

Project Name: SWO 3868(1)
 Description: A009
 Horizontal Alignment Name: WATERLOO RD. CONNECTION SURVEY
 Description: RAMP
 Style: Centerline

Element:	Linear	STATION	EASTING	NORTHING
POB (414)		20+00.00	2091151.9755	264489.9609
PI (9054)		27+54.59	2091906.5677	264490.0939
Tangent Direction:		N 89°59'23.62" E		
Tangent Length:		754.59		

Element:	Linear	STATION	EASTING	NORTHING
PI (9054)		27+54.59	2091906.5677	264490.0939
POE (415)		39+68.50	2093120.4413	264499.0916
Tangent Direction:		N 89°34'31.12" E		
Tangent Length:		1213.91		

Project Name: SWO 3868(1)
 Description: A011
 Horizontal Alignment Name: RAMP C
 Description: RAMP C
 Style: Centerline

Element:	Linear	STATION	EASTING	NORTHING
POB (4000)		0+00.00	2091836.1838	222370.8325
PC (10012)		3+93.74	2091834.0568	222764.5702
Tangent Direction:		N 0°18'34.23" W		
Tangent Length:		393.74		

Element:	Circular	PC (10012)	STATION	EASTING	NORTHING
PI (10034)			3+93.74	2091834.0568	222764.5702
CC (10034)			5+19.93	2091833.3751	222890.7534
PT (10013)			6+45.61	2091852.0387	223015.5474
Radius:			1637.03		
Delta:			8°48'55.31" Right		
Degree of Curvature(Arc):			3°29'59.93" Left		
Length:			251.87		
Tangent:			126.18		
Chord:			251.62		
Middle Ordinate:			4.86		
External:			4.86		
Tangent Direction:			N 0°18'34.28" W		
Radial Direction:			N 89°41'25.72" E		
Chord Direction:			N 4°05'53.17" E		
Radial Direction:			S 81°29'38.97" E		
Tangent Direction:			N 8°30'21.03" E		

Element:	Linear	PT (10013)	STATION	EASTING	NORTHING
PC (10022)			6+45.61	2091852.0387	223015.5474
POE (4002)			13+10.71	2091950.4135	223673.3319
Tangent Direction:			N 8°30'20.94" E		
Tangent Length:			665.10		

Element:	Circular	PC (10022)	STATION	EASTING	NORTHING
PI (10024)			13+10.71	2091950.4135	223673.3319
CC (10024)			13+82.70	2091961.0614	223744.5290
CC (10024)			2090331.3931	223915.4646	
PT (10023)			14+54.60	2091965.4184	223816.3844
Radius:			1637.03		
Delta:			5°02'09.29" Left		
Degree of Curvature(Arc):			3°29'59.97" Left		
Length:			143.88		
Tangent:			71.99		
Chord:			143.84		
Middle Ordinate:			1.58		
External:			1.58		
Tangent Direction:			N 8°30'21.00" E		
Radial Direction:			S 81°29'39.00" E		
Chord Direction:			N 5°59'16.45" E		
Radial Direction:			S 86°31'48.29" E		
Tangent Direction:			N 3°28'11.71" E		

Element:	Linear	PT (10023)	STATION	EASTING	NORTHING
POE (4002)			14+54.60	2091965.4184	223816.3844
POE (4002)			19+54.60	2091995.6808	224315.4677
Tangent Direction:			N 3°28'11.77" E		
Tangent Length:			500.00		

Project Name: SWO 3868(1)
 Description: A012
 Horizontal Alignment Name: RAMP
 Description: RAMP
 Style: Centerline

Element:	Linear	STATION	EASTING	NORTHING
POB (4001)		0+00.00	2092266.2410	222361.3788
PC (10032)		3+05.52	2092264.5907	222666.8975
Tangent Direction:		N 0°18'34.13" W		
Tangent Length:		305.52		

Elements are not collinear

Element:	Circular	PC (10032)	STATION	EASTING	NORTHING
PI (10032)			3+05.52	2092264.5907	222666.8975
CC (10014)			4+36.56	2092263.8829	222797.9285
CC (10033)			2090627.6009	222658.0540	
PT (10033)			5+67.04	2092242.3401	222927.1824
Radius:			1637.01		
Delta:			9°09'10.72" Left		
Degree of Curvature(Arc):			3°30'00.07" Left		
Length:			261.51		
Tangent:			131.03		
Chord:			261.23		
Middle Ordinate:			5.22		
External:			5.24		
Tangent Direction:			N 0°18'34.29" W		
Radial Direction:			N 89°41'25.71" E		
Chord Direction:			N 4°53'09.91" W		
Radial Direction:			N 80°32'14.99" E		
Tangent Direction:			N 9°27'45.01" W		

Element:	Linear	PT (10033)	STATION	EASTING	NORTHING
PC (10042)			5+67.04	2092242.3401	222927.1824
POE (4003)			11+65.84	2092143.8961	223517.8358
Tangent Direction:			N 9°27'44.97" W		
Tangent Length:			598.80		

Element:	Circular	PC (10042)	STATION	EASTING	NORTHING
PI (10042)			11+65.84	2092143.8961	223517.8358
CC (10044)			13+66.34	2092110.9323	223715.6150
CC (10043)			2094969.7021	223988.8125	
PT (10043)			15+66.20	2092105.8401	223916.0564
Radius:			2864.79		
Delta:			8°00'26.00" Right		
Degree of Curvature(Arc):			2°00'00.01" Right		
Length:			400.36		
Tangent:			200.51		
Chord:			400.03		
Middle Ordinate:			6.99		
External:			7.01		
Tangent Direction:			N 9°27'45.00" W		
Radial Direction:			N 80°32'15.00" E		
Chord Direction:			N 5°27'32.05" W		
Radial Direction:			N 88°32'40.99" E		
Tangent Direction:			N 1°27'19.01" W		

Element:	Linear	PT (10043)	STATION	EASTING	NORTHING
POE (4003)			15+66.20	2092105.8401	223916.0564
POE (4003)			24+66.38	2092082.9786	224815.9464
Tangent Direction:			N 1°27'18.98" W		
Tangent Length:			900.18		

Project Name: SWO 3868(1)
 Description: A013
 Horizontal Alignment Name: EAST FRONTAGE ROAD
 Description: EAST FRONTAGE ROAD
 Style: Centerline

Element:	Linear	STATION	EASTING	NORTHING
POB (4000)		0+00.00	2091836.1838	222370.8325
PC (10052)		21+43.74	2091824.6028	224514.5457
Tangent Direction:		N 0°18'34.30" W		
Tangent Length:		2143.74		

Elements are not collinear

Element:	Circular	PC (10052)	STATION	EASTING	NORTHING
PI (10054)			21+43.74	2091824.6028	224514.5457
CC (10054)			22+43.74	2091824.0627	224614.5442
CC (10053)			2091924.6012	224515.0857	
PT (10053)			23+00.82	2091924.0609	224615.0846
Radius:			100.00		
Delta:			89°59'59.33" Right		
Degree of Curvature(Arc):			57°17'44.58" Right		
Length:			157.08		
Tangent:			100.00		
Chord:			141.42		
Middle Ordinate:			29.29		
External:			41.42		
Tangent Direction:			N 0°18'33.89" W		
Radial Direction:			N 89°41'26.11" E		
Chord Direction:			N 44°41'25.44" E		
Radial Direction:			S 0°18'34.56" W		
Tangent Direction:			N 89°41'25.44" E		

Elements are not collinear

Element:	Linear	PT (10053)	STATION	EASTING	NORTHING
POE (303)			23+00.82	2091924.0609	224615.0846
POE (303)			24+57.97	2092081.2090	224615.9347
Tangent Direction:			N 89°41'24.10" E		
Tangent Length:			157.15		

Project Name: SWO 3868(1)
 Description: A014
 Horizontal Alignment Name: EAST FRONTAGE ROAD
 Description: EAST FRONTAGE ROAD
 Style: Centerline

Element:	Linear	STATION	EASTING	NORTHING
POB (4001)		0+00.00	2092266.2410	222361.3788
PC (10062)		21+55.52	2092254.5963	224516.8686
Tangent Direction:		N 0°18'34.30" W		
Tangent Length:		2155.52		

Elements are not collinear

Element:	Circular	PC (10062)	STATION	EASTING	NORTHING
PI (10064)			21+55.52	2092254.5963	224516.8686
CC (10064)			22+55.52	2092254.0563	224616.8674
CC (10063)			2092154.5978	224516.3285	
PT (10063)			23+12.60	2092154.0575	224616.3270
Radius:			100.00		
Delta:			90°00'00.68" Left		
Degree of Curvature(Arc):			57°17'44.92" Left		
Length:			157.08		
Tangent:			100.00		
Chord:			141.42		
Middle Ordinate:			29.29		
External:			41.42		
Tangent Direction:			N 0°18'33.89" W		
Radial Direction:			N 89°41'26.11" E		
Chord Direction:			N 45°18'34.22" W		
Radial Direction:			N 0°18'34.56" W		
Tangent Direction:			S 89°41'25.44" W		

Elements are not collinear

Element:	Linear	PT (10063)	STATION	EASTING	NORTHING
POE (303)			23+12.60	2092154.0575	224616.3270
POE (303)			23+85.45	2092081.2090	224615.9347
Tangent Direction:			S 89°41'29.33" W		
Tangent Length:			72.85		