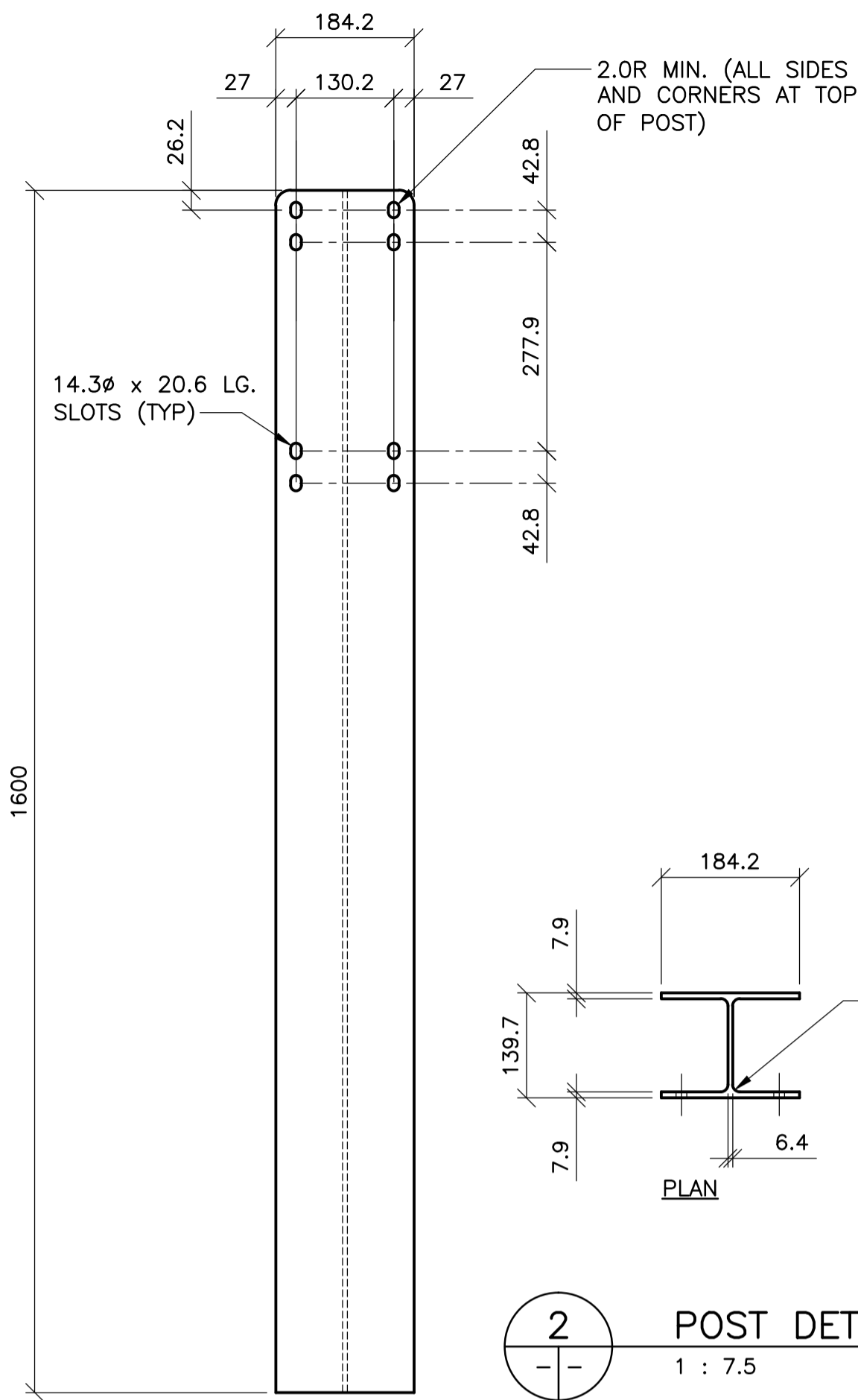
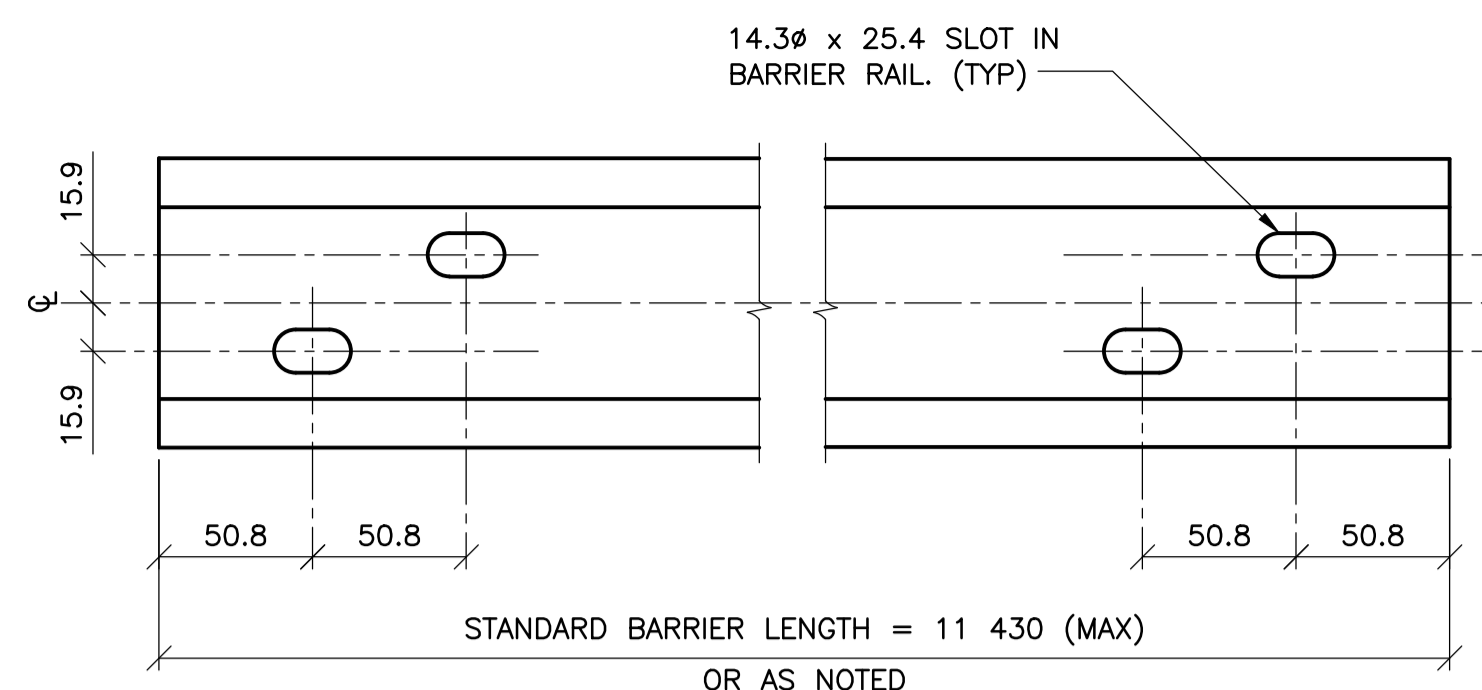


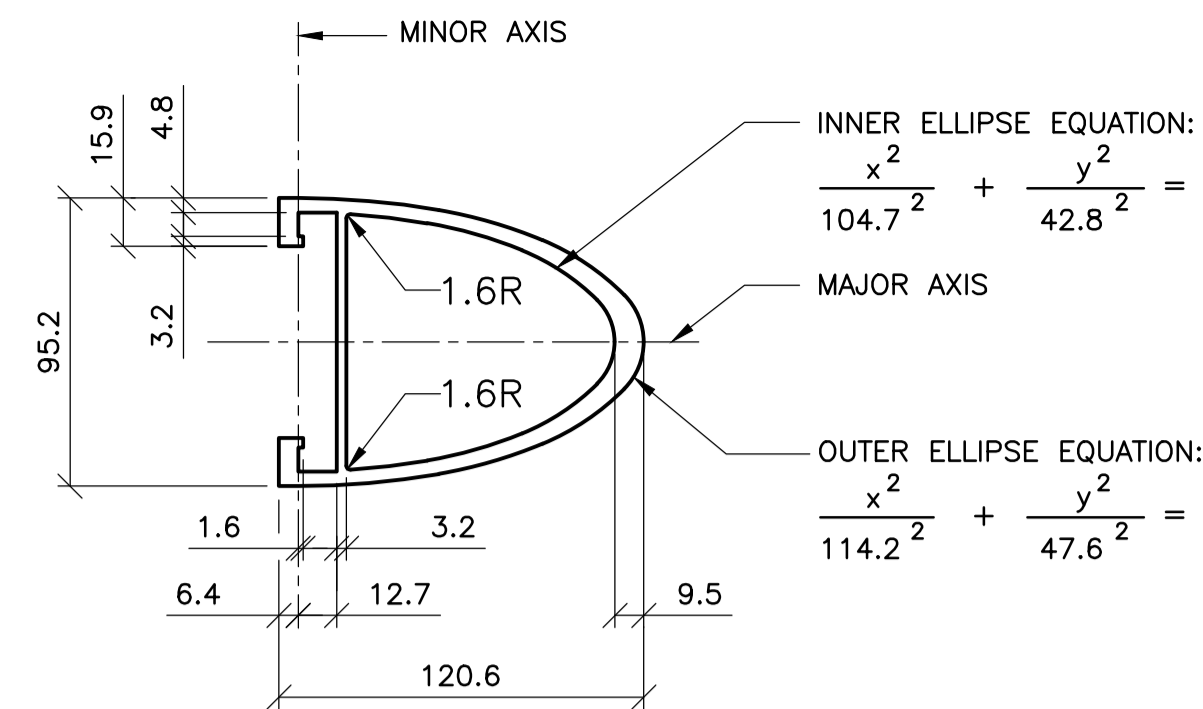
1 RAIL TO POST ASSEMBLY DETAIL  
1 : 7.5



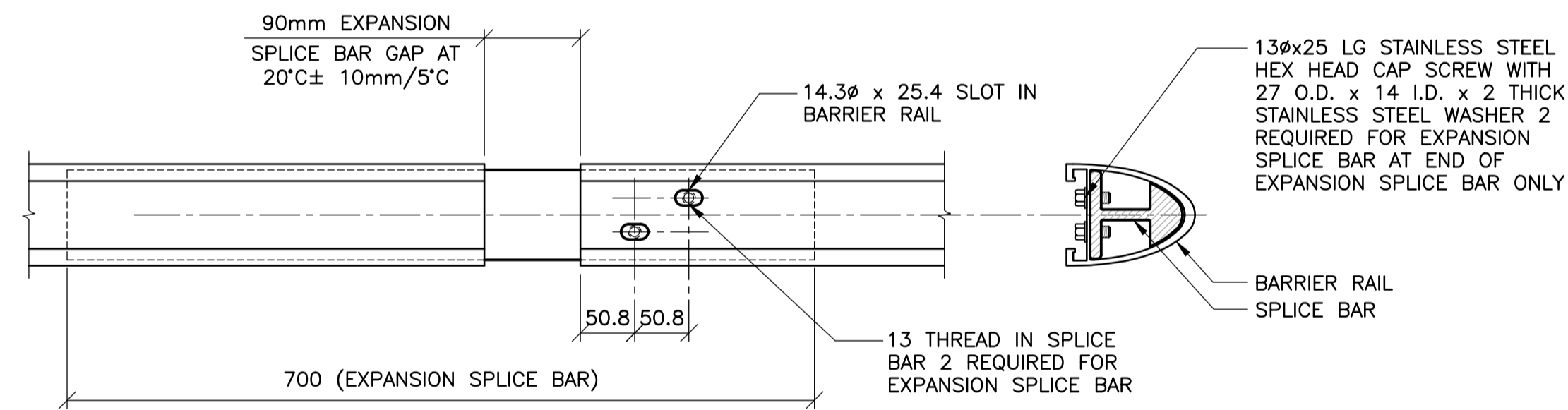
2 POST DETAIL  
1 : 7.5



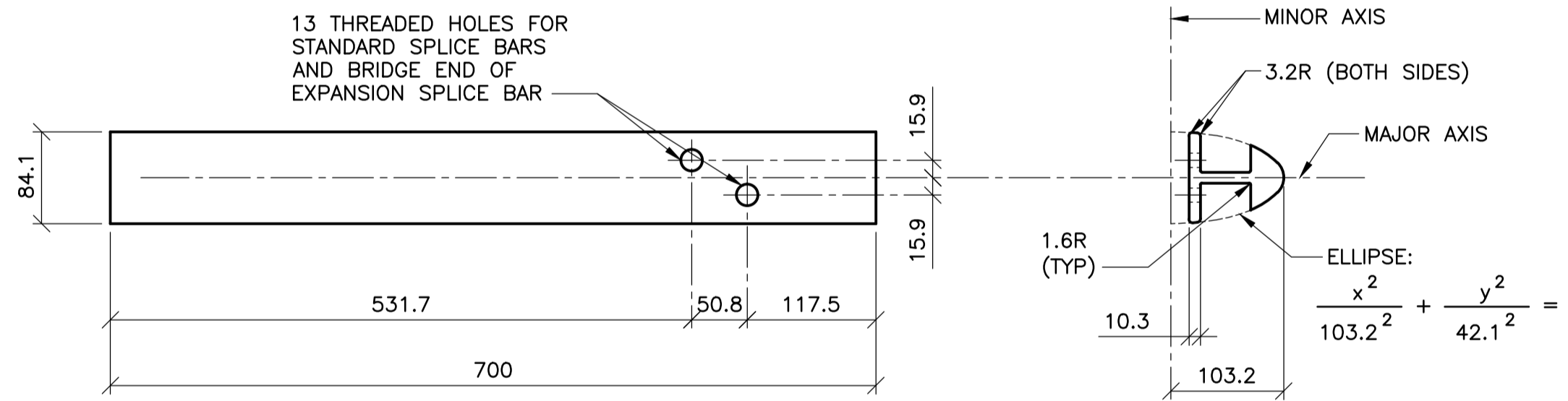
3 BARRIER RAIL  
1 : 2.5



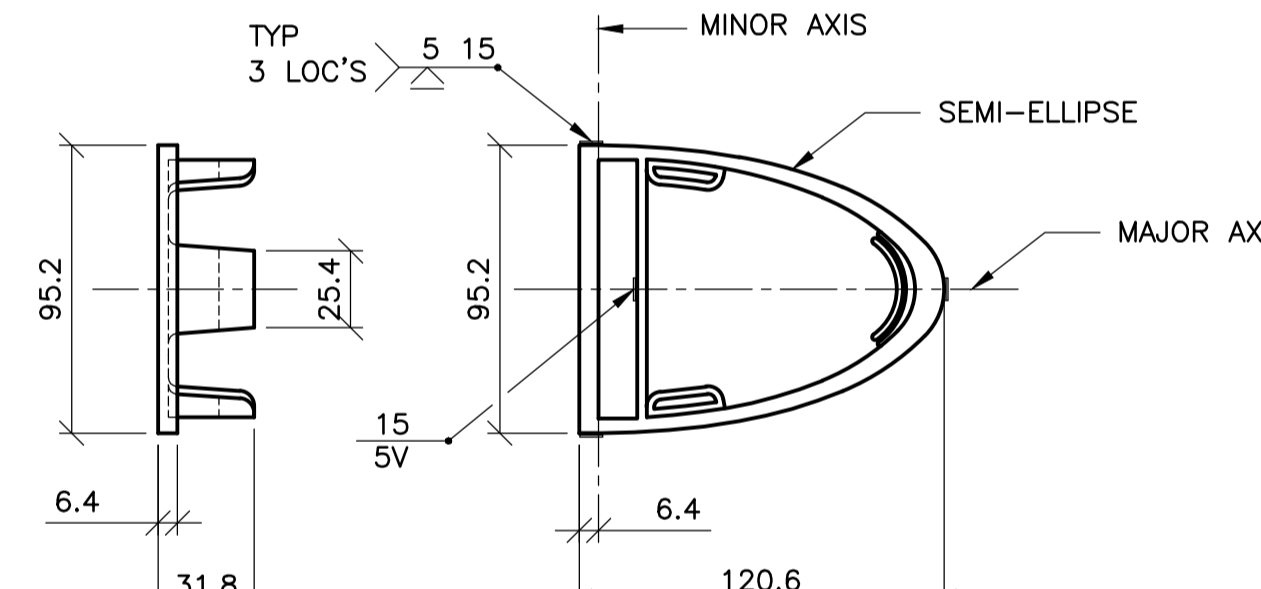
4 RAIL CLAMP BAR DETAIL  
1 : 1



5 SPLICE TO RAIL ASSEMBLY DETAIL  
1 : 5



6 EXPANSION SPLICE BAR DETAIL  
1 : 5



7 RAIL END CAP  
1 : 2.5

BILL OF MATERIALS - ALUMINUM BALANCED BARRIER				
ITEM	PHASE 1		PHASE 2	
	NORTHWEST	NORTHEAST	NORTHWEST	NORTHEAST
13x25 LG STAINLESS STEEL HEX HEAD CAP SCREW	40	40	40	40
27 O.D. x 14 I.D. x 2 THK STAINLESS STEEL WASHER	40	40	40	40
RAIL CLAMP BAR	16	20	20	16
SPLICE BAR	2	-	-	2
RAIL END CAP	4	4	4	4
BARRIER POST 1600 LG	4	3	3	4
BARRIER POST 1375 LG	-	1	1	-
BARRIER POST 1165 LG	-	1	1	-
BARRIER POST 990 LG	-	1	1	-
BARRIER RAIL 4400 LG	1	-	-	1
BARRIER RAIL 7530 LG	1	-	-	1
BARRIER RAIL 7660 LG	-	1	1	-
END SECTION BARRIER RAIL 1130 LG TOP, 4400 LG BOT	-	1	1	-

BILL OF MATERIALS TO BE RETURNED TO CITY OF WINNIPEG				
ITEM	PHASE 1		PHASE 2	
	NORTHWEST	NORTHEAST	NORTHWEST	NORTHEAST
13x25 LG STAINLESS STEEL HEX HEAD CAP SCREW	80	128	128	80
27 O.D. x 14 I.D. x 2 THK STAINLESS STEEL WASHER	80	128	128	80
RAIL CLAMP BAR	36	56	56	36
SPLICE BAR	2	4	4	2
RAIL END CAP	4	4	4	4
BARRIER POST 1600 LG	9	13	13	9
BARRIER POST 800 LG	-	2	2	-
BARRIER POST 12000 LG	2	2	2	2
END SECTION BARRIER RAIL 9500 LG TOP, 6400 LG BOT	1	-	-	1

**MATERIAL SPECIFICATION**

- ALUMINUM RAILS, POSTS, SPLICE BARS, AND RAIL END CAPS SHALL CONFORM TO ASTM B221, ALLOY 6061-T6, OR ALLOY 6351-T6.
- TYPE 316. STAINLESS STEEL WASHERS SHALL CONFORM TO ASTM A296, TYPE 316.
- CAP SCREWS SHALL CONFORM TO ASTM A276, TYPE 316 STAINLESS STEEL. ANTI-SEIZE COATING TO BE APPLIED TO ALL THREADED COMPONENTS WHEN BEING ASSEMBLED, i.e. LPS-3-MANUFACTURED BY HOLT LLOYD (CANADA) LTD., MARKHAM, ONTARIO L3R 2Z3.
- TWO COATS, EACH 1mm IN THICKNESS OF ALKALI-RESISTANT BITUMINOUS PAINT SHALL BE APPLIED ON THE SURFACES OF POSTS AND RAILS THAT ARE IN CONTACT WITH THE GROUND.



B.M. ELEV.		F.B.	
NO.	REVISIONS	DATE	BY
0	ISSUED FOR TENDER	13.12.09	S.V.
1	ISSUED FOR CONSTRUCTION	13.07.18	S.V.

**TETRA TECH**

DESIGNED BY: K.Y./S.V.	CHECKED BY: S.V.
DRAWN BY: G.I.	APPROVED BY: E.F.S.
HOR. SCALE: AS NOTED	RELEASED FOR CONSTRUCTION: DATE 13.12.09
VERTICAL: AS NOTED	ORIGINAL SIGNED: 13.12.09
DATE 13.07.18	DATE 13.12.09

**S. VALA**  
Member  
35005

**THE CITY OF WINNIPEG**  
PUBLIC WORKS DEPARTMENT  
ENGINEERING DIVISION

PORTAGE AVENUE TWIN BRIDGES  
OVER STURGEON CREEK  
REHABILITATION AND RELATED WORKS

ALUMINUM BALANCED BARRIER  
STANDARD DETAILS

CITY DRAWING NUMBER: B178-14-067  
SHEET OF: 67 OF 70  
67

CONSULTANT DRAWING NO.: 1300070700-DWG-S0067