

**LOT 18 - 19 CONCESSION 5**

Site Number D00031

**WEST ¼ LINE ROAD, WINDHAM**

0.3 km N From Windham Road 6

**Ontario Structure Inspection Manual - Inspection Form**

**Site Number:**

Inventory Data:			
Structure Name	<input type="text" value="Lot 18-19 Concession 5"/>		
Main Hwy/Road #	<input type="text" value="WINDHAM W1/4"/>	<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="WEST ¼ LINE ROAD, WINDHAM"/>		
Structure Location	<input type="text" value="0.3 km N From Windham Road 6"/>		
Latitude	<input n"="" type="text" value="42d 56' 02.8"/>	Longitude	<input type="text" value="80d 28' 42.2" 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="245"/> % Trucks <input type="text"/>
Geographic Twp.	<input type="text" value="124"/> Windham	Inspection Route Sequence	<input type="text"/>
Structure Type	<input type="text" value="15"/> Rigid Frame, Vertical Legs	Interchange Number	<input type="text"/>
Total Deck Length	<input type="text" value="6.5"/> (m)	Interchange Structure Number	<input type="text"/>
Overall Str. Width	<input type="text" value="22.3"/> (m)	Min. Vertical Clearance	<input type="text" value="1.8"/> (m)
Total Deck Area	<input type="text" value="145"/> (m <sup>2</sup> )	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="7"/> (m)	Detour Length Around Bridge	<input type="text" value="9"/> (km)
Skew Angle	<input type="text" value="30"/> (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="0.3"/> (m)
Span Length	<input type="text" value="5.7"/> (m)		

Historical Data:			
Year Built	<input type="text" value="1970"/>	Year of Last Major Rehab.	<input type="text"/>
Last OSIM Inspection	<input type="text" value="May 20, 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)		

**Ontario Structure Inspection Manual - Inspection Form**

**Site Number:**

Field Inspection Information:		
Date of Inspection:	July 21, 2016	Type of Inspection: <input checked="" type="checkbox"/> OSIM <input type="checkbox"/> Enhanced OSIM
Inspector:	Jason Timmermans, B.Eng., EIT, G. Douglas Vallee Ltd.	
Others in Party:	N/A	
Access Equipment Used:	Hammer, Binoculars, Measuring Tape, Camera, etc.	
Weather:	Overcast	
Temperature:	29 °C	

Additional Investigation Required:	Priority		
	None	Normal	Urgent
Material Condition Survey			
<input checked="" type="checkbox"/> Detailed Deck Condition Survey:	<input checked="" type="checkbox"/>		
<input checked="" type="checkbox"/> Non-destructive Delamination Survey of Asphalt-Covered Deck:	<input checked="" type="checkbox"/>		
<input checked="" type="checkbox"/> Concrete Substructure Condition Survey:	<input checked="" type="checkbox"/>		
<input checked="" type="checkbox"/> Detailed Coating Condition Survey:	<input checked="" type="checkbox"/>		
<input checked="" type="checkbox"/> Detailed Timber Investigation	<input checked="" type="checkbox"/>		
<input checked="" type="checkbox"/> Post-Tensioned Strand Investigation	<input checked="" type="checkbox"/>		
Underwater Investigation:	<input checked="" type="checkbox"/>		
Fatigue Investigation:	<input checked="" type="checkbox"/>		
Seismic Investigation:	<input checked="" type="checkbox"/>		
Structure Evaluation:	<input checked="" type="checkbox"/>		
Monitoring			
<input checked="" type="checkbox"/> Monitoring of Deformations, Settlements and Movements:	<input checked="" type="checkbox"/>		
<input checked="" type="checkbox"/> Monitoring Crack Widths:	<input checked="" type="checkbox"/>		
Investigation Notes:			
Gas buried on East side. Bell conduit resting on top of culvert West side.			

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 type="checkbox"/> 1 to 5 years <input checked="" type="checkbox"/> 6 to 10 years
Overall Comments:	
Date of next Inspection:	July 21, 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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**Site Number:** D00031

**Element Data**

Element Group:		1600 Approaches				Length:	30
Element Name:		1601 Wearing Surface (Approaches)				Width:	6.5
Location:		Top of Deck				Height:	
Material:		2 Asphalt				Count:	1
Element Type:						Total Quantity:	195 sq.m
Environment:		Moderate				Limited Inspection:	
Protection System:		Unknown				Perform. Deficiencies	
Condition Data:	Units sq.m	Exc. 0	Good 0	Fair 195	Poor 0		
Comments: Settlement at structure edges. Cracking throughout at approaches.							
Recommended Work:				Rehab <input checked="" type="checkbox"/> Replace <input type="checkbox"/>		Maintenance Needs: Bridge Surface Repair	
Timing:				Urgent <input type="checkbox"/> < 1yr <input type="checkbox"/> 1 - 5 yr <input type="checkbox"/> 6 - 10 yr <input checked="" type="checkbox"/>		<input type="checkbox"/> Urgent <input type="checkbox"/> 1 year <input checked="" type="checkbox"/> 2 year	

Element Group:		1200 Culverts				Length:	22.3
Element Name:		1203 Barrels				Width:	6.5
Location:		Inside				Height:	1.8
Material:		4 Cast-in-place Concrete				Count:	1
Element Type:						Total Quantity:	260.9 sq.m
Environment:		Moderate				Limited Inspection:	
Protection System:		Unknown				Perform. Deficiencies	
Condition Data:	Units sq.m	Exc. 0	Good 259	Fair 0	Poor 1.9		
Comments: Narrow vertical cracks at barrel walls at some drains. Transverse soffit crack at West end of culvert.							
Recommended Work:				Rehab <input type="checkbox"/> Replace <input type="checkbox"/>		Maintenance Needs: Concrete Sealing	
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 checked="" type="checkbox"/> 2 year	

Element Group:		1200 Culverts				Length:	6.5
Element Name:		1201 Inlet Components				Width:	0.4
Location:						Height:	1.8
Material:		4 Cast-in-place Concrete				Count:	1
Element Type:						Total Quantity:	4.7 sq.m
Environment:		Severe				Limited Inspection:	
Protection System:		Unknown				Perform. Deficiencies	
Condition Data:	Units sq.m	Exc. 0	Good 4.7	Fair 0	Poor 0		
Comments: Thick overgrowth at inlet.							
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:		1200 Culverts				Length:	6.5
Element Name:		1202 Outlet Components				Width:	0.4
Location:		South End				Height:	1.8
Material:		4 Cast-in-place Concrete				Count:	1
Element Type:						Total Quantity:	4.7 sq.m
Environment:		Severe				Limited Inspection:	
Protection System:		Unknown				Perform. Deficiencies	
Condition Data:	Units	Exc.	Good	Fair	Poor		
	sq.m	0	4.7	0	0		
Comments:							
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:		100 Decks				Length:	22.3
Element Name:		102 Deck Top				Width:	6.5
Location:		Under Road				Height:	
Material:		4 Cast-in-place Concrete				Count:	1
Element Type:						Total Quantity:	145 sq.m
Environment:		Severe				Limited Inspection:	
Protection System:		Unknown				Perform. Deficiencies	
Condition Data:	Units	Exc.	Good	Fair	Poor		
	sq.m	0	145	0	0		
Comments: Visible for 2.0m at west and 1.0m at east.							
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:		1400 Embankments & Streams				Length:	
Element Name:		1401 Streams and Waterways				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: Banks stable. Heavy growth.							
Recommended Work: Rehab <input type="checkbox"/> Replace <input type="checkbox"/>						Maintenance Needs: Clear Overgrowth	
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 checked="" type="checkbox"/> 2 year	

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**Element Data**

Element Group:	1300 Foundations					Length:	
Element Name:	1301 Foundation (below ground level)					Width:	
Location:						Height:	
Material:						Count:	2
Element Type:						Total Quantity:	2 Each
Environment:						Limited Inspection:	<b>X</b>
Protection System:	Unknown					Perform. Deficiencies	
Condition Data:	Units	Exc.	Good	Fair	Poor		
	Each						
Comments: Limited inspection. Not visible.							
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



Figure 4 West Profile





Figure 5 Upstream (Looking West)



Figure 6 Downstream (Looking East)





Figure 7 Barrel



Figure 8 Overgrowth at Inlet



Figure 9 Transverse Soffit Crack



Figure 10 Wearing Surface