

APPENDIX 9

PRELIMINARY DESIGN



APPENDIX 9-1

Design Criteria



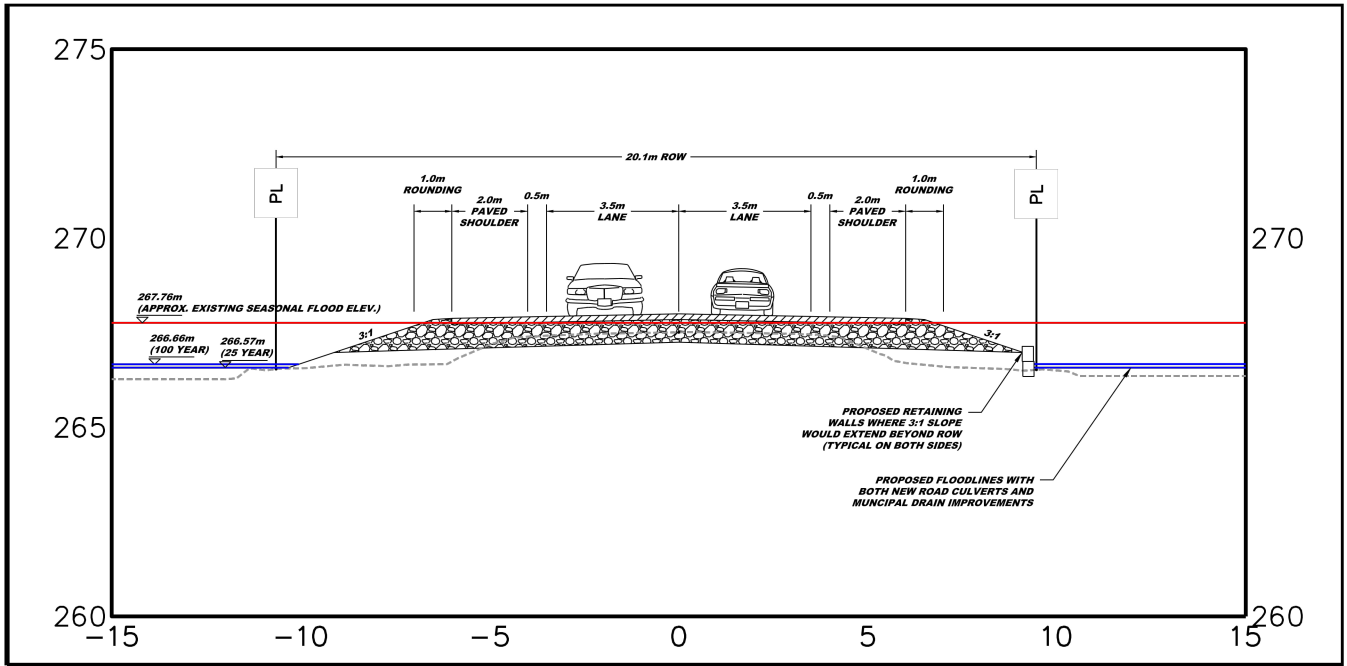
CITY OF HAMILTON			30-Jan-26
SAFARI ROAD CLASS EA			RVA 247372
DESIGN CRITERIA AT 30% SUBMISSION			
ITEM	SAFARI ROAD		
	TAC Standard	TAC Reference	RVA Proposed Standard
CLASSIFICATION			
ROAD CLASSIFICATION	RAU		RAU80
URBAN / RURAL	RURAL		
LOCAL/COLLECTOR/ARTERIAL	ARTERIAL		
DESIGN SPEED (km/h)	80		80
POSTED SPEED (km/h)			70
NUMBER OF LANES	-		2
HORIZONTAL ALIGNMENTS			
Rmin. (m) - MINIMUM RADII			
NC - NORMAL CROWN (-0.02m/m)	2130	Table 3.2.4	2130
RC - REVERSE CROWN (+0.02m/m), e _{max} =0.04	400	Table 3.2.4	400
RC - REVERSE CROWN (+0.02m/m), e _{max} =0.06	450	Table 3.2.4	450
SUPERELEVATED. RATE e=+0.04m/m	280	Table 3.2.4	280
SUPERELEVATED. RATE e=+0.64m/m	250	Table 3.2.4	250
VERTICAL ALIGNMENTS			
MINIMUM GRADE - WITHOUT CURBS (%)	0.0%	TAC 3.3.2.5	0.0%
MINIMUM GRADE - WITH CURBS (%)	0.5%	TAC 3.3.2.5	0.5%
MAXIMUM GRADE (% ROLLING - % MOUNTAINOUS)	4% - 7%	Table 3.3.1	4% - 7%
CREST VERTICAL CURVE K _{min.} - STOPPING SIGHT DISTANCE	26	Table 3.3.2	26
CREST VERTICAL CURVE K _{min.} - PASSING SIGHT DISTANCE	320	Table 3.3.3	320
SAG VERTICAL CURVE K _{min.} - NON-ILLUMINATED CONTROL	30	Table 3.3.4	30
SAG VERTICAL CURVE K _{min.} - ILLUMINATED CONTROL	12-16	Table 3.3.5	18
STOPPING SIGHT DISTANCE - LEVEL ROADWAY (m)	130	Table 2.5.2	185
STOPPING SIGHT DISTANCE - ON GRADES (m)	VARIES	TAC 2.5.3	VARIES
PASSING SIGHT DISTANCE (m)	550	Table 2.5.4	680
CROSS SECTIONS			

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	SAFARI ROAD		
ITEM	TAC Standard	TAC Reference	RVA Proposed Standard
THROUGH LANE WIDTH (m)	3.5-3.7	Table 4.2.1 Table 4.2.2 Table 4.2.3	3.5
PAVED SHOULDER WIDTH (m)	1.5		2.0 + 0.5 BUFFER
GRANULAR SHOULDER WIDTH (m)	1.0		0.0
ROUNDING (m)	0.5 to 1.0	TAC 4.4.5	0.5 to 1.0
TANGENT SECTION CROSS FALL, %	2%		2%
CLEARZONE (m)	3.0-6.5	TAC Table 7.3.1	3.0 beyond toe of foreslope
INTERSECTION			
CORNER RADIUS min. (m)	-		15
PROPERTY DAYLIGHT TRIANGLE (m)	12.19	Hamilton Official Plan	12.19
DESIGN VEHICLE FOR TURNING MOVEMENTS	-	-	HSU Truck
CONTROL VEHICLE FOR TURNING MOVEMENTS	-	-	WB-20 Truck
DECISION SIGHT DISTANCE (m)	305/395		305/395
DECELERATION LENGTH (m)	VARIES	TAC 2.5.3	VARIES

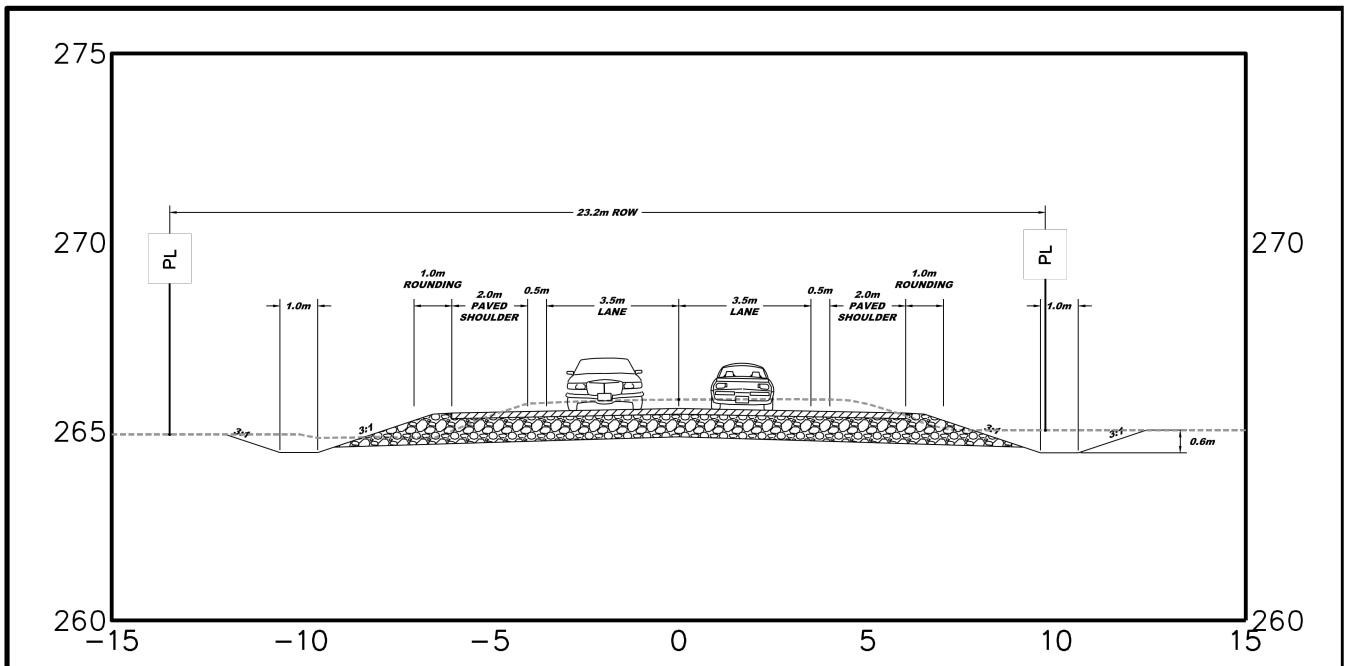
APPENDIX 9-2

Preliminary Design Drawings





WITHIN WETLAND AREA (STA. 0+715 TO 1+870)



OUTSIDE OF WETLAND AREA

ALT 3A - FULL WIDTH - 3:1 SLOPES

APPENDIX 9-3

Preliminary Cost Estimate



Safari Road

Construction Cost Estimate
30% Design

2026-01-27

Item No.	Spec No.	Description	Unit	Unit Price	Alt 3A - FULL WIDTH	
					Estimated Quantity	Total Cost
1.0		Traffic Control	L.S	\$ 200,000	1	\$ 200,000
2.0		Roadworks				
		Earth Excavation and Grading	m3	\$ 30.00	26,800	\$ 804,000
		Subgrade Stabilization	m2	\$ 5.00	31,050	\$ 155,250
		Granular 'A' (150mm depth)	tonne	\$ 20.00	13,781	\$ 275,625
		Granular 'B' (450mm depth)	tonne	\$ 18.00	46,856	\$ 843,413
		Granular 'M' Shoulder (100mm depth)	tonne	\$ 33.00	613	\$ 20,213
		Asphalt - (150mm depth)	tonne	\$ 150.00	11,175	\$ 1,676,250
		Tack coat	m2	\$ 1.00	29,400	\$ 29,400
		OPSD cast-in-place retaining wall (0.4m tall max)	m2	\$ 275.00	800	\$ 220,000
		Ditch grading	m	\$ 15.00	2,600	\$ 39,000
		Topsoil and Seed	m2	\$ 10.00	23,250	\$ 232,500
3.0		Road Crossing Culverts and Eco-Passages				
		1.2m x 2.4m box culvert	m	\$ 4,500.00	22	\$ 96,750
		630mm x 520mm Eco Passage	m	\$ 1,000.00	64	\$ 64,000
		600mm dia.	m	\$ 600.00	34	\$ 20,640
4.0		Miscellaneous construction items	L.S		20%	\$ 935,408
		Removals - guiderails, culverts, headwalls				
		Tree clearing and grubbing				
		Topsoil stripping				
		Granular shoulder sealing				
		ESC measures				
		Pavement markings and signage				
		Driveway restoration				
		Remove/salvage/ reinstate/ new private signs and mail boxes				
					Subtotal	\$ 5,612,448
					20% Variance	\$ 1,122,490
					Total Construction Cost Estimate	\$ 6,734,938