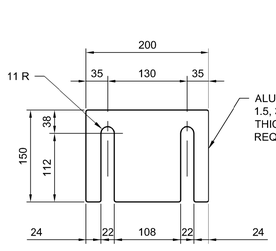
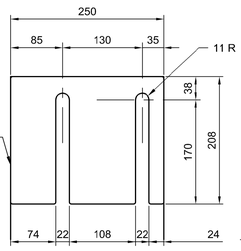
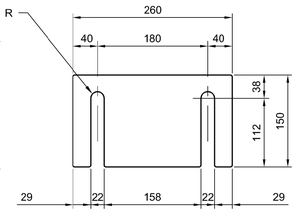


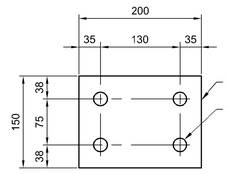
DETAIL 1
1:5
TYPICAL SHIM DETAIL AT ALL "BP1"



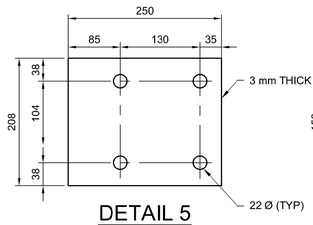
DETAIL 2
1:5
TYPICAL SHIM DETAIL AT ALL "BP2"



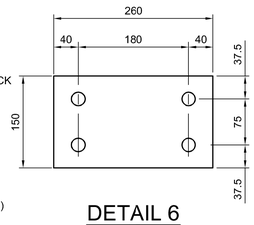
DETAIL 3
1:5
TYPICAL SHIM DETAIL AT ALL "BP3" & "BP4"



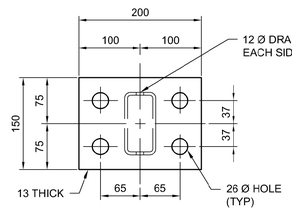
DETAIL 4
1:5
TYPICAL NEOPRENE PAD DETAIL AT "BP1"



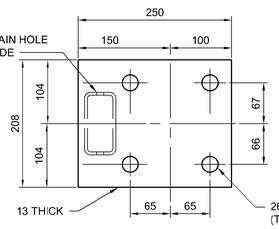
DETAIL 5
1:5
TYPICAL NEOPRENE PAD DETAIL AT "BP2"



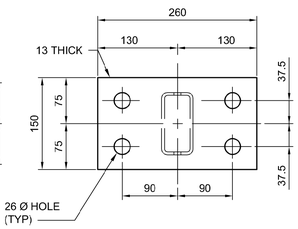
DETAIL 6
1:5
TYPICAL NEOPRENE PAD DETAIL AT "BP3" & "BP4"



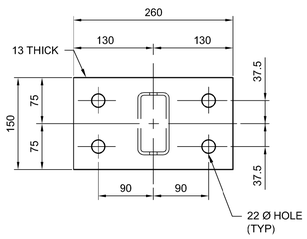
BASE PLATE DETAIL Mk. "BP1"
1:5



BASE PLATE DETAIL Mk. "BP2"
1:5



BASE PLATE DETAIL Mk. "BP3"
1:5



BASE PLATE DETAIL Mk. "BP4"
1:5

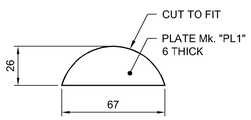


PLATE Mk. "PL1"
1:2
SHOWING SLOTS FOR RAIL SEATS

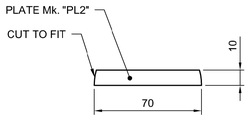


PLATE Mk. "PL2"
1:2
SHOWING SLOTS FOR RAIL SEATS

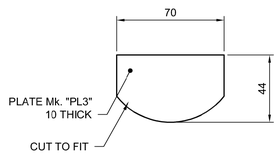
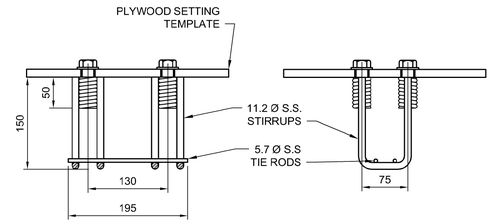


PLATE Mk. "PL3"
1:2
SHOWING SLOTS FOR RAIL SEATS

BILL OF MISCELLANEOUS METAL
FOR CURB & RETAINING WALL HANDRAIL INSERTS

MARK	No.	DESCRIPTION	SIZE	MASS PER UNIT
Q1	111	PRE-SET STAINLESS STEEL ANCHOR UNIT	ANCHOR UNIT C/W 4-19 Ø ASTM A325 BOLT, 100 LONG, 8 PLASTIC CAP PLUGS, PLATE, LOCK WASHERS AND PLYWOOD SETTING TEMPLATE	3.32
			TOTAL MASS	368.52 kg



ELEVATION

SIDE ELEVATION

PRESET ANCHOR UNIT Mk. "Q1"
1:5

BILL OF MISCELLANEOUS ALUMINUM
FOR PEDESTRIAN HANDRAIL/BICYCLE RAIL

POST	No.		DESCRIPTION	SIZE		LENGTH	REMARKS	COMPONENT MASS	MASS PER UNIT	TOTAL MASS
P1	36		HANDRAIL/BICYCLE POST				AS DETAILED			393.06
			EACH POST FABRICATED FROM:							
		1	- ALUMINUM POST Mk. "PS1"	89 Ø x 9.5		1,250		8.20	8.20	
		1	- ALUMINUM BICYCLE RAIL SEAT Mk. "R2"	64	13	225		0.51	0.51	
		1	- ALUMINUM CLOSURE PLATE Mk. "C1"	51	6	160		0.13	0.13	
		4	- ALUM. ANGLE	L75 x 50 x 6		50		0.10	0.40	
		1	- ALUM. BASE PLATE "BP3"	260	13	150		1.37	1.37	
		1	- ALUM. SHIM PLATE FOR "BP3"	260	3	150		0.32	0.32	
									10.92	
P1	11		HANDRAIL/BICYCLE POST (NE EXISTING WALL)				AS DETAILED			120.10
			EACH POST FABRICATED FROM:							
		1	- ALUMINUM POST Mk. "PS1"	89 Ø x 9.5		1,250		8.20	8.20	
		1	- ALUMINUM BICYCLE RAIL SEAT Mk. "R2"	64	13	225		0.51	0.51	
		1	- ALUMINUM CLOSURE PLATE Mk. "C1"	51	6	160		0.13	0.13	
		4	- ALUM. ANGLE	L75 x 50 x 6		50		0.10	0.40	
		1	- ALUM. BASE PLATE "BP4"	260	13	150		1.37	1.37	
		1	- ALUM. SHIM PLATE FOR "BP4"	260	3	150		0.32	0.32	
									10.92	
P2	4		HANDRAIL/BICYCLE POST				AS DETAILED			43.81
			EACH POST FABRICATED FROM:							
		1	- ALUMINUM POST Mk. "PS2"	89 Ø x 9.5		1,250		8.20	8.20	
		1	- ALUMINUM BICYCLE RAIL SEAT Mk. "R1"	64	13	138		0.31	0.31	
		2	- ALUMINUM TOP RAIL SEAT Mk. "R3"	32	10	138		0.12	0.24	
		1	- ALUMINUM BOTTOM RAIL SEAT Mk. "R5"	51	10	138		0.19	0.19	
		1	- ALUMINUM CLOSURE PLATE Mk. "C1"	51	6	160		0.13	0.13	
		2	- ALUM. ANGLE	L75 x 50 x 6		50		0.10	0.20	
		1	- ALUM. BASE PLATE "BP3"	260	13	150		1.37	1.37	
		1	- ALUM. SHIM PLATE FOR "BP3"	260	3	150		0.32	0.32	
									10.95	
P2B	4		HANDRAIL/BICYCLE POST				AS DETAILED			44.60
			EACH POST FABRICATED FROM:							
		1	- ALUMINUM POST Mk. "PS2"	89 Ø x 9.5		1,250		8.20	8.20	
		1	- ALUMINUM BICYCLE RAIL SEAT Mk. "R2"	64	13	225		0.51	0.51	
		2	- ALUMINUM TOP RAIL SEAT Mk. "R3"	32	10	138		0.12	0.24	
		1	- ALUMINUM BOTTOM RAIL SEAT Mk. "R5"	51	10	138		0.19	0.19	
		1	- ALUMINUM CLOSURE PLATE Mk. "C1"	51	6	160		0.13	0.13	
		2	- ALUM. ANGLE	L75 x 50 x 6		50		0.10	0.20	
		1	- ALUM. BASE PLATE "BP3"	260	13	150		1.37	1.37	
		1	- ALUM. SHIM PLATE FOR "BP3"	260	3	150		0.32	0.32	
									11.15	
P3	22		HANDRAIL/BICYCLE POST				AS DETAILED			226.14
			EACH POST FABRICATED FROM:							
		1	- ALUMINUM POST Mk. "PS3"	89 Ø x 9.5		1,250		8.20	8.20	
		2	- ALUMINUM TOP RAIL SEAT Mk. "R4"	32	10	225		0.19	0.39	
		1	- ALUMINUM BOTTOM RAIL SEAT Mk. "R6"	51	10	225		0.31	0.31	
		1	- ALUMINUM CLOSURE PLATE Mk. "C2"	51	6	102		0.08	0.08	
		1	- ALUM. BASE PLATE "BP1"	200	13	150		1.05	1.05	
		1	- ALUM. SHIM PLATE FOR "BP1"	200	3	150		0.24	0.24	
									10.28	
P4	4		HANDRAIL/BICYCLE POST				AS DETAILED			47.29
			EACH POST FABRICATED FROM:							
		1	- ALUMINUM POST Mk. "PS4"	89 Ø x 9.5		1,250		8.20	8.20	
		1	- ALUMINUM BICYCLE RAIL SEAT Mk. "R2"	64	13	225		0.51	0.51	
		1	- ALUMINUM BICYCLE RAIL SEAT Mk. "R1"	64	13	138		0.31	0.31	
		2	- ALUMINUM TOP RAIL SEAT Mk. "R3"	32	10	138		0.12	0.24	
		1	- ALUMINUM BOTTOM RAIL SEAT Mk. "R5"	51	10	138		0.19	0.19	
		1	- ALUMINUM CLOSURE PLATE Mk. "C1"	51	6	160		0.13	0.13	
		1	- ALUM. BASE PLATE "BP2"	250	13	208		1.83	1.83	
		1	- ALUM. SHIM PLATE FOR "BP2"	250	3	208		0.42	0.42	
									11.82	
P5	107		HANDRAIL/BICYCLE POST				AS DETAILED			682.13
			EACH POST FABRICATED FROM:							
		1	- ALUMINUM POST Mk. "PS5"	89 Ø x 9.5		600		3.94	3.94	
		2	- ALUMINUM BICYCLE RAIL SEAT Mk. "R2"	64	13	225		0.51	1.01	
		1	- ALUMINUM CLOSURE PLATE Mk. "C1"	51	6	160		0.13	0.13	
		1	- ALUM. BASE PLATE "BP1"	200	13	150		1.05	1.05	
		1	- ALUM. SHIM PLATE FOR "BP1"	200	3	150		0.24	0.24	
									6.38	
								TOTAL MASS OF ALUMINUM (kg) FOR HANDRAIL PANELS=		1,557.13

NOTES:

1. ALUMINUM EXTRUSIONS SHALL CONFORM TO ASTM B221 ALLOY 6351-T6. ALUMINUM PLATES SHALL CONFORM TO ASTM B221 ALLOY 5083.
2. THE M.I.G. PROCESS OF WELDING SHALL BE USED.
3. S.S. DENOTES STAINLESS STEEL.
4. RAIL POSTS AND BALUSTER SHALL BE SET VERTICAL.
5. PLACE NEOPRENE PAD UNDER EACH POST BETWEEN BASE PLATE OR SHIM AND CONCRETE SURFACE. ALUMINUM SHIMS MAY BE REQUIRED FOR VERTICAL ALIGNMENT.
6. HANDRAIL ANCHOR INSERTS SHALL BE STAINLESS STEEL

NOTE:

1. FOR POST AND PANEL LAYOUT, REFER TO SHEET NO. 020

APEGM
Certificate of Authorization
Dillon Consulting Limited (MB)
No. 1789 Date: 18/03/16

UNDERGROUND STRUCTURES

SUPV. U/G STRUCTURES DATE

LOCATION OF UNDERGROUND STRUCTURES AS SHOWN ARE BASED ON THE BEST INFORMATION AVAILABLE, BUT NO GUARANTEE IS GIVEN THAT ALL EXISTING UTILITIES ARE SHOWN OR THAT THE GIVEN LOCATIONS ARE EXACT. CONFIRMATION OF EXISTENCE AND EXACT LOCATION OF ALL SERVICES MUST BE OBTAINED FROM THE INDIVIDUAL UTILITIES BEFORE PROCEEDING WITH CONSTRUCTION.

B.M. ELEV.

NO.	REVISIONS	DATE	BY
0	ISSUED FOR TENDER	18/03/16	TJP

DESIGNED BY	DRA
DRAWN BY	DJB
CHECKED BY	DRA
APPROVED BY	TJP
HOR. SCALE	—
VERTICAL	—
DATE	

DILLON CONSULTING

RELEASED FOR CONSTRUCTION

DATE

ENGINEER'S SEAL
PROVINCE OF MANITOBA
ORIGINAL STAMPED BY
D.R.C. AMORIM
18/03/16
Member
33215
REGISTERED PROFESSIONAL ENGINEER

CONSULTANT PROJECT NUMBER
17-6152

Winnipeg

THE CITY OF WINNIPEG
PUBLIC WORKS DEPARTMENT

2018 REGIONAL STREET RENEWAL PROJECT
McPHILLIPS STREET RECONSTRUCTION AND UNDERPASS
STRUCTURAL IMPROVEMENTS
LOGAN AVENUE TO JARVIS AVENUE

ALUMINUM PEDESTRIAN HANDRAIL DETAILS (4 OF 5)

CITY DRAWING NUMBER
U212-18-CS-024-R0

SHEET 024 OF 026

CONSULTANT DRAWING NUMBER
CS-024

G:\CAD_176152\Drawings\Structural\Contract\176152-CON-CS-PED HANDRAIL DETAILS 4.dwg