

DESIGN CRITERIA:

- 1.0 PROJECT DATUM AND TIDE ELEVATION**
- 1.1 ELEVATIONS ARE IN METRES AND ARE REFERENCED TO HYDROGRAPHIC (TIDE AND CHART) DATUM. GEODETIC ELEVATION OF CHART DATUM AT THE SITE IS -2.2m (CHS).
- 1.2 RIVER ELEVATIONS AT THE SITE ARE AS FOLLOWS (DFO):
- | | | |
|---|------|--------|
| EXTREME HIGH WATER LEVEL (EXTREME TIDE) | EHWL | 4.66m |
| HIGHER HIGH WATER LEVEL (MAX. DISCHARGE (Q=8,500m³/s) (SEASONAL)) | HHWL | 4.3m |
| LOW WATER (CHART DATUM) | LWL | 0.0m |
| LOWER LOW WATER LEVEL (MIN. DISCHARGE (Q=700m³/s) (SEASONAL)) | LLWL | -0.2m |
| EXTREME LOW WATER LEVEL (EXTREME TIDE) | ELWL | -0.42m |
- 1.3 THE INTENT OF THE REPAIRS IS TO RESTORE THE REPAIRED ELEMENTS BACK TO THEIR ORIGINAL CONDITION. THE REPAIRS ARE AS PER THE ORIGINAL AND/OR PREVIOUS REPAIR DESIGNS. WORLEYPARSONS CANADA SERVICES LTD. (WORLEYPARSONS) DOES NOT ACCEPT ANY RESPONSIBILITY FOR THE STRUCTURAL ADEQUACY OF THE ORIGINAL AND/OR PREVIOUS REPAIR DESIGNS. THE ORIGINAL DESIGN HAS NOT BEEN MODIFIED TO MEET CURRENT DESIGN OR SEISMIC STANDARDS.
- 1.4 REPAIRS OUTLINED ON THE DRAWINGS ARE BASED ON THE REPAIR CRITERIA ESTABLISHED BY THE OWNER; SPECIFICALLY TO REPAIR MEMBERS WITH VISIBLE PHYSICAL DAMAGE AND OR DETERIORATION. IT IS LIKELY THAT THE CONTRACTOR MAY FIND ADDITIONAL ITEMS THAT ARE DETERIORATED AND SHOULD BE CONSIDERED FOR REPAIR. SUCH ITEMS SHALL BE BROUGHT TO THE ATTENTION OF THE DEPARTMENT REPRESENTATIVE FOR A DETERMINATION ON THE COURSE OF ACTION.

DRAWING LIST

307071-00778-00-MA-DAL-1500 GENERAL NOTES AND SITE OVERVIEW
 307071-00778-00-MA-DRD-1501 WINGDAM #2 - PLANS, SECTIONS, & DETAILS



SITE OVERVIEW

GENERAL NOTES:

- 1.0 GENERAL**
- 1.2 DFO'S BUDGET FOR THE REPAIRS IS LIMITED. THE CONTRACTOR SHALL PRIORITIZE THE REPAIRS IN ACCORDANCE WITH THE FOLLOWING REPAIR PRIORITY.
- PRIORITY #1 - SECTIONS OF WALL MISSING
 PRIORITY #2 - SECTIONS OF WALL WITH LOCALIZED DAMAGE AND/OR DETERIORATION
- 1.3 THE DIMENSIONS OF THE EXISTING STRUCTURES ARE FROM REFERENCE DRAWINGS. DIMENSIONS ARE SUBJECT TO CONSTRUCTION VARIATIONS. THE CONTRACTOR SHALL VERIFY DIMENSIONS; MEMBER SIZES, LENGTHS, AND ELEVATIONS, PRIOR TO PROCURING MATERIALS AND COMMENCING WORK, AND SHALL NOTIFY THE DEPARTMENT REPRESENTATIVE OF ANY DISCREPANCIES
- 1.4 ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.
- 1.5 DRAWINGS PRESENT REPAIR LOCATIONS IN TABLES WITH REPAIR LOCATIONS REFERENCED FROM MARKER PILES INSTALLED ALONG THE LENGTH OF THE WALL SECTIONS. REFERENCE LOCATIONS ARE APPROXIMATE.
- 1.6 THE DIRECTION OF NORTH IS APPROXIMATE. PROJECT EAST IS CONSIDERED TO BE IN THE UPSTREAM DIRECTION OF THE FRASER RIVER.
- 1.7 ALL WORK SHALL CONFORM TO THE NATIONAL BUILDING CODE OF CANADA (NBCC) AND INDUSTRIAL HEALTH AND SAFETY REGULATIONS OF WORKSAFE B.C.
- 1.8 WHERE CODES AND STANDARDS ARE REFERENCED, THE LATEST EDITION SHALL APPLY.
- 1.9 CONTRACTOR TO PROVIDE DETAILS OF PROPOSED SCHEDULE AND WORK METHODS TO THE DEPARTMENT REPRESENTATIVE PRIOR TO PROCEEDING WITH THE WORK.
- 1.10 DETAILED REQUIREMENTS FOR MATERIALS AND FABRICATION ARE DESCRIBED IN THE SPECIFICATIONS. FOR CONVENIENCE, CERTAIN EXTRACTS ARE REPRODUCED BELOW. IN THE EVENT OF CONFLICT, THE CONFLICT SHALL BE BROUGHT TO THE ATTENTION OF THE DEPARTMENT REPRESENTATIVE.
- 1.11 MATERIALS AND TESTING HAVE BEEN SPECIFIED TO CONFORM TO THE CURRENT EDITIONS OF RELEVANT STANDARDS PUBLISHED BY THE FOLLOWING ORGANIZATIONS:
- CANADIAN STANDARDS ASSOCIATION (CSA)
 - AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)
- 1.12 UPON COMPLETION OF THE WORK REMOVE ALL DEBRIS AND SURPLUS MATERIALS FROM SITE. LEAVE THE WORK AREA IN A CLEAN AND NEAT CONDITION TO THE SATISFACTION OF THE DEPARTMENT REPRESENTATIVE.
- 1.13 THE CONTRACTOR SHALL COORDINATE AND UNDERTAKE CONSTRUCTION ACTIVITIES IN SUCH A MANNER TO MINIMIZE IMPACT / DISRUPTION TO OTHER MARINE USERS.
- 1.14 THE LOCATION OF THE SITE OFFICES AND STORAGE AND LAYDOWN AREA SHALL BE ON THE CONTRACTOR'S BARGE.
- 1.15 ITEMS THAT ARE INCIDENTAL TO THE WORK SUCH AS TEMPORARY REMOVAL AND REINSTATEMENT OF STRUCTURAL ELEMENTS, SECURING HARDWARE, AND MATERIAL DISPOSAL ARE CONSIDERED TO BE INCIDENTAL TO THE WORK. ALL STRUCTURAL ELEMENTS AND SECURING HARDWARE REMOVED FOR THE IMPLEMENTATION OF THE REPAIRS SHALL BE REINSTATED AS ORIGINAL.
- 1.16 TIMBER PRESERVATIVE TREATMENT, INSPECTION AND RETREATMENT SHALL BE IN ACCORDANCE WITH CSA 080 AND WWP1-BMPs.

- 2.0 METAL FABRICATIONS**
- 2.1 ROLLED STEEL SECTIONS, STEEL BARS AND PLATES: TO CAN/CSA G40.21, GRADE 300W, (300 MPa MINIMUM YIELD) UNLESS NOTED OTHERWISE.
- 2.2 BOLTS, NUTS, AND WASHERS THROUGH TIMBER SHALL CONFORM TO ASTM A307 GRADE A.
- 2.3 DRIFT PINS SHALL CONFORM TO CSA G40.21 GRADE 260W.
- 2.4 WIRE ROPE SHALL BE 19ø-6X19 FIBRE CORE
- 2.5 ALL MISCELLANEOUS METAL AND FASTENERS SHALL BE HOT DIP GALVANIZED IN ACCORDANCE WITH ASTM A123 OR A153 UNLESS NOTED OTHERWISE.
- 2.6 ALL RE-USED HARDWARE SHALL BE INSPECTED AND APPROVED BY THE DEPARTMENT REPRESENTATIVE PRIOR TO RE-INSTALLATION. IF HARDWARE IS NOT APPROVED FOR RE-USE, NEW HARDWARE SHALL BE SUPPLIED AND INSTALLED.
- 3.0 TIMBER PILES**
- 3.1 TIMBER PILES SHALL BE NEW COAST DOUGLAS FIR TO CSA 056 CLEAN PEELED PILES WITH MINIMUM 25mm (1 INCH) SAPWOOD. MINIMUM SIZE 36 (#14) WITH TIP DIAMETER RELATED TO LENGTH AS INDICATED IN TABLE A1 OF CSA 056. VERTICAL PILES SHALL BE MIN. 22.5m LONG FOR MARKER PILES AND MIN. 19.5m LONG FOR LOWER PILES.
- 3.2 TIMBER PILES PRESERVATIVE TREATMENT: CREOSOTE TREATMENT TO A NET RETENTION OF 290kg PER CUBIC METRE IN ACCORDANCE WITH CSA 080.
- 3.3 AFTER CUT-OFF, THE TOPS OF ALL TIMBER PILES SHALL BE TREATED WITH TWO COATS OF COPPER NAPHTHENATE TREATMENT CONTAINING A MINIMUM OF 2% COPPER AS METAL AND ONE COAT OF APPROVED TROWELLED MASTIC AT LEAST 6mm THICK. IN ADDITION THE TOPS OF ALL PILES SHALL BE COVERED WITH A SHEET OF 22 GAUGE ANNEALED CORROSION RESISTANT ALUMINUM CUT 150mm LARGER THAN THE DIAMETER OF THE PILE TOP. THE OVERHANGING EDGES SHALL BE CRIMPED AND TURNED DOWN AND SECURED TO THE PILE WITH EIGHT ALUMINUM ROOFING NAILS. THE SHEET SHALL NOT BE CUT TO FACILITATE FITTING.
- 3.4 TREAT TOP OF EXISTING PILES AS NOTED IN 3.4 ABOVE IF THERE IS EVIDENCE OF DAMAGE AND/OR DETERIORATION TO EXISTING ALUMINUM CAPS.
- 4.0 SAWN TIMBER**
- 4.1 ALL TIMBER WORK SHALL CONFORM TO CSA STANDARD 086.
- 4.2 ALL SAWN TIMBER SHALL BE NEW COAST DOUGLAS FIR, No.1 STRUCTURAL GRADE OR BETTER, AND UNLESS NOTED OTHERWISE, SHALL BE PROPERLY AIR-DRIED AND SEASONED, CONTAINING NOT MORE THAN 19% MOISTURE.
- 4.3 TIMBER PRESERVATIVE TREATMENT: CREOSOTE TREATMENT TO A NET RETENTION OF 290kg PER CUBIC METRE IN ACCORDANCE WITH CSA 080.
- 4.4 TIMBER SIZE AND DRESSING SHALL BE IDENTICAL TO EXISTING, UNLESS NOTED OTHERWISE, VERIFY PRIOR TO PROCURING.
- 4.5 CONTRACTOR TO MEASURE EXACT LENGTH OF EACH TIMBER TO BE REPLACED PRIOR TO PROCURING. WHERE MEMBERS ARE LAPPED, THE MINIMUM LAP LENGTH SHALL BE 2.0m.
- 4.6 FIELD CUTS TO NEW TIMBERS ARE NOT ALLOWED WITHOUT APPROVAL OF THE DEPARTMENT REPRESENTATIVE. TREAT APPROVED FIELD CUTS WITH TWO COATS OF COPPER NAPHTHENATE TREATMENT CONTAINING A MINIMUM OF 2% COPPER AS METAL AND ONE COAT OF APPROVED TROWELLED MASTIC AT LEAST 6mm THICK.

5.0 EXECUTION

- 5.1 EXISTING PILES TO BE REPLACED SHALL BE REMOVED IN THEIR ENTIRETY. BREAKING OFF PILES AT THE MUDLINE IS NOT ACCEPTABLE.
- 5.2 DRIVE TIMBER PILES USING A DROP HAMMER WHICH DELIVERS A DRIVING ENERGY IN THE RANGE OF 25-30 kJ. DRIVE PILES TIP DOWN TO A MINIMUM DEPTH OF PENETRATION OF 6.0m (20 FEET) BELOW MUD LINE OR TO REFUSAL (5 BLOWS/25mm).
- 5.3 DRIVE PILES TO THE FOLLOWING MINIMUM TOLERANCES, EXCEPT AS NOTED.
- | | |
|------------------|---------|
| LOCATION IN PLAN | ±75mm |
| PLUMB | 1 IN 50 |
- IF PILE DRIVING TOLERANCES CAN NOT BE MET DUE TO OBSTRUCTION DURING PILE DRIVING, IT SHOULD BE BROUGHT TO THE ATTENTION OF THE DEPARTMENT REPRESENTATIVE TO DETERMINE A COURSE OF ACTION.
- 5.4 HANDLE ALL TREATED PILES WITH CARE TO AVOID BREAKING THROUGH THE TREATED SURFACE. TREAT ALL CUTS OR BREAKS WITH TWO COATS OF SPECIFIED TREATMENT.
- 5.5 BAND HEADS OF PILES WITH STEEL OR WIRE MESH TO PREVENT SPLITTING DURING HARD DRIVING.
- 5.6 TREAT BOLT HOLES IN TIMBER PILES WITH TWO COATS OF COPPER NAPHTHENATE TREATMENT CONTAINING A MINIMUM OF 2% COPPER AS METAL AND DIP BOLTS IN THE SPECIFIED TREATMENT PRIOR TO INSTALLATION.
- 5.7 UPON COMPLETION OF WORK TREAT ALL CUTS OR BREAKS IN NEW TIMBER WITH TWO COATS OF SPECIFIED TREATMENT. CHECK THAT ALL BOLTS AND NUTS HAVE BEEN CORRECTLY TIGHTENED.

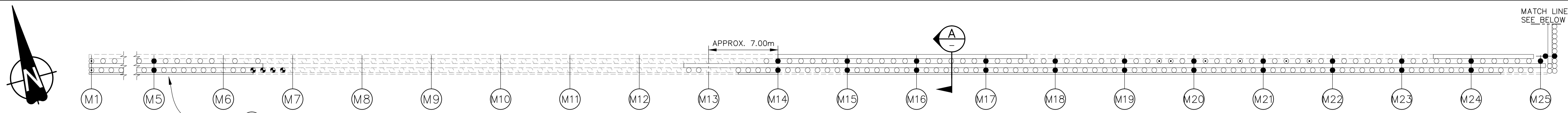
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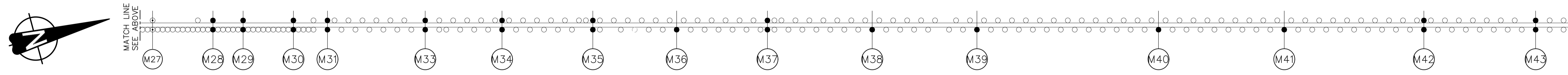
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DWG. NO.	DRAWING REFERENCES	NOTES	NO.	DATE	REVISIONS
			B	30-JUL-15	ISSUED FOR TENDER
			A	05-DEC-14	ISSUED FOR CLIENT REVIEW

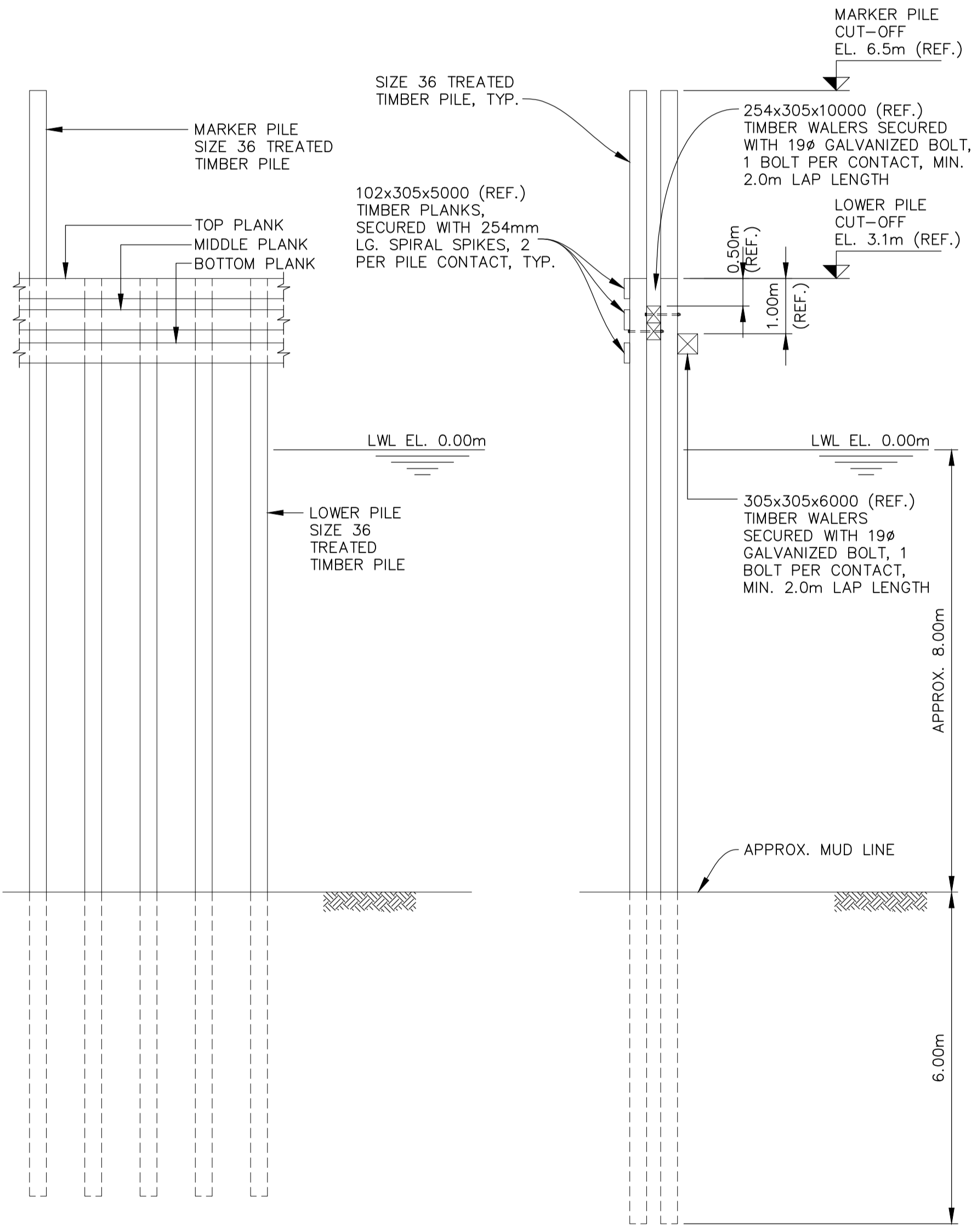
FISHERIES AND OCEANS CANADA REAL PROPERTY AND TECHNICAL SUPPORT	
2015 WINGDAM WALL No. 2 TIMBER TRAINING WALL REPAIRS GENERAL NOTES AND SITE OVERVIEW	
SCALE	SHOWN
DATE	28-Jul-15
DRAWING NUMBER	307071-00778-00-MA-DAL-1500
REVISION	B



PLAN - WALL A
1:150

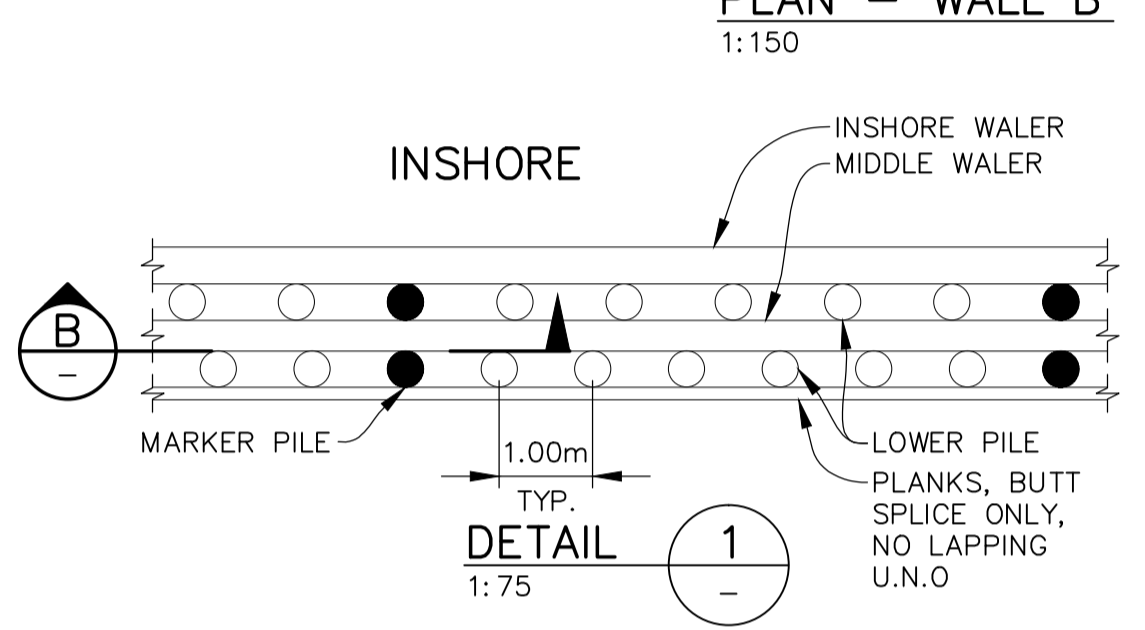


PLAN - WALL B
1:150

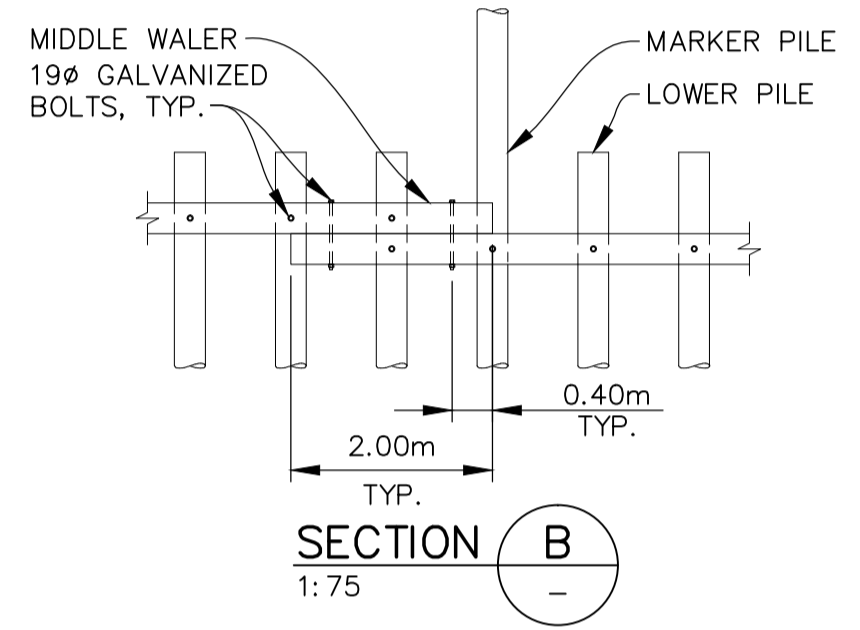


TYPICAL ELEVATION
1:75

SECTION A-A
1:75



DETAIL 1
1:75



SECTION B-B
1:75

NOTE: TYPICAL FOR BOTH MIDDLE & INSHORE WALERS. INSHORE WALER NOT SHOWN FOR CLARITY.

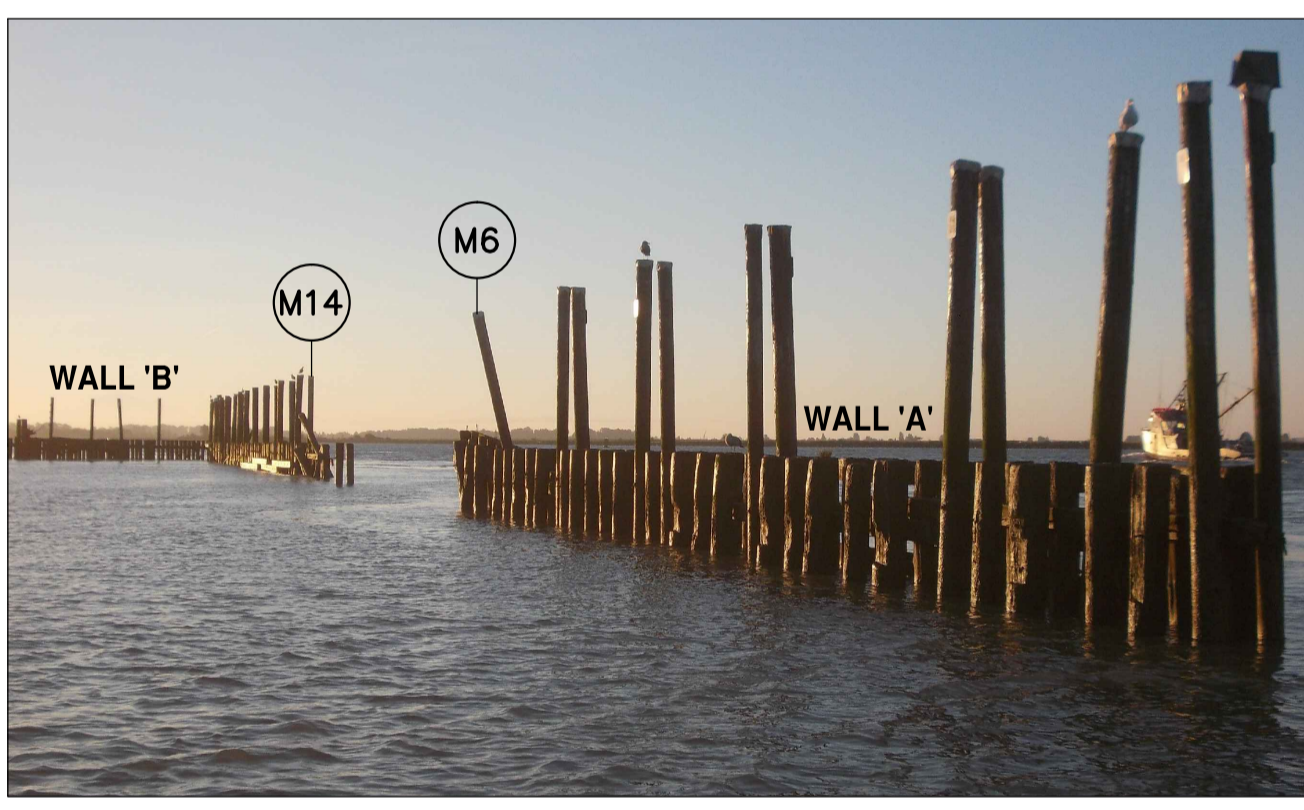


PHOTO No.1 - VIEW OF WINGDAM No. 2
LOOKING EAST



PHOTO No.3 - MISSING/DAMAGED
WALL SECTION EAST END



PHOTO No.2 - MISSING/DAMAGED
WALL SECTION WEST END

LEGEND

- LOWER PILE
- MARKER PILE
- MISSING/REPLACE
- REPAIR/RE-DRIVE
- ⊙ RE-SECURE

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PILE REPAIRS		
LOCATION	QTY.	RECOMMENDATION
M6-M14	16	INSTALL MISSING OR DAMAGED OFFSHORE MARKER PILES IN MISSING SECTION OF WALL
M6-M14	37	INSTALL MISSING OR DAMAGED INSHORE LOWER PILES IN MISSING SECTION OF WALL
M6-M14	36	INSTALL MISSING OR DAMAGED OFFSHORE LOWER PILES IN MISSING SECTION OF WALL
M6-M7	2	REPAIR 3rd & 4th SPLIT OFFSHORE LOWER PILES EAST OF M6 MARKER PILE WITH GALVANIZED STEEL CLAMPS
M6-M7	4	RE-DRIVE OR REPLACE IF BROKEN OUT OF PLUMB 3rd, 4th, 5th, AND 6th OFFSHORE LOWER PILES EAST OF M6 MARKER PILE
M19-M20	2	RE-SECURE 2nd & 3rd INSHORE LOWER PILES WEST OF M20 MARKER PILE TO MIDDLE AND INSHORE WALERS
M20-M21	2	RE-SECURE 1st & 4th INSHORE LOWER PILE EAST OF M20 MARKER PILE TO MIDDLE AND INSHORE WALERS
M21-M22	2	RE-SECURE 1st & 3rd INSHORE LOWER PILE EAST OF M21 MARKER PILE TO MIDDLE AND INSHORE WALERS
M27	1	RE-SECURE M27 INSHORE MARKER PILE
M35.5	1	REPLACE 3rd BROKEN EAST LOWER PILE NORTH OF M35 MARKER PILE

INSHORE WALER REPAIRS		
LOCATION	QTY.	RECOMMENDATION
M1-M14	46	INSTALL MISSING INSHORE WALERS APPROX. FROM M1 - M14
M17.5-M23.5	21	INSTALL MISSING INSHORE WALERS APPROX. FROM M17.5 - M23.5

MIDDLE WALER REPAIRS		
LOCATION	QTY.	RECOMMENDATION
M1	1	RE-SECURE MIDDLE WALER TO THE INSHORE AND OFFSHORE M1 MARKER PILE
M6-M14	10	INSTALL MISSING OR DAMAGED MIDDLE WALER IN MISSING SECTION OF WALL APPROX. FROM M6 - M14

PLANK REPAIRS		
LOCATION	QTY.	RECOMMENDATION
M6-M14	34	INSTALL MISSING OR DAMAGED UPPER, MIDDLE, AND LOWER FACING PLANKS IN MISSING SECTION OF WALL APPROX. FROM M6 - M14
M14-M15	1	REPLACE DAMAGED UPPER FACING PLANK
M24.5-M26	3	INSTALL MISSING TOP, MIDDLE AND BOTTOM FACING PLANKS APPROX. FROM M24.5 - M26

- NOTES:**
- FOR GENERAL NOTES, SEE DWG. 307071-00778-00-MA-DAL-1500.
 - REMOVE AND DISPOSE WOOD DEBRIS RETAINED BY 'WALL B' (EAST SECTION OF WALL).

FISHERIES AND OCEANS CANADA
REAL PROPERTY AND TECHNICAL SUPPORT

**2015 WINGDAM WALL No. 2
TIMBER TRAINING WALL REPAIRS
WINGDAM #2
PLANS, SECTIONS & DETAILS**

DESIGNED TJT	SCALE SHOWN
DRAWN AAL	
CHECKED OAM	DATE 4-Dec-14
RECOMMENDED RDR / CJA	DRAWING NUMBER 307071-00778-00-MA-DRD-1501
APPROVED OAM	REVISION B

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