Bridge Culvert Inspection

Bridge File Number	07210 -1 Bridge Culvert	Form Type	CULM
Year Built	1964	Lot No.	1
Bridge or Town Name	ORION	Inspector Name	Jon Davies
Located Over	TRIBUTARY TO PEIGAN CREEK, 2.7.1.13.4, WATERCRS-ST	Inspector Class	BR CLS B
		Assistant Name	
Located On	887:04 C1 11.223	Assistant Class	
Water Body Cl./Year		Inspection Date	15-Jun-2012
Navigabil. Cl./Year		Data Entry By	Lauren Korte
Legal Land Location	NW SEC 18 TWP 7 RGE 6 W4M	Data Entry Date	25-Jul-2012
Longitude, Latitude	-110:49:03, 49:33:47	Reviewer Name	Garry Roberts
Road Authority	Alberta Transportation (AIT)	Review Date	09-Jul-2012
Contract Main. Area	CMA24	Dept. Reviewer Name	Tim Davies
Clear Roadway/Skew	8.1 /	Dept. Review Date	30-Jul-2012
AADT/Year	230 / 2011 (A)	Follow-Up By	
Road Classification	RCU-209-110		
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	-	2400	SP	47.2	152X51	3.0	ROUND
2	MAIN	-	2400	SP	47.2			ROUND

Special Features	VERT TIMBER STRUTS, CONC FLOOR
Special Features Comment	

Utilities (Located at)

Utility Attachments			
Telephone	West ROW.	Gas	
Power		Municipal	
Others		Problem (Y/N)	No
Remarks			

Approach Road / Embankment

		Last	Now	Explanation of Condition
Horizontal Alignment		5	5	Slight curve North. Slight incline North & South.
Vertical Alignment		4	4	
Roadway Width (m)	8.000			
Embankment		5	5	4:1 first 7 then 3:1.
Sideslope (__:1)	4.0			
(Height of Cover(m) : **7**)				
Guardrail (Y/N)	No			
Approach Road / Embankment General Rating		**4**	**4**	

Upstream End

Culvert Component		**Last**	**Now**	**Explanation of Condition**
(Pipe # : **1, Span Type: Primary Span**)				
Direction				North span East end.
End Treatment (Concrete, Steel, Others, None)	NONE			
Headwall		X	X	
Collar		X	X	
Wingwalls		X	X	
(Shape :)				

Upstream End				
Culvert Component		**Last**	**Now**	**Explanation of Condition**
(Pipe # : **1, Span Type: Primary Span**)				
Cutoff Wall		X	X	
Bevel End		X	X	
Heaving (mm)	0			
Invert Above/Below Stream Bed	BELOW			
Above/Below (mm)	500			
Scour Protection		4	4	Erosion around barrel due to insufficient length and no bavel.
(Type : **RIP RAP**)				
(Avg. Rock Size(mm) : **500**)				
Scour/Erosion		4	4	
Beavers (Y/N)	No			
Upstream End General Rating		**4**	**4**	

Bridge Culvert Barrel				
Culvert Component		**Last**	**Now**	**Explanation of Condition**
(Pipe # : **1, Primary Span, Location Code: MAIN, Span (mm): , Rise (mm): 2400, Type: SP**)				
Barrel Last Accessible Date	25-Jun-2012			
Special Features				
Special Feature		5	5	
(Type : **VERT TIMBER STRUTS**)				
Special Feature				
(Type :)				
Roof		3	3	(Perforations due to corrosion (soil)) 2002/11/13 Isolated perforations in R 3 and 4.
Measured Rise (mm)	2325			
Measured At Ring No.	13			
Sag (mm)	75			
Percent Sag	3			
Sidewall		2	2	Construction hole in R 1- dent in R 17, extensive perforations.
Measured Span (mm)	2543			
Measured At Ring No.	13			
Deflection (mm)	143			
Percent Deflection	6			
Floor		6	6	Moderate corrosion.
Bulge (mm)	0			
Measured At Ring No.				
Abrasion (Y/N)	Yes			
Circumferential Seams		6	5	(5 rings with cracks @ both sides) 2002/11/13.
Separation (mm)	0			
Longitudinal Seams		2	2	Start cracks ring 3: 4-S,5-S ring 4&6 6-N&S, 7-N&S 8-S, 9-S, 10-N&S, 11- N&S, 13-S, 14-N&S,15-S,16S. At R 5. At R6 61mm. No change.
Total No. of Cracked Rings	14			
Total No. of Rings with Two Cracked Seams	5			
Min. Remaining Steel Between Cracks (mm)	51			
Proper Lap (Y/N)	No			
Longitudinal Stagger (Y/N)	No			
Coating		2	2	Isolated roof perforations. Extensive sidewall perforations.
Corrosion By Soil (Y/N)	Yes			
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): , Rise (mm): 2400, Type: SP**)				
Camber POS/ZERO/NEG	ZERO			
Ponding (Y/N)	No			
Fish Passage Adequacy		5	5	
Baffle		X	X	
(Type :)				
Waterway Adequacy		3	3	Drift in barrel at R5 and R11.
Icing (Y/N)	No			
Silting (Y/N)	No			
Drift (Y/N)	Yes			
Barrel General Rating		**3**	**3**	1 point increase for struts.

Downstream End				
Culvert Component		**Last**	**Now**	**Explanation of Condition**
(Pipe # : **1, Span Type: Primary Span**)				
Direction				West end North pipe.
End Treatment (Concrete, Steel, Others, None)	STEEL			
Headwall		X	X	
Collar		X	X	
Wingwalls		X	X	
(Shape :)				
Cutoff Wall		X	X	
Bevel End		4	4	Some tears from installation, rust installed lopsided/ hole on South side. 70 MM X 45 MM.
Heaving (mm)	0			
Invert Above/Below Stream Bed	BELOW			
Above/Below (mm)	300			
Scour Protection		6	6	
(Type : **RIP RAP**)				
(Avg. Rock Size(mm) : **300**)				
Scour/Erosion		6	6	
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				South span East end.
End Treatment (Concrete, Steel, Others, None)	NONE			
Headwall		X	X	
Collar		X	X	
Wingwalls		X	X	
(Shape :)				
Cutoff Wall		X	X	

Upstream End				
Culvert Component		**Last**	**Now**	**Explanation of Condition**
(Pipe # : **2, Span Type: Secondary Span**)				
Bevel End		X	X	
Heaving (mm)				
Invert Above/Below Stream Bed	BELOW			
Above/Below (mm)	300			
Scour Protection		3	3	LOSS OF FILL ABOVE PIPE (EMBANKMENT SLUMP) & ALONG UPPER SIDES LOWER PIPE IS OK- due to insufficient length and no bevel.
(Type : **RIP RAP**)				
(Avg. Rock Size(mm) : **500**)				
Scour/Erosion		3	3	
Beavers (Y/N)	No			
Upstream End General Rating		**3**	**3**	

Bridge Culvert Barrel				
Culvert Component		**Last**	**Now**	**Explanation of Condition**
(Pipe # : **2, Secondary Span, Location Code: MAIN, Span (mm): , Rise (mm): 2400, Type: SP**)				
Barrel Last Accessible Date	25-Jun-2012			
Special Features				
Special Feature			6	2200 CSP liner in R8-9-10.
(Type : **CONC FLOOR**)				
Special Feature				
(Type :)				
Roof		3	3	Flattening of roof all rings barrel's shape is distorted. Isolated roof perforations in R1,2,3,4.
Measured Rise (mm)	2264			
Measured At Ring No.	11			
Sag (mm)	136			
Percent Sag	6			
Sidewall		2	2	(ROCK DENTS, RUST perforations in ring 9) 2002/11/13 Extensive sidewall perforations.
Measured Span (mm)	2520			
Measured At Ring No.	11			
Deflection (mm)	120			
Percent Deflection	5			
Floor		5	5	
Bulge (mm)	0			
Measured At Ring No.				
Abrasion (Y/N)	Yes			
Circumferential Seams		4	4	7th Ring D/S 6mm gap roof and floor crack.
Separation (mm)	0			
Longitudinal Seams		2	2	Cracks in R3,5,6,7.
Total No. of Cracked Rings	4			
Total No. of Rings with Two Cracked Seams	1			Ring 4.
Min. Remaining Steel Between Cracks (mm)	84			
Proper Lap (Y/N)	No			
Longitudinal Stagger (Y/N)	No			
Coating		2	2	Sidewall and roof perforations. Floor is corroded.
Corrosion By Soil (Y/N)	Yes			
Corrosion By Water (Y/N)	Yes			
Camber POS/ZERO/NEG	NEG			

Bridge Culvert Barrel				
Culvert Component		**Last**	**Now**	**Explanation of Condition**
(Pipe # : **2, Secondary Span, Location Code: MAIN, Span (mm): , Rise (mm): 2400, Type: SP**)				
Ponding (Y/N)	No			
Fish Passage Adequacy		5	5	
Baffle		X	X	
(Type :)				
Waterway Adequacy		5	5	
Icing (Y/N)	No			
Silting (Y/N)	No			
Drift (Y/N)	No			
Barrel General Rating		**2**	**2**	

Downstream End				
Culvert Component		**Last**	**Now**	**Explanation of Condition**
(Pipe # : **2, Span Type: Secondary Span**)				
Direction				West end of South pipe.
End Treatment (Concrete, Steel, Others, None)	STEEL			
Headwall		X	X	
Collar		X	X	
Wingwalls		X	X	
(Shape :)				
Cutoff Wall		X	X	
Bevel End		X	4	Lopsided several tears-rust on floor.
Heaving (mm)	0			
Invert Above/Below Stream Bed	BELOW			
Above/Below (mm)	300			
Scour Protection		4	4	Bevel is undermined 0.4m.
(Type : **RIP RAP**)				
(Avg. Rock Size(mm) : **300**)				
Scour/Erosion		4	4	
Beavers (Y/N)	No			
Downstream End General Rating		**4**	**4**	

Structure Usage				
		Last	**Now**	**Explanation of Condition**
Channel (U/S and D/S)				
Alignment		5	5	
Bank Stability		5	5	
HWM (m below Top of Culvert)				No visible HWM.
Drift (Y/N)	No			
Channel Bottom Degrading/Aggrading	DEGRADING			
Beavers (Y/N)	No			
(Fish Compensation Measure 1 : **NONE**)				
(Fish Compensation Measure 2 : **NONE**)				
Channel General Rating		**5**	**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	2012	Install liner in N. Pipe or replace.				
INSTALL STRUTS						
INSTALL CONCRETE COLLAR/CUTOFF						
REPAIR SEAMS						
OTHER ACTION	2012	Continue with liner throughout South span pipe, due to root flattening & distortion.				
OTHER ACTION	2012	Install bevels both pipes at East and repair side slopes over barrel.				
OTHER ACTION						
OTHER ACTION						

Structural Condition Rating (Last/Now) (%)	**22.2/22.2**	**Sufficiency Rating (Last/Now) (%)**	**22.6/22.7**	Est. Repl. Yr	2012	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	Garry Roberts	Previous Assistant's Name	
Next Inspection Date	15-Sep-2015	Previous Inspection Date	15-Jun-2009
Inspection Cycle (Default) (months)	39		
Comment			