Bridge Culvert Inspection

Bridge File Number	78554 -1 Bridge Culvert	Form Type	CUL1
Year Built	1976	Lot No.	1
Bridge or Town Name	ELKWATER	Inspector Name	Tom Carey
Located Over	EAST MCALPINE CREEK, 28.5.2, WATERCRS-ST	Inspector Class	BR CLS A
		Assistant Name	
Located On	515:02 C1 11.007	Assistant Class	
Water Body Cl./Year		Inspection Date	12-Mar-2012
Navigabil. Cl./Year		Data Entry By	Erin Roberts
Legal Land Location	SE SEC 3 TWP 10 RGE 2 W4M	Data Entry Date	08-Apr-2012
Longitude, Latitude	-110:11:27, 49:47:10	Reviewer Name	Garry Roberts
Road Authority	Alberta Transportation (AIT)	Review Date	24-Mar-2012
Contract Main. Area	CMA23	Dept. Reviewer Name	Tim Davies
Clear Roadway/Skew	10.9 / -15 deg. (LHF)	Dept. Review Date	17-Apr-2012
AADT/Year	80 / 2011 (A)	Follow-Up By	
Road Classification	RCU-208-110		
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	2315	2560	SPE	32.7	152X51	2.8,2.8,2.8	ELLIPSE
Special Features		VERT TIMBER STRUTS						
Special Features Comment								

Utilities (Located at)

Utility Attachments			
Telephone		Gas	
Power	3 wires North side.	Municipal	
Others		Problem (Y/N)	No
Remarks			

Approach Road / Embankment

		Last	Now	Explanation of Condition
Horizontal Alignment		9	9	
Vertical Alignment		7	7	
Roadway Width (m)	11.400			
Embankment		N	7	
Sideslope (__:1)	3.0			
(Height of Cover(m) : **0.5**)				
Guardrail (Y/N)	No			
Approach Road / Embankment General Rating		**7**	**7**	

Upstream End

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

Upstream End				
Culvert Component		**Last**	**Now**	**Explanation of Condition**
Bevel End		4	4	Dents. Two bottom seams missing valley bolts.
Heaving (mm)	0			
Invert Above/Below Stream Bed	BELOW			
Above/Below (mm)	300			
Scour Protection		N	5	
(Type : **RIP RAP**)				
(Avg. Rock Size(mm) : **250**)				
Scour/Erosion		N	5	Some of the riprap has migrated into the bevel.
Beavers (Y/N)	No			
Upstream End General Rating		**4**	**5**	

Bridge Culvert Barrel				
Culvert Component		**Last**	**Now**	**Explanation of Condition**
(Pipe # : **1, Primary Span, Location Code: MAIN, Span (mm): 2315, Rise (mm): 2560, Type: SPE**)				
Barrel Last Accessible Date	12-Mar-2012			
Special Features				
Special Feature		X	7	Struts are heavy duty. 200x500 top and bottom members. 150x 350 verticals.
(Type : **VERT TIMBER STRUTS**)				
Special Feature				
(Type :)				
Roof		4	4	Able to measure at gap at struts.
Measured Rise (mm)	2365			
Measured At Ring No.	5			
Sag (mm)	195			
Percent Sag	7			
Sidewall		2	2	107mm ring 2. 25mm ring 3 cracks up to 10mm wide. 25mm ring 4 cracks up to 7mm wide. 27mm ring 5 cracks up to 7mm wide. 30mm at ring 6. 40mm at ring 7. Ring 2 also has cracks on the East sidewall.
Measured Span (mm)	2510			
Measured At Ring No.	5			
Deflection (mm)	195			
Percent Deflection	8			
Floor		N	5	Pitting at floor.
Bulge (mm)	0			
Measured At Ring No.				
Abrasion (Y/N)	No			
Circumferential Seams		5	5	Some bolts missing.
Separation (mm)	0			
Longitudinal Seams		2	2	2nd ring from U/S end, 14 ribs cracked East. 2nd ring from U/S end, 7 ribs cracked West. Cracks in rings 2,3,4,5,6,7. Ring 2 West is cracked at properly lapped seam.
Total No. of Cracked Rings	6			
Total No. of Rings with Two Cracked Seams	1			
Min. Remaining Steel Between Cracks (mm)	25			
Proper Lap (Y/N)	No			
Longitudinal Stagger (Y/N)	Yes			
Coating		5	4	Heavy white stains around bolts. Scaling and pitting at floor. Isolated perforations in floor at ring 3 and 4.
Corrosion By Soil (Y/N)	Yes			
Corrosion By Water (Y/N)	Yes			
Camber POS/ZERO/NEG	ZERO			
Ponding (Y/N)	No			

Bridge Culvert Barrel				
Culvert Component		**Last**	**Now**	**Explanation of Condition**
(Pipe # : **1, Primary Span, Location Code: MAIN, Span (mm): 2315, Rise (mm): 2560, Type: SPE**)				
Fish Passage Adequacy		X	X	
Baffle		X	X	
(Type :)				
Waterway Adequacy		7	7	
Icing (Y/N)	No			
Silting (Y/N)	No			
Drift (Y/N)	No			
Barrel General Rating		**3**	**3**	Raised to '3' due to struts.

Downstream End				
Culvert Component		**Last**	**Now**	**Explanation of Condition**
Direction		N		North
End Treatment (Concrete, Steel, Others, None)	STEEL			
Headwall		X	X	
Collar		X	X	
Wingwalls		X	X	
(Shape :)				
Cutoff Wall		X	X	Undermined 1200mm.
Bevel End		4	3	(Two bottom seams missing valley bolts.) iced over at floor.
Heaving (mm)	0			
Invert Above/Below Stream Bed	BELOW			
Above/Below (mm)	0			
Scour Protection		N	3	Rock displaced 4m D/S.
(Type : **RIP RAP**)				
(Avg. Rock Size(mm) : **300**)				
Scour/Erosion		N	3	Filter cloth exposed for 3m at streambed past bevel.
Beavers (Y/N)	No			
Downstream End General Rating		**4**	**3**	

Structure Usage				
		Last	**Now**	**Explanation of Condition**
Channel (U/S and D/S)				
Alignment		6	5	Enters at 45º angle at U/S.
Bank Stability		7	4	Cut banks and 1.5m deep scour hole D/S 10m.
HWM (m below Top of Culvert)				HWM not visible.
Drift (Y/N)	No			
Channel Bottom Degrading/Aggrading				
Beavers (Y/N)	No			
(Fish Compensation Measure 1 : **NONE**)				
(Fish Compensation Measure 2 : **NONE**)				
Channel General Rating		**6**	**4**	

Maintenance Recommendations

Inspector Recommendations	Year	Inspector Comments	Department Comments	Target Year	Est. Cost	Cat #
SHOTCRETE REPAIRS						
PLACE ADDITIONAL RIP RAP	2012	Move rock back to bevel at D/S end and add 10m3 more class 2. Fill in D/S scour hole - 5m3 class 1.				
REMOVE DRIFT ACCUMULATION						
INSTALL CONCRETE/STEEL LINING						
INSTALL STRUTS						
INSTALL CONCRETE COLLAR/CUTOFF						
REPAIR SEAMS						
OTHER ACTION						
OTHER ACTION						
OTHER ACTION						
OTHER ACTION						

Structural Condition Rating (Last/Now) (%)	**33.3/33.3**	**Sufficiency Rating (Last/Now) (%)**	**51.5/50.6**	Est. Repl. Yr	2020	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	Tim Davies	Previous Assistant's Name			
Next Inspection Date	12-Jun-2015	Previous Inspection Date	12-Mar-2009		
Inspection Cycle (Default) (months)	39				
Comment					