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Addendum 5: The following changes/clarifications in the tender documents are effective immediately. This addendum will form part of the contract documents.

#### Revisions to Specifications

1. Specification Index:

Division 22, Add Section 22 15 00 – General Service Compressed Air System

Appendix F – Reference Drawings, Add:

EGD North – 02/06/2018 Approval Drawings Schneider Electric (8 Sheets)

EGD South – 08/10/2016 Approval Drawings Schneider Electric (3 Sheets)

EGD Pad Drawings – January 07, 2016 Schneider Electric (1 Sheet)

EGD One Line Diagram - January 07, 2016 Schneider Electric (1 Sheet)

EGD One Line Diagram – December 15, 2015 Schneider Electric (1 Sheet)

Drawing List, Add S212 – Concrete Reinforcement – Sheet 6

2. Division 22:

Add Section 22 15 00 General Service Compressed Air System – April 26, 2021 (attached). Note this specification covers the compressed air piping within the tunnel. For specification of piping underground, refer to specification section 22 20 00 – Site Services.

3. Appendix:

Add the following Schneider Electric drawings (attached):

EGD North – 02/06/2018 Approval Drawings Schneider Electric (8 Sheets)

EGD South – 08/10/2016 Approval Drawings Schneider Electric (3 Sheets)

EGD Pad Drawings – January 07, 2016 Schneider Electric (1 Sheet)

EGD One Line Diagram - January 07, 2016 Schneider Electric (1 Sheet)

EGD One Line Diagram – December 15, 2015 Schneider Electric (1 Sheet)

#### Revisions to Drawings

1. Revise Cover Sheet per attached clouded revisions
2. Revise drawing S204 per attached clouded revisions
3. Revise drawing S206 per attached clouded revisions
4. Revise drawing S207 per attached clouded revisions
5. Revise drawing S208 per attached clouded revisions
6. Revise drawing S209 per attached clouded revisions
7. Revise drawing S210 per attached clouded revisions
8. Add drawing S212 per attached
9. Clarifications Drawing M201:

- 
- Water – 200mm nominal inside diameter
  - Compressed air – 150mm nominal inside diameter
  - Sanitary - 200mm nominal inside diameter
  - Where pipes branch off to hydrants, pipe size shall be nominal inside diameter of 150mm.
10. Revise Drawings C02 and C03:
- 150 HDPE Sanitary line to be 200 diameter sanitary line to match drawing M201.
  - 100 HDPE Compressed air line to be 150 diameter to match M201.
11. Revise drawing E400 Keynote #19 to read 2SSSR-SP-1.

## Questions and Clarifications

### *Question 1:*

Please provide clarifications on the drawings regarding the existing electrical equipment / systems (power distribution, and control panels, fire alarm system, grounding grid).

- a) For example, the grounding grid conductor size was shown as #2/0 AWG, but some of the termination parts were specified for #4/0 AWG size wire.
- b) Similarly; the fire alarm system supplier is also mentioned that, they need info for any upgrade have been done in to the original system.
- c) If the existing electrical system drawings are available, for Dock-3 area electrical equipment; can you please include in the package?
- d) Grounding drawings
- e) Single line dwgs., including receptacles and possible distribution sub panel for portable equipment in Dock-3 area.
- f) Panel schedules which currently feed the motors/equipment in Dock-3 area.
- g) Pump motor control panels
- h) Fire alarm system dwgs

### *Answer 1:*

- a) Assume termination parts should be sized to match the feeders they are connecting to in all situations.

- b) See 1. h)
- c) Additional electrical information has been provided in the appendices as part of this addendum.
- d) Systemwide grounding drawings are not available. There are ground connections in the existing Manholes on either side of the dock that the new system connects into.
- e) Connecting off the dock service receptacle on the side south wall of Dock#3 may be feasible. We will confirm with EGD the availability of client side connection locations and rate schedule and clarify in a forthcoming addendum.
- f) Panel Schedules have been added to the appendices as part of this addendum. Keynote #19 on page E400 should read 2SSSR-SP-1 not 2NS-SP-1.
- g) Pump motor control panels are in the scope of the project to supply.
- h) We are looking to provide fire alarm drawings in a forthcoming addendum. The only device being removed from the F/A system is the existing dock end pulls stations and connections, these will need to be adjusted in the existing annunciator panel.

*Question 2:*

With regards to Section 22 15 00 (General Service Compressed Air System) can this section of the specifications please be issued?

*Answer 2:*

Issued as part of this addendum.

*Question 3:*

Drawing M201 & C003. Would you please clarify sizing of piping? Are the temporary and new piping for compressed air and Sanitary FM to be sized as 150mm Compressed air line and 200mm Pressure rated sanitary line as per existing or are these being reduced down where they connect to the existing as C003 shows the Compressed air to be 100mm and Sanitary FM as 150mm.

*Answer 3:*

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See Revisions to drawings above.

*Question 4:*

"There is a remote annunciator in the Guardhouse building at the entrance where the main response is. In the adjacent Demark Building there is an EST3X Node that runs the Graphic and the annunciator in the Guardhouse Bldg. The Graphic Map has been moved into this location.

I would like the opportunity to discuss with the Engineer an alternate solution or if he wants to delete it from the system entirely."

*Answer 4:*

The only device being removed from the F/A system is the existing dock end pulls stations and connections, these will need to be adjusted in the existing annunciator panel.

See response 1.h)

*Question 5:*

In the event of rock overbreak at the base elv. -13.558 within the area of dock extension. Will the contractor be permitted to fill the overbreak areas with structural concrete to level the work area prior to installing base slab rebar.

*Answer 5:*

Yes.

*Question 6:*

Drawing E401 note 3 states new 24pr fiber cable between D-Marc and SSSR, however, both rack details show 24 port fiber patch panels, this is typical of all fiber connections, please confirm if we are to allow for 24 pairs (48 Fibers) or just a 24 fiber.

*Answer 6:*

Allow for 48 strands for this connection.

END OF ADDENDUM 5

## 1 GENERAL

**1.1 Note:** The following specification section 22 15 00 covers the requirements for compressed air piping within the service tunnel. For piping specification of compressed air piping buried underground, refer to section 22 20 00 – Site Services.

### 1.2 References

- .1 ASTM – American Society for Testing and Materials International Inc
  - .1 ASTM A312/A312M
  - .2 ASTM A403/A403M

### 1.3 Related Sections

- .1 Section 01 33 00 (Submittal Procedures)
- .2 Section 20 05 05 (Mechanical Work General Instructions)
- .3 Section 20 05 10 (Basic Mechanical Materials and Methods)
- .4 Section 20 05 35 (Demolition and Revision Work)

### 1.4 Submittals

- .1 **Product Data:** Submit product data sheets for all products specified in Part 2 of this Section.

## 2 PRODUCTS

### 2.1 Pipe, Fittings and Joints

#### Above ground pipe (such as in service tunnel)

- .1 **Stainless Steel Grooved Joint:** Schedule 10 Type 304/304L to ASTM A312 with RX roll grooves for piping larger than 40 mm (1-1/2”) diameter with grooved end coupling, fittings, and valves. Couplings to be extruded in-house by the coupling housing manufacturer. Ensure RX roll sets specifically designed for grooving schedule 10 stainless steel pipe are used. Couplings must be rated for 300psi on Schedule 10 pipe. All components will form a complete system by the same manufacture, unless a required product is not manufactured as part of their offering.
- .2 **Stainless Steel Mechanical Couplings:** Manufactured in two segments of cast stainless steel, conforming to ASTM A-351, A-743, and A-744. Mechanical coupling bolts shall be stainless steel, type 316, meeting the physical properties of ASTM A-193, grade B8M, Class2.
  - .1 Rigid Type: Cast with key designed to clamp the bottom of the groove to provide an essentially rigid joint. Victaulic Series 489.
  - .2 Flexible Type: Use in locations where vibration attenuation and stress relief are required. Victaulic Series 475 to 4” and 77S 6” and above. Note: Provide at least two flexible type fittings in every straight pipe run. For

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longer pipe runs, provide at least two fittings per 50 meters of straight pipe run. Attach fittings at opposite ends of common pipe.

- .3 Grooved couplings, fittings, and isolation valves shall be used. Provide flanged adaptors where required.

## **2.2 Dielectric Unions**

- .1 Dielectric unions, each complete with a thermoplastic liner and rated minimum 1725 kPa (250 psi) at 120° C (250° F).

## **2.3 Shut-Off Valves for pipes exposed in tunnel – (Not buried underground)**

- .1 **Ball Valves Grooved end:** Grade CF8M stainless steel body, 316 stainless steel ball and stem, TFE seats, Fluor elastomer seals, standard port, two-piece valve.
- .2 **Butterfly Valves – Stainless steel Grooved Joint:** Grade CF8M stainless steel body and disc, 316 stainless steel stem, PTFE impregnated glass fabric bearings with 316 stainless steel backing, with synthetic rubber seal. (Grade to suit intended service). Valve stem shall be offset from the disc centerline to provide full 360-degree circumferential seating. Bubble-tight, dead-end or bi-directional service to 300-psi (2065kpa) CWP.

## **3 EXECUTION**

### **3.1 Demolition**

- .1 Do all required compressed air system demolition work. Refer to demolition requirements specified in the mechanical work Section 20 05 35 Demolition and Revision Work.

### **3.2 Piping Installation Requirements**

- .1 Provide all required compressed air piping.
- .2 Piping, unless otherwise specified, is to be as follows:
  - .1 For pipe exposed in the service tunnel or adjoining rooms – Sch 10 Stainless Steel grooved joint pipe, couplings, valves and fittings. Provide at least two grooved flexible type couplings in all pipe runs longer than 50 meters.
- .3 Lay pipes true to line and grade with bells upgrade. Fit sections together so that, when complete, the pipe has a smooth and uniform invert. Keep pipe thoroughly clean so that jointed compound will adhere.
- .4 Slope all piping so that it can be completely drained.
- .5 Provide proper dielectric unions or fittings in all connections between pipe or equipment of dissimilar metal.

#### **3.2.1 Installation of grooved mechanical components.**

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- .1 Grooved joints shall be installed in accordance with the manufacturer's latest published instructions.
  - .2 The gasket style and elastomeric material (grade) shall be verified as suitable for the intended service. Gaskets shall be blended, extruded, molded and produced by the grooved coupling manufacturer. Grooved ends shall be clean and free from indentations, projections, and roll marks in the area from pipe end to groove.
  - .3 Correct roll sets shall be used for pipe material grooved RX rolls **MUST BE USED** for Sched 10 Stainless Steel. Standard Steel Rolls on Sched 10 Stainless Steel will not be accepted.
  - .4 Grooved coupling manufacturer's factory trained field representative shall provide on-site training for contractor's field personnel in the proper use of grooving tools, application of groove, and installation of grooved piping products. Factory trained representative shall periodically visit the jobsite to ensure best practices in grooved product installation are being followed. Provide a copy of the manufacturer's project kickoff checklist and confirmation letter of visit. Contractor shall remove and replace any improperly installed products. Manufacturer or Owner Rep/Engineer may request at their discretion any field grooved and installed joints be disassembled for verification of pipe groove dimensions.

### **3.3 Installation of Shut-Off Valves**

- .1 Refer to Part 3 of the mechanical work Section 20 05 10 Basic Mechanical Materials and Methods.
- .2 Valves to and including 100 mm (2") diameter are to be ball type, valves larger than 50 mm (2") diameter are to be butterfly type. Except in grooved end systems. grooved end valves to be ball or butterfly type. Valves in grooved end system to be grooved end same manufacturer as grooved couplings, and fittings. All butterfly valves to have off-set disc for complete 360-degree circumferential engagement with seat.

### **3.4 Piping Expansion and Contraction Facilities**

- .1 Provide piping expansion fittings as noted in the pipe installation requirements section of this specification.

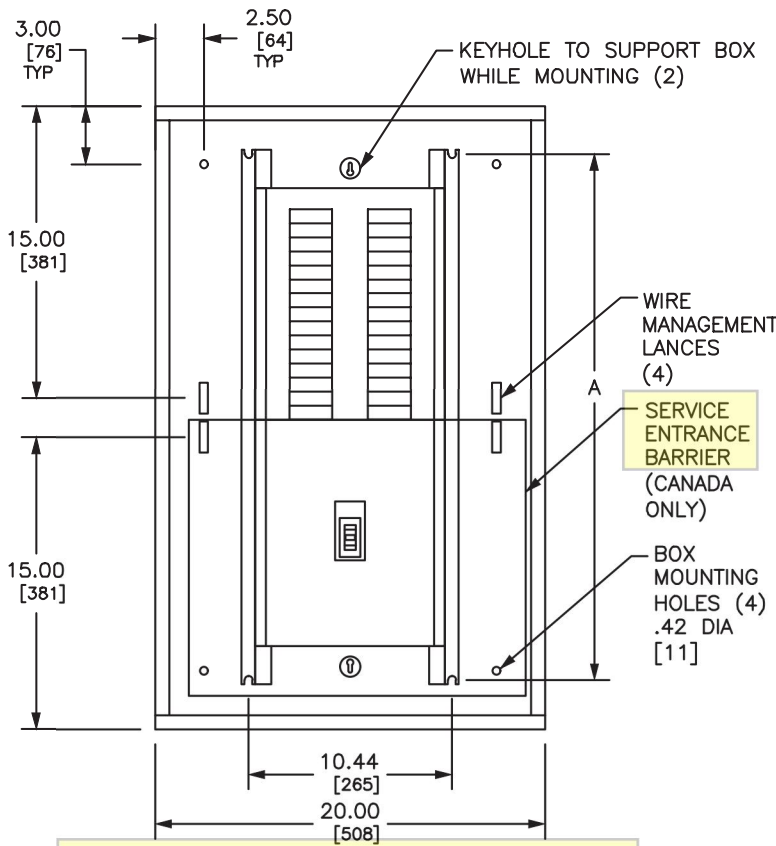
### **3.5 Flushing Piping**

- .1 Flush all new and/or reworked piping after leakage testing is complete.
- .2 Isolate new piping from existing piping prior to flushing procedures.
- .3 Flush piping until all foreign materials have been removed and the flushed water is clear. Provide connections and pumps as required. Open and close valves, hose outlets, and service connections to ensure thorough flushing.

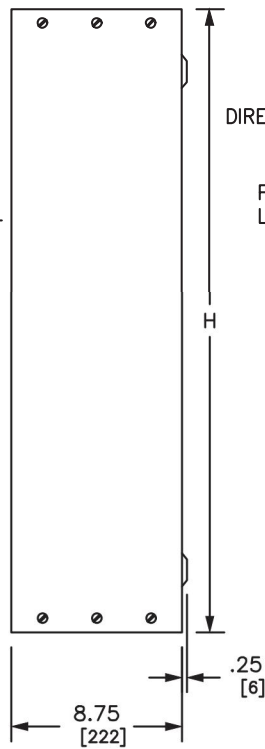
**END OF SECTION**

02/06/2018 Approval Drawings  
 Project: Esquimalt, North Landing  
 EECOL PO # 505-19063  
 Schneider Electric Ref.  
 40575938-014-015-016-017

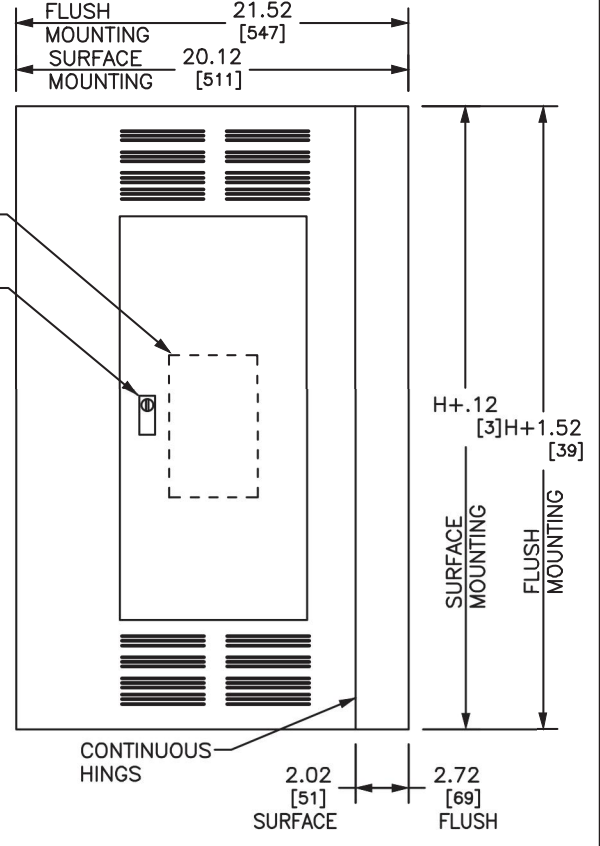
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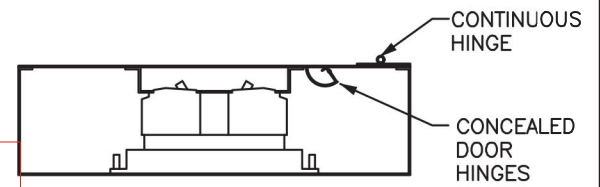
TYPICAL BOX WITH INTERIOR



TYPICAL BOX SIDE VIEW



TYPICAL FRONT



TYPICAL MOUNTING OF QO, QOB BREAKERS

**AES ENGINEERING LTD.**  
**REVIEWED ONLY**  
 REVIEW IS FOR GENERAL COMPLIANCE WITH CONTRACT DOCUMENTS. APPROVAL OF DIMENSIONS AND OTHER GENERAL CONSTRUCTION FEATURES IS NOT IMPLIED.  
 REVIEWED  REVISE AND RESUBMIT  
 REVIEWED AS MODIFIED  NOT REVIEWED  
 Project Number: 1-16-129 Date: 2018-03-27  
 Reviewed By: JSB

BLANK ENDWALL

**houle electric limited**  
 EGD Replace Main Substation RMSNS  
 The information contained in this drawing has been reviewed and is:  
 Specification 26 24 16  
 ACCEPTABLE TO HOULE ELECTRIC  
 NOT ACCEPTABLE TO HOULE ELECTRIC  
 ACCEPTABLE AS NOTED  
 SUBJECT TO ACCEPTANCE BY DESIGN CONSULTANT  
 Supplier is responsible for providing acceptable products in accordance with Specifications  
 Per Randy Noble Job: 5001-0494 Date: Mar 15 18

DUAL DIMENSIONS: INCHES MILLIMETERS

REFER TO DP CATALOG CLASS 1640 FOR ADDITIONAL INFORMATION  
 NQ PANELBOARDS MEET THE APPLICABLE REQUIREMENTS OF UL AND CSA.  
 REVISE DEPTH (TOP CENTER VIEW) TO 8.75/[222].  
 BOX: CODE GAUGE GALVANIZED STEEL. ONE ENDWALL IS BLANK, THE OTHER HAS KNOCKOUTS.  
 FRONT: GRAY BAKED ENAMEL FINISH ELECTRODEPOSITED OVER CLEAN PHOSPHATIZED STEEL. FRONT IS VENTED AND MOUNTS TO ENCLOSURE WITH SCREWS. DOOR HINGES ARE CONCEALED.  
 LOCK: FLUSH LOCK WITH BRUSHED STAINLESS STEEL ESCUTCHEON. NSR-251 KEY.

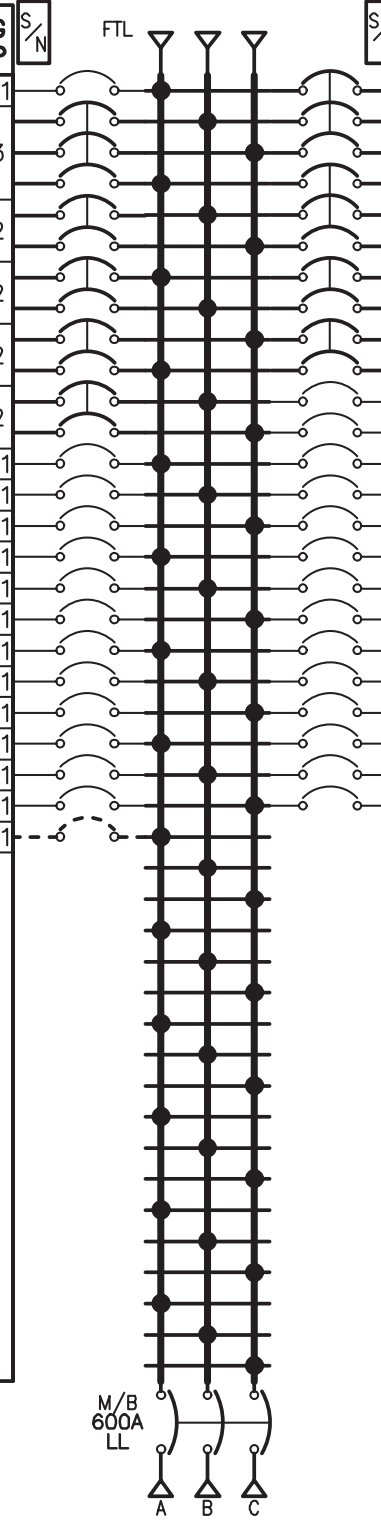
MAXIMUM LC MAIN BREAKER AMPERE RATING	MAXIMUM NUMBER OF CIRCUITS	H		A	
		IN	MM	IN	MM
400A	30 & 42	68.00	1727	63.00	1600
	54	74.00	1880	69.00	1753
	72	80.00	2032	75.00	1905
	84	86.00	2184	81.00	2057
400A FEED THRU LUGS	30 & 42	74.00	1880	69.00	1753
	54	80.00	2032	75.00	1905
	72	86.00	2184	81.00	2057
600A	30 & 42	68.00	1727	63.00	1600
	54	74.00	1880	69.00	1753
	72	80.00	2032	75.00	1905
	84	86.00	2184	81.00	2057
600A FEED THRU LUGS	30 & 42	80.00	2032	75.00	1905
	54	86.00	2184	81.00	2057

JOB NAME:	ESQUIMALT GRAVING DOCK - NORTH	EQUIPMENT DESIGNATION:	2NS-SP-1 Tub 1 of 2
JOB LOCATION:	MISSISSAUGA ON	EQUIPMENT TYPE:	NQ (Circuit Breaker Type)
DRAWN BY:	CAD	DRAWING TYPE:	PAD DRAWING
ENGR:		<b>SQUARE D</b> by Schneider Electric	
DATE:	January 05 2018	DWG#	A40575938-713HR-01
DRAWING STATUS:	APPROVAL	PG 1	OF 1 REV -



02/06/2018 Approval Drawings  
 Project: Esquimalt, North Landing  
 EECOL PO # 505-19063 Schneider Electric Ref. 40575938-014-015-016-017

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49	PREPARED SPACE									
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69										
71										
73										
75										
77										
79										
81										
83	BLANK									



PHYSICAL DATA

ENCLOSURE Type 2  
 Surface - Hinged  
 FRONT CAT#: NC92VSHRODL  
 BOX CAT#: MH92D9H  
 DIMENSIONS:  
 92"H x 20"W x 8.75"D  
 WIRE BENDING SPACE:  
 TOP - 17.1  
 BOTTOM - 15.24  
 SIDE - 5.9  
 PBA: 713HR  
 BUSSING: COPPER  
 Silver/Tin Plated  
 (Continued on next page.)

ELECTRICAL DATA

SYSTEM: 208Y/120V 3Ph 4W 60Hz  
 System Ampacity: 600A  
 22kA SYMS. SCCR  
 MAIN: MAIN BREAKER LL 600AS/450AT  
 ACC: FEED THRU LUGS  
 ACC: AX,HPL,ST,STD LI  
 Bottom FEED  
 125kA AIR  
 INCOMING CONDUCTOR(S) PER NEC, CEC, NOM:  
 Wire Bending Space:  
 Phase Lugs : 1 - (2) 2/0 - 500 kcmil  
 TUB #1

ACC Key:  
 AX Auxilliary Contact  
 HPL Padlock Hasp  
 ST Shunt Trip  
 STD Standard Trip Unit  
 LI Long Time Instantaneous Trip

JOB NAME:	ESQUIMALT GRAVING DOCK - NORTH	EQUIPMENT DESIGNATION:	2NS-SP-1
JOB LOCATION:	MISSISSAUGA ON	EQUIPMENT TYPE:	NQ (Circuit Breaker Type) PANEL 1 OF 2
DRAWN BY:	CAD	DRAWING TYPE:	ONE LINE DIAGRAM

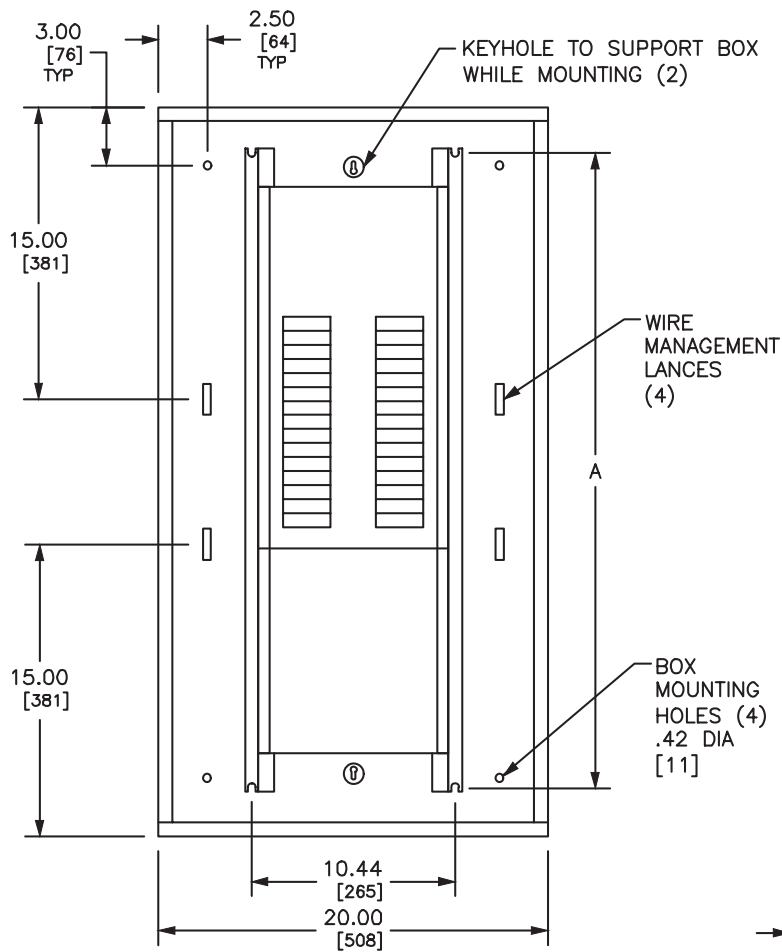
PHYSICAL DATA CONTINUED

OPTIONAL FEATURES:  
 SHIP COMPLETELY ASSEMBLED  
 DRIP HOOD  
 BRANCH USER PLACEMENT  
 Copper GROUND BAR  
 COPPER SOLID NEUTRAL  
 OUTER DOOR LOCKS

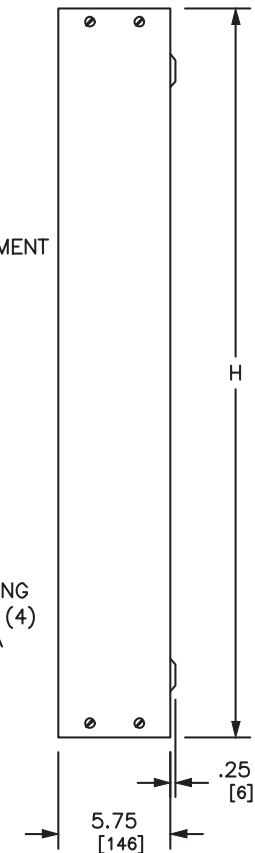
-----BRANCH SUMMATION-----

1 - 15A/1P QOB-VHGF1	1 - 25A/3P QOB-VH
1 - 30A/2P QOB-VH	3 - 20A/2P QOB-VH
2 - 15A/2P QOB-VH	15 - 20A/1P QOB-VH
11 - 15A/1P QOB-VH	1 - 15A/1P-PS QOB-VH
1 - 100A/3P QOB-VH	1 - 15A/3P QOB-VH

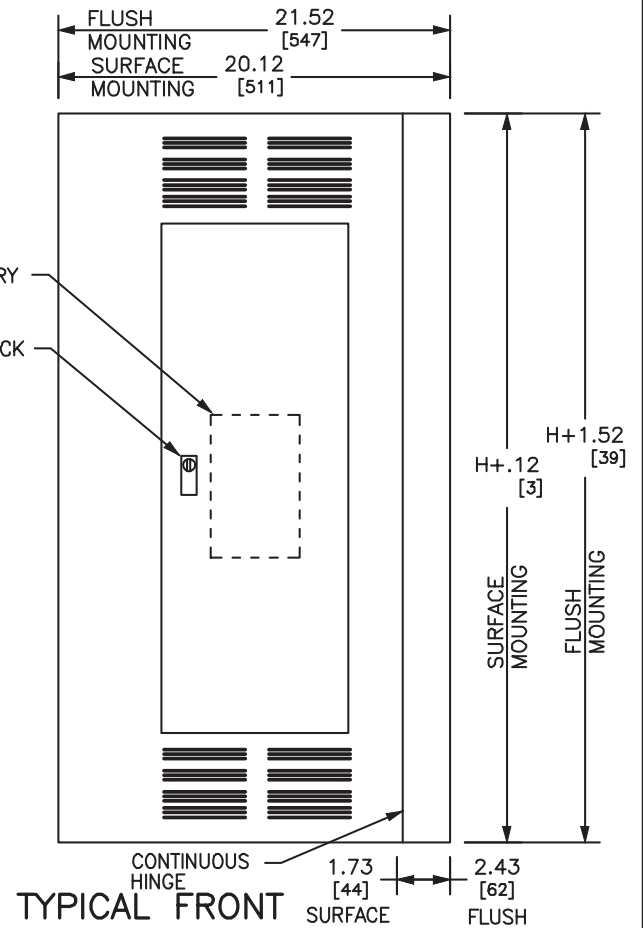
02/06/2018 Approval Drawings  
 Project: Esquimalt, North Landing  
 EECOL PO # 505-19063 Schneider Electric Ref. 40575938-014-015-016-017



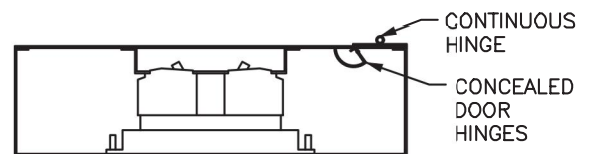
TYPICAL BOX WITH INTERIOR



TYPICAL BOX SIDE VIEW

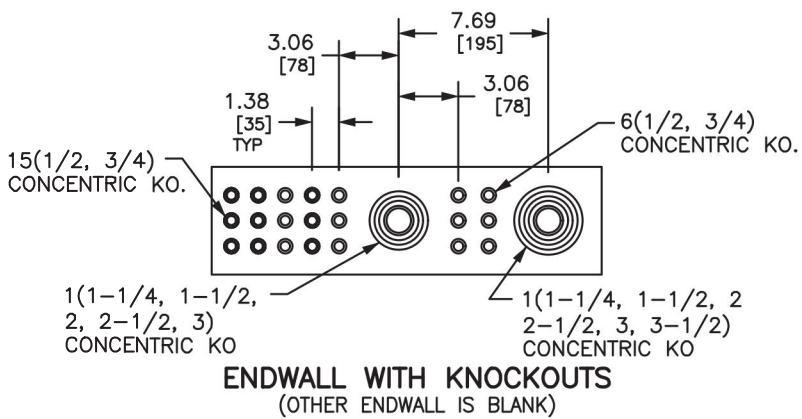


TYPICAL FRONT



TYPICAL MOUNTING OF QO, QOB BREAKERS

DUAL DIMENSIONS: INCHES MILLIMETERS



ENDWALL WITH KNOCKOUTS (OTHER ENDWALL IS BLANK)

REFER TO DP CATALOG CLASS 1640 FOR ADDITIONAL INFORMATION  
 FOR TYPE 3R APPLICATIONS USE IN CONJUNCTION WITH PBA711  
 NQ PANELBOARDS MEET THE APPLICABLE REQUIREMENTS OF UL AND CSA.  
 BOX: CODE GAUGE GALVANIZED STEEL. ONE ENDWALL IS BLANK, THE OTHER HAS KNOCKOUTS.  
 FRONT: GRAY BAKED ENAMEL FINISH ELECTRODEPOSITED OVER CLEANED PHOSPHATIZED STEEL. FRONT IS VENTED AND MOUNTS TO ENCLOSURE WITH SCREWS. DOOR HINGES ARE CONCEALED.  
 LOCK: FLUSH LOCK WITH BRUSHED STAINLESS STEEL ESCUTCHEON. NSR-251 KEY.

MAXIMUM MAIN LUGS AMPERE RATING	MAXIMUM NUMBER OF CIRCUITS	H		A	
		IN	MM	IN	MM
400A	30 & 42	50.00	1270	45.00	1143
	54	56.00	1422	51.00	1295
	72	62.00	1575	57.00	1448
	84	68.00	1727	63.00	1600
400A WITH SUB FEED LUGS	30 & 42	50.00	1270	45.00	1143
	54	56.00	1422	51.00	1295
	72	62.00	1575	57.00	1448
	84	68.00	1727	63.00	1600
400A WITH FEED THRU LUGS	30 & 42	56.00	1422	51.00	1295
	54	62.00	1575	57.00	1448
	72	68.00	1727	63.00	1600
	84	74.00	1880	69.00	1753
400A WITH SUB FEED BREAKERS	30 & 42	74.00	1880	69.00	1753
	54	80.00	2032	75.00	1905
	72	86.00	2184	81.00	2057
	84	92.00	2336	87.00	2209
600A *	30 & 42	50.00	1270	45.00	1143
	54	56.00	1422	51.00	1295
	72	62.00	1575	57.00	1448
	84	68.00	1727	63.00	1600
600A WITH FEED THRU LUGS	30 & 42	62.00	1575	57.00	1448
	54	68.00	1727	63.00	1600
	72	74.00	1880	69.00	1753
	84	80.00	2032	75.00	1905
600A WITH SUB FEED BREAKERS	30 & 42	74.00	1880	69.00	1753
	54	80.00	2032	75.00	1905
	72	86.00	2184	81.00	2057
	84	92.00	2336	87.00	2209

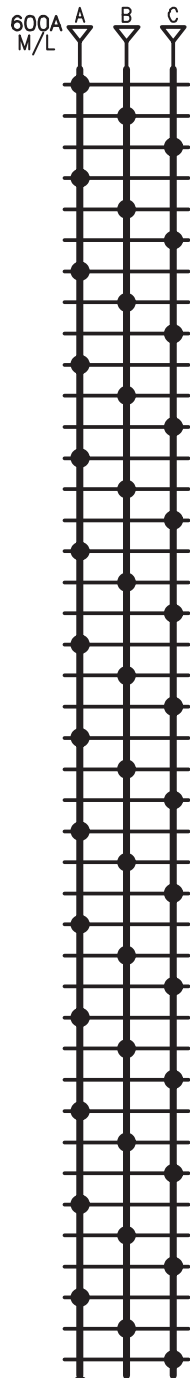
\* FOR TYPE 3R ENCLOSURE INCREASE HEIGHT DIMENSION BY 12.00/[305]

JOB NAME:	ESQUIMALT GRAVING DOCK - NORTH	EQUIPMENT DESIGNATION:	2NS-SP-1 Tub 2 of 2
JOB LOCATION:	MISSISSAUGA ON	EQUIPMENT TYPE:	NQ (Circuit Breaker Type)
DRAWN BY:	CAD	DRAWING TYPE:	PAD DRAWING
ENGR:		<b>SQUARE D</b> by Schneider Electric	
DATE:	January 05 2018	DWG#	A40575938-709HR-01
DRAWING STATUS:	APPROVAL	PG 1	OF 1 REV -

02/06/2018 Approval Drawings  
 Project: Esquimalt, North Landing  
 EECOL PO # 505-19063  
 Schneider Electric Ref.  
 40575938-014-015-016-017

REV	DESCRIPTION	BY	DATE		
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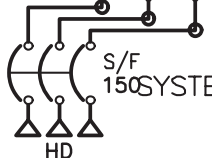
CKT NO	ACCESSORIES	TYPE	RATING AMP/P	S/N
85				
87				
89				
91				
93				
95				
97				
99				
101				
103				
105				
107				
109				
111				
113				
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149				
151				
153				
155				
157				
159				
161				
163				
165				
167	BLANK			



S/N	RATING AMP/P	TYPE	ACCESSORIES	CKT NO
				86
				88
				90
				92
				94
				96
				98
				100
				102
				104
				106
				108
				110
				112
				114
				116
				118
				120
				122
				124
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				168

**PHYSICAL DATA**

ENCLOSURE Type 2  
 Surface - Hinged  
 FRONT CAT#: NC92VSHRODL  
 BOX CAT#: MH92D9H  
 DIMENSIONS:  
 92"H x 20"W x 8.75"D  
 WIRE BENDING SPACE:  
 TOP - 16.23  
 BOTTOM - 18.3  
 SIDE - 5.9  
 PBA: 709HR  
 BUSSING: COPPER  
 Silver/Tin Plated  
 (Continued on next page.)



**ELECTRICAL DATA**

SYSTEM: 208Y/120V 3Ph 4W 60Hz  
 System Ampacity: 600A  
 22kA SYMS. SCCR  
 125kA AIR  
 INCOMING CONDUCTORS(S) PER NEC, CEC, NOM:  
 Wire Bending Space:  
 Phase Lugs : 1 - (2) 2/0 - 500 kcmil

MAIN: MAIN LUGS : 600A  
 Top FEED

Tub #2

JOB NAME:	ESQUIMALT GRAVING DOCK - NORTH	EQUIPMENT DESIGNATION:	2NS-SP-1
JOB LOCATION:	MISSISSAUGA ON	EQUIPMENT TYPE:	NQ (Circuit Breaker Type) PANEL 2 OF 2
DRAWN BY:	CAD	DRAWING TYPE:	ONE LINE DIAGRAM
ENGR:			<b>SQUARE</b>

**PHYSICAL DATA CONTINUED**

- OPTIONAL FEATURES:  
 SHIP COMPLETELY ASSEMBLED  
 DRIP HOOD  
 BRANCH USER PLACEMENT  
 Copper GROUND BAR  
 COPPER SOLID NEUTRAL  
 OUTER DOOR LOCKS

-----BRANCH SUMMATION-----

- 1 - 150A/3P HD AX,HPL,ST  
 HD  
 AX Auxilliary Contacts  
 HPL Padlock Hasp  
 ST Shunt Trip

REV	DESCRIPTION	BY	DATE						
-	----	--	---/---/---	-	----	--	---/---/---	-	----

**SWITCHBOARD GENERAL NOTES – SERIES 2**  
**PRODUCT DESCRIPTION & RATINGS**

**Power System Data**

600Y/347V 3Ph 4W 60Hz / 3 Phase Wye  
 Solidly Grounded  
 System Short Circuit Current Rating: 42kA RMS  
 Incoming Section 1 Cable Through the Top Left of Lineup

**Bus System Data**

600A Silver Plated Copper Main Bus

**Enclosure Data**

Type 1 Free Standing  
 Driphoods  
 Sprinklered Equipment per CEC Part 1 Rule 26-008  
 Exterior Paint Color: ANSI 49  
 Front & Left Accessibility Required  
 Handling: Rollers & Lifting Assemblies  
 Rodent barriers

**Estimated Shipping Weight**

Shipping Split 1 835.00 lbs / 378.76 kgs  
 Shipping Split 2 760.00 lbs / 344.74 kgs  
 Complete Lineup 1595.00 lbs / 723.49 kgs

**Code Standards**

CSA C22.2 NO. 31  
 Not Suitable for Service Entrance  
 Not Suitable for Mounting on Combustible Floor

**Rating Nameplates**

ST1-Section Bus 600A  
 ST2-Section Bus 600A

**PRODUCT INFORMATION**

**Wiring**

All Gray SIS Wire and Min Size #14 Unless Otherwise Noted, and #12 Ground Wire.  
 NOTE: (90 Deg. C) insulated conductors must be sized per the (75 Deg. C) column of the CE Code Tables.

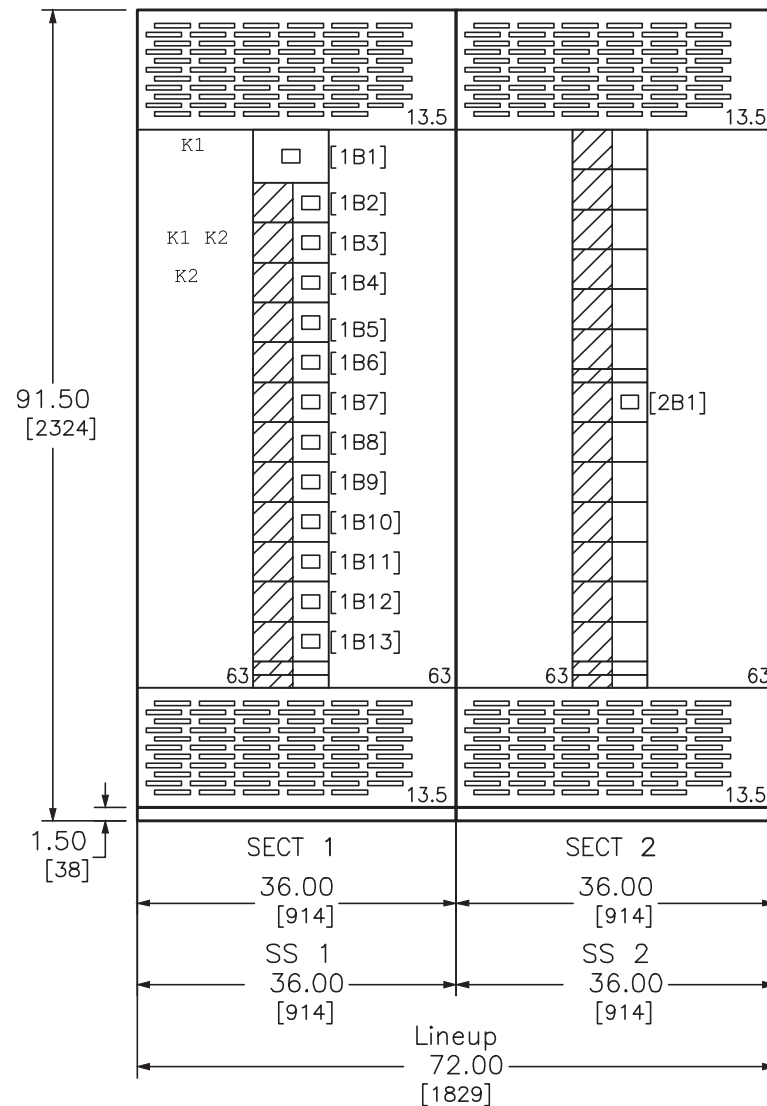
**Instruction Bulletins**

Reference 80043-055 For Handling, Installation, Anchoring, Inspection And Maintenance Information

**Product Accessories/Options**

Seismic Qualified  
 Network Communications Only – Modbus RS485 to Ethernet Modbus TCP  
 Customer Ethernet Network – 10/100Mb Copper

T-bus 19.5 in      T-bus 19.5 in



NOT REQUIRED? →

**houle electric limited**  
 EGD Replace Main Substation RMSNS  
 The information contained in this drawing has been reviewed and is:  
 Specification 26 23 00

ACCEPTABLE TO HOULE ELECTRIC  
 NOT ACCEPTABLE TO HOULE ELECTRIC  
 ACCEPTABLE AS NOTED  
 SUBJECT TO ACCEPTANCE BY DESIGN CONSULTANT

Supplier is responsible for providing acceptable products in accordance with Specifications

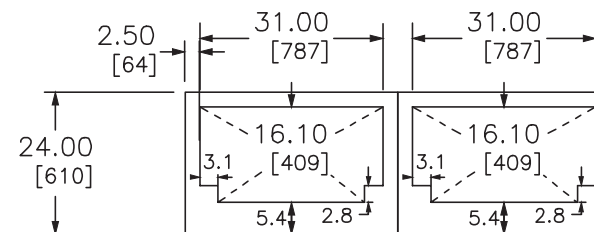
Per Randy Noble Job: 5001-0494 Date: Feb 15 18

DUAL DIMENSIONS: INCHES  
 MILLIMETERS

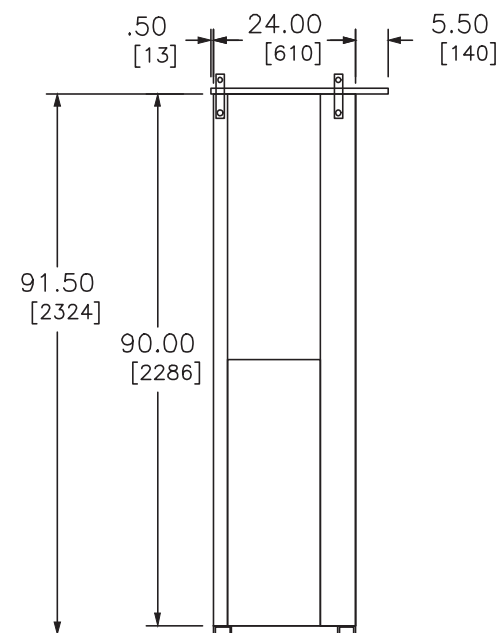
JOB NAME:	ESQUIMALT GRAVING DOCK – NORTH	EQUIPMENT DESIGNATION:	6NS-SP1
JOB LOCATION:	VICTORIA BC	EQUIPMENT TYPE:	QED-2 SWITCHBOARD
DRAWN BY:	EUGENE DORY	DRAWING TYPE:	GENERAL NOTES
ENGR:	JH	<b>SQUARE</b> by Schneider Electric	
DATE:	FEBRUARY 01 2018	DWG#	F40575938-011-01
DRAWING STATUS:	APPROVAL	PG 1	OF 3



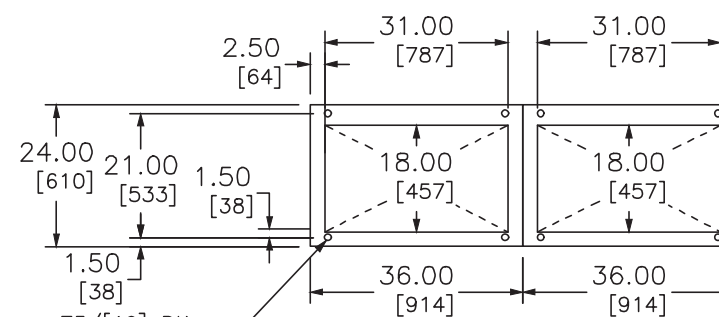
REV	DESCRIPTION	BY	DATE						
-	----	--	---/---/---	-	----	--	---/---/---	-	----



TOP VIEW - FRONT




LEFT SIDE VIEW



FLOOR PLAN - FRONT

.75/[19] DIA  
 MTG HOLES OFFSET  
 3.00/[76] TYP  
 FROM SIDE

DUAL DIMENSIONS: INCHES  
 MILLIMETERS

JOB NAME:	ESQUIMALT GRAVING DOCK - NORTH	EQUIPMENT DESIGNATION:	6NS-SP1
JOB LOCATION:	VICTORIA BC	EQUIPMENT TYPE:	QED-2 SWITCHBOARD
DRAWN BY:	EUGENE DORY	DRAWING TYPE:	SIDE, TOP VIEW & FLOOR PLAN
ENGR:	JH	<b>SQUARE</b> 	
DATE:	FEBRUARY 01 2018	by Schneider Electric	
DRAWING STATUS:	APPROVAL	DWG# F40575938-011-01	PG 2 OF 3 REV -



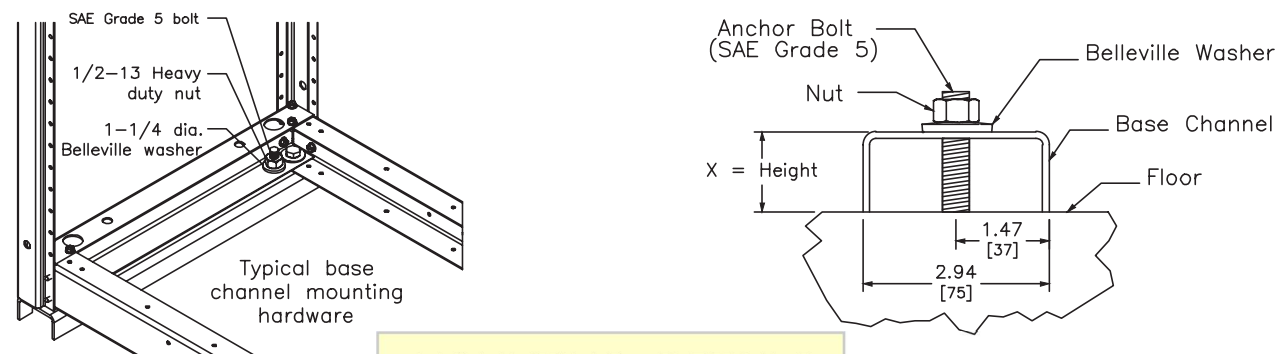
REV	DESCRIPTION	BY	DATE						
-	----	--	---/---/---	-	----	--	---/---/---	-	----

REQUIREMENTS FOR SEISMIC RATING

ANCHORING CONDITIONS:

To Maintain Seismic Qualifications, Equipment Must Be Installed Per Manual (See General Notes) And Per Any Seismic Anchoring Details Provided By Others. Do Not Install Equipment Before Approved Seismic Anchoring Details Have Been Obtained And Site Preparations Have Been Made In Accordance With The Approved Seismic Anchoring Details. All Post-Installed Anchors Shall Be Approved For Seismic Loads.

Consideration Must Be Made For Conduit Entry Into Each Section When Developing Mounting Pad Reinforcement Locations. See Conduit Entry Details (Floor Plan) For Dimensional Information.



MOUNTING DETAILS

Each Section Must Be Anchored At All Locations (Refer To Floor Plan And Mounting Detail Above). Anchor Bolt Mounting Points Are .75/[19] Diameter Holes Located 1.50/[38] Or 3.00/[76] Above The Base of the Section. Use Dimensions From The Floor Plan To Determine Mounting Locations.

The Belleville Washer (Shown In Detail Above) Used For Anchoring Connections Is A Tested Component And Is Required To Maintain Position Retention Of The Equipment. The Slip Critical Connection Performance Of The Bolted Connection Was Established To The Shake Table Tested Seismic Capacity Of The Equipment As Shown On The Equipment Seismic Certificate Supplied At The Time Of Order.

CENTER OF GRAVITY CALCULATIONS:

Elevation Center Of Gravity: 55 in. (1387.00mm) Up From Floor  
 Vertical Center Of Gravity: Use Centerline Of Section From Left To Right  
 Depth Center Of Gravity: Use Centerline Of The Section From Front To Rear

SECTION WEIGHT:

The Weights Given Below Are The Maximum For Each Section And Should Be Used For Calculating Seismic Anchoring Requirements

- Section 1 835.00 lbs / 378.76 kgs
- Section 2 760.00 lbs / 344.74 kgs

DUAL DIMENSIONS: INCHES  
 MILLIMETERS

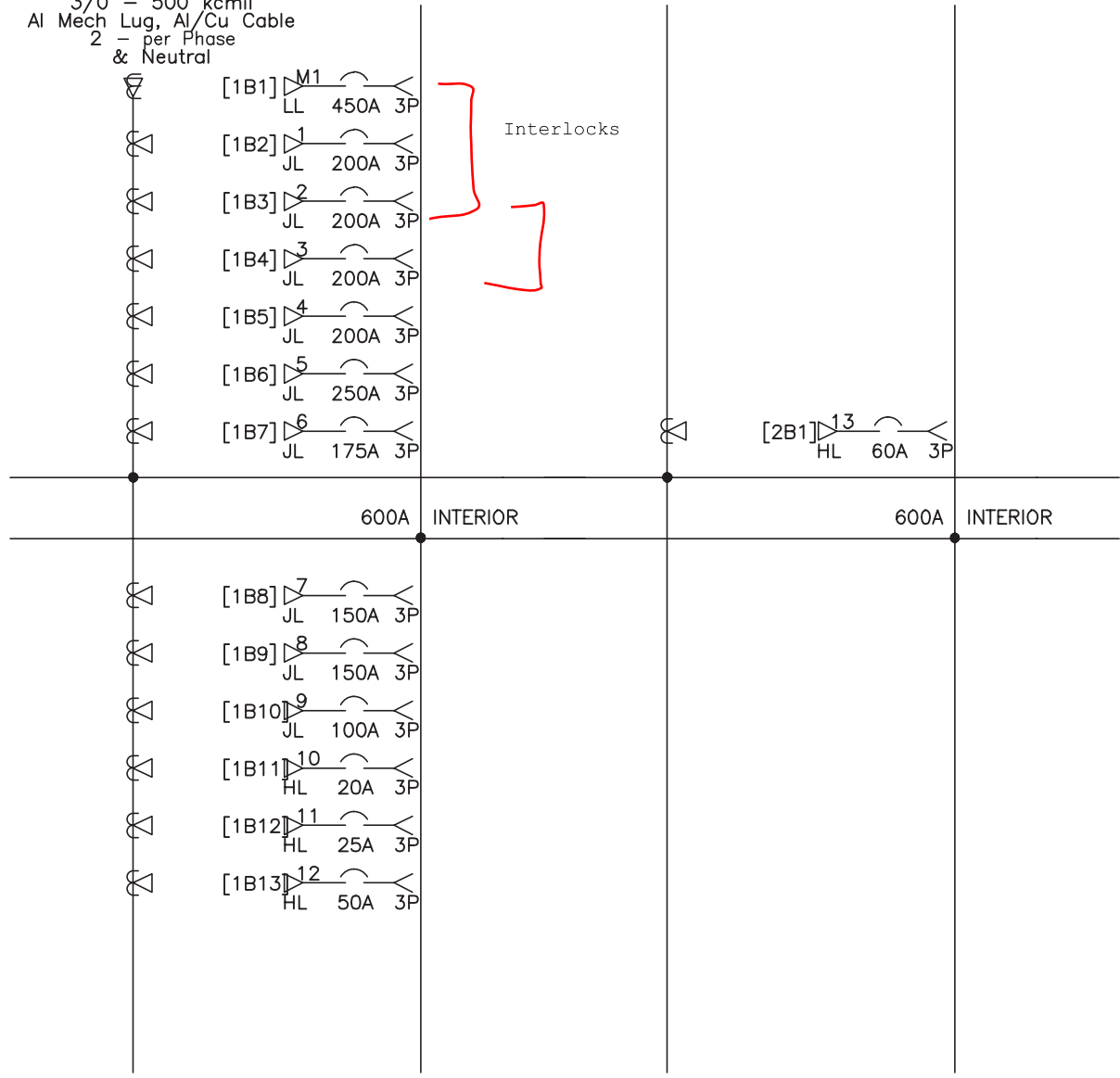
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JOB LOCATION:	VICTORIA BC	EQUIPMENT TYPE:	QED-2 SWITCHBOARD
DRAWN BY:	EUGENE DORY	DRAWING TYPE:	CENTER OF GRAVITY
ENGR:	JH	<b>SQUARE</b> by Schneider Electric	
DATE:	FEBRUARY 01 2018	DWG#	F40575938-011-01
DRAWING STATUS:	APPROVAL	PG	3 OF 3 REV -



02/06/2018 Approval Drawings  
 Project: Esquimalt, North Landing  
 EECOL PO # 505-19063  
 Schneider Electric Ref. 40575938-011

REV	DESCRIPTION	BY	DATE						
-	----	--	---/---/---	-	----	--	---/---/---	-	----

3/0 - 500 kcmil  
 Al Mech Lug, Al/Cu Cable  
 2 - per Phase  
 & Neutral



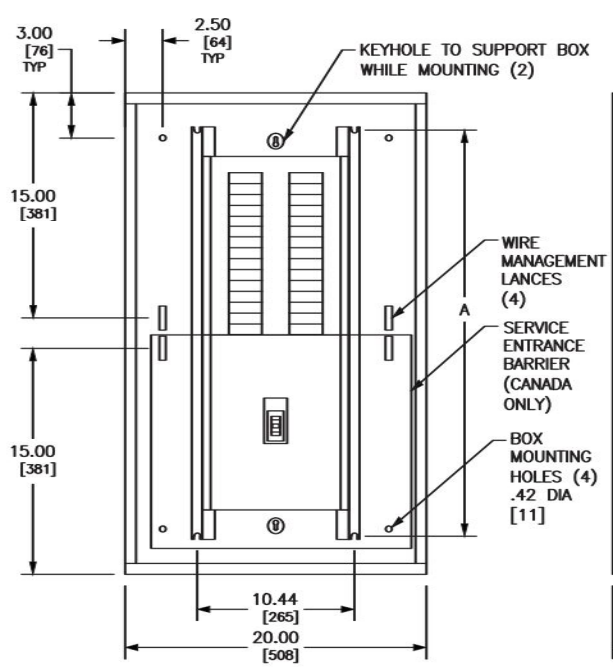
SECTION 1

SECTION 2

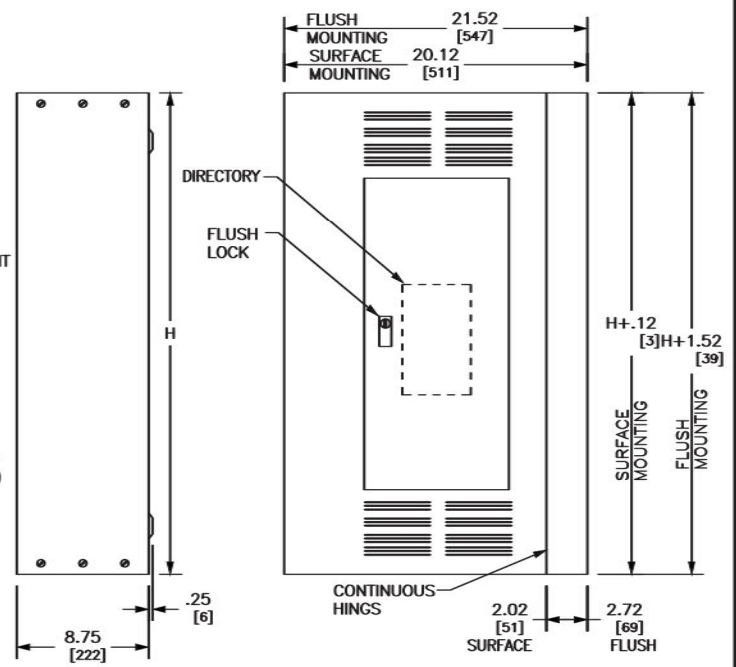
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JOB LOCATION:	VICTORIA BC	EQUIPMENT TYPE:	QED-2 SWITCHBOARD
DRAWN BY:	EUGENE DORY	DRAWING TYPE:	ONE LINE
ENGR:	JH		
DATE:	FEBRUARY 01 2018	DWG#	040575938-011-01
DRAWING STATUS:	APPROVAL	PG	1 OF 2
		REV	-



REV	DESCRIPTION	BY	DATE		
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TYPICAL BOX WITH INTERIOR

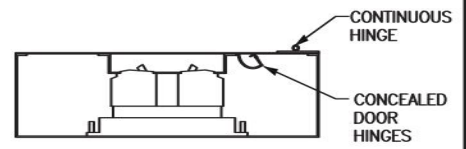


TYPICAL BOX SIDE VIEW

TYPICAL FRONT



BLANK ENDWALL



TYPICAL MOUNTING OF QO, QOB BREAKERS

DUAL DIMENSIONS: INCHES MILLIMETERS

MAXIMUM LC MAIN BREAKER AMPERE RATING	MAXIMUM NUMBER OF CIRCUITS	H		A	
		IN	MM	IN	MM
400A	30 & 42	68.00	1727	63.00	1600
	54	74.00	1880	69.00	1753
	72	80.00	2032	75.00	1905
	84	86.00	2184	81.00	2057
400A FEED THRU LUGS	30 & 42	74.00	1880	69.00	1753
	54	80.00	2032	75.00	1905
	72	86.00	2184	81.00	2057
	84	86.00	2184	81.00	2057
600A	30 & 42	68.00	1727	63.00	1600
	54	74.00	1880	69.00	1753
	72	<del>80.00</del>	<del>2032</del>	<del>75.00</del>	<del>1905</del>
	84	86.00	2184	81.00	2057
600A FEED THRU LUGS	30 & 42	80.00	2032	75.00	1905
	54	86.00	2184	81.00	2057

REFER TO DP CATALOG CLASS 1640 FOR ADDITIONAL INFORMATION

NQ PANELBOARDS MEET THE APPLICABLE REQUIREMENTS OF UL AND CSA.

REVISE DEPTH (TOP CENTER VIEW) TO 8.75/[222].

BOX: CODE GAUGE GALVANIZED STEEL. ONE ENDWALL IS BLANK, THE OTHER HAS KNOCKOUTS.

FRONT: GRAY BAKED ENAMEL FINISH ELECTRODEPOSITED OVER CLEAN PHOSPHATIZED STEEL. FRONT IS VENTED AND MOUNTS TO ENCLOSURE WITH SCREWS. DOOR HINGES ARE CONCEALED.

LOCK: FLUSH LOCK WITH BRUSHED STAINLESS STEEL ESCUTCHEON. NSR-251 KEY.

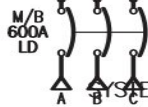
JOB NAME:	ESQUIMALT GRAVING DOCK SOUTH	EQUIPMENT DESIGNATION:	2SSSR-SP1
JOB LOCATION:	MISSISSAUGA ON	EQUIPMENT TYPE:	NQ (Circuit Breaker Type)
DRAWN BY:	CAD	DRAWING TYPE:	PAD DRAWING
ENGR:			
DATE:	August 09 2016		
DRAWING STATUS:	APPROVAL	DWG#	A37939710-713HR-01
		PG	1 OF 1
		REV	---



REV	DESCRIPTION	BY	DATE				

CKT NO	ACCESSORIES	TYPE	RATING AMP/P	S/N	S/N	RATING AMP/P	TYPE	ACCESSORIES	CKT NO
1									2
3									4
5									6
7		QOB-VH	150/3			40/3	QOB-VH		8
9									10
11									12
13									14
15		QOB-VH	100/3			15/3	QOB-VH		16
17									18
19									20
21		QOB-VH	15/3			70/2	QOB-VH		22
23									24
25									26
27		QOB-VH	20/2			40/2	QOB-VH		28
29		QOB-VH	30/1			15/2	QOB-VH		30
31		QOB-VH	20/1			20/1	QOB-VH		32
33		QOB-VH	20/1			20/1	QOB-VH		34
35		QOB-VH	20/1			20/1	QOB-VH		36
37		QOB-VH	20/1			20/1	QOB-VH		38
39		QOB-VH	20/1			20/1	QOB-VH		40
41		QOB-VH	20/1			15/1	QOB-VH		42
43		QOB-VH	15/1			15/1	QOB-VH		44
45		QOB-VH	15/1			15/1	QOB-VH		46
47		QOB-VH	15/1			15/1	QOB-VH		48
49		QOB-VH	15/1			15/1	QOB-VH		50
51		QOB-VH	15/1			15/1	QOB-VH		52
53		QOB-VH	15/1			15/1	QOB-VH		54
55		QOB-VH	15/1			15/1	QOB-VH		56
57		QOB-VH	15/1			15/1	QOB-VH		58
59		QOB-VH	15/1			15/1	QOB-VH		60
61		QOB-VH	15/1			15/1	QOB-VH		62
63		QOB-VH	15/1			15/1	QOB-VH		64
65						20/2	QOB-VH		66
67		QOB-VH	20/2			15/1	QOB-VH		68
69		QOB-VH	15/1			15/1	QOB-VH		70
71		QOB-VH	15/1			15/1	QOB-VH		72
73		QOB-VH	15/1			15/1	QOB-VH	PREPARED SPACE	74
75	PREPARED SPACE	QOB-VH	15/1			15/1	QOB-VH	PREPARED SPACE	76
77	PREPARED SPACE	QOB-VH	15/1			15/1	QOB-VH	PREPARED SPACE	78
79	PREPARED SPACE	QOB-VH	15/1			15/1	QOB-VH	PREPARED SPACE	80
81	PREPARED SPACE	QOB-VH	15/1			15/1	QOB-VH	PREPARED SPACE	82
83	PREPARED SPACE	QOB-VH	15/1			15/1	QOB-VH	PREPARED SPACE	84



**PHYSICAL DATA**

ENCLOSURE Type 2  
 Surface - Hinged  
 FRONT CAT#: NC86VSHRODL  
 BOX CAT#: MH86D9H  
 DIMENSIONS:  
 86"H x 20"W x 8.75"D  
 WIRE BENDING SPACE:  
 TOP - 12.25  
 BOTTOM - 15.24  
 SIDE - 5.9  
 PBA: 713HR  
 BUSSING: Copper  
 Silver/Tin Plated  
 (Continued on next page.)

**ELECTRICAL DATA**

SYSTEM: 208Y/120V 3Ph 4W 60Hz  
 System Ampacity: 600A  
 22kA SYMS. SCCR  
 MAIN: MAIN BREAKER LD 600AS/450AT  
 ACC: AX,HPL,ST,STD **LSIG**  
 Bottom FEED  
 25kA AIR  
 INCOMING CONDUCTORS(S) PER NEC  
 Wire Bending Space:  
 (2) 2/0 - 500 kcmil  
 BRANCH MOUNTING TYPE: BOLT-ON

JOB NAME:	ESQUIMALT GRAVING DOCK SOUTH	EQUIPMENT DESIGNATION:	2SSSR-SP1
JOB LOCATION:	MISSISSAUGA ON	EQUIPMENT TYPE:	NQ (Circuit Breaker Type) PANEL 1 OF 1
DRAWN BY:	CAD	DRAWING TYPE:	ONE LINE DIAGRAM
ENGR:			
DATE:	August 09 2016		
DRAWING STATUS:	APPROVAL	DWG#	037939710-040-01

REV	DESCRIPTION	BY	DATE		
-	----	--	--/--	-	----

PHYSICAL DATA CONTINUED

OPTIONAL FEATURES:

- SHIP COMPLETELY ASSEMBLED
- DRIP HOOD
- BRANCH USER PLACEMENT
- Copper GROUND BAR
- COPPER SOLID NEUTRAL
- OUTER DOOR LOCKS

-----BRANCH SUMMATION-----

- |                    |                       |
|--------------------|-----------------------|
| 1 - 150A/3P QOB-VH | 1 - 100A/3P QOB-VH    |
| 2 - 15A/3P QOB-VH  | 3 - 20A/2P QOB-VH     |
| 1 - 30A/1P QOB-VH  | 11 - 20A/1P QOB-VH    |
| 28 - 15A/1P QOB-VH | 11 - 15A/1P-PS QOB-VH |
| 2 - 40A/3P QOB-VH  | 1 - 70A/2P QOB-VH     |
| 1 - 40A/2P QOB-VH  | 1 - 15A/2P QOB-VH     |

AX = Auxilliary Contacts  
 HPL = Lock off Device  
 ST = Shunt Trip  
 STD Standard Trip



Esquimalt Graving Dock South Side Substation Replacement

The information contained in this drawing has been reviewed and is:

Spec 26 | 24 16

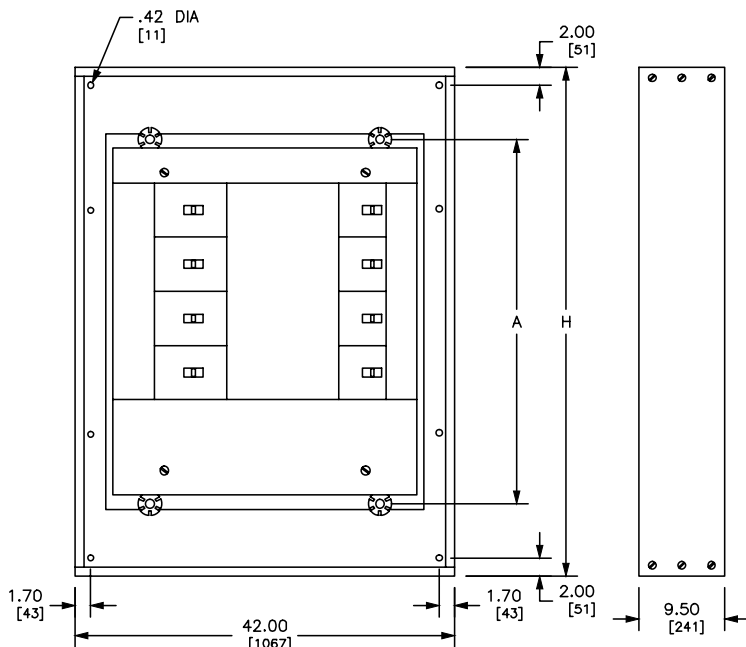
- ACCEPTABLE TO HOULE ELECTRIC
- NOT ACCEPTABLE TO HOULE ELECTRIC
- ACCEPTABLE AS NOTED
- SUBJECT TO ACCEPTANCE BY DESIGN CONSULTANT

Supplier is responsible for providing acceptable products in accordance with Specifications

Per Randy Noble Job: 5001-0469 Date: Aug 29 16

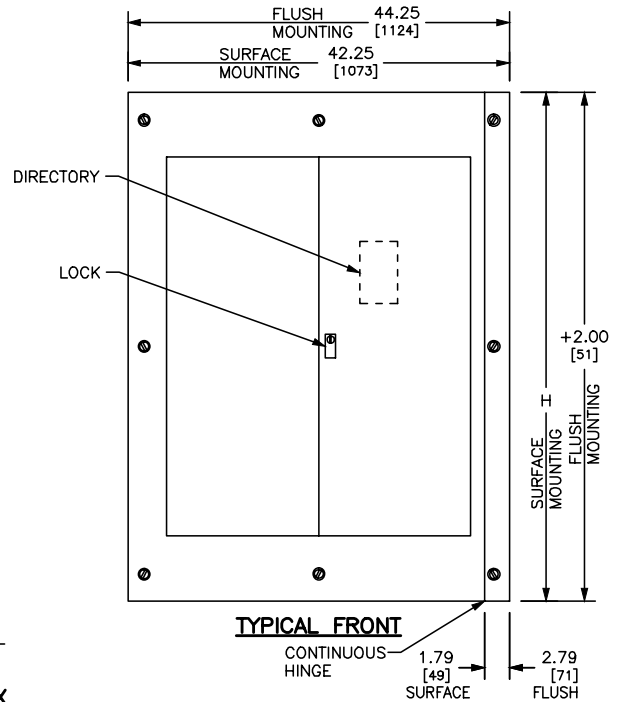
JOB NAME:	ESQUIMALT GRAVING DOCK SOUTH	EQUIPMENT DESIGNATION:	2SSSR-SP1
JOB LOCATION:	MISSISSAUGA ON	EQUIPMENT TYPE:	NQ (Circuit Breaker Type) PANEL 1 OF 1
DRAWN BY:	CAD	DRAWING TYPE:	ONE LINE DIAGRAM
ENGR:			
DATE:	August 09 2016		
DRAWING STATUS:	APPROVAL	DWG#	037939710-040-01
		PG	2 OF 2
		REV	-

REV	DESCRIPTION	BY	DATE				
-	-	-	-	-	-	-	-

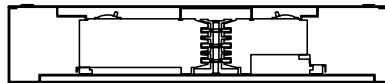


**TYPICAL BOX WITH INTERIOR**

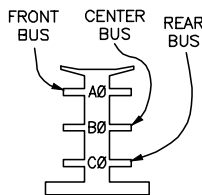
**TYPICAL BOX SIDE VIEW**



**TYPICAL FRONT**



**TYPICAL MOUNTING OF FA, FC, FD, FG, FH, FI, FJ, FK, FY, HD, HG, HJ, HL, JD, JG, JJ, JL, KA, KC, KH, KI, LA, LC, LE, LH, LI, LX, LXI, MG, MJ, PG, PJ, PK, PL, Q2, Q2H, Q2-H, QB, QD, QG, QJ, OR, QO. BREAKERS**



BRANCH CONNECTION PHASING IS DETERMINED BY CIRCUIT BREAKER SELECTION

REFER TO DP CATALOG CLASS 2110 FOR ADDITIONAL INFORMATION

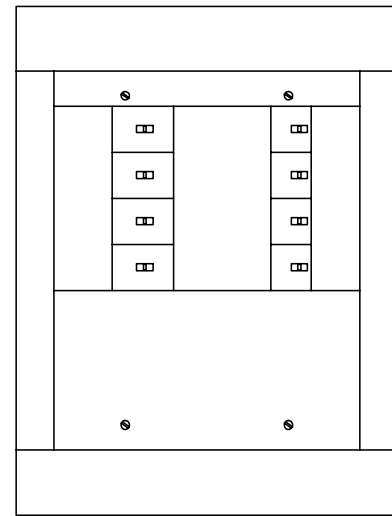
I-LINE HCP PANELBOARDS MEET THE APPLICABLE REQUIREMENTS OF UL AND CSA.

BOX: CODE GAUGE GALVANIZED STEEL WITH REMOVABLE BLANK ENDWALLS.

FRONT: CODE GAUGE STEEL, GRAY BAKED ENAMEL FISHISH ELECTRODEPOSITED OVER CLEANED PHOSPHATIZED STEEL.

LOCK: (COVERS WITH DOORS) 50.00/[1270] - 59.00/[1499] HIGH FRONTS HAVE ESCUTCHEON FLUSH LOCK WITH NSR-251 KEY. 68.00/[1727] - 80.00/[2032] HIGH FRONTS HAVE 3 POINT ESCUTCHEON FLUSH LOCK WITH NSR-251 KEY.

FOR NEMA TYPE 3R APPLICATIONS USE IN CONJUNCTION WITH PBA412.



**TYPICAL SURFACE FRONT**

(4 PIECE TRIM - NO DOOR)

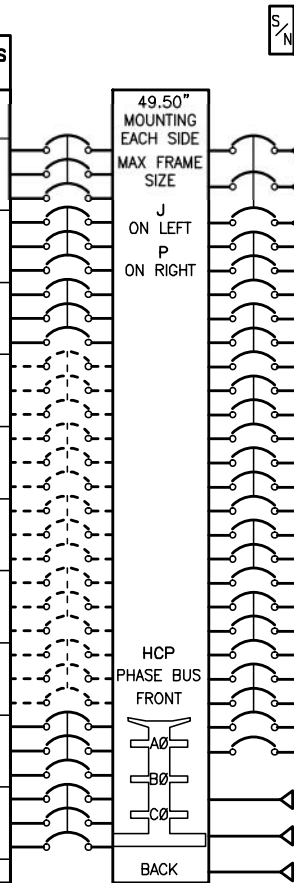
DUAL DIMENSIONS: INCHES MILLIMETERS

MAXIMUM MLO OR BF-MCB AMPERE RATING	BRANCH BREAKER MOUNTING SPACE (INCHES)	H		A	
		IN	MM	IN	MM
400 THRU 800	27	50.00	1270	20.40	518
	45	59.00	1499	38.40	975
	63	68.00	1727	47.40	1204
	99	86.00	2184	65.10	1654

JOB NAME:	ESQUIMALT GRAVING DOCK EGD	EQUIPMENT DESIGNATION:	6SES-SP-1
JOB LOCATION:	MISSISSAUGA ON	EQUIPMENT TYPE:	I-Line (Circuit Breaker Type)
DRAWN BY:	CAD	DRAWING TYPE:	PAD DRAWING
ENGR:			
DATE:	January 07 2016	DWG#	A37100374-418HR-01
DRAWING STATUS:	APPROVAL	PG 1	OF 1
		REV	-

REV	DESCRIPTION	BY	DATE					
-								

CKT NO	ACCESSORIES	TYPE	RATING AMP/P	PHASE BUS CONN							PHASE BUS CONN	RATING AMP/P	TYPE	ACCESSORIES	CKT NO
1	KIRK KEY INTERLOCK													KIRK KEY INTERLOCK	
1	AX 1AB, Std. LI 80% , ST 120Vac	JJ	250AS 200/3	ABC							ABC	400AS 300/3	LJ	BRANCH MOUNTED MAIN AX 1AB, Std. LI 80% , ST 120Vac	
3	AX 1AB, HLO Fixed Off/On,	JJ	200/3	ABC							ABC	60/3	HJ	AX 1AB, HLO Fixed Off/On,	2
5	AX 1AB, HLO Fixed Off/On,	JJ	200/3	ABC							ABC	60/3	HJ	AX 1AB, HLO Fixed Off/On,	4
7	PS 4.50" FP	JJ	200/3	ABC							ABC	60/3	HJ	AX 1AB, HLO Fixed Off/On,	6
9	PS 4.50" FP	JJ	200/3	ABC							ABC	40/3	HJ	AX 1AB, HLO Fixed Off/On,	8
11	PS 4.50" FP	JJ	200/3	ABC							ABC	40/3	HJ	AX 1AB, HLO Fixed Off/On,	10
13	PS 4.50" FP	JJ	200/3	ABC							ABC	30/3	HJ	AX 1AB, HLO Fixed Off/On,	12
15	PS 4.50" FP	JJ	200/3	ABC							ABC	20/3	HJ	AX 1AB, HLO Fixed Off/On,	14
17	AX 1AB, HLO Fixed Off/On,	HJ	100/3	ABC							A	20/2	FJ	AX 1AB, HLO Remove - Off/On,	16
19	AX 1AB, HLO Fixed Off/On,	HJ	100/3	ABC							ABC	400/3	SL400 OUT	SUBFEED LUG KIT	
	1.50" BLANK														



**PHYSICAL DATA**

ENCLOSURE Type 2  
 Surface - Hinged  
 FRONT CAT#: HC4286TSHR  
 BOX CAT#: HC4286DBH  
 DIMENSIONS:  
 86"H x 42"W x 9.5"D  
 WIRE BENDING SPACE:  
 TOP - 17.50  
 BOTTOM - 11.66  
 LEFT SIDE - 8.77  
 RIGHT SIDE - 8.66  
 PBA: 418HR  
 BUSSING: Copper  
 Tin Plated  
 OPTIONAL FEATURES:  
 SHIP COMPLETELY ASSEMBLED  
 DRIP HOOD  
 BRANCH USER PLACEMENT  
 Copper GROUND BAR  
 COPPER SOLID NEUTRAL  
 SUB-FEED LUG KIT ON BRANCH

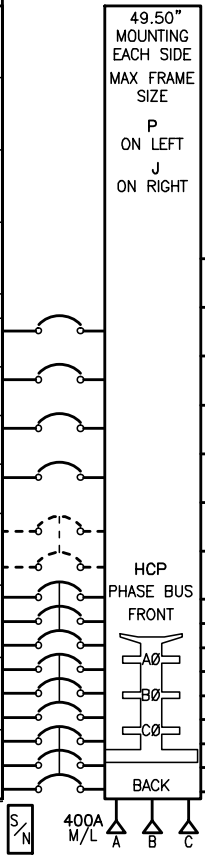
**ELECTRICAL DATA**

SYSTEM: 600Y/347V 3Ph 4W 60Hz  
 System Ampacity: 400A  
 22kA SYMS. SCCR  
 MAIN: MAIN BREAKER LJ 400AS/300AT  
 ACC: AX, KI, ST, STD LI  
 Top FEED  
 25kA AIR  
 INCOMING CONDUCTORS(S) PER NEC:  
 (2) 3/0 - 500 kcmil  
 BRANCH MOUNTING TYPE: PLUG-ON  
 PBA: 418HR  
 -----BRANCH SUMMATION-----  
 1 - SL400  
 1 - 200A/3P JJ AX, KI, ST, STD L2 - 200A/3P JJ AX, HPL, ST  
 5 - 200A/3P-PS JJ 2 - 100A/3P HJ AX, HPL, ST  
 3 - 60A/3P HJ AX, HPL, ST 2 - 40A/3P HJ AX, HPL, ST  
 1 - 30A/3P HJ AX, HPL, ST 1 - 20A/3P HJ AX, HPL, ST  
 1 - 20A/1P FJ AX, HPL, ST, AS  
 AX = Auxilliary Contacts KI = Key Interlock  
 HPL = Lock off Device STD = Standard Trip  
 ST = Shunt Trip

JOB NAME:	ESQUIMALT GRAVING DOCK EGD	EQUIPMENT DESIGNATION:	6SES-SP-1
JOB LOCATION:	MISSISSAUGA ON	EQUIPMENT TYPE:	I-Line (Circuit Breaker Type) PANEL 1 OF 2
DRAWN BY:	CAD	DRAWING TYPE:	ONE LINE DIAGRAM
ENGR:			
DATE:	January 07 2016		
DRAWING STATUS:	APPROVAL	DWG#	037100374-046-01
		PG 1	OF 1
		REV -	

REV	DESCRIPTION	BY	DATE					
-								

CKT NO	ACCESSORIES	TYPE	RATING AMP/P	PHASE BUS CONN		PHASE BUS CONN	RATING AMP/P	TYPE	ACCESSORIES	CKT NO
	4.50" BLANK								4.50" BLANK	
	4.50" BLANK								4.50" BLANK	
	4.50" BLANK								4.50" BLANK	
	4.50" BLANK								4.50" BLANK	
	1.50" BLANK								1.50" BLANK	
21	AX 1AB, HLO Remove - Off/On,	FJ	15/2	C		A	15/2	FJ	AX 1AB, HLO Remove - Off/On,	22
23	AX 1AB, HLO Remove - Off/On,	FJ	20/2	C		B	20/2	FJ	AX 1AB, HLO Remove - Off/On,	24
25	AX 1AB, HLO Remove - Off/On,	FJ	20/2	A		A	20/2	FJ	AX 1AB, HLO Remove - Off/On,	26
27	AX 1AB, HLO Remove - Off/On,	FJ	20/2	B		B	20/2	FJ	AX 1AB, HLO Remove - Off/On,	28
29	PS 4.50" FP	HJ	40/2	BC		C	20/2	FJ	AX 1AB, HLO Remove - Off/On,	30
31	AX 1AB, HLO Fixed Off/On	HJ	15/3	ABC		A	20/2	FJ	AX 1AB, HLO Remove - Off/On,	32
33	AX 1AB, HLO Fixed Off/On	HJ	15/3	ABC		A	20/2	FJ	AX 1AB, HLO Remove - Off/On,	34
35	AX 1AB, HLO Fixed Off/On	HJ	15/3	ABC		ABC	15/3	HJ	AX 1AB, HLO Fixed Off/On	36
						ABC	15/3	HJ	AX 1AB, HLO Fixed Off/On	38
						ABC	15/3	HJ	AX 1AB, HLO Fixed Off/On	40



**PHYSICAL DATA**

ENCLOSURE Type 2  
 Surface - Hinged  
 FRONT CAT#: HC4286TSHR  
 BOX CAT#: HC4286DBH  
 DIMENSIONS:  
 86"H x 42"W x 9.5"D  
 WIRE BENDING SPACE:  
 TOP - 11.66  
 BOTTOM - 17.50  
 LEFT SIDE - 8.66  
 RIGHT SIDE - 8.77

PBA: 418  
 BUSSING: Copper  
 Tin Plated

OPTIONAL FEATURES:  
 SHIP COMPLETELY ASSEMBLED  
 DRIP HOOD  
 BRANCH USER PLACEMENT  
 Copper GROUND BAR  
 COPPER SOLID NEUTRAL

**ELECTRICAL DATA**

SYSTEM: 600Y/347V 3Ph 4W 60Hz  
 System Ampacity: 400A  
 22kA SYMS. SCCR  
 MAIN: MAIN LUGS : 400A  
 Bottom FEED  
 INCOMING CONDUCTORS(S) PER NEC:  
 BRANCH MOUNTING TYPE: PLUG-ON  
 -----BRANCH SUMMATION-----  
 2 - 15A/1P FJ AX,HPL,AS      9 - 20A/1P FJ AX,HPL,AS  
 1 - 40A/2P-PS HJ              6 - 15A/3P HJ AX,HPL

Esquimalt Graving Dock PHS / SES Service Upgrade

The information contained in this drawing has been reviewed and is:

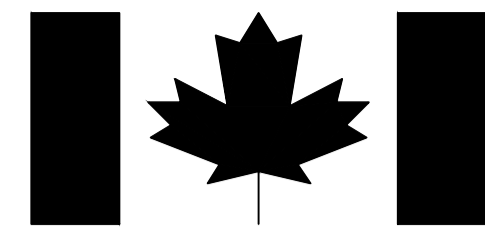
Spec 26 **23 00**

ACCEPTABLE TO HOULE ELECTRIC  
 NOT ACCEPTABLE TO HOULE ELECTRIC  
 ACCEPTABLE AS NOTED  
 SUBJECT TO ACCEPTANCE BY DESIGN CONSULTANT

Supplier is responsible for providing acceptable products in accordance with Specifications

Per **Randy Noble** Job: **5001-0448** Date: **Apr 14 16**

JOB NAME:	ESQUIMALT GRAVING DOCK EGD	EQUIPMENT DESIGNATION:	6SES-SP-1
JOB LOCATION:	MISSISSAUGA ON	EQUIPMENT TYPE:	I-Line (Circuit Breaker Type) PANEL 2 OF 2
DRAWN BY:	CAD	DRAWING TYPE:	ONE LINE DIAGRAM
ENGR:			
DATE:	December 15 2015		
DRAWING STATUS:	APPROVAL	DWG#	037100374-065-02



Public Works and  
Government Services  
Canada

Travaux publics et  
Services gouvernementaux  
Canada

REAL PROPERTY SERVICES  
Pacific Region

SERVICES IMMOBILIERS  
Région de Pacifique

# ESQUIMALT GRAVING DOCK - EAST END EXTENSION AND SECTION 3 DOCK FLOOR AND WALL REFURBISHMENT

PROJECT NO. R.096320.002

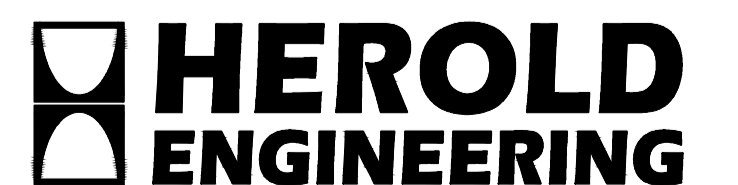
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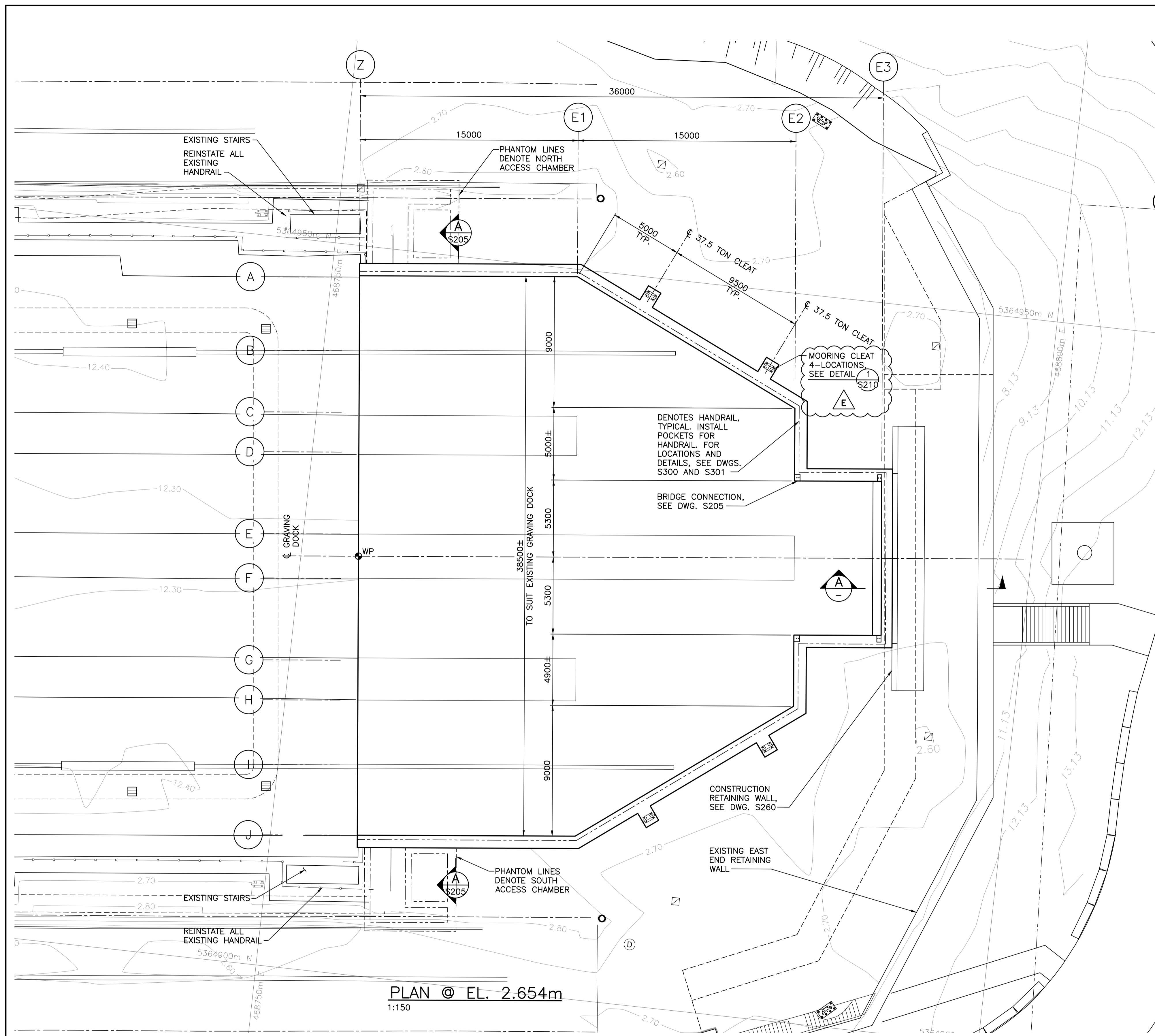
DRAWING NUMBER	DESCRIPTION
S000	COVER SHEET AND DRAWING LIST
S001	GENERAL NOTES
S100	EXISTING SITE PLAN – SHEET 1
S101	EXISTING SITE PLAN – SHEET 2
S103	GENERAL ARRANGEMENT – SHEET 1
S104	GENERAL ARRANGEMENT – SHEET 2
S105	CONTRACTORS WORK AREA
S108	DEMOLITION PLANS
S109	DEMOLITION – PHOTOS
S120	EXCAVATION – POTENTIAL SEQUENCE PHASE 1 PLANS
S121	EXCAVATION – POTENTIAL SEQUENCE PHASE 2 PLANS
S122	EXCAVATION – PLAN AND SECTIONS
S123	EXCAVATION – CONDITIONS AT EXISTING WALLS
S201	ROCK ANCHORS – SHEET 1
S202	ROCK ANCHORS – SHEET 2
S203	CONCRETE OUTLINE – SHEET 1
S204	CONCRETE OUTLINE – SHEET 2
S205	CONCRETE OUTLINE – SHEET 3
S206	CONCRETE REINFORCEMENT – SHEET 1
S207	CONCRETE REINFORCEMENT – SHEET 2
S208	CONCRETE REINFORCEMENT – SHEET 3
S209	CONCRETE REINFORCEMENT – SHEET 4
S210	CONCRETE REINFORCEMENT – SHEET 5
S211	WALL ELEVATIONS
S212	CONCRETE REINFORCEMENT – SHEET 6
S250	NORTH ACCESS CHAMBER – CONCRETE OUTLINE
S251	SOUTH ACCESS CHAMBER – CONCRETE OUTLINE
S252	NORTH AND SOUTH ACCESS CHAMBERS – REINFORCEMENT DETAILS
S253	ACCESS CHAMBER DETAILS
S260	CONSTRUCTION RETAINING WALL

DRAWING ADDED  
FOR ADDENDUM  
DATED 2021.04.27

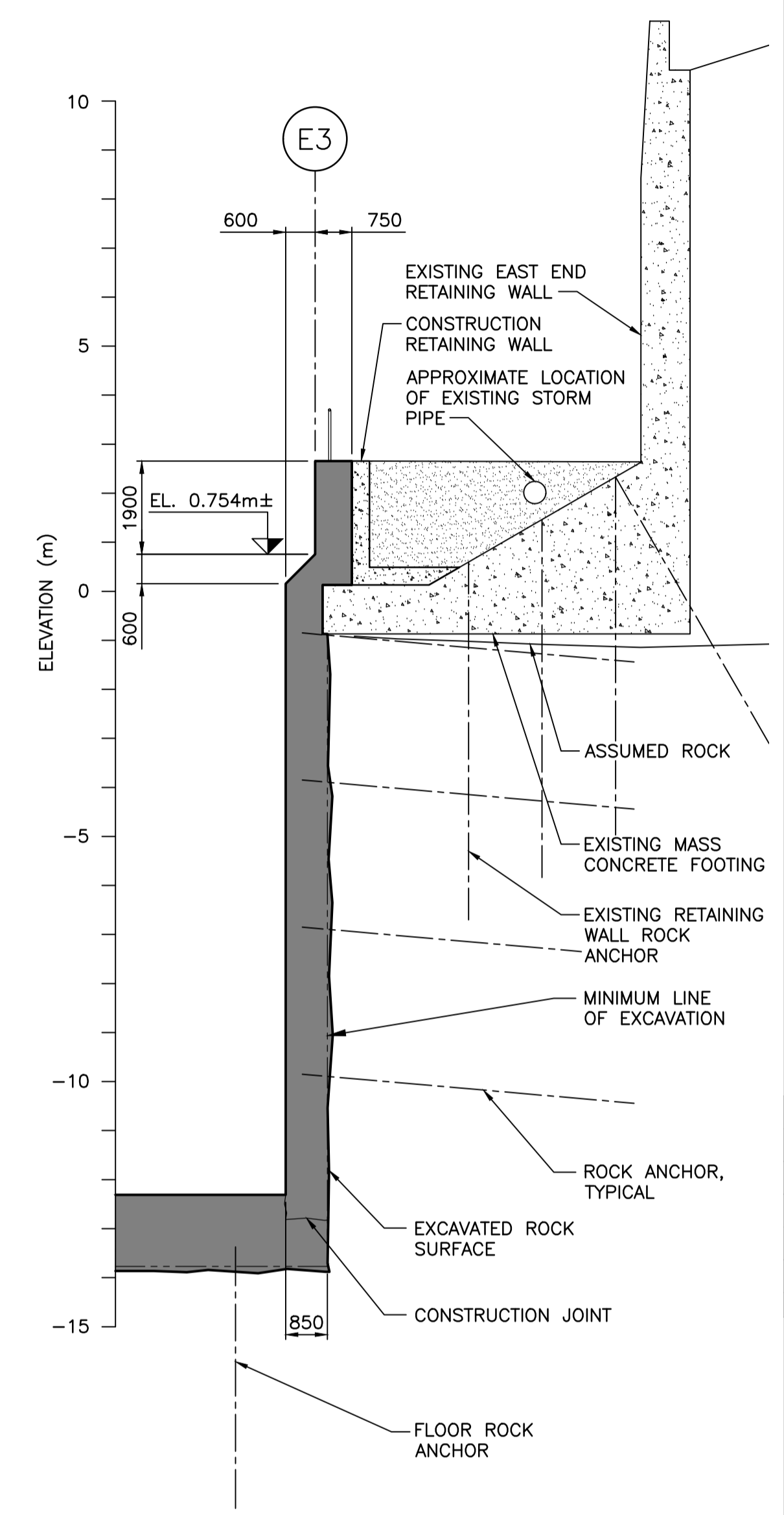
CIVIL DRAWING LIST

DRAWING NUMBER	DESCRIPTION
C001	EXISTING SERVICES
C002	TEMPORARY SERVICES
C003	NEW SERVICES
C004	SITE GRADING
<u>ELECTRICAL DRAWING LIST</u>	
DRAWING NUMBER	DESCRIPTION
E100	LEGEND, AND EXISTING SITE PLAN NEAR DOCK END
E200	EXISTING SITE PLAN POWER AND DATA END TO END CONNECTIONS ROUTING
E300	REVISED SITE PLAN EAST END DUCT BANK RECONNECTIONS
E301	DUCT BANK SECTION DETAILS
E303	EXPLODED MANHOLE DETAILS
E400	REVISED SITE PLAN POWER AND DATA END TO END CONNECTIONS ROUTING
E401	EXISTING COMMUNICATIONS NEW CONNECTIONS RISER DIAGRAM
<u>MECHANICAL DRAWING LIST</u>	
DRAWING NUMBER	DESCRIPTION
M100	COVERSHEET – SANITARY, WATER AND COMPRESSED AIR RENOVATIONS
M200	EXISTING SITE PLAN – SANITARY, WATER AND COMPRESSED AIR
M201	NEW SITE PLAN – SANITARY, WATER AND COMPRESSED AIR RENOVATIONS
M202	GRAVING DOCK – WATER LINE REPLACEMENT
M300	MECHANICAL LARGE SCALE PLANS AND SECTIONS
M301	MECHANICAL DETAILS





PLAN @ EL. 2.654m  
1:150



SECTION A-A  
SCALE 1:100

NOTES:  
1. FOR GENERAL NOTES, SEE DWG. S001.



Revision/	Description/Description	Date/Date
E	ADDENDUM	2021.04.27
D	ADDENDUM	2021.03.23
C	TENDER	2021.01.07
B	90% REVIEW	2020.07.10
A	75% REVIEW	2020.05.20

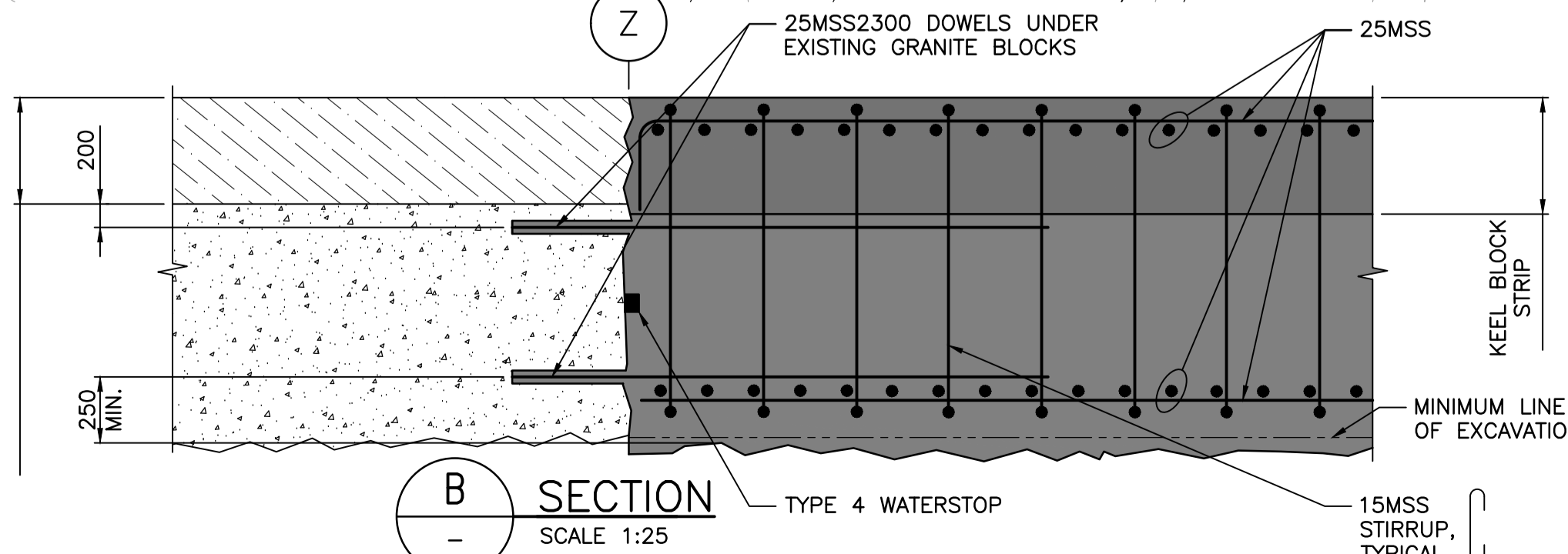
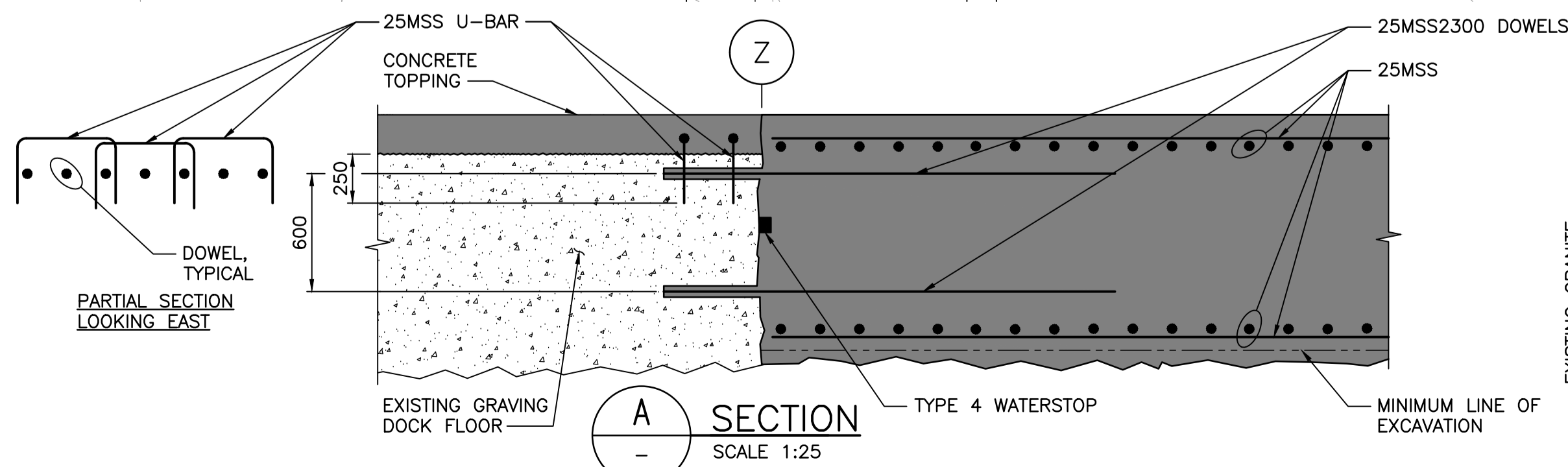
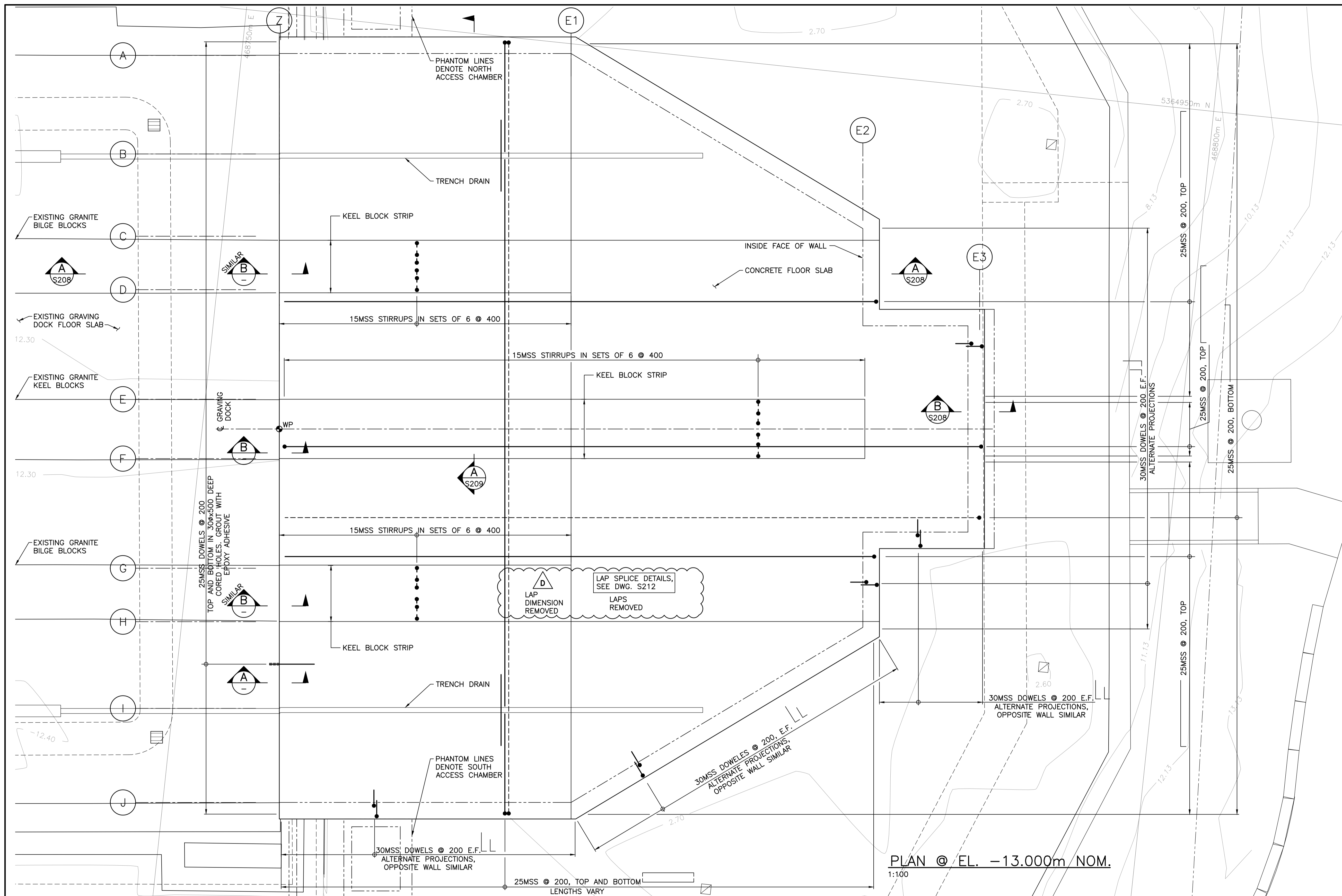
Client/client  
**PUBLIC WORKS AND GOVERNMENT SERVICES CANADA**

Project title/Titre du projet  
**ESQUIMALT GRAVING DOCK  
825 ADMIRALS ROAD, VICTORIA, BC**

**ESQUIMALT GRAVING DOCK  
EAST END EXTENSION AND  
SECTION 3 DOCK FLOOR  
AND WALL REFURBISHMENT**

Consultant Signature Only  
Designed by/Concept par  
KU / MGCS  
Drawn by/Dessiné par  
JJMC  
PWGSC Project Manager/Administrateur de Projets TPSSC  
EUGENE YEUNG  
Regional Manager, Architectural and Engineering Services  
Regional Manager, Environmental Services  
PREETIPAL PAUL  
Drawing title/Titre du dessin  
**CONCRETE OUTLINE - SHEET 2**

Project No./No. du projet	Sheet/Feuille	Revision no./La Révision no.
R.096320.002	S204	E



**NOTES:**  
1. FOR GENERAL NOTES SEE DWG. S001.

Revision/Revision	Description/Description	Date/Date
E	ADDENDUM	2021.04.27
D	ADDENDUM	2021.03.23
C	TENDER	2021.01.07
B	90% REVIEW	2020.07.10
A	75% REVIEW	2020.05.20

Client/client  
**PUBLIC WORKS AND GOVERNMENT SERVICES CANADA**

Project title/Titre du projet  
**ESQUIMALT GRAVING DOCK  
825 ADMIRALS ROAD, VICTORIA, BC**

**ESQUIMALT GRAVING DOCK  
EAST END EXTENSION AND  
SECTION 3 DOCK FLOOR  
AND WALL REFURBISHMENT**

Consultant Signature Only

Designed by/Concept par  
KU / MGCS

Drawn by/Dessiné par  
JJMC

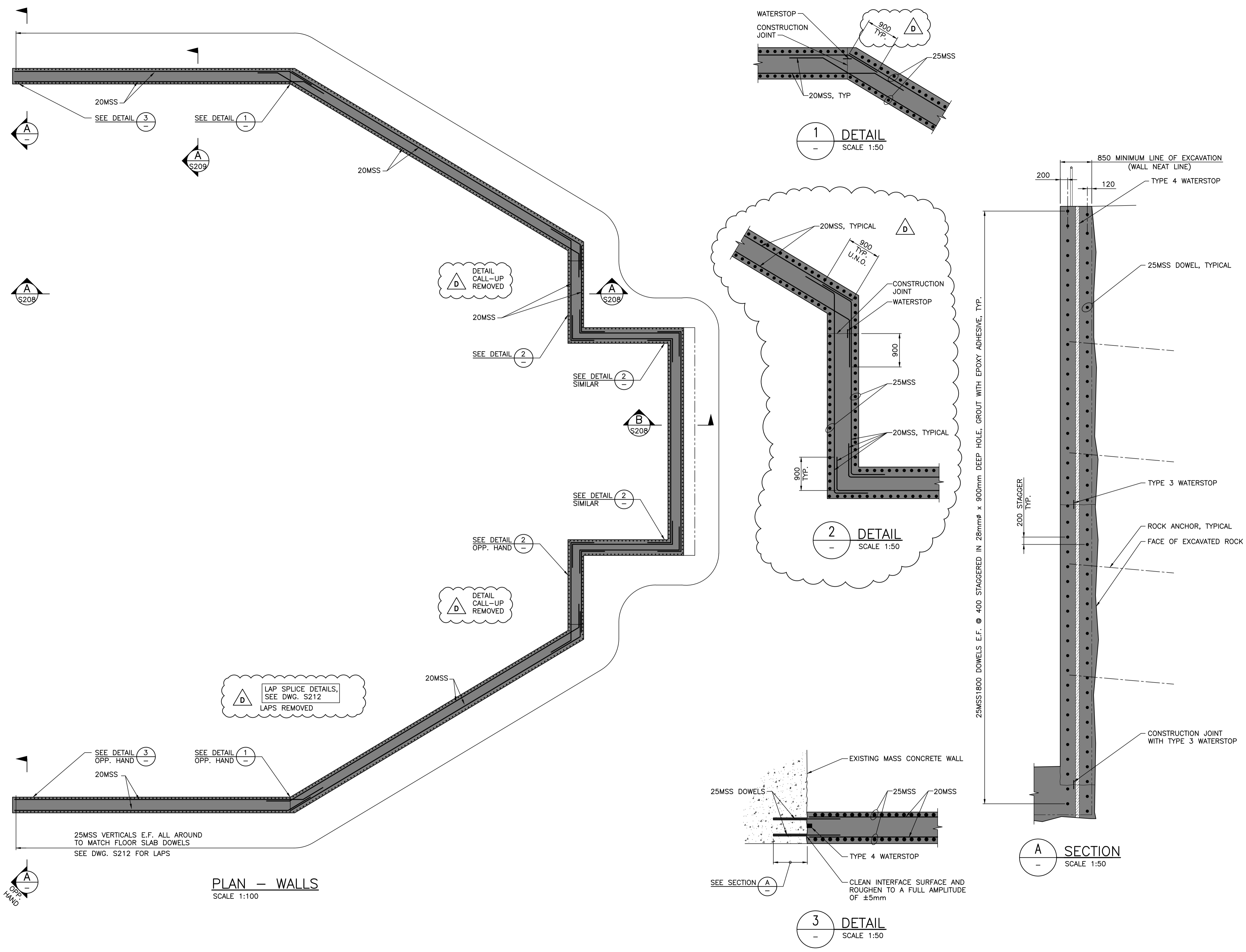
PWGC Project Manager/Administrateur de Projets TPSC  
EUGENE YEUNG

Regional Manager, Architectural and Engineering Services  
Regional Manager, Environmental Services  
PREETIPAL FAUL

Drawing title/Titre du dessin  
**CONCRETE REINFORCEMENT - SHEET 1**

Project No./No. du projet <b>R.096320.002</b>	Sheet/Feuille <b>S206</b>	Revision no./Lo Révision no. <b>E</b>
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Revision/	Description/Description	Date/Date
D	ADDENDUM	2021.04.27
C	TENDER	2021.01.07
B	90% REVIEW	2020.07.10
A	75% REVIEW	2020.05.20

Client/client  
**PUBLIC WORKS AND GOVERNMENT SERVICES CANADA**

Project title/Titre du projet  
**ESQUIMALT GRAVING DOCK  
825 ADMIRALS ROAD, VICTORIA, BC**

**ESQUIMALT GRAVING DOCK  
EAST END EXTENSION AND  
SECTION 3 DOCK FLOOR  
AND WALL REFURBISHMENT**

Consultant Signature Only

Designed by/Concept par  
KU / MGCS

Drawn by/Dessiné par  
JJMC

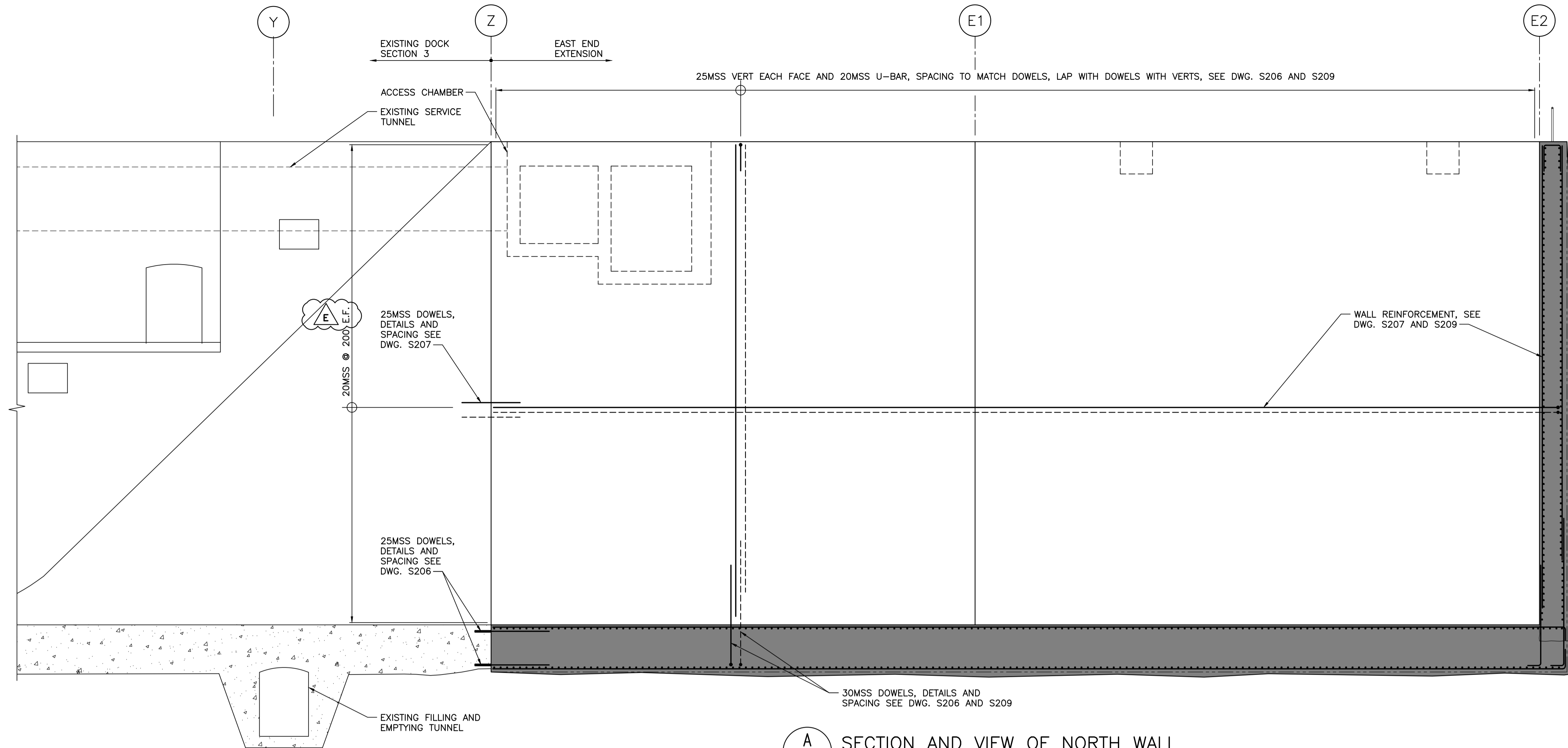
PWGS Project Manager/Administrateur de Projets TPSC  
EUGENE YEUNG

Regional Manager, Architectural and Engineering Services  
Regional Manager, Environmental Services  
PREETIPAL PAUL

Drawing title/Titre du dessin  
**CONCRETE REINFORCEMENT - SHEET 2**

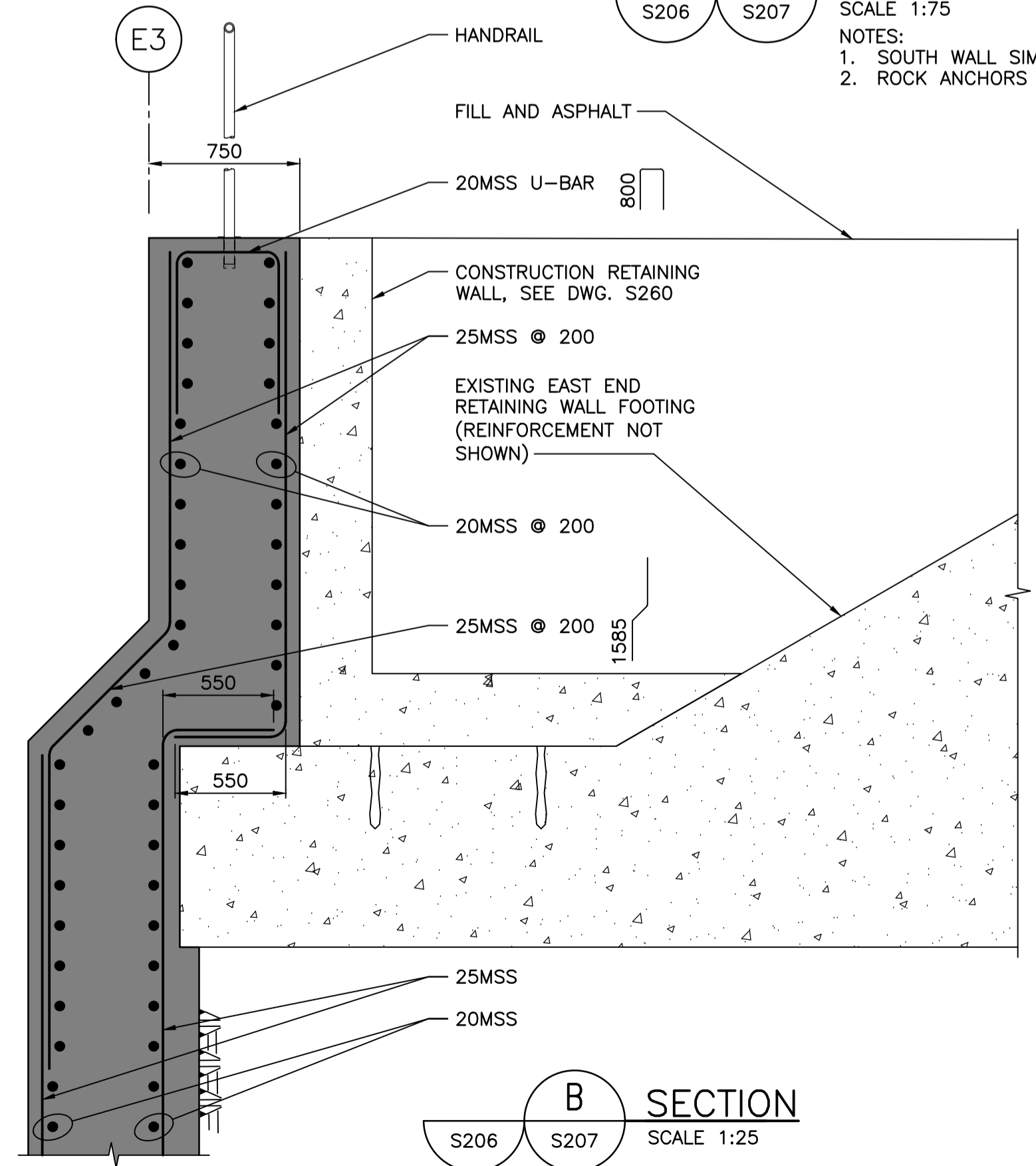
Project No./No. du projet	Sheet/Feuille	Revision no./La Révision no.
R.096320.002	S207	D

**NOTES:**  
1. FOR GENERAL NOTES, SEE DWG. S001.



**A SECTION AND VIEW OF NORTH WALL**

SCALE 1:75  
 NOTES:  
 1. SOUTH WALL SIMILAR.  
 2. ROCK ANCHORS NOT SHOWN FOR CLARITY.



**B SECTION**

SCALE 1:25

Revision/	Description/Description	Date/Date
E	ADDENDUM	2021.04.27
D	ADDENDUM	2021.03.23
C	TENDER	2021.01.07
B	99% REVIEW	2020.07.10
A	75% REVIEW	2020.05.20

Client/client  
**PUBLIC WORKS AND GOVERNMENT SERVICES CANADA**

Project title/Titre du projet  
**ESQUIMALT GRAVING DOCK  
 825 ADMIRALS ROAD, VICTORIA, BC**

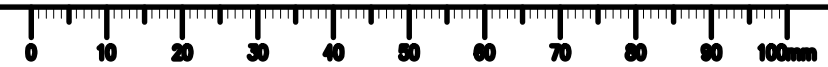
**ESQUIMALT GRAVING DOCK  
 EAST END EXTENSION AND  
 SECTION 3 DOCK FLOOR  
 AND WALL REFURBISHMENT**

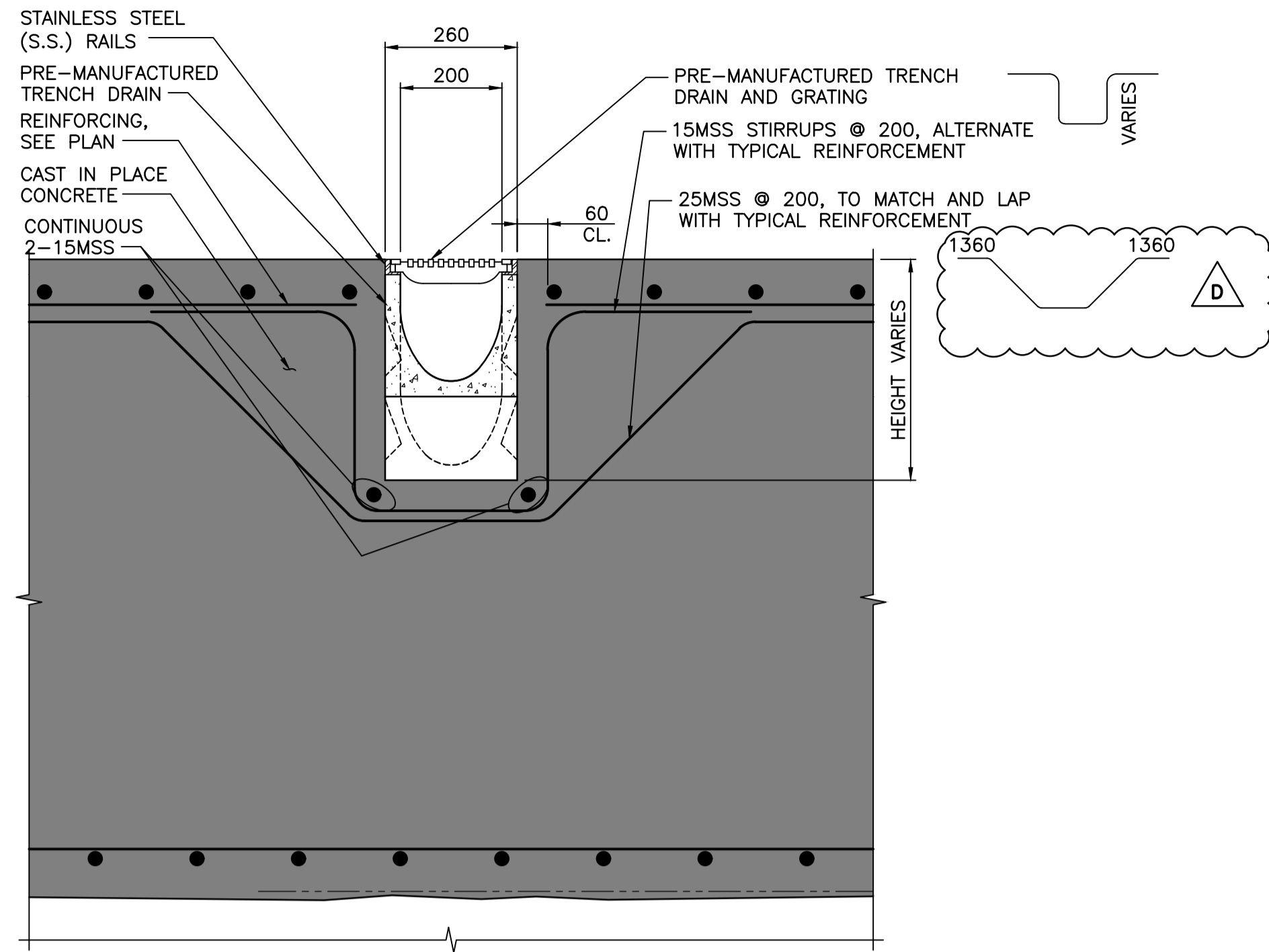
Consultant Signature Only  
 Designed by/Concept par  
 KU / MGCS  
 Drawn by/Dessiné par  
 JJMC  
 PWGSC Project Manager/Administrateur de Projets TPSSC  
 EUGENE YEUNG  
 Regional Manager, Architectural and Engineering Services  
 Regional Manager, Environmental Services  
 PREETIPAL PAUL

Drawing title/Titre du dessin  
**CONCRETE REINFORCEMENT - SHEET 3**

Project No./No. du projet	Sheet/Feuille	Revision no./La Révision no.
R.096320.002	S208	E

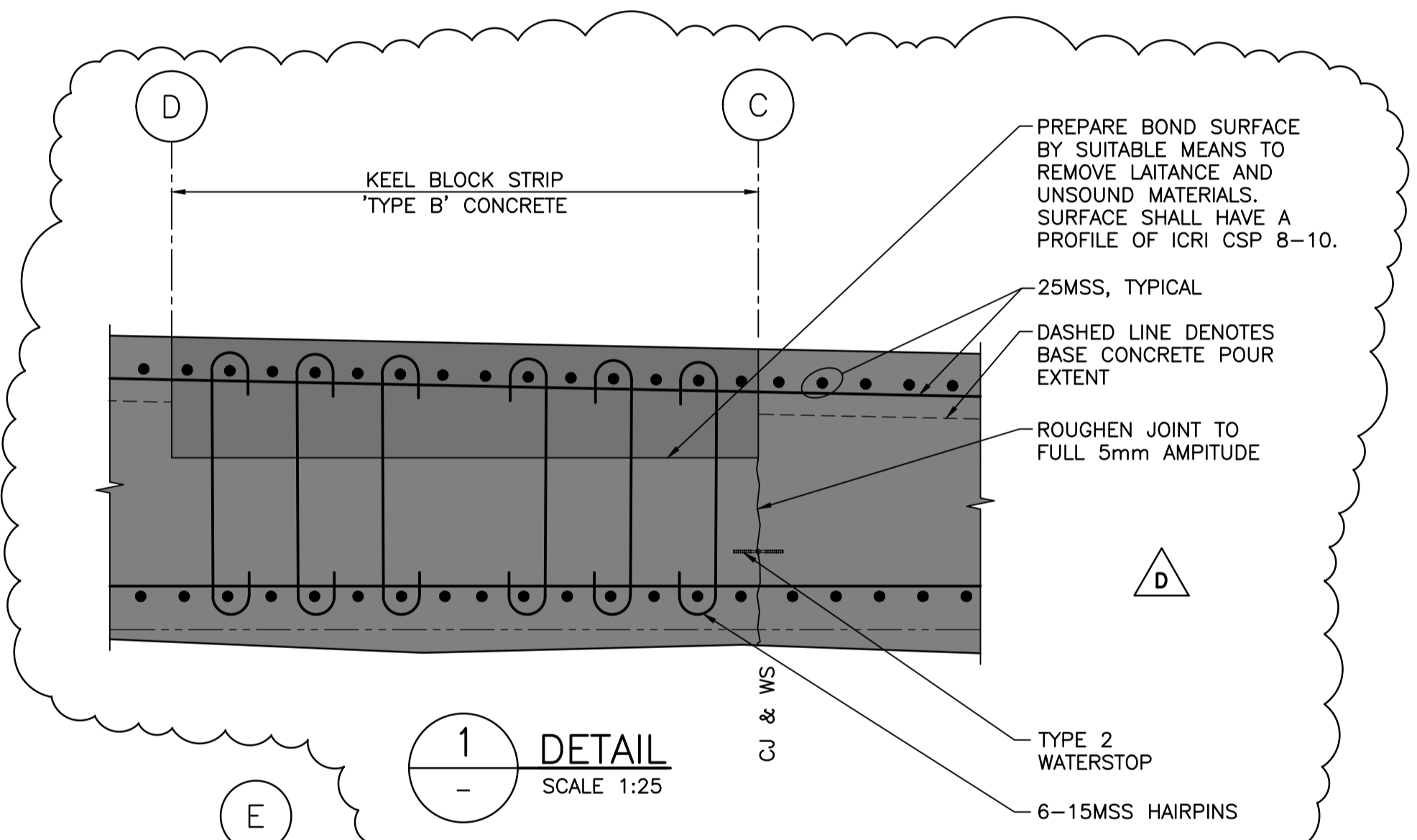
NOTES:  
 1. FOR GENERAL NOTES, SEE DWG. S001.





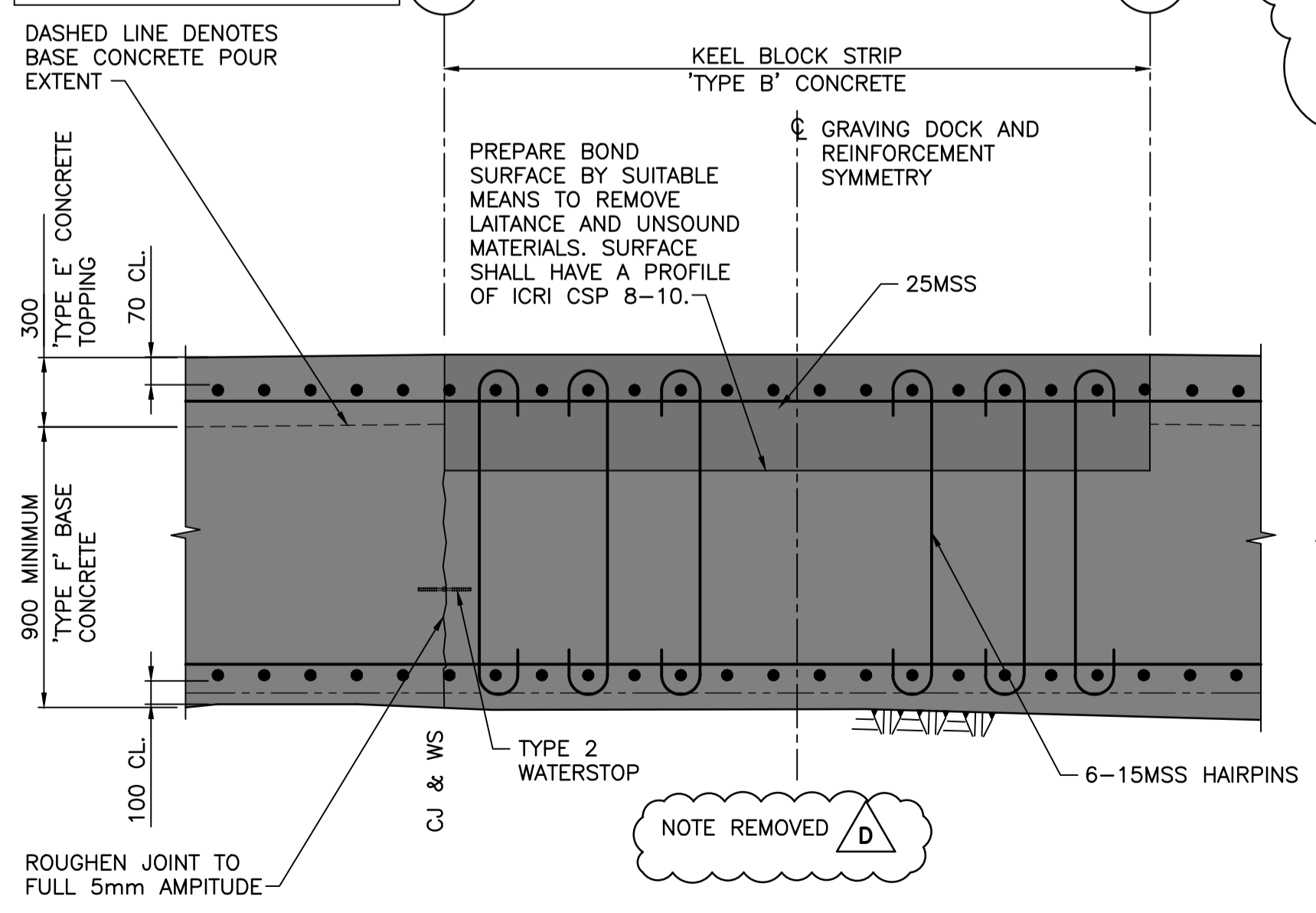
**2** DETAIL - TRENCH DRAIN  
 SCALE 1:10

MOORING CLEAT DETAIL MOVED TO DWG. S210

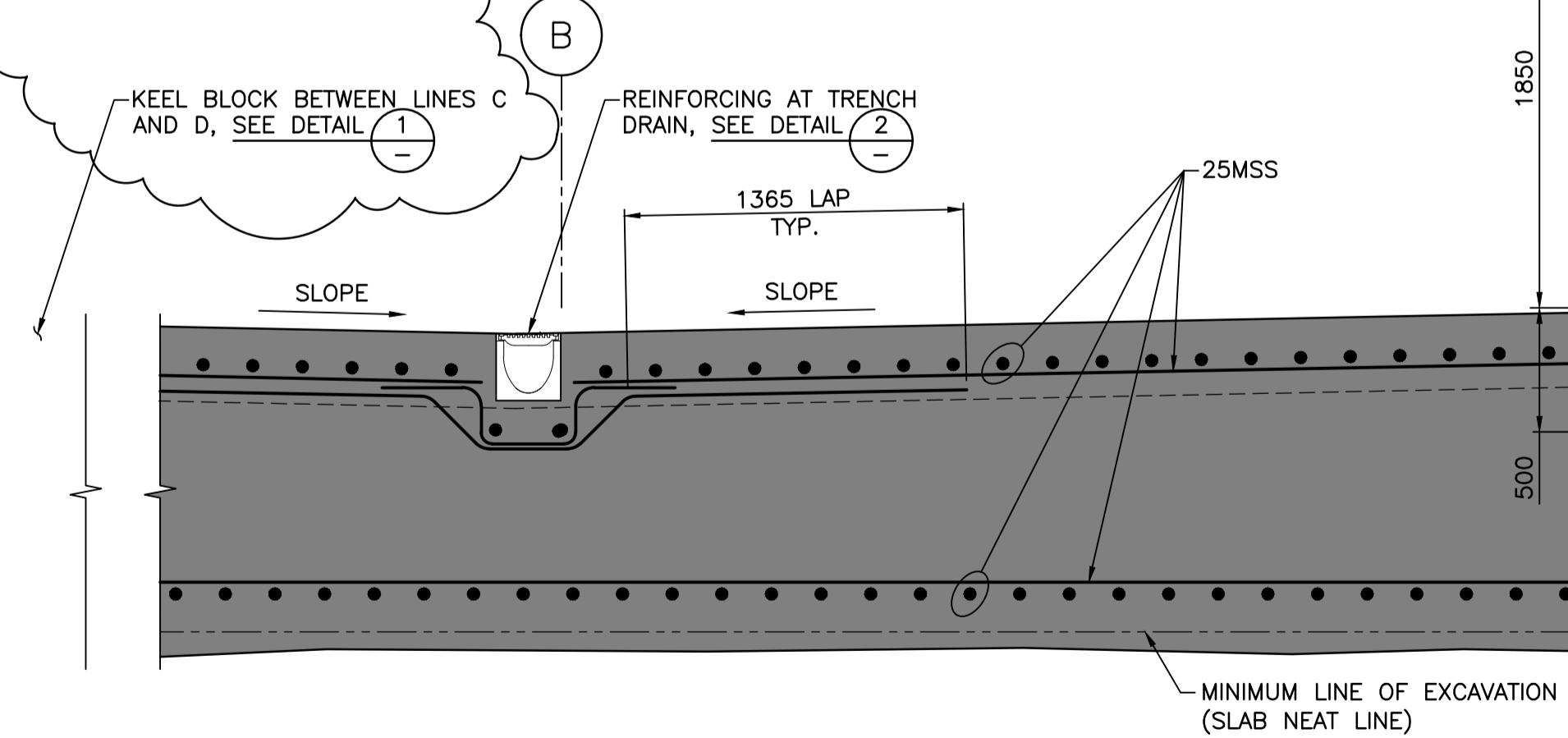


**1** DETAIL  
 SCALE 1:25

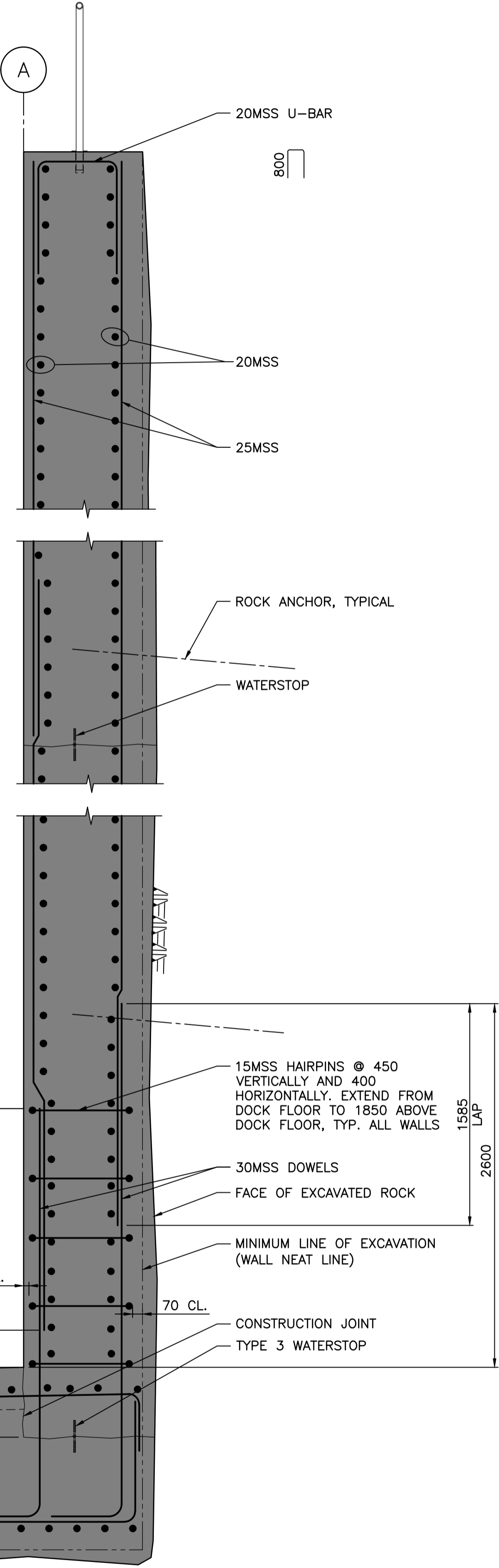
NOTE: "TYPE E" TOPPING CONCRETE TO BE PLACED DIRECTLY AGAINST FRESHLY PLACED "TYPE F" BASE CONCRETE, PRIOR TO GELLING OF BASE CONCRETE TO ENSURE FULL DEPTH (1200mm MINIMUM) MONOLITHIC SLAB RESULTS.



LAP SPLICE DETAILS, SEE DWG. S212



**A** SECTION  
 SCALE 1:25



Revision/Revision	Description/Description	Date/Date
D	ADDENDUM	2021.04.27
C	TENDER	2021.01.07
B	90% REVIEW	2020.07.10
A	75% REVIEW	2020.05.20

Client/client  
**PUBLIC WORKS AND GOVERNMENT SERVICES CANADA**

Project title/Titre du projet  
**ESQUIMALT GRAVING DOCK 825 ADMIRALS ROAD, VICTORIA, BC**

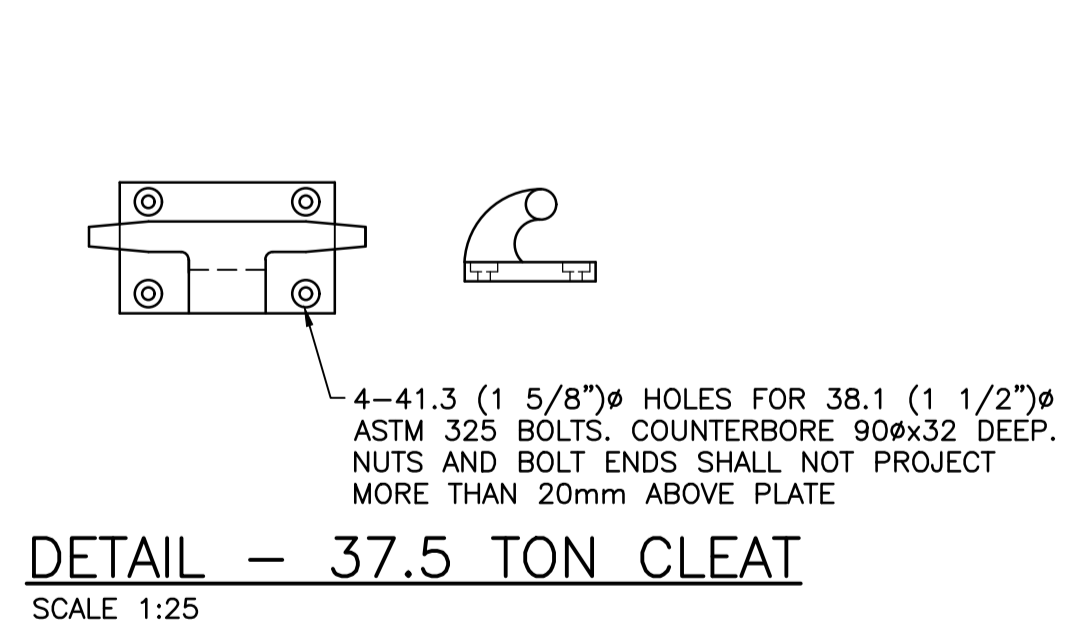
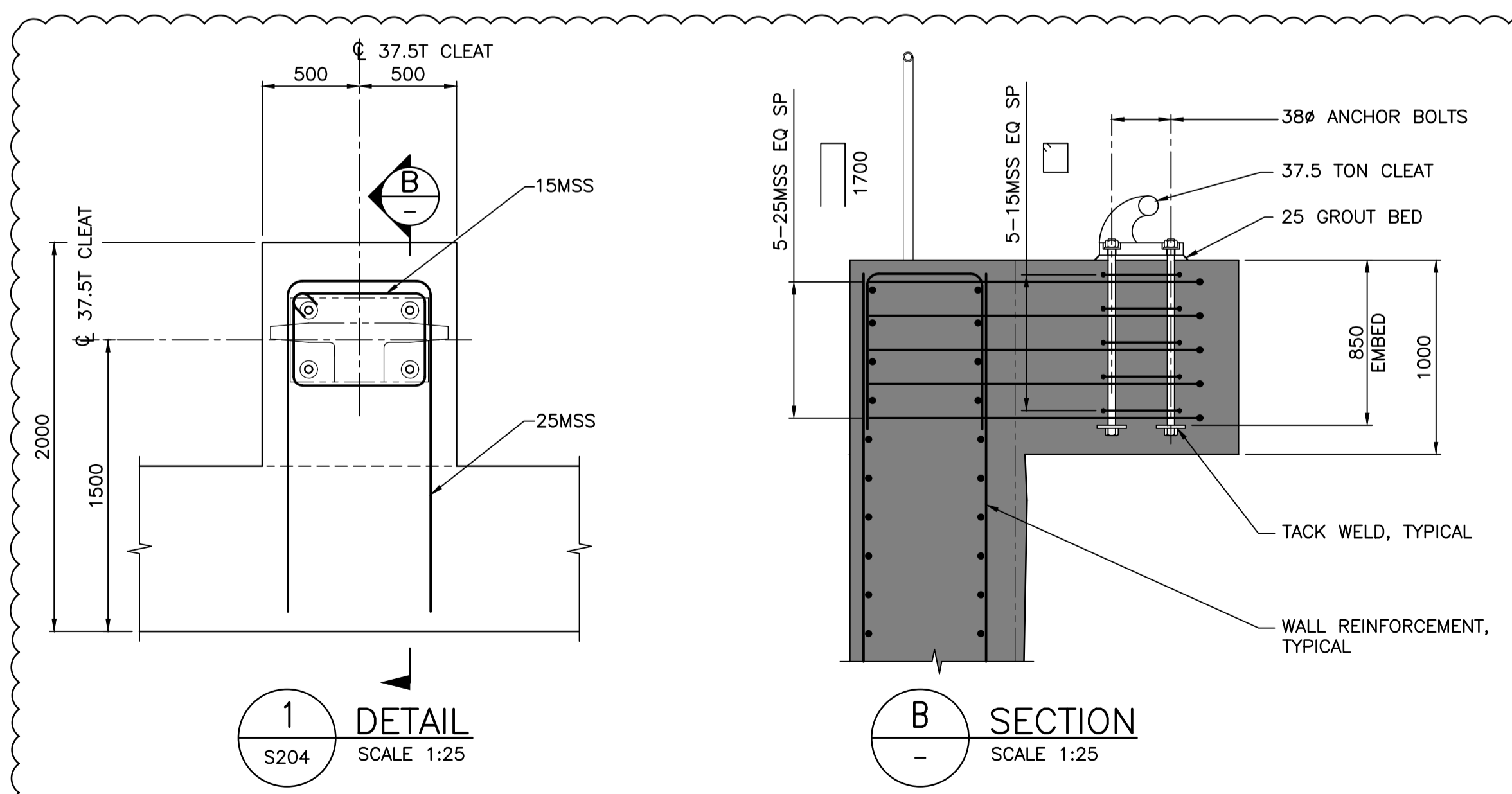
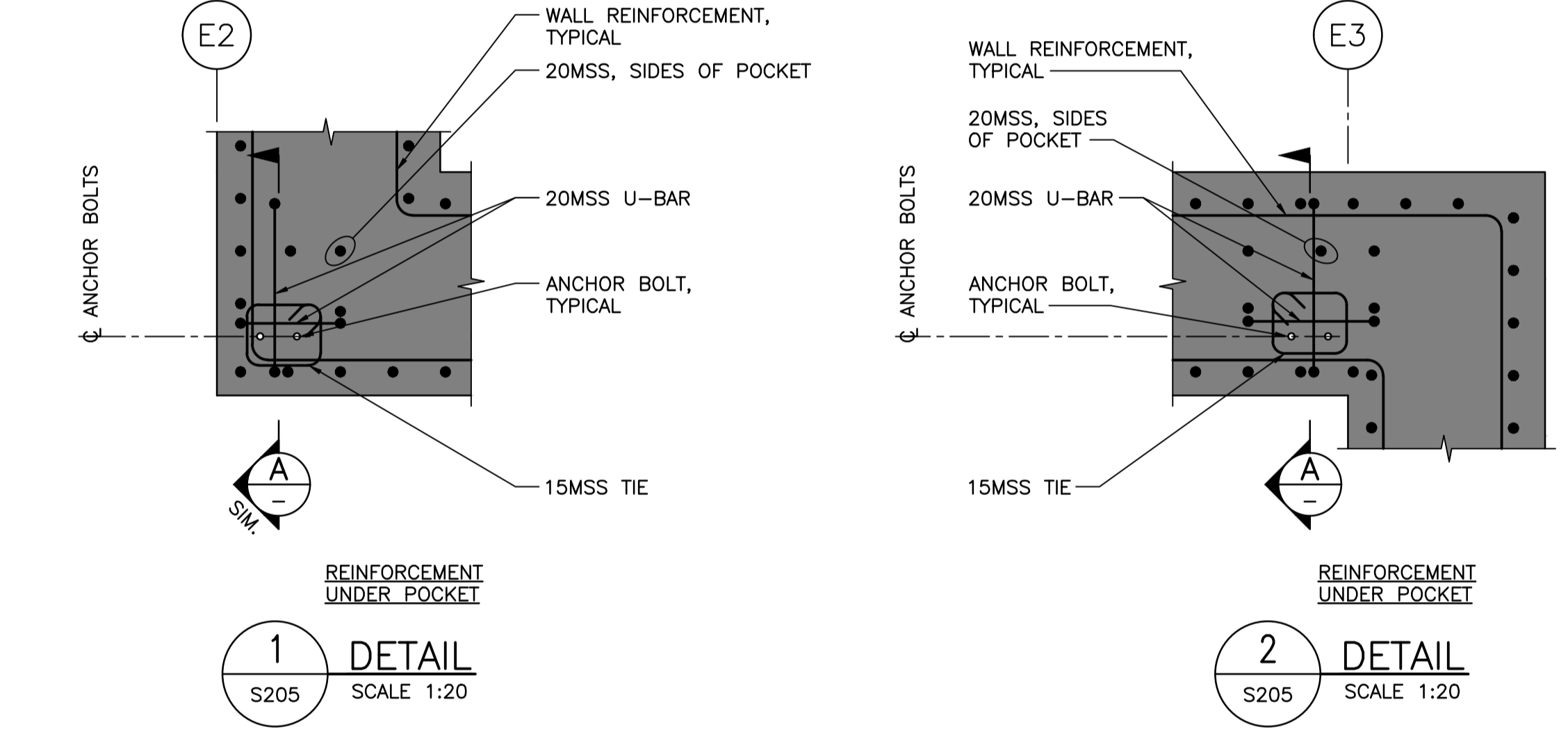
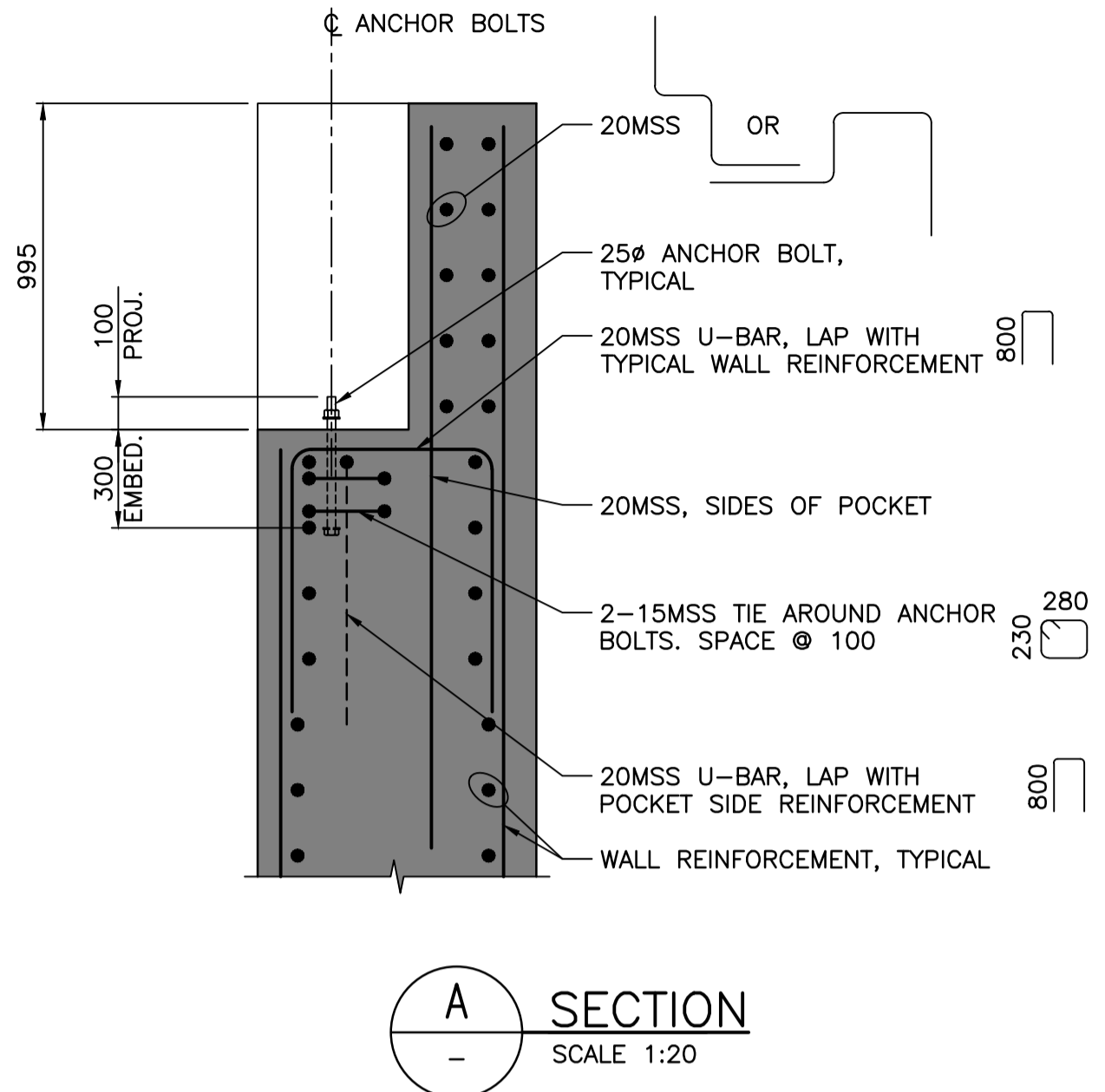
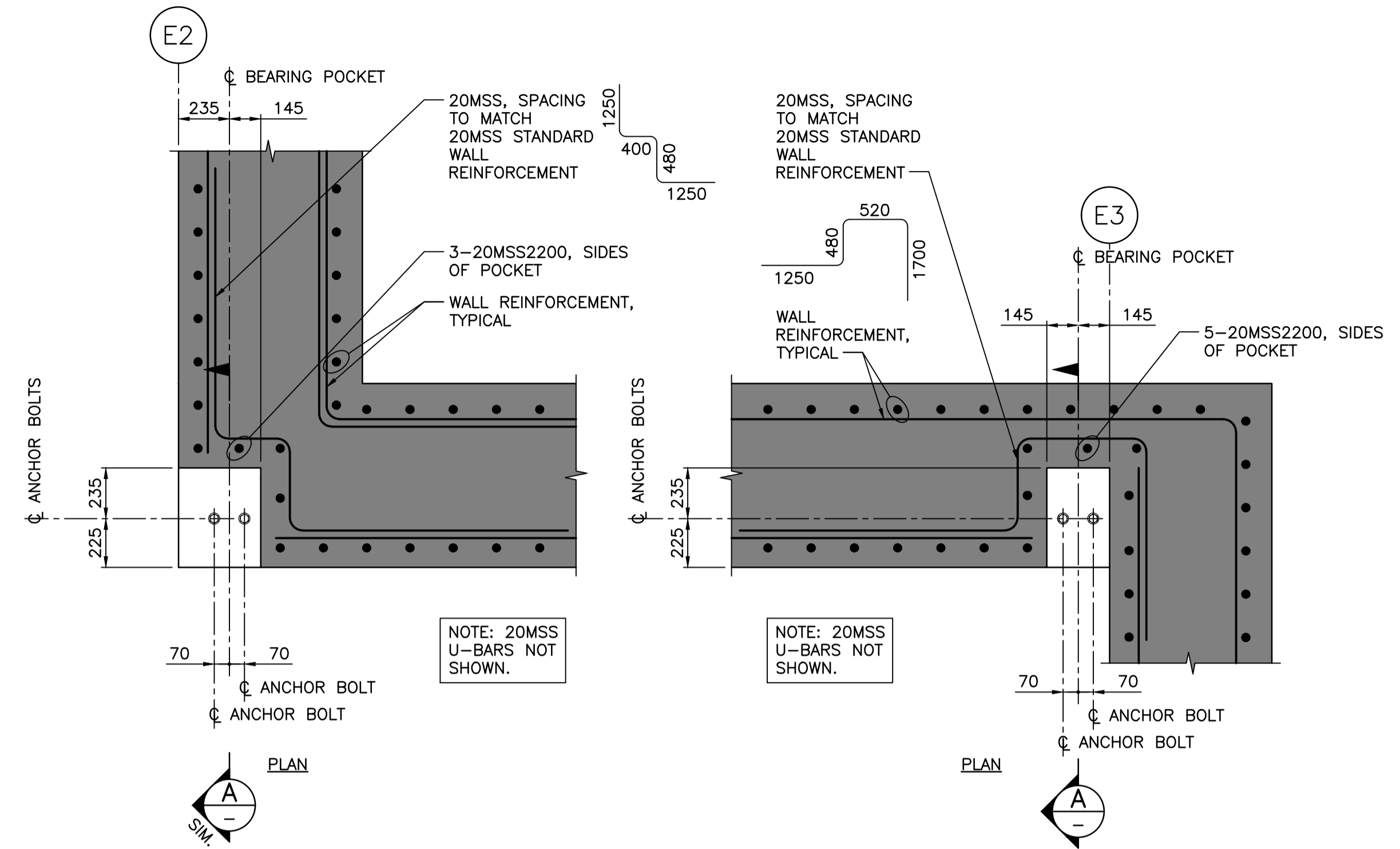
**ESQUIMALT GRAVING DOCK EAST END EXTENSION AND SECTION 3 DOCK FLOOR AND WALL REFURBISHMENT**

Consultant Signature Only  
 Designed by/Concept par: KU / MGCS  
 Drawn by/Dessiné par: JJMC  
 PWGSC Project Manager/Administrateur de Projets TPSCG: EUGENE YEUNG  
 Regional Manager, Architectural and Engineering Services / Regional Manager, Environmental Services: PREETIPAL PAUL

Drawing title/Titre du dessin  
**CONCRETE REINFORCEMENT - SHEET 4**

Project No./No. du projet: R.096320.002	Sheet/Feuille: S209	Revision no./La Révision no.: D
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NOTES:  
 1. FOR GENERAL NOTES, SEE DWG. S001.



MOVED FROM DWG. S209

**MOORING CLEAT NOTES:**

- MOORING CLEATS SHALL BE STEEL CASTINGS TO ASTM A148 GRADE 80-50 (345 MPa YIELD STRENGTH) CAST IN A SINGLE OPERATION. PAINT AS PER SPECIFICATIONS.
- ANCHOR BOLTS SHALL CONFORM TO ASTM A325 TYPE 1 OR APPROVED EQUIVALENT. THE TOP 300mm OF ANCHOR BOLTS C/W NUT AND WASHER SHALL BE GALVANIZED. BOLT THREADS NEED NOT BE EXCLUDED FROM SHEAR PLANE AT UNDERSIDE OF CLEAT BASE. THE ANCHORAGE PLATE SHALL BE GRADE 350W.
- MOORING CLEATS SHALL BE RATED BY THE SUPPLIER TO CARRY THE SPECIFIED MINIMUM RATED CAPACITY IN THE SEAWARD DIRECTION WITHIN A HORIZONTAL ARC ±90 DEGREES FROM A LINE PERPENDICULAR TO THE WHARF, AND IN A VERTICAL ARC FROM LEVEL TO +30 DEGREES FROM LEVEL.
- MOORING CLEATS SHALL BE EMBOSSED WITH SAFE LOAD DESIGNATIONS "37.5 TON", IN A PROMINENT LOCATION VISIBLE FROM WHARF DECK.
- GROUT VENT/INSPECTION HOLES SHALL BE TO MOORING CLEAT MANUFACTURER'S REQUIREMENTS AND TO ENGINEER'S APPROVAL. GROUTING PROCEDURE SHALL ENSURE FULL BEARING UNDER BASEPLATE.
- GROUT SHALL BE SHRINKAGE COMPENSATING, NON-METALLIC, WITH 28 DAY COMPRESSIVE STRENGTH OF 35 MPa.
- FILL COUNTERBORE HOLES WITH GROUT AFTER INSTALLATION.

**NOTES:**

- FOR GENERAL NOTES SEE DWG. S001.

Revision/Revision	Description/Description	Date/Date
C	ADDENDUM	2021.04.27
B	TENDER	2021.01.07
A	99% REVIEW	2020.07.10

Client/client  
**PUBLIC WORKS AND GOVERNMENT SERVICES CANADA**

Project title/Titre du projet  
**ESQUIMALT GRAVING DOCK  
 825 ADMIRALS ROAD, VICTORIA, BC**

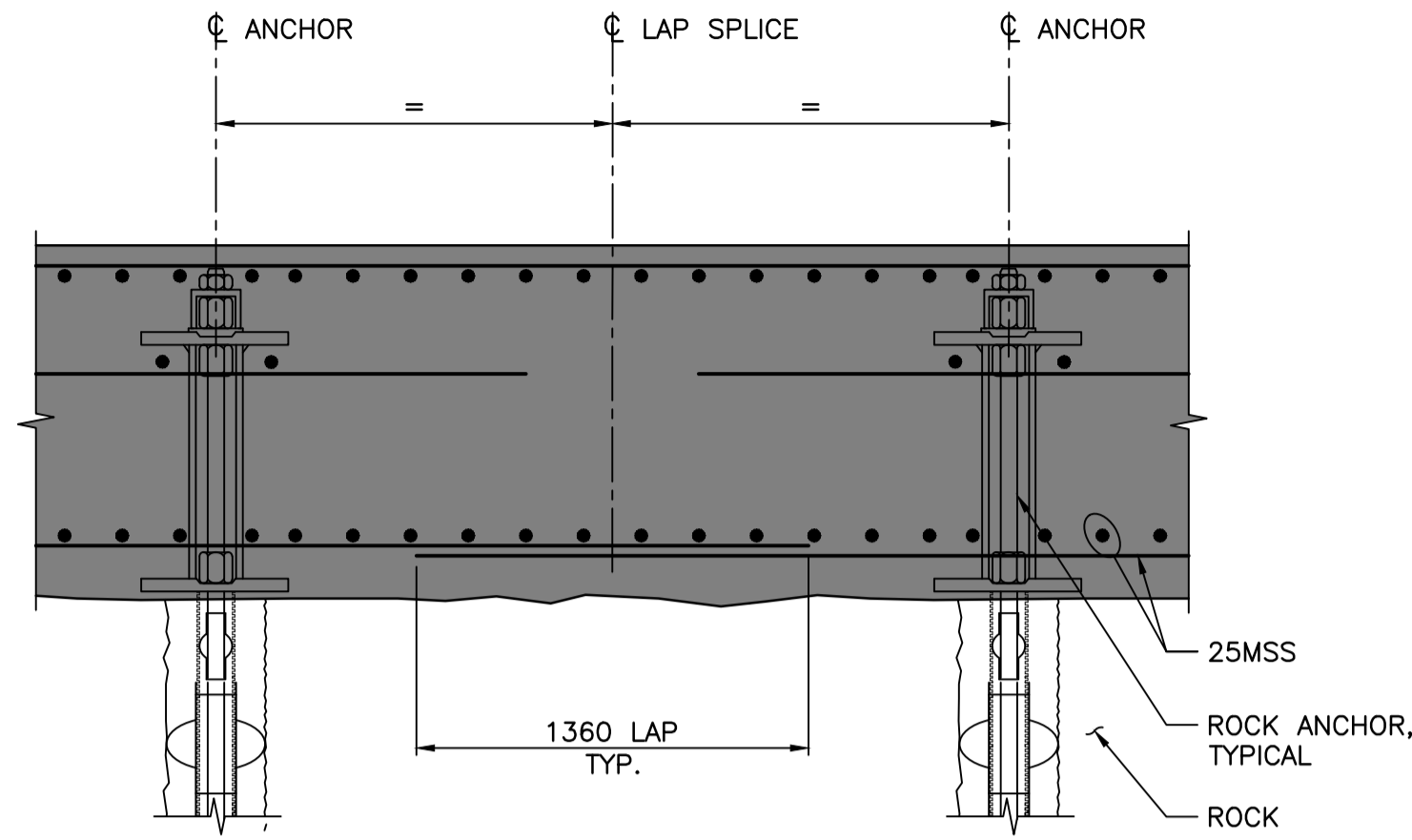
**ESQUIMALT GRAVING DOCK  
 EAST END EXTENSION AND  
 SECTION 3 DOCK FLOOR  
 AND WALL REFURBISHMENT**

Consultant Signature Only

Designed by/Concept par  
 KU / MGCS  
 Drawn by/Dessiné par  
 JJMC  
 PWGSC Project Manager/Administrateur de Projets TPSPC  
 EUGENE YEUNG  
 Regional Manager, Architectural and Engineering Services  
 Regional Manager, Environmental Services  
 PREETIPAL PAUL

**CONCRETE REINFORCEMENT - SHEET 5**

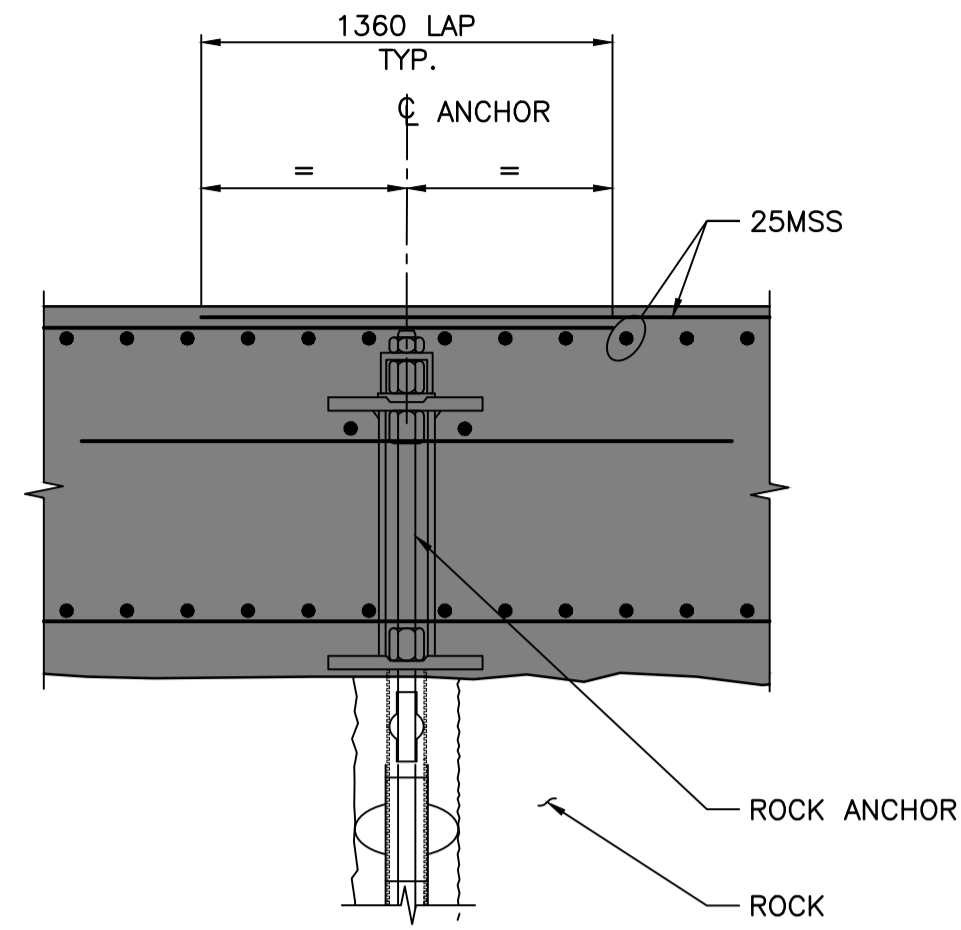
Project No./No. du projet	Sheet/Feuille	Revision no./Lo Révision no.
R.096320.002	S210	C



**DETAIL - FLOOR, BOTTOM REINFORCEMENT LAP SPLICE**

SCALE 1:25

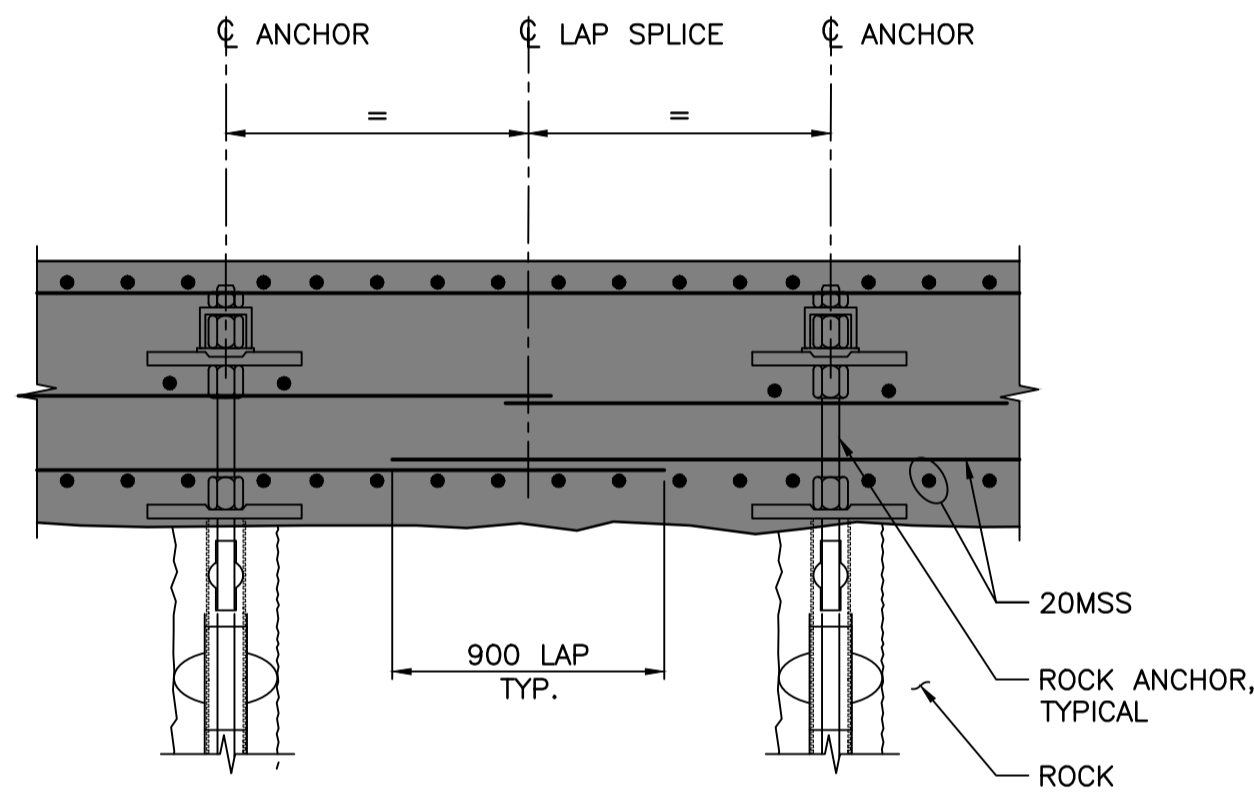
NOTE: DETAIL IS A SECTION LOOKING NORTH SHOWING LAP SPLICE FOR EAST/WEST REINFORCEMENT. LAP SPLICE FOR NORTH/SOUTH REINFORCEMENT IS SIMILAR.



**DETAIL - FLOOR, TOP REINFORCEMENT LAP SPLICE**

SCALE 1:25

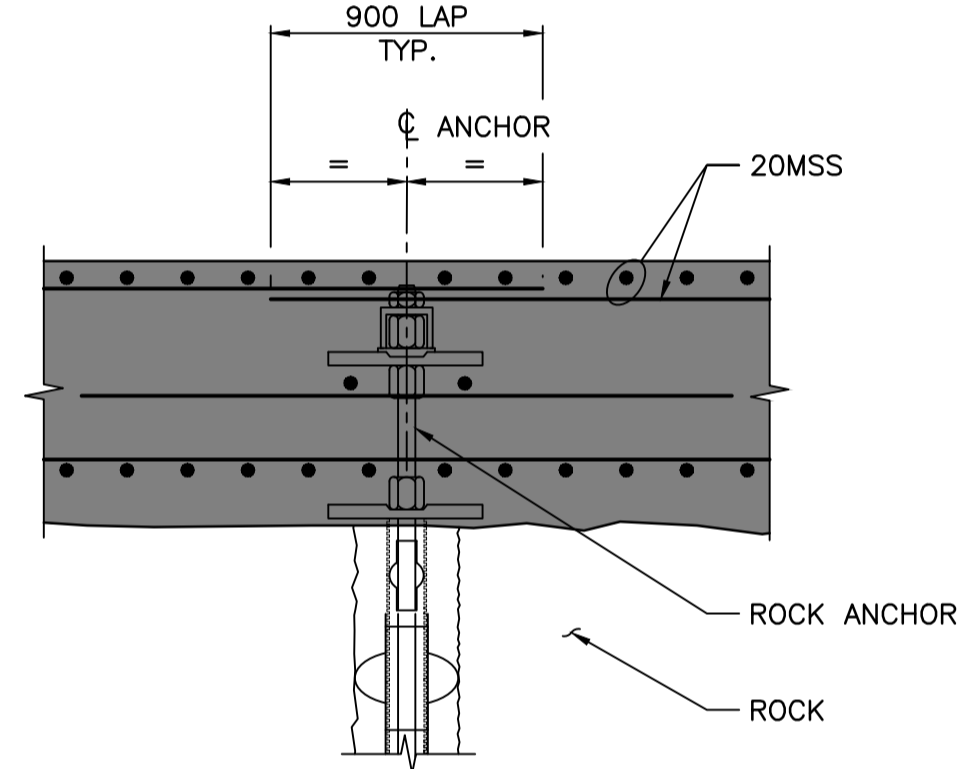
NOTE: DETAIL IS A SECTION LOOKING NORTH SHOWING LAP SPLICE FOR EAST/WEST REINFORCEMENT. LAP SPLICE FOR NORTH/SOUTH REINFORCEMENT IS SIMILAR.



**DETAIL - INNER WALL REINFORCEMENT LAP SPLICE**

SCALE 1:25

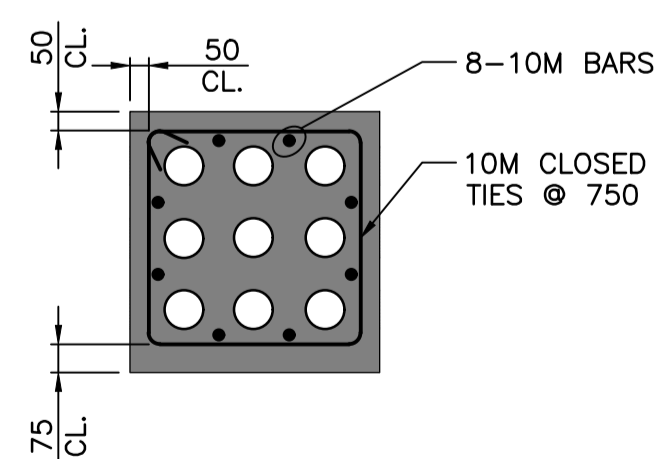
NOTE: DETAIL IS A SECTION LOOKING DOWN SHOWING LAP SPLICE FOR HORIZONTAL REINFORCEMENT. LAP SPLICE FOR VERTICAL REINFORCEMENT IS SIMILAR WITH 1050 LAP LENGTH.



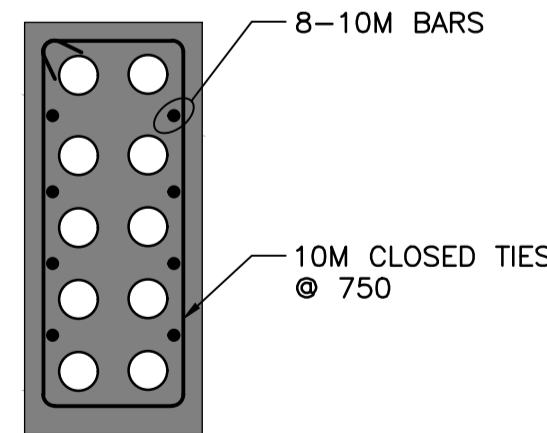
**DETAIL - OUTER WALL REINFORCEMENT LAP SPLICE**

SCALE 1:25

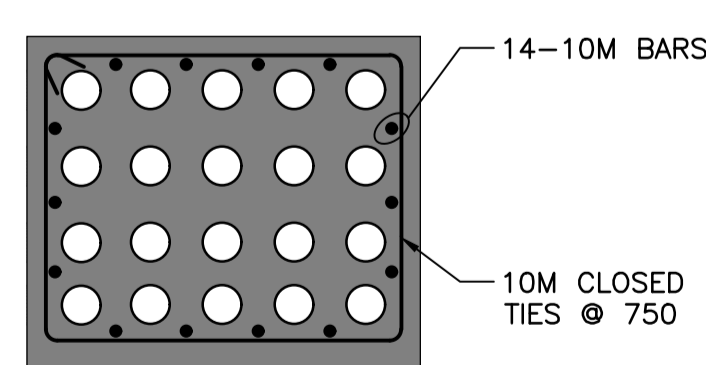
NOTE: DETAIL IS A SECTION LOOKING DOWN SHOWING LAP SPLICE FOR HORIZONTAL REINFORCEMENT. LAP SPLICE FOR VERTICAL REINFORCEMENT IS SIMILAR WITH 1050 LAP LENGTH.



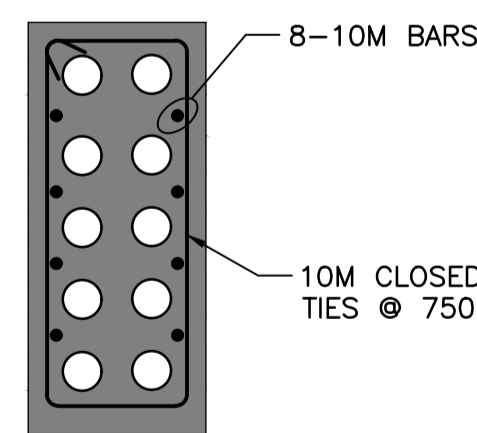
**EEA DUCT BANK SECTION**  
E301 SCALE 1:20



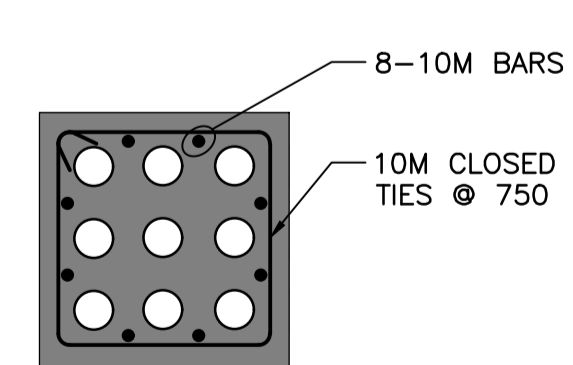
**EEB DUCT BANK SECTION**  
E301 SCALE 1:20



**EEC DUCT BANK SECTION**  
E301 SCALE 1:20



**EED DUCT BANK SECTION**  
E301 SCALE 1:20



**EEE DUCT BANK SECTION**  
E301 SCALE 1:20

**NOTES:**

1. FOR GENERAL NOTES SEE DWG. S001.



Revision/Revision	Description/Description	Date/Date
A	ADDENDUM	2021-04-27

Client/client  
**PUBLIC WORKS AND GOVERNMENT SERVICES CANADA**

Project title/Titre du projet  
**ESQUIMALT GRAVING DOCK  
825 ADMIRALS ROAD, VICTORIA, BC**

**ESQUIMALT GRAVING DOCK EAST END EXTENSION AND SECTION 3 DOCK FLOOR AND WALL REFURBISHMENT**

Consultant Signature Only

Designed by/Concept par  
KU / MGCS

Drawn by/Dessiné par  
JJMC

PWGC Project Manager/Administrateur de Projets TPSCG  
EUGENE YEUNG

Regional Manager, Architectural and Engineering Services  
Regional Manager, Environmental Services  
PREETIPAL PAUL

Drawing title/Titre du dessin  
**CONCRETE REINFORCEMENT - SHEET 6**

Project No./No. du projet <b>R.096320.002</b>	Sheet/Feuille <b>S212</b>	Revision no./La Révision no. <b>A</b>
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