

**BILGER'S ROAD CULVERT**

Site Number 000200

**BILGER'S ROAD, MIDDLETON**

0.2km N of Scott St (Gilbertsville)

**Ontario Structure Inspection Manual - Inspection Form**

**Site Number:**

Inventory Data:			
Structure Name	<input type="text" value="Bilger's Road Culvert"/>		
Main Hwy/Road #	<input type="text" value="BILGERS 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="BILGER'S ROAD, MIDDLETON"/>		
Structure Location	<input type="text" value="0.2km N of Scott St (Gilbertsville)"/>		
Latitude	<input n"="" type="text" value="42d 49' 15"/>	Longitude	<input type="text" value="80d 29' 51.1" 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="58"/> % Trucks <input type="text"/>
Geographic Twp.	<input type="text" value="123"/> Middleton	Inspection Route Sequence	<input type="text"/>
Structure Type	<input type="text" value="13"/> Round Culvert	Interchange Number	<input type="text"/>
Total Deck Length	<input type="text" value="3.4"/> (m)	Interchange Structure Number	<input type="text"/>
Overall Str. Width	<input type="text" value="24.4"/> (m)	Min. Vertical Clearance	<input type="text" value="2.4"/> (m)
Total Deck Area	<input type="text" value="82.96"/> (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="9"/> (m)	Detour Length Around Bridge	<input type="text" value="8"/> (km)
Skew Angle	<input type="text" value="20"/> (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="2"/> (m)
Span Length	<input type="text" value="3.4"/> (m)		

Historical Data:			
Year Built	<input type="text" value="1980"/>	Year of Last Major Rehab.	<input type="text"/>
Last OSIM Inspection	<input type="text" value="June 27, 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:	Sunny	
Temperature:	27 °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:			

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:	
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                                 |

Ontario Structure Inspection Manual - Inspection Form

Site Number: 000200

Rehabilitation Required:		Element	Priority				Estimated Construction Cost
Rehab	Replace		Urgent	Within 1 yr	1-5 yrs	6-10 yrs	
		Wearing Surface (Approaches)					
		Barrels					
		Inlet Components					
		Outlet Components					
		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 <hr/> TOTAL Estimated Cost: \$0

**Ontario Structure Inspection Manual - Inspection Form**

**Site Number:** 000200

**Element Data**

Element Group:		1600 Approaches				Length:		
Element Name:		1601 Wearing Surface (Approaches)				Width:		
Location:		Top of Fill				Height:		
Material:		Tar and Chip				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:								
No signs, no barriers. Tar and chip surface.								
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"/>		
				<input type="checkbox"/>		1 year <input type="checkbox"/>		
				<input type="checkbox"/>		2 year <input type="checkbox"/>		

Element Group:		1200 Culverts				Length:		
Element Name:		1203 Barrels				Width:		
Location:		Inside				Height:		
Material:		5 Corrugated Steel				Count:		1
Element Type:						Total Quantity:		1 Each
Environment:						Limited Inspection:		
Protection System:		None				Perform. Deficiencies		
Condition	Units	Exc.	Good	Fair	Poor			
Data:	Each	0	0	1	0			
Comments:								
Surface corrosion at water level.								
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"/>		
				<input type="checkbox"/>		1 year <input type="checkbox"/>		
				<input type="checkbox"/>		2 year <input type="checkbox"/>		

Element Group:		1200 Culverts				Length:		
Element Name:		1201 Inlet Components				Width:		2
Location:		East				Height:		1.5
Material:		5 Corrugated Steel				Count:		4
Element Type:						Total Quantity:		12 sq.m
Environment:		Moderate				Limited Inspection:		
Protection System:		None				Perform. Deficiencies		
Condition	Units	Exc.	Good	Fair	Poor			
Data:	sq.m	0	11	1	0			
Comments:								
Two short galvanized steel retaining walls. Scouring of bank at East end. Erosion behind retaining walls.								
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"/>		Erosion Control at Bridges		
				<input type="checkbox"/>		Urgent <input type="checkbox"/>		
				<input type="checkbox"/>		1 year <input type="checkbox"/>		
				<input checked="" type="checkbox"/>		2 year <input type="checkbox"/>		

**Ontario Structure Inspection Manual - Inspection Form**

**Site Number:** 000200

**Element Data**

Element Group:	1200 Culverts	Length:											
Element Name:	1202 Outlet Components	Width:	2										
Location:	West	Height:	1.5										
Material:	5 Corrugated Steel	Count:	4										
Element Type:		Total Quantity:	12 sq.m										
Environment:	Moderate	Limited Inspection:											
Protection System:	None	Perform. Deficiencies											
Condition Data:	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th style="width: 10%;">Units</th> <th style="width: 10%;">Exc.</th> <th style="width: 10%;">Good</th> <th style="width: 10%;">Fair</th> <th style="width: 10%;">Poor</th> </tr> <tr> <td>sq.m</td> <td>0</td> <td>11</td> <td>1</td> <td>0</td> </tr> </table>	Units	Exc.	Good	Fair	Poor	sq.m	0	11	1	0		
Units	Exc.	Good	Fair	Poor									
sq.m	0	11	1	0									
Comments: Two short galvanized steel retaining walls. Erosion behind retaining walls.													
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:    Erosion Control at Bridges <input type="checkbox"/> Urgent <input type="checkbox"/> 1 year <input checked="" type="checkbox"/> 2 year											

Element Group:	1400 Embankments & Streams	Length:											
Element Name:	1401 Streams and Waterways	Width:											
Location:		Height:											
Material:	Earth/Native Material	Count:	1										
Element Type:		Total Quantity:	1 Each										
Environment:	Moderate	Limited Inspection:											
Protection System:	None	Perform. Deficiencies											
Condition Data:	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th style="width: 10%;">Units</th> <th style="width: 10%;">Exc.</th> <th style="width: 10%;">Good</th> <th style="width: 10%;">Fair</th> <th style="width: 10%;">Poor</th> </tr> <tr> <td>Each</td> <td>0</td> <td>1</td> <td>0</td> <td>0</td> </tr> </table>	Units	Exc.	Good	Fair	Poor	Each	0	1	0	0		
Units	Exc.	Good	Fair	Poor									
Each	0	1	0	0									
Comments: Banks stable. Grass, brush.													
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 North Approach



Figure 2 South Approach



Figure 3 East Profile



Figure 4 West Profile





Figure 5 Upstream (Looking East)



Figure 6 Downstream (Looking West)



Figure 7 Barrel



Figure 8 Corrosion and Staining at Water Line



Figure 9 Retaining Walls at All Quadrants, Note Minor Erosion



Figure 10 Irrigation Pipe in Waterway



Figure 11      Wearing Surface