

- LEGEND / NOTES - LEGENDE / NOTES
- ALL STEEL TO BE CSA G40.12 GRADE 350W OR BETTER.
 - ALL WELDING TO BE DONE BY QUALIFIED WELDERS IN ACCORDANCE WITH CSA W47.1 AND W59.
 - LAGGING TO BE POPLAR.
 - SURVEY SHORING AFTER RING IS INSTALLED.
 - RECORD TOP OF SOLDIER ELEVATION AND LATERAL POSITION WEEKLY. COMPLETE VISUAL INSPECTION DAILY. REPORT ANY DEFLECTION OR LATERAL MOVEMENT GREATER THAN 25 mm IMMEDIATELY.
 - METHODOLOGY FOR REMOVAL OF SHORING AND BACKFILLING
1. CROSS BRASSING TO REMAIN IN PLACE AT ALL TIMES. ONLY REMOVE AS DIRECTED BY NORTHWEST AS REQUIRED TO CONSTRUCT CONCRETE WALLS.
2. BACKFILL AND COMPACT UP TO ELEVATION 225.000 AS PER SPECIFICATIONS.
3. DISASSEMBLE SUPPORT BRACKETS AND REMOVE WOOD WEDGES TO RING #2. LIFT AND ATTACH RING #2 TO RING #1.
4. BACKFILL AND COMPACT UP TO ELEVATION 227.500 AS PER SPECIFICATIONS.
5. DISASSEMBLE SUPPORT BRACKETS AND REMOVE WOOD WEDGES TO RING #1.
 - FINALIZE BACKFILLING AND REMOVE ALL RINGS.
 - SOLDIERS WILL BE TAKEN OUT AND SALVAGED. WOOD LAGGING WILL REMAIN.
 - EXCAVATION WIDTH HAS BEEN INCREASED FROM 1m TO 2.0m DUE TO SAFETY. REQUESTED BY JC PAVING COR PROGRAM COORDINATOR.
 - CHAMBER SHORING DESIGN AND TRENCH SHORING DESIGN HAS BEEN COORDINATED BETWEEN NORTHWEST AND WOLFROM.
 - BOTTOM RING IS CONSTRUCTED FOR SAFETY REASONS. BASED ON OUR CALCULATIONS, THERE IS NO REQUIREMENT TO PROVIDE A TEMPORARY STEEL RING BETWEEN THE MIDDLE RING AND THE BOTTOM RING DURING THE EXCAVATION.
 - THE DESIGN WAS COMPLETED IN PARTNERSHIP WITH FROVICH AND ASSOCIATES.

No.	DATE	REVISION	REVISION	APPR.
3	13 JAN 17	REVIEWED & RESUBMITTED		C.L.
2	7 JAN 14	ISSUED FOR APPROVAL		C.L.
1	11 DEC 13	ISSUED TO GC FOR REVIEW		C.L.

NORTHWEST ENGINEERING
Consulting Engineers

SUITE 101
39 STANFORD BAY
WINNIPEG, MB R3M3J2

204 771-1538
204 487-7201 FAX

SCALE - AS SHOWN
AS SHOWN

PROJECT LOCATION - EMPLACEMENT DE PROJET
BYING PLACE OUTFALL, WINNIPEG, MANITOBA

PROJECT TITLE - TITRE DE PROJET

COCKBURN/CALROSSIE SEWER RELIEF
BID OPPORTUNITY #915-2013

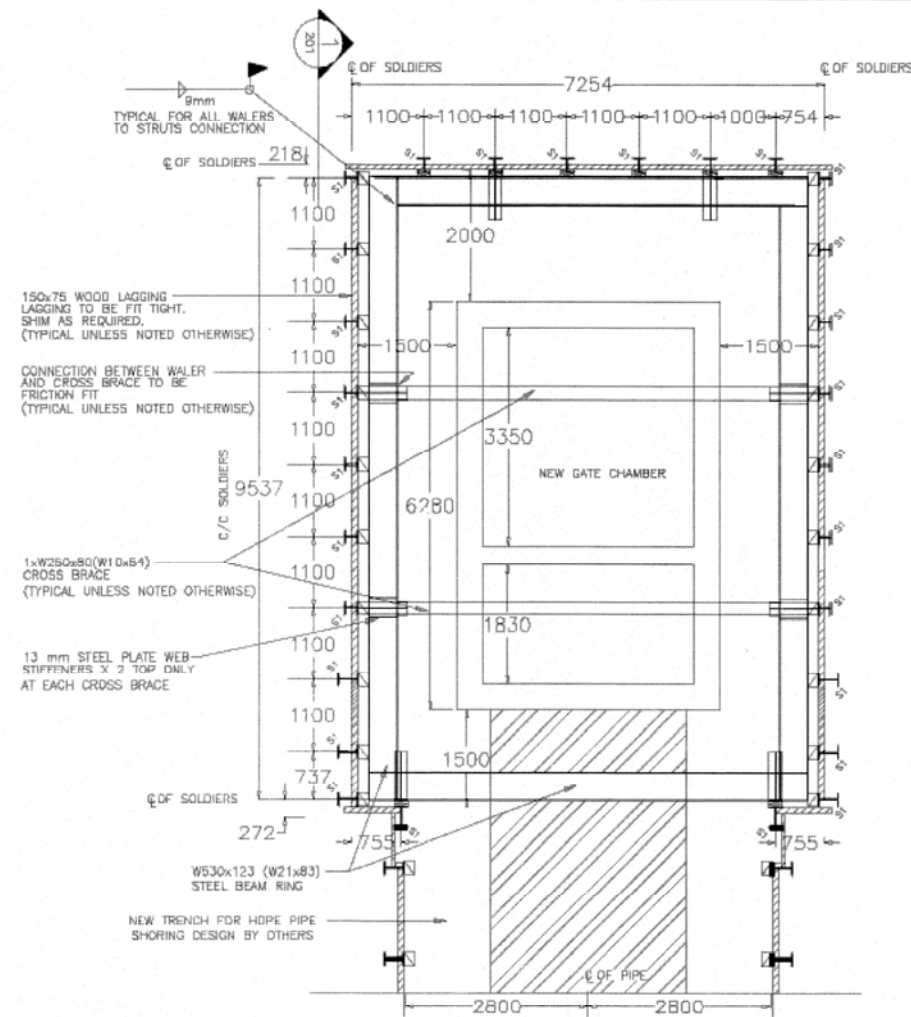
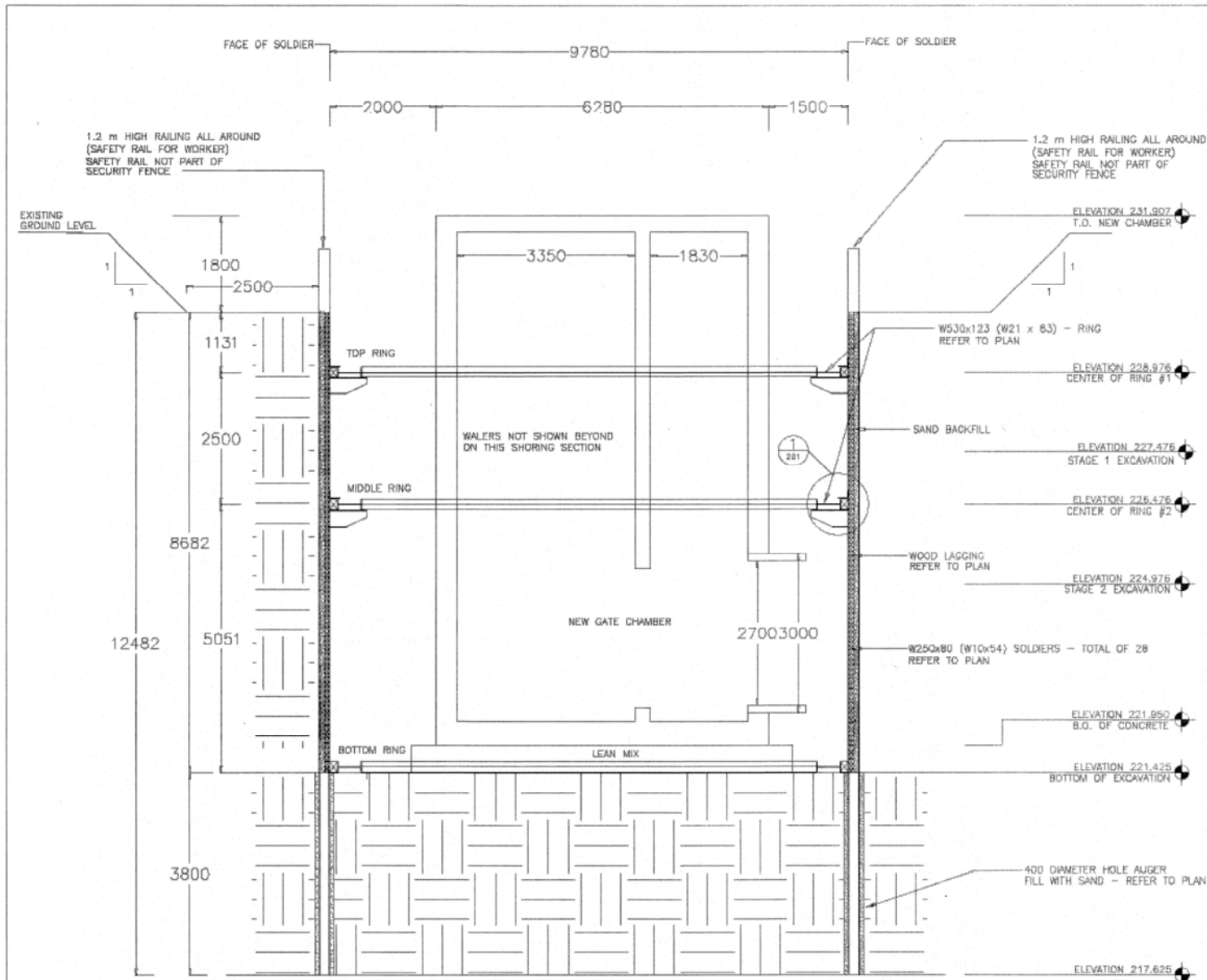
TRADE-MÉTIER
CIVIL

SUBJECT-SUJET
SHORING DETAIL

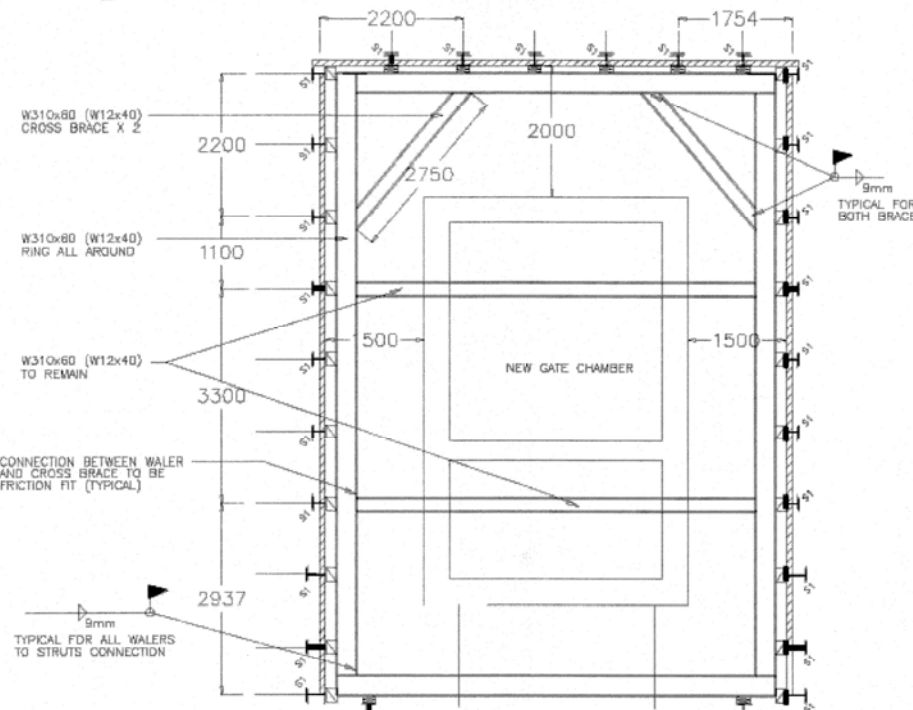
PRODUCTION
CONCURRENCE-ASSENTIMENT

DESIGNED ÉTUDIÉ	C.L.
DRAWN DESSINÉ	J.C.L.
CHECKED VÉRIFIÉ	L.F.
SHEET 1	REVIEWED - REVU

DWG. NO. 2013-282-201R1
DESSIN NO. 2013-282-201R1
PF 2013-282



(A) SHORING PLAN (TOP & MIDDLE RINGS)
SCALE: 1:50



(B) SHORING PLAN (BOTTOM RING)
SCALE: 1:50

L 203x203x16 x 150 LONG AT EVERY CROSS BRACE
6mm WELD x 150 LONG AT VERTICAL SIDES ONLY

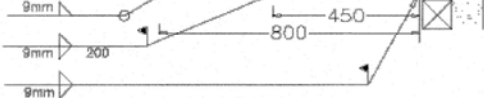
WOOD WEDGES - TYP. WEDGES TO BE 200 WIDE MINIMUM.

13 mm STEEL PLATE WEB STIFFENERS X 2 TOP ONLY AT EACH CROSS BRACE

W810x101(W24x68) OR BETTER REFER TO PLAN

W250x80 (W10x54) STEEL BEAM OR 2 x W200x48 (W8x31) STEEL BEAMS CROSS BRACE - REFER TO PLAN FRICTION FIT

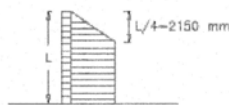
SUPPORT BRACKET WELD TO SOLDIER CUT FROM W200x71 OR LARGER



(1) RING DETAIL
SCALE: 1:10

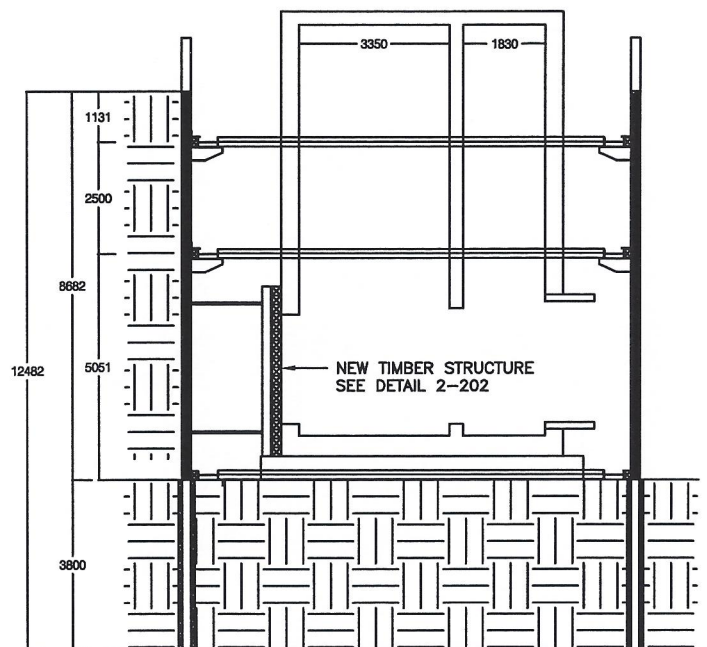
(1) SHORING SECTION
SCALE: 1:50

- A. A WELL IS TO BE INSTALLED OUTSIDE OF THE SHORING STRUCTURE TO CONTROL GROUNDWATER AS REQUIRED.
- B. METHODOLOGY FOR STAGES OF EXCAVATION
1. EXCAVATE TO STAGE 1 EXCAVATION AND INSTALL TOP RING COMPLETE WITH CROSS BRACES.
2. EXCAVATE TO STAGE 2 EXCAVATION AND INSTALL MIDDLE RING COMPLETE WITH CROSS BRACES.
3. EXCAVATE TO BOTTOM OF EXCAVATION AND INSTALL BOTTOM RING COMPLETE WITH CROSS BRACES.
- C. THE DESIGN ASSUMPTIONS ARE AS FOLLOWS:
EQUIPMENT SURCHARGE = 12.0 kPa
SOIL SURCHARGE = 22 X 1.5 = 33 kPa
TOTAL SURCHARGE = 45.0 kPa
PH = 0.55 (8.6 x 18 + 45) = 109.89 kPa



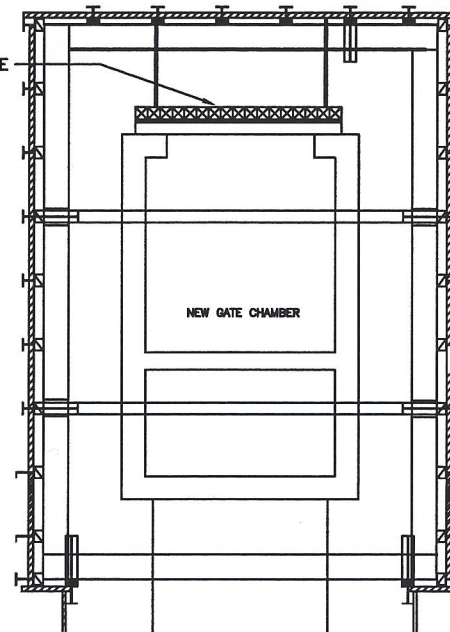
Northwest Engineering
Certificate of Authorization
No. 1338 Date: 17 Jan 14

LEGEND / NOTES - LÉGENDE / NOTES
1. ALL WOOD TO BE PRESSURE TREATED GREEN.

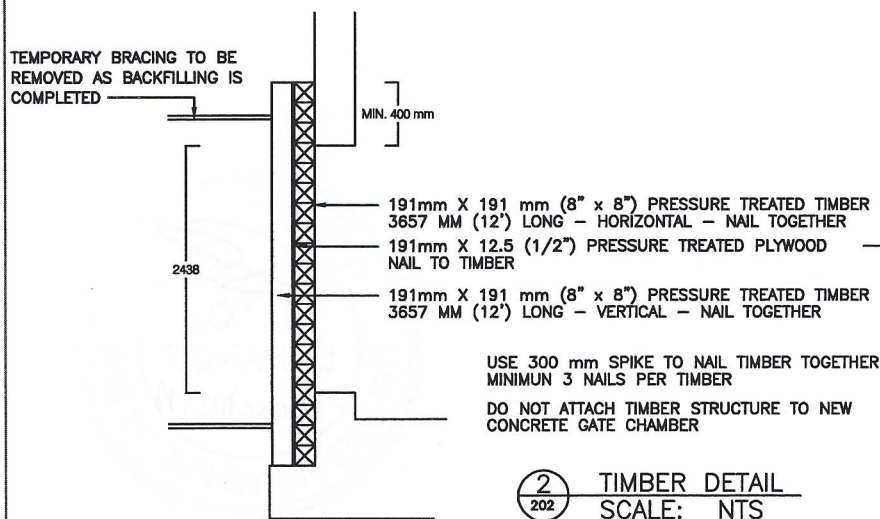


1 SHORING SECTION
202 SCALE: NTS

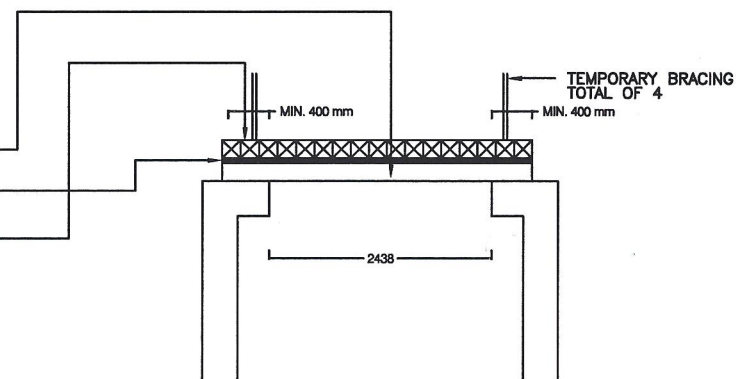
NEW TIMBER STRUCTURE
SEE DETAIL 4-202



3 TIMBER STRUCTURE - TOP VIEW
202 SCALE: NTS



2 TIMBER DETAIL
202 SCALE: NTS



4 TIMBER DETAIL - TOP VIEW
202 SCALE: NTS

2	12 MAR 14	ISSUED FOR APPROVAL	C.L.
1	11 MAR 14	ISSUED TO GO FOR REVIEW	C.L.
No.	DATE	REVISION	APPR.

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TRADE-MÉTIER CIVIL
SUBJECT-SUBJET
TIMBER STRUCTURE DETAIL

DESIGNED Dessiné	C.L.		
DRAWN Dessiné	J.C.L.		
CHECKED Vérifié	L.F.		
SHEET 1	REVISIONS - REVU		
DWG. NO. DESIGN NO.	2013-282-202		
PF 2013-282			

