Bridge Inspection

Bridge File Number	77252 -1 Bridge	Form Type	TH TT
Year Built/Year Supstr	1949/1949	Lot No.	6
		Inspector Name	Kris Bosters
Bridge or Town Name	NORDEGG	Inspector Class	BR CLS A
Located Over	BLACKSTONE RIVER, 6.149.8, WATERCRS-ST	Assistant Name	Todd Warshawski
		Assistant Class	BR CLS B
Located On	734:20 C1 33.674	Inspection Date	21-Aug-2012
Water Body Cl./Year		Data Entry By	Marcia Chavez
Navigabil. Cl./Year		Data Entry Date	26-Nov-2012
Legal Land Location	NW SEC 18 TWP 43 RGE 16 W5M	Reviewer Name	John O'Brien
Longitude, Latitude	-116:19:13, 52:42:45	Review Date	01-Nov-2012
Road Authority	Alberta Transportation (AIT)	Dept. Reviewer Name	Andrew Smikles
Contract Main. Area	CMA18	Dept. Review Date	28-Nov-2012
Clear Roadway/Skew	6.7 / 0 deg.	Follow-Up By	
AADT/Year	180 / 2011 (A)		
Road Classification	RCU-208G-90		
Detour Length (km)	20		

Allowable Load (t):	Single	CS1 33 STRINGER	Semi	CS2 52 U2L3	Train	CS3 62	---> On Critical Spans ---->Critical Member
Design Loading:		HS20					---> Primary Span

Posting Information

Required Vert. Clearance Posting (m)											
Posted Vertical Clearance (Y/N)				Yes							
Posted:	Lane	NB	On Bridge (m)	4.7	In Advance (Y/N)	Yes	Lane	SB	On Bridge (m)	4.7	In Advance (Y/N)	Yes
Remarks	Slight damage to South VC sign on portal.										

Required Load Posting (t)			Single		Semi		Truck Train	
Posted Loading (t)			Single		Semi		Truck Train	61.0
Posted:	Lane	NB	At Junction (Y/N)	Yes	In Advance (Y/N)	No	At Bridge (Y/N)	No
Posted:	Lane	SB	At Junction (Y/N)	No	In Advance (Y/N)	No	At Bridge (Y/N)	No
Remarks	NE missing, SW broken & others faded.							

Hazard Marker At Bridge (Y/N)	Yes
Remarks	
Other Sign Types	Narrow Bridge, Max One Truck, 35 km/hr, "Blackstone River" ID. Steep hill. "Stop if Oncoming Traffic".

Utilities (Located at)

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

Approach Road

		Last	Now	Explanation of Condition
Horizontal Alignment		5	5	Curve both ends. 8% grade to N.
Vertical Alignment		4	4	
Roadway Width (m)	7.000			
Approach Bump		5	5	
Guardrail (Y/N)	No			High abuts & steep sideslopes create hazard. 1.5 to 2.1 sideslope & lack of guardrail create safety hazard.
Guardrail		X	X	
Length (m)				
Current Standard (Y/N)	No			
Termination Type	None			
Drainage		4	5	
Approach Road General Rating		**4**	**4**	

Superstructure				
Bridge Component		**Last**	**Now**	**Explanation of Condition**
(Primary Span : **TH, 3 Spans, Lengths(m): 45.7-45.7-8.5, A-Ident Number: A0649-01;A0649-02**)				
Special Features				
Special Feature			X	
(Type :)				
Special Feature			X	
(Type :)				
Wearing Surface/Deck Top Detail Ratings				
	N (%) / 1 (%) / 2 (%) / 3 (%)			
Last	100 / 0 / 0 / 0			Gravel covered.
Now	40.0 / 0.0 / 0.0 / 0.0			
Wearing Surface/Deck Top		N	6	Ekki wood holding up very well. (1 plank has localized wear 15mm deep. 30Jun2010).
(Material Type : **EKKI WOOD**)				
(Plank Thickness(mm) : **75**)				
(Plank Width(mm) : **200**)				
Deck Rideability		7	7	
Deck Joints		X	X	
Temperature (deg. C)	16			
(Expansion Type :)				
(Fixed Type :)				
Gap Size (mm)	Gap Location			
Curbs/Wheel Guards		N	4	9 - 4.5m sectionw with damage/splits; approx. 15 wheel guard blocks are split.
(Curb Type : **Standard**)				
(Type : **TREATED TIMBER**)				
(Thickness(mm) : **100**)				
(Width(mm) : **300**)				
Bridge Rail		4	4	8 panels have minor bends; SW panel of S3 has cracked lower angle by end post. Total of 33 hook bolts missing (32 on bottom). Truss verticals used for support. 1 rail to post rivet missing. Not connected over P2. WLD to lattice rail: S3 panel 1 E, 2W,4W S2 panel 4W. End panels @ corner typically have WLD. Minor corrosion; dirty.
(Type : **LATTICE**)				
Bridge Rail Posts/Blocking		4	X	
(Type : **POST STEEL;POST STEEL**)				
Bridge Rail/Posts Coating		4	4	
(Type : **PAINT**)				
Sidewalk		X	X	

Superstructure				
Bridge Component		**Last**	**Now**	**Explanation of Condition**
(Primary Span : **TH, 3 Spans, Lengths(m): 45.7-45.7-8.5, A-Ident Number: A0649-01;A0649-02**)				
Wide Load Damage (Y/N)	No			See UT 2010 report for all missing bolts, fabricating errors and damage to steel; many areas have had heat straightening. To all portals.
High Load Damage (Y/N)	Yes			
Top Chord		5	5	
Batter Posts		6	6	
Sway Bracings		6	6	Diagonals repaired 2011
Diagonals		3	5	
Verticals		6	6	
Portals		3	N	(3 portals have HLD, 2 have localized cracks & 3 have bolts sheared off - 2010 UT) - Not confirmed.
Connections		4	4	Various bolts missing, see 2010 UT report.
Floor Beams		5	5	
Bottom Chord		5	5	Bottom panel points & bottom chords are dirty.
(No. of Stringers : **91;91**)				13 stringer X 7 panels X 2 spans.
Stringer Detail Ratings				
	N (count)	1 (count)	2 (count)	3 (count)
Last				
Now				
Stringers		5	5	
(Type : **STEEL**)				
(Width(mm) : **135**)				
(Depth(mm) : **380**)				
(Spacing(mm) : **560**)				
Paint Condition		4	4	Up to 30% paint failed.
(Colour Description : **BLUE**)				
(Colour Code : **15182;**)				
Touchup Required (Y/N)	No			
Bearings		4	4	Expansion bearings have skewed rollers due to corrosion & flattened contact surfaces. Bearings are covered by dirt @ N abut. S2P2 is overexpanded 11mm; S3P2 is over-expanded 40mm. Exp=P2; Fixed=P1, A2 Trusses jammed. Corbels & bearings are nto level.
Temperature (deg. C)	16			
(Expansion Type : **ROLLER NEST BEARING**)				
(Fixed Type : **PINNED BEARING**)				
Functioning (Y/N)	No			
Sub Deck/Deck Underside		6	6	
(Material Type : **TREATED TIMBER**)				
(Plank Thickness(mm) : **100**)				
(Plank Width(mm) : **300**)				
Defects (Percent Area)	0			
Span Alignment Problems				
Vertical (Y/N)	No			
Horizontal (Y/N)	No			
Superstructure General Rating		**3**	**3**	GR carried forward from 03Dec2010 due to portal rating.

Superstructure				
Bridge Component		**Last**	**Now**	**Explanation of Condition**
(Secondary Span : **TT**)				
Special Features				
Special Feature			X	
(Type :)				
Special Feature			X	
(Type :)				

Superstructure

Bridge Component		Last	Now	Explanation of Condition
(Secondary Span : **TT**)				
Wearing Surface/Deck Top Detail Ratings				
	N (%)	1 (%)	2 (%)	3 (%)
Last	100	0	0	0
Now	20.0	0.0	0.0	0.0
				Gravel covered.
Wearing Surface/Deck Top		N	7	
(Material Type : **EKKI WOOD**)				
(Plank Thickness(mm) : **75**)				
(Plank Width(mm) : **200**)				
Deck Rideability		7	7	
Wheel Guards		N	4	150x300x450 TT blocking. E side has 1 bolt btwn 2 planks @ 2 locations.
(Curb Type : **Standard**)				
(Type : **TREATED TIMBER**)				2 damaged planks & 6 wheel guard blocks damaged.
(Thickness(mm) : **100**)				
(Width(mm) : **300**)				
Bridge Rail		4	4	Single layer. Not connected to lattice.
(Type : **FLEX BEAM;GALVANIZED STEEL FLEX BEAM**)				(3 rail to WG nuts loose.
Bridge Rail Posts		3	N	N end rail X posts rotten. 30Jun2010).
(Type : **TREATED TIMBER;TREATED TIMBER**)				SW X SE posts leaning.
Bridge Rail/Posts Coating		5	5	
(Type : **GALVANIZED**)				
(No. of Stringers : **13**)				
Stringer Detail Ratings				
	N (count)	1 (count)	2 (count)	3 (count)
Last	0	0	0	0
Now	0	0	0	0
Stringers		7	7	Wide horizontal checks on outer stringer.
(Type : **TREATED TIMBER**)				
(Width(mm) : **200**)				
(Depth(mm) : **500**)				
(Spacing(mm) : **565**)				
Sub Deck/Deck Underside		6	6	Stains at isolated locations.
(Material Type : **TREATED TIMBER**)				
(Plank Thickness(mm) : **100**)				
(Plank Width(mm) : **300**)				
Defects (Percent Area)	0			
Span Alignment Problems				
Vertical (Y/N)	No			
Horizontal (Y/N)	No			
Superstructure General Rating		**6**	**6**	

Substructure

Bridge Component		Last	Now	Explanation of Condition
Abutments				
(Extended Backwall Piles (Y/N) : **Y**)				0+2 ext. N abut only S cap tilted plywood shim in front. S abut - 1 full length 305 x 305 TT cap. N abut - 8 HP 250 x 62 corbel, 2 full length 305 x 305 TT caps, 2 short 305 x 305 caps.
(Extended Backwall Piles Spacing(mm) : **1000**)				

Substructure

Bridge Component	Last	Now	Explanation of Condition
(Total Number of Caps/Corbels : **1:12**)			Cored in 2012.
Bearing Seats/Caps/Corbels Detail Ratings			
N (count) 0 / 1 (count) 0 / 2 (count) 0 / 3 (count)			
Last 0 0 0 0			
Now 0 0 0 2			
Bearing Seats/Caps/Corbels	4	3	N abut, top W backwall cap is rotated. W breastwall cap is rotated. Top N backwall cap is only bearing 50% on 3 piles. S backwall caps are shimmed. S abut cap has minor split in E end. Cap under E corbels on N abut is rotten. Upper W cap on N abut is split.
(Type : **TREATED TIMBER**)			
(Depth(mm) : **305**)			
(Width(mm) : **350**)			
Backwalls/Breastwalls	4	4	1 broken plank at N abut.
Greatest Height (m) 2.30			
Wingwalls	5	4	Top plank missing at SE with vegetation growing at missing plank.
(Total Number of Bearing Piles : **5:17**)			S abut 5 - HP 250x62. Cored in 2012.
Piles Detail Ratings			
N (count) 0 / 1 (count) 0 / 2 (count) 0 / 3 (count)			
Last 0 0 0 0			
Now 0 0 0 7			
Piles	6	3	Several split piles with single bands. 3 centre piles on N backwall have <1/2 cap supported, but floor beam takes the load. Vertical blocks above P1,3,9 on N backwall are rotten.
Paint/Coating	X	4	Abut corbels painted with light rusting.
Abutment Stability	5	4	Backwalls pushing in. N backwall & breastwall caps rotating.
Scour/Erosion	7	7	
Piers/Bents			
(Type : **PIER-COLUMN**)			P2 concrete. P1: 6 - HP 250 x 62 corbels, 1 full length HP 310 x 94, 2 short HP 310 x 94, 1 short 305 x 305 TT, 1 full length 305 x 350 TT. P1 TT & HP.
(Total Number of Caps/Corbels : **11:2**)			
Bearing Seats/Caps/Corbels Detail Ratings			
N (count) 0 / 1 (count) 0 / 2 (count) 0 / 3 (count)			
Last 0 0 0 0			P1S1 top spacer plank notched at each stringer.
Now 2 0 0 0			
Bearing Seats/Caps/Corbels	5	5	
(Type : **CONCRETE**)			
(Total Number of Bearing Piles : **18:0**)			P1 piles with steel capitals. "H" shaped concrete, P2.
Piles Detail Ratings			
N (count) 100 / 1 (count) 0 / 2 (count) 0 / 3 (count) 0			
Last 100 0 0 0			
Now 0 0 0 3			
Pier Shaft/Piles	N	3	Piles in P2 encased in concrete, not counted. Top corners of P2 spalling but adequate. P1, N caps have rotated & are shimmed with plywood. P1 has 1 rotten block & 2 split blocks. Tops of piles with capitals are not treated.
Greatest Height (m) 10.40			
Bracing/Struts/Sheathing	6	6	Small holes cut into TT sheathing at P1. No problem
Nose Plate	6	6	
Paint/Coating	X	4	Steel caps, corbels & piles not painted & have light surface rust.
(Colour Description :)			
(Colour Code :)			

Substructure				
Bridge Component		**Last**	**Now**	**Explanation of Condition**
Pier Stability		7	7	
Scour		7	7	
Debris (Y/N)	No			
Substructure General Rating		**4**	**3**	

Structure Usage				
		Last	**Now**	**Explanation of Condition**
Channel				
(U/S Direction : **W**)				Curves U/S & D/S. Creek enters river at NW. Flow forced against N side due to gravel bed.
(D/S Direction : **E**)				
Alignment		6	6	
Bank Stability		6	6	
HWM (m below Top of Curb)				(HWM 4m.) 94/06/21. HWM not visible. Minor drift.
Drift (Y/N)	Yes			
Slope Protection		7	7	Class 3 rock placed @ toe of N hslp only.
(Type : **NATURAL; RIP RAP**)				
Guidebank/Spurs		7	7	Appears to be very long guidebank to SW along right bank, several hundred metres long.
Adequacy of Opening		8	8	
(Fish Compensation Measure 1 : **NONE**)				
(Fish Compensation Measure 2 : **NONE**)				
Channel General Rating		**6**	**6**	

Maintenance Recommendations

Inspector Recommendations	Year	Inspector Comments	Department Comments	Target Year	Est. Cost	Cat #
REPAIR/REPLACE BRIDGE RAIL	2012	Replace rotten posts, bridgerail posts on TT span, if not yet done. Remove lattice & replace with W-beam railing continuous with approach railing.				
RETROFIT BRIDGE RAIL						
SEAL CURBS	2012	Replace split wheelguard blocks & broken sections. Install WG vertical bolts.				
PATCH DECK						
REPLACE STRIP DECK						
REPLACE SUB DECK						
RESET/ PAINT BEARINGS						
REPAINT SUPERSTRUCTURE						
STRAIGHTEN/REPLACE MEMBERS	2012	Repair S3 U1U1 & U6U6, if not yet done.				
WASHING						
SHOTCRETE REPAIRS						
CORE TIMBER CAPS/CORBELS						
REPAIR/REPLACE TIMBER CAPS	2012	Replace all timber blocks, caps & corbels.				
REPAIR ABUTMENT SCOUR/EROSION						
PLACE ADDITIONAL RIP RAP						
REMOVE DRIFT ACCUMULATION						
OTHER ACTION	2012	Install bolts S2 (U5E, U5W) & S3 (U5W, U1E, U2E, L2E).				
OTHER ACTION	2012	Install approach rails to standard.				
OTHER ACTION	2012	Remove vegetation & replace damaged planks in SE wingwall.				
OTHER ACTION	2013	Place additional bands at split piles.				
OTHER ACTION	2012	Patch pier at next rehab.				
OTHER ACTION						
OTHER ACTION						
OTHER ACTION						
OTHER ACTION						
OTHER ACTION						
OTHER ACTION						
OTHER ACTION						
OTHER ACTION						
OTHER ACTION						

Structural Condition Rating (Last/Now) (%)	**38.9/33.3**	**Sufficiency Rating (Last/Now) (%)**	**43.0/41.1**	Est. Repl. Yr	2021	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	Owen Salava	Previous Assistant's Name	
Next Inspection Date	21-Nov-2015	Previous Inspection Date	03-Dec-2010
Inspection Cycle (Default) (months)	39		
Comment			