Bridge Culvert Inspection

Bridge File Number	71710 -1 Bridge Culvert	Form Type	CUL1
Year Built	1970	Lot No.	1
Bridge or Town Name	CALGARY	Inspector Name	Garry Roberts
Located Over	ELBOW RIVER, 2.13.33, WATERCRS-ST	Inspector Class	BR CLS A
Located On	8:06 C1 16.215	Assistant Name	
Water Body Cl./Year		Assistant Class	
Navigabil. Cl./Year		Inspection Date	30-May-2012
Legal Land Location	NE SEC 5 TWP 24 RGE 2 W5M	Data Entry By	Kelsey Roberts
Longitude, Latitude	-114:14:18, 51:01:04	Data Entry Date	27-Jun-2012
Road Authority	Alberta Transportation (AIT)	Reviewer Name	Ash Morjaria
Contract Main. Area	CMA27	Review Date	18-Jun-2012
Clear Roadway/Skew	12.6 / 45 deg. (RHF)	Dept. Reviewer Name	Tim Davies
AADT/Year	7,900 / 2011 (A)	Dept. Review Date	29-Jun-2012
Road Classification	RAU-210-110	Follow-Up By	
Detour Length (km)	12		

Bridge Culvert Information

Number of Culverts	1

Pipe #	Barrel	Span	Rise (or Dia.)	Type	Length	Corr. Profile	Pl./Slab Thickness	Shape
1	MAIN	4142	4574	SPE	61	152X51	3.5,3.5,3.5	ELLIPSE

Special Features	VERT STEEL STRUTS
Special Features Comment	

Utilities (Located at)

Utility Attachments			
Telephone	SOUTH SIDE	Gas	
Power	6 WIRE POWER - SOUTH DITCH	Municipal	
Others		Problem (Y/N)	No
Remarks			

Approach Road / Embankment

		Last	Now	Explanation of Condition
Horizontal Alignment		6	6	Crack sound over pipe, new ACP overlay in WBL NO PASSING EITHER DIRECTION.
Vertical Alignment		7	7	
Roadway Width (m)	12.600			
Embankment		5	5	
Sideslope (__:1)	3.0			
(Height of Cover(m) : **1**)				
Guardrail (Y/N)	Yes			
Approach Road / Embankment General Rating		**6**	**6**	

Upstream End

Culvert Component		**Last**	**Now**	**Explanation of Condition**
Direction		W		WEST PLACED COLLAR IN 1989(941012)
End Treatment (Concrete, Steel, Others, None)	CONCRETE			
Headwall		4	4	10-3mm-10mm x 300mm LONG VERT @ HEADWALL Cracks Breaking up- Section of unsound concrete 540mmx150mm.
Collar		3	3	S SIDE BROKEN OUT 0.5m x 0.5m- exposed rebar. N side breaking & Cracked.
Wingwalls		X	X	
(Shape :)				
Cutoff Wall		N	N	

Upstream End				
Culvert Component		**Last**	**Now**	**Explanation of Condition**
Bevel End		4	4	Pushing in 200mm- South side.
Heaving (mm)	400			
Invert Above/Below Stream Bed	BELOW			
Above/Below (mm)	250			
Scour Protection		5	5	
(Type : **RIP RAP**)				
(Avg. Rock Size(mm) : **400**)				
Scour/Erosion		5	5	
Beavers (Y/N)	Yes			
Upstream End General Rating		**3**	**3**	

Bridge Culvert Barrel				
Culvert Component		**Last**	**Now**	**Explanation of Condition**
(Pipe # : **1, Primary Span, Location Code: MAIN, Span (mm): 4142, Rise (mm): 4574, Type: SPE**)				
Barrel Last Accessible Date	18-Jan-2007			Water too deep to enter Could measure at horizontal struts only
Special Features				
Special Feature		6	5	Braces @ u/s & d/s U/S strut pulling away from North sidewall on one corner.
(Type : **VERT STEEL STRUTS**)				
Special Feature				
(Type :)				
Roof		N	N	3 points measured @ u/s brace
Measured Rise (mm)				
Measured At Ring No.				(Estimate roof max span 4250 @ ring #8) 18-Jan-2007
Sag (mm)	91			
Percent Sag	2			
Sidewall		N	N	#1-3010mm span #2, #2770mm span #3 -3040mm span 2770 at #2- measured to inside of strut on North sidewall, it should be noted this type of deflection is not typical of the majority of the barrel section, only U/S, D/S ends.
Measured Span (mm)	2770			
Measured At Ring No.	2			
Deflection (mm)	1372			
Percent Deflection	33			(50 to 80mm cracks @ ring 8 & 9 south sidewall - not @ seam) 18-Jan-2007 Inward (100mm bulge @ d/s south sideall) 18-Jan-2007 #4 3145mm at point 4
Floor		N	N	inward sidewall deflection. (Ring #1&2 cracked @ W longitudinal sidewall seam for 1.8m with less than) 18-Jan-2007
Bulge (mm)				
Measured At Ring No.				
Abrasion (Y/N)	No			
Circumferential Seams		N	N	(50mm remaining steel @ area behind front plate under brace.) 18-Jan-2007
Separation (mm)	0			
Longitudinal Seams		N	N	(corrosion with some pitting @ waterline-circ seams missing bolts @ ring #7 & #8) 18-Jan-2007
Total No. of Cracked Rings	1			
Total No. of Rings with Two Cracked Seams	0			
Min. Remaining Steel Between Cracks (mm)	50			
Proper Lap (Y/N)	No			
Longitudinal Stagger (Y/N)	No			
Coating		N	N	(Corrosion with some pitting @ sidewalls)
Corrosion By Soil (Y/N)	No			
Corrosion By Water (Y/N)	Yes			

Bridge Culvert Barrel				
Culvert Component		**Last**	**Now**	**Explanation of Condition**
(Pipe # : **1, Primary Span, Location Code: MAIN, Span (mm): 4142, Rise (mm): 4574, Type: SPE**)				
Camber POS/ZERO/NEG	NEG			
Ponding (Y/N)	No			
Fish Passage Adequacy		3	4	Constricted @ u/s Brace with drift accumulation
Baffle		X	X	
(Type :)				
Waterway Adequacy		7	7	Drift at u/s brace
Icing (Y/N)	No			
Silting (Y/N)	No			
Drift (Y/N)	Yes			
Barrel General Rating		**4**	**4**	Raised to 4 due to permanent brace GR carried forward

Downstream End				
Culvert Component		**Last**	**Now**	**Explanation of Condition**
Direction		E		EAST
End Treatment (Concrete, Steel, Others, None)	CONCRETE			
Headwall		4	4	6-2mm w x 300mm l CRK-HWALL.
Collar		4	4	6-3mm widex350mm long- Cracks in North side.
Wingwalls		X	X	
(Shape :)				
Cutoff Wall		N	N	Rock covered
Bevel End		4	4	North sidewall bulge in 500mm. South sidewall bulge in 300mm.
Heaving (mm)	0			
Invert Above/Below Stream Bed	ABOVE			
Above/Below (mm)	300			
Scour Protection		7	7	
(Type : **RIP RAP**)				
(Avg. Rock Size(mm) : **1000**)				
Scour/Erosion		7	7	
Beavers (Y/N)	No			
Downstream End General Rating		**4**	**4**	

Structure Usage				
		Last	**Now**	**Explanation of Condition**
Channel (U/S and D/S)				
Alignment		7	7	
Bank Stability		6	6	
HWM (m below Top of Culvert)	1.0			Debris at U/S HWM not visible
Drift (Y/N)	Yes			
Channel Bottom Degrading/Aggrading	DEGRADING			Beaver activity at u/s bevel
Beavers (Y/N)	Yes			
(Fish Compensation Measure 1 : **NONE**)				
(Fish Compensation Measure 2 : **NONE**)				
Channel General Rating		**6**	**6**	

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	2013	Struts in D/S end (if structure not replaced)				
INSTALL CONCRETE COLLAR/CUTOFF						
REPAIR SEAMS						
OTHER ACTION	2013	Replace structure when hwy twinned in future.				
OTHER ACTION	2013	Repair approx. 600mmx500xx hole in collar.				
OTHER ACTION						
OTHER ACTION						
OTHER ACTION						

Structural Condition Rating (Last/Now) (%)	**44.4/44.4**	**Sufficiency Rating (Last/Now) (%)**	**48.4/42.0**	Est. Repl. Yr	2015	Maint. Reqd. (Y/N)	Yes

Special Comments for Next Inspection		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 Rusu	Previous Assistant's Name	
Next Inspection Date	28-Feb-2014	Previous Inspection Date	21-Oct-2010
Inspection Cycle (Default) (months)	21		
Comment			