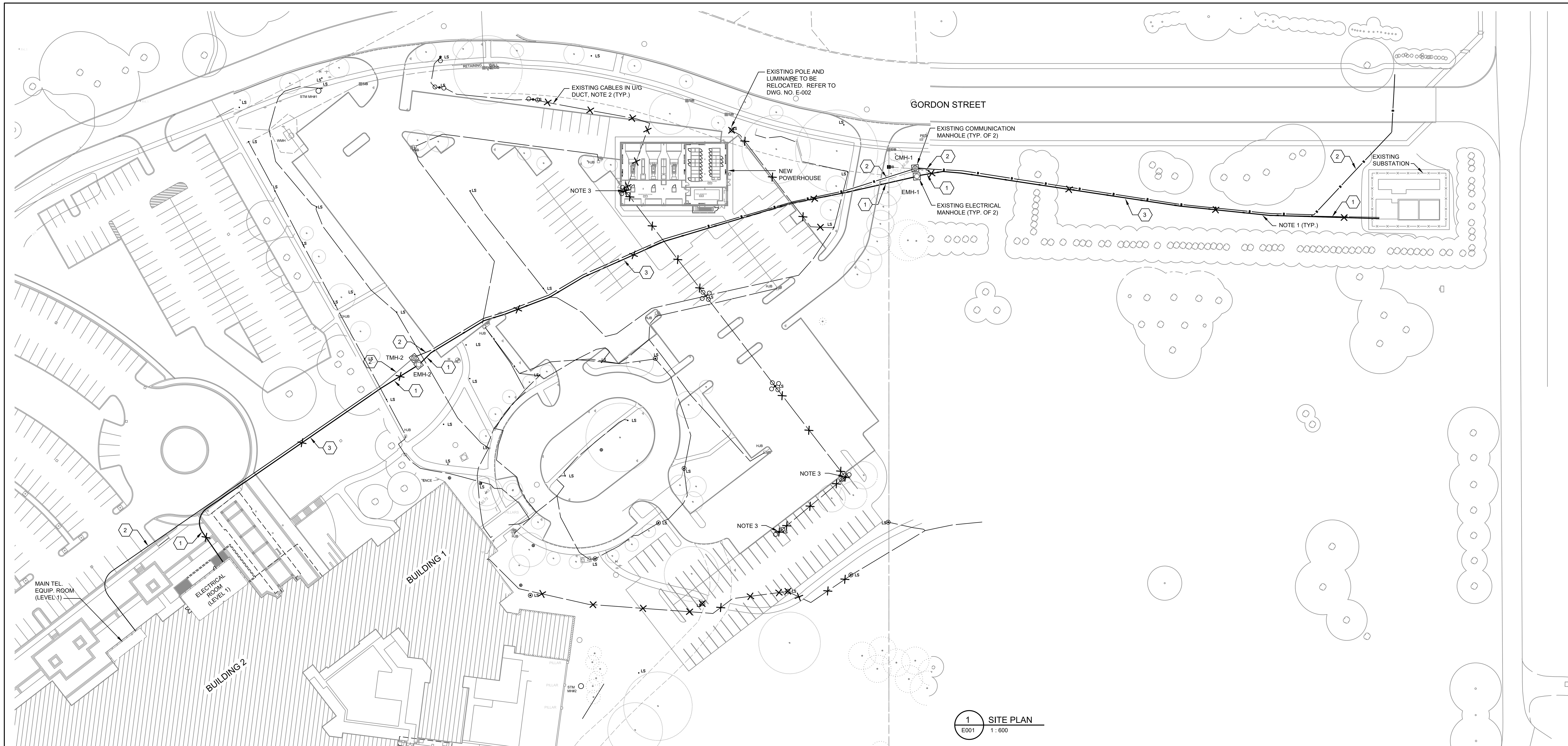
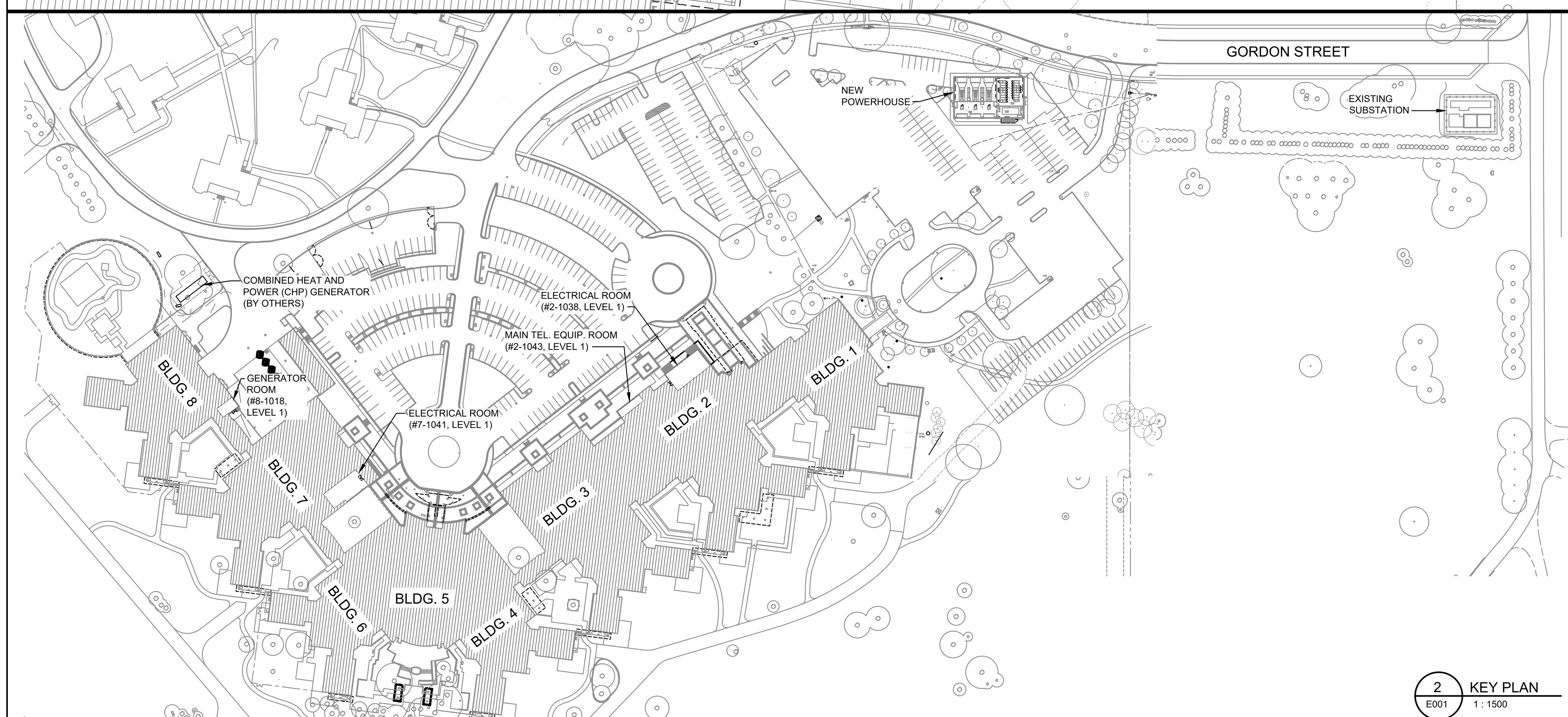


1 SITE PLAN
E001 1 : 600



2 KEY PLAN
E001 1 : 1500

DUCT BANK SCHEDULE:

1. EXISTING CONCRETE ENCASED ELECTRICAL DUCT BANK C/W 4W x 2H, 103mm CONDUITS
2. EXISTING CONCRETE ENCASED COMMUNICATION DUCT BANK C/W 4W x 2H, 103mm CONDUITS
3. EXISTING CONCRETE ENCASED COMBINED ELECTRICAL AND COMMUNICATION DUCT BANK C/W 4W x 4H, 103mm CONDUITS

SUPPLEMENTARY LEGEND:

- POST TOP LUMINAIRE ON 3 m HIGH ROUND STEEL POLE C/W CONCRETE FOUNDATION
- TWO (2) AREA LIGHITING LUMINAIRES ON 10.5 m POLE C/W CONCRETE FOUNDATION
- FOUR (4) AREA LIGHITING LUMINAIRES ON 10.7 m POLE C/W CONCRETE FOUNDATION

GENERAL NOTES:

A. EQUIPMENT MARKED WITH AN "X" INDICATES TO BE REMOVED.

NOTES:

1. REMOVE ONLY EXISTING 15kV CABLES AND GROUND WIRES IN ELECTRICAL DUCT BANK. EXISTING ELECTRICAL DUCT BANK TO REMAIN FOR INSTALLATION OF NEW CABLES AND GROUND WIRES.
2. REMOVE EXISTING CABLES ONLY. EXISTING UNDERGROUND DUCTS SHALL REMAIN IN PLACE OR MODIFIED FOR CONNECTION TO NEW LIGHTING POLES AND INSTALLATION OF NEW LIGHTING CABLES. REFER ALSO TO DRAWING NO. E002.
3. EXISTING POLE TO BE REMOVED FOR RE-INSTALLATION ON NEW CONCRETE FOOTING. PROVIDE ADEQUATE PROTECTION TO THE POLE TO PREVENT IT FROM BEING DAMAGED DURING REMOVAL AND RE-INSTALLATION. REFER ALSO TO DRAWING NO. E002.

Key Plan:

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Seal:

REV	DESCRIPTION	DATE	BY
3	ISSUED FOR TENDER	JUN. 13/19	JY
2	ISSUED FOR BUILDING PERMIT	JUN. 3/19	JY
1	ISSUED FOR 100% REVIEW	APR. 29/19	JY

Client:

Ontario Shores
Centre for Mental Health Sciences

Project:

NEW POWERHOUSE

700 GORDON STREET, WHITBY, ON L1N 5S9

Sheet Title:

SITE PLAN ELECTRICAL REMOVALS AND KEY PLAN

Drawn By: J.Y.	Date: DEC. 6, 2018
Designed By: J.Y.	Checked By: T.G.
Scale: 1:600	File Path: BIM 360://MH - 1802218 - Ontario Shores Powerhouse/1802218-Ontario Shores Powerhouse-RVT2018-ARCH.rvt
Project No: 1802218	Drawing No: E001

DRAWING NAME: P:\2018\1802218\00-RFP Emergency Generator Package\08 Working\Electrical\E-001_Site_Plan_Removals.dwg
CREATED:
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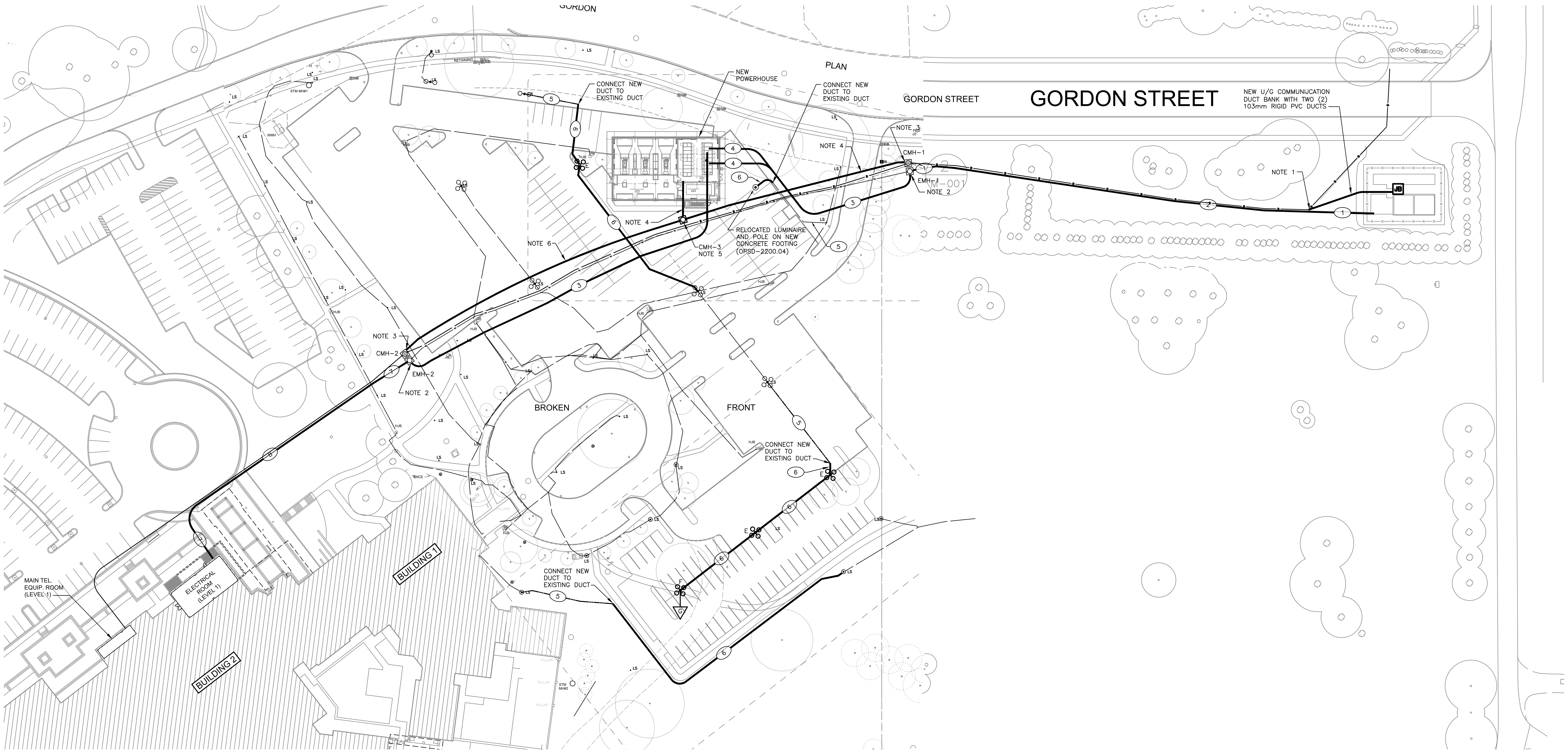


1 SITE PLAN
E002 1 : 600

FEEDER SCHEDULE		
TAG	DUCT BANK CONFIGURATION	DESCRIPTION
1		2 x (3–350MCM TRXLPE, 15 kV, 100% INSULATION LEVEL, COPPER TAPE SHIELDED + #3 GND – 103 mmC) IN EXISTING 4W x 2H, 103mmC ELECTRICAL DUCT BANK
7		2 x (3–350MCM TRXLPE, 15 kV, 133% INSULATION LEVEL, COPPER TAPE SHIELDED + #3 GND – 103 mmC) IN EXISTING 4W x 2H, 103mmC ELECTRICAL DUCT BANK
2		2 x (3–350MCM TRXLPE, 15 kV, 100% INSULATION LEVEL, COPPER TAPE SHIELDED + #3 GND – 103 mmC) IN EXISTING 4W x 4H, 103mmC COMBINED ELECTRICAL AND COMMUNICATION DUCT BANK (NOTE: LOCATIONS OF ELECTRICAL AND COMMUNICATIONN DUCTS ARE FOR ILLUSTRATION ONLY. EXACT LOCATIONS TO BE CONFIRMED AT SITE)
8		2 x (3–350MCM TRXLPE, 15 kV, 133% INSULATION LEVEL, COPPER TAPE SHIELDED + #3 GND – 103 mmC) IN EXISTING 4W x 4H, 103mmC COMBINED ELECTRICAL AND COMMUNICATION DUCT BANK (NOTE: LOCATIONS OF ELECTRICAL AND COMMUNICATIONN DUCTS ARE FOR ILLUSTRATION ONLY. EXACT LOCATIONS TO BE CONFIRMED AT SITE)
3		2 x (3–350MCM TRXLPE, 15 kV, 133% INSULATION LEVEL, COPPER TAPE SHIELDED + #3 GND – 155mmC) + 2 x 155mm SPARE CONDUITS IN NEW 2W x 2H ELECTRICAL DUCT BANK
4		3–350MCM TRXLPE, 15 kV, 100% INSULATION LEVEL, COPPER TAPE SHIELDED + #3 GND – 155mmC + 1 x 155mm SPARE CONDUIT IN NEW 1W x 2H ELECTRICAL DUCT BANK
5		NEW 4–#4 + #8G IN EXISTING UNDERGROUND DUCT FOR LIGHTING
6		NEW 4–#4 + #8G IN NEW 41mm UNDERGROUND DUCT FOR LIGHTING. DUCTS INSTALLED UNDERNEATH PAVEMENT SHALL BE CONCRETE ENCASED

NOTES FOR SITE PLAN:

1. BREAK INTO EXISTING 4W x 2H, 103mmC COMMUNICATION DUCT BANK AND CONNECT NEW COMMUNICATION DUCTS TO EXISTING SPARE DUCTS.
2. CORE OPENINGS IN EXISTING ELECTRICAL MANHOLE AND CONNECT NEW DUCTS TO MANHOLE.
3. CORE OPENINGS IN EXISTING COMMUNICATION MANHOLE AND CONNECT NEW DUCTS TO MANHOLE.
4. NEW 2W x 1H, 53mmC RIGID PVC COMMUNICATION DUCT BANK.
5. NEW COMMUNICATION MANHOLE.
6. NEW 2W x 2H, 53mmC RIGID PVC COMMUNICATION DUCT BANK.

SUPPLEMENTARY LEGEND:

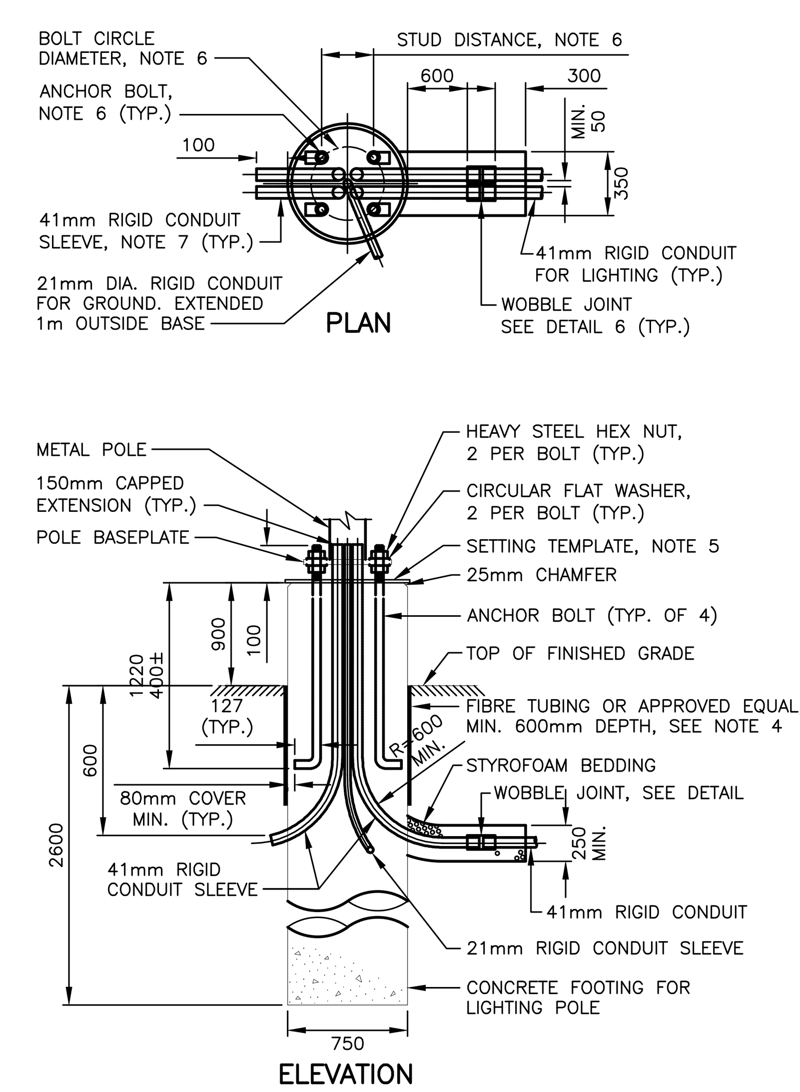
E — FOUR (4) LED AREA LIGHITING LUMINAIRES ON 10.7 m POLE C/W CONCRETE FOUNDATION. RE–USE POLE SALVAGED FROM REMOVAL. REFER ALSO TO DRAWING E001

F — FOUR (4) LED AREA LIGHITING LUMINAIRES ON NEW 10.7 m POLE C/W CONCRETE FOUNDATION

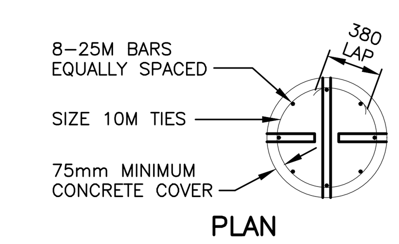
G — GROUND ROD, COPPER CLAD, 19mm DIA. x 3m LONG

NOTES FOR LIGHTING POLE CONCRETE FOOTING:

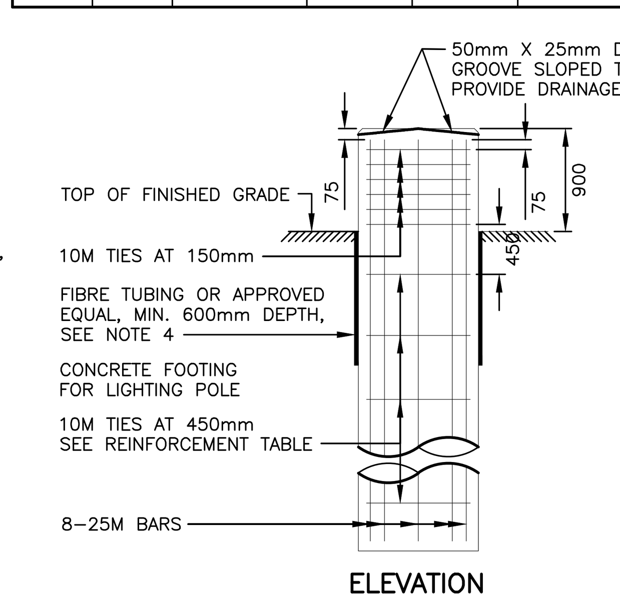
1. CONCRETE IN FOUNDATION SHALL BE PLACED AGAINST UNDISTURBED GROUND.
2. TOP OF FOUNDATION SHALL BE TRULY LEVEL.
3. CONCRETE COMPRESSIVE STRENGTH SHALL BE 30 MPa AT 28 DAYS. PROVIDE 6% AIR ENTRAINMENT.
4. FIBRE TUBING TO BE PEELED OFF 900mm FROM THE TOP OF P1 POLE FOOTING AFTER CONCRETE HARDENS.
5. REMOVE SETTING TEMPLATE TO FINISH CONCRETE AFTER INITIAL SET.
6. ANCHOR BOLT DIAMETER, BOLT CIRCLE DIAMETER AND STUD DISTANCE TO BE AS RECOMMENDED BY POLE MANUFACTURER AND TO SUIT POLE TEMPLATE.
7. FOR ORIENTATION OF SLEEVES, REFER TO ELECTRICAL LAYOUT DRAWINGS.



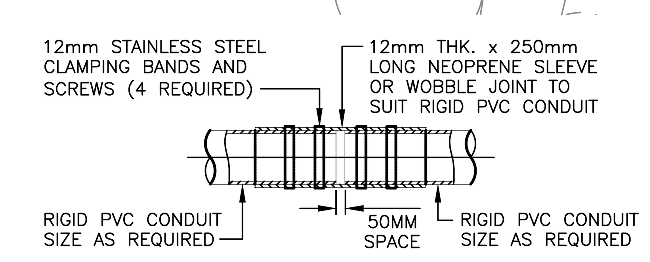
2 CONCRETE FOOTING DETAIL
E002 N.T.S.



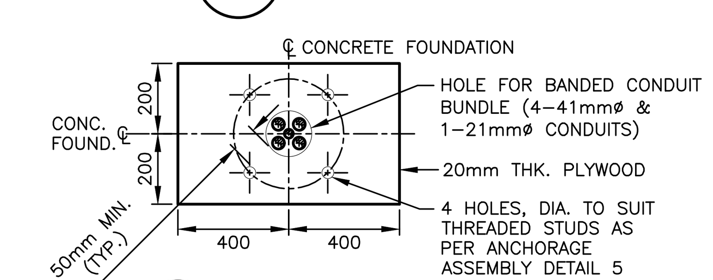
REINFORCEMENT TABLE					
POLE LENGTH	BURIAL DEPTH	LENGTH OF VERT. REINF.	NO. OF TIES		FOUNDATION HEIGHT ABOVE GRADE
			150mm c/c	450mm c/c	
10.7m	2.60m	3.30m	6	5	900



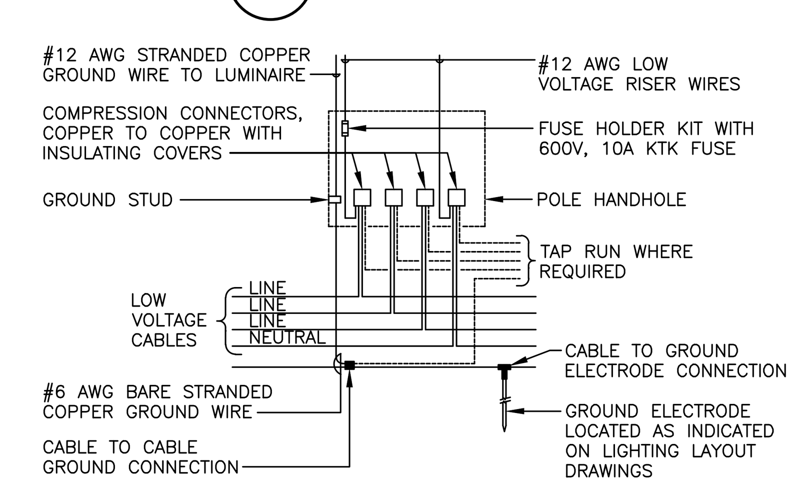
3 CONCRETE REINFORCING DETAIL
E002 N.T.S.



4 WOBBLE JOINT DETAIL
E002 N.T.S.



5 SETTING TEMPLATE DETAIL
E002 N.T.S.



6 POLE WIRING DIAGRAM
E002 N.T.S.

Key Plan:

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3	ISSUED FOR TENDER	JUN. 13/19	JY
2	ISSUED FOR BUILDING PERMIT	JUN. 3/19	JY
1	ISSUED FOR 100% REVIEW	APR. 29/19	JY

Client:

Ontario Shores
Centre for Mental Health Sciences

Project:

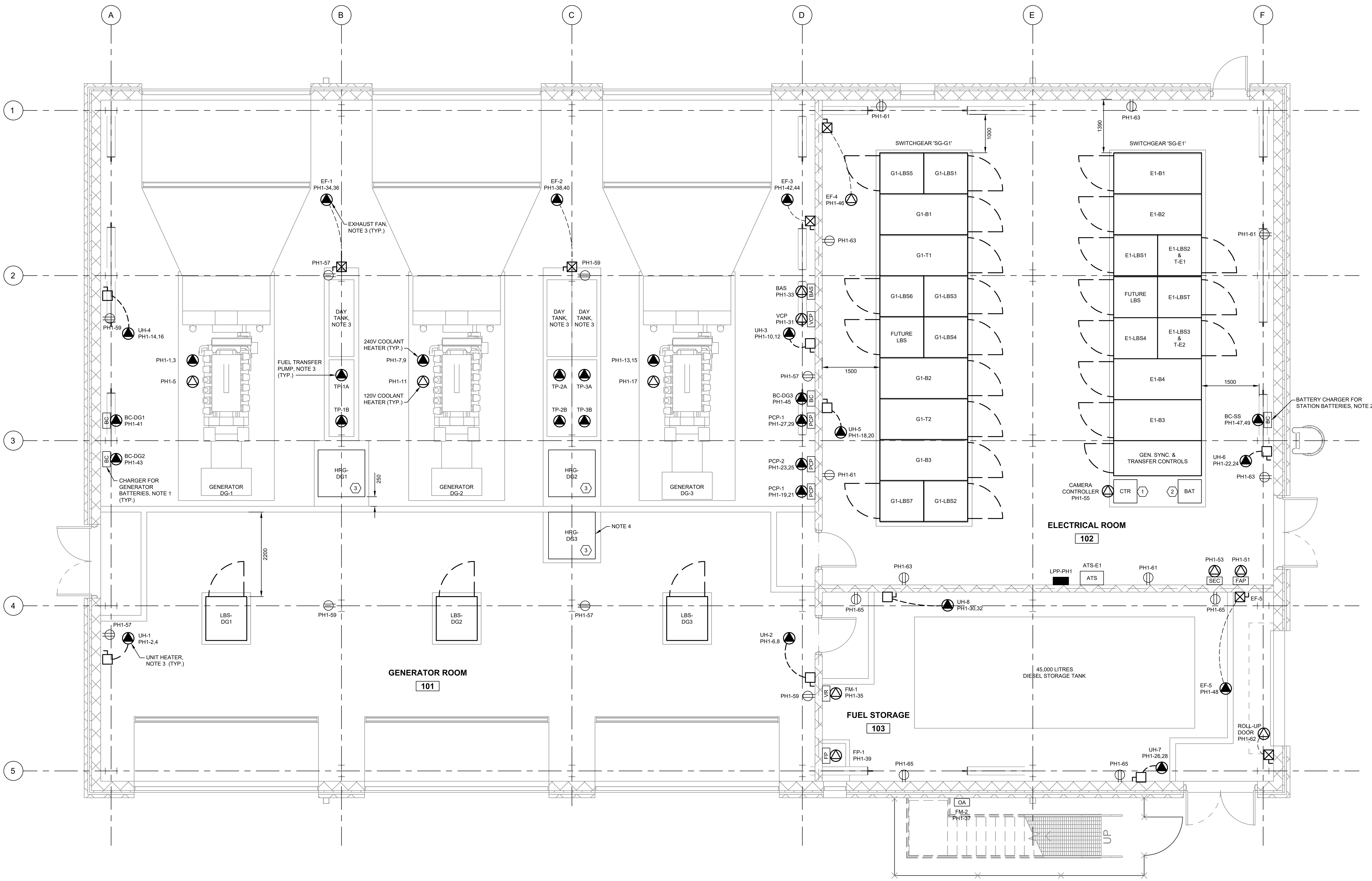
NEW POWERHOUSE
700 GORDON STREET, WHITBY, ON L1N 5S9

Sheet Title:

SITE PLAN
ELECTRICAL - NEW WORK

Drawn By: J.Y.	Date: DEC. 6, 2018		
Designed By: J.Y.	Checked By: T.G.		
Scale: AS SHOWN	File Path:		
Project No: 1802218	Drawing No: E002		

DRAWING NAME: P:\2018\180221800–RFP Emergency Generator Package\08. Working\Electrical\E–002_Site Plan_New.dwg
CREATED:
MODIFIED: 2019/06/20 10:38:42 AM



LEGEND:

- 120V WALL-MOUNTED RECEPTACLE
- 120V DIRECT CONNECTION OUTLET FOR USE AS NOTED
- 240V, SINGLE PHASE DIRECT CONNECTION OUTLET FOR USE AS NOTED
- UNFUSED DISCONNECT SWITCH, SIZE AS INDICATED
- COMBINATION STARTER C/W MOTOR CIRCUIT PROTECTOR
- ENCLOSED CIRCUIT BREAKER, SIZE AS INDICATED
- PANELBOAD
- JB — JUNCTION BOX
- ATS — AUTOMATIC TRANSFER SWITCH

LEGEND:

- BAS — BUILDING AUTOMATION SYSTEM PANEL (REFER ALSO TO MECHANICAL DRAWINGS)
- BC — BATTERY CHARGER
- FAP — FIRE ALARM CONTROL PANEL
- FP — FUEL POLISHER (REFER ALSO TO MECHANICAL DRAWINGS)
- OA — FUEL TANK OVERFILL ALARM (REFER ALSO TO MECHANICAL DRAWINGS)
- PCP — FUEL TRANSFER PUMP CONTROL PANEL (REFER ALSO TO MECHANICAL DRAWINGS)
- SEC — SECURITY ACCESS CONTROL PANEL
- VCP — VENTILATION CONTROL PANEL (REFER ALSO TO MECHANICAL DRAWINGS)
- VR — VEEDER-ROOT FUEL MONITORING CONSOLE (REFER ALSO TO MECHANICAL DRAWINGS)

EQUIPMENT LIST:

1. LOCKABLE ENCLOSED RACK WITH GLASS FRONT DOORS FOR CAMERA CONTROLLER AND NETWORK SWITCH
2. STATION BATTERIES CONSISTING OF TWO (2) SETS OF THREE (3) 48V LITHIUM ION BATTERIES C/W BATTERY MONITORING FOR DUAL REDUNDANT DC SUPPLIES TO SWITCHGEAR SG-G1 AND SG-E1, AND GENERATOR SYNCHRONIZATION AND TRANSFER CONTROLS PANEL. PROVIDE RACK FOR MOUNTING OF THE BATTERIES. INCLUDE INTEGRATION OF BATTERY MONITORING INTO BAS.
3. HIGH RESISTANCE GROUNDING FOR GENERATOR C/W NEUTRAL GROUNDING TRANSFORMER AND ENCLOSURE

NOTES:

1. PROVIDE 2-#2-35mmC FROM CHARGER TO BATTEREIS AT GENERATOR.
2. PROVIDE 2-#1-41mmC FROM CHARGER TO STATION BATTERIES.
3. FOR MECHANICAL EQUIPMENT SUCH AS UNIT HEATERS, EXHAUST FANS, PUMPS AND FUEL TANKS, REFER ALSO TO MECHANICAL DRAWINGS.
4. PROVIDE HOT-DIP GALVANIZED STEEL SUPPORT FOR INSTALLING HIGH RESISTANCE GROUNDING 'HRG-DG3' ABOVE 'HRG-DG2'. SUBMIT SHOP DRAWING SIGNED BY PROFESSIONAL ENGINEER FOR THE SUPPORT .

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MODIFIED: 2019/06/20 10:44:50 AM

Key Plan:

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2	ISSUED FOR BUILDING PERMIT	JUN. 3/19	JY
1	ISSUED FOR 100% REVIEW	APR. 29/19	JY

Client:

Ontario Shores
Centre for Mental Health Sciences

Project:

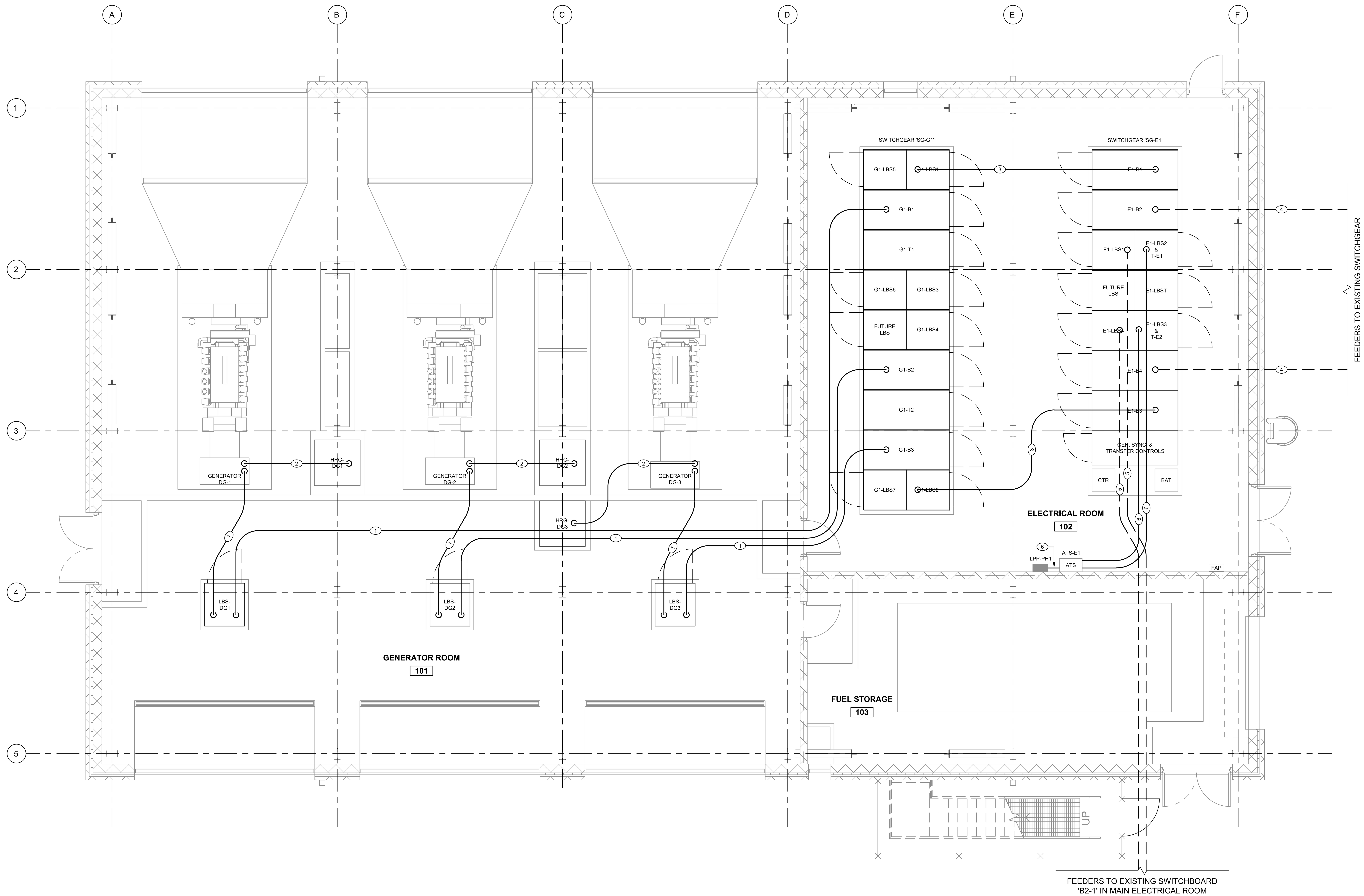
NEW POWERHOUSE

700 GORDON STREET, WHITBY, ON L1N 5S9

Sheet Title:

ELECTRICAL POWER EQUIPMENT LAYOUT

Drawn By:	J.Y.	Date:	DEC. 6, 2018
Designed By:	J.Y.	Checked By:	T.G.
Scale:	1:50	File Path:	BIM 360://MH - 1802218 - Ontario Shores Powerhouse/1802218-Ontario Shores Powerhouse-RVT2018-ARCH.rvt
Project No:	1802218	Drawing No:	E101



FEEDER SCHEDULE:

1. 3/C #2 + #6 GND, 15 kV, 133% INSULATION, COPPER TAPE SHIELDED TECK CABLE IN CABLE TRAY
2. 1/C #2 + #6 GND, 8 kV, 133% INSULATION, COPPER TAPE SHIELDED CABLE IN 75mm CONDUIT
3. 3/C 350MCM + #3 GND, 15 kV, 133% INSULATION, COPPER TAPE SHIELDED TECK CABLE IN CABLE TRAY
4. 3-350MCM TRXLPE, 15 kV, 100% INSULATION, COPPER TAPE SHIELDED TECK CABLE + #3 GND IN 155 mm UNDERGROUND DUCT BANK
5. 3-350MCM TRXLPE, 15 kV, 133% INSULATION, COPPER TAPE SHIELDED TECK CABLE + #3 GND IN 155 mm UNDERGROUND DUCT BANK
6. 3-600MCM + #2 GND IN 78mm CONDUIT

DRAWING NAME: P:\2018\180221800-RFP Emergency Generator Package\08. Working\Electrical\E-102_Wiring Layout.dwg
CREATED: MODIFIED: 2019/06/20 10:45:29 AM

Key Plan:

Consultant:

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2	ISSUED FOR BUILDING PERMIT	JUN. 3/19	JY
1	ISSUED FOR 100% REVIEW	APR. 29/19	JY

Client:

Ontario Shores
Centre for Mental Health Sciences

Project:

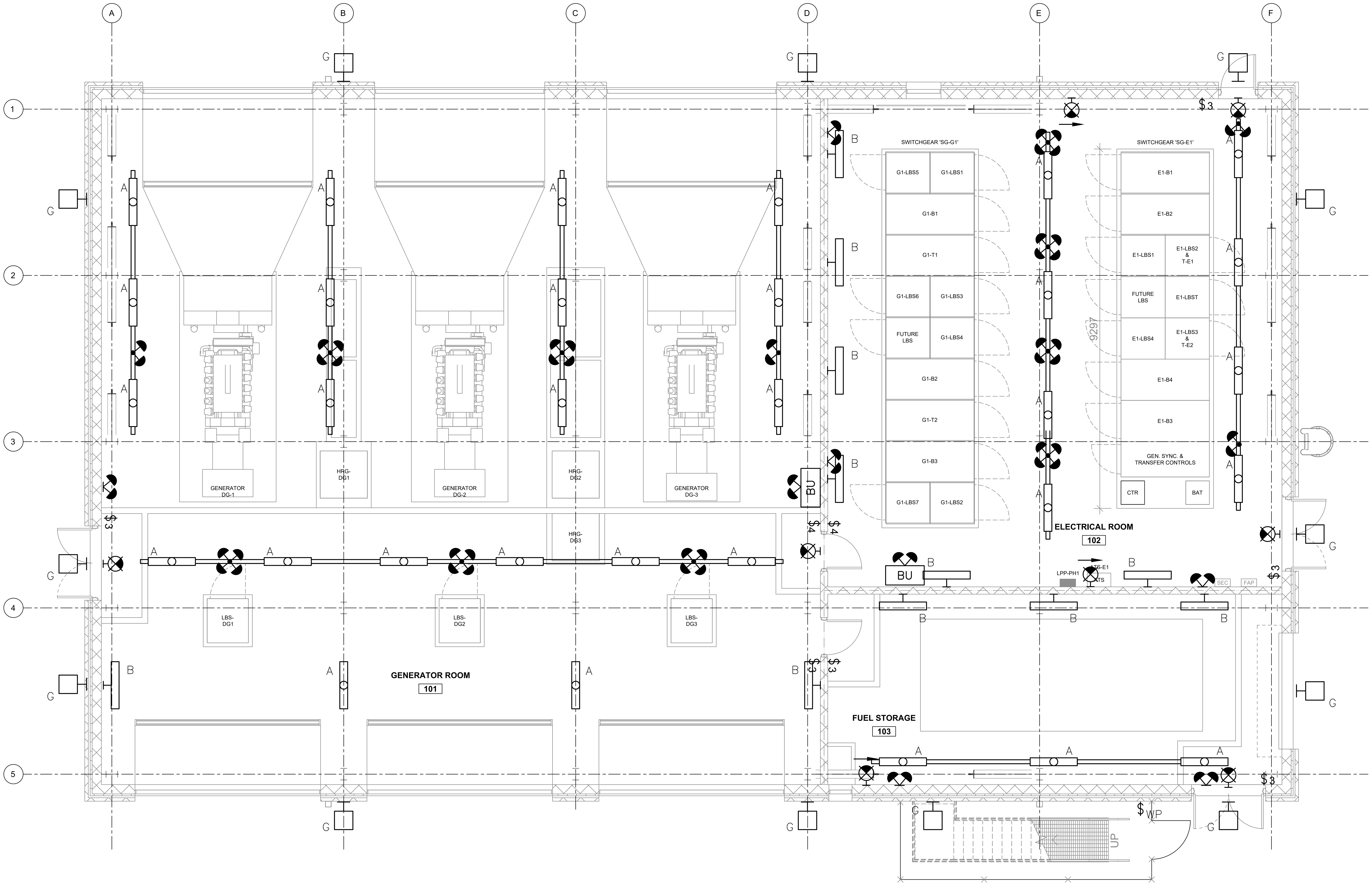
NEW POWERHOUSE

700 GORDON STREET, WHITBY, ON L1N 5S9

Sheet Title:

ELECTRICAL POWER
WIRING LAYOUT

Drawn By:	J.Y.	Date:	DEC. 6, 2018
Designed By:	J.Y.	Checked By:	T.G.
Scale:	1:50	File Path:	BIM 360://MH - 1802218 - Ontario Shores Powerhouse/1802218-Ontario Shores Powerhouse-RVT2018-ARCH.rvt
Project No:	1802218	Drawing No:	E102



SUPPLEMENTARY LEGEND:

A	LED STRIP LIGHT LUMINAIRE, 1200mm LONG, 36W, 120V, 5000 LUMENS AT 4000K COLOUR TEMPERATURE AND 80+ COLOUR RENDERING INDEX, SUITABLE FOR USE IN UP TO 40°C AMBIENT TEMPERATURE, C/W DIFFUSE PLOYCARBONATE LENS, PENDANT OR CHANNEL MOUNTED
B	SAME AS LUMINARE TYPE A BUT WALL MOUNTED
G	LED WALL MOUNTED OUTDOOR LUMINARE, C/W 6358 TOTAL LUMENS, 4000K, 68W LEDs AND 120V LED DRIVER, SUITABLE FOR LOW TEMPERATURE START (-40°C)
	EXIT SIGN, SINGLE FACE, WALL MOUNTED
B	BATTERY UNIT, 24V, 350W, WALL MOUNTED C/W TWO (2) 24V, 4W LED EMERGENCY REMOTE HEADS
	LED EMERGENCY REMOTE HEADS, TWO (2) 24V, 4W, WALL MOUNTED
	LED EMERGENCY REMOTE HEADS, TWO (2) 24V, 4W, CHANNEL MOUNTED
BU	BATTERY UNIT FOR EMERGENCY LIGHTING, 24V, 350W
$	LIGHT SWITCH, SINGLE POLE, 120V, 20A
$3	LIGHT SWITCH, 3-WAY, 120V, 20A
$4	LIGHT SWITCH, 4-WAY, 120V, 20A

DRAWING NAME: P:\2018\180221800-RFP Emergency Generator Package\08. Working\Electrical\E-201_Lighting.dwg
CREATED:
MODIFIED: 2019/06/20 10:45:57 AM

Key Plan:

Consultant:

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3	ISSUED FOR TENDER	JUN. 13/19	JY
2	ISSUED FOR BUILDING PERMIT	JUN. 3/19	JY
1	ISSUED FOR 100% REVIEW	APR. 29/19	JY

Client:

Ontario Shores
Centre for Mental Health Sciences

Project:

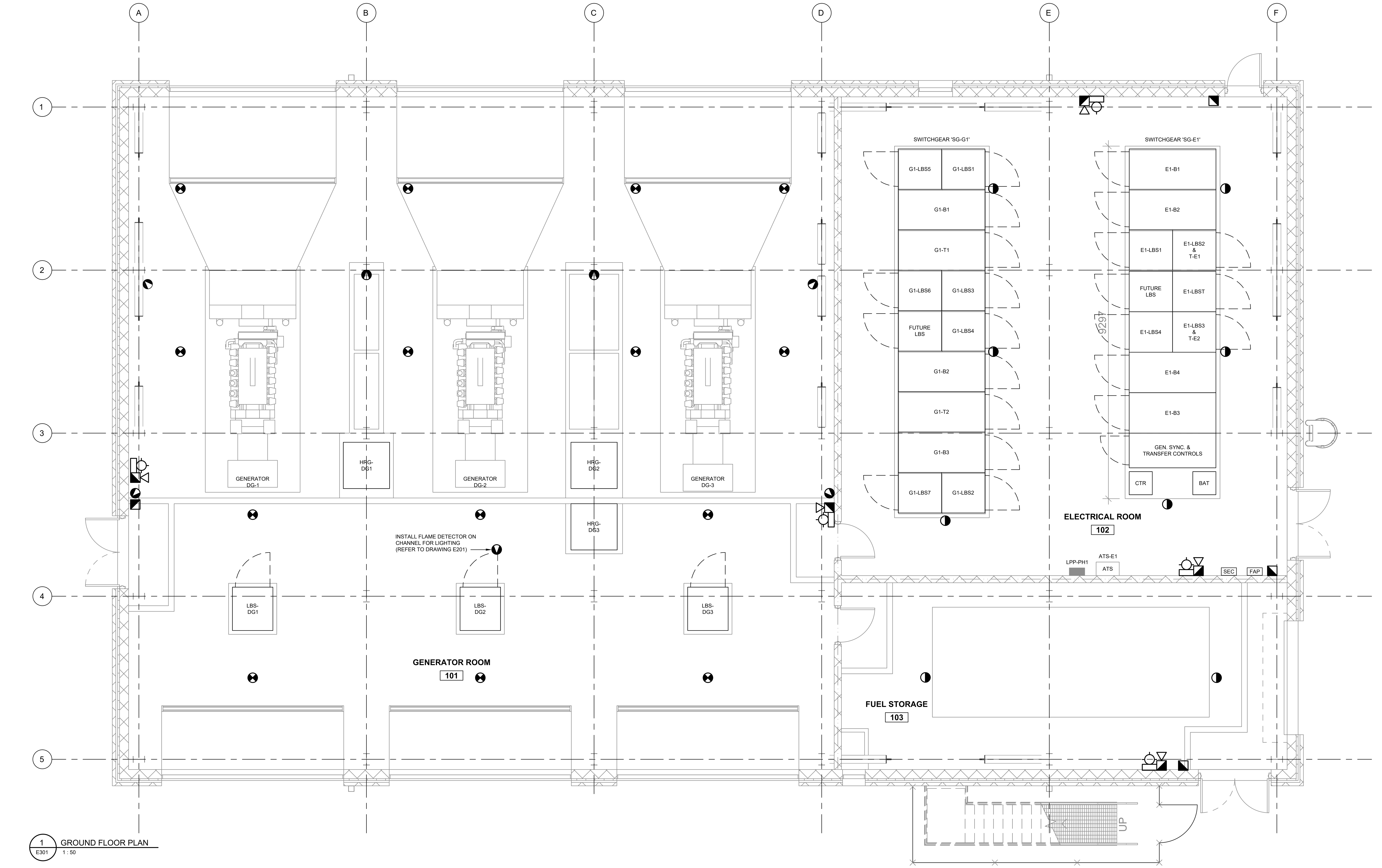
NEW POWERHOUSE

700 GORDON STREET, WHITBY, ON L1N 5S9

Sheet Title:

LIGHTING LAYOUT
NEW

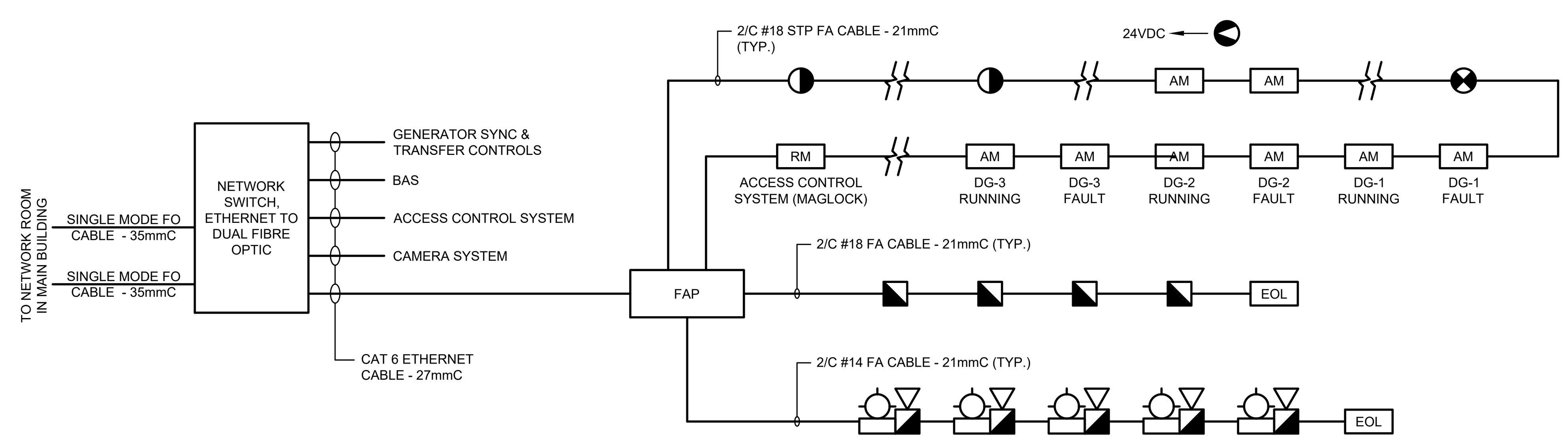
Drawn By:	J.Y.	Date:	DEC. 6, 2018
Designed By:	J.Y.	Checked By:	T.G.
Scale:	1:50	File Path:	BIM 360://MH - 1802218 - Ontario Shores Powerhouse/1802218-Ontario Shores Powerhouse-RVT2018-ARCH.rvt
Project No:	1802218	Drawing No:	E201



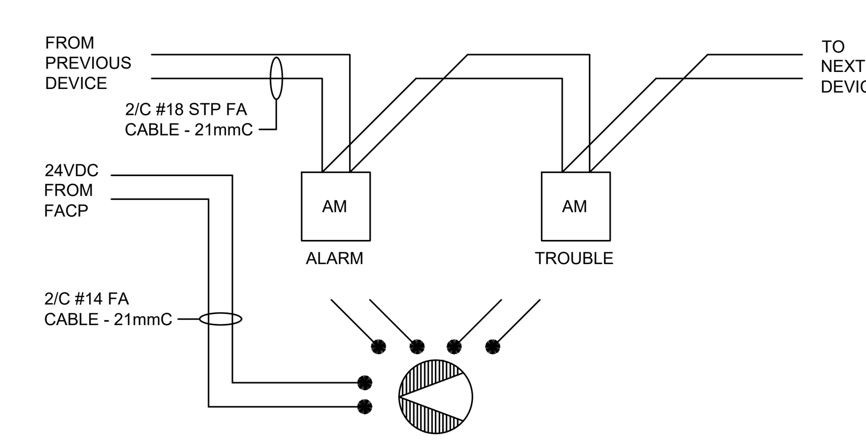
1 GROUND FLOOR PLAN
E301 1 : 50

SUPPLEMENTARY LEGEND:

- FIRE ALARM MANUAL PULL STATION
- FIRE ALARM PHOTOELECTRIC (LASER) SMOKE DETECTOR
- FIRE ALARM 190°F (88°C) FIXED TEMPERATURE THERMAL DETECTOR
- FIRE ALARM DUAL ULTRAVIOLET-INFRARED (UV-IR) FLAME DETECTOR
- FIRE ALARM WALL MOUNTED STROBE LIGHT AND HORN
- FAP — FIRE ALARM CONTROL PANEL
- AM — ALARM MONITORING MODULE C/W ENCLOSURE PAINTED RED
- RM — FIRE ALARM RELAY MODULE C/W ENCLOSURE PAINTED RED



2 SECURITY SYSTEM SCHEMATIC
E301 N.T.S.



3 TYPICAL FLAME DETECTOR DETAIL
E301 N.T.S.

Key Plan:

Consultant:

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3	ISSUED FOR TENDER	JUN. 13/19	JY
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1	ISSUED FOR 100% REVIEW	APR. 29/19	JY

Client:

Ontario Shores
Centre for Mental Health Sciences

Project:

NEW POWERHOUSE

700 GORDON STREET, WHITBY, ON L1N 5S9

Sheet Title:

FIRE ALARM SYSTEM
NEW

Drawn By: J.Y.		Date: DEC. 6, 2018	
Designed By: J.Y.		Checked By: T.G.	
Scale: 1:50		File Path:	
Project No: 1802218		Drawing No: E301	

DRAWING NAME: P:\2018\1802218\00-RFP Emergency Generator Package\08. Working\Electrical\E-301_Fire Alarm.dwg
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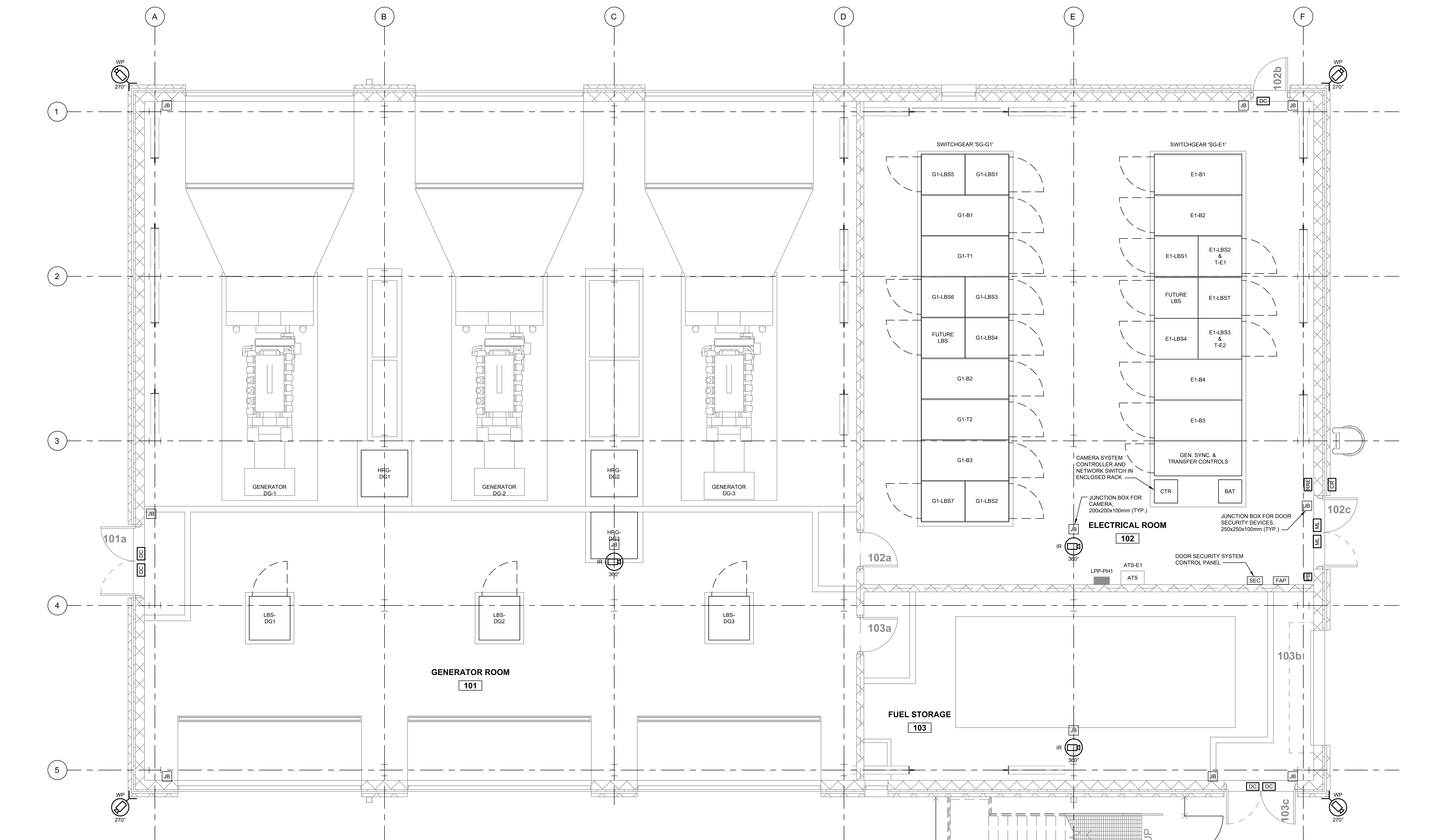


1 E401 GROUND FLOOR PLAN
1 : 50

SUPPLEMENTARY LEGEND FOR SECURITY SYSTEM:

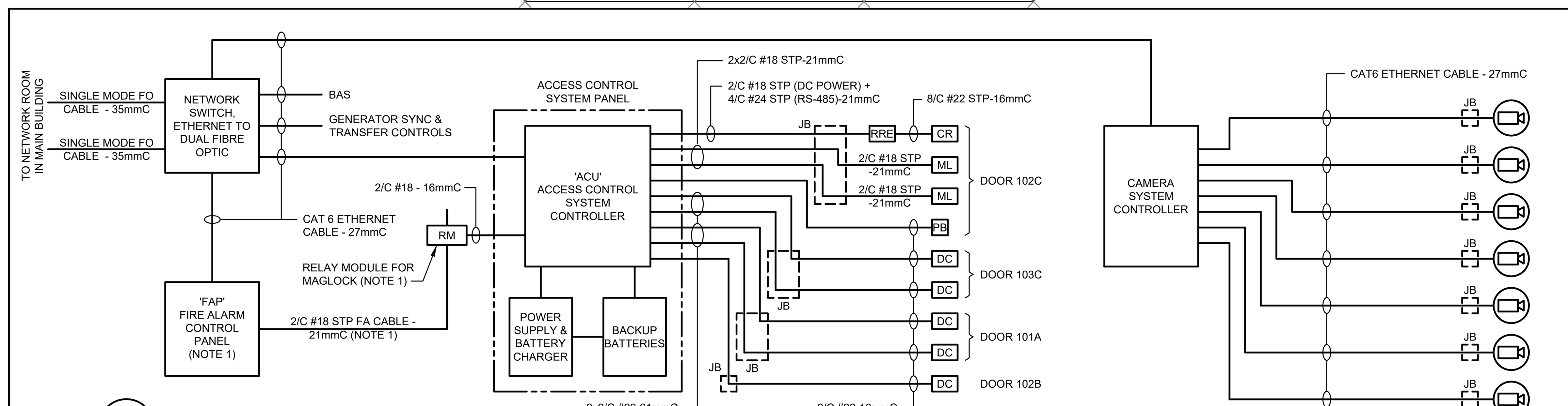
WP 270°	OUTDOOR WEATHERPROOF 270° PANORAMIC IP DOME CAMERA C/W CORNER MOUNTING BRACKET
IR 360°	INDOOR 360° PANORAMIC IP DOME CAMERA, PENDANT MOUNTED, C/W INFRARED (IR) ILLUMINATOR
ML	ELECTROMAGNETIC LOCK (MAGLOCK)
CR	PROXIMITY CARD READER
DC	RECESSED DOOR CONTACT
PB	EXIT PUSHBUTTON FOR MAGLOCK, MUSHROOM TYPE, WITH "EXIT" ENGRAVED ON PUSHBUTTON
RRE	REMOTE READER ELECTRONICS
SEC	ACCESS CONTROL SYSTEM PANEL, WALL MOUNTED
JB	JUNCTION BOX
STP	SHIELDED TWISTED PAIR CABLE
WP	WEATHERPROOF

GENERAL NOTES FOR SECURITY SYSTEM SCHEMATIC:

A. EQUIPMENT FOR ACCESS CONTROL SYSTEM CONTROLLER, CCTV CONTROLLER, AND TYPES AND SIZES OF CABLES ARE FOR ILLUSTRATION ONLY. PROVIDE EQUIPMENT AND CABLES AS RECOMMENDED BY ACCESS SYSTEM AND CAMERA SYSTEM MANUFACTURERS/SUPPLIERS FOR COMPLETE FUNCTIONAL SYSTEMS.

NOTES FOR SECURITY SYSTEM SCHEMATIC:

1. FOR FIRE ALARM CONTROL PANEL, RELAY MODULE AND ASSOCIATED WIRING, REFER ALSO TO FIRE ALARM SYSTEM DRAWING.



2 E401 SECURITY SYSTEM SCHEMATIC
N.T.S.

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MODIFIED: 2019/06/20 10:46:58 AM

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Ontario Shores
Centre for Mental Health Sciences

Project:

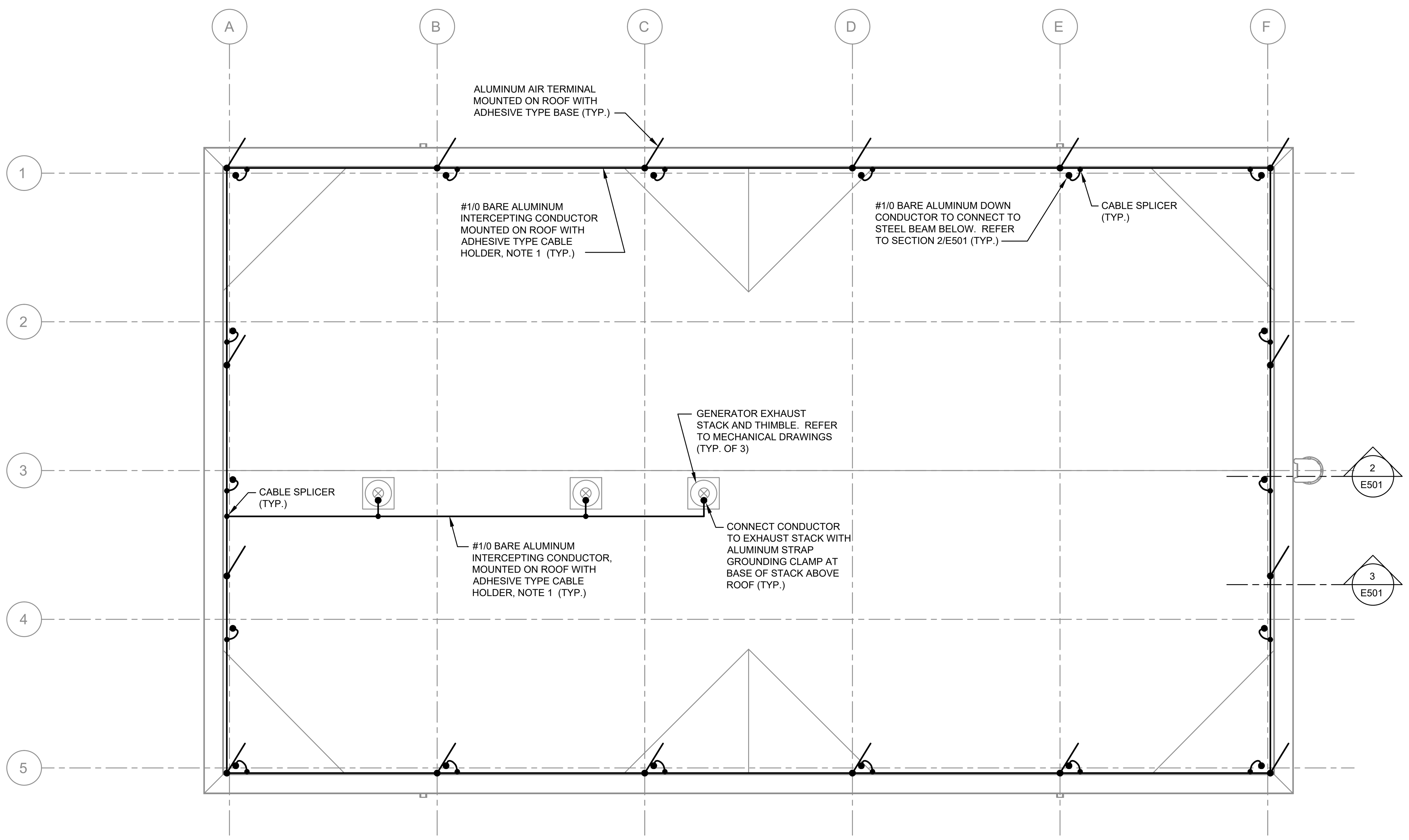
NEW POWERHOUSE

700 GORDON STREET, WHITBY, ON L1N 5S9

Sheet Title:

SECURITY SYSTEM
NEW

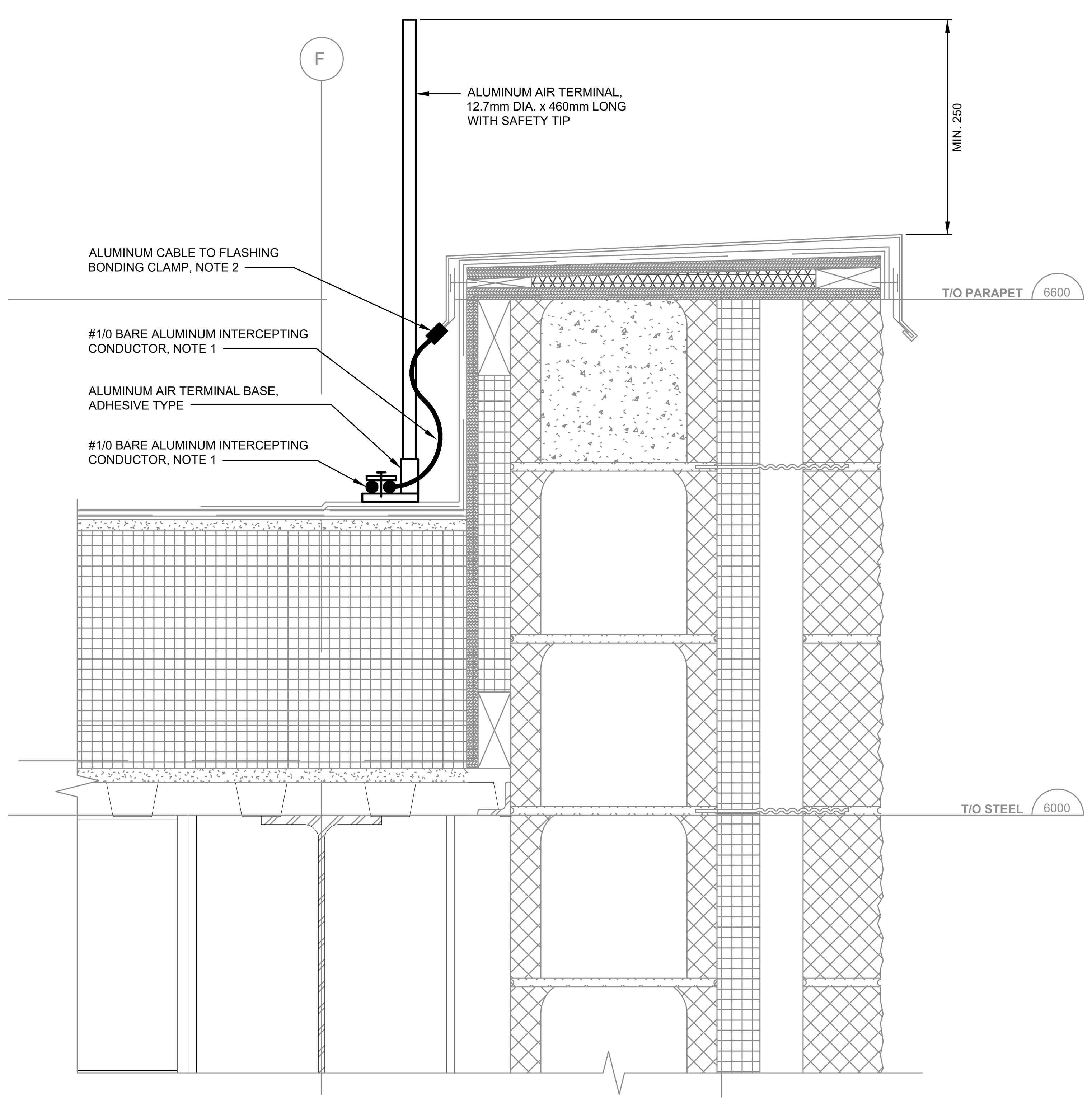
Drawn By:	J.Y.	Date:	APRIL 26, 2019
Designed By:	J.Y.	Checked By:	T.G.
Scale:	1:50	File Path:	BIM 360://MH - 1802218 - Ontario Shores Powerhouse/1802218-Ontario Shores Powerhouse-RVT2018-ARCH.rvt
Project No:	1802218	Drawing No:	E401



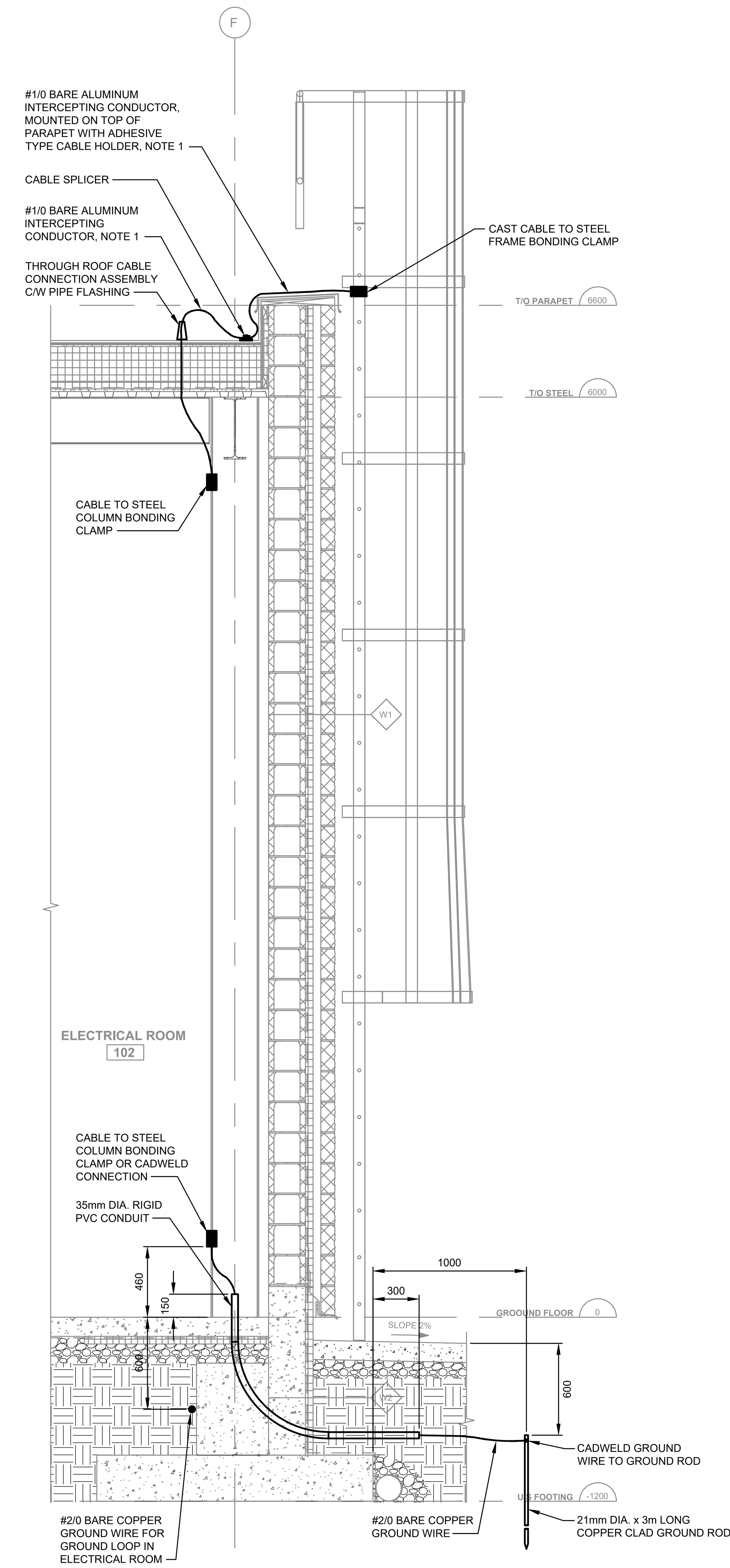
1 ROOF PLAN
E501 1 : 100

NOTES:

1. ALUMINUM INTERCEPTING CONDUCTOR SHALL BE OF THE SMOOTH WEAVE TYPE.
2. BOND ALUMINUM FLASHING AT ONE (1) LOCATION AT MID-POINT OF EACH SIDE OF ROOF.



3 SECTION - TYPICAL AIR TERMINAL INSTALLATION
E501 1 : 5



2 SECTION - TYPICAL DOWN CONDUCTOR AND GROUNDING
E501 1:25

Key Plan:

Consultant:

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Seal:

REV	DESCRIPTION	DATE	BY
3	ISSUED FOR TENDER	JUN. 13/19	JY
2	ISSUED FOR BUILDING PERMIT	JUN. 3/19	JY
1	ISSUED FOR 100% REVIEW	APR. 29/19	JY

Client:

Ontario Shores
Centre for Mental Health Sciences

Project:

NEW POWERHOUSE

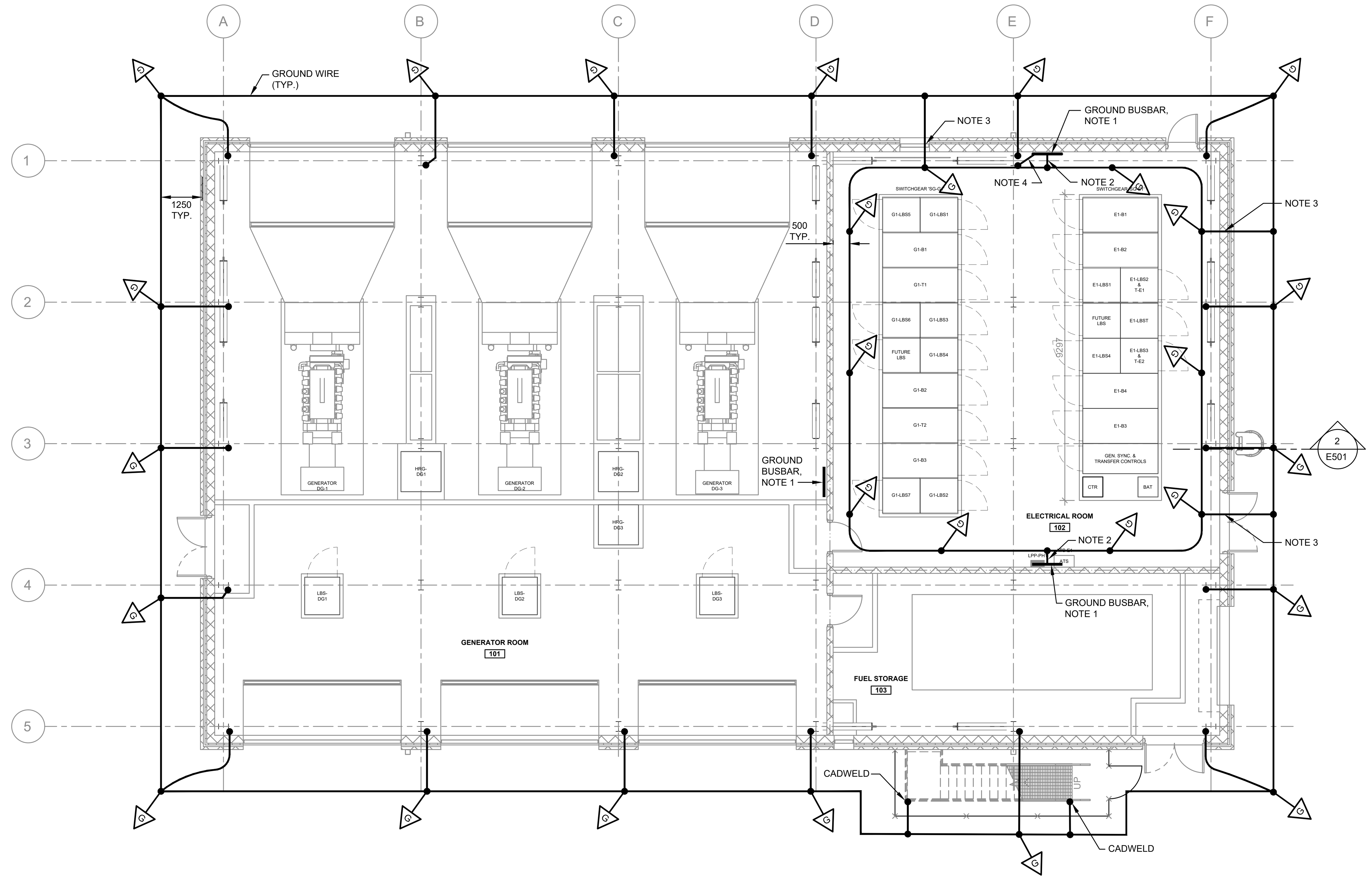
700 GORDON STREET, WHITBY, ON L1N 5S9

Sheet Title:

ROOF PLAN AND SECTIONS LIGHTNING PROTECTION

Drawn By:	J.Y.	Date:	APRIL 26, 2019
Designed By:	J.Y.	Checked By:	T.G.
Scale:	AS SHOWN	File Path:	BIM 360://MH - 1802218 - Ontario Shores Powerhouse/1802218-Ontario Shores Powerhouse-RVT2018-ARCH.rvt
Project No:	1802218	Drawing No:	E501

DRAWING NAME: P:\2018\1802218\00-RFP Emergency Generator Package\08. Working\Electrical\E-501_Roof-Lightning.dwg
CREATED:
MODIFIED: 2019/06/20 10:47:30 AM



1 E502 GROUND FLOOR PLAN - GROUNDING LAYOUT
1 : 100

GENERAL NOTES:

A. ALL GROUND WIRES SHALL BE #2/0 BARE COPPER.

B. ALL GROUND RODS SHALL BE 19 mm DIA. x 3 m LONG COPPER CLAD TYPE.

C. ALL CONNECTIONS TO GROUND WIRES AND GROUND RODS SHALL BE EXOTHERMIC (CADWELD) TYPE.

D. ALL CONNECTIONS TO STEEL COLUMNS SHALL BE BY TWO-BOLT BONDING CLAMP OR EXOTHERMIC (CADWELD) TYPE.

E. ALL CONNECTIONS TO GROUND BUSBARS SHALL BE BY TWO-HOLE COMPRESSION LUGS.

F. SPACE GROUND RODS AT LEAST 3 m APART.

NOTES:

1. GROUND BUSBAR SHALL BE COPPER, 100 mm WIDE x 6 mm THICK x 914 mm LONG, MOUNTED ON WALL WITH TWO (2) INSULATORS. BUSBAR SHALL BE FACTORY PRE-DRILLED WITH HOLES FOR TWO-HOLE COMPRESSION LUGS. INSTALL GROUND BUSBAR AT 2400 mm ABOVE FINISHED FLOOR.

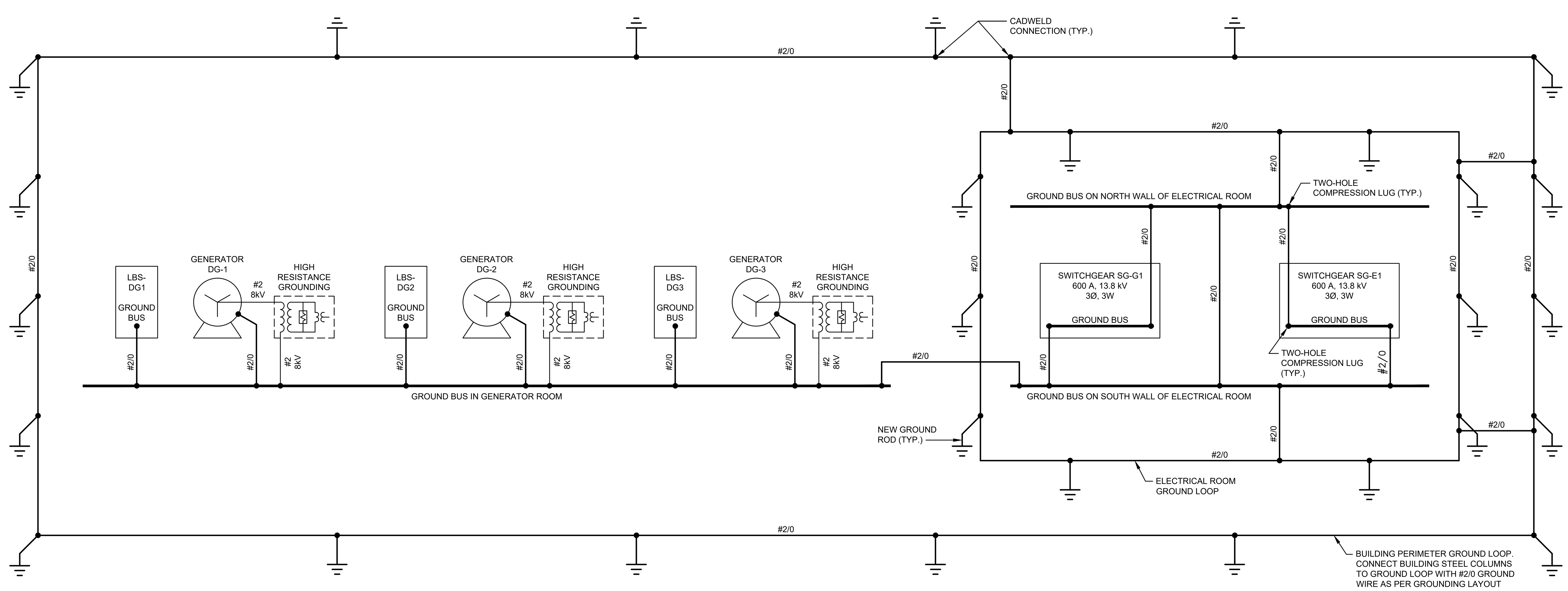
2. INSTALL #2/0 BARE COPPER GROUND WIRE RISER FROM UNDERGROUND GROUND LOOP TO GROUND BUSBAR IN 27 mm RIGID PVC CONDUIT.

3. PROVIDE 27 mm RIGID PVC CONDUIT SLEEVE THROUGH FOUNDATION FOR #2/0 COPPER GROUND WIRE INTERCONNECTION BETWEEN BUILDING PERIMETER AND ELECTRICAL ROOM GROUND LOOPS. EXTEND CONDUIT 300 mm BEYOND FOUNDATION.

4. INSTALL #2/0 BARE COPPER GROUND WIRE FROM STEEL COLUMN TO GROUND BUS BAR.

SUPPLEMENTARY LEGEND:

G — 19mmØ x 3m LONG COPPER CLAD GROUND ROD



2 E502 GROUNDING RISER DIAGRAM
N.T.S.

DRAWING NAME: P:\2018\180221800-RFP Emergency Generator Package\08. Working\Electrical\E-502_Grounding.dwg
CREATED:
MODIFIED: 2019/06/20 10:47:57 AM

Key Plan:

Consultant:

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Seal:

REV	DESCRIPTION	DATE	BY
3	ISSUED FOR TENDER	JUN. 13/19	JY
2	ISSUED FOR BUILDING PERMIT	JUN. 3/19	JY
1	ISSUED FOR 100% REVIEW	APR. 29/19	JY

Client:

Ontario Shores
Centre for Mental Health Sciences

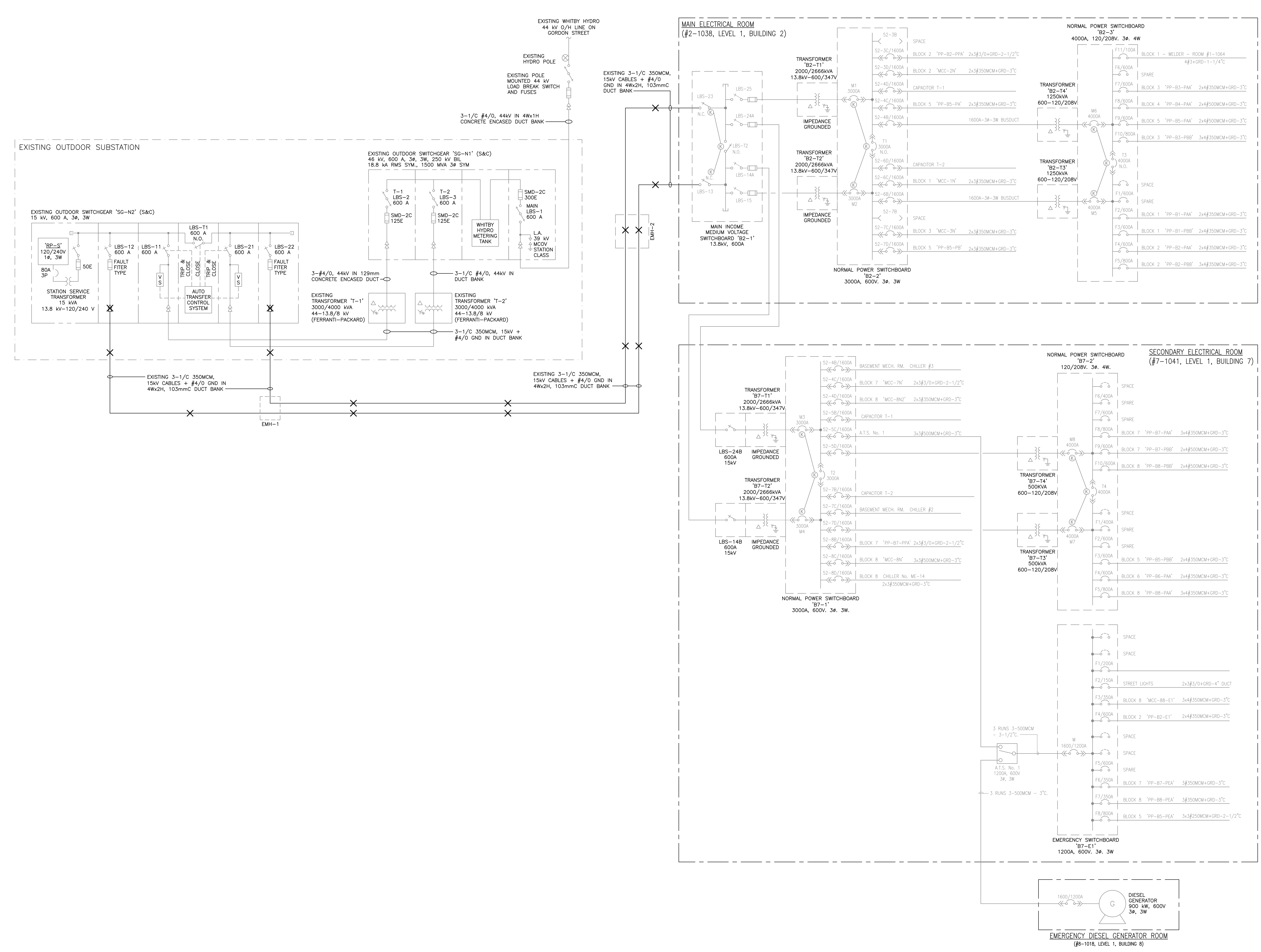
Project:

NEW POWERHOUSE
700 GORDON STREET, WHITBY, ON L1N 5S9

Sheet Title:

GROUNDING SYSTEM
LAYOUT AND
RISER DIAGRAM

Drawn By:	J.Y.	Date:	APRIL 26, 2019
Designed By:	J.Y.	Checked By:	T.G.
Scale:	AS SHOWN	File Path:	BIM 360://MH - 1802218 - Ontario Shores Powerhouse/1802218-Ontario Shores Powerhouse-RVT2018-ARCH.rvt
Project No:	1802218	Drawing No:	E502



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CREATED:
MODIFIED: 2019/06/20 10:51:16 AM

Key Plan:

Consultant:

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1	ISSUED FOR 100% REVIEW	APR. 29/19	JY

Client:

Ontario Shores
Centre for Mental Health Sciences

Project:

NEW POWERHOUSE

700 GORDON STREET, WHITBY, ON L1N 5S9

Sheet Title:

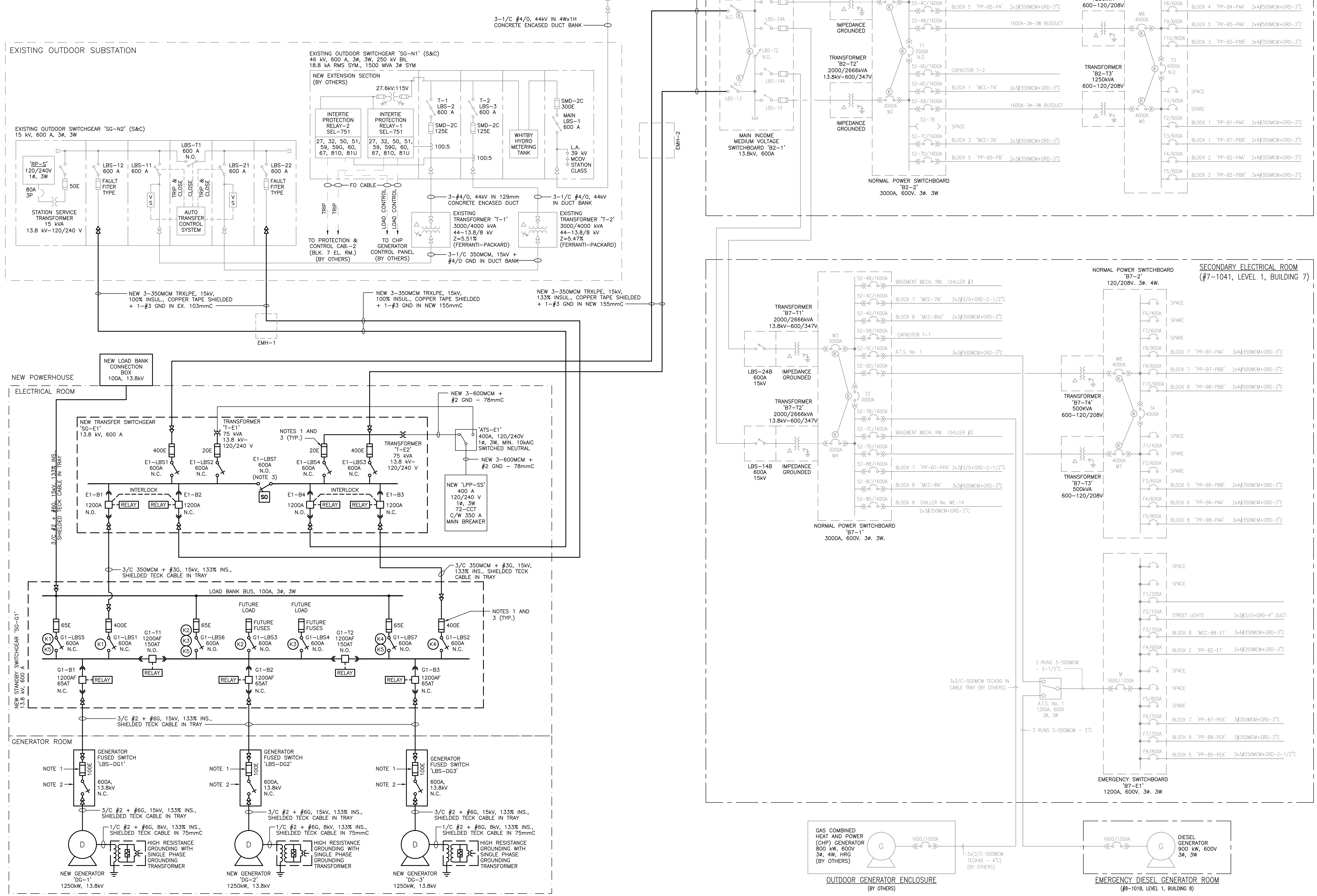
SINGLE LINE DIAGRAM
EXISTING AND REMOVALS

Drawn By: J.Y. | Date: DEC. 6, 2018
Designed By: J.Y. | Checked By: T.G.
Scale: N.T.S. | File Path:
Project No: 1802218 | Drawing No: E601

NOTES:

1. PROVIDE ELECTRONIC POWER FUSES.
2. BASE BID SHALL BE FOR SWITCHGEAR WITH DRAW–OUT CIRCUIT BREAKERS C/W PROTECTION RELAYS. PROVIDE ALTERNATE BID FOR SWITCHGEAR WITH FUSED SWITCHES.
3. BASE BID SHALL BE FOR SWITCHGEAR WITH DRAW–OUT CIRCUIT BREAKERS C/W PROTECTION RELAYS, SUBJECT TO THE OVERALL FOOTPRINT NOT EXCEEDING THAT SHOWN ON THE LAYOUT DRAWING. PROVIDE ALTERNATE BID FOR SWITCHGEAR WITH DRAW–OUT CIRCUIT BREAKERS (C/W PROTECTION RELAYS), FUSED SWITCHES AND LOAD BREAK SWITCHES. REGARDLESS OF DESIGN, FOOTPRINT SHALL NOT EXCEED THE DIMENSIONS SHOWN ON THE LAYOUT DRAWING AND SHALL COMPLY WITH ALL CODE REQUIREMENTS FOR WORKING SPACE AND ACCESSIBLITY – WITH CONSIDERATION TO POSITION OF ALL COLUMNS IN THE ELECTRICAL ROOM.

   LAYOUT DRAWING SHOWS A HYBRID SWITCHGEAR SOLUTION FOR REFERENCE (TO INDICATE SPACE AND ACCESSIBILITY CONSTRAINTS).



Key Plan:

Consultant:

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1	ISSUED FOR 100% REVIEW	APR. 29/19	JY

Client:

Ontario Shores
Centre for Mental Health Sciences

Project:

NEW POWERHOUSE

700 GORDON STREET, WHITBY, ON L1N 5S9

Sheet Title:

SINGLE LINE DIAGRAM
NEW

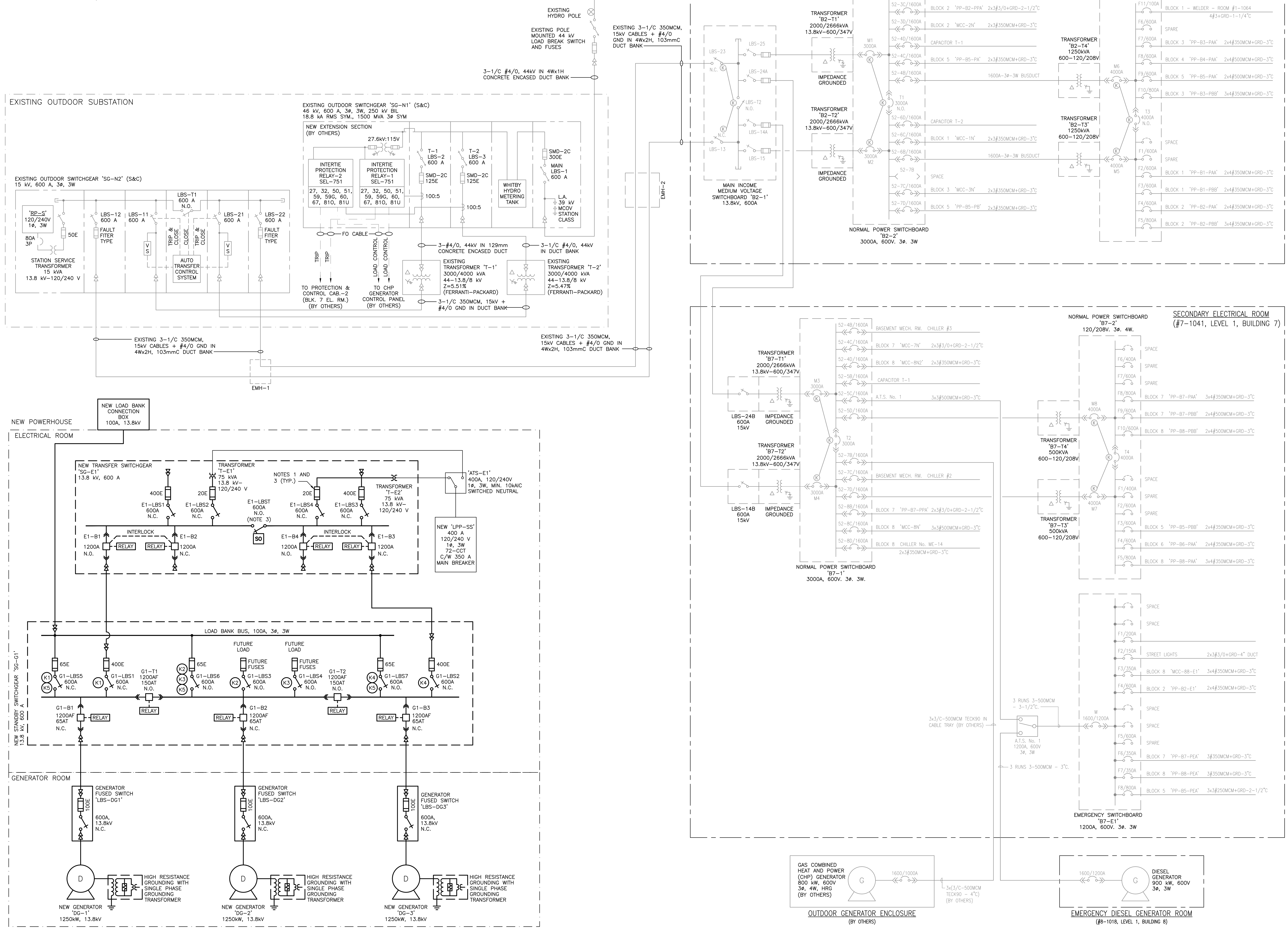
Drawn By: J.Y.	Date: DEC. 6, 2018
Designed By: J.Y.	Checked By: T.G.
Scale: N.T.S.	File Path: BIM 360://MH - 1802218 - Ontario Shores Powerhouse/1802218-Ontario Shores Powerhouse-RVT2018-ARCH.rvt
Project No: 1802218	Drawing No: E602

DRAWING NAME: P:\2018\1802218-RFP Emergency Generator Package\08. Working\Electrical\E-601-607_SLD_Cad2013.dwg
MODIFIED: 2019/06/20 10:52:00 AM
CREATED:

GENERAL NOTES:

A. REFER ALSO TO DRAWING NO. E601 – SINGLE LINE DIAGRAM – EXISTING AND REMOVALS, AND DRAWING NO. E602 – SINGLE LINE DIAGRAM – NEW.

B. FOR SIZES OF NEW FEEDERS, REFER TO DRAWING NO. E602 – SINGLE LINE DIAGRAM – NEW.



Key Plan:

Consultant:

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Seal:

REV	DESCRIPTION	DATE	BY
3	ISSUED FOR TENDER	JUN. 13/19	JY
2	ISSUED FOR BUILDING PERMIT	JUN. 3/19	JY
1	ISSUED FOR 100% REVIEW	APR. 29/19	JY

Client:

Ontario Shores
Centre for Mental Health Sciences

Project:

NEW POWERHOUSE

700 GORDON STREET, WHITBY, ON L1N 5S9

Sheet Title:

SINGLE LINE DIAGRAM
STAGE 1

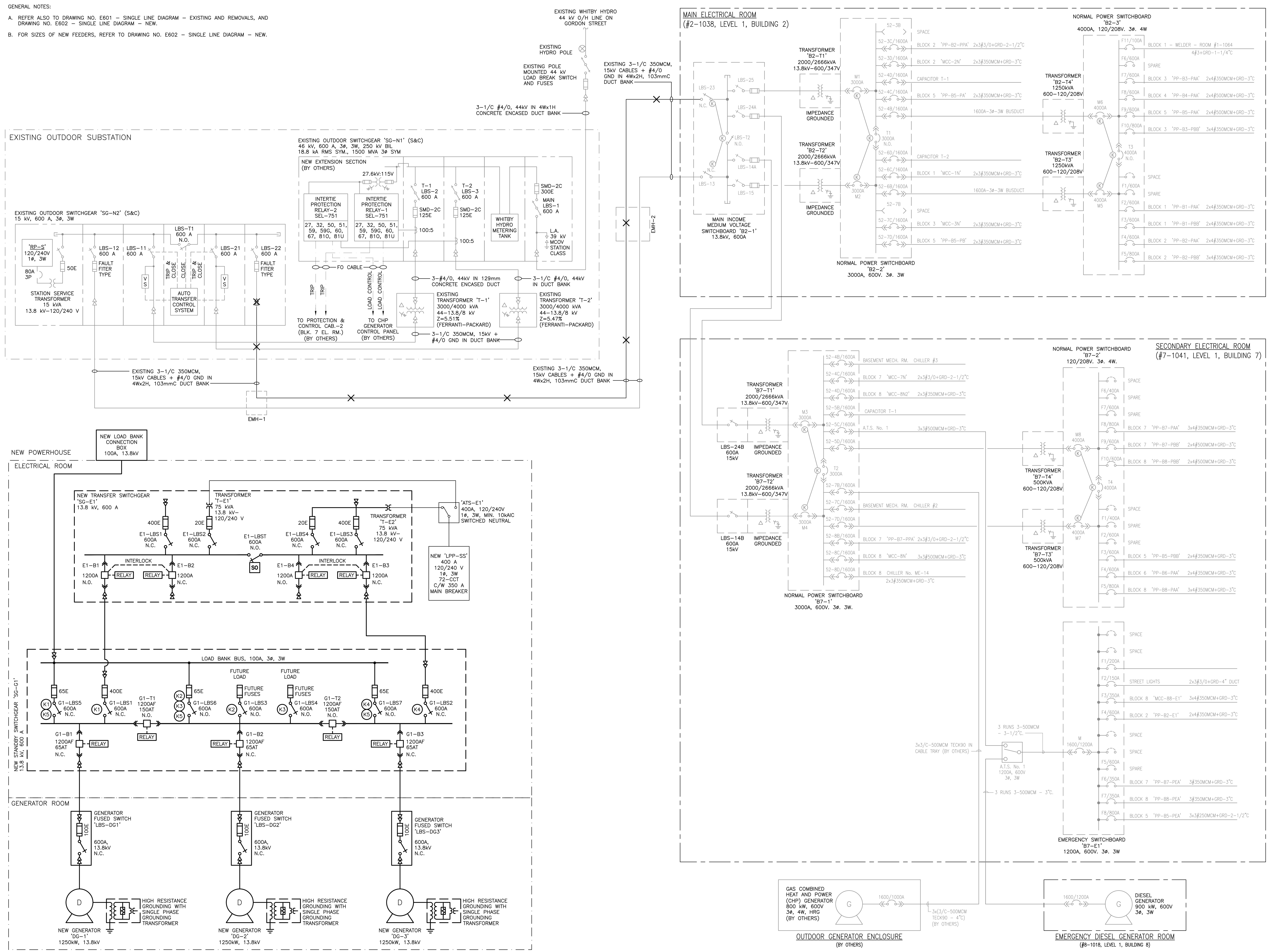
Drawn By:	J.Y.	Date:	DEC. 6, 2018
Designed By:	J.Y.	Checked By:	T.G.
Scale:	N.T.S.	File Path:	
Project No:	1802218	Drawing No:	E603

DRAWING NAME: P:\2018\1802218\00-RFP Emergency Generator Package\08. Working\Electrical\E-601-607_SLD_Cad2013.dwg
CREATED:
MODIFIED: 2019/06/20 10:52:30 AM

GENERAL NOTES:

A. REFER ALSO TO DRAWING NO. E601 – SINGLE LINE DIAGRAM – EXISTING AND REMOVALS, AND DRAWING NO. E602 – SINGLE LINE DIAGRAM – NEW.

B. FOR SIZES OF NEW FEEDERS, REFER TO DRAWING NO. E602 – SINGLE LINE DIAGRAM – NEW.



Key Plan:

Consultant:

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Seal:

REV	DESCRIPTION	DATE	BY
3	ISSUED FOR TENDER	JUN. 13/19	JY
2	ISSUED FOR BUILDING PERMIT	JUN. 3/19	JY
1	ISSUED FOR 100% REVIEW	APR. 29/19	JY

Client:

Ontario Shores
Centre for Mental Health Sciences

Project:

NEW POWERHOUSE

700 GORDON STREET, WHITBY, ON L1N 5S9

Sheet Title:

SINGLE LINE DIAGRAM
STAGE 2A

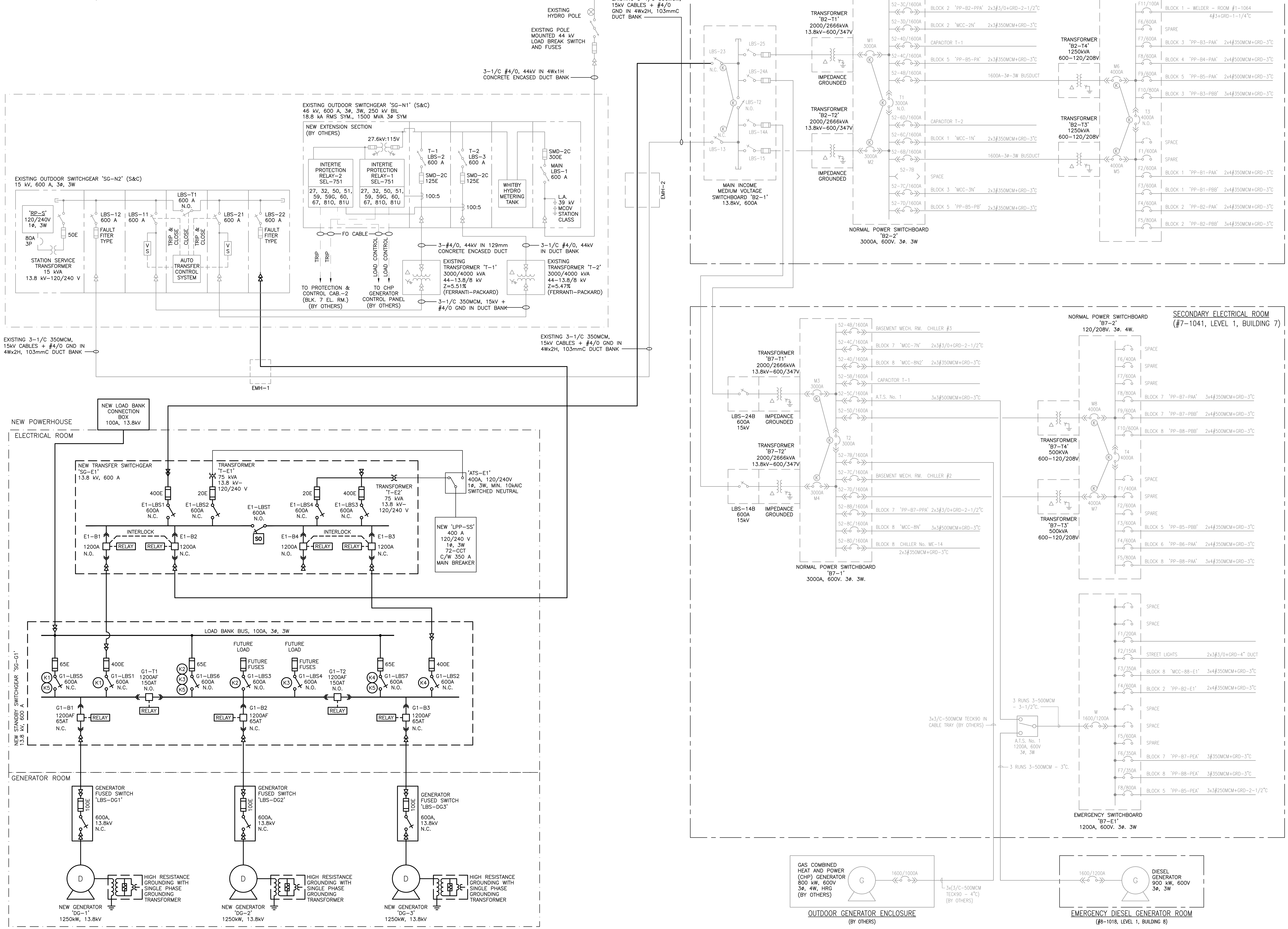
Drawn By: J.Y.	Date: DEC. 6, 2018		
Designed By: J.Y.	Checked By: T.G.		
Scale: N.T.S.	File Path:		
Project No: 1802218	Drawing No: E604		

DRAWING NAME: P:\2018\1802218000-RFP Emergency Generator Package\08. Working\Electrical\E-601-607_SLD_Cod2013.dwg
MODIFIED: 2019/06/20 10:52:52 AM
CREATED:

GENERAL NOTES:

A. REFER ALSO TO DRAWING NO. E601 – SINGLE LINE DIAGRAM – EXISTING AND REMOVALS, AND DRAWING NO. E602 – SINGLE LINE DIAGRAM – NEW.

B. FOR SIZES OF NEW FEEDERS, REFER TO DRAWING NO. E602 – SINGLE LINE DIAGRAM – NEW.



Key Plan:

Consultant:

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Seal:

REV	DESCRIPTION	DATE	BY
3	ISSUED FOR TENDER	JUN. 13/19	JY
2	ISSUED FOR BUILDING PERMIT	JUN. 3/19	JY
1	ISSUED FOR 100% REVIEW	APR. 29/19	JY

Client:

Ontario Shores
Centre for Mental Health Sciences

Project:

NEW POWERHOUSE

700 GORDON STREET, WHITBY, ON L1N 5S9

Sheet Title:

SINGLE LINE DIAGRAM
STAGE 2B

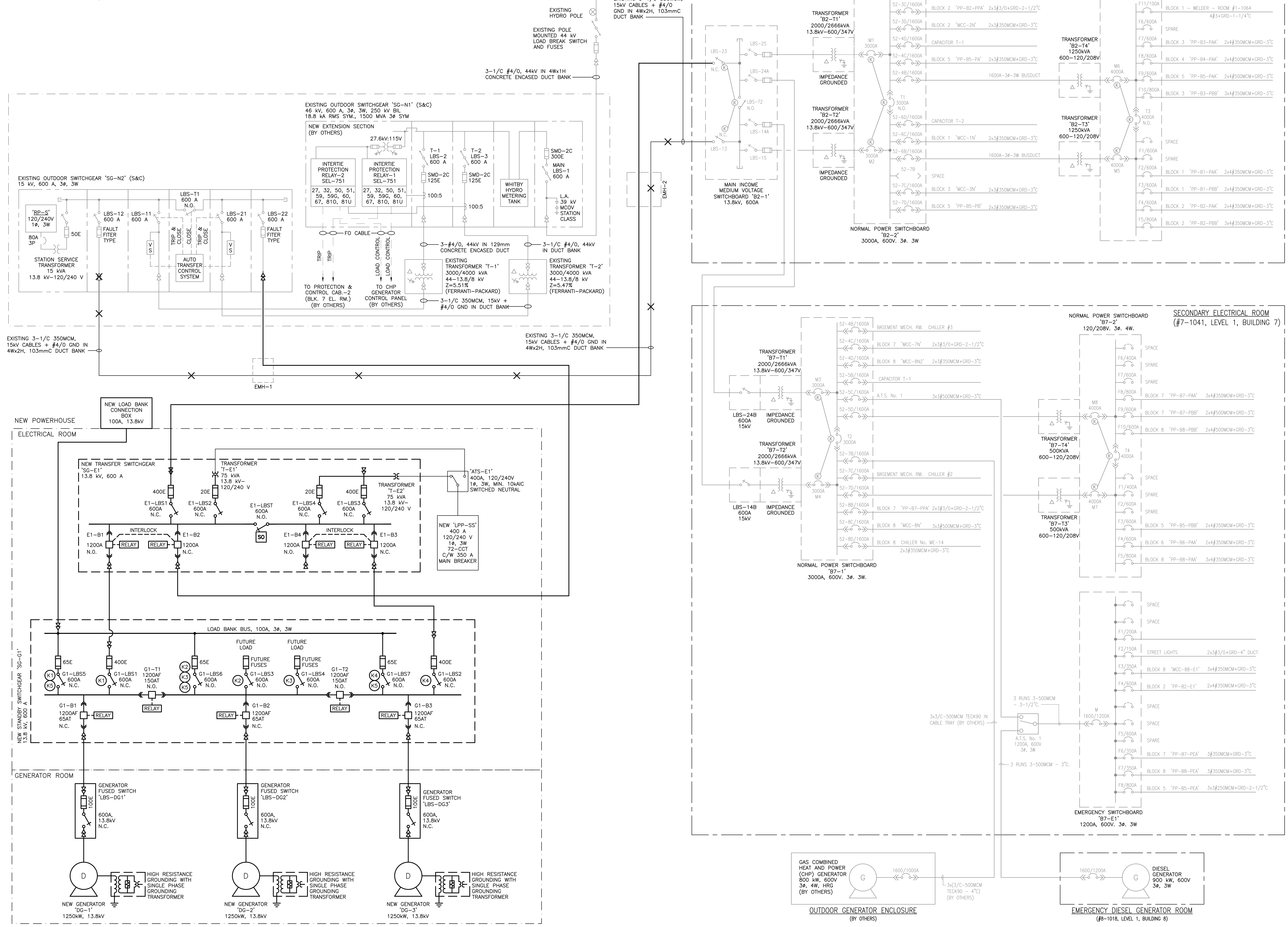
Drawn By:	J.Y.	Date:	DEC. 6, 2018
Designed By:	J.Y.	Checked By:	T.G.
Scale:	N.T.S.	File Path:	
Project No:	1802218	Drawing No:	E605

DRAWING NAME: P:\2018\1802218\00-RFP Emergency Generator Package\08. Working\Electrical\E-601-607_SLD_Cad2013.dwg
MODIFIED: 2019/06/20 10:53:16 AM
CREATED:

GENERAL NOTES:

A. REFER ALSO TO DRAWING NO. E601 – SINGLE LINE DIAGRAM – EXISTING AND REMOVALS, AND DRAWING NO. E602 – SINGLE LINE DIAGRAM – NEW.

B. FOR SIZES OF NEW FEEDERS, REFER TO DRAWING NO. E602 – SINGLE LINE DIAGRAM – NEW.



Key Plan:

Consultant:

MORRISON HERSHFIELD

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3	ISSUED FOR TENDER	JUN. 13/19	JY
2	ISSUED FOR BUILDING PERMIT	JUN. 3/19	JY
1	ISSUED FOR 100% REVIEW	APR. 29/19	JY

Client:

Ontario Shores
Centre for Mental Health Sciences

Project:

NEW POWERHOUSE

700 GORDON STREET, WHITBY, ON L1N 5S9

Sheet Title:

SINGLE LINE DIAGRAM STAGE 3A

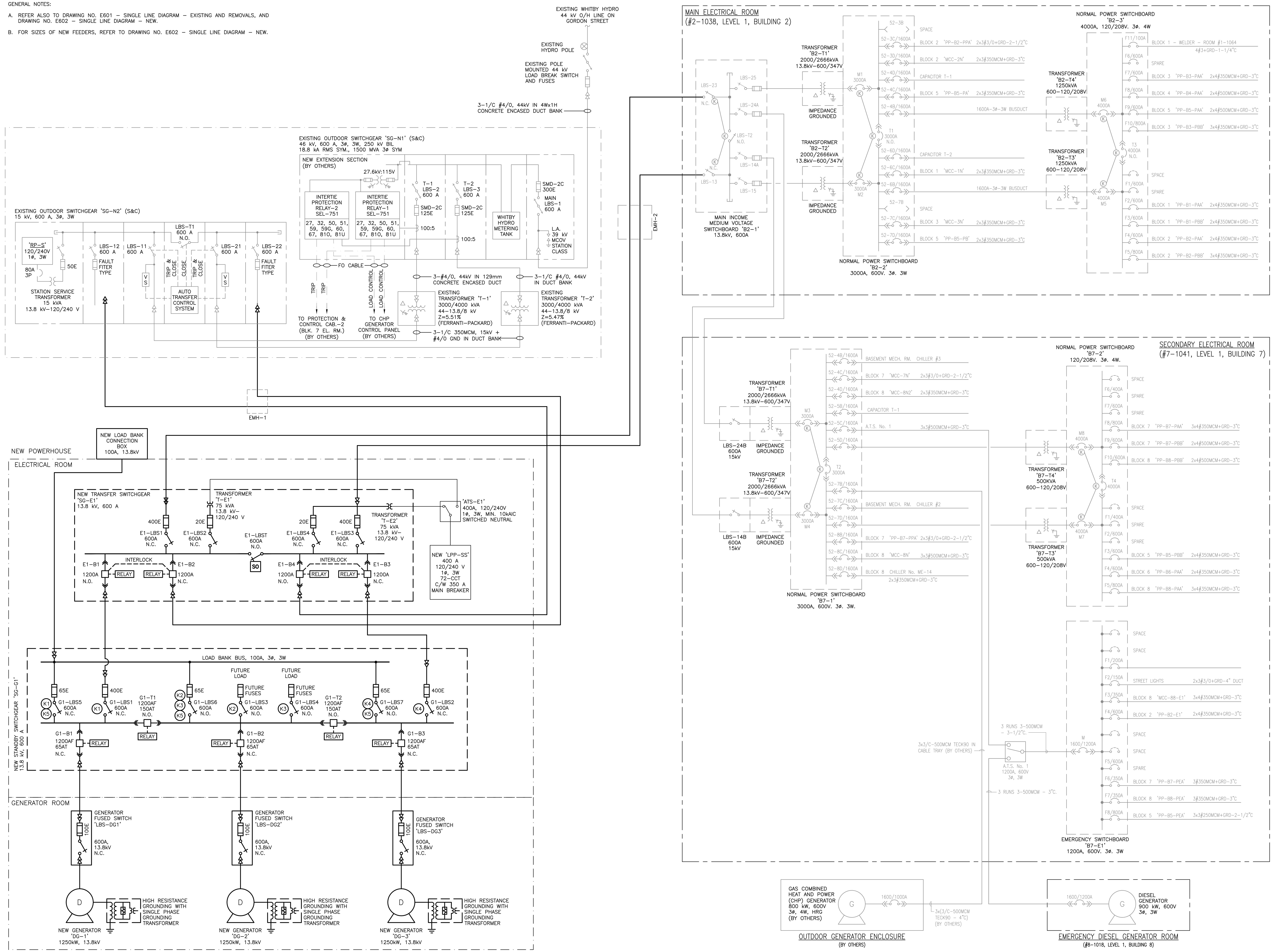
Drawn By: J.Y.		Date: DEC. 6, 2018	
Designed By: J.Y.		Checked By: T.G.	
Scale: N.T.S.		File Path:	
Project No: 1802218		Drawing No: E606	

DRAWING NAME: P:\2018\1802218.00-RFP Emergency Generator Package\08. Working\Electrical\E-601-607_SLD_Cad2013.dwg
CREATED:
MODIFIED: 2019/06/20 10:53:38 AM

GENERAL NOTES:

A. REFER ALSO TO DRAWING NO. E601 – SINGLE LINE DIAGRAM – EXISTING AND REMOVALS, AND DRAWING NO. E602 – SINGLE LINE DIAGRAM – NEW.

B. FOR SIZES OF NEW FEEDERS, REFER TO DRAWING NO. E602 – SINGLE LINE DIAGRAM – NEW.



Key Plan:

Consultant:

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REV	DESCRIPTION	DATE	BY
3	ISSUED FOR TENDER	JUN. 13/19	JY
2	ISSUED FOR BUILDING PERMIT	JUN. 3/19	JY
1	ISSUED FOR 100% REVIEW	APR. 29/19	JY

Client:

Ontario Shores
Centre for Mental Health Sciences

Project:

NEW POWERHOUSE

700 GORDON STREET, WHITBY, ON L1N 5S9

Sheet Title:

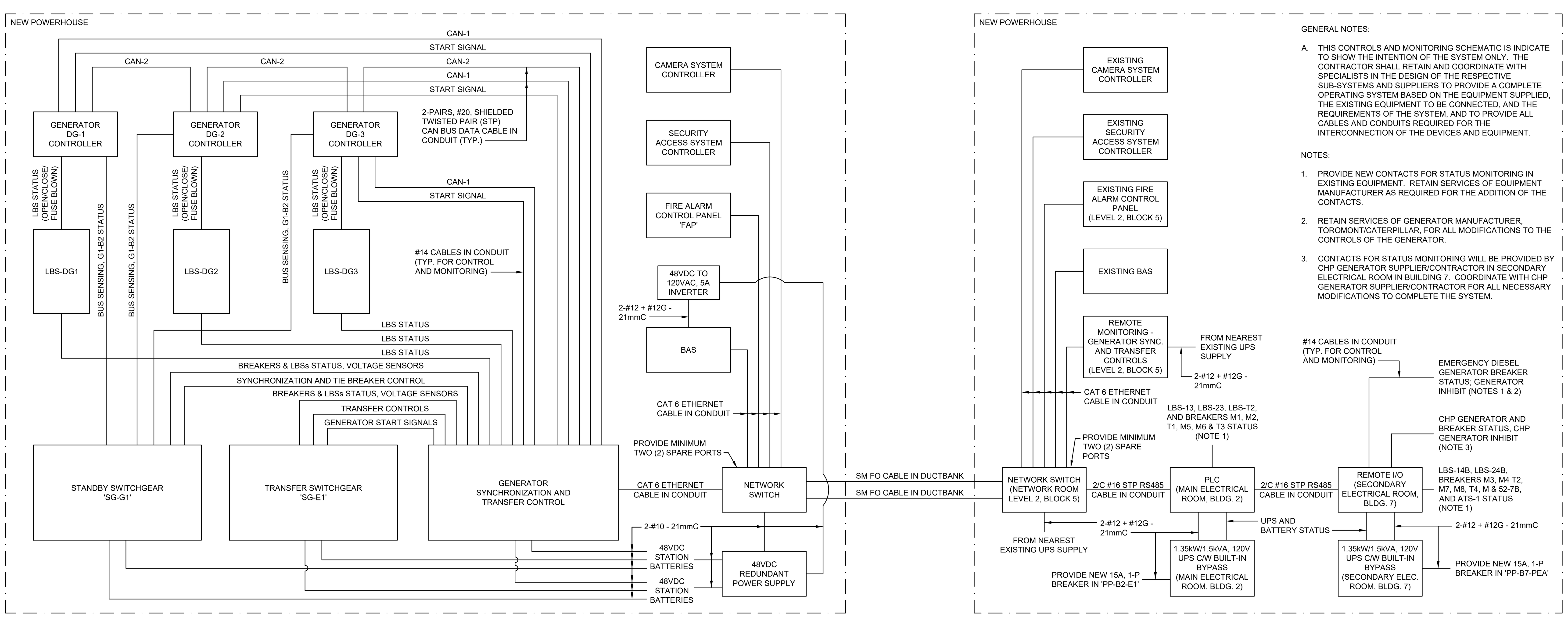
SINGLE LINE DIAGRAM
STAGE 3B

Drawn By: J.Y.	Date: DEC. 6, 2018		
Designed By: J.Y.	Checked By: T.G.		
Scale: N.T.S.	File Path:		
Project No: 1802218	Drawing No: E607		

DRAWING NAME: P:\2018\1802218000-RFP Emergency Generator Package\08. Working\Electrical\E-601-607_SLD_Cad2013.dwg
MODIFIED: 2019/06/20 10:54:07 AM
CREATED:

PANEL 'LPP-PH1' 400A, 120/240V, 1Ø, 3W, MIN. 10kAIC		TYPE: - MAINS: 350A 2P BREAKER MOUNTING: SURFACE			LOCATION: ELECTRICAL ROOM SOURCE: T-E1		
LOAD kVA	DESCRIPTION	BKR.	CIRCUITS		BKR.	DESCRIPTION	LOAD kVA
6.0	DG-1 COOLANT HEATER	35A 2P	1	2	20A 2P	UNIT HEATER UH-1 GENERATOR ROOM	3.0
			3	4			
2.5	DG-1 COOLANT HEATER	30A	5	6	20A 2P	UNIT HEATER UH-2 GENERATOR ROOM	3.0
6.0	DG-2 COOLANT HEATER	35A 2P	7	8			
			9	10	20A 2P	UNIT HEATER UH-3 GENERATOR ROOM	3.0
2.5	DG-2 COOLANT HEATER	30A	11	12			
6.0	DG-3 COOLANT HEATER	35A 2P	13	14	20A 2P	UNIT HEATER UH-4 GENERATOR ROOM	3.0
			15	16			
2.5	DG-3 COOLANT HEATER	30A	17	18	20A 2P	UNIT HEATER UH-5 ELECTRICAL ROOM	3.0
3.68	FUEL TRANSFER PUMP TP-1	25A 2P	19	20			
			21	22	20A 2P	UNIT HEATER UH-6 ELECTRICAL ROOM	3.0
3.68	FUEL TRANSFER PUMP TP-2	25A 2P	23	24			
			25	26	15A 2P	UNIT HEATER UH-7 FUEL STORAGE	2.0
3.68	FUEL TRANSFER PUMP TP-3	25A 2P	27	28			
			29	30	15A 2P	UNIT HEATER UH-8 FUEL STORAGE	2.0
	VCP VENTILATION CONTROL PANEL	15A	31	32			
	BAS	15A	33	34	20A 2P	EXHAUST FAN EF-1 GENERATOR ROOM	1.84
	FM-1 VEEDER-ROOT FUEL MONITORING	15A	35	36			
	FM-2 OVERFILL ALARM	15A	37	38	20A 2P	EXHAUST FAN EF-2 GENERATOR ROOM	1.84
1.59	FP-1 FUEL POLISHER	30A	39	40			
1.2	BC-DG1 - BATTERY CHARGER FOR DG-1	15A	41	42	20A 2P	EXHAUST FAN EF-3 GENERATOR ROOM	1.84
1.2	BC-DG2 - BATTERY CHARGER FOR DG-2	15A	43	44			
1.2	BC-DG3 - BATTERY CHARGER FOR DG-3	15A	45	46	15A	EXHAUST FAN EF-4, ELECTRICAL ROOM	0.83
2.0	BC-SS - STATION BATTERY CHARGER	15A 2P	47	48	15A	EXHAUST FAN EF-5, FUEL STORAGE	0.51
			49	50	20A	LIGHTING - GENERATOR ROOM	0.9
	FIRE ALARM CONTROL PANEL	15A	51	52	20A	LIGHTING - ELECTRICAL ROOM	0.6
	SECURITY ACCESS CONTROL PANEL	15A	53	54	20A	LIGHTING - FUEL STORAGE	0.2
	CAMERA CONTROLLER	15A	55	56	20A	LIGHTING - EXTERIOR	1.0
	RECEPTACLES - GENERATOR ROOM	15A	57	58	15A	BU-1 & EXIT SIGNS - ELEC. RM. & FUEL ST.	
	RECEPTACLES - GENERATOR ROOM	15A	59	60	15A	BU-2 & EXIT SIGNS - GENERATOR ROOM	
	RECEPTACLES - ELECTRICAL ROOM	15A	61	62	15A	ROLL-UP DOOR	
	RECEPTACLES - ELECTRICAL ROOM	15A	63	64	15A	SPARE	
	RECEPTACLES - FUEL STORAGE	15A	65	66	20A	SPARE	
	SPARE	15A	67	68	20A	SPARE	
	SPARE	15A	69	70	-	SPACE	
	SPACE	-	71	72	-	SPACE	

BRANCH CIRCUIT FEEDER SCHEDULE		
BREAKER SIZE (A)	DESCRIPTION	
15A, 1P	2-#12 + #12 GND - 21mmC	
15A, 2P	2-#12 + #12 GND - 21mmC	
20A, 1P	2-#12 + #12 GND - 21mmC	
20A, 2P	2-#12 + #12 GND - 21mmC	
25A, 2P	2-#10 + #10 GND - 21mmC	
30A, 1P	2-#10 + #10 GND - 21mmC	
35A, 1P	2-#8 + #10 GND - 21mmC	
35A, 2P	2-#8 + #10 GND - 21mmC	



GENERAL NOTES:

A. THIS CONTROLS AND MONITORING SCHEMATIC IS INDICATE TO SHOW THE INTENTION OF THE SYSTEM ONLY. THE CONTRACTOR SHALL RETAIN AND COORDINATE WITH SPECIALISTS IN THE DESIGN OF THE RESPECTIVE SUB-SYSTEMS AND SUPPLIERS TO PROVIDE A COMPLETE OPERATING SYSTEM BASED ON THE EQUIPMENT SUPPLIED, THE EXISTING EQUIPMENT TO BE CONNECTED, AND THE REQUIREMENTS OF THE SYSTEM, AND TO PROVIDE ALL CABLES AND CONDUITS REQUIRED FOR THE INTERCONNECTION OF THE DEVICES AND EQUIPMENT.

NOTES:

1. PROVIDE NEW CONTACTS FOR STATUS MONITORING IN EXISTING EQUIPMENT. RETAIN SERVICES OF EQUIPMENT MANUFACTURER AS REQUIRED FOR THE ADDITION OF THE CONTACTS.
2. RETAIN SERVICES OF GENERATOR MANUFACTURER, TOROMONT/CATERPILLAR, FOR ALL MODIFICATIONS TO THE CONTROLS OF THE GENERATOR.
3. CONTACTS FOR STATUS MONITORING WILL BE PROVIDED BY CHP GENERATOR SUPPLIER/CONTRACTOR IN SECONDARY ELECTRICAL ROOM IN BUILDING 7. COORDINATE WITH CHP GENERATOR SUPPLIER/CONTRACTOR FOR ALL NECESSARY MODIFICATIONS TO COMPLETE THE SYSTEM.

1 E701 CONTROLS AND MONITORING SCHEMATIC N.T.S.

Key Plan:

Consultant:

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1	ISSUED FOR 100% REVIEW	APR. 29/19	JY

Client:

Ontario Shores Centre for Mental Health Sciences

Project:

NEW POWERHOUSE

700 GORDON STREET, WHITBY, ON L1N 5S9

Sheet Title:

PANEL SCHEDULE AND ELECTRICAL DETAILS

Drawn By: J.Y.	Date: DEC. 6, 2018		
Designed By: J.Y.	Checked By: T.G.		
Scale: N.T.S.	File Path:		
Project No: 1802218	Drawing No: E701		

DRAWING NAME: P:\2018\1802218\00-RFP Emergency Generator Package\08. Working\Electrical\E-701_Schedule.dwg
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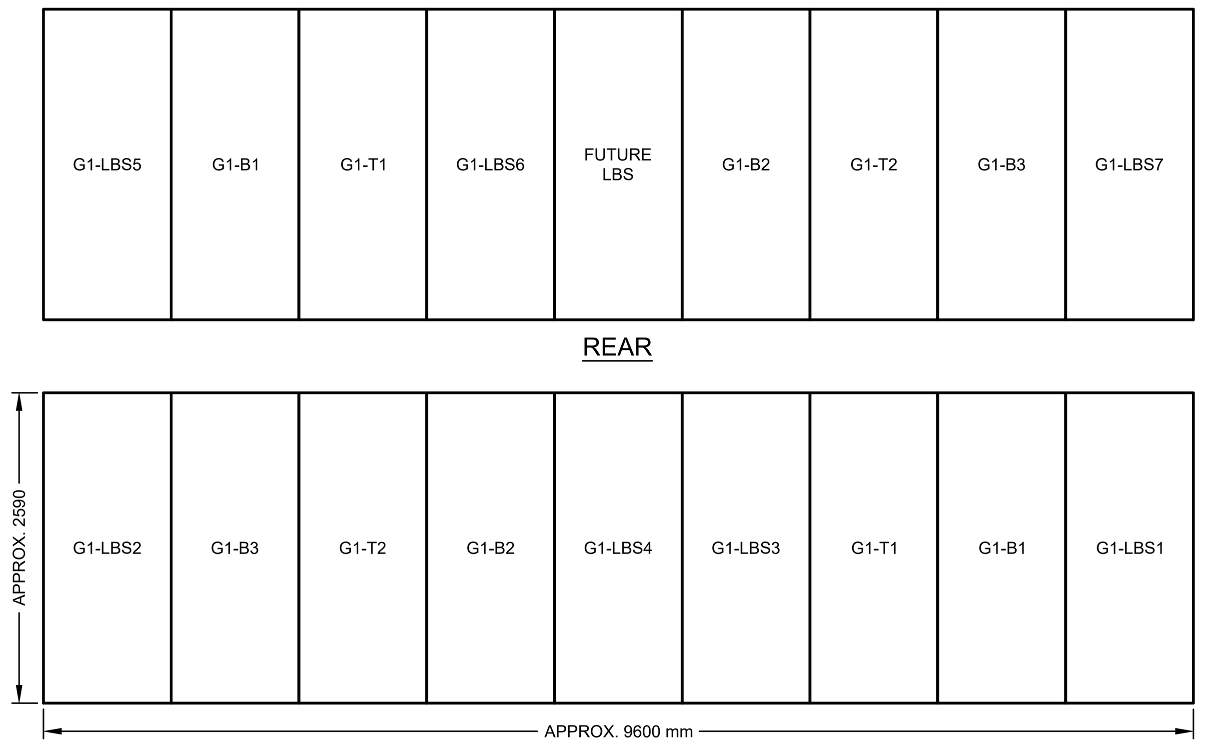
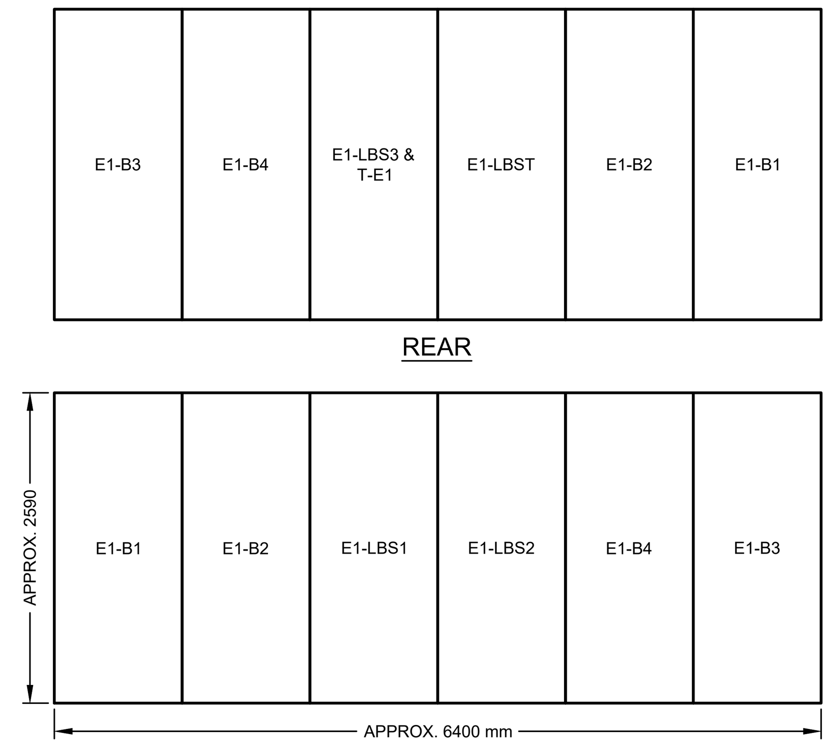
MODIFIED: 2019/06/20 10:54:59 AM



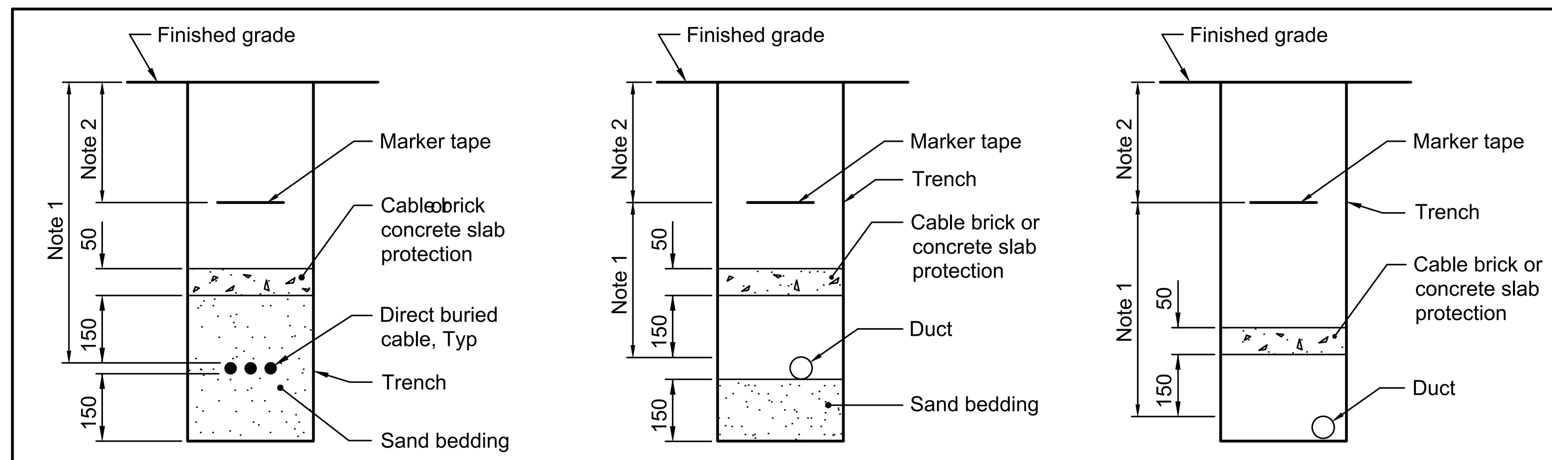
FRONT (DEPTH OF SWITCHGEAR = APPROX. 2290 mm)

1 ELEVATIONS – SWITCHGEAR 'SG-G1'
N.T.S.



FRONT (DEPTH OF SWITCHGEAR = APPROX. 2290 mm)

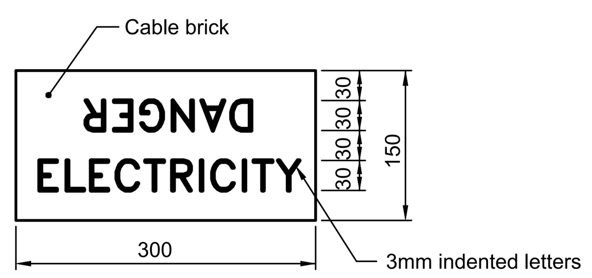
2 ELEVATIONS – SWITCHGEAR 'SG-E1'
N.T.S.



DIRECT BURIED CABLE IN ROCK OR IN EARTH

DUCT IN ROCK

DUCT IN EARTH

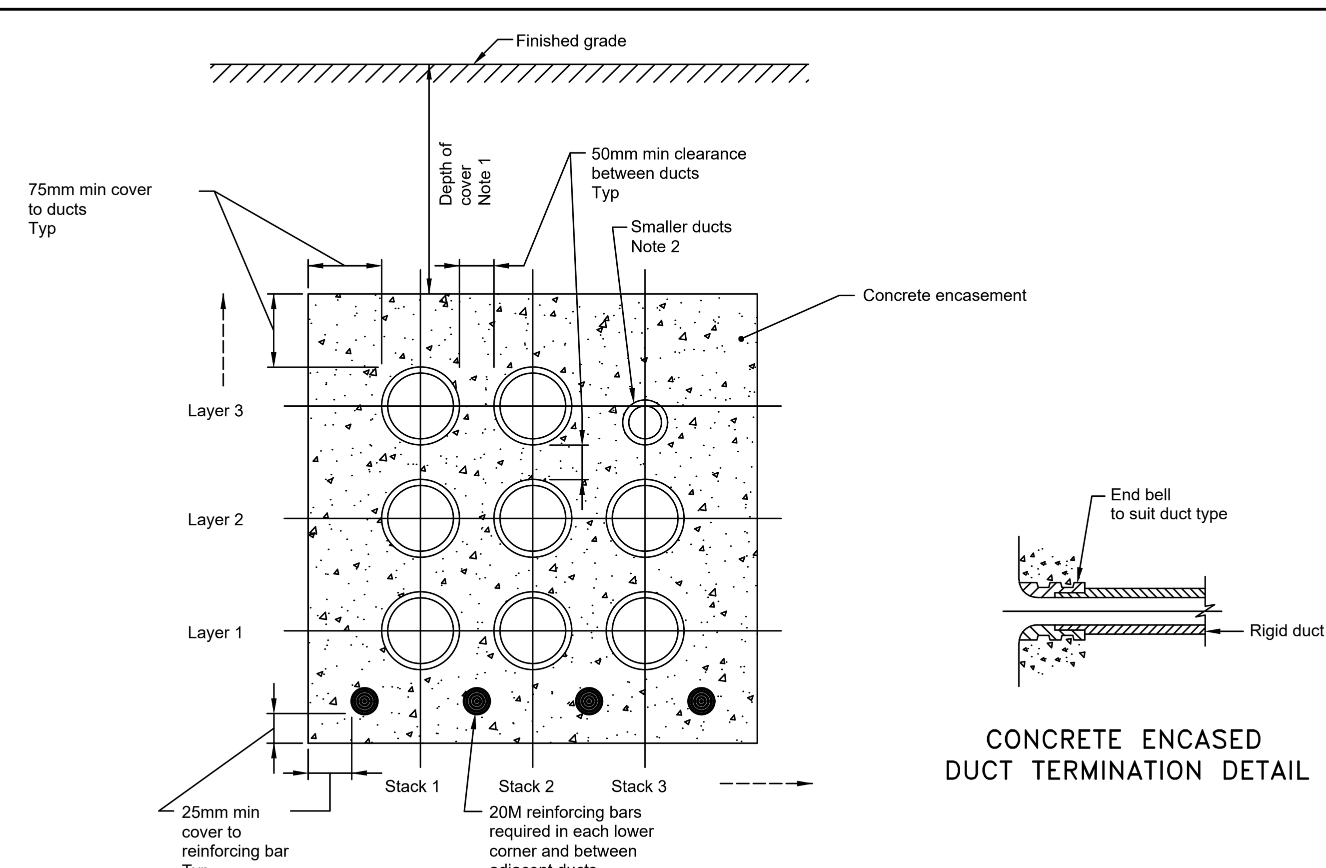


CABLE BRICK

NOTES:
1 Depth of cable or duct shall be as specified in the Ontario Electrical Safety Code.
2 Depth of marker tape shall be as specified in the Ontario Electrical Safety Code.

A This OPSD shall be read in conjunction with OPSD 2100.010 and 2101.01.
B All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2013	Rev 0
CABLE AND DUCT PROTECTION AND MARKING	OPSD 2100.050	



SECTION

CONCRETE ENCASED DUCT TERMINATION DETAIL

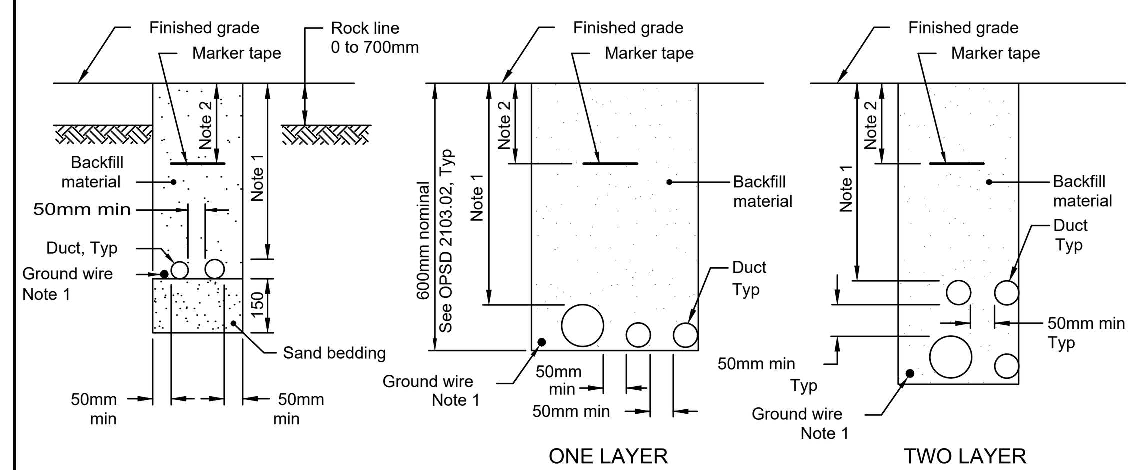
NOTES:
1 For depth of cover see OPSD 2103.02.
2 Smaller ducts shall be installed in uppermost layers.

A Maximum number of layers shall be 4, maximum number of stacks shall be 4.
B All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2015	Rev 2
RIGID DUCTS ENCASED IN CONCRETE	OPSD 2100.06	

MINIMUM TRENCH WIDTH FOR ONE LAYER AND TWO LAYER DUCT ARRANGEMENT

No. OF 100 mm DUCTS	No. OF LAYERS	NUMBER OF 50 mm DUCTS										
		0	1	2	3	4	5	6	7	8	9	10
0	1	N/A	150	205	300	460	610	N/A	N/A	N/A	N/A	N/A
	2	N/A	N/A	N/A	N/A	205	300	350	460	460	610	610
1	1	150	255	460	610	610	N/A	N/A	N/A	N/A	N/A	N/A
	2	N/A	N/A	205	255	300	460	460	610	610	610	N/A
2	1	300	460	610	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2	150	255	255	460	460	610	610	610	N/A	N/A	N/A
3	1	460	610	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2	300	300	460	460	610	610	610	N/A	N/A	N/A	N/A
4	1	610	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2	300	460	460	610	610	N/A	N/A	N/A	N/A	N/A	N/A



IN ROCK

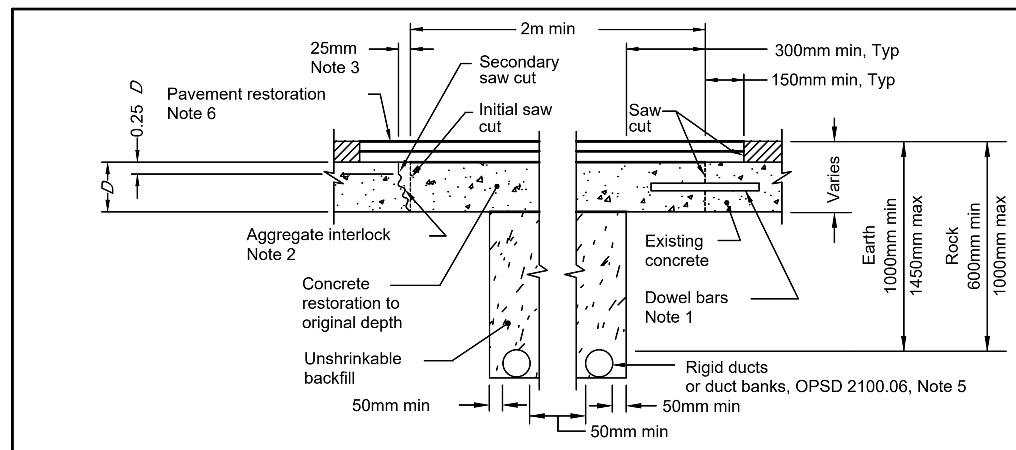
ONE LAYER ARRANGEMENT IN EARTH

TWO LAYER ARRANGEMENT IN EARTH

NOTES:
1 Ground wire shall be installed in the duct or trench as specified in the Contract Documents.
2 Depth of marker tape shall be as specified in the Ontario Electrical Safety Code.

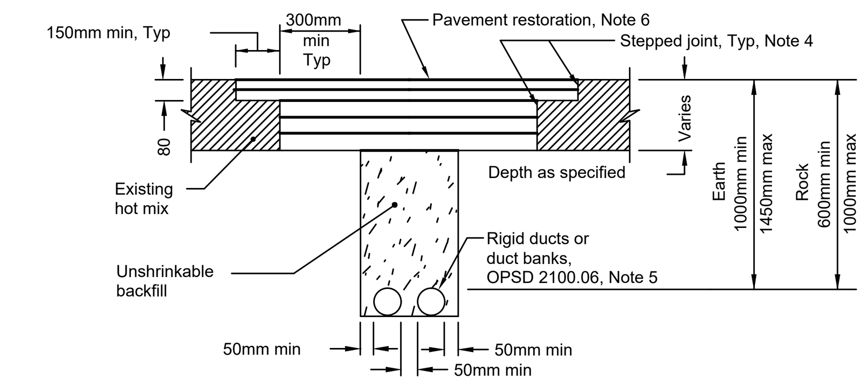
A Cable brick or concrete slab shall be installed where specified in the Contract Documents. See OPSD 2100.050.
B This OPSD shall be read in conjunction with OPSD 2103.02.
C Contractor has the option of installing one or two layer duct arrangement.
D N/A - Not Applicable, undesirable or exceeding equipment limits.
E All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2013	Rev 1
DUCT INSTALLATION IN TRENCHES	OPSD 2101.01	



UNDOWELLED TREATMENT, NOTE 2   DOWELLED TREATMENT, NOTE 1

COMPOSITE OR CONCRETE PAVEMENT

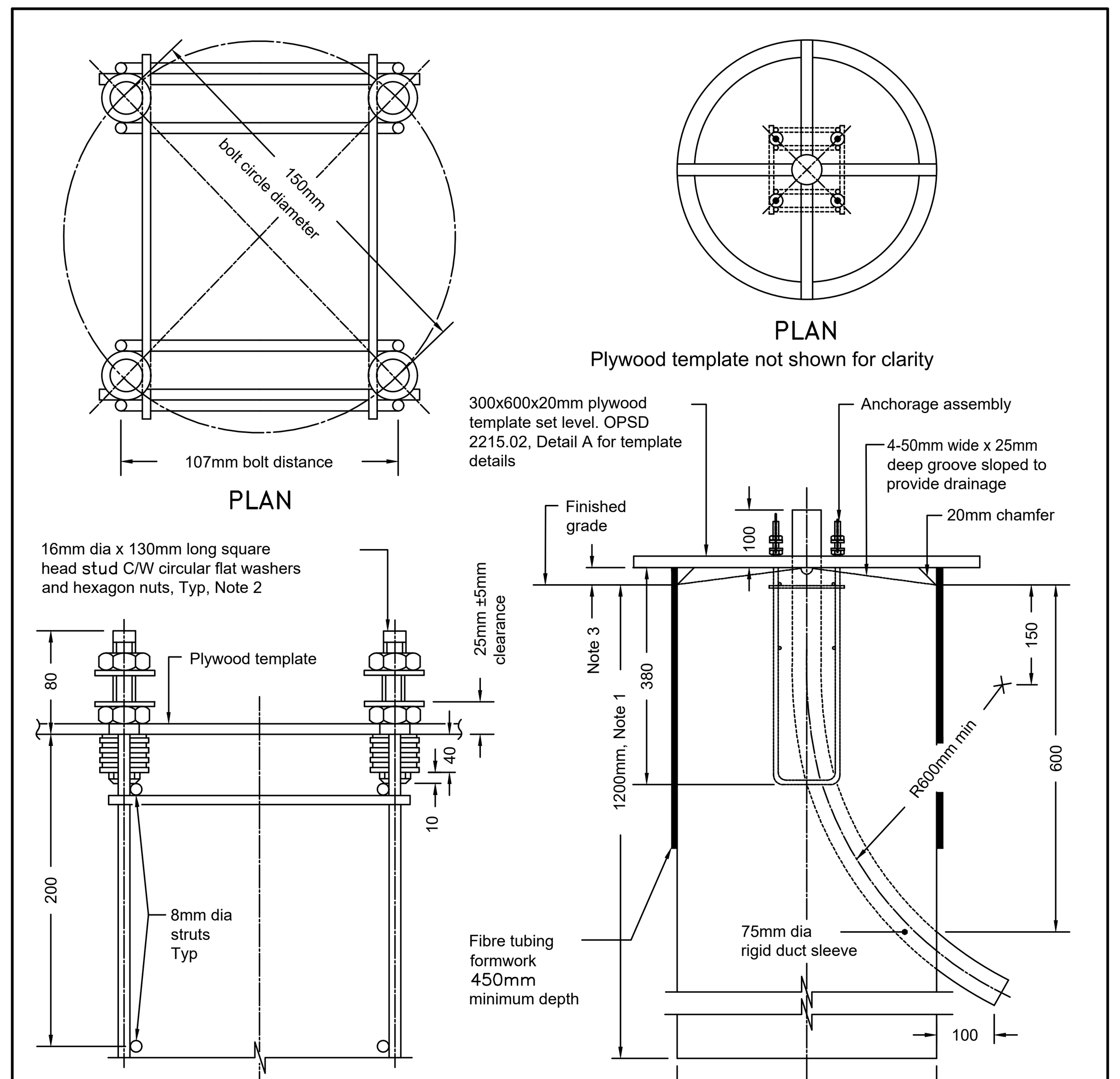


BITUMINOUS PAVEMENT

NOTES:
1 Dowelled treatment is only required in existing concrete pavement or concrete base that contains load transfer devices. Dowels shall be 32mm diameter, 450mm long, epoxy coated, installed at 300mm intervals at mid depth of the concrete slab, in plane to the pavement surface, parallel to the centre line of the road, and set 225mm in 35mm holes with epoxy grout.
2 Undowelled treatment is only required in existing concrete pavement or concrete base that is constructed without load transfer devices at joints. Aggregate interlock is created by chipping the vertical concrete face with a light 15kg maximum pneumatic hammer.
3 The initial saw cut shall be full depth. The secondary saw cut shall be 1/4 of existing pavement depth with 25mm of chipping for aggregate interlock.
4 Where existing pavement depth is between 80 and 120mm, the 150mm wide stepped joint shall be 40mm deep.
5 In rock, the ducts shall be placed on 150mm sand bedding.
6 Bituminous pavement restoration shall match existing type unless otherwise specified. The surface and top binder courses shall be placed in 40mm lifts with other lifts placed at 80mm maximum.

A All voids below the pavement shall be filled with unshrinkable backfill.
B All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2015	Rev 1
RIGID DUCT INSTALLATION IN EXISTING PAVED AREA UNSHRINKABLE BACKFILL METHOD	OPSD 2103.030	



PLAN

PLAN

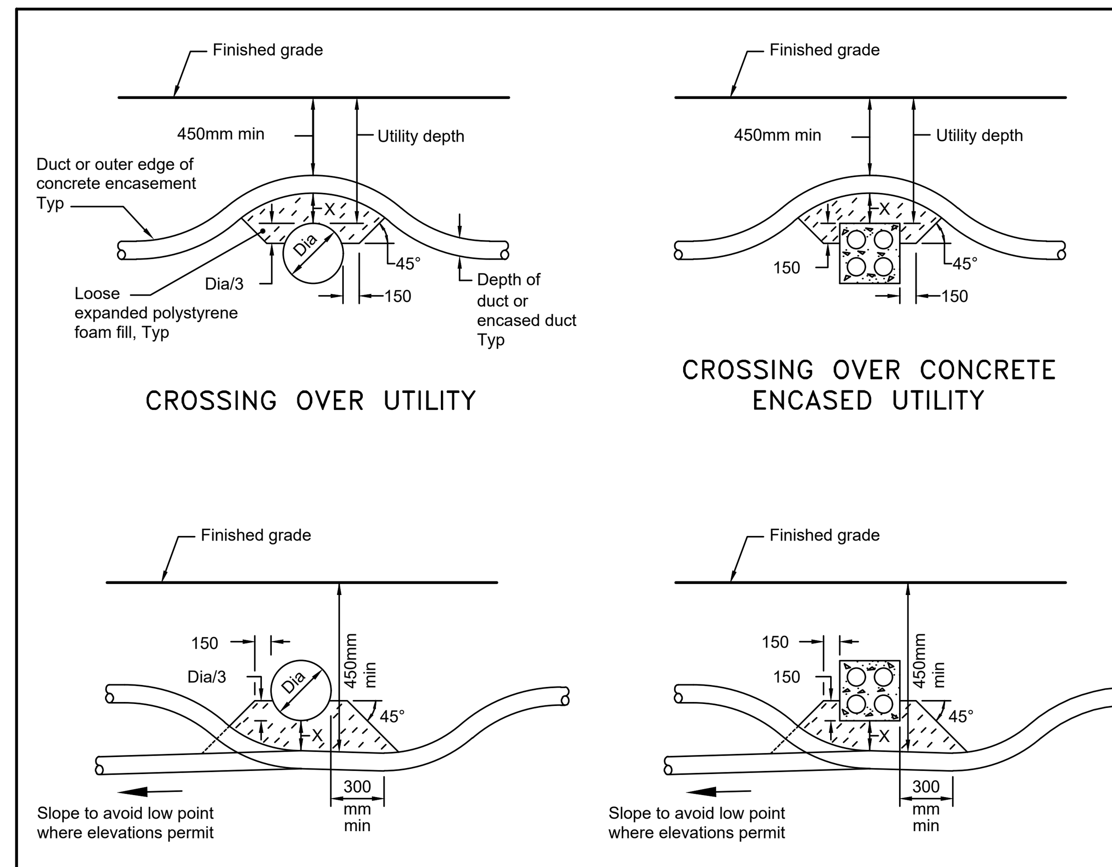
ELEVATION ANCHORAGE ASSEMBLY

ELEVATION CONCRETE FOOTING

NOTES:
1 When rock is encountered at 600mm or less below ground level, the depth of the concrete footing shall be a minimum of 900mm.
2 Studs shall be factory set with preapplied thread locking compound and shall remain in place during footing and pole installation.
3 Top of footing shall be installed at 40mm ±15mm above finished grade in paved or concrete areas and 75mm ±25mm above finished grade in earth or granular areas.

A All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2014	Rev 2
CONCRETE FOOTING AND ANCHORAGE ASSEMBLY FOR 3.3m BASE MOUNTED METAL POLE	OPSD 2200.04	



CROSSING OVER UTILITY

CROSSING OVER CONCRETE ENCASED UTILITY

CROSSING UNDER UTILITY

CROSSING UNDER CONCRETE ENCASED UTILITY

NOTES:
A The required clearance between the utility and the ducts or concrete encasement shall be as follows:

UTILITY	X mm min
Ducts, direct buried or encased	100
All other pipes	300
High voltage cables	300
All other cables	300

B Trench widths shall be kept to the minimum required for working space. Manual excavation and backfill methods shall be used with the utility supported in place, when required, when crossing under a utility is necessary.
C All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2015	Rev 0
DUCT INSTALLATION AT UTILITY CROSSINGS	OPSD 2103.050	

Key Plan:

Consultant:

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Seal:

REV	DESCRIPTION	DATE	BY
3	ISSUED FOR TENDER	JUN. 13/19	JY
2	ISSUED FOR BUILDING PERMIT	JUN. 3/19	JY
1	ISSUED FOR 100% REVIEW	APR. 29/19	JY

Client:
Ontario Shores
Centre for Mental Health Sciences

Project:
NEW POWERHOUSE
700 GORDON STREET, WHITBY, ON L1N 5S9

Sheet Title:
ELECTRICAL DETAILS

Drawn By:	J.Y.	Date:	DEC. 6, 2018
Designed By:	J.Y.	Checked By:	T.G.
Scale:	N.T.S.	File Path:	BIM 360://MH - 1802218 - Ontario Shores Powerhouse/1802218-Ontario Shores Powerhouse-RVT2018-ARCH.rvt
Project No:	1802218	Drawing No:	E702

DRAWING NAME: P:\2018\1802218\00-RFP Emergency Generator Package\08. Working\Electrical\E-702_Electrical Details.dwg
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