

Bridge Culvert Inspection				
Bridge File Number	01198 -1 Bridge Culvert		Form Type	CULE
Year Built	1960		Lot No.	1
Bridge or Town Name	WILLINGDON		Inspector Name	Owen Salava
Located Over	TRIBUTARY TO NORTH SASKATCHEWAN RIVER, 6.37, WATERCRS-ST		Inspector Class	BR CLS A
Located On	857:06 C1 13.991		Assistant Name	
Water Body Cl./Year			Assistant Class	
Navigabil. Cl./Year			Inspection Date	08-Aug-2011
Legal Land Location	NE SEC 27 TWP 57 RGE 15 W4M		Data Entry By	Marcia Chavez
Longitude, Latitude	-112:08:03, 53:57:35		Data Entry Date	13-Sep-2011
Road Authority	Alberta Transportation (AIT)		Reviewer Name	John O'Brien
Contract Main. Area	CMA07		Review Date	15-Aug-2011
Clear Roadway/Skew	10 / 9 deg. (RHF)		Dept. Reviewer Name	Andrew Smikles
AADT/Year	890 / 2010 (A)		Dept. Review Date	15-Sep-2011
Road Classification	RCU-209-110		Follow-Up By	
Detour Length (km)	3			

Bridge Culvert Information								
Number of Culverts	1							
Pipe #	Barrel	Span	Rise (or Dia.)	Type	Length	Corr. Profile	Pl./Slab Thickness	Shape
1	MAIN	2019	2226	SP	43.3	152X51	3.0	ELLIPSE
1	D/S	-	1810	SP	10	152X51	2.8	ROUND
1	D/S	-	1970	SSP	3.65		2.8	ROUND
Special Features	BARREL ELBOW							
Special Features Comment	From u/s - 43.3m of 2134mm, 3.65m reducer, 10.0m of 1810mm. Reducer/elbow/ext - 5% VE.							

Utilities (Located at)			
Utility Attachments			
Telephone	Plowed West r/w.	Gas	
Power	2 wires OH 25m East of c/l.	Municipal	
Others		Problem (Y/N)	No
Remarks			

Approach Road / Embankment				
		Last	Now	Explanation of Condition
Horizontal Alignment		7	7	Culvert in horiz. curve.
Vertical Alignment		7	7	
Roadway Width (m)	10.000			
Embankment		5	5	
Sideslope ( __:1)	3.0			
(Height of Cover(m) : 12)				
Guardrail (Y/N)	Yes			
<b>Approach Road / Embankment General Rating</b>		<b>5</b>	<b>7</b>	

Upstream End				
Culvert Component		Last	Now	Explanation of Condition
Direction		W		
End Treatment (Concrete, Steel, Others, None)	STEEL			
Headwall		X	X	
Collar		X	X	
Wingwalls		X	X	
(Shape : )				

Upstream End				
Culvert Component		Last	Now	Explanation of Condition
Cutoff Wall		X	X	
Bevel End		7	7	
Heaving (mm)	150			
Invert Above/Below Stream Bed	BELOW			
Above/Below (mm)	300			
Scour Protection		8	8	
(Type : <b>RIP RAP</b> )				
(Avg. Rock Size(mm) : <b>400</b> )				
Scour/Erosion		8	8	
Beavers (Y/N)	Yes			Dam 60m U/S + dam @ end of bevel. Vegetation & dam debris blocking entrance; trees catching drift.
<b>Upstream End General Rating</b>		<b>7</b>	<b>7</b>	
Bridge Culvert Barrel				
Culvert Component		Last	Now	Explanation of Condition
(Pipe # : 1, Primary Span, Location Code: MAIN, Span (mm): 2019, Rise (mm): 2226, Type: SP)				
Barrel Last Accessible Date	07-Jun-2007			Vegetation, drift & dam debris block inlet. Barrel not viewable - unsafe access.
<b>Special Features</b>				
Special Feature			X	
(Type : <b>BARREL ELBOW</b> )				
Special Feature				
(Type : )				
Roof		5	N	
Measured Rise (mm)	2202			
Measured At Ring No.	23			
Sag (mm)	24			
Percent Sag	1			
Sidewall		3	N	(R20 has 4 cracked rings 22mm steel remaining. R23 has 4 cracked rings. 07Jun2007).
Measured Span (mm)	2060			
Measured At Ring No.	3			
Deflection (mm)	41			(@ sidewall - not @ longitudinal seams. 07Jun2007).
Percent Deflection	2			
Floor		5	N	
Bulge (mm)	0			
Measured At Ring No.	23			
Abrasion (Y/N)	No			
Circumferential Seams		6	N	
Separation (mm)	0			
Longitudinal Seams		5	N	
Total No. of Cracked Rings	0			(Not cracked at seams. Cracked at dents caused at installation. 07Jun2007).
Total No. of Rings with Two Cracked Seams	0			
Min. Remaining Steel Between Cracks (mm)				
Proper Lap (Y/N)	No			
Longitudinal Stagger (Y/N)	Yes			
Coating		4	N	
Corrosion By Soil (Y/N)	Yes			
Corrosion By Water (Y/N)	No			
Camber POS/ZERO/NEG	ZERO			

Bridge Culvert Barrel				
Culvert Component		Last	Now	Explanation of Condition
<b>(Pipe # : 1, Primary Span, Location Code: MAIN, Span (mm): 2019, Rise (mm): 2226, Type: SP)</b>				
Ponding (Y/N)	No			
Fish Passage Adequacy		X	X	
Baffle		X	X	
(Type : )				
Waterway Adequacy		6	6	
Icing (Y/N)	No			
Silting (Y/N)	No			
Drift (Y/N)	Yes			
<b>Barrel General Rating</b>		<b>3</b>	<b>3</b>	GR rated 3 from 07Jun2007.

Bridge Culvert Barrel				
Culvert Component		Last	Now	Explanation of Condition
<b>(Pipe # : 1, Primary Span, Location Code: D/S, Span (mm): , Rise (mm): 1810, Type: SP)</b>				
Barrel Last Accessible Date	07-Jun-2007			Previous explanations, dimensions & ratings seem to apply to u/s portion of barrel; confirm when accessible.
<b>Special Features</b>				
Special Feature				
(Type : )				
Special Feature				
(Type : )				
Roof		5	N	
Measured Rise (mm)	2202			
Measured At Ring No.	23			
Sag (mm)	24			
Percent Sag	1			
Sidewall		3	N	(R20 has 4 cracked rings 22mm steel remaining. R23 has 4 cracked rings. 07Jun2007).
Measured Span (mm)	2060			
Measured At Ring No.	3			
Deflection (mm)	41			(@ sidewall - not @ longitudinal seams. 07Jun2007).
Percent Deflection	2			
Floor		5	N	
Bulge (mm)	0			
Measured At Ring No.	23			
Abrasion (Y/N)	No			
Circumferential Seams		6	N	
Separation (mm)	0			
Longitudinal Seams		5	N	
Total No. of Cracked Rings	0			(Not cracked at seams. Cracked at dents caused at installation. 07Jun2007).
Total No. of Rings with Two Cracked Seams	0			
Min. Remaining Steel Between Cracks (mm)				
Proper Lap (Y/N)	No			
Longitudinal Stagger (Y/N)	Yes			
Coating		4	N	
Corrosion By Soil (Y/N)	Yes			
Corrosion By Water (Y/N)	No			
Camber POS/ZERO/NEG	ZERO			

Bridge Culvert Barrel				
Culvert Component		Last	Now	Explanation of Condition
(Pipe # : 1, Primary Span, Location Code: D/S, Span (mm): , Rise (mm): 1810, Type: SP)				
Ponding (Y/N)	No			
Fish Passage Adequacy		X	X	
Baffle		X	X	
(Type : )				
Waterway Adequacy		6	N	
Icing (Y/N)	No			
Silting (Y/N)	No			
Drift (Y/N)	No			
<b>Barrel Extension General Rating</b>		<b>3</b>	<b>N</b>	GR was 3 from 07Jun2007 but comments match details for u/s barrel.
Bridge Culvert Barrel				
Culvert Component		Last	Now	Explanation of Condition
(Pipe # : 1, Primary Span, Location Code: D/S, Span (mm): , Rise (mm): 1970, Type: SSP)				
Barrel Last Accessible Date				Design 1970mm
<b>Special Features</b>				
Special Feature				Elbow + reducer. Not accessible due to steepness (08Aug2011).
(Type : )				
Special Feature				
(Type : )				
Roof		N	N	(unknown date)
Measured Rise (mm)				
Measured At Ring No.				
Sag (mm)	176			
Percent Sag				
Sidewall		N	N	(unknown date)
Measured Span (mm)				
Measured At Ring No.				
Deflection (mm)	161			
Percent Deflection				
Floor		N	N	
Bulge (mm)	0			
Measured At Ring No.				
Abrasion (Y/N)	No			
Circumferential Seams		N	N	
Separation (mm)	0			
Longitudinal Seams		N	N	
Total No. of Cracked Rings	1			
Total No. of Rings with Two Cracked Seams				
Min. Remaining Steel Between Cracks (mm)				
Proper Lap (Y/N)	No			
Longitudinal Stagger (Y/N)	Yes			
Coating		N	N	
Corrosion By Soil (Y/N)	Yes			
Corrosion By Water (Y/N)	No			
Camber POS/ZERO/NEG	ZERO			

Bridge Culvert Barrel				
Culvert Component		Last	Now	Explanation of Condition
(Pipe # : 1, Primary Span, Location Code: D/S, Span (mm): , Rise (mm): 1970, Type: SSP)				
Ponding (Y/N)	No			
Fish Passage Adequacy		X	X	
Baffle		X	X	
(Type : )				
Waterway Adequacy		6	6	
Icing (Y/N)	No			
Silting (Y/N)	No			
Drift (Y/N)	No			
<b>Barrel Extension General Rating</b>		<b>4</b>	<b>4</b>	GR carried forward from unknown date.

Downstream End				
Culvert Component		Last	Now	Explanation of Condition
Direction		E		
End Treatment (Concrete, Steel, Others, None)	STEEL			
Headwall		X	X	
Collar		X	X	
Wingwalls		X	X	
(Shape : )				
Cutoff Wall		X	X	
Bevel End		5	5	
Heaving (mm)	0			
Invert Above/Below Stream Bed	BELOW			
Above/Below (mm)	400			
Scour Protection		5	5	
(Type : RIP RAP)				
(Avg. Rock Size(mm) : 300)				
Scour/Erosion		5	5	
Beavers (Y/N)	No			
<b>Downstream End General Rating</b>		<b>5</b>	<b>5</b>	

Structure Usage				
		Last	Now	Explanation of Condition
<b>Channel (U/S and D/S)</b>				
Alignment		7	7	Vertical cut banks D/S away from pipes.
Bank Stability		5	5	
HWM (m below Top of Culvert)				HWM not visible.
Drift (Y/N)	Yes			
Channel Bottom Degrading/Aggrading	DEGRADING			U/S end only.
Beavers (Y/N)	Yes			
(Fish Compensation Measure 1 : NONE)				
(Fish Compensation Measure 2 : NONE)				
<b>Channel General Rating</b>		<b>7</b>	<b>7</b>	

Maintenance Recommendations													
Inspector Recommendations	Year	Inspector Comments	Department Comments	Target Year	Est. Cost	Cat #	Structural Condition Rating (Last/Now) (%)	Sufficiency Rating (Last/Now) (%)	51.4/51.4	Est. Repl. Yr	2023	Maint. Req. (Y/N)	No
SHOTCRETE REPAIRS													
PLACE ADDITIONAL RIP RAP													
REMOVE DRIFT ACCUMULATION	2012	Remove beaver dam at inlet.											
INSTALL CONCRETE/STEEL LINING													
INSTALL STRUTS													
INSTALL CONCRETE COLLAR/CUTOFF													
REPAIR SEAMS													
OTHER ACTION	2012	Remove trees from inlet.											
OTHER ACTION													
OTHER ACTION													
OTHER ACTION													
<b>Special Comments for Next Inspection</b>	Monitor cracks in R20 & 23.												
<b>Maintenance Reviewed By</b>	Proposed Long-Term Strategy												
<b>On 3-Year Program (Y/N)</b>	Y												
<b>Proposed Action</b>	DH to determine if culvert life can be extended as it will be expensive to replace. RS												
<b>Previous Inspector's Name</b>	Glen Smith												
<b>Next Inspection Date</b>	08-Nov-2014												
<b>Inspection Cycle (Default) (months)</b>	39												
<b>Comment</b>													
<b>Maintenance Reviewed By</b>	Estimated Total 0												

**Maintenance Recommendations**

Inspector Recommendations	Year	Inspector Comments	Department Comments	Target Year	Est. Cost	Cat #
SHOTCRETE REPAIRS						
PLACE ADDITIONAL RIP RAP						
REMOVE DRIFT ACCUMULATION	2012	Remove beaver dam at inlet.	To operations			
INSTALL CONCRETE/STEEL LINING						
INSTALL STRUTS						
INSTALL CONCRETE COLLAR/CUTOFF						
REPAIR SEAMS						
OTHER ACTION	2012	Remove trees from inlet.	To operations			
OTHER ACTION						
OTHER ACTION						
OTHER ACTION						

<b>Structural Condition Rating (Last/Now) (%)</b>	<b>33.3/33.3</b>	<b>Sufficiency Rating (Last/Now) (%)</b>	<b>51.4/51.4</b>	Est. Repl. Yr	2023	Maint. Req. (Y/N)	No
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Special Comments for Next Inspection	Monitor cracks in R20 & 23.	Department Comments	Tentatively programmed to be replaced in 2022. AS
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Maintenance Reviewed By	Andrew Smikles	Date	22-Aug-2012	Estimated Total	0
Proposed Long-Term Strategy					
On 3-Year Program (Y/N)	Y				
Proposed Action	DH to determine if culvert life can be extended as it will be expensive to replace. RS				
Previous Inspector's Name	Glen Smith	Previous Assistant's Name			
Next Inspection Date	08-Nov-2014	Previous Inspection Date	08-Jun-2007		
Inspection Cycle (Default) (months)	39				
Comment					