

Project: **New Fire Station No. 1**
RFT# T-FD-22-01
Highlands Boulevard, Millbrook, ON

Date: June 01, 2022
Owner: Township of Cavan Monaghan
Greenview File: 164.21.005

This Addendum forms part of the Tender Documents and shall supersede all prior issued tender documentation and/or Addenda as noted, and specifically applicable.

This Addendum consists of 1 page(s), and the following attachments:

- *Pre-Bid Site Meeting Attendance Record.*
- *IFT Mechanical Drawings (24x36").*
- *IFT Electrical Drawings (24x36").*

1. General Clarification(s):

- .1 Pre-Bid Site Meeting.
 - .1 Attached is a scanned copy of the attendees of the mandatory, pre-bid site meeting attendance record held on May 31, 2022.

2. Drawings:

- .1 Mechanical & Electrical Drawings.
 - .1 Attached are tender-issued mechanical and electrical drawings sized to Arch D (24"x36") in PDF format. No technical revisions to these drawings have been made.

End of Addendum 02

Pre-Bid Site Meeting Attendance Record

Project Name: New Fire Station No. 1

RFT #: T-FD-22-01

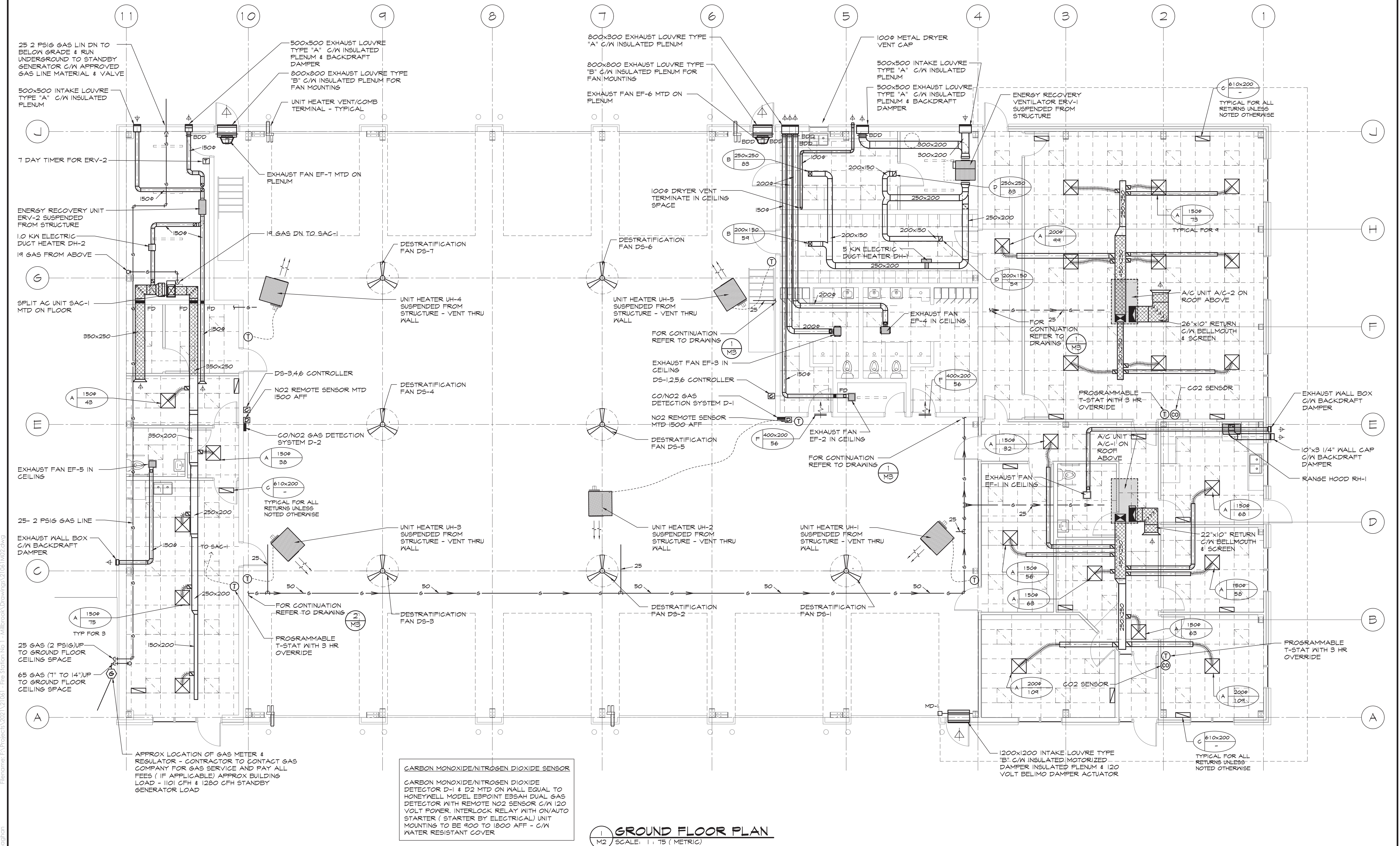
Location: Project Site (Via 988 County Road 10, Millbrook, Ontario)

Date: May 31, 2022 @ 10:00am

Company Name	Print Name / Signature	Contact Information
Mortlock Const	Gary Henderson <i>[Signature]</i>	Tel: 705 745 0579 Email: gary@mortlockconstruction.com
Gay Company	Cassandra Kelly <i>[Signature]</i>	Tel: 905-623-3234 Email: C.Kelly@gaycompanylimited.com
Century Group	Nimer Sabboubeh <i>[Signature]</i>	Tel: 416-518-5727 Email: Estimating@cgjgc.com
PRE-ENG CONTRACTING	RUTU Satyapant <i>[Signature]</i>	Tel: 905-738-6866 Email: info@pre-eng.com
Silver Birch Contracting	Connor McIlwain <i>[Signature]</i>	Tel: 905-952-3856 Email: Connor.m@birchcon.ca

Company Name	Print Name / Signature	Contact Information
QUAD PRO CONSTN	ASHWIN PAREKH 647 @b	Tel: 647 705 3311 Email: ASHWINE@QUAD-PRO.CA
TRI-LINE ELECTRIC	TIM GRAY	Tel: 705 245-6600 Email: tim.gray@tri-lineelectric.ca
J.S. McWine	Paul Desousa	Tel: 905-436-2554 Email: paul.desousa@jismcgrwrt.com
KOLER CONSTRUCTION INC	MITESH PATEL (M)	Tel: (416) 479-4123 Email: PATEL@KOLER.BUILDERS
GARRITANO BROS. LTD	SIMON GARRITANO <i>[Signature]</i>	Tel: (905) 576-8642 Email: sales@garritano-bros.com
QUINAN CONSTRUCTION LTD.	Alex Lorce <i>[Signature]</i>	Tel: 705 325-7704 Email: alex@quinan.ca
Northway Construction	Tom Tammes <i>[Signature]</i>	Tel: 416 831 8012 Email: tom@northway.ca
		Tel: Email: <i>[Signature]</i> 12 attendees

AT GENERATOR PROVIDE 2 PSIG TO 1 TO 14" REGULATOR AND 3B (7-14" WC) GAS LINE FROM REGULATOR TO GENERATOR - FOLLOW GENERATOR RECOMMENDATIONS



GROUND FLOOR PLAN
SCALE: 1:75 (METRIC)

File Name: M2\Projects\2021\21061 - Fire Station\11 - Millbrook\Drawings\21061.M2.dwg
 Plot Date: May 02, 2022, 3:42pm By: SStranaghan

NO.	DESCRIPTION	DATE	BY
0	ISSUED FOR TENDER	MAY 2/22	SM/S

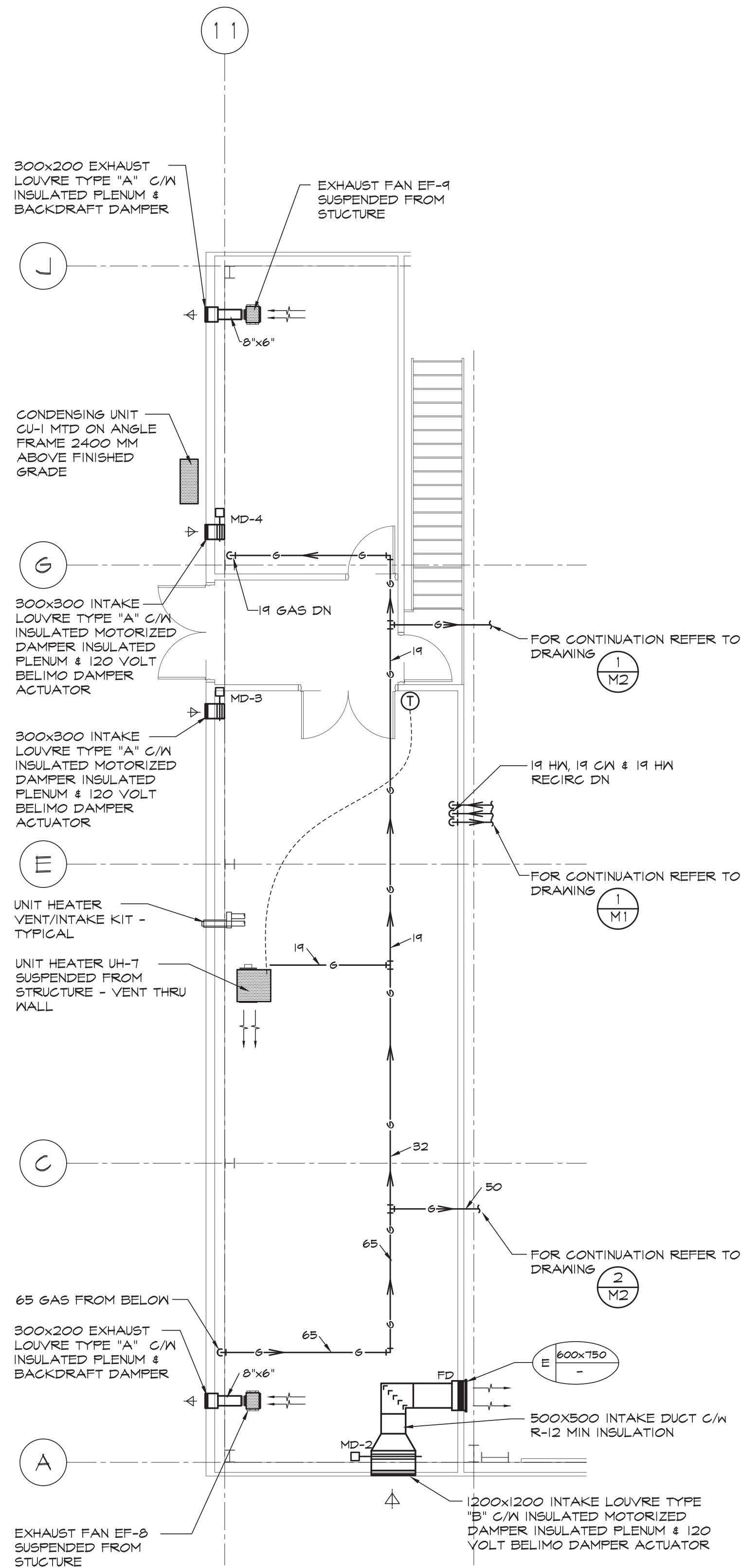
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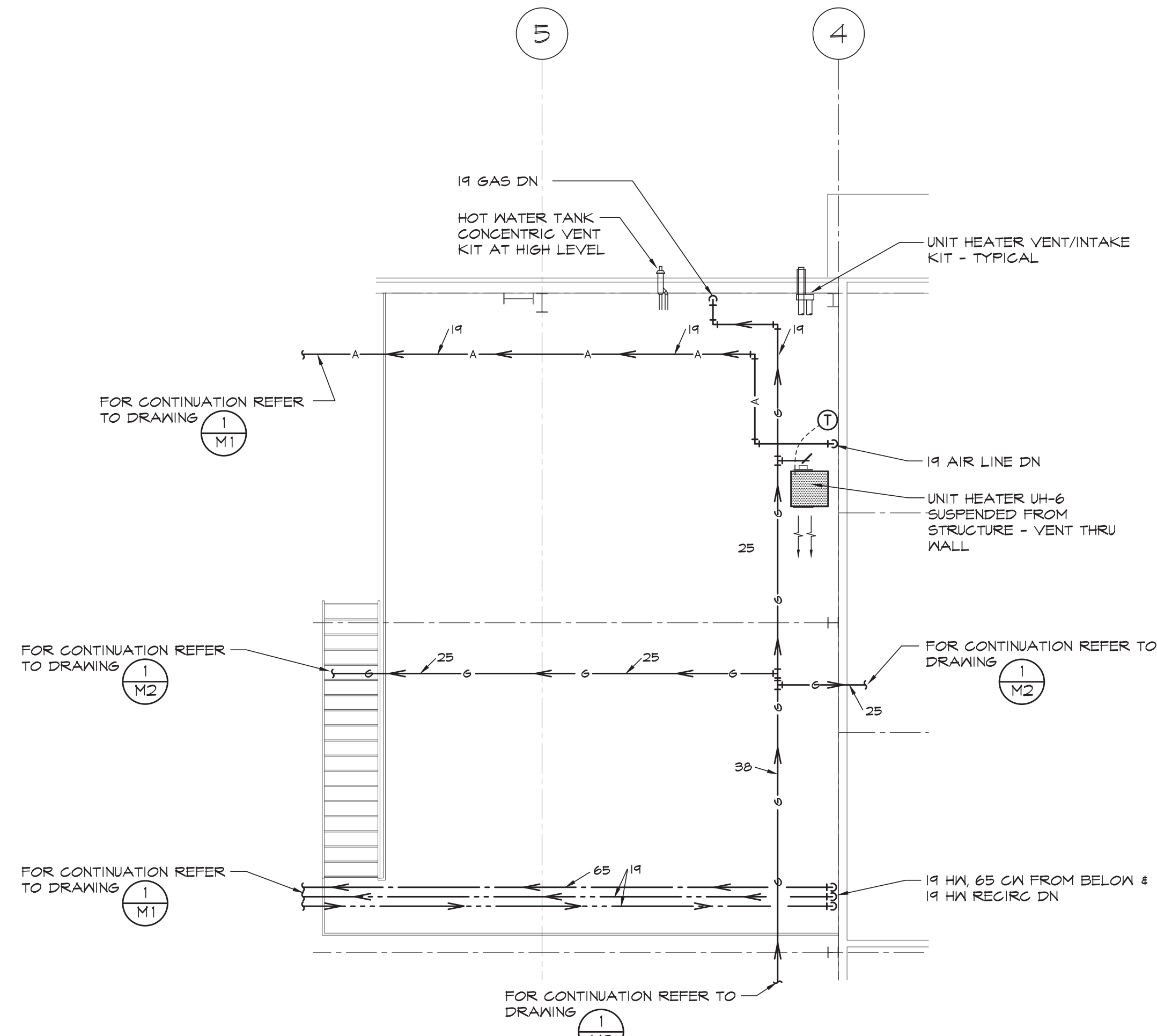
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PROJECT	NEW FIRE STATION No 1		
	988 COUNTY ROAD 10 MILLBROOK ONTARIO		
TITLE	GROUND FLOOR PLAN - HVAC		
SCALE	AS NOTED	DWG NO.	
DRAWN	S. STRANAGHAN		
DESIGNED	S. STRANAGHAN		
CHECKED	REB		
PROJECT	21061	REV.	NOV 2021 CADD FILE NO. 21061M01

M2



2 SECOND FLOOR PLAN
SCALE: 1 : 75 (METRIC)



1 MEZZANINE FLOOR PLAN
SCALE: 1 : 75 (METRIC)

COMPRESSED AIR DESIGN NOTES:

- DESIGN CODE: ANSI/ASME B31.1
- WORKING PRESSURE: 90 PSI
- DESIGN PRESSURE: 150 PSI
- DESIGN TEMPERATURE: 120°F
- TOTAL LENGTH OF PIPE: SEE DRAWING
- TEST PRESSURE: PNEUMATIC, 150 PSI
- TEST MEDIUM: COMPRESSED AIR AND SOAP
- USE ONLY REGISTERED FITTINGS AND VALVES
- SAFETY RELIEF VALVE: LOCATED AT AIR COMPRESSOR
- MEDIUM: COMPRESSED AIR

COMPRESSED AIR SPECIFICATIONS:

1. WORKING PRESSURE	90 PSIG	620 KPA
2. DESIGN PRESSURE	150 PSIG	1034 KPA
3. DESIGN TEMPERATURE	120°F	49°C
4. MAXIMUM PIPE S	NPS 2	50MM

3.3 HANGERS

1 SPACING AND MIDDLE ATTACHMENT (ROD) DIAMETER WITHIN BOOMM OF EACH HORIZONTAL ELBOW AND AS SPECIFIED IN TABLE BELOW:

PIPE SIZE: NPS	ROD DIAMETER	MAXIMUM SPACING STEEL
2	10MM	3.0M
2 1/2	10MM	3.6M
3	10MM	3.6M
4	16MM	4.2M

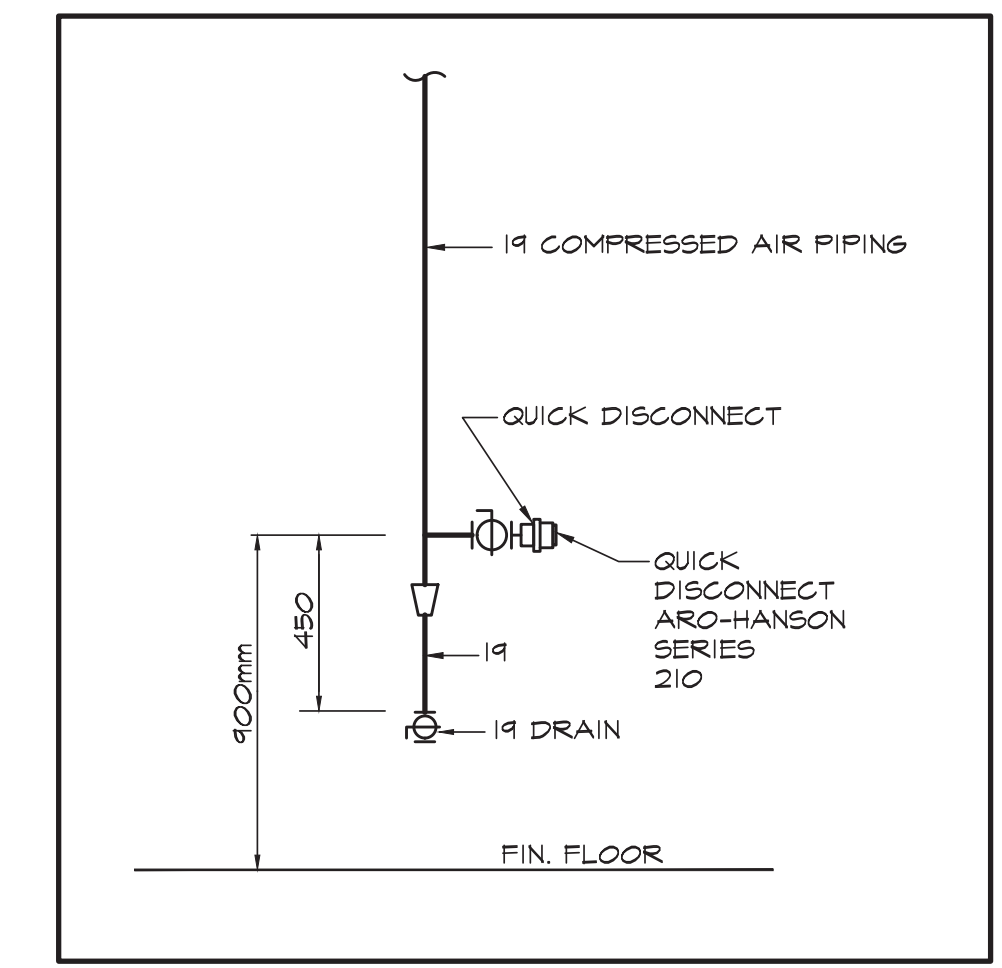
2 OFFSET HANGER SO THAT ROD IS VERTICAL IN OPERATING POSITION.
3 ADJUST HANGERS TO EQUALIZE LOAD.

3.4 TESTING

1 HAVE ENGINEER WITNESS TEST. NOTIFY ENGINEER MINIMUM OF ONE WORKING DAY PRIOR TO TEST.

3.5 MARKING

1 IDENTIFY AND MARK PIPING.



3 COMPRESSED AIR PIPING DROP
SCALE: NTS

DIFFUSER & GRILLE SCHEDULE				
TYPE	MANUFACTURER	FUNCTION	MODEL	REMARKS
A	E.H. PRICE	SUPPLY	24"x24"/SCD/B1/3C/B1/2	24"x24" 3 CONE STEEL DIFFUSER, FOR T-BAR LAY IN WHITE FINISH
B	E.H. PRICE	SUPPLY	520D/F/L/A/B1/2	DOUBLE DEFLECTION, STEEL, DAMPER, 32mm (1-1/4") FLAT BORDER, SCREW FASTENING WHITE FINISH
C	E.H. PRICE	RETURN	CORE STYLE 80	1/2"x1/2"x1/2" ALUMINUM GRID CORE FOR T-BAR LAY IN, WHITE FINISH
D	E.H. PRICE	EXHAUST	535D/F/L/A/B1/2	SINGLE DEFLECTION, 1/2" BLADE SPACING, 32 (1-1/4") FLAT BORDER, OPPOSED BLADE DAMPER, SCREW FASTENING, WHITE FINISH
E	E.H. PRICE	TRANSFER	535/F/L/A/B1/2	SINGLE DEFLECTION, 1/2" BLADE SPACING, 32 (1-1/4") FLAT BORDER, SCREW FASTENING, WHITE FINISH
F	E.H. PRICE	TRANSFER	5TG1/BF/B1/5	HEAVY DUTY STEEL DOOR GRILLE, 1 1/8" FLAT BORDER BOTH SIDES, SCREW FASTENING, ALUMINUM POWDER COAT FINISH

ALTERNATES : METALLAIRE, NAILOR

ISSUED FOR TENDER	MAY 2/22	SM/S
NO. DESCRIPTION	DATE	BY

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PROJECT: **NEW FIRE STATION No 1**
988 COUNTY ROAD 10
MILLBROOK ONTARIO

TITLE: **SECOND & MEZZANINE FLOOR PLANS - MECHANICAL**

SCALE	AS NOTED	DWG. NO.
DRAWN	S. STRANAGHAN	M3
DESIGNED	S. STRANAGHAN	
CHECKED	REB	
PROJECT	21061	

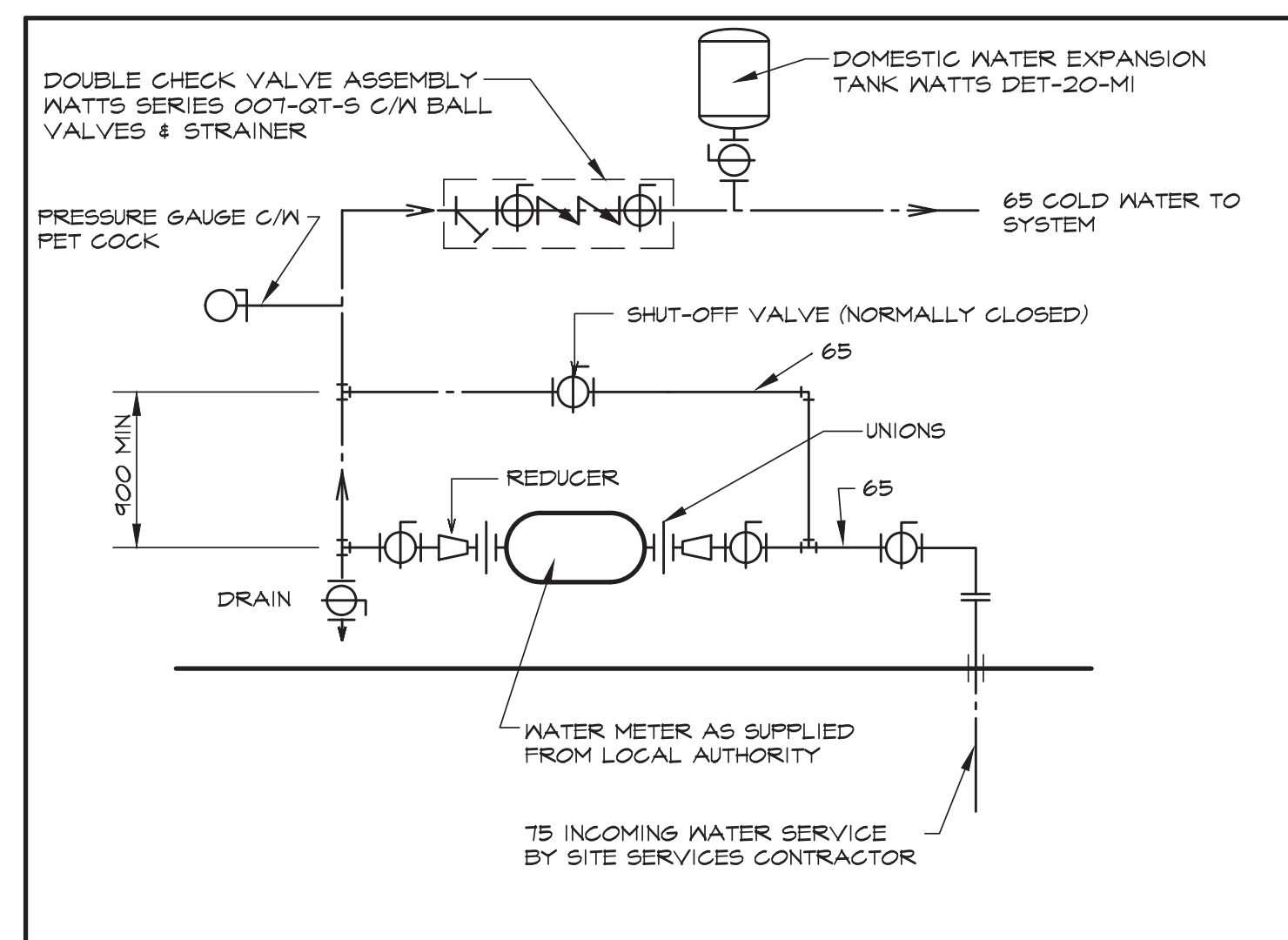
REV. - NOV 2021
CADD FILE NO. 21061M3

File Name: May 02, 2022, 3:42pm B:\3stranaghan
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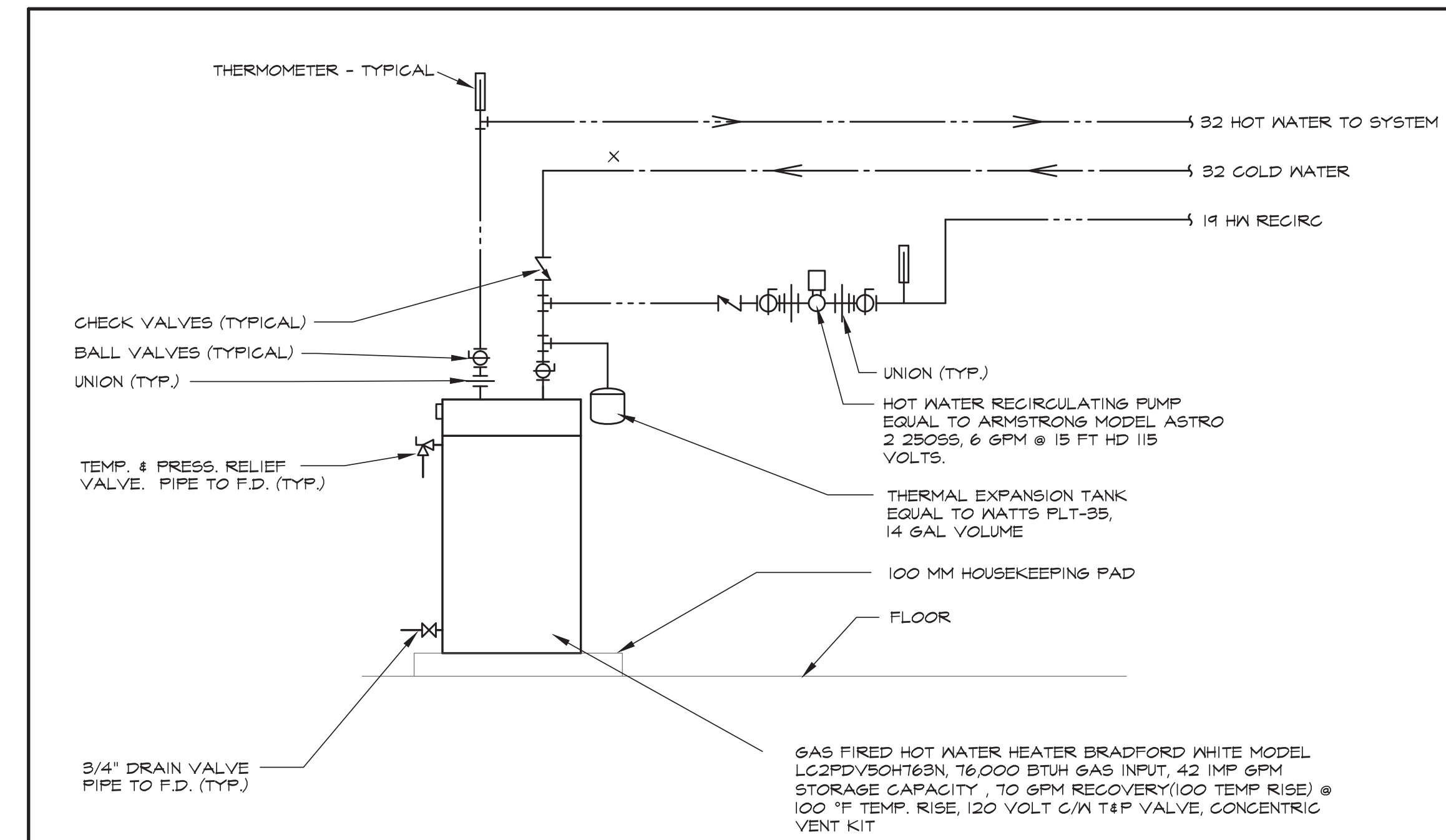
PLUMBING FIXTURE SCHEDULE APPROVED ALTERNATES: ZURN, DELTA

NO.	DESCRIPTION	HOT WATER	TEMP WATER	COLD WATER	DRAIN	VENT	FIXTURE MAKE & MODEL	TRIM MAKE & MODEL	REMARKS
A	WATER CLOSET	-	-	1/2"	3"	3/8"	AMERICAN STANDARD "CADET PRO" RIGHT HEIGHT 215AA.154 FLOOR MTD VITREOUS CHINA, ELONGATED, 54 mm (2 1/8") GLAZED TRAPWAY, LINED FLUSH TANK, 4.8L (1.07 GAL) FLUSH, 4188A-174 (TANK COVER LOCKING DEVICE) CHROME FINISH HANDLE	CENTOCO B2025TS.001 HEAVY DUTY, OPEN FRONTED FRONT WITH COVER FOR ELONGATED BOWL, - STAINLESS STEEL CHECK HINGES, METAL WASHERS & STAINLESS STEEL POSTS AND NUTS	C/M MCGUIRE CHROME PLATED RIGID TOILET SUPPLY & ESCUTCHEONS
A1	WATER CLOSET - BARRIER FREE	-	-	1/2"	3"	3/8"	AMERICAN STANDARD "CADET PRO" RIGHT HEIGHT 215AA.154 FLOOR MTD VITREOUS CHINA, ELONGATED, 54 mm (2 1/8") GLAZED TRAPWAY, LINED FLUSH TANK, 4.8L (1.07 GAL) FLUSH, 4188A-174 (TANK COVER LOCKING DEVICE) CHROME FINISH HANDLE	CENTOCO B2025TS.001 HEAVY DUTY, OPEN FRONTED FRONT WITH COVER FOR ELONGATED BOWL, - STAINLESS STEEL CHECK HINGES, METAL WASHERS & STAINLESS STEEL POSTS AND NUTS	C/M MCGUIRE CHROME PLATED RIGID TOILET SUPPLY & ESCUTCHEONS
B	LAVATORY	1/2"	-	1/2"	3/2"	3/2"	AMERICAN STANDARD "MURRO" Q154 004EG VITREOUS CHINA WALL MOUNTED, REAR OVERFLOW, RECESSED SELF DRAINING DECK, 102mm (4") CENTRES, C/M 0059 020EG SHROUD/KNEE CONTACT GUARD	MOEN B425 SINGLE HANDLE DECK FAUCET, ALL METAL CONST, CHROME PLATED, 4" LEVER, DURALAST CARTRIDGE, 1.2 GPM, OPEN GRID STRAINER	C/M FLEXIBLE SUPPLIES & ESCUTCHEONS
B1	LAVATORY - BARRIER FREE (PUBLIC)	1/2"	-	1/2"	3/2"	3/2"	AMERICAN STANDARD "MURRO" Q154 004EG VITREOUS CHINA WALL MOUNTED, REAR OVERFLOW, RECESSED SELF DRAINING DECK, 102mm (4") CENTRES, C/M 0059 020EG SHROUD/KNEE CONTACT GUARD	MOEN CAB301 ELECTRONIC (AC POWER), BRASS CONST, CHROME PLATED, 4" CENTRESET, VANDAL RESISTANT AERATOR, 1.5 L/min (0.5 GPM), OPEN GRID STRAINER C/M ADJUSTABLE THERMOSTATIC MIXING VALVE & CONNECTOR & TRANSFORMER	C/M FLEXIBLE SUPPLIES & ESCUTCHEONS
B2	LAVATORY - BARRIER FREE	1/2"	-	1/2"	3/2"	3/2"	AMERICAN STANDARD "MURRO" Q154 004EG VITREOUS CHINA WALL MOUNTED, REAR OVERFLOW, RECESSED SELF DRAINING DECK, 102mm (4") CENTRES, C/M 0059 020EG SHROUD/KNEE CONTACT GUARD	MOEN B425 SINGLE HANDLE DECK FAUCET, ALL METAL CONST, CHROME PLATED, 4" LEVER, DURALAST CARTRIDGE, 1.2 GPM, OPEN GRID STRAINER	C/M FLEXIBLE SUPPLIES & ESCUTCHEONS
C	SHOWER	1/2"	-	1/2"	5/0"	3/2"	BY GENERAL CONTRACTOR	MOEN SINGLE HANDLE POSI TEMP PRESSURE BALANCING VALVE, T837SEP15 VALVE, 1.5 GPM, CHROME FINISH C/M ROUGH-IN VALVE, SHOWER ARM & SHOWER HEAD	
D	SINK - 2 COMP.	1/2"	-	1/2"	3/8"	3/2"	FRANKE LBD680BP-1, 20 GAUGE, TYPE 302 18-8 SS, 8" (200mm) CENTRE SET, SATIN FINISH ON EXPOSED SURFACES, 3 1/2" (89mm) CRUMB CUP STRAINER	MOEN B701 SINGLE HANDLE DECK FAUCET, ALL BRASS CONST, CHROME PLATED, DECK PLATE, 9" LONG SWING SPOUT, 8" CENTRES, DURALAST CARTRIDGE, 5/7 L/min (1.5 GPM),	C/M FLEXIBLE SUPPLIES & ESCUTCHEONS
D1	SINK - 2 COMP.	1/2"	-	1/2"	3/8"	3/2"	FRANKE LBD680BP-1, 20 GAUGE, TYPE 302 18-8 SS, 8" (200mm) CENTRE SET, SATIN FINISH ON EXPOSED SURFACES, 3 1/2" (89mm) CRUMB CUP STRAINER	MOEN B290 TWO HANDLE DECK FAUCET, ALL BRASS CONST, CHROME PLATED, DECK PLATE, 216mm LONG GOOSENECK SPOUT, 200mm (8") CENTRES, NON METALLIC CARTRIDGE, 5.7 L/min (1.5 GPM),	C/M FLEXIBLE SUPPLIES & ESCUTCHEONS
E	EMERGENCY EYE/ FACE WASH	1/2"	1/2"	1/2"	3/8"	3/2"	HANS T360BT-T460BT STAINLESS STEEL BOWL/EYE/ FACE WASH, ABS SHOWER HEAD, PRESURE ACTIVATED PLASTIC POP OFF 3.7 USGPM FLOW CONTROL	HANS 9201EN THERMOSTATIC MIXING VALVE WITH THE FLOW OF 10 USGPM	1/2" HOT & COLD WATER TO MIXING VALVE - VALVE LOCATED IN HIGH ON WALL
F	LAUNDRY BOX	1/2"	-	1/2"	5/0"	3/8"	PPP MM-500MLB, STEEL BOX WITH WHITE POWDER COATED FINISH, 50mm DRIPAN PIPE CONNECTION WATER HAMMER ARRESTORS, QUARTER TURN BALL VALVES		
G	MOP SINK	1/2"	-	1/2"	7/5"	3/8"	FIAT MSB2424, SQUARE, FLOOR MOUNTED, MOLDED STONE, STAINLESS STEEL STRAINER WITH DRAIN	FIAT B30 WALL MOUNTED TWO HANDLE UTILITY FAUCET, CHROME PLATED FINISH, WALL MOUNTED, 204mm (8") CENTRESET, INTEGRAL STOPS, HOSE OUTLET, 152mm (6") SPOUT WITH VACUUM BRAKER AND BUCKET HOOK.	

APPROVED ALTERNATES: CRANE, MAAX, MOEN, MIROLIN, KHOLER



1 WATER METER DETAIL
SCALE: NTS



2 DETAIL OF DOMESTIC HOT WATER HEATER
SCALE: NTS

LEGEND	
SYMBOL	DESCRIPTION
	SANITARY ABOVE GROUND
	SANITARY BELOW GROUND
	DOMESTIC COLD WATER
	DOMESTIC HOT WATER
	DOMESTIC HOT WATER RECIRCULATING LINE
	SANITARY VENT
	COMPRESSED AIR LINE
	BALL VALVE
	PLUMBING FIXTURE DESIGNATION
	NATURAL GAS PIPING
	NATURAL GAS PIPING ON ROOF
	CLEANOUT (BELOW GROUND & ABOVE GROUND DRAINAGE)
	NON FREEZE HOSE BIBB
	SUPPLY DIFFUSER
	RETURN OR EXHAUST GRILLE
	SIDEWALL SUPPLY OR RETURN GRILLE
	10"x8" TRANSFER SHEET METAL SLEEVE IN WALL ABOVE CEILING (2" WIDER THAT WALL THICKNESS)
	RETURN OR EXHAUST DUCT DOWN OR AWAY
	SUPPLY DUCT DOWN OR AWAY
	SUPPLY DUCT UP OR TOWARDS
	RETURN OR EXHAUST UP OR TOWARDS
	METAL FLEXIBLE DUCTWORK MAXIMUM LENGTH 10'-0" (SIZE AS DIFFUSER NECK)
	INDICATES SPIN ON COLLAR C/M VOLUME DAMPER (SIZE AS DIFFUSER NECK)
	1" ACOUSTIC DUCT INSULATION (THICKNESS NOT INCLUDED IN DUCT SIZE SHOWN)
	DUCT SILENCER
	DIFFUSER DESIGNATION TYPE - REFER TO SCHEDULE SIZE - DIFFUSER NECK OR GRILLE SIZE
	FLEXIBLE CONNECTION
	TURNING VANES (DOUBLE THICKNESS)
	TYPE "B" FIRE DAMPER IN HORIZONTAL OR VERTICAL DUCT
	BACKDRAFT DAMPER
	VOLUME DAMPER
	THERMOSTAT (MTD AT 5'-6" AFF UNLESS OTHERWISE NOTED) TEMPERATURE SENSOR (MTD AT 5'-6" AFF UNLESS OTHERWISE NOTED)
	THERMOSTAT CONTROL LINE
	7 DAY TIME CLOCK

NO.	DESCRIPTION	DATE	BY
0	ISSUED FOR TENDER	MAY 2/22	SM/S

ISSUES

REGISTERED PROFESSIONAL ENGINEER	
02/05/22	
R.E. BAKER	
PROF. ENG. ONTARIO	

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PROJECT: **NEW FIRE STATION No 1**

988 COUNTY ROAD 10
MILLBROOK ONTARIO

TITLE: **SCHEDULES & DETAILS MECHANICAL**

SCALE: AS NOTED	DWG NO.
DRAWN: S. STRANAGHAN	M4
DESIGNED: S. STRANAGHAN	
CHECKED: REB	
PROJECT: 21061	

REV. - NOV 2021
CADD FILE NO. 21061M29

Bid Date: May 02, 2022, 3:30pm By: SStranaghan
 File Name: Projects\2021\21061 - Fire Station No. 1 - Millbrook\Drawings\21061M4.dwg
 Plot Date: May 02, 2022, 3:30pm By: SStranaghan

SPLIT AIR CONDITIONING SYSTEM SCHEDULE ALTERNATES : LENNOX, YORK

INDOOR UNIT														OUTDOOR UNIT - HEAT PUMP										REMARKS								
SYSTEM NO.	LOCATION	MANUFACTURER	MODEL NO.	TYPE	COOLING CAPACITY		HEATING CAPACITY				FAN				ELECTRICAL				SYSTEM NO.	MANUFACTURER	MODEL NO.	ELECTRICAL				LOW AMBIENT CONTROL	REFRIGERANT					
					KW	MBH	HEAT PUMP	GAS INPUT	GAS OUTPUT	AIRFLOW	HP	R.P.M.	EXT STATIC PRESS	VOLTS	PH	AMPS	MOCP	VOLTS				PH	MCA		MOCP							
SAC-1	SERVICE	CARRIER	94TNS040V14-10	FURNACE	5.2	18	NA	NA	11.7	40	11.4	34	304	685	-	-	-	-	240	1	0.11	NA	CU-1	CARRIER	24AH41B	208	1	17.1	20	YES	410A	INDOOR UNITS C/W MATCHING COOLING COIL. SYSTEM COMPLETE WITH REFRIGERANT PIPING, & REFRIGERANT, - PIPE CONDENSATE TO NEAREST DRAIN - OUTDOOR UNIT C/W LOW AMBIENT KIT, CRANKCASE HTR, FREEZE STAT, WIND BAFFLE COMPRESSOR START ASSIST, MOTOR MASTER CONTROLLER & WALL MOUNT KIT

AIR CONDITIONING UNIT SCHEDULE

UNIT NO.	LOCATION	MANUFACTURER	MODEL NO.	SENS COOLING CAPACITY		TOTAL COOLING CAPACITY		REFRIG.	SEER OR IEER	NAT GAS HEATING CAP.				FAN				ELECTRICAL				OPERATING WEIGHT		REMARKS		
				KW	MBH	KW	MBH			INPUT	OUTPUT	AIR FLOW	BHP	R.P.M.	EXT. SP	VOLTS	PH	MCA	MOCP	KG	LBS					
				KW	MBH	KW	MBH			L/S	CFM	L/S	CFM	Pa	INCH	VOLTS	PH	MCA	MOCP	KG	LBS					
A/C-1	ROOF	CARRIER	486CEM04E2A5	7.5	25.54	10.2	35.14	410A	16.1	32.2	110	25.8	88	566	1200	0.46	1850	149	0.5	208	3	22	30	257	567	2 STAGE HEAT - UNIT TO BE COMPLETE WITH DIRECT DRIVE, "ECO-BLUE" TEMPERATURE ECONOMIZER IV WITH BAROMETRIC RELIEF, BASE ELECTRO MECHANICAL CONTROLS, 24" HIGH ROOF CURB, WALL MTD CO2 SENSOR & DISCONNECT SWITCH
A/C-2	ROOF	CARRIER	486CEM05E2A5	10.8	37.06	14.6	44.96	410A	16.1	32.2	110	25.8	88	566	1200	0.46	1850	149	0.5	208	3	21	30	279	615	

UNIT HEATER SCHEDULE ALTERNATES : MODINE,

NO.	MFR	MODEL	NAT GAS HEATING CAP.				FAN				ELECTRICAL				FLUE AIR DIA - INCH	COMB AIR DIA - INCH	OPERATING WEIGHT		REMARKS
			INPUT		OUTPUT		AIR FLOW		HP	R.P.M.	VOLTS	PH	FLA	MOCP			KG	LBS	
			KW	MBH	KW	MBH	L/S	CFM											
UH-1	REZNOR	UDZ-150	44	150	14.6	124.5	906	1921	1/30	1050	115	1	3.9	15	5"	6"	77	173	C/W THERMOSTAT, HANGING HARDWARE, HORIZONTAL VENT/COMB TERMINATION KIT (CC6), VENT THRU WALL
UH-2	REZNOR	UDZ-100	30.8	105	14.6	87.15	363	769	1/30	1050	115	1	3.9	15	4"	4"	44	97	C/W THERMOSTAT, HANGING HARDWARE, HORIZONTAL VENT/COMB TERMINATION KIT (CC6), VENT THRU WALL
UH-3	REZNOR	UDZ-150	44	150	14.6	124.5	906	1921	1/30	1050	115	1	3.9	15	5"	6"	77	173	C/W THERMOSTAT, HANGING HARDWARE, HORIZONTAL VENT/COMB TERMINATION KIT (CC6), VENT THRU WALL
UH-4	REZNOR	UDZ-150	44	150	14.6	124.5	906	1921	1/30	1050	115	1	3.9	15	5"	6"	77	173	C/W THERMOSTAT, HANGING HARDWARE, HORIZONTAL VENT/COMB TERMINATION KIT (CC6), VENT THRU WALL
UH-5	REZNOR	UDZ-150	44	150	14.6	124.5	906	1921	1/30	1050	115	1	3.9	15	5"	6"	77	173	C/W THERMOSTAT, HANGING HARDWARE, HORIZONTAL VENT/COMB TERMINATION KIT (CC6), VENT THRU WALL
UH-6	REZNOR	UDZ-30	8.8	30	7.2	24.6	215	456	0.06	1550	115	1	3.9	15	4"	4"	26	58	C/W THERMOSTAT, HANGING HARDWARE, HORIZONTAL VENT/COMB TERMINATION KIT (CC6), VENT THRU WALL
UH-7	REZNOR	UDZ-30	8.8	30	7.2	24.6	215	456	0.06	1550	115	1	3.9	15	4"	4"	26	58	C/W THERMOSTAT, HANGING HARDWARE, HORIZONTAL VENT/COMB TERMINATION KIT (CC6), VENT THRU WALL

HEAT RECOVERY SCHEDULE

OUTDOOR TEMPERATURE CONDITIONS: SUMMER 81°F db/74°F WINTER : -13 °F db

TAG	AREA SERVED	MANUFACTURER	MODEL NO.	OUTSIDE AIR		EXHAUST AIR			WINTER SUPPLY TEMP.	SUMMER SUPPLY TEMP.	ELECTRICAL				OPERATING WEIGHT IN LBS	REMARKS	
				FLOW L/S (CFM)	ESP PA (IN)	FAN (HP)	FLOW L/S (CFM)	ESP PA (IN)			FAN (HP)	VOLTS	PH	AMP			MOCP
ERV-1	PPE ROOMS	GREENTEC	LGH-4E	141 (300)	99.6 (0.4)	-	141(300)	99.6(0.4)	-	36°F	78°F	120	1	4.7	15	192	C/W ALUMINUM CORE, ADJUSTABLE MOTORS, THREADED ROD HANGERS & FILTERS
ERV-2	PCCP	GREENTEC	FE 7.5 ERV	38 (80)	62 (0.25)	-	38(80)	62(25)	-	36°F	78°F	120	1	1.5	15	192	C/W ALUMINUM CORE, ADJUSTABLE MOTORS, THREADED ROD HANGERS & FILTERS

FAN SCHEDULE ALTERNATES : PENN, COOK

FAN NO.	LOCATION	FUNCTION	MANUFACTURER	FAN TYPE	MODEL NO.	CAPACITY		EXT. STATIG PRESS		FAN R.P.M.	MOTOR			WEIGHT		REMARKS	
						L/S	CFM	Pg	Inch		HP OR W	VOLTS	PHASE	RPM	KG		LBS
EF-1	UWR-106	EXHAUST	GREENHECK	CEILING EXHAUST	SP-80-V6	38	80	62	0.25	935	6 W	120	1	935	5.4	12	0.6 SONES C/W "V6" MOTOR DIAL ON FAN, 2 SPEED, BACKDRAFT DAMPER
EF-2	JAN-110	EXHAUST	GREENHECK	CEILING EXHAUST	SP-80-V6	38	80	62	0.25	935	6 W	120	1	935	5.4	12	0.6 SONES C/W "V6" MOTOR DIAL ON FAN, 2 SPEED, BACKDRAFT DAMPER
EF-3	WR-104	EXHAUST	GREENHECK	CEILING EXHAUST	SP-A390-V6	71	150	62	0.25	924	18 W	120	1	924	10.9	24	2 SONES C/W "V6" EC MOTOR, DIAL ON FAN, VIBRATION ISOLATION, BACKDRAFT DAMPER
EF-4	WR-108	EXHAUST	GREENHECK	CEILING EXHAUST	SP-A390-V6	106	225	62	0.25	1015	18 W	120	1	1015	10.9	24	3 SONES C/W "V6" EC MOTOR, DIAL ON FAN, VIBRATION ISOLATION, BACKDRAFT DAMPER
EF-5	WR-125	EXHAUST	GREENHECK	CEILING EXHAUST	SP-80-V6	38	81	31	0.125	935	6 W	120	1	935	5.4	12	0.6 SONES C/W "V6" MOTOR DIAL ON FAN, 2 SPEED, BACKDRAFT DAMPER
EF-6	APPARATUS	EXHAUST	GREENHECK	SIDEMALL EXHAUST	SEI-18-429-V6	1265	2680	31	0.125	1092	3/4 HP	208	1	1725	17.2	38	8.3 SONES C/W "V6" EC MOTOR, MOTOR DIAL ON FAN, BACKDRAFT DAMPER
EF-7	APPARATUS	EXHAUST	GREENHECK	SIDEMALL EXHAUST	SEI-18-429-V6	1265	2680	31	0.125	1092	3/4 HP	208	1	1725	17.2	38	8.3 SONES C/W "V6" EC MOTOR, MOTOR DIAL ON FAN, BACKDRAFT DAMPER
EF-8	STOR	EXHAUST	GREENHECK	INLINE CABINET	CSP-A125	55	117	31	0.125	980	54 W	120	1	980	7.7	17	0.3 SONES C/W ISOLATION KIT, BACKDRAFT DAMPER
EF-9	STOR	EXHAUST	GREENHECK	INLINE CABINET	CSP-A125	55	117	31	0.125	980	54 W	120	1	980	7.7	17	0.3 SONES C/W ISOLATION KIT, BACKDRAFT DAMPER
DS-1 TO 7	APP BAY	DESTRAIT	CANARM	CEILING PROPELLER	CP60 DW1N	4221	8944	-	-	-	-	120	1	-	8.4	18.5	WHITE C/W 450 MM (18" DOWNROD) RREMDGG014-W SPEED CONTROLLER TO CONTROL THE 9 FANS C/W WITH REVERSE
RH-A	SUITE KITCHEN	EXHAUST	BROAN	RANGE HOOD	BUB3055	52	110	62	0.25	-	-	120	1	-	-	-	180 mm (80") WIDE STAINLESS STEEL C/W BACK DRAFT DAMPER SPEED CONTROLLER & LIGHTS

EXHAUST & INTAKE LOUVRE SCHEDULE

TYPE	MANUFACTURER	MODEL	THICKNESS	REMARKS
A	VENTEX	2225	2"	6063-T5, EXTRUDED ALUMINUM, STATIONARY 45° BLADE, 2" DEEP, STORMPROOF LOUVRE SYSTEM, 1/2"x1/2" GALVANIZED 19 GAUGE BIRDSCREEN, COLOUR TO BE SELECTED BY ARCHITECT.
B	VENTEX	2455	4"	6063-T5, EXTRUDED ALUMINUM, STATIONARY 30° BLADE, 4" DEEP, STORMPROOF LOUVRE SYSTEM, 1/2"x1/2" GALVANIZED 19 GAUGE BIRDSCREEN, COLOUR TO BE SELECTED BY ARCHITECT.

ALTERNATES : E.H. PRICE

ELECTRIC DUCT HEATER SCHEDULE

UNIT NO.	MANUFACTURER	MODEL	DUCT DIMENSIONS (MM)	KW	VOLTS/ PHASES	STAGES	AIR FLOW L/S	ΔT TEMP F°	CONT. VOLTS	OPTIONS
DH-1	THERMOLEC	FG	250 250	5	208	SCR	300	52	24	C/W OPTION 1, 2, 3, 4, 5, 10
DH-2	THERMOLEC	TER-6-1-120	150φ 150φ	1	120/1	SCR	47	34	24	C/W AIR FLOW SENSOR, TEMPERATURE CONTROLLER AND SENSOR

REQUIRED OPTIONS:

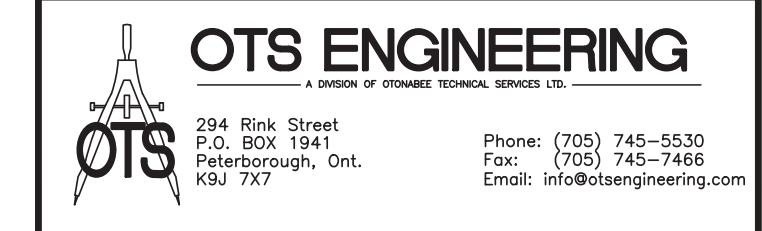
- | | |
|-------------------------------|---------------------------------------------------------------------|
| 1 BUILT-IN DISCONNECT SWITCH | 6 LOAD FUSES, HRC TYPE |
| 2 SCR PROPORTIONAL CONTROLLER | 7 PILOT LIGHTS |
| 3 SCREENS BOTH SIDES | 8 FULL BREAK CONTRACTORS |
| 4 ELECTRONIC AIR FLOW SENSOR | 9 ELECTRONIC ROOM THERMOSTAT RT |
| 5 SOLID STATE RELAY (TRIAC) | 10 MODULATING DUCT THERMOSTAT - 0 DEG F TO 100 DEG F |
| | 11 24 VOLT CONTROL CIRCUIT - FOR CONNECTION TO BY-PASS BOX CONTROLS |

File: D:\Projects\2021\21041 - Fire Station\1 - Millbrook\Drawings\21041.M5.dwg
Date: May 02, 2022 9:38am By: stranaghan

ISSUED FOR TENDER	MAY 2/22	SM
NO. DESCRIPTION	DATE	BY



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PROJECT: NEW FIRE STATION No 1
988 COUNTY ROAD 10 MILLBROOK ONTARIO

TITLE: SCHEDULES MECHANICAL

SCALE: AS NOTED	DWG NO.
DRAWN: S. STRANAGHAN	M5
DESIGNED: S. STRANAGHAN	
CHECKED: REB	
PROJECT: 21061	
REV. - NOV 2021	CADD FILE NO. 21061M5

GENERAL SPECIFICATION

- 1 PROVIDE ALL EQUIPMENT, MATERIALS, LABOUR AND SERVICES, ETC. NECESSARY TO COMPLETE THE WORK. ALL MATERIALS AND EQUIPMENT USED ARE TO BE NEW AND ARE TO HAVE C.S.A. APPROVAL. MATERIALS AND EQUIPMENT ARE SPECIFIED BY NAME TO ESTABLISH A STANDARD OF QUALITY AND WORKMANSHIP. USE ONLY SPECIFIED EQUIPMENT OR ALTERNATES NOTED.

SYSTEM FLUSHING AND CLEANING

- 1 FLUSH AND CLEAN FLUID-CARRYING SYSTEMS AFTER COMPLETION WITH CLEAR WATER AT HIGHEST OBTAINABLE PRESSURE AND VELOCITY. DISCHARGE FLUSHING WATER THROUGH STRAINERS AND OUT THROUGH SYSTEM DRAINS WITH HOSE END. CLEAN STRAINERS. REPEAT FLUSHING OPERATION TO SATISFACTION OF CONSULTANT UNTIL NO FOREIGN MATTER COLLECTS IN STRAINERS, DRAIN AND CLEAN TANKS AND INSPECT TUBING AND PASSAGEWAYS IN MAJOR EQUIPMENT AND CLEAN AS NECESSARY.

ACCESS PANELS AND DOORS

- 1 INSTALL CONCEALED MECHANICAL EQUIPMENT REQUIRES ADJUSTMENT OR MAINTENANCE IN LOCATIONS EASILY ACCESSIBLE THROUGH ACCESS PANELS OR DOORS. INSTALL SYSTEMS AND COMPONENTS TO RESULT IN A MINIMUM NUMBER OF ACCESS PANELS. INDICATE ACCESS PANELS AND DOORS ON 'AS BUILT' DRAWINGS.

PIPE IDENTIFICATION

- 1 ON ALL PIPING APPLY MANUFACTURED PIPE MARKERS OF CYLINDRICALLY COILED PRINTED PLASTIC SHEETS THAT SNAP AROUND PIPE. TO MEET ANSI/ASME A13.1-2007 WITH EITHER WHITE OR BLACK LETTERING, INDICATING PIPE SERVICE AND DIRECTION OF FLOW EQUAL TO - SETON

PLUMBING & DRAINAGE

- 1 SANITARY DRAINAGE AND VENT PIPING AND FITTINGS ABOVE FLOOR SHALL BE PVC DWV CERTIFIED TO CSA B181.2. AND SHALL BE LISTED TO STANDARD CANULC 5102.2 STANDARD CLEARLY MARKED WITH CERTIFICATION LOGO INDICATING FLAME SPREAD RATINGS NOT EXCEEDING 25. EQUAL TO IPEX SYSTEM 15

INSULATION

- 1 COVER COLD WATER PIPING AND ABOVE HORIZONTAL STORM PIPING WITH 25mm (1") THICK JOHNS MANVILLE MICROLOK GLASS FIBRE DUAL TEMPERATURE INSULATION WITH FACTORY APPLIED FIRE RESISTANT GLASS FIBRE REINFORCED KRAFT PAPER AND ALUMINUM FOIL VAPOUR BARRIER, AND ALL SERVICE JACKET. USE PRESSURE SENSITIVE LAP SEALING SYSTEM. INSTALL INSULATION AS PER MANUFACTURERS RECOMMENDATIONS

Table with 2 columns: TEMPERATURE RANGE DEG F and NOMINAL PIPE SIZE. Rows include 3/4", 1" TO 1 1/4", 1 1/2", 1 1/2" TO 3", 3", 4" TO 6", 105° TO 140°, 1.0", 1.0", 1.5", 1.5", 1.5".

- 2 ALL EXPOSED INSULATIONS SHALL BE COVERED WITH WHITE PVC INSULATED FITTING COVERS AND JACKETING SYSTEM EQUAL TO JOHNS MANVILLE ZESTON 2000. INSTALL AS PER MANUFACTURERS RECOMMENDATIONS

VALVES

- 1 BALL VALVES SHALL BE EQUAL TO NEWMAN HATTERSLEY F16 1914, FULL PORT, PTFE SEATS, O-RING STEM SEAL, SELF CLEANING CHROME PLATED BRASS BALL, VINYL GRIP ON CADMIUM PLATED STEEL HANDLE, SOLDER ENDS WITH PRESSURE RATINGS OF 600 LBS. ALTERNATES: WATTS, TOYO

PIPELINE SPECIALTIES

- 1 TRAP PRIMERS SHALL BE WITH BRONZE BODY, 16mm (5/8") SWEAT CONNECTIONS FOR WATER SUPPLY LINE AND 16mm (5/8") FEMALE IPS CLEANOUT CONNECTION TO DRAIN. CONNECT TO NEAREST PLUMBING FIXTURE WATER SUPPLY. ALTERNATES: WATTS, JR SMITH, ZURN

NON-FREEZE HOSE BIBB

- 1 NON-FREEZE HOSE BIBB SHALL BE AUTOMATIC DRAINING WALL HYDRANT, FLUSH INSTALLATION, NON-FREEZE INTEGRAL BACKFLOW PREVENTER, COPPER CASING, ALL BRONZE INTERIOR PARTS CERAMIC DISC CARTRIDGE, NICKEL BRONZE BOX, HINGED COVER WITH OPERATING KEY LOCK. ALTERNATES: WATTS, JR SMITH, ZURN

CLEANOUTS

- 1 UNFINISHED AND FINISHED AREA CLEANOUTS SHALL BE WITH BOLTED CLEANOUT PLUGS NICKEL BRONZE FRAME, ROUND FLAT OPENING NICKEL BRONZE ACCESS COVER, EXTENDED FERRULE, NEOPRENE GASKETS AND VANDAL PROOF SCREWS. EQUALS: WATTS, JR SMITH, ZURN.

FLOOR AND ROOF DRAINS

- 1 FLOOR DRAINS IN CONC FLOOR TYPE 'A' SHALL BE WITH CAST IRON BODY, TRAP PRIMER, 19mm (1/2") THICK, 129mm (5") DIAMETER NICKEL BRONZE, STRAINER AND GRATE. EQUALS: WATTS, JR. SMITH, ZURN.

PLUMBING INSTALLATION

- 1 PROVIDE A COMPLETE DOMESTIC HOT AND COLD WATER DRAINAGE AND VENT TO SERVE FIXTURES AND ITEMS SPECIFIED AND SHOWN ON PLANS. INSTALL AS PER OBC PART 7 AND AUTHORITY HAVING JURISDICTION.

INSTALLATION OF PLUMBING FIXTURES

- 1 CONNECT FIXTURES COMPLETE WITH SUPPLIES AND DRAINS, TRAPPED, SUPPORTED, SANITARY LEVEL, AND SQUARE WITH HOT WATER FAUCETS ON THE LEFT.

GAS PIPING

- 1 INSTALL GAS PIPING IN ACCORDANCE WITH LATEST EDITION OF CAN/CSA B148.1-00 NATURAL GAS & PROPANE INSTALLATION CODE INCLUDING LATEST AMENDMENTS AND LOCAL AUTHORITY HAVING JURISDICTION.

DUCTWORK AND ACCESSORIES

- 1 UNLESS NOTED OTHERWISE CONSTRUCT LOW PRESSURE RECTANGULAR DUCTWORK OF LOCK FORMING PRIME QUALITY GALVANIZED SHEET STEEL WITH ZINC COATINGS ASTM 525M-80 GUARANTEED TO BEND 180° AND FLATTEN WITHOUT FRACTURE OF GALVANIZATION OR METAL. ENSURE DUCT MATERIAL IS FREE FROM BUSTERS FITS AND IMPERFECTLY COATED SPOTS, AND IS IN ACCORDANCE WITH ASHRAE AND SMACNA STANDARDS FOR DUCT DESIGN AND METAL GAUGES.

CONSTRUCT DUCTS IN ACCORDANCE WITH FOLLOWING:

- LOW PRESSURE
MAX. DUCT DIMENSION U.S. GAUGE
UP TO 600mm (21") 26
325mm (13") TO 750mm (30") 24
775mm (31") TO 1350mm (54") 22

INSULATED MOTORIZED DAMPER

- 1 INSULATED DAMPER SHALL BE EQUAL TO TAMCO SERIES 9000 THERMALLY BROKEN, ALUMINUM FRAME, 100mm(4") DEEP, INSULATED WITH POLYSTYRENE. BLADES TO BE EXTRUDED ALUMINUM, INTERNALLY INSULATED WITH EXPANDED POLYURETHANE FOAM & THERMALLY BROKEN

INSTALLATION OF DUCTWORK AND ACCESSORIES

- 1 PROVIDE COMPLETE SYSTEM OF DUCTWORK, DAMPERS, GRILLES, AND REGISTERS, ETC. REQUIRED FOR COMPLETE AIR HANDLING SYSTEMS.

Table with 3 columns: MAX. DUCT DIMENSION, TYPE OF JOINT AND MAX. SPACING, REINFORCING REQUIRED AND MAX. SPACING. Rows include UP TO 600mm (12"), 325mm (13") TO 600mm (24"), 625mm (25") TO 1200mm (48").

Table with 3 columns: DUCT DIAMETER, MAX. CENTER DISTANCE, TYPE OF SUPPORT. Rows include UP TO 450mm (18").

- 13 DO NOT HANG DUCTS FROM ROOF DECK.

INSTALLATION OF AIR HANDLING EQUIPMENT

- 1 INSTALL AIR HANDLING EQUIPMENT, COMPLETE WITH MOTORS, BELT DRIVES, GUARDS, VIBRATION ISOLATORS ETC., AS DESCRIBED AND SHOWN ON DRAWINGS. SET EQUIPMENT PLUMB, LEVEL, AND ARRANGE FOR MAXIMUM SERVICEABILITY.

CONTROLS

- 1 THE CONTRACTOR IS TO INCLUDE ALL MECHANICAL SYSTEM CONTROLS CALLED FOR OR IMPLIED BY THE DRAWINGS AND SPECIFICATIONS, TOGETHER WITH ALL NECESSARY INCIDENTALS WHETHER REFERRED TO OR NOT TO ALLOW ALL SYSTEMS TO FUNCTION COMPLETELY TO THE FULL INTENT OF THE DRAWINGS AND SPECIFICATIONS.

CONTROL DESCRIPTION

- 1 A/C UNITS AC-1 TO A/C-2 SHALL BE OPERATED BY ELECTRONIC PROGRAMMABLE THERMOSTAT. THERMOSTAT SET POINTS SHALL AS DIRECTED BY OWNER. FAN SHALL RUN CONTINUOUSLY DURING BUILDING OCCUPIED TIMES.

BALANCING OF AIR SYSTEM

- 1 BALANCING OF SYSTEMS MUST BE DONE BY A REPUTABLE QUALIFIED FIRM EXPERIENCED IN THIS TYPE OF WORK.

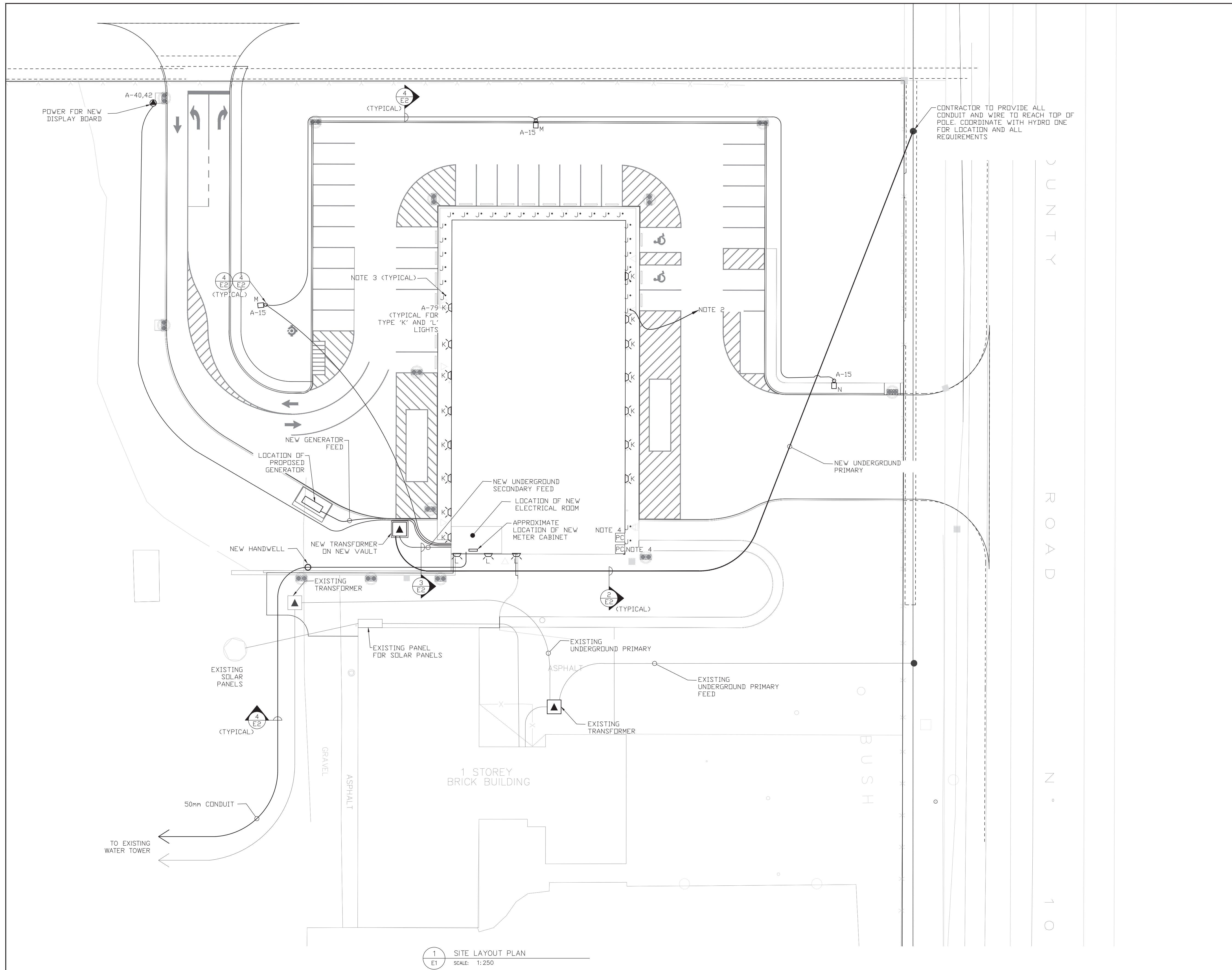
Professional Engineer seal for R.E. BAKER, Province of Ontario, dated 02/05/22.

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OTS ENGINEERING logo and contact information: 294 Bink Street, Peterborough, Ont. Phone: (705) 745-5530.

PROJECT: NEW FIRE STATION No 1, 988 COUNTY ROAD 10 MILLBROOK ONTARIO. TITLE: SPECIFICATION MECHANICAL. SCALE: AS NOTED. DWG NO.: M6. PROJECT: 21061. REV. - NOV 2021. CADD FILE NO. 21061M06.

File Date: May 02, 2022 9:37am By: S3stranaghan



- NOTES:**
1. COORDINATE MOUNTING HEIGHTS OF TYPE 'K', AND 'L' LIGHT FIXTURES WITH ARCHITECTURAL DRAWINGS.
 2. TO PHOTOCELL MOUNTED ON NORTH-EAST SIDE OF BUILDING, HIGH ON THE WALL, WHERE PRACTICAL.
 3. SEE DRAWING E4 FOR CANOPY LIGHTING WIRING.
 4. BUILDING MOUNTED PHOTOCELL, MOUNTED ON NORTH-EAST SIDE OF BUILDING, HIGH ON THE WALL, WHERE PRACTICAL.

LIGHTING LEGEND

○ J	SURFACE MOUNTED LED CANOPY LIGHT. SEE DRAWING E4 FOR DETAILS.
△ K/L	WALL MOUNTED LIGHTS. SEE DRAWING E4 FOR DETAILS. REFER TO ARCHITECTURAL DRAWINGS FOR MOUNTING HEIGHTS.
□ PC	BUILDING MOUNTED PHOTOCELL

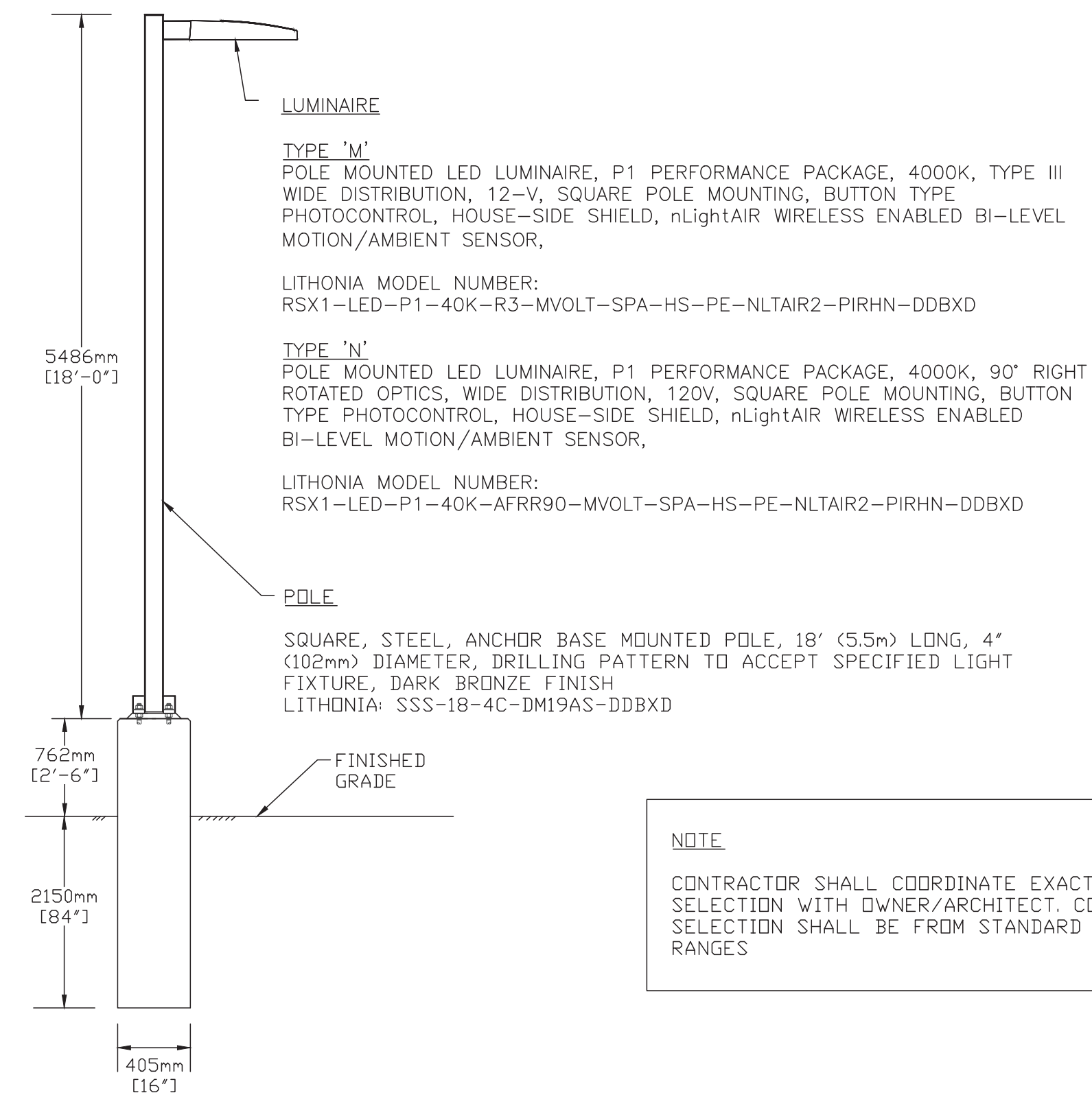
Rev.	Date	Description	By	App.
-	-	-	-	-
0	22/05/02	ISSUED FOR PERMIT & TENDER	PGB	-

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 Tel: (705) 775-1517

	DWN.	T. ST. JEAN
	CHK.	P. BERTHELOT
	DSN.	PGB/TMS
	SCALE:	AS NOTED

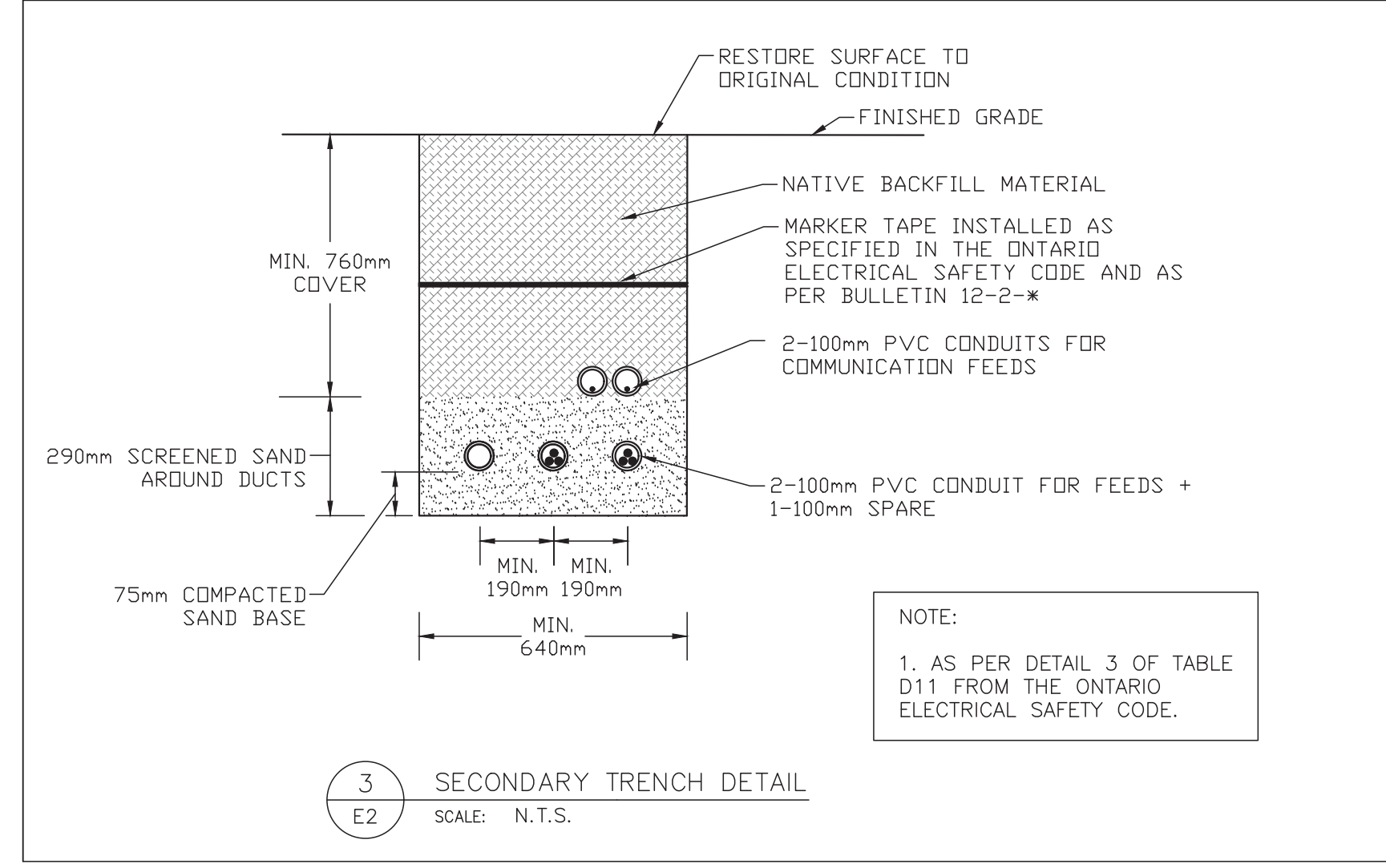
PROJECT	NEW FIRE STATION No. 1 988 County Road 10 Millbrook, Ontario
TITLE	SITE POWER LAYOUT PLAN
FILE No.	473
DWG. No.	E1

1 SITE LAYOUT PLAN
 E1 SCALE: 1:250



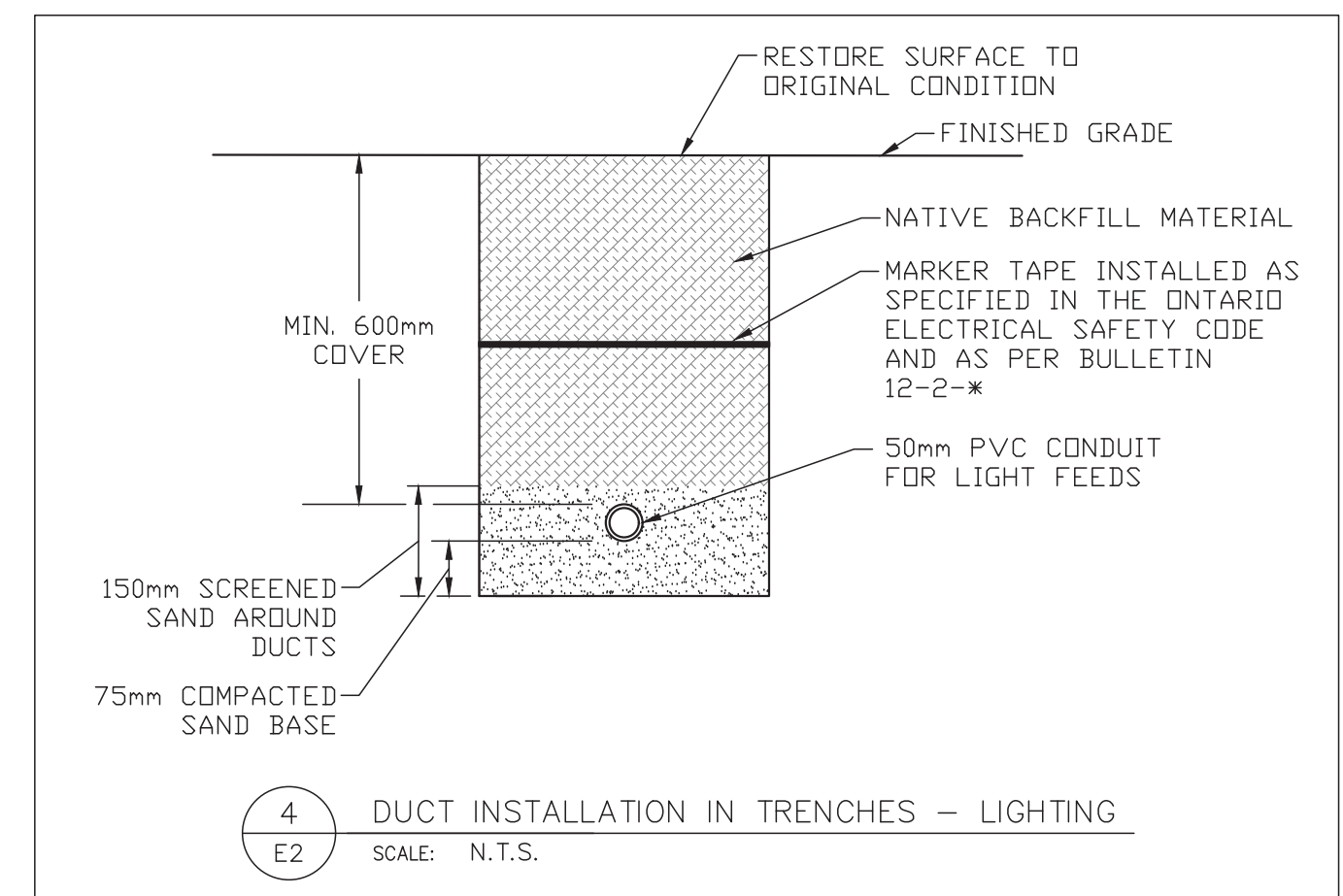
1 LUMINAIRE TYPES 'M' & 'N' ASSEMBLY
SCALE: N.T.S.

NOTE
CONTRACTOR SHALL COORDINATE EXACT COLOUR SELECTION WITH OWNER/ARCHITECT. COLOUR SELECTION SHALL BE FROM STANDARD COLOUR RANGES

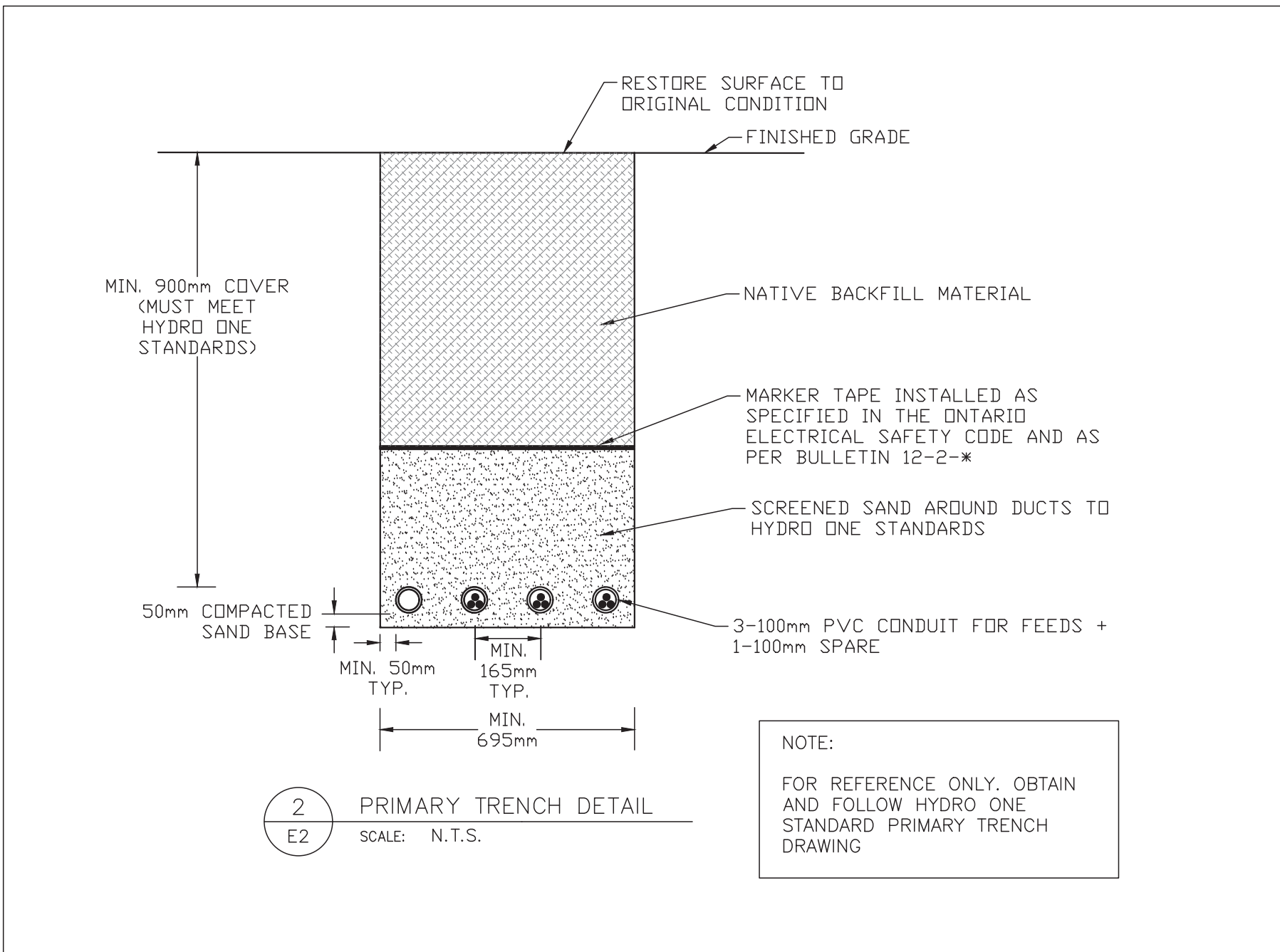


3 SECONDARY TRENCH DETAIL
SCALE: N.T.S.

NOTE:
1. AS PER DETAIL 3 OF TABLE D11 FROM THE ONTARIO ELECTRICAL SAFETY CODE.

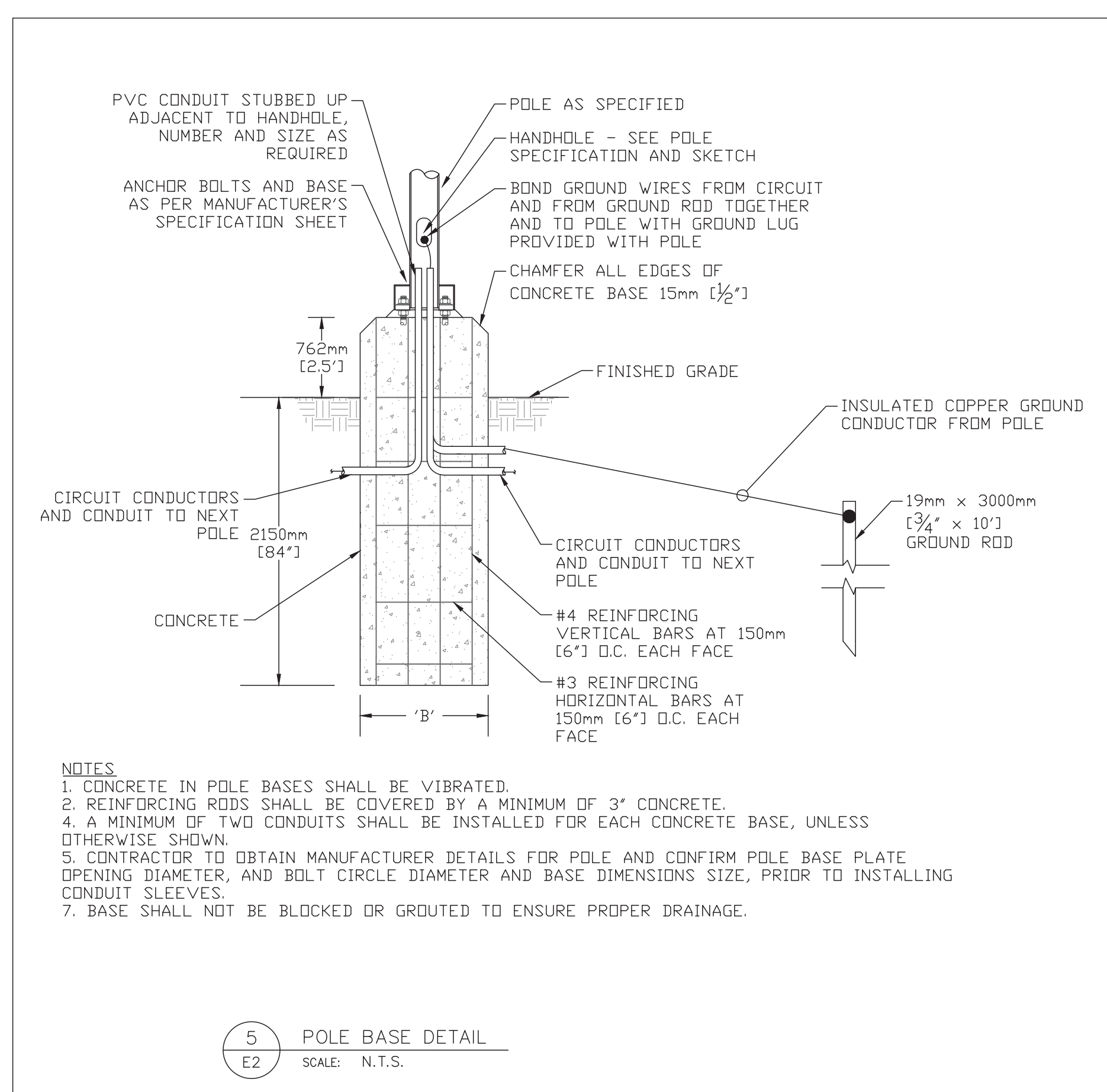


4 DUCT INSTALLATION IN TRENCHES - LIGHTING
SCALE: N.T.S.



2 PRIMARY TRENCH DETAIL
SCALE: N.T.S.

NOTE:
FOR REFERENCE ONLY. OBTAIN AND FOLLOW HYDRO ONE STANDARD PRIMARY TRENCH DRAWING



5 POLE BASE DETAIL
SCALE: N.T.S.

NOTES
1. CONCRETE IN POLE BASES SHALL BE VIBRATED.
2. REINFORCING RODS SHALL BE COVERED BY A MINIMUM OF 3\"/>

Rev.	Date	Description	By	App.
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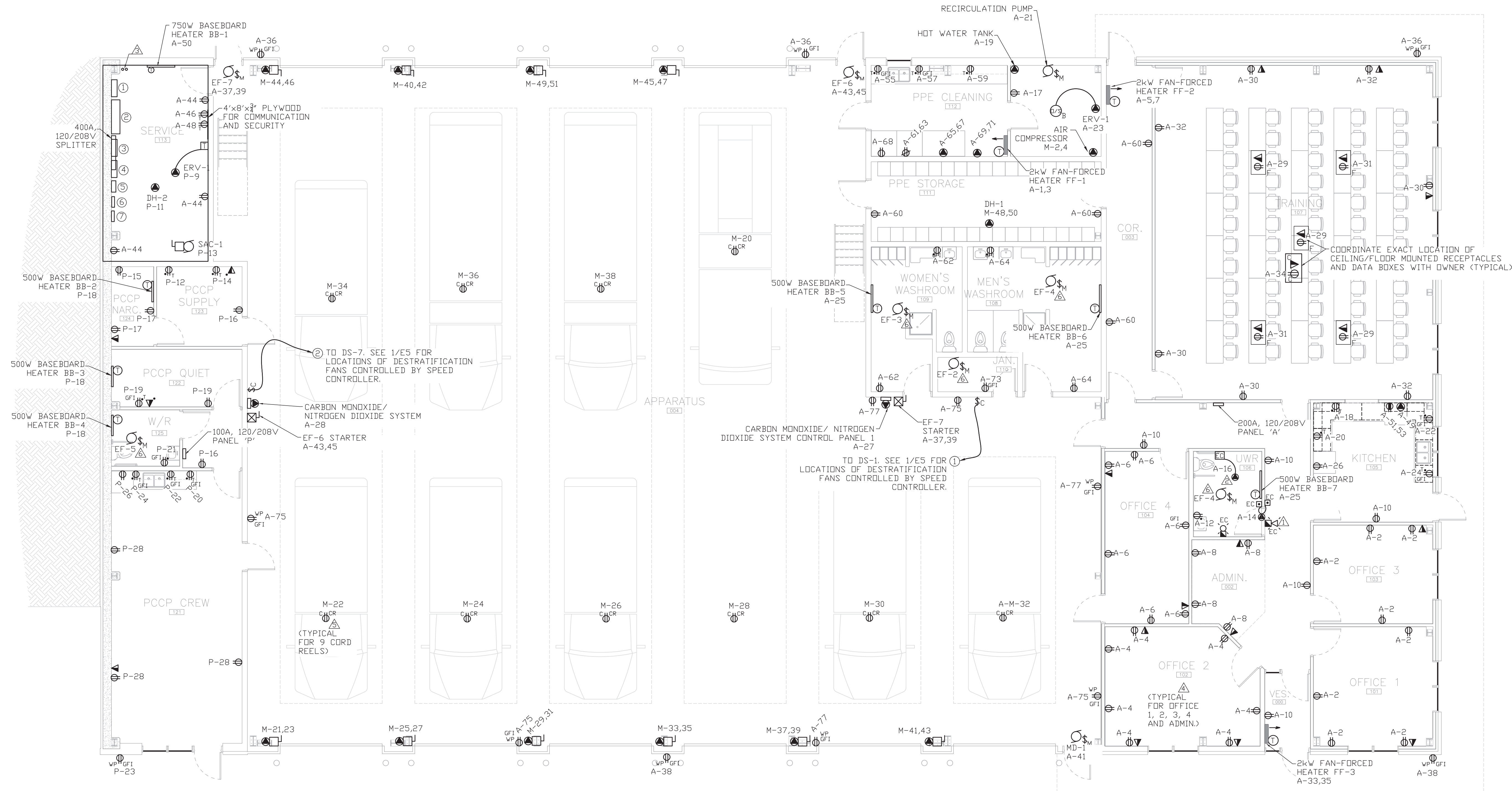
PROFESSIONAL ENGINEER
P.G.P. BERTHELOT
May 2/22
PROVINCE OF ONTARIO

DWN. T. ST. JEAN
CHK. P. BERTHELOT
DSN. PGB/TMS
SCALE: AS NOTED

PROJECT
NEW FIRE STATION No. 1
988 County Road 10
Millbrook, Ontario

TITLE
SITE LIGHTING DETAILS

FILE No. 473
DWG. No. E2



POWER LEGEND	
▽	DATA/PHONE OUTLET
▲	DIRECT CONNECTION
Ⓜ	MOTOR RATED SWITCH
Ⓢ	SINGLE PHASE MOTOR
Ⓣ	THREE PHASE MOTOR
Ⓛ	DISCONNECT SWITCH
Ⓜ	MOTOR STARTER
Ⓜ	24H. 7-DAY TIMER
Ⓜ	AUTOMATIC DOOR PUSHBUTTONS
Ⓜ	LOCK BUTTON
Ⓜ	SPEED CONTROLLER SWITCH
Ⓜ	MASTER GARAGE DOOR OPENER SWITCH
Ⓜ	ELECTRICAL PANEL
Ⓜ	DESTRATIFICATION FAN

RECEPTACLE LEGEND	
Ⓜ	RECEPTACLE
Ⓜ	240V RECEPTACLE
Ⓜ	WEATHERPROOF
T	20A T-SLOT
C	CEILING MOUNTED
F	FLOOR MOUNTED
CR	RETRACTABLE CORD REEL
GFI	GROUND FAULT INTERRUPTED
•	MOUNTED ABOVE COUNTER

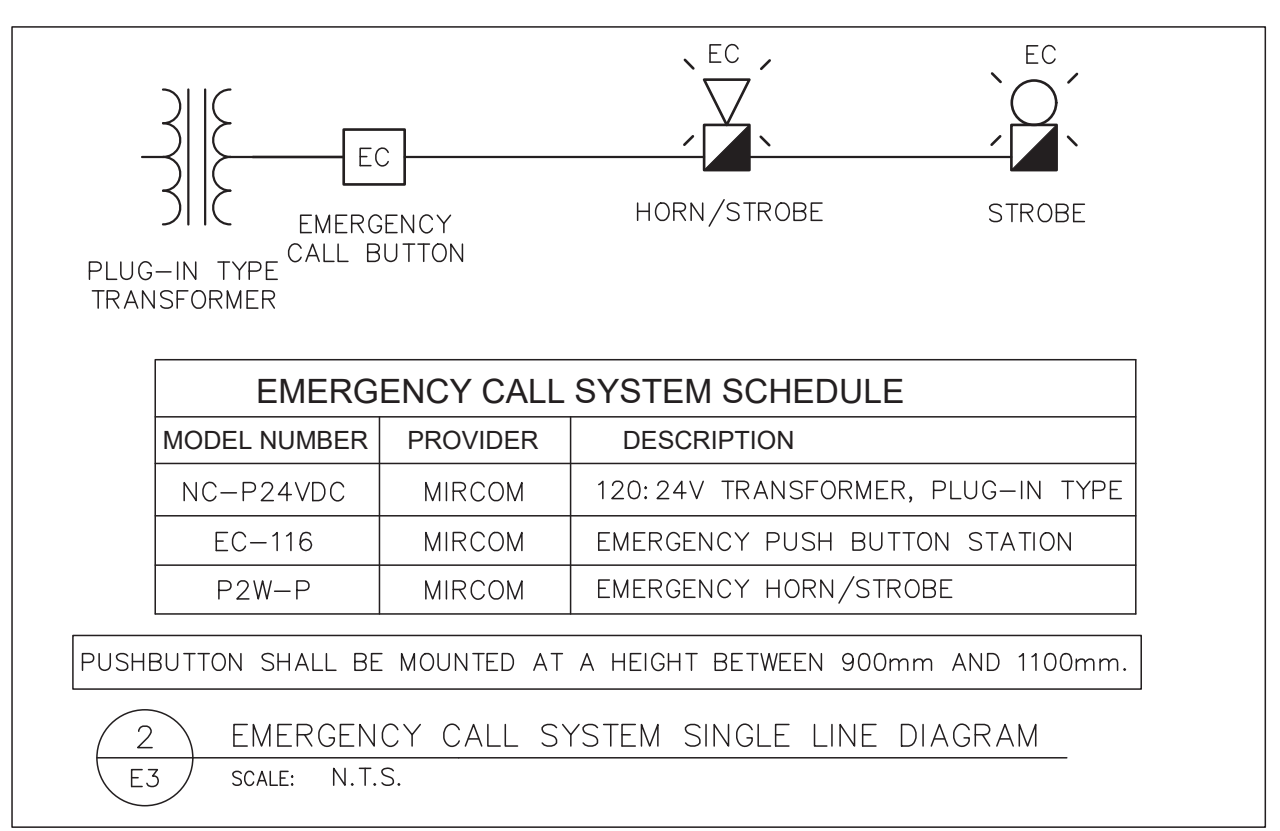
Rev.	Date	Description	By	App.
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1 MAIN FLOOR POWER LAYOUT PLAN
 SCALE: 1:75

SERVICE ROOM EQUIPMENT LAYOUT LIST	
①	400A, 120/208V SERVICE ENTRANCE RATED DISCONNECT SWITCH
②	4'x4' METER CABINET
③	400A, 120/208V DISCONNECT SWITCH
④	400A, 120/208V SERVICE ENTRANCE RATED DISCONNECT SWITCH FOR FUTURE SOLAR
⑤	400A, 120/208V AUTOMATIC TRANSFER SWITCH
⑥	400A, 120/208V DISTRIBUTION PANEL 'DP'

- NOTES:**
- EMERGENCY CALL SYSTEM VISUAL AND AUDIBLE ALARM OVER DOOR. SEE DETAIL 2 ON DRAWING E1 FOR EMERGENCY CALL SYSTEM SINGLE LINE DIAGRAM.
 - EMERGENCY CALL SYSTEM TRANSFORMER
 - SUPPLY AND INSTALL 2-3' EMPTY CONDUITS FROM SERVICE ROOM TO ROOF FOR FUTURE SOLAR SYSTEM AND 2-3' CONDUITS TO MAIN SERVICE AREA
 - COORDINATE EXACT LOCATIONS OF RECEPTACLES AND DATA BOXES WITH FURNITURE LAYOUTS ON ARCHITECTURAL DRAWINGS.
 - EXACT LOCATION OF CORD DROP SHALL BE COORDINATED WITH OWNER DURING CONSTRUCTION.
 - EXHAUST FANS EF-1, EF-2, EF-3, EF-4, & EF-5 ARE CONTROLLED BY ROOM LIGHT SWITCH.



ELECTRIC HEATING EQUIPMENT SCHEDULE			
SYMBOL	MODEL NUMBER	MANUFACTURER	DESCRIPTION
FF-4	OAC01502-T	OUELLET OR APPROVED EQUAL	1.5kW COMMERCIAL FAN-FORCED HEATER, WHITE, 120V, C/W INTEGRAL TAMPERPROOF THERMOSTAT, RECESSED
FF-1/FF-3	OAC02000-T	OUELLET OR APPROVED EQUAL	2kW COMMERCIAL FAN-FORCED HEATER, WHITE, 208V, C/W INTEGRAL TAMPERPROOF THERMOSTAT, RECESSED
FF-2	OAC02000-T C/W KIT-OAC-BS1	OUELLET OR APPROVED EQUAL	2kW COMMERCIAL FAN-FORCED HEATER, WHITE, 208V, C/W INTEGRAL TAMPERPROOF THERMOSTAT, COMPLETE WITH SURFACE MOUNTING BOX
	0DB0502 C/W KIT-0DB-TB6	OUELLET OR APPROVED EQUAL	500W BASEBOARD HEATER, WHITE, 120V, C/W INTEGRAL THERMOSTAT
	0DB0752 C/W KIT-0DB-TB6	OUELLET OR APPROVED EQUAL	750W BASEBOARD HEATER, WHITE, 120V, C/W INTEGRAL THERMOSTAT
UH-8	OAE2000AM-EO-TB6	OUELLET OR APPROVED EQUAL	1.5kW UNIT HEATER, 208V, C/W INTEGRAL THERMOSTAT, CEILING OR WALL MOUNTED

VEHICLE BAY CORD REEL			
SYMBOL	MODEL No.	MANUFACTURER	DESCRIPTION
Ⓜ	L4545 123 3A	REELCRAFT	PROVIDE RECEPTACLE ON RETRACTABLE CORD REEL FOR POWER FOR DIESEL ENGINE BLOCK HEATER. RECEPTACLE SHALL BE 20A, 120V, ON SPRING DRIVEN CORD REEL, C/W 9.1m (30) OF #12-3 COPPER CABLE, RATED 90°C, AND BALL STOP

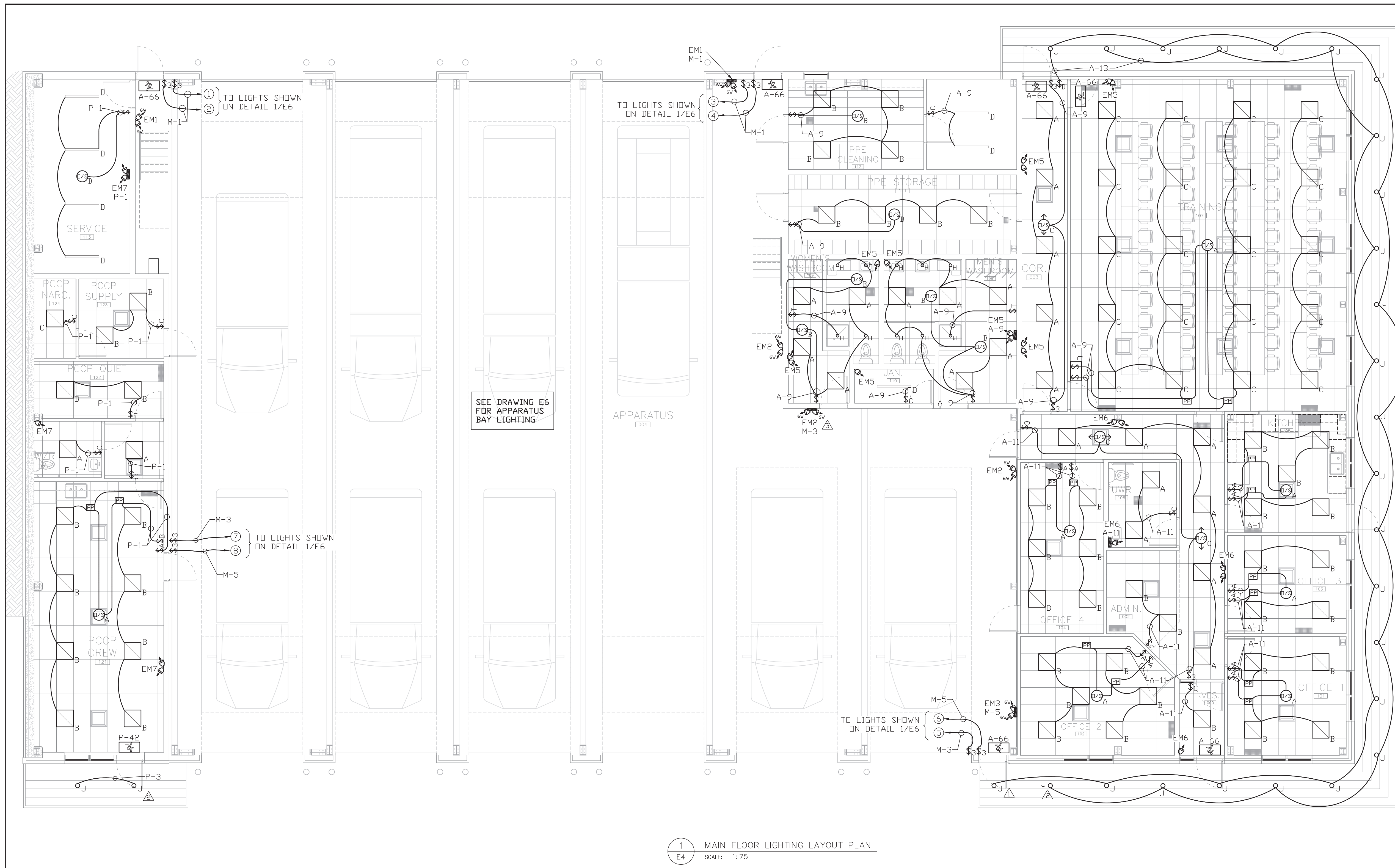
NEW FIRE STATION No. 1
 988 County Road 10
 Millbrook, Ontario

MAIN FLOOR POWER LAYOUT PLAN

PROJECT: NEW FIRE STATION No. 1
 988 County Road 10, Millbrook, Ontario

TITLE: MAIN FLOOR POWER LAYOUT PLAN

FILE No. 473 DWG. No. **E3**



NOTES:

- △ CANDPY LIGHTING IS CONNECTED TO AND CONTROLLED BY A DIMMING LIGHT SWITCH AND BUILDING MOUNTED PHOTOCELL.
- △ CANDPY LIGHTING IS CONNECTED TO AND CONTROLLED BY BUILDING MOUNTED PHOTOCELL.
- △ EMERGENCY LIGHTS IN APPARATUS BAY SHALL BE MOUNTED AT 9' A.F.F.

NOTE:
CONTRACTOR SHALL CONFIRM LIGHT FIXTURE COLOURS WITH OWNER/ARCHITECT WHERE COLOURED FASCIA, SIDING, ETC. EXIST. COLOURS WILL BE SELECTED FROM STANDARD COLOUR RANGE.

LIGHTING LEGEND	
⌘	TOGGLE SWITCH
⌘3	3-WAY TOGGLE SWITCH

EMERGENCY LIGHTING & EXIT SCHEDULE			
SYMBOL	MODEL No.	MANUFACTURER	DESCRIPTION
EM1	12ESLxx/xxx	EMERGLITE OR APPROVED EQUAL	EMERGENCY LIGHTING UNIT, BATTERY CAPACITY AS LISTED IN TABLE ON THIS DRAWING, 12VDC, 10 YEAR BATTERY, C/W MR16 LED HEADS AS LISTED AND MOUNTING SHELF
	EF9DM-LI	EMERGLITE OR APPROVED EQUAL	DUAL REMOTE HEAD, 12VDC, 5W, MR16 LED
	EF9M-LI	EMERGLITE OR APPROVED EQUAL	SINGLE REMOTE HEAD, 12VDC, 5W, MR16 LED
	EF9DM-LJ	EMERGLITE OR APPROVED EQUAL	DUAL REMOTE HEAD, 12VDC, 6W, MR16 LED
	EF9M-LJ	EMERGLITE OR APPROVED EQUAL	SINGLE REMOTE HEAD, 12VDC, 6W, MR16 LED
	EA1WIDN	EMERGLITE OR APPROVED EQUAL	SELF POWERED RUNNING EXIT SIGN, SINGLE FACE, WALL OR CEILING MOUNT AS INDICATED, ARROWS AS INDICATED, LED LAMPS FOR 120VAC, CSA-C860-96 LISTED & CERTIFIED
	EA2WIDN	EMERGLITE OR APPROVED EQUAL	SELF POWERED RUNNING EXIT SIGN, DOUBLE FACE, WALL OR CEILING MOUNT AS INDICATED, ARROWS AS INDICATED, LED LAMPS FOR 120VAC, CSA-C860-96 LISTED & CERTIFIED

EMERGENCY LIGHTING BATTERY PACKS				
PACK #	SIZE	CIRCUIT	# OF 5W HEADS	# OF 6W HEADS
EM1	72W	M-1	-	2
EM2	72W	M-3	-	2
EM3	36W	M-5	-	2
EM4	36W	P-3	1	-
EM5	100W	A-9	2	-
EM6	72W	A-11	1	-
EM7	36W	P-1	2	-

Rev.	Date	Description	By	App.
0	22/05/02	ISSUED FOR PERMIT & TENDER	PGB	-

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1 MAIN FLOOR LIGHTING LAYOUT PLAN
 E4 SCALE: 1:75

LIGHTING SCHEDULE			
SYMBOL	MODEL NUMBER	MANUFACTURER	DESCRIPTION
A	22FP2140C	EATON-METALUX OR APPROVED EQUAL	2'x2' LED FLAT PANEL, 2494 LUMENS (20.7W), 4000K, 120V
B	22FP3240C	EATON-METALUX OR APPROVED EQUAL	2'x2' LED FLAT PANEL, 3560 LUMENS (30W), 4000K, 120V
C	22FP4240C	EATON-METALUX OR APPROVED EQUAL	2'x2' LED FLAT PANEL, 4465 LUMENS (38.3W), 4000K, 120V
D	4SNLED-LD5-56SL-LN-UNV-L840-CD1-U	EATON-METALUX OR APPROVED EQUAL	4' SURFACE MOUNTED STRIP LIGHT, SEMI-FROST LENS, 5708 LUMENS (46W), 120V, 4000K, 0-10V DIMMING DRIVER
F	4SNLED-LD5-64SL-LN-UNV-L840-CD1-U	EATON-METALUX OR APPROVED EQUAL	4' SURFACE MOUNTED STRIP LIGHT, SEMI-FROST LENS, 6435 LUMENS (55W), 120V, 4000K, 0-10V DIMMING DRIVER
G	4ILED-LD5-14-W-FL-UNV-L840-CD2-U C/W CHAIN SET (SEE DESCRIPTION)	EATON-METALUX OR APPROVED EQUAL	4' INDUSTRIAL LED LINEAR BAY FIXTURE, WIDE DISTRIBUTION, FROSTED ACRYLIC LENS AND FRAME, ~14000 LUMENS, 98W, 120V, 4000K C/W CHAIN SET TO MOUNT LIGHTS AT ~20" A.F.F. IN A SLOPED CEILING
H	SLD405840WH C/W 4" COMPATIBLE HOUSING	EATON-HALO OR APPROVED EQUAL	4" SURFACE LED DOWNLIGHT, 80CRI, 120V, WHITE, 4000K, 800 LUMENS (12.2W), WET LOCATION LISTED
J	SMD4R695WH-SMD4RTRMxx C/W 4" COMPATIBLE HOUSING	EATON-HALO OR APPROVED EQUAL	4" SURFACE LED DOWNLIGHT, 90CRI, 120V, WHITE, 4000K, 600 LUMENS (9W), WET LOCATION LISTED

LIGHTING SCHEDULE			
SYMBOL	MODEL NUMBER	MANUFACTURER	DESCRIPTION
K	WDGE2-LED-P1-40K-80CRI-TFTM-MVOLT-SRM-PIRH1FC3V-DBLXD	LITHONIA LIGHTING	WALL MOUNTED LED FIXTURE, P1 LUMEN PACKAGE (1,133 LUMENS, 11W), 80CRI, FORWARD THROW MEDIUM DISTRIBUTION, 120V, SURFACE MOUNT BRACKET, BI-LEVEL MOTION SENSOR FOR 15-30' MOUNTING HEIGHTS WITH PHOTOCELL PRE-PROGRAMMED FOR DUSK TO DAWN OPERATION, BLACK IN COLOUR
L	WDGE1-LED-P1-40K-80CRI-VF-MVOLT-SRM-PE-DBLXD	LITHONIA LIGHTING	WALL MOUNTED LED FIXTURE, P1 LUMEN PACKAGE (1,200 LUMENS, 10W), 80CRI, VISUAL COMFORT FORWARD THROW, 120V, SURFACE MOUNT BRACKET, BUTTON TYPE PHOTOCELL, BLACK IN COLOUR

LIGHTING CONTROLS SCHEDULE			
SYMBOL	MODEL NUMBER	MANUFACTURER	DESCRIPTION
\$A	LVS-M-1-PL-WH	HUBBELL	MANUAL ON/OVERRIDE OFF LOW VOLTAGE MOMENTARY SWITCH, WHITE IN COLOUR
\$B	LVS-L-1-PL-WH	HUBBELL	AUTO ON/OVERRIDE OFF LOW VOLTAGE LATCHING SWITCH, WHITE IN COLOUR
\$C	LHMTS1	HUBBELL	PASSIVE, DUAL TECHNOLOGY WALL SWITCH OCCUPANCY SENSOR, 120V, WHITE IN COLOUR, PROGRAMMED AUTO-ON (WALL PLATE NOT INCLUDED)
\$T	--	--	TIMER SWITCH COMPATIBLE WITH LED LIGHTING
\$D	LVSD-ML-4-WH	HUBBELL OR APPROVED EQUAL	MANUAL ON/OVERRIDE OFF LOW VOLTAGE MOMENTARY/LATCHING DIMMING SWTCH, WHITE IN COLOUR
PP	UVPP/UVPPM/MPSA	HUBBELL	UNIVERSAL VOLTAGE POWER PACK/AUXILIARY PACK
0/3	OMNID2000BP1277	HUBBELL	DUAL TECHNOLOGY, 360° CEILING MOUNTED SENSOR, LINE VOLTAGE, WHITE IN COLOUR
0/3	OMNID2000	HUBBELL	DUAL TECHNOLOGY, 360° CEILING MOUNTED SENSOR, LOW VOLTAGE, WHITE IN COLOUR C/W MANUAL ON/OFF POWER PACK
0/3	PIR1000H	HUBBELL	PASSIVE INFRARED CEILING HALLWAY SENSOR, 16'x18' LINEAR FEET

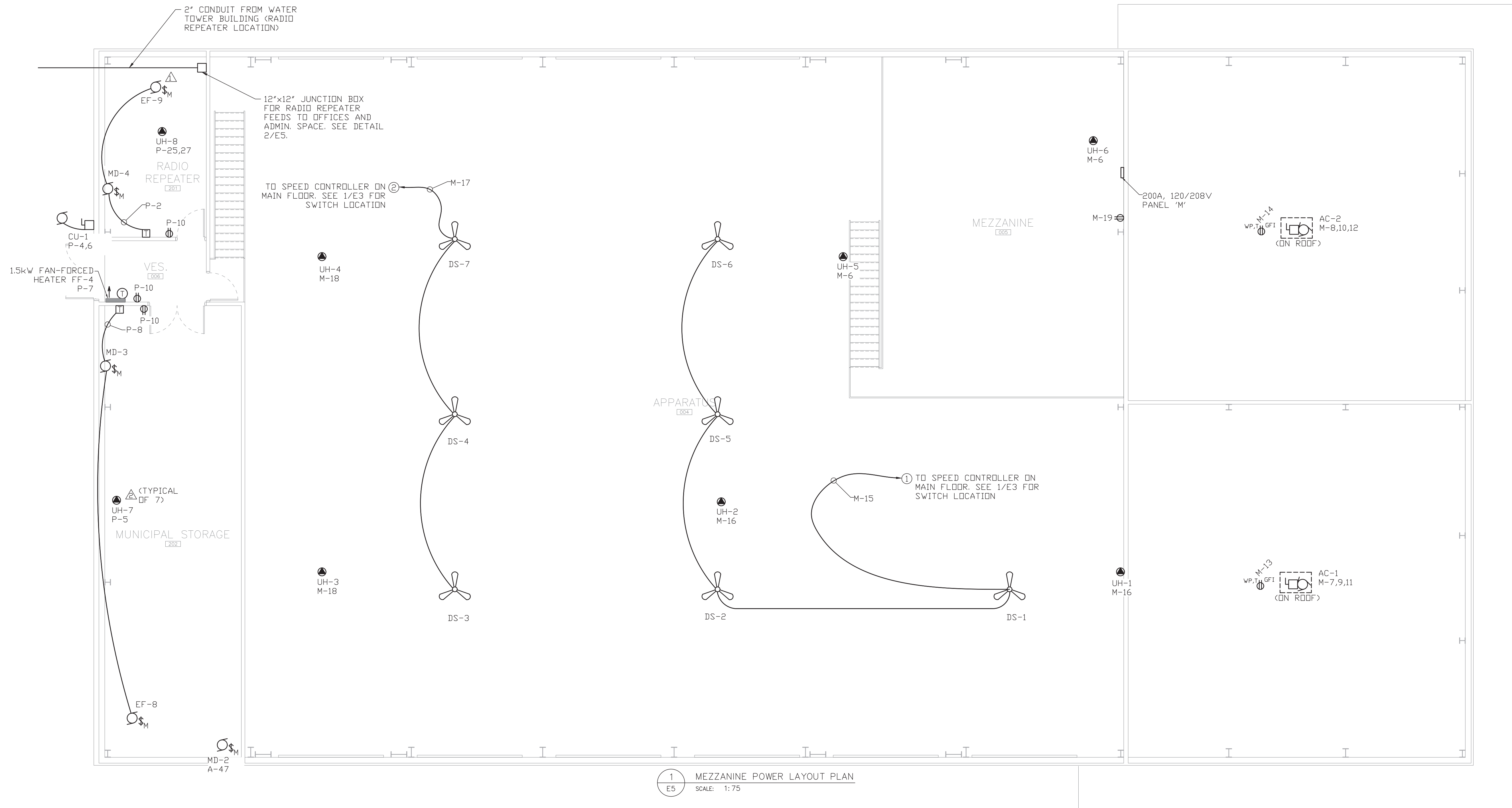
PROFESSIONAL ENGINEER
 P.G.P. BERTHELOT
 May 2/22
 PROVINCE OF ONTARIO
 ELECTRICAL BCIN 23396

DWN. T. ST. JEAN
 CHK. P. BERTHELOT
 DSN. PGB/TMS
 SCALE: AS NOTED

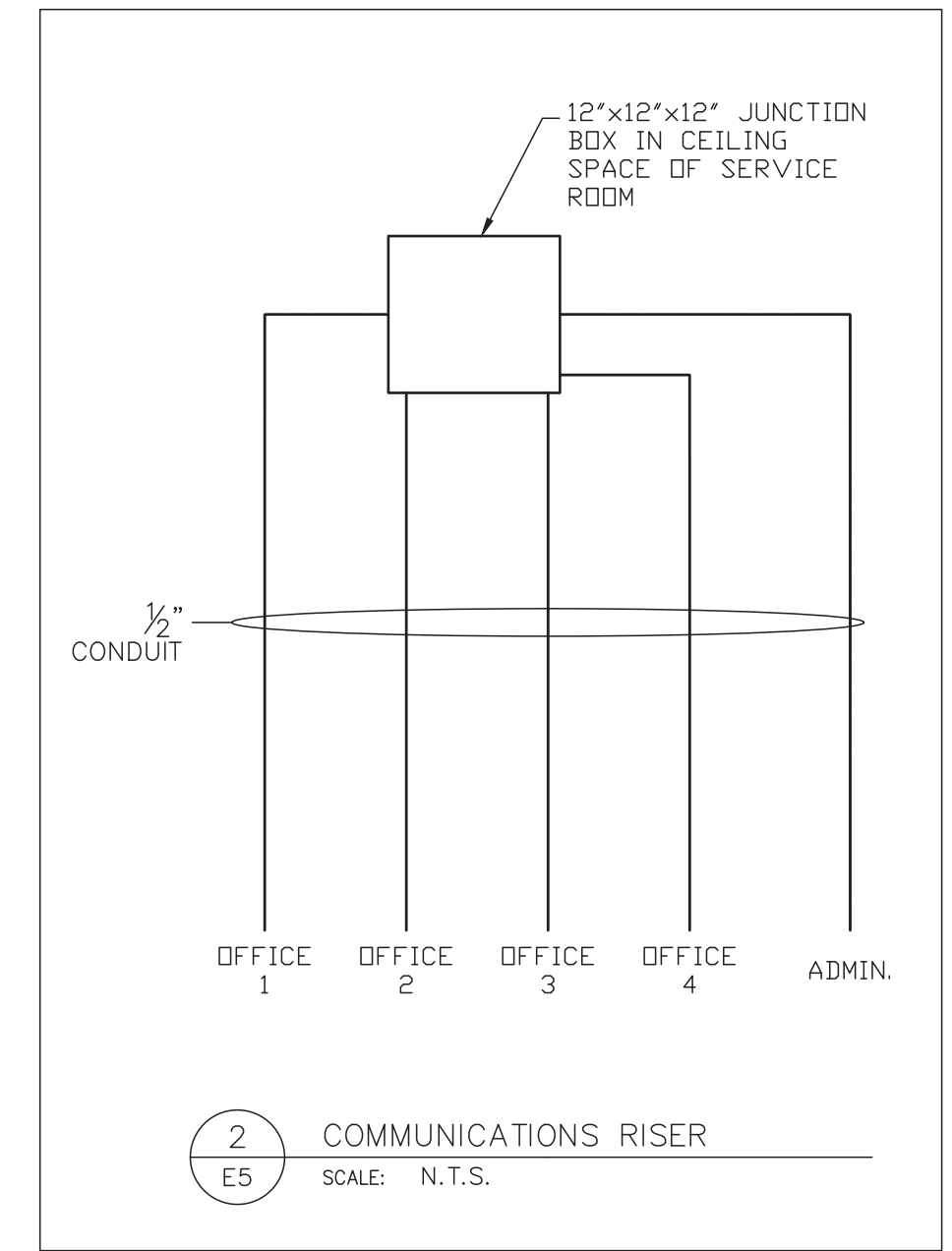
PROJECT
NEW FIRE STATION No. 1
 988 County Road 10
 Millbrook, Ontario

TITLE
MAIN FLOOR LIGHTING LAYOUT PLAN

FILE No. 473 DWG. No. **E4**



1 MEZZANINE POWER LAYOUT PLAN
E5 SCALE: 1:75



POWER LEGEND	
▽	DATA/PHONE OUTLET
●	DIRECT CONNECTION
\$w	MOTOR RATED SWITCH
○	SINGLE PHASE MOTOR
⊗	THREE PHASE MOTOR
□	DISCONNECT SWITCH
⊠	MOTOR STARTER
■	AUTOMATIC DOOR PUSHBUTTONS
□	LOCK BUTTON
\$sc	SPEED CONTROLLER SWITCH
\$vb	MASTER GARAGE DOOR OPENER SWITCH
▨	ELECTRICAL PANEL
⊕	DESTRATIFICATION FAN

RECEPTACLE LEGEND	
⊕	RECEPTACLE
⊕	240V RECEPTACLE
WP	WEATHERPROOF
T	20A T-SLOT
C	CEILING MOUNTED
CR	RETRACTABLE CORD REEL
GFI	GROUND FAULT INTERRUPTED
•	MOUNTED ABOVE COUNTER

Rev.	Date	Description	By	App.
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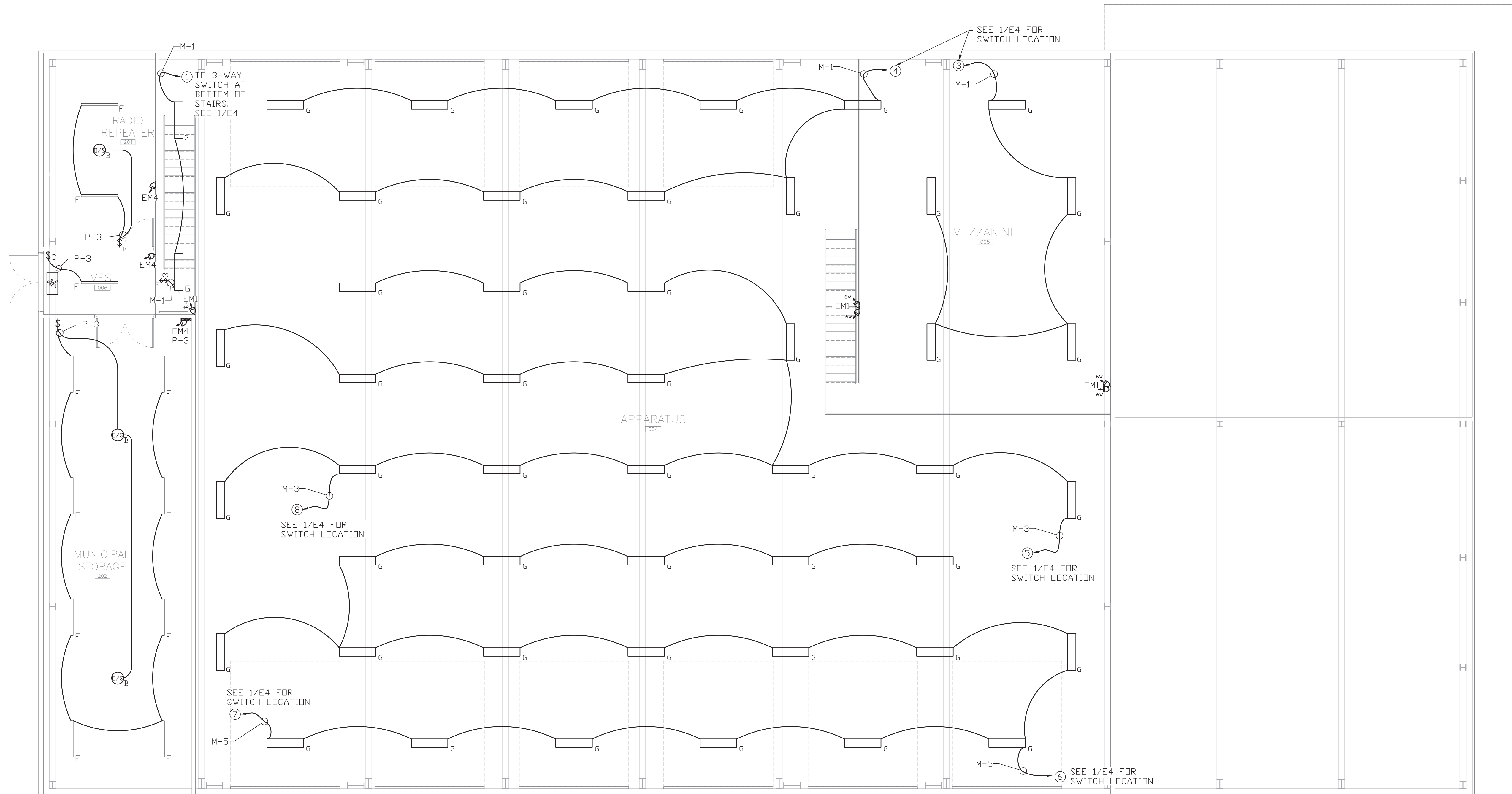
	DWN.	T. ST. JEAN
	CHK.	P. BERTHELOT
	DSN.	PGB/TMS
	SCALE:	AS NOTED

PROJECT
NEW FIRE STATION No. 1
 988 County Road 10
 Millbrook, Ontario

TITLE
MEZZANINE POWER LAYOUT PLAN

FILE No. 473 DWG. No. **E5**

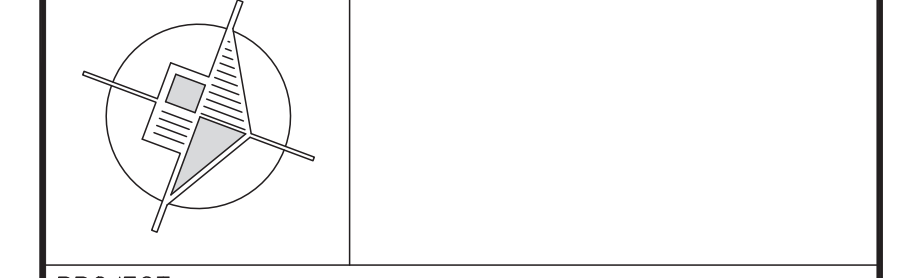
NOTES:
 △ UH-8 IS SUPPLIED AND INSTALLED BY ELECTRICAL.
 △ UH-1, UH-2, UH-3, UH-4, UH-5, UH-6, & UH-7 ARE SUPPLIED AND INSTALLED BY MECHANICAL, WIRED BY ELECTRICAL.



Rev.	Date	Description	By	App.
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	DSN.	PGB/TMS
	SCALE:	AS NOTED

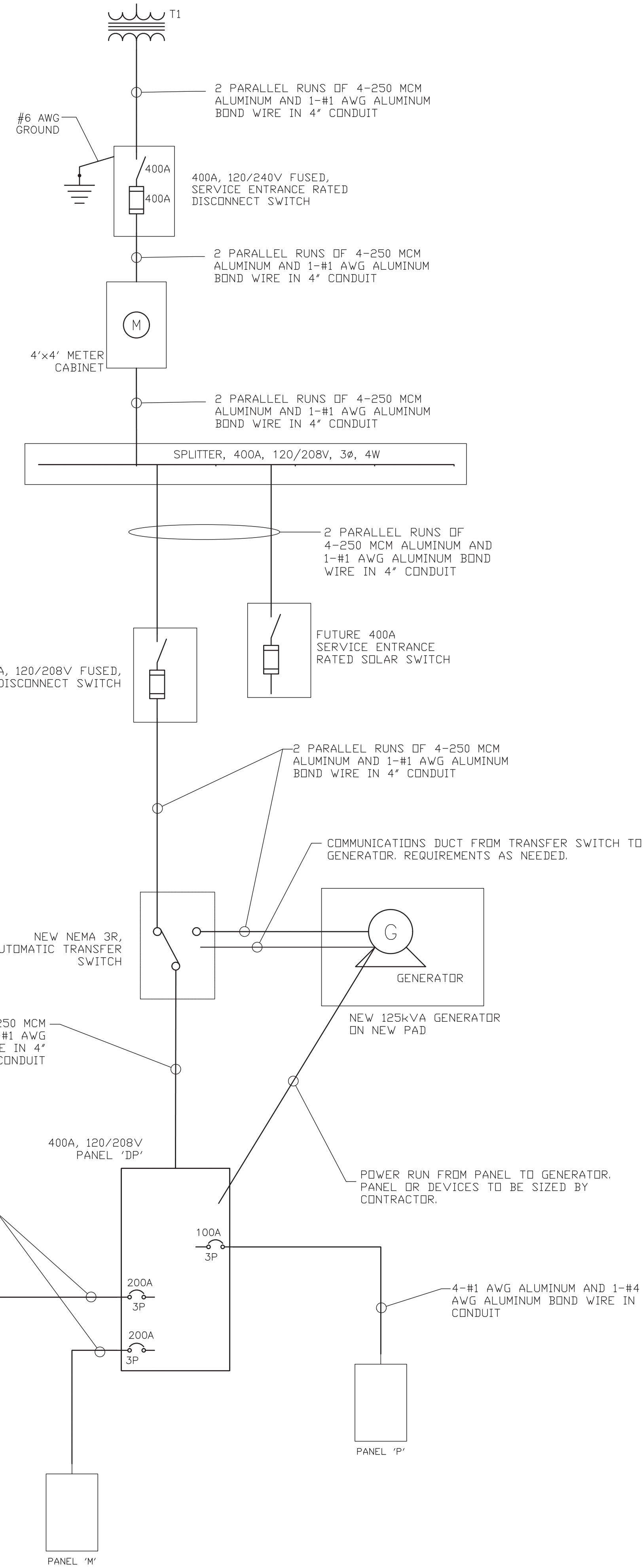


PROJECT
NEW FIRE STATION No. 1
 988 County Road 10
 Millbrook, Ontario

TITLE
**MEZZANINE LIGHTING
LAYOUT PLAN**

FILE No. 473 DWG. No. **E6**

1 MEZZANINE LIGHTING LAYOUT PLAN
 E6 SCALE: 1:75



1 SINGLE LINE DIAGRAM
E7 SCALE: N.T.S.

PANEL:	LOCATION:	ELECTRICAL ROOM	VOLTAGE:	208/120V 3P 4W	IC RATING:	10kA
DP	TYPE:	SURFACE MOUNTED	MAIN BUS:	400A	CIRCUITS:	30
	FED FROM:	TRANSFER SWITCH	MAIN BREAKER:	400A		

CIRCUIT DESCRIPTION	LOAD (kVA)	CCT BKR	CCT #	PHASE	CCT #	CCT BKR	LOAD (kVA)	CIRCUIT DESCRIPTION
PANEL 'A'	x	200A	1	a	2	x	x	PANEL 'M'
	x		3	b	4	x	x	
	x		5	c	6	x	x	
PANEL 'P'	x	100A	7	a	8	x	x	x
	x		9	b	10	x	x	x
	x		11	c	12	x	x	x
x	x	x	13	a	14	x	x	x
x	x	x	15	b	16	x	x	x
x	x	x	17	c	18	x	x	x
x	x	x	19	a	20	x	x	x
x	x	x	21	b	22	x	x	x
x	x	x	23	c	24	x	x	x
x	x	x	25	a	26	x	x	x
x	x	x	27	b	28	x	x	x
x	x	x	29	c	30	x	x	x

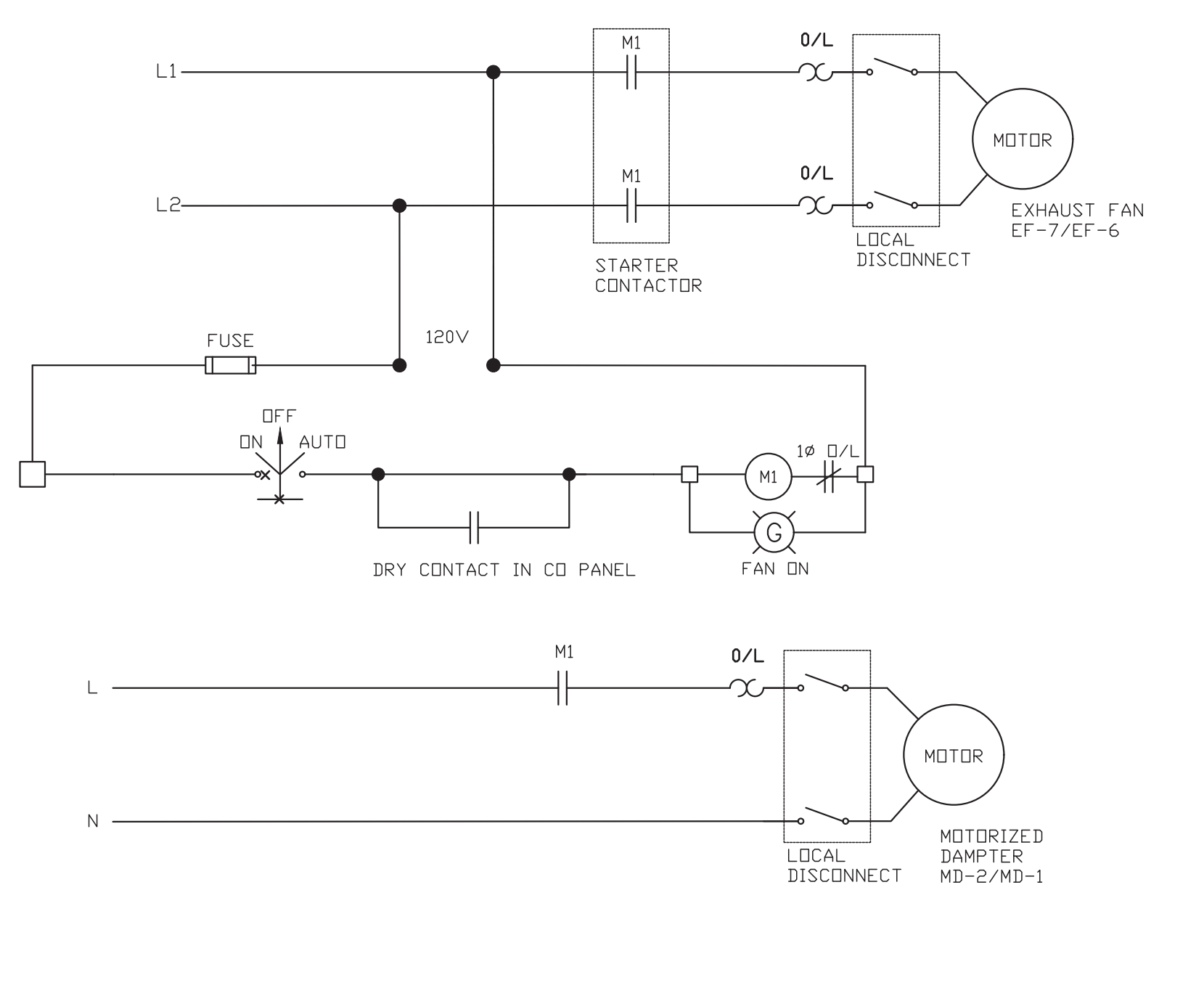
PANEL:	LOCATION:	ELECTRICAL ROOM	VOLTAGE:	208/120V 3P 4W	IC RATING:	10kA
A	TYPE:	SURFACE MOUNTED	MAIN BUS:	225A	CIRCUITS:	84
	FED FROM:	T1	MAIN BREAKER:	200A		

CIRCUIT DESCRIPTION	LOAD (kVA)	CCT BKR	CCT #	PHASE	CCT #	CCT BKR	LOAD (kVA)	CIRCUIT DESCRIPTION
FF-1	x	15A	1	a	2	15A	x	OFFICE 1 & 3 RECEPTACLES
	x		3	b	4	15A	x	OFFICE 2 RECEPTACLES
FF-2	x	15A	5	c	6	15A	x	OFFICE 4 RECEPTACLES
	x		7	a	8	15A	x	ADMIN. AREA RECEPTACLES
TRAINING/PPE/WASHROOM LTG	x	20A	9	b	10	15A	x	VESTIBULE/CORRIDOR REC.
OFFICE/KITCHEN/ADMIN LTG	x	15A	11	c	12	15A	x	UNIVERSAL WASHRM GFCI REC.
SOFFIT LIGHTING	x	15A	13	a	14	15A	x	UNIV. WASHRM DOOR OPS
OUTSIDE LIGHTING	x	15A	15	b	16	15A	x	U.W. EMERG. CALL SYS. TX
PPE CLEANING REC.	x	15A	17	c	18	20A	x	KITCHEN T-SLOT RECEPTACLE
HOT WATER TANK	x	15A	19	a	20	20A	x	KITCHEN T-SLOT RECEPTACLE
RECIRC. PUMP	x	15A	21	b	22	20A	x	KITCHEN T-SLOT RECEPTACLE
ERV-1	x	15A	23	c	24	20A	x	KITCHEN T-SLOT RECEPTACLE
BB-5/BB-6/BB-7	x	20A	25	a	26	15A	x	KITCHEN FRIDGE RECEPTACLE
CO-NO2 SYSTEM 1	x	15A	27	b	28	15A	x	CO-NO2 SYSTEM 2
TRAINING RM FLOOR BOX REC.	x	15A	29	c	30	15A	x	TRAINING ROOM RECEPTACLES
TRAINING RM FLOOR BOX REC.	x	15A	31	a	32	15A	x	TRAINING ROOM RECEPTACLES
FF-3	x	15A	33	b	34	15A	x	TRAINING RM PROJECTOR REC.
	x		35	c	36	15A	x	OUTSIDE GFCI RECEPTACLES
EF-7 STARTER	x	15A	37	a	38	15A	x	OUTSIDE GFCI RECEPTACLES
MD-1	x	15A	41	c	42	15A	x	DISPLAY BOARD POWER

NOTES:
 (1) CONFIRM BREAKER SIZE WITH EQUIPMENT
 (2) BREAKER SHALL BE LOCKED AND PAINTED RED

PANEL:	LOCATION:	ELECTRICAL ROOM	VOLTAGE:	208/120V 3P 4W	IC RATING:	10kA
M	TYPE:	SURFACE MOUNTED	MAIN BUS:	225A	CIRCUITS:	66
	FED FROM:	T1	MAIN BREAKER:	200A		

CIRCUIT DESCRIPTION	LOAD (kVA)	CCT BKR	CCT #	PHASE	CCT #	CCT BKR	LOAD (kVA)	CIRCUIT DESCRIPTION
APPARATUS/MEZZ LIGHTING	x	20A	1	a	2	x	x	AIR COMPRESSOR
APPARATUS LIGHTING	x	20A	3	b	4	x	x	AIR COMPRESSOR
APPARATUS LIGHTING	x	20A	5	c	6	15A	x	UH-5 + UH-6
	x		7	a	8	x	x	
AC-1	x	30A	9	b	10	30A	x	AC-2
	x		11	c	12	x	x	
AC-1 CONVENIENCE T-SLOT	x	20A	13	a	14	20A	x	AC-2 CONVENIENCE T-SLOT
DS-1/2/5/6	x	20A	15	b	16	15A	x	UH-1 + UH-2
DS-3/4/7	x	20A	17	c	18	15A	x	UH-3 + UH-4
MEZZANINE RECEPTACLE	x	15A	19	a	20	15A	x	CORD REEL RECEPTACLE
OVERHEAD DOOR	x	20A	21	b	22	15A	x	CORD REEL RECEPTACLE
	x		23	c	24	15A	x	CORD REEL RECEPTACLE
OVERHEAD DOOR	x	20A	25	a	26	15A	x	CORD REEL RECEPTACLE
	x		27	b	28	15A	x	CORD REEL RECEPTACLE
OVERHEAD DOOR	x	20A	29	c	30	15A	x	CORD REEL RECEPTACLE
	x		31	a	32	15A	x	CORD REEL RECEPTACLE
OVERHEAD DOOR	x	20A	33	b	34	15A	x	CORD REEL RECEPTACLE
	x		35	c	36	15A	x	CORD REEL RECEPTACLE
OVERHEAD DOOR	x	20A	37	a	38	15A	x	CORD REEL RECEPTACLE
	x		39	b	40	x	x	CORD REEL RECEPTACLE
OVERHEAD DOOR	x	20A	41	c	42	20A	x	OVERHEAD DOOR
	x		43	a	44	x	x	
OVERHEAD DOOR	x	20A	45	b	46	x	x	OVERHEAD DOOR
	x		47	c	48	x	x	
OVERHEAD DOOR	x	20A	49	a	50	30A	x	DH-1
	x		51	b	52	20A	x	SPARE
x	x	x	53	c	54	20A	x	SPARE
x	x	x	55	a	56	20A	x	SPARE
x	x	x	57	b	58	15A	x	SPARE
x	x	x	59	c	60	15A	x	SPARE
x	x	x	61	a	62	15A	x	SPARE
x	x	x	63	b	64	15A	x	SPARE
x	x	x	65	c	66	15A	x	SPARE



1 EF-7/MD-1/CO-NO2 DETECTION 1 & EF-6/MD-2/CO-NO2 DETECTION 2 SCHEMATIC
E6 SCALE: N.T.S.

PANEL:	LOCATION:	ELECTRICAL ROOM	VOLTAGE:	208/120V 3P 4W	IC RATING:	10kA
P	TYPE:	SURFACE MOUNTED	MAIN BUS:	225A	CIRCUITS:	42
	FED FROM:	T1	MAIN BREAKER:	200A		

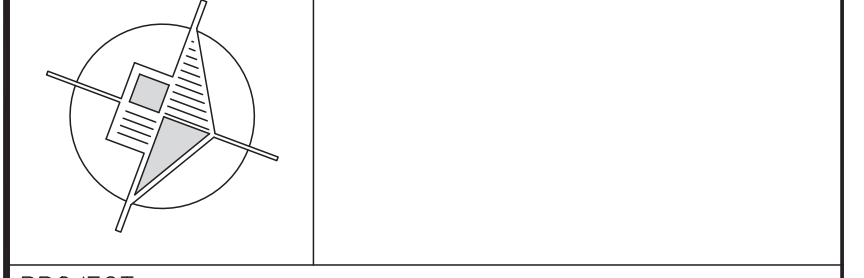
CIRCUIT DESCRIPTION	LOAD (kVA)	CCT BKR	CCT #	PHASE	CCT #	CCT BKR	LOAD (kVA)	CIRCUIT DESCRIPTION
PARAMEDICS LIGHTING	x	15A	1	a	2	15A	x	EF-9 + MD-4
2ND FLOOR/PCCP LIGHTING	x	15A	3	b	4	20A	x	CU-1
UH-7	x	15A	5	c	6	x	x	
FF-4	x	20A	7	a	8	15A	x	EF-8 + MD-3
ERV-1	x	15A	9	b	10	15A	x	2ND FLOOR RECEPTACLE
DH-2	x	15A	11	c	12	20A	x	PCCP SUPPLY T-SLOT
SAC-1	x	15A	13	a	14	20A	x	PCCP SUPPLY T-SLOT
PCCP NARC MEDS FRIDGE	x	15A	15	b	16	15A	x	PCCP SUPPLY RECEPTACLE
PCCP NARC RECEPTACLE	x	15A	17	c	18	20A	x	BB-2/3/4
PCCP QUIET RECEPTACLE	x	15A	19	a	20	20A	x	PCCP CREW T-SLOT REC
WIR GFCI RECEPTACLE	x	15A	21	b	22	20A	x	PCCP CREW T-SLOT REC
OUTSIDE RECEPTACLE	x	15A	23	c	24	20A	x	PCCP CREW T-SLOT REC
UH-7	x	15A	25	a	26	15A	x	PCCP CREW FRIDGE REC
	x		27	b	28	15A	x	PCCP CREW REC
SPARE	x	15A	29	c	30	x	x	
SPARE	x	15A	31	a	32	x	x	
SPARE	x	15A	33	b	34	x	x	
SPARE	x	20A	35	c	36	x	x	
SPARE	x	20A	37	a	38	x	x	
	x		39	b	40	x	x	
	x		41	c	42	15A	x	EXIT SIGNS [1]

(1) BREAKER SHALL BE LOCKED AND PAINTED RED

Rev.	Date	Description	By	App.
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DWN.	T. ST. JEAN
CHK.	P. BERTHELOT
DSN.	PGB/TMS
SCALE:	AS NOTED



PROJECT
NEW FIRE STATION No. 1
 988 County Road 10
 Millbrook, Ontario

TITLE
SINGLE LINE DIAGRAM AND PANEL SCHEDULES

FILE No.	473	DWG. No.	E7
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