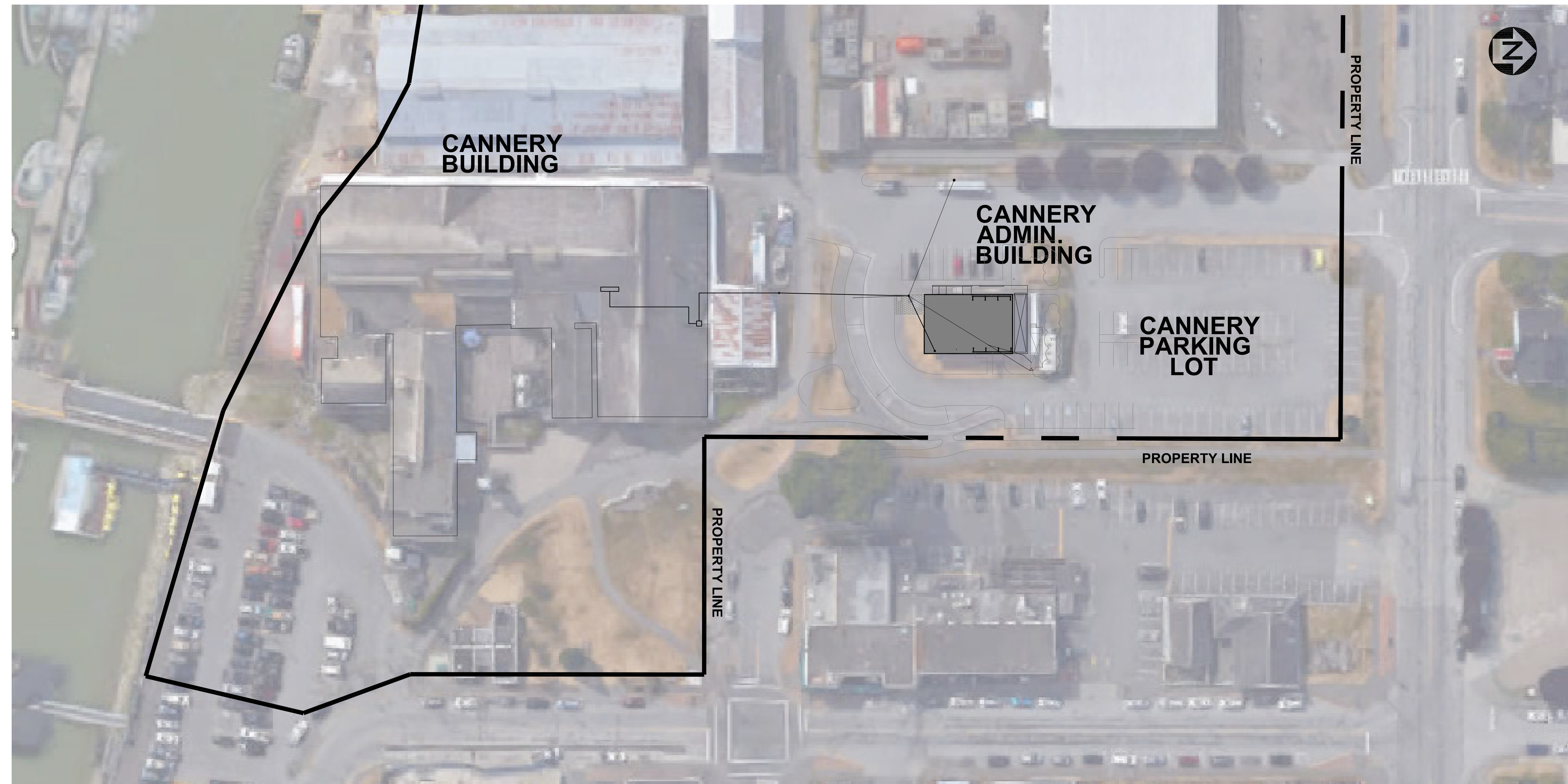




14 Aug 2017



SITE PLAN  
1:500

2	ISSUED FOR ADDENDUM #1	07/21/17
1	ISSUED FOR TENDER	02/22/17

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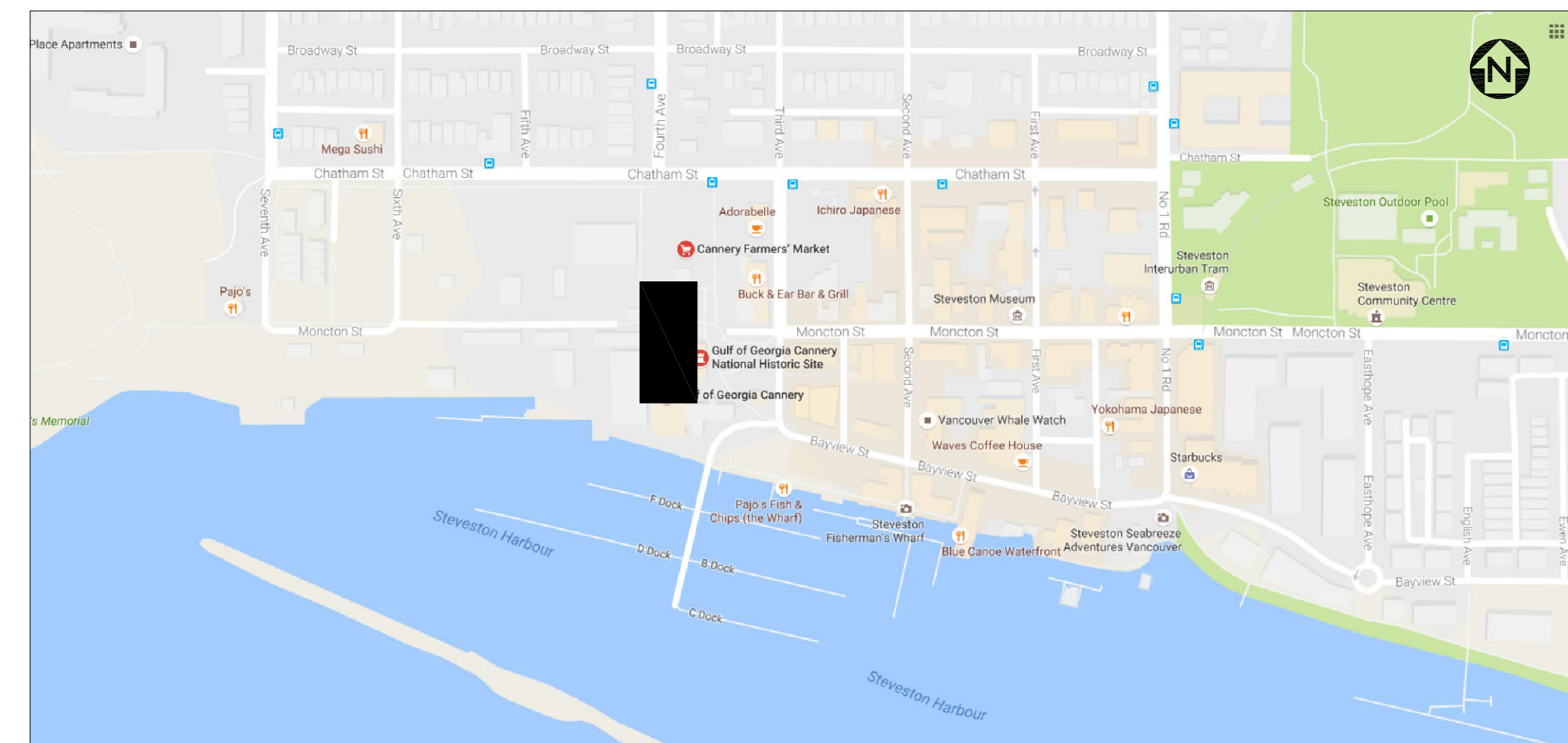
**PARKS CANADA  
WESTERN REGION**  
STEVESTON, B.C. NATIONAL HISTORIC SITE

Project title/Titre du projet  
**GULF OF GEORGIA  
CANNERY  
ADMINISTRATION  
BUILDING**  
12138 FOURTH AVE,  
RICHMOND, BC

Consultant Signature Only  
**J.R. BESANT**  
Designed by/Concept par  
**J.R. BESANT**  
Drawn by/Dessiné par  
**C.INNES**  
PWGSC Project Manager/Administrateur de Projets TPSGC  
**T. DUNPHY**  
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**REGIONAL MANAGER AES**

Drawing title/Titre du dessin  
**ELECTRICAL  
COVERSHEET**

Project No./No. du projet <b>R.060702.001</b>	Sheet/Feuille <b>E1</b> OF 13	Revision no./La Révision no. <b>2</b>
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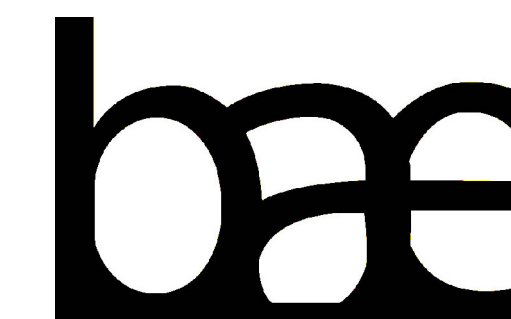


LOCATION PLAN  
NTS

DRAWING SCHEDULE				
ID	NAME	DATE	ISSUED FOR	REV.
E1	ELECTRICAL COVERSHEET	07/21/2017	ADDENDUM #1	2
E2	ELECTRICAL SITE PLAN	07/21/2017	ADDENDUM #1	2
E3	ELECTRICAL PLAN – LIGHTING DEMO	07/21/2017	ADDENDUM #1	2
E4	ELECTRICAL LIGHTING PLAN	07/21/2017	ADDENDUM #1	2
E5	ELECTRICAL PLAN	07/21/2017	ADDENDUM #1	2
E6	MECHANICAL ROOM PLAN	07/21/2017	ADDENDUM #1	2
E7	MECHANICAL ROOM SECTIONS	07/21/2017	ADDENDUM #1	2
E8	ELECTRICAL POWER ROUTING – MUSEUM TO ADMIN. BLDG.	07/21/2017	ADDENDUM #1	2
E9	PANEL SCHEDULE, LIGHTING SCHEDULE AND LEGEND	07/21/2017	ADDENDUM #1	2
E10	BUILDING ELEVATION – EAST	07/21/2017	ADDENDUM #1	2
E11	ELECTRICAL NOTES SH. 1 of 3	07/21/2017	ADDENDUM #1	2
E12	ELECTRICAL NOTES SH. 2 of 3	07/21/2017	ADDENDUM #1	2
E13	ELECTRICAL NOTES SH. 3 of 3	07/21/2017	ADDENDUM #1	1







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Project title/Titre du projet

**GULF OF GEORGIA CANNERY ADMINISTRATION BUILDING**

12138 FOURTH AVE,  
RICHMOND, BC

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**ELECTRICAL SITE PLAN**

Project No./No. du projet

R.060702.001

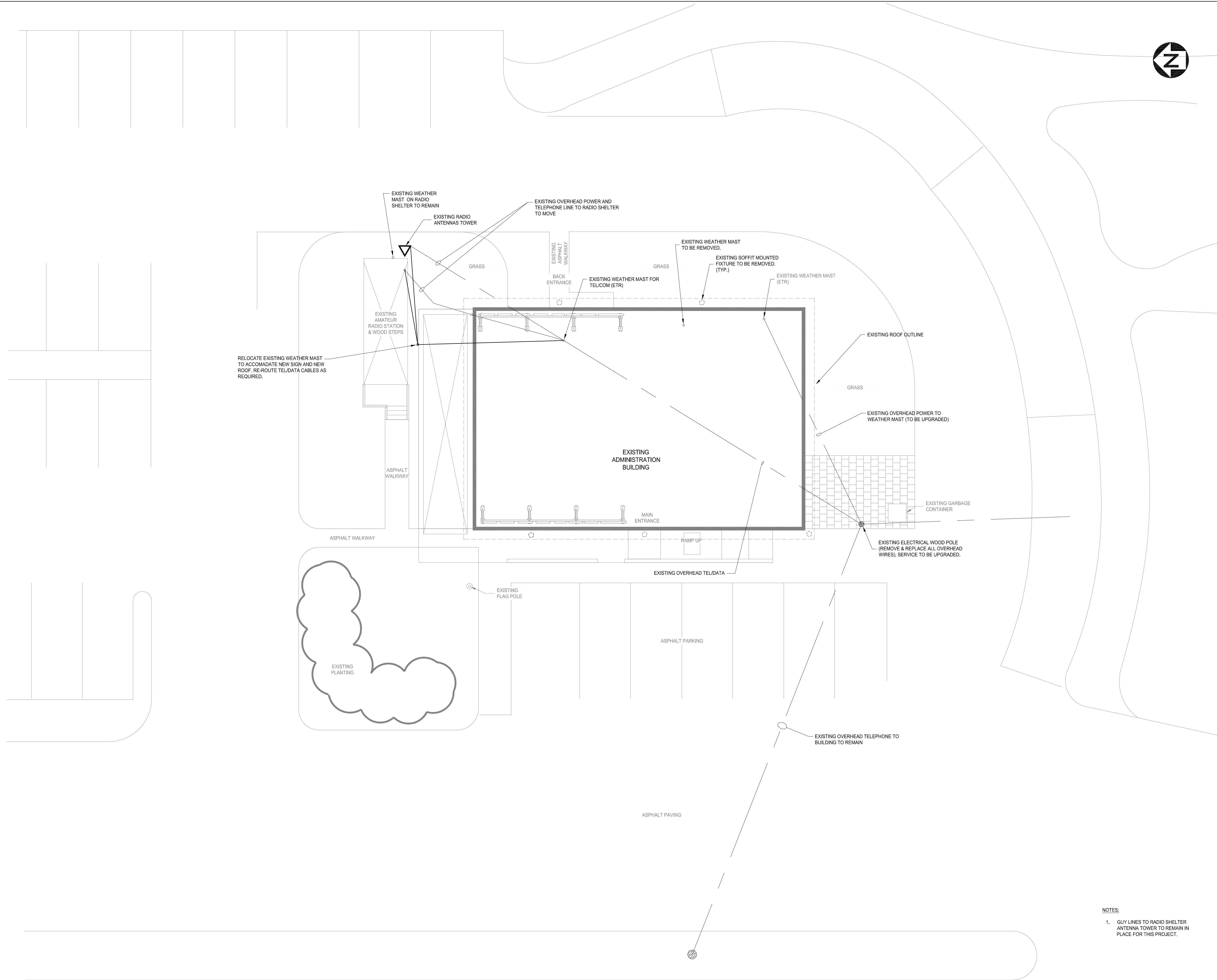
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E2

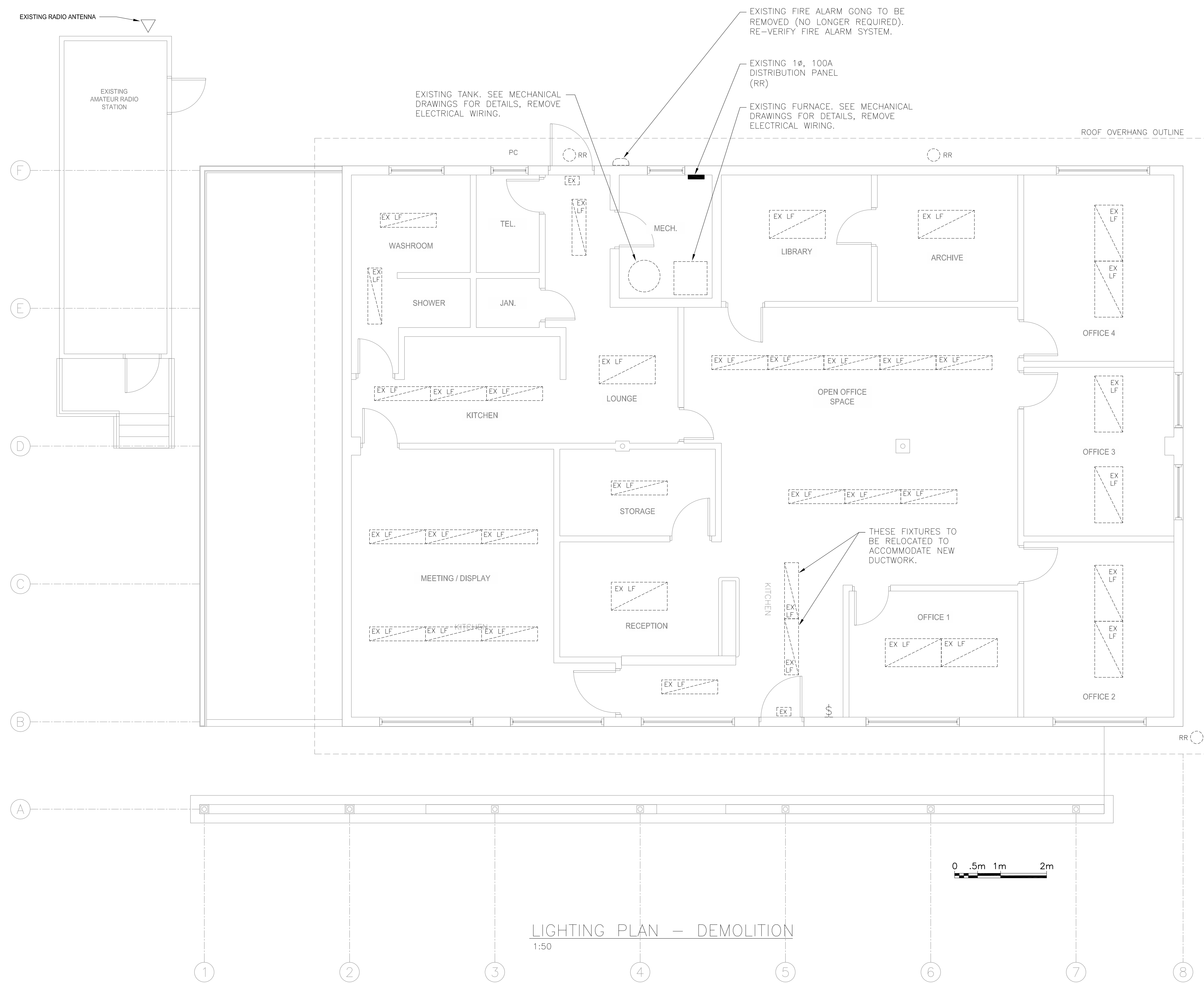
OF 13

Revision no./La Révision no.

2



**NOTES:**  
1. GUY LINES TO RADIO SHELTER ANTENNA TOWER TO REMAIN IN PLACE FOR THIS PROJECT.



- LEGEND:**
- FLUORESCENT LUMINAIRE (NEW)
  - T-BAR FLUORESCENT LUMINAIRE (NEW)
  - EXISTING T-BAR FLUORESCENT LUMINAIRE (ETR)
  - WALL SCONCE
  - WALL POT OR HID LUMINAIRE
  - SINGLE POLE SWITCH
  - THREE WAY SWITCH
  - LUMINAIRE (TYPE)
  - DUPLEX RECEPTACLE
  - SINGLE RECEPTACLE
  - PANELBOARD
  - ETR EXISTING TO REMAIN
  - REM REMOVE EXISTING
  - RR REMOVE AND REPLACE
  - EX LF EXISTING LIGHT FIXTURE
  - LF LIGHT FIXTURE

EXISTING WOODEN POLE

LIGHTING PLAN - DEMOLITION  
1:50

- NOTES:**
- REMOVE EXTERIOR LIGHTING UNDER SOFFITS. THESE FIXTURES ARE TO BE REPLACED.
  - ALL LIGHT FIXTURES TO BE REMOVED AND REPLACED IN BUILDING UNLESS NOTED OTHERWISE THE LIGHTS HAVE TO BE TAKEN DOWN TO ACCOMMODATE NEW OPEN CEILING PLAN. THEY ARE TO BE SCREWED DIRECTLY TO THE EXPOSED FRAMING IN THEIR EXISTING LOCATIONS.
  - LOCATE FIXTURES TO SUIT LIGHTING REQUIREMENTS AND TO ACCOMMODATE NEW MECHANICAL SYSTEMS.

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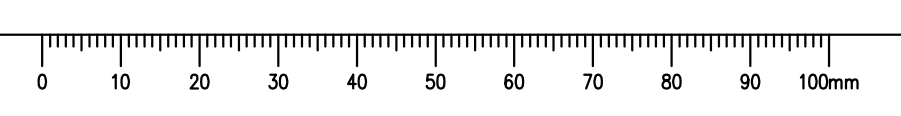
Client/Client  
**PARKS CANADA WESTERN REGION**  
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Project Title/Titre du projet  
**GULF OF GEORGIA CANNERY ADMINISTRATION BUILDING**  
12138 FOURTH AVE, RICHMOND, BC

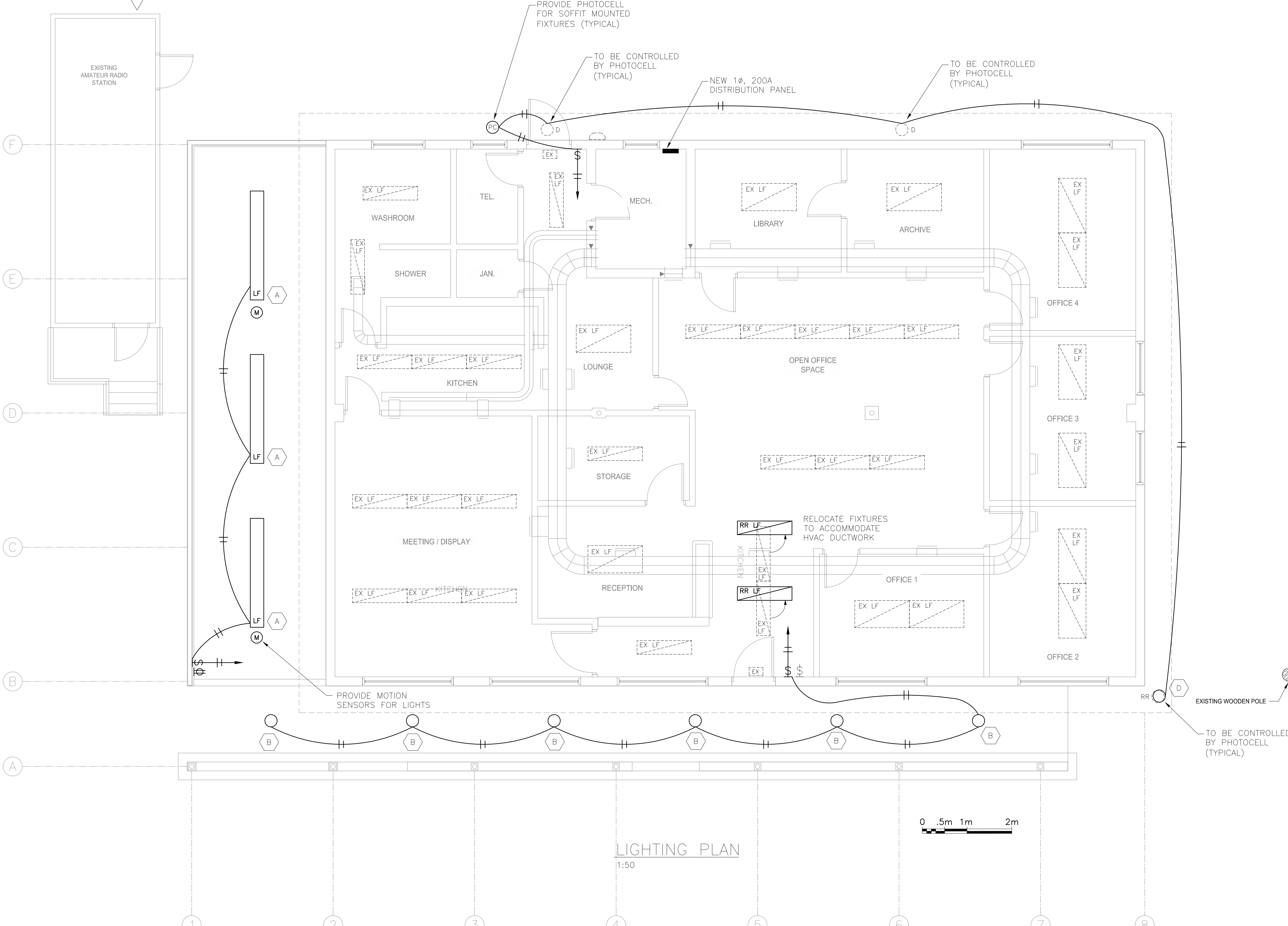
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**J.R. BESANT**  
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**REGIONAL MANAGER AES**

Drawing Title/Titre du dessin  
**ELECTRICAL PLAN LIGHTING DEMO**

Project No./No. du projet <b>R.060702.001</b>	Sheet/Feuille <b>E3</b> OF 13	Revision no./La Révision no. <b>2</b>
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EXISTING RADIO ANTENNA



LIGHTING PLAN  
1:50

**LIGHT FIXTURE CONTROL NOTES:**

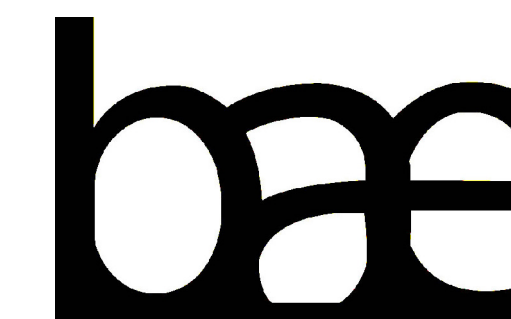
1. LIGHT FIXTURES IN SHED TO BE CONTROLLED BY PASSIVE INFRARED MOTION SENSORS (MINIMUM STANDARD HONEYWELL 997). PROVIDE MANUAL OVERRIDE SWITCH.
2. FIXTURES ON THE FRONT WALKWAY ARE TO BE MANUALLY CONTROLLED.
3. THE SOFFIT MOUNTED FIXTURES ARE TO BE CONTROLLED BY A PHOTOCELL MOUNTED ON THE EAST SIDE OF THE BUILDING.

**LIGHTING FIXTURE LEGEND**

TAG	TYPE/DESCRIPTION	LAMP	OPTIONS	VOLTAGE	CONTROLS	DESIGN STANDARD
A	4' LED CEILING MOUNTED w/ DIRECT PHOTOMETRICS	LED 4300LM 3500K	WHITE w/ WHITE END CAPS AND REPLACEABLE LIGHT	120V	MOTION	GE LIS-14-B-0-42-D1-P-35-Q-CS-WHITE-WP
B	4" LED POT LIGHT	LED 1000LM 3000K	4" ROUND REFLECTOR, WIDE DISTRIBUTION, SEMI-DIFFUSE, POLISHED FLANGE	120V	DIMABLE	GE PRODUCT CODE 83624 w/ 4" REFLECTOR 93984
D	LED CANOPY LIGHT	LED 4170LM 4000K	WHITE	120V	DIMMABLE PHOTOCELL	GE ECRA-A5F540-120-277V.ies

**LIGHT FIXTURE NOTES:**

1. PROVIDE RATED ENCLOSURE AT RECESSED FIXTURES WHERE REQUIRED BY APPLICABLE CODES.
2. PROVIDE IN RATED POT LIGHTS FOR ALL RECESSED FIXTURE UNLESS INSTALLED IN NON-INSULATED CEILING SPACE.
3. ALL RECESSED LIGHTS TO BE c/w HINGED FRAMING KITS. LAY IN LENSES ARE NOT ACCEPTED.
4. ENSURE ALL FIXTURES ARE ATTACHED SUFFICIENTLY TO BUILDING STRUCTURE.
5. PROVIDE ELECTRONIC BALLASTS FOR ALL FLUORESCENT STRIP FIXTURES.
6. WHERE FLUORESCENT FIXTURES ARE CONTROLLED VIA MOTION SENSOR, FIXTURE TO BE WITH RAPID START BALLAST.
7. CONTRACTOR TO BE RESPONSIBLE FOR LIGHT FIXTURES INCLUDING BUT NOT LIMITED TO RECEIPT OF FIXTURES, STORAGE, ASSEMBLY, INSTALLATION, CONNECTION AND DAMAGES.
8. ALL FLUORESCENT FIXTURES SHOULD BE COMPLETE WITH HIGH FACTOR BALLASTS.



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Project title/Titre du projet

**GULF OF GEORGIA CANNERY ADMINISTRATION BUILDING**

12138 FOURTH AVE, RICHMOND, BC

Consultant Signature Only

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Drawn by/Dessiné par C. INNES

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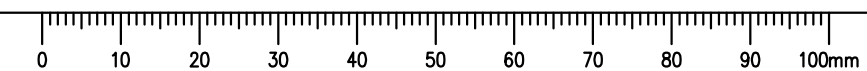
T. DUNPHY

Regional Manager, Architectural and Engineering Services / Gérant régional, Services d'architecture et de génie, TPSGC

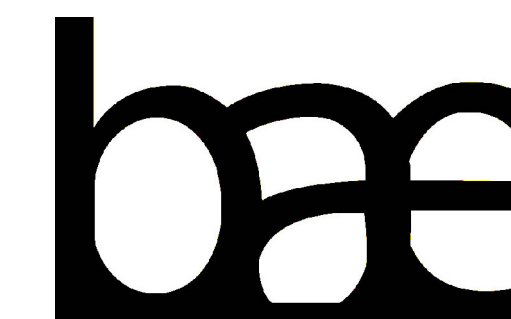
Drawing title/Titre du dessin

**ELECTRICAL LIGHTING PLAN**

Project No./No. du projet <b>R.060702.001</b>	Sheet/Feuille <b>E4</b> OF 13	Revision no./La Révision no. <b>2</b>
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12138 FOURTH AVE, RICHMOND, BC

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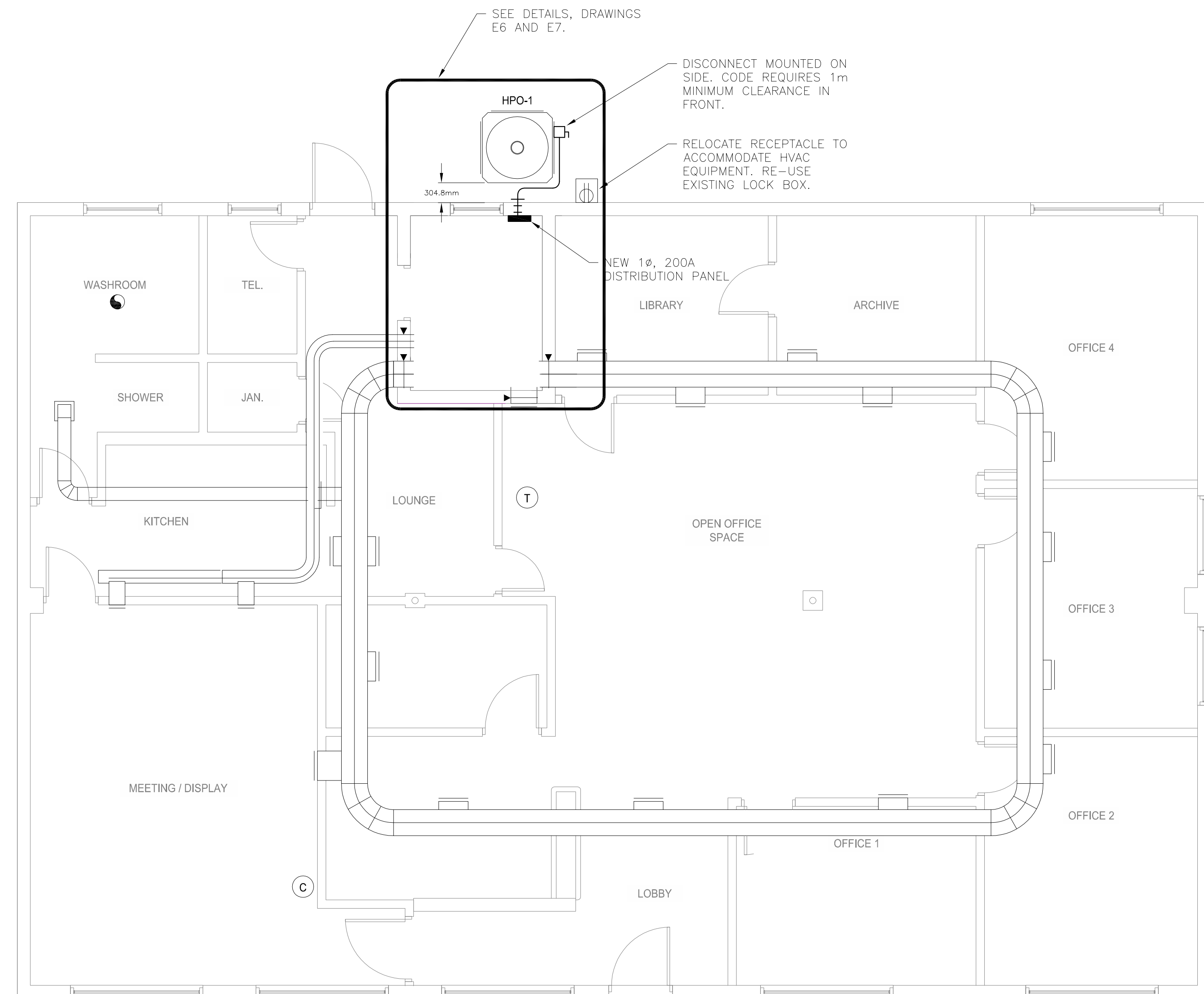
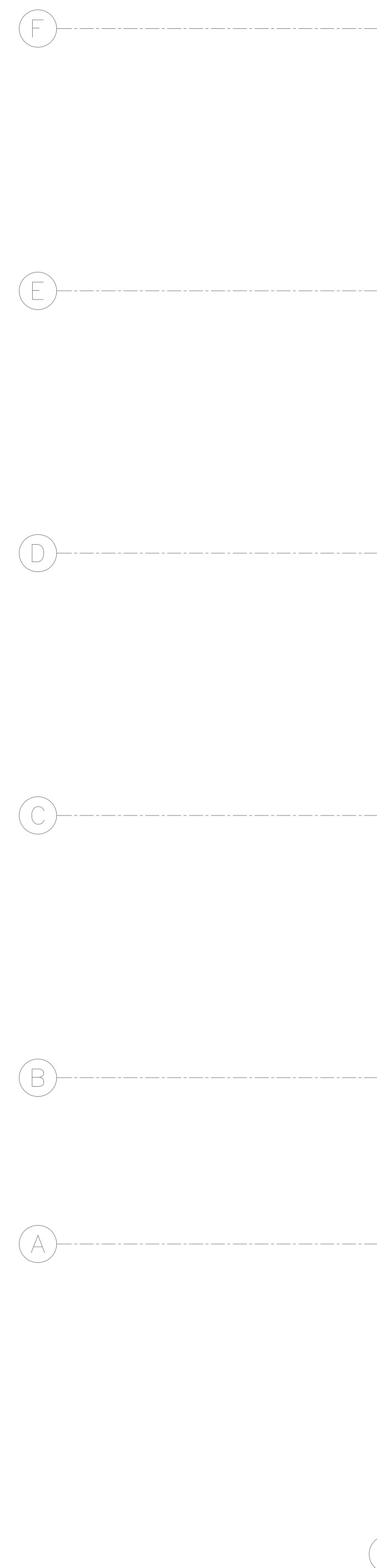
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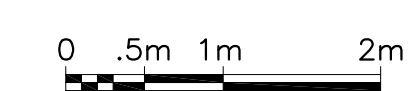
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**ELECTRICAL PLAN**

Project No./No. du projet	Sheet/Feuille	Revision no./La Révision no.
R.060702.001	E5 OF 13	2



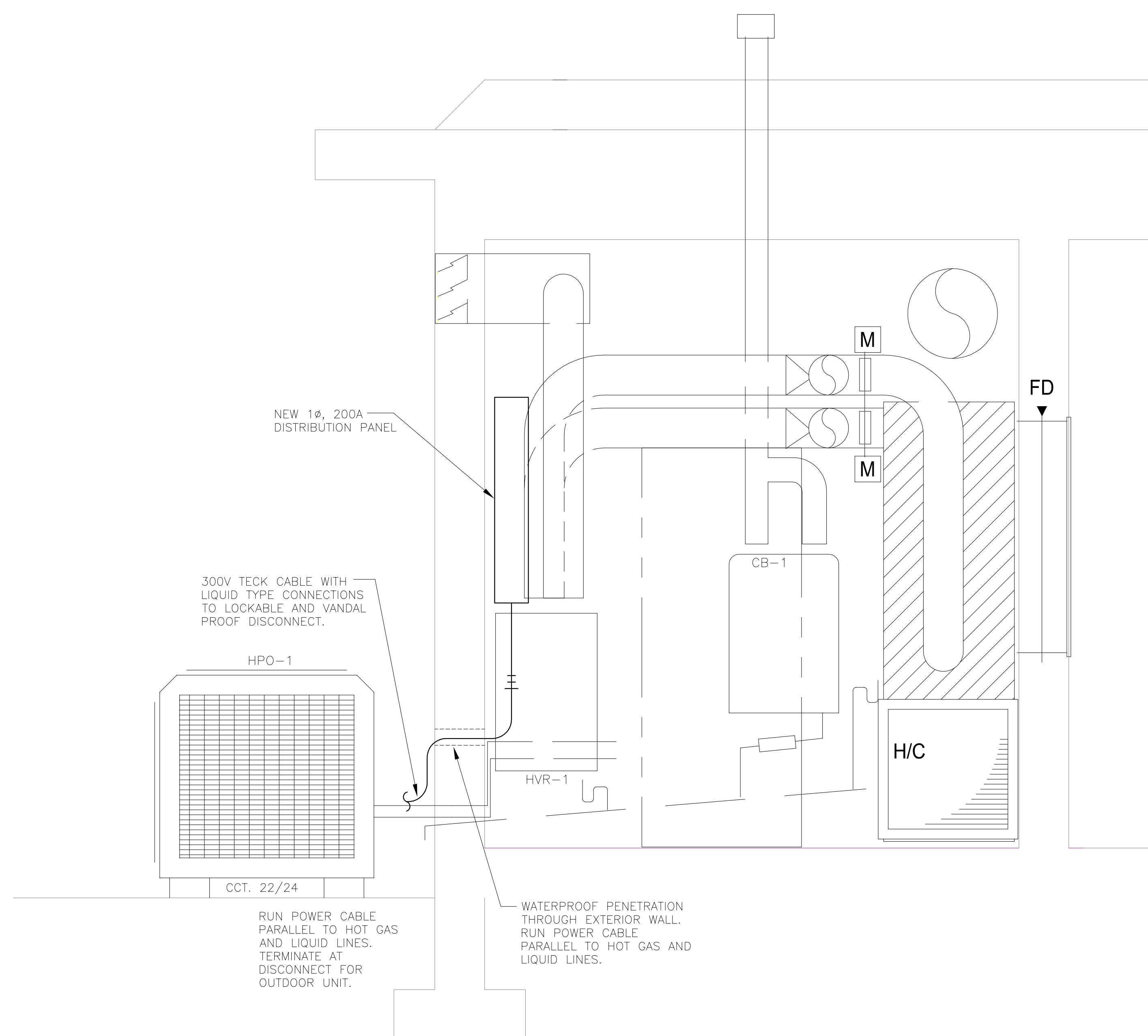
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1:50



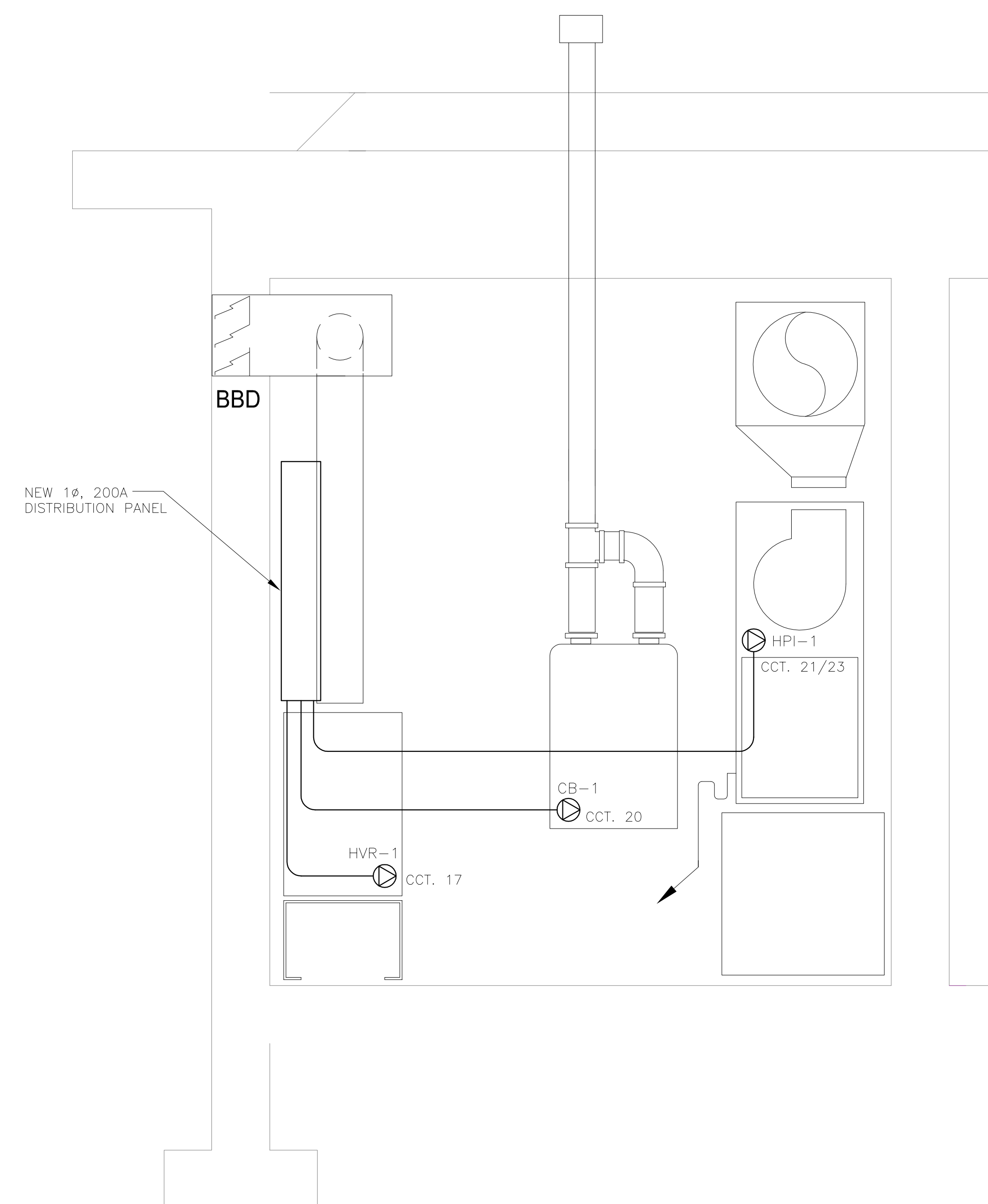




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A-A MECHANICAL ROOM SECTION  
1:8



B-B MECHANICAL ROOM SECTION  
1:8


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Project title/Titre du projet

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CANNERY  
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BUILDING**  
  
12138 FOURTH AVE,  
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**MECHANICAL ROOM  
SECTIONS**

Project No./No. du projet

R.060702.001

Sheet/Feuille

E7

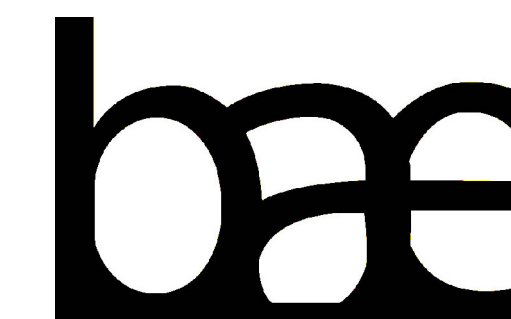
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Revision no./La Révision no.

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Revision/Revision	Description/Description	Date/Date
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STEVESTON, B.C. NATIONAL HISTORIC SITE

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12138 FOURTH AVE, RICHMOND, BC

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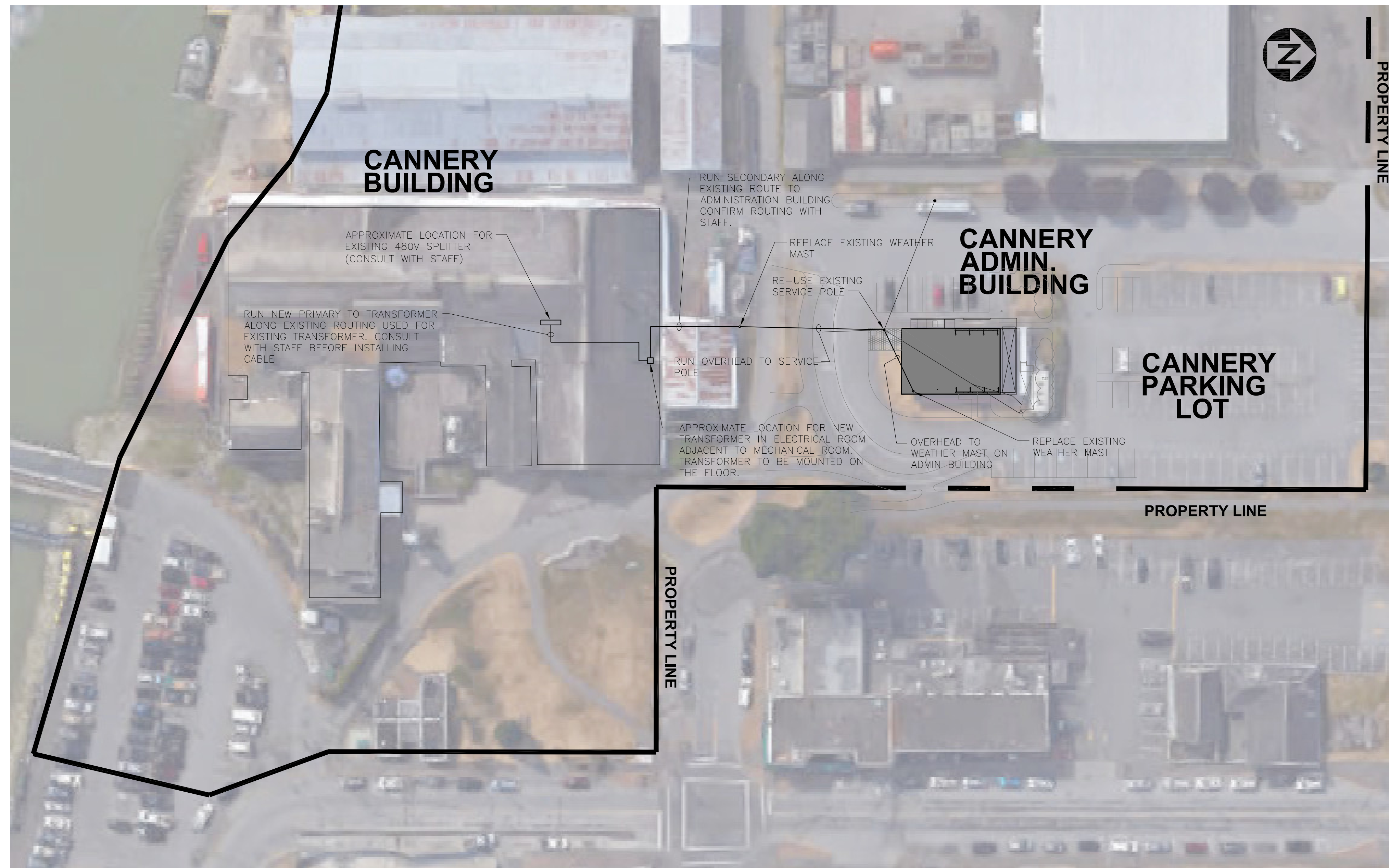
PWSSC Project Manager/Administrateur de Projets TPSGC  
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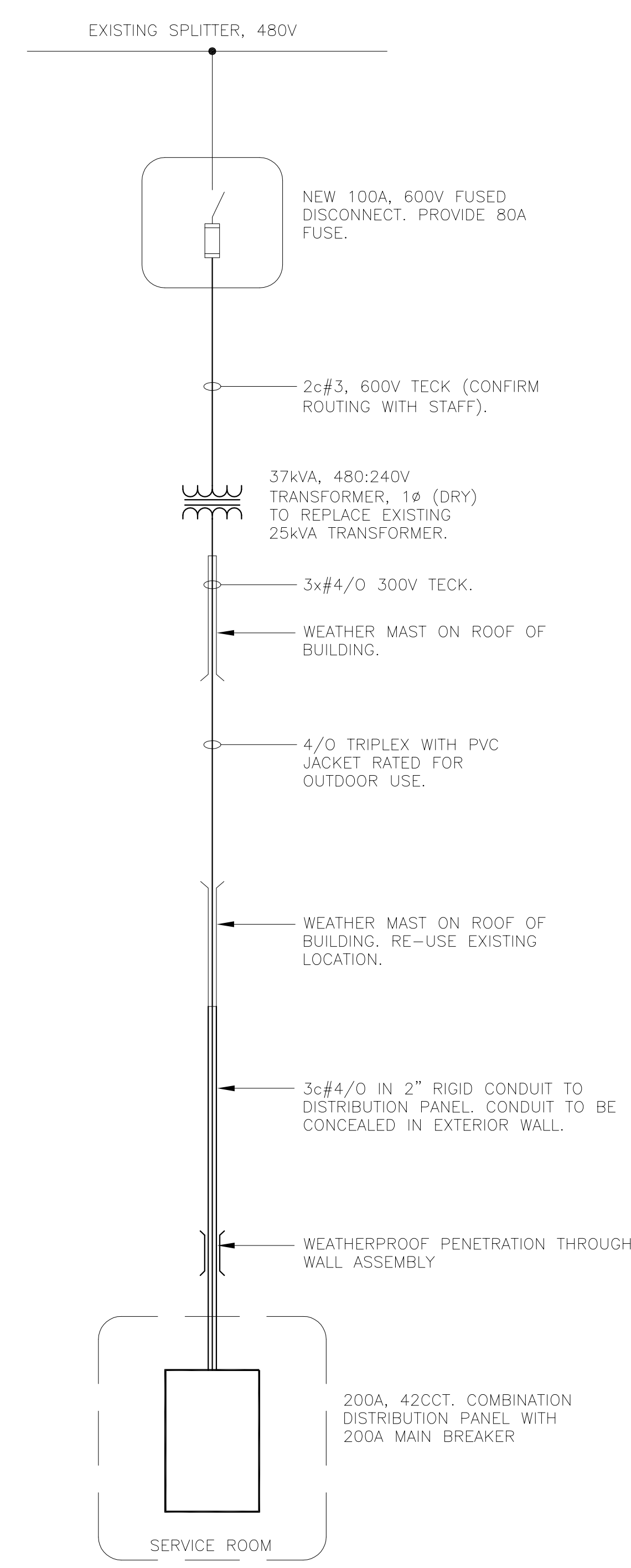
Drawing title/Titre du dessin

**ELECTRICAL POWER ROUTING MUSEUM TO ADMINISTRATION BUILDING**

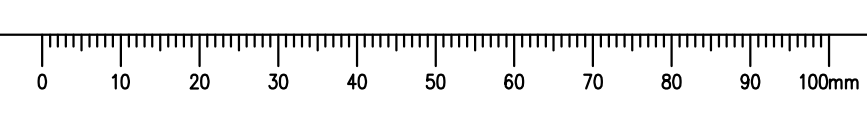
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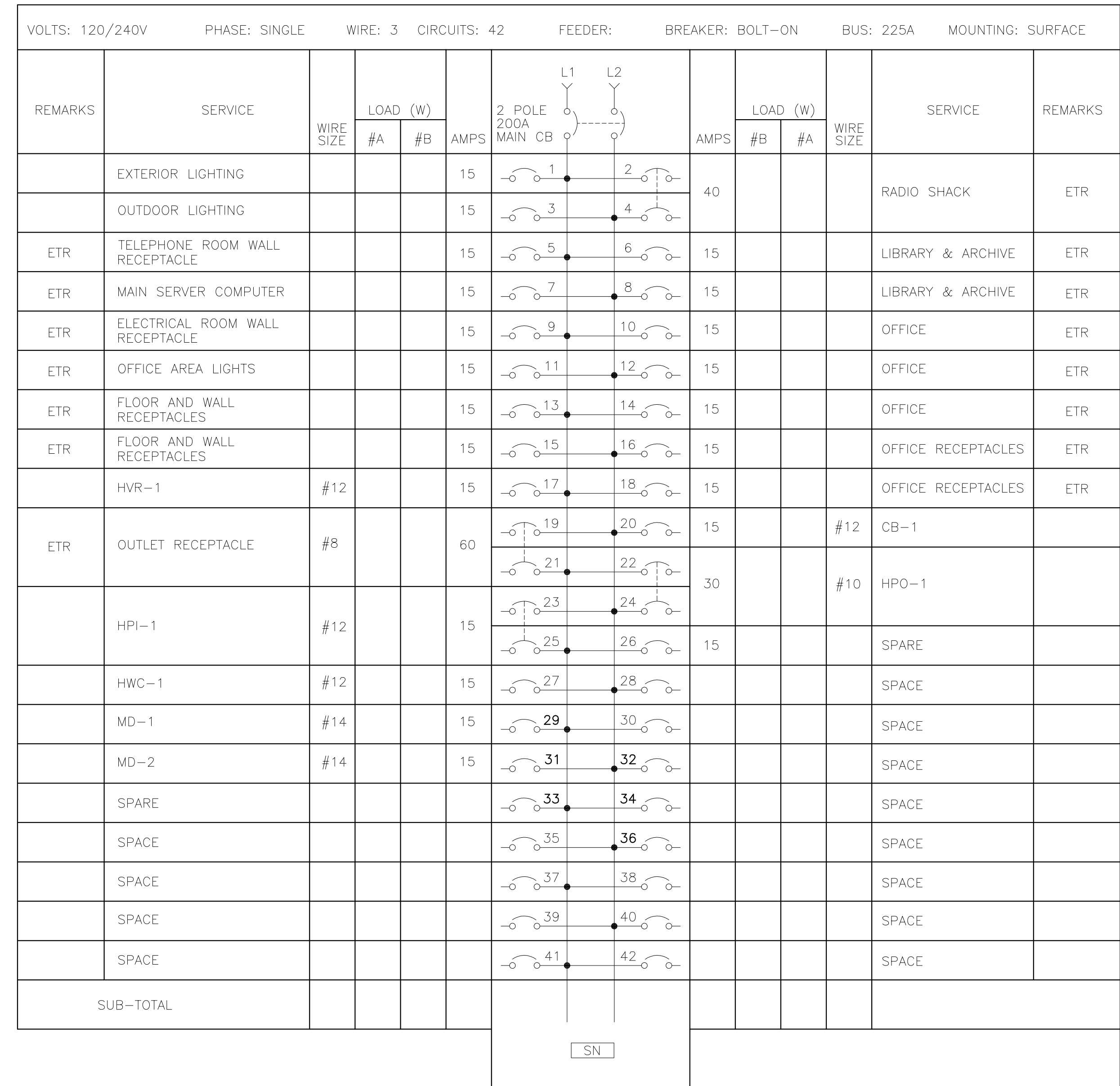
POWER ROUTING FOR ADMINISTRATION BUILDING  
1:500



SINGLE LINE







POWER DISTRIBUTION PANEL - P1

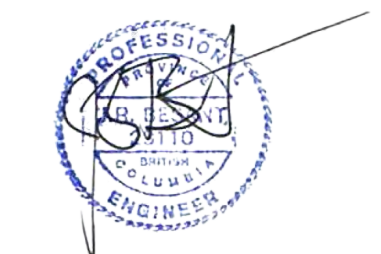
MECHANICAL EQUIPMENT LIST						
TAG	DESCRIPTION	ELECTRICAL				
		V.P.C.	MIN. CIRCUIT AMPS	FAN MOTOR kW (HP)	CIRCUIT No.	WIRE SIZE
HPI-1	HEAT PUMP INDOOR SECTION	240-1-60	9.0	0.6 (3/4)	21/23	#12
HPO-1	HEAT PUMP OUTDOOR SECTION	240-1-60	29.2	-	22/24	#10
HRV-1	AIR TO AIR HEAT RECOVERY UNIT	120-1-60	6	2 @ 0.2 (2@1/4)	17	#12
CB-1	COMBI HTG AND DOM WATER BOILER	120-1-60	-	-	20	#12
MD-1	MOTORIZED DAMPER	120-1-60	-	-	27	#14
MD-1	MOTORIZED DAMPER	120-1-60	-	-	27	#14

(1) TOTAL COOLING CAPACITY @ 29°C. DB/19°C. WB (85°F. DB/67°F WB)

**NOTE:**  
HPO-1 BREAKER SIZE TO BE COORDINATED WITH MECHANICAL

GENERAL NOTES

- PROVIDE CIRCUITS SIZED AT 2#14, 1#14, OR BX 20 (3/4) C UNLESS OTHERWISE NOTED ON THE DRAWINGS OR IN THE SPECIFICATIONS.
- PERMANENTLY LABEL ALL MOTORS, POWER DISCONNECTS, AND REMOTE LOADS WITH THE PANEL AND CIRCUIT NUMBER SERVING THE DEVICE.
- UNLESS OTHERWISE NOTED, ALL CONDUCTORS ARE TYPE RW90, RATED FOR 90° C.
- PROVIDE A FUSED DISCONNECT SWITCH FOR HVAC AND OTHER EQUIPMENT WHERE REQUIRED BY MANUFACTURER AND NOT INCLUDED IN SUPPLY PACKAGE.
- REFER TO ARCHITECTURAL, STRUCTURAL, PROCESS AND MECHANICAL DRAWINGS FOR ADDITIONAL DETAILS AND SYSTEMS COORDINATION.
- BRANCH CIRCUIT NOT ALWAYS SHOWN ON DRAWINGS BUT IS IMPLIED BY THE PANEL CIRCUIT NUMBER.
- REFER TO MECHANICAL DRAWINGS.



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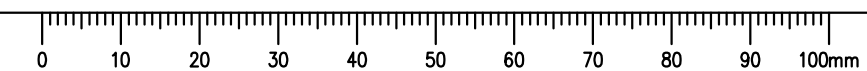
Client/Client  
**PARKS CANADA**  
**WESTERN REGION**  
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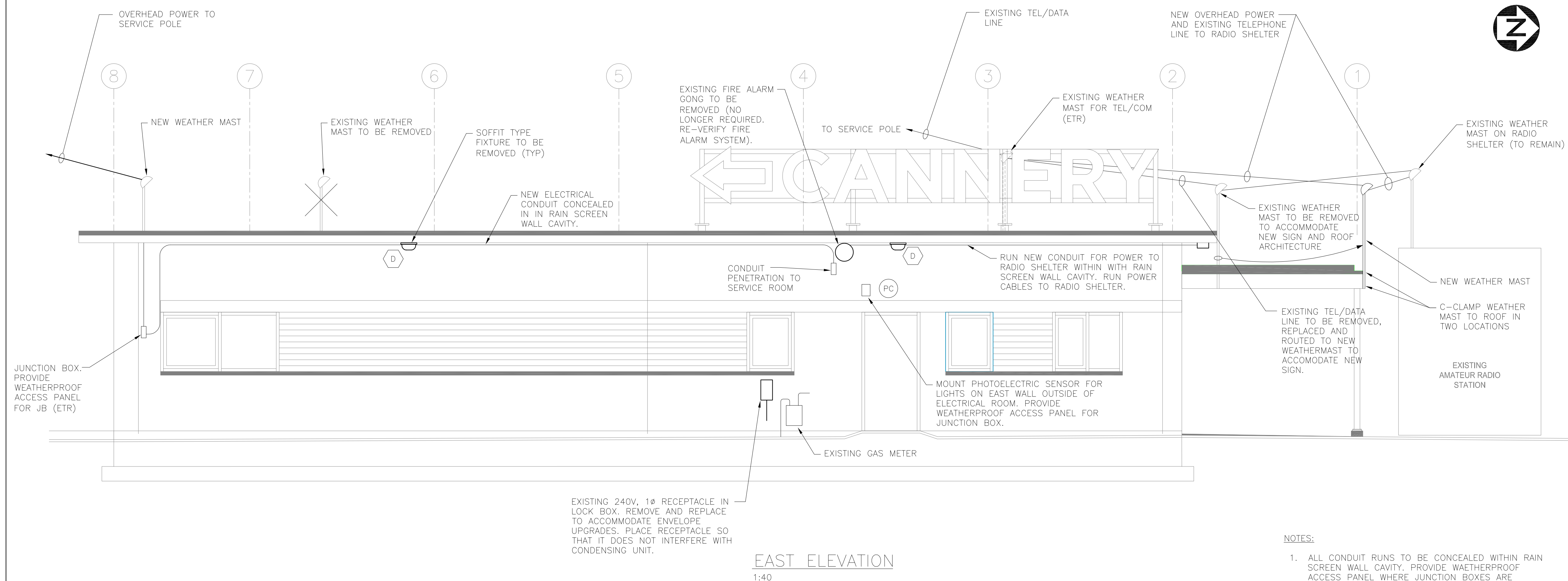
Project title/Titre du projet  
**GULF OF GEORGIA**  
**CANNERY**  
**ADMINISTRATION**  
**BUILDING**  
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**REGIONAL MANAGER AES**

Drawing title/Titre du dessin  
**PANEL SCHEDULES,**  
**LIGHTING SCHEDULES**  
**AND LEGENDS**

Project No./No. du projet <b>R.060702.001</b>	Sheet/Feuille <b>E9</b> OF 13	Revision no./La Révision no. <b>2</b>
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- NOTES:**
1. ALL CONDUIT RUNS TO BE CONCEALED WITHIN RAIN SCREEN WALL CAVITY. PROVIDE WAETHERPROOF ACCESS PANEL WHERE JUNCTION BOXES ARE LOCATED FOR ACCESS.
  2. REFER TO RDH DRAWINGS FOR DETAILS ON WEATHERPROOF ACCESS PANELS AND SUPPORTS FOR WEATHERMAST.

Revision/Revision	Description/Description	Date/Date
2	ISSUED FOR ADDENDUM #1	07/21/17
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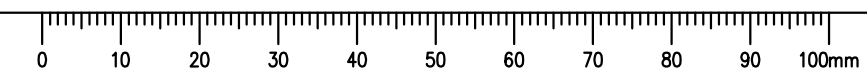
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**REGIONAL MANAGER AES**

Drawing title/Titre du dessin  
**BUILDING ELEVATION  
 EAST**

Project No./No. du projet <b>R.060702.001</b>	Sheet/ Feuille <b>E10</b> OF 13	Revision no./ La Révision no. <b>2</b>
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**ELECTRICAL NOTES:**


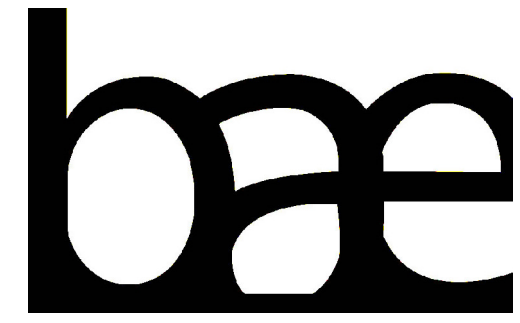

- 16.01.01 PROVIDE COMPLETE, FULLY TESTED AND OPERATIONAL ELECTRICAL SYSTEMS TO MEET REQUIREMENTS DESCRIBED HEREIN AND IN COMPLETE ACCORD WITH APPLICABLE CODES AND ORDINANCES.
- 16.01.02 FOLLOW MANUFACTURER'S RECOMMENDED INSTALLATION DETAILS AND PROCEDURES FOR EQUIPMENT, SUPPLEMENTED BY REQUIREMENTS OF CONTRACT DOCUMENTS.
- 16.01.03 INSTALL EQUIPMENT GENERALLY IN LOCATIONS AND ROUTES SHOWN WITH MINIMUM INTERFERENCE WITH OTHER SERVICES OR FREE SPACE. REMOVE AND REPLACE IMPROPERLY INSTALLED EQUIPMENT TO SATISFACTION OF THE ENGINEER AT NO EXTRA COST.
- 16.01.04 CONTRACTOR SHOULD VISIT AND BE FAMILIAR WITH THE SITE AND ALL EXISTING CONDITIONS. NO EXTRA COST DURING THE CONSTRUCTION WILL BE CONSIDERED IN CASE OF LACK OF INFORMATION DUE TO THE NON RESPECT OF THIS CONDITION.
- 16.01.05 CONTRACTOR RESPONSIBLE TO PAY ALL APPLICABLE FEES FOR INSPECTIONS AND PERMITS.
- 16.01.06 EACH MAJOR COMPONENT OF EQUIPMENT SHALL BEAR MANUFACTURER'S NAME, ADDRESS, CATALOG AND SERIAL NUMBER IN A CONSPICUOUS PLACE.  
  
REGULATORY REQUIREMENTS  
1. COMPLY WITH THE B.C. SAFETY STANDARDS ACT AND RULES AND REGULATIONS MADE PURSANT THERETO INCLUDING CANADIAN ELECTRICAL CODE.  
2. ALL ELECTRICAL PRODUCTS SHALL BE TESTED, CERTIFIED AND LABELED IN ACCORDANCE WITH A CERTIFICATION PROGRAM ACCREDITED BY THE STANDARDS COUNCIL OF CANADA, WHERE A PRODUCT IS NOT SO LABELED, PROVIDE WRITTEN APPROVAL FROM THE MINISTRY OF ENERGY, MINES AND PETROLEUM RESOURCES.
- 16.01.07 CO-ORDINATION  
THE CONTRACT DRAWINGS ARE CONSIDERED TO BE DIAGRAMMATIC IN NATURE, NOT NECESSARILY SHOWING IN DETAIL OR TO SCALE ALL OF THE MINOR ITEMS. UNLESS SPECIFIC DIMENSIONS ARE SHOWN, THE STRUCTURAL, MECHANICAL AND SITE CONDITIONS GOVERN THE EXACT LOCATIONS. THE CONTRACTOR SHALL FOLLOW THE DRAWINGS IN LAYING OUT THE WORK. WHERE SPACE CONDITIONS APPEAR INADEQUATE, THE OWNER'S ELECTRICAL CONSULTANT SHALL BE NOTIFIED BEFORE PROCEEDING WITH THE INSTALLATION. THE CONTRACTOR SHALL, WITHOUT EXTRA CHARGE, MAKE FIELD MODIFICATIONS IN LAYOUT AS NEEDED TO PREVENT CONFLICT WITH WORK OF VARIOUS TRADES OR PROPER EXECUTION OR THE WORK.
- 16.01.08 PROJECT RECORD DRAWINGS:  
1. RECORD ACTUAL LOCATIONS OF ALL PULL BOXES, FEEDERS AND ELECTRICAL EQUIPMENT.  
2. RECORD ANY CHANGES TO CIRCUIT DESIGNATIONS.
- 16.01.09 REFERENCE DOCUMENTS:  
  
COMPLY WITH APPLICABLE STANDARDS OF FOLLOWING ORGANIZATIONS:  
1. ELECTRICAL AND ELECTRONIC MANUFACTURERS ASSOCIATION OF CANADA (EEMAC)  
2. NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA)  
3. INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS (IEEE)  
4. INSULATED POWER CABLE ENGINEERS ASSOCIATION (IPCEA)
- 16.18.12 PROVIDE PERMANENT LAMICOID LABELS ON FUSED SWITCHES THAT INCORPORATE A REDUCED FUSE RATING INDICATING THE MAXIMUM FUSE PERMITTED IN THAT SWITCH.
- 16.18.13 NOT USED.
- 16.18.14 NOT USED.
- 16.18.15 THE CONTRACTOR SHALL PROVIDE A MINIMUM OF 20% SPARE CAPACITY FOR ALL COMMON AREA PANELBOARD.
- 16.18.16 URGENT ATTENTION FOR SERIES RATED COMBINATION CRITERIA: OVER CURRENT DEVICES SHALL MEET THE SERIES RATED COMBINATION CRITERIA PER CEC RULE 14-014 & SHALL BE FULLY RATED OR USING SERIES RATED COMBINATIONS/INTERGRATED EQUIPMENT RATED (IER).
- 16.18.17 LOW VOLTAGE TRANSFORMERS: SHALL BE BOTTOM OR SIDE ENTRY ONLY.
- 16.18.18 SERVICE AND DISTRIBUTION: ENSURE THERE IS ADEQUATE CLEARANCE TO ESCAPE AROUND EQUIPMENT WITH EQUIPMENT DOOR FULLY OPEN. ALSO ENSURE THERE IS PROVISION FOR REMOVAL AND READY REPLACEMENT OF THE EQUIPMENT.
- 16.18.19 NOT USED.
- 16.19. MOTORS AND MECHANICAL EQUIPMENT
- 16.19.1 PROVIDE COMPLETE WIRING FOR MOTORS AND EQUIPMENT AS SHOWN ON THE CONTRACT DOCUMENTS.
- 16.19.2 EQUIPMENT WILL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND SHALL MEET THE REQUIREMENTS OF ALL NECESSARY CODES AND REGULATIONS.
- 16.19.3 FOR EXACT LOCATIONS AND REQUIREMENTS OF MOTORS AND EQUIPMENT SEE SUB CONSULTANTS DRAWINGS (i.e. MECHANICAL)
- 16.19.4 MOTORS WILL BE SUPPLIED AND INSTALLED BY OTHERS UNLESS OTHERWISE INDICATED.
- 16.19.5 EACH MOTOR SHALL BE ADEQUATELY BONDED.
- 16.19.6 CONNECTIONS TO MOTORS SHALL BE MADE WITH SOLDERLESS CONNECTORS WHICH CAN BE REMOVED TO ALLOW SERVICING OF MOTORS.
- 16.19.7 NOT USED.
- 16.19.8 NOT USED.
- 16.19.9 NOT USED.
- 16.19.10 NOT USED.
- 16.19.11 SUPPLY AND INSTALL ALL THE CONTROL DEVICES AS INDICATED ON THE DRAWINGS.
- 16.19.12 PROVIDE ALL CONDUITS REQUIRED BY MECHANICAL CONTRACTOR, FOR LOW VOLTAGE CONTROL WIRING OF H.V.A.C. EQUIPMENT.
- 16.19.13 CHECK WITH MECHANICAL CONTRACTOR REGARDING INTERLOCKING REQUIREMENTS. LINE VOLTAGE INTERLOCKING IS RESPONSIBILITY OF ELECTRICAL CONTRACTOR.

DWG. NO. E9  
PWSSC - A1 - 841X54

- 16.19.14 IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RECOGNIZE THAT THE MATERIAL COVERED UNDER THE MECHANICAL SECTION IS SUBJECT TO CHANGE AS A RESULT OF SUBSTITUTION. THE CONTRACTOR SHALL MAKE WHATEVER MODIFICATION NECESSARY e.g. FEEDER SIZE, O/C PROTECTION INTERLOCKING, ETC. TO ENSURE A COMPLETE INSTALLATION.
- 16.19.15 NOT USED.
- 16.20. LIGHTING AND LIGHTING CONTROL:  
A) ADEQUATE ILLUMINATION MUST BE PROVIDED IN ALL AREAS. LIGHTING TO CONFORM TO THE MOST STRINGENT REQUIREMENTS OF ASHRAE 90.1, B.C. BUILDING CODE AND ALL OTHER APPLICABLE FEDERAL, PROVINCIAL AND MUNICIPAL LAWS AND REGULATIONS.  
B) THE LIGHT METHODS CHOSEN MUST CONFORM TO THE RECOMMENDATIONS AND PERFORMANCE CRITERIA SET OUT IN B.C. HYDRO POWER SMART PROGRAM SPECIFICATIONS, IF APPLICABLE.
- 16.20.2 NOT USED.
- 16.20.3 MINIMUM HEIGHT OF LOW LUMINAIRES (i.e. HEIGHT LESS THAN 2.1 METERS ABOVE THE FLOOR) SHALL COMPLY WITH CEC CODE SECTION 30-314.
- 16.20.4 NOT USED
- 16.20.5 THE ELECTRICAL CONTRACTOR SHALL ENSURE THAT FLUORESCENT FIXTURES TO BE USED IN UNHEATED AREA ARE ORDERED WITH 0 DEGREE FAHRENHEIT BALLASTS. ALL FLUORESCENT FIXTURES SHALL HAVE HPF. BALLASTS.
- 16.20.6 NOT USED.
- 16.20.7 A) RECESSED LIGHTING FIXTURES SHALL NOT BE LOCATED IN INSULATED CEILINGS UNLESS THE FIXTURES ARE DESIGNED FOR SUCH INSTALLATION.  
B) CEC RULES 30-900 TO 30-910 SHALL APPLY TO INSTALLATION OF LIGHT FIXTURES IN CAVITIES IN CEILINGS OR WALLS.  
C) THE CONTRACTOR MUST ENSURE ALL FIRE RESISTANCE RATED ASSEMBLIES (i.e. WALLS, CEILINGS, ETC.) WHICH CONTAIN RECESSED LUMINAIRES MUST BE c/w RATED BACKING TO MAINTAIN THE INTEGRITY OF THE FIRE RESISTANCE.
- 16.20.8 THE CONTRACTOR SHALL SUPPLY AND INSTALL PHOTOCELL(S) AND CONTACTOR(S) FOR THE CONTROL OF ALL OUTDOOR AND BUILDING PERIMETER LIGHTS UNLESS OTHERWISE NOTED ON THE DRAWINGS.
- 16.20.9 DESIGN/LIGHTING CRITERIA:  
a) MINIMUM LIGHTING LEVELS FOR ALL ROOMS OR SPACES FOR THE ENTIRE BUILDING(S) SHALL BE PER BUILDING CODE RULE 3.2.7.1 AND TABLE 9.34.2.7 AND ALL AUTHORITIES HAVING JURISDICTION.  
b) RECESSED LIGHTING FIXTURES PER BUILDING CODE RULE 3.2.7.2  
c) LIGHT DIFFUSER AND LENSES SHALL BE PER BUILDING CODE RULE 3.1.13.4
- 16.20.10 NOT USED.
- 16.20.11 NOT USED.
- 16.20.12 LIGHTING EFFICIENCIES AND ENERGY CONSUMPTION  
THE ELECTRICAL WIRING AND INSTALLATION SHALL CONFORM TO THE B.C. BUILDING CODE (ALSO REF: ASHRAE/IES 90.1.).
- 16.20.13 VOLTAGE: IN A BUILDING OR PREMISES WHERE A TRAINED AND QUALIFIED ELECTRICAL MAINTENANCE PERSON IS RETAINED, THE VOLTAGE SHALL BE PERMITTED TO EXCEED 150 VOLTS TO GROUND, BUT IT SHALL NOT EXCEED THE VOLTAGE TO GROUND OF A NOMINAL SYSTEM VOLTAGE OF 347/600 V.
- 16.20.14 NOT USED.
- 16.20.15 INSTALLATION, WIRING AND TYPE OF RECESSED LUMINAIRES IN CEILING AND WALLS COMPLY WITH SECTION 30-900 OF CEC.
- 16.20.16 CONTRACTOR PROPOSED ALTERNATE LIGHTING FIXTURES:  
ANY CONTRACTOR PROPOSED ALTERNATE LIGHTING FIXTURE IN LIEU OF SPECIFIED SHALL BE SUBJECT BY THE ENGINEER'S APPROVAL. THE CONTRACTOR TO SUBMIT A BREAKDOWN OF COST SHOWING THE NET DIFFERENCE THAT HAS TO BE DEDUCTED OR ADDED TO THE TENDER PRICE, IF ACCEPTED, THE CONTRACTOR TO INCLUDE FOR AND SHALL TAKE RESPONSIBILITY FOR ANY ADDITIONAL COST INCURRED BY OTHER DISCIPLINES AND TRADES, RESULTING FROM SUBSTITUTION AND SHALL ALSO INCLUDE FOR LIGHTING SYSTEM PERFORMANCE.
- 16.20.17 NOT USED.
- 16.21. NOT USED.
- 16.22. GROUNDING AND BONDING
- 16.22.1 PROVIDE A COMPLETE AND ADEQUATE GROUNDING AND BONDING SYSTEM AS REQUIRED BY THE LATEST CODES/BULLETINS, AS SHOWN ON THE DRAWINGS AND PER THE REQUIREMENTS OF ALL AUTHORITIES HAVING THE JURISDICTION. (GUIDLINES: CEC SECTION 10/BULLETIN 2003-002 EL).
- 16.22.2 ALL NON-CURRENT CARRYING METAL PARTS SHALL BE INTERCONNECTED AND GROUNDED AND/OR BONDED AS PER CODE.
- 16.22.3 MATERIAL FOR BONDING CONDUCTORS FOR EQUIPMENT, METAL RACEWAY AND CONDUCTOR ENCLOSURES SHALL BE PER SEC 10-804 OF CEC.
- 16.22.4 SEPERATE GREEN GROUND WIRE (PER CODE) MUST BE INSTALLED IN ALL NON-METALLIC CONDUITS.
- 16.22.5 NOT USED.
- 16.22.6 GROUNDING CONDUCTORS SHALL BE FREE FROM JOINTS AND CONNECTIONS SHALL BE SOLDERLESS PRESSURE CONNECTORS.
- 16.22.7 METALLIC WATER SYSTEM, WASTE WATER SYSTEMS AND METALLIC GAS PIPING SYSTEMS USED IN CONNECTION WITH THESE PREMISES SHALL BE BONDED TO THE SYSTEM GROUND AS PER CODE.
- 16.22.8 NOT USED.

- 16.22.9 NOT USED.
- 16.22.10 NOT USED.
- 16.22.11 NOT USED.
- 16.22.12 NOT USED.
- 16.23. UTILITIES REQUIREMENTS:  
16.23.1 ALL WORK MUST SATISFY THE REQUIREMENTS OF THE POWER, TELEPHONE AND CABLEVISION COMPANIES, AND THE AUTHORITIES HAVING JURISDICTION.  
16.23.2 CONFIRM ROUTING OF TELEPHONE AND POWER SERVICE WITH SUPPLY AUTHORITIES USING JOINT TRENCH WHERE POSSIBLE. GENERAL CONTRACTOR IS RESPONSIBLE FOR TRENCHING, BACKFILLING, AND ALL CONCRETE WORK. ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR SUPPLYING AND INSTALLING ALL DUCTS c/w NYLON PULLING CORD.  
16.23.3 THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE TO CO-ORDINATE ALL UTILITY WORK/REQUIREMENTS WITH THE GENERAL CONTRACTOR, UTILITIES COMPANY AND MECHANICAL/CIVIL/LANDSCAPE CONTRACTOR AND ALL AUTHORITIES HAVING JURISDICTION.  
16.23.4 a) PROVIDE TERMINATION FOR INCOMING POWER, TELEPHONE AND CATV DUCTS AND CABLES.  
b) OBTAIN SERVICE CONNECTION POINT AND LOCATION OF ALL DUCTS WITH SUPPLY AUTHORITIES BEFORE INSTALLATION.  
c) THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONFIRMING THE LOCATION OF UNDERGROUND UTILITIES BEFORE EXCAVATING.  
16.23.5 NOT USED  
16.23.6 NOT USED  
16.23.7 NOT USED  
16.23.8 ELECTRICAL EQUIPMENT/METERS NEAR COMBUSTIBLE GAS METERS AND OTHER DEVICES  
i) REFER TO CODE SECTION 2-322  
ii) OUTDOOR INSTALLATION - ARC PRODUCING ELECTRICAL EQUIPMENT SHALL NOT BE INSTALLED WITHIN 1m OF A COMBUSTIBLE GAS METER/GAS RELIEF DEVICE OR VENT.
- 16.1. POWER, TELEPHONE AND CABLEVISION INCOMING SERVICES  
16.24.1 CONFIRM AND PROVE LOCATIONS OF OTHER UTILITIES BEFORE CONSTRUCTION.  
16.24.2 SERVICE DUCTS SHALL BE RIGID STEEL, WHERE EXPOSED INSIDE THE BUILDING.  
16.24.3 ALL UNDERGROUND DUCTS SHALL BE HEAVY WALLED RIGID PVC AND ENCASED IN CONCRETE THROUGHOUT UNLESS OTHERWISE NOTED. PROVIDE IDENTIFICATION MARKER PER CODE AND UTILITIES REQUIREMENTS.  
16.24.4 THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR SUPPLY AND INSTALLATION OF ALL PRECAST PULL-BOXES, JUNCTION BOXES,AND DUCTS. SEPERATE DUCT SYSTEM SHALL BE PROVIDED FOR POWER, TELEPHONE AND CABLEVISION.  
16.24.5 NOT USED.  
16.24.6 NOT USED.  
16.24.7 NOT USED.  
16.24.8 NOT USED.  
16.24.9 NOT USED.  
16.24.10 NOT USED.  
16.24.11 MINIMUM SEPARATION SHALL BE MAINTAINED BETWEEN TELEPHONE, CABLEVISION AND POWER DUCTS PER UTILITY REQUIREMENTS.  
16.24.12 NOT USED.  
16.24.13 HYDRO PULL-BOXES SHALL BE GROUNDED PER C.E.C. REQUIREMENTS.  
16.24.14 CONSUMER'S SERVICE EQUIPMENT & CONDUCTORS LOCATION SHALL BE PER CEC 5-206 & 6-208.  
16.1. SMOKE ALARM (SELF CONTAINED, 120 VOLT A.C.);  
16.28.1 NOT USED  
16.29. FUNCTIONAL TESTING OF ELECTRICAL RELATED FIRE EMERGENCY SYSTEMS AND DEVICES:  
THIS SHALL BE CARRIED OUT BY THE SYSTEM SUPPLIER (FEE FOR THIS TO BE INCLUDED IN ELECTRICAL CONTRACT PRICE) IN THE PRESENCE OF REPRESENTATIVE(S) OF THE FIRE MARSHALL, AND ELECTRICAL AND MECHANICAL CONTRACTOR/CONSULTANTS.  
16.30. NOT USED.  
16.31. ELECTRICAL ROOM - GENERAL:  
16.31.1 CLEAR HEIGHT AND DIMENSIONS: (i.e. LENGTH x WIDTH) OF THE ELECTRICAL ROOM(S) MUST BE CONFIRMED BEFORE ORDERING ANY ELECTRICAL EQUIPMENT.  
16.31.2 CAUTION: ELECTRICAL EQUIPMENT DIMENSIONS SHOWN ON THE LAYOUTS ARE MAXIMUM ACCEPTABLE DIMENSIONS. THE CONTRACTOR MUST ENSURE THAT EQUIPMENT ORDERED DOES NOT EXCEED THESE DIMENSIONS.  
16.31.3 MINIMUM WORKING SPACE AND EXIT PATHWAYS SHALL BE PROVIDED ABOUT ELECTRICAL EQUIPMENT AS REQUIRED BY C.E.C. RULE 2-308 AND C.E.C. RULE 2-310. MINIMUM 1.5 METER UNOBSTRUCTED WIDTH REQUIRED FOR THE PATH OF TRAVEL IN THE DIRECTION OF EXIT FROM EQUIPMENT RATED 1200A OR MORE, OR RATED OVER 750V. MINIMUM ONE (1) METER WORKING SPACE REQUIRED FOR EQUIPMENT RATED LESS THAN 1200A AND RATED LESS THAN 750V

CONTINUED ON E10

 <p><b>REAL PROPERTY SERVICES</b> Pacific Region <b>SERVICES IMMOBILIERS</b> Région de Pacifique</p>		
		
 14 Aug 2017		
<p><b>PARKS CANADA</b> <b>WESTERN REGION</b> STEVESTON, B.C. NATIONAL HISTORIC SITE</p>		
<p>Project title/Titre du projet</p> <p><b>GULF OF GEORGIA</b> <b>CANNERY</b> <b>ADMINISTRATION</b> <b>BUILDING</b></p> <p>12138 FOURTH AVE, RICHMOND, BC</p>		
Consultant Signature Only <b>J.R. BESANT</b>		
Designed by/Concept par <b>J.R. BESANT</b>		
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Drawing title/Titre du dessin  <p><b>ELECTRICAL</b> <b>NOTES</b> <b>SH. 1 of 2</b></p>		
Project No./No. du projet <b>R.060702.001</b>	Sheet/Feuille <b>E11</b> OF 13	Revision no./La Révision no. <b>2</b>



- 16.31.4 **CAUTION:** THE ELECTRICAL CONTRACTOR TO COORDINATE WITH THE SITE SUPERVISOR, MECHANICAL CONTRACTOR AND OTHER SUB-TRADES TO ENSURE:
- NO PLUMBING PIPES OR OTHER TYPES OF PIPES SHALL PENETRATE OR BE INSTALLED IN ELECTRICAL ROOMS, EXCEPT THOSE SUPPLYING SPRINKLER HEADS IN THESE ROOMS, IF REQUIRED.
  - NO TOILET, BATHTUB OR ANY DRAIN/PLUMBING ON FLOOR AREA ABOVE THE ELECTRICAL ROOM.
  - ANY DISCREPANCIES BETWEEN THE DRAWINGS (ie. ARCHITECT/ALL SUB CONSULTANTS) AND SPECIFICATION SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT/ENGINEER AND CLARIFIED IN WRITING ONLY PRIOR TO THE CONTRACTOR SUBMITTING HIS BID.

16.31.5 NOT USED.

16.31.6 NOT USED.

- 16.31.7 **ELECTRICAL CONTRACTOR ATTENTION:**
- THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE TO ENSURE THAT THE ELECTRICAL EQUIPMENT TO BE INSTALLED IN THE ELECTRICAL ROOM MEETS ALL NECESSARY CODE CLEARANCE AND REQUIREMENTS.
  - ANY DISCREPANCIES BETWEEN DRAWINGS, SPECIFICATION, EQUIPMENT, DIMENSIONS CLEARANCES, ETC. SHALL BE BROUGHT TO THE ENGINEER AND CLARIFIED IN ONLY WRITING PRIOR TO THE TENDER/PRICING ACCEPTANCE. IF THIS IS **NOT** DONE, IT SHALL BE PRESUMED THAT THE MOST EXPENSIVE ALTERNATIVE HAVE BEEN INCLUDED IN THE TENDER/PRICING.

16.29. NOT USED

16.30. **FIRE SPREAD/FLAME SPREAD REQUIREMENTS**

- 16.33.1 **FIRE SPREAD:**
- TO REDUCE THE POSSIBILITY OF FIRE SPREAD; FIRE SPREAD REQUIREMENTS FOR ELECTRICAL INSTALLATIONS SHALL BE PER C.E.C. RULE 2-124 WHERE A FIRE SEPARATION HAS BEEN PIERCED, THE EFFECTIVENESS OF CLOSING SHOULD BE TO THE SATISFACTION OF BUILDING AUTHORITY HAVING JURISDICTION.

- 16.33.2 **FLAME SPREAD REQUIREMENTS:**
- FLAME SPREAD REQUIREMENTS FOR ELECTRICAL WIRING/MATERIALS AND CABLES AND THEIR USE IN BUILDINGS SHALL BE PER C.E.C. RULES 2-126, 2-128, BULLETIN 2-8-0, APPLICABLE BUILDING CODE ARTICLES AND SHALL MEET FLAME SPREAD RATING REQUIREMENTS OF ALL AUTHORITIES HAVING JURISDICTION. (ie. INTENT IS THAT WIRING, CABLES ETC. INSTALLED IN BUILDING SHALL MEET THE SAME MINIMUM REQUIREMENTS AS BUILDING MATERIALS FOR FLAME SPREAD, SO THAT THEY DO NOT INCREASE THE FIRE RISK.
  - ENSURE THAT ALL CABLES AND WIRES ARE RATED EITHER FT1 FOR BUILDINGS CLASSIFIED AS COMBUSTIBLE, FT4 FOR NON-COMBUSTIBLE BUILDINGS AND FT6 FOR PLENUM USE ASE REQUIRED BY THE BUILDING CODE.

16.33.3 ALL FIRE RESISTANCE RATED ASSEMBLIES (ie. WALLS, CEILINGS, ETC.) WHICH CONTAIN RECESSED LUMINAIRES MUST BE c/w FIRE RATED BACKING TO MAINTAIN THE FIRE INTEGRITY OF THE FIRE RESISTANCE.

16.34. **BRANCH CIRCUIT LOADING** UNLESS SPECIFICALLY NOTED ELSEWHERE IN THE DRAWINGS/SPECIFICATIONS, CIRCUIT LOADING SHALL **NOT** EXCEED THE FOLLOWING CRITERIA:

- 16.34.1 **GENERAL**
- LIGHTING - 15AMP/1P BREAKER; MAXIMUM 1000 WATTS PER CIRCUIT (120V) AND **NOT** TO EXCEED (10) OUTLET PER CIRCUIT.
  - SIZE OF WIRING TO LIMIT VOLTAGE DROP TO 3% MAXIMUM.
  - RECEPTACLES - 15AMP/1P BREAKER; MAXIMUM 5 OUTLETS PER CIRCUIT (120V). 15AMP/1P BREAKER; 1 OUTLET PER CIRCUIT FOR "DEDICATED".
  - MOTOR - NAMEPLATE RATING/CODE REQUIREMENTS

16.34.2 HVAC EQUIPMENT, APPLIANCES, ELECTRIC HEATING EQUIPMENT, MECHANICAL EQUIPMENT: CIRCUIT LOADING PER CODE REQUIREMENTS/NAMEPLATE INFORMATION/MANUFACTURER'S INFORMATION.

16.34.3 **VOLTAGE DROP:** DO **NOT** EXCEED THE MAXIMUM VOLTAGE DROP ALLOWED PER CEC CODE (SEE RULE 8-102); ELECTRICAL CONTRACTOR'S RESPONSIBILITY: WIRING SIZE MUST BE INCREASED TO ACHIEVE THIS RESULT.

**SECTION 16100 - WIRING METHODS.**

2.01 **LABELING AND MARKERS**

- CONDUCTORS SHALL BE DELIVERED TO THE JOB SITE PLAINLY MARKED ON 24-INCH CENTERS. MARKINGS ON CABLES SHALL BE WHITE LETTERING WITH BLACK JACKETING FOR CONDUCTOR SIZES OF No. 6 AND LARGER. INDENTATIONS FOR LETTERING ARE NOT ACCEPTABLE. MARKINGS SHALL BE AS FOLLOWS.
  - GAUGE
  - VOLTAGE
  - KIND OF INSULATION
  - NAME OF MANUFACTURER
  - TRADE NAME
- CONDUCTOR LABELS SHALL BE WITH PVC TUBING WITH MACHINE PRINTED BLACK MARKING. TUBING SHALL BE SIZED TO FIT CONDUCTOR INSULATION. ADHESIVE STRIPS ARE NOT ACCEPTABLE.
- POWER AND CONTROL CONDUCTORS MARKERS OR LABELS: PLASTIC-COATED, SELF STICKING MARKERS SUCH AS THOMAS & BETTS E-2 CODE OR BRADY "PERMA CODE", OR FIELD MARKED LABELS SUCH AS MANUFACTURED BY PAINDUIT. LABEL SHALL BE PERMANENT AND NON-HANDWRITTEN.

2.02 **CONDUCTORS**

- CONDUCTORS SHALL BE SIZED ACCORDING TO CEC, STRANDING, INSULATION, RATING AND GEOMETRICAL DIMENSIONS SHALL CONFORM TO CEC AND CSA SPECIFICATIONS.
- WIRE AND CABLE FOR SECONDARY POWER, LIGHTING AND CONTROL CIRCUITS SHALL BE RATED FOR 600V. USE WIRE WITH FOLLOWING TYPES OF INSULATION AT THE SPECIFIC LOCATIONS.
  - DRY LOCATIONS: TYPE THHN/THWN OR XHHW
  - WET LOCATIONS: TYPE XHHW-2
  - BRANCH CIRCUITS WITH 3 INCHES OF FLUORESCENT LAMP BALLASTS: TYPE XHHW OR TYPE THHN (APPLIES TO FIXTURES WHERE CIRCUIT WIRING IS IN THE SAME COMPARTMENT WITH BALLASTS).
  - MINIMUM 75 DEGREES C TEMPERATURE RATED INSULATION ON CONDUCTORS, EXCEPT MINIMUM 90 DEGREES C TEMPERATURE RATED INSULATION ON CONDUCTORS IN CONDUITS EXPOSED ON ROOF OR WET LOCATIONS.
  - CONDUCTORS FOR GENERAL WIRING: THERMO PLASTIC INSULATION RATED FOR 600V MANUFACTURED IN ACCORDANCE WITH UL 83. COPPER CONDUCTORS, 3/4 HARD DRAWN. CABLE SIZES No. 8 AWG OR LARGER SHALL BE STRANDED COPPER.
  - AT MOTORS AND OTHER APPLICATIONS WHERE SUBJECT TO VIBRATION: STRANDED CONDUCTORS.

2.03 **600 VOLT METAL CLAD CABLE (MC)**

- CABLE SHALL HAVE THE REQUIRED NUMBER OF CONDUCTORS AND SHALL INCLUDE A SEPERATE, INTERNAL GROUND CONDUCTOR, NO SMALLER THAN INDICATED ON THE DRAWINGS. GROUND CONDUCTOR SHALL MEET CEC REQUIREMENTS FOR EQUIPMENT GROUNDING CONDUCTOR.
- MC CABLE ASSEMBLY SHALL BE RATED FOR 90 DEGREES CELCIUS IN WET AND DRY LOCATIONS.

2.04 **600 VOLT SERVICE DROP CABLE**

- SERVICE DROP CABLE SHALL BE TRIPLEXED, ALUMINUM CONDUCTOR, 600 VOLT RATED, WITH 75 DEGREES CELCIUS POLYETHYLENE INSULATION. MESSANGER WIRE SHALL BE ALUMINUM CONDUCTOR (AAC). CONDUCTOR SIZES SHALL BE AS INDICATED ON THE CONTRACT DRAWINGS. UNLESS NOTED OTHERWISE.

2.06 **WIRING MATERIALS**

- CONNECTORS FOR COPPER CONDUCTORS No. 10 AWG AND SMALLER:
  - PRE-INSULATED SPRING PRESSURE TYPE: SCOTCHLOK TYPES Y, R, G AND B; IDEAL "WING NUT"; T & B SEIES PT, OR EQUAL.
  - SPLICE CAP TYPE: UN-INSULATED METAL CAP APPLIED WITH PROPER INDENTER TOOL WHICH PROVIDES DEFORMATION OF CAP IN 2 DIRECTIONS AT RIGHT ANGLES TO EACH OTHER, BUCHANAN, OR ENGINEER APPROVED EQUAL.
- CONNECTORS FOR FIXTURE LEADS: PRE-INSULATED SPRING PRESSURE TYPE AS SPECIFIED ABOVE FOR CONDUCTORS; OR SET SCREW TYPE, MARR, IDEAL OR ENGINEER APPROVED EQUAL.
- CONNECTORS AND LUGS FOR COPPER CONDUCTORS No. 8 AWG AND LARGER: COMPRESSION TYPE, BURNDY, DOSSERT, T&B, OR ENGINEER APPROVED EQUAL.
- WATERTIGHT SPLICE KITS: EPOXY RESIN TYPE, SUITABLE FOR THE TYPE, SIZE AND NUMBER OF CONDUCTORS BEING SPLICED.
- SPLICING AND INSULATING ELECTRICAL TAPE (600V AND BELOW): GENERAL PURPOSE ELECTRICAL TAPE SHALL BE SUITABLE FOR TEMPERATURES FROM 18 DEGREES C TO 105 DEGREES C AND SHALL BE BLACK, ULTRAVIOLET PROOF, SELF EXTINGUISHING, 7 MIL THICK VINYL.
- WASHERS:
  - FLAT WASHER: MILD STEEL, TIN PLATED, AND SLIGHTLY LARGER THAN BELEVILLE WASHER.
  - BELEVILLE WASHER: EITHER HARDENED OR TEMPERED STEEL OR STAINLESS STEEL.

**SECTION 16100 - PART 3 - EXECUTION.**

3.01 **WIRING METHODS**

- GENERAL REQUIREMENTS
  - USE No. 12 AWG OR LARGER WIRE FOR LIGHT AND POWER CIRCUITS AND No. 14 AWG OR LARGER WIRE FOR CONTROL CIRCUITS, UNLESS SMALLER WIRE IS SPECIFIED OR SHOWN. UNLESS OTHERWISE SPECIFIED OR SHOWN, LEAVE AT LEAST 9 INCHES OF FREE CONDUCTORS AT EACH UNCONNECTED OUTLET, TAPE FREE ENDS OF CONDUCTORS AND COIL NEATLY IN OUTLET BOX.
- SPLICING AND TERMINATION OF CONDUCTORS:
  - CONDUCTORS No. 10 AWG AND SMALLER
    - TWIST CONDUCTORS TOGETHER TO BE ELECTRICALLY AND MECHANICALLY SECURE BY MEANS OF PRE-INSULATED SPRING PRESSURE CONNECTORS OR UN-INSULATED SPLICE CAPS APPLIED WITH PROPER INDENTER TOOL DESIGNED FOR THE SPECIFIC TYPE OF CAP USED. TWIST CONDUCTORS TOGETHER BEFOR APPLYING SPLICE CAPS.
    - INSULATE SPLICES, JOINTS AND FREE ENDS OF CONDUCTORS WITH INSULATION EQUIVALENT TO THAT OF CONDUCTORS BY TAPING WITH RUBBER AND FRICTION TAPES, OR WITH HIGH DIELECTRIC STRENGTH PLASTIC TAPE.
    - IF SPLICE CAPS ARE USED, PLASTIC INSULATING CAPS MAY BE USED. AFTER APPLYING SPLICE CAPS, USE INSULATING CAPS RATED FOR THE TEMPERATURES TO WHICH THEY MAY BE SUBJECTED, AND INSTALL AS RECOMMENDED BY THE MANUFACTURER.

2. CONDUCTORS No. 8 AWG AND LARGER:

- SPLICE AND TERMINATE CONDUCTORS BY MEANS OF COMPRESSION CONNECTORS AND COMPRESSION TERMINAL LUGS.
  - DO NOT USE SPLIT BOLT TYPE CONNECTORS.
  - AFTER INITIAL SET HAS BEEN TAKEN, RETIGHTEN ALL PRESSURE TYPE CONNECTORS AND LUGS.
  - INSULATE ALL SPLICES, JOINTS AND FREE ENDS OF CONDUCTORS AS SPECIFIED ON THIS SECTION
  - WHERE ALUMINUM LUG IS BOLTED WITH STEEL OR COPPER BOLT, USE BELLEVILLE SPRING WASHER AND FLAT WASHER.
- UNDERGROUND SPLICES: CONDUCTOR AND CABLE SPLICES INSTALLED UNDERGROUND IN MANHOLES, PULL-BOXES AND SIMILAR LOCATIONS, SHALL BE MADE WATERTIGHT. SPLICES FOR LEAD-SHEATHED CABLES SHALL BE WIPED LEAD JOINTS. APPROVED SPLICE KITS MAY BE USED FOR CONDUCTORS AND CABLES OTHER THAN LEAD-SHEATHED.

C. COLOR CODING

1. COLOR CODE FOR GENERAL WIRING AS FOLLOWS:

- FOR 240/120V, 1-PHASE SYSTEM:
  - PHASE A: BLACK
  - PHASE B: RED
  - NEUTRAL: WHITE
- FOR 480/277V, 3-PHASE SYSTEM:
  - PHASE A: BROWN
  - PHASE B: ORANGE
  - PHASE C: YELLOW
  - NEUTRAL: GRAY
- GROUND CONDUCTORS:
  - BARE COPPER CONDUCTOR MAY BE USE FOR EQUIPMENT GROUND ONLY.
  - INSULATED GROUND CONDUCTORS:
    - GROUND CONDUCTOR: GREEN
    - ISOLATED GROUND CONDUCTOR: GREEN WITH WHITE STRIP.

- USE GREEN COLOR FOR ANY CONDUCTOR INTENDED SOLELY FOR EQUIPMENT GROUNDING, UNLESS IT IS BARE.
- USE WIRE WITH INSULATION OF REQUIRED COLOR. FOR OTHER TYPES OF WIRE, WHICH MAY NOT BE AVAILABLE IN SPECIFIED COLORS, USE SELF ADHESIVE WRAP AROUND CLOTH TYPE MARKERS OF SOLID COLORS TO COLOR CODE CONDUCTORS.
- WHERE WIRE MARKERS ARE USED FOR COLOR CODING, MARK EACH CONDUCTOR AT ALL ACCESSIBLE LOCATIONS (PANELBOARDS, JUNCTION BOXES, HANDHOLES, AUXILIARY GUTTERS, OUTLETS, SWITCHES, CONTROL CENTERS AND SIMILAR DEVICES).

D. CONDUCTOR IDENTIFICATION

- FEEDER: IDENTIFY WITH THE CORRESPONDING CIRCUIT DESIGNATION AT OVERCURRENT DEVICE AND LOAD ENDS, AT ALL SPLICES, AND IN PULL BOXES.
- BRANCH CIRCUITS: IDENTIFY WITH CORRESPONDING CIRCUIT DESIGNATION AT OVERCURRENT DEVICE AT ALL SPLICES.
- IF MORE THAN ONE WHITE (NEUTRAL) CONDUCTOR IS PRESENT, MARK EACH WITH ALL RELATED NUMBERS.
- CONTROL WIRES: IDENTIFY WITH INDICATED NUMBER AND OR LETTER DESIGNATION AT ALL TERMINAL POINTS AND CONNECTIONS, INCLUDING MANUFACTURER PRE WIRED CONTROL SECTIONS AND CABINETS.
- ALARM AND DETECTION WIRES: IDENTIFY WITH INDICATED WIRE AND MNEMONICS NUMBERS AT ALL CONNECTIONS, TERMINAL POINTS, AND COILD CONDUCTORS WITHIN CABINETS.
- IDENTIFY POWER AND CONTROL CONDUCTORS USING MARKERS OR FIELD MARKED LABELS.

3.02 **INSTALLATION**

- USE APPROVED SPECIFIED WIRE PULLING LUBRICANT. DO NOT USE OIL, GREASE OR SIMILAR INDISCRIMINATE SUBSTANCES TO FACILITATE THE PULLING IN OF CONDUCTORS.
- PULL WIRE INTO CONDUITS WITH CARE AND PREVENT DAMAGE TO INSULATION. USE BASKET PULLING GRIPS TO AVOID SLIPPING OF INSULATION ON CONDUCTORS.
- DO NOT USE BLOCKS, TACKLE OR OTHER MECHANICAL MEANS TO PULL WIRES No. 8 AWG OR SMALLER.
- WHEN PULLING CONDUCTORS, DO NOT EXCEED MANUFACTURER'S RECOMMENDED PULL TENSION VALUES.
- DRESS HARNESS ALL WIRE AND CABLE TO PREVENT MECHANICAL STRESS ON ELECTRICAL CONNECTIONS. NO WIRE AND CABLE SHALL BE SUPPORTED BY A CONNECTION POINT.
- CORRECT THE FOLLOWING CONDITIONS: DEFORMED, BRITTLE OR CRACKED INSULATION; INSULATION SHRUNK OR STRIPPED FURTHER THAN 1/8 INCHES AWAY FROM THE ACTUAL POINT OF CONNECTION; COLD SOLDER JOINTS, FLUX JOINTS, AND SOLDER SPLATTER; UNGROMMETED, UNATTACHED OR UNINSULATED WIRE OR CABLE ENTRIES; AND DEFORMATION OF IMPROPER RADIUSING OF WIRE OR CABLE, ESPECIALLY COAXIAL CABLE.
- INSTALL CABLE WITH A BEND RADIUS NOT LESS THAN THAT RECOMMENDED BY CABLE MANUFACTURER. PROVIDE A BOX LOOP FOR ALL WIRE AND CABLE ROUTED THROUGH JUNCTION BOXES OR DIDTRIBUTION PANELS.
- REMOVE DEBRIS AND MOISTURE FROM RACEWAYS, BOXES, AND CABINETS BEFORE INSTALLING WIRE OR CABLE.
- INSTALL TECK CABLE AT LOCATIONS INDICATED ON THE CONTRACT DRAWINGS OR AT OTHER LOCATIONS APPROVED BY THE ENGINEER.
- SERVICE DROP CABLE SHALL BE USED ONLY FOR TEMPORARY LIGHTING INSTALLTION AND AT OTHER TEMPORARY INSTALLATIONS AS APPROVED BY THE ENGINEER.
- ALL EXPOSED WIRING TO BE IN CONDUIT UNLESS NOTED OTHERWISE.
- WIRING TO LIGHTING TO BE BX.



2	ISSUED FOR ADDENDUM #1	07/21/17
1	ISSUED FOR TENDER	02/22/17

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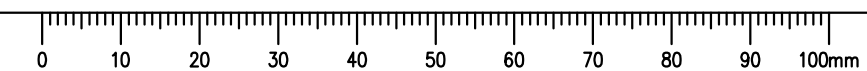
**PARKS CANADA WESTERN REGION**  
STEVESTON, B.C. NATIONAL HISTORIC SITE

Project title/Titre du projet  
**GULF OF GEORGIA CANNERY ADMINISTRATION BUILDING**  
12138 FOURTH AVE, RICHMOND, BC

Consultant Signature Only  
**J.R. BESANT**  
Designed by/Concept par  
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**REGIONAL MANAGER AES**  
Drawing title/Titre du dessin

**ELECTRICAL NOTES SH. 2 of 3**

Project No./No. du projet <b>R.060702.001</b>	Sheet/Feuille <b>E12</b> OF 13	Revision no./La Révision no. <b>2</b>
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16200 SWITCHES AND RECEPTACLES

PART 1 GENERAL

1.0 SCOPE: PROVIDE, INSTALL AND TEST ALL SWITCHES, DIMMERS AND RELATED DEVICES AS SPECIFIED HEREIN FOR THE AREAS INDICATED ON THE DRAWINGS, SPECIFICATIONS, AND LOAD SCHEDULES. ALL DEVICES HAVE TO BE SPEC GRADE.

2.0 REFERENCES

- A. UL 20, UL 1472, CSA, NOM, ISO 9001

3.0 SUBMITTALS

SUBMIT MANUFACTURER'S STANDARD CATALOG DATA GIVING ALL APPLICATION, WIRING, AND INSTALLATION INFORMATION ON BASIC COMPONENTS AND WALLPLATE KITS. PROVIDE TEST DATA AND/OR SAMPLES AS REQUIRED TO DEMONSTRATE CONFORMANCE WITH THIS SPECIFICATION.

4.0 QUALITY ASSURANCE

- A. MANUFACTURER SHALL HAVE A MINIMUM OF 10 YEARS CONTINUOUS EXPERIENCE IN MANUFACTURING WALLBOX DIMMING PRODUCTS.
- B. DIMMERS, SWITCHES AND FAN-SPEED CONTROLS SHALL BE UL LISTED, CSA AND NOM APPROVED SPECIFICALLY FOR EACH REQUIRED LOAD (I.E., TUNGSTEN, ELECTRONIC LOW VOLTAGE TRANSFORMER, MAGNETIC LOW VOLTAGE TRANSFORMER, AND FLUORESCENT). MANUFACTURER SHALL PROVIDE FILE CARD OR CERTIFICATE UPON REQUEST. UNIVERSAL LOAD-TYPE DIMMERS SHALL NOT BE ACCEPTABLE.
- C. MANUFACTURER SHALL MAINTAIN ISO 9001 CERTIFICATION AND PROVIDE A COPY OF THE CERTIFICATE UPON REQUEST.

5.0 WARRANTY

- A. ALL DEVICES SHALL BE COVERED BY A MINIMUM ONE-YEAR WARRANTY.

PART 2 – EQUIPMENT

1.0 SPECIFICATION BASED ON LUTRON OR HUBBEL COMMERCIAL GRADE COMPONENTS.

2.0 UNLESS OTHERWISE NOTED, ALL BASIC COMPONENTS (DIMMER, FAN-SPEED CONTROL, SWITCH, RECEPTACLE, TELEPHONE JACK AND CABLE TV JACK) AND WALLPLATE KITS SHALL BE PROVIDED BY ONE MANUFACTURER.

3.0 SWITCHES:

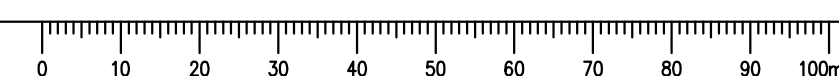
- A. ELECTRONIC TAP SWITCHES SHALL BE AVAILABLE FOR ON/OFF CONTROL OF 120VAC INCANDESCENT, MAGNETIC LOW VOLTAGE, ELECTRONIC LOW VOLTAGE, MAGNETIC AND ELECTRONIC FLUORESCENT NON-DIMMABLE BALLAST LOADS UP TO 1000W/VA.
- B. ELECTRONIC TAP SWITCHES WITH STATUS LIGHT SHALL BE AVAILABLE FOR ON/OFF CONTROL OF 120VAC INCANDESCENT, MAGNETIC LOW VOLTAGE, AND MAGNETIC FLUORESCENT NON-DIMMABLE BALLAST LOADS UP TO 1000W/VA.
- C. SWITCHES, FOR HIGHER CAPACITY OR DIFFERENT LOADS THAN ELECTRONIC TAP SWITCHES, SHALL PROVIDE ON/OFF CONTROL OF ANY 120/277 VAC LOAD UP TO 20A. SWITCHES SHALL BE UL LISTED AS GENERAL-USE AC SWITCHES. GENERAL-USE SWITCHES SHALL BE AVAILABLE IN SINGLE POLE, 3-WAY AND 4-WAY CONFIGURATIONS.

4.0 RECEPTACLE

- A. ALL RECEPTACLES SHALL BE UL LISTED, CSA AND NOM APPROVED.
- B. RECEPTACLES SHALL BE TWO POLE, THREE WIRE GROUND AND RATED FOR 15A OR 20A AS SPECIFIED AT 125 VAC. ALL RECEPTACLES SHALL BE NEMA CONFIGURATION TYPE 5-15R OR 5-20R.
- C. ISOLATED GROUND RECEPTACLES SHALL BE TWO POLE, THREE-WIRE GROUND AND RATED 15A OR 20A AS SPECIFIED AT 125VAC. CONFIGURATION SHALL BE OF THE DUPLEX TYPE WITH RECTANGULAR NEMA WD-6 DESIGN. RECEPTACLE FACE SHALL BE ORANGE WITH BLACK ISOLATED GROUND TRIANGLE OR STANDARD NOVA T ACOLORS WITH ORANGE ISOLATED GROUND TRIANGLE.

PART 3 – EXECUTION

- A. INSTALL DEVICES PLUMB AND LEVEL.
- B. INSTALL SWITCHES WITH OFF POSITION DOWN.
- C. INSTALL RECEPTACLES WITH GROUNDING POLE ON TOP.
- D. CONNECT WIRING DEVICE GROUNDING TERMINAL TO BRANCH CIRCUIT EQUIPMENT GROUNDING CONDUCTOR.
- E. INSTALL COVER PLATES ON SWITCH, DIMMER, RECEPTACLE, AND BLANK OUTLETS IN ALL AREAS.
- F. CONNECT WIRING DEVICES BY WRAPPING SOLID CONDUCTOR AROUND SCREW TERMINAL. INSTALL STRANDED CONDUCTOR FOR BRANCH CIRCUITS 10 AWG AND SMALLER. WHEN STRANDED CONDUCTORS ARE USED IN LIEU OF SOLID, USE CRIMP ON FORK TERMINALS FOR DEVICE TERMINATIONS. DO NOT PLACE BARE STRANDED CONDUCTORS DIRECTLY UNDER DEVICE SCREWS. USE JUMBO SIZE PLATES FOR OUTLETS INSTALLED IN MASONRY WALLS AND WEATHERPROOF WHERE REQUIRED.
- G. INSTALL GALVANIZED STEEL PLATES ON OUTLET BOXES AND JUNCTION BOXES IN UNFINISHED AREAS AND ABOVE ACCESSIBLE CEILINGS.



14 Aug 2017

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**ELECTRICAL  
NOTES  
SH. 3 of 3**

Project No./No. du projet	Sheet/Feuille	Revision no./La Révision no.
R.060702.001	E13 OF 13	1