

Lot 18-19 Concession 12 Townsend Culvert

Site Number 030071

VILLA NOVA ROAD, TOWNSEND

1.0 km S of Concession 12 Road

Ontario Structure Inspection Manual - Inspection Form

Site Number:

Inventory Data:			
Structure Name	<input type="text" value="Lot 18-19 Concession 12 Townsend"/>		
Main Hwy/Road #	<input type="text" value="VILLA NOVA RD"/>	<input checked="" type="checkbox"/> On <input type="checkbox"/> Under	Crossing Type: <input type="checkbox"/> Rail <input type="checkbox"/> Road <input type="checkbox"/> Navig. Water <input type="checkbox"/> Ped. <input type="checkbox"/> Other <input checked="" type="checkbox"/> Non-Navig. Water
Hwy/Road Name	<input type="text" value="VILLA NOVA ROAD, TOWNSEND"/>		
Structure Location	<input type="text" value="1.0km S of Concession 12 Road"/>		
Latitude	<input n"="" type="text" value="42d 54' 48.7"/>	Longitude	<input type="text" value="80d 11' 19.6" w"=""/>
Owner(s)	<input type="text" value="Norfolk County"/>	Heritage Designation:	<input checked="" type="checkbox"/> Not Cons. <input type="checkbox"/> List/not Design. <input type="checkbox"/> Desig. & List <input type="checkbox"/> Cons./not App. <input type="checkbox"/> Desig./not List
MTO Region	<input type="text" value="30"/> Southwestern	Road Class:	<input type="checkbox"/> Freeway <input type="checkbox"/> Arterial <input type="checkbox"/> Collector <input checked="" type="checkbox"/> Local
MTO District	<input type="text" value="31"/> London / Stratford	Posted Speed	<input type="text" value="80"/> No. of Lanes <input type="text" value="2"/>
Old County	<input type="text" value="20"/> Norfolk	AADT	<input type="text" value="494"/> % Trucks <input type="text"/>
Geographic Twp.	<input type="text" value="125"/> Townsend	Inspection Route Sequence	<input type="text"/>
Structure Type	<input type="text" value="11"/> Ellipse Culvert	Interchange Number	<input type="text"/>
Total Deck Length	<input type="text" value="34"/> (m)	Interchange Structure Number	<input type="text"/>
Overall Str. Width	<input type="text" value="5"/> (m)	Min. Vertical Clearance	<input type="text" value="2.9"/> (m)
Total Deck Area	<input type="text" value="170"/> (m ²)	Special Route	<input type="checkbox"/> Truck <input type="checkbox"/> Emergency <input type="checkbox"/> School <input type="checkbox"/> Bicycle
Roadway Width	<input type="text" value="9"/> (m)	Detour Length Around Bridge	<input type="text" value="10"/> (km)
Skew Angle	<input type="text" value="45"/> (Degrees)	Direction of Structure	<input type="text" value="East / West"/>
No. of Spans	<input type="text" value="1"/>	Fill on Structure	<input type="text" value="0.6"/> (m)
Span Length	<input type="text" value="5."/> (m)		

Historical Data:			
Year Built	<input type="text" value="1975"/>	Year of Last Major Rehab.	<input type="text"/>
Last OSIM Inspection	<input type="text" value="June 6, 2014"/>	Last Evaluation	<input type="text"/>
Last Enhanced OSIM Inspection	<input type="text"/>	Current Load Limit	<input type="text" value="/ /"/> (tonnes)
Enhanced Access Equipment (ladder, boat, lift, etc.)	<input type="text"/>	Load Limit By-Law #	<input type="text"/>
Last Underwater Inspection	<input type="text"/>	By-Law Expiry Date	<input type="text"/>
Last Condition Survey	<input type="text"/>		
Rehab History: (Date/description)			
Year built estimated			

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Field Inspection Information:		
Date of Inspection:	July 7, 2016	Type of Inspection: <input checked="" type="checkbox"/> OSIM <input type="checkbox"/> Enhanced OSIM
Inspector:	Ben Buchwald M.Eng., EIT, G. Douglas Vallee Ltd.	
Others in Party:	N/A	
Access Equipment Used:	Hammer, Binoculars, Measuring Tape, Camera, etc.	
Weather:	Sunny	
Temperature:	26 °C	

Additional Investigation Required:	Priority		
	None	Normal	Urgent
Material Condition Survey			
<input checked="" type="checkbox"/> Detailed Deck Condition Survey:	X		
<input checked="" type="checkbox"/> Non-destructive Delamination Survey of Asphalt-Covered Deck:	X		
<input checked="" type="checkbox"/> Concrete Substructure Condition Survey:	X		
<input checked="" type="checkbox"/> Detailed Coating Condition Survey:	X		
<input checked="" type="checkbox"/> Detailed Timber Investigation	X		
<input checked="" type="checkbox"/> Post-Tensioned Strand Investigation	X		
Underwater Investigation:	X		
Fatigue Investigation:	X		
Seismic Investigation:	X		
Structure Evaluation:	X		
Monitoring			
<input checked="" type="checkbox"/> Monitoring of Deformations, Settlements and Movements:	X		
<input checked="" type="checkbox"/> Monitoring Crack Widths:	X		
Investigation Notes: No hazard signs.			

Overall Structure Notes:	
Recommended Work on Structure:	<input type="checkbox"/> None <input checked="" type="checkbox"/> Minor Rehab. <input type="checkbox"/> Replace <input type="checkbox"/> Maintenance <input type="checkbox"/> Major Rehab.
Timing of Recommended Work:	<input checked="" type="checkbox"/> 1 to 5 years <input type="checkbox"/> 6 to 10 years
Overall Comments:	New culvert ends required.
Date of next Inspection:	July 1, 2018

Suspected Performance Deficiencies

- | | | |
|---|--|------------------------------|
| 01 Load carrying capacity | 07 Bearing not uniformly loaded/unstable | 12 Slippery surfaces |
| 02 Excessive deformations (deflections & rotations) | 08 Jammed expansion joint | 13 Flooding/channel blockage |
| 03 Continuing settlement | 09 Pedestrian/vehicular hazard | 14 Undermining of foundation |
| 04 Continuing movements | 10 Rough riding surface | 15 Unstable embankments |
| 05 Seized bearings | 11 Deck drainage | 16 Other |

Maintenance Needs

- | | | |
|--------------------------------------|---------------------------------|--|
| 01 Lift and swing bridge maintenance | 07 Repair to structural steel | 13 Erosion control at bridges |
| 02 Bridge cleaning | 08 Repair of bridge concrete | 14 Concrete sealing |
| 03 Bridge handrail maintenance | 09 Repair of bridge timber | 15 Rout and seal |
| 04 Painting steel bridge structures | 10 Bailey bridges - maintenance | 16 Bridge deck drainage |
| 05 Bridge deck joint repair | 11 Animal/pest control | 17 Scaling (Loose concrete or ACR steel) |
| 06 Bridge bearing maintenance | 12 Bridge surface repair | 18 Other |

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Rehabilitation Required:		Element	Priority				Estimated Construction Cost
Rehab	Replace		Urgent	Within 1 yr	1-5 yrs	6-10 yrs	
		Wearing Surface (Approaches)					
	X	Posts			X		
X		Barrels			X		
		Streams and Waterways					
Total Cost						\$0	

Associated Work:	Comments	Estimated Construction Cost
Additional Investigations		
Traffic Management		
Utilities		
Road Allowance		
Environmental Assessment		
Engineering		
Other		
Contingencies		
Total Cost		\$0

Justification:		
Notes:		
	Construction Cost:	\$0
	Associated Work Cost:	\$0
	TOTAL Estimated Cost:	\$0

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Element Data

Element Group:		1600 Approaches				Length:	
Element Name:		1601 Wearing Surface (Approaches)				Width:	
Location:		Top of Fill				Height:	
Material:						Count:	1
Element Type:						Total Quantity:	1 Each
Environment:		Severe				Limited Inspection:	
Protection System:		None				Perform. Deficiencies	
Condition	Units	Exc.	Good	Fair	Poor		
Data:	Each	0	1	0	0		
Comments: Tar & chip wearing surface. Polishing and small transverse crack at centerline.							
Recommended Work: Rehab <input type="checkbox"/> Replace <input type="checkbox"/>				Maintenance Needs:			
Timing: Urgent <input type="checkbox"/> < 1yr <input type="checkbox"/> 1 - 5 yr <input type="checkbox"/> 6 - 10 yr <input type="checkbox"/>				<input type="checkbox"/> Urgent <input type="checkbox"/> 1 year <input type="checkbox"/> 2 year			

Element Group:		400 Barriers				Length:	30
Element Name:		403 Posts				Width:	
Location:		East and West				Height:	
Material:						Count:	2
Element Type:						Total Quantity:	60 Each
Environment:						Limited Inspection:	
Protection System:		Unknown				Perform. Deficiencies	
Condition	Units	Exc.	Good	Fair	Poor		
Data:	Each	0	0	30	30		
Comments: Replace with standard 3 cable system. No hazard signs at quadrants. Cables loose. Posts are old. Some posts unstable. Some cables are detached. Barriers do not extend past culvert ends.							
Recommended Work: Rehab <input type="checkbox"/> Replace <input checked="" type="checkbox"/>				Maintenance Needs:			
Timing: Urgent <input type="checkbox"/> < 1yr <input type="checkbox"/> 1 - 5 yr <input checked="" type="checkbox"/> 6 - 10 yr <input type="checkbox"/>				<input type="checkbox"/> Urgent <input type="checkbox"/> 1 year <input type="checkbox"/> 2 year			

Element Group:		1200 Culverts				Length:	34
Element Name:		1203 Barrels				Width:	10
Location:		Interior				Height:	
Material:		5 Corrugated Steel				Count:	1
Element Type:						Total Quantity:	340 sq.m
Environment:		Moderate				Limited Inspection:	
Protection System:		Unknown				Perform. Deficiencies	
Condition	Units	Exc.	Good	Fair	Poor		
Data:	sq.m	0	306	34	0		
Comments: Steel wingwalls of culvert are pushed in by fill and are severely deflecting inward. Regrade slopes. Requires reinforcing/slope regrading. New culvert ends required, and regrading.							
Recommended Work: Rehab <input checked="" type="checkbox"/> Replace <input type="checkbox"/>				Maintenance Needs:			
Timing: Urgent <input type="checkbox"/> < 1yr <input type="checkbox"/> 1 - 5 yr <input checked="" type="checkbox"/> 6 - 10 yr <input type="checkbox"/>				<input type="checkbox"/> Urgent <input type="checkbox"/> 1 year <input type="checkbox"/> 2 year			

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Element Data

Element Group:	1400 Embankments & Streams					Length:	
Element Name:	1401 Streams and Waterways					Width:	
Location:						Height:	
Material:						Count:	1
Element Type:						Total Quantity:	1 Each
Environment:	Moderate					Limited Inspection:	
Protection System:	Unknown					Perform. Deficiencies	
Condition Data:	Units	Exc.	Good	Fair	Poor		
	Each	0	0	1	0		
Comments: Grass stable banks and channel. Soil and slopes pressure deforming culvert wings.							
Recommended Work: Rehab <input type="checkbox"/> Replace <input type="checkbox"/>						Maintenance Needs:	
Timing: Urgent <input type="checkbox"/> < 1yr <input type="checkbox"/> 1 - 5 yr <input type="checkbox"/> 6 - 10 yr <input type="checkbox"/>						<input type="checkbox"/> Urgent <input type="checkbox"/> 1 year <input type="checkbox"/> 2 year	



Figure 1 North Approach



Figure 2 South Approach



Figure 3 East Profile, Outlet



Figure 4 West Profile, Inlet



Figure 5 Upstream



Figure 6 Downstream



Figure 7 Barrel, Looking East



Figure 8 Barrel, Looking West



Figure 9 Typical Barrier



Figure 10 Typical Surface Corrosion in Barrel



Figure 11 Deflected Culvert Ends at all Quadrants