

Revision/ revision	Description/Description	Date/Date
Client/client		

**NRC HERZBERG
ASTRONOMY AND ASTROPHYSICS
ATP INTEGRATION FACILITY**

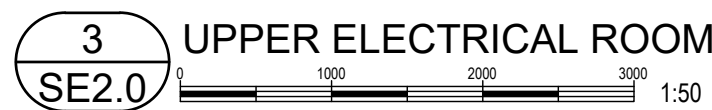
Designed by/Concept par
I.B.

Drawn by/Dessine par
S.S.

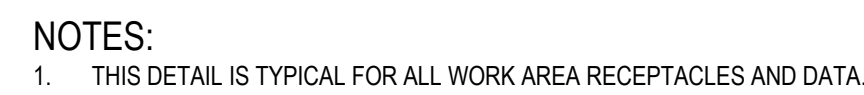
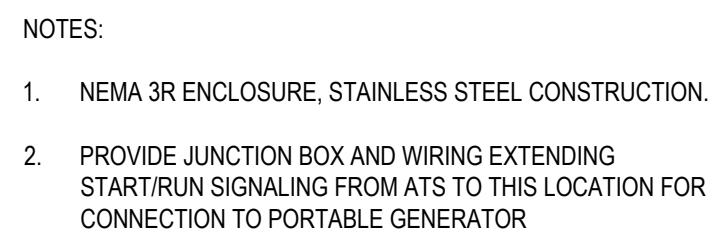
Regional Manager, Architectural and Engineering Services
Gestionnaire régionale, Services d'architectural et de génie, TPSGC
PREETIPAL PAUL

ELECTRICAL LAYOUTS - STEEL OPTION

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- NOTES:**
1. TYPE 'A' LUMINAIRES MOUNTED AT CEILING STRUCTURE CLEAR OF CRANE AND RAILS.
 2. LUMINAIRES NOTED AS EMERGENCY TO BE FED VIA INVERTER AND TO SWITCH DURING UTILITY FAILURE.
 3. TYPE 'X' LUMINAIRES ARE SWITCHED AIB INTERNALLY FOR 50% OUTPUT.
 4. TYPE 'X' LUMINAIRES NOTED AS 'EMERGENCY' TO USE BYPASS RELAYS TO ENERGIZE FULL OUTPUT IN EVENT OF POWER FAILURE. NORMAL AND INVERTER CIRCUITS NOTED.
 5. REFER TO ARCHITECTURAL AND STRUCTURAL DETAILS FOR CABLE TRAY MOUNTING AND ELEVATIONS. COORDINATE DUCT AND TRAY MOUNTING ARRANGEMENTS.

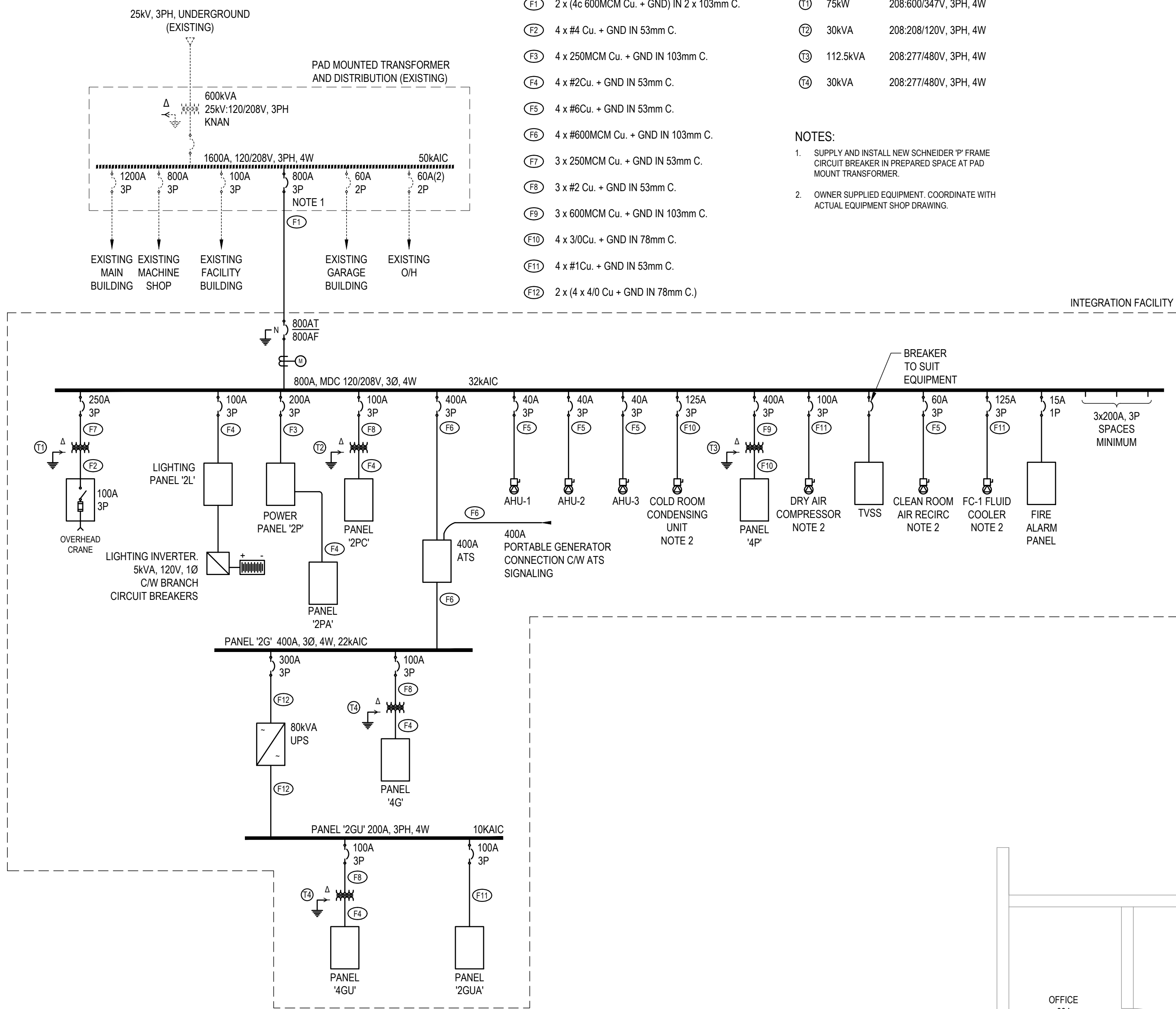


- ## 5 DATA/POWER DETAIL

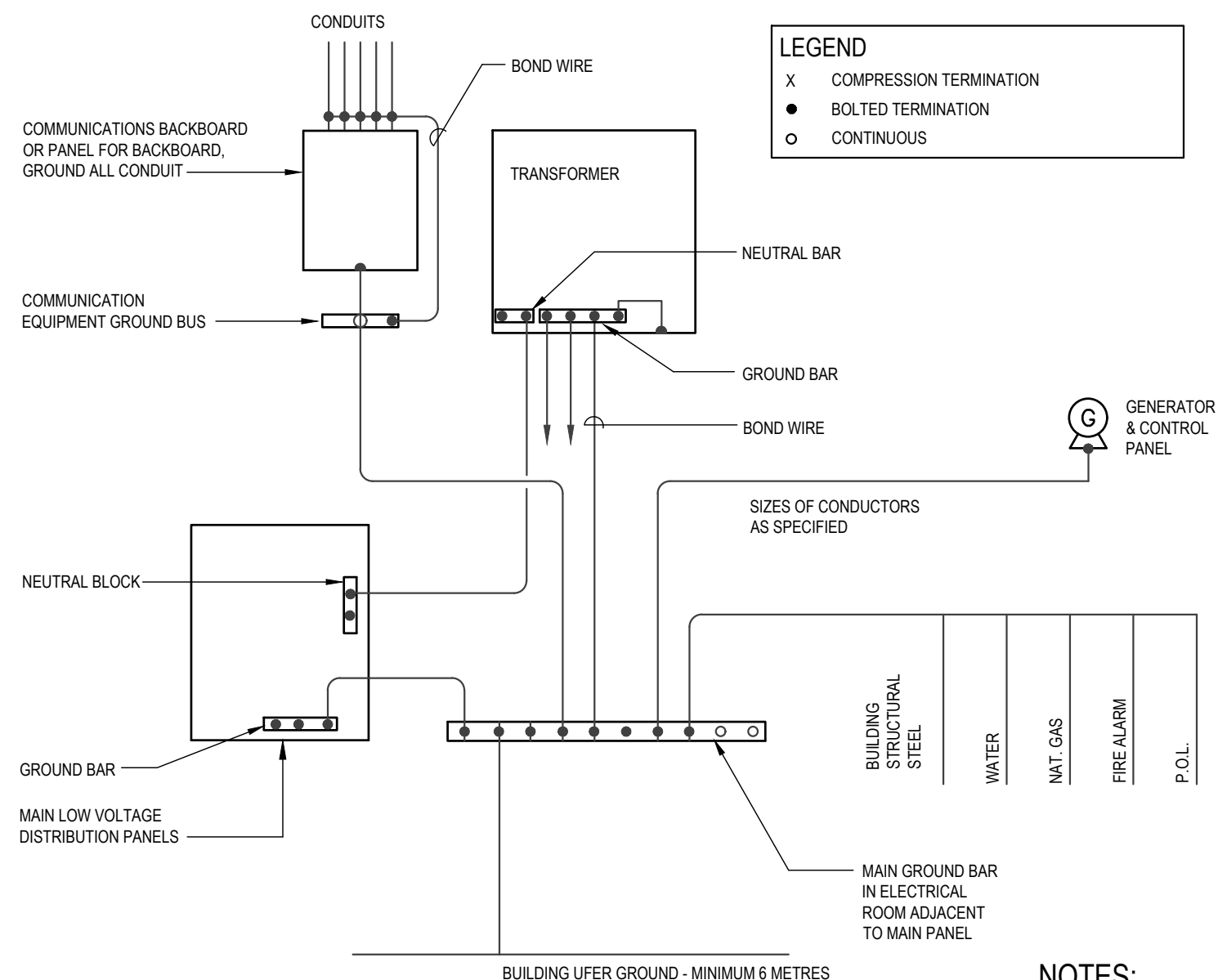


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PWGSC - A1 - 841X594



1
SE3.0
800A, 120/208V, 3PH, 4W
SINGLE LINE DIAGRAM
NOT TO SCALE



3
SE3.0
GROUNDING AND BONDING DETAIL
NOT TO SCALE

- NOTES:
- BOND ALL NON-CURRENT CARRYING METALLIC PARTS/STRUCTURE IN ACCORDANCE WITH THE CEC.
 - DIAGRAM IS SCHEMATIC AND DOES NOT INCLUDE ALL CONNECTION DETAILS REQUIRED.

TRANSFORMER SCHEDULE

T1	75kW	208-600/347V, 3PH, 4W
T2	30kVA	208-208/120V, 3PH, 4W
T3	112.5kVA	208-277/480V, 3PH, 4W
T4	30kVA	208-277/480V, 3PH, 4W

NOTES:

- SUPPLY AND INSTALL NEW SCHNEIDER 'P' FRAME CIRCUIT BREAKER IN PREPARED SPACE AT PAD MOUNT TRANSFORMER.
- OWNER SUPPLIED EQUIPMENT. COORDINATE WITH ACTUAL EQUIPMENT SHOP DRAWING.

FEEDER SCHEDULE

F1	2 x (4c 600MCM Cu. + GND) IN 2 x 103mm C.
F2	4 x #4 Cu. + GND IN 53mm C.
F3	4 x 250MCM Cu. + GND IN 103mm C.
F4	4 x #2Cu. + GND IN 53mm C.
F5	4 x #6Cu. + GND IN 53mm C.
F6	4 x #600MCM Cu. + GND IN 103mm C.
F7	3 x 250MCM Cu. + GND IN 53mm C.
F8	3 x #2 Cu. + GND IN 53mm C.
F9	3 x 600MCM Cu. + GND IN 103mm C.
F10	4 x 3/0Cu. + GND IN 78mm C.
F11	4 x #1Cu. + GND IN 53mm C.
F12	2 x (4 x 4/0 Cu + GND IN 78mm C.)

NRC-ATP LOAD CALCULATION

Basic Load - CEC Table 14

Industrial and Commercial	669 m ²	x	25 W/m ²	=	16725 W
					TOTAL BASIC LOAD 16725 W

Electric Heating

Total Electric Heating	3000 W				
First	10000 W	@	100%	=	3000 W
Remaining	0	@	75%	=	0 W
					TOTAL ELECTRIC HEATING 3000 W

Equipment

ACH-1 (4)					3500 W
ACH-2 (4)					3500 W
AC-1					208 W
CU-1					2700 W
AHU-1					11000 W
AHU-2					11000 W
AHU-3					11000 W
EF-1					17 W
EF-2					17 W
CEILING FANS (X8)	8 UNITS	@	750 W	=	6000 W
FLUID COOLER (FUTURE)					30000 W
SCEINCE LOADS					100000 W
					TOTAL EQUIPMENT LOAD 178942 W

TOTAL BUILDING LOAD 198667 W

198667 W	@	208 V	3 PH	=	551 A
		551 A	x	125%	= 689 A

SERVICE SIZE 800 A

NOTES:

- EXISTING FIRE ALARM PANEL IS SIMPLEX. CONNECT NEW FLOW AND TAMPER DEVICES TO EXISTING PANEL. PROVIDE VERIFICATION OF NEW ZONES.
- ALL WIRING TO BE SURFACE MOUNTED EMT CONDUIT ROUTING AS SHOWN.
- INTERCONNECT EXISTING FIRE ALARM PANEL WITH NEW PANEL SHOWN IN DETAIL 4/SE1.0. PROVIDE NEW ZONE ON EXISTING PANEL FOR NEW BUILDING.

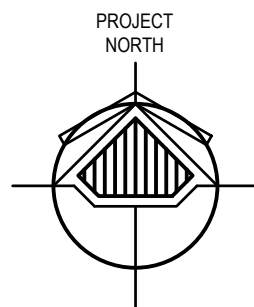
CONNECT NEW SPRINKLER FLOW AND TAMPER SWITCHES TO EXISTING FIRE ALARM PANEL

MAIN BREAKER

NOTES:

- FIRE ALARM NETWORK CABLING FROM ATP TO RUN UNDERGROUND THROUGH EXISTING DUCTS AND PULLBOXES, THEN UP POLE AND INTO WEATHER HEAD ON SIRE SERVICES BUILDING.
- RUN NEW 19mm C. C/W NETWORK WIRING ON UNDERSIDE OF EXISTING CEILING TO EXISTING SIMPLEX FIRE ALARM PANEL.

2
SE3.0
FIRE ALARM SITE SERVICES BUILDING
NOT TO SCALE



Revision/	Description/Description	Date/Date
4	ISSUED FOR TENDER	2019.03.05
3	ISSUED FOR TENDER	2018.03.27
2	ISSUED FOR 100% CD REVIEW	2018.03.14
1	ISSUED FOR 90% CD REVIEW	2018.02.22

Project title/Titre du projet
**5071 WEST SAANICH ROAD
VICTORIA, BC, CANADA**

**NRC HERZBERG
ASTRONOMY AND ASTROPHYSICS
ATP INTEGRATION FACILITY**

Consultant Signature Only

Designed by/Concept par
I.B.
Drawn by/Dessine par
S.S.
PWGSC Project Manager/Administrateur de Projets TPSCG
PATRICK TRUONG
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PREETIPAL PAUL

Drawing title/Titre du dessin
**SITE SERVICE BUILDING
ELECTRICAL LAYOUT
AND SINGLE LINE DIAGRAM**

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PANELBOARD SCHEDULE											
JOB NO./NAME	1-15-160NRC HERZBERG										
PANEL	26										
SYSTEM	120/208V, 3Ø, 4W										
TYPE	LOAD CENTRE										
LOCATION	MEZZANINE										
MOUNTING	SURFACE										
NO. CIRCUITS	42										
BUS SIZE	400A										
SYM. FAULT RATING	22kAIC										
DESCRIPTION	BRK	POLE	CCT	CCT	POLE	BRK	DESCRIPTION				
50.0kVA UPS	200A	3	01	02	3	100	PANEL 4G				
			03	04							
			05	06							
SPARE	15	1	07	08	3	15	SPARE				
SPARE	15	1	09	10							
SPARE	15	1	11	12							
SPARE	15	1	13	14	3	15	SPARE				
SPARE	15	1	15	16							
SPARE	15	1	17	18							
SPARE	15	1	19	20	3	15	SPARE				
SPARE	15	1	21	22							
SPARE	15	1	23	24							
SPARE	15	1	25	26	3	15	SPARE				
SPARE	15	1	27	28							
SPARE	15	1	29	30							
SPARE	15	1	31	32	3	15	SPARE				
SPARE	15	1	33	34							
SPARE	15	1	35	36							
SPARE	15	1	37	38	3	15	SPARE				
SPARE	15	1	39	40							
SPARE	15	1	41	42							

PANELBOARD SCHEDULE											
JOB NO./NAME	1-15-160NRC HERZBERG										
PANEL	26U										
SYSTEM	120/208V, 3PH, 4W										
TYPE	LOAD CENTRE										
LOCATION	WORKING AREA										
MOUNTING	SURFACE										
NO. CIRCUITS	42										
BUS SIZE	200A										
SYM. FAULT RATING	10kAIC										
DESCRIPTION	BRK	POLE	CCT	CCT	POLE	BRK	DESCRIPTION				
PANEL 1'GU'	100	3	01	02	1	15	RECEPTACLE				
			03	04	1	15	RECEPTACLE				
			05	06	1	15	RECEPTACLE				
PANEL 2'GU'A	100	3	07	08	1	15	RECEPTACLE				
			09	10	1	15	RECEPTACLE				
			11	12	1	15	RECEPTACLE				
RECEPTACLE	15	1	13	14	3	15	SPARE				
RECEPTACLE	15	1	15	16							
RECEPTACLE	15	1	17	18							
RECEPTACLE	15	1	19	20	3	15	SPARE				
RECEPTACLE	15	1	21	22							
RECEPTACLE	15	1	23	24							
RECEPTACLE	15	1	25	26	3	15	SPARE				
RECEPTACLE	15	1	27	28							
RECEPTACLE	15	1	29	30							
RECEPTACLE	15	1	31	32	3	15	SPARE				
RECEPTACLE	15	1	33	34							
RECEPTACLE	15	1	35	36							
RECEPTACLE	15	1	37	38	3	15	SPARE				
RECEPTACLE	15	1	39	40							
RECEPTACLE	15	1	41	42							

PANELBOARD SCHEDULE											
JOB NO./NAME	:	1-15-160NRC HERZBERG									
PANEL	:	2L									
SYSTEM	:	120/208V, 3PH, 4W									
TYPE	:	LOAD CENTRE									
LOCATION	:	MEZZANINE									
MOUNTING	:	SURFACE									
NO. CIRCUITS	:	42									
BUS SIZE	:	100A									
SYM. FAULT RATING	:	10KAIC									
DESCRIPTION		BRK	POLE	CCT	CCT	POLE	BRK	DESCRIPTION			
CLEAN ROOM		15	1	01	02	1	15	MECH/ELECT/LOWER			
COLD ROOM		15	1	03	04	1	15	EXTERIOR LIGHTS			
HIGH BAY LIGHTS		20	1	05	06	1	15	EXTERIOR LIGHTS			
HIGH BAY LIGHTS		20	1	07	08	1	15	RECEPTACLE			
HIGH BAY LIGHTS		20	1	09	10	1	15	COMMS RECEPTACLE			
HIGH BAY LIGHTS		20	1	11	12	1	15	COMMS RECEPTACLE			
INVERTER		60	1	13	14	1	15	SPARE			
SPARE		15	1	15	16	1	15	SPARE			
SPARE		15	1	17	18	1	15	SPARE			
SPARE		15	1	19	20	1	15	SPARE			
SPARE		15	1	21	22	1	15	SPARE			
SPARE		15	1	23	24	1	15	SPARE			
SPARE		15	1	25	26	1	15	SPARE			
SPARE		15	1	27	28	1	15	SPARE			
SPARE		15	1	29	30	1	15	SPARE			
SPARE		15	1	31	32	1	15	SPARE			
SPARE		15	1	33	34	1	15	SPARE			
SPARE		15	1	35	36	1	15	SPARE			
SPARE		15	1	37	38	1	15	SPARE			
SPARE		15	1	39	40	1	15	SPARE			
SPARE		15	1	41	42	1	15	EXIT SIGNS			
(R) Control Through Low Voltage Relay Panel											

PANELBOARD SCHEDULE									
JOB NO./NAME	1-15-160 NRC HERZBERG								
PANEL	2PA								
SYSTEM	120/208V, 3Ø, 4W								
TYPE	LOAD CENTRE								
LOCATION	FLOOR								
MOUNTING	SURFACE								
NO. CIRCUITS	42								
BUS SIZE	200								
SYM. FAULT RATING	10kAIC								
DESCRIPTION	BRK	POLE	CCT	CCT	POLE	BRK	DESCRIPTION		
EXTERIOR RECEPTACLES	15	1	01	02	1	15	RECEPTACLES		
COLD ROOM	15	1	03	04	1	15	RECEPTACLES		
COLD ROOM	15	1	05	06	1	15	RECEPTACLES		
EXTERIOR RECEPTACLES	15	1	07	08	1	15	RECEPTACLES		
EXTERIOR RECEPTACLES	15	1	09	10	1	15	RECEPTACLES		
SPARE	15	1	11	12	1	15	SPARE		
SPARE	15	1	13	14	1	15	SPARE		
SPARE	15	1	15	16	1	15	SPARE		
SPARE	15	1	17	18	1	15	SPARE		
SPARE	15	1	19	20	1	15	SPARE		
SPARE	15	1	21	22	1	15	SPARE		
SPARE	15	1	23	24	1	15	SPARE		
SPARE	15	1	25	26	1	15	SPARE		
SPARE	15	1	27	28	1	15	SPARE		
SPARE	15	1	29	30	1	15	SPARE		
SPARE	15	1	31	32	1	15	SPARE		
SPARE	15	1	33	34	1	15	SPARE		
SPARE	15	1	35	36	1	15	SPARE		
SPARE	15	1	37	38	1	15	SPARE		
SPARE	15	1	39	40	1	15	SPARE		
SPARE	15	1	41	42	1	15	SPARE		
* GFCI Breaker									