

Bridge Culvert Inspection				
Bridge File Number	73539 -1 Bridge Culvert		Form Type	CULM
Year Built	1967		Lot No.	1
Bridge or Town Name	WELLING		Inspector Name	Jon Davies
Located Over	POTHOLE CREEK, 2.12.20.2, WATERCRS-ST		Inspector Class	BR CLS B
Located On	5:06 C1 3.963		Assistant Name	
Water Body Cl./Year			Assistant Class	
Navigabil. Cl./Year			Inspection Date	28-Sep-2011
Legal Land Location	SW SEC 7 TWP 6 RGE 21 W4M		Data Entry By	Alyssa Boynton
Longitude, Latitude	-112:49:44, 49:27:07		Data Entry Date	13-Oct-2011
Road Authority	Alberta Transportation (AIT)		Reviewer Name	Garry Roberts
Contract Main. Area	CMA25		Review Date	03-Oct-2011
Clear Roadway/Skew	12 / -15 deg. (LHF)		Dept. Reviewer Name	Tim Davies
AADT/Year	4,540 / 2010 (A)		Dept. Review Date	28-Oct-2011
Road Classification	RAU-213-120		Follow-Up By	
Detour Length (km)	5			

**Bridge Culvert Information**

Number of Culverts	3							
Pipe #	Barrel	Span	Rise (or Dia.)	Type	Length	Corr. Profile	Pl./Slab Thickness	Shape
1	MAIN	3500	3880	SPE	47.5	152X51	3.5,3.5,3.5	ELLIPSE
2	MAIN	3500	3880	SPE	47.5	152X51	3.5,3.5,3.5	ELLIPSE
3	MAIN	3500	3880	SPE	46.3	152X51	3.5,3.5,3.5	ELLIPSE
Special Features	VERT TIMBER STRUTS							
Special Features Comment								

**Utilities (Located at)**

Utility Attachments			
Telephone		Gas	
Power		Municipal	
Others		Problem (Y/N)	No
Remarks	Fibre optics @ S R/W Shaw and supernet S R/W		

**Approach Road / Embankment**

	Last	Now	Explanation of Condition
Horizontal Alignment	6	6	In sag curve with limited sight distance.
Vertical Alignment	6	6	
Roadway Width (m)	12.000		
Embankment	6	6	3:1 to a 4.0 m berm then 2:1 on both sides.
Sideslope (___:1)	2.0		
(Height of Cover(m) : 2.2)			
Guardrail (Y/N)	Yes		
<b>Approach Road / Embankment General Rating</b>	<b>6</b>	<b>6</b>	

**Upstream End**

Culvert Component	Last	Now	Explanation of Condition
<b>(Pipe # : 1, Span Type: Primary Span)</b>			
Direction	S		Middle pipe - S end
End Treatment (Concrete, Steel, Others, None)	CONCRETE		
Headwall	X	X	
Collar	4	4	Concrete missing @ lower ends with 300mm wide voids approx. 500mm depth.

Upstream End				
Culvert Component		Last	Now	Explanation of Condition
<b>(Pipe # : 1, Span Type: Primary Span)</b>				
Wingwalls		N	X	
(Shape : )				
Cutoff Wall		N	N	
Bevel End		5	4	Water entering through lower bolt holes.
Heaving (mm)	150			
Invert Above/Below Stream Bed	BELOW			
Above/Below (mm)	400			
Scour Protection		7	7	
(Type : <b>RIP RAP</b> )				
(Avg. Rock Size(mm) : <b>300</b> )				
Scour/Erosion		7	7	
Beavers (Y/N)	No			
<b>Upstream End General Rating</b>		<b>4</b>	<b>4</b>	
Bridge Culvert Barrel				
Culvert Component		Last	Now	Explanation of Condition
<b>(Pipe # : 1, Primary Span, Location Code: MAIN, Span (mm): 3500, Rise (mm): 3880, Type: SPE)</b>				
Barrel Last Accessible Date	28-Sep-2011			Middle pipe - barrel Receives most flow.
<b>Special Features</b>				
Special Feature		7	6	
(Type : <b>VERT TIMBER STRUTS</b> )				
Special Feature				
(Type : )				
Roof		4	4	Confirmed sag
Measured Rise (mm)	3580			
Measured At Ring No.	9			
Sag (mm)	300			
Percent Sag	8			
Sidewall		2	2	35mm remaining steel @ Ring 7 30mm remaining steel @ ring 13.
Measured Span (mm)	3683			
Measured At Ring No.	9			
Deflection (mm)	183			
Percent Deflection	5			
Floor		N	N	600mm deep water- unable to rate.
Bulge (mm)	0			
Measured At Ring No.				
Abrasion (Y/N)	Yes			
Circumferential Seams		6	6	
Separation (mm)	0			
Longitudinal Seams		2	2	45 mm STEEL @ RING #11, (30 mm STEEL @ RING #7 - ALL AT EAST SIDEWALL. No change jan 08 insp) 31-Jan-2008
Total No. of Cracked Rings	11			
Total No. of Rings with Two Cracked Seams	6			35mm steel @ Ring # 7 east sidewall unable to confirm 30mm remaining steel @ ring 7 due to water depth. 30mm remaining steel @ ring 13. 1N stagger.
Min. Remaining Steel Between Cracks (mm)	30			
Proper Lap (Y/N)	No			
Longitudinal Stagger (Y/N)	Yes			

Bridge Culvert Barrel				
Culvert Component		Last	Now	Explanation of Condition
(Pipe # : 1, Primary Span, Location Code: MAIN, Span (mm): 3500, Rise (mm): 3880, Type: SPE)				
Coating		4	4	ABRASION ALONG LOWER SIDEWALL WITH SOME PITTING
Corrosion By Soil (Y/N)	Yes			
Corrosion By Water (Y/N)	Yes			
Camber POS/ZERO/NEG	NEG			
Ponding (Y/N)	No			
Fish Passage Adequacy		6	6	
Baffle		X	X	
(Type : )				
Waterway Adequacy		6	6	
Icing (Y/N)	No			
Silting (Y/N)	No			
Drift (Y/N)	No			
<b>Barrel General Rating</b>		<b>3</b>	<b>3</b>	Struts functioning, raised GR to reflect stable conditions. But permanant measured reference undetermined.
Downstream End				
Culvert Component		Last	Now	Explanation of Condition
(Pipe # : 1, Span Type: Primary Span)				
Direction		N		Middle pipe, north end.
End Treatment (Concrete, Steel, Others, None)	STEEL			
Headwall		X	X	
Collar		X	X	
Wingwalls		X	X	
(Shape : )				
Cutoff Wall		X	X	
Bevel End		5	5	
Heaving (mm)	300			
Invert Above/Below Stream Bed	ABOVE			
Above/Below (mm)	300			
Scour Protection		6	6	
(Type : RIP RAP)				
(Avg. Rock Size(mm) : 600)				
Scour/Erosion		6	6	
Beavers (Y/N)	No			
<b>Downstream End General Rating</b>		<b>5</b>	<b>5</b>	
Upstream End				
Culvert Component		Last	Now	Explanation of Condition
(Pipe # : 2, Span Type: Secondary Span)				
Direction		S		East pipe, south end.
End Treatment (Concrete, Steel, Others, None)	CONCRETE			
Headwall		X	X	
Collar		N	4	GOOD AROUND, BUT BROKEN NEAR BOTTOM. Voids at lower side of bevel due to concrete loss.

Upstream End				
Culvert Component		Last	Now	Explanation of Condition
<b>(Pipe # : 2, Span Type: Secondary Span)</b>				
Wingwalls		N	X	
(Shape : )				
Cutoff Wall		N	N	
Bevel End		5	4	SUPERFICIAL RUST. WATER ENTERING THRU LOWER BOLT HOLES
Heaving (mm)	150			
Invert Above/Below Stream Bed	BELOW			
Above/Below (mm)	400			
Scour Protection		7	7	Some class 2 @ toe @ both E & W pipes
(Type : <b>RIP RAP</b> )				
(Avg. Rock Size(mm) : <b>300</b> )				
Scour/Erosion		7	7	
Beavers (Y/N)	No			
<b>Upstream End General Rating</b>		<b>4</b>	<b>4</b>	

Bridge Culvert Barrel				
Culvert Component		Last	Now	Explanation of Condition
<b>(Pipe # : 2, Secondary Span, Location Code: MAIN, Span (mm): 3500, Rise (mm): 3880, Type: SPE)</b>				
Barrel Last Accessible Date	28-Sep-2011			East pipe
<b>Special Features</b>				
Special Feature		7	5	Struts not in place rings 2-5.
(Type : <b>VERT TIMBER STRUTS</b> )				
Special Feature				
(Type : )				
Roof		5	5	Rise measurement actually measured @ Ring 9, 3660mm
Measured Rise (mm)	3660			
Measured At Ring No.	9			
Sag (mm)	220			
Percent Sag	6			
Sidewall		2	2	33mm remaining steel @ Ring 12.
Measured Span (mm)	3615			
Measured At Ring No.	9			
Deflection (mm)	115			
Percent Deflection	3			
Floor		N	N	400mm deep water
Bulge (mm)	0			
Measured At Ring No.				
Abrasion (Y/N)	Yes			
Circumferential Seams		6	6	
Separation (mm)	0			
Longitudinal Seams		2	2	(30 mm STEEL @ RING #13) 31-Jan-2008 ,44 mm STEEL @ RING #11, 45 mm STEEL @ RING #7 - ALL AT EAST SIDEWALL. No change. Unable to confirm 30mm steel and 4 rings with 2 ckd seams due to water depth. N1
Total No. of Cracked Rings	11			
Total No. of Rings with Two Cracked Seams	3			
Min. Remaining Steel Between Cracks (mm)	33			
Proper Lap (Y/N)	No			
Longitudinal Stagger (Y/N)	Yes			

Bridge Culvert Barrel					
Culvert Component		Last	Now	Explanation of Condition	
(Pipe # : 2, Secondary Span, Location Code: MAIN, Span (mm): 3500, Rise (mm): 3880, Type: SPE)					
Coating		4	4	(ABRASION ALONG LOWER SIDEWALL WITH SOME PITTING, SOIL ALSO) 31-Jan-2008	
Corrosion By Soil (Y/N)	Yes				
Corrosion By Water (Y/N)	Yes				
Camber POS/ZERO/NEG	NEG				
Ponding (Y/N)	No				
Fish Passage Adequacy		6	6		
Baffle		X	X		
(Type : )					
Waterway Adequacy		7	7	Remove drift at U/S	
Icing (Y/N)	No				
Silting (Y/N)	No				
Drift (Y/N)	Yes				
<b>Barrel General Rating</b>		<b>3</b>	<b>3</b>	Struts functioning, raised GR to reflect stable conditions. But permant reference point not determined.	
Downstream End					
Culvert Component		Last	Now	Explanation of Condition	
(Pipe # : 2, Span Type: Secondary Span)					
Direction		N		East pipe, north end.	
End Treatment (Concrete, Steel, Others, None)	STEEL				
Headwall		X	X		
Collar		X	X		
Wingwalls		X	X		
(Shape : )					
Cutoff Wall		X	X		
Bevel End		6	6		
Heaving (mm)	150				
Invert Above/Below Stream Bed	ABOVE				
Above/Below (mm)	300				
Scour Protection		7	7	Some class 2 & 3 @ NE bank	
(Type : RIP RAP)					
(Avg. Rock Size(mm) : 600)					
Scour/Erosion		7	7		
Beavers (Y/N)	No				
<b>Downstream End General Rating</b>		<b>6</b>	<b>6</b>		
Upstream End					
Culvert Component		Last	Now	Explanation of Condition	
(Pipe # : 3, Span Type: Secondary Span)					
Direction		S		West pipe - S End	
End Treatment (Concrete, Steel, Others, None)	CONCRETE				
Headwall		X	X		
Collar		4	4	Broken concrete at lower sides	

Upstream End				
Culvert Component		Last	Now	Explanation of Condition
<b>(Pipe # : 3, Span Type: Secondary Span)</b>				
Wingwalls		X	X	
(Shape : )				
Cutoff Wall		X	X	
Bevel End		5	5	
Heaving (mm)	200			
Invert Above/Below Stream Bed	BELOW			
Above/Below (mm)	400			
Scour Protection		7	7	
(Type : <b>RIP RAP</b> )				
(Avg. Rock Size(mm) : <b>300</b> )				
Scour/Erosion		7	7	
Beavers (Y/N)	No			
<b>Upstream End General Rating</b>		<b>4</b>	<b>4</b>	
Bridge Culvert Barrel				
Culvert Component		Last	Now	Explanation of Condition
<b>(Pipe # : 3, Secondary Span, Location Code: MAIN, Span (mm): 3500, Rise (mm): 3880, Type: SPE)</b>				
Barrel Last Accessible Date	28-Sep-2011			West pipe barrel
<b>Special Features</b>				
Special Feature		7	6	
(Type : <b>VERT TIMBER STRUTS</b> )				
Special Feature				
(Type : )				
Roof		7	N	Unable to confirm due to silt. Ring 11 rise 3845mm.
Measured Rise (mm)	3755			
Measured At Ring No.	13			
Sag (mm)	125			
Percent Sag	3			
Sidewall		2	2	Bolts pulling through 35mm remaining steel @ Ring 2. 10 CRACKED RINGS SEEN, 0 OF WHICH ARE CRACKED @ BOTH SIDEWALLS
Measured Span (mm)	3620			
Measured At Ring No.	11			
Deflection (mm)	120			
Percent Deflection	2			
Floor		N	N	600mm deep water
Bulge (mm)	0			
Measured At Ring No.				
Abrasion (Y/N)	Yes			
Circumferential Seams		6	6	
Separation (mm)	0			
Longitudinal Seams		2	2	Bolts punching through @ ring 1,2,3 Unable to confirm 4 rings with 2 cracked seams @ Ring 1- East sidewall. -Nov 28 2009 35mm remaining at Ring 2. 1N stagger.
Total No. of Cracked Rings	10			
Total No. of Rings with Two Cracked Seams	0			
Min. Remaining Steel Between Cracks (mm)	35			
Proper Lap (Y/N)	No			
Longitudinal Stagger (Y/N)	Yes			

Bridge Culvert Barrel				
Culvert Component		Last	Now	Explanation of Condition
(Pipe # : 3, Secondary Span, Location Code: MAIN, Span (mm): 3500, Rise (mm): 3880, Type: SPE)				
Coating		4	4	ABRASION ALONG LOWER SIDEWALL WITH SOME PITTING, SOIL ALSO
Corrosion By Soil (Y/N)	Yes			
Corrosion By Water (Y/N)	Yes			
Camber POS/ZERO/NEG	NEG			
Ponding (Y/N)	No			
Fish Passage Adequacy		6	6	
Baffle		X	X	
(Type : )				
Waterway Adequacy		7	7	
Icing (Y/N)	No			
Silting (Y/N)	Yes			
Drift (Y/N)	No			
<b>Barrel General Rating</b>		<b>3</b>	<b>3</b>	Struts functioning, raised GR to reflect stable conditions but permanent reference point undetermined.

Downstream End				
Culvert Component		Last	Now	Explanation of Condition
(Pipe # : 3, Span Type: Secondary Span)				
Direction		N		West Pipe - N end
End Treatment (Concrete, Steel, Others, None)	STEEL			
Headwall		X	X	
Collar		X	X	
Wingwalls		X	X	
(Shape : )				
Cutoff Wall		X	X	
Bevel End		6	6	
Heaving (mm)	150			
Invert Above/Below Stream Bed	ABOVE			
Above/Below (mm)	300			
Scour Protection		7	7	
(Type : RIP RAP)				
(Avg. Rock Size(mm) : 600)				
Scour/Erosion		7	7	
Beavers (Y/N)	No			
<b>Downstream End General Rating</b>		<b>6</b>	<b>6</b>	

Structure Usage				
		Last	Now	Explanation of Condition
<b>Channel (U/S and D/S)</b>				
Alignment		7	7	
Bank Stability		5	5	
HWM (m below Top of Culvert)				No visible HWM. East Barrel
Drift (Y/N)	Yes			

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>7</b>	<b>7</b>	



Maintenance Recommendations							
Inspector Recommendations	Year	Inspector Comments	Department Comments	Target Year	Est. Cost	Cat #	
SHOTCRETE REPAIRS							
PLACE ADDITIONAL RIP RAP							
REMOVE DRIFT ACCUMULATION	2012	@ U/S end of east pipe.					
INSTALL CONCRETE/STEEL LINING							
INSTALL STRUTS							
INSTALL CONCRETE COLLAR/CUTOFF							
REPAIR SEAMS							
OTHER ACTION	2012	Complete replacement assessment.					
OTHER ACTION							
OTHER ACTION							
OTHER ACTION							
OTHER ACTION							
<b>Structural Condition Rating (Last/Now) (%)</b>	<b>33.3/33.3</b>	<b>Sufficiency Rating (Last/Now) (%)</b>	<b>44.0/43.8</b>	Est. Repl. Yr	2016	Maint. Req. (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-Jun-2013		Previous Inspection Date	28-Nov-2009			
Inspection Cycle (Default) (months)	21						
Comment							