

BRIDGE INSPECTION

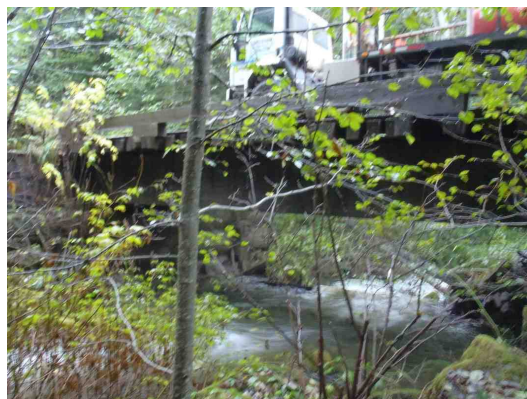
BRIDGE NO./NAME SI - 3041: Mt. Brenton FSR (2.00 KM)

Inspection Date: October 31st 2012

Inspected By: D. Chen, D. Harrison

Year Built: 1995

Number of Spans: 1



Span Lengths: Approximately 12,000 mm o/o (field measurement)
Approximately 11,200 mm c/c (field measurement)

Superstructure Type: Two glulam slab girders - 280 mm x 1210 mm; 3100 mm clear distance between girders.

Deck: 1 layer of timber deck planks, 90 mm thick.
Deck width 4260 mm.

Deck Structural: Transverse timber ties 200 mm x 250 mm @ 400 mm c/c.

Curb: Timber curbs and risers.

Substructure: Woods end abutment – 3 log high cedar log crib.
Camp end abutment – 2 log high cedar log crib.

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GENERAL BRIDGE CONDITION:

Superstructure Condition:	Fair
Substructure Condition:	Good
Deck Condition:	Good
Load Posting:	No sign noted
Date for the Next Close Proximity Inspection:	2015
Projected Replacement Date:	2017

BRIDGE INSPECTION SUMMARY/ RECOMMENDATIONS:

The bridge is generally in good condition. The glulam girders appear to be recycled from an older bridge. Although we did not observe any significant deterioration on the glulam girders, we found a number of previous repairs on the downstream girder. We recommend the Ministry to monitor the condition of the glulam girders to ensure the girders are in adequate service condition. Since the actual age of the glulam girder is unknown, we recommend the Ministry schedule the bridge for replacement within the next 5-10 years.

During the inspection, we noted significant water pooling on the wearing planks near woods end (approximately 1/3 of span length). Water accumulation would likely speed up the rate of decay in timber deck components and result in reduced service life of the bridge deck. Therefore, we recommend the Ministry to consider re-grading the approach roadway to allow better drainage of bridge deck.

INSPECTION NOTES:

Approaches:

- Approach road surface is lower than deck surface, water pooling and potholes were noted adjacent to deck.
- Camp end upstream delineator is small. One Left Delineator is bent.
- Woods end guide logs are misaligned and do not appear to be effective. Camp end upstream guide log is pushed over. Pockets of rot and heart rot were noted on guide logs.

Deck:

- Minor debris accumulation on wearing planks. Water pooling was noted on the wearing planks near woods end (approximately 1/3 of span length).
- Ties are generally in good condition, no rot was found.
- Curbs are generally in good condition, no rot was found.

Abutments:

- Generally in good condition.
- No signs of decay noted on the creosote treated timber sill.
- No significant deterioration on crib logs.

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Girders:

- Glulam girders appear to be recycled from an older bridge.
- Downstream girder has a steel tie bracket installed at approximately 1000 mm from the camp end abutment.
- A number of epoxy injection tubes were located at approximately 75 mm from the bottom of the downstream girder (on both faces), extending 2500 mm from the camp end abutment.

Typical Condition:

Girder 1 upstream face:

- Creosote leaching; visible creosote on > 75 % of the girder face.
- Minor checking, no significant check noted.

Girder 1 downstream face & Girder 2 upstream face:

- Minimal creosote leaching at laminate joints; girder face 100% covered by creosote.
- Minor checking, no significant check noted.

Girder 2 downstream face:

- Creosote leaching; visible creosote on > 75 % of the girder face.
- Minor checking, no significant check noted.

Checks on Girders:

Girder 2 downstream face:

Tag Type	Check Start	Check End	Length (mm)	Max. Depth (mm)	Max. Width (mm)	Location (mm)	Condition
New	AE2331	AE2339	1200	90		530 from top	
New	AE2332	Camp End Abut.	1100	60		410 from top	
N/A	N/A	N/A	1200	100		300 from top	A check is located about 800 mm from woods end abutment; not tagged due to limited reach.

LIST OF MAINTENANCE ITEMS TO BE COMPLETED:

Items	Description	Priority
1.	Replace and re-position the approach guide logs as required.	Medium
2.	Re-grade approach roadways.	Low

BRIDGE INSPECTION

MONITOR DURING FUTURE INSPECTIONS:

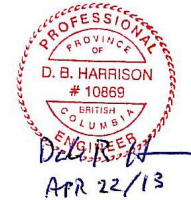
1. Monitor condition of the glulam girders.

Prepared by:



David Chen, P.Eng.
Project Manager

Reviewed by:



Dale Harrison, P.Eng.
Senior Reviewer

Attached:

1. CBR Report
2. Annotated Photo Sheets

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NOTES:

Directional & Numbering Conventions Used:

Girders and piles are numbered from upstream to downstream. Left end or right end is determined facing downstream (except for delineators). Spans and piers are numbered from the left end when facing downstream.

Projected Replacement Date:

The projected date for the bridge replacement is based on the remaining service life of the bridge. We estimate the remaining service life as the greater of:

For Glulam Girder Bridges:

1. Original design life, typically 50 years.
2. If a bridge is nearing the end of its estimated service life but is still in fair condition, we recommend that the Ministry assume a remaining service life of five years.

For Steel and Concrete Bridges:

1. Original design life, typically 60 years.
2. If a bridge is nearing the end of its estimated service life but is still in fair condition, we recommend that the Ministry assume a remaining service life of ten years.

Condition Ratings:

Excellent:	New or almost new condition and properly installed
Good:	Structurally sound, in good repair with minimal wear
Fair:	Structurally functional, shows moderate wear or preliminary indications of deterioration
Poor:	Structurally unsound, items typically in need of repair or replacement

Maintenance Priority (Typical Usage):

High:	Critical items that need to be addressed to protect safety of users (curbs, structural decks, delineators, major structural repairs, etc.); schedule work immediately.
Medium:	Items that maintain the service life of the bridge (wearing planks, deck joints, etc.)
Low:	Items that will extend the service life of the structure or general maintenance.

Cost Estimate:

The cost estimate for individual maintenance items, shown in the CBR report, reflects the cost of materials and labour for completing a task; it does not include any costs associated with mobilization, demobilization, engineering or contract administration.



BC Ministry of Forests and Range

Log Stringer Bridge Inspection Report

Page 1 of 3
Date Printed: 2013/03/28
User Id: BCEID\WRILEY1
Database: PROD
Report Id: CBR001B

Structure #:	SI-3041	Site #:	SI-3041	Road Name:	MT BRENTON	Inspection Date:	2012/10/31
KM:	2.00	User km:	2.00	Crossing Name:	Humbird Creek	Next Inspection Date:	2011/10/31
Project File ID #:	6113	Br.	06	Forest District:	South Island Forest District		
Deck Type:	Timber - Untreated - Panels			Running Surface:	Timber Planks		
Superstructure	Glulam Girder			Abutments (Left/Right):	Crib, Log or Untreated Timber		
Total Length (metres):	11.8	# Spans:	1	Span Length(s) (metres):	11.8		
UTM Zone:	10	UTM Easting:	437594	UTM Northing:	5413208		
Inspector Name:	D. Chen			Year Built:	1995		
Access:							

ABUTMENTS

Bearings	Not Applicable	
Bracing	Not Applicable	
Ballast Wall	Good	
Corrosion Protection	Not Applicable	
Caps or Sills	Good	Creosote treated timber sills.
Fill	Good	
Hardware	Not Applicable	
Log/Timber Cribbs	Good	Cedar log cribbs.
Piles or Posts	Not Applicable	
Riprap	Fair	
Tie-backs	Good	
Wing Wall	Good	

APPROACHES

Alignment	Good	
Brushing Required	No	
Delineator Missing Left	0	Camp end upstream delineator is small. One Left delineators is bent.
Delineator Missing Right	0	
Fender Condition	Poor	Woods end guide logs are misaligned and do not appear to be effective. Camp end upstream guide log is pushed over. Pockets of rot and heart rot were noted on guide logs.
Road Surface	Fair	Approach road surface is lower than deck surface, water pooling and potholes were noted adjacent to deck.

DECK

Span 1

Curb Rail/Blocks/Posts	Good	
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Database: PROD
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Structure #:	SI-3041	Site #:	SI-3041	Road Name:	MT BRENTON	Inspection Date:	2012/10/31			
Deck to Girder Bolts	Good									
Hardware	Not Applicable									
Hand Rails/Walkouts	Not Applicable									
Nails	Good									
Overall Deck Condition	Good									
Running Planks	Fair	Minor debris accumulation on wearing planks. Water pooling was noted on the wearing planks near woods end (approximately 1/3 of span length).								
Sub Deck	Unrated	Not Applicable.								
Ties	Good									
SUPERSTRUCTURE										
Span 1										
Bracing	Not Applicable									
Diaphragms	Good									
Girders	Fair	See AE Inspection Summary for details.								
Hardware	Not Applicable									
Under Trussing	Not Applicable									
CHANNEL	Estimated Present Water Level Depth:		0.4		Estimated Present Water Level Width:		4.0			
	Estimated High Water Level Clearance:		2.0							
HAZARDS	High Water:	No	Scour:	No	Ice:	No	Debris:	No	Aggradation:	No
	Comment:									
REPAIRS	#	Status	Priority	Estimate	Description					
	1	Recommended	Medium	\$1,500.00	Replace and re-position the approach guide logs as required.					
	2	Recommended	Low	\$0.00	Regrade approach roadways. (cost is a part of road maintenance)					
	3	Recommended	Low	\$0.00	N/A					
MONITORS	#	Description								
	1	Monitor condition of the glulam girders.								
GENERAL	Professional Inspection Required?		No	Regional Review Date:		P. Eng Reviewer Name:				
	Replacement Date for full log haul traffic (year):			2017		Replacement Date for light vehicle traffic (year):			2017	
	Current Load Rating GVW (tonnes):		54	Design Load GVW (tonnes):		54	Design Vehicle Config.:		L60	
	Inspector's Estimated Full Log Haul Replacement (year):			2017						
Corporate Bridge Register (CBR)										



BC Ministry of Forests and Range

Log Stringer Bridge Inspection Report

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Database: PROD
Report Id: CBR001B

Structure #:	SI-3041	Site #:	SI-3041	Road Name:	MT BRENTON	Inspection Date:	2012/10/31
	Inspector's Comment:	<p>The bridge is generally in good condition. The glulam girders appear to be recycled from an older bridge. Although we did not observation any significant deterioration on the glulam girders, we found a number of previous repairs on the downstream girder. We recommend the Ministry to monitor the condition of the glulam girders to ensure the girders are in adequate service condition. Since the actual age of the glulam girder is unknown, we recommend the Ministry schedule the bridge for replacement within the next 5-10 years.</p> <p>During the inspection, we noted significant water pooling on the wearing planks near woods end (approximately 1/3 of span length). Water accumulation would likely speed up the rate of decay in timber deck components and result in reduce service life of the bridge deck. Therefore, we recommend the Ministry to consider re-grading the approach roadway to allow better drainage of bridge deck.</p>					
	PEng Reviewer's Comment:						
	District Staff Comment:						

 Associated Engineering		<i>GLOBAL PERSPECTIVE. LOCAL FOCUS.</i>		BRIDGE INSPECTION REPORT BRIDGE INSPECTION PHOTOS		 BRITISH COLUMBIA Ministry of Forests, Lands and Natural Resource Operations	
Structure #	Crossing Name	Forest Service Road	User km	CBR km			
SI-3041	Humbird Creek	Mt. Brenton FSR	2.0	2.0			

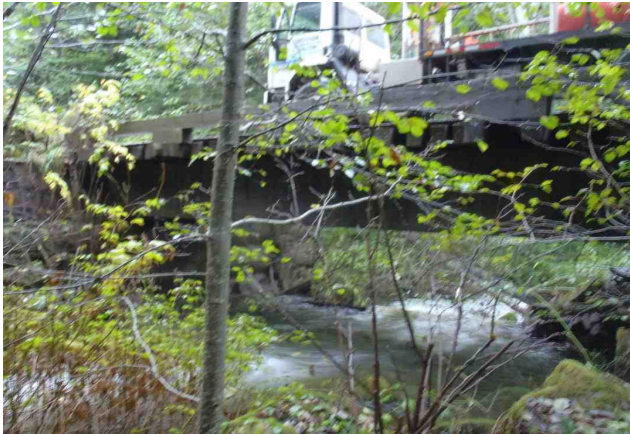


Figure 1-1: Upstream elevation.



Figure 1-2: Downstream elevation.



Figure 1-3: Looking towards camp end.



Figure 1-4: Looking towards woods end.



Figure 1-5: Camp end approach sign.

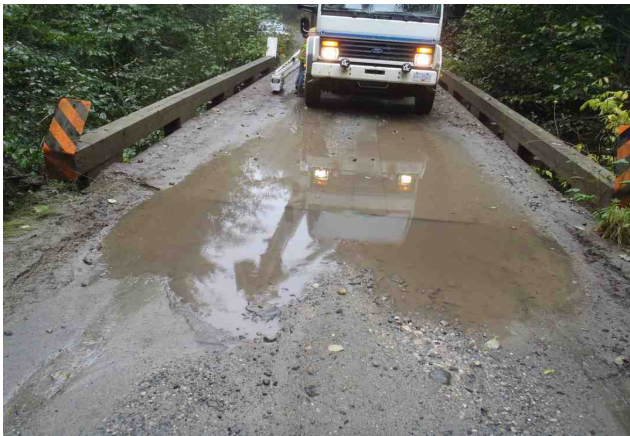


Figure 1-6: Woods end approach joint, water pooling.

 Associated Engineering		<i>GLOBAL PERSPECTIVE. LOCAL FOCUS.</i>		BRIDGE INSPECTION REPORT BRIDGE INSPECTION PHOTOS		 Ministry of Forests, Lands and Natural Resource Operations	
Structure #	Crossing Name	Forest Service Road	User km	CBR km			
SI-3041	Humbird Creek	Mt. Brenton FSR	2.0	2.0			



Figure 1-7: Camp end approach joint.



Figure 1-8: Typical deck and curb rail condition.



Figure 1-9: Typical deck soffit condition.



Figure 1-10: Upstream girder exterior face.



Figure 1-11: Downstream girder exterior face.



Figure 1-12: New check tagged on downstream girder exterior face.

 Associated Engineering		<i>GLOBAL PERSPECTIVE. LOCAL FOCUS.</i>		BRIDGE INSPECTION REPORT BRIDGE INSPECTION PHOTOS		 Ministry of Forests, Lands and Natural Resource Operations	
Structure #	Crossing Name	Forest Service Road	User km	CBR km			
SI-3041	Humbird Creek	Mt. Brenton FSR	2.0	2.0			



Figure 1-13: Epoxy injection tubes on the exterior face of downstream girder near camp end.



Figure 1-14: Epoxy injection tubes on the interior face of downstream girder near camp end.



Figure 1-15: Woods end log crib.



Figure 1-16: Woods end log crib downstream end.



Figure 1-17: Camp end log crib.