OR AS SPECIFIED
- GLUED END-JOINTED OR FINGER-JOINTED LUMBER: NOT ACCEPTABLE .8 WIRE NAILS, SPIKES AND STAPLES: TO CSA B111-1974 (R-2003)

5.0 STRUCTURAL STEEL

- .1 STRUCTURAL STEEL: TO CSA G40.20-04/G40.21-04 (R2009) GRADE 350W
 - STRUCTURAL SHAPES: GRADE 350 W HOLLOW STRUCTURAL SECTIONS: GRADE 350W; CLASS "C" MISCELLANEOUS PLATES, BARS AND RODS: GRADE 300W
- ANCHOR BOLTS: TO CSA G40.20-04/G40.21-04 (R2009), GRADE 300 BOLTS AND NUTS: TO ASTM A325-10 OR A325M-10, PROVIDE A MINIMUM OF 2-M20 BOLTS UNLESS OTHERWISE
- .4 WELDING MATERIALS: STEEL TO CSA W59-03 (R2008) .5 PRIMER: STEEL SHALL BE PAINTED WITH SHOP PRIMER MEETING THE REQUIREMENTS OF CFSB 1-GP-40D:

"SPECIFICATION FOR PRIMER: STRUCTURAL STEEL, OIL ALKYD TYPE"

CONTRACTOR SHALL BE RESPONSIBLE FOR DESIGN OF CONNECTIONS TO RESIST THE FORCES SHOWN ON THE DRAWINGS. WHERE FORCES ARE NOT SHOWN, CONNECTIONS ARE TO BE DESIGNED FOR NOT LESS THAN 50% OF THE SHEAR RESISTANCE OF THE MEMBER. MINIMUM CONNECTION TO BE 2-M16-A325M BOLTS. DESIGN BRACING, BRIDGING AND CONNECTORS TO SAFELY SUPPORT LOADS AS INDICATED, EQUIPMENT LOADS, WET SERVICE CONDITIONS, SNOW AND SNOW ACCUMULATION AND LOADS DURING ERECTION. PROVIDE 10 MM THICK BEARING STIFFENERS EACH SIDE OF BEAM WEB OR TO ONE SIDE OF CHANNEL WEB (CENTERED OVER SUPPORT) WHERE BEAM OR CHANNEL PASSES OVER SUPPORT.

5.3 SHOP DRAWINGS: SUBMIT SHOP DRAWINGS FOR STRUCTURAL STEEL, AND METAL DECKING. SHOP DRAWINGS FOR WORK DESIGNED BY FABRICATOR SHALL BEAR THE STAMP AND SIGNATURE OF A PROFESSIONAL ENGINEER REGISTERED IN THE NORTHWEST

BOTTOM

C.I.A.

- CAST IN PLACE

U.N.O.	- UNLESS NOTED OTHERWISE	CONT.	- CONTINUOUS
T.O.	- TOP OFF	DWG.	- DRAWING
C/W	- COMES WITH	ELEV.	ELEVATION
0/C	- ON CENTER	E.S.	- EACH SIDE
E/S	- EACH SIDE	E.WAY	- EACH WAY
E/W		GALV.	– GALVANIZED
•	- EACH WAY	H.1.E.	- HOOK ONE END
E/F	- EACH FACE	H.2.E.	- HOOK TWO ENDS
THK.	- THICK	MAX.	- MAXIMUM
PL	– PLATE	MIN.	- MINIMUM
R/W	 REINFORCED WITH 	N.S.	- NEAR SIDE
DP	- DEEP	N.T.S.	- NOT TO SCLE
BUL	- BOTTOM UPPER LAYER	OPP.	- OPPOSITE
BLL	- BOTTOM LOWER LAYER	OWSJ	-OPEN WEB STEEL JOIST
TUL	 TOP UPPER LAYER 	TYP.	- TYPICAL
TLL	- TOP LOWER LAYER	T&B	- TOP AND BOTTOM
/W	- WITH	CL	- CENTRE LINE
GL	- GRID LINE		
DOT	DOTTOM	LLH	 LONG LEG HORIZONTAL (STEEL ANGLE)

LONG LEG VERTICAL (STEEL ANGLE)

ABBREVIATIONS:

ISSUED FOR TENDER

D FOR 100% REVIEW ISSUED FOR REVISED 100% REVIEW ISSUED FOR CONSTRUCTION 2014.06.30

REVISIONS

REFERENCE DRAWINGS FOR BEST PLOTTING RESULTS, BE SURE TO USE WILLIAMS ENGINEERING CANADA AUTOCAD PLOT CONFIGURATION FILES AVAILABLE FROM: www.williamsengineering.com

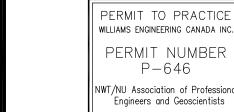
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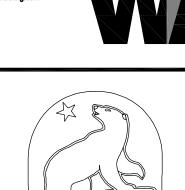


MAIN BUILDING ("PORTAL FRAME" BUILDII TO BE DESIGNED AND STAMPED BY OTHER IN ACCORDANCE WITH ENGINEERING ENVIRONMENTAL LOADS INDICATED ON / WILLIAMS ENGINEERING STRUCTURAL DRAWINGS. SHOP DRAWINGS TO BE PROV

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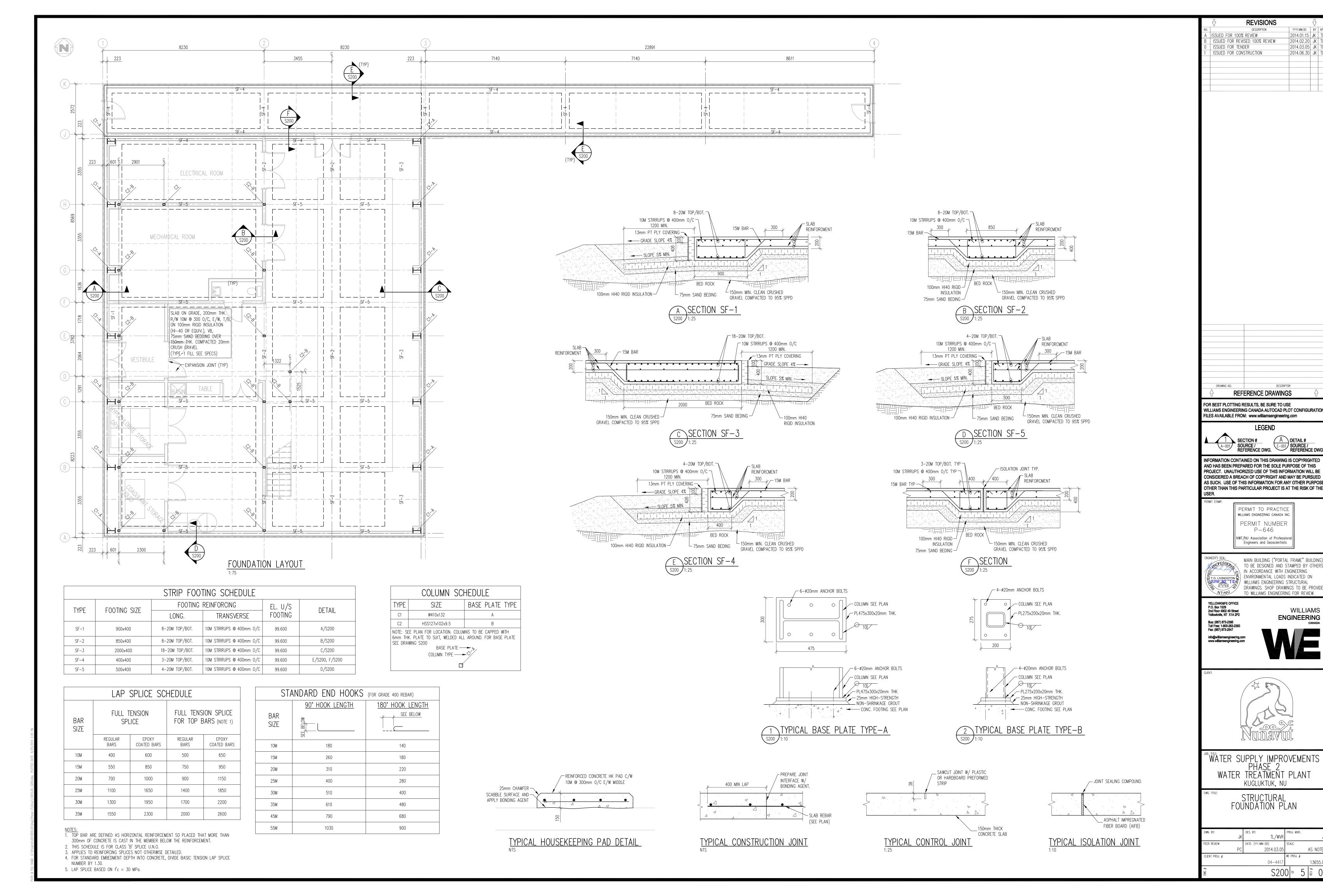
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WATER SUPPLY IMPROVEMENTS PHASE WATER TREATMENT PLANT

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.TE: (YY-MM-DD) 2014.03.05 E PROJ. #



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PERMIT TO PRACTICE WILLIAMS ENGINEERING CANADA INC. PERMIT NUMBER P-646

NWT/NU Association of Professional Engineers and Geoscientists

WATER TREATMENT PLANT

STRUCTURAL

FOUNDATION PLAN

DATE: (YY-MM-DD)

2014.03.05

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MAIN BUILDING ("PORTAL FRAME" BUILDIN

TO BE DESIGNED AND STAMPED BY OTHER IN ACCORDANCE WITH ENGINEERING

ENVIRONMENTAL LOADS INDICATED ON

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2014.02.20

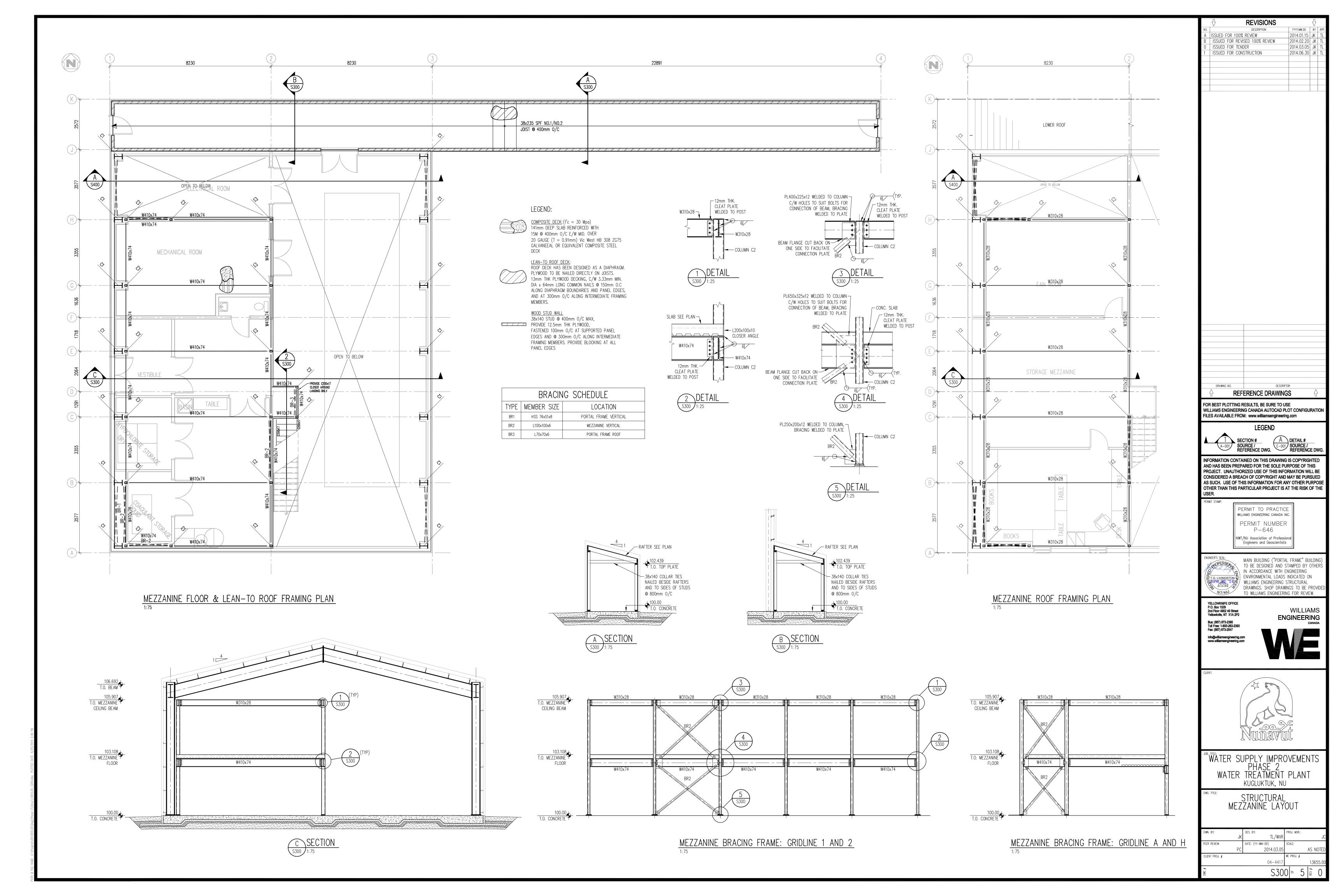
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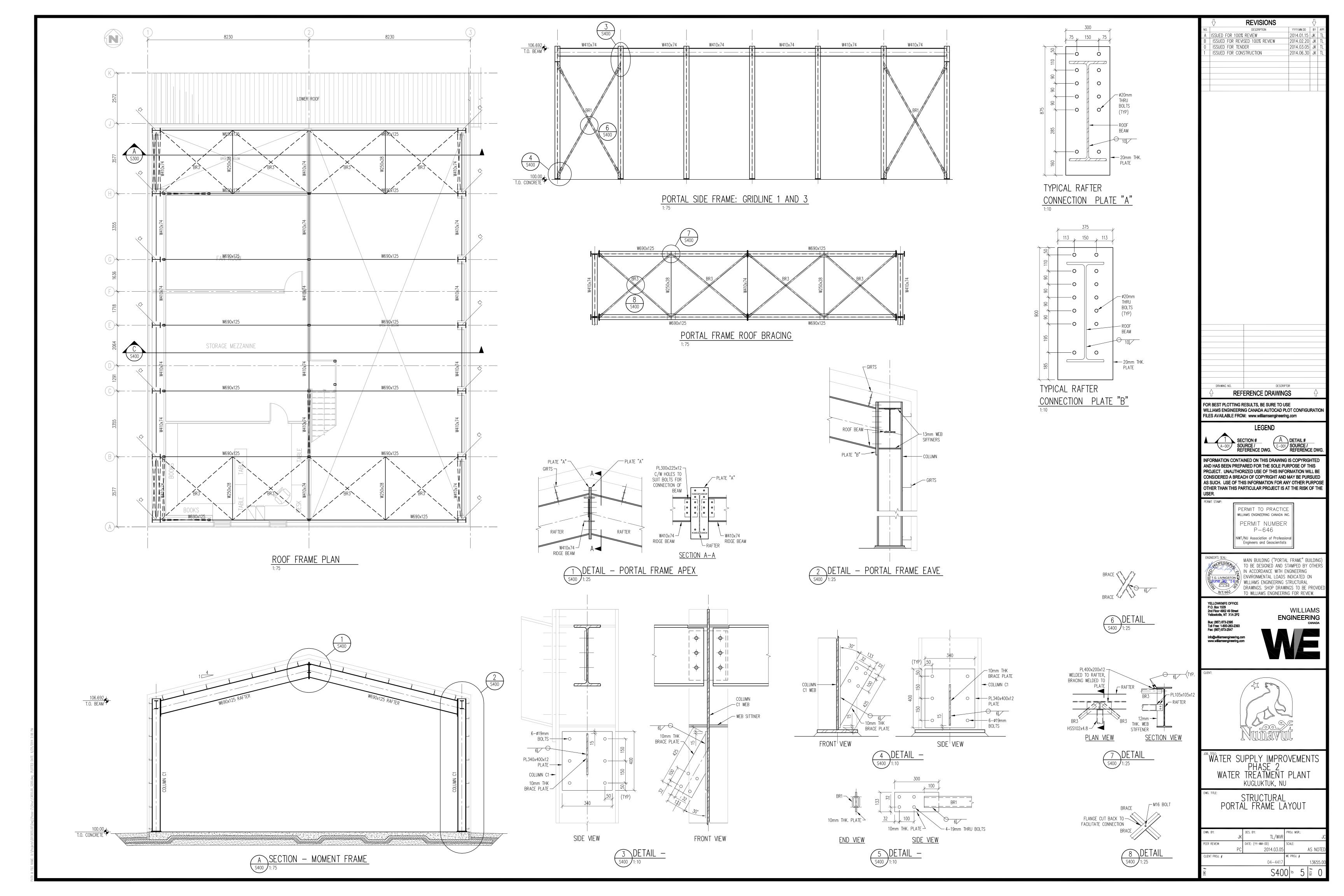
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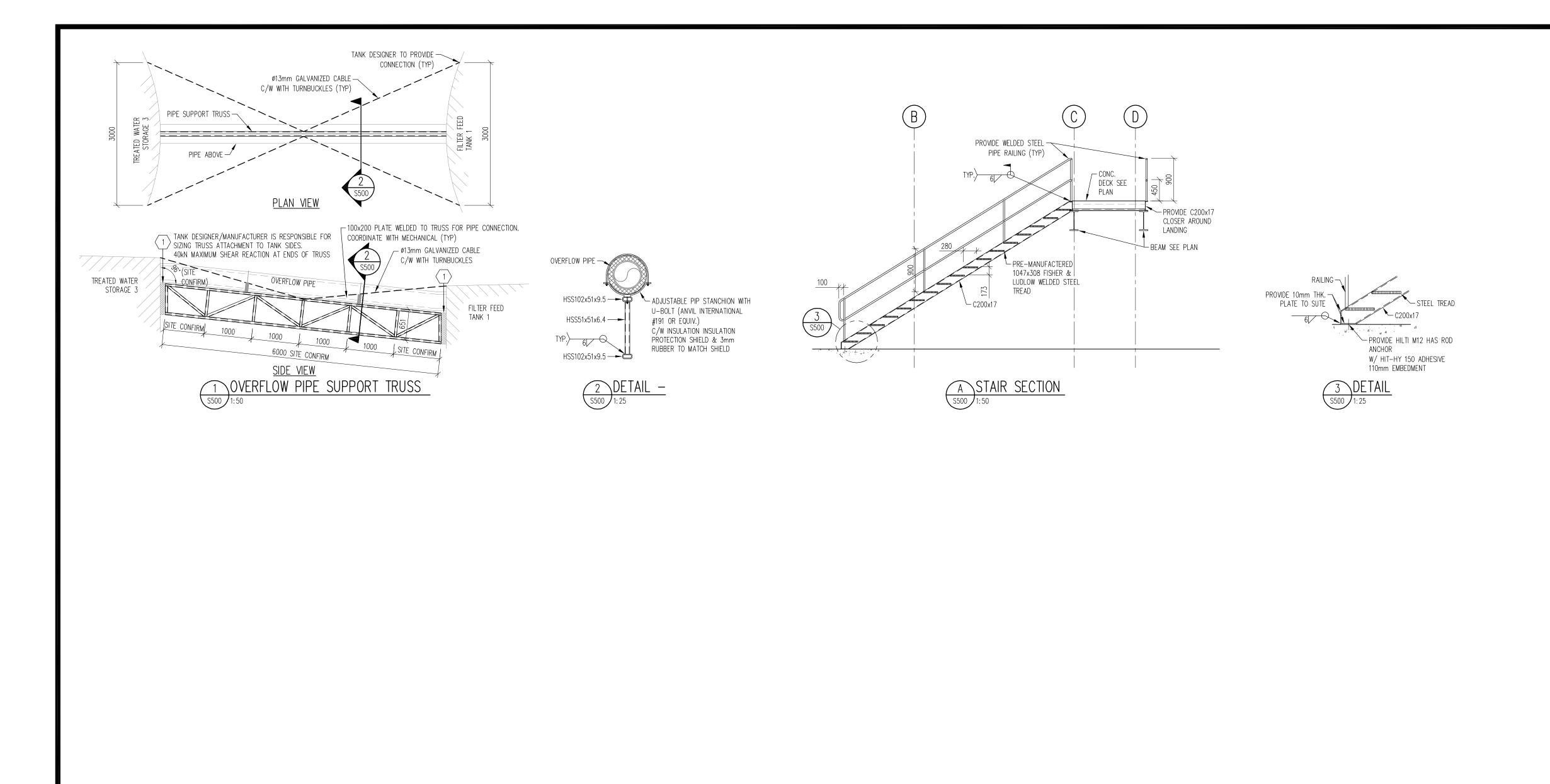
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REVISIONS

NO. DESCRIPTION YYYY.MM.DD BY APP.

A ISSUED FOR 100% REVIEW 2014.01.15 JK TL

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DRAWING NO.

DESCRIPTOR

REFERENCE DRAWINGS

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TO BE DESIGNED AND STAMPED BY OTHERS
N ACCORDANCE WITH ENGINEERING
ENVIRONMENTAL LOADS INDICATED ON
WILLIAMS ENGINEERING STRUCTURAL
DRAWNGS. SHOP DRAWINGS TO BE PROVIDED
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WILLIAMS ENGINEERING CANADA



WATER SUPPLY IMPROVEMENTS
PHASE 2
WATER TREATMENT PLANT
KUGLUKTUK, NU

STRUCTURAL MISCELLANIES SECTIONS & DETAILS

DWN. BY:		DES. BY:	PROJ. MGR.:			
	JK	TL/WVR				JC
PEER REVIEW:		DATE: (YY-MM-DD)	SCALE:			
	PC	2014.03.05			AS N	NOTED
CLIENT PROJ. #			WE PROJ. #			
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