

Drawing Index:

Drawing Number Title of Drawing

DRAWINGS

V15-0227-000	COVER SHEET, LOCATION PLAN AND DRAWING INDEX
V15-0227-001	KEY PLAN AND SITE PLAN
V15-0227-002	EXISTING WHARF - GENERAL ARRANGEMENT
V15-0227-003	EXISTING WHARF - PILE LAYOUTS FOR BENTS
V15-0227-004	EXISTING WHARF - LAYOUT FOR D.TEES
V15-0227-005	EXISTING SECTIONS
V15-0227-006	EXISTING CRIB, KIOSK PAD, AND CLEAT DETAILS
V15-0227-007	APPROACH TRESTLE REPAIRS
V15-0227-008	CROSS PIER REPAIRS
V15-0227-009	PIER 1 REPAIRS
V15-0227-010	PIER 2 REPAIRS
V15-0227-011	PROPOSED CONCRETE & JOINT REPAIR DETAILS



SITE

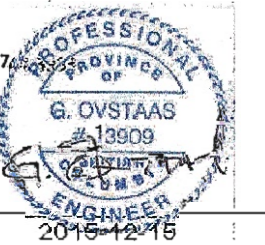
LOCATION PLAN
N.T.S.

Client:

Department of Fisheries and Oceans
200 - 401 Burrard Street
Vancouver, BC V6C 3S4
Tel.604-666-6491

Project:

DFO Concrete Wharf Repairs
Institute of Ocean Sciences
Sydney, BC



2	100% COMPLETE -- ISSUED FOR TENDER	2015/12/16
1	66% COMPLETE -- ISSUED FOR REVIEW	2015/11/20

Revision/Description/Date

Client/client

DEPARTMENT OF FISHERIES AND OCEANS

200 - 401 BURRARD STREET
VANCOUVER, BC

Project title/Titre du projet

**INSTITUTE OF OCEAN SCIENCES
CONCRETE WHARF REPAIRS**

Consultant Signature Only

WEDLER ENGINEERING LLP

Designed by/Concept par
ARG

Drawn by/Dessiné par
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PWOSC Project Manager/Administrateur de Projets TPSCG
MICHAEL LIANG, P.ENG

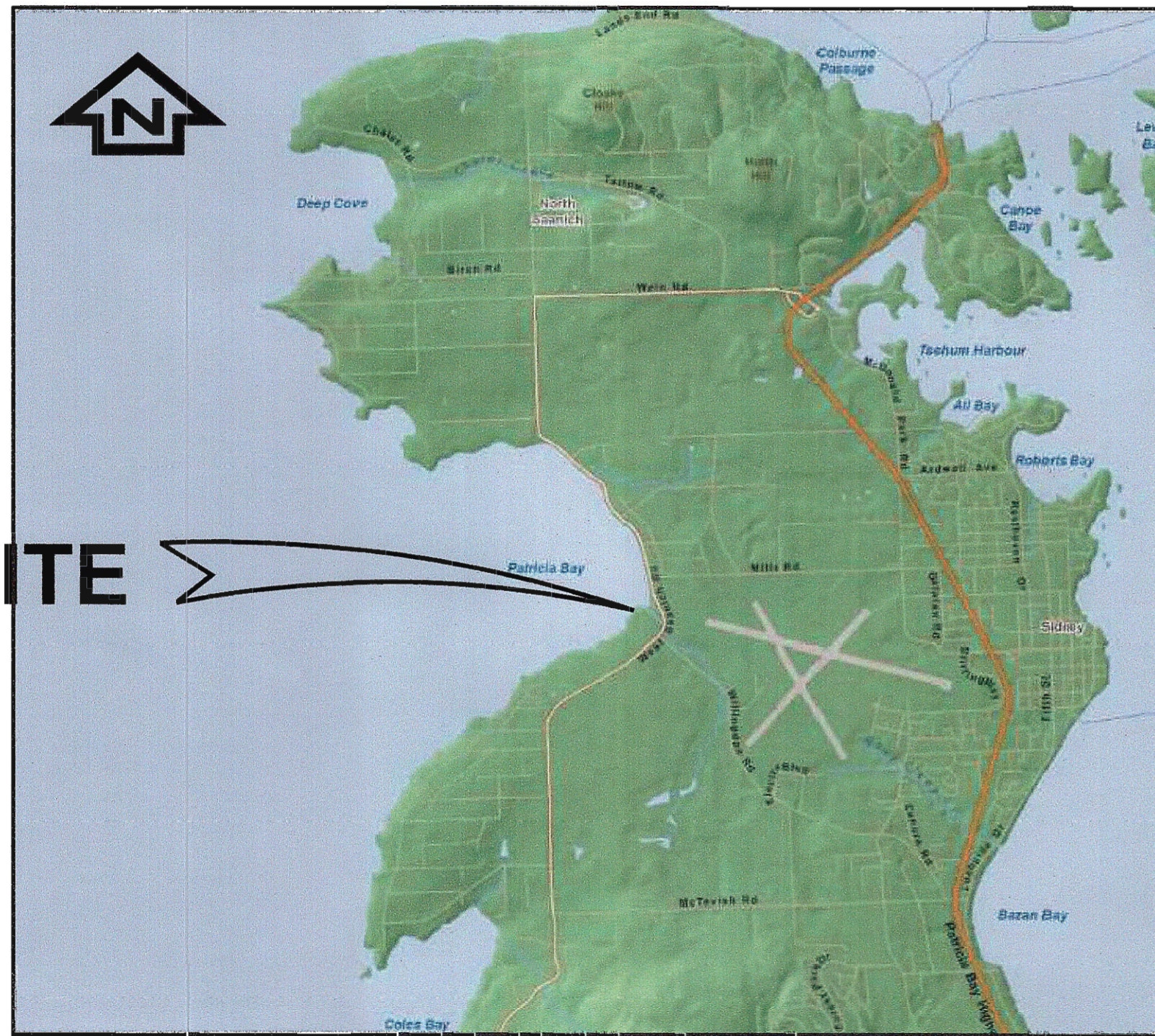
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Drawing title/Titre du dessin

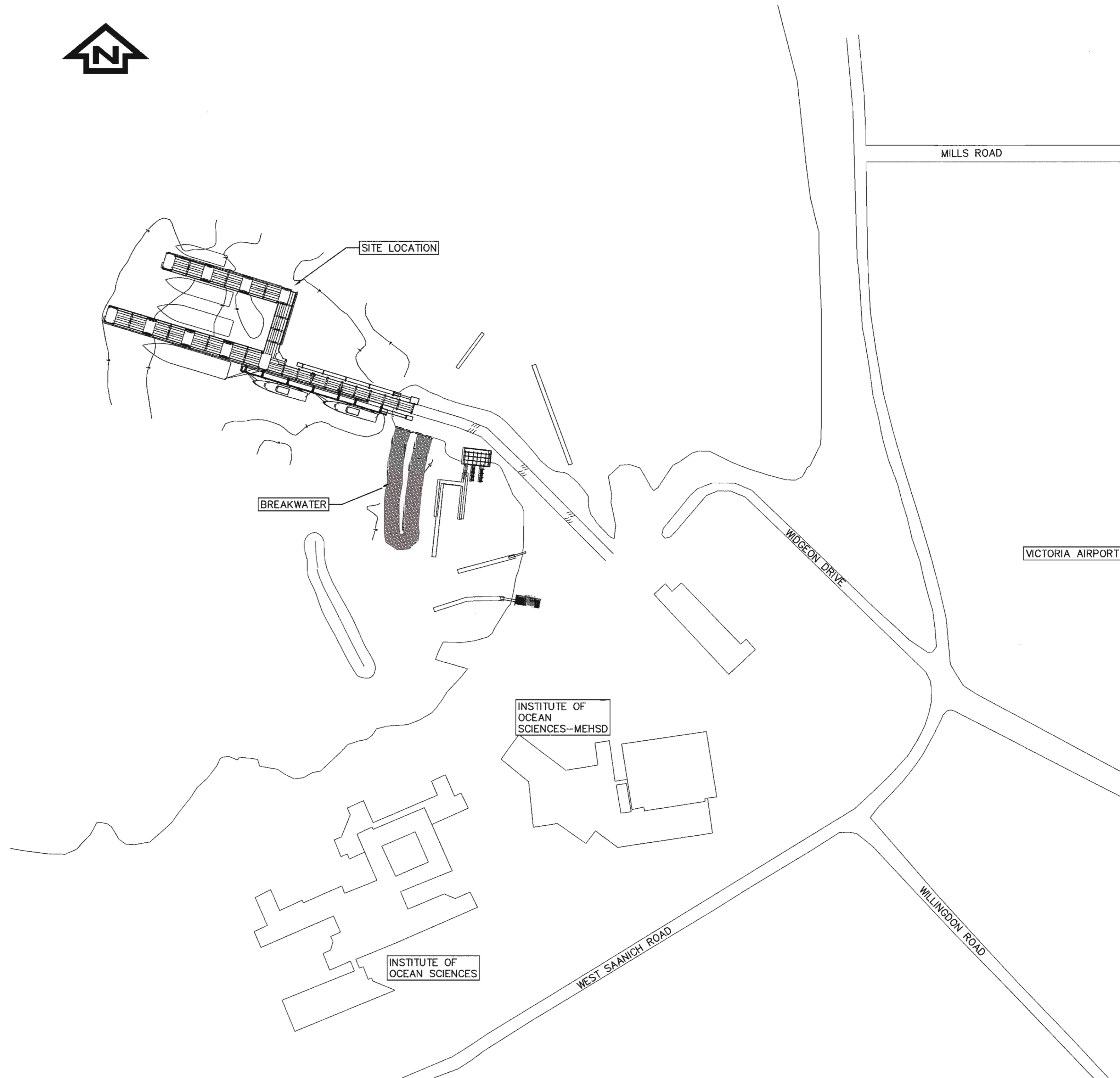
**COVER SHEET, LOCATION PLAN
& DRAWING INDEX**

Project No./No. du projet 9R306	Sheet/Feuille 0227-000	Revision no./La Révision no. 2
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KEY PLAN
N.T.S.



SCALE 1:2000

GENERAL NOTES:

1. ALL CONSTRUCTION TO BE IN ACCORDANCE WITH CONTRACT SPECIFICATIONS.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL REQUIRED CONSTRUCTION RELATED PERMITS.
3. THE CONTRACTOR SHALL PHOTOGRAPH, PRIOR TO CONSTRUCTION, ANY EXISTING FEATURES TO BE DISTURBED. THE CONTRACTOR SHALL RESTORE ALL DISTURBED PAVEMENT, CURBS, LANDSCAPING, FENCES OR ANY OTHER FEATURES AFFECTED BY THE CONSTRUCTION WORKS TO ORIGINAL CONDITIONS OR BETTER, AND TO THE SATISFACTION OF THE DEPARTMENTAL REPRESENTATIVE.
4. THE CONTRACTOR MUST CONTACT DEPARTMENTAL REPRESENTATIVE PRIOR TO CONSTRUCTION TO SCHEDULE A PRE-CONSTRUCTION MEETING DURING WHICH CONSTRUCTION METHODS, TIMING AND INSPECTIONS WILL BE DISCUSSED.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONSTRUCTION LAYOUT.
6. CHANGES TO THE DESIGN MUST BE APPROVED IN WRITING BY DEPARTMENTAL REPRESENTATIVE. FAILURE TO NOTIFY DEPARTMENTAL REPRESENTATIVE IN ADVANCE OF CHANGES MAY RESULT IN REJECTION OF WORK.
7. ALL MATERIALS TO BE SUPPLIED BY THE CONTRACTOR. SUBSTITUTION OF ANY MATERIAL SPECIFIED WITH A MATERIAL EQUAL OR BETTER IN QUALITY OR PERFORMANCE WILL BE PERMITTED ONLY WITH THE EXPRESS WRITTEN APPROVAL OF THE DEPARTMENTAL REPRESENTATIVE. THE DEPARTMENTAL REPRESENTATIVE'S DETERMINATION FOR THE "EQUAL OR BETTER" SHALL BE FINAL AND BINDING.
8. THE CONTRACTOR SHALL NOTIFY THE DEPARTMENTAL REPRESENTATIVE A MINIMUM OF 48 HOURS PRIOR TO REQUIRED INSPECTIONS INCLUDING, BUT NOT LIMITED TO THE FOLLOWING:
 - A. MOBILIZATION
 - B. AFTER COMPLETION OF ALL WORK
9. THE CONTRACTOR SHALL BE REGISTERED WITH THE WORKERS COMPENSATION BOARD AND PROVIDE CLEARANCE LETTER TO THE DEPARTMENTAL REPRESENTATIVE.
10. THE CONTRACTOR SHALL RECORD ON A CURRENT SET OF PLANS IN A NEAT MANNER, ALL CHANGES ADDITIONS AND DELETIONS TO REFLECT THE "AS CONSTRUCTED" INSTALLATION. THE SET OF PLANS SHALL BE RETURNED TO THE DEPARTMENTAL REPRESENTATIVE AT THE COMPLETION OF THE WORKS AND PRIOR TO THE ISSUANCE OF SUBSTANTIAL PERFORMANCE.
11. THE CONTRACTOR IS TO FAMILIARIZE THEMSELVES WITH THE WHARF VESSEL DOCKING SCHEDULE TO ENSURE THERE WILL BE NO CONFLICT WITH VESSEL MOORAGE. CONTRACTOR MUST SUBMIT WORK SCHEDULE PRIOR TO MOBILIZATION OR WORKING ON SITE.
12. DIMENSIONS AND ELEVATIONS OF EXISTING INFRASTRUCTURE ARE FOR REFERENCE ONLY. CONTRACTOR SHALL VERIFY ACTUAL DIMENSIONS IN THE FIELD.

STEEL ELEMENTS REQUIRING CATHODIC PROTECTION USING BULK ANODES					
ELEMENT	QTY	SIZE	LENGTH (WATER)	LENGTH (MUD)	LENGTH (ROCK)
TENSION ANCHORS	38	0.22Ø	10	5	9
FENDER BRACING					
HSS	28	.203x.152x10	10	-	-
WWF	28	W.410x.60x6	6	-	-
BUILT-UP SECTION	14	.864x0.94x2.75	2.75	-	-
CAMELS					
(A)	16	.710Øx22.76	22.76	-	-
(B)	11	.710Øx7.62	7.62	-	-
(C)	4	.305Øx7.62	7.62	-	-
CAMEL PILES	20	0.762Ø	10	5	-

REFER TO CONTRACT SPECIFICATION APPENDICES FOR REFERENCE INFORMATION.

DRAWINGS:

- IOS WHARF - SEISMIC RETROFIT - RECORD DRAWINGS - 2001
- IOS WHARF - FENDERING UPGRADE - RECORD DRAWINGS - 2004

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 Pacific Region
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PROFESSIONAL ENGINEER
 G. OVSTAAS
 # 13909
 2015-12-15

Revision/	Description/Description	Date/Date
2	100% COMPLETE - ISSUED FOR TENDER	2015/12/15
1	66% COMPLETE - ISSUED FOR REVIEW	2015/11/20

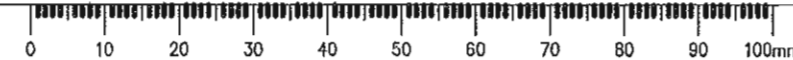
Client/client
DEPARTMENT OF FISHERIES AND OCEANS
 200 - 401 BARRARD STREET
 VANCOUVER, BC

Project title/Titre du projet
**INSTITUTE OF OCEAN SCIENCES
 CONCRETE WHARF REPAIRS**

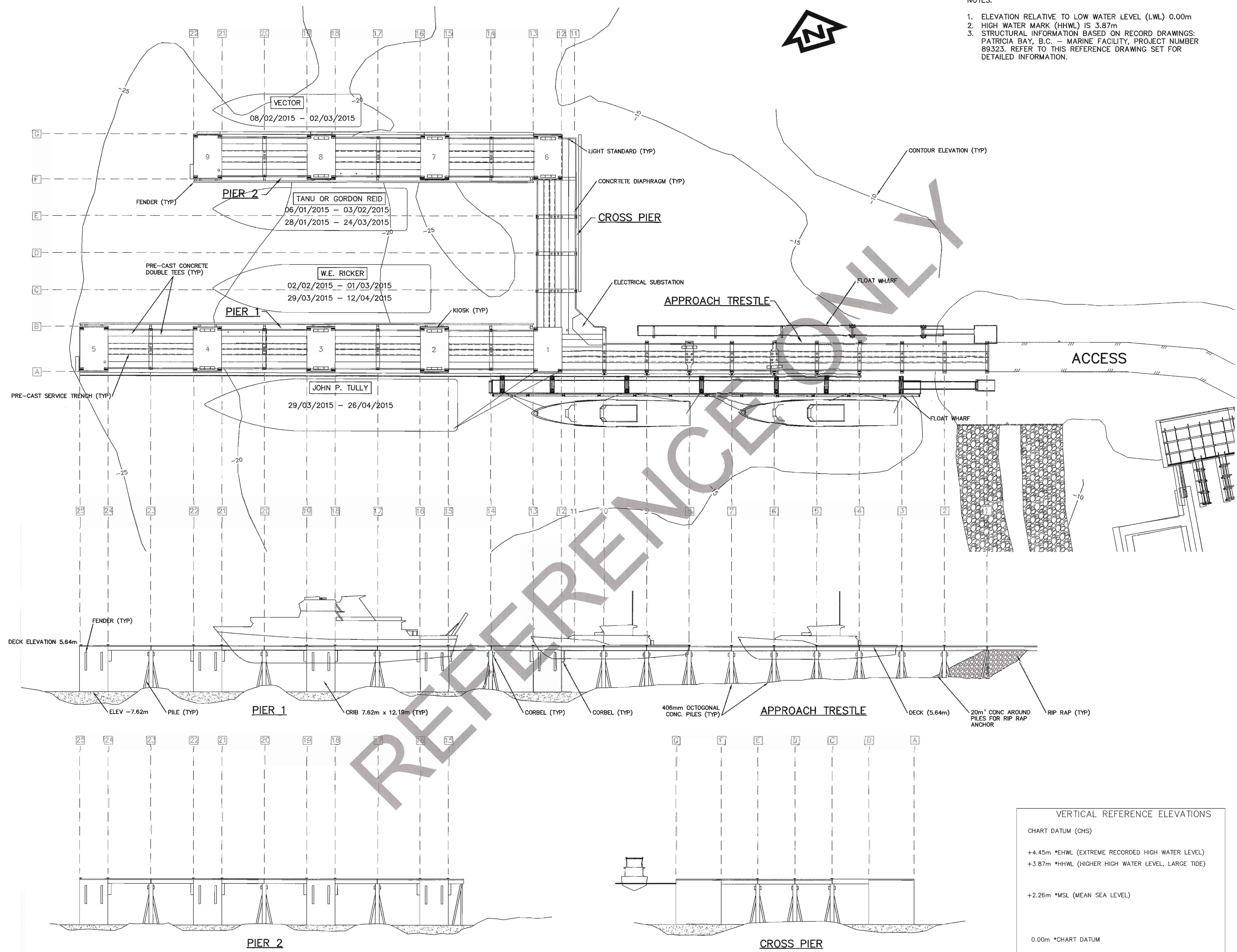
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MICHAEL LIANG, P.ENG
 Regional Manager, Architectural and Engineering Services
 Gestionnaire régional, Services d'architectural et de génie, TPSSC

Drawing title/Titre du dessin
KEY PLAN AND SITE PLAN

Project No./No. du projet 9R306	Sheet/Fauille 0227-001	Revision no./La Révision no. 2
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- NOTES:
1. ELEVATION RELATIVE TO LOW WATER LEVEL (LWL) 0.00m
 2. HIGH WATER MARK (HHWL) IS 3.87m
 3. STRUCTURAL INFORMATION BASED ON RECORD DRAWINGS: PATRICIA BAY, B.C. - MARINE FACILITY, PROJECT NUMBER 89323. REFER TO THIS REFERENCE DRAWING SET FOR DETAILED INFORMATION.



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 DBB
 PWGSC Project Manager/Administrateur de Projets TP50C
MICHAEL LIANG, P.ENG
 Regional Manager, Architectural and Engineering Services
 Gestionnaire régionale, Services d'architecture et de génie, TP50C

Drawing Title/Titre du dessin
**EXISTING WHARF
 GENERAL ARRANGEMENT**

Project No./No. du projet	Sheet/Fauille	Revision no./Loi Révision
9R306	0227-002	2

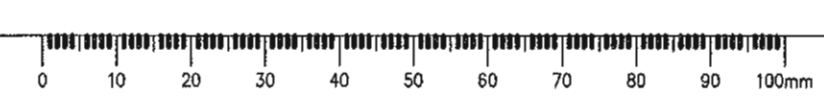
VERTICAL REFERENCE ELEVATIONS

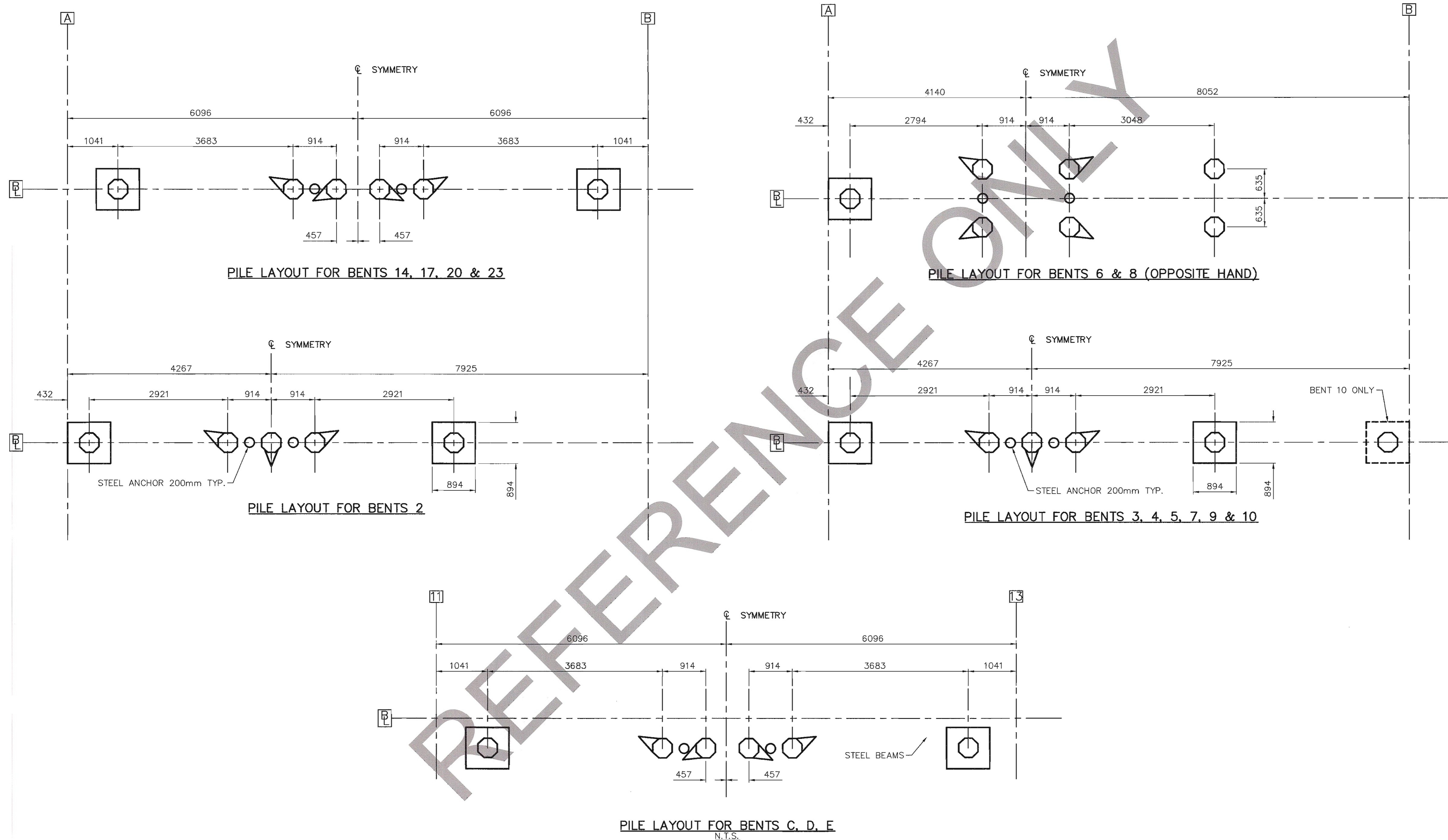
CHART DATUM (CHS)

- +4.45m *EHWL (EXTREME RECORDED HIGH WATER LEVEL)
- +3.87m *HHWL (HIGHER HIGH WATER LEVEL, LARGE TIDE)
- +2.26m *MSL (MEAN SEA LEVEL)
- 0.00m *CHART DATUM
- 0.15m *LLWL (LOWER LOW WATER LEVEL, LARGE TIDE)
- 0.15m *ELWL (EXTREME RECORDED LOW WATER LEVEL)

*CHS = CANADIAN HYDROGRAPHIC SERVICE DATUM (LWL = 0.0m CHS)

SCALE 1:500





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DEPARTMENT OF FISHERIES AND OCEANS

200 - 401 BARRARD STREET
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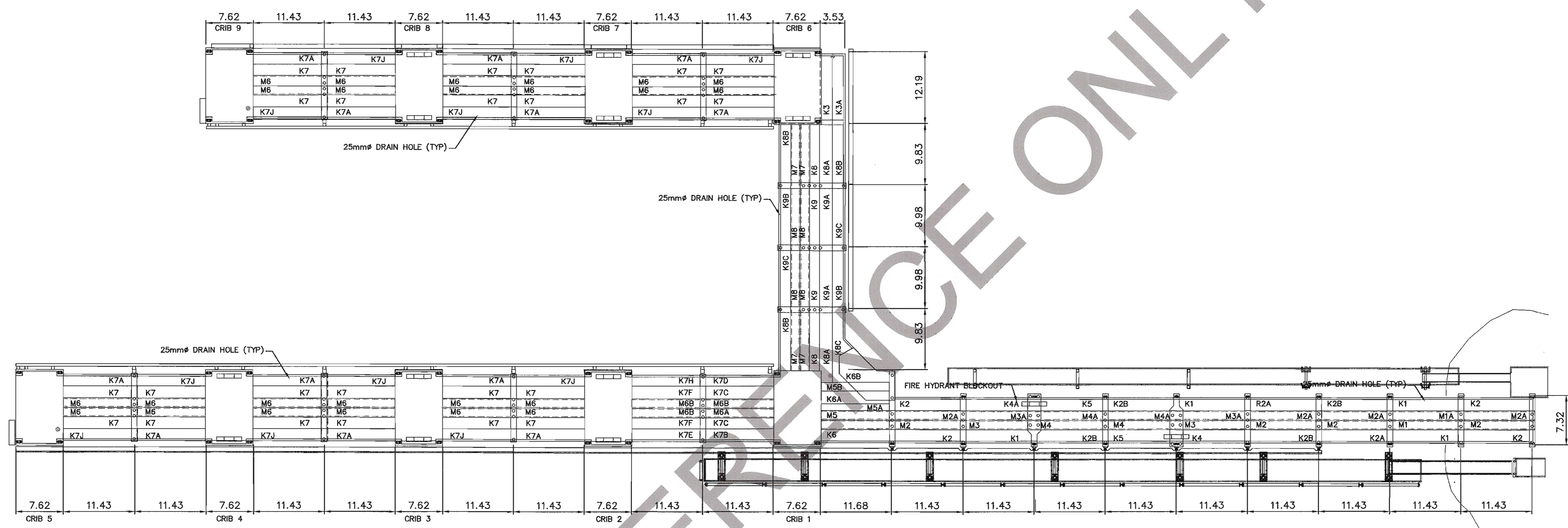
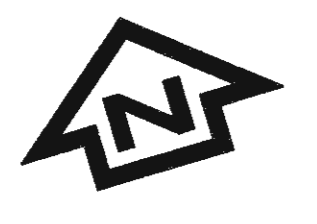
PWOSC Project Manager/Administrateur de Projets TP5GC
MICHAEL LIANG, P.ENG

Regional Manager, Architectural and Engineering Services
 Gestionnaire régionale, Services d'architecture et de génie, TP5GC

Drawing title/Titre du dessin

**EXISTING WHARF
 PILE LAYOUTS FOR BENTS**

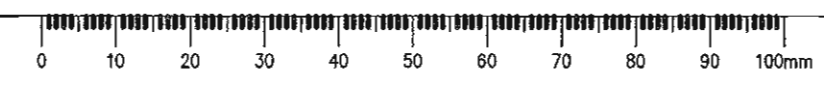
Project No./No. du projet	Sheet/Feuille	Revision no./La Révision no.
9R306	0227-003	2



EXISTING PRECAST SCHEDULE

MK No	QTY	WT (LB'S)	MK No	QTY	WT (LB'S)	MK No	QTY	WT (LB'S)	MK No	QTY	WT
K1	4	40,000	K7	24	38,700				M4	2	32,700
K2	4	40,000	K7A	12	38,700				M4A	2	32,700
K2A	2	40,000	K7B	1	38,700				M5	1	35,900
K2B	4	40,000	K7C	2	38,700				M5A	1	35,900
K3	1	38,400	K7D	1	38,700	K7J	12	38,700	M5B	1	35,900
K3A	1	38,400	K7E	1	38,700				M6	24	35,800
K4	1	37,300	K7F	2	38,700	M1	1	35,100	M6A	1	35,800
K4A	1	37,300	K7H	1	38,700	M1A	1	35,100	M6B	3	35,800
			K8	2	33,450						
K5	2	37,300	K8A	2	33,450						
			K8B	3	33,450	M2	4	35,100	M7	4	30,950
			K8C	1	33,450	M2A	4	35,100			
K6	1	41,000	K9	2	33,000				M8	4	30,600
K6A	1	41,000	K9A	2	33,000	M3	2	32,700			
K6B	1	41,000	K9B	2	33,000	M3A	2	32,700			
			K9C	2	33,000						

SCALE 1: 400



Revision/Revision	Description/Description	Date/Date
2	100% COMPLETE - ISSUED FOR TENDER	2015/12/15
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Client/client
DEPARTMENT OF FISHERIES AND OCEANS
 200 - 401 BARRARD STREET
 VANCOUVER, BC

Project title/Titre du projet
**INSTITUTE OF OCEAN SCIENCES
 CONCRETE WHARF REPAIRS**

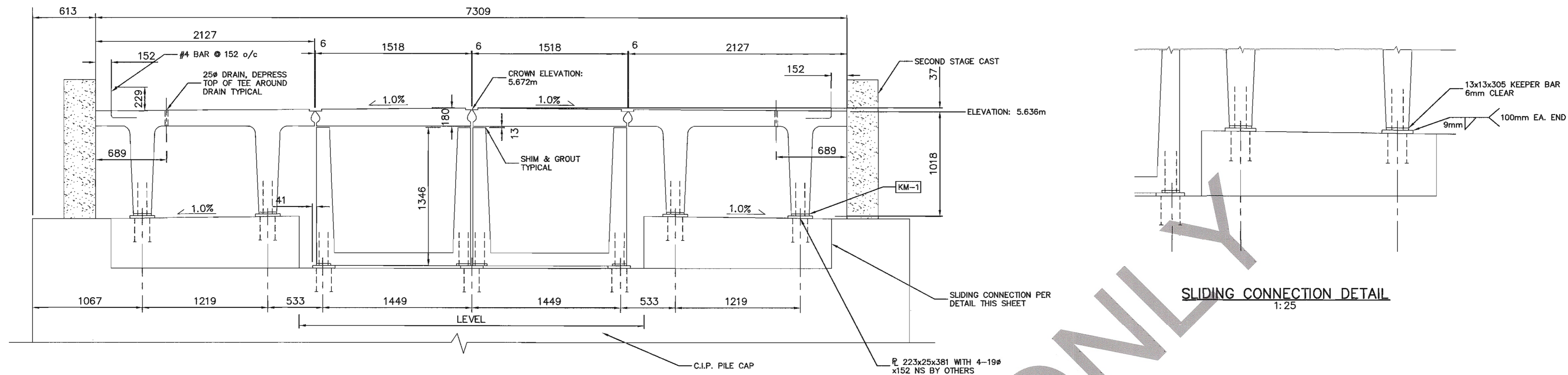
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WEDLER ENGINEERING LLP
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 PWGSC Project Manager/Administrateur de Projets TPSCC
MICHAEL LIANG, P.ENG

Regional Manager, Architectural and Engineering Services
 Gestionnaire régionale, Services d'architecture et de génie, TPSCC

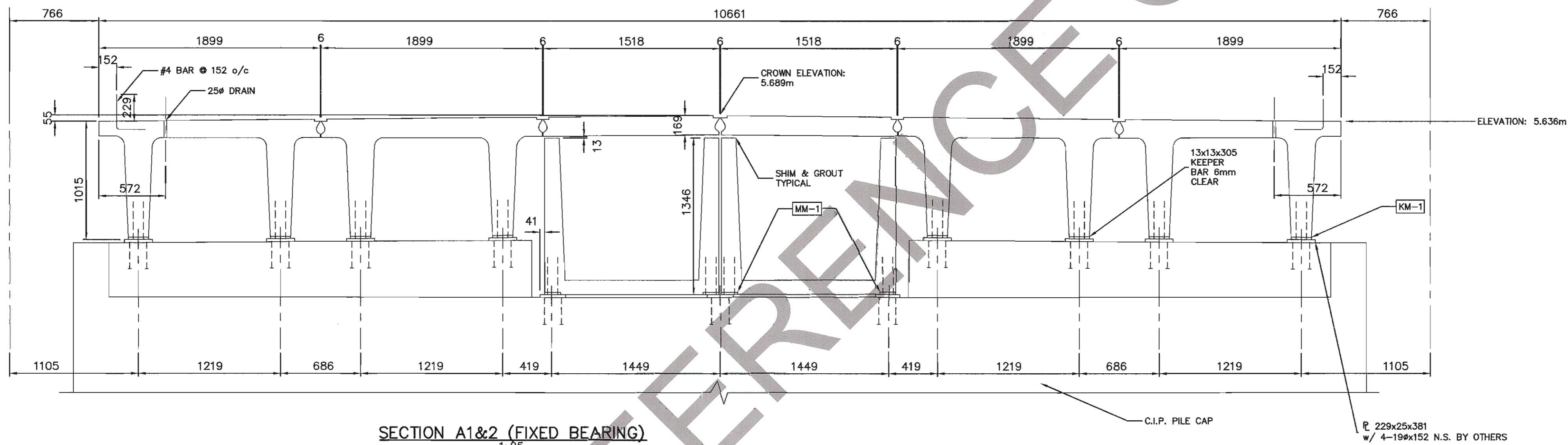
Drawing title/Titre du dessin
**EXISTING WHARF
 LAYOUT FOR D.TEES**

Project No./No. du projet	Sheet/Feuille	Revision no./no. de Révision
9R306	0227-004	2

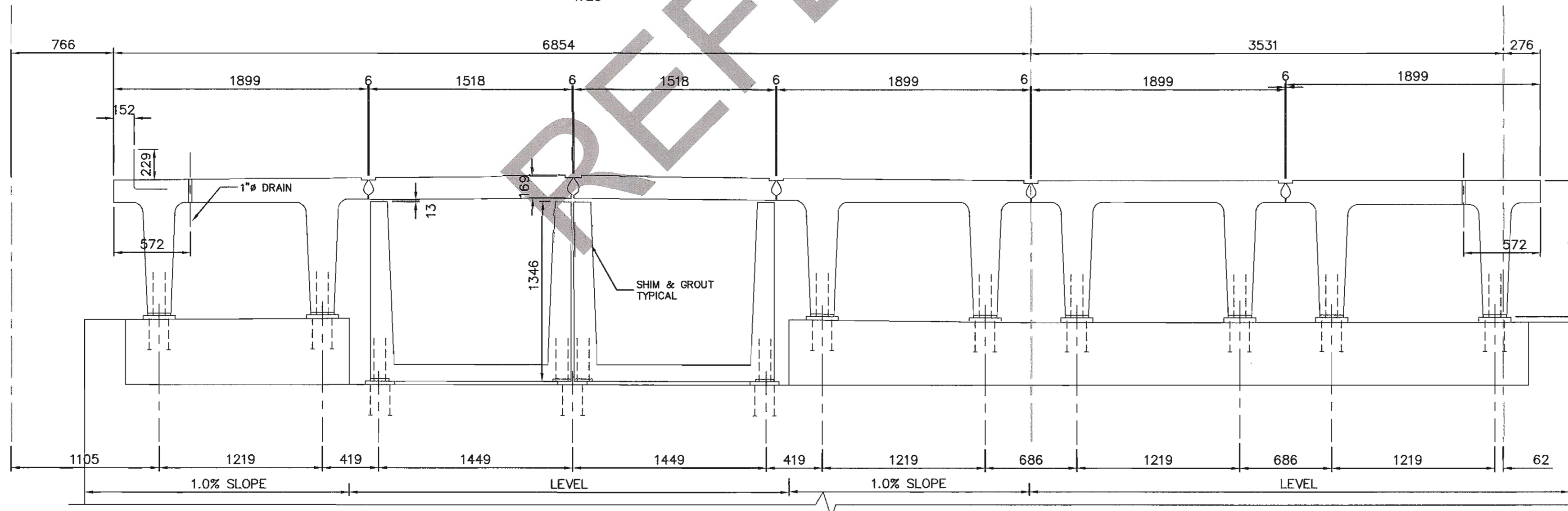




SECTION A1&2 (FIXED BEARING)
1:25



SECTION A1&2 (FIXED BEARING)
1:25



SECTION A1&2 (FIXED BEARING)
1:25

Revision/Revision	Description/Description	Date/Date
2	100% COMPLETE - ISSUED FOR TENDER	2015/12/15
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DEPARTMENT OF FISHERIES AND OCEANS

200 - 401 BURRARD STREET
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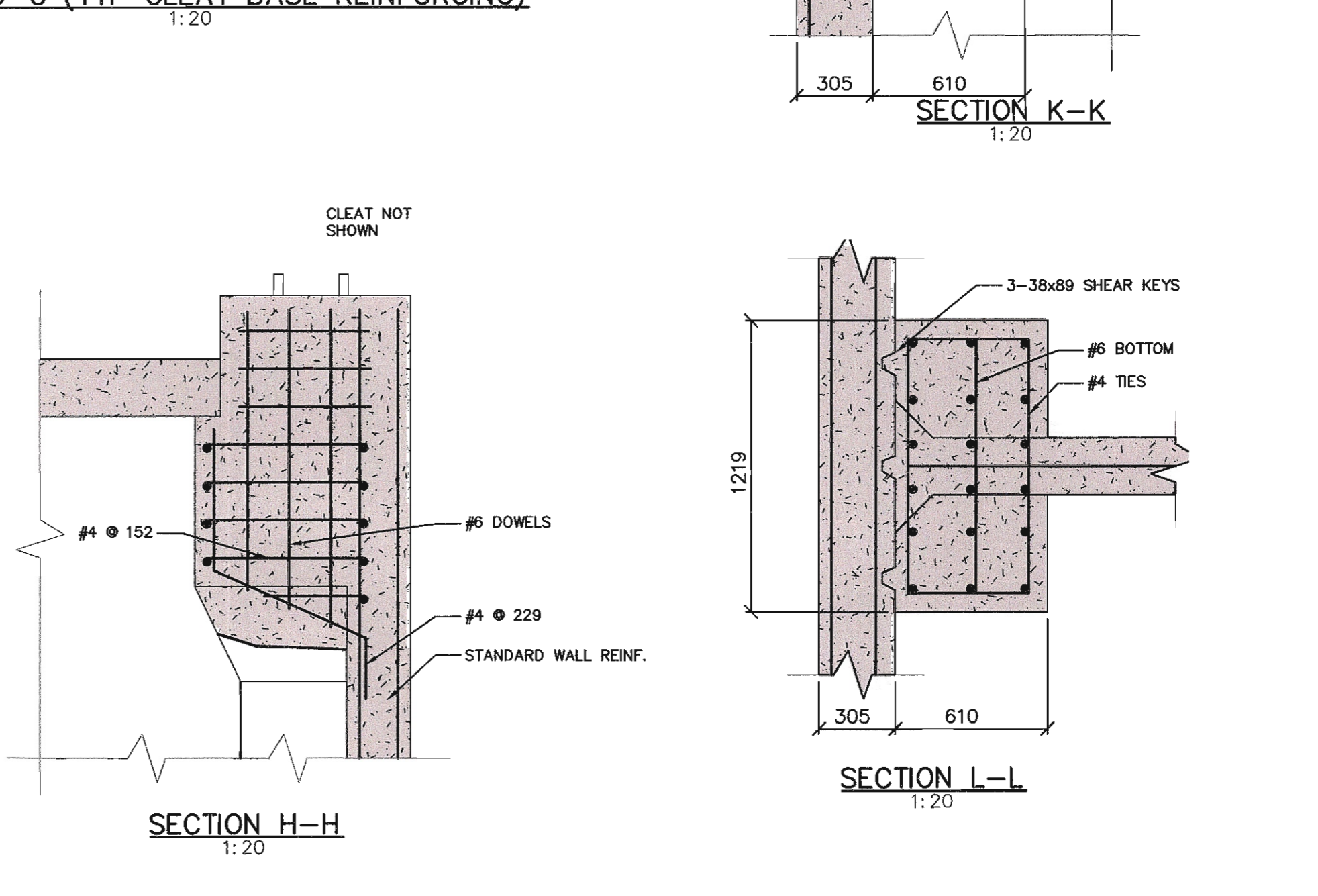
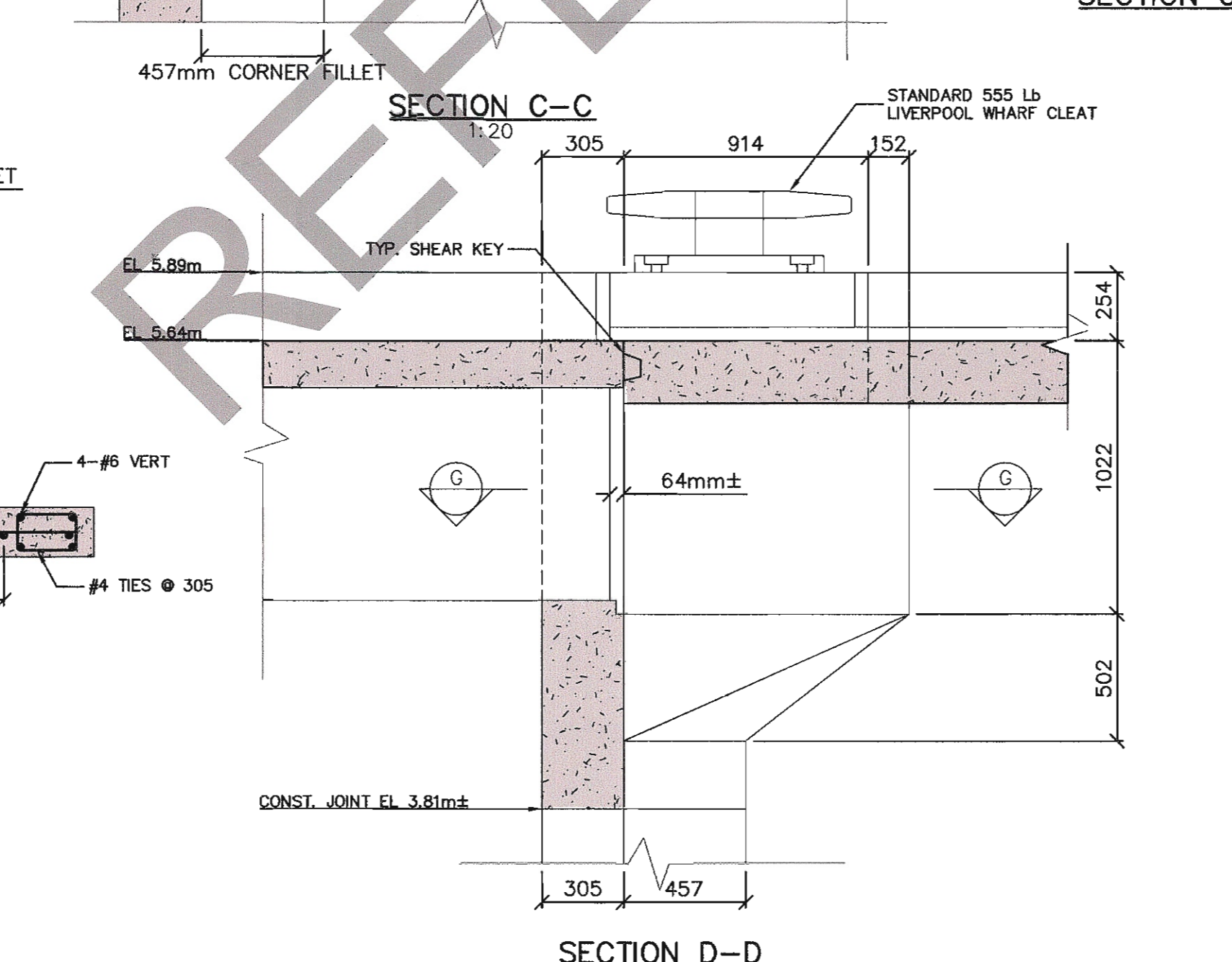
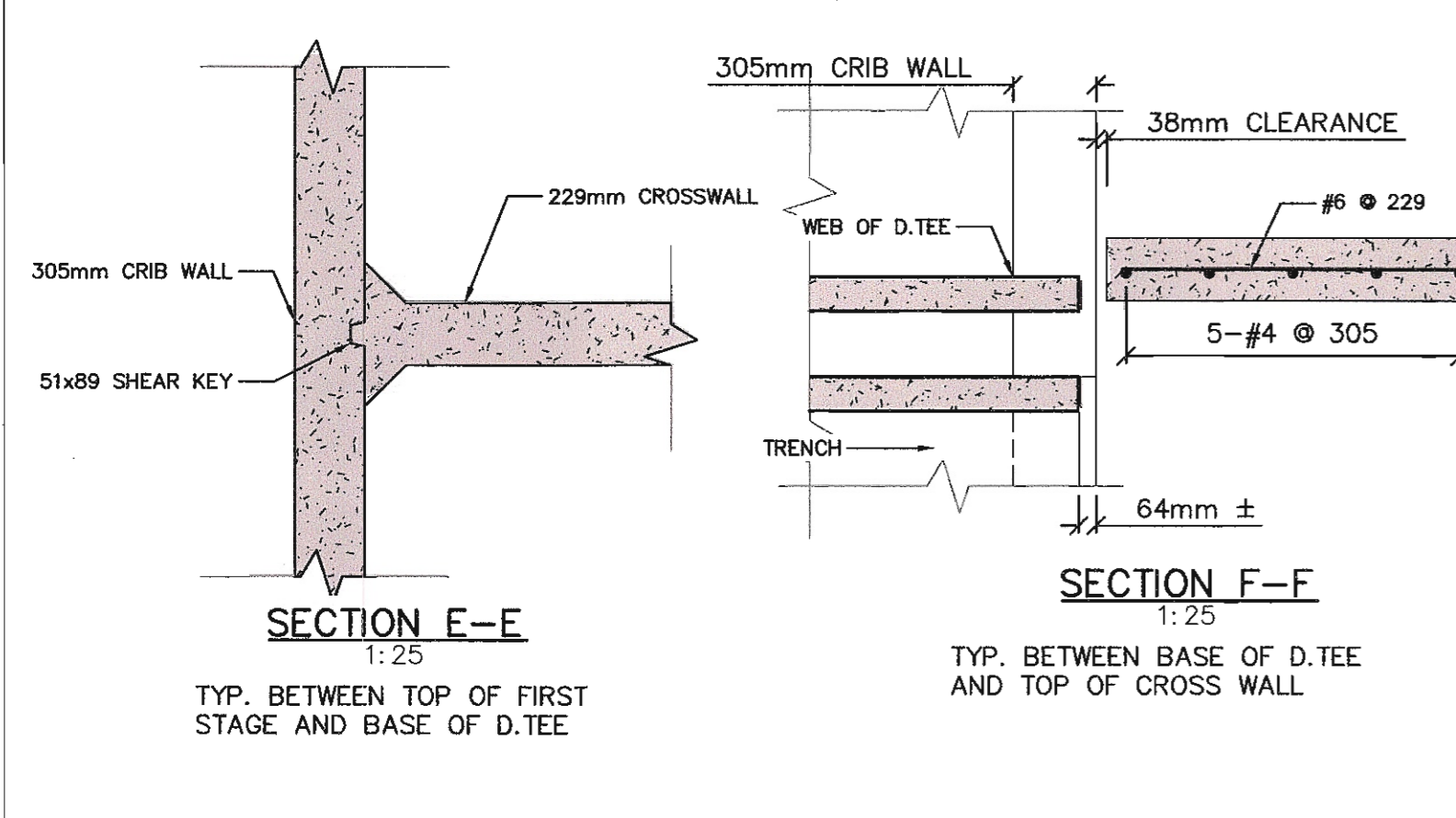
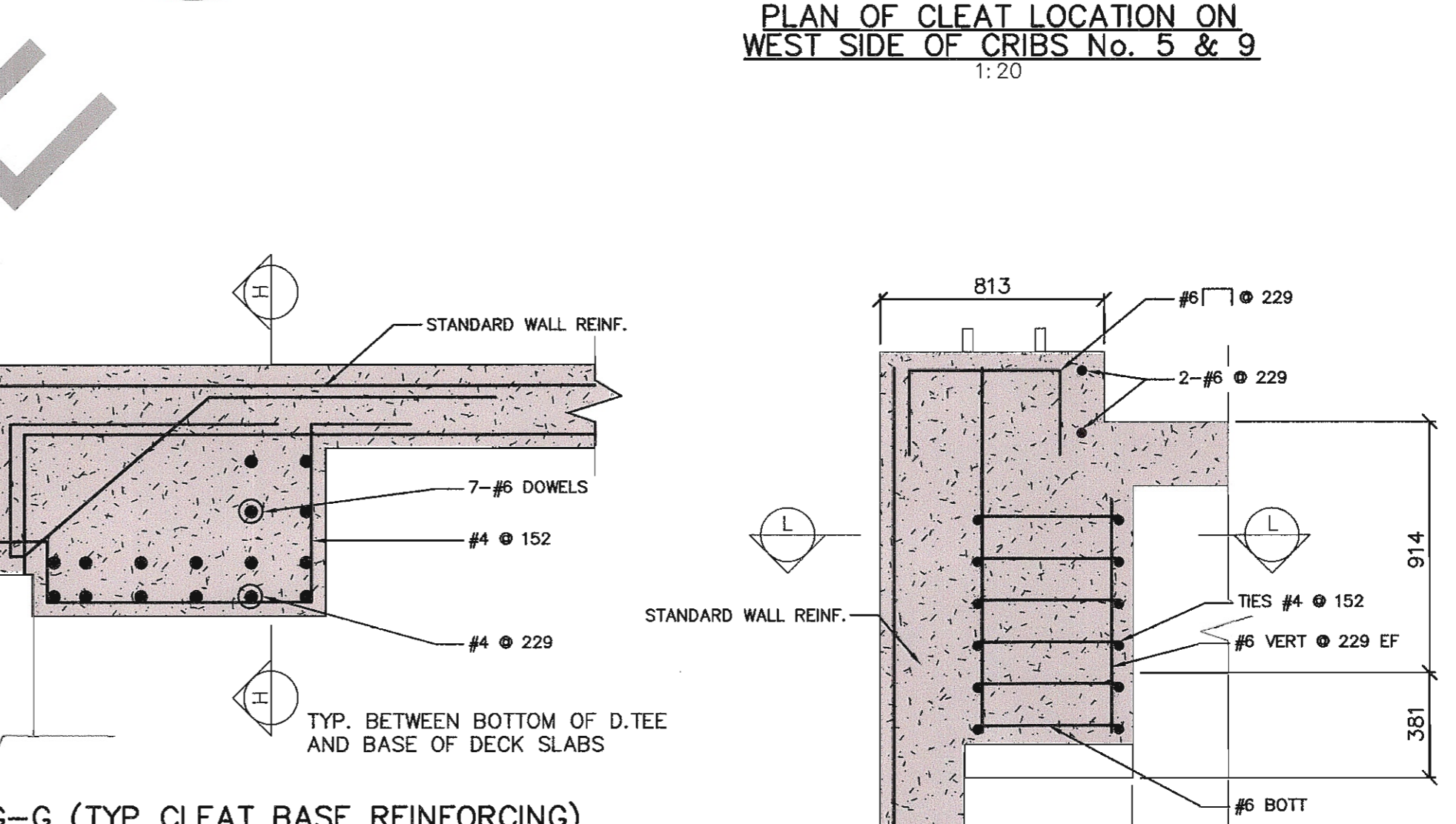
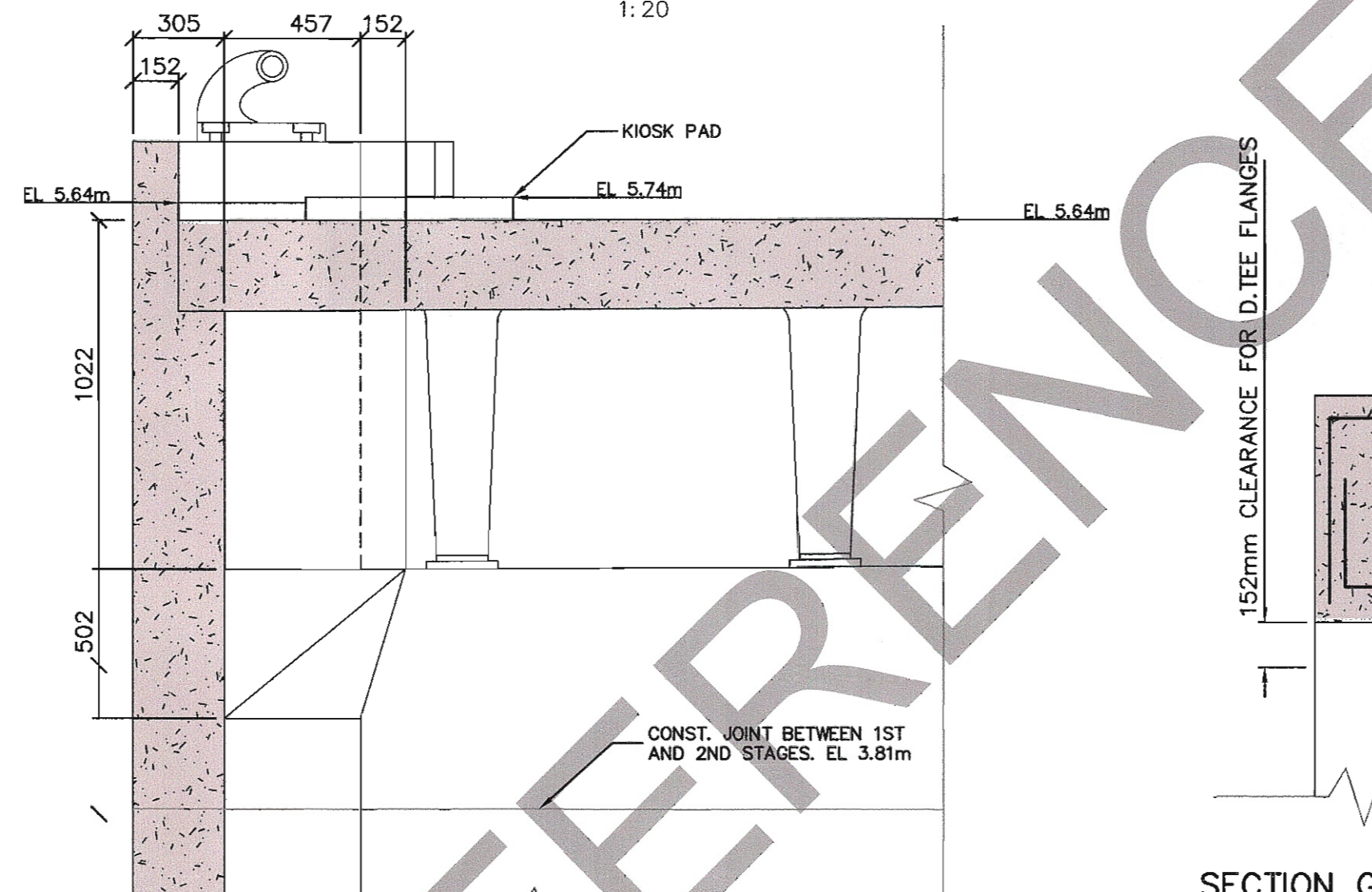
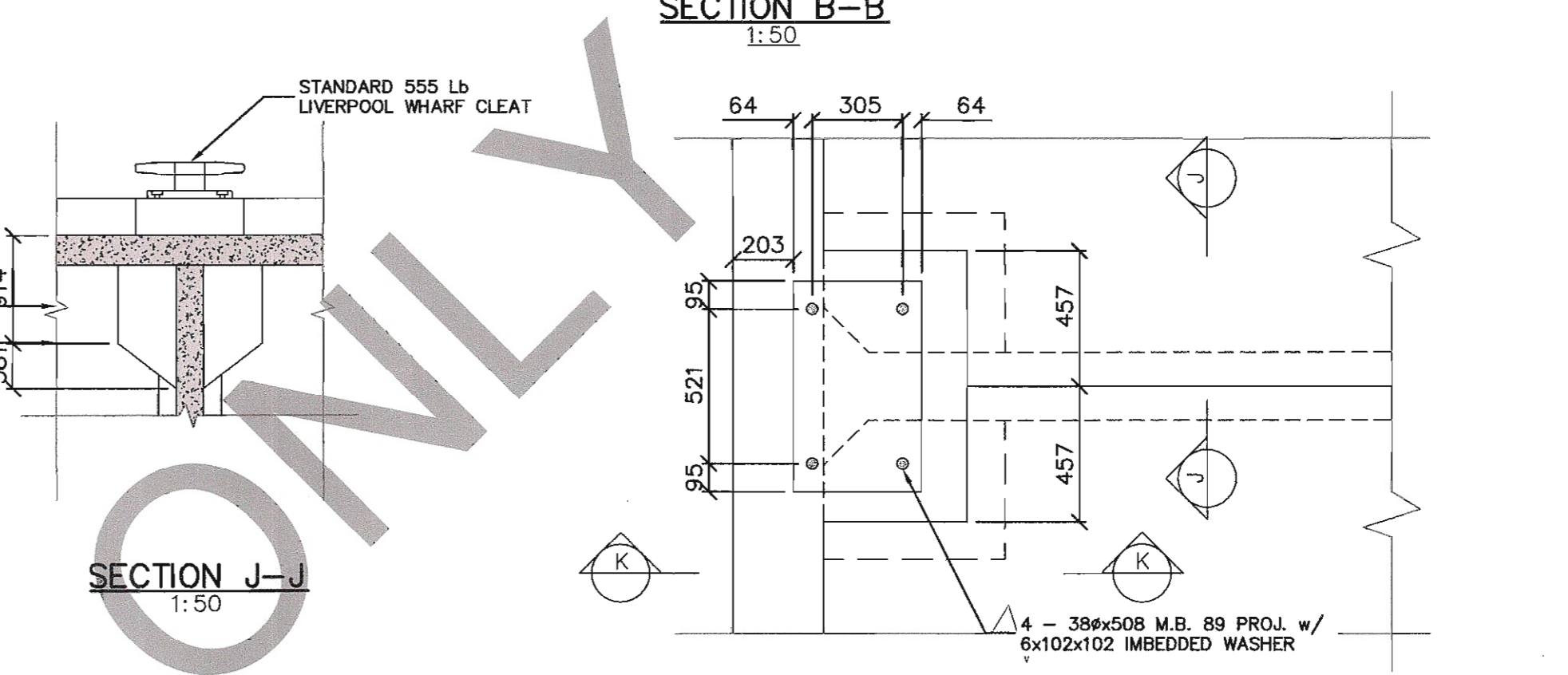
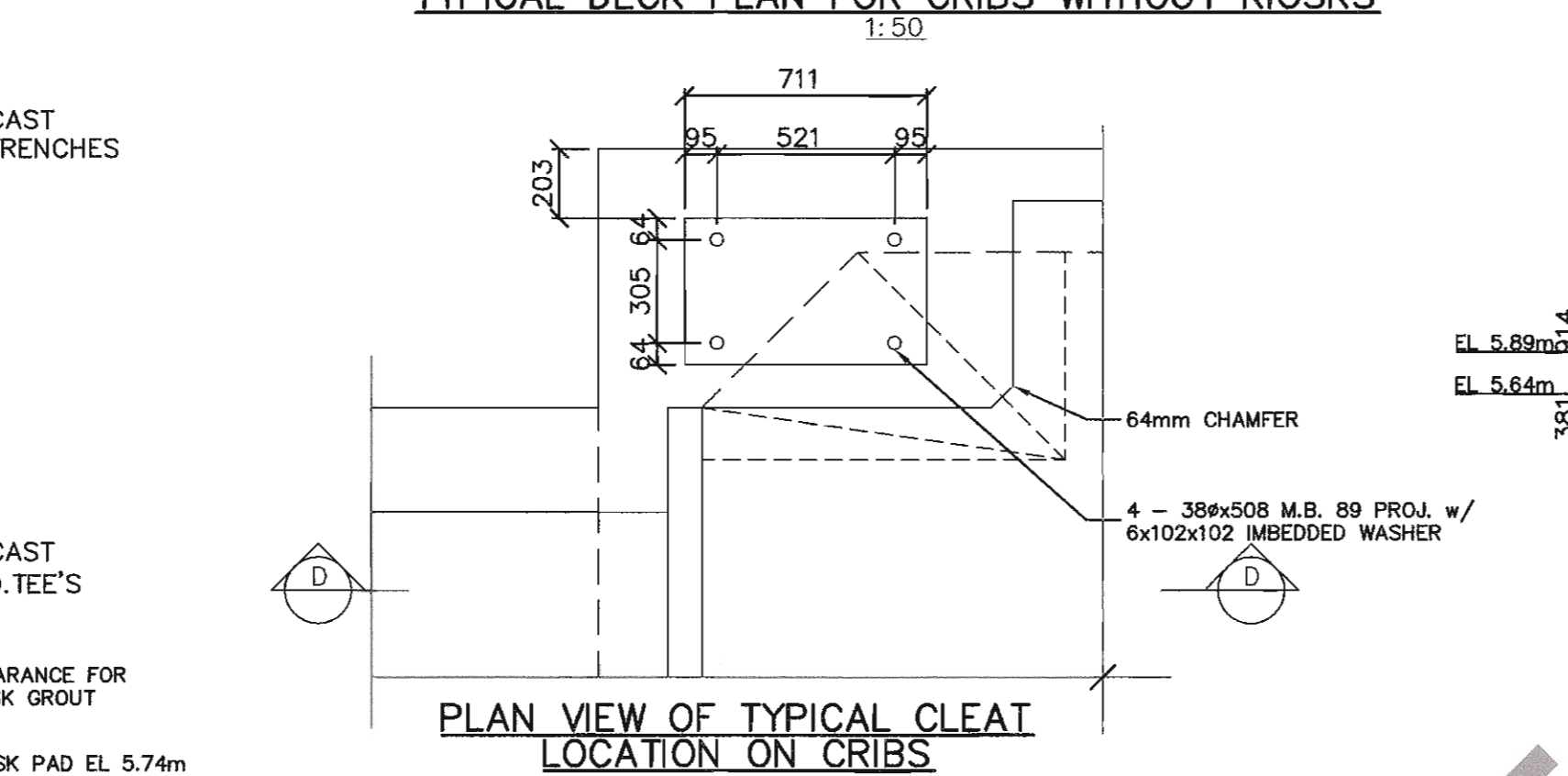
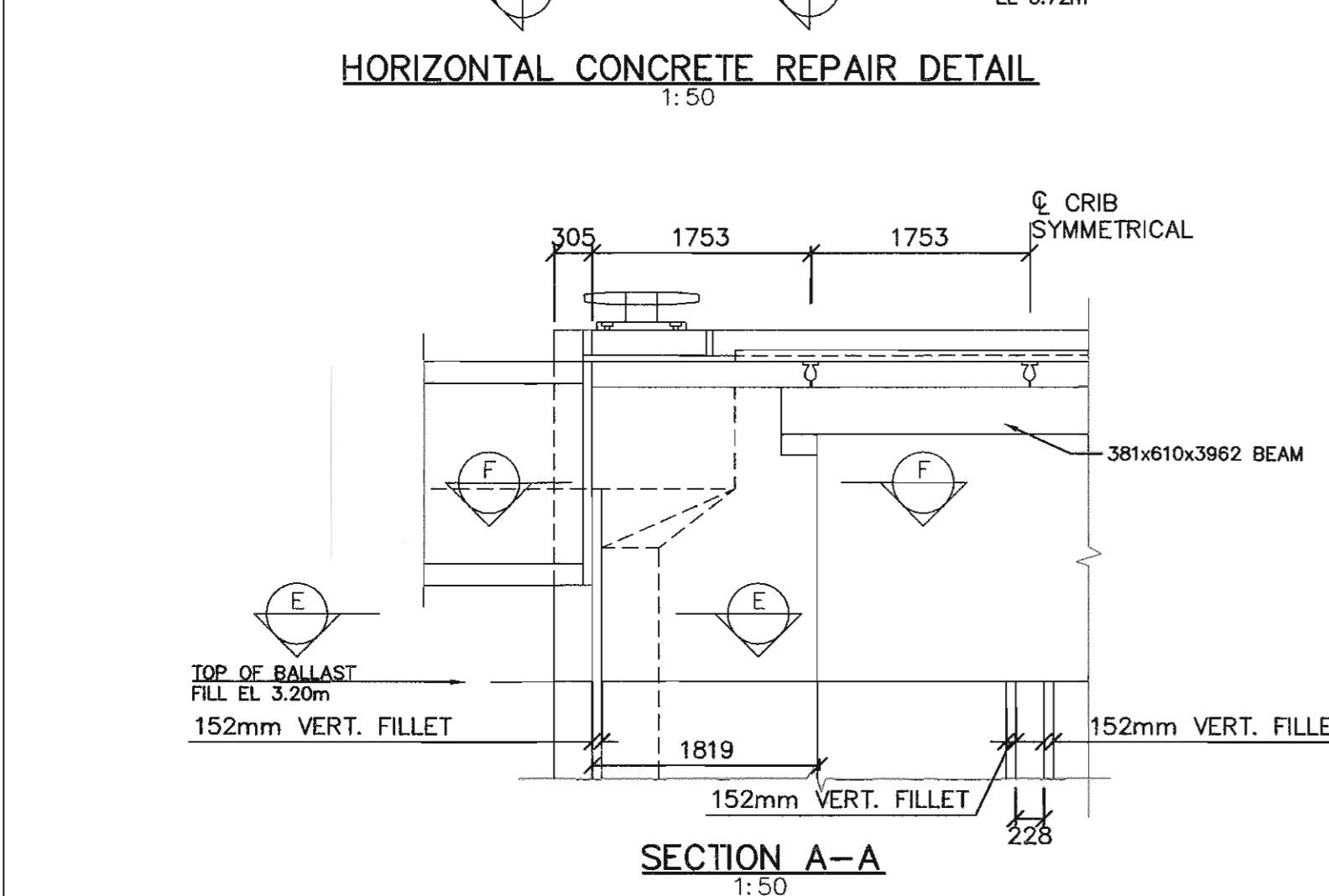
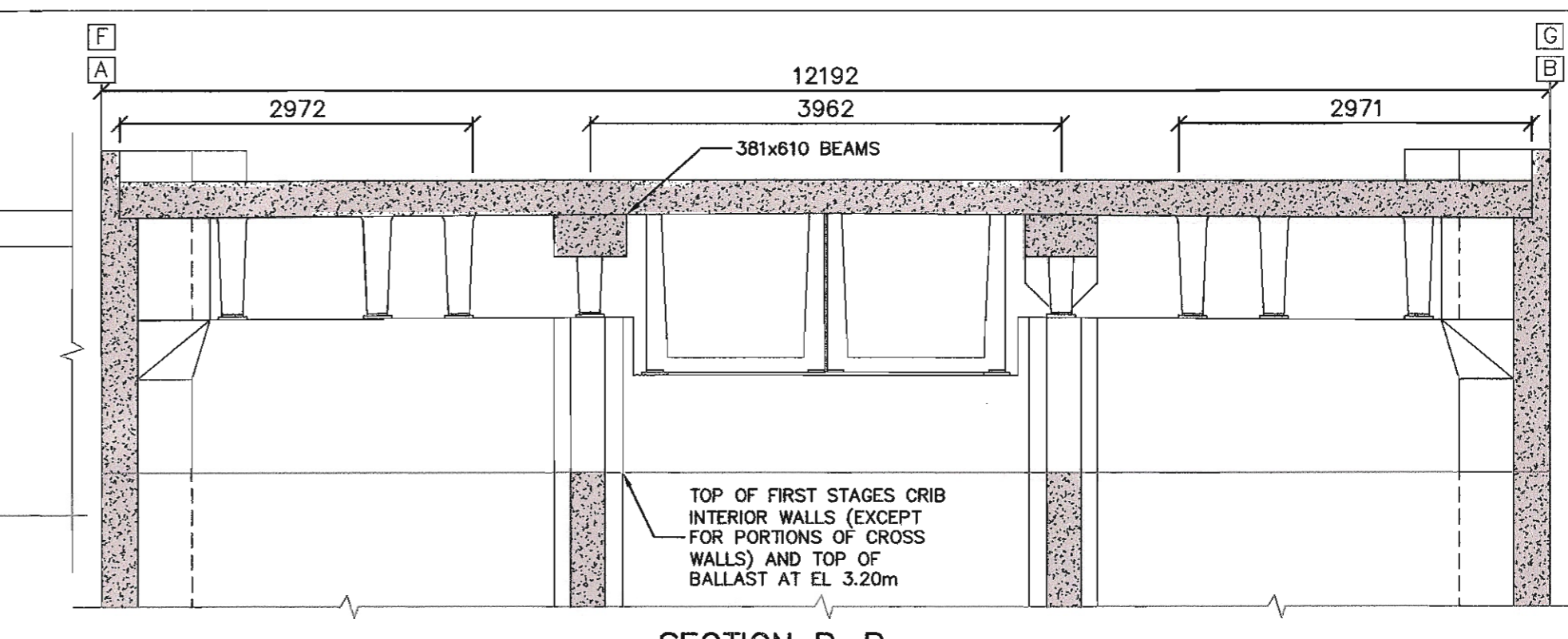
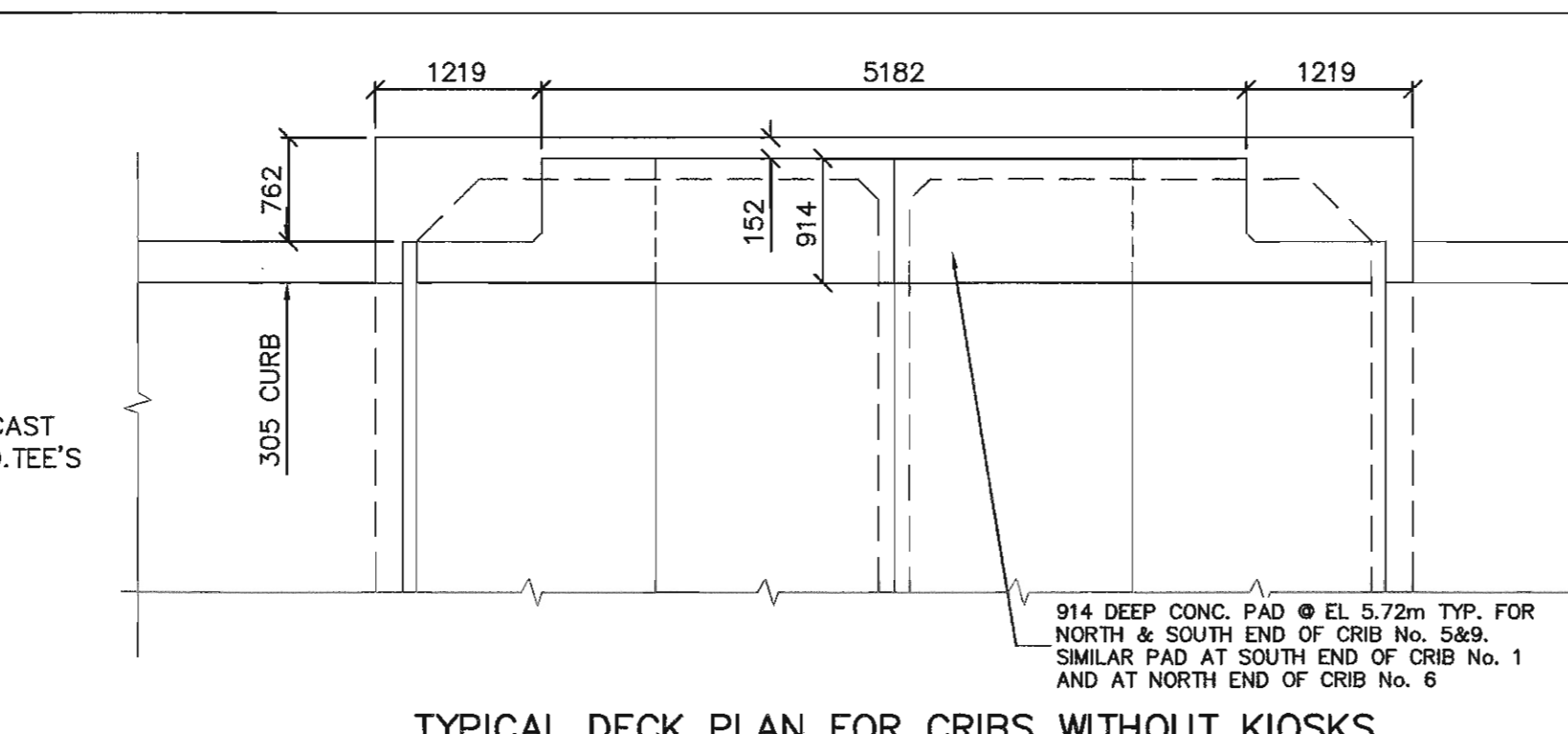
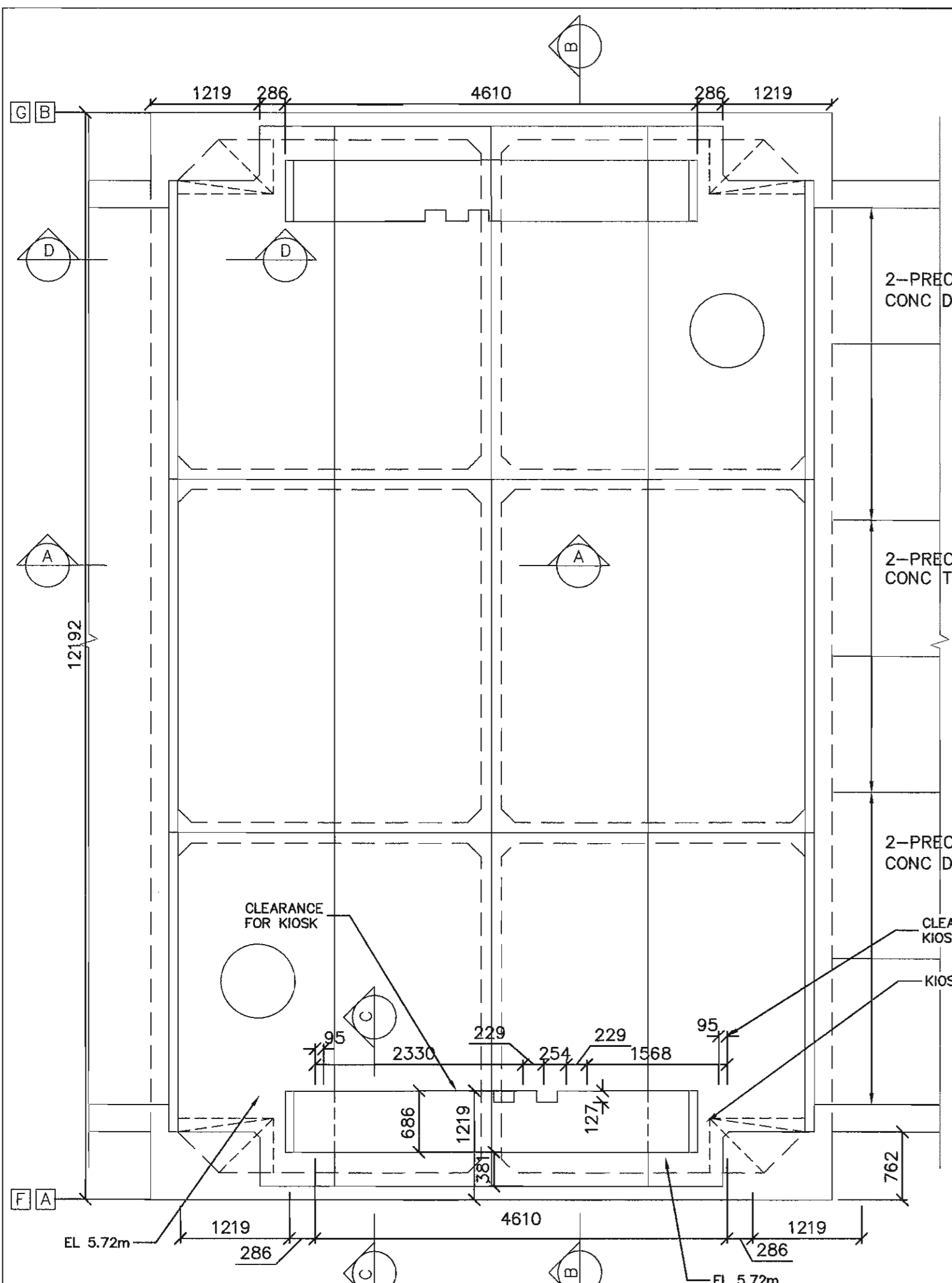
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EXISTING SECTIONS

Project No./No. du projet	Sheet/Feuille	Revision no./La Révision no.
9R306	0227-005	2



Fisheries and Oceans Canada / Pêches et Océans Canada

CORPORATE SERVICES
Pacific Region

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Revision/Revision	Description/Description	Date/Date
2	100% COMPLETE - ISSUED FOR TENDER	2015/12/15
1	86% COMPLETE - ISSUED FOR REVIEW	2015/11/20

DEPARTMENT OF FISHERIES AND OCEANS

200 - 401 BARRARD STREET
VANCOUVER, BC

**INSTITUTE OF OCEAN SCIENCES
CONCRETE WHARF REPAIRS**

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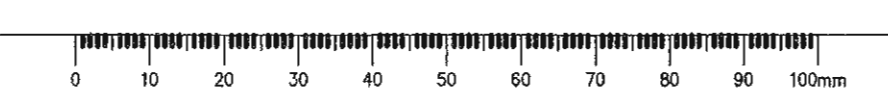
PWOSC Project Manager/Administrateur de Projets TPSCG
MICHAEL LIANG, P.ENG

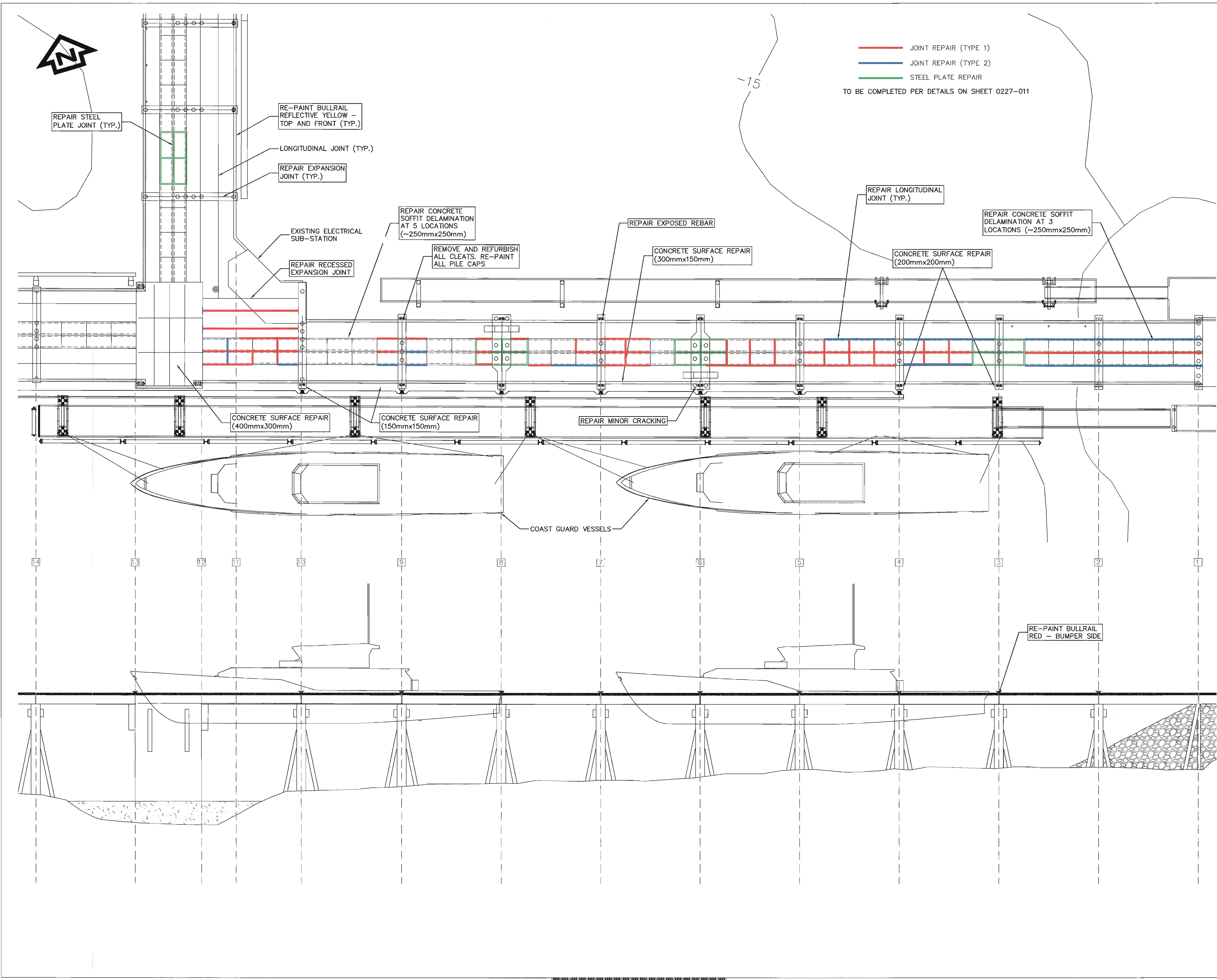
Regional Manager, Architectural and Engineering Services
 Gestionnaire régionale, Services d'architectural et de génie, TPSCG

EXISTING CRIB, KIOSK PAD, AND CLEAT DETAILS

Project No./No. du projet	Sheet/Feuille	Revision no./Lo. Révision
9R306	0227-006	2

NOTE: ALL DIMENSION ARE IN MILLIMETERS UNLESS NOTES OTHERWISE





Revision/	Description/Description	Date/Date
2	100% COMPLETE - ISSUED FOR TENDER	2015/12/15
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DEPARTMENT OF FISHERIES AND OCEANS		
200 - 401 BARRARD STREET VANCOUVER, BC		

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CONCRETE WHARF REPAIRS

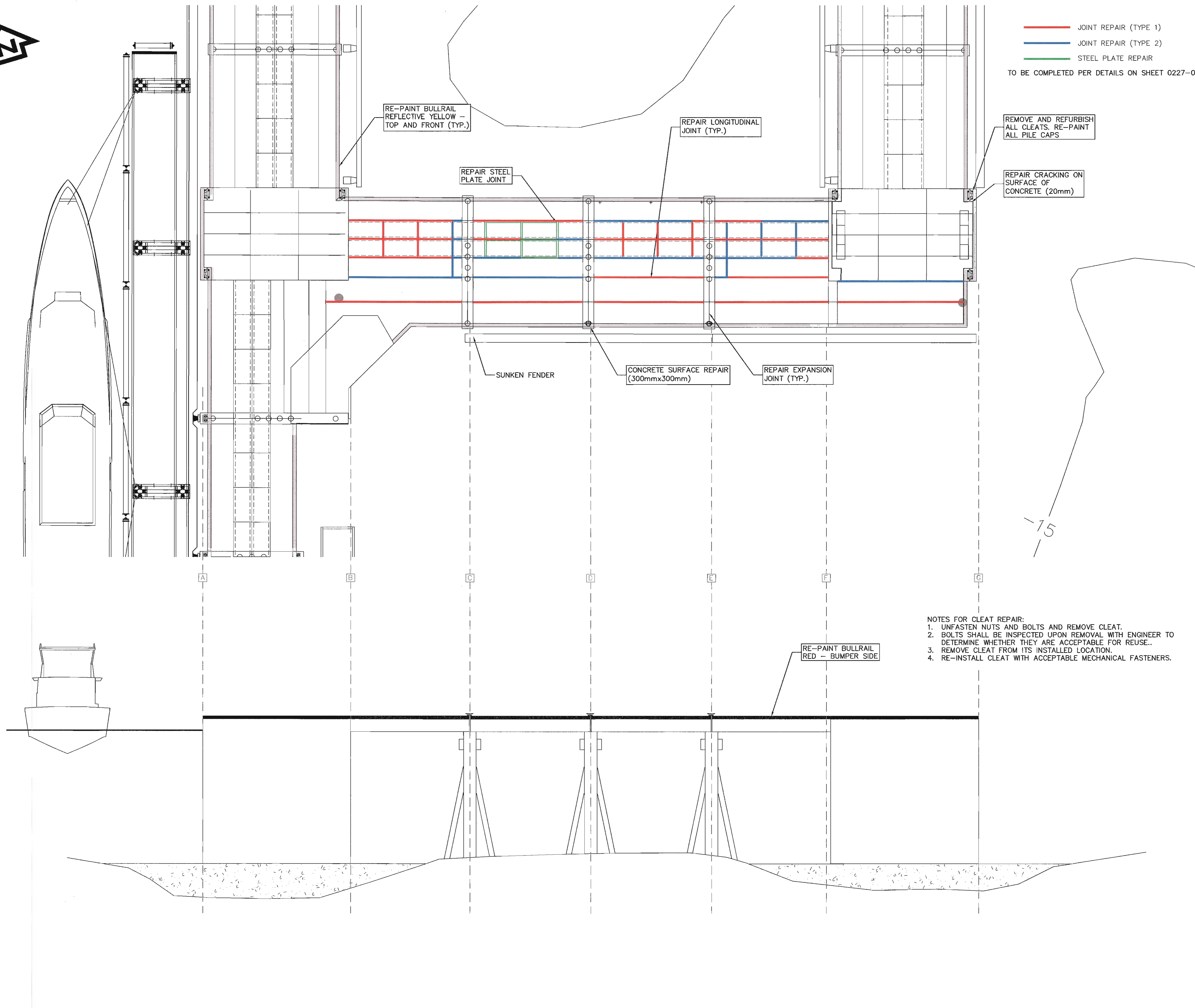
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 Regional Manager, Architectural and Engineering Services
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Drawing title/Titre du dessin

APPROACH TRESTLE REPAIRS

Project No./No. du projet	Sheet/Feuille	Revision no./La Révision no.
9R306	0227-007	2





— JOINT REPAIR (TYPE 1)
— JOINT REPAIR (TYPE 2)
— STEEL PLATE REPAIR
 TO BE COMPLETED PER DETAILS ON SHEET 0227-011

RE-PAINTE BULLRAIL
REFLECTIVE YELLOW -
TOP AND FRONT (TYP.)

REPAIR LONGITUDINAL
JOINT (TYP.)

REMOVE AND REFURBISH
ALL CLEATS. RE-PAINTE
ALL PILE CAPS

REPAIR STEEL
PLATE JOINT

REPAIR CRACKING ON
SURFACE OF
CONCRETE (20mm)

SUNKEN FENDER

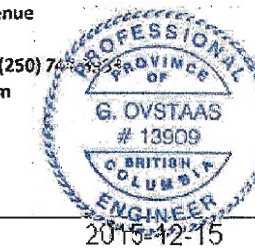
CONCRETE SURFACE REPAIR
(300mmx300mm)

REPAIR EXPANSION
JOINT (TYP.)

-15

RE-PAINTE BULLRAIL
RED - BUMPER SIDE

- NOTES FOR CLEAT REPAIR:
1. UNFASTEN NUTS AND BOLTS AND REMOVE CLEAT.
 2. BOLTS SHALL BE INSPECTED UPON REMOVAL WITH ENGINEER TO DETERMINE WHETHER THEY ARE ACCEPTABLE FOR REUSE..
 3. REMOVE CLEAT FROM ITS INSTALLED LOCATION.
 4. RE-INSTALL CLEAT WITH ACCEPTABLE MECHANICAL FASTENERS.



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MICHAEL LIANG, P.ENG

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Gestionnaire régionale, Services d'architecture et de génie, TPSC

Drawing Title/Titre du dessin

CROSS PIER REPAIRS

Project No./No. du projet	Sheet/Feuille	Revision no./no. de Révision
9R306	0227-008	2





— JOINT REPAIR (TYPE 1)
— JOINT REPAIR (TYPE 2)
— STEEL PLATE REPAIR
 TO BE COMPLETED PER DETAILS ON SHEET 0227-011

TANU OR GORDON REID

-20

-25

RE-PAIN BULLRAIL REFLECTIVE YELLOW - TOP AND FRONT (TYP.)

W.E. RICKER

REPAIR LONGITUDINAL JOINT (TYP.)

REPAIR DEPRESSED EXPANSION JOINTS

CONCRETE SURFACE REPAIR (200mmx200mm)

CONCRETE SURFACE REPAIR (600mmx600mm)

CONCRETE SURFACE REPAIR (200mmx200mm)

REMOVE AND REFURBISH ALL CLEATS. RE-PAIN ALL PILE CAPS

REPAIR DEPRESSED EXPANSION JOINT

JOHN P. TULLY

REPAIR CONCRETE SOFFIT SPALLING NEAR PILES

REPAIR CONCRETE SOFFIT DELAMINATION

REPAIR EXPANSION JOINT

CONCRETE SURFACE REPAIR (300mmx600mm)

REPAIR EXPANSION JOINT (TYP.)

CONCRETE SURFACE REPAIR (450mmx450mm)

CONCRETE SURFACE REPAIR (300mmx150mm)

CONCRETE SURFACE REPAIR (450mmx150mm)

REPAIR IS CRACKING

REPAIR EXPOSED REBAR

25 24 23 22 21 20 19 18 17 16 15 14 13 12

REMOVE AND REFURBISH ALL CLEATS. RE-PAIN ALL PILE CAPS

RE-PAIN BULLRAIL RED - BUMPER SIDE

Fisheries and Oceans Canada / Pêches et Océans Canada
CORPORATE SERVICES
 Pacific Region
 Real Property, Safety, and Security
WEDLER ENGINEERING
 THE WEDLER GROUP
 CHIVAS
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 PROFESSIONAL ENGINEER
 G. OVSTAAS #13509
 2015-12-15

Revision/Revision	Description/Description	Date/Date
2	100% COMPLETE - ISSUED FOR TENDER	2015/12/15
1	86% COMPLETE - ISSUED FOR REVIEW	2015/11/20

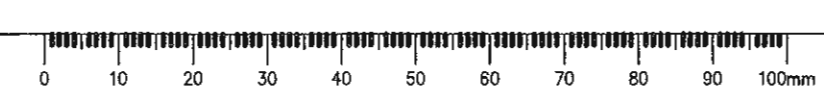
Client/client
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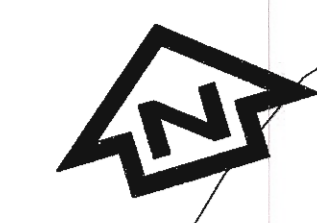
Project title/Titre du projet
**INSTITUTE OF OCEAN SCIENCES
 CONCRETE WHARF REPAIRS**

Consultant Signature Only
WEDLER ENGINEERING LLP
 Designed by/Concept par
 ARG
 Drawn by/Dessine par
 DBB
 PWGSC Project Manager/Administrateur de Projets TPSCG
MICHAEL LIANG, P.ENG
 Regional Manager, Architectural and Engineering Services
 Gestionnaire régional, Services d'architectural et de génie, TPSCG

Drawing title/Titre du dessin
PIER 1 REPAIRS

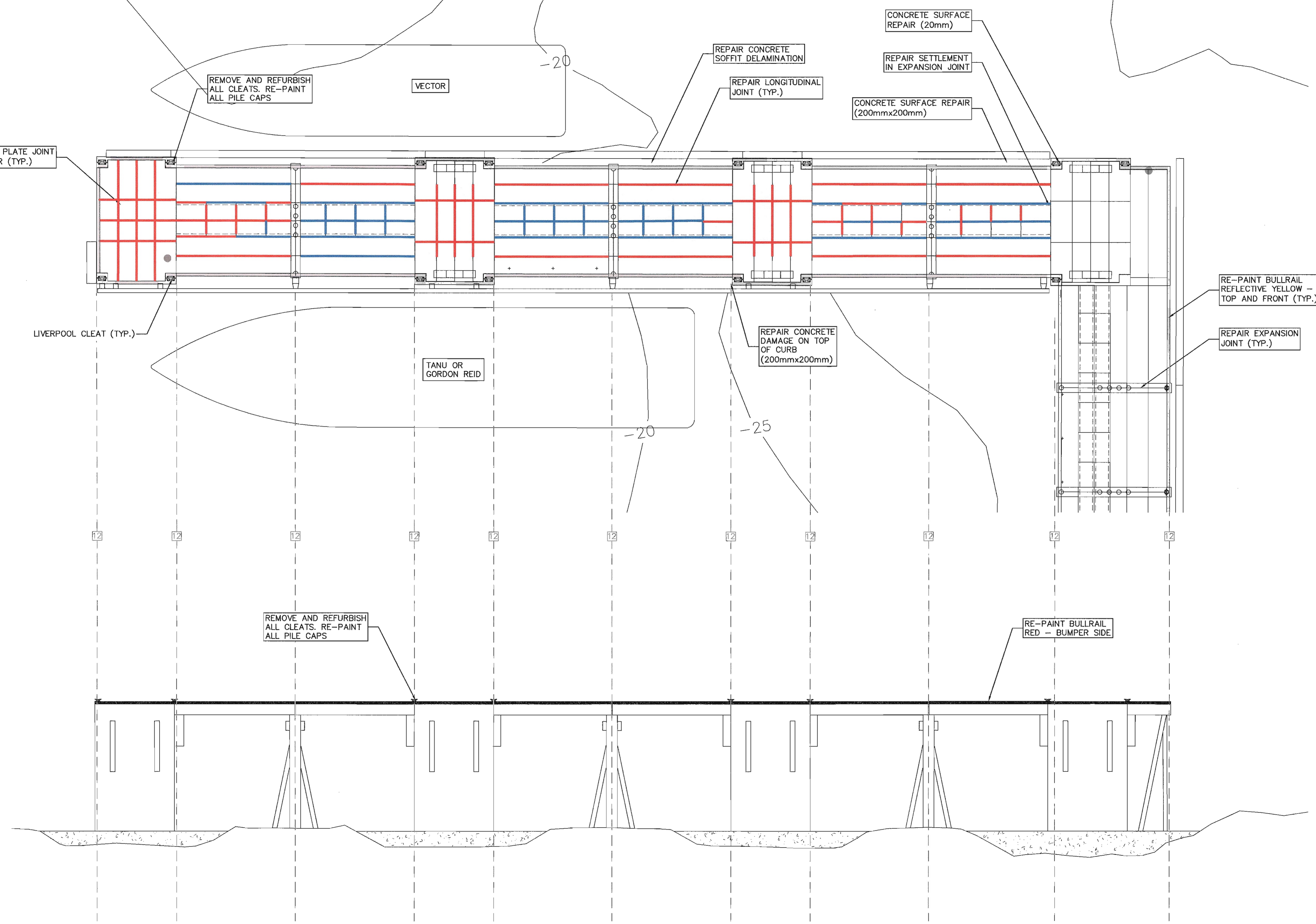
Project No./No. du projet	Sheet/Feuille	Revision no./La Révision no.
9R306	0227-009	2





— JOINT REPAIR (TYPE 1)
 — JOINT REPAIR (TYPE 2)
 TO BE COMPLETED PER DETAILS ON SHEET 0227-011

ALL REPAIRS TO BE COMPLETED PER DETAILS ON SHEET C11

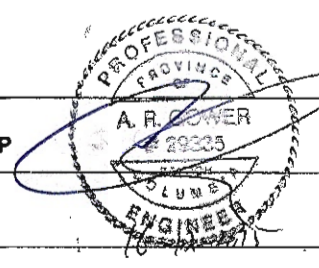


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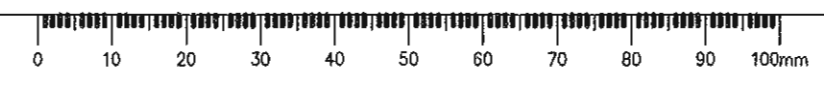
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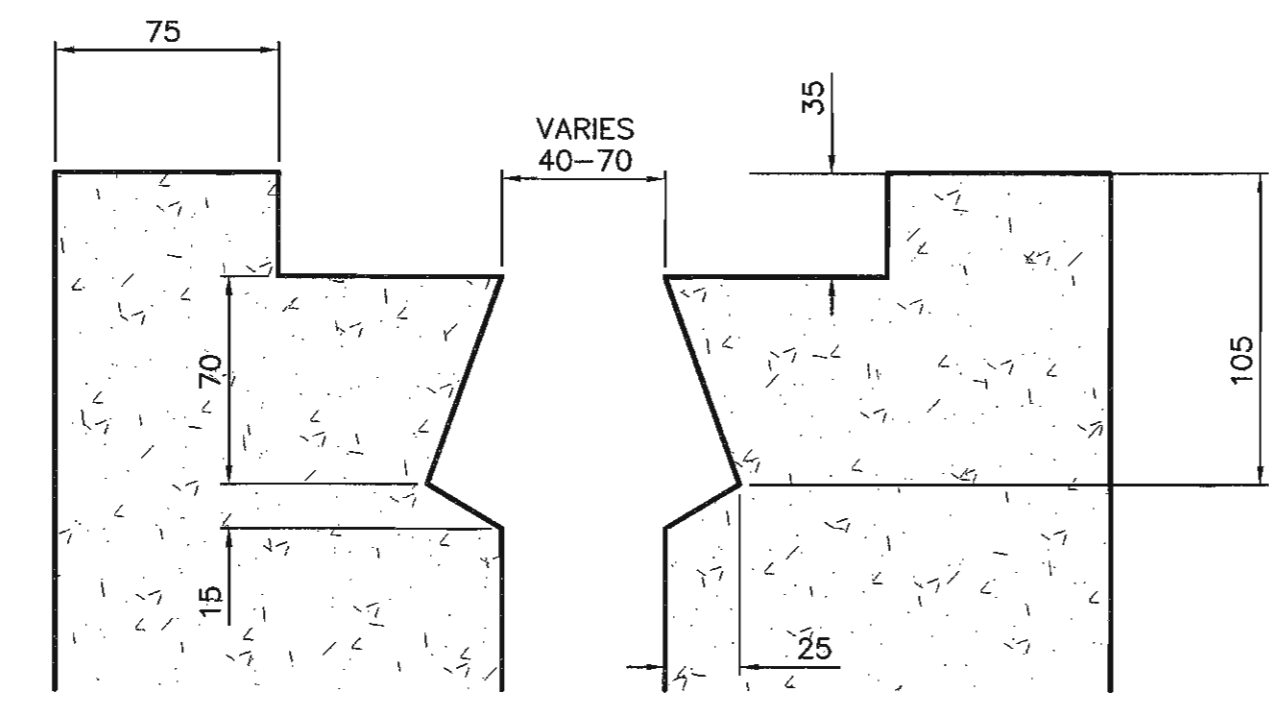
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WEDLER ENGINEERING LLP
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ARG
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DBB
 PWOSC Project Manager/Administrateur de Projets TPSCC
MICHAEL LIANG, P.ENG
 Regional Manager, Architectural and Engineering Services
 Gestionnaire régionale, Services d'architecture et de génie, TPSCC



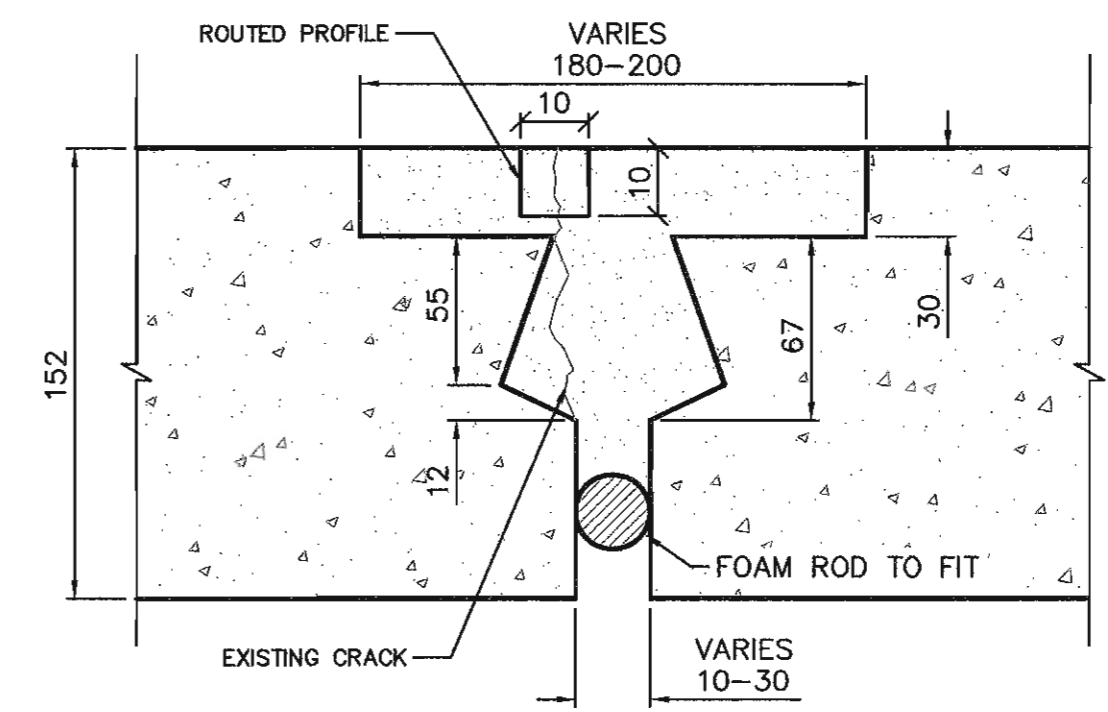
PIER 2 REPAIRS

Project No./No. du projet	Sheet/Feuille	Revision no./La Révision no.
9R306	0227-010	2



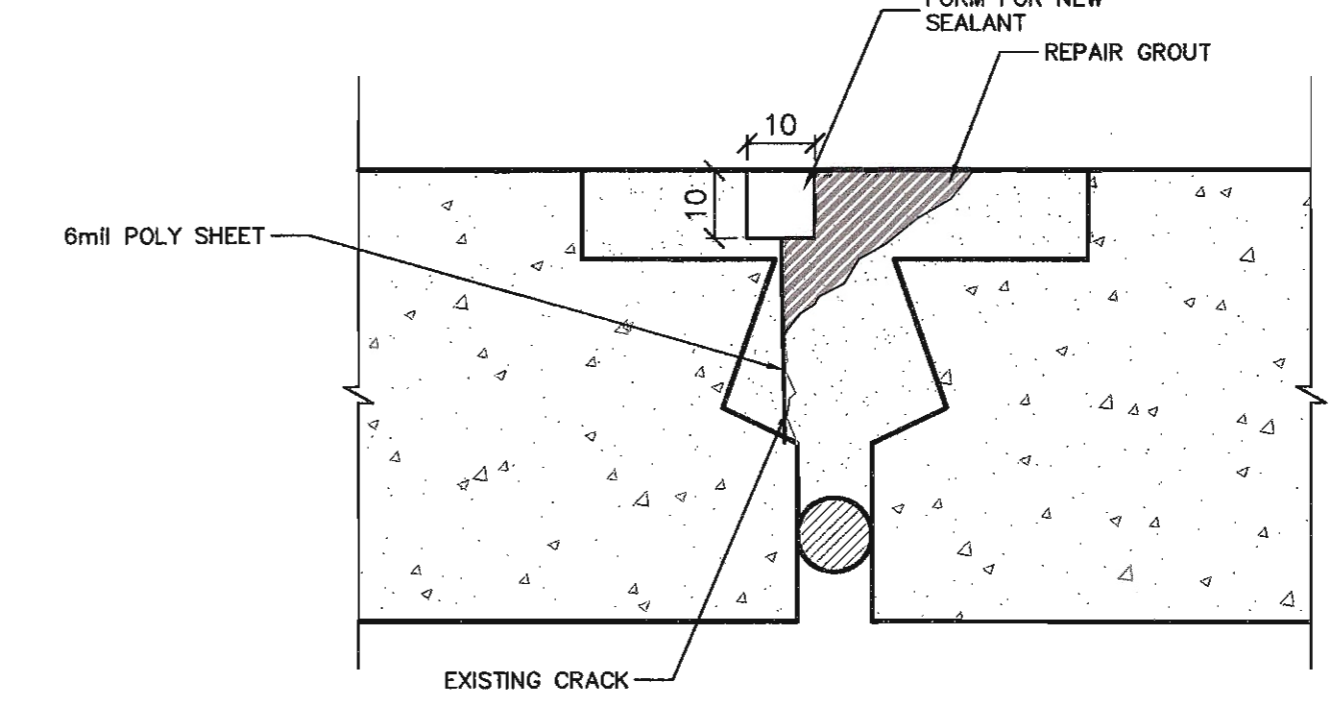


JOINT DETAIL
N.T.S.



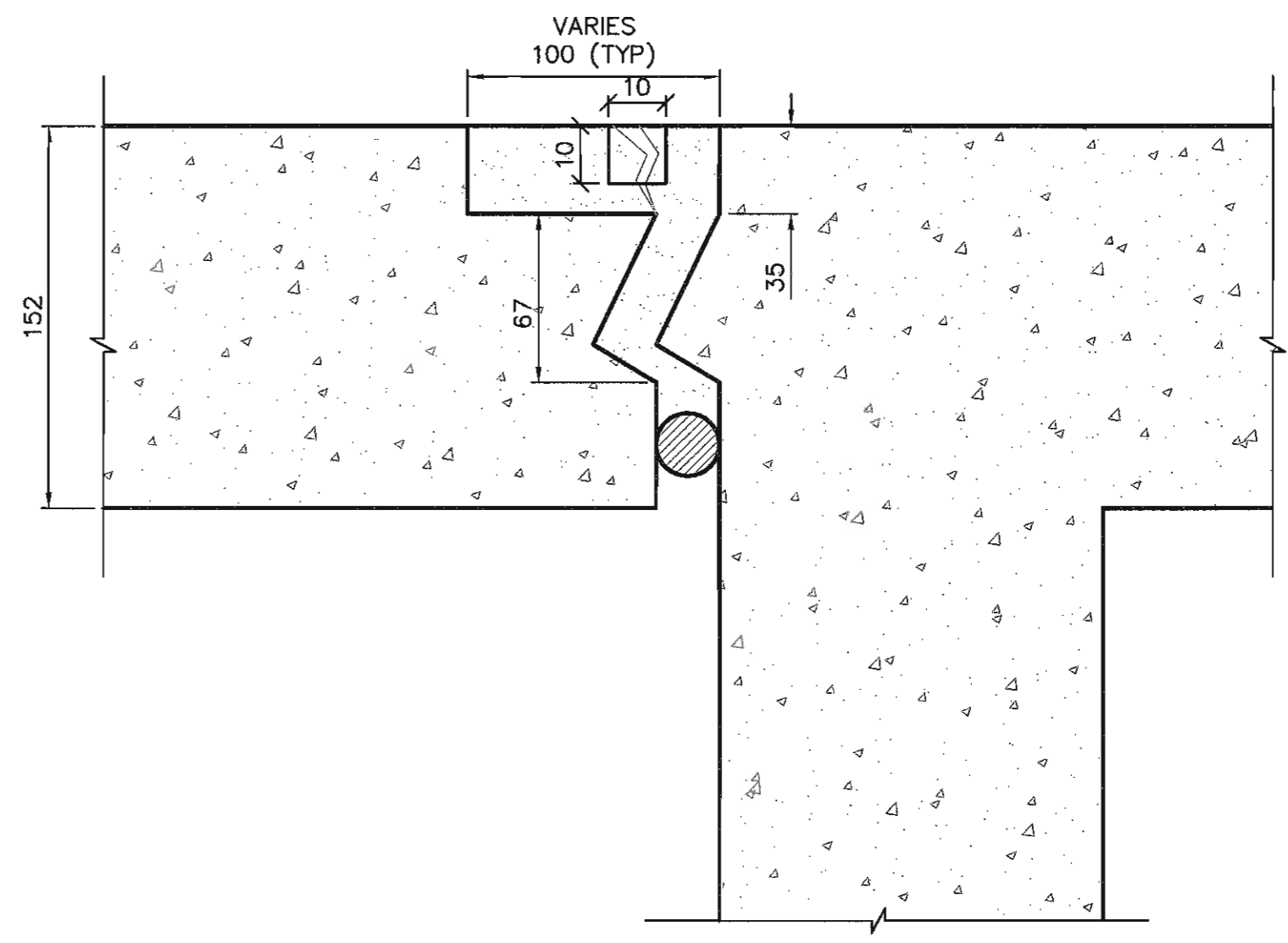
JOINT REPAIR DETAIL AT 'DOUBLE T' TO 'DOUBLE T' (TYPE 1)
N.T.S.

- NOTES:
1. ROUTE ALONG THE CRACKS IN THE EXPOSED CONCRETE TO CREATE A PROFILE 10mm DEEP BY 10mm WIDE.
 2. PREPARED CRACKS SHALL BE DRY AND FREE OF DIRT AND DEBRIS PRIOR TO SEALING.
 3. FILL ROUTED GROOVE WITH FLEXIBLE SEALANT SO THAT IT IS FLUSH WITH THE SURFACE.



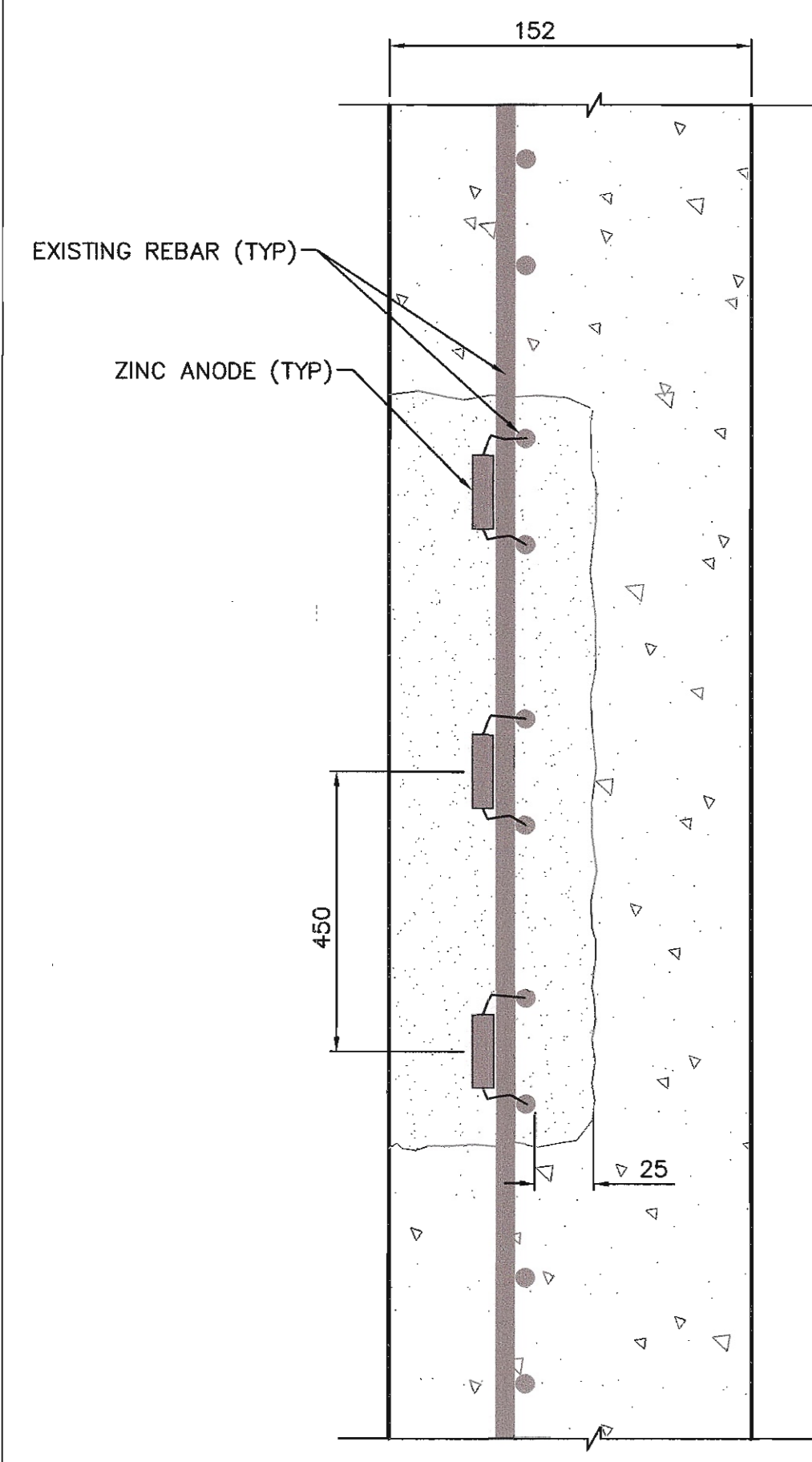
JOINT REPAIR DETAIL AT 'DOUBLE T' TO 'DOUBLE T' (TYPE 2)
N.T.S.

- NOTES:
1. CLEAN JOINT TO REMOVE ALL LOOSE GROUT AND DEBRIS. SQUARE CUT TO SOUND CONCRETE WHERE NECESSARY.
 2. PRESSURE WASH AT 4500 PSI (31 MPa) MACHINE PRESSURE.
 3. FORM A 10mmx10mm WOOD SECTION ALONG ONE SIDE OF THE JOINT TO TIE INTO THE EXISTING CRACK. INCLUDE A 51mm BY 6mil POLYETHYLENE PLASTIC SHEET. THE POLY SHEET IS TO BE TIED INTO EXISTING CRACK.
 4. CAST MORTAR AROUND FORM AND INTO JOINT.
 5. REMOVE FORM(S) AND ATTACHED POLY SHEET.
 6. PREPARED CRACKS SHALL BE DRY AND FREE OF DIRT AND DEBRIS PRIOR TO SEALING.
 7. FILL 20mm x 20mm SECTION WITH FLEXIBLE SEALANT SO THAT IT IS FLUSH WITH SURFACE.

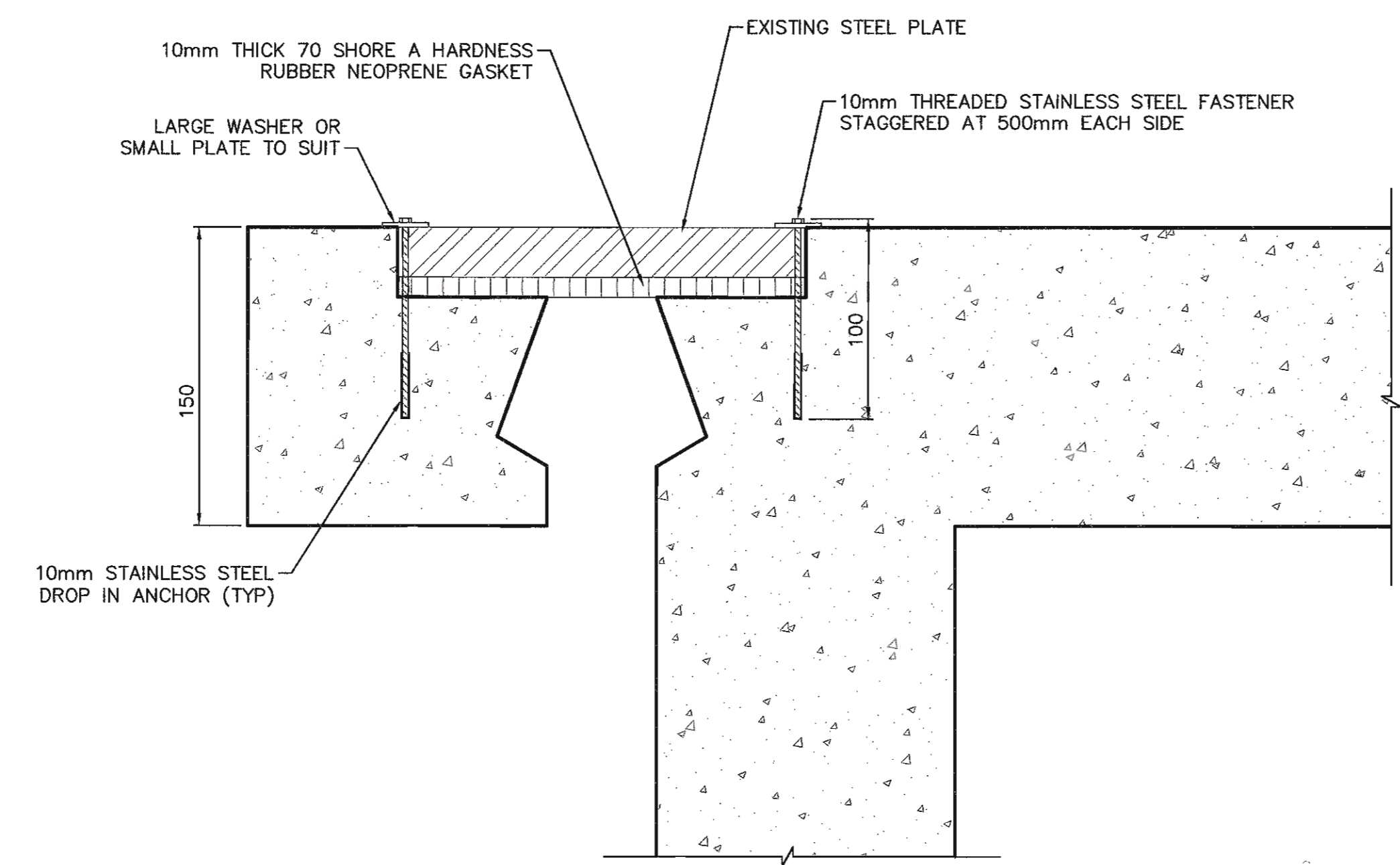


JOINT DETAIL AT 'DOUBLE T' TO CIP CONCRETE (TYPE 1)
N.T.S.

- NOTES:
1. ROUTE ALONG THE CRACKS IN THE EXPOSED CONCRETE TO CREATE A PROFILE 10mm DEEP BY 10mm WIDE.
 2. PREPARED CRACKS SHALL BE DRY AND FREE OF DIRT AND DEBRIS PRIOR TO SEALING.
 3. FILL ROUTED GROOVE WITH FLEXIBLE SEALANT SO THAT IT IS FLUSH WITH THE SURFACE.

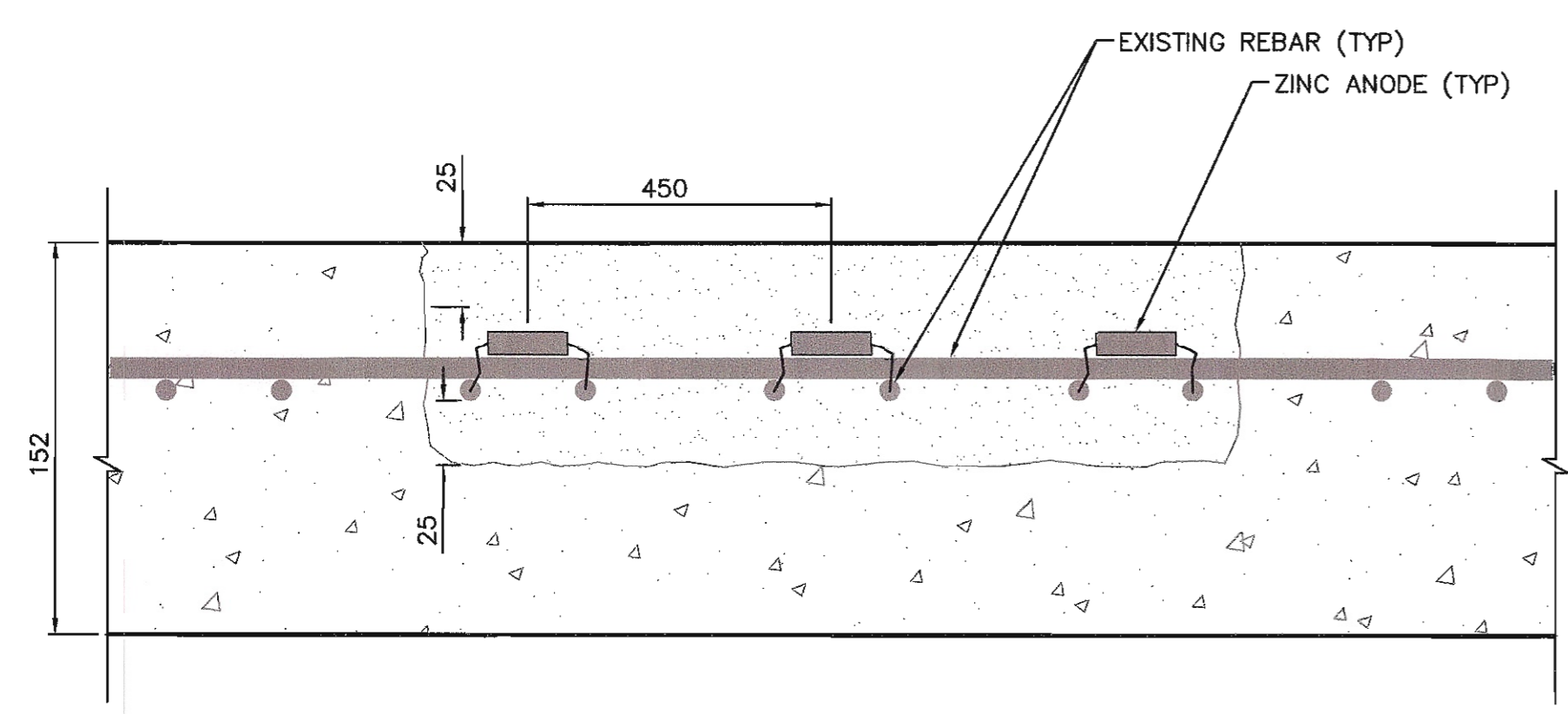


HORIZONTAL CONCRETE REPAIR DETAIL
N.T.S.



FASTENED STEEL PLATE DETAIL
N.T.S.

- NOTES:
1. ADHERE 10mm THICK 70 SHORE A HARDNESS NEOPRENE GASKET ON BASE OF EXISTING STEEL PLATE.
 2. FASTEN STEEL PLATES WITH 10mmØ SS304 BOLTS SET IN SS304 DROP-IN ANCHORS AT 1m STAGGER EACH SIDE. 100mm EMBEDMENT.
 3. PROVIDE LARGE WASHERS OR SMALL PLATES TO SUIT GAPS ALONG STEEL PLATE EDGES.



CONCRETE REPAIR DETAIL
N.T.S.

- NOTES:
1. SQUARE CUT PERIMETER OF REPAIR AREA TO A DEPTH OF 25mm.
 2. CHIP DEBONDED CONCRETE AND REMOVE.
 3. EXCAVATE CONCRETE TO A DEPTH OF 25mm BELOW EXPOSED REINFORCEMENT.
 4. PRESSURE WASH EXPOSED SOUND CONCRETE.
 5. INSTALL ANODES AT 450mm ON CENTRE IN REPAIR AREA.
 6. PLACE REPAIR CONCRETE WITH EXISTING CONCRETE AT SSD CONDITION.
 7. REPAIR CONCRETE TO BE:
 EXPOSURE CLASS C1
 28 DAY COMPRESSIVE STRENGTH 40 MPa
 8. WET CURE FOR 7 DAYS.
 9. ALLOW TRAFFIC IN 28 DAYS.

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TJD
 PWGSC Project Manager/Administrateur de Projets TP50C
MICHAEL LIANG, P.ENG
 Regional Manager, Architectural and Engineering Services
 Gestionnaire régionale, Services d'architecture et de génie, TP50C

Drawing title/Titre du dessin
PROPOSED CONCRETE & JOINT REPAIR DETAILS

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9R306	0227-011	2