

NOTES:

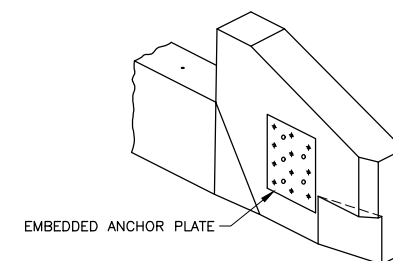
- THIS DRAWING SHALL BE READ IN CONJUNCTION WITH ALL APPLICABLE STANDARD DRAWINGS REFERENCED/LISTED ON THIS DRAWING.
- SYSTEM CONFIGURATION IS EQUIVALENT TO MASH TL-4.
- CONCRETE COVER TO REINFORCING BARS 60±10mm EXCEPT AS NOTED.
- REINFORCING BARS SHALL BE GLASS FIBRE REINFORCED POLYMER (GFRP) GRADE III.
- BAR LAP SPlice FOR HORIZONTAL REINFORCEMENT SHALL NOT LAP THROUGH CONTROL JOINT.
- MINIMUM BAR LAP SPlice BE 1000mm, UNLESS OTHERWISE SHOWN.
- LENGTH OF HORIZONTAL BAR TO SUIT CONTRACTOR'S OPERATIONS. BAR LENGTHS NEED NOT MATCH DISTANCE BETWEEN CONTROL JOINTS.
- CONTROL JOINT TO BE FORMED.
- SAWCUTS NOT PERMITTED.
- CONTROL JOINT FORM HARDWARE NOT BE LEFT IN PLACE.
- OPTIONAL CONSTRUCTION JOINTS SHALL BE LOCATED WITHIN LIMITS OF CONCRETE DAMS ON DECK OR BALLAST WALL.
- PROVIDE CHASE AT BOTH HIGH AND LOW ENDS OF CROSSFALL AS PER OPSD 3960.200.

LEGEND:

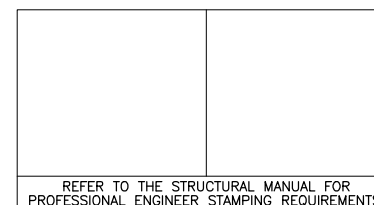
- EF - DENOTES EACH FACE
IF - DENOTES INSIDE FACE
OF - DENOTES OUTSIDE FACE
CJ - CONSTRUCTION JOINT
GFRP - GLASS FIBRE REINFORCED POLYMER

NOTES TO DESIGNER:

- UPDATE ELEVATION SPECIFIC TO THE BRIDGE.
- THE 'NOTES TO DESIGNER' SHALL BE DELETED FROM THIS DRAWING PRIOR TO ISSUING.



END PANEL ABUTTING TO STEEL BEAM GUIDE RAIL

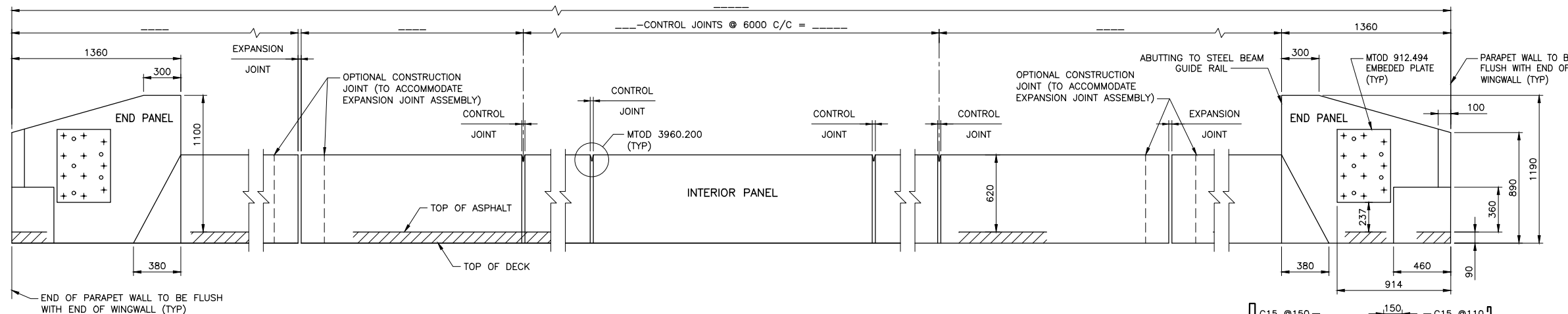


APPLICABLE STANDARD DRAWINGS:

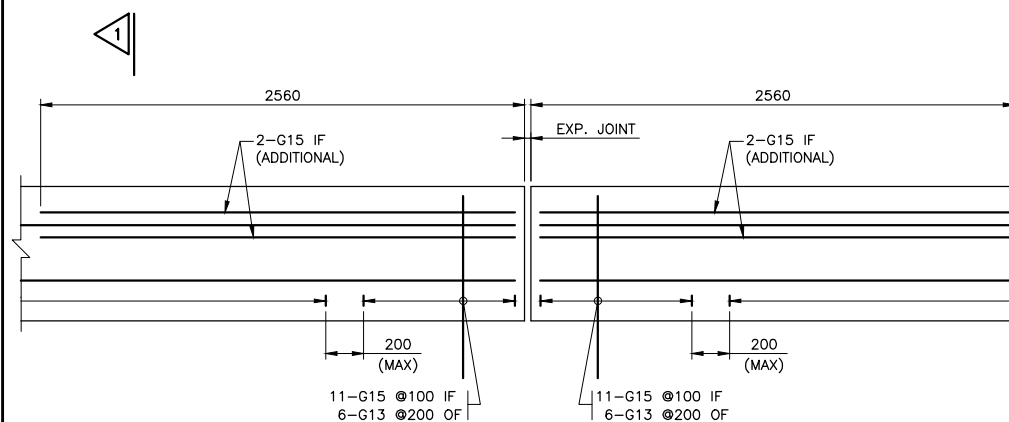
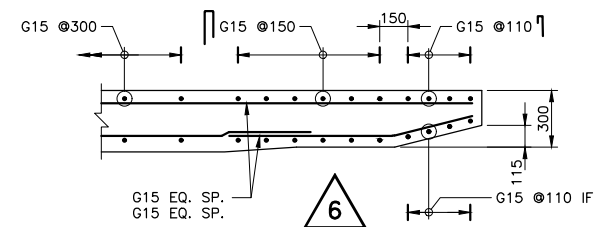
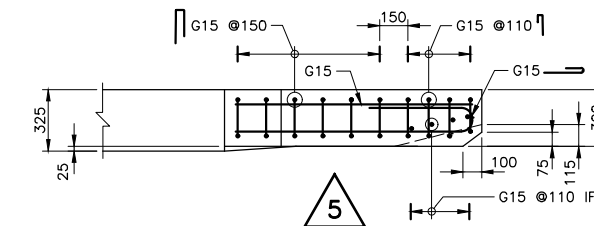
SSD 110-4510 TWO TUBE RAILING ON PARAPET, TL-4
MTOD 3960.200 BARRIER AND PARAPET WALL JOINTS AND CHASE
MTOD 912.494 BARRIERS AND RAILINGS STEEL BEAM GUIDE RAIL AND CHANNEL ANCHORAGE

STANDARD DRAWING	SS110-4110
JUNE 24, 2026	
PARAPET WALL FOR TWO TUBE RAILING, TL-4 (GFRP)	

REVISIONS	DATE	BY	DESCRIPTION	DATE
DESIGN	-	CHK	-	CSA S6.25
DRAWN	-	CHK	-	SITE



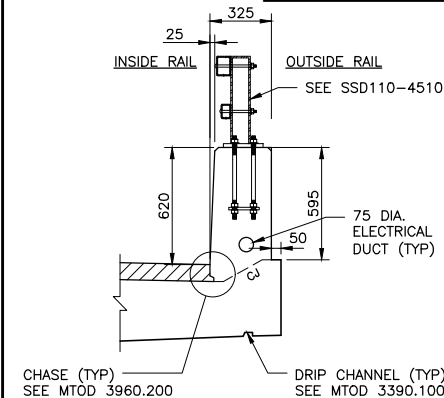
ELEVATION (INSIDE FACE)



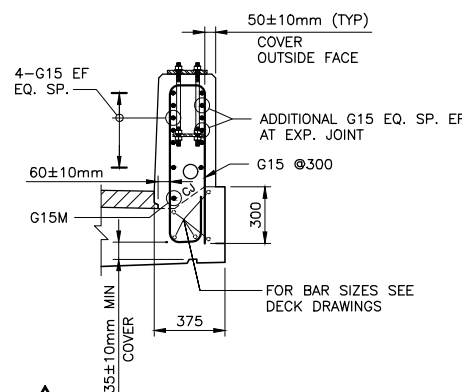
TYPICAL REINFORCING AT EXPANSION JOINT IN PARAPET WALL

TYPICAL REINFORCING AT INTERIOR PANEL IN PARAPET WALL

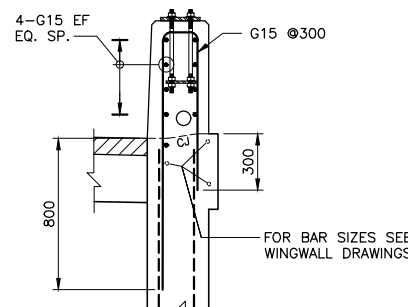
TYPICAL REINFORCING AT END PANEL IN PARAPET WALL



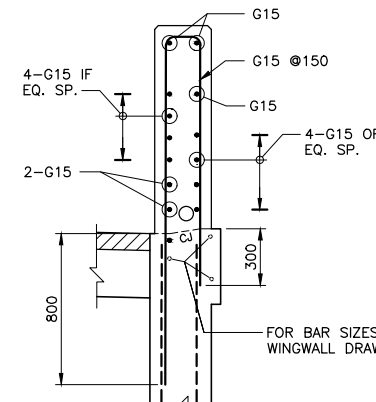
1 PARAPET WALL ON DECK (DIMENSIONS)



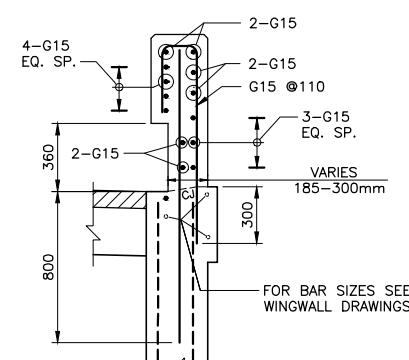
1 PARAPET WALL ON DECK (REINFORCING)



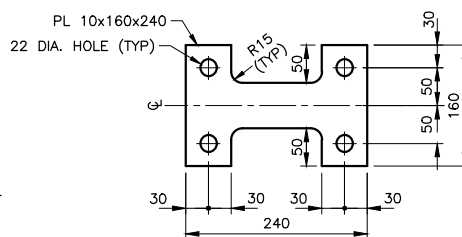
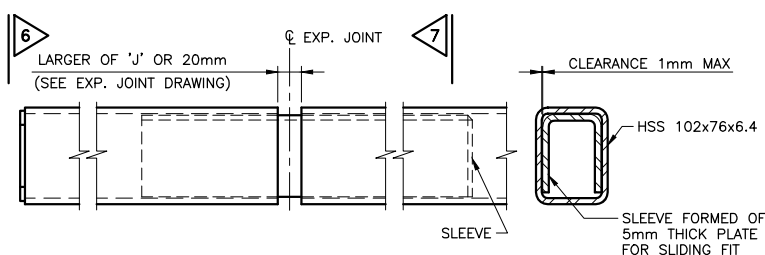
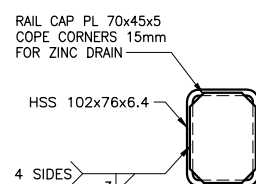
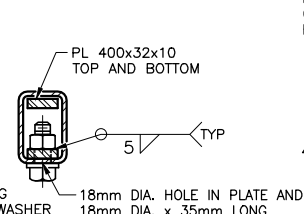
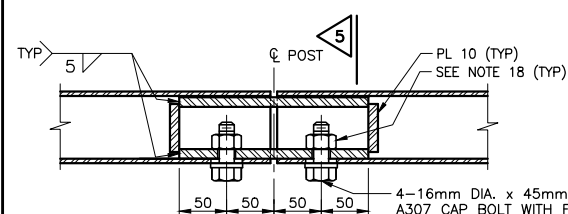
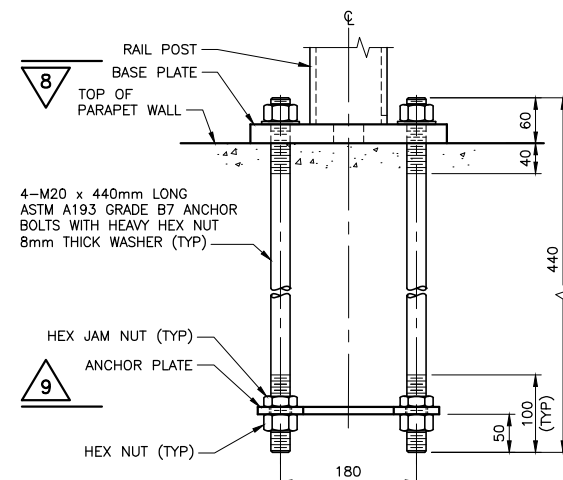
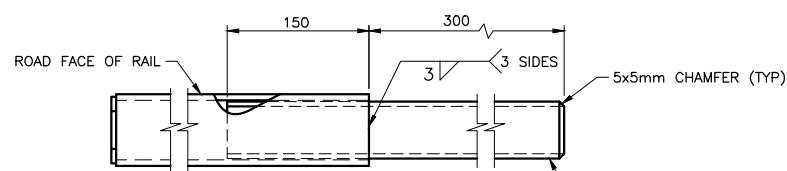
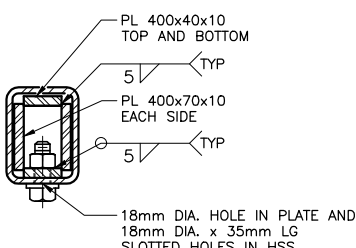
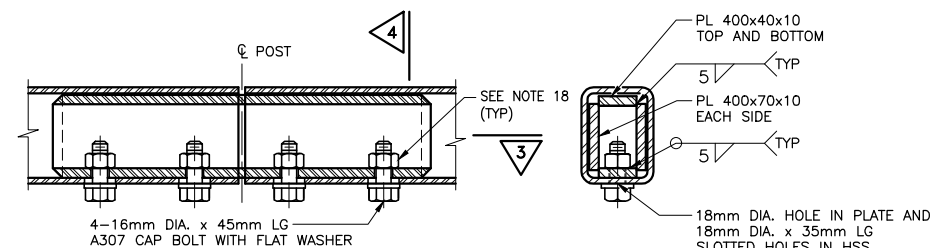
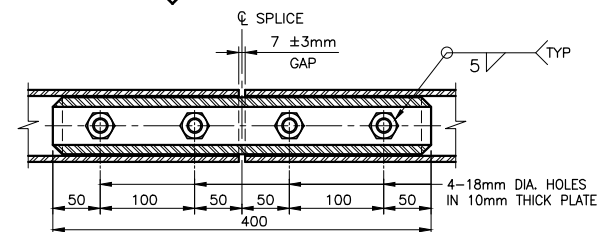
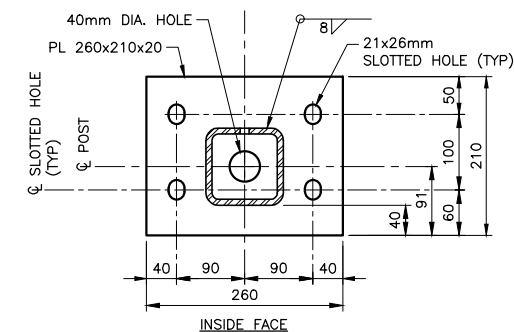
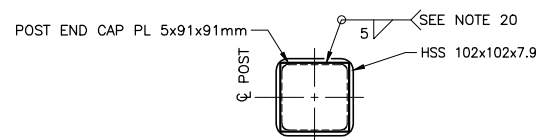
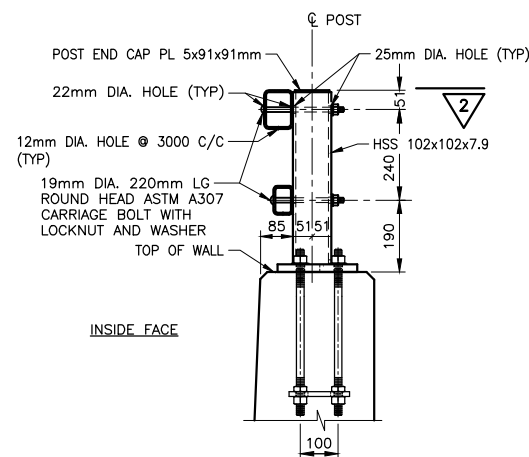
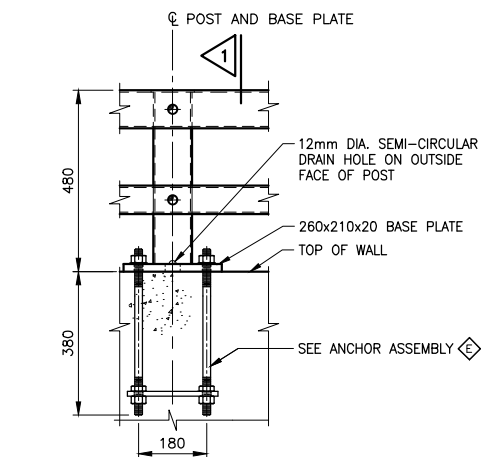
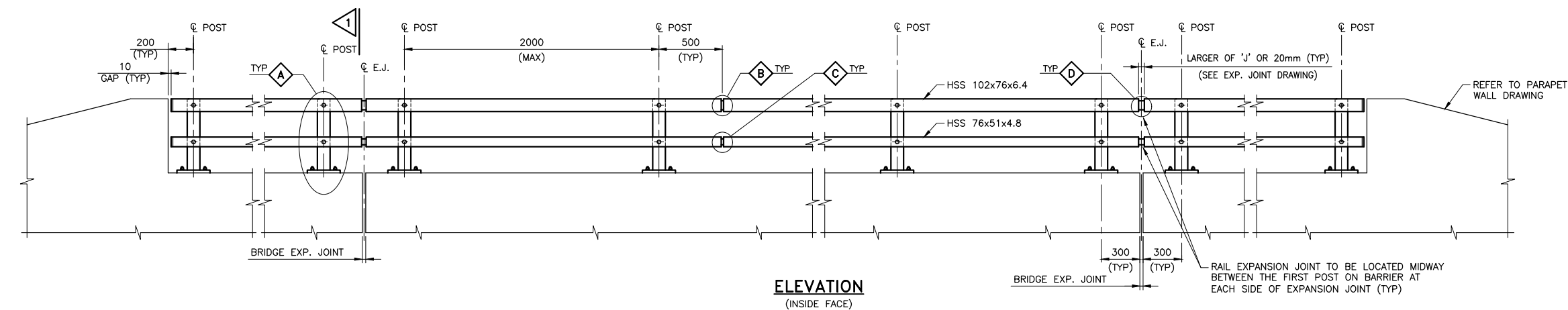
2 PARAPET WALL ON WINGWALL



3 END PANEL ABUTTING TO STEEL BEAM GUIDE RAIL



4



Ontario  **Ministry of
Transportation**

CONT WP **DRAFT**

PROJECT NAME
TWO TUBE RAILING ON PARAPET TL-4

SHEET

METRIC
MILLIMETRES OR
METRES
(UNLESS NOTED)

NOTES:

1. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH ALL APPLICABLE STANDARD DRAWINGS REFERENCED/LISTED ON THIS DRAWING.
2. RAIL ELEMENTS AND POSTS SHALL BE HOLLOW STRUCTURAL SECTIONS GRADE 350WT, CLASS C.
3. STEEL PLATES SHALL BE GRADE 350WT.
4. THE CHARPY IMPACT ENERGY REQUIREMENTS SHALL BE 27 JOULES AND THE TEST TEMPERATURE SHALL BE 0 DEGREES CELSIUS.
5. ANCHOR STUDS, WASHERS AND NUTS SHALL BE ACCORDING TO ASTM A449 OR ASTM A193 GRADE B7.
6. BOLTS, WASHERS AND NUTS FOR FASTENING GUIDE RAILS TO POST SHALL CONFORM TO ASTM A307.
7. RAIL SHALL BE SUPPLIED IN LENGTHS TO BE ATTACHED TO A MINIMUM OF THREE (3) POSTS EXCEPT WHEN THE WINGWALL LENGTH OF A BRIDGE WITH EXPANSION JOINTS DOES NOT PERMIT THIS. IN THIS CASE, THE RAIL LENGTH SHALL BE ATTACHED TO TWO (2) POSTS ON THE WINGWALL.
8. GALVANIZING ON MATING SURFACES OF RAILS TO HAVE UNIFORM THICKNESS NOT EXCEEDING 0.15mm TO ENSURE SLIDING FIT.
9. RAIL, POSTS AND RAIL SPLICES SHALL BE HOT DIP GALVANIZED. ALL GALVANIZING SHALL BE DONE AFTER FABRICATION.
10. BOLTS, ANCHOR STUDS, PLATES, WASHERS AND NUTS SHALL BE HOT DIP GALVANIZED. LOCKNUTS SHALL BE ZINC PLATED ACCORDING TO ASTM B695.
11. RAILS SHALL BE PREBENT TO FOLLOW ROAD CURVATURE WHERE RADIUS IS LESS THAN 150 METRES.
12. RAIL POSTS SHALL BE SET PERPENDICULAR TO GRADE.
13. RAIL MAY BE CUT AS REQUIRED IN FIELD. CUT TO BE SURFACE TREATED WITH A ZINC TOUCH-UP SOLDER, GALVAGUARD OR APPROVED EQUIVALENT.
14. WHEN CONNECTING TO EXISTING RAILING, RAIL MUST BE MADE CONTINUOUS AND POST SPACING DETERMINED WITH REFERENCE TO EXISTING POSTS.
15. GROUT SHALL NOT BE USED UNDER BASE PLATES. THIN PAD OF EPOXY GROUT MAY BE USED WHEN REQUIRED FOR FILLING THE VOIDS UNDER THE BASE PLATE.
16. BOLTS IN RAIL SPLICES SHALL BE TIGHTENED TO A CONDITION THAT WILL ALLOW RAIL MOVEMENT.
17. HOLES FOR HSS RAILING SHALL BE DRILLED IN FIELD.
18. POST ANCHORING NUTS SHALL BE TIGHTENED TO A SNUG FIT CONDITION AND GIVEN AN ADDITIONAL 1/3 OF A TURN.
19. PRIOR TO ASSEMBLY, APPLY LOCTITE 242, OR APPROVED EQUIVALENT THREAD-LOCKING FLUID, TO THE BOLT THREADS AT THE NUT ENGAGEMENT AREA, PER MANUFACTURER'S SPECIFICATION.
20. EXCESSIVE WELD METAL OR OVERLAP AT FILLET WELD TOE SHALL BE GROUND TO ENSURE A SMOOTH TRANSITION BETWEEN THE WELD AND PARENT MATERIAL.

APPLICABLE STANDARD DRAWINGS:

SSD 110-4110 PARAPET WALL FOR TWO TUBE RAILING, TL-4 (GFRP)

REFER TO THE STRUCTURAL MANUAL FOR PROFESSIONAL ENGINEER STAMPING REQUIREMENTS.
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STANDARD DRAWING JULY 10, 2026	SS110-4510
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TWO TUBE RAILING ON PARAPET, TL-4

REVISIONS:							
	DATE	BY	DESCRIPTION				
	DESIGN	- CHK	- CODE	CSA S6:25	LOAD	- DATE	-
	DRAWN	- CHK	- SITE	-	-	DWG	-