

DRAWING LIST	
E-001	EXISTING SITE PLAN, LEGEND, AND DRAWING LIST
E-002	NEW ELECTRICAL SITE PLAN, AND DETAILS
E-003	DUCTBANK DETAILS AND CABLE SCHEDULES
E-004	DUCTBANK, CABLE SCHEDULES, AND ELECTRICAL DETAILS
E-005	ELECTRICAL PULLBOX DETAILS
E-006	ELECTRICAL DETAILS, MDC-GULF
E-007	ELECTRICAL DETAILS, BCH TRANSFORMER
E-100	ELECTRICAL SINGLE LINE DIAGRAM

GENERAL NOTES:

- EXISTING INFORMATION WITHIN THESE DRAWINGS IS BASED ON INFORMATION PROVIDED BY OTHERS, EXTRACTED FROM HISTORICAL RECORDS, AND SITE OBSERVATION. EXISTING INFORMATION IS PROVIDED TO FACILITATE THE CONTRACTOR IN PROVIDING A FAIR AND ACCURATE TENDER BID BY PROVIDING A GREATER UNDERSTANDING OF THE SCOPE OF WORK. BY NO MEANS SHALL THE CONTRACTOR RELY SOLELY ON THE EXISTING INFORMATION PROVIDED TO DETERMINE A COMPLETE AND FULLY ACCURATE SCOPE OF WORK. AS NOT ALL ELECTRICAL EQUIPMENT OR DEVICES THAT REQUIRE TO BE RELOCATED, REMOVED OR REPLACED MAY BE NOTED, CONTRACTOR SHALL PERFORM A SITE VISIT TO DETERMINE THE EXACT SCOPE OF WORK PRIOR TO PROVIDING THEIR TENDER BID.
- THIS CONTRACTOR IS TO SUPPLY AND INSTALL ALL NECESSARY TEMPORARY LIGHTING AND POWER DURING CONSTRUCTION.
- INSTALLATION SHALL COMPLY WITH DEPARTMENT OF FISHERIES AND OCEANS CANADA STANDARDS (OX LABELING, COLOUR CODING OF RACEWAYS AND BOXES, ETC.).

ABBREVIATIONS	
AHU	Authority Having Jurisdiction
XXF	CB Frame Rating (amps)
XXT	CB Trip Setting (amps)
BCH	B.C. Hydro
CB	Circuit Breaker or Breaker
CT	Current Transformer
CCT	Circuit
CEC	Canadian Electrical Code
DFO	Department of Fisheries & Oceans
MDP	Main Distribution Panel
MDC	Main Distribution Cabinet
DMS	Digital Metering System
NIC	Not in Contract
P	Phase
PH	Phase
RC	Receptacle Cabinet (c/w RCP & receptacle outlets)
RCP	RC Panel
SCH	Small Craft Harbour
SEE	Service Entrance Enclosure
TRC	Transformer Receptacle Cabinet (c/w TRCP, TRF and RCP)
TRF	Transformer
WP	Weatherproof Outlet
2P	Two pole CB (1 phase use)
3P	Three pole CB (3 phase use)
ER	Existing to Remain
RE	Existing to be Relocated
R	Existing to be Removed

SINGLE LINE DIAGRAM SYMBOL SCHEDULE

	LV CIRCUIT BREAKER
	LV CIRCUIT BREAKER WITH STAB CONNECTORS (DRAWOUT CONTACTS)
	LV CIRCUIT BREAKER (DRAWOUT) LETTER DESIGNATIONS: P USED: SPS SFC SMC SMCB SMCB-2 SMCB-3 SMCB-4 SMCB-5 SMCB-6 SMCB-7 SMCB-8 SMCB-9 SMCB-10 SMCB-11 SMCB-12 SMCB-13 SMCB-14 SMCB-15 SMCB-16 SMCB-17 SMCB-18 SMCB-19 SMCB-20 SMCB-21 SMCB-22 SMCB-23 SMCB-24 SMCB-25 SMCB-26 SMCB-27 SMCB-28 SMCB-29 SMCB-30 SMCB-31 SMCB-32 SMCB-33 SMCB-34 SMCB-35 SMCB-36 SMCB-37 SMCB-38 SMCB-39 SMCB-40 SMCB-41 SMCB-42 SMCB-43 SMCB-44 SMCB-45 SMCB-46 SMCB-47 SMCB-48 SMCB-49 SMCB-50 SMCB-51 SMCB-52 SMCB-53 SMCB-54 SMCB-55 SMCB-56 SMCB-57 SMCB-58 SMCB-59 SMCB-60 SMCB-61 SMCB-62 SMCB-63 SMCB-64 SMCB-65 SMCB-66 SMCB-67 SMCB-68 SMCB-69 SMCB-70 SMCB-71 SMCB-72 SMCB-73 SMCB-74 SMCB-75 SMCB-76 SMCB-77 SMCB-78 SMCB-79 SMCB-80 SMCB-81 SMCB-82 SMCB-83 SMCB-84 SMCB-85 SMCB-86 SMCB-87 SMCB-88 SMCB-89 SMCB-90 SMCB-91 SMCB-92 SMCB-93 SMCB-94 SMCB-95 SMCB-96 SMCB-97 SMCB-98 SMCB-99 SMCB-100
	DISCONNECT SWITCH
	LOAD BREAK SWITCH
	FUSED SWITCH
	FUSED SWITCH (POLE MOUNTED)
	FUSED SWITCH
	FUSE
	FORM C CONTROL CONTACT
	N.O. CONTACT (ALTERNATE)
	N.C. CONTACT (ALTERNATE)
	TRANSFER SWITCH
	CAPACITOR
	GROUND
	UTILITY POWER METER
	CONNECTION POINT
	AC GENERATOR SET
	D.Y. GROUND Y-Y GROUND
	TRANSFORMER
	PAD MOUNT TRANSFORMER
	PANEL X
	RESISTOR HEAT
	DRAWOUT CELL
	LIGHTNING ARRESTOR
	H.V. CABLE STRESS CONE TERMINATION
	CABLE SIDE
	INCOMING UTILITY CONNECTION (POT) HEAD
	FIELD WINDING
	POTENTIAL TRANSFORMER
	CURRENT TRANSFORMER
	ZERO SEQUENCE CURRENT TRANSFORMER
	TEST LINK (SWITCH/RELAY) (1 LINE DIAGRAM)
	DOTTED LINE IS OPERATIVE CIRCUIT
	PROTECTIVE RELAY (NUMERICAL) (INDICATES STANDARD IEEE DEVICE FUNCTION NUMBERS AS LISTED ABOVE)
	IF USED: NO. OF PHASES IF MORE THAN 1
	SOLID LINE IS 'TOTAL' CIRCUIT
	INSTANTANEOUS AND TIME DELAY GROUND AND NEUTRAL OVERCURRENT RELAY
	BREAKER AUX CONTACTS
	BREAKER KEY INTERLOCK
	BREAKER KEY INTERLOCK
	STRIP SURFACE MOUNTED LUMINAIRE
	ELECTRIC BASEBOARD HEATER

DRAWING KEYNOTES:

1. FIELD VERIFY EXISTING ELECTRICAL CONNECTIONS FROM SHORE POWER ELECTRICAL ROOM TO BUILDING #1. DISCONNECT FEEDERS AND REMOVE EXISTING CONDUCTORS. CAP AND SEAL CONDUITS AFTER REMOVING THE CONDUCTORS. NOTIFY THE DEPARTMENTAL REPRESENTATIVE OF ANY CHANGES.

2. CONTRACTOR TO FIELD VERIFY BUILDING 44 ELECTRICAL ROOM PRIOR TO WORK. DISCONNECT EXISTING BCH METER AND HAND OVER TO BC HYDRO. COORDINATE WITH BC HYDRO PRIOR TO WORK.

DUCT LEGEND

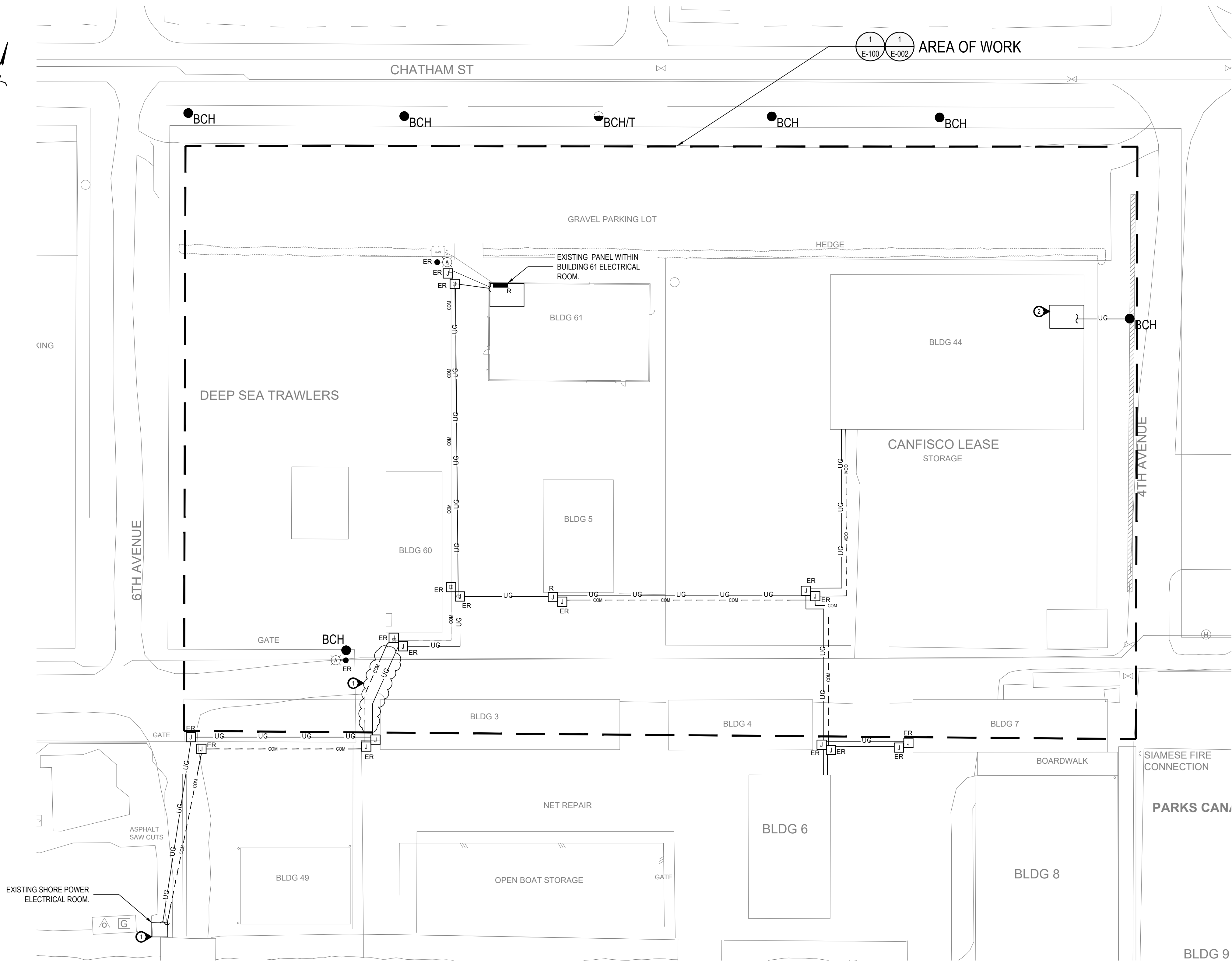
UG	UG	UG	UG	EXISTING UNDERGROUND DUCTBANK
UG	UG	UG	UG	NEW UNDERGROUND DUCT BANK
COM	COM	COM	COM	EXISTING COMMUNICATION DUCT BANK
COM	COM	COM	COM	NEW COMMUNICATION DUCT BANK

SITE SYMBOL SCHEDULE

	BC HYDRO UTILITY POLE
	TALUS POLE
	PRIVATE POWER POLE
	BC HYDRO TALUS POLE
	UTILITY TRANSFORMER ON CONCRETE PAD
	CONCRETE ENCASED TRENCH
	CONCRETE PULL BOX
	CONCRETE PULL PIT
	EXTERIOR CONCRETE BOLLARD
	PULL BOX (FIBRE GLASS, PVC, ETC)
	OVERHEAD UTILITY SERVICE MAST
	ONE LINE VOLTAGE TOGGLE SWITCH (MOUNTED 4' or 11.2M) ABOVE FINISHED FLOOR LEVEL (UNLESS OTHERWISE NOTED)
	STUBOUT FOR CONDUIT (OR INSULATED END FOR SPARE CABLE OR CONTROL WIRING)
	QUADRUPLE RECEPTACLE CONNECTION
	WALL MOUNTED OCCUPANCY SENSOR
	SINGLE SURFACE MOUNTED PANELBOARD
	JUNCTION BOX
	STRIP SURFACE MOUNTED LUMINAIRE
	ELECTRIC BASEBOARD HEATER

KEY PLAN

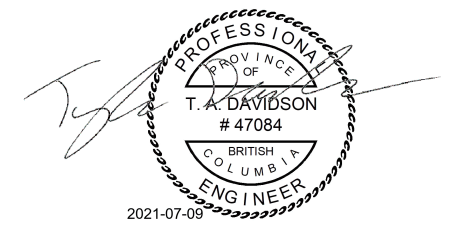
SCALE: N.T.S.



EXISTING SITE PLAN

SCALE: 1:500

0 10 20 30 40 50 60 70 80 90 100m



03	2021/07/09	ISSUED FOR TENDER
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ISS DATE DESCRIPTION

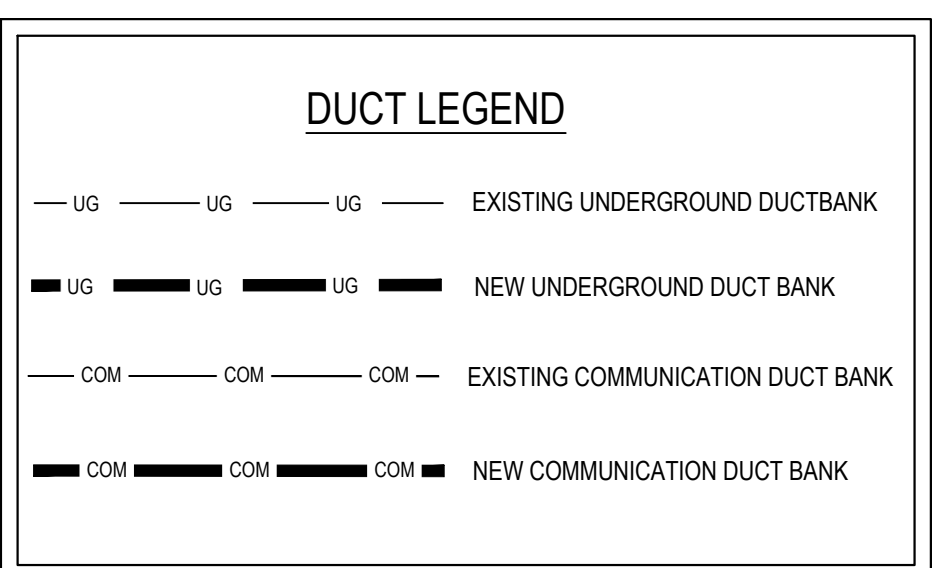
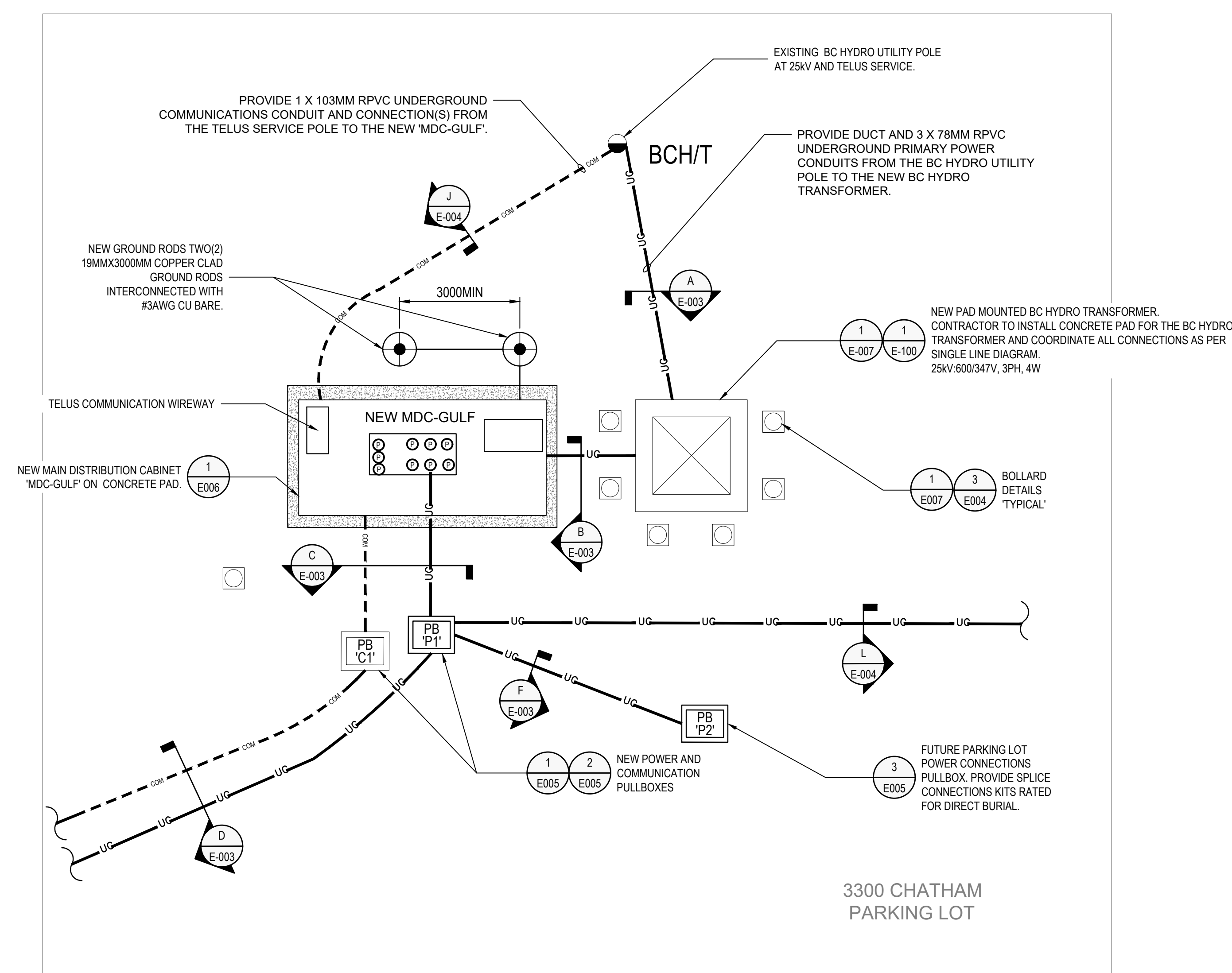
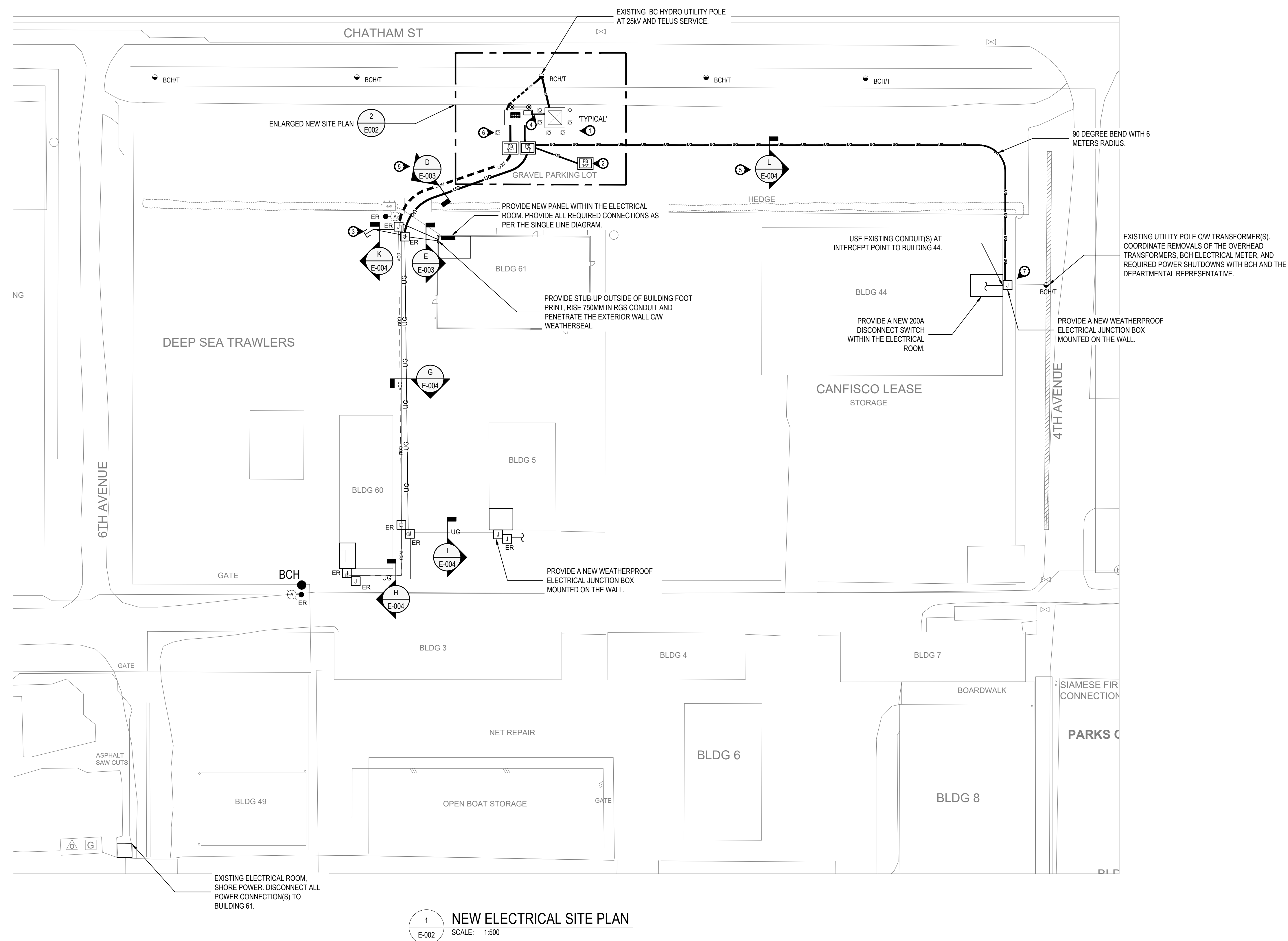
FISHERIES AND OCEANS CANADA
SMALL CRAFT HARBOURS

wsp

Project No./Title de projet
3300 CHATHAM, RICHMOND, B.C.
SCH STEVESTON HARBOUR
ELECTRICAL INDEPENDENT POWER SOURCE

Drawing No./Title de dessin
EXISTING SITE PLAN, LEGEND, AND DRAWING LIST

Project No./Title de projet
191-16093-06
Sheet/Feuille
E-001
Drawing No./Title de dessin
01



- GENERAL NOTES:

1. CONTRACTOR TO FIELD VERIFY THE EXISTING OVERALL SITE PLAN PRIOR TO WORK. NOTIFY ANY CHANGES WITH THE DEPARTMENTAL REPRESENTATIVE PRIOR TO START-UP.
2. ALL POWER AND COMMUNICATION DUCTBANKS ARE EXISTING UNLESS OTHERWISE SPECIFIED WITHIN THE DRAWINGS. CONTRACTOR TO PROVIDE ALL NEW DUCTBANKS TO EACH BUILDING FOR EXISTING/NEW DUCTS AS PER THE SINGLE LINE DIAGRAM. PROVIDE WALL STUB-OUTS WHEN ENTERING THE BUILDING VLAH-FITTING. SEAL ALL CONDUITS AND CONDUCTORS AS PER THE DRAWINGS.
3. INSTALLATION OF THE NEW TRANSFORMER IS NOT WITHIN THE SCOPE OF WORK AND IS DONE BY BC HYDRO. THE WORK INCLUDES COORDINATION AND CONNECTIONS FROM THE BC HYDRO TRANSFORMER TO THE MOC-GULF AS PER THE SINGLE LINE DIAGRAM. PROVIDE ARC FLASH STUDY REPORT OF THE MOC TO THE DEPARTMENTAL REPRESENTATIVE FOR APPROVAL PRIOR TO START-UP.

- DRAWING KEYNOTES:

- [illegible]

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ISS	DATE	DESCRIPTION



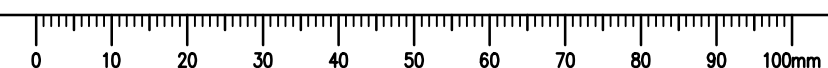
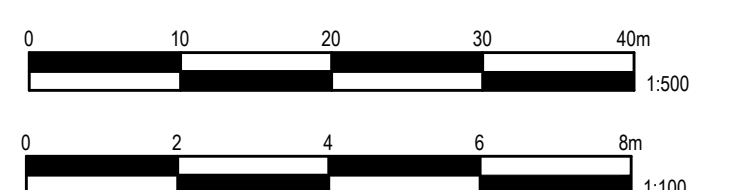
FISHERIES AND OCEANS
CANADA
SMALL CRAFT HARBOURS



Projet/ Site/Titre du projet
3300 CHATHAM, RICHMOND, B.C.
SCH STEVESTON HARBOUR
**ELECTRICAL INDEPENDENT
POWER SOURCE**

Drawing title/Titre du dessin
NEW ELECTRICAL SITE PLAN, , AND
DETAILS

Project No./No. du projet 191-16093-06	Sheet/Feuille E-002	Revision no./La Révision no. 01
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DUCTBANK 'D' CROSS SECTION
 SCALE: N.T.S.



DUCTBANK 'B' CROSS SECTION
SCALE: N.T.S.

DUCTBANK 'E' CROSS SECTION
SCALE: N.T.S.

DUCTBANK 'C' CROSS SECTION
SCALE: N.T.S.

DUCTBANK 'F' CROSS SECTION
SCALE: N.T.S.

TYPICAL DUCT INSTALLATION WITH PLASTIC SPACERS

TYPICAL DIMENSIONS
(SEE TABLE)

TYPICAL SECTION

2 TYPICAL CONCRETE ENCASED DUCT CONSTRUCTION DETAIL
E-003 SCALE: N.T.S.

TYPICAL CONCRETE ENCASED DUCT CONSTRUCTION

DETAILS:

- 1. UNLESS NOTATED OTHERWISE, ALL OUTDOOR DUCT RUNS CONTAINING CABLE OPERATING AT 48 VOLTAGE MUST BE ABOVE GROUND AND, AT MINIMUM, OF 100MM AND SHALL BE PROTECTED BY CONCRETE ENCASEMENT.
- 2. FOR OTHER OUTDOOR RUN REQUIRING CONCRETE ENCASEMENT, IN ADDITION TO THE ABOVE, IT MUST BE REFERRED TO SPECIFIC PROJECT DOCUMENTATION.
- 3. ALL DUCT BANK DIMENSIONS ARE TYPICAL FOR 100MM DIAMETER DUCTS. FOR 150MM AND 200MM DUCTS, THE TYPICAL DUCT DIMENSIONS AND SELECT PLASTIC DUCTS TO OBTAIN 90MM SPACING, OR 150MM SPACING, OR AS NOTATED OTHERWISE, AND 50MM CONCRETE COVER, UNLESS OTHERWISE NOTED, SHALL BE MAINTAINED. INCREASED CONCRETE COVER IN ACCORDANCE WITH BCPA STANDARDS.
- 4. GRADUALLY INCREASE VERTICAL SPACING FROM 40mm TO 150mm at end of duct run, increasing CONCRETE COVER TO 50MM TO PROTECT FROM WEATHER TRENCHES, STARTING FROM THE OUTSIDE FACE OF CONCRETE WALL.
- 5. DUCTBANK MAY BE IDENTIFIED HORIZONTALLY AS DOWN OR VERTICALLY WHEN INDICATED ON PROJECT DRAWINGS.
- 6. SELECT TOP AND BOTTOM PLASTIC SPACERS TO ACCURATELY POSITION THE REMAINING CABLES WITHIN THE TYPICAL DIMENSIONS DETAIL ON THE DRAWING.
- 7. FOR GENERAL DESIGN GUIDELINES, DUCT TYPES, COMPACT AND FLAT, SEE REF.

1 TYPICAL DUCTBANK CLEARANCES
E-003 SCALE: N.T.S.

1. TYPICAL DUCT BANK CLEARANCES NOTES:

THIS DRAWING IS BASED ON: 60 HZ, HYDRONATED EPOXY 4401, REVS. 1, 2, DATA AND 2PFA AND CSA STANDARDS. THE FOLLOWING CLEARANCES ARE BASED ON THE ABOVE. CONCRETE SHALL BE THE SAME AS THE FOREGOING STANDARDS AND CONCRETE IS VALID FOR THE APPLICATION. CONCORD WITH ADDITIONAL REQUIREMENTS OF THE SPECIFICATIONS AND THE DRAWING. THE FOLLOWING CLEARANCES ARE TO THE DOW.

2. FIGURES IN COLUMNS 1 AND 2 ARE APPLICABLE FOR PRIMARY AND SECONDARY E.C. CORDS WITH CONCORD WITH ADDITIONAL REQUIREMENTS OF THE SPECIFICATIONS AND THE DRAWING. THE FOLLOWING CLEARANCES ARE TO THE DOW.

3. WHEN PRIMARY & HYDRO CORDS ARE BEING INSTALLED ON PRIVATE PROPERTY, OTHER WRITTEN APPROVAL FROM THE LOCAL ELECTRICAL CODES AND THE LOCAL ELECTRICAL CODES IS REQUIRED. IN THE ABSENCE OF SUCH APPROVAL, CLEARANCES OF COLUMNS 1 AND 2 SHALL BE APPLICABLE.

4. CLEARANCE MAY BE REDUCED TO 300MM (12 INCH) MINIMUM BY OBTAINING WRITTEN APPROVAL FROM THE LOCAL ELECTRICAL CODES AND THE LOCAL ELECTRICAL CODES IS REQUIRED. IN THE ABSENCE OF SUCH APPROVAL, CLEARANCES OF COLUMNS 1 AND 2 SHALL BE APPLICABLE.

5. UNLESS CONTRACT ENGAGEMENT IS SPECIFIED, NAIL CONCRETE PAVEMENT SLAB ALONG THE ELECTRICAL DUCT RUNNING IN ACCORDANCE WITH SECTION 1.10 OF THE FOLLOWING APPLICATIONS: E.C. CORDS, PRIMARY AND SECONDARY E.C. CORDS, AND CONCRETE PAVEMENT SLAB ALONG THE ELECTRICAL DUCTS CONTAINING CABLES OPERATING AT SYSTEM VOLTAGES ABOVE 60KV.

6. WHERE CLEARANCES AT TABLE 1 CANNOT BE OBTAINED DUE TO SITE CONDITIONS, USE REDUCED CLEARANCES OF DRAWING REFS. 4, 6 OR 8 CANNOT BE OBTAINED THE AFFECTED PORTIONS OF TABLES.


7. FOR CLEARANCES OF DUCTS TO STEEL PILES, SEE REFS. 1 & 2.

8. FOR INSTALLATION DETAILS OF DIRECT BURIED DUCTS IN GENERAL, SEE REFS. 1 & 2.


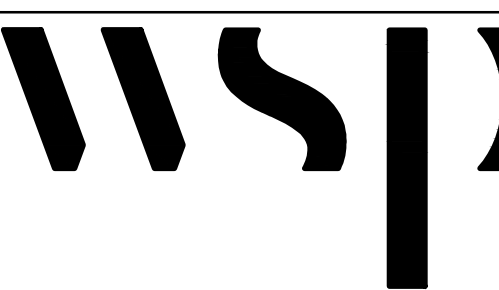
9. FOR INSTALLATION DETAILS OF DUCTS RUNNING UNDER SLAB OR UNDER PAVED SURFACES, SEE REFS. 1 & 2.

10. FOR MAX. WALKING CROSSINGS, SEE CSA STANDARD CAN/CSA 223 M12.1.

11. FOR SYSTEM VOLTAGES ABOVE 60KV, PROVIDE 300MM OF CLEARANCE AT THE TOP BOTTOM. THE TOP CLEARANCE MAY BE REDUCED TO 150mm (WITH CONCRETE PAVEMENT SLAB) AND BE.



GOVERNMENT OF WESTERN AUSTRALIA
DEPARTMENT OF FISHERIES AND AQUACULTURE
T A DARGAVEN
B SCOTT
2020-01-04 14:00:00

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ISS	DATE	DESCRIPTION
 FISHERIES AND OCEANS CANADA SMALL CRAFT HARBOURS		
		
Projet titre/titre du projet 3300 CHATHAM, RICHMOND, B.C. SCH STEVESTON HARBOUR ELECTRICAL INDEPENDENT POWER SOURCE		
Drawing title/titre du dessin DUCT BANK DETAILS AND CABLE SCHEDULES		
Project No./No. du projet 191-16093-06	Sheet/Feuille E-003	Revision No./ Le Révision No. 01




DUCTBANK 'K' CROSS SECTION
 SCALE: N.T.S.



CONDUIT AND CABLE SCHEDULE (BUILDING 44) - NEW DUCTBANK							
CUT SECTION	CONDUIT ROUTE	TYPE	VOLTAGE	SIZE (mm)	CONDUIT ID	CONDUCTORS	COMMENTS
L	FROM: PULLBOX P1* VIA NEW JUNCTION BOX TO: BUILDING 44	LV	347/600V	103	P1-6	REFER TO SLID	POWER TO BUILDING 44



DUCTBANK 'L' CROSS SECTION


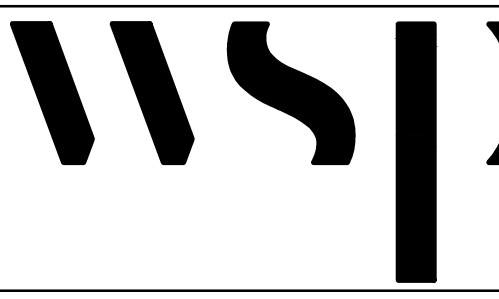


1 TYPICAL STUB-OFF DETAIL
E-004 SCALE: N.T.S.

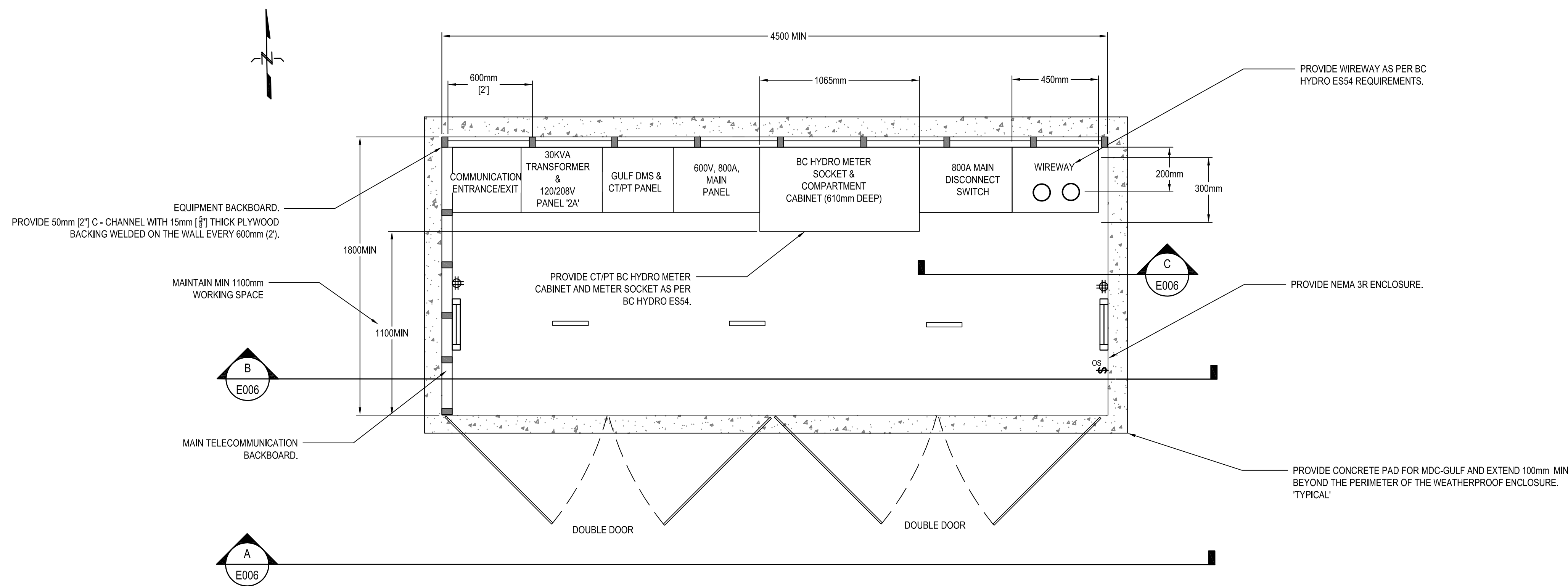


2 GENERAL ARRANGEMENT OF POWER AND COMM PULLBOXES - 'TYPICAL'

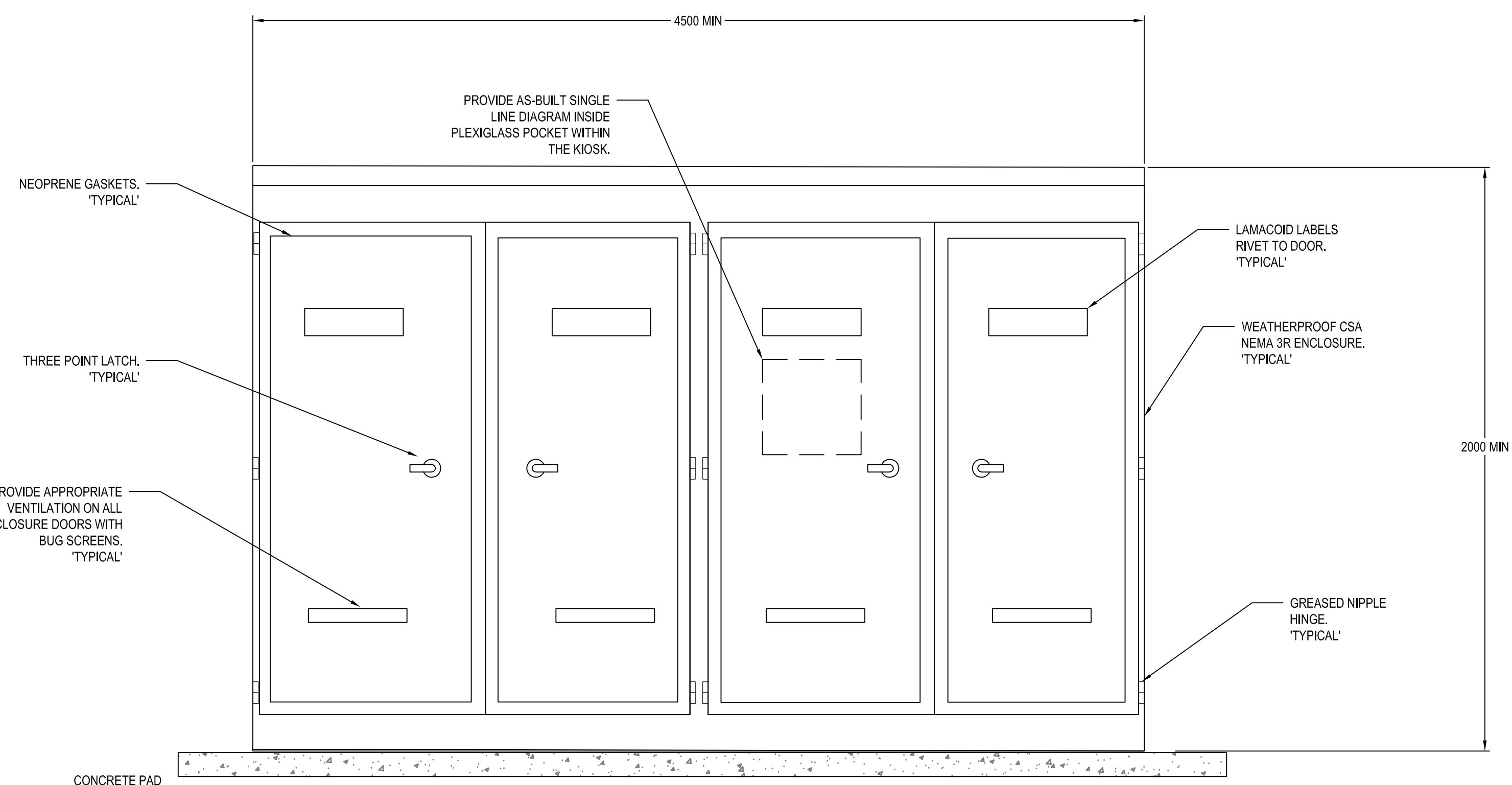


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01	2021/03/13	ISSUED FOR 50% CLIENT REVIEW
ISS	DATE	DESCRIPTION
 <p>FISHERIES AND OCEANS CANADA SMALL CRAFT HARBOURS</p>		
		
Projet <i>Titre du projet</i> 3300 CHATHAM, RICHMOND, B.C. SCH STEVESTON HARBOUR ELECTRICAL INTERBANK POWER SOURCE		
Drawing <i>N°/No. de</i> DUCTBANK, CABLE SCHEDULES, AND ELECTRICAL DETAILS		
Project No./No. de 191-16093-06	Sheet/Feuille E-004	Project No./No. de 01

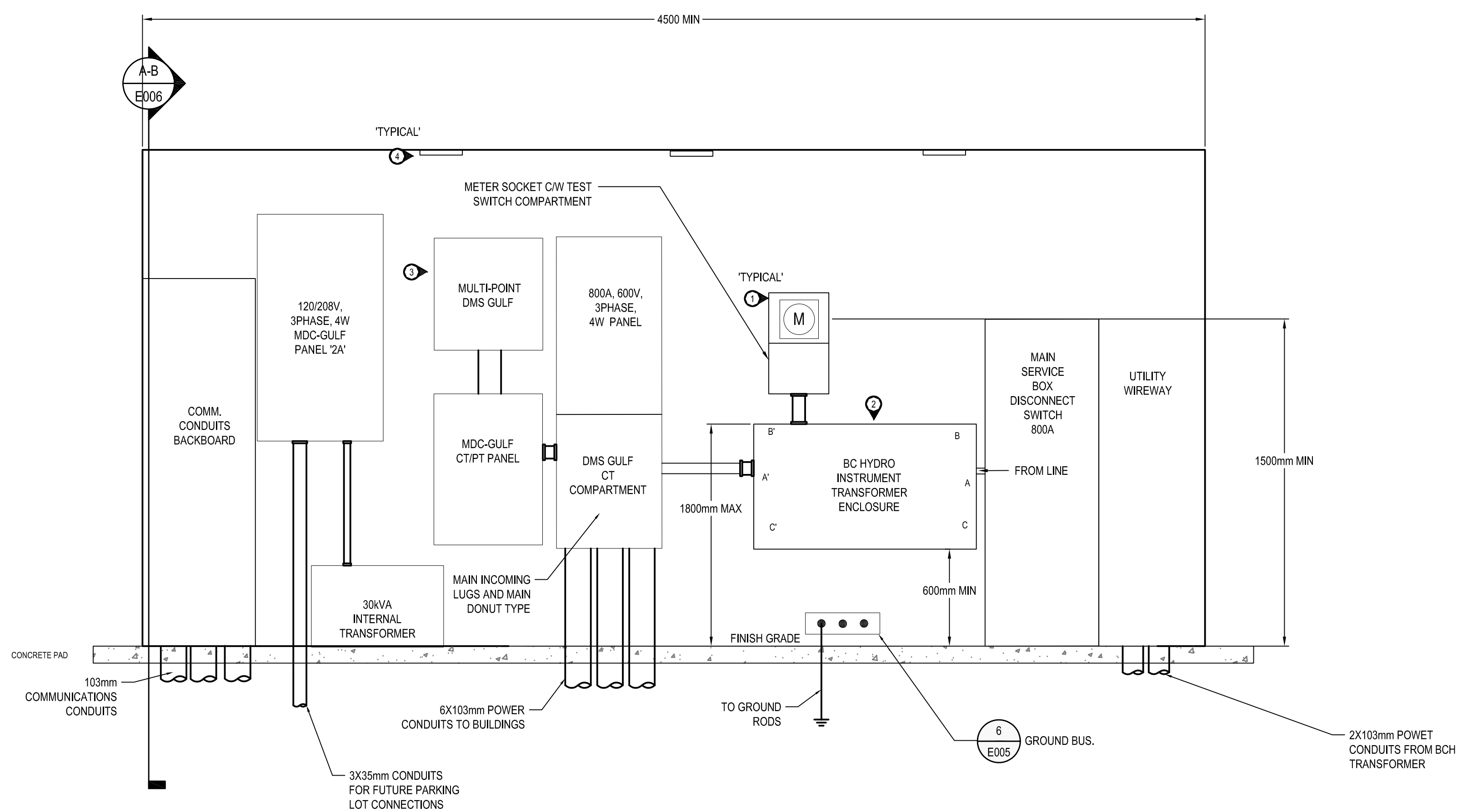
- GENERAL NOTES:**
- CONTRACTOR TO FIELD VERIFY THE LOCATION OF THE MDC-GULF AS PER DRAWING E-002 PRIOR TO WORK. COORDINATE EXACT LOCATION OF THE MDC-GULF WITH BC HYDRO TO MEET ALL ESS4 REQUIREMENTS. NOTIFY THE DEPARTMENTAL REPRESENTATIVE WITH ANY CHANGES.
 - ALL LOCATION AND DIMENSIONS SHOWN ON THIS DRAWING ARE MINIMUM REQUIREMENTS FOR THE MDC-GULF. CONTRACTOR SHALL FOLLOW THE BC HYDRO ESS4 STANDARDS AND REQUIREMENTS, AND MAKE APPROPRIATE ADJUSTMENTS TO THE MDC-GULF. COORDINATE ANY CHANGES WITH THE DEPARTMENTAL REPRESENTATIVE PRIOR TO PURCHASE AND INSTALLATION AS PER THE ELECTRICAL SPECIFICATIONS.
 - CONTRACTOR TO SIZE FINAL HEIGHT AND WIDTH OF KIOSK TO APPROPRIATELY HOUSE INDICATED EQUIPMENT.
 - ALL ENCLOSURES TO BE WEATHERPROOF TYPE NEMA 3R, UNLESS OTHERWISE SPECIFIED.
 - PROVIDE MDC INTERNAL EQUIPMENT AS PER SINGLE LINE DIAGRAM AND ELECTRICAL SPECIFICATIONS. NOTIFY THE DEPARTMENTAL REPRESENTATIVE OF ANY CHANGES.
 - COMMUNICATION CONDUITS LOCATION ARE NOT SHOWN ON THIS DRAWING. FIELD VERIFY THE BEST COMMUNICATION ROUTE PRIOR TO WORK, AND PROVIDE ALL UNDERGROUND COMMUNICATION CONNECTIONS AS PER DRAWING E-002 AND CABLE SCHEDULES.
 - PROVIDE ARC-FLASH STUDY REPORT OF THE MDC-GULF TO THE DEPARTMENTAL REPRESENTATIVE FOR APPROVAL PRIOR TO SERVICE ENERGIZATION.
 - CABLES CLIPS FOR THE BC HYDRO SERVICE CABLES SHALL BE CSA TYPE, 600V CLASS, SEPARATELY MOUNTED FOR THE SUPPORT OF INDIVIDUAL SERVICE CABLES.



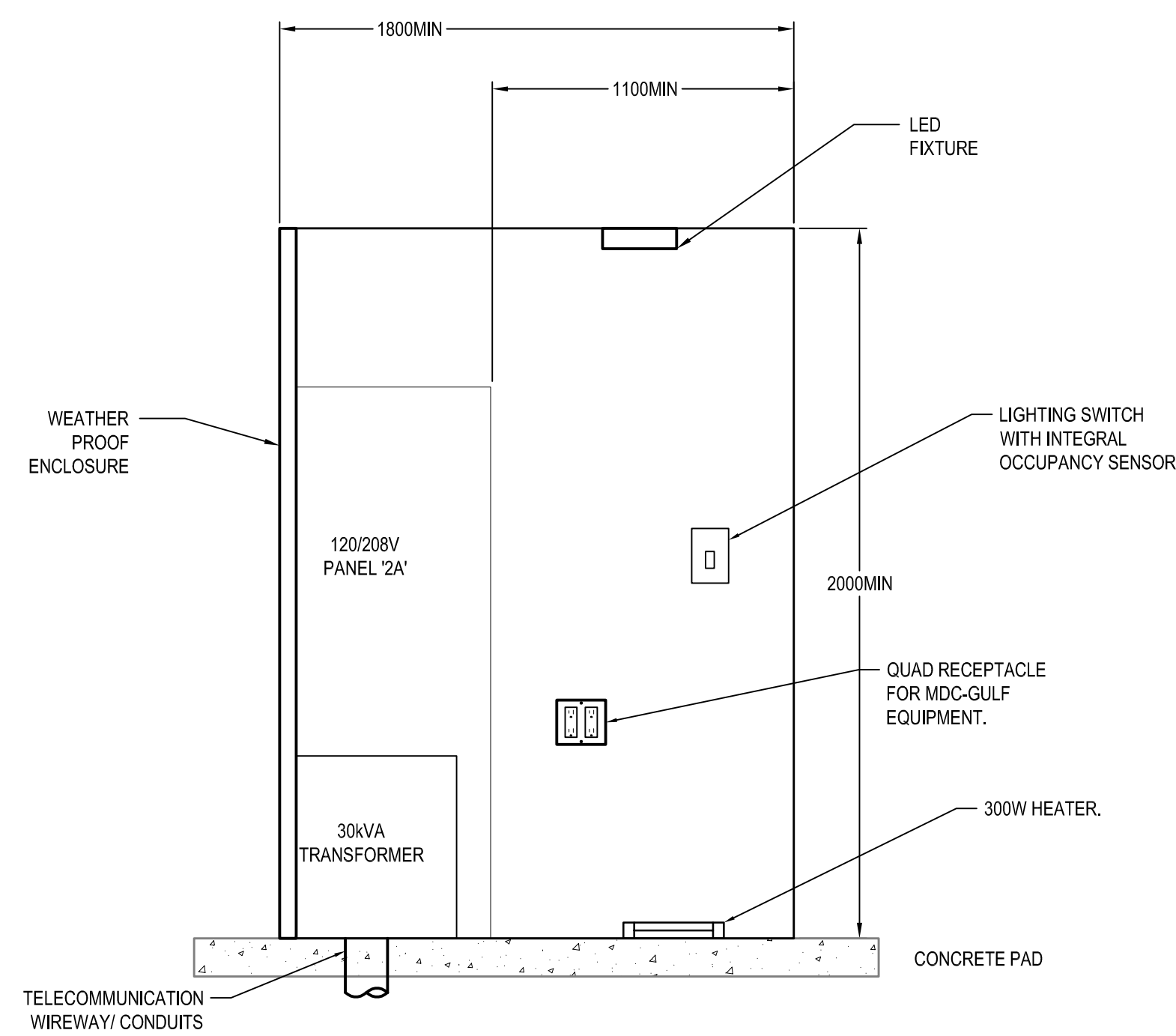
EQUIPMENT LAYOUT - NON-WALK IN 'MDC-GULF'
SCALE: NTS



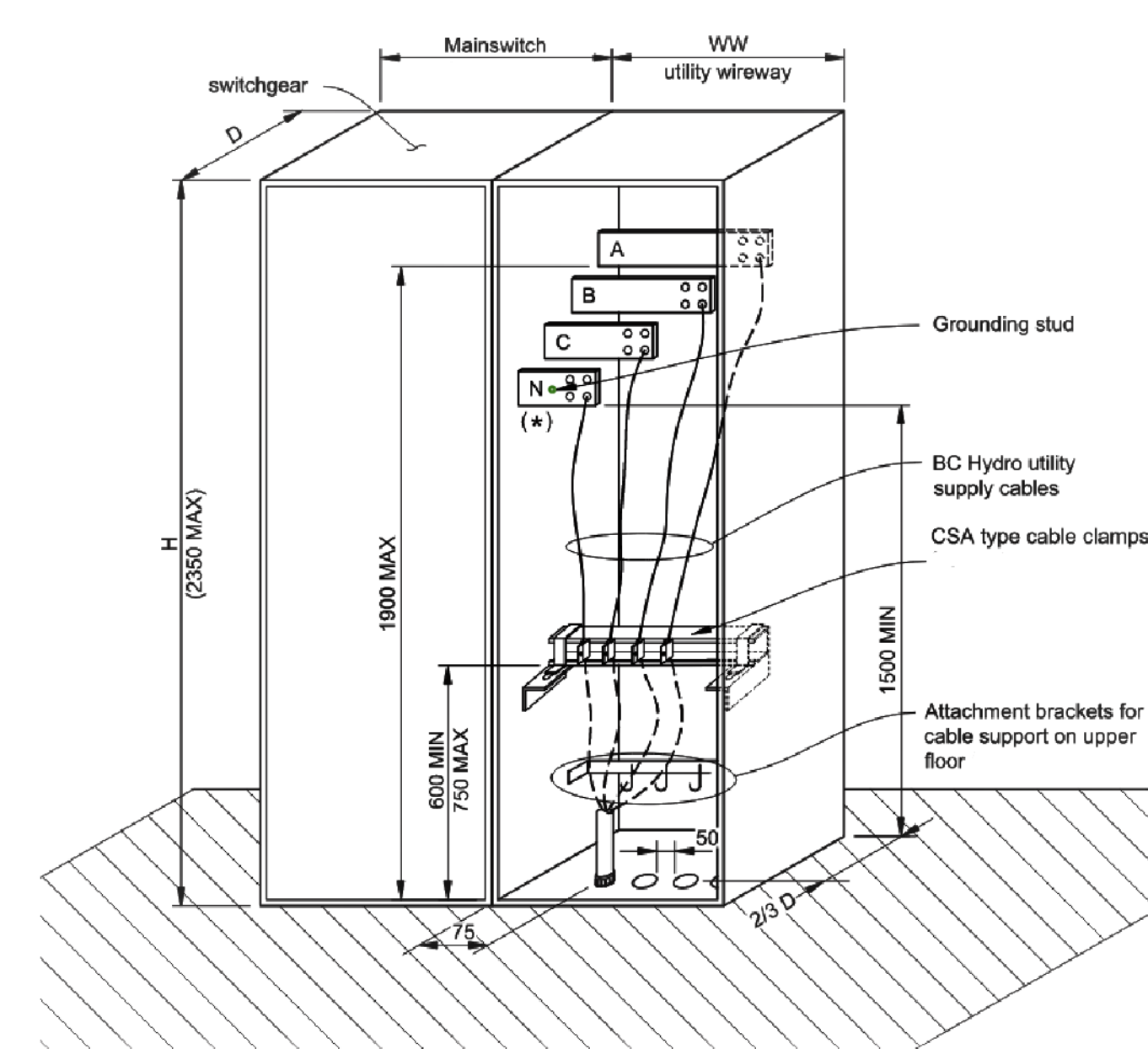
A - FRONT ELEVATION DOORS CLOSED
SCALE: NTS



B - FRONT ELEVATION DOORS REMOVED
SCALE: NTS

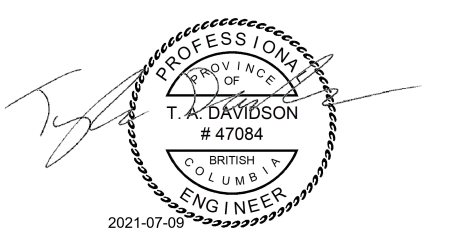


A-B - SIDE ELEVATION
SCALE: NTS



C - WIREWAY DETAILS
SCALE: NTS

DETAIL NOTES:	
LABE	DIMENSION (mm)
WW	450
D	300
H	1500



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FISHERIES AND OCEANS CANADA
SMALL CRAFT HARBOURS

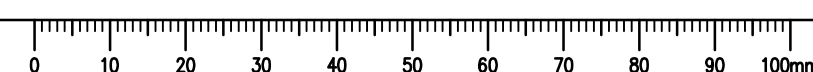
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Projet titre/titre du projet
3300 CHATHAM, RICHMOND, B.C.
SCH STEVESTON HARBOUR
ELECTRICAL INDEPENDENT POWER SOURCE

Drawing title/Titre de dessin
ELECTRICAL DETAILS,
MDC-GULF

Projet No./No. du	Sheet/Feuille	Revised/Revisé
191-16093-06	E-006	01

MAIN DISTRIBUTION CABINET - 'MDC- GULF'
SCALE: NTS



- GENERAL NOTES:**
- CONTRACTOR TO COORDINATE THE LOCATION AND ALL DETAILS OF THE TRANSFORMER WITH BC HYDRO. THE LOCATION AND ALL DETAILS OF THE TRANSFORMER WITH BC HYDRO. CONCRETE PAD IS PROVIDED BY BC HYDRO. CONTRACTOR TO INSTALL THE CONCRETE PAD AS PER BC HES4 STANDARDS AND REQUIREMENTS.
 - PROVIDE AND INSTALL GROUNDING FOR THE TRANSFORMER. COORDINATE DETAILS WITH BCH PRIOR TO WORK.
 - PROVIDE A COMPLETE ARC FLASH AND FUSE COORDINATION TEST REPORTS TO THE DEPARTMENTAL REPRESENTATIVE AND COORDINATE THE SCHEDULE WITH BCH AND THE DEPARTMENTAL REPRESENTATIVE FOR APPROVAL.

Notes

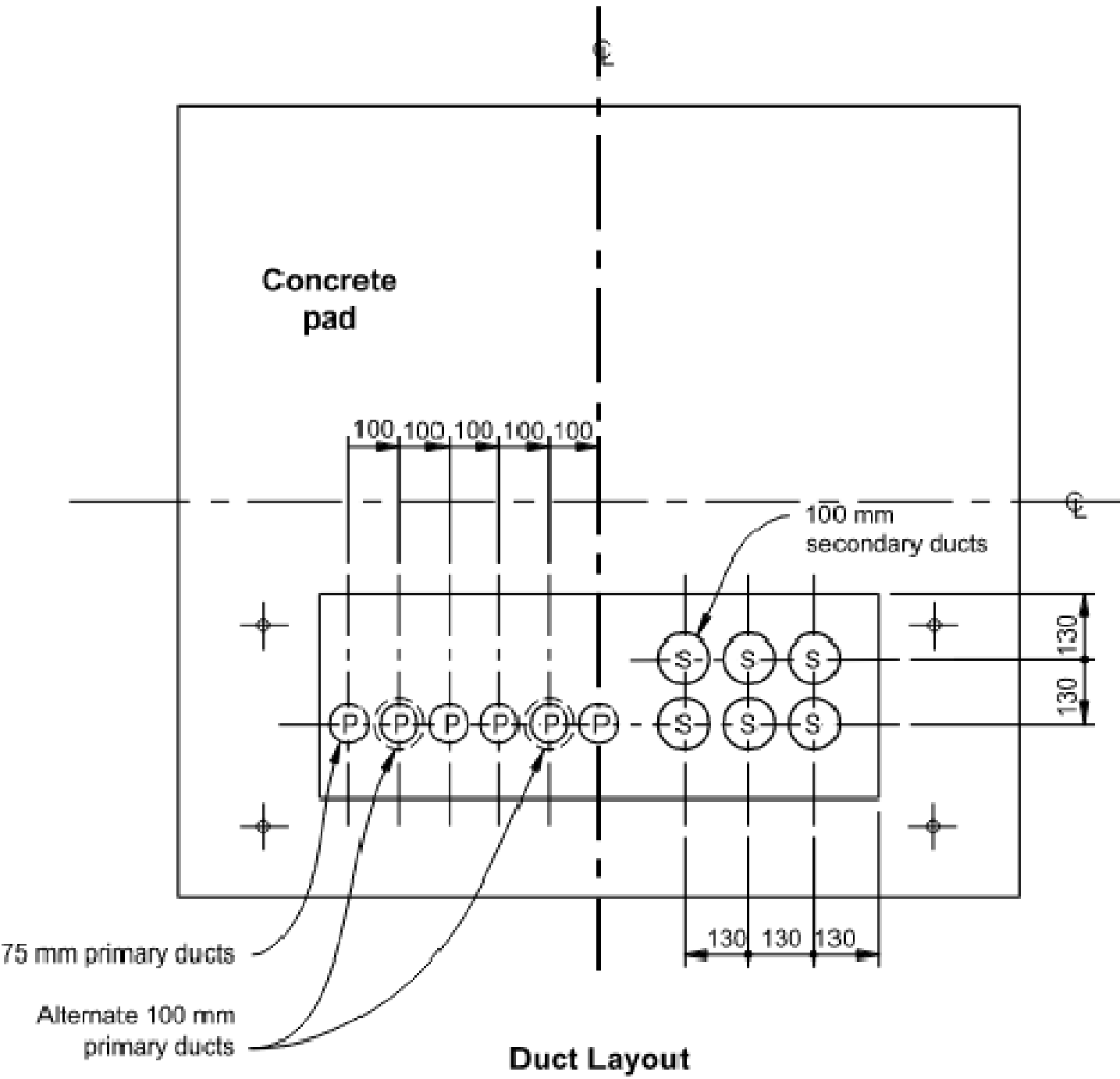
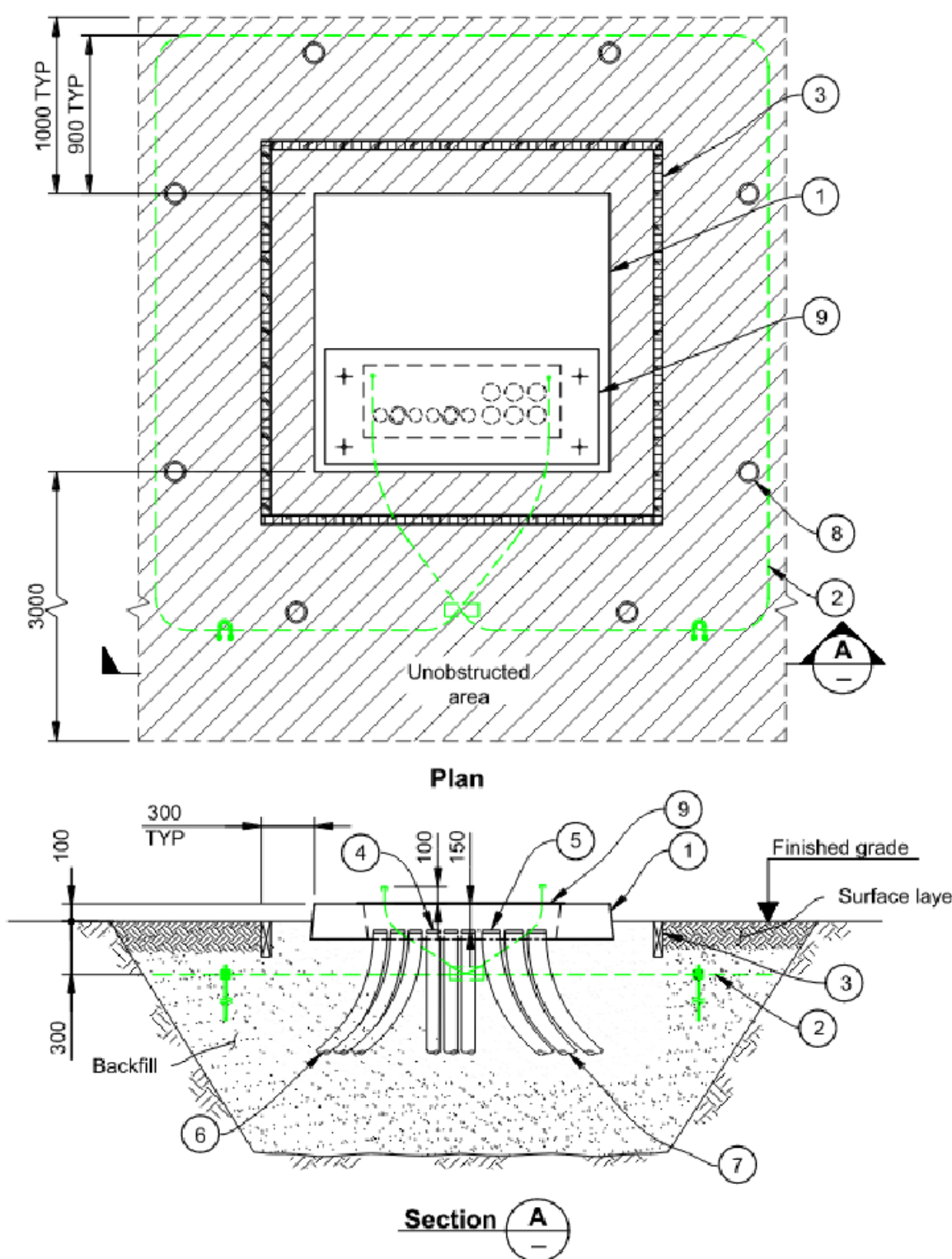
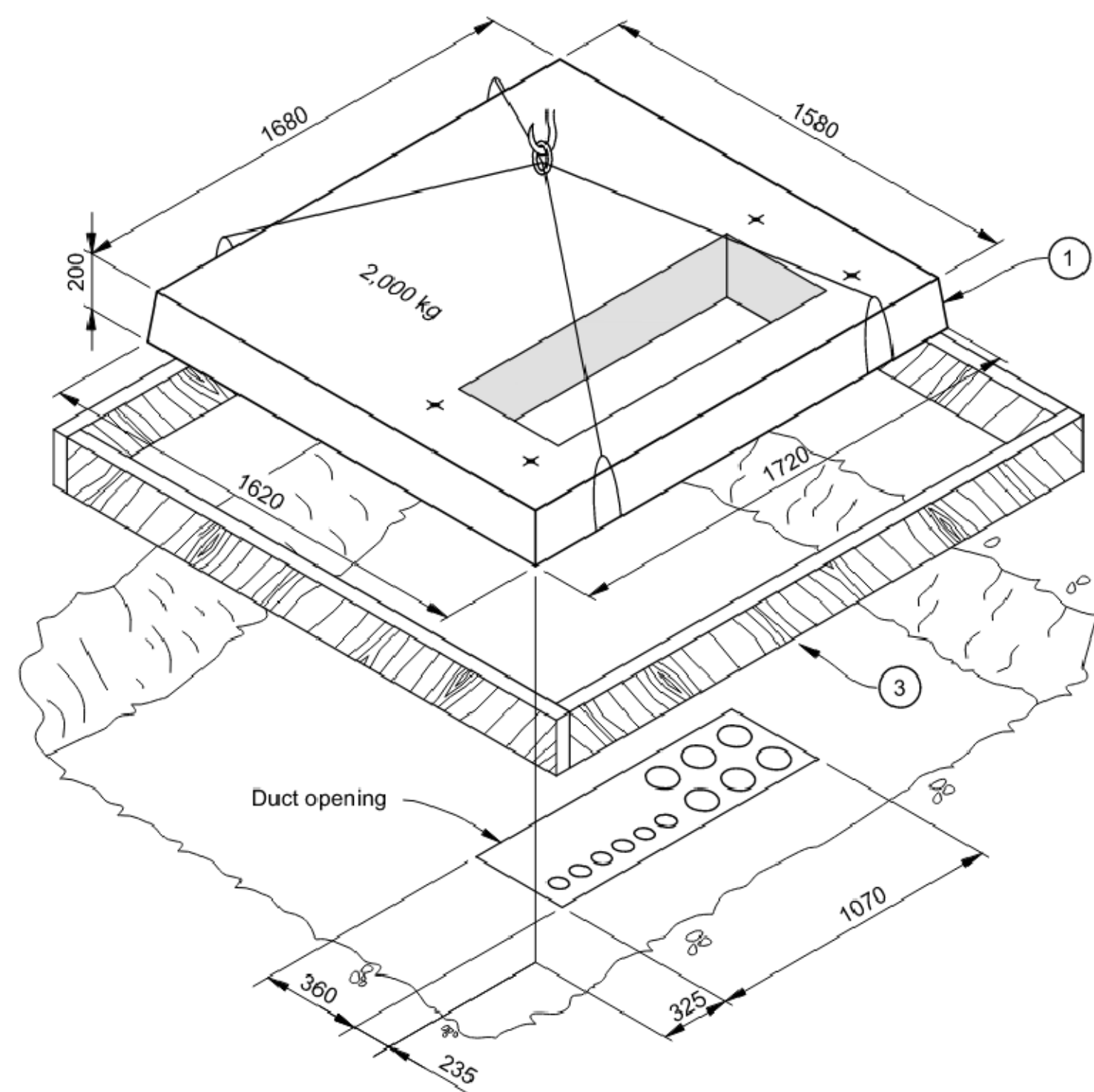
- There shall be no vegetation or pavement around the pad within the containment frame.
- Designer is to specify the orientation of the pad to allow for a safe operating position for crews.
- Designer is to specify transformer protection in accordance with ES54 U2-02.

Bill of Material

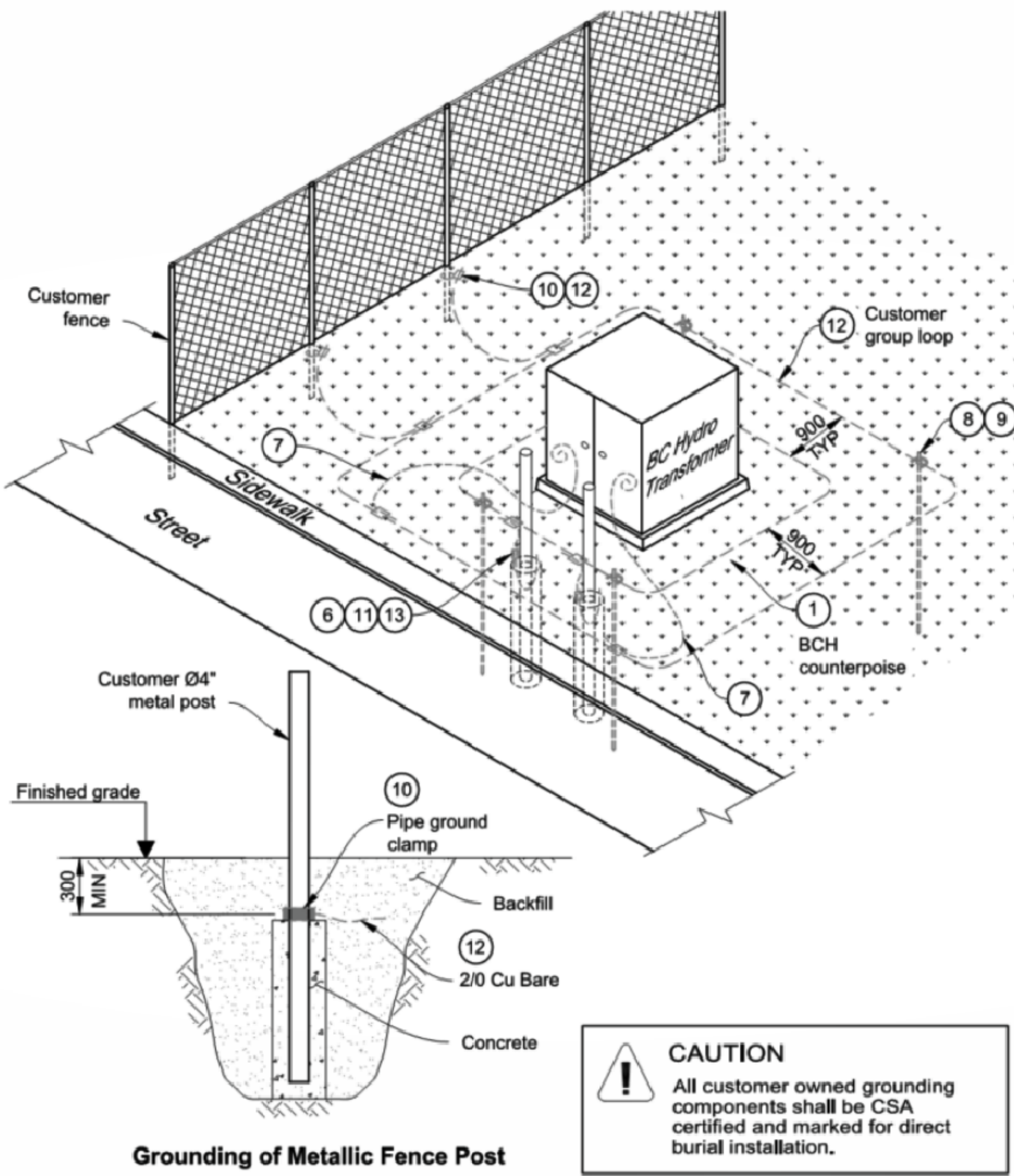
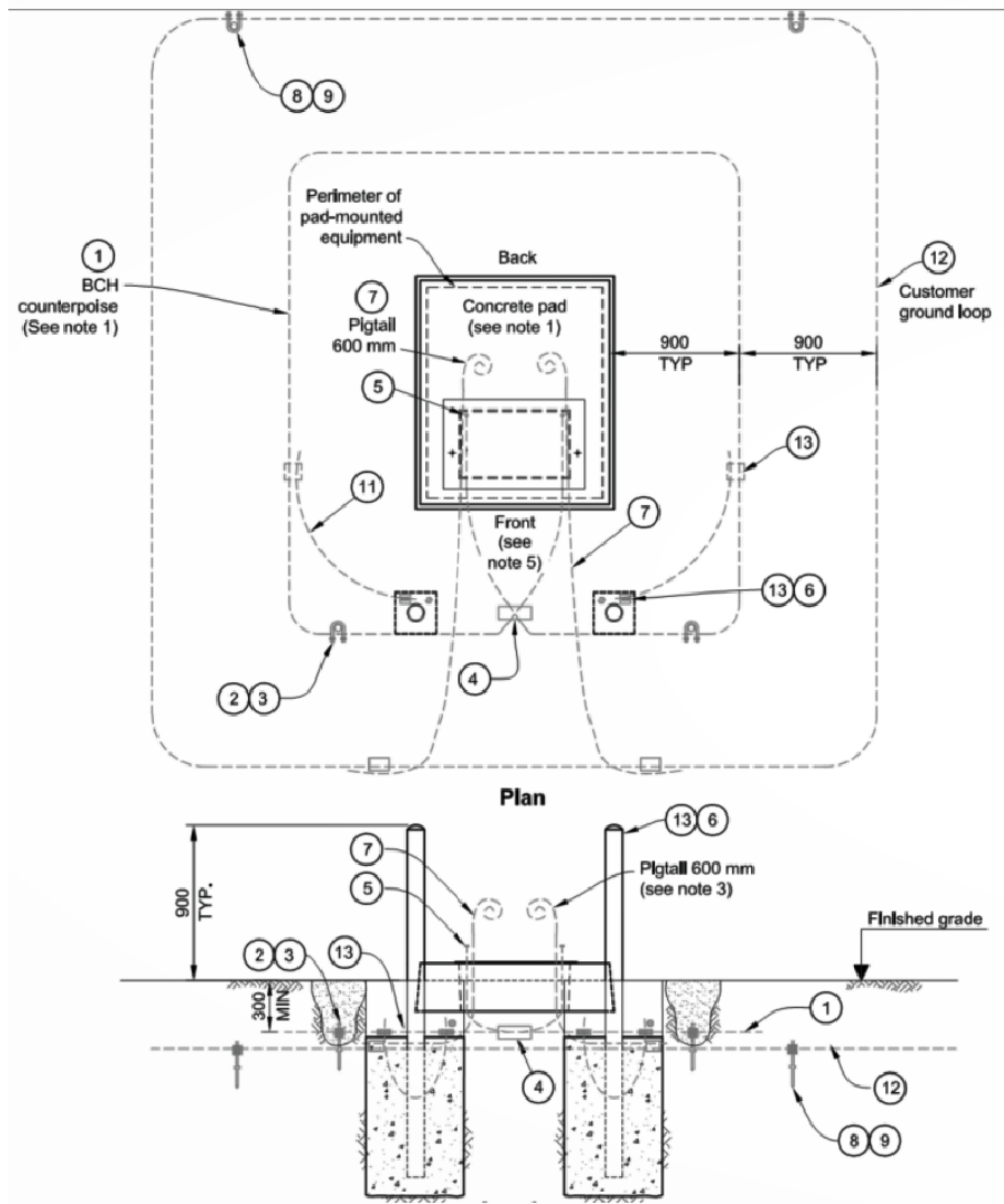
Item	Description	Catalogue ID	Quantity	Supplied By
1	Precast concrete pad	400-0853	1	BC Hydro
2	Grounding kit	412-0015	1	BC Hydro
3	Ground rod	420-1093	2	BC Hydro
4	18 m counterpoise	412-0014	1	BC Hydro
5	Border frame	N/A	As required	Contractor
6	75 mm duct caps	401-0173	As required	Contractor
7	100 mm duct caps	96021451	As required	Contractor
8	75 mm duct, 90° elbow	400-1021	As required	Contractor
9	100 mm duct, 90° elbow	96021150	As required	Contractor
10	Bollards	400-0059	As required	BC Hydro
11	Phywood cover	N/A	1	Contractor

Reference Standards

ES54 F0-03	Border Containment Frame, Typical Detail
ES54 H1-03	Duct Entry at Pads
ES54 R1-01	Grounding of Pad-Mounted Equipment in Public Corridors
ES54 U2-02	Above-Ground Equipment, Mechanical Protection
ES54 U7	Lifting and Handling
ES54 W1-01	Excavation and Backfill
ES53 F3	Three-Phase Padmount



1 BC HYDRO TRANSFORMER CONCRETE DETAILS
E-007 SCALE: NTS



Notes

- BC Hydro requires unobstructed access for the maintenance and testing of the counterpoise and BC Hydro ground rods. The customer portion of the grounding must not be connected to the BC Hydro ground rod or counterpoise.
- The customer bare grounding conductors shall be kept 300 mm minimum (900 mm maximum) from the BC Hydro counterpoise. The customer shall leave 600 mm-long pigtail inside the concrete pad window for future termination to the equipment ground bus by a BC Hydro crew.
- The customer shall connect all exposed conductive and metal structures to the customer ground loop, located within 3 metres of the BC Hydro pad-mounted equipment, to eliminate dangerous touch potentials. Protective metal bollards shall be bonded to the BC Hydro counterpoise.
- All concealed grounding and ducting installations shall be inspected by the BC Hydro civil inspector before placing the backfill. The electrical contractor shall complete the attached Installer's Declaration Form for grounding and ducting installations, and submit it to the BC Hydro civil inspector or BC Hydro representative.

Bill of Material

Item	Description	Catalogue ID	Quantity	Supplied By
1	Counterpoise, Ø ½", galvanized steel	106-2510	As Required	BC Hydro
2	Ground rod, Ø ½" x 8", galvanized steel	420-1093	2	BC Hydro
3	Connector, counterpoise to ground rod, galvanized steel	420-1157	2	BC Hydro
4	Rope clamp, Ø ½", galvanized steel	420-0965	2	BC Hydro
5	Cap, heat shrink, 1.2" x 3"	394-0605	2	BC Hydro
6	Protective bollard, precast, grounded	97002788	2	BC Hydro
7	2/0 AWG Cu insulated 600 V green, stranded	N/A	As Required	Contractor
8	Ground rod, Ø ½" x 8", galvanized steel	N/A	As Required	Contractor
9	Ground rod to 2/0 Cu connector for direct burial, Burndy GUVS821 or equivalent	N/A	As Required	Contractor
10	Pipe grounding clamp 2/0 Cu stranded to 4" dia. pipe, Burndy GD2228 or equivalent	N/A	2	Contractor
11	Theft deterrent wire, ERICO	96006428	12 m	BC Hydro
12	2/0 Cu, bare, stranded, minimum	N/A	As Required	Contractor
13	Connector, ERICO wire to counterpoise or precast grounded bollard stud	420-1158	4 2 per bollard	BC Hydro

Reference Standards

ES54 Section F	Transformers	ES54 U2-02	Concrete Pads, Above Ground
ES54 R1-01	Grounding of Pad-Mounted Equipment in Public Corridors	ES54 R4-01	Equipment, Mechanical Protection
ES54 U2-01	Concrete Pads, Above Ground Equipment, General Notes	ES53 Z3-01	Grounding in High Corrosion Areas

2 BC HYDRO TRANSFORMER GROUNDING AND COUNTERPOISE DETAILS
E-007 SCALE: NTS

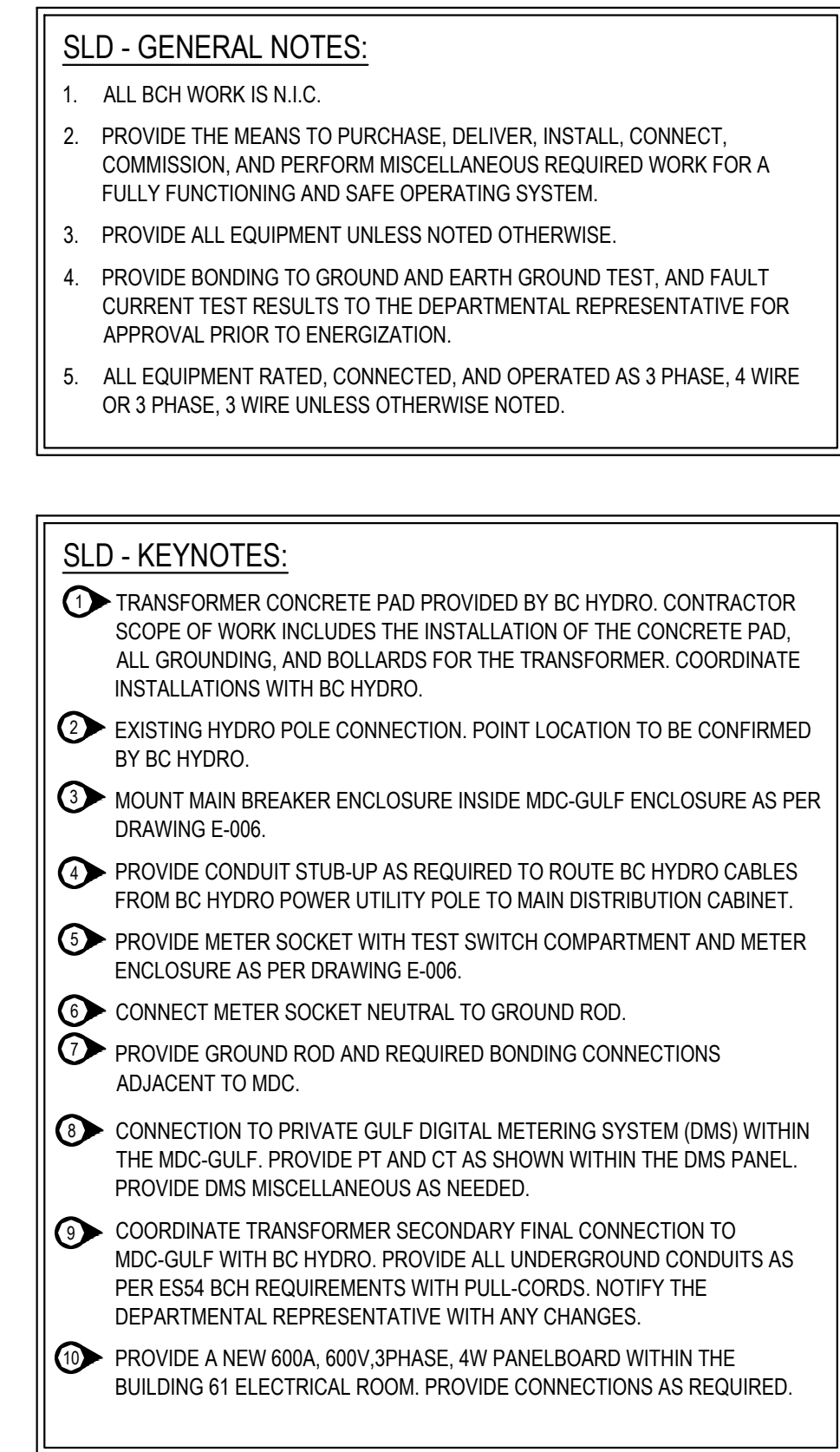
FISHERIES AND OCEANS CANADA
SMALL CRAFT HARBOURS




wsp

Project title/Titre du projet
3300 CHATHAM, RICHMOND, B.C.
SCH STEVESTON HARBOUR
ELECTRICAL INDEPENDENT POWER SOURCE

Drawing title/Titre du dessin
ELECTRICAL DETAILS, BCH TRANSFORMER

Project No./No. du projet	Sheet/Feuille	Project Date/Date du projet
191-16093-06	E-007	01



		
03	2021/07/09	ISSUED FOR TENDER
02	2021/06/11	ISSUED FOR 100% CLIENT REVIEW
01	2021/03/13	ISSUED FOR 80% CLIENT REVIEW
ISS	DATE	DESCRIPTION
 FISHERIES AND OCEANS CANADA <small>SIMALL CRAFT HARBOURS</small>		
		
Project title/Titre du projet 3300 CHATHAM, RICHMOND, B.C. SCH STEVESTON HARBOUR ELECTRICAL INDEPENDENT POWER SOURCE		
Drawing title/Titre du dessin SINGLE LINE DIAGRAM		
Project No./No. du projet 191-16093-06	Sheet /Feuille E-100	Revision / La Révision 01