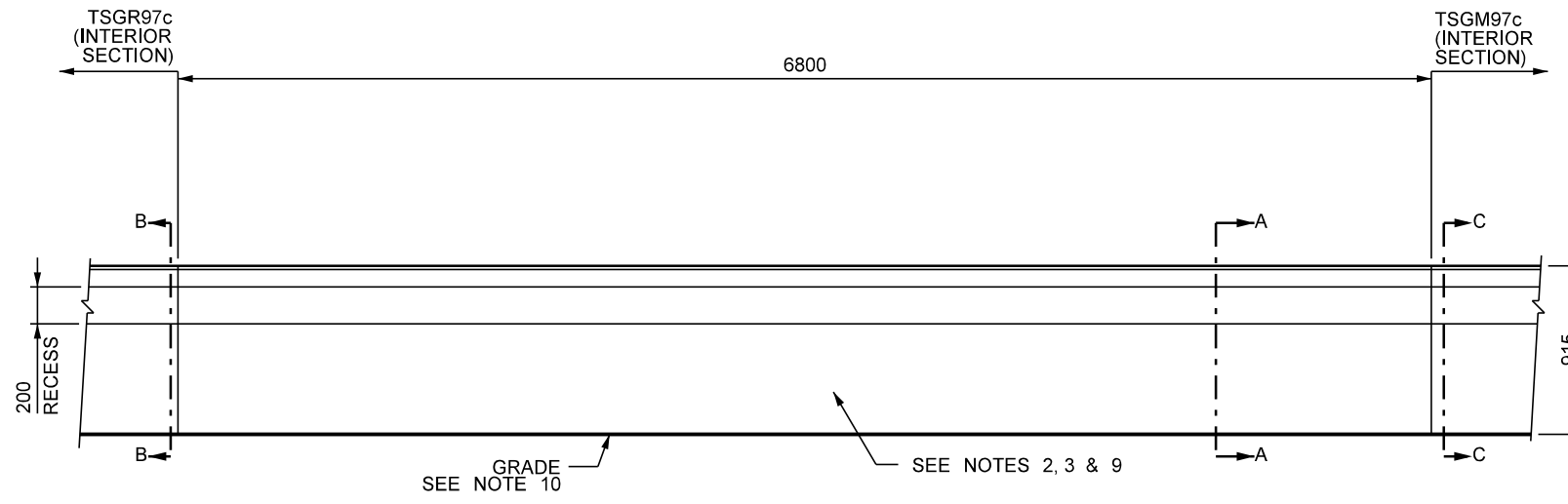
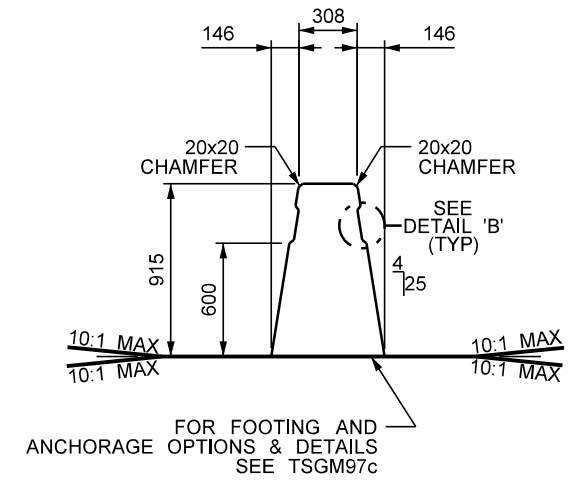


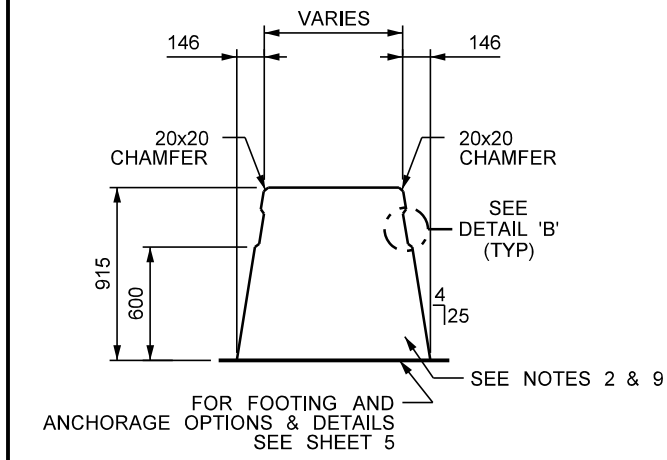
SECTION 'B-B'
(SEE TSGR97c FOR DETAILS)
SCALE 1:40



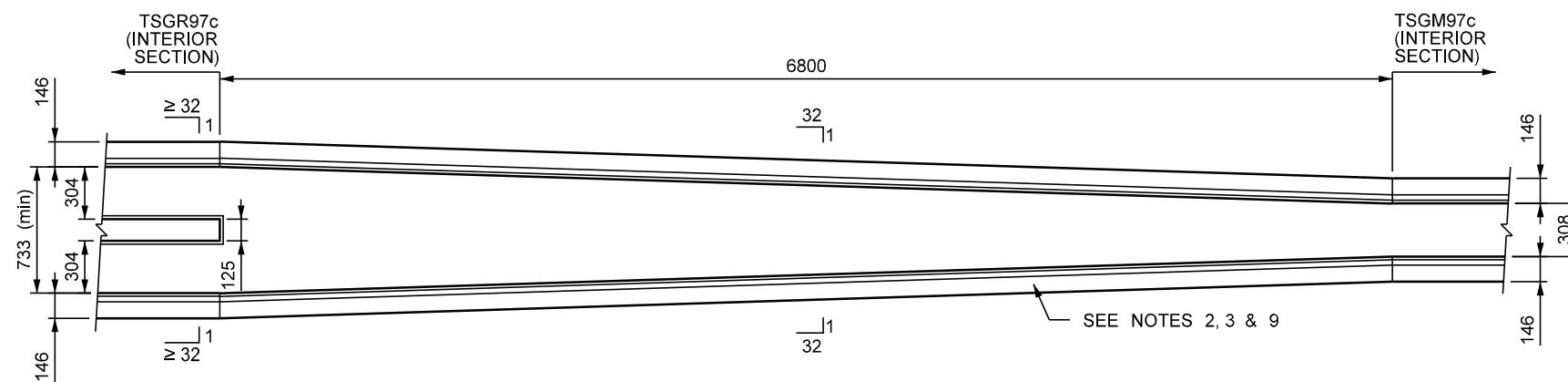
ELEVATION
SCALE 1:40



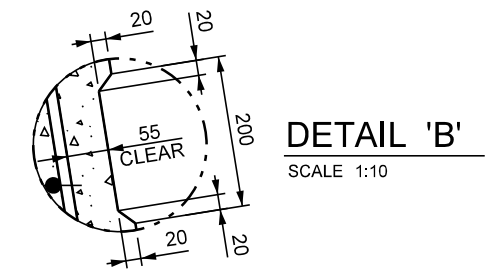
SECTION 'C-C'
(SEE TSGM97c FOR DETAILS)
SCALE 1:40



SECTION 'A-A'
SCALE 1:40



PLAN
SCALE 1:40



DETAIL 'B'
SCALE 1:10

INTERIOR SECTION DETAILS

NOTES:

1. ALL SCALES ARE APPROXIMATE.
2. LONGITUDINAL REINFORCING NOT SHOWN FOR CLARITY.
3. FORMED OR CUT CONTRACTION JOINTS SHALL BE CREATED AT EACH PLACE WHERE THE BARRIER SHAPE CHANGES, TO MATCH ADJACENT PAVEMENT JOINT SPACING, OR AT A MAXIMUM OF 6000 mm.
4. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE INDICATED.
5. THE ORIGINAL SEALED AND SIGNED DRAWING IS IN TRAFFIC ENGINEERING.
6. ALL REINFORCING SHALL HAVE MINIMUM 75 mm COVER, UNLESS OTHERWISE NOTED.
7. CONCRETE: CSA A23.1, EXPOSURE CLASS C-1, AIR CONTENT CATEGORY 1, COMPRESSIVE STRENGTH: BARRIER ≥ 45 MPa AND FOOTING ≥ 35 MPa AT 28 DAYS.
8. SEE SHEETS 7, 8, 9, & 10 FOR REINFORCING DETAILS.
9. TRANSVERSE REINFORCING NOT SHOWN FOR CLARITY.
10. SEE SECTIONS 'A-A' AND 'B-B' FOR BELOW GRADE DESIGN OPTIONS.

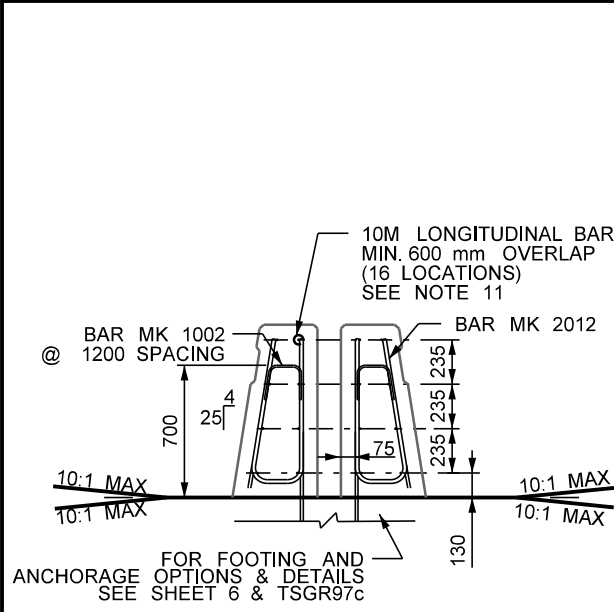
REVISIONS		
DATE	DESCRIPTION	BY



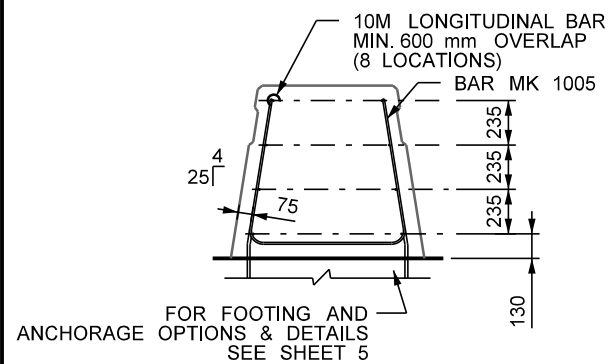
MANITOBA CONSTRAINED
WIDTH CONSTANT SLOPE
BARRIER - MEDIAN TL-4 TO
DUAL TL-4 VERTICAL BACK
TRANSITION AT 915

SHEET NO: 1 OF 10	DATE: 2020 - 08
DESIGNED BY: H. LARSEN	
DRAWN BY: L. LIEBRECHT	
REVIEWED BY: N. JOYAL	

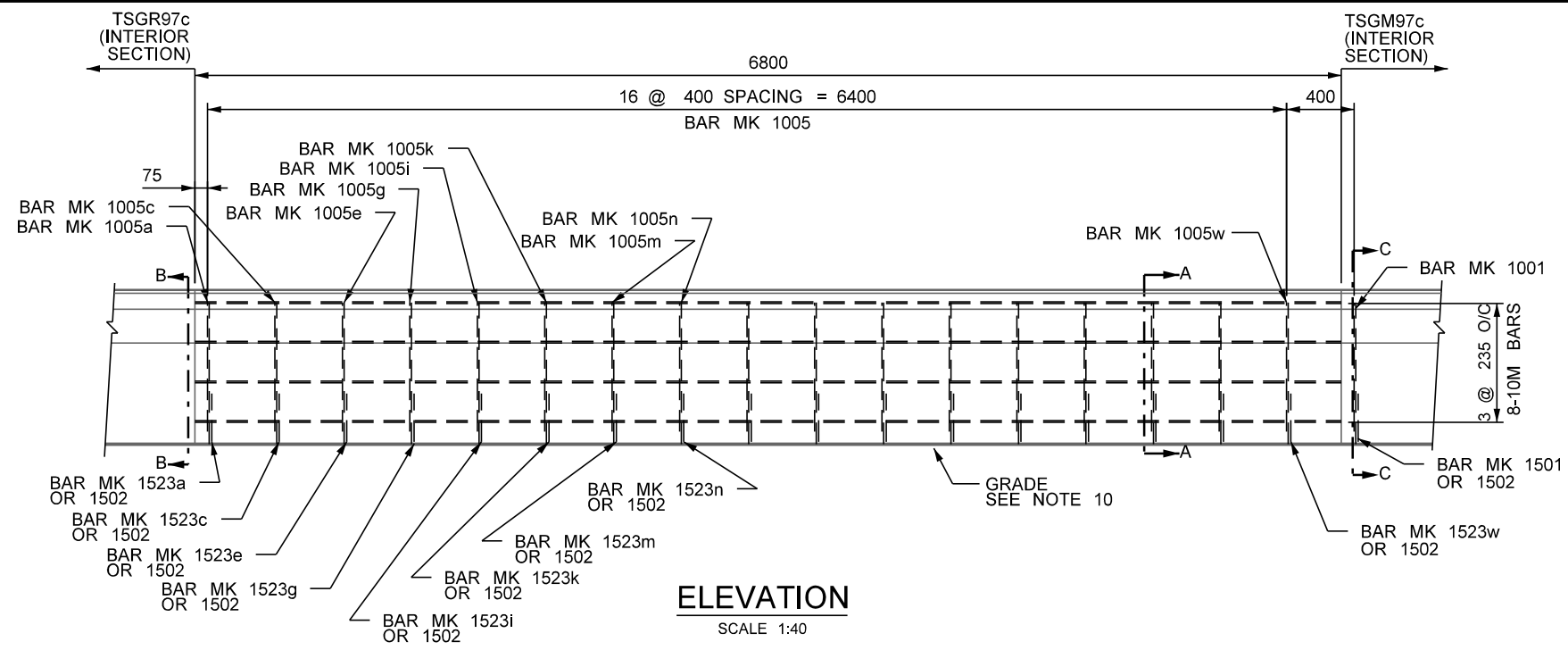
TSTM91c



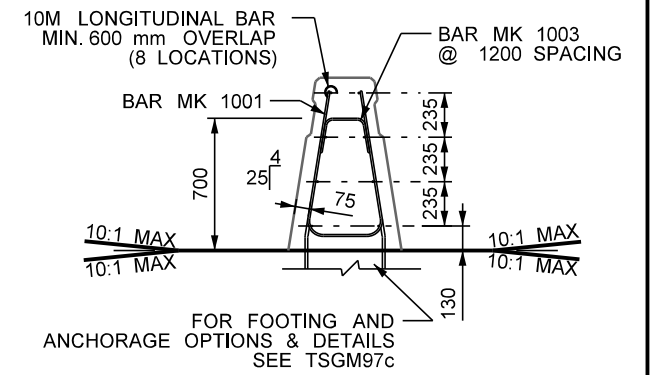
SECTION 'B-B'
(SEE TSGR97c FOR DETAILS)
SCALE 1:40



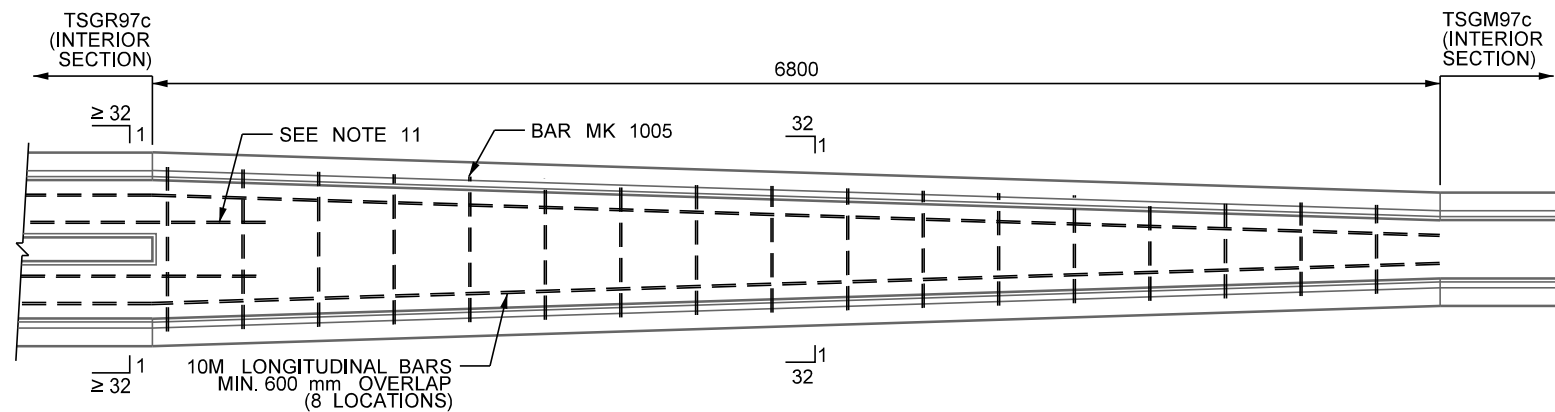
SECTION 'A-A'
(SEE TSGR97c FOR DETAILS)
SCALE 1:40



ELEVATION
SCALE 1:40



SECTION 'C-C'
(SEE TSGM97c FOR DETAILS)
SCALE 1:40



PLAN
SCALE 1:40

INTERIOR SECTION DETAILS

NOTES:

1. ALL SCALES ARE APPROXIMATE.
2. LONGITUDINAL REINFORCING NOT SHOWN FOR CLARITY.
3. FORMED OR CUT CONTRACTION JOINTS SHALL BE CREATED AT EACH PLACE WHERE THE BARRIER SHAPE CHANGES, TO MATCH ADJACENT PAVEMENT JOINT SPACING, OR AT A MAXIMUM OF 6000 mm.
4. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE INDICATED.
5. THE ORIGINAL SEALED AND SIGNED DRAWING IS IN TRAFFIC ENGINEERING.
6. ALL REINFORCING SHALL HAVE MINIMUM 75 mm COVER, UNLESS OTHERWISE NOTED.
7. CONCRETE: CSA A23.1, EXPOSURE CLASS C-1, AIR CONTENT CATEGORY 1, COMPRESSIVE STRENGTH: BARRIER ≥ 45 MPa AND FOOTING ≥ 35 MPa AT 28 DAYS.
8. SEE SHEETS 7, 8, 9, & 10 FOR REINFORCING DETAILS.
9. TRANSVERSE REINFORCING NOT SHOWN FOR CLARITY.
10. SEE SECTIONS 'A-A' AND 'B-B' FOR BELOW GRADE DESIGN OPTIONS.
11. 10M LONGITUDINAL BARS SHALL EXTEND A MINIMUM OF 600 mm INTO ADJACENT TRANSITION SECTION OF BARRIER.

REVISIONS		
DATE	DESCRIPTION	BY

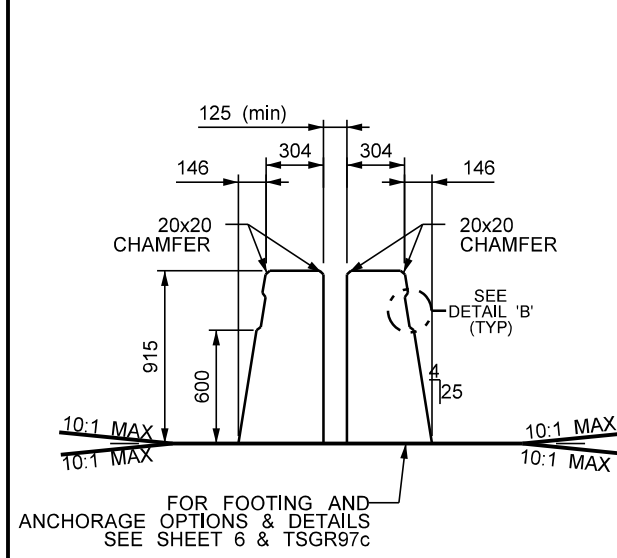
Manitoba
Infrastructure
Traffic Engineering



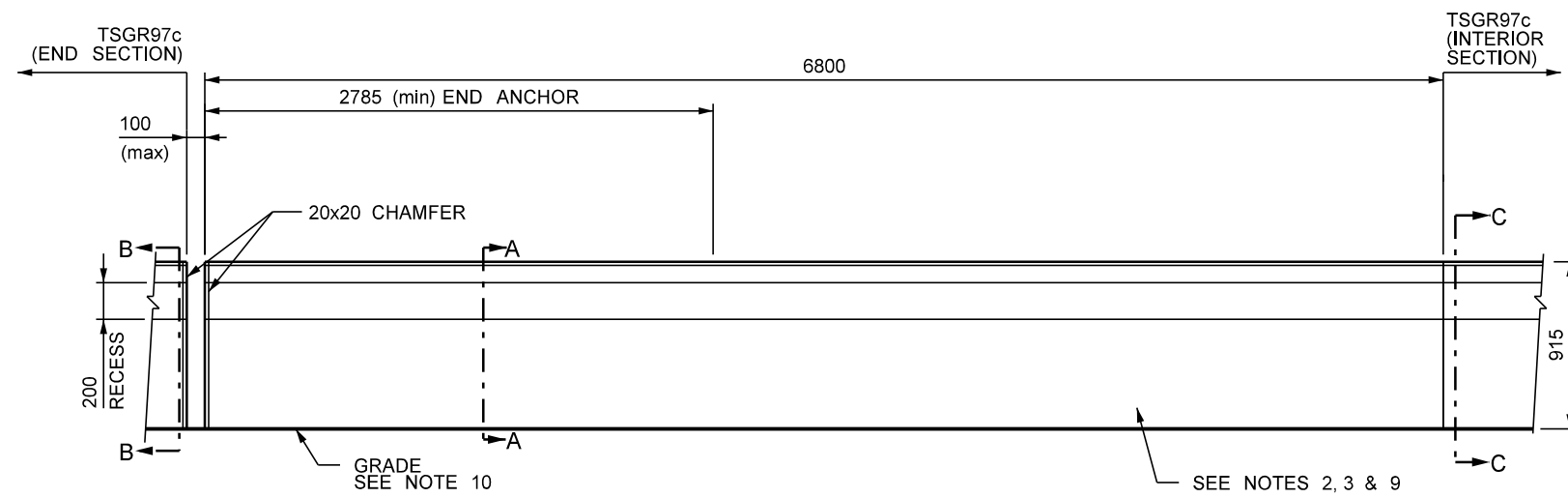
MANITOBA CONSTRAINED
WIDTH CONSTANT SLOPE
BARRIER - MEDIAN TL-4 TO
DUAL TL-4 VERTICAL BACK
TRANSITION AT 915

SHEET NO: 2 OF 10	DATE: 2020 - 08
DESIGNED BY:	H. LARSEN
DRAWN BY:	L. LIEBRECHT
REVIEWED BY:	N. JOYAL

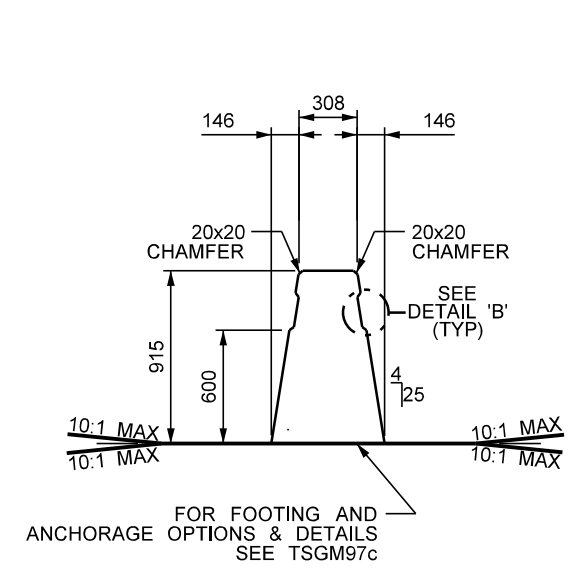
TSTM91c



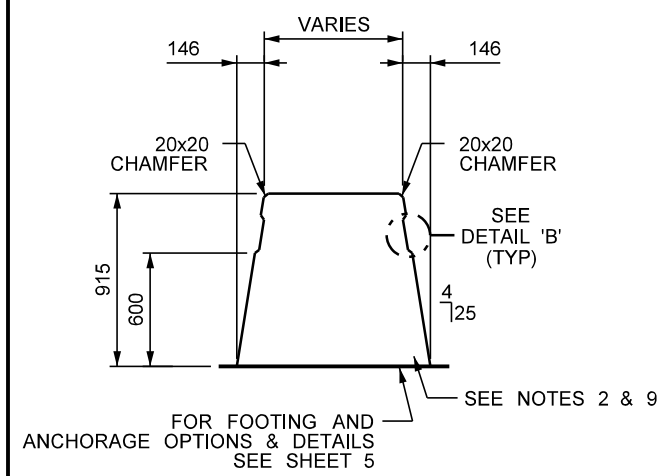
SECTION 'B-B'
(SEE TSGR97c FOR DETAILS)
SCALE 1:40



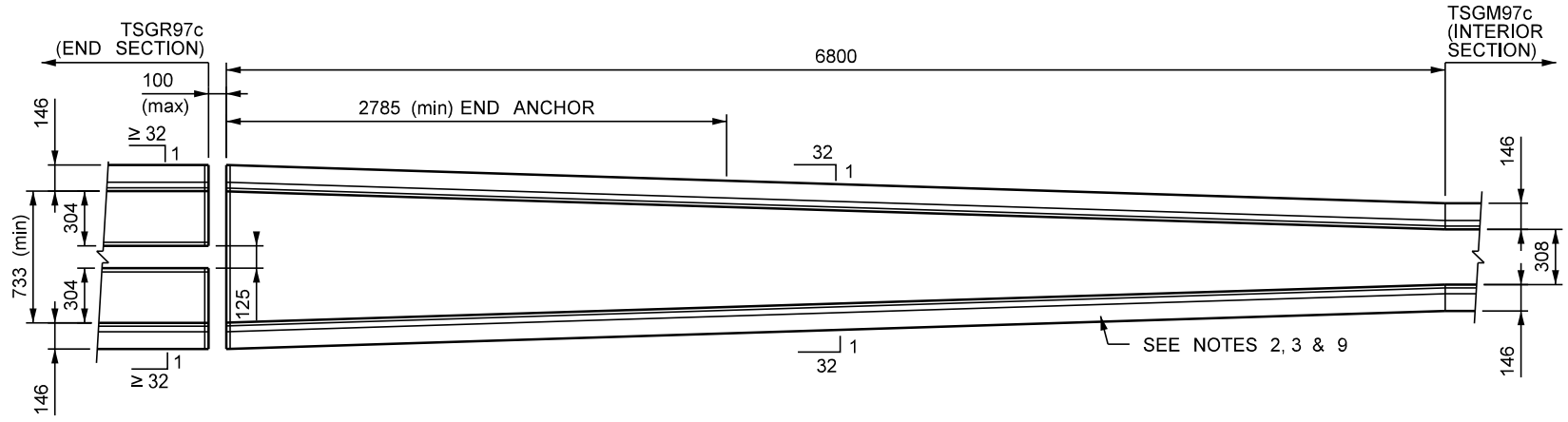
ELEVATION
SCALE 1:40



SECTION 'C-C'
(SEE TSGM97c FOR DETAILS)
SCALE 1:40



SECTION 'A-A'
SCALE 1:40



PLAN
SCALE 1:40

END SECTION DETAILS

NOTES:

1. ALL SCALES ARE APPROXIMATE.
2. LONGITUDINAL REINFORCING NOT SHOWN FOR CLARITY.
3. FORMED OR CUT CONTRACTION JOINTS SHALL BE CREATED AT EACH PLACE WHERE THE BARRIER SHAPE CHANGES, TO MATCH ADJACENT PAVEMENT JOINT SPACING, OR AT A MAXIMUM OF 6000 mm.
4. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE INDICATED.
5. THE ORIGINAL SEALED AND SIGNED DRAWING IS IN TRAFFIC ENGINEERING.
6. ALL REINFORCING SHALL HAVE MINIMUM 75 mm COVER, UNLESS OTHERWISE NOTED.
7. CONCRETE: CSA A23.1, EXPOSURE CLASS C-1, AIR CONTENT CATEGORY 1, COMPRESSIVE STRENGTH: BARRIER ≥ 45 MPa AND FOOTING ≥ 35 MPa AT 28 DAYS.
8. SEE SHEETS 7, 8, 9, & 10 FOR REINFORCING DETAILS.
9. TRANSVERSE REINFORCING NOT SHOWN FOR CLARITY.
10. SEE SECTIONS 'A-A' AND 'B-B' FOR BELOW GRADE DESIGN OPTIONS.

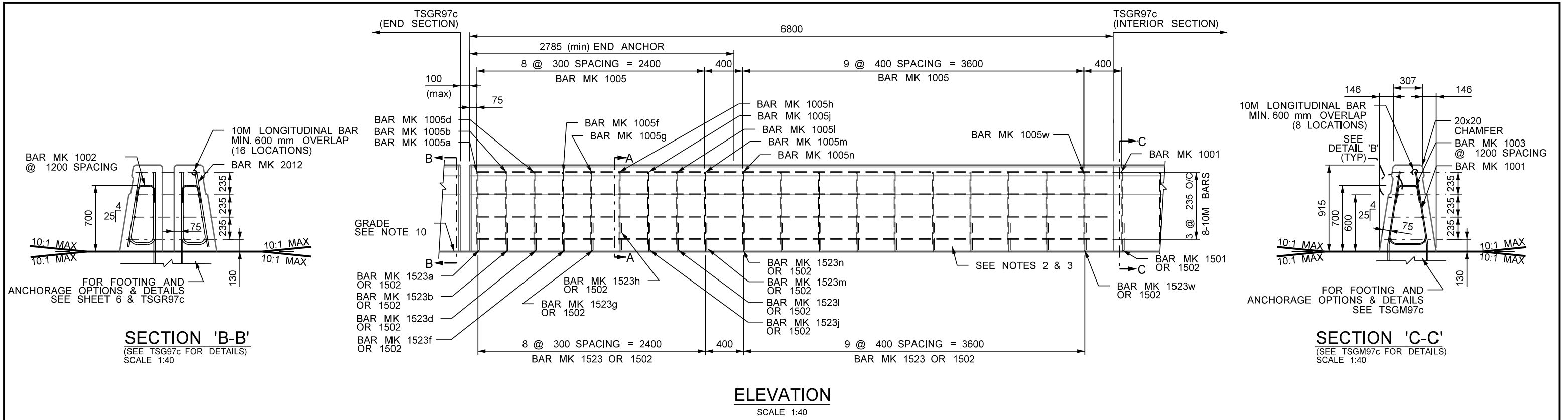
REVISIONS		
DATE	DESCRIPTION	BY



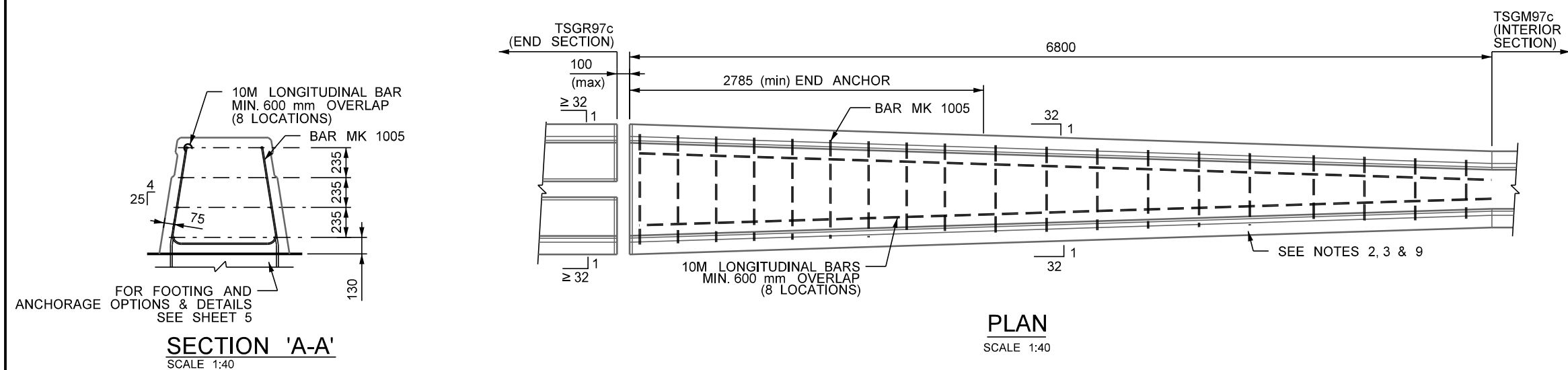
MANITOBA CONSTRAINED
WIDTH CONSTANT SLOPE
BARRIER - MEDIAN TL-4 TO
DUAL TL-4 VERTICAL BACK
TRANSITION AT 915

SHEET NO: 3 OF 10	DATE: 2020 - 08
DESIGNED BY:	H. LARSEN
DRAWN BY:	L. LIEBRECHT
REVIEWED BY:	N. JOYAL

TSTM91c



ELEVATION
SCALE 1:40



PLAN
SCALE 1:40

END SECTION DETAILS

NOTES:

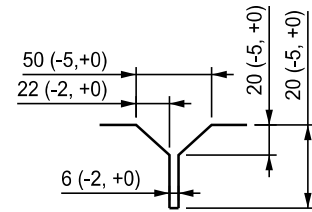
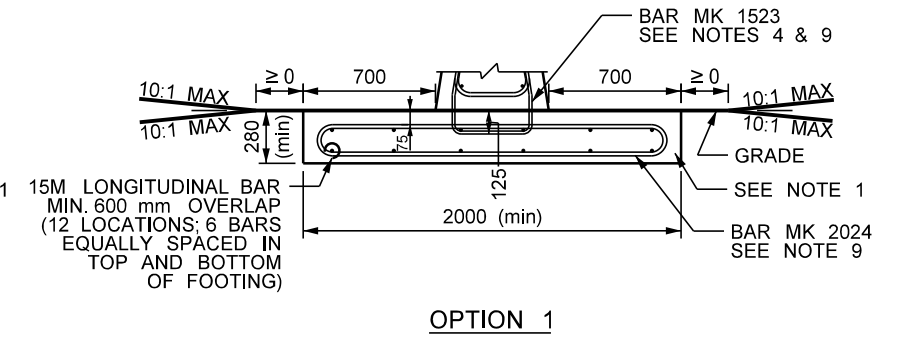
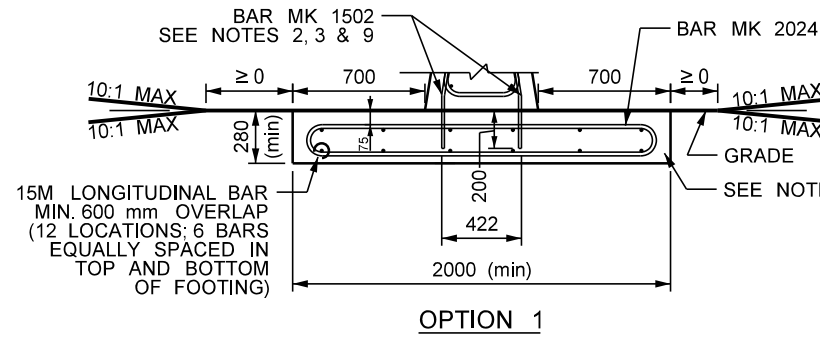
1. ALL SCALES ARE APPROXIMATE.
2. LONGITUDINAL REINFORCING NOT SHOWN FOR CLARITY.
3. FORMED OR CUT CONTRACTION JOINTS SHALL BE CREATED AT EACH PLACE WHERE THE BARRIER SHAPE CHANGES, TO MATCH ADJACENT PAVEMENT JOINT SPACING, OR AT A MAXIMUM OF 6000 mm.
4. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE INDICATED.
5. THE ORIGINAL SEALED AND SIGNED DRAWING IS IN TRAFFIC ENGINEERING.
6. ALL REINFORCING SHALL HAVE MINIMUM 75 mm COVER, UNLESS OTHERWISE NOTED.
7. CONCRETE: CSA A23.1, EXPOSURE CLASS C-1, AIR CONTENT CATEGORY 1, COMPRESSIVE STRENGTH: BARRIER ≥ 45 MPa AND FOOTING ≥ 35 MPa AT 28 DAYS.
8. SEE SHEETS 7, 8, 9, & 10 FOR REINFORCING DETAILS.
9. TRANSVERSE REINFORCING NOT SHOWN FOR CLARITY.
10. SEE SECTIONS 'A-A' AND 'B-B' FOR BELOW GRADE DESIGN OPTIONS.

REVISIONS		
DATE	DESCRIPTION	BY

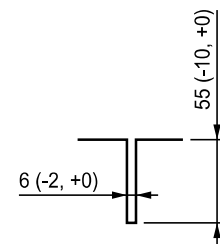


MANITOBA CONSTRAINED WIDTH CONSTANT SLOPE BARRIER - MEDIAN TL-4 TO DUAL TL-4 VERTICAL BACK TRANSITION AT 915

SHEET NO: 4 OF 10	DATE: 2020 - 08
DESIGNED BY:	H. LARSEN
DRAWN BY:	L. LIEBRECHT
REVIEWED BY:	N. JOYAL
TSTM91c	

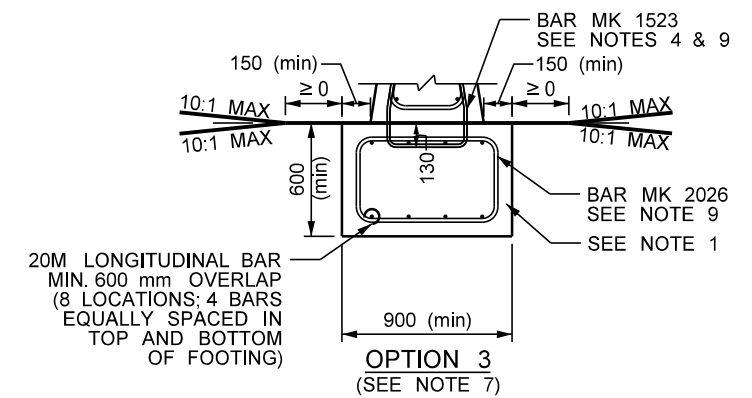
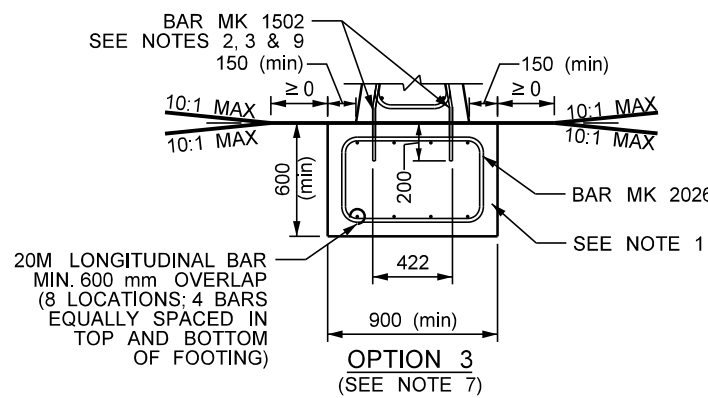
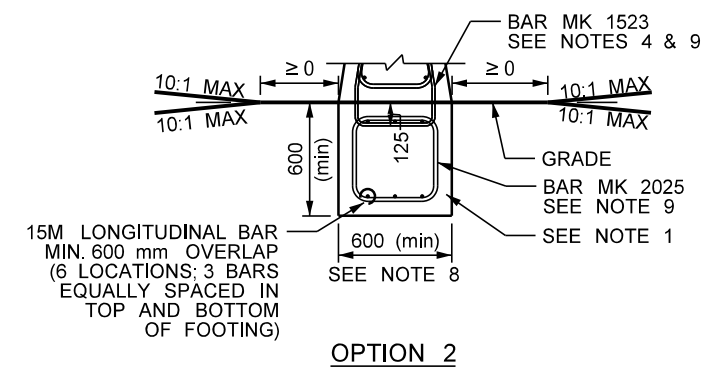
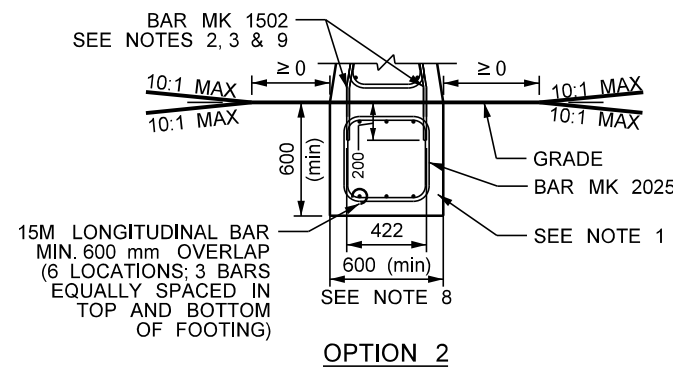


HAND FORMED BARRIER
SCALE 1:5



SLIP FORMED BARRIER (SAW CUT)
SCALE 1:5

CONTRACTION JOINT DETAILS



EXISTING FOOTING
SCALE 1:40

NEW FOOTING
SCALE 1:40

SECTION 'A-A'
INTERIOR SECTION FOOTING
SCALE 1:40

NOTES:

- NEW OR EXISTING REINFORCED CONCRETE FOOTING: CONCRETE: CSA A23.1, EXPOSURE CLASS C-1, AIR CONTENT CATEGORY 1, COMPRESSIVE STRENGTH FOOTING ≥ 35 MPa, @ 28 DAYS.
- HOLES IN FOOTING SHALL BE DRILLED VERTICALLY 2 mm LARGER THAN REINFORCING.
- HOLES IN FOOTING SHALL BE PREPARED FOR EPOXY (HILTI HIT RE 500, OR APPROVED ALTERNATIVE) AS DIRECTED BY MANUFACTURER.
- STIRRUP SHALL BE SECURELY ATTACHED TO REBAR.
- ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE INDICATED.
- SEE SHEETS 7, 8, 9, & 10 FOR REINFORCEMENT DETAILS.
- OPTION 3 MUST BE USED FOR END SECTION OF BARRIER.
- FOOTING WIDTH TO MATCH BARRIER WIDTH.
- SPACING TO MATCH BAR MK 1005.
- ALL REINFORCING SHALL HAVE MINIMUM 75 mm COVER, UNLESS OTHERWISE NOTED.

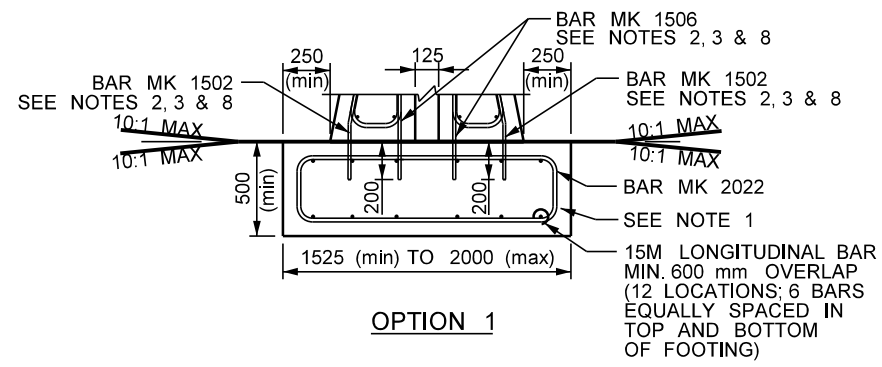
REVISIONS		
DATE	DESCRIPTION	BY



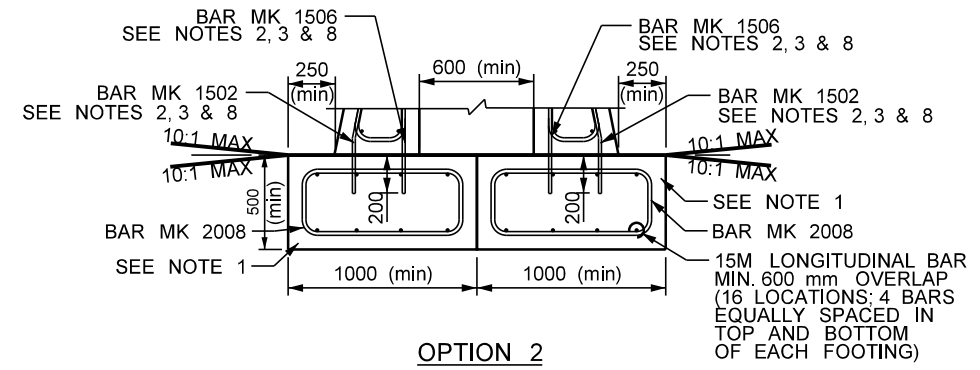
MANITOBA CONSTRAINED WIDTH CONSTANT SLOPE BARRIER - MEDIAN TL-4 TO DUAL TL-4 VERTICAL BACK TRANSITION AT 915

SHEET NO: 5 OF 10	DATE: 2020 - 08
DESIGNED BY: H. LARSEN	
DRAWN BY: L. LIEBRECHT	
REVIEWED BY: N. JOYAL	

TSTM91c

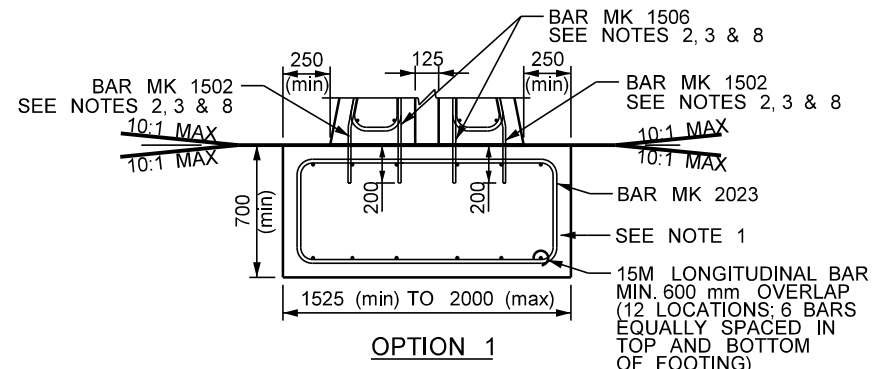


OPTION 1

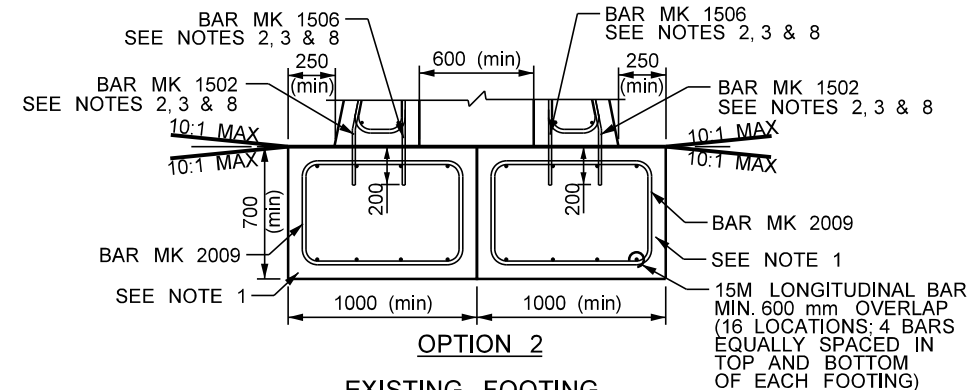


OPTION 2

EXISTING FOOTING

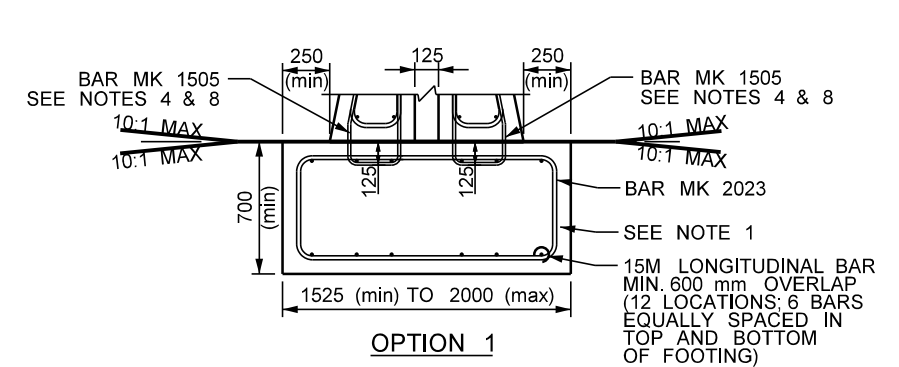


OPTION 1

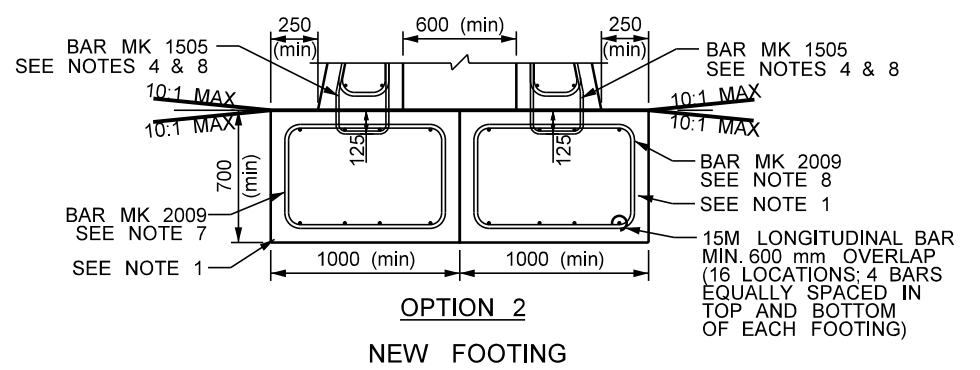


OPTION 2

EXISTING FOOTING



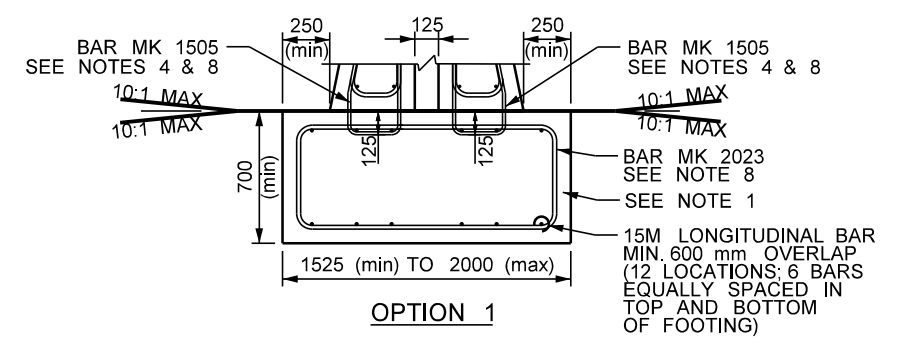
OPTION 1



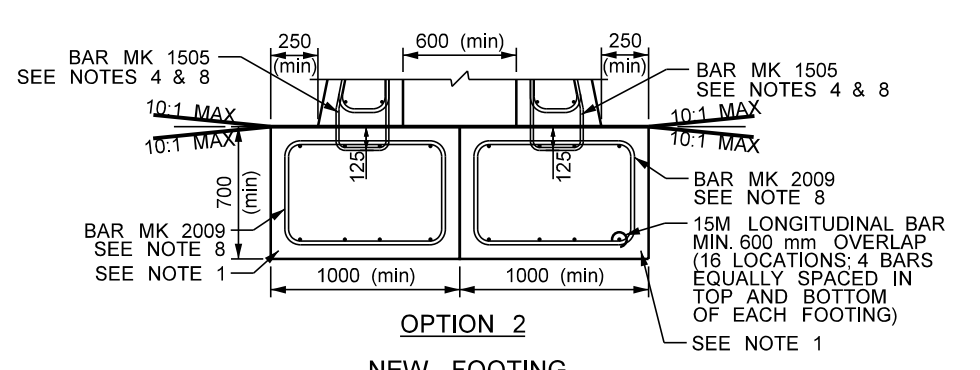
OPTION 2

NEW FOOTING

SECTION 'B-B'
INTERIOR SECTION FOOTING
SCALE 1:40



OPTION 1



OPTION 2

NEW FOOTING

SECTION 'B-B'
END SECTION FOOTING
SCALE 1:40

NOTES:

- NEW OR EXISTING REINFORCED CONCRETE FOOTING: CONCRETE: CSA A23.1, EXPOSURE CLASS C-1, AIR CONTENT CATEGORY 1, COMPRESSIVE STRENGTH FOOTING ≥ 35 MPa, @ 28 DAYS.
- HOLES IN FOOTING SHALL BE DRILLED VERTICALLY 2 mm LARGER THAN REINFORCING.
- HOLES IN FOOTING SHALL BE PREPARED FOR EPOXY (HILTI HIT RE 500, OR APPROVED ALTERNATIVE) AS DIRECTED BY MANUFACTURER.
- STIRRUP SHALL BE SECURELY ATTACHED TO REBAR.
- ALL DIMENSIONS IN MILLIMETERS UNLESS OTHERWISE INDICATED.
- ALTERNATE LONGITUDINAL REINFORCEMENT FOR TOP TWO BARS MAY BE ONE (1) SINGLE 15M BAR.
- SEE SHEETS 7, 8, 9, & 10 REINFORCEMENT DETAILS.
- SPACING TO MATCH BAR MK 2012.
- ALL REINFORCING SHALL HAVE MINIMUM 75 mm COVER, UNLESS OTHERWISE NOTED.

REVISIONS		
DATE	DESCRIPTION	BY



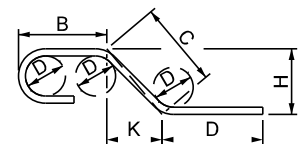
MANITOBA CONSTRAINED WIDTH CONSTANT SLOPE BARRIER - MEDIAN TL-4 TO DUAL TL-4 VERTICAL BACK TRANSITION AT 915

SHEET NO: 6 OF 10	DATE: 2020 - 08
DESIGNED BY:	H. LARSEN
DRAWN BY:	L. LIEBRECHT
REVIEWED BY:	N. JOYAL
TSTM91c	

MARK	TYPE	PIN DIAMETER (mm)	TOTAL LENGTH (mm)	MASS			BENDING DIAGRAM
				kg	kg/m		
					INTERIOR SEC.	END SEC.	
1001	BENT	125	1884	1.48	N/A SEE TSGM97e	N/A SEE TSGM97e	
1002	BENT	65	503	0.39	N/A SEE TSGR97c	N/A SEE TSGR97c	
1003	BENT	65	548	0.43	N/A SEE TSGM97e	N/A SEE TSGM97e	
							DIMENSION
1005a	BENT	125	2304	1.81	0.27	0.27	A
1005b	BENT	125	2286	1.79	---	0.26	600
1005c	BENT	125	2279	1.79	0.26	---	582
1005d	BENT	125	2267	1.78	---	0.26	575
1005e	BENT	125	2254	1.77	0.26	---	563
1005f	BENT	125	2248	1.76	---	0.26	550
1005g	BENT	125	2229	1.75	0.26	0.26	544
1005h	BENT	125	2211	1.74	---	0.26	525
1005i	BENT	125	2204	1.73	0.25	---	507
1005j	BENT	125	2192	1.72	---	0.25	500
1005k	BENT	125	2179	1.71	0.25	---	488
1005l	BENT	125	2173	1.71	---	0.25	475
1005m	BENT	125	2154	1.69	0.25	0.25	469
1005n	BENT	125	2139	1.68	0.25	0.25	450
1005o	BENT	125	2104	1.65	0.24	0.24	435
1005p	BENT	125	2079	1.63	0.24	0.24	400
1005q	BENT	125	2054	1.61	0.23	0.23	375
1005r	BENT	125	2029	1.59	0.23	0.23	350
1005s	BENT	125	2004	1.57	0.23	0.23	325
1005t	BENT	125	1979	1.55	0.23	0.23	300
1005u	BENT	125	1954	1.53	0.22	0.22	275
1005v	BENT	125	1929	1.51	0.22	0.22	250
1005w	BENT	125	1904	1.49	0.22	0.22	225
1501	BENT	65	1439	2.26	N/A SEE TSGM97c	N/A SEE TSGM97c	
1502	BENT	65	604	0.95	2.38	2.65	

NOTES:

- ALL DIMENSIONS GIVEN IN BENDING DIAGRAM ARE OUT TO OUT, EXCEPT RADII AND EXTENSIONS ON 90°, 135° & 180° HOOKS. EXTENSIONS ON 90°, 135° & 180° HOOKS ARE THE "A" OR "G" DIMENSIONS FOR THE STANDARD 90°, 135° & 180° HOOKS REFERENCED FROM THE RSIC "MANUAL OF STANDARD PRACTICE". RADII ARE INSIDE DIMENSIONS. ALL REINFORCING STEEL BENDS AND HOOKS SHALL CONFORM TO CLAUSE 6.6.2 OF CSA A23.1 UNLESS NOTED OTHERWISE IN THE BILL OF REINFORCING STEEL.
- ALL REINFORCING STEEL SHALL BE DEFORMED STEEL UNLESS NOTED OTHERWISE IN THE BILL OF REINFORCING STEEL.
- ALL REINFORCING STEEL SHALL CONFORM TO CSA G30.18-M92 "BILLET STEEL BARS FOR CONCRETE REINFORCEMENT" GRADE 400W, UNLESS NOTED OTHERWISE IN THE BILL OF REINFORCING STEEL.
- LIKE BARS SHALL BE BUNDLED, SECURELY TIED, AND IDENTIFIED AS TO MARK No. BY APPROPRIATE MEANS. ALL OTHER ITEMS TO BE IDENTIFIED IN A SIMILAR FASHION.
- BARS MARKED WITH THE SUFFIX "P" SHALL BE PLAIN UNDEFORMED BARS IN ACCORDANCE WITH CAN/CSA G40.21-M92 GRADE 300W.
- ALL BARS SHALL BE BENT IN ACCORDANCE WITH THE FOLLOWING DETAIL:



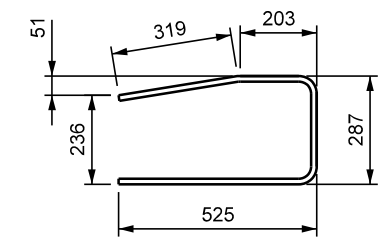
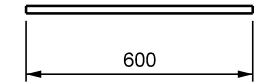
REVISIONS		
DATE	DESCRIPTION	BY



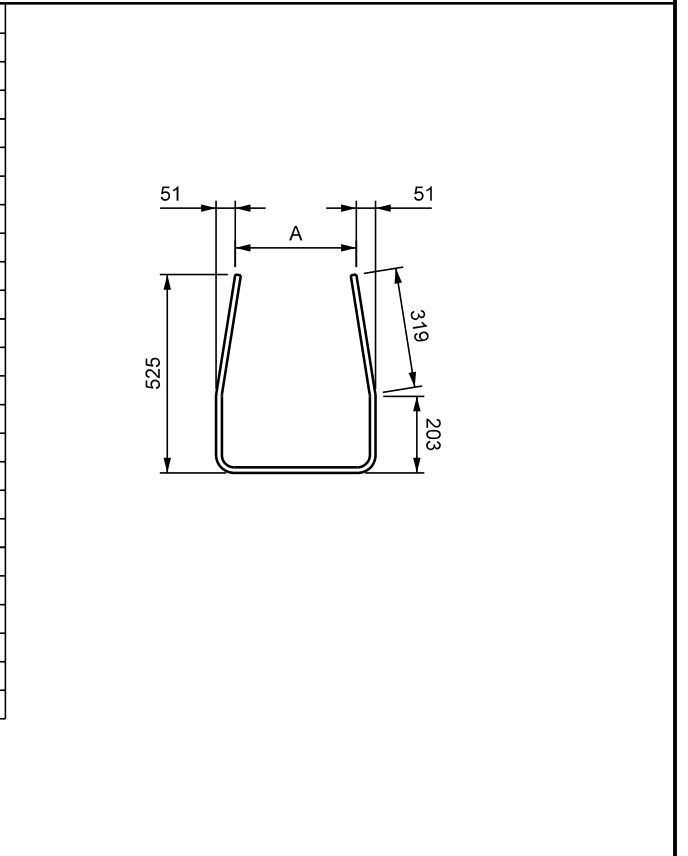
MANITOBA CONSTRAINED WIDTH CONSTANT SLOPE BARRIER - MEDIAN TL-4 TO DUAL TL-4 VERTICAL BACK TRANSITION AT 915

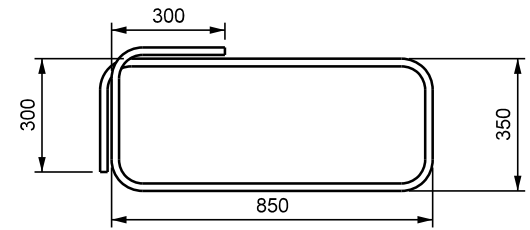
SHEET NO: 7 OF 10	DATE: 2020 - 08
DESIGNED BY: H. LARSEN	
DRAWN BY: L. LIEBRECHT	
REVIEWED BY: N. JOYAL	

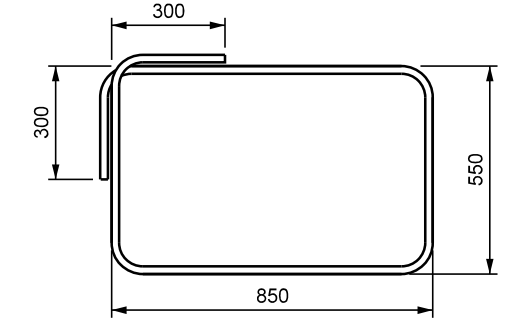
TSTM91c

MARK	TYPE	PIN DIAMETER (mm)	TOTAL LENGTH (mm)	MASS			BENDING DIAGRAM
				kg	kg/m		
					INTERIOR SEC.	END SEC.	
1505	BENT	65	1300	2.04	N/A SEE TSGR97c	N/A SEE TSGR97c	
1506	STR	0	600	0.94	N/A SEE TSGR97c	N/A SEE TSGR97c	

							DIMENSION
1523a	BENT	125	1860	2.92	0.43	0.43	A 740
1523b	BENT	125	1842	2.89	---	0.43	722
1523c	BENT	125	1835	2.88	0.42	---	715
1523d	BENT	125	1823	2.86	---	0.42	703
1523e	BENT	125	1810	2.84	0.42	---	690
1523f	BENT	125	1804	2.83	---	0.42	684
1523g	BENT	125	1785	2.80	0.41	0.41	665
1523h	BENT	125	1767	2.77	---	0.41	647
1523i	BENT	125	1760	2.76	0.41	---	640
1523j	BENT	125	1748	2.74	---	0.40	628
1523k	BENT	125	1735	2.72	0.40	---	615
1523l	BENT	125	1729	2.71	---	0.40	609
1523m	BENT	125	1710	2.68	0.39	---	590
1523n	BENT	125	1695	2.66	0.39	0.39	576
1523o	BENT	125	1660	2.61	0.38	0.38	540
1523p	BENT	125	1635	2.57	0.38	0.38	515
1523q	BENT	125	1610	2.53	0.37	0.37	490
1523r	BENT	125	1585	2.49	0.37	0.37	465
1523s	BENT	125	1560	2.45	0.36	0.36	440
1523t	BENT	125	1535	2.41	0.35	0.35	415
1523u	BENT	125	1510	2.37	0.35	0.35	390
1523v	BENT	125	1485	2.33	0.34	0.34	365
1523w	BENT	125	1460	2.29	0.34	0.34	340

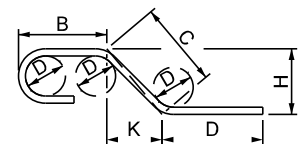


2008	BENT	125	2885	6.79	N/A SEE TSGR97c	N/A SEE TSGR97c	
------	------	-----	------	------	-----------------------	-----------------------	---

2009	BENT	125	3283	7.73	N/A SEE TSGR97c	N/A SEE TSGR97c	
------	------	-----	------	------	-----------------------	-----------------------	---

NOTES:

- ALL DIMENSIONS GIVEN IN BENDING DIAGRAM ARE OUT TO OUT, EXCEPT RADII AND EXTENSIONS ON 90°, 135° & 180° HOOKS. EXTENSIONS ON 90°, 135° & 180° HOOKS ARE THE "A" OR "G" DIMENSIONS FOR THE STANDARD 90°, 135° & 180° HOOKS REFERENCED FROM THE RSIC "MANUAL OF STANDARD PRACTICE". RADII ARE INSIDE DIMENSIONS. ALL REINFORCING STEEL BENDS AND HOOKS SHALL CONFORM TO CLAUSE 6.6.2 OF CSA A23.1 UNLESS NOTED OTHERWISE IN THE BILL OF REINFORCING STEEL.
- ALL REINFORCING STEEL SHALL BE DEFORMED STEEL UNLESS NOTED OTHERWISE IN THE BILL OF REINFORCING STEEL.
- ALL REINFORCING STEEL SHALL CONFORM TO CSA G30.18-M92 "BILLET STEEL BARS FOR CONCRETE REINFORCEMENT" GRADE 400W, UNLESS NOTED OTHERWISE IN THE BILL OF REINFORCING STEEL.
- LIKE BARS SHALL BE BUNDLED, SECURELY TIED, AND IDENTIFIED AS TO MARK No. BY APPROPRIATE MEANS. ALL OTHER ITEMS TO BE IDENTIFIED IN A SIMILAR FASHION.
- BARS MARKED WITH THE SUFFIX "P" SHALL BE PLAIN UNDEFORMED BARS IN ACCORDANCE WITH CAN/CSA G40.21-M92 GRADE 300W.
- ALL BARS SHALL BE BENT IN ACCORDANCE WITH THE FOLLOWING DETAIL:



REVISIONS		
DATE	DESCRIPTION	BY

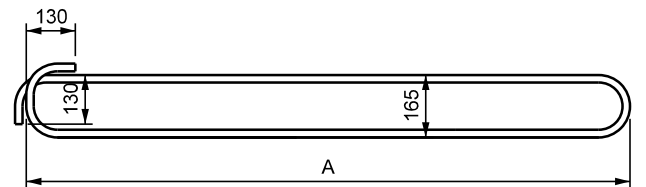
Manitoba Infrastructure
Traffic Engineering




MANITOBA CONSTRAINED WIDTH CONSTANT SLOPE BARRIER - MEDIAN TL-4 TO DUAL TL-4 VERTICAL BACK TRANSITION AT 915

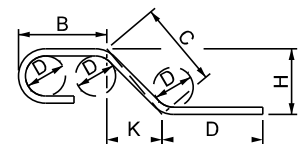
SHEET NO: 8 OF 10	DATE: 2020 - 08
DESIGNED BY: H. LARSEN	
DRAWN BY: L. LIEBRECHT	
REVIEWED BY: N. JOYAL	
TSTM91c	

MARK	TYPE	PIN DIAMETER (mm)	TOTAL LENGTH (mm)	MASS			BENDING DIAGRAM																																																																																																																																																																																																								
				kg	kg/m																																																																																																																																																																																																										
					INTERIOR SEC.	END SEC.																																																																																																																																																																																																									
2012	BENT	125	1741	4.41	N/A SEE TSGR97c	N/A SEE TSGR97c																																																																																																																																																																																																									
2022	BENT	125	3931 to 4881	9.26 to 11.49	23.15 to 28.73	--																																																																																																																																																																																																									
2023	BENT	125	4331 to 5281	10.20 to 12.44	--	25.50 to 62.20																																																																																																																																																																																																									
							<p>*NOTE: WIDTHS AND WEIGHTS OF INDIVIDUAL BARS ARE DEPENDENT ON DESIGN TAPER ANGLE OF BARRIER</p> <p>*NOTE: WIDTHS AND WEIGHTS OF INDIVIDUAL BARS ARE DEPENDENT ON DESIGN TAPER ANGLE OF BARRIER</p>																																																																																																																																																																																																								
							<table border="1"> <thead> <tr> <th colspan="7"></th> <th>DIMENSION</th> </tr> <tr> <th colspan="7"></th> <th>A</th> </tr> </thead> <tbody> <tr><td>2024a</td><td>BENT</td><td>125</td><td>5013</td><td>11.81</td><td>1.74</td><td>1.74</td><td>2270</td></tr> <tr><td>2024b</td><td>BENT</td><td>125</td><td>4977</td><td>11.72</td><td>--</td><td>1.72</td><td>2252</td></tr> <tr><td>2024c</td><td>BENT</td><td>125</td><td>4963</td><td>11.69</td><td>1.72</td><td>--</td><td>2245</td></tr> <tr><td>2024d</td><td>BENT</td><td>125</td><td>4939</td><td>11.63</td><td>--</td><td>1.71</td><td>2233</td></tr> <tr><td>2024e</td><td>BENT</td><td>125</td><td>4913</td><td>11.57</td><td>1.70</td><td>--</td><td>2220</td></tr> <tr><td>2024f</td><td>BENT</td><td>125</td><td>4901</td><td>11.54</td><td>--</td><td>1.70</td><td>2214</td></tr> <tr><td>2024g</td><td>BENT</td><td>125</td><td>4863</td><td>11.45</td><td>1.68</td><td>1.68</td><td>2195</td></tr> <tr><td>2024h</td><td>BENT</td><td>125</td><td>4827</td><td>11.37</td><td>--</td><td>1.67</td><td>2177</td></tr> <tr><td>2024i</td><td>BENT</td><td>125</td><td>4813</td><td>11.33</td><td>1.67</td><td>--</td><td>2170</td></tr> <tr><td>2024j</td><td>BENT</td><td>125</td><td>4789</td><td>11.28</td><td>--</td><td>1.66</td><td>2158</td></tr> <tr><td>2024k</td><td>BENT</td><td>125</td><td>4763</td><td>11.22</td><td>1.65</td><td>--</td><td>2145</td></tr> <tr><td>2024l</td><td>BENT</td><td>125</td><td>4751</td><td>11.19</td><td>--</td><td>1.65</td><td>2139</td></tr> <tr><td>2024m</td><td>BENT</td><td>125</td><td>4713</td><td>11.10</td><td>1.63</td><td>1.63</td><td>2120</td></tr> <tr><td>2024n</td><td>BENT</td><td>125</td><td>4663</td><td>10.98</td><td>1.61</td><td>1.61</td><td>2095</td></tr> <tr><td>2024o</td><td>BENT</td><td>125</td><td>4613</td><td>10.86</td><td>1.60</td><td>1.60</td><td>2070</td></tr> <tr><td>2024p</td><td>BENT</td><td>125</td><td>4563</td><td>10.75</td><td>1.58</td><td>1.58</td><td>2045</td></tr> <tr><td>2024q</td><td>BENT</td><td>125</td><td>4513</td><td>10.63</td><td>1.56</td><td>1.56</td><td>2020</td></tr> <tr><td>2024r</td><td>BENT</td><td>125</td><td>4463</td><td>10.51</td><td>1.55</td><td>1.55</td><td>1995</td></tr> <tr><td>2024s</td><td>BENT</td><td>125</td><td>4413</td><td>10.39</td><td>1.53</td><td>1.53</td><td>1970</td></tr> <tr><td>2024t</td><td>BENT</td><td>125</td><td>4363</td><td>10.27</td><td>1.51</td><td>1.51</td><td>1945</td></tr> <tr><td>2024u</td><td>BENT</td><td>125</td><td>4313</td><td>10.16</td><td>1.49</td><td>1.49</td><td>1920</td></tr> <tr><td>2024v</td><td>BENT</td><td>125</td><td>4263</td><td>10.04</td><td>1.48</td><td>1.48</td><td>1895</td></tr> <tr><td>2024w</td><td>BENT</td><td>125</td><td>4213</td><td>9.92</td><td>1.46</td><td>1.46</td><td>1870</td></tr> </tbody> </table>								DIMENSION								A	2024a	BENT	125	5013	11.81	1.74	1.74	2270	2024b	BENT	125	4977	11.72	--	1.72	2252	2024c	BENT	125	4963	11.69	1.72	--	2245	2024d	BENT	125	4939	11.63	--	1.71	2233	2024e	BENT	125	4913	11.57	1.70	--	2220	2024f	BENT	125	4901	11.54	--	1.70	2214	2024g	BENT	125	4863	11.45	1.68	1.68	2195	2024h	BENT	125	4827	11.37	--	1.67	2177	2024i	BENT	125	4813	11.33	1.67	--	2170	2024j	BENT	125	4789	11.28	--	1.66	2158	2024k	BENT	125	4763	11.22	1.65	--	2145	2024l	BENT	125	4751	11.19	--	1.65	2139	2024m	BENT	125	4713	11.10	1.63	1.63	2120	2024n	BENT	125	4663	10.98	1.61	1.61	2095	2024o	BENT	125	4613	10.86	1.60	1.60	2070	2024p	BENT	125	4563	10.75	1.58	1.58	2045	2024q	BENT	125	4513	10.63	1.56	1.56	2020	2024r	BENT	125	4463	10.51	1.55	1.55	1995	2024s	BENT	125	4413	10.39	1.53	1.53	1970	2024t	BENT	125	4363	10.27	1.51	1.51	1945	2024u	BENT	125	4313	10.16	1.49	1.49	1920	2024v	BENT	125	4263	10.04	1.48	1.48	1895	2024w	BENT	125	4213	9.92	1.46	1.46	1870
							DIMENSION																																																																																																																																																																																																								
							A																																																																																																																																																																																																								
2024a	BENT	125	5013	11.81	1.74	1.74	2270																																																																																																																																																																																																								
2024b	BENT	125	4977	11.72	--	1.72	2252																																																																																																																																																																																																								
2024c	BENT	125	4963	11.69	1.72	--	2245																																																																																																																																																																																																								
2024d	BENT	125	4939	11.63	--	1.71	2233																																																																																																																																																																																																								
2024e	BENT	125	4913	11.57	1.70	--	2220																																																																																																																																																																																																								
2024f	BENT	125	4901	11.54	--	1.70	2214																																																																																																																																																																																																								
2024g	BENT	125	4863	11.45	1.68	1.68	2195																																																																																																																																																																																																								
2024h	BENT	125	4827	11.37	--	1.67	2177																																																																																																																																																																																																								
2024i	BENT	125	4813	11.33	1.67	--	2170																																																																																																																																																																																																								
2024j	BENT	125	4789	11.28	--	1.66	2158																																																																																																																																																																																																								
2024k	BENT	125	4763	11.22	1.65	--	2145																																																																																																																																																																																																								
2024l	BENT	125	4751	11.19	--	1.65	2139																																																																																																																																																																																																								
2024m	BENT	125	4713	11.10	1.63	1.63	2120																																																																																																																																																																																																								
2024n	BENT	125	4663	10.98	1.61	1.61	2095																																																																																																																																																																																																								
2024o	BENT	125	4613	10.86	1.60	1.60	2070																																																																																																																																																																																																								
2024p	BENT	125	4563	10.75	1.58	1.58	2045																																																																																																																																																																																																								
2024q	BENT	125	4513	10.63	1.56	1.56	2020																																																																																																																																																																																																								
2024r	BENT	125	4463	10.51	1.55	1.55	1995																																																																																																																																																																																																								
2024s	BENT	125	4413	10.39	1.53	1.53	1970																																																																																																																																																																																																								
2024t	BENT	125	4363	10.27	1.51	1.51	1945																																																																																																																																																																																																								
2024u	BENT	125	4313	10.16	1.49	1.49	1920																																																																																																																																																																																																								
2024v	BENT	125	4263	10.04	1.48	1.48	1895																																																																																																																																																																																																								
2024w	BENT	125	4213	9.92	1.46	1.46	1870																																																																																																																																																																																																								



NOTES:

- ALL DIMENSIONS GIVEN IN BENDING DIAGRAM ARE OUT TO OUT, EXCEPT RADII AND EXTENSIONS ON 90°, 135° & 180° HOOKS. EXTENSIONS ON 90°, 135° & 180° HOOKS ARE THE "A" OR "G" DIMENSIONS FOR THE STANDARD 90°, 135° & 180° HOOKS REFERENCED FROM THE RSIC "MANUAL OF STANDARD PRACTICE". RADII ARE INSIDE DIMENSIONS. ALL REINFORCING STEEL BENDS AND HOOKS SHALL CONFORM TO CLAUSE 6.6.2 OF CSA A23.1 UNLESS NOTED OTHERWISE IN THE BILL OF REINFORCING STEEL.
- ALL REINFORCING STEEL SHALL BE DEFORMED STEEL UNLESS NOTED OTHERWISE IN THE BILL OF REINFORCING STEEL.
- ALL REINFORCING STEEL SHALL CONFORM TO CSA G30.18-M92 "BILLET STEEL BARS FOR CONCRETE REINFORCEMENT" GRADE 400W, UNLESS NOTED OTHERWISE IN THE BILL OF REINFORCING STEEL.
- LIKE BARS SHALL BE BUNDLED, SECURELY TIED, AND IDENTIFIED AS TO MARK No. BY APPROPRIATE MEANS. ALL OTHER ITEMS TO BE IDENTIFIED IN A SIMILAR FASHION.
- BARS MARKED WITH THE SUFFIX "P" SHALL BE PLAIN UNDEFORMED BARS IN ACCORDANCE WITH CAN/CSA G40.21-M92 GRADE 300W.
- ALL BARS SHALL BE BENT IN ACCORDANCE WITH THE FOLLOWING DETAIL:



REVISIONS		
DATE	DESCRIPTION	BY

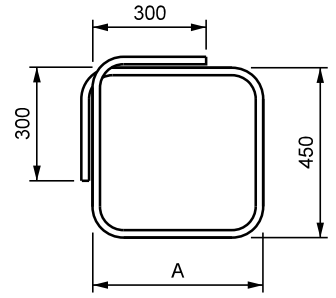


MANITOBA CONSTRAINED WIDTH CONSTANT SLOPE BARRIER - MEDIAN TL-4 TO DUAL TL-4 VERTICAL BACK TRANSITION AT 915

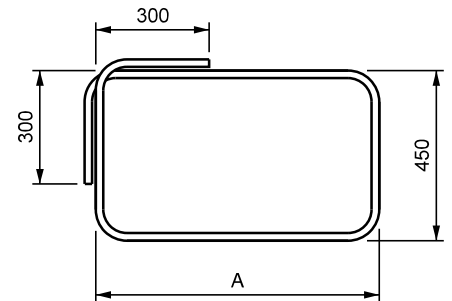
SHEET NO: 9 OF 10	DATE: 2020 - 08
DESIGNED BY: H. LARSEN	
DRAWN BY: L. LIEBRECHT	
REVIEWED BY: N. JOYAL	

TSTM91c

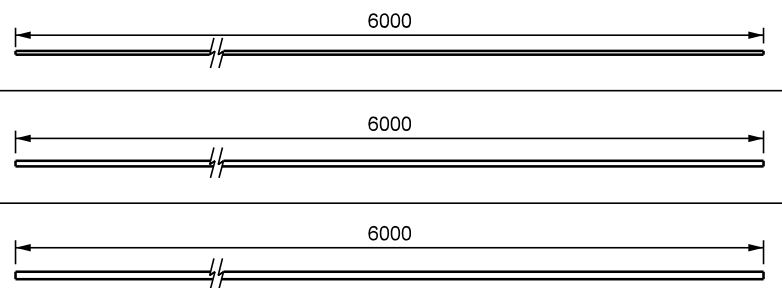
MARK	TYPE	PIN DIAMETER (mm)	TOTAL LENGTH (mm)	MASS			BENDING DIAGRAM
				kg	kg/m		
					INTERIOR SEC.	END SEC.	
							DIMENSION A
2025a	BENT	125	3123	7.35	1.08	1.08	870
2025b	BENT	125	3087	7.27	--	1.07	852
2025c	BENT	125	3073	7.24	1.06	--	845
2025d	BENT	125	3049	7.18	--	1.06	833
2025e	BENT	125	3023	7.12	1.05	--	820
2025f	BENT	125	3011	7.09	--	1.04	814
2025g	BENT	125	2973	7.00	1.03	1.03	795
2025h	BENT	125	2937	6.92	--	1.02	777
2025i	BENT	125	2923	6.88	1.01	--	770
2025j	BENT	125	2899	6.83	--	1.00	758
2025k	BENT	125	2873	6.77	1.00	--	745
2025l	BENT	125	2861	6.74	--	0.99	739
2025m	BENT	125	2823	6.65	0.98	0.98	720
2025n	BENT	125	2773	6.53	0.96	0.96	695
2025o	BENT	125	2723	6.41	0.94	0.94	670
2025p	BENT	125	2673	6.29	0.93	0.93	645
2025q	BENT	125	2623	6.18	0.91	0.91	620
2025r	BENT	125	2573	6.06	0.89	0.89	595
2025s	BENT	125	2523	5.94	0.87	0.87	570
2025t	BENT	125	2473	5.82	0.86	0.86	545
2025u	BENT	125	2423	5.71	0.84	0.84	520
2025v	BENT	125	2373	5.59	0.82	0.82	495
2025w	BENT	125	2323	5.47	0.80	0.80	470



MARK	TYPE	PIN DIAMETER (mm)	TOTAL LENGTH (mm)	kg	kg/m		BENDING DIAGRAM
					INTERIOR SEC.	END SEC.	
2026a	BENT	125	3721	8.76	1.29	1.29	1170
2026b	BENT	125	3684	8.68	--	1.28	1152
2026c	BENT	125	3671	8.65	1.27	--	1145
2026d	BENT	125	3646	8.59	--	1.26	1133
2026e	BENT	125	3621	8.53	1.25	--	1120
2026f	BENT	125	3609	8.50	--	1.25	1114
2026g	BENT	125	3571	8.41	1.24	1.24	1095
2026h	BENT	125	3534	8.32	--	1.22	1077
2026i	BENT	125	3521	8.29	1.22	--	1070
2026j	BENT	125	3496	8.23	--	1.21	1058
2026k	BENT	125	3471	8.17	1.20	--	1045
2026l	BENT	125	3459	8.15	--	1.20	1039
2026m	BENT	125	3421	8.06	1.19	1.19	1020
2026n	BENT	125	3385	8.04	1.18	1.18	995
2026o	BENT	125	3371	7.93	1.17	1.17	970
2026p	BENT	125	3321	7.82	1.15	1.15	945
2026q	BENT	125	3271	7.70	1.13	1.13	920
2026r	BENT	125	3221	7.59	1.12	1.12	895
2026s	BENT	125	3171	7.47	1.10	1.10	870
2026t	BENT	125	3121	7.35	1.08	1.08	845
2026u	BENT	125	3071	7.23	1.06	1.06	820
2026v	BENT	125	3021	7.11	1.05	1.05	795
2026w	BENT	125	2971	7.00	1.03	1.03	770

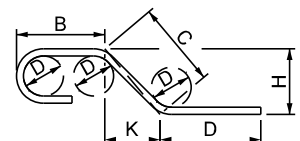


LONGITUDINAL REINFORCING - MASS (kg/m)					
BAR	INTERIOR SECTION	END SECTION	FOOTING		
			OPTION 1	OPTION 2	OPTION 3
10M	6.59	6.59	--	--	--
15M	--	--	20.72	9.89	--
20M	--	--	--	--	19.78



NOTES:

- ALL DIMENSIONS GIVEN IN BENDING DIAGRAM ARE OUT TO OUT, EXCEPT RADII AND EXTENSIONS ON 90°, 135° & 180° HOOKS. EXTENSIONS ON 90°, 135° & 180° HOOKS ARE THE "A" OR "G" DIMENSIONS FOR THE STANDARD 90°, 135° & 180° HOOKS REFERENCED FROM THE RSIC "MANUAL OF STANDARD PRACTICE". RADII ARE INSIDE DIMENSIONS. ALL REINFORCING STEEL BENDS AND HOOKS SHALL CONFORM TO CLAUSE 6.6.2 OF CSA A23.1 UNLESS NOTED OTHERWISE IN THE BILL OF REINFORCING STEEL.
- ALL REINFORCING STEEL SHALL BE DEFORMED STEEL UNLESS NOTED OTHERWISE IN THE BILL OF REINFORCING STEEL.
- ALL REINFORCING STEEL SHALL CONFORM TO CSA G30.18-M92 "BILLET STEEL BARS FOR CONCRETE REINFORCEMENT" GRADE 400W, UNLESS NOTED OTHERWISE IN THE BILL OF REINFORCING STEEL.
- LIKE BARS SHALL BE BUNDLED, SECURELY TIED, AND IDENTIFIED AS TO MARK No. BY APPROPRIATE MEANS. ALL OTHER ITEMS TO BE IDENTIFIED IN A SIMILAR FASHION.
- BARS MARKED WITH THE SUFFIX "P" SHALL BE PLAIN UNDEFORMED BARS IN ACCORDANCE WITH CAN/CSA G40.21-M92 GRADE 300W.
- ALL BARS SHALL BE BENT IN ACCORDANCE WITH THE FOLLOWING DETAIL:



REVISIONS		
DATE	DESCRIPTION	BY



MANITOBA CONSTRAINED WIDTH CONSTANT SLOPE BARRIER - MEDIAN TL-4 TO DUAL TL-4 VERTICAL BACK TRANSITION AT 915

SHEET NO: 10 OF 10	DATE: 2020 - 08
DESIGNED BY: H. LARSEN	
DRAWN BY: L. LIEBRECHT	
REVIEWED BY: N. JOYAL	

TSTM91c