Bridge Culvert Inspection

Bridge File Number	72236 -1 Bridge Culvert	Form Type	CULE
Year Built	1960	Lot No.	2
Bridge or Town Name	MARLBORO	Inspector Name	Todd Warshawski
Located Over	TRIBUTARY TO MCLEOD RIVER, 8.11.107.34, WATERCRS-ST	Inspector Class	BR CLS B
		Assistant Name	
Located On	16:04 R1 33.763;16:04 L1 32.829	Assistant Class	
Water Body Cl./Year		Inspection Date	28-Sep-2010
Navigabil. Cl./Year		Data Entry By	Theresa Lacusta
Legal Land Location	SE SEC 1 TWP 53 RGE 20 W5M	Data Entry Date	06-Oct-2010
Longitude, Latitude	-116:48:14, 53:32:39	Reviewer Name	Arnold Assenheimer
Road Authority	Alberta Transportation (AIT)	Review Date	30-Sep-2010
Contract Main. Area	CMA13	Dept. Reviewer Name	Brent Herrick
Clear Roadway/Skew	25 /	Dept. Review Date	06-Oct-2010
AADT/Year	5,770 / 2009 (A)	Follow-Up By	
Road Classification	RAD-412.4-120		
Detour Length (km)	1		

Bridge Culvert Information

Number of Culverts		2						
Pipe #	Barrel	Span	Rise (or Dia.)	Type	Length	Corr. Profile	Pl./Slab Thickness	Shape
1	U/S	-	1600	MP	30	68X13	2.8	ROUND
1	MAIN	-	1200	MP	48	68X13	2.8	ROUND
2	U/S	-	1600	MP	30	68X13	2.8	ROUND
2	MAIN	-	1200	MP	46	68X13	2.8	ROUND
Special Features								
Special Features Comment								

Utilities (Located at)

Utility Attachments			
Telephone	North r/w.	Gas	South r/w.
Power	200m East.	Municipal	
Others		Problem (Y/N)	No
Remarks	File tag U/S, North.		

Approach Road / Embankment

		Last	Now	Explanation of Condition
Horizontal Alignment		8	7	LR 100m E
Vertical Alignment		7	7	
Roadway Width (m)	25.000			EBL & WBL 12.5m. North side benched 4.5m.
Embankment		7	7	North side benched 4.5m.
Sideslope (__:1)	3.0			
(Height of Cover(m) : **4**)				
Guardrail (Y/N)	No			
Approach Road / Embankment General Rating		**7**	**8**	

Upstream End

Culvert Component		**Last**	**Now**	**Explanation of Condition**
(Pipe # : **1, Span Type: Primary Span**)				
Direction		N		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 # : **1, Span Type: Primary Span**)				
Wingwalls		X	X	
(Shape :)				
Cutoff Wall		X	X	
Bevel End		6	6	
Heaving (mm)	100			
Invert Above/Below Stream Bed	BELOW			
Above/Below (mm)	300			
Scour Protection		6	5	Loss of fill for 600mm x 300mm deep on east side.
(Type : **RIP RAP**)				
(Avg. Rock Size(mm) : **200**)				
Scour/Erosion		6	5	
Beavers (Y/N)	No			
Upstream End General Rating		**6**	**5**	

Bridge Culvert Barrel				
Culvert Component		**Last**	**Now**	**Explanation of Condition**
(Pipe # : **1, Primary Span, Location Code: U/S, Span (mm): , Rise (mm): 1600, Type: MP**)				
Barrel Last Accessible Date				East pipe. Accessed about 30m from U/S. Deep silt beyond this point prevented movement.
Special Features				
Special Feature				
(Type :)				
Special Feature				
(Type :)				
Roof		7	6	Remaining sections have less than 2%
Measured Rise (mm)	1532			
Measured At Ring No.	1			
Sag (mm)	68			
Percent Sag	4			
Sidewall		6	6	
Measured Span (mm)	1664			
Measured At Ring No.	1			
Deflection (mm)	64			
Percent Deflection	4			
Floor		N	6	Up to 300mm silt/gravel in section.s
Bulge (mm)				
Measured At Ring No.				
Abrasion (Y/N)	Yes			
Circumferential Seams		7	7	
Separation (mm)	20			
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 # : **1, Primary Span, Location Code: U/S, Span (mm): , Rise (mm): 1600, Type: MP**)				
Coating		4	4	Pitting rust lower 1/2. Corrosion by silt at couplers.
Corrosion By Soil (Y/N)	Yes			
Corrosion By Water (Y/N)	Yes			
Camber POS/ZERO/NEG	NEG			
Ponding (Y/N)	No			
Fish Passage Adequacy		4	5	
Baffle		X	X	
(Type :)				
Waterway Adequacy		6	6	
Icing (Y/N)	No			
Silting (Y/N)	Yes			
Drift (Y/N)	No			
Barrel Extension General Rating		**6**	**6**	

Bridge Culvert Barrel				
Culvert Component		**Last**	**Now**	**Explanation of Condition**
(Pipe # : **1, Primary Span, Location Code: MAIN, Span (mm): , Rise (mm): 1200, Type: MP**)				
Barrel Last Accessible Date	17-Oct-2003			East pipe. Annular type CSP. Not accessible. Viewed from ends shape and condition appear ok.
Special Features				
Special Feature				
(Type :)				
Special Feature				
(Type :)				
Roof		N	N	(Measured @ mid steam. 17/Oct/2003)
Measured Rise (mm)	1080			(10.7% from 17/Oct/2003)
Measured At Ring No.				
Sag (mm)	130			
Percent Sag	11			
Sidewall		N	N	(Measured @ midsection 17/Oct/2003.)
Measured Span (mm)	1320			
Measured At Ring No.				
Deflection (mm)	100			(8.3% from 17/Oct/2003.)
Percent Deflection	8			
Floor		N	N	
Bulge (mm)	0			
Measured At Ring No.				
Abrasion (Y/N)	No			
Circumferential Seams		N	N	
Separation (mm)	120			
Longitudinal Seams		5	N	Rivited seams. Visible at ends only. Scaling rust.-19-Nov-2008
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 # : **1, Primary Span, Location Code: MAIN, Span (mm): , Rise (mm): 1200, Type: MP**)				
Coating		4	4	Scaling total barrel. Heavy corrosion. Pitting on sidewall.
Corrosion By Soil (Y/N)	Yes			
Corrosion By Water (Y/N)	Yes			
Camber POS/ZERO/NEG	NEG			
Ponding (Y/N)	No			
Fish Passage Adequacy		4	5	Hanging outlet.
Baffle		N	N	
(Type :)				
Waterway Adequacy		5	5	
Icing (Y/N)	No			
Silting (Y/N)	Yes			
Drift (Y/N)	No			
Barrel General Rating		**3**	**3**	G.R. carried forward from 17/Oct/2003, roof sags and governs.

Downstream End				
Culvert Component		**Last**	**Now**	**Explanation of Condition**
(Pipe # : **1, Span Type: Primary Span**)				
Direction		S		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		6	4	Bevel unsupported 1.5m. Damaged by debris removal.
Heaving (mm)	200			
Invert Above/Below Stream Bed	ABOVE			
Above/Below (mm)	400			
Scour Protection		4	4	(5m long, 3m wide scour hole D/S. 10/Feb/2006) Settlement above bevel.
(Type : **NATURAL**)				
(Avg. Rock Size(mm) :)				
Scour/Erosion		4	4	
Beavers (Y/N)	No			
Downstream End General Rating		**4**	**4**	

Upstream End				
Culvert Component		**Last**	**Now**	**Explanation of Condition**
(Pipe # : **2, Span Type: Secondary Span**)				
Direction		N		West 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		8	8	
Heaving (mm)	50			
Invert Above/Below Stream Bed	ABOVE			
Above/Below (mm)	1000			
Scour Protection		7	7	
(Type : **RIP RAP**)				
(Avg. Rock Size(mm) : **200**)				
Scour/Erosion		7	7	
Beavers (Y/N)	No			
Upstream End General Rating		**7**	**7**	

Bridge Culvert Barrel				
Culvert Component		**Last**	**Now**	**Explanation of Condition**
(Pipe # : **2, Secondary Span, Location Code: U/S, Span (mm): , Rise (mm): 1600, Type: MP**)				
Barrel Last Accessible Date	28-Sep-2010			West pipe.
Special Features				
Special Feature				
(Type :)				
Special Feature				
(Type :)				
Roof		7	7	
Measured Rise (mm)	1605			20m from U/S - 1596. 1600 + full length
Measured At Ring No.	1			
Sag (mm)				2.9%
Percent Sag				
Sidewall		7	7	
Measured Span (mm)	1583			
Measured At Ring No.	1			
Deflection (mm)				
Percent Deflection				
Floor		8	7	Minor dent East wall, 2nd section.
Bulge (mm)	0			
Measured At Ring No.				
Abrasion (Y/N)	No			
Circumferential Seams		7	7	
Separation (mm)	80			
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: U/S, Span (mm): , Rise (mm): 1600, Type: MP**)				
Coating		8	7	Minor on floor.
Corrosion By Soil (Y/N)	No			
Corrosion By Water (Y/N)	Yes			
Camber POS/ZERO/NEG	NEG			
Ponding (Y/N)	No			
Fish Passage Adequacy		8	X	Overflow pipe
Baffle		X	X	
(Type :)				
Waterway Adequacy		8	8	
Icing (Y/N)	No			
Silting (Y/N)	No			
Drift (Y/N)	No			
Barrel Extension General Rating		**7**	**7**	

Bridge Culvert Barrel				
Culvert Component		**Last**	**Now**	**Explanation of Condition**
(Pipe # : **2, Secondary Span, Location Code: MAIN, Span (mm): , Rise (mm): 1200, Type: MP**)				
Barrel Last Accessible Date	17-Oct-2003			1600 access only. Not accessible. Viewed from ends, shape and condition appear ok.
Special Features				
Special Feature				
(Type :)				
Special Feature				
(Type :)				
Roof		N	N	(17/Oct/2003)
Measured Rise (mm)	1080			
Measured At Ring No.				
Sag (mm)	47			
Percent Sag	11			
Sidewall		N	N	(17/Oct/2003)
Measured Span (mm)	1320			
Measured At Ring No.				
Deflection (mm)	68			
Percent Deflection	8			
Floor		N	N	(Construction dent @ D/S, coating intact. 09/Mar/2007) Ice covered.
Bulge (mm)	0			
Measured At Ring No.				
Abrasion (Y/N)	No			
Circumferential Seams		N	N	
Separation (mm)	120			
Longitudinal Seams		N	N	
Total No. of Cracked Rings				
Total No. of Rings with Two Cracked Seams				
Min. Remaining Steel Between Cracks (mm)				
Proper Lap (Y/N)	Yes			
Longitudinal Stagger (Y/N)	Yes			

Bridge Culvert Barrel				
Culvert Component		**Last**	**Now**	**Explanation of Condition**
(Pipe # : **2, Secondary Span, Location Code: MAIN, Span (mm): , Rise (mm): 1200, Type: MP**)				
Coating		4	N	Rusting & minor pitting on floor.-18-Nov-2010
Corrosion By Soil (Y/N)	No			
Corrosion By Water (Y/N)	Yes			
Camber POS/ZERO/NEG	NEG			
Ponding (Y/N)	Yes			
Fish Passage Adequacy		X	X	
Baffle		N	N	
(Type :)				
Waterway Adequacy		5	5	
Icing (Y/N)	No			
Silting (Y/N)	No			
Drift (Y/N)	Yes			
Barrel General Rating		**3**	**3**	(G.R. carried forward from 17/Oct/2003)

Downstream End				
Culvert Component		**Last**	**Now**	**Explanation of Condition**
(Pipe # : **2, Span Type: Secondary Span**)				
Direction		S		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		6	5	East side pushed in
Heaving (mm)	100			
Invert Above/Below Stream Bed	ABOVE			
Above/Below (mm)	1000			
Scour Protection		7	6	
(Type : **NATURAL**)				
(Avg. Rock Size(mm) :)				
Scour/Erosion		7	6	
Beavers (Y/N)	No			
Downstream End General Rating		**6**	**5**	

Structure Usage				
		Last	**Now**	**Explanation of Condition**
Channel (U/S and D/S)				
Alignment		5	5	Curves East. Erosion at curve on SW.
Bank Stability		4	5	Vertical banks.
HWM (m below Top of Culvert)				HWM not visible.
Drift (Y/N)	Yes			

Structure Usage				
		Last	**Now**	**Explanation of Condition**
Channel Bottom Degrading/Aggrading	DEGRADING			Degrading D/S only.
Beavers (Y/N)	No			
(Fish Compensation Measure 1 : **NONE**)				
(Fish Compensation Measure 2 : **NONE**)				
Channel General Rating		**4**	**5**	

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	2011	Add fill and riprap at u/s end.				
OTHER ACTION						
OTHER ACTION						
OTHER ACTION						
OTHER ACTION						

Structural Condition Rating (Last/Now) (%)	**33.3/33.3**	**Sufficiency Rating (Last/Now) (%)**	**37.7/43.7**	Est. Repl. Yr	2020	Maint. Reqd. (Y/N)	Yes

Special Comments for Next Inspection	Monitor deformation and corrosion in 1200mm pipes.	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	Jacob Oresile	Previous Assistant's Name	
Next Inspection Date	28-Jun-2012	Previous Inspection Date	19-Nov-2008
Inspection Cycle (Default) (months)	21		
Comment			