

# Canadian Border Services Canada

## BOISSEVAIN POINT OF ENTRY

BOISSEVAIN, MB

### GENERATOR REPLACEMENT

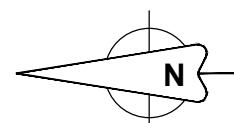
## ELECTRICAL & STRUCTURAL DRAWINGS

Public Works and  
Government Services  
Canada

Travaux publics et  
Services gouvernementaux  
Canada

REAL PROPERTY SERVICES  
Western Region  
SERVICES IMMOBILIERS  
Région de l'ouest

PSPC PROJECT No. R.094408.001



#### GENERAL SITE - AERIAL VIEW

SCALE: N.T.S.

#### DRAWING LIST:

##### ELECTRICAL DRAWINGS - DEMOLITION

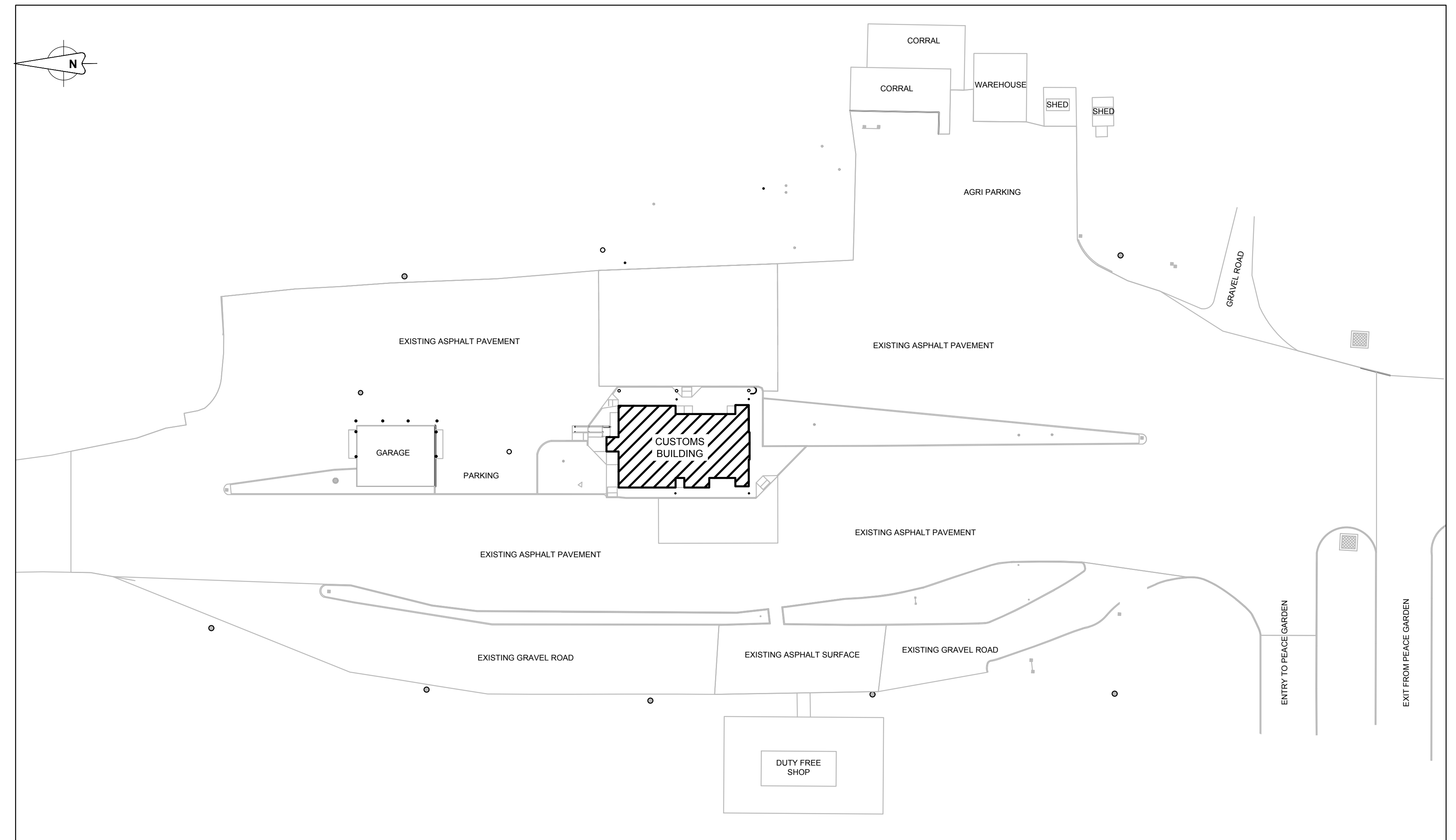
DWG.	DESCRIPTION
ED01	SITE PLAN ELECTRICAL LAYOUT DEMOLITION
ED02	ELECTRICAL SINGLE LINE DIAGRAM DEMOLITION
ED03	BASEMENT FLOOR PLAN ELECTRICAL LAYOUT DEMOLITION
ED04	MAIN FLOOR PLAN ELECTRICAL LAYOUT DEMOLITION
ED05	SECOND FLOOR PLAN ELECTRICAL LAYOUT DEMOLITION

##### ELECTRICAL DRAWINGS - NEW WORK

E01	SITE PLAN ELECTRICAL LAYOUT NEW WORK AND EXCAVATION
E02	ELECTRICAL SINGLE LINE DIAGRAM NEW WORK
E03	BASEMENT FLOOR PLAN ELECTRICAL LAYOUT NEW WORK
E04	MAIN FLOOR PLAN ELECTRICAL LAYOUT NEW WORK
E05	SECOND FLOOR PLAN ELECTRICAL LAYOUT NEW WORK
E06	GENSET ELECTRICAL BLOCK DIAGRAM
E07	ELECTRICAL DETAILS

##### STRUCTURAL DRAWINGS

S01	SITE PLAN GENERATOR FOUNDATION BOLLARD DETAIL NEW WORK
S02	PARTIAL BASEMENT PLAN JUNCTION BOX SUPPORT DETAIL GENERATOR ROOM REPAIRS NEW WORK



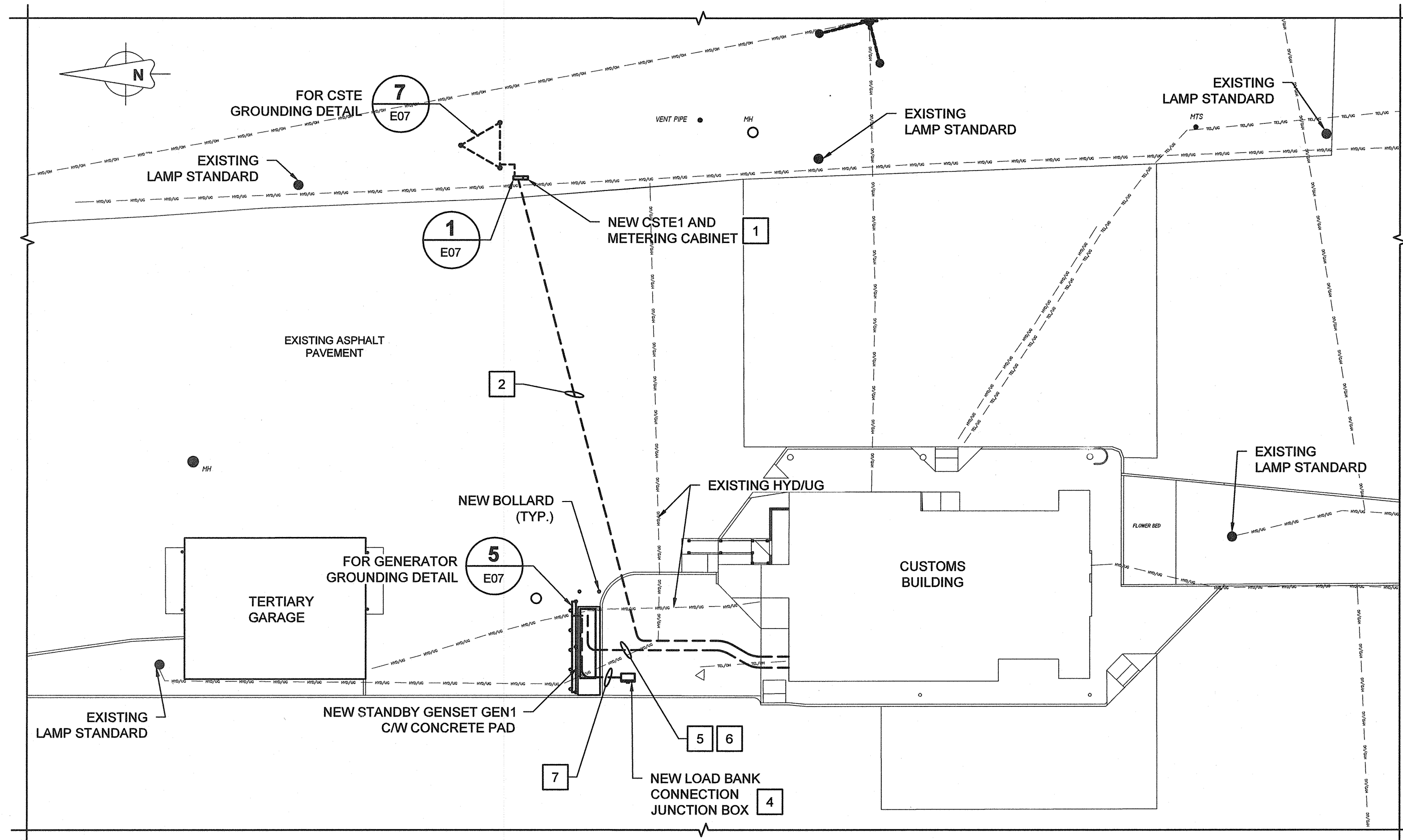
#### GENERAL SITE PLAN

SCALE: 1 : 1000

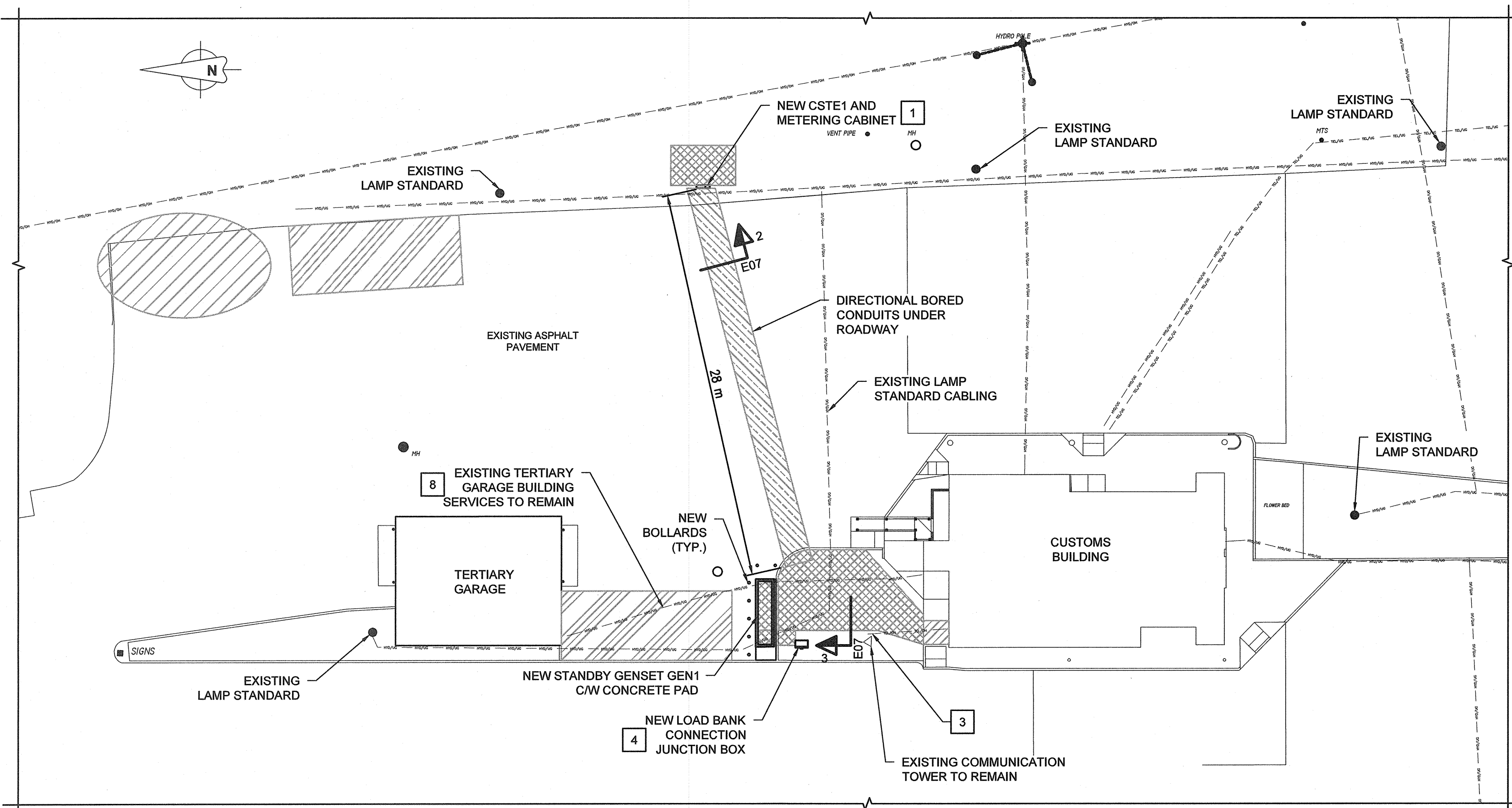


SLI PROJECT No. 663574





**SITE PLAN - NEW WORK**  
SCALE: 1:500



**SITE PLAN - NEW WORK - EXCAVATION**  
SCALE: 1:500

HATCH LEGEND	
	DENOTES EXCAVATION AREA
	DENOTES DIRECTIONAL BORE, OR CONDUIT/CABLE BURIAL AREA
	DENOTES EQUIPMENT LAYDOWN AREA
	DENOTES CONTRACTOR PARKING AREA

LEGEND	
	ELECTRICAL DISTRIBUTION PANELBOARD
	ELECTRICAL PANELBOARD
	METER
	JUNCTION BOX
	PULL BOX
	DUPLEX RECEPTACLE
	4-PLEX RECEPTACLE
	CIRCUIT BREAKER
	CONTROL CURRENT TRANSFORMER
	TRANSFORMER
	RESISTIVE LOAD
	FUSE
	GENERATOR
	RECTIFIER
	INVERTER
	STATIC BYPASS
	DISCONNECT SWITCH
	BATTERY
	GROUND
	LAMP STANDARD
	TOGGLE SWITCH
	GROUND ROD
	TRANSFER SWITCH
	ELECTRICAL EQUIPMENT (AS NOTED ON DRAWINGS)
	DENOTES CIRCUIT NUMBER
	DENOTES EXISTING TO REMAIN
	DENOTES EXISTING TO BE DEMOLISHED
	DENOTES CEILING MOUNTED

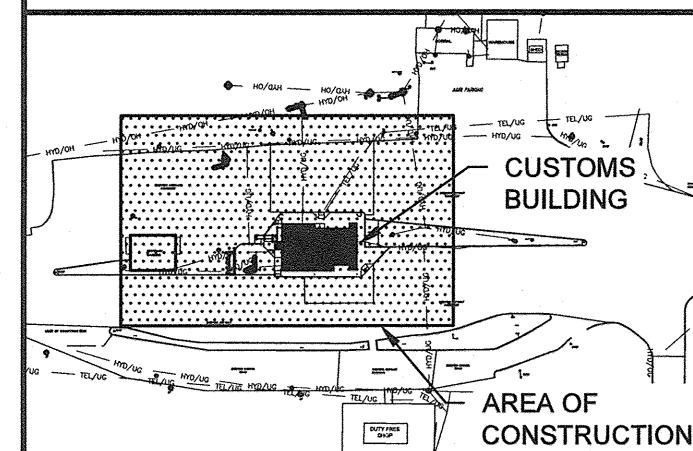
#### GENERAL NOTES:

- EQUIPMENT IS SHOWN AT THEIR GENERAL APPROXIMATE LOCATION. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CONFIRM EXACT LOCATION DURING SITE SURVEY PRIOR TO EXCAVATION AND TRENCHING.
- PERFORM SITE SURVEY AND ENSURE THAT BURIED SYSTEMS ARE NOT DISTURBED OR DAMAGED. CONTRACTOR SHALL BE RESPONSIBLE FOR THE COMPLETE REPAIR AND COSTS ASSOCIATED WITH ANY DAMAGES TO EXISTING SERVICES. UNDERGROUND SPLICES ARE NOT ACCEPTABLE, THEREFORE COMPLETE REPLACEMENT BETWEEN ABOVE GRADE PULL POINTS WILL BE REQUIRED.

#### SPECIFIC NOTES:

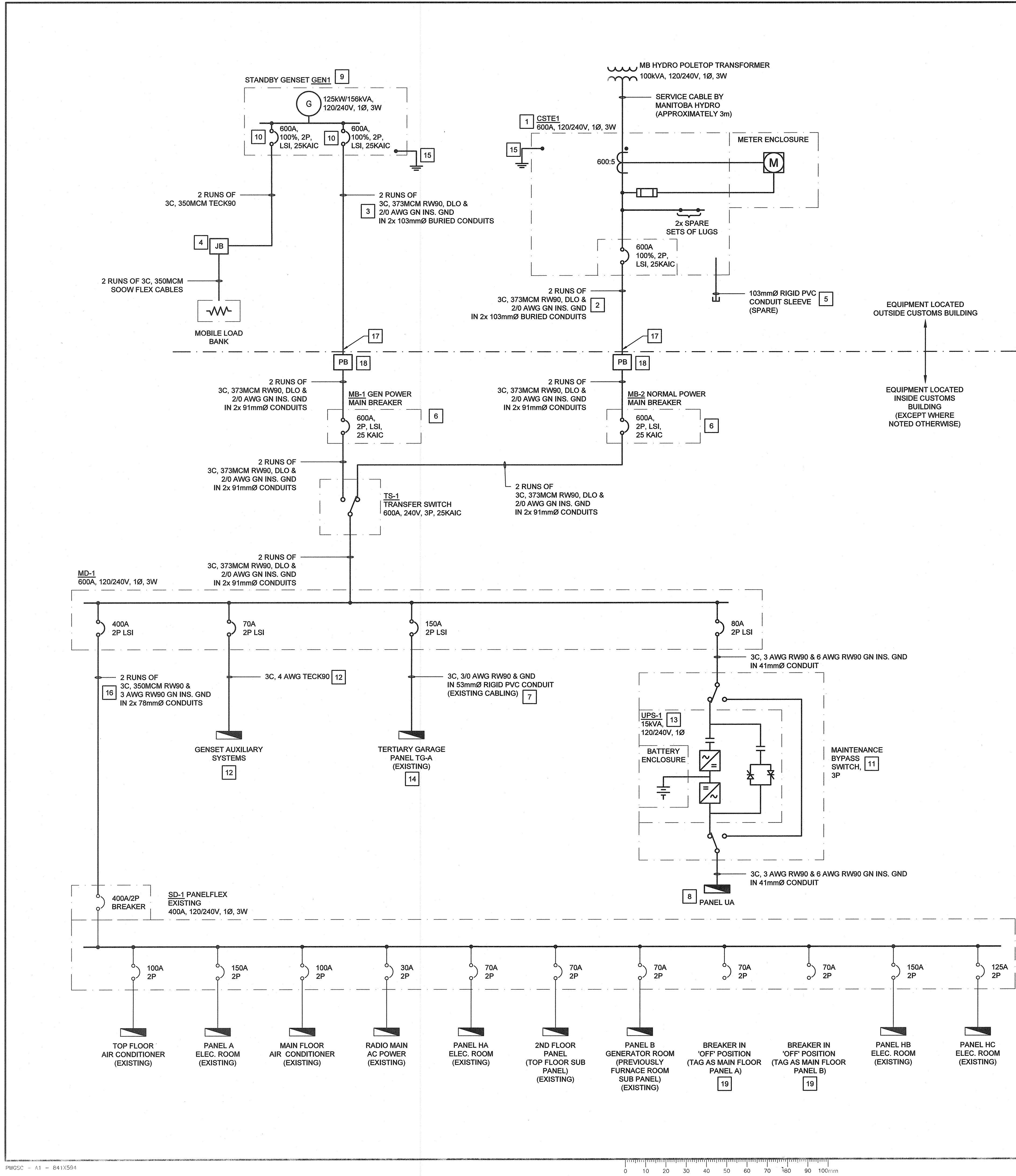
- PROVIDE NEW 600A, 120/240V CSTE1 C/W UTILITY METERING PROVISIONS. THE CSTE SHALL BE MOUNTED ON A FIBREGLASS PAD AS PER DETAIL 1, DRAWING E07. ADD FILL TO MAKE GRADE LEVEL.
- PROVIDE 2 RUNS OF 103mmØ TYPE DR11, HDPE CONDUITS, RUN UNDERGROUND (MINIMUM OF 1000mm UNDER ROADWAY) TO THE NEW CSTE1. INSTALL CONDUIT BY DIRECTIONAL BORING METHOD. SPACING OF CONDUIT SHALL BE MINIMUM OF 200mm BETWEEN EACH RUN. TAKE GPS COORDINATES COORDINATES EVERY 3000mm ALONG THE CONDUIT RUNS AND MARK ON THE AS-BUILT DRAWINGS.
- SOFT DIG (HYDRO VAC) OR HAND EXCAVATE NEAR COMMUNICATION TOWER. TAKE PRECAUTIONS NOT TO DISTURB OR NEGATIVELY IMPACT ON TOWER FOUNDATION. REMEDIATE AND REPAIR ANY DAMAGES.
- PROVIDE NEMA 4X JUNCTION BOX, MOUNTED 1000mm ABOVE GRADE FOR CONNECTION OF MOBILE LOAD BANK (FOR GENSET TESTING). SEE DETAIL 4, DRAWING E07.
- REFER TO DETAIL 3, DRAWING E07, FOR INSTALLATION OF CABLING AND CONDUIT TO THE NEW GENSET GEN1.
- REFER TO DETAIL 3, DRAWING E07, FOR INSTALLATION OF CABLING AND CONDUITS (FOR GENSET CONTROL CABLES) FROM GENSET CONTROL AND ACCESSORY STUB-UP AREA TO BASEMENT ELECTRICAL ROOM.
- PROVIDE 2x 103mmØ RIGID PVC CONDUIT SLEEVE FROM GENSET CIRCUIT BREAKER STUB-UP AREA AND DOWN TO 914mm BELOW GRADE, STUBBED OUT 914mm PAST THE GENSET PAD. THESE CONDUIT SLEEVES ARE FOR RUNNING THE 2x 350MCM TECK90 CABLES TO THE NEW JUNCTION BOX FOR CONNECTION OF MOBILE LOAD BANK.
- EXISTING TERTIARY GARAGE BUILDING SERVICES (RUN UNDERGROUND) SHALL REMAIN. IT INCLUDES 1 - 3/0 AWG (POWER), 2-12 NMW10 (POWER), 1 - 53mmØ CONDUIT, AND 2 - 27mmØ CONDUITS (VOIDE/DATA & FIRE ALARM). CONTRACTOR TO ENSURE THAT BURIED SYSTEMS ARE NOT DISTURBED OR DAMAGED.

SCALE: 1:500  
0m 10m 20m 30m 40m 50m



Revision	Description	Date
00	RELEASED FOR TENDER & CONSTRUCTION	2019/12/02
Client		client





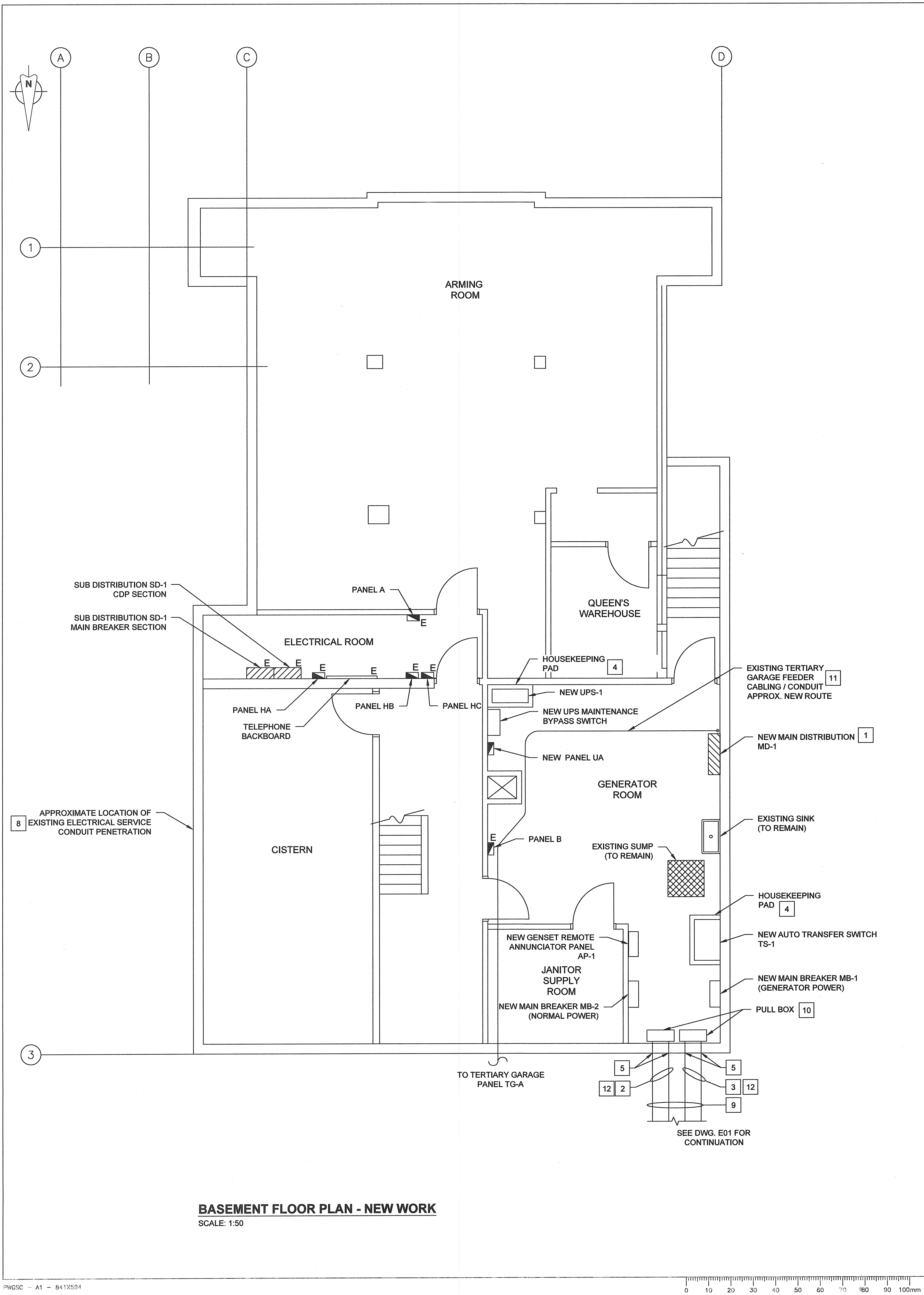
#### GENERAL NOTES:

1. ALL EQUIPMENT AND DEVICES SHOWN ON THIS DRAWING ARE NEW AND TO BE PROVIDED BY THE CONTRACTOR UNLESS SPECIFICALLY NOTED OTHERWISE.
2. CONTRACTOR TO ENSURE DIRECTIONAL BORING OF CONDUIT DOES NOT ADVERSELY AFFECT THE EXISTING ROADWAY INTEGRITY.
3. IF GENSET IS RUN AT LOW LOADING LEVELS FOR EXTENDED PERIOD OF TIME, RUN GENSET THEREAFTER AT HIGH LOAD LEVELS TO ENSURE THAT FILTERS AND POLLUTION CONTROL MEASURES HAVE THE OPPORTUNITY TO REACH TEMPERATURES REQUIRED IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS. CONNECT UP LOAD BANK AS NEEDED.
4. SET BREAKERS IN ACCORDANCE WITH THE RECOMMENDED SETTINGS.

#### SPECIFIC NOTES:

1. PROVIDE CSTE C/W METERING, SERVICE ENTRANCE BREAKER AND FIBREGLOSS PAD.
2. PROVIDE CABLING RUN IN TYPE DR11, HDPE CONDUITS (SIZE AS NOTED), RUN UNDERGROUND (MINIMUM OF 1000mm UNDER ROADWAY) TO THE NEW CSTE1. INSTALL CONDUITS BY DIRECTIONAL BORING METHOD AND AS PER DETAIL 2, DRAWING E07.
3. PROVIDE CABLING RUN IN RIGID PVC CONDUITS (SIZE AS NOTED), INSTALLED PER DETAIL 3, DRAWING E07.
4. PROVIDE NEMA 4X JUNCTION BOX COMPLETE WITH POWER DISTRIBUTION BLOCKS (PLUS SPARE) FOR CONNECTION OF TEMPORARY MOBILE LOAD BANK DURING THE GENSET SYSTEM TESTING AND COMMISSIONING.
5. PROVIDE SPARE CONDUIT SLEEVE, C/W PULLCORD BROUGHT OUT FROM CSTE 914mm BELOW GRADE, STUBBED OUT 914mm PAST CSTE. CAP CONDUIT AND MARK LOCATION OF CONDUIT END AT GRADE LEVEL.
6. PROVIDE MAIN SERVICE ENTRANCE RATED BREAKERS, COMPLETE WITH LOCK-OFF DEVICE, AND SEPARATE ENCLOSURES.
7. RE-ROUTE AND CONNECT EXISTING TERTIARY GARAGE FEEDER CABLING / CONDUIT TO THE NEW MAIN DISTRIBUTION MD-1. PROVIDE NEW CONDUIT, PULL BOX, AND OTHER ACCESSORIES AS REQUIRED TO FACILITATE THE RE-ROUTING OF THE EXISTING CABLING.
8. PROVIDE NEW PANEL 'UA', TO BE LOCATED IN BASEMENT GENERATOR ROOM. RE-WIRE AND RECONNECT EXISTING LOADS FROM THE REMOVED PANEL 'EM' TO NEW PANEL 'UA'. WIRE AND CONNECT RECEPTACLES TO NEW PANEL 'UA' AS INDICATED ON PANEL SCHEDULE ON DWG. E03.
9. PROVIDE GENSET C/W WEATHERPROOF ARCTIC RATED ENCLOSURE.
10. PROVIDE BREAKERS C/W LOCK-OFF DEVICES. BREAKERS SHALL PROVIDED AS PART OF THE GENSET PACKAGE. PROVIDE BREAKERS COMPLETE WITH AUXILIARY STATUS (OPEN / CLOSE) DRY CONTACTS.
11. PROVIDE WALL MOUNTED MECHANICAL BYPASS SWITCH. WIRE AND CONNECT TO UPS-1 USING 3 AWG RW90 & 6 AWG RW90 GREEN INSULATED GROUND IN 41mmØ CONDUIT.
12. WIRE AND CONNECT GENSET AUXILIARY SYSTEMS, FOR STANDBY GENSET GEN1. THE GENSET IS TO BE LOCATED TO THE NORTH OF THE CUSTOMS BUILDING.
13. PROVIDE FLOOR MOUNTED UNINTERRUPTIBLE POWER SUPPLY UPS-1.
14. ELECTRICAL PANEL IS LOCATED IN THE TERTIARY GARAGE, TO THE NORTH OF THE CUSTOMS BUILDING.
15. PROVIDE LOCAL GROUNDING ELECTRODES FOR THE GENSET GEN1, AND FOR CSTE1. SEE DRAWING E07 FOR GROUNDING DETAILS.
16. AFTER ALL NEW DISTRIBUTION COMPONENTS ARE INSTALLED, TESTED, COMMISSIONED AND ENERGIZED, PROVIDE NEW CABLING TO BACK-FEED EXISTING SUB-DISTRIBUTION PANEL SD-1.
17. REDUCE CONDUIT SIZE TO 91mmØ RIGID PVC CONDUIT, AT THE WALL PENETRATION TO MINIMIZE IMPACT ON WALL DURING CORE DRILLING. FOR HDPE CONDUIT, PROVIDE TRANSITION TO RIGID PVC CONDUIT FOR WALL PENETRATION.
18. PROVIDE CUSTOM PULL BOX COMPLETE WITH POWER DISTRIBUTION BLOCKS TO FACILITATE CABLE ENTRY AND ROUTING INSIDE THE BUILDING.
19. CONTRACTOR SHALL CONFIRM IF EXISTING FEEDERS TO PANELS ARE STILL PRESENT AND IN USE. IF EXISTING PANELS ARE NO LONGER CONNECTED TO SUB-DISTRIBUTION SD-1, UPDATE PANEL SCHEDULE TO INDICATE "SPARE". PROVIDE AS-BUILT DRAWING TO INDICATE AS SUCH.





GENERAL NOTES:

- EQUIPMENT AND DEVICES SHOWN ON THIS DRAWING ARE NEW AND TO BE PROVIDED BY THE ELECTRICAL CONTRACTOR UNLESS OTHERWISE INDICATED AS EXISTING OR TAGGED WITH AN 'E'. EQUIPMENT IS SHOWN AT THEIR GENERAL APPROXIMATE LOCATION. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CONFIRM EXACT LOCATIONS.
- CONTRACTOR TO CLEAN, CLEAR, AND RELOCATE EXISTING WOOD STRUCTURE AND OFFICE EQUIPMENT IN GENERATOR ROOM TO ACCOMMODATE PLACEMENT OF NEW EQUIPMENT. COORDINATE WORK WITH THE DEPARTMENTAL REPRESENTATIVE.

SPECIFIC NOTES:

- PROVIDE CABLING FROM NEW MAIN DISTRIBUTION MD-1 TO SUB DISTRIBUTION SD-1. REFER TO SINGLE LINE DRAWING E02 FOR CABLE DETAILS.
- TWO (2) RUNS OF 373MCM RW90, TYPE DLO IN 103mm Ø HDPE CONDUIT FROM NEW CSTE1. SEE DRAWINGS E01 AND E02 FOR DETAILS.
- TWO (2) RUNS OF 373MCM RW90, TYPE DLO IN 103mm Ø RIGID PVC CONDUIT FROM NEW GENSET GEN1. SEE DRAWINGS E01 AND E02 FOR DETAILS.
- PROVIDE HOUSEKEEPING PAD 89mm HIGH, EXTEND 100mm AROUND THE EQUIPMENT WITH 20mm CHAMFERED EDGES. PROVIDE REINFORCEMENT AND ANCHOR PAD TO FLOOR SLAB. EXACT DIMENSION OF PAD SHALL BE BASED ON THE EQUIPMENT SHOP DRAWING.
- CONTRACTOR TO ADJUST ELEVATION OF CONDUIT ENTRY AT WALL PENETRATION TO SUIT THE ELEVATION OF PULL BOX INSIDE THE GENERATOR ROOM. PROVIDE ROXTEC WEATHERPROOF SEALING SYSTEM FOR ALL CABLES AND CONDUIT ENTRY INTO THE BUILDING.
- RE-FEED EXISTING CAMERAS AND EMERGENCY LIGHTS THAT WERE DISCONNECTED FROM THE REMOVED PANEL 'EM' TO THE NEW UPS PANEL 'UA'. EXTEND / ADJUST EXISTING WIRING / CABLING AS REQUIRED.
- RE-FEED EXISTING HEATER AND KITCHEN PLUG THAT WERE DISCONNECTED FROM THE REMOVED PANEL 'EM' TO THE EXISTING PANEL 'HA'. PROVIDE NEW CIRCUIT BREAKERS TO PANEL 'HA'. EXTEND / ADJUST EXISTING WIRING / CABLING AS REQUIRED.
- PROVIDE SEAL AND REPAIR WALL PENETRATION AFTER THE REMOVAL OF EXISTING ELECTRICAL SERVICE CONDUIT.
- ONLY MAIN POWER CABLES / CONDUITS ARE SHOWN. REFER TO DRAWING E07, DETAIL 3 FOR OTHER CABLES AND CONDUITS RUN IN THIS LOCATION.
- PROVIDE CUSTOM PULL BOX (610mm H x 610mm W x 254mm D) COMPLETE WITH POWER DISTRIBUTION BLOCKS (AS REQUIRED) TO FACILITATE CABLE / CONDUIT ENTRY AND ROUTING INSIDE THE BUILDING. ARRANGE EXACT PLACEMENT OF PULLBOX TO AVOID EXISTING MECHANICAL SYSTEMS. MOUNT PULL BOX WHERE THE TOP OF BOX IS AT APPROXIMATELY 1930mm A.F.F.
- RE-ROUTE AND RE-CONNECT EXISTING TERTIARY GARAGE FEEDER CABLING / CONDUIT TO THE NEW MAIN DISTRIBUTION MD-1. PROVIDE NEW CONDUIT, PULL BOX, AND OTHER ACCESSORIES AS REQUIRED TO FACILITATE THE RE-ROUTING OF THE EXISTING CABLING.
- PROVIDE TRANSITION TO SMALLER CONDUIT (91mm Ø RIGID PVC) FOR PENETRATION AT WALL. PROVIDE CONDUIT REDUCER / ADAPTER.

PANELBOARD

PANEL TAG REF: UA		AMPS: 100	VOLTS: 120/240V	PHASE: 1	WIRE: 3	SURF. MOUNT <input checked="" type="checkbox"/> FLUSH MOUNT <input type="checkbox"/>	TOP FED <input checked="" type="checkbox"/> BOT. FED <input type="checkbox"/>						
PANEL TYPE:													
CCT.	DESCRIPTION	NOTE	WIRE (AWG)	BRKR AMPS	LOAD (VA)	L1	L2	LOAD (VA)	BRKR AMPS	WIRE (AWG)	NOTE	DESCRIPTION	CCT.
1	RECEPTACLE L.A.N. ROOM		2#12	15A					15A	2#12		RECEPTACLE L.A.N. ROOM	2
3	RECEPTACLE L.A.N. ROOM		2#12	15A					15A	2#12		RECEPTACLE L.A.N. ROOM	4
5	CAMERA & EMERG. LIGHTS (EXIST.)		2#12	15A					15A	2#12		RECEPTACLE PUBLIC AREA M03	6
7	RECEPTACLE P.I.L. BOOTH M01		2#12	15A					15A	2#12		RECEPTACLE PUBLIC AREA M03	8
9	RECEPTACLE (EXIST. CAMERA P.S.)		2#12	15A					15A	2#12		RECEPTACLE PUBLIC AREA M03	10
11	SPARE			15A					15A			SPARE	12
13	SPARE			15A					15A			SPARE	14
15	SPARE			15A					15A			SPARE	16
17	SPACE											SPACE	18
19	SPACE											SPACE	20
21	SPACE											SPACE	22
23	SPACE											SPACE	24
25	SPACE											SPACE	26
27	SPACE											SPACE	28
29	SPACE											SPACE	30

EXISTING PANELBOARD

PANEL ID: HA			AMPS: 100		VOLTS: 120/240V		PHASE: 1Ø		WIRE: 3		SURF. MOUNT <input checked="" type="checkbox"/> FLUSH MOUNT <input type="checkbox"/>		TOP FED <input checked="" type="checkbox"/> BOT. FED <input type="checkbox"/>	
DESCRIPTION: SURFACE MOUNT							LOCATION: ELECTRICAL ROOM							
CCT.	DESCRIPTION	NOTE	WIRE (AWG)	BRKR AMPS	LOAD (VA)	L1	L2	LOAD (VA)	BRKR AMPS	WIRE (AWG)	NOTE	DESCRIPTION	CCT.	
1	UNKNOWN	-	-	15A	-			-	30A	-	-	BOMB SHELTER	2	
3	UNKNOWN	-	-	15A	-			-	20A	-	-	HOT WATER	4	
5	UNKNOWN	-	-	15A	-			-	15A	-	-	UNKNOWN	6	
7	CASH REGISTER	-	-	15A	-			-	15A	-	-	FURNACE RM HEAT	8	
9	SERVER	-	-	15A	-			-	15A	-	-	SOUTH RM + ELECTRIC RM HEAT	10	
11	SERVER	-	-	15A	-			-	15A	-	-	CANOPY LIGHTS	12	
13	CAR PLUG	-	-	15A	-			-	15A	-	-	CANOPY LIGHTS	14	
15	CAR PLUG	-	-	15A	-			-	15A	-	-	HAZARD MARKER LIGHT	16	
17	CAR PLUG	-	-	15A	-			-	15A	-	-	UNKNOWN	18	
19	CAR PLUG	-	-	15A	-			-	20A	-	-	UNKNOWN	20	
21	CAR PLUG	-	-	15A	-			-				UNKNOWN	22	
23	CAR PLUG	-	-	15A	-			-	30A	-	-	UNKNOWN	24	
25	HEATER (EXISTING)	-	-	15A	-			-	15A	-	-	CANOPY LIGHT CONTROL	26	
27								-	15A	-	-		28	
29	KITCHEN PLUG (EXISTING)	-	-	15A	-			-	15A	-	-	SPARE	30	

Public Works and Government Services Canada

Travaux publics et Services gouvernementaux Canada

REAL PROPERTY SERVICES  
Western Region  
SERVICES IMMOBILIERS  
Région de l'ouest

SNC-Lavalin Inc.  
148 Nature Park Way  
Winnipeg, Manitoba  
Canada R3P 0X7  
204-786-8080

PROJECT No	SUBDIVISION	SUBJECT	SERIAL	REV.
663574	0000	47 DD	0001	00

Certificate of Authorization

SNC-Lavalin Inc.

No. 4489

00	RELEASED FOR TENDER & CONSTRUCTION	2019/12/02
Revision	Description	Date
Client		client

PUBLIC WORKS AND GOVERNMENT SERVICES CANADA  
100-167 LOMBARD AVENUE  
WINNIPEG MB R3C 2Z1

Project title  
BOISSEVAIN, MANITOBA

CBSA BOISSEVAIN POE  
GENERATOR REPLACEMENT

Designed by  
D. BECKER

Conçu par

Drawn by  
Y. KONIG

Dessiné par

Approved by  
D. BECKER

Approuvé par

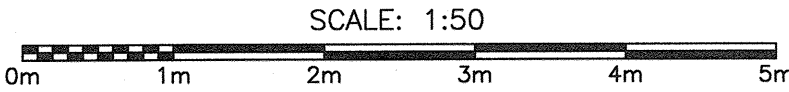
PWSSC Project Manager  
P. DUCHARME

Administrateur de Projets TPSSC

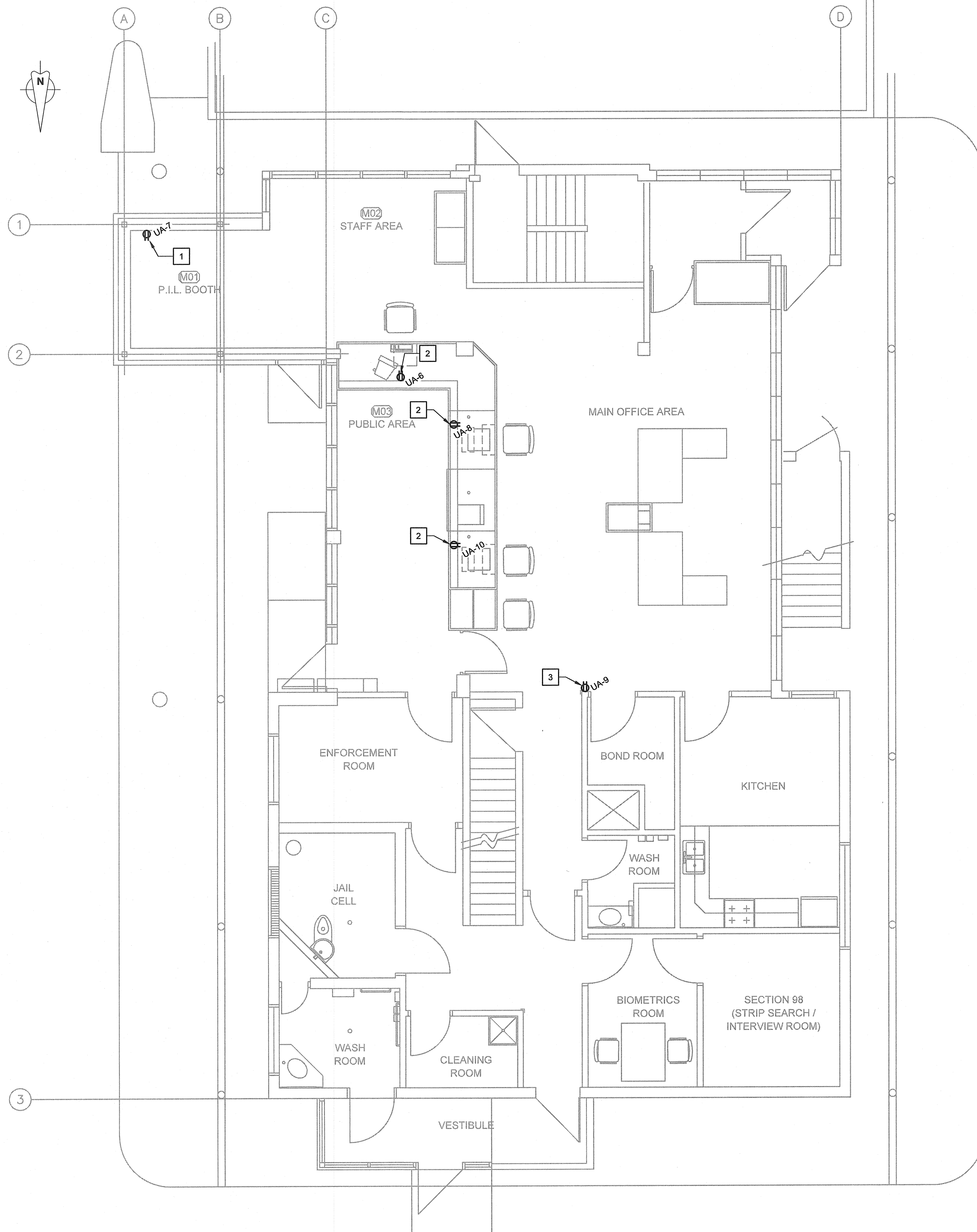
Drawing title  
BASEMENT FLOOR PLAN  
ELECTRICAL LAYOUT  
NEW WORK

Titre du dessin

Project no./No. du projet	Drawing no./No. du dessin	Revision no.
R.094408.001	E03 OF 07	00



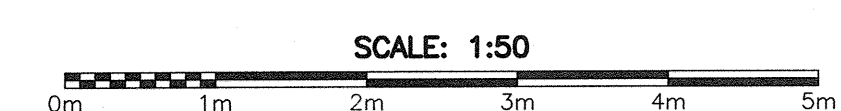




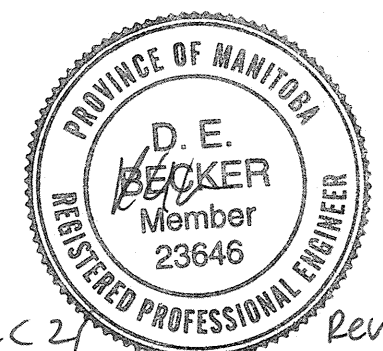
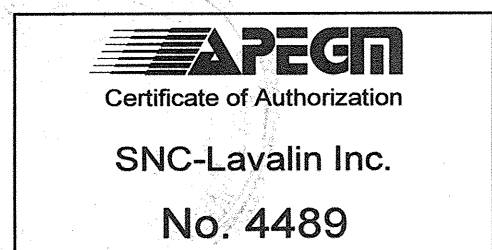
**MAIN FLOOR PLAN - NEW WORK**  
SCALE: 1:50

**SPECIFIC NOTES:**

- 1 PROVIDE NEW, WALL MOUNTED DUPLEX RECEPTACLE AND CONNECT TO NEW UPS PANEL 'UA' LOCATED IN THE BASEMENT. MOUNT AT APPROX. 457mm ABOVE FLOOR FINISH.
- 2 PROVIDE THREE (3) NEW, DUPLEX RECEPTACLES AND CONNECT TO NEW UPS PANEL 'UA' LOCATED IN THE BASEMENT. LOCATE RECEPTACLES ADJACENT TO THE EXISTING RECEPTACLES BELOW THE COUNTERS, APPROXIMATELY 915mm ABOVE FLOOR FINISH. RECEPTACLES TO BE MOUNTED SIMILAR TO THE EXISTING RECEPTACLE MOUNTING CONFIGURATION.
- 3 PROVIDE NEW DUPLEX RECEPTACLE AND CONNECT TO NEW UPS PANEL 'UA' LOCATED IN THE BASEMENT. MOUNT RECEPTACLE ABOVE CEILING, ADJACENT TO EXISTING RECEPTACLE FOR SECURITY CAMERA POWER SUPPLY.



PROJECT No	SUBDIVISION	SUBJECT	SERIAL	REV.
663574	0000	47 DD	0001	00



Dec 27  
2019

Rev 00

Revision	Description	Date
00	RELEASED FOR TENDER & CONSTRUCTION	2019/12/02

Client

**PUBLIC WORKS AND  
GOVERNMENT SERVICES  
CANADA**

100-167 LOMBARD AVENUE  
WINNIPEG MB R3C 2Z1

Project title

**BOISSEVAIN, MANITOBA**

**CBSA BOISSEVAIN POE  
GENERATOR REPLACEMENT**

Designed by  
**D. BECKER**

Conçu par

Drawn by  
**Y. KONIG**

Dessiné par

Approved by  
**D. BECKER**

Approuvé par

PWSSC Project Manager  
**P. DUCHARME**

Administrateur de Projets TPSSC

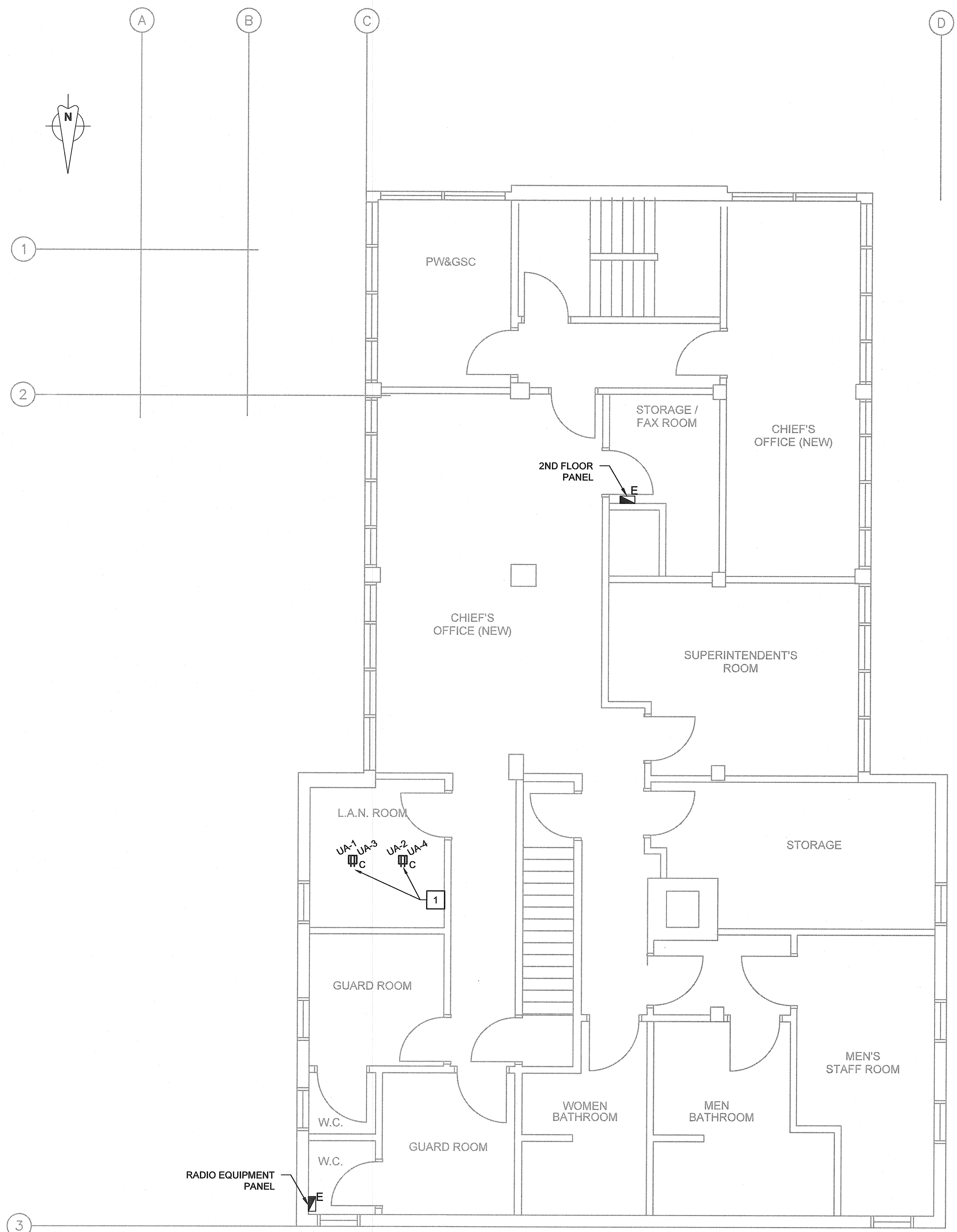
Drawing title

**MAIN FLOOR PLAN  
ELECTRICAL LAYOUT  
NEW WORK**

Titre du dessin

Project no./No. du projet	Drawing no./No. du dessin	Revision no.
<b>R.094408.001</b>	<b>E04</b> OF 07	<b>00</b>



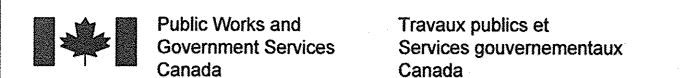


**SPECIFIC NOTES:**

- 1 PROVIDE NEW CABLING / CONDUIT FOR THE EXISTING 4-PLEX RECEPTACLES FROM NEW UPS PANEL 'UA' LOCATED IN THE BASEMENT. PROVIDE SEPARATE NEUTRAL FOR EACH CIRCUIT. SEE DRAWING E03 FOR PANEL SCHEDULE.

**SECOND FLOOR PLAN - NEW WORK**  
SCALE: 1:50

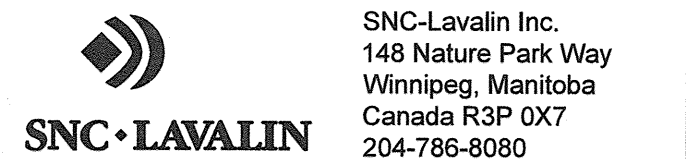




Public Works and  
Government Services  
Canada


Traux publics et  
Services gouvernementaux  
Canada

REAL PROPERTY SERVICES  
Western Region  
SERVICES IMMOBILIERS  
Rgion de l'ouest



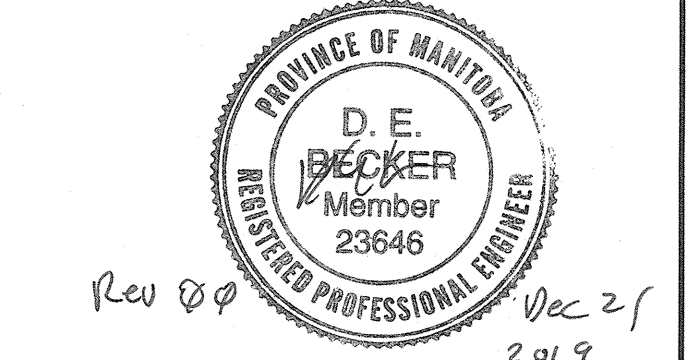
SNC-Lavalin Inc.  
148 Nature Park Way  
Winnipeg, Manitoba  
Canada R3P 0X7  
204-786-8080

PROJECT No	SUBDIVISION	SUBJECT	SERIAL	REV.
663574	0000	47 DD	0001	00



Certificate of Authorization

SNC-Lavalin Inc.  
No. 4489



Rev 00  
2 of 9

00	RELEASED FOR TENDER & CONSTRUCTION	2019/12/02
Revision	Description	Date
Client	client	

**PUBLIC WORKS AND  
GOVERNMENT SERVICES  
CANADA**

100-167 LOMBARD AVENUE  
WINNIPEG MB R3C 2Z1

Project title

Project

**BOISSEVAIN, MANITOBA**

**CBSA BOISSEVAIN POE  
GENERATOR REPLACEMENT**

Designed by  
**D. BECKER**

Conqu par

Drawn by  
**Y. KONIG**

Dessin par

Approved by  
**D. BECKER**

Approuv par

PWGSC Project Manager  
**P. DUCHARME**

Administrateur de Projets TPSGC

Drawing title

Titre du dessin

**SECOND FLOOR PLAN  
ELECTRICAL LAYOUT  
NEW WORK**

Project no./No. du projet	Drawing no./No. du dessin	Revision no.
<b>R.094408.001</b>	<b>E05</b> OF 07	<b>00</b>





**APEGM**  
Certificate of Authorization  
SNC-Lavalin Inc.  
No. 4489



Dec 2  
2019

**PUBLIC WORKS AND  
GOVERNMENT SERVICES  
CANADA**

100-167 LOMBARD AVENUE  
WINNIPEG MB R3C 2Z1

Project title	Project
<b>BOISSEVAIN, MANITOBA</b>	

## CBSA BOISSEVAIN POE GENERATOR REPLACEMENT

Designed by **D. BECKER** Conçu par

Drawn by **Y. KONIG** Dessiné par

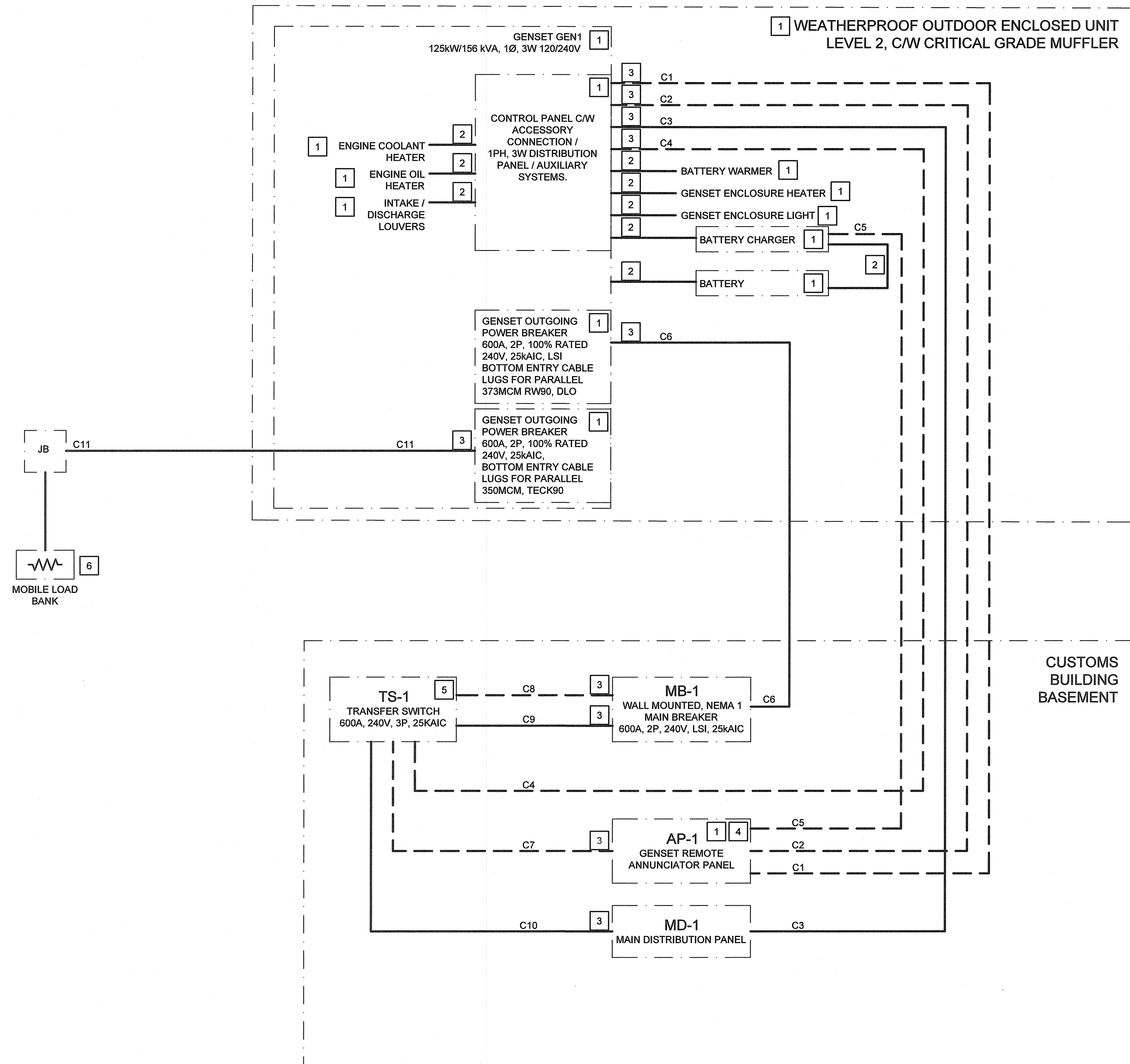
Approved by D. BECKER Approuvé par \_\_\_\_\_

PWGSC Project Manager      Administrateur de Projets TPSGC  
**P. DUCHARME**

Drawing title	Titre du dessin
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### GENSET ELECTRICAL BLOCK DIAGRAM

Project no./No. du projet	Drawing no./No. du dessin	Revision no.
<b>R.094408.001</b>	<b>E06</b>	<b>00</b>



### LEGEND

— — CONTROL / COMMUNICATION WIRING

## POWER WIRING

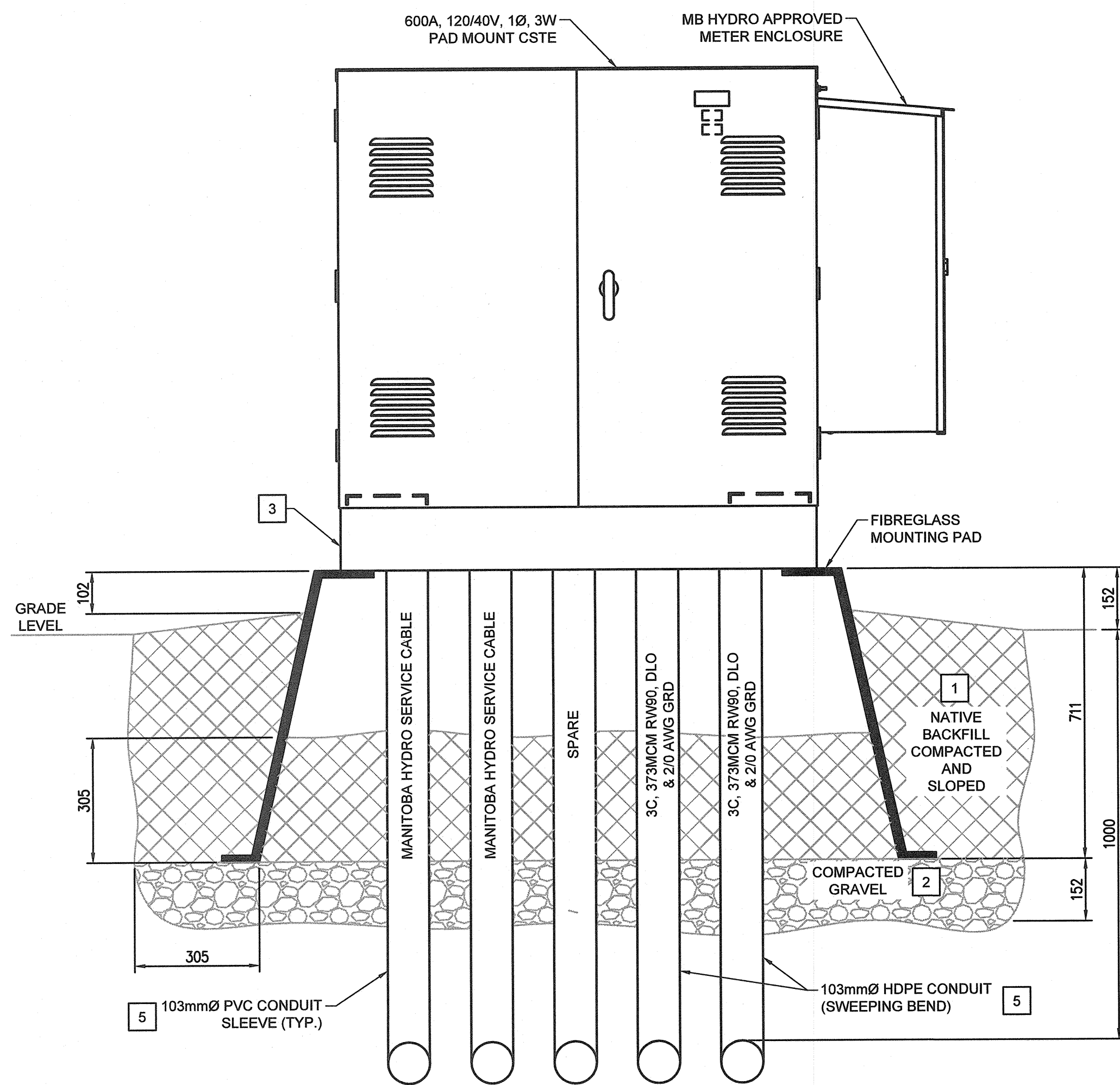
**GENERAL NOTES:**

1. EQUIPMENT AND DEVICES SHOWN ON THIS DRAWING ARE NEW AND TO BE PROVIDED BY THE ELECTRICAL CONTRACTOR UNLESS SPECIFICALLY NOTED OTHERWISE.
2. THE BLOCK DIAGRAM SHOWS ONLY MAIN COMPONENTS. THIS DRAWING DOES NOT SHOW ALL REQUIRED DEVICES. PROVIDE COMPLETE AND WORKING INSTALLATION, IN ACCORDANCE WITH THE SPECIFICATIONS. REFER TO SINGLE LINE DIAGRAM DRAWING E02 FOR ADDITIONAL DETAILS.

**SPECIFIC NOTES:**

1. EQUIPMENT SUPPLIED BY THE CONTRACTOR AS PART OF THE GENSET PACKAGE.
  2. INTERNAL WIRING SUPPLIED AND INSTALLED BY GENSET VENDOR.
  3. WIRING PROVIDED AND INSTALLED BY ELECTRICAL CONTRACTOR IN ACCORDANCE WITH THE INSTALLATION DRAWINGS AND WIRING INSTRUCTIONS PROVIDED BY THE GENSET VENDOR.
    - C1 - COMMUNICATION CABLE BELDEN 9729 OR EQUIVALENT, RUN IN CONDUIT
    - C2 - 12C #12 AWG, CIC (WIRES: 1,2 - DC SUPPLY, WIRES: 3 TO 12 - SPARE) RUN IN CONDUIT
    - C3 - 3C #4 AWG TECK90 (120/240V, 1/2, 3W PANEL FEEDER, WIRES: BK, RD, WH)
    - C4 - 12C #12 AWG CIC CABLE (WIRES: 1,2 - DC SUPPLY, WIRES: 3,4 - REMOTE START, WIRES: 5,6 - ATS NOT IN AUTO, WIRES: 7 TO 12 - SPARES) RUN IN CONDUIT
    - C5 - 4C #12 AWG, CIC CABLE (WIRES: 1,2 - BATTERY CHARGER ALARM ANNUNCIATION, WIRES: 3,4 SPARE) RUN IN CONDUIT
    - C6 - 2 RUNS OF 3C, 373MCM RW90, DLO RUN IN CONDUIT
    - C7 - 4C #12 AWG, CIC CABLE (WIRES: 1,2 - GENSET SUPPLYING LOADS ANNUNCIATION, WIRES: 3,4 - SPARE)
    - C8 - 4C #12 AWG, CIC CABLE (WIRES: 1,2 - MAIN PANEL BREAKER SHUNT TRIP WHEN PARALLELING TIME LIMIT 10MS IS EXCEEDED, WIRES: 3,4 - SPARE)
    - C9 - 2 RUNS OF 3C, 373MCM RW90, DLO (WIRES: BK, RD, WH) IN CONDUIT
    - C10 - 2 RUNS OF 3C, 373MCM RW90, DLO (WIRES: BK, RD, WH) IN CONDUIT
    - C11 - 2 RUNS OF 3C, 350MCM TECK90 (WIRES: BK, RD, WH)
  4. GENSET VENDOR TO PROPOSE DEVICE TYPE FOR LOCAL MONITORING & CONTROL:
    - GENSET COMMON WARNING WHEN GENERATOR IS NOT RUNNING AND CONDITION MAY CAUSE DIFFICULTY TO START GENSET. (CONDITIONS SHOULD INCLUDE CHARGER AC FAILURE, LOW COOLANT LEVEL, WEAK BATTERY, LOW BATTERY VOLTAGE, NOT IN AUTO, LOW COOLANT TEMP, PRE-LOW OIL PRESSURE, FUEL SUPPLY PROBLEM).
    - GENSET RUNNING COMMON WARNING.
  5. PROVIDE OPEN TRANSITION AUTOMATIC TRANSFER SWITCH INTEGRATED WITH GENSET FOR AUTOMATIC START AND POWER TRANSFER DURING UTILITY POWER OUTAGE.
  6. MOBILE LOAD BANK, TEMPORARILY CONNECTED FOR TESTING. PROVIDE TEMPORARY MOBILE LOAD BANK FOR SYSTEM TESTING AND COMMISSIONING.

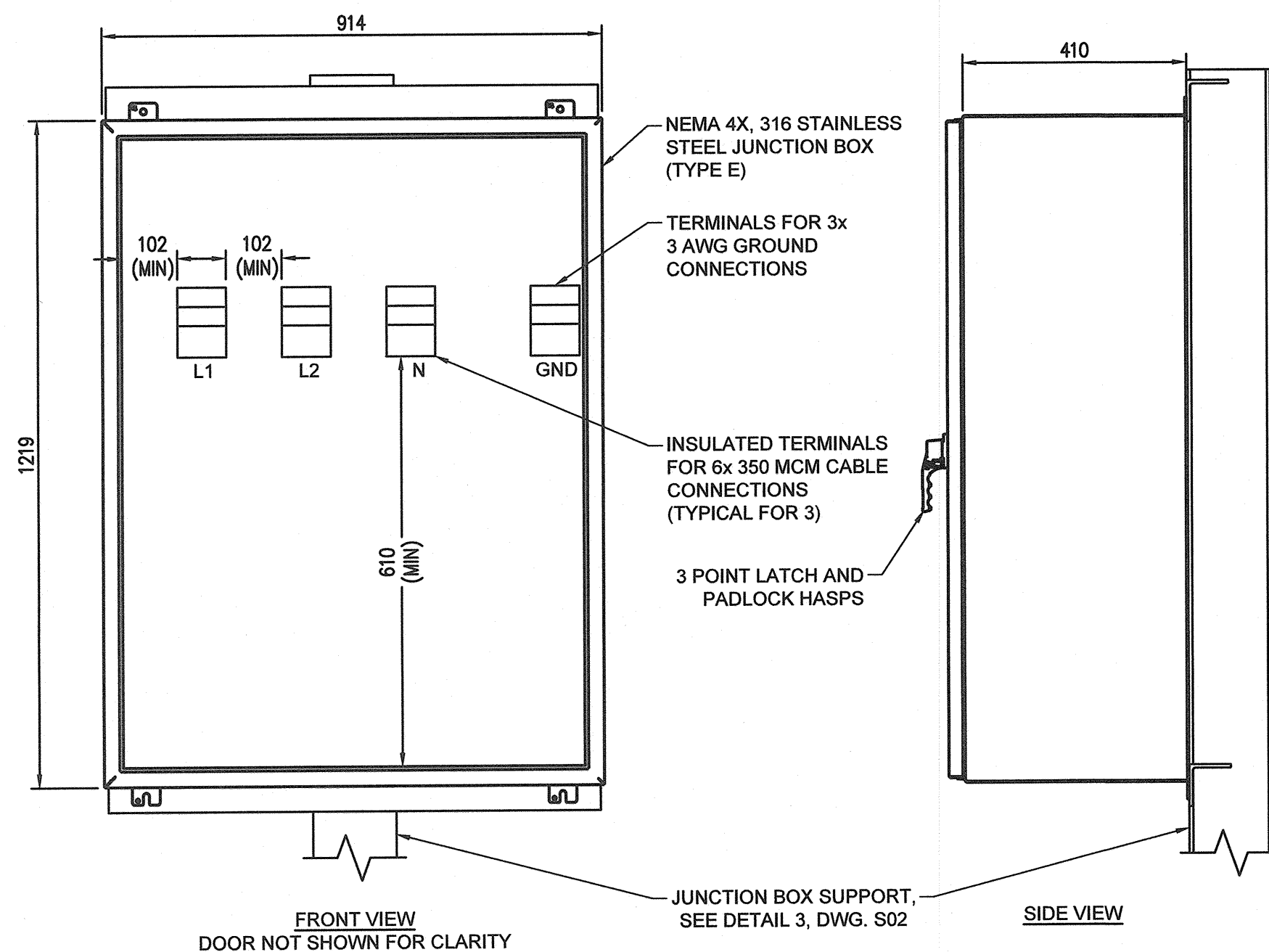




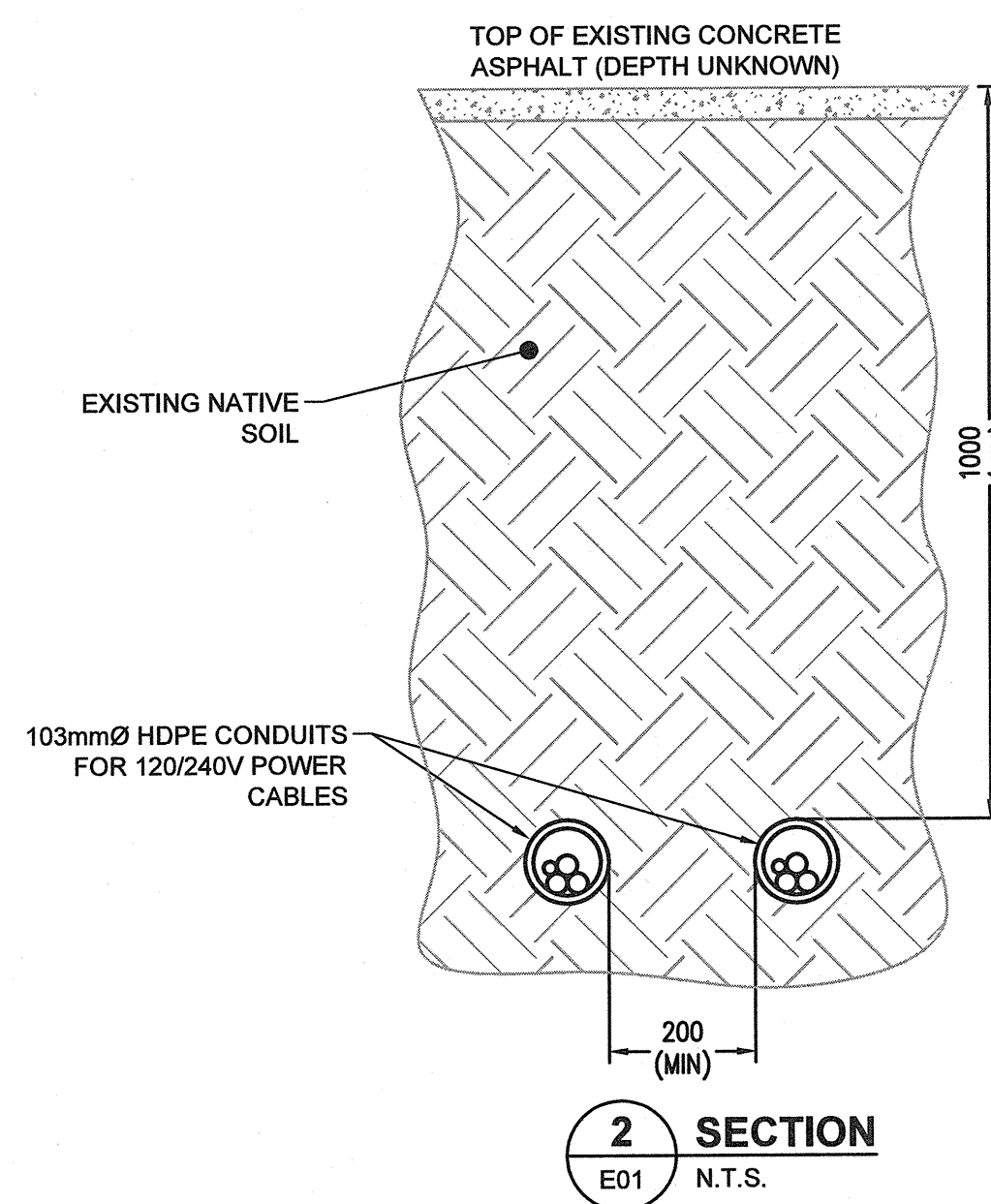
#### DETAIL 1 NOTES:

- 1 BACKFILL SHALL BE SOIL REMOVED DURING EXCAVATION AND COMPACTED BY FOOT, NOT MACHINE.
- 2 PROVIDE GRAVEL FOR BASE MATERIAL. COMPACT BY HAND OR MACHINE SUCH THAT GRAVEL IS COMPLETELY LEVEL.
- 3 INSTALL CSTE, LEVEL AND TRUE IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.
- 4 COORDINATE THE INSTALLATION WITH MANITOBA HYDRO AND CBSA.
- 5 COORDINATE EXACT PLACEMENT OF CONDUITS WITH EQUIPMENT SHOPDRAWINGS.

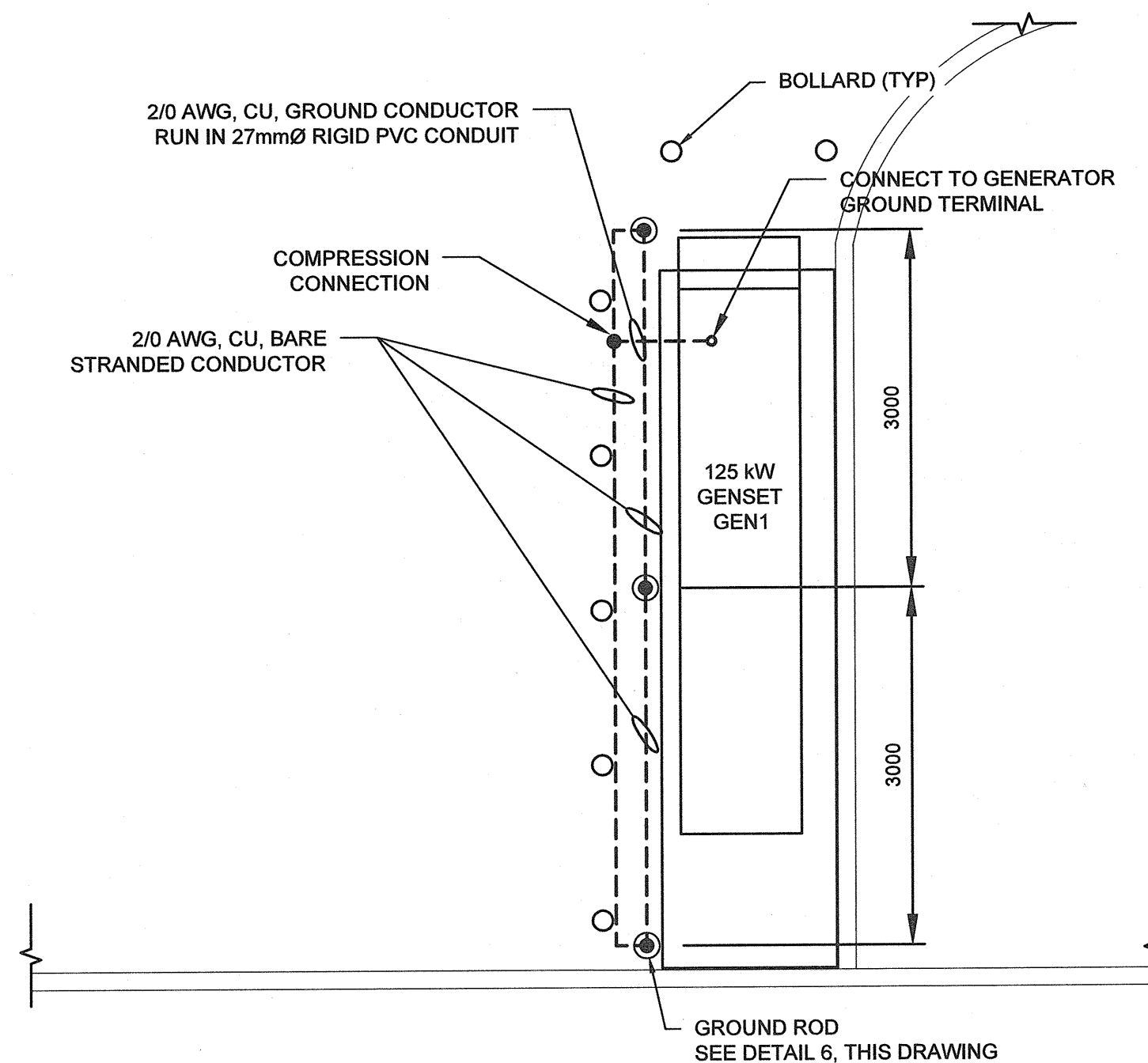
**1 CSTE WITH MOUNTING PAD - FRONT VIEW**  
E01 N.T.S.



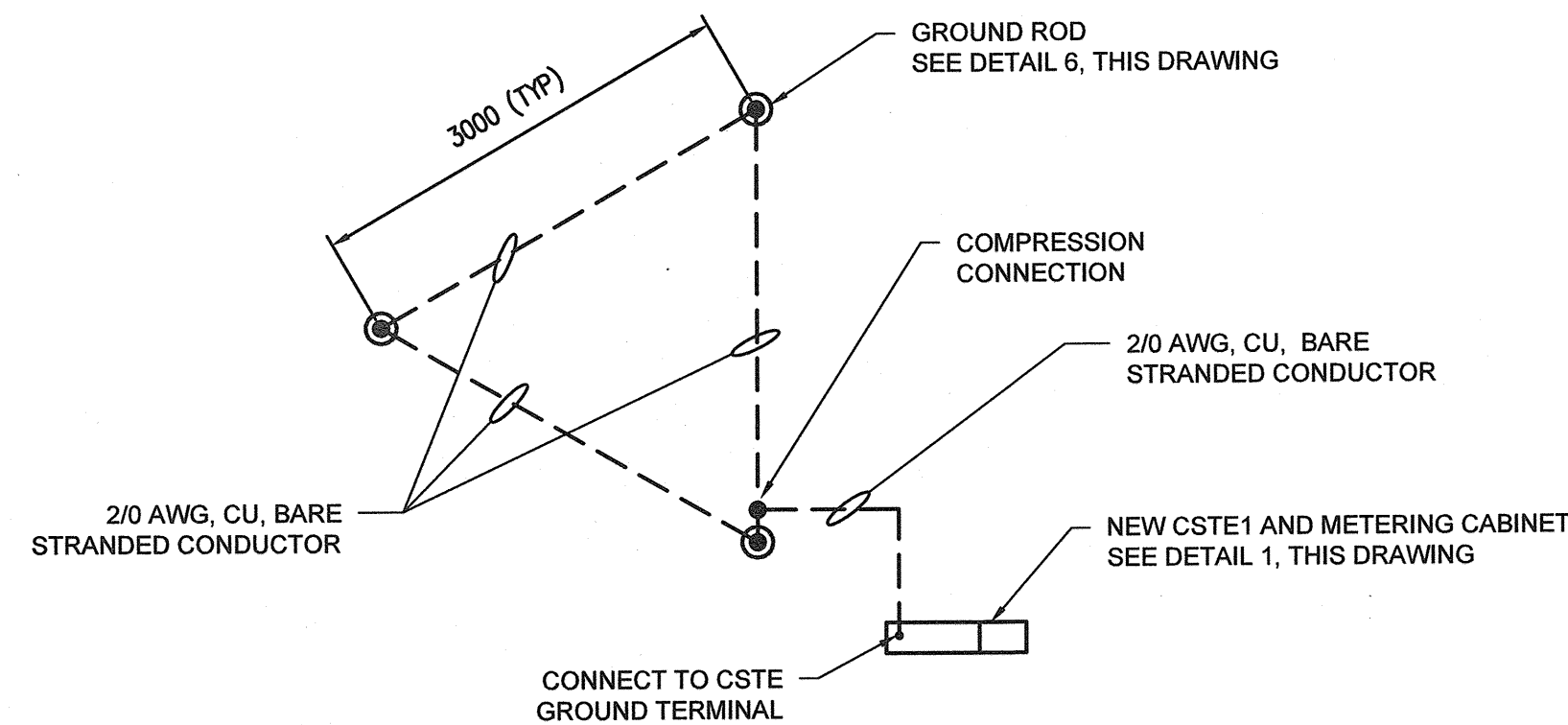
**4 LOAD BANK CONNECTION JUNCTION BOX**  
E01 N.T.S.



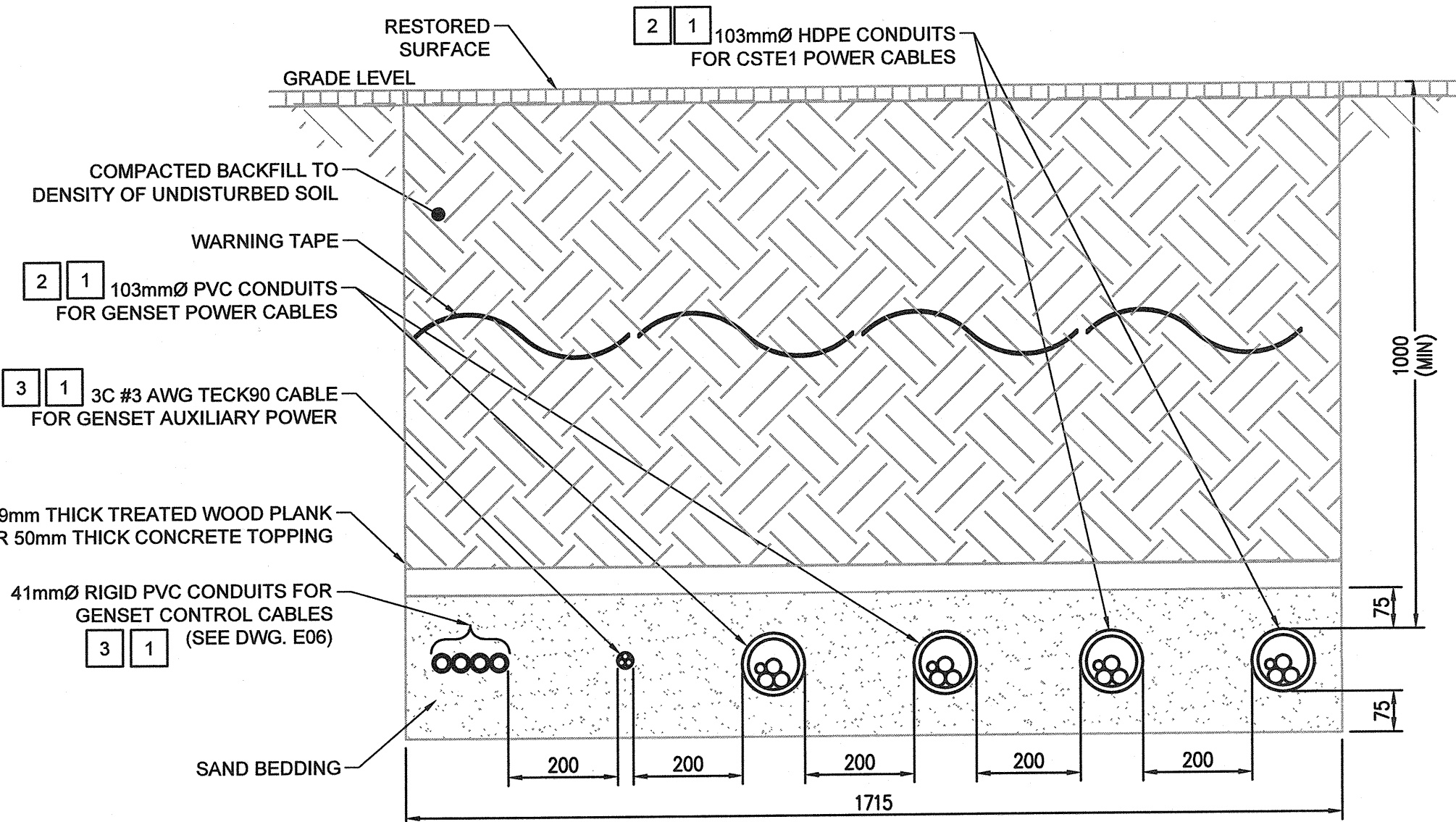
**2 SECTION**  
E01 N.T.S.



**5 GENERATOR GROUNDING LAYOUT**  
E01 N.T.S.



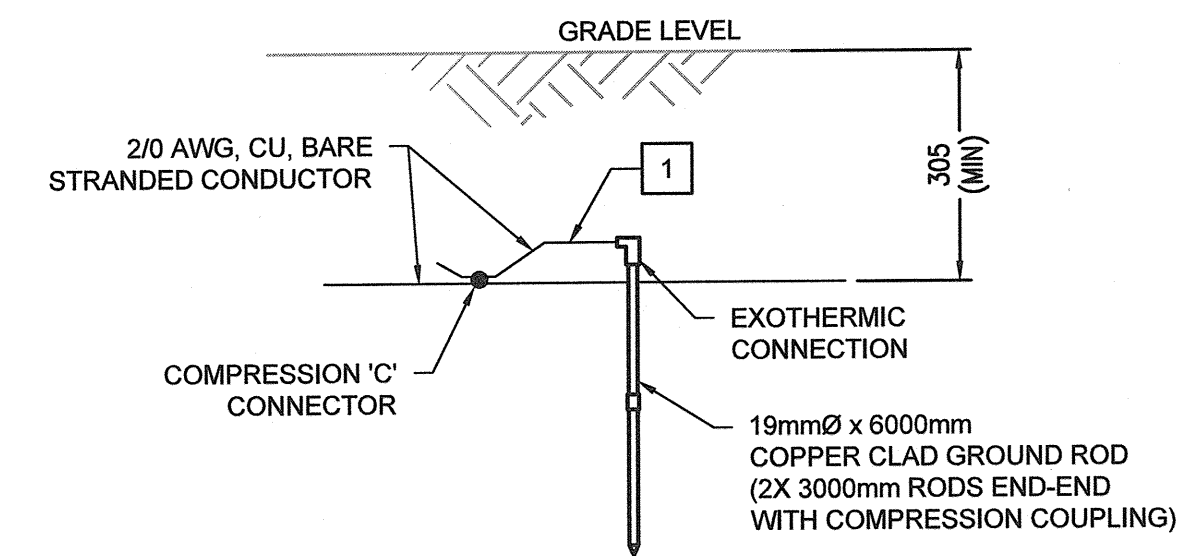
**7 CSTE GROUNDING LAYOUT**  
E01 N.T.S.



#### DETAIL 3 NOTES:

- 1 APPROXIMATE DEPTH - CONTRACTOR TO CONFIRM APPROPRIATE DEPTH WITH INTERIOR EQUIPMENT PLACEMENT, AT WALL PENETRATION INTO BUILDING.
- 2 REDUCE CONDUIT SIZE TO MINIMUM REQUIRED BY CODE, AT THE WALL PENETRATION TO MINIMIZE IMPACT ON WALL DURING CORE DRILLING. MAINTAIN AT LEAST 3 HOLE DIAMETER SPACING BETWEEN PENETRATIONS, MEASURED EDGE TO EDGE HORIZONTALLY.
- 3 MAINTAIN AT LEAST 3 HOLE DIAMETER SPACING BETWEEN CONDUITS / CABLE AT WALL PENETRATION, MEASURED EDGE TO EDGE HORIZONTALLY OR VERTICALLY.

**3 SECTION**  
E01 N.T.S.



#### DETAIL 6 NOTES:

- 1 PROVIDE CONDUCTOR SLACK TO ALLOW FOR SHIFTING ROD.

**6 GROUND ROD INSTALLATION**  
E07 N.T.S.

Public Works and Government Services Canada

REAL PROPERTY SERVICES  
Western Region  
SERVICES IMMOBILIERS  
Région de l'ouest

SNC-Lavalin Inc.  
148 Nature Park Way  
Winnipeg, Manitoba  
Canada R3P 0X7  
204-786-8080

PROJECT No	SUBDIVISION	SUBJECT	SERIAL	REV.
663574	0000	47 DD	0001	00

**APEGM**  
Certificate of Authorization  
SNC-Lavalin Inc.  
No. 4489

Rev 08 Dec 21  
2019

Revision	Description	Date
00	RELEASED FOR TENDER & CONSTRUCTION	2019/12/02

**PUBLIC WORKS AND GOVERNMENT SERVICES CANADA**

100-167 LOMBARD AVENUE  
WINNIPEG MB R3C 2Z1

Project title: **BOISSEVAIN, MANITOBA**

**CBSA BOISSEVAIN POE GENERATOR REPLACEMENT**

Designed by: **D. BECKER**

Drawn by: **Y. KONG**

Approved by: **D. BECKER**

PWGSC Project Manager

Conçu par

Dessiné par

Approuvé par

Administrateur de Projets TPSGC

Drawing title: **ELECTRICAL DETAILS**

Project no./No. du projet: **R.094408.001**

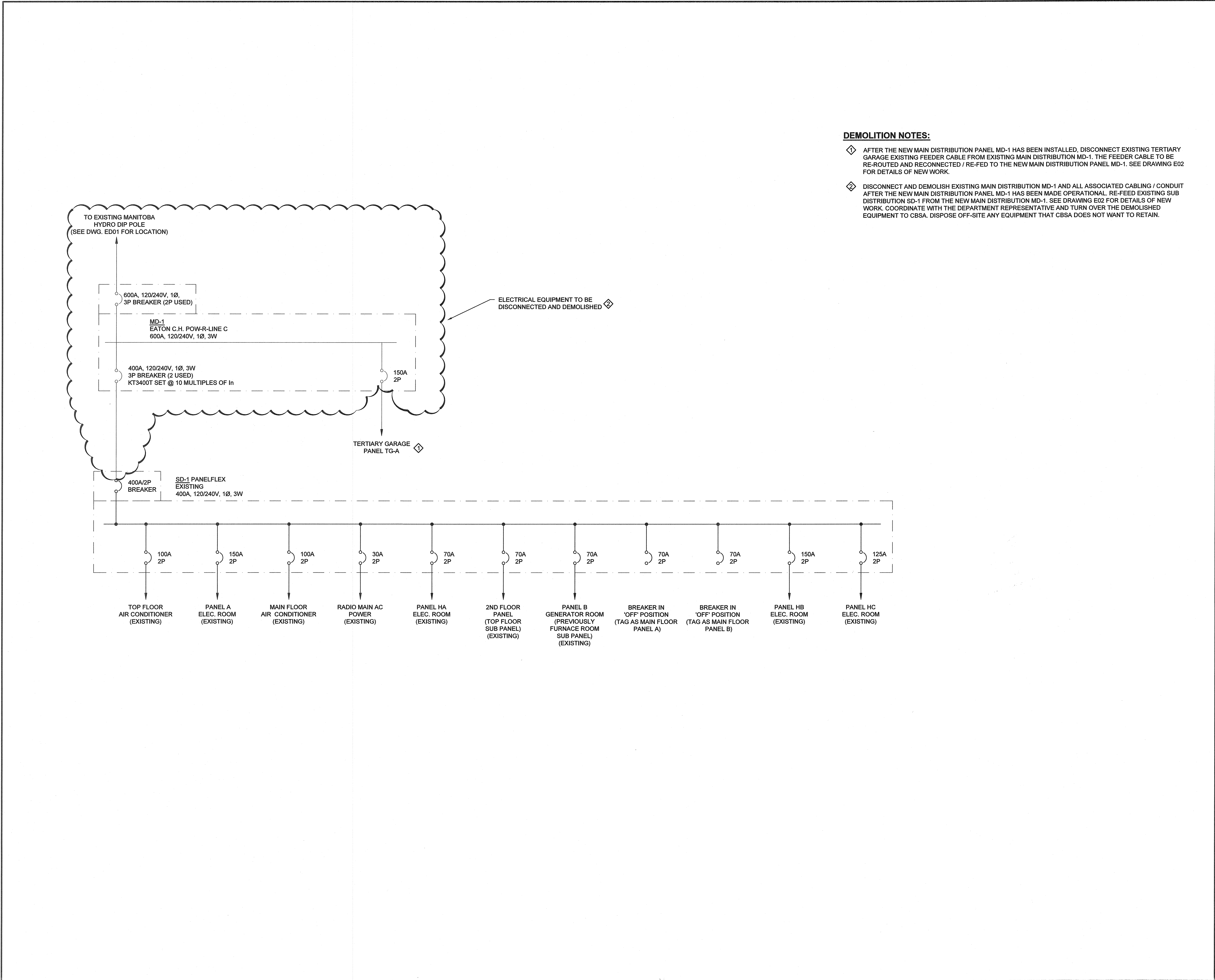
Drawing no./No. du dessin: **E07**

Revision no.: **00**





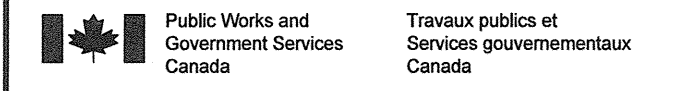




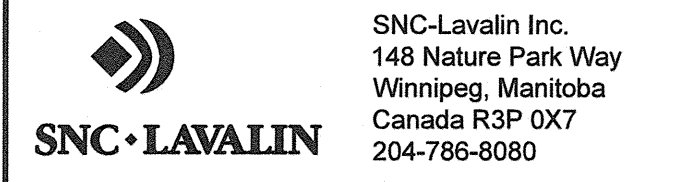
**DEMOLITION NOTES:**

◇ AFTER THE NEW MAIN DISTRIBUTION PANEL MD-1 HAS BEEN INSTALLED, DISCONNECT EXISTING TERTIARY GARAGE EXISTING FEEDER CABLE FROM EXISTING MAIN DISTRIBUTION MD-1. THE FEEDER CABLE TO BE RE-ROUTED AND RECONNECTED / RE-FED TO THE NEW MAIN DISTRIBUTION PANEL MD-1. SEE DRAWING E02 FOR DETAILS OF NEW WORK.


◇ DISCONNECT AND DEMOLISH EXISTING MAIN DISTRIBUTION MD-1 AND ALL ASSOCIATED CABLING / CONDUIT AFTER THE NEW MAIN DISTRIBUTION PANEL MD-1 HAS BEEN MADE OPERATIONAL. RE-FEED EXISTING SUB DISTRIBUTION SD-1 FROM THE NEW MAIN DISTRIBUTION MD-1. SEE DRAWING E02 FOR DETAILS OF NEW WORK. COORDINATE WITH THE DEPARTMENT REPRESENTATIVE AND TURN OVER THE DEMOLISHED EQUIPMENT TO CBSA. DISPOSE OFF-SITE ANY EQUIPMENT THAT CBSA DOES NOT WANT TO RETAIN.




REAL PROPERTY SERVICES  
Western Region  
SERVICES IMMOBILIERS  
Région de l'ouest



PROJECT No. 663574SUBDIVISION 0000SUBJECT 47 DD SERIAL 0001REV. 00



SNC-Lavalin Inc.  
No. 4489



Rev 00Dec 21 2019

00	RELEASED FOR TENDER & CONSTRUCTION	2019/12/02
Revision	Description	Date
Client	client	

**PUBLIC WORKS AND  
GOVERNMENT SERVICES  
CANADA**  
  
100-167 LOMBARD AVENUE  
WINNIPEG MB R3C 2Z1

Project title  
**BOISSEVAIN, MANITOBA**

**CBSA BOISSEVAIN POE  
GENERATOR REPLACEMENT**

Designed by  
**D. BECKER**

Drawn by  
**Y. KONIG**

Approved by  
**D. BECKER**

PWSSC Project Manager  
**P. DUCHARME**

Conçu par  
Dessiné par  
Approuvé par  
Administrateur de Projets TPSGC

Drawing title  
**ELECTRICAL SINGLE LINE  
DIAGRAM  
DEMOLITION**

Project no./No. du projet  
**R.094408.001**

Drawing no./No. du dessin  
**ED02**

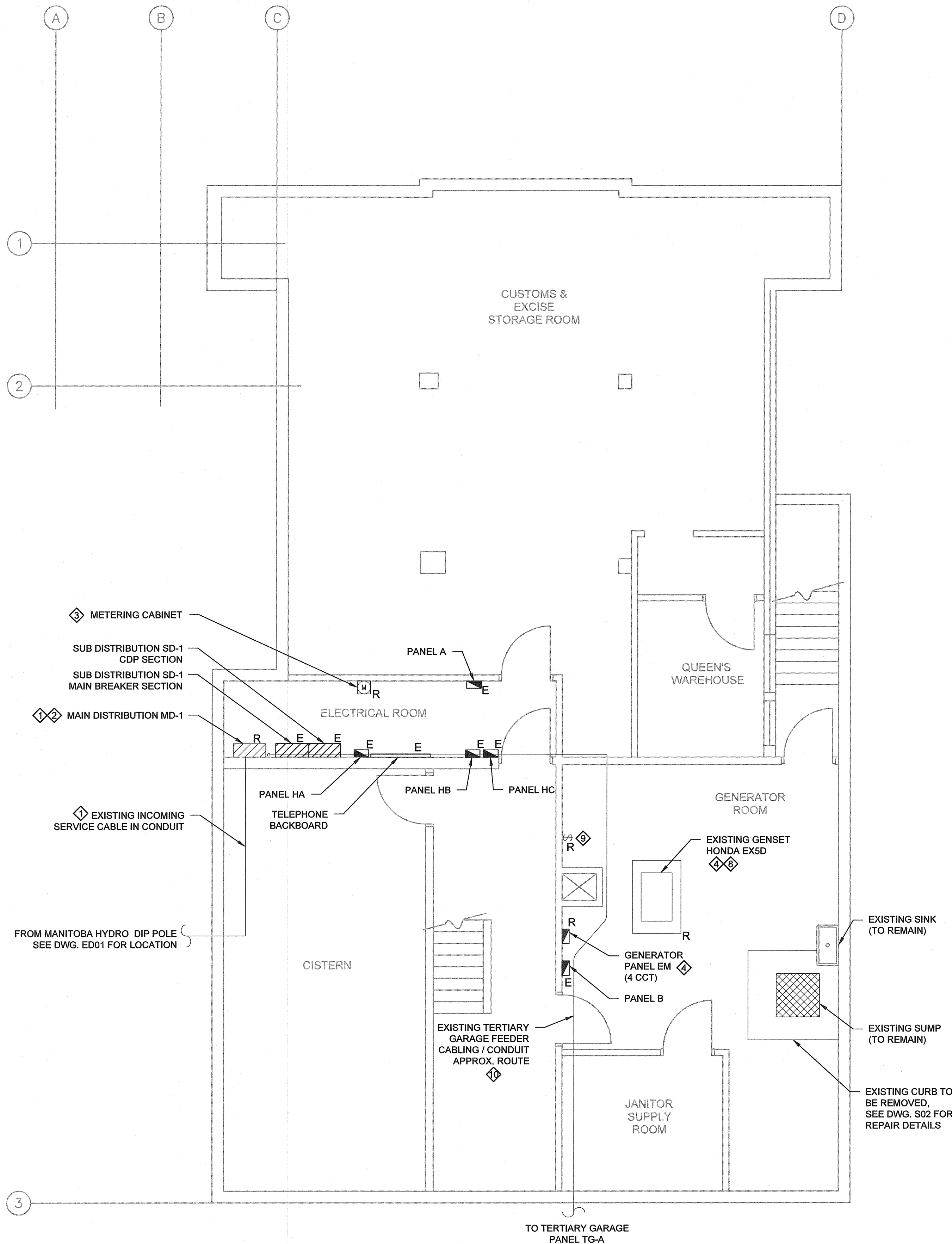
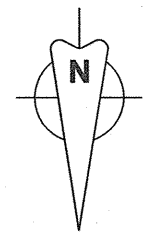
Revision no.  
**00**  
OF 05

PWSSC - A1 - 841X594

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**BASEMENT FLOOR PLAN - DEMOLITION**  
SCALE: 1:50

**GENERAL NOTES:**

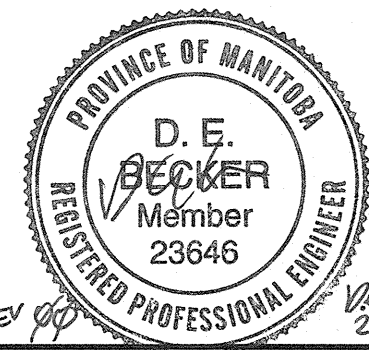
- EQUIPMENT AND DEVICES ARE SHOWN AT THEIR GENERAL APPROXIMATE LOCATIONS. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CONFIRM EXACT LOCATIONS DURING SITE SURVEY.

**DEMOLITION NOTES:**

- AFTER NEW INSTALLATION OF ELECTRICAL EQUIPMENT IS COMPLETE, DISCONNECT AND DEMOLISH EXISTING SERVICE CABLING FROM EXISTING MAIN DISTRIBUTION MD-1 TO MB HYDRO DIP POLE. DEMOLISH ALL CONDUITS AND SUPPORTS THAT ARE ACCESSIBLE. UP TO THE MB HYDRO DIP POLE. INACCESSIBLE CONDUIT TO BE ABANDONED IN PLACE. THE MB HYDRO DIP POLE TO REMAIN.
- AFTER INSTALLATION OF NEW ELECTRICAL DISTRIBUTION IS COMPLETE PER DRAWINGS E02 AND E03, DISCONNECT AND DEMOLISH EXISTING MAIN DISTRIBUTION MD-1. CONTACT THE DEPARTMENTAL REPRESENTATIVE AND TURN OVER THE EQUIPMENT TO CBSA.
- AFTER NEW ELECTRICAL SERVICE IS ESTABLISHED, COORDINATE AND DEMOLISH EXISTING METERING CABINET AND ALL ASSOCIATED CABLING / CONDUIT. CONTACT THE DEPARTMENTAL REPRESENTATIVE AND TURN OVER THE EQUIPMENT TO MB HYDRO.
- ONCE THE NEW GENSET IS INSTALLED & COMMISSIONED, DECOMMISSION AND DEMOLISH THE EXISTING HONDA EX5D GENSET, AND ALL ASSOCIATED CONTROL SWITCH, EXHAUST PIPING, DRAIN PAN, AND PAD CONCRETE BLOCKS. DISCONNECT AND DEMOLISH PANEL 'EM' ASSOCIATED WITH THE DEMOLISHED GENSET.
- DISCONNECT CCT. 1 (CAMERAS & EMERGENCY LIGHTS) FROM PANEL 'EM' AND RE-FEED TO THE NEW PANEL UA. SEE DRAWING E03 FOR NOTES ON NEW WORK.
- DISCONNECT CCT. 2.3 (HEATER) FROM PANEL 'EM' AND RE-FEED TO EXISTING PANEL 'HA'. SEE DRAWING E03 FOR NOTES ON NEW WORK.
- DISCONNECT CCT. 4 (KITCHEN PLUG) FROM PANEL 'EM' AND REFEED TO EXISTING PANEL 'HA'. SEE DRAWING E03 FOR NOTES ON NEW WORK.
- UPON DEMOLITION OF THE GENSET AND ALL ASSOCIATED COMPONENTS, CONTACT THE DEPARTMENTAL REPRESENTATIVE AND TURN OVER THE EQUIPMENT TO CBSA.
- DEMOLISHED EXISTING UN-USED SWITCH AND ASSOCIATED CABLING/CONDUIT, TO ACCOMMODATE INSTALLATION OF NEW UPS PANEL "UA".
- AFTER THE NEW MAIN DISTRIBUTION PANEL MD-1 HAS BEEN INSTALLED, DISCONNECT TERTIARY GARAGE EXISTING FEEDER CABLE / CONDUIT FROM EXISTING MAIN DISTRIBUTION MD-1. THE FEEDER CABLE TO BE RE-ROUTED AND RE-CONNECTED / RE-FEED TO THE NEW MAIN DISTRIBUTION PANEL MD-1. SEE DRAWING E03 FOR DETAILS OF NEW WORK.

PANEL 'EM' (TO BE DEMOLISHED)			
CCT	DESCRIPTION	BREAKER AMPS	POLES
1	CAMERAS & EMERG. LIGHTS	15A	1P
2	HEATER	15A	2P
4	KITCHEN PLUG	15A	1P

SCALE: 1:50  
0m 1m 2m 3m 4m 5m



Revision	Description	Date
00	RELEASED FOR TENDER & CONSTRUCTION	2019/12/02

**PUBLIC WORKS AND  
GOVERNMENT SERVICES  
CANADA**  
100-167 LOMBARD AVENUE  
WINNIPEG MB R3C 2Z1

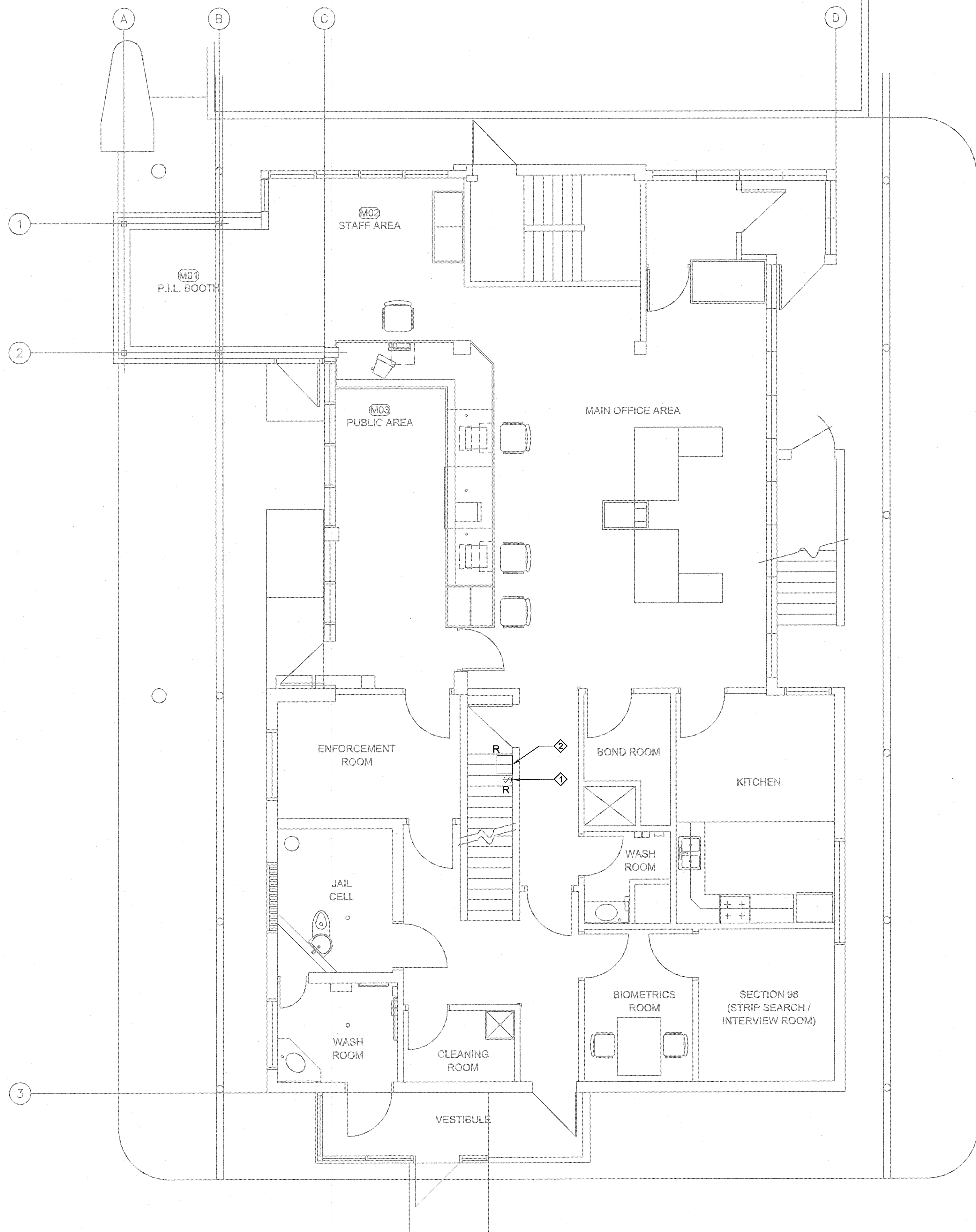
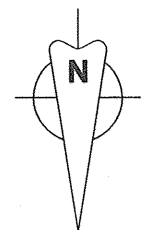
Project title  
**BOISSEVAIN, MANITOBA**

**CBSA BOISSEVAIN POE  
GENERATOR REPLACEMENT**

Designed by  
**D. BECKER**  
Conçu par  
**D. BECKER**  
Drawn by  
**Y. KONIG**  
Dessiné par  
**Y. KONIG**  
Approved by  
**D. BECKER**  
Approuvé par  
**D. BECKER**  
PWOSC Project Manager  
**P. DUCHARME**  
Administrateur de Projets TPSCG  
**P. DUCHARME**  
Drawing title  
**BASEMENT FLOOR PLAN  
ELECTRICAL LAYOUT  
DEMOLITION**  
Titre du dessin

Project no./No. du projet	Drawing no./No. du dessin	Revision no.
<b>R.094408.001</b>	<b>ED03</b> OF 05	<b>00</b>

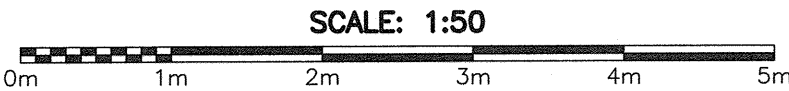




MAIN FLOOR PLAN - DEMOLITION  
SCALE: 1:50

**DEMOLITION NOTES:**

- DISCONNECT AND DEMOLISH WIRING FROM NORMAL PANEL CIRCUIT HC-18 AND FROM EXISTING PANEL 'EM', CCT. 1 FOR CAMERA "HYDRO / STANDBY" TOGGLE SWITCH. REWIRE / RECONNECT SECURITY CAMERA SYSTEM TO THE NEW UPS POWER PANEL 'UA', CCT. 5, LOCATED IN BASEMENT.
- DISCONNECT AND DEMOLISH EXISTING GENERATOR START / STOP CONTROL STATION LOCATED AT TOP OF STAIRWELL. REMOVE ALL RELATED CABLING UP TO THE DEMOLISHED GENSET. PATCH, SEAL, REPAIR ALL CABLING PENETRATIONS, AS REQUIRED. TURN OVER EQUIPMENT TO CBSA.



00	RELEASED FOR TENDER & CONSTRUCTION	2019/12/02
Revision	Description	Date
Client		client

**PUBLIC WORKS AND  
GOVERNMENT SERVICES  
CANADA**

**100-167 LOMBARD AVENUE  
WINNIPEG MB R3C 2Z1**

Project title  
**BOISSEVAIN, MANITOBA**

**CBSA BOISSEVAIN POE  
GENERATOR REPLACEMENT**

Designed by  
**D. BECKER**

Drawn by  
**Y. KONIG**

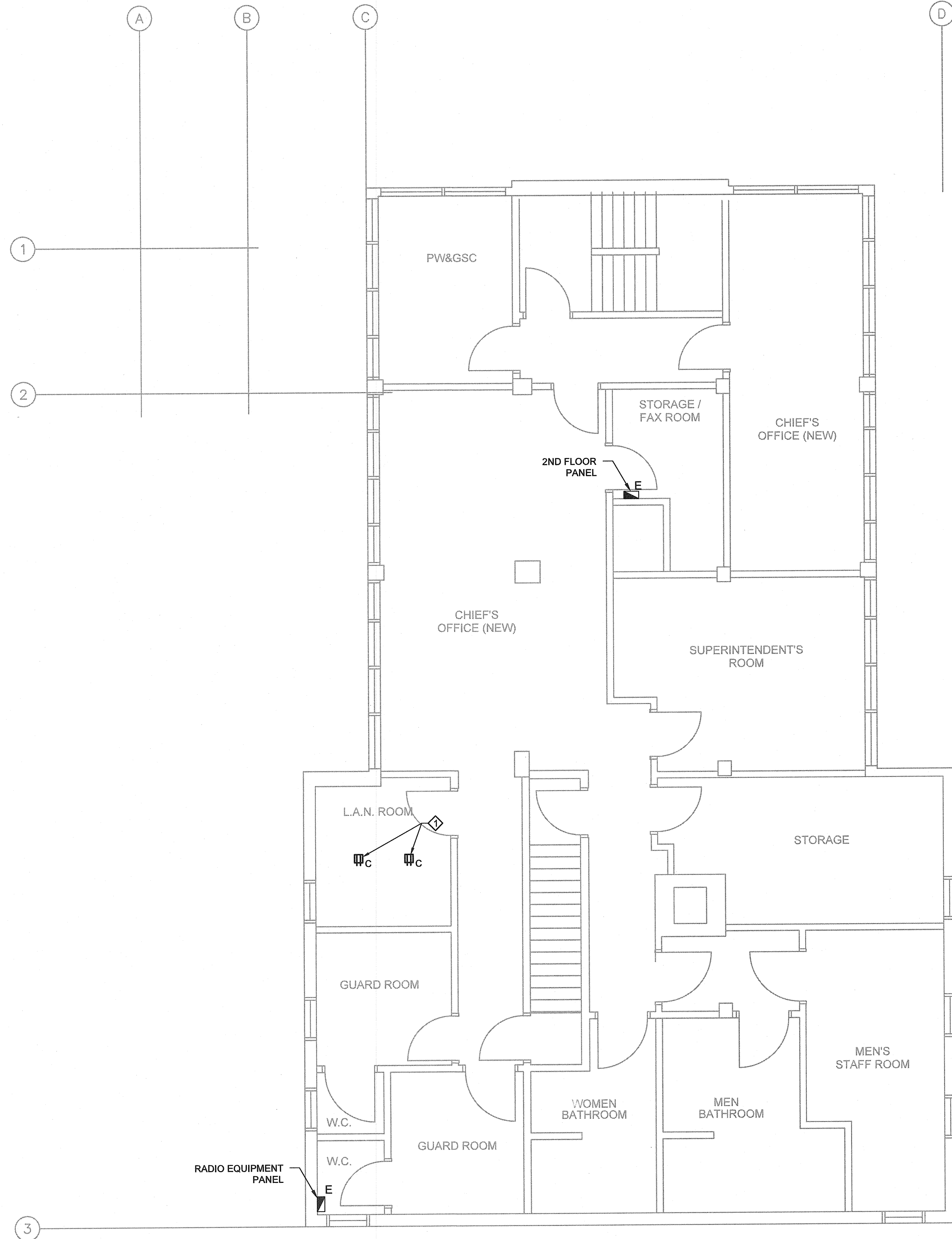
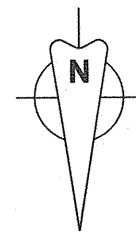
Approved by

PWGSC Project Manager  
**P. DUCHARME**

Drawing title  
**MAIN FLOOR PLAN  
ELECTRICAL LAYOUT  
DEMOLITION**

Project no./No. du projet	Drawing no./No. du dessin	Revision no.
<b>R.094408.001</b>	<b>ED04</b> OF 05	<b>00</b>

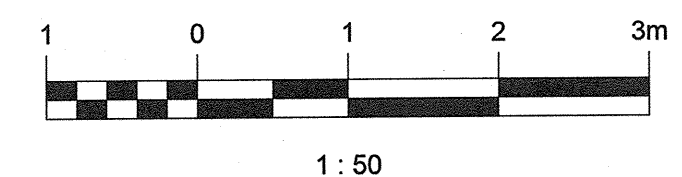




**SECOND FLOOR PLAN - DEMOLITION**  
SCALE: 1:50

**DEMOLITION NOTES:**

- DISCONNECT AND REMOVE EXISTING CABLING AND CONDUIT OF THE EXISTING 4-PLEX RECEPTACLES FROM THE 2ND FLOOR PANEL CIRCUIT 13A, 15B, AND 17A, 19B. SEE DRAWING E05 FOR DESCRIPTION OF NEW WORK.



PROJECT No	SUBDIVISION	SUBJECT	SERIAL	REV.
663574	0000	47 DD	0001	00



Revision	Description	Date
00	RELEASED FOR TENDER & CONSTRUCTION	2019/12/02

Client client

**PUBLIC WORKS AND  
GOVERNMENT SERVICES  
CANADA**

**100-167 LOMBARD AVENUE  
WINNIPEG MB R3C 2Z1**

Project title  
**BOISSEVAIN, MANITOBA**

**CBSA BOISSEVAIN POE  
GENERATOR REPLACEMENT**

Designed by  
**D. BECKER**

Drawn by  
**Y. KONIG**

Approved by  
**D. BECKER**

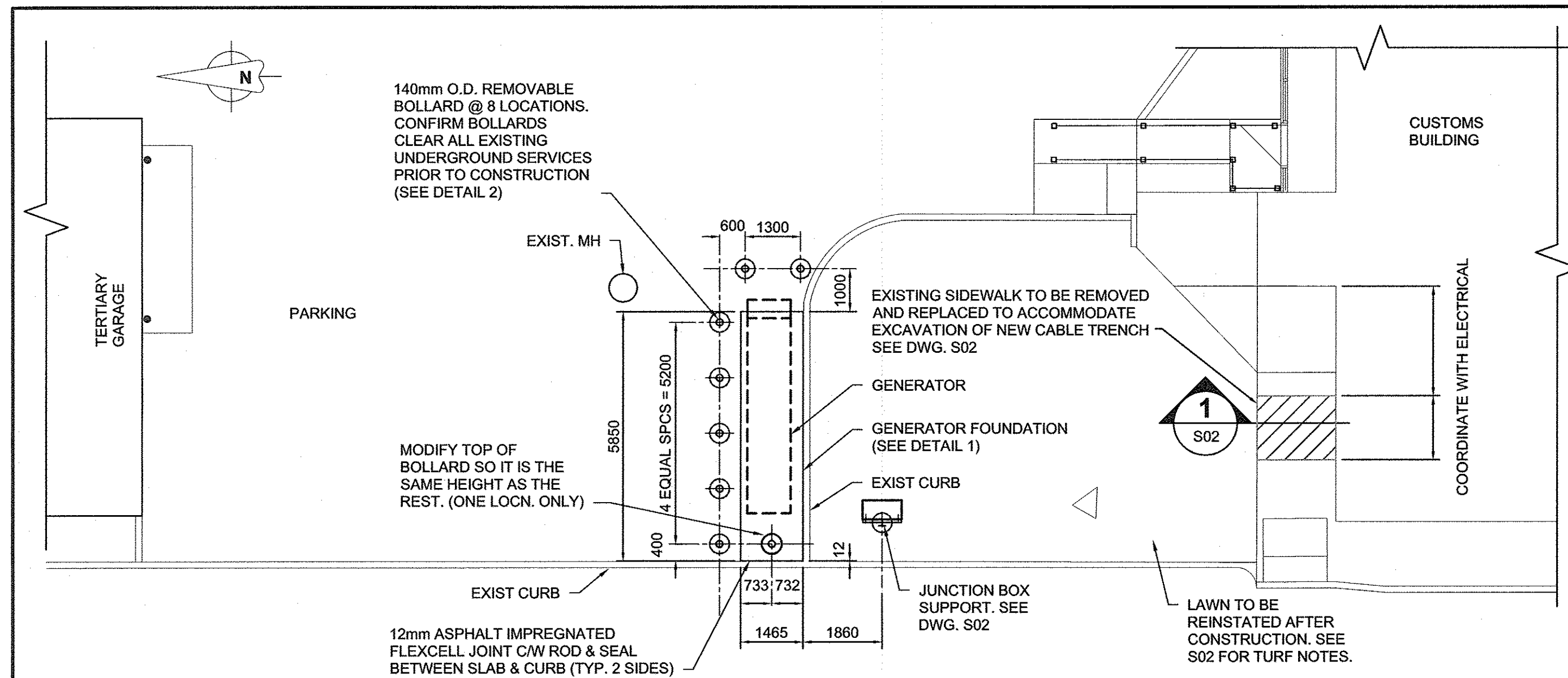
PWGSC Project Manager  
**P. DUCHARME**

Drawing title

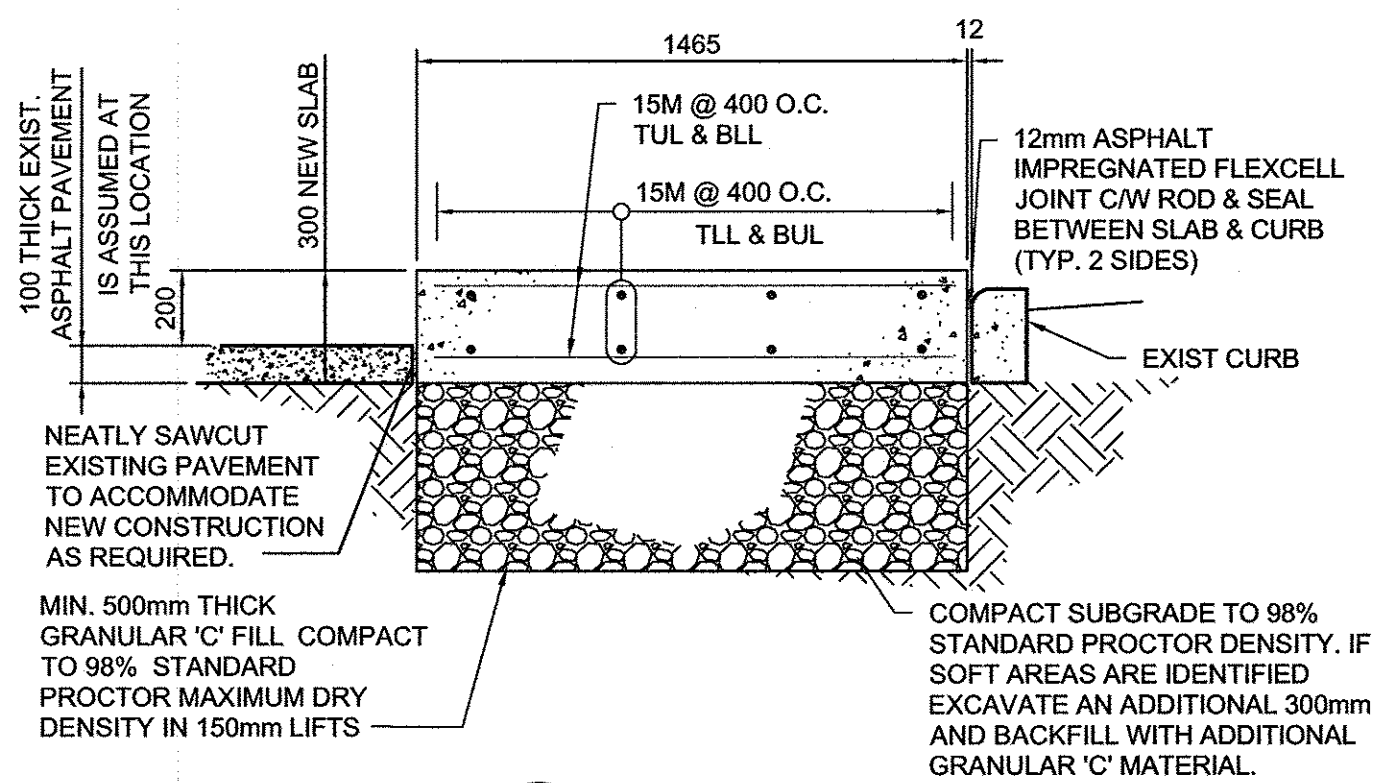
**SECOND FLOOR PLAN  
ELECTRICAL LAYOUT  
DEMOLITION**

Project no./No. du projet	Drawing no./No. du dessin	Revision no.
<b>R.094408.001</b>	<b>ED05</b> OF 05	<b>00</b>

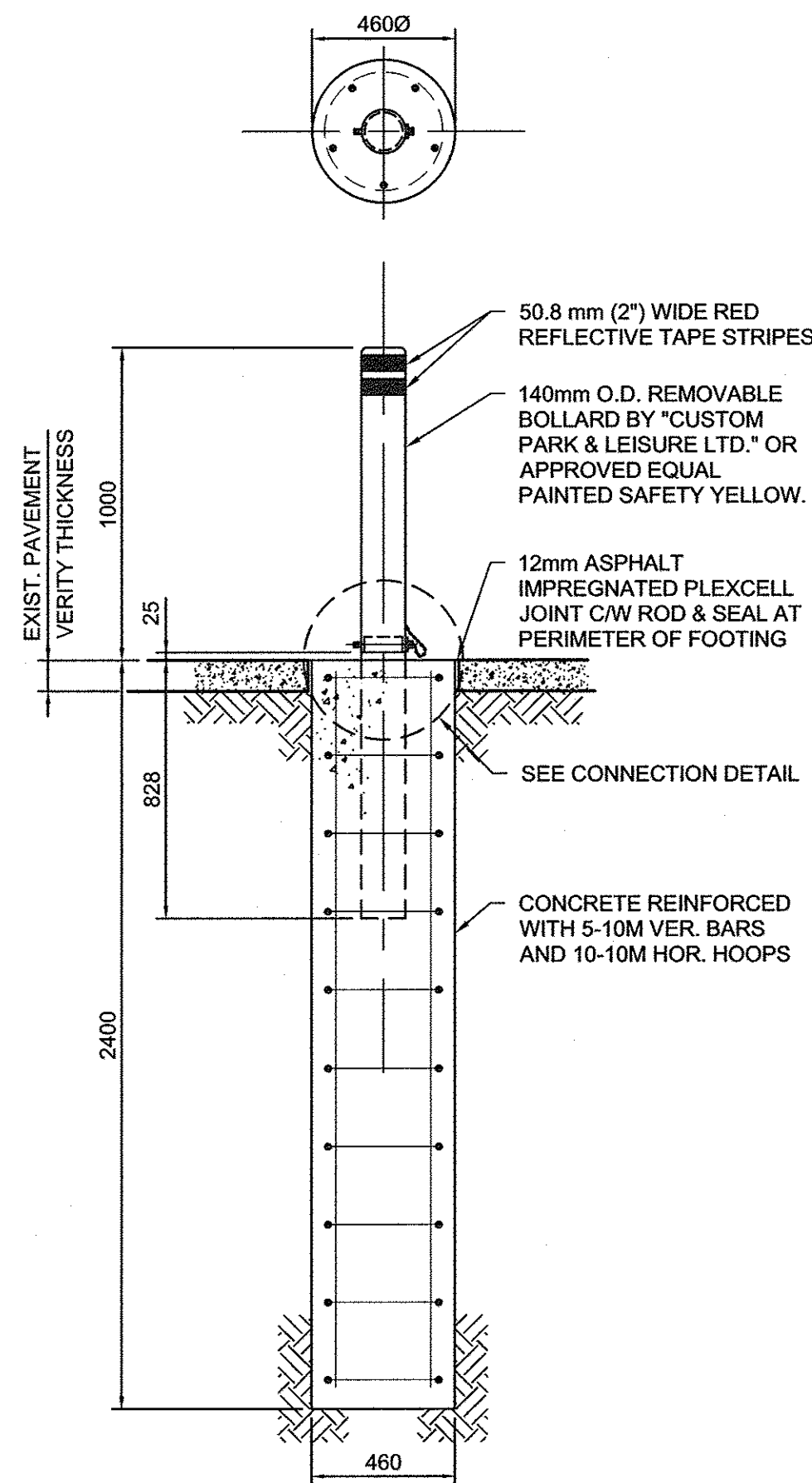




**PARTIAL SITE PLAN - NEW WORK**  
SCALE: 1:100



**SECTION 1**  
SCALE: 1:20



**2 TYPICAL BOLLARD DETAIL**  
SCALE: 1:20

#### GENERAL NOTES:

1. THE CONTRACTOR'S ENGINEER SHALL PROVIDE AN ALTERNATIVE TECHNICAL BASIS FOR ALL SUBSTITUTIONS, MATERIALS, OR WORK NOT IN ACCORDANCE WITH THE CONTRACT DOCUMENTS (INCLUDING A SUMMARY ASSERTING THE ADEQUACY OF THE CHANGES, AS WELL AS ANY SUPPORTING CALCULATIONS, DRAWINGS, DATA SHEETS, AND SPECIFICATIONS AS MAY BE REQUESTED) UNDER SEAL, FOR THE DEPARTMENTAL REPRESENTATIVE'S REVIEW AND APPROVAL.
2. THESE NOTES ARE TO BE READ IN CONJUNCTION WITH ALL OTHER PERTINENT CODES, SPECIFICATIONS, AND CONTRACT DOCUMENTS. IN THE EVENT OF A CONFLICT, THE MOST STRINGENT REQUIREMENT (AS DETERMINED BY THE DEPARTMENTAL REPRESENTATIVE) SHALL GOVERN.
3. BY COMMENCING THE WORK, THE CONTRACTOR ASSERTS EXPERTISE IN THE TYPE OF WORK INVOLVED, FAMILIARITY WITH ALL RELEVANT ASPECTS AND CHARACTERISTICS OF THE SITE, AND FULL AWARENESS OF THE EXTENT AND SCOPE OF WORK INVOLVED.
4. DO NOT SCALE DRAWINGS.
5. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND ELEVATIONS SHOWN IN THE CONTRACT DOCUMENTS PRIOR TO COMMENCING CONSTRUCTION.
6. MODIFY EXISTING WORK TO ACCOMMODATE NEW CONSTRUCTION AS REQUIRED AND AS APPROVED.
7. VERIFY OPERATING WEIGHT AND LOCATION OF ALL NEW EQUIPMENT AND APPURTENANCES TO BE INSTALLED AND REPORT ANY DISCREPANCIES TO THE DEPARTMENTAL REPRESENTATIVE PRIOR TO COMMENCING CONSTRUCTION.
8. LOCATE UNDERGROUND SERVICES PRIOR TO COMMENCING THE WORK, AND PROTECT THEM AT ALL TIMES DURING CONSTRUCTION.
9. THE CONTRACTOR SHALL FOLLOW CONSTRUCTION PRACTICE FOR COLD AND HOT WEATHER REQUIREMENTS IN ACCORDANCE WITH THE APPLICABLE MATERIAL STANDARD.
10. STRUCTURAL DRAWINGS SHOWING COMPLETED STRUCTURE DO NOT INDICATE COMPONENTS WHICH MAY BE NECESSARY FOR SAFETY DURING CONSTRUCTION.
11. THE CONTRACTOR SHALL PROVIDE FOR THE PROTECTION OF ALL PERSONNEL AND PROPERTY DURING CONSTRUCTION. THE METHOD OF PROTECTION MUST BE APPROVED BY THE DEPARTMENTAL REPRESENTATIVE.
12. THE CONTRACTOR IS RESPONSIBLE FOR SAFETY ON AND ABOUT THE JOB SITE DURING CONSTRUCTION AND SHALL COMPLY WITH ALL PROVINCIAL, FEDERAL, AND SITE-SPECIFIC WORKPLACE, SAFETY, AND HEALTH REGULATIONS.
13. THE CONTRACTOR SHALL OBSERVE ALL REGULATIONS REGARDING FIRE PREVENTION, SAFETY AND SECURITY, AND PROVIDE ADEQUATE BARRICADES AND OTHER PROTECTION DEVICES AS REQUIRED.

#### SUBMITTALS:

1. THE CONTRACTOR SHALL SUBMIT SPECIFIED SHOP DRAWINGS TO THE DEPARTMENTAL REPRESENTATIVE FOR REVIEW. ALL SUBMISSIONS MUST BE IN UNITS APPROPRIATE TO THE APPLICABLE CONTRACT DOCUMENTS.
  2. THE CONTRACTOR SHALL SUBMIT A CONCRETE MIX DESIGN (INCLUDING ADDITIVES AND ADMIXTURES) THAT MEETS THE MINIMUM PERFORMANCE CRITERIA AS INDICATED IN THE CONTRACT DOCUMENTS.
  3. ORIGINAL, PURPOSE-SPECIFIC SHOP DRAWINGS SHALL BE SUBMITTED BY THE CONTRACTOR TO ILLUSTRATE THE APPROPRIATE PORTIONS OF THE WORK SHOWING FABRICATION, LAYOUT, SETTING OR ERECTION DETAILS AS SPECIFIED IN APPROPRIATE SECTIONS.
  4. SHOP DRAWINGS FOR THE FOLLOWING COMPONENTS SHALL BE SEALED, SIGNED AND DATED BY A QUALIFIED PROFESSIONAL ENGINEER LICENSED TO PRACTICE IN THE PROVINCE OF MANITOBA:
    - 4.1. REINFORCING STEEL.
    - 4.2. CONCRETE MIX DESIGN.
    - 4.3. BOLLARD.
- SHOP DRAWINGS NOT BEARING AN ENGINEER'S SEAL IN ACCORDANCE WITH THE ABOVE WILL BE MARKED 'REJECTED' AND RETURNED.
5. THE CONTRACTOR SHALL REVIEW SHOP DRAWINGS, PRODUCT DATA AND SAMPLES PRIOR TO SUBMISSION AND STAMP AND SIGN DRAWINGS INDICATING CONFORMANCE TO THE CONTRACT REQUIREMENTS. THE CONTRACTOR SHALL VERIFY
- FIELD MEASUREMENTS.  
FIELD CONSTRUCTION CRITERIA.  
CATALOGUE NUMBERS AND SIMILAR DATA.  
EQUIPMENT OPERATING WEIGHTS AND LOADS.
- SHOP DRAWINGS NOT BEARING THE CONTRACTOR'S REVIEW STAMP AND SIGNATURE IN ACCORDANCE WITH THE ABOVE WILL BE MARKED 'NOT REVIEWED' AND RETURNED.
6. THE CONTRACTOR SHALL COORDINATE EACH SUBMISSION WITH REQUIREMENTS OF WORK AND CONTRACT DOCUMENTS. INDIVIDUAL SHOP DRAWINGS WILL NOT BE REVIEWED UNTIL ALL RELATED DRAWINGS ARE AVAILABLE.
  7. THE CONTRACTOR'S RESPONSIBILITY FOR ERRORS AND OMISSIONS IN SUBMISSION IS NOT RELIEVED BY THE DEPARTMENTAL REPRESENTATIVE'S REVIEW OF SUBMITTALS.
  8. NO DELAY OR CLAIM WILL BE ALLOWED THAT ARISE BECAUSE OF DELAYS IN SUBMISSION, RE-SUBMISSION, AND REVIEW OF SHOP DRAWINGS.

#### DESIGN REQUIREMENTS:

1. NEW STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH THE LATEST EDITIONS AND ADDENDUM OF THE FOLLOWING CODES AND DOCUMENTS, WHICH ARE TO BE USED AND MADE AVAILABLE FOR REFERENCE ON SITE FOR THE DURATION OF THE WORK:

NATIONAL BUILDING CODE OF CANADA (2015)  
CONCRETE CODE CSA A23.1, A23.2, A23.3  
STEEL CODE CSA S16 AND CSA G40.21-350W  
ALL SPECIFICATIONS COMPLETE WITH ADDENDA AND CHANGE ORDERS.  
DRAWINGS WITH THE LATEST REVISIONS AS THEY OCCUR.

#### DESIGN LOADS:

1. LIVE LOAD: 4.8 KPA
2. GROUND SNOW LOAD: IS (ULS) = 1.25, SS = 1.9 KPA, SR = 0.2 KPA.
3. WIND LOAD: IW (ULS) = 1.25, Q (1/10) = 0.35 KPA, Q (1/50) = 0.45 KPA.
4. EQUIPMENT ALLOWANCE: GENERATOR = 3200 KG, JUNCTION BOX = 50 KG

#### GEOTECHNICAL INFORMATION:

1. SLAB ON GRADE FOUNDATION HAS BEEN DESIGNED IN ACCORDANCE WITH THE GEOTECHNICAL REPORT PREPARED BY TREK GEOTECHNICAL (FILE NO. 0019-012-00) FOR PROJECT NO. 661472, DATED JUNE 28, 2019.

BEARING STRATUM CONDITION	SLS DESIGN BEARING VALUE	ULS DESIGN BEARING RESISTANCE VALUE
NATIVE CLAY TILL	75 kPa	115 kPa
2. THE ULS RESISTANCE FACTOR FOR SHALLOW FOUNDATIONS IS 0.5.

#### EXCAVATION, BACKFILL, AND COMPACTION:

1. THE CONTRACTOR SHALL REMOVE THE EXCAVATED MATERIAL FROM THE SITE AND DISPOSE OF IT IN AN APPROVED MANNER.
2. EXCAVATE SUBGRADE TO A MINIMUM OF 500MM BELOW THE UNDERSIDE OF THE NEW SLAB. COMPACT SUBGRADE TO 98% STANDARD PROCTOR DENSITY. SOFT SPOTS SHALL BE EXCAVATED AND BACKFILLED WITH GRANULAR 'C' MATERIAL.
3. PROTECT EXCAVATION TO ENSURE BOTTOM OF EXCAVATION DOES NOT SOFTEN DUE TO EXCESS MOISTURE. SHRUBS, TREES, AND EXISTING CONSTRUCTION SHALL BE PROTECTED FROM DAMAGE.
4. GRANULAR FILL SHALL BE PLACED IN THE EXCAVATION IN LIFTS NOT EXCEEDING 150MM AND COMPACTED TO 98% STANDARD PROCTOR MAXIMUM DRY DENSITY.
5. ALL BACKFILL SHALL BE COMPACTED USING MECHANICAL EQUIPMENT. NEAR THE EXTERIOR OF STRUCTURES, BACKFILL SHALL BE PLACED WITH SUFFICIENT ALLOWANCE FOR SETTLEMENT AND IN GENERAL, THE TOP SURFACE SHALL BE NEATLY GRADED.
6. DO NOT PLACE BACKFILL ON FROZEN GROUND OR USE FROZEN MATERIAL.
7. MAINTAIN OPTIMUM MOISTURE CONTENT TO PERMIT COMPACTION TO ATTAIN SPECIFIED DENSITIES. PROTECT BACKFILLED GRADE DURING AND AFTER COMPLETION OF BACKFILL OPERATION FROM SOFTENING DUE TO EXCESS MOISTURE.

#### CAST-IN-PLACE CONCRETE:

1. CONCRETE: COMPRESSIVE STRENGTH = 35 MPA AT 28 DAYS, SLUMP = 80 +/- 20 MM, MAXIMUM AGGREGATE SIZE = 20 MM, ENTRAINED AIR = 5 +/- 1%, CEMENT = HS OR HSB SULPHATE RESISTANT.
2. THE CONTRACTOR SHALL PROVIDE CERTIFICATION THAT THE MIX PROPORTIONS SELECTED WILL PRODUCE CONCRETE OF QUALITY AND STRENGTH AS SPECIFIED, AND WILL COMPLY WITH CSA A23.1 AND THE CONTRACT DOCUMENTS.
3. THE CONTRACTOR SHALL PROVIDE CERTIFICATION THAT THE PLANT, EQUIPMENT, AND MATERIALS TO BE USED IN PRODUCING THE CONCRETE FOR THE WORK ARE IN ACCORDANCE WITH THE REQUIREMENTS OF CSA A23.1.
4. ALL MATERIALS, TESTING, AND WORKMANSHIP (INCLUDING REQUIREMENTS FOR HEATING, COOLING, HORDING, COLD WEATHER AND WARM WEATHER CONCRETING) SHALL CONFORM TO THE LATEST REVISIONS OF CSA A23.1 & CSA A23.2.
5. BEFORE CONCRETE IS PLACED, THE CONTRACTOR SHALL VERIFY THE SIZE AND LOCATION OF ALL MECHANICAL OPENINGS, CURBS, AND SERVICES USING MECHANICAL, ELECTRICAL, AND VENDOR DRAWINGS. DRAWINGS SHALL BE EXAMINED FOR PROVISION OF ANCHOR BOLTS, PLATES, INSERTS, MOUNTS, BASES, ETC. THE CONTRACTOR SHALL NOTIFY THE DEPARTMENTAL REPRESENTATIVE OF ALL DISCREPANCIES.
6. ADVISE THE DEPARTMENTAL REPRESENTATIVE AT LEAST 72 HOURS IN ADVANCE OF ANY CONCRETE POUR.
7. DO NOT PLACE CONCRETE WITHOUT THE APPROVAL OF THE DEPARTMENTAL REPRESENTATIVE.
8. PROVIDE STEEL TROWEL FINISH TO CSA A23.1 FOR THE TOP OF ALL CONCRETE.
9. PROVIDE A 20MM X 20MM CHAMFER ON ALL EXPOSED CONCRETE EDGES.
10. FORMS SHALL NOT BE STRIPPED UNTIL 75% OF THE SPECIFIED STRENGTH HAS BEEN REACHED.

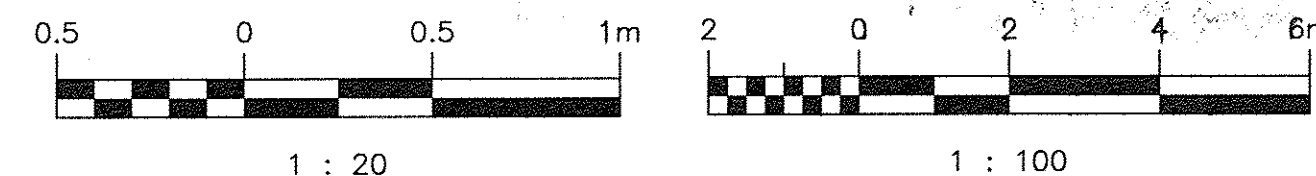
#### ACCESSORIES EMBEDDED IN CONCRETE:

1. THE CONTRACTOR IS RESPONSIBLE FOR SUPPLYING, LOCATING AND PLACING ALL PLATES, ANCHOR BOLTS, INSERTS, DOWELS, SLEEVES AND OPENINGS. COORDINATE ACCESSORY PLACEMENT/REQUIREMENTS WITH THE SHOP DRAWINGS.
2. ANCHOR BOLTS, INSERTS, SLEEVES DOWELS, ETC. SHALL BE SECURED IN POSITION BY MEANS OF TEMPLATES BEFORE CONCRETE IS PLACED.

#### REINFORCING STEEL

1. ALL REINFORCING STEEL TO CONFORM TO CSA G30.18M, GRADE 400.
2. ALL REINFORCING STEEL TO BE DETAILED IN ACCORDANCE WITH THE LATEST RSIC REINFORCING STEEL MANUAL OF STANDARD PRACTICE, CAN/CSA-A23.1 AND CAN/CSA-A23.3.
3. CONCRETE CLEAR COVER (UNLESS NOTED OTHERWISE):

SLAB (BOTTOM)	75mm
SLAB (TOP)	38mm
4. SUBMIT TO THE DEPARTMENTAL REPRESENTATIVE SHOP DRAWINGS WHICH CLEARLY INDICATE BAR SIZES, GRADE, SPACING, HOOKS, BENDS, AND SUPPORTING / SPACING DEVICES, ETC., FOR REVIEW PRIOR TO THE FABRICATION OF REINFORCING STEEL.
5. DO NOT PLACE REINFORCEMENT WITHOUT FIRST OBTAINING A COPY OF THE REVIEWED SHOP DRAWINGS FROM THE DEPARTMENTAL REPRESENTATIVE.
6. ALL REINFORCING SHALL BE HELD IN PLACE AND TIED BY THE USE OF PROPER ACCESSORIES SUPPLIED BY THE REINFORCING STEEL FABRICATOR.
7. ALL REINFORCING STEEL SHALL BE CLEANED OF ALL DIRT, GREASE AND OTHER DELETERIOUS MATERIALS PRIOR TO PLACING.
8. REINFORCING STEEL SHALL NOT BE WELDED OR HEATED UNLESS NOTED OTHERWISE.
9. IF REINFORCING STEEL IS LAPPED, BOTTOM STEEL SHALL ONLY BE LAPPED OVER SUPPORTS, TOP STEEL SHALL ONLY BE LAPPED AT MID-SPAN.



**REAL PROPERTY SERVICES**  
Western Region  
**SERVICES IMMOBILIERS**  
Région de l'ouest

SNC-Lavalin Inc.  
148 Nature Park Way  
Winnipeg, Manitoba  
Canada R3P 0X7  
204-786-8080

PROJECT No	SUBDIVISION	SUBJECT	SERIAL	REV.
663574	0000	42_DD	0001	00

**APECM**  
Certificate of Authorization  
SNC-Lavalin Inc.  
No. 4489

Revision	Description	Date
00	ISSUED FOR TENDER & CONSTRUCTION	2019/12/02

Client client

**PUBLIC WORKS AND GOVERNMENT SERVICES CANADA**  
100-167 LOMBARD AVENUE  
WINNIPEG MB R3C 2Z1

Project title Projet  
**BOISSEVAIN, MANITOBA**

**CBSA BOISSEVAIN POE GENERATOR REPLACEMENT**

Designed by Conçu par  
**T. DEGER**

Drawn by Dessiné par  
**R. M. DIONISIO**

Approved by Approuvé par  
**P. DUCHARME**

PWSC Project Manager Administrateur de Projets TPSGC  
**P. DUCHARME**

Drawing title Titre du dessin  
**SITE PLAN  
GENERATOR FOUNDATION  
BOLLARD DETAIL & NOTES  
NEW WORK**

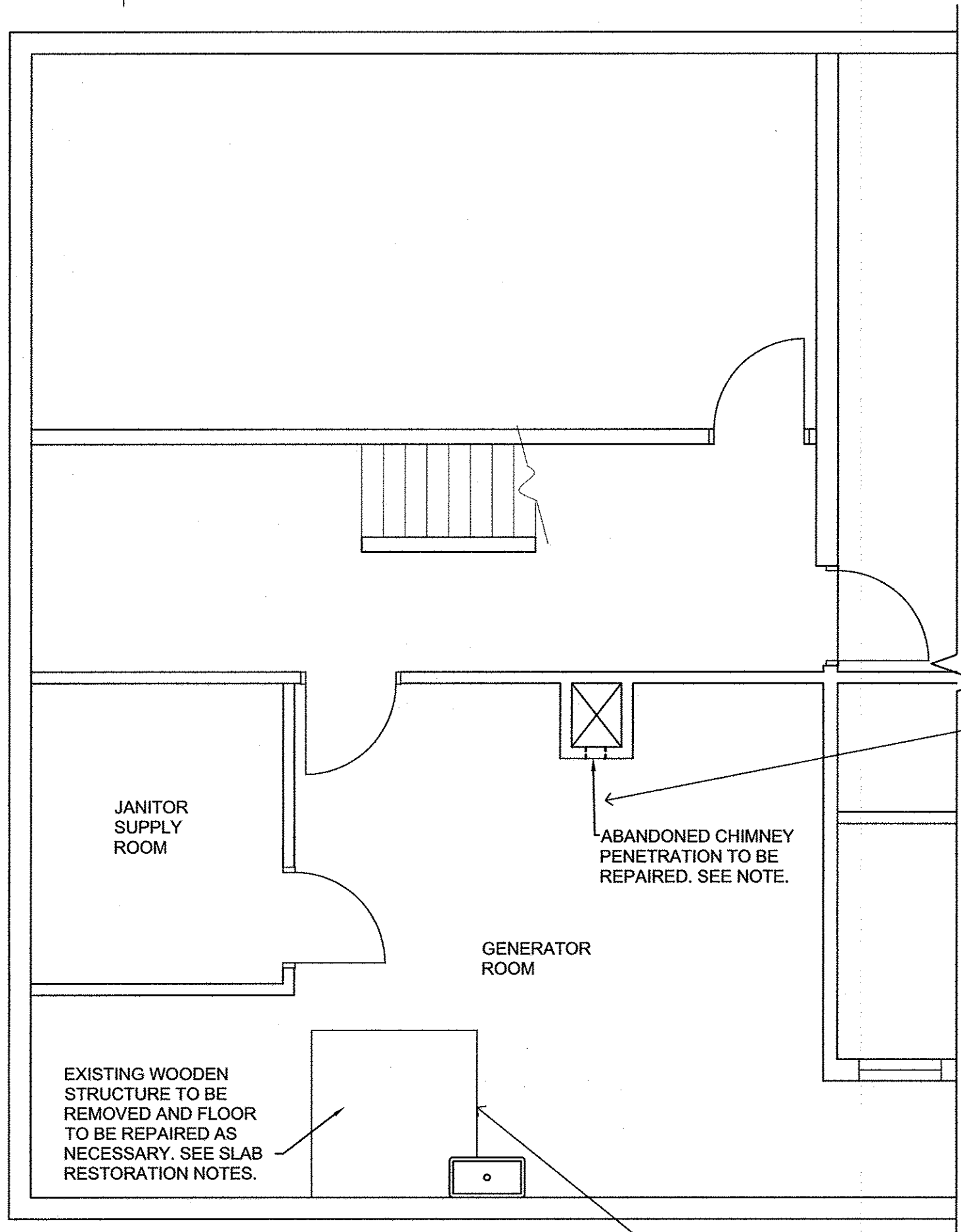
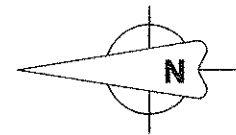
Project no./No. du projet	Drawing no./No. du dessin	Revision no.
<b>R.094408.001</b>	<b>S01</b>	<b>00</b>
	OF 02	

PWGSC - A1 - 841X594

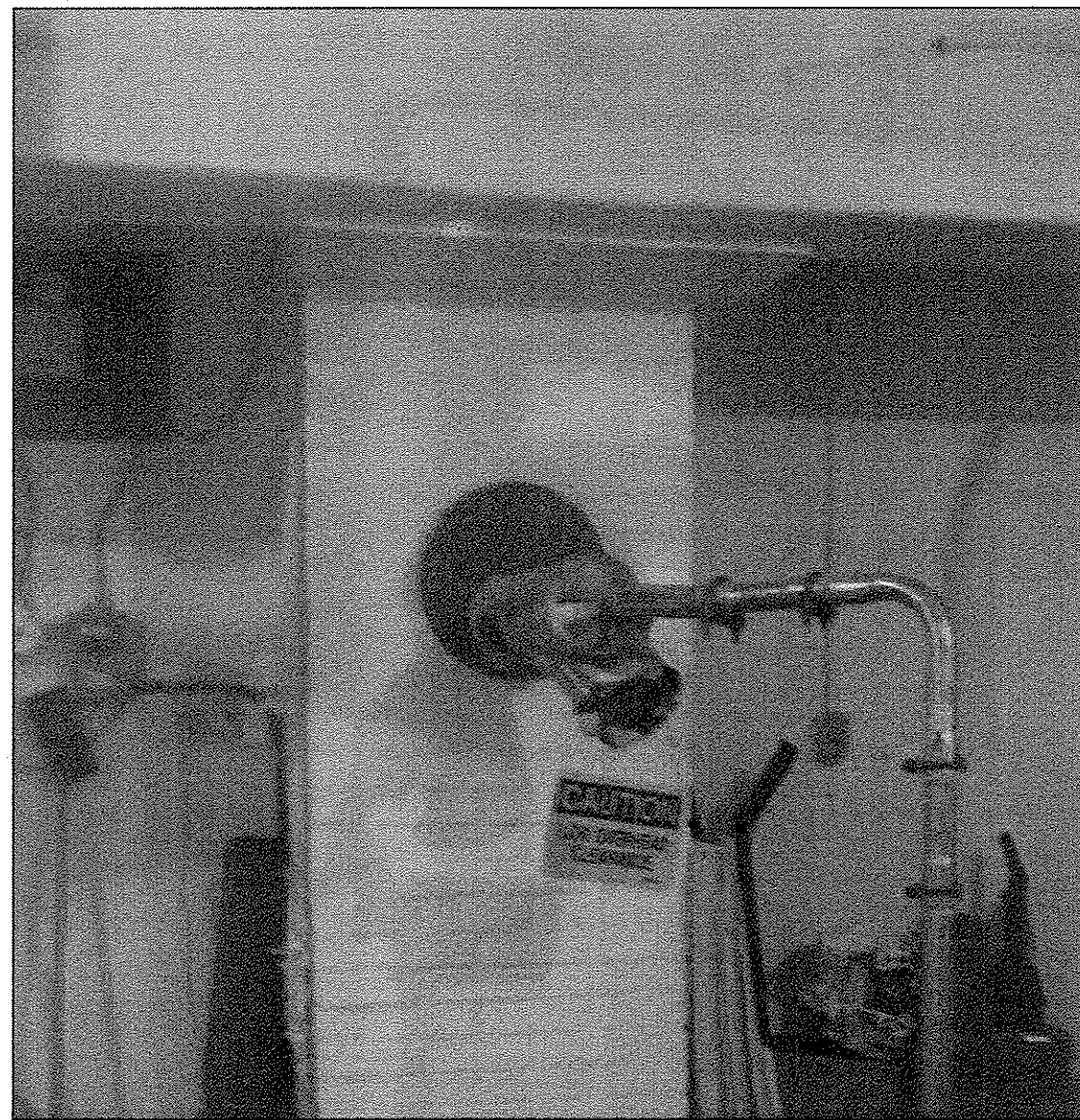
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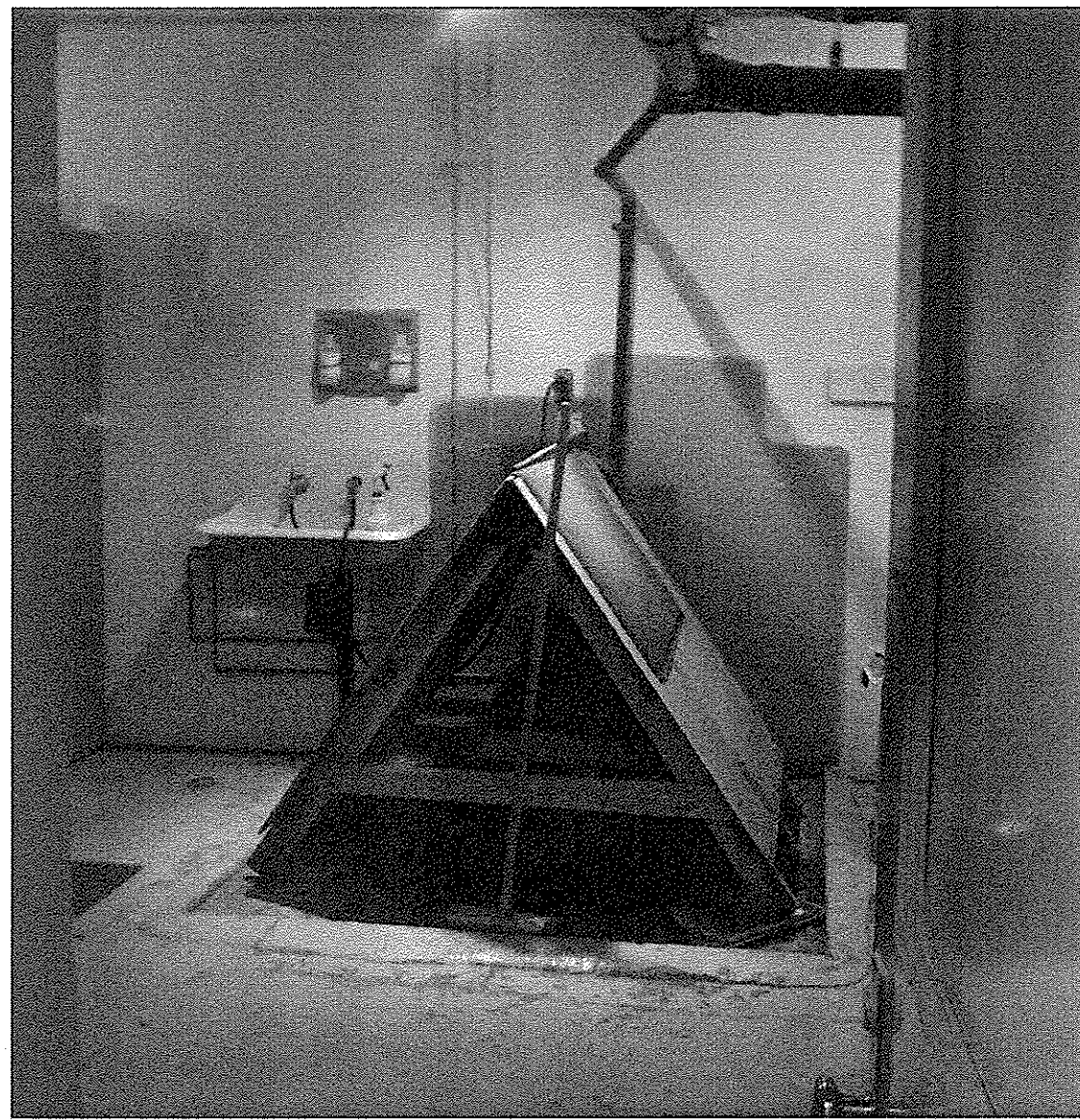




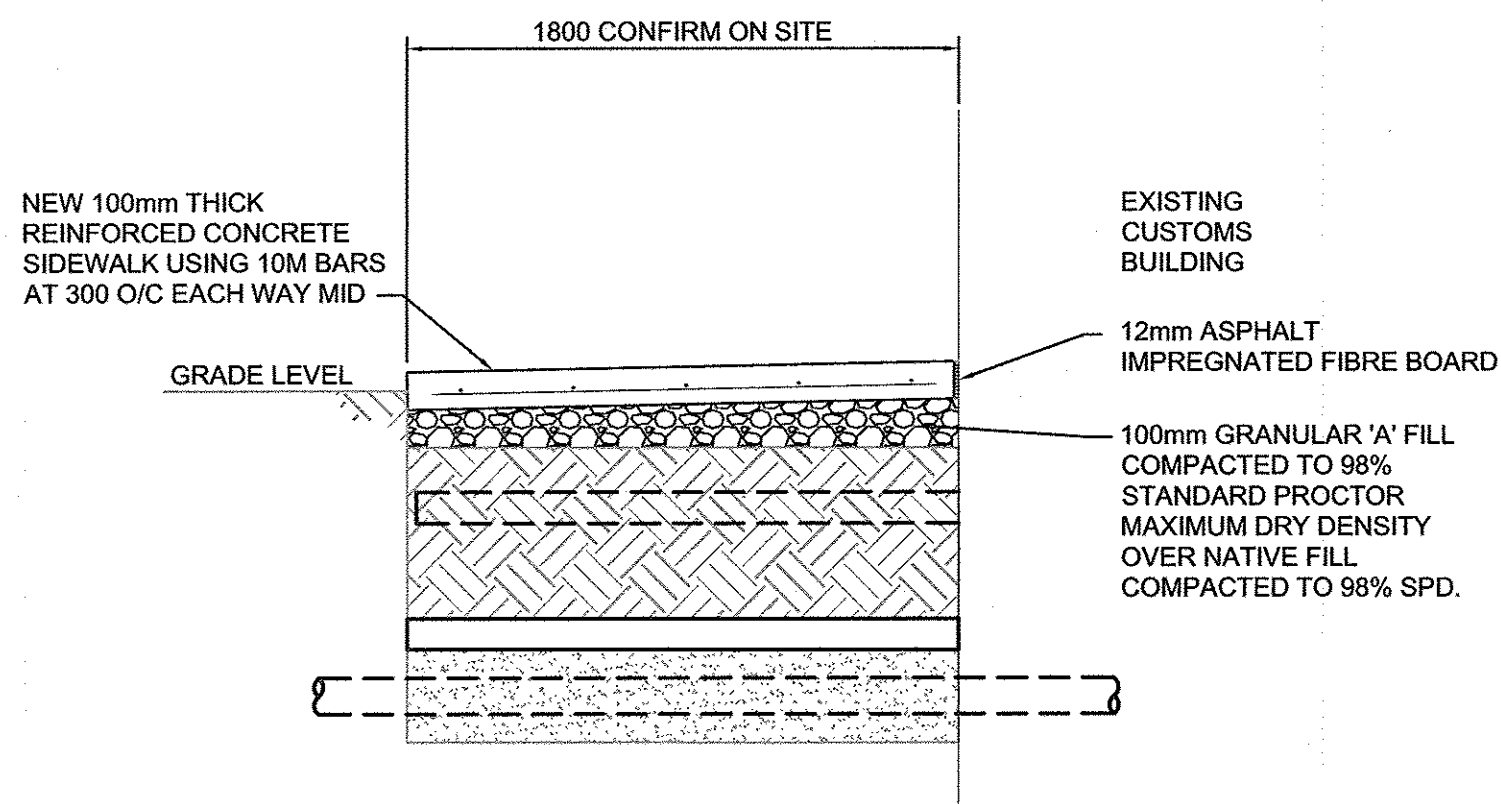
**PARTIAL BASEMENT PLAN**  
SCALE: 1:50



**1 DETAIL - CHIMNEY PENETRATION TO BE REPAIRED**  
S02 N.T.S.



**2 DETAIL - SLAB TO BE REPAIRED**  
S02 N.T.S.



**1 SECTION**  
S02 SCALE: 1:20



**SIDEWALK NOTES:**

1. SAWCUT AND REMOVE APPROXIMATELY 1500mm WIDTH OF EXISTING SIDEWALK TO ACCOMMODATE EXCAVATION OF NEW CABLE TRENCH (CONFIRM AND COORDINATE WITH ELECTRICAL).
2. BACKFILL CABLE TRENCH EXCAVATION IN ACCORDANCE WITH ELECTRICAL REQUIREMENTS AND RE-USE EXCAVATED NATIVE MATERIAL TO BACKFILL EXCAVATION TO 100MM BELOW UNDERSIDE OF SLAB. COMPACT EXCAVATED NATIVE MATERIAL TO 98% SPD IN 150mm LIFTS IN ACCORDANCE WITH THE SPECIFICATIONS.
3. PLACE 100mm GRANULAR 'A' OVER COMPACTED NATIVE FILL AND COMPACT TO 98% STANDARD PROCTOR MAXIMUM DRY DENSITY IN ACCORDANCE WITH THE SPECIFICATIONS.
4. INSTALL NEW ASPHALT IMPREGNATED FIBRE BOARD AGAINST BUILDING AND CONSTRUCT NEW 100MM THICK REINFORCED CONCRETE SIDEWALK USING 10M BARS AT 300 O/C EACH WAY MID, IN ACCORDANCE WITH THE DRAWING NOTES TO MATCH EXISTING THICKNESS, GRADE AND SLOPE.

**TURF NOTES:**

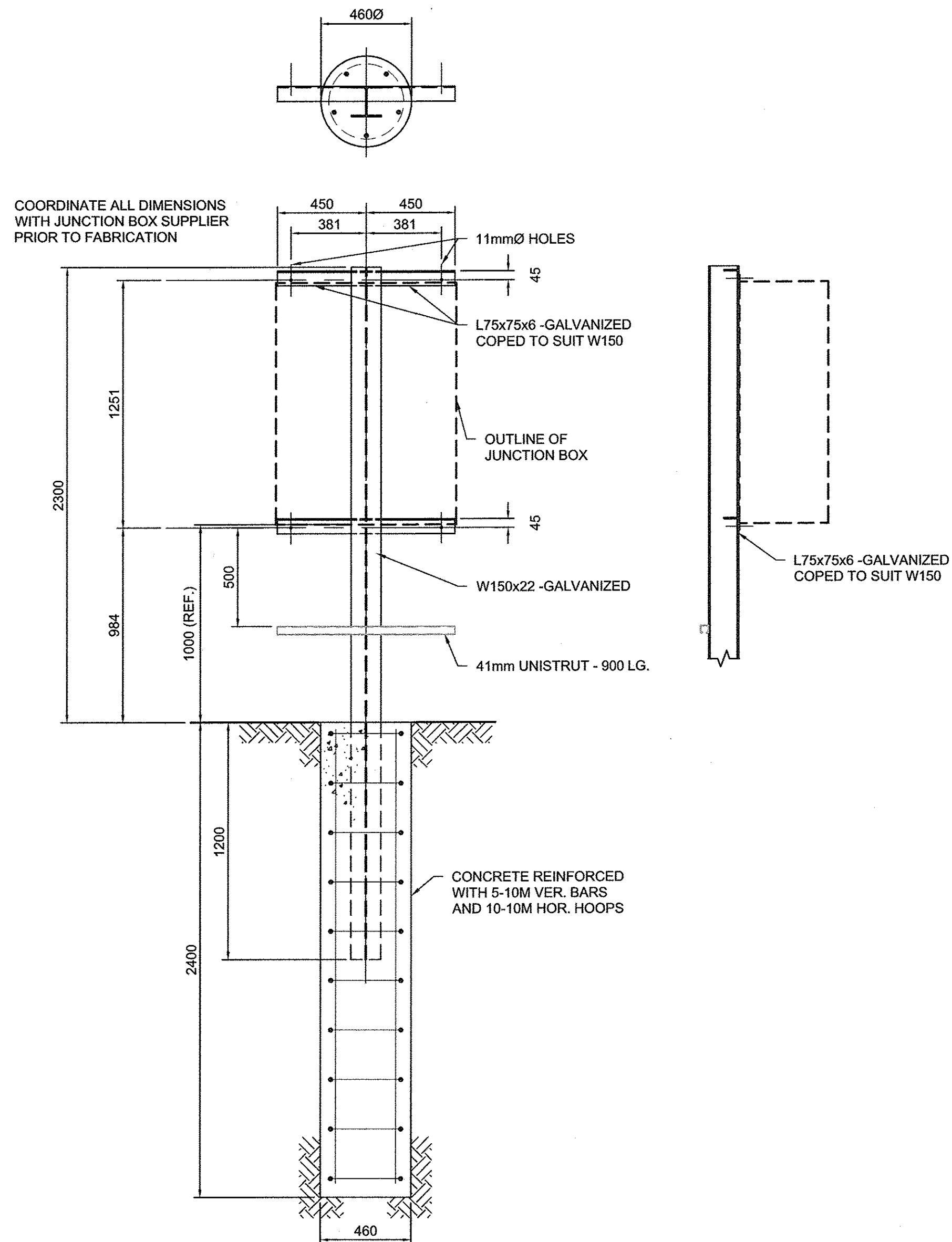
1. BACKFILL CABLE TRENCH EXCAVATION IN ACCORDANCE WITH ELECTRICAL REQUIREMENTS AND RE-USE EXCAVATED NATIVE MATERIAL TO FILL EXCAVATION TO 75MM BELOW FINISHED GRADE. COMPACT EXCAVATED NATIVE MATERIAL TO 98% SPD IN 150mm LIFTS IN ACCORDANCE WITH THE SPECIFICATIONS.
2. PLACE AND COMPACT 75mm TOPSOIL OVER COMPACTED NATIVE MATERIAL TO MATCH EXISTING GRADE AND SLOPE IN ACCORDANCE WITH THE SPECIFICATIONS.
3. SEED AND FERTILIZE IN ACCORDANCE WITH THE SPECIFICATIONS.

**CHIMNEY NOTES:**

1. REMOVE EXISTING MUFFLER ASSEMBLY. COVER EXISTING INTERFACE PLATE WITH NEW 1/2" THICK ALUMINUM PLATE - 14" DIAMETER ( CONFIRM ON SITE). ATTACH WITH 1/2"Ø SELF TAPPING SCREWS AT 4" CENTRES MAX. AROUND CIRCUMFERENCE.

**SLAB RESTORATION NOTES:**

1. AT THE DIRECTION OF THE DEPARTMENT REPRESENTATIVE, REMOVE EXISTING CURBS, AND RESTORE FLOOR TO MATCH SURROUNDING SLAB ELEVATION USING SIKAKUIK 1000 REPAIR MORTAR (OR APPROVED ALTERNATE) INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS. EXISTING SUMP PIT AND COVER TO REMAIN.



**3 DETAIL - JUNCTION BOX SUPPORT**  
S01 SCALE: 1:20

