

ELECTRICAL NOTES

ELECTRICAL DRAWINGS SHALL BE READ IN CONJUNCTION WITH ALL OTHER DRAWINGS FOR THIS PROJECT.

1. GENERAL:

1.

CONFORM WITH APPLICABLE REQUIREMENTS OF THE MINISTRY OF LABOUR, AND THE OCCUPATIONAL HEALTH AND SAFETY ACT AND REGULATIONS FOR CONSTRUCTION PROJECTS.
2.

DO COMPLETE INSTALLATION IN ACCORDANCE WITH THE FOLLOWING:

1.

ONTARIO ELECTRICAL SAFETY CODE;

2.

ELECTRICAL SAFETY AUTHORITY;

3.

ELECTRICAL SUPPLY AUTHORITY;

3.

SUBMIT TO ELECTRICAL SAFETY AUTHORITY AND SUPPLY AUTHORITY NECESSARY NUMBER OF DRAWINGS AND SPECIFICATIONS FOR APPROVAL PRIOR TO COMMENCEMENT OF WORK.

4.

GENERAL CONTRACTOR AND ELECTRICAL CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR COORDINATING AND OBTAINING ELECTRICAL SERVICE LAYOUT FROM THE SUPPLY AUTHORITY.

5.

PAY ALL ELECTRICAL PERMIT AND INSPECTION FEES.

6.

GROUND COMPLETE SYSTEM IN ACCORDANCE WITH THE ONTARIO ELECTRICAL SAFETY CODE AND ELECTRICAL SAFETY AUTHORITY.

7.

IDENTIFICATION AND LABELLING:

1.

IDENTIFY ELECTRICAL EQUIPMENT WITH LAMICOID NAMEPLATES, INCLUDING AMPERAGE, VOLTAGE, PHASE AND POWER SOURCE.

2.

PROVIDE TYPEWRITTEN PANEL DIRECTORIES.

3.

PROVIDE ADHESIVE LABEL ON ALL SWITCH, RECEPTACLE AND DEVICE COVER PLATES INDICATING SUPPLY CIRCUIT DESIGNATION.

4.

CONDUIT AND CABLE IDENTIFICATION:

1.

ACCESS CONTROL – PURPLE;

2.

DATA – BLUE;

3.

FIRE ALARM – RED;

4.

INTRUSION DETECTION SYSTEM – YELLOW;

5.

MECHANICAL CONTROL – ORANGE;

6.

SURVEILLANCE – GREEN;

7.

TELEPHONE AND PA SYSTEM – WHITE.

8.

PROVIDE DIGITAL AND HARD COPY OF COMPLETE OPERATING AND MAINTENANCE INSTRUCTIONS FOR EQUIPMENT FURNISHED UNDER THIS CONTRACT. BIND INSTRUCTIONS IN 3-RING BINDERS. INCLUDE THE FOLLOWING:

1.

SCHEMATIC DIAGRAM OF ELECTRICAL SYSTEMS.

2.

CONTROL SHOP DRAWINGS AND OPERATING SEQUENCE INCLUDING WIRING OF COMPONENTS.

3.

WIRING DIAGRAM OF CONTROL PANELS.

4.

OPERATING INSTRUCTIONS, INCLUDING START-UP AND SHUT-DOWN PROCEDURE.

5.

MAINTENANCE INSTRUCTIONS INCLUDING PREVENTIVE MAINTENANCE INSTRUCTIONS FOR COMPONENTS OF THE EQUIPMENT.

6.

COMPLETE PARTS LIST OF ASSEMBLIES AND THEIR COMPONENT PARTS, SHOWING MANUFACTURER'S NAME, CATALOGUE NUMBER, AND NEAREST REPLACEMENT SOURCE.

7.

LIST OF RECOMMENDED SPARE PARTS AND QUANTITY OF EACH ITEM TO BE STOCKED.

8.

MANUFACTURERS' WARRANTIES AND GUARANTEES.

9.

CLEAN ALL ELECTRICAL SYSTEMS AT PROJECT COMPLETION.

10.

COMPLETE AS-BUILT DRAWINGS SHOWING ALL CHANGES AS WORK PROGRESSES.

2.

CONTRACTOR QUALIFICATIONS:

1.

ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE FOLLOWING:

1.

ONTARIO ELECTRICAL SAFETY CODE (AND IN PARTICULAR SECTION 2 ADMINISTRATION GENERAL RULES, WHERE CODE APPLICATION IS DEFINED FOR ITEMS WHICH THE CODE DOES NOT APPLY – IT IS NOT BASED ON VOLTAGE); AND

2.

ONTARIO REGULATION 570/05, LICENSING OF ELECTRICAL CONTRACTORS AND MASTER ELECTRICIANS, MADE UNDER THE ELECTRICITY ACT 1998 (THIS ACT AND REGULATION CAN BE FOUND ON THE ONTARIO E-LAWS WEBSITE).

3.

ALL WORK TO BE CARRIED OUT IN ACCORDANCE WITH THE "TRADES QUALIFICATION AND APPRENTICESHIP ACT" AND REGULATIONS, BY PERSONS WHO HOLD THE FOLLOWING CERTIFICATES OF QUALIFICATION (AS APPLICABLE):

1.

ELECTRICIAN: CONSTRUCTION & MAINTENANCE.

4.

ALL FIRE ALARM SYSTEM WORK SHALL BE PERFORMED BY PERSONS WHO HOLD ELECTRICIAN QUALIFICATIONS (ABOVE), AND IN ADDITION, WHO HOLD THE FOLLOWING CURRENT REGISTRATION WITH THE CANADIAN FIRE ALARM ASSOCIATION (CFAA):

1.

FIRE ALARM TECHNICIAN.

3.

EXISTING FACILITIES AND DEMOLITION:

1.

LOCATE AND PROTECT ALL EXISTING EXTERIOR SITE SERVICES.

2.

RETAIN AND PROTECT ALL EXISTING INTERIOR SERVICES AND BUILDING FABRIC. MAKE GOOD ANY AND ALL DAMAGE RESULTING FROM THIS WORK.

3.

CONNECTIONS TO EXISTING SERVICES SHALL BE COORDINATED WITH THE OWNER.

4.

EXECUTE WORK WITH LEAST POSSIBLE INTERFERENCE OR DISTURBANCE TO NORMAL USE OF THE EXISTING BUILDING.

5.

ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR RELOCATING DEVICES, CONDUIT AND WIRING, ENCOUNTERED IN THE CLASSROOM AND CORRIDOR CEILING SPACES, WHICH CONFLICT WITH NEW ARCHITECTURAL, MECHANICAL OR ELECTRICAL CONSTRUCTION.

6.

CUTTING AND PATCHING:

1.

EXECUTE CUTTING, FITTING AND PATCHING REQUIRED TO MAKE THE WORK FIT PROPERLY TOGETHER. CUT AND PATCH FOR PROCESS, MECHANICAL AND ELECTRICAL WORK.

2.

COORDINATE WORK WITH OTHER TRADES SO THAT THERE IS A MINIMUM OF CUTTING, FITTING AND PATCHING.

3.

DRILLING, CUTTING, FITTING AND PATCHING AND MAKING GOOD WHERE NECESSARY DUE TO FAILURE TO DELIVER ITEMS TO BE BUILT IN TIME OR INSTALLATION IN WRONG LOCATION, SHALL BE EXECUTED AS DIRECTED AT NO COST TO THE OWNER.

4.

DRILLING AND CUTTING OF LOAD BEARING STRUCTURAL MEMBERS SHALL BE DONE ON PRIOR EXPRESS WRITTEN PERMISSION OF THE ENGINEER FOR EACH INSTANCE.

5.

CUT HOLES ACCURATELY, WITH SMOOTH, TRUE, CLEAN EDGES. FIT UNITS TO TOLERANCES TO BEST STANDARD PRACTICE FOR APPLICABLE WORK.

6.

HOLES IN BLOCK AND CONCRETE WORK SHALL BE SAWCUT OR CORE-DRILLED, AND SHALL NOT BE MADE WITH A HAMMER GUN.

7.

PATCHED WORK SHALL BE INVISIBLE, SIZE HOLES AND OPENINGS FOR PIPES SO AS TO ALLOW FOR EXPANSION AND CONTRACTION OF SUCH PIPES.

7.

DESIGNATED SUBSTANCES:

1.

DESIGNATED SUBSTANCES SHALL BE TREATED IN ACCORDANCE WITH THE REQUIREMENTS OF THE OCCUPATIONAL HEALTH AND SAFETY ACT AND REGULATIONS.

2.

SHOULD ANY DESIGNATED SUBSTANCES BE ENCOUNTERED IN THE AREA OF CONSTRUCTION, ALL WORK SHALL STOP IMMEDIATELY, AND THE OWNER AND ENGINEER SHALL BE NOTIFIED IMMEDIATELY.

3.

IF APPLICABLE, ASBESTOS REMOVAL SHALL BE COMPLETED IN ACCORDANCE WITH THE OCCUPATIONAL HEALTH AND SAFETY ACT AND ONTARIO REGULATION 278 "DESIGNATED SUBSTANCE – ASBESTOS ON CONSTRUCTION PROJECTS AND IN BUILDINGS AND REPAIR OPERATIONS".

4.

FIXTURES AND EQUIPMENT:

1.

PROVIDE SHOP DRAWINGS AND PRODUCT DATA FOR ALL ELECTRICAL FIXTURES AND EQUIPMENT FOR APPROVAL, PRIOR TO PROCUREMENT.

2.

INSTALL ALL ELECTRICAL FIXTURES AND EQUIPMENT IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. EQUIPMENT AND MATERIAL TO BE CSA CERTIFIED. WHERE THERE IS NO ALTERNATIVE TO SUPPLYING EQUIPMENT WHICH IS NOT CSA CERTIFIED, OBTAIN SPECIAL APPROVAL FROM ELECTRICAL SAFETY AUTHORITY.

5.

EQUIPMENT SUPPLIED BY OTHERS:

1.

GENERAL CONTRACTOR SHALL ASSUME FULL REPOSIBILITY FOR COORDINATING ELECTRICAL SERVICES AND CONNECTIONS FOR ALL EQUIPMENT, INCLUDING EQUIPMENT SUPPLIED BY TRADES OTHER THAN ELECTRICAL.

2.

ELECTRICAL CONTRACTOR SHALL TAKE FULL REPOSIBILITY FOR MAKING ALL ELECTRICAL SERVICE CONNECTIONS TO EQUIPMENT SUPPLIED BY OTHERS, INCLUDING:

1.

REVIEW OF ALL SHOP DRAWINGS FOR EQUIPMENT SUPPLIED BY OTHERS, WHICH REQUIRE ELECTRICAL CONNECTIONS.

2.

VERIFY AND CONFIRM ALL SERVICE CONNECTIONS WITH MANUFACTURER, SUPPLIER AND OTHER TRADES, PRIOR TO PROCUREMENT OF ELECTRICAL PANELS, BREAKERS, WIRE/CABLE, DISCONNECT SWITCHES, MOTOR STARTERS, RECEPTACLES AND RELATED EQUIPMENT.

3.

REVIEW OF EQUIPMENT SUPPLIED BY OTHERS, SHALL INCLUDE ALL CONNECTION SIZES, LOCATIONS AND DETAILS, AND SHALL TAKE INTO ACCOUNT EQUIPMENT CLEARANCES AND INSTALLATION REQUIREMENTS.

6.

CONDUITS:

1.

RIGID GALVANIZED STEEL, WITH THREADED FITTINGS, WHERE SUBJECT TO MECHANICAL INIURY, IN SERVICE AREAS ONLY.

2.

ELECTRICAL METALLIC TUBING (EMT), HOT DIPPED GALVANIZED STEEL, WITH THREADED CONNECTORS AND COUPLINGS, WHERE NOT SUBJECT TO MECHANICAL INIURY, IN SERVICE AREAS ONLY.

3.

RIGID PVC CONDUIT BELOW FLOOR AND IN CORROSIVE AREAS.

7.

WIRES AND CABLE:

1.

VOLTAGE DROP:

1.

FEEDER CONDUCTORS SHALL BE SIZED FOR A MAXIMUM VOLTAGE DROP OF 2% AT DESIGN LOAD.

2.

BRANCH CIRCUIT CONDUCTORS SHALL BE SIZED FOR A MAXIMUM VOLTAGE DROP OF 3% AT DESIGN LOAD.

2.

BUILDING WIRES:

1.

SHALL BE IN CONDUIT SYSTEMS TO BE STRANDED COPPER CONDUCTORS FOR 10 AWG AND LARGER, MINIMUM SIZE 12 AWG, TYPE RW90.

3.

DIRECT BURIED CABLES TO BE COPPER, TYPE R90.

4.

ALL WIRING, CABINETS AND BOXES SHALL BE CONCEALED IN WALLS AND CEILINGS, UNLESS OTHERWISE NOTED OR APPROVED. SURFACE-MOUNTED WIRING IS NOT PERMITTED.

8.

SERVICE EQUIPMENT:

1.

ELECTRICAL SERVICE EQUIPMENT, PANELBOARDS AND DISCONNECT SWITCHES SHALL BE PRODUCT OF ONE MANUFACTURER THROUGHOUT PROJECT.

2.

LOW-VOLTAGE DRY-TYPE DISTRIBUTION TRANSFORMERS SHALL MEET THE MINIMAL NOMINAL EFFICIENCY LEVELS OF ASHRAE 90.1 (TABLE 8.4.4.).

3.

CIRCUIT BREAKERS:

1.

SUPPLY AND INSTALL GROUND FAULT & ARC-FAULT CIRCUIT PROTECTION, AS REQUIRED BY THE OESC.

4.

WORKING SPACE ABOUT ELECTRICAL EQUIPMENT SHALL BE PROVIDED IN ACCORDANCE WITH THE ONTARIO ELECTRICAL SAFETY CODE, INCLUDING THE FOLLOWING:

1.

WORKING SPACE OF 3'4" (1m) WITH SECURE FOOTING;

2.

MINIMUM HEADROOM OF 7'3" (2.2m).

9.

LIGHTING:

1.

GENERAL LIGHTING:

1.

SUPPORT ALL LIGHTING IN ACCORDANCE WITH THE ONTARIO ELECTRICAL SAFETY CODE AND BULLETINS.

2.

LIGHT FIXTURES SUPPORTED BY SUSPENDED CEILING SYSTEMS SHALL HAVE ADDITIONAL SUPPORT TO BUILDING STRUCTURE IN ACCORDANCE WITH ONTARIO ELECTRICAL SAFETY CODE BULLETIN #30-4-11.

10.

FIRE ALARM SYSTEM:

1.

FIRE ALARM SYSTEM ALTERATIONS SHALL BE INSTALLED IN ACCORDANCE WITH CAN/ULC-S524, "INSTALLATION OF FIRE ALARM SYSTEMS".

2.

FIRE ALARM SYSTEM SHALL BE VERIFIED IN ACCORDANCE WITH CAN/ULC-S537, "VERIFICATION OF FIRE ALARM SYSTEMS".

11.

FIRE PROTECTION:

1.

ELECTRICAL CONTRACTOR RESPONSIBILITY:

1.

REFER TO ARCHITECTURAL DRAWINGS, TO VERIFY LOCATION OF ALL FIRE SEPARATIONS AND FIRE-RATED MEMBRANES.

2.

PROVIDE DRAWINGS FROM HILTI AND/OR 3M FOR FIRE PROTECTION OF ALL ELECTRICAL MATERIALS, INCLUDING PANELS, BOXES, CABLE, WIRE, CONDUIT AND OUTLETS PENETRATING OR PASSING THROUGH A FIRE SEPARATION OR FIRE-RATED ASSEMBLY, FOR REVIEW BY ARCHITECT AND ENGINEER, ALL ELECTRICAL MATERIALS, INCLUDING PANELS, BOXES, CABLE, WIRE, CONDUIT AND OUTLETS SHALL BE TIGHTLY FITTED AND SEALED WITH FIRESTOPPING MATERIAL AT ALL FIRE SEPARATIONS AND FIRE-RATED MEMBRANES.

3.

ALL CABLING AND CONDUIT SHALL BE TIGHTLY FITTED AND SEALED WITH FIRESTOPPING MATERIAL AT ALL FIRE SEPARATIONS AND FIRE-RATED MEMBRANES.

2.

THE FOLLOWING CONDUCTORS SHALL BE PROTECTED IN ACCORDANCE WITH OBC 3.2.7.10:

1.

ELECTRICAL FEEDER CONDUCTORS WHICH SERVE THE HOUSE AND COMMERCIAL ELECTRICAL PANELS;

2.

THIS PROTECTION SHALL INCLUDE CONFORMANCE TO ULC-S139 "FIRE TEST EVALUATION OF INTEGRITY OF ELECTRICAL CABLES", TO PROVIDE A CIRCUIT INTEGRITY RATING OF NOT LESS THAN 1 HOUR (2 HOUR FOR TALL BUILDINGS OR CONTAINED USE AREAS OR INTERCONNECTED FLOOR SPACES).

4.

PLENUMS (OBC 3.6.4.3):

1.

ALL MATERIALS WITHIN THE PLENUM SHALL A FLAME-SPREAD RATING NOT MORE THAN 25 AND A SMOKE DEVELOPED CLASSIFICATION NOT MORE THAN 50.

5.

MOCK UPS:

1.

PREPARE MOCK-UPS OF TYPICAL FIRESTOP INSTALLATION OF THE FOLLOWING, FOR REVIEW AND APPROVAL BY THE OWNER, ENGINEER AND MUNICIPAL BUILDING INSPECTOR:

1.

ELECTRICAL PANELS, BOXES AND OUTLETS – FIRE-RATED WALL;

2.

CONDUIT AND CABLING – WALL AND CEILING/FLOOR FIRE SEPARATION.

2.

ALL FIRESTOP INSTALLATIONS SHALL BE COMPLETED IN ACCORDANCE WITH THE APPROPRIATE PRODUCT INSTALLATION INSTRUCTIONS, AND THE REFERENCED UL/ULC LISTING AND/OR TEST STANDARD.

3.

SUPPLY A COPY OF THE PRODUCT INSTALLATION INSTRUCTIONS WITH ULC LISTING AND/OR TEST STANDARD REFERENCE, FOR EACH INSTALLATION.

4.

MOCK-UP MAY REMAIN AS PART OF WORK.

12.

EARTHQUAKE LOAD:

1.

ALL ELECTRICAL WORK SHALL BE COMPLETED IN ACCORDANCE WITH THE EARTHQUAKE LOAD AND EFFECTS REQUIRED BY THE ONTARIO BUILDING CODE.

2.

ELECTRICAL ELEMENTS AND COMPONENTS (FIXTURES, EQUIPMENT, CONDUIT, ETC.), AND THEIR CONNECTIONS TO THE BUILDING SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE SMACNA/ANSI SEISMIC RESTRAINT MANUAL OR OTHER GUIDELINE REFERENCED IN THE ONTARIO BUILDING CODE AND ONTARIO ELECTRICAL SAFETY CODE.

3.

PROVIDE SHOP DRAWINGS FOR SUPPORT, CONNECTIONS AND SEISMIC RESTRAINT OF ALL ELECTRICAL FIXTURES, EQUIPMENT, AND CONDUIT, INCLUDING, BUT NOT LIMITED TO:

1.

SERVICE AND DISTRIBUTION EQUIPMENT;

2.

TRANSFORMERS;

3.

LIGHT FIXTURES;

4.

TYPICAL CONDUIT AND CABLE SUPPORTING SYSTEM.

4.

THESE SHOP DRAWINGS SHALL BE DESIGNED AND SEALED BY A PROFESSIONAL ENGINEER IN THE PROVINCE OF ONTARIO, WITH EXPERIENCE IN SEISMIC ENGINEERING.

5.

FOLLOWING PROJECT COMPLETION, SEISMIC ENGINEER SHALL PROVIDE A LETTER OF FINAL SITE REVIEW. CONTRACTOR SHALL CARRY THE COST OF THE SEISMIC ENGINEERING, INCLUDING SITE REVIEWS, DESIGN AND SHOP DRAWING PREPARATION.

13.

LOAD BALANCE:

1.

MEASURE PHASE CURRENT TO PANELBOARDS WITH NORMAL LOADS (LIGHTING) OPERATING AT TIME OF ACCEPTANCE. ADJUST BRANCH CIRCUIT CONNECTIONS AS REQUIRED TO OBTAIN BEST BALANCE OF CURRENT BETWEEN PHASES AND RECORD CHANGES.

2.

SUBMIT, AT COMPLETION OF WORK, REPORT LISTING PHASE AND NEUTRAL CURRENTS ON PANELBOARDS, OPERATING UNDER NORMAL LOAD. STATE HOUR AND DATE ON WHICH EACH LOAD WAS MEASURED, AND VOLTAGE AT TIME OF TEST.

14.

EQUIPMENT SUPPORT:

1.

ALL ELECTRICAL EQUIPMENT, CONDUIT, WIRING, LIGHTING, DEVICES, AND RELATED ITEMS SHALL BE SECURELY SUPPORTED, ATTACHED AND FASTENED TO BUILDING STRUCTURE, AND SHALL NOT BE FASTENED TO THE ROOF DECK.

2.

CONDUIT HANGERS AND SUPPORTS SHALL BE FABRICATED AND INSTALLED IN ACCORDANCE WITH CSA C22.2 NO. 18 OUTLET BOXES, CONDUIT BOXES, FITTINGS AND ASSOCIATED HARDWARE.

3.

PLATFORMS SHALL BE FABRICATED FROM STRUCTURAL GRADE STEEL MEETING THE REQUIREMENTS OF THE ONTARIO BUILDING CODE, INCLUDING CSA STANDARD W59 WELDED STEEL CONSTRUCTION, AND THE REQUIREMENTS OF THE CANADIAN WELDING BUREAU.

4.

SUPPLY AND INSTALL ALL EQUIPMENT MOUNTING SUPPORTS FOR ALL ELECTRICAL EQUIPMENT AND DEVICES. ALL SUPPORTS SHALL BE FABRICATED FROM GALVANIZED STRUCTURAL GRADE STEEL MEETING THE REQUIREMENTS OF CSA STANDARD W59 WELDED STEEL CONSTRUCTION AND THE REQUIREMENTS OF THE CANADIAN WELDING BUREAU. SHOP DRAWINGS FOR ALL EQUIPMENT MOUNTING SUPPORTS, INCLUDING ATTACHMENT DETAILS, SHALL BE SUBMITTED FOR REVIEW. THESE SHOP DRAWINGS SHALL BE DESIGNED AND SEALED BY A PROFESSIONAL ENGINEER IN THE PROVINCE OF ONTARIO.

5.

ZIP TIES ARE NOT PERMITTED.

15.

COORDINATION:

1.

INFORMATION INVOLVING ACCURATE DIMENSIONING OF THE BUILDING SHALL BE TAKEN FROM SITE BY CONTRACTOR.

2.

DRAWINGS ARE IN DIAGRAMMATIC FORM, INTENDED TO CONVEY THE SCOPE OF WORK AND GENERAL ARRANGEMENT FOR EQUIPMENT. COORDINATE PHYSICAL LOCATION OF ALL EQUIPMENT WITH OTHER TRADES AND ALLOW FOR ANY ADDITIONAL CONDUIT, WIRING, FITTINGS, SUPPORTS, ETC., IN ORDER TO AVOID INTERFERENCE AND FACILITATE THE WORK.

3.

CONTRACTOR TO MAKE ANY NECESSARY MODIFICATIONS OR ADDITIONS, WITHOUT CHARGE, TO ACCOMMODATE SITE CONDITIONS AND COORDINATION.

4.

COORDINATE AND VERIFY ALL ELECTRICAL BRANCH CIRCUIT REQUIREMENTS FOR EQUIPMENT SUPPLIED BY OTHERS, PRIOR TO MATERIAL PROCUREMENT OR INSTALLATION.

5.

PROVIDE ALL WIRING TO ALL MECHANICAL EQUIPMENT, INCLUDING WIRING BELOW 50V. COORDINATE ALL MECHANICAL EQUIPMENT WIRING WITH MECHANICAL TRADES.

6.

ALL DEVICE AND OUTLET LOCATIONS SHALL BE CAREFULLY COORDINATED WITH THE GENERAL CONTRACTOR OR OWNER, TO ACCOMMODATE ALL FEATURES, INCLUDING PLUMBING FIXTURES, EQUIPMENT AND MILLWORK.

16.

START-UP, COMMISSIONING AND TRAINING:

1.

START-UP AND COMMISSION THE FOLLOWING SYSTEMS:

1.

MAIN ELECTRICAL SERVICE EQUIPMENT;

2.

GENERAL LIGHTING;

3.

FIRE ALARM.

2.

PERFORM SYSTEMATIC TESTS, PROCEDURES AND CHECKS ON SYSTEMS, AS FOLLOWS:

1.

TO VERIFY OPERATION IN ACCORDANCE WITH CONTRACT DOCUMENTS, DESIGN CRITERIA AND INTENT, AND MANUFACTURER'S REQUIREMENTS;

2.

TO ENSURE APPROPRIATE DOCUMENTATION IS PROVIDED;

3.

TO EFFECTIVELY TRAIN BUILDING OPERATIONAL STAFF.

5.

SYSTEMS ARE TO BE OPERATED AT FULL CAPACITY, WITH CORRECTION OF ALL DEFICIENCIES AND ADJUSTMENTS TO MEET OPTIMUM PERFORMANCE.

6.

PROVIDE WRITTEN REPORT AT END OF COMMISSIONING OUTLINING EQUIPMENT OPERATIONAL CONDITIONS AND PARAMETERS.

ELECTRICAL SERVICE SIZE

OXFORD ON RIDEAU PUBLIC SCHOOL
Upper Canada District School Board
Oxford Mills, Ontario

Date: 2026-03-30
Revision: 2

ELECTRICAL LOAD CALCULATION

SCHOOL (OESC 8-204)															
BASIC LOAD		AREA (sq.ft.)	AREA (sq.m.)	BASIC LOAD (W/sq.m.)	DEMAND FACTOR	TOTAL LOAD (W)									
OVERALL AREA - SCHOOL		27000	22936	2131											
CLASSROOM AREA			8427	783	50	1.00	39146								
REMAINDER			14509	1348	10	1.00	13480								
FOR TOTAL AREA								52625							
LOAD-PER-SQUARE-METER RATING				W/sq.m.				24.70							
FIRST 900 sq.m.				900	24.70	0.75	16670								
REMAINDER				1231	24.70	0.50	15199								
				4064											
BOARD OFFICE		OFFICE AREA	2400	223	50	0.90	10034								
		OTHER	1664	155	25	1.00	3865								
ADDITIONAL LOAD		QTY	LOAD (W)	LOAD (A)	VOLTAGE	PHASE FACTOR	DEMAND FACTOR	LOAD (W)							
RANGE								6000							
HEATING:															
RoofTop Units		RTU-4A,4B	2	44	208	1.73	0.75	23749							
		RTU-5A,5B	2	44	208	1.73	0.75	23749							
		RTU-6A	1	29	600	1.73	0.75	22577							
		RTU-5C	1	83	208	1.73	0.75	22400							
		RTU-6B,6C,6D	3	49	600	1.73	0.75	114440							
Boilers		B-1	1	106000	600	1.73	1.00	106000							
		B-2	1	106000	600	1.73	1.00	106000							
Pumps		1		17.5	208	1.73	1.00	6297							
TOTAL LOAD															
TOTAL LOAD		VOLTAGE (V)	PHASE FACTOR			(W)		476980							
AMPERAGE		600	1.73			(A)		460							
MAIN SERVICE SIZE (DE-RATED TO 80%)						(A)		574							
NOTE:															
1. ELECTRICAL LOAD CALCULATION IS BASED ON THE CALCULATION PROCEDURES FOR MINIMUM CIRCUIT AMPACITY OF THE SERVICE, AS OUTLINED IN THE ONTARIO ELECTRICAL SAFETY CODE, SECTION 8, SERVICE AND FEEDERS.															

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5	2026-03-30	FOR PERMIT AND TENDER
4	2025-10-31	FINAL REVIEW
3	2025-10-24	FOR REVIEW
2	2025-10-03	FOR REVIEW
1	2025-09-11	FOR REVIEW
0	2025-08-28	PRELIMINARY
NO.	DATE	REVISION

CLIENT:

SHOALTS
& ZABACK
Architects Ltd.
Kingston, Ontario

PROJECT:

OXFORD ON
RIDEAU
Public School
Oxford Mills, Ontario

DRAWING:

ELECTRICAL

Notes & Details

DESIGN BY:

M. MORRIS

DRAWN BY:

A.M.

DATE:

JUL 2025

PROJECT No.:

894

SCALE:

AS SHOWN

E001

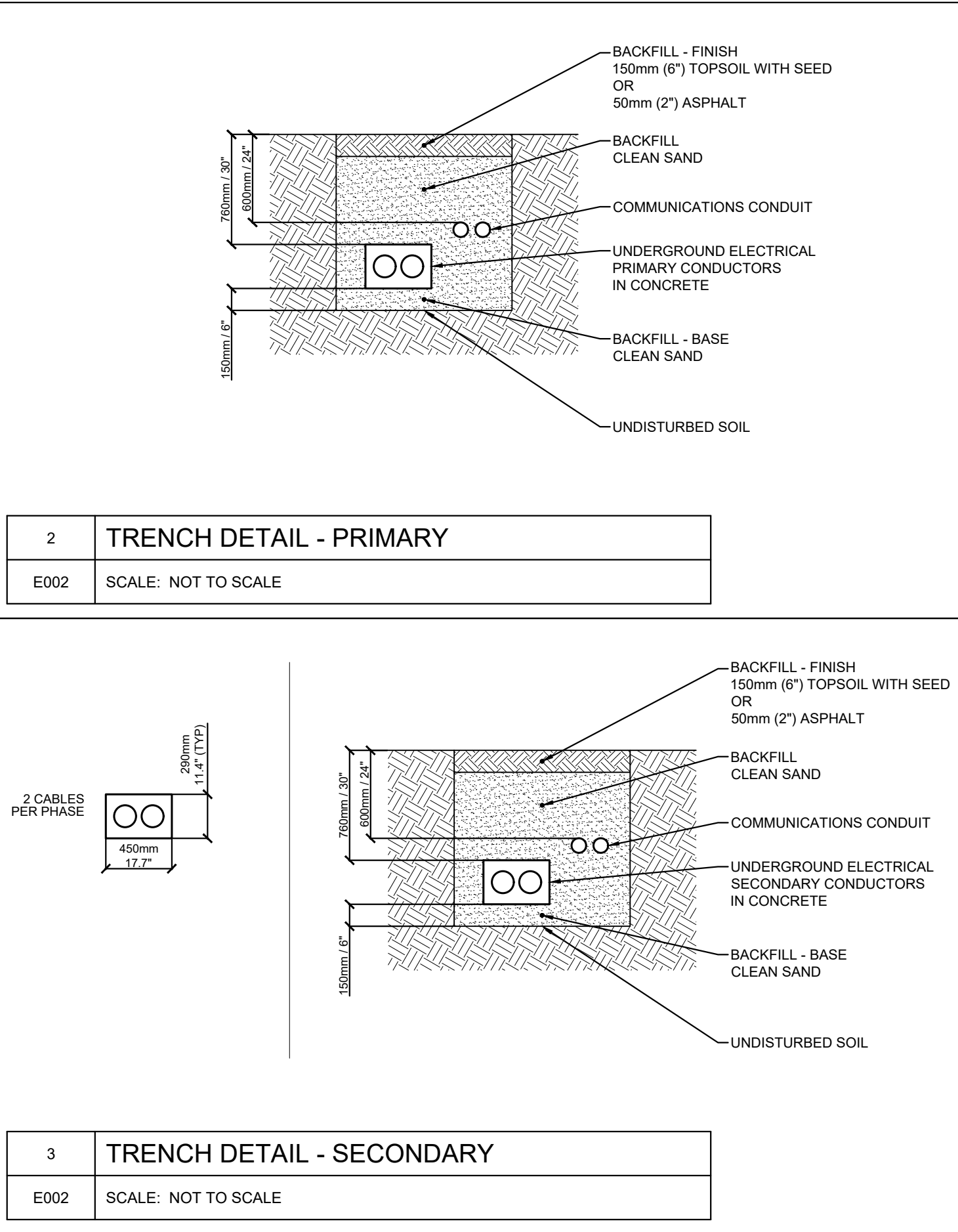
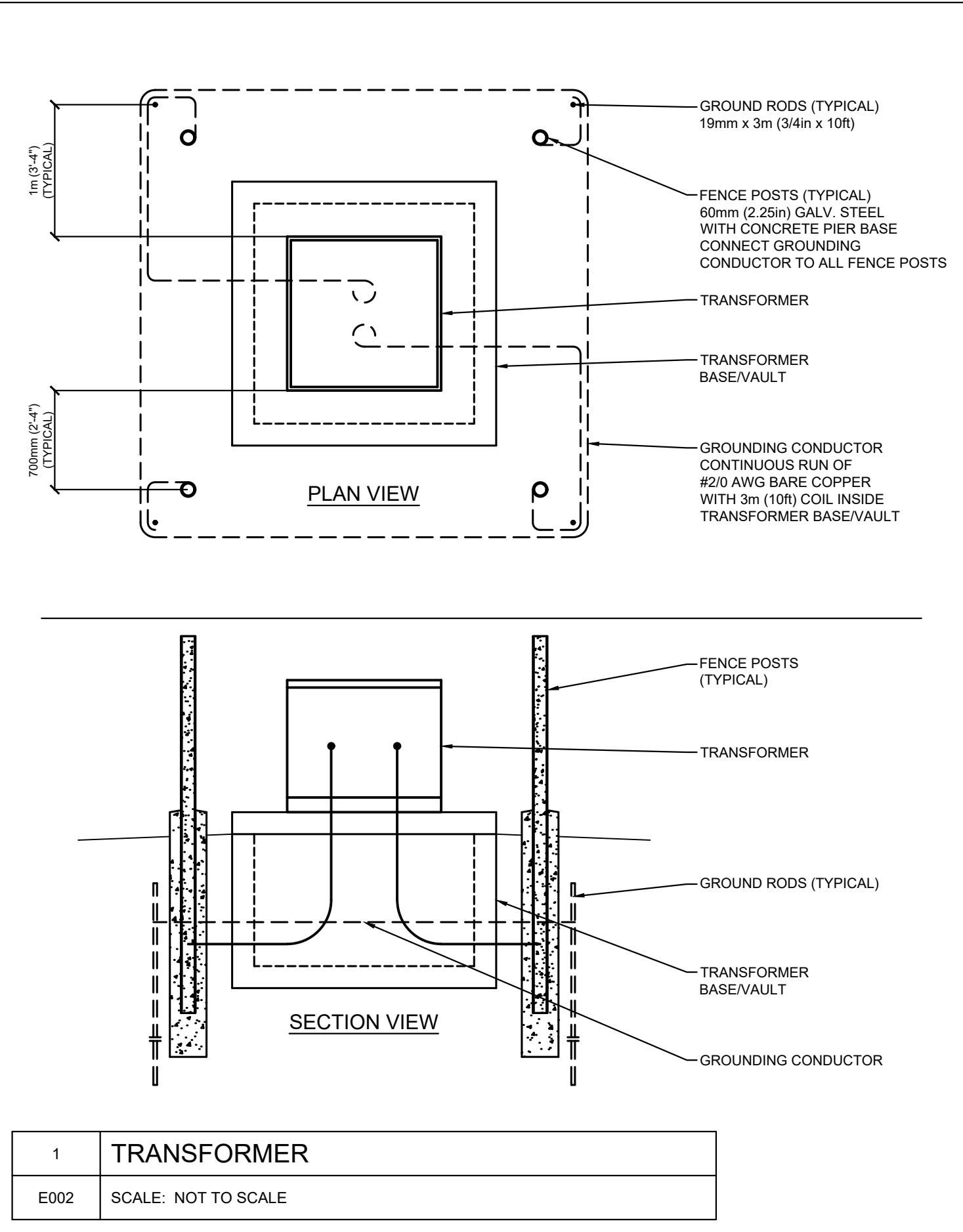
ELECTRICAL PANEL 'P1'											
Location: NEW SERVICE ROOM						Mounting: SURFACE					
Rated Amp: 600 A						Mains Amp: 600 A					
Voltage: 120/208V						Phase, Wire: 3 PH, 4 W					
Manufacturer: Square D I-LINE						Bus: Copper					
Cabinet: Trim, Lockable Door						Breakers: Bolt-On					
TVSS: -						Isolated Ground: -					
Load		Description		Breaker		Breaker		Description		Load	
Watts	Description			Amp	Pole	No.	Amp			Description	Watts
6200	PS-1	BOILER SYSTEM PUMP		40	3	1	2	3	40	BOILER SYSTEM PUMP	6200
						3	4				
						5	6				
		SPARE		15	1	7	8				
		SPARE		20	1	9	10				
						11	12				
						13	14				
						15	16				
						17	18				
						19	20				
						21	22				
						23	24				
15800	RTU-4A	ROOFTOP UNIT		45	3	25	26	3	45	ROOFTOP UNIT	15800
						27	28				
						29	30				
15800	RTU-5A	ROOFTOP UNIT		45	3	31	32	3	45	ROOFTOP UNIT	15800
						33	34				
						35	36				
30000	RTU-5C	ROOFTOP UNIT		90	3	37	38				
						39	40				
						41	42				
67.8	KW	CONNECTED LOAD								CONNECTED LOAD	KW 37.8
										TOTAL CONNECTED LOAD	KW 105.6

ELECTRICAL PANEL 'P2'											
Location: NEW SERVICE ROOM						Mounting: SURFACE					
Rated Amp: 225A						Mains Amp: 225 A					
Voltage: 120/208V						Phase, Wire: 3 PH, 4 W					
Manufacturer: Square D I-LINE						Bus: Copper					
Cabinet: Trim, Lockable Door						Breakers: Bolt-On					
TVSS: -						Isolated Ground: -					
Load		Description		Breaker		Breaker		Description		Load	
Watts	Description			Amp	Pole	No.	Amp			Description	Watts
400		RECEP - CHLORINE INJECTION		15	1	1	2	1	15	RECEP - MEDIA FILTER	400
		SPARE		15	1	3	4	1	15	RECEP - MEDIA FILTER	400
		SPARE		20	1	5	6				
						7	8				
						9	10				
						11	12				
						13	14				
						15	16				
						17	18				
						19	20				
						21	22				
						23	24				
						25	26				
		TRAP SEAL PRIMER CLOCK & VALVE		15	1	27	28	1	15	ZONE VALVES	250
1000	EF-SR	EXHAUST FAN SERVICE ROOM		15	2	29	30	1	15	ZONE VALVES	250
						31	32	1	15	ZONE VALVES	250
1000	EF-WR	EXHAUST FAN WASHROOM		15	2	33	34	1	15	ZONE VALVES	250
						35	36	1	20	BOILER PUMP	PB-1 1000
1000	EF-KIT	EXHAUST FAN KITCHEN		15	2	37	38	1	20	BOILER PUMP	PB-2 1000
						39	40	2	20	WATER HEATER	3000
400	EF-ELEC	EXHAUST FAN - ELEC RM		15	1	41	42				
3.8	KW	CONNECTED LOAD								CONNECTED LOAD	KW 6.8
										TOTAL CONNECTED LOAD	KW 10.6

ELECTRICAL PANEL NOTES											
1.0 DEVICES:		DEVICE QUANTITIES ARE APPROXIMATE DEVICES SHOWN ON FLOOR PLANS SHALL SUPERSEDE.									
2.0 IDENTIFICATION:		PERMANENT PANEL LABEL INDICATING NAME, AMP, VOLT, PHASE, WIRE TYPEWRITTEN CIRCUITING DIRECTORY									
3.0 EQUIPMENT SUPPLIED BY OTHERS:		ELECTRICAL CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR SERVICING REQUIREMENTS FOR ALL EQUIPMENT SUPPLIED BY OTHERS ELECTRICAL CONTRACTOR SHALL COORDINATE ALL EQUIPMENT WIRING WITH OTHER TRADES. ELECTRICAL CONTRACTOR SHALL VERIFY AND CONFIRM ALL CIRCUITING, AND SHALL PROVIDE A NEW CIRCUITING LEGEND FOR APPROVAL BY OWNER AND ENGINEER, PRIOR TO PROCEEDING WITH WIRING OF PANEL. THIS CIRCUITING STUDY SHALL INCLUDE ALL EXISTING, ALTERED AND NEW CIRCUITS.									

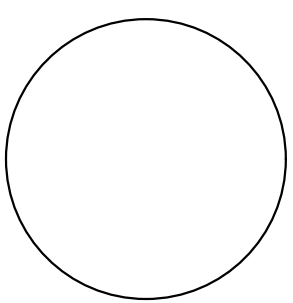
LEGEND - ELECTRICAL

AC	MOUNTED ABOVE COUNTER		§	LIGHT SWITCH	MOUNTING HEIGHT ABOVE FINISHED FLOOR TO CENTER 900mm to 1100mm (35.4in to 43.3 in)
AFF	ABOVE FINISHED FLOOR		⏏	LIGHT FIXTURE	
D	DIMMER CONTROL		⏏		
GFI	GROUND FAULT CIRCUIT INTERRUPTER PROTECTION		⏏	EXIT SIGN EXIT SIGN/EMERGENCY LIGHT	MOUNTING HEIGHT ABOVE FINISHED FLOOR 2100mm (82 in)
M	MOTION CONTROL		⏏	EMERGENCY LIGHT	MOUNTING HEIGHT ABOVE FINISHED FLOOR 2100mm (82 in)
WP	WEATHERPROOF		⏏		
⏏	ELECTRICAL RECEPTACLE DUPLEX	MOUNTING HEIGHT ABOVE FINISHED FLOOR TO CENTER 400mm (16 in)			
⏏	ELECTRICAL RECEPTACLE DUPLEX	MOUNTING HEIGHT ABOVE FINISHED FLOOR TO CENTER 400mm (16 in)			
⏏	ELECTRICAL RECEPTACLE SIZE AND TYPE NOTED				
⏏	ELECTRICAL DIRECT WIRE SIZE AND TYPE AS NOTED				
⏏	DISCONNECT SWITCH				



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Brockville, Ontario (613)349-0555



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NO.	DATE	REVISION

CLIENT:
SHOALTS & ZABACK
Architects Ltd.
Kingston, Ontario

PROJECT:
OXFORD ON RIDEAU
Public School
Oxford Mills, Ontario

DRAWING:
ELECTRICAL
Details

DESIGN BY:	M. MORRIS	E002
DRAWN BY:	A.M.	
DATE:	JUL 2025	
PROJECT No.:	894	
SCALE:	AS SHOWN	

ELECTRICAL SERVICE NOTES:

1 COORDINATION:

- .1 GENERAL AND ELECTRICAL CONTRACTORS SHALL ASSUME FULL RESPONSIBILITY FOR COORDINATION OF NEW ELECTRICAL SERVICE AND CONNECTION WITH THE SUPPLY AUTHORITY.

2 WORK BY SUPPLY AUTHORITY:

- .1 SUPPLY AUTHORITY SHALL SUPPLY AND INSTALL THE FOLLOWING (TO BE VERIFIED BY THE SUPPLY AUTHORITY):
- .1 TRANSFORMER.

3 WORK BY ELECTRICAL CONTRACTOR:

- .1 ELECTRICAL CONTRACTOR SHALL SUPPLY AND INSTALL THE FOLLOWING (TO BE VERIFIED BY THE SUPPLY AUTHORITY):
- .1 PRIMARY CONDUCTOR, CONDUIT AND CONCRETE ENCASEMENT;
- .2 SECONDARY CONDUCTORS, CONDUIT AND CONCRETE;
- .3 TRANSFORMER BASE;
- .4 GROUNDING SYSTEM;
- .5 PROTECTIVE BOLLARDS.

4 SECONDARY CABLE INSTALLATION:

- .1 SECONDARY CONDUCTORS:
- TO OESC DIAGRAM D11
- .1 MAIN SERVICE SHORT CIRCUIT CURRENT RATING (SCCR): 25 kA
- .2 SECONDARY CONDUCTOR SIZING:
- SIZE: 350 MCM
- TYPE: COPPER
- CABLES PER PHASE: 2
- OESC TABLE 2: 620A
- OESC TABLE D11B: 714A
- DETAIL NUMBER: 2
- FINAL SIZE OF SECONDARY CONDUCTORS SHALL BE SUBJECT TO FINAL INSTALLED LENGTH AND VOLTAGE DROP

5 GROUND FAULT PROTECTION:

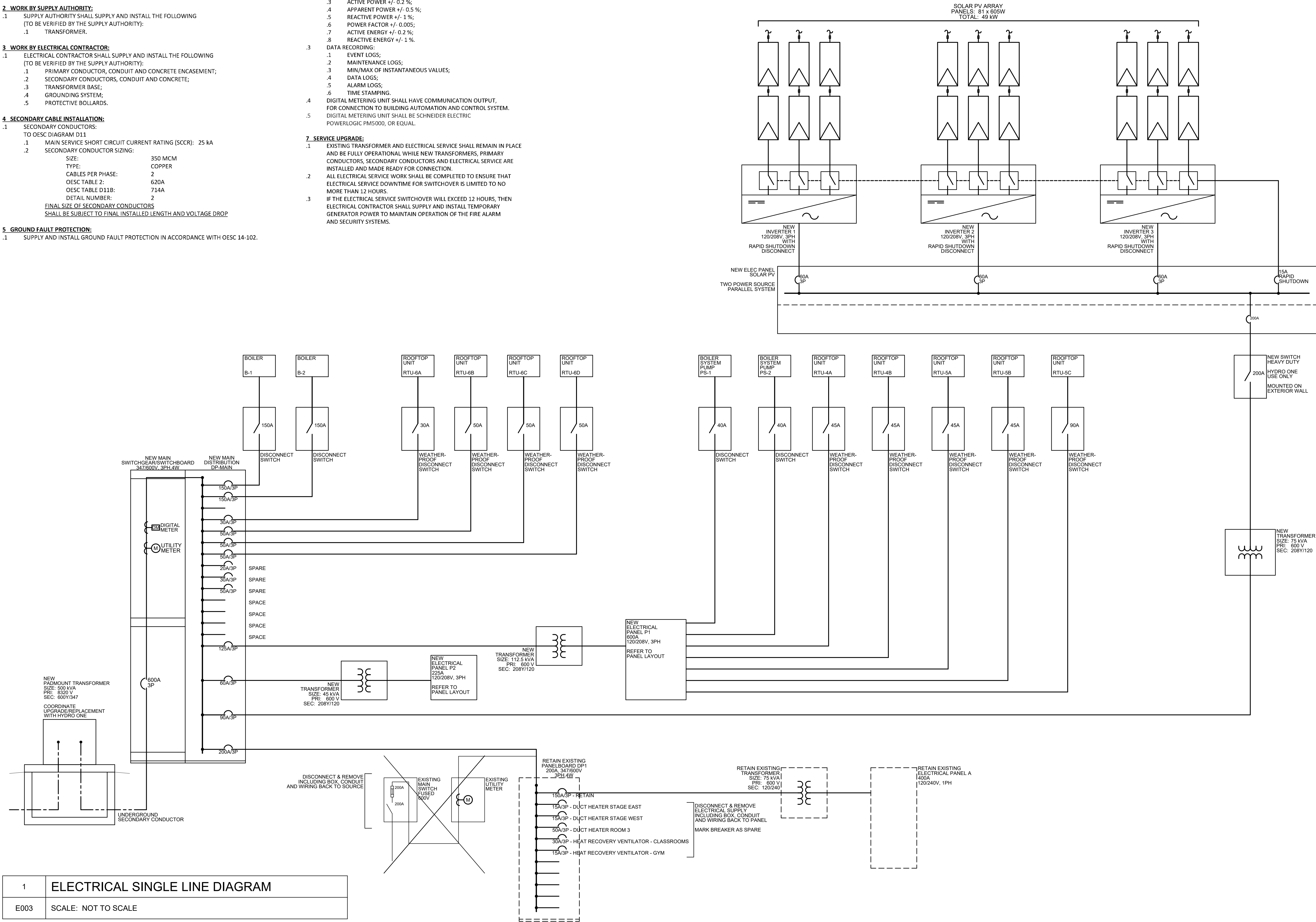
- .1 SUPPLY AND INSTALL GROUND FAULT PROTECTION IN ACCORDANCE WITH OESC 14-102.

6 DIGITAL METERING UNIT:

- .1 MAIN SWITCHGEAR SHALL HAVE A POWER METER UNIT, WHICH MEASURES DATA FOR ALL PHASES, LINE TO LINE & LINE TO NEUTRAL.
- .2 TYPES OF MEASUREMENT WITH ACCURACY:
- .1 CURRENT +/- 0.15 %;
- .2 VOLTAGE +/- 0.1 %;
- .3 FREQUENCY +/- 0.05 %;
- .3 ACTIVE POWER +/- 0.2 %;
- .4 APPARENT POWER +/- 0.5 %;
- .5 REACTIVE POWER +/- 1 %;
- .6 POWER FACTOR +/- 0.005;
- .7 ACTIVE ENERGY +/- 0.2 %;
- .8 REACTIVE ENERGY +/- 1 %.
- .3 DATA RECORDING:
- .1 EVENT LOGS;
- .2 MAINTENANCE LOGS;
- .3 MIN/MAX OF INSTANTANEOUS VALUES;
- .4 DATA LOGS;
- .5 ALARM LOGS;
- .6 TIME STAMPING.
- .4 DIGITAL METERING UNIT SHALL HAVE COMMUNICATION OUTPUT, FOR CONNECTION TO BUILDING AUTOMATION AND CONTROL SYSTEM.
- .5 DIGITAL METERING UNIT SHALL BE SCHNEIDER ELECTRIC POWERLOGIC PMS000, OR EQUAL.

7 SERVICE UPGRADE:

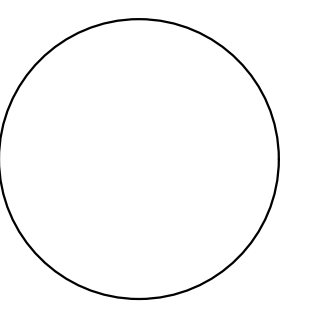
- .1 EXISTING TRANSFORMER AND ELECTRICAL SERVICE SHALL REMAIN IN PLACE AND BE FULLY OPERATIONAL WHILE NEW TRANSFORMERS, PRIMARY CONDUCTORS, SECONDARY CONDUCTORS AND ELECTRICAL SERVICE ARE INSTALLED AND MADE READY FOR CONNECTION.
- .2 ALL ELECTRICAL SERVICE WORK SHALL BE COMPLETED TO ENSURE THAT ELECTRICAL SERVICE DOWNTIME FOR SWITCHOVER IS LIMITED TO NO MORE THAN 12 HOURS.
- .3 IF THE ELECTRICAL SERVICE SWITCHOVER WILL EXCEED 12 HOURS, THEN ELECTRICAL CONTRACTOR SHALL SUPPLY AND INSTALL TEMPORARY GENERATOR POWER TO MAINTAIN OPERATION OF THE FIRE ALARM AND SECURITY SYSTEMS.



MORRIS
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Brockville, Ontario

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CLIENT:

SHOALTS
& ZABACK
Architects Ltd.
Kingston, Ontario

PROJECT:

OXFORD ON
RIDEAU
Public School
Oxford Mills, Ontario

DRAWING:

ELECTRICAL

Single Line Diagram

DESIGN BY: M. MORRIS

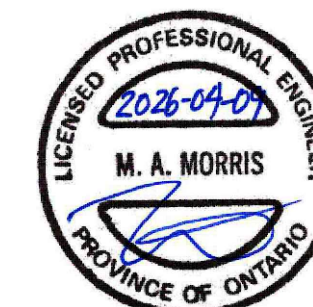
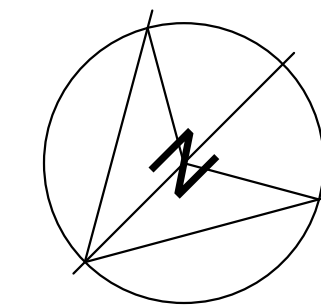
DRAWN BY: A.M.

DATE: JUL 2025

PROJECT No.:

SCALE: AS SHOWN

E003



NO.	DATE	REVISION
6	2026-04-09	REVISED, FOR PERMIT & TENDER
5	2026-02-18	FOR PERMIT AND TENDER
4	2025-10-31	FINAL REVIEW
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CLIENT:
**SHOALTS &
ZABACK**
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Kingston, Ontario

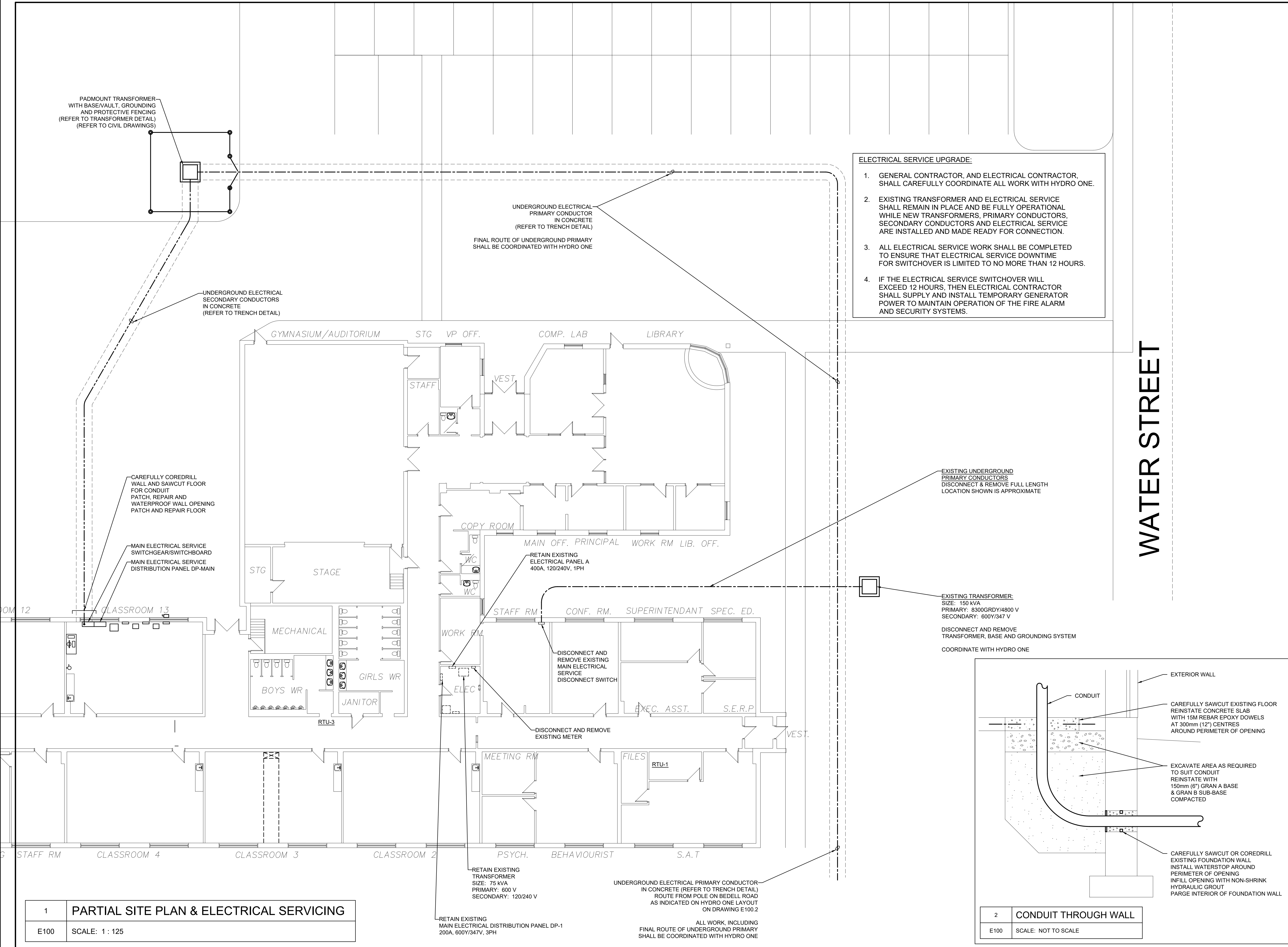
PROJECT:
**OXFORD ON
RIDEAU**
Public School
Oxford Mills, Ontario

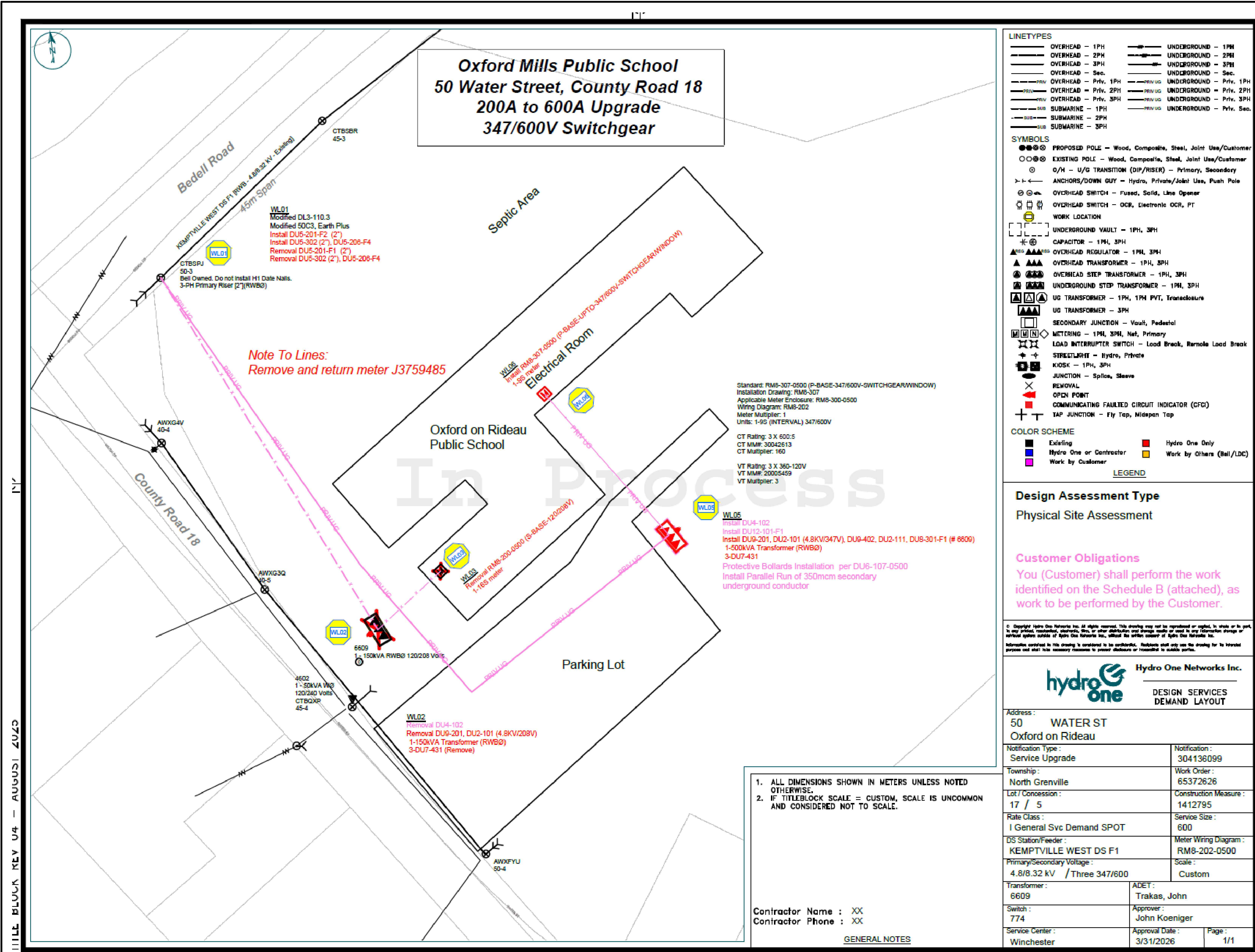
DRAWING:
ELECTRICAL

**Partial Site Plan
& Electrical Servicing**

DESIGN BY:	M. MORRIS
DRAWN BY:	A.M.
DATE:	JUL 2025
PROJECT No.:	921
SCALE:	AS SHOWN

E100.1





Schedule B
Customer Work:

- The preferred horizontal clear separation of primary and secondary underground cables to gas pipelines is 1 m. Where necessary, this can be reduced to 30 cm with no added mechanical protection.
- Provide clean mason sand for Hydro One to cover wires. The remainder of backfill is your responsibility.
- Any changes to the original scope of work must be communicated with Hydro One.
- Minimum of 3 m from the valve on a propane tank with a capacity between 475-3000 L or 7.5 m from the valve on a propane tank with a capacity greater than 3800 L.
- Refer to the Retail Revenue Metering Standards Guide: <https://www.hydroone.com/businessservices/Documents/Hydro-One-Retail-Metering-Standards-Guide.pdf>.
- For operating and working clearances, a minimum of 3 m shall be provided on the operating side of the equipment, and 1 m on all other sides. In order to facilitate switch stick operation, the terrain on the 3 m operating side must be relatively level.
- For foundation mounted operated equipment 2 m (preferred) from roadway curb. Minimum shall be 1 m. If 1 m cannot be achieved, bollards shall be installed per DU6-107-0500.
- All poles/wire/anchors/trenching on private property is your responsibility. To be built to current OESC and is subject to ESA approval.
- (UG) Install transformer vault (BCP-110PM or equivalent) and grounding to Hydro One standards. Provide Field Business Centre with pictures of ground grid for approval and allow 48 hours notice for Ground Grid inspection and approval before covering.
- (UG) Supply and install all secondary wire to ESA spec and leave 3m extra for Hydro One to make connections.
- Supply & install 3 x 2/0 ALUM 28kV rated XLPE coated primary wire with 75% concentric neutral. Conductor must be on Hydro One's list of Underground Approved Materials at https://www.hydroone.com/businessservices/_Standards/Tab_38-UG-Section_16.pdf Provide necessary coils at each end for Hydro One to connect.
- Provide key to electrical room on day of connection.
- Install 1-1/4" solid conduit with factory bends (include pull rope) from metering cabinet outside into P-base enclosure. Maximum allowable distance to P base 10 meters.
- (UG) Transformer location to be no more than 3m from year-round drivable surface.
- Three weeks before connection arrange for delivery of CTs and P-base enclosure. Mount P-base so window is 5-ft above ground level (1/4" lugs & shields or tap con screws only).
- Switchgear to follow specifications per RM8-307 Typical LV Switchgear arrangement.

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Brckville, Ontario (613)349-0555

N

2026-04-01

M. A. MORRIS

PROVINCE OF ONTARIO

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CLIENT:

SHOALTS & ZABACK
Architects Ltd.
Kingston, Ontario

PROJECT:

OXFORD ON RIDEAU
Public School
Oxford Mills, Ontario

DRAWING:

ELECTRICAL

Hydro One Layout & Schedule B

DESIGN BY: M. MORRIS

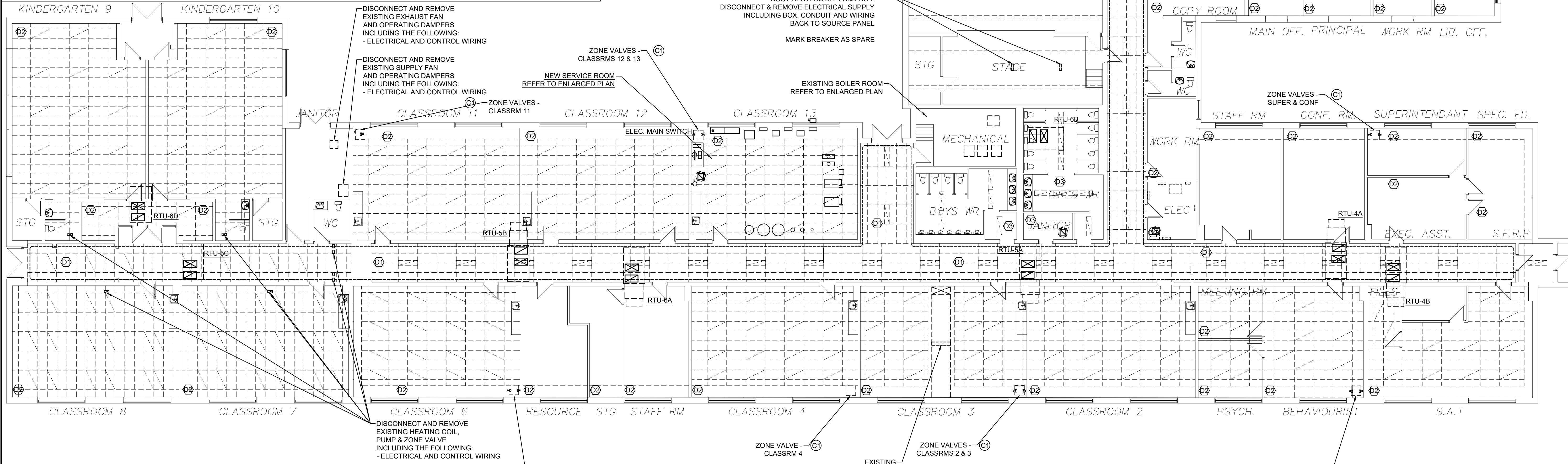
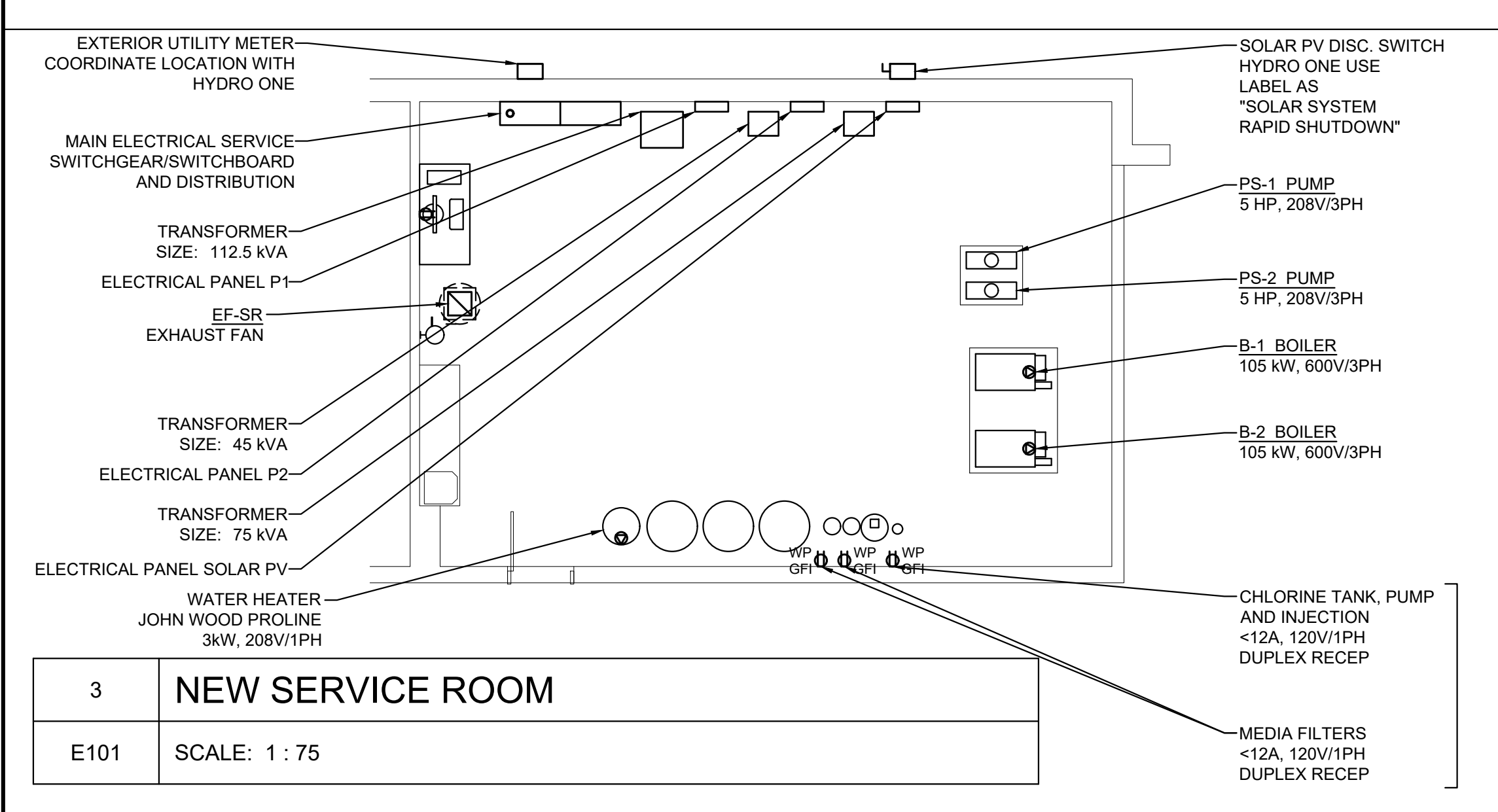
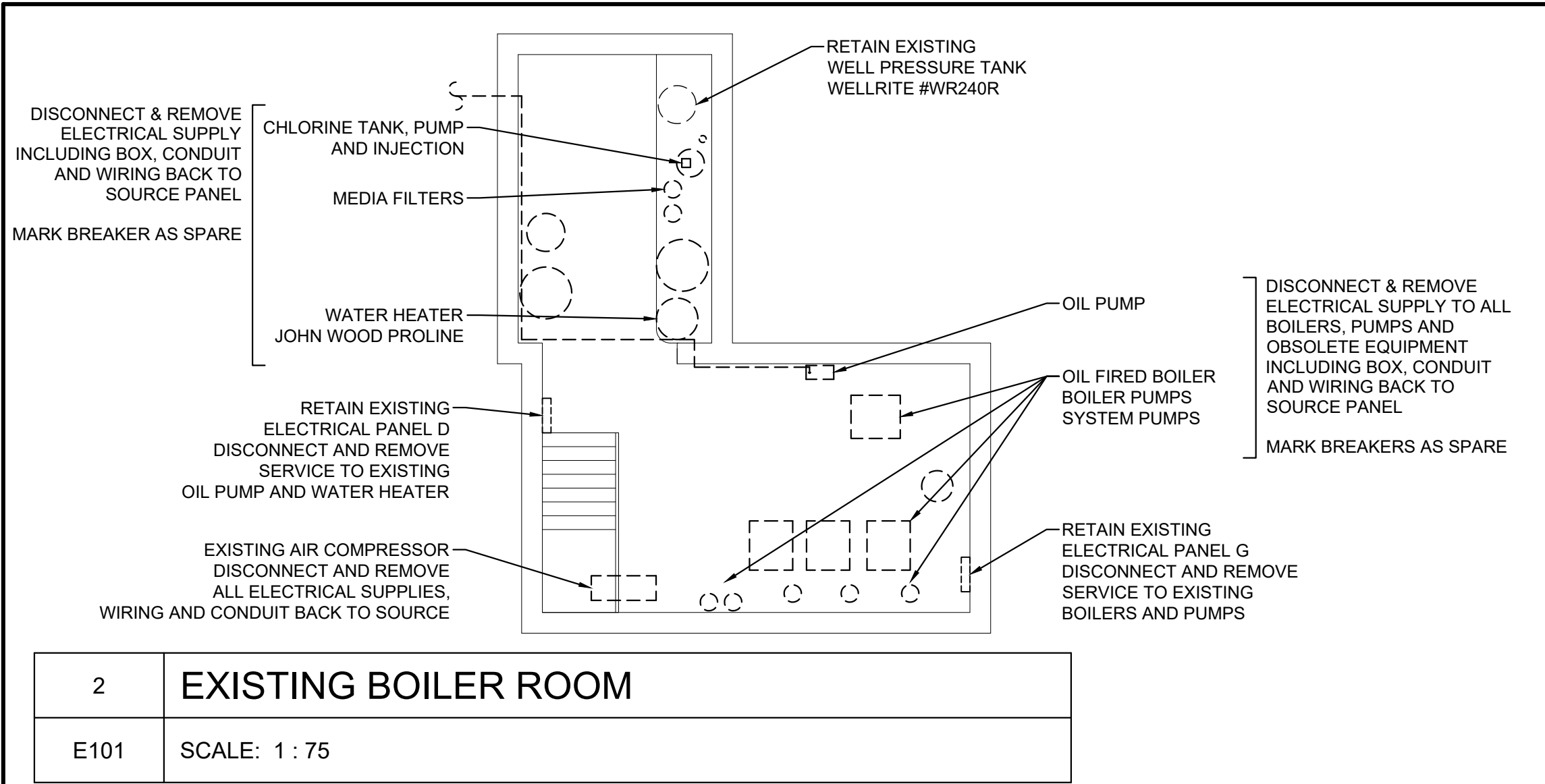
DRAWN BY: A.M.

DATE: JUL 2025

PROJECT No.: 921

SCALE: AS SHOWN

E100.2



1 FLOOR PLAN
E101 SCALE: 1 : 125

TYPICAL DEMOLITION NOTES: ○

CAREFULLY REMOVE EXISTING CEILINGS IN ALL AREAS OF WORK
REINSTATE CEILING TO ORIGINAL CONDITION FOLLOWING COMPLETION OF WORK

ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR RELOCATING DEVICES, CONDUIT AND WIRING, ENCOUNTERED IN ALL CEILING SPACES, WHICH CONFLICT WITH NEW ARCHITECTURAL, MECHANICAL OR ELECTRICAL CONSTRUCTION

ALL DEVICE AND EQUIPMENT LOCATIONS ARE APPROXIMATE
VERIFY LOCATION OF ALL DEVICES AND EQUIPMENT ON SITE

NOTE THAT NOT ALL DEVICES ARE SHOWN

D1 CORRIDOR CEILINGS:

ALL CEILINGS SHALL BE COMPLETELY REMOVED
TO PERMIT NEW CONSTRUCTION

DISCONNECT, REMOVE, RETAIN AND PROTECT
ALL OF THE FOLLOWING EQUIPMENT:

- ALL HIGH AND LOW VOLTAGE CIRCUITS
- LIGHT FIXTURES
- SPEAKERS
- FIRE ALARM SYSTEM DETECTORS/DEVICES
- WIFI DEVICES
- ALL OTHER DEVICES IN THE CEILINGS

REINSTATE AND REINSTALL FOLLOWING CONSTRUCTION

D2 CLASSROOM, OFFICE AND OTHER SPACE CEILINGS:

ALL CEILINGS SHALL BE REMOVED
AS REQUIRED
TO PERMIT NEW CONSTRUCTION

DISCONNECT, REMOVE, RETAIN AND PROTECT
AS REQUIRED
ALL OF THE FOLLOWING EQUIPMENT:

- ALL HIGH AND LOW VOLTAGE CIRCUITS
- LIGHT FIXTURES
- SPEAKERS
- FIRE ALARM SYSTEM DETECTORS/DEVICES
- WIFI DEVICES
- ALL OTHER DEVICES IN THE CEILINGS

REINSTATE AND REINSTALL FOLLOWING CONSTRUCTION

D3 WASHROOM & CUSTODIAN RM CEILINGS:

ALL CEILINGS SHALL BE COMPLETELY REMOVED
TO PERMIT NEW CONSTRUCTION

DISCONNECT, REMOVE, RETAIN AND PROTECT
ALL OF THE FOLLOWING EQUIPMENT:

- ALL HIGH AND LOW VOLTAGE CIRCUITS
- LIGHT FIXTURES
- SPEAKERS
- FIRE ALARM SYSTEM DETECTORS/DEVICES
- WIFI DEVICES
- ALL OTHER DEVICES IN THE CEILINGS

REINSTATE AND REINSTALL FOLLOWING CONSTRUCTION

TYPICAL CONSTRUCTION NOTES: ○

C1 ZONE VALVES:

BACS ELECTRICAL CONTRACTOR TO
SUPPLY AND INSTALL POWER SUPPLY
AS REQUIRED

HVAC EQUIPMENT - EXISTING CONDITIONS:

EXISTING CONDITIONS AND EXISTING UNIT SUMMARY OF EQUIPMENT:

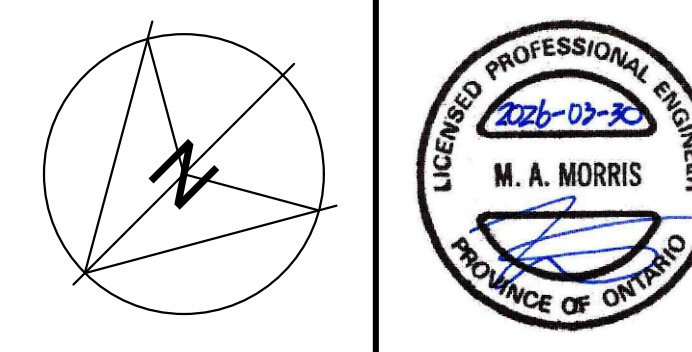
- 1 THE CONDITIONS OF ALL EXISTING HEATING, VENTILATING AND AIR CONDITIONING (HVAC) UNITS SHALL BE VERIFIED, PRIOR TO UNIT DISCONNECTION AND REMOVAL.
- 2 USE THE "EXISTING EQUIPMENT SUMMARY" FORM, PROVIDED ON MECHANICAL DRAWINGS.

RETAIN EXISTING EQUIPMENT:

- 1 RETAIN ALL EXISTING HVAC UNITS IN PLACE OR ON SITE, INCLUDING:
 - .1 BOILERS;
 - .2 BOILER PUMPS;
 - .3 OIL SUPPLY SYSTEM;
 - .4 EXHAUST FANS;
 - .5 ROOFTOP HEAT RECOVERY VENTILATORS;
 - .6 HYDRONIC AND ELECTRIC DUCT HEATERS.
- 2 THESE UNITS THAT ARE BEING REPLACED SHALL ONLY BE DISPOSED OF, AFTER NEW UNITS ARE RECEIVED, INSTALLED AND MADE OPERATIONAL.
- 3 IF REQUIRED, DUE TO DELIVERY OCCURRING AFTER OPENING DAY OF SCHOOL, OBSOLETE UNITS SHALL BE REINSTALLED TEMPORARILY.

MORRIS
Engineering Ltd.

Brockville, Ontario (613)349-0555



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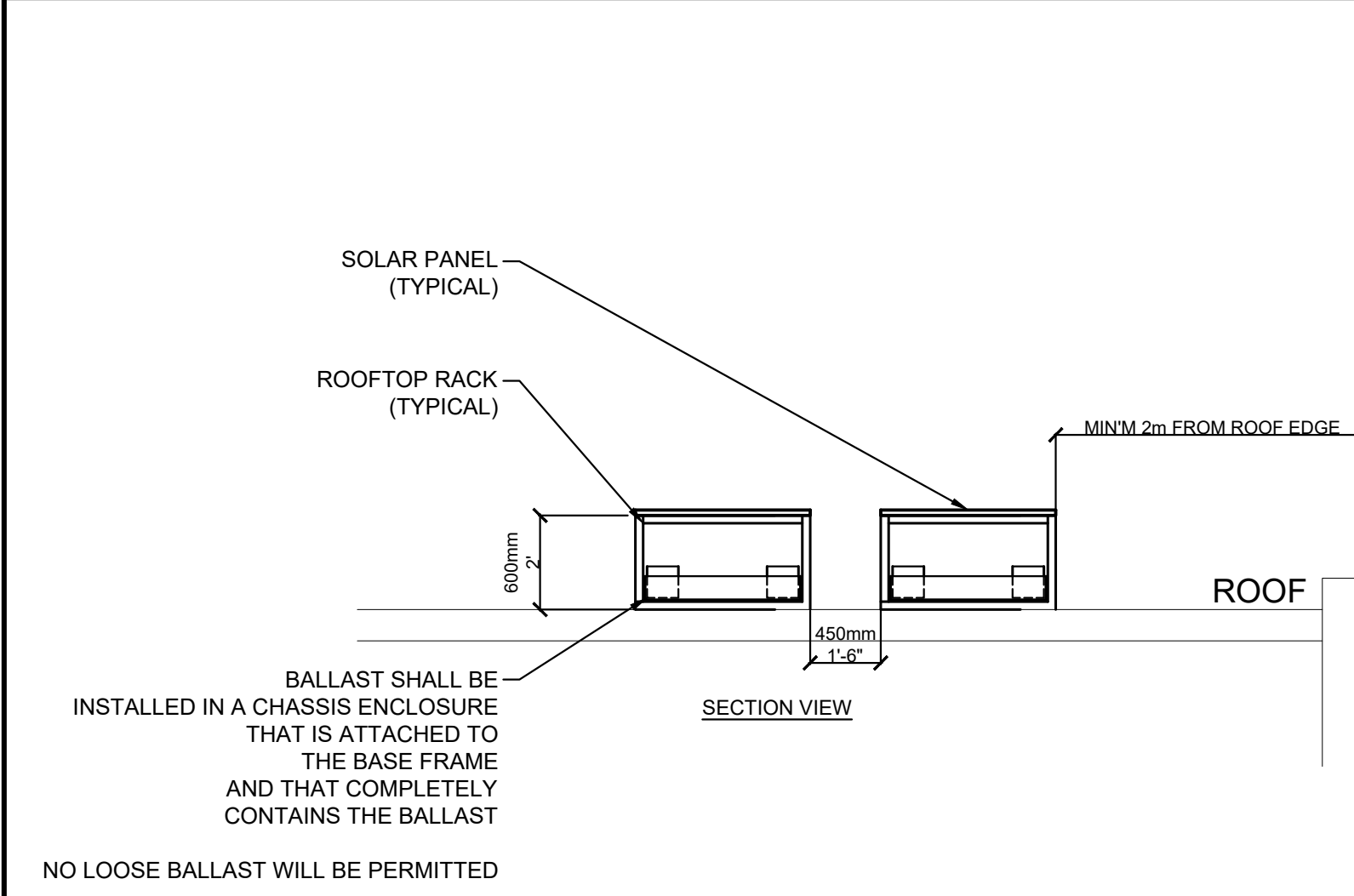
PROJECT:
**OXFORD ON
RIDEAU**
Public School
Oxford Mills, Ontario

DRAWING:
ELECTRICAL

Floor Plans

DESIGN BY:	M. MORRIS
DRAWN BY:	A.M.
DATE:	JUL 2025
PROJECT No.:	921
SCALE:	AS SHOWN

E101



SOLAR SYSTEM:

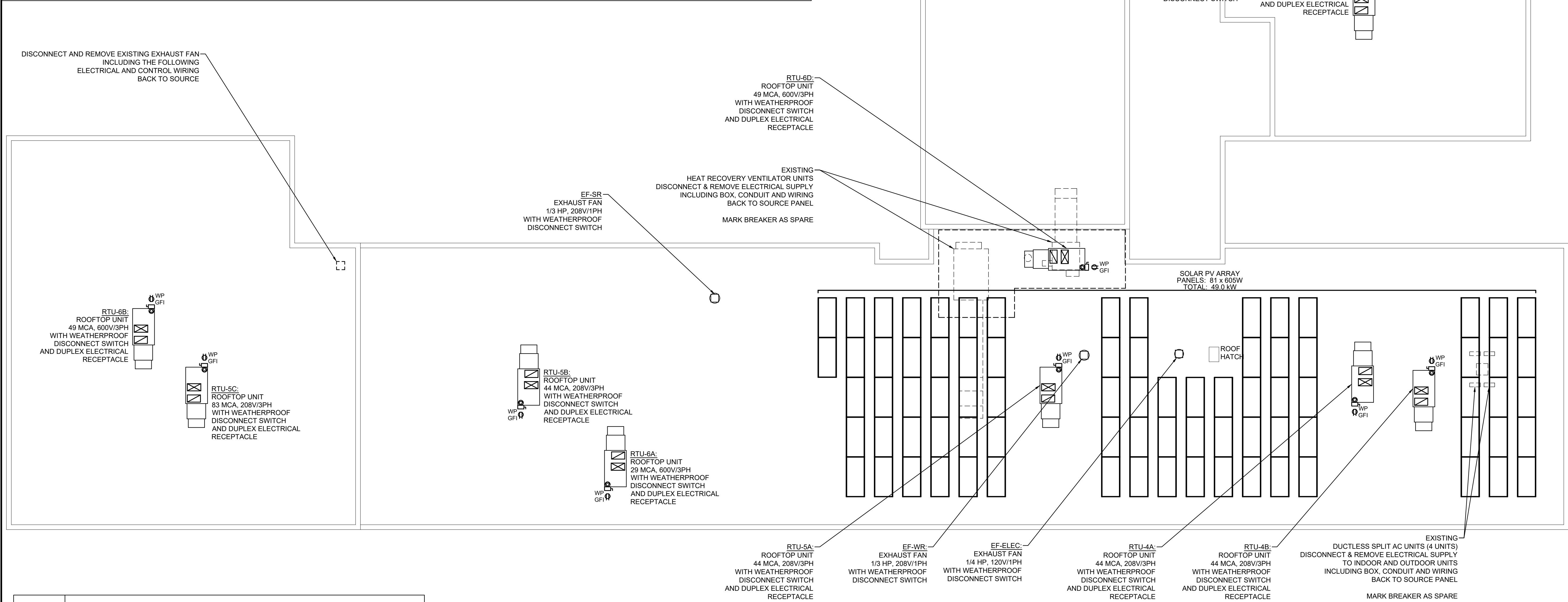
GENERAL NOTES:

- 1.1 SOLAR SYSTEM WORK SHALL BE TURNKEY AND FULLY OPERATIONAL. SOLAR CONTRACTOR SHALL SET-UP AND COMMISSION NEW SYSTEM, AS REQUIRED.
- 1.2 GENERAL, ELECTRICAL AND SOLAR CONTRACTORS SHALL ASSUME FULL RESPONSIBILITY FOR COORDINATION OF NEW SOLAR SYSTEM CONNECTION WITH THE SUPPLY AUTHORITY.
- 1.3 SOLAR SYSTEM CONTRACTOR SHALL PROVIDE A DETAILED STRUCTURAL AND SEISMIC DESIGN OF THE BASE FRAME, BALLAST AND BALLAST CONTAINMENT.
- 1.4 SOLAR SYSTEM CONTRACTOR SHALL PROVIDE A DETAILED ELECTRICAL DESIGN & SINGLE LINE DIAGRAM OF COMPLETE AND FULLY OPERATIONAL SOLAR SYSTEM.
- 1.5 SOLAR SYSTEM CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR COORDINATION OF NEW SOLAR SYSTEM CONNECTION WITH THE ELECTRICAL CONTRACTOR.
- 1.6 COMMUNICATION CABLE:
 - .1 SUPPLY AND INSTALL DATA COMMUNICATION CABLE (CAT 6) BETWEEN THE INVERTERS AND THE SCHOOL DATA RACK, FOR MONITORING OF THE SYSTEM.
 - .2 DATA COMMUNICATION CABLE SHALL BE INSTALLED IN CONDUIT.
 - .3 TERMINATE THE CABLE AT BOTH ENDS TO MATCH THE INVERTER AND THE DATA RACK SWITCH
- 1.7 REFER TO ARCHITECTURAL DRAWINGS FOR STRUCTURAL & ROOFING DETAILS

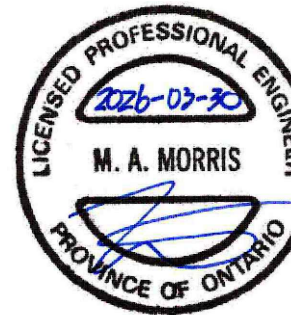
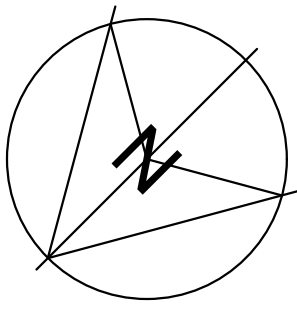
SOLAR ARRAY NOTES:

- 2.1 SOLAR PANEL LAYOUT IS APPROXIMATE AND SHALL BE VERIFIED BY THE GENERAL AND SOLAR CONTRACTORS.
- 2.2 SOLAR PANELS:
 - .1 QCELL Q,PEAK DUO XL-G11S 605W (STANDARD OF ACCEPTANCE).
- 2.3 SOLAR RACK – ON ROOF:
 - .1 LOCATION:
 - .1 ALL SOLAR PANELS AND RACKING SHALL BE A MINIMUM OF 2m FROM ROOF EDGE.
 - .2 SOLAR ARRAY SHALL NOT INTERFERE WITH ROOFTOP ACCESS OR STORMWATER FLOW TO ROOF DRAINS.
 - .2 RACK:
 - .1 ALUMINUM RAIL AND COMPONENTS.
 - .2 STAINLESS STEEL FASTENERS.
 - .3 RIGID CONSTRUCTION WITH INTEGRAL BALLAST CHASSIS.
 - .3 BALLAST:
 - .1 SHALL BE CONCRETE SECTIONS THAT ARE EMBEDDED IN A BALLAST CHASSIS TO CONTAIN THE BALLAST.
 - .2 THE BALLAST CHASSIS SHALL BE SECURELY FASTENED/AFFIXED TO THE RACKING.
 - .4 CONTACT WITH ROOF:
 - .1 MATERIAL USED SHALL BE PROVEN TO BE COMPATIBLE WITH EXISTING ROOF MEMBRANE.
 - .2 INCLUDE AT ALL POINTS OF CONTACT WITH ROOF:
 - .1 SACRIFICIAL 1-PLY MOD. BIT. CAP SHEET MEMBRANE.
 - .2 RUBBER PROTECTION PAD.
 - .5 DESIGN LOADS – APPROXIMATE, TO BE VERIFIED BY STRUCTURAL ENGINEER:
 - .1 MAXIMUM WEIGHT OF ASSEMBLY ON ROOF OF 10 PSF.
 - .2 SOLAR PANEL AND RACK ASSEMBLY TO WITHSTAND SNOW LOAD OF 50 PSF.
 - .3 SOLAR PANEL AND RACK ASSEMBLY TO WITHSTAND WIND LOAD OF 180 PSF.

2	SOLAR SYSTEM
E102	SCALE: NOT TO SCALE



1	ROOF PLAN
E102	SCALE: 1 : 125



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CLIENT:

**SHOALTS &
ZABACK**
Architects Ltd.
Kingston, Ontario

PROJECT:

**OXFORD ON
RIDEAU**
Public School
Oxford Mills, Ontario

DRAWING:

ELECTRICAL

**Roof Plan
Solar System**

DESIGN BY:

M. MORRIS

DRAWN BY:

A.M.

DATE:

JUL 2025

PROJECT No.:

921

SCALE:

AS SHOWN

E102