

Bridge Culvert Inspection				
Bridge File Number	79197 -1 Bridge Culvert		Form Type	CULM
Year Built/Lined	1979/1996		Lot No.	2
Bridge or Town Name	WARNER		Inspector Name	Jon Davies
Located Over	MIDDLE COULEE, 11.9.4, WATERCRS-ST		Inspector Class	BR CLS B
Located On	36:02 C1 12.959		Assistant Name	
Water Body Cl./Year			Assistant Class	
Navigabil. Cl./Year			Inspection Date	06-Dec-2011
Legal Land Location	SW SEC 23 TWP 5 RGE 17 W4M		Data Entry By	Anne Roberts
Longitude, Latitude	-112:12:09, 49:23:47		Data Entry Date	14-Jan-2012
Road Authority	Alberta Transportation (AIT)		Reviewer Name	Garry Roberts
Contract Main. Area	CMA24		Review Date	18-Dec-2011
Clear Roadway/Skew	11 /		Dept. Reviewer Name	Tim Davies
AADT/Year	540 / 2010 (A)		Dept. Review Date	18-Jan-2012
Road Classification	RAU-211.8-110		Follow-Up By	
Detour Length (km)	3			

**Bridge Culvert Information**

Number of Culverts	4							
Pipe #	Barrel	Span	Rise (or Dia.)	Type	Length	Corr. Profile	Pl./Slab Thickness	Shape
1	MAIN	2159	1372	FP	32.9	68X13	4.1	ARCH
5	MAIN FULL LINER	-	1000	MP	33		2.8	ROUND
6	MAIN FULL LINER	-	1000	MP	30		2.8	ROUND
7	MAIN FULL LINER	-	1000	MP	30		2.8	ROUND

Special Features	
Special Features Comment	

**Utilities (Located at)**

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

**Approach Road / Embankment**

	Last	Now	Explanation of Condition
Horizontal Alignment	9	9	
Vertical Alignment	8	7	
Roadway Width (m)	11.000		
Embankment	8	7	Main pipe and 1st 1000 MP at 2.4m cover 2nd 1000 MP at 1.8m cover 3rd 1000 MP at 1.3m cover
Sideslope ( __:1)	2.5		
(Height of Cover(m) : 2.4)			
Guardrail (Y/N)	No		
<b>Approach Road / Embankment General Rating</b>	<b>8</b>	<b>7</b>	

**Upstream End**

Culvert Component	Last	Now	Explanation of Condition
(Pipe # : 1, Span Type: Primary Span)			
Direction	W		Primary pipe
End Treatment (Concrete, Steel, Others, None)	STEEL		
Headwall	X	X	

Upstream End				
Culvert Component		Last	Now	Explanation of Condition
<b>(Pipe # : 1, Span Type: Primary Span)</b>				
Collar		X	X	
Wingwalls (Shape : )		X	X	
Cutoff Wall		X	X	
Bevel End		N	4	Roof dented Small tear on the SW corner Deformed bevel edges
Heaving (mm)	100			
Invert Above/Below Stream Bed	BELOW			
Above/Below (mm)	300			
Scour Protection (Type : <b>RIP RAP</b> ) (Avg. Rock Size(mm) : <b>300</b> )		N	4	Incomplete rip rap at South side of bevel.
Scour/Erosion		N	4	Minor scour at u/s invert. 3 m wide x 2 m long x 0.5 m deep.
Beavers (Y/N)	No			
<b>Upstream End General Rating</b>		<b>5</b>	<b>4</b>	
Bridge Culvert Barrel				
Culvert Component		Last	Now	Explanation of Condition
<b>(Pipe # : 1, Primary Span, Location Code: MAIN, Span (mm): 2159, Rise (mm): 1372, Type: FP)</b>				
Barrel Last Accessible Date	24-Jun-2004			Primary pipe
<b>Special Features</b>				
Special Feature (Type : )				Minor 100mm bend at u/s roof Only able to enter pipe up to 1/2 of length from u/s end.
Special Feature (Type : )				
Roof		N	N	Shape is good at u/s half Roof shape at d/s half is poor.
Measured Rise (mm)	110			
Measured At Ring No.				
Sag (mm)	212			
Percent Sag	15			
Sidewall		N	N	
Measured Span (mm)	2300			
Measured At Ring No.				
Deflection (mm)	141			
Percent Deflection	6			
Floor		N	N	(150mm - flr heaving along S. side -50mm @ 13/L) 2004/06/24 (Flr heave 50mm @ 1/3L from d/s) 2006/04/24
Bulge (mm)	50			
Measured At Ring No.				
Abrasion (Y/N)	No			
Circumferential Seams		N	N	
Separation (mm)	100			
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: MAIN, Span (mm): 2159, Rise (mm): 1372, Type: FP)				
Coating		N	N	(scaling & deep pitting @ lower swall) 2004/06/24 (Alkalie & superficial corrosion @ upper sidewall) 2004/06/24
Corrosion By Soil (Y/N)				
Corrosion By Water (Y/N)	Yes			
Camber POS/ZERO/NEG	ZERO			
Ponding (Y/N)				(HWM indicates flow has been 500mm above crown at U/S end) 24 June 2010
Fish Passage Adequacy		N	5	
Baffle		X	X	
(Type : )				
Waterway Adequacy		5	5	(Takes flow from drainage ditch around Rush Tyrell project wetland to N (runs full) 24 June 2010
Icing (Y/N)	No			
Silting (Y/N)	No			
Drift (Y/N)	No			
<b>Barrel General Rating</b>		<b>2</b>	<b>2</b>	General rating carried forward

Downstream End				
Culvert Component		Last	Now	Explanation of Condition
(Pipe # : 1, Span Type: Primary Span)				
Direction		E		East end of primary 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	(RUST & DAMAGE AT NE CORNER CHANNEL LOWERED D/S) 24 June 2010
Heaving (mm)	100			
Invert Above/Below Stream Bed	ABOVE			
Above/Below (mm)	300			
Scour Protection		N	5	
(Type : RIP RAP)				
(Avg. Rock Size(mm) : 300)				
Scour/Erosion		N	5	
Beavers (Y/N)	No			
<b>Downstream End General Rating</b>		<b>5</b>	<b>4</b>	

Upstream End				
Culvert Component		Last	Now	Explanation of Condition
(Pipe # : 5, Span Type: Secondary Span)				
Direction		W		2nd pipe from north west end
End Treatment (Concrete, Steel, Others, None)	NONE			
Headwall		X	X	
Collar		X	X	

Upstream End				
Culvert Component		Last	Now	Explanation of Condition
<b>(Pipe # : 5, Span Type: Secondary Span)</b>				
Wingwalls		X	X	
(Shape : )				
Cutoff Wall		X	X	
Bevel End		X	X	
Heaving (mm)				
Invert Above/Below Stream Bed	BELOW			
Above/Below (mm)	300			
Scour Protection		N	5	ingrown (Submerged ) 24 June 2010
(Type : <b>RIP RAP</b> )				
(Avg. Rock Size(mm) : <b>300</b> )				
Scour/Erosion		N	5	
Beavers (Y/N)	No			
<b>Upstream End General Rating</b>		<b>6</b>	<b>5</b>	

Bridge Culvert Barrel				
Culvert Component		Last	Now	Explanation of Condition
<b>(Pipe # : 5, Secondary Span, Location Code: MAIN, Span (mm): , Rise (mm): 1000, Type: MP)</b>				
Barrel Last Accessible Date	24-Jun-2004			To small to enter, view from both ends
<b>Special Features</b>				
Special Feature				
(Type : )				
Special Feature				
(Type : )				
Roof		N	N	[Est] 24 June 2010 General roof and sidewall shape is adequate
Measured Rise (mm)	980			
Measured At Ring No.	2			
Sag (mm)	20			
Percent Sag	2			
Sidewall		N	N	[Est] 24 June 2010
Measured Span (mm)	1020			
Measured At Ring No.	2			
Deflection (mm)	20			
Percent Deflection	2			
Floor		N	N	
Bulge (mm)				
Measured At Ring No.				
Abrasion (Y/N)				
Circumferential Seams		N	N	
Separation (mm)				
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 # : 5, Secondary Span, Location Code: MAIN, Span (mm): , Rise (mm): 1000, Type: MP)				
Coating		N	N	
Corrosion By Soil (Y/N)				
Corrosion By Water (Y/N)				
Camber POS/ZERO/NEG	ZERO			
Ponding (Y/N)	No			
Fish Passage Adequacy		X	5	
Baffle		X	X	
(Type : )				
Waterway Adequacy		5	5	Takes flow from draingage ditch around Rush Tyrell project wetland to N (runs full)
Icing (Y/N)				
Silting (Y/N)				
Drift (Y/N)				
<b>Barrel General Rating</b>		<b>N</b>	<b>N</b>	
Downstream End				
Culvert Component		Last	Now	Explanation of Condition
(Pipe # : 5, Span Type: Secondary Span)				
Direction		E		2nd pipe from North
End Treatment (Concrete, Steel, Others, None)	NONE			
Headwall		X	X	
Collar		X	X	
Wingwalls		X	X	
(Shape : )				
Cutoff Wall		X	X	
Bevel End		X	X	
Heaving (mm)				
Invert Above/Below Stream Bed				
Above/Below (mm)	0			
Scour Protection		3	3	4m wide x 8m long scour
(Type : RIP RAP)				
(Avg. Rock Size(mm) : 300)				
Scour/Erosion		3	3	
Beavers (Y/N)	No			
<b>Downstream End General Rating</b>		<b>3</b>	<b>3</b>	
Upstream End				
Culvert Component		Last	Now	Explanation of Condition
(Pipe # : 6, Span Type: Secondary Span)				
Direction		W		3rd pipe from North West end
End Treatment (Concrete, Steel, Others, None)	STEEL			
Headwall		X	X	
Collar		X	X	

Upstream End				
Culvert Component		Last	Now	Explanation of Condition
<b>(Pipe # : 6, Span Type: Secondary Span)</b>				
Wingwalls		X	X	
(Shape : )				
Cutoff Wall		X	X	
Bevel End		8	7	
Heaving (mm)	0			
Invert Above/Below Stream Bed	ABOVE			
Above/Below (mm)	400			
Scour Protection		8	7	
(Type : <b>RIP RAP</b> )				
(Avg. Rock Size(mm) : <b>300</b> )				
Scour/Erosion		8	7	
Beavers (Y/N)	No			
<b>Upstream End General Rating</b>		<b>8</b>	<b>7</b>	

Bridge Culvert Barrel				
Culvert Component		Last	Now	Explanation of Condition
<b>(Pipe # : 6, Secondary Span, Location Code: MAIN, Span (mm): , Rise (mm): 1000, Type: MP)</b>				
Barrel Last Accessible Date	24-Jun-2004			Pipe too small to enter - view from ends. Shape is adequate 3rd pipe from N
<b>Special Features</b>				
Special Feature				
(Type : )				
Special Feature				
(Type : )				
Roof		N	N	(Estimate) 24 June 2010
Measured Rise (mm)	1000			
Measured At Ring No.				
Sag (mm)	0			
Percent Sag				
Sidewall		N	N	(Estimate Pipe bulges inward at mid approx. 200mm at floor and estimate 50mm at sidewall) 24 June 2010
Measured Span (mm)				
Measured At Ring No.				
Deflection (mm)	50			
Percent Deflection	5			
Floor		N	N	
Bulge (mm)				
Measured At Ring No.				
Abrasion (Y/N)				
Circumferential Seams		N	N	
Separation (mm)	100			
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 # : 6, Secondary Span, Location Code: MAIN, Span (mm): , Rise (mm): 1000, Type: MP)				
Coating		N	N	
Corrosion By Soil (Y/N)				
Corrosion By Water (Y/N)				
Camber POS/ZERO/NEG	ZERO			
Ponding (Y/N)	No			
Fish Passage Adequacy		X	5	
Baffle		X	X	
(Type : )				
Waterway Adequacy		7	7	(Has taken flow 500mm from crown recently) 24 June 2010
Icing (Y/N)				
Siltting (Y/N)	No			
Drift (Y/N)	No			
<b>Barrel General Rating</b>		<b>N</b>	<b>N</b>	

Downstream End				
Culvert Component		Last	Now	Explanation of Condition
(Pipe # : 6, Span Type: Secondary Span)				
Direction		E		3rd pipe form north
End Treatment (Concrete, Steel, Others, None)	STEEL			
Headwall		X	X	
Collar		X	X	
Wingwalls		X	X	
(Shape : )				
Cutoff Wall		X	X	
Bevel End		8	7	
Heaving (mm)	0			
Invert Above/Below Stream Bed	ABOVE			
Above/Below (mm)	400			
Scour Protection		3	3	2m wide x 6m long scour hole
(Type : RIP RAP)				
(Avg. Rock Size(mm) : 300)				
Scour/Erosion		3	3	
Beavers (Y/N)	No			
<b>Downstream End General Rating</b>		<b>3</b>	<b>3</b>	

Upstream End				
Culvert Component		Last	Now	Explanation of Condition
(Pipe # : 7, Span Type: Secondary Span)				
Direction		W		4th pipe from North West end
End Treatment (Concrete, Steel, Others, None)	STEEL			
Headwall		X	X	
Collar		X	X	

Upstream End				
Culvert Component		Last	Now	Explanation of Condition
<b>(Pipe # : 7, Span Type: Secondary Span)</b>				
Wingwalls		X	X	
(Shape : )				
Cutoff Wall		X	X	
Bevel End		8	5	u/s invert is perched by 200 mm
Heaving (mm)	0			
Invert Above/Below Stream Bed	ABOVE			
Above/Below (mm)	900			
Scour Protection		5	4	2m diameter scour hole with rock in it. Scour protection incomplete around invert.
(Type : <b>RIP RAP</b> )				
(Avg. Rock Size(mm) : <b>300</b> )				
Scour/Erosion		5	4	
Beavers (Y/N)	No			
<b>Upstream End General Rating</b>		<b>5</b>	<b>4</b>	

Bridge Culvert Barrel				
Culvert Component		Last	Now	Explanation of Condition
<b>(Pipe # : 7, Secondary Span, Location Code: MAIN, Span (mm): , Rise (mm): 1000, Type: MP)</b>				
Barrel Last Accessible Date	24-Jun-2004			
<b>Special Features</b>				
Special Feature				4th pipe from North Viewed from ends- shape good Too small to enter with 100mm water on floor
(Type : )				
Special Feature				
(Type : )				
Roof		N	N	(Estimate) 24 June 2010
Measured Rise (mm)	1000			
Measured At Ring No.	2			
Sag (mm)	0			
Percent Sag	0			
Sidewall		N	N	(Est) 24 June 2010
Measured Span (mm)	1000			
Measured At Ring No.	2			
Deflection (mm)	0			
Percent Deflection	0			
Floor		N	N	
Bulge (mm)				
Measured At Ring No.				
Abrasion (Y/N)				
Circumferential Seams		N	N	
Separation (mm)	100			
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 # : 7, Secondary Span, Location Code: MAIN, Span (mm): , Rise (mm): 1000, Type: MP)					
Coating		N	N		
Corrosion By Soil (Y/N)					
Corrosion By Water (Y/N)					
Camber POS/ZERO/NEG		ZERO			
Ponding (Y/N)					
Fish Passage Adequacy		X	5		
Baffle		X	X		
(Type : )					
Waterway Adequacy		7	7		
Icing (Y/N)		No			
Siltting (Y/N)		No			
Drift (Y/N)		No			
<b>Barrel General Rating</b>		<b>N</b>	<b>N</b>		
Downstream End					
Culvert Component		Last	Now	Explanation of Condition	
(Pipe # : 7, Span Type: Secondary Span)					
Direction		E		4th pipe from North	
End Treatment (Concrete, Steel, Others, None)		STEEL			
Headwall		X	X		
Collar		X	X		
Wingwalls		X	X		
(Shape : )					
Cutoff Wall		X	X		
Bevel End		8	5	Undermined 6.5m at South side of bevel	
Heaving (mm)		0			
Invert Above/Below Stream Bed		ABOVE			
Above/Below (mm)		900			
Scour Protection		3	3		
(Type : RIP RAP)					
(Avg. Rock Size(mm) : 300)					
Scour/Erosion		3	3	2m wide x 6m long scour hole	
Beavers (Y/N)		No			
<b>Downstream End General Rating</b>		<b>3</b>	<b>3</b>		
Structure Usage					
		Last	Now	Explanation of Condition	
<b>Channel (U/S and D/S)</b>					
Alignment		5	5	45 DEG. BEND 5 m U/S CHANNEL SPLITS TO FLOW INTO FP & 1000 mm CSP(S) D/S CHANNEL REHABED-LOWERED BY APPROX. 400 mm.	
Bank Stability		6	6		
HWM (m below Top of Culvert)		0.5		(500mm above main pipe from last week high water) 24 June 2010	
Drift (Y/N)		No		HWM not visible	

Structure Usage				
		Last	Now	Explanation of Condition
Channel Bottom Degrading/Aggrading	DEGRADING			
Beavers (Y/N)	No			
(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	2012	20m3 class 1 at ends of 1000mm diameter MPs					
REMOVE DRIFT ACCUMULATION							
INSTALL CONCRETE/STEEL LINING	2012	Liner at primary					
INSTALL STRUTS							
INSTALL CONCRETE COLLAR/CUTOFF							
REPAIR SEAMS							
OTHER ACTION							
OTHER ACTION							
OTHER ACTION							
OTHER ACTION							
<b>Structural Condition Rating (Last/Now) (%)</b>	<b>22.2/22.2</b>	<b>Sufficiency Rating (Last/Now) (%)</b>	<b>38.8/37.8</b>	Est. Repl. Yr	2020	Maint. Req. (Y/N)	Yes
Special Comments for Next Inspection	This site always has water, should be drained to get measurements to see if it is changing in primary pipe. In C/W rip rap being placed at MP's. A drainage plan should be considered to better use all pipes. (Main pipe and 1st 1000 MP to North submerged. 2-1000 MP's to North still able to take flow at 2010 insp.) 24 June 2010		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	Tom Carey		Previous Assistant's Name				
Next Inspection Date	06-Sep-2013		Previous Inspection Date	24-Jun-2010			
Inspection Cycle (Default) (months)	21						
Comment							