

Bridge Culvert Inspection			
Bridge File Number	13796 -1 Bridge Culvert	Form Type	CULM
Year Built	1958	Lot No.	1
Bridge or Town Name	BOYLE	Inspector Name	Todd Warshawski
Located Over	TRIBUTARY TO FLAT CREEK, 8.11.55.5.8.2, WATERCRS-ST	Inspector Class	BR CLS B
Located On	663:06 C1 3.528	Assistant Name	
Water Body Cl./Year		Assistant Class	
Navigabil. Cl./Year		Inspection Date	09-Mar-2010
Legal Land Location	SE SEC 2 TWP 65 RGE 19 W4M	Data Entry By	Theresa Lacusta
Longitude, Latitude	-112:45:50, 54:35:14	Data Entry Date	24-Mar-2010
Road Authority	Alberta Transportation (AIT)	Reviewer Name	Arnold Assenheimer
Contract Main. Area	CMA07	Review Date	11-Mar-2010
Clear Roadway/Skew	8.5 / 10 deg. (RHF)	Dept. Reviewer Name	Brent Herrick
AADT/Year	2,640 / 2008 (A)	Dept. Review Date	25-Mar-2010
Road Classification	RCU-209-110	Follow-Up By	
Detour Length (km)	6		

**Bridge Culvert Information**

Number of Culverts	2							
Pipe #	Barrel	Span	Rise (or Dia.)	Type	Length	Corr. Profile	Pl./Slab Thickness	Shape
1	MAIN	-	1500	SP	42.5	152X51	3.0	ROUND
2	MAIN	-	900	MP	42.5	65X13		ROUND
Special Features								
Special Features Comment	BF tag on top of 1500 South bevel.							

**Utilities (Located at)**

Utility Attachments			
Telephone	South r/w.	Gas	
Power	3 wires 15 m north c/l.	Municipal	
Others	AB supernet N r/w	Problem (Y/N)	No
Remarks			

**Approach Road / Embankment**

		Last	Now	Explanation of Condition
Horizontal Alignment		7	7	Access roads East & West.
Vertical Alignment		7	7	Crest curves East & West.
Roadway Width (m)	8.500			Erosion at SW and NE side, at toe of sideslope (gullying) 1 m deep.
Embankment		N	4	Sloughing over 900mm pipe due to erosion.
Sideslope ( _ :1)	2.0			6.5m
(Height of Cover (m) : )				
Guardrail (Y/N)	No			
<b>Approach Road / Embankment General Rating</b>		<b>7</b>	<b>7</b>	

**Upstream End**

Culvert Component		Last	Now	Explanation of Condition
<b>(Pipe # : 1, Span Type: Primary Span)</b>				
Direction		S		West pipe.
End Treatment (Concrete, Steel, Others, None)	STEEL			
Headwall		X	X	
Collar		X	X	

Upstream End				
Culvert Component		Last	Now	Explanation of Condition
<b>(Pipe # : 1, Span Type: Primary Span)</b>				
Wingwalls		X	X	
(Shape : )				
Cutoff Wall		X	X	
Bevel End		N	N	(Slightly twisted. 08/Oct/2003)
Heaving (mm)	100			
Invert Above/Below Stream Bed	BELOW			
Above/Below (mm)	100			
Scour Protection		N	N	(Erosion along bevel, West side. 08/Oct/2003) Snow covered.
(Type : <b>NATURAL, NONE</b> )				
(Avg. Rock Size (mm) : )				
Scour/Erosion		N	N	(Slight erosion on side of beveled end. 08/Oct/2003)
Beavers (Y/N)	Yes			Beaver dams on U/S end & at bevel.-Dec 4, 2006
<b>Upstream End General Rating</b>		<b>4</b>	<b>4</b>	(Scour governed G.R. from 08/Oct/2003).
Bridge Culvert Barrel				
Culvert Component		Last	Now	Explanation of Condition
<b>(Pipe # : 1, Primary Span, Location Code: MAIN, Span (mm): -, Rise (mm): 1500, Type: SP)</b>				
Barrel Last Accessible Date	04-Dec-2006			Barrel accessible to ring 4.-Dec 4, 2006
<b>Special Features</b>				
Special Feature				Barrel fully iced in.
(Type : )				
Special Feature				
(Type : )				
Roof		N	N	(@ R8, Rise 1437 (4.2% def). 08/Oct/2003)
Measured Rise (mm)	1437			
Measured At Ring No.	8			
Sag (mm)	63			
Percent Sag	4			
Sidewall		N	N	(@ R8, Span 1575 (5.0% def). Small round deformations at 8, 9 & 10 o'clock in rings 1-3, cause unknown. 08/Oct/2003) Previous notes suggest R = 3 on sidewall due to cracked seam.
Measured Span (mm)	1575			
Measured At Ring No.	8			
Deflection (mm)	75			
Percent Deflection	5			At R4 span 1458. 2.8% deflection.
Floor		N	N	
Bulge (mm)				
Measured At Ring No.				
Abrasion (Y/N)				
Circumferential Seams		N	N	
Separation (mm)	0			
Longitudinal Seams		N	N	(Cracked rings under water.
Total No. of Cracked Rings	1			(R6 @ 4 o'clock 84mm between cracks. 2000/06/21) R8 corrugations buckled at springline both sides. 08/Oct/2003) Previous notes suggest R = 3 for longitudinal seam due to length of cracks.
Total No. of Rings with Two Cracked Seams				
Min. Remaining Steel Between Cracks (mm)				
Proper Lap (Y/N)	No			
Longitudinal Stagger (Y/N)	Yes			

Bridge Culvert Barrel				
Culvert Component		Last	Now	Explanation of Condition
<b>(Pipe # : 1, Primary Span, Location Code: MAIN, Span (mm): -, Rise (mm): 1500, Type: SP)</b>				
Coating		N	N	Superficial rust lower half. (Some soil side. 08/Oct/2003)
Corrosion By Soil (Y/N)	No			
Corrosion By Water (Y/N)	Yes			
Camber POS/ZERO/NEG	NEG			(Approx 150 mm neg camber. 08/Oct/2003)
Ponding (Y/N)	Yes			
Fish Passage Adequacy		5	N	
Baffle		X	X	
(Type : )				
Waterway Adequacy		3	3	Dam at inlet blocking flow.-Dec4,2006
Icing (Y/N)	Yes			
Silting (Y/N)	No			
Drift (Y/N)	Yes			
<b>Barrel General Rating</b>		<b>3</b>	<b>3</b>	(G.R. lowered to "3" due to cracks in sidewall from 08/Oct/2003).
Downstream End				
Culvert Component		Last	Now	Explanation of Condition
<b>(Pipe # : 1, Span Type: Primary Span)</b>				
Direction		N		West pipe.
End Treatment (Concrete, Steel, Others, None)	STEEL			
Headwall		X	X	
Collar		X	X	
Wingwalls		X	X	
(Shape : )				
Cutoff Wall		X	X	
Bevel End		N	N	Ice covered.
Heaving (mm)	200			
Invert Above/Below Stream Bed	ABOVE			
Above/Below (mm)	500			
Scour Protection		N	4	Scour hole off outlet. (Outfall of 400mm. 2000/06/21) Bevel unsupported.-Dec 4, 2006
(Type : <b>NONE</b> )				
(Avg. Rock Size (mm) : )				
Scour/Erosion		N	4	
Beavers (Y/N)	Yes			
<b>Downstream End General Rating</b>		<b>4</b>	<b>4</b>	(G.R. carried forward from 08/Oct/2003.) Scour governed.
Upstream End				
Culvert Component		Last	Now	Explanation of Condition
<b>(Pipe # : 2, Span Type: Secondary Span)</b>				
Direction		S		East pipe.
End Treatment (Concrete, Steel, Others, None)	STEEL			
Headwall		X	X	
Collar		X	X	

Upstream End				
Culvert Component		Last	Now	Explanation of Condition
(Pipe # : 2, Span Type: Secondary Span)				
Wingwalls		X	X	
(Shape : )				
Cutoff Wall		X	X	
Bevel End		N	N	Bevel end under ice/snow. (2m U/S section has detached from remaining barrel, resulting in sideslope scouring back to open seam. 08/Oct/2003)
Heaving (mm)				
Invert Above/Below Stream Bed	ABOVE			
Above/Below (mm)	200			
Scour Protection		N	3	
(Type : <b>NATURAL, NONE</b> )				
(Avg. Rock Size (mm) : )				
Scour/Erosion		N	3	Portion of embankment has failed (approx 2.5 into slope) burying the bevel and exposing the barrel.
Beavers (Y/N)	Yes			Beaver dam blocking inlet.
<b>Upstream End General Rating</b>		<b>3</b>	<b>3</b>	G.R. carried forward 08/Oct/2003. Scour protection and erosion govern.
Bridge Culvert Barrel				
Culvert Component		Last	Now	Explanation of Condition
(Pipe # : 2, Secondary Span, Location Code: MAIN, Span (mm): - , Rise (mm): 900, Type: MP)				
Barrel Last Accessible Date	08-Oct-2003			Not accessible.
<b>Special Features</b>				
Special Feature				Pipe 100% blocked by ice.
(Type : )				
Special Feature				
(Type : )				
Roof		N	N	
Measured Rise (mm)				
Measured At Ring No.				
Sag (mm)	63			
Percent Sag				
Sidewall		N	N	
Measured Span (mm)				
Measured At Ring No.				
Deflection (mm)	75			
Percent Deflection				
Floor		N	N	
Bulge (mm)				
Measured At Ring No.				
Abrasion (Y/N)				
Circumferential Seams		N	N	
Separation (mm)	0			
Longitudinal Seams		X	X	
Total No. of Cracked Rings				
Total No. of Rings with Two Cracked Seams				
Min. Remaining Steel Between Cracks (mm)				
Proper Lap (Y/N)				
Longitudinal Stagger (Y/N)				

Bridge Culvert Barrel				
Culvert Component		Last	Now	Explanation of Condition
(Pipe # : 2, Secondary Span, Location Code: MAIN, Span (mm): -, Rise (mm): 900, Type: MP)				
Coating		N	N	
Corrosion By Soil (Y/N)				
Corrosion By Water (Y/N)	Yes			
Camber POS/ZERO/NEG	NEG			
Ponding (Y/N)	Yes			
Fish Passage Adequacy		5	5	
Baffle		X	X	
(Type : )				
Waterway Adequacy		5	4	
Icing (Y/N)	Yes			
Siltting (Y/N)	No			
Drift (Y/N)	No			
<b>Barrel General Rating</b>		<b>4</b>	<b>4</b>	GR carried fwd.
Downstream End				
Culvert Component		Last	Now	Explanation of Condition
(Pipe # : 2, Span Type: Secondary Span)				
Direction		N		East pipe.
End Treatment (Concrete, Steel, Others, None)	STEEL			
Headwall		X	X	
Collar		X	X	
Wingwalls		X	X	
(Shape : )				
Cutoff Wall		X	X	
Bevel End		N	4	(Bevel end has holes rusted through. 2000/06/21)
Heaving (mm)	0			
Invert Above/Below Stream Bed	ABOVE			
Above/Below (mm)	200			
Scour Protection		N	4	
(Type : <b>NONE</b> )				
(Avg. Rock Size (mm) : )				
Scour/Erosion		N	4	Erosion along bevel sides/undermined.
Beavers (Y/N)	Yes			
<b>Downstream End General Rating</b>		<b>3</b>	<b>4</b>	
Structure Usage				
		Last	Now	Explanation of Condition
<b>Channel (U/S and D/S)</b>				
Alignment		5	5	Poor alignment of stream flow entering pipes.
Bank Stability		5	5	Sloughing of banks u/s and d/s.
HWM (m below Top of Culvert)				Not visible
Drift (Y/N)	Yes			

Structure Usage				
		Last	Now	Explanation of Condition
Channel Bottom Degrading/Aggrading	AGGRADING			
Beavers (Y/N)	Yes			
(Fish Compensation Measure 1 : <b>NONE</b> )				
(Fish Compensation Measure 2 : <b>NONE</b> )				
<b>Channel General Rating</b>		<b>5</b>	<b>5</b>	

Maintenance Recommendations							
Inspector Recommendations	Year	Inspector Comments	Department Comments	Target Year	Est. Cost	Cat #	
SHOTCRETE REPAIRS							
PLACE ADDITIONAL RIP RAP							
REMOVE DRIFT ACCUMULATION							
INSTALL CONCRETE/STEEL LINING							
INSTALL STRUTS							
INSTALL CONCRETE COLLAR/CUTOFF							
REPAIR SEAMS							
OTHER ACTION	2010	Remove u/s beaver dams.					
OTHER ACTION	2010	Fall inspection to assess cracks during low water, not inspected since 2000.					
OTHER ACTION							
OTHER ACTION							
<b>Structural Condition Rating (Last/Now) (%)</b>	<b>33.3/33.3</b>	<b>Sufficiency Rating (Last/Now) (%)</b>	<b>32.6/33.0</b>	Est. Repl. Yr	2012	Maint. Req. (Y/N)	Yes
Special Comments for Next Inspection	re-inspect in fall/low water.		Department Comments				
Maintenance Reviewed By			Date			Estimated Total	0
Proposed Long-Term Strategy							
On 3-Year Program (Y/N)							
Proposed Action							
Previous Inspector's Name	Jason Saly		Previous Assistant's Name				
Next Inspection Date	09-Jun-2013		Previous Inspection Date	04-Dec-2006			
Inspection Cycle (Default) (months)	39						
Comment							