

NANTICOKE CREEK BRIDGE

Site Number 981907

COUNTY ROAD 19, TOWNSEND

0.6 km E of Highway 24

Ontario Structure Inspection Manual - Inspection Form

Site Number:

Inventory Data:			
Structure Name	<input type="text" value="Nanticoke Creek Bridge"/>		
Main Hwy/Road #	<input type="text" value="NORFOLK COUNTY RD 19 EAST"/>	<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="COUNTY ROAD 19, TOWNSEND"/>		
Structure Location	<input type="text" value="0.6 km E of Highway 24"/>		
Latitude	<input n"="" type="text" value="42d 58' 43.5"/>	Longitude	<input type="text" value="80d 20' 56.3" w"=""/>
Owner(s)	<input type="text" value="Norfolk County"/>	Heritage Designation:	<input checked="" type="checkbox"/> Not Cons. <input type="checkbox"/> Cons./not App. <input type="checkbox"/> List/not Design. <input type="checkbox"/> Design./not List <input type="checkbox"/> Desig. & 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="535"/> % Trucks <input type="text"/>
Geographic Twp.	<input type="text" value="125"/> Townsend	Inspection Route Sequence	<input type="text"/>
Structure Type	<input type="text" value="12"/> Rectangular Culvert	Interchange Number	<input type="text"/>
Total Deck Length	<input type="text" value="5.8"/> (m)	Interchange Structure Number	<input type="text"/>
Overall Str. Width	<input type="text" value="16.1"/> (m)	Min. Vertical Clearance	<input type="text" value="3"/> (m)
Total Deck Area	<input type="text" value="93.4"/> (m ²)	Special Route	<input type="checkbox"/> Truck <input type="checkbox"/> Emergency <input checked="" type="checkbox"/> School <input type="checkbox"/> Bicycle
Roadway Width	<input type="text" value="6.2"/> (m)	Detour Length Around Bridge	<input type="text" value="10"/> (km)
Skew Angle	<input type="text"/> (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="0.5"/> (m)
Span Length	<input type="text" value="5.1"/> (m)		

Historical Data:			
Year Built	<input type="text" value="2007"/>	Year of Last Major Rehab.	<input type="text"/>
Last OSIM Inspection	<input type="text" value="May 29, 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)		

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Field Inspection Information:		
Date of Inspection:	July 11, 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 at quadrants.			

Overall Structure Notes:	
Recommended Work on Structure:	<input type="checkbox"/> None <input type="checkbox"/> Minor Rehab. <input type="checkbox"/> Replace <input checked="" type="checkbox"/> Maintenance <input type="checkbox"/> Major Rehab.
Timing of Recommended Work:	<input type="checkbox"/> 1 to 5 years <input type="checkbox"/> 6 to 10 years
Overall Comments:	Repairs to be made in 1-5 years.
Date of next Inspection:	July 11, 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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Element Data

Element Group:		1200 Culverts				Length:		16.1
Element Name:		1203 Barrels				Width:		5.1
Location:						Height:		3
Material:		12 Precast Concrete				Count:		1
Element Type:						Total Quantity:		178.7 sq.m
Environment:		Benign				Limited Inspection:		
Protection System:		Unknown				Perform. Deficiencies		
Condition	Units	Exc.	Good	Fair	Poor			
Data:	sq.m	0	178.7	0	0			
Comments: Joint parping failing with signs of leakage and chlorides. Light staining at drains.								
Recommended Work: Rehab <input type="checkbox"/> Replace <input type="checkbox"/>				Maintenance Needs: Other Maintenance - Parge J				
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 checked="" type="checkbox"/> 1 year <input type="checkbox"/> 2 year				

Element Group:		1200 Culverts				Length:		5.1
Element Name:		1201 Inlet Components				Width:		
Location:		North				Height:		3
Material:						Count:		1
Element Type:						Total Quantity:		15.3 sq.m
Environment:		Moderate				Limited Inspection:		
Protection System:		Unknown				Perform. Deficiencies		
Condition	Units	Exc.	Good	Fair	Poor			
Data:	sq.m	0	15.3	0	0			
Comments: Parging in lifting hooks failing.								
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:		1200 Culverts				Length:		5.1
Element Name:		1202 Outlet Components				Width:		
Location:		South				Height:		3
Material:						Count:		1
Element Type:						Total Quantity:		15.3 sq.m
Environment:		Moderate				Limited Inspection:		
Protection System:		Unknown				Perform. Deficiencies		
Condition	Units	Exc.	Good	Fair	Poor			
Data:	sq.m	0	15.3	0	0			
Comments: Parging in lifting hooks failing.								
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				

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Element Data

Element Group:		1400 Embankments & Streams				Length:		
Element Name:		1402 Embankments				Width:		
Location:						Height:		
Material:						Count:		1
Element Type:						Total Quantity:		1 Each
Environment:						Limited Inspection:		
Protection System:		Unknown				Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor			
	Each	0	1	0	0			
Comments: Riprap slope protected.								
Recommended Work:				Rehab <input type="checkbox"/>		Replace <input type="checkbox"/>		
Timing:				Urgent <input type="checkbox"/>		< 1yr <input type="checkbox"/>		
				1 - 5 yr <input type="checkbox"/>		6 - 10 yr <input type="checkbox"/>		
				Maintenance Needs:		<input type="checkbox"/> Urgent <input type="checkbox"/> 1 year <input type="checkbox"/> 2 year		

Element Group:		1600 Approaches				Length:		
Element Name:		1601 Wearing Surface (Approaches)				Width:		
Location:		Top of Road				Height:		
Material:		2 Asphalt				Count:		1
Element Type:						Total Quantity:		1 All
Environment:		Severe				Limited Inspection:		
Protection System:		Unknown				Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor			
	All	0	0.8	0.2	0			
Comments: Large patch on West edge of culvert due to settlement.								
Recommended Work:				Rehab <input type="checkbox"/>		Replace <input type="checkbox"/>		
Timing:				Urgent <input type="checkbox"/>		< 1yr <input type="checkbox"/>		
				1 - 5 yr <input type="checkbox"/>		6 - 10 yr <input type="checkbox"/>		
				Maintenance Needs:		<input type="checkbox"/> Urgent <input type="checkbox"/> 1 year <input type="checkbox"/> 2 year		



Figure 1 East Approach



Figure 2 West Approach



Figure 3 North Profile, Inlet



Figure 4 South Profile, Outlet



Figure 5 Upstream



Figure 6 Downstream



Figure 7 Barrel



Figure 8 Soffit



Figure 9 East Wall



Figure 10 West Wall



Figure 11 Drains with Staining



Figure 12 Leakage and Chlorides at Joints



Figure 13 Cracking and Deterioration of Parging at Joint with Chlorides



Figure 14 Failing of Parging at Lifting Hooks



Figure 15 Large Patch at West Approach with apparent Settlement