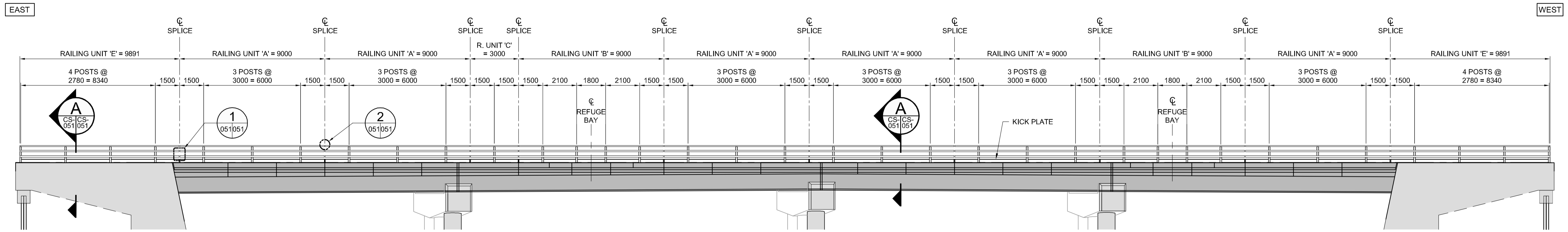
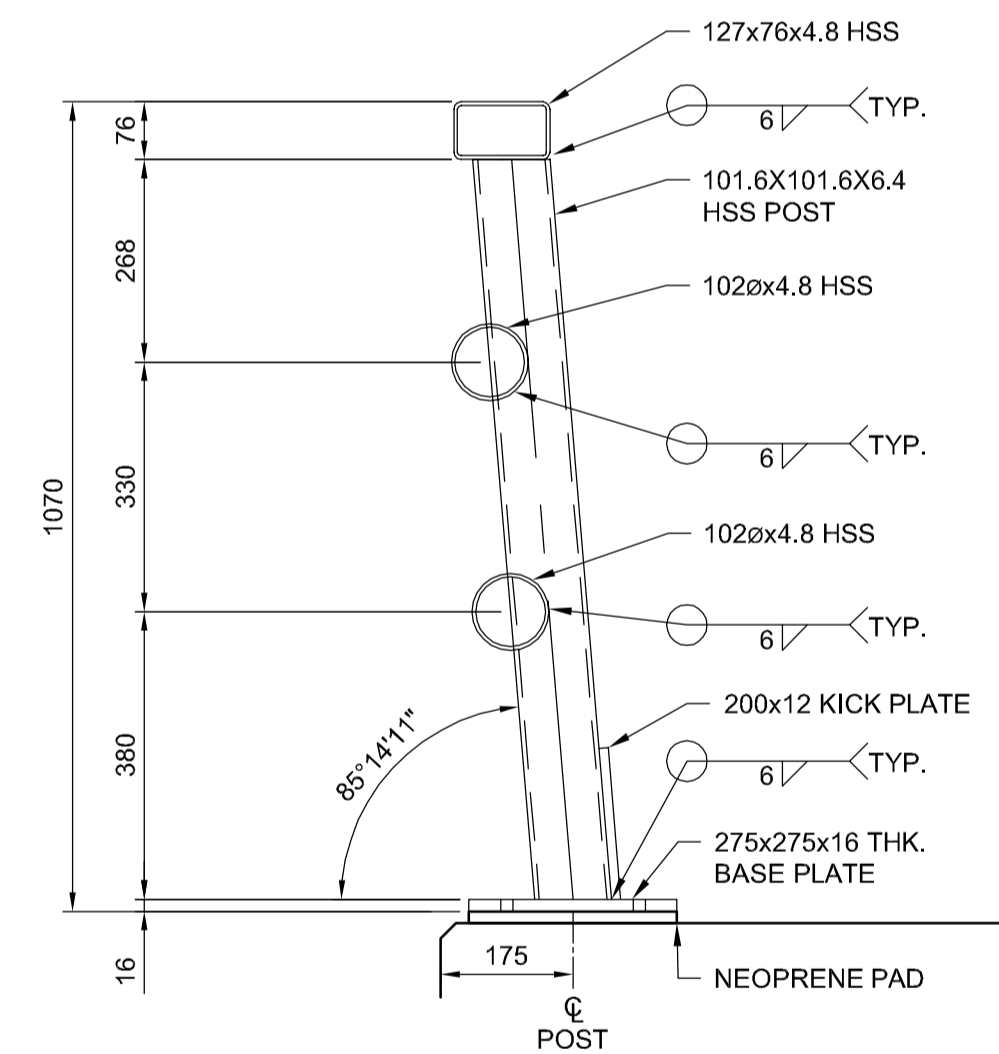


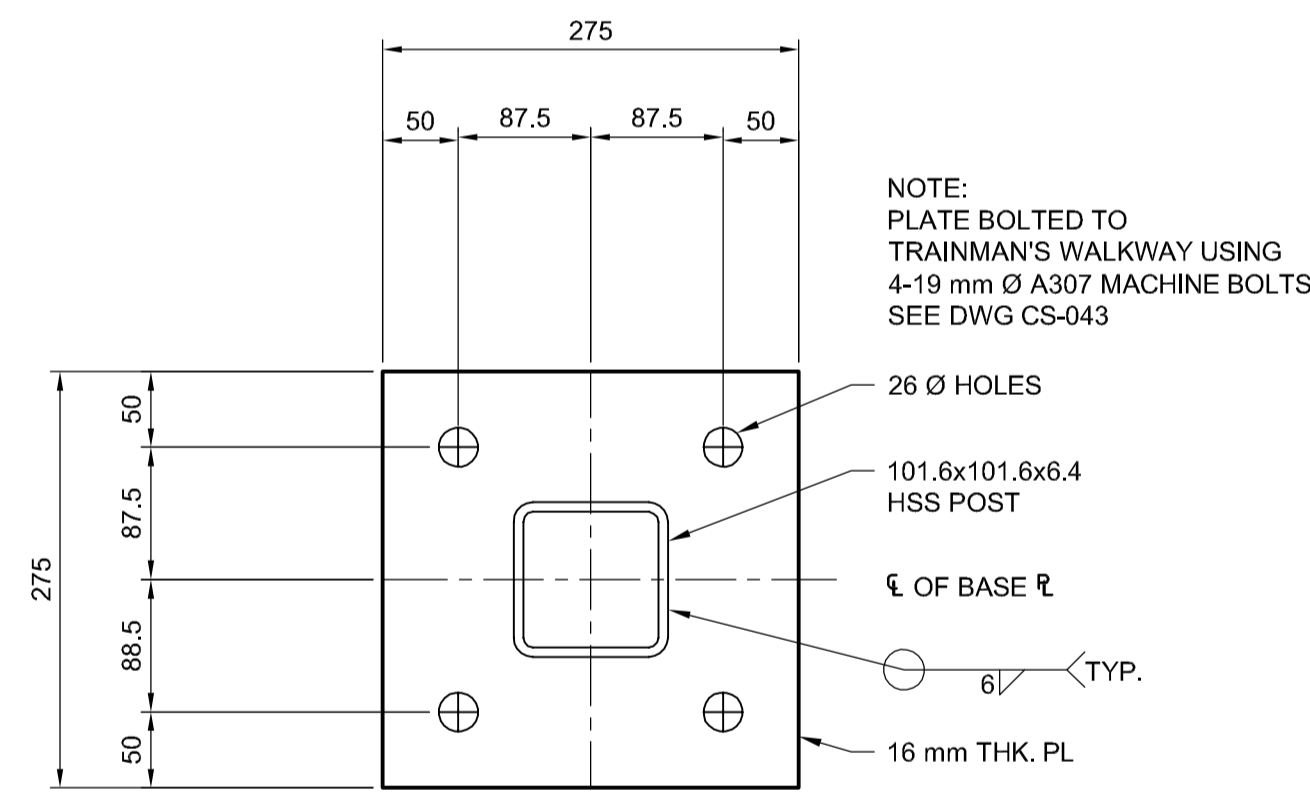
**HANDRAIL - SOUTH ELEVATION**  
SCALE 1:125



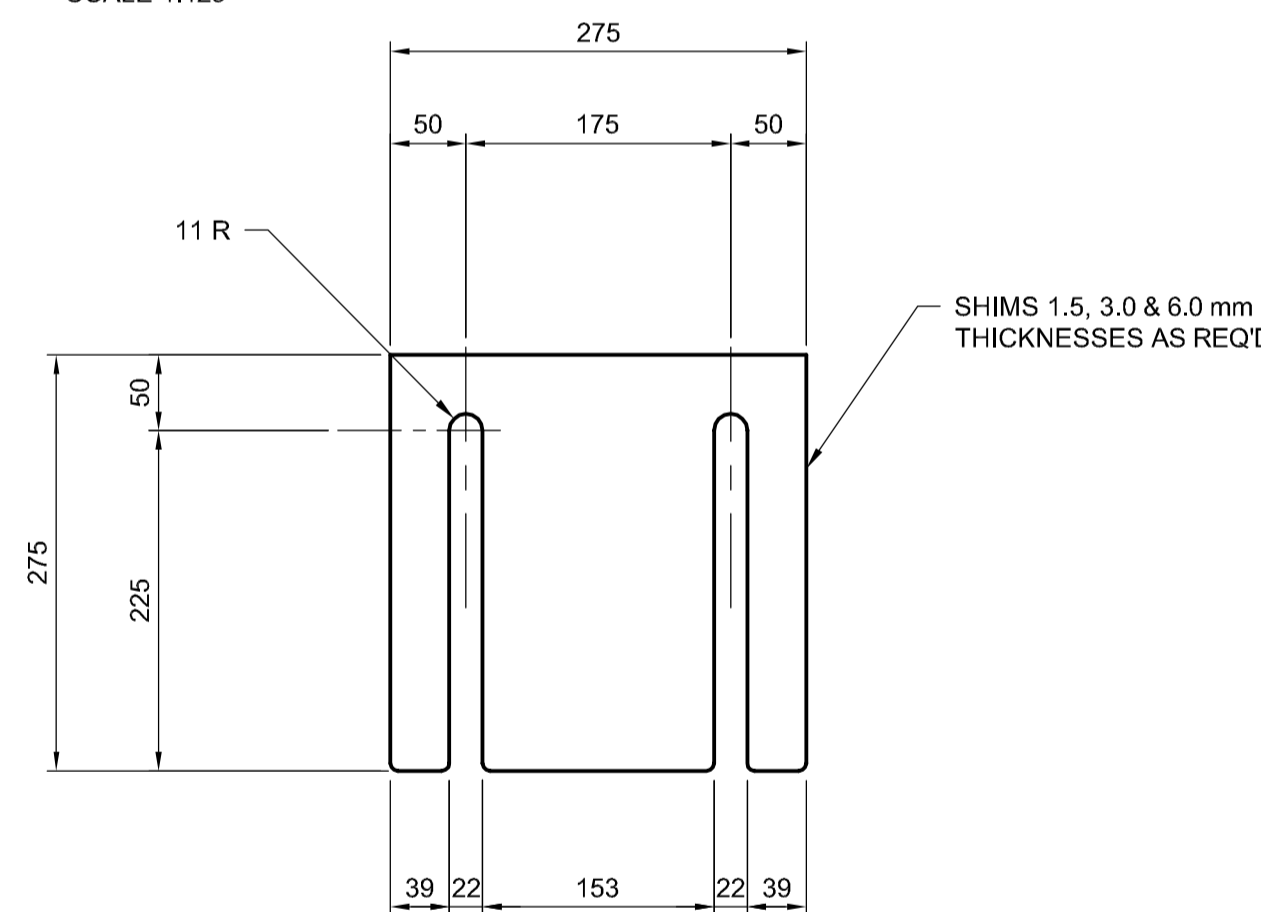
**HANDRAIL - NORTH ELEVATION**  
SCALE 1:125



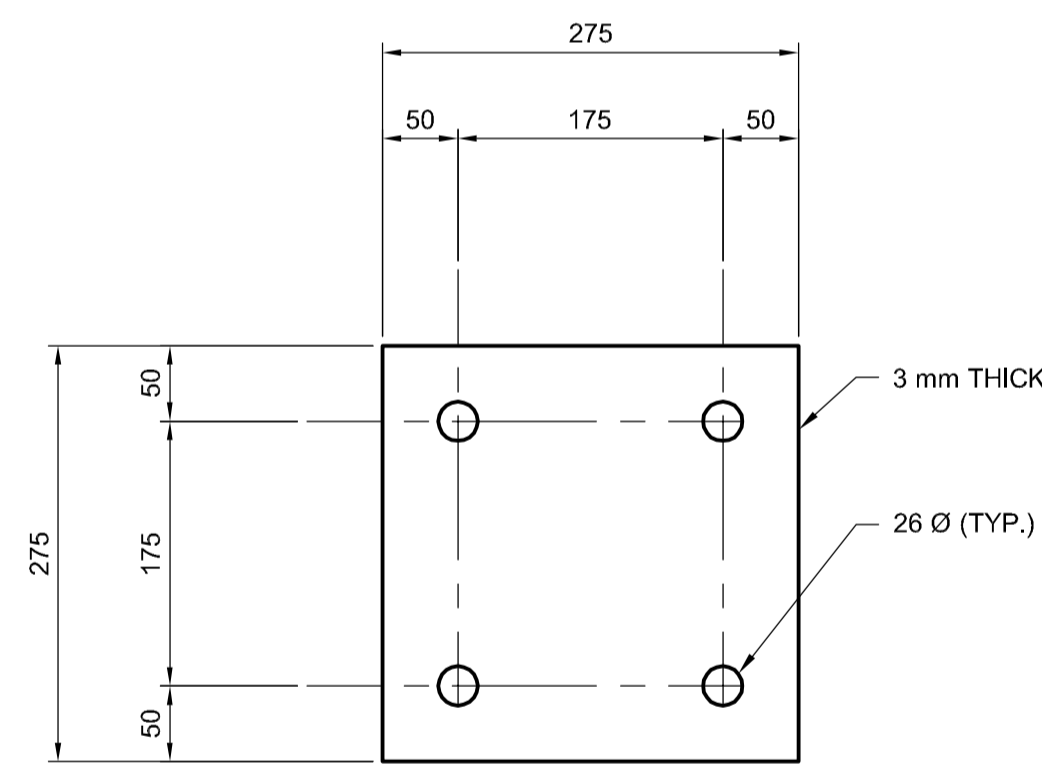
**A HANDRAIL DETAIL**  
SCALE: 1:10



**BASE PLATE DETAIL**  
SCALE 1:5  
TYP. AT ALL POSTS



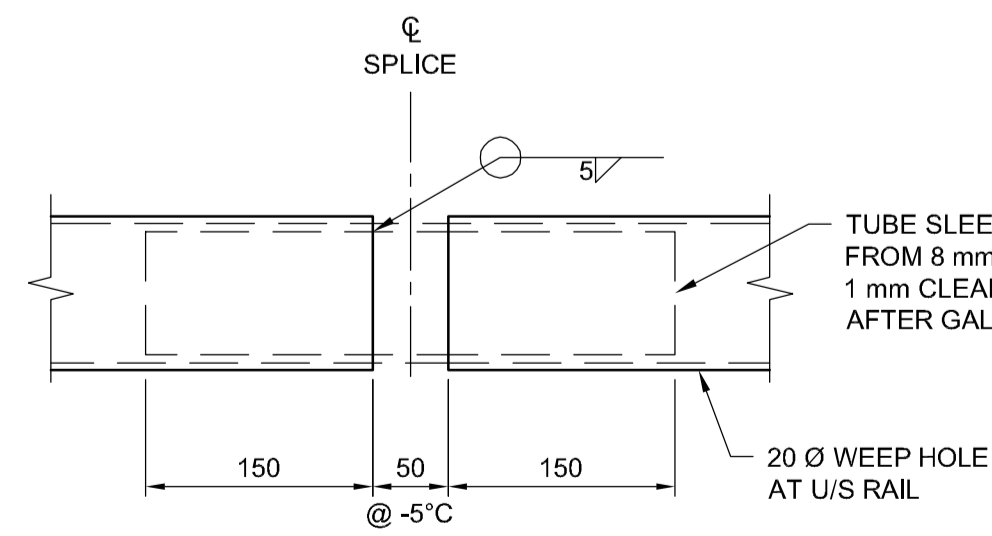
**SHIM DETAIL**  
SCALE 1:5  
TYP. AT ALL POSTS



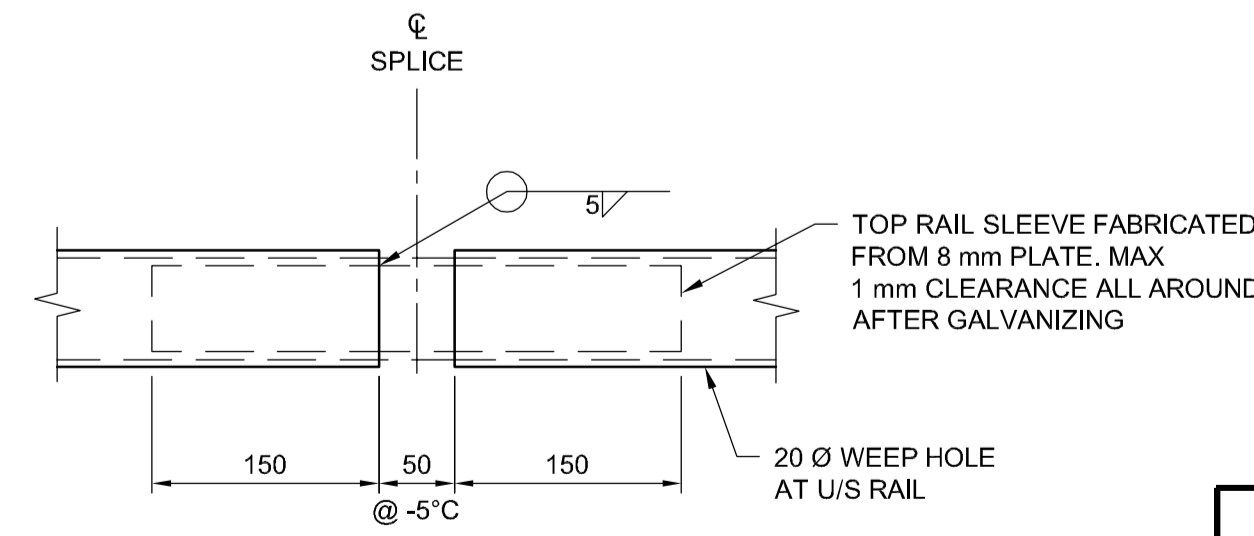
**NEOPRENE PAD DETAIL**  
SCALE 1:5  
TYP. AT ALL POSTS

**NOTES:**

- ALL DIMENSIONS IN MILLIMETERS UNLESS NOTED OTHERWISE.
- RAILING AND POST DESIGN FOR SIDEWALK LOADING IN ACCORDANCE WITH CAN/CSA-S6 2014 AND THE NATIONAL BUILDING CODE OF CANADA 2010 SECTION 4.1.5.14.
- RAIL LOADS:  
HORIZONTAL LOAD - 1.20 kN/m  
VERTICAL LOAD - 1.20 kN/m
- VERTICAL AND HORIZONTAL LOADS ARE APPLIED SIMULTANEOUSLY.
- ALL STRUCTURAL STEEL PLATE AND BARS TO CONFORM TO G40.20-04/G40.21 GRADE 300W.
- ALL HOLLOW STRUCTURAL SECTIONS SHALL CONFORM TO G40.20-04/G40.21, GRADE 350W CLASS C OR ASTM A500 GRADE C.
- ALL ANCHOR BOLTS SHALL CONFORM TO ASTM A307 MACHINE BOLTS.
- ALL WELDS ARE 6mm FILLET WELD UNLESS NOTED OTHERWISE. ALL WELDING SHALL CONFORM TO CURRENT CWB SPECIFICATIONS. ALL EXPOSED WELDS SHALL BE GROUND SMOOTH.
- APPLY GALVALLOY TO ALL FIELD WELDS AND AREAS WHERE GALVANIZING HAS BEEN DAMAGED.
- RAIL POSTS SHALL BE SET VERTICAL IN BRIDGE LONGITUDINAL DIRECTION.
- PLACE NEOPRENE PAD UNDER EACH POST BETWEEN BASE PLATE OR SHIM AND CONCRETE SURFACE. SHIMS MAY BE REQUIRED FOR VERTICAL ALIGNMENT.
- HANDRAIL PRE-SET ANCHOR UNITS MK. "AU1" SHALL BE NCA ANCHOR FOR RAILING TYPE DGR-1 HOT-DIP GALVANIZED. SEE SHEET 042 FOR DETAILS.
- ALL HANDRAIL COMPONENTS, INCLUDING PLATES, SHIMS, BOLTS, NUTS AND WASHERS SHALL BE HOT-DIP GALVANIZED. GALVANIZING SHALL CONFORM TO ASTM A123 TO A MINIMUM NET RETENTION OF 610 g/m<sup>2</sup> UNLESS NOTED OTHERWISE



**1 EXPANSION JOINT/FIELD SPLICE DETAIL**  
SCALE: 1:5  
TYP. FOR ALL TUBE RAIL JOINTS



**2 EXPANSION JOINT/FIELD SPLICE DETAIL**  
SCALE: 1:5  
TYP. FOR ALL TOP RAIL JOINTS



NO.	REVISIONS	DATE	BY	DATE
0	ISSUED FOR TENDER	17/01/09	RE	

		DESIGNED BY	RE	CHECKED BY	SSR
		DRAWN BY	NBG	APPROVED BY	DBW
HOR. SCALE		AS SHOWN		RELEASED FOR CONSTRUCTION	
VERTICAL SCALE		AS SHOWN		DATE	

ENGINEER'S SEAL  
  
 CONSULTANT PROJECT NUMBER  
**16-3353**

**THE CITY OF WINNIPEG**  
 PUBLIC WORKS DEPARTMENT  
  
**WAVERLEY STREET UNDERPASS AT CN MILE 3.89 RIVERS SUB**  
 CONTRACT 2: UNDERPASS STRUCTURE, RAIL WORKS,  
 ROADWORKS, LAND DRAINAGE SEWER, PUMPING STATION  
 AND LANDSCAPING WORKS  
 CITY DRAWING NUMBER  
 U-239-2016-C2-CS-051  
 SHEET **051** OF **085**  
 CONSULTANT DRAWING NUMBER  
**C2-CS-051**

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