

BRIDGE INSPECTION

BRIDGE NO./NAME **N4-015: Downie FSR (15.4 KM)**

Inspection Date: September 21st 2012

Inspected By: R. Veitch, M. Hanson

Year Built: 1986

Number of Spans: 1



Span Lengths: 34,500 mm

Superstructure Type: Two simply supported steel I-girders with galvanized bracing and diaphragms.

Deck: Timber running planks, 200 mm x 75 mm. 4 planks wide.

Deck Structural: Creosote treated timber deck planks, 250 mm x 100 mm and deck ties, 200 mm x 250 mm.

Curb: Timber curbs and risers.

Substructure: Cast-in-place concrete abutments and wingwalls with timber ballast walls.

BRIDGE INSPECTION

GENERAL BRIDGE CONDITION:

Superstructure Condition:	Good
Substructure Condition:	Fair
Deck Condition:	Fair
Load Posting:	No sign noted.
Date for the Next Close Proximity Inspection:	2017
Projected Replacement Date:	2046

BRIDGE INSPECTION SUMMARY/ RECOMMENDATIONS:

The bridge is generally in fair condition; however, the peeper truck was unable to be used due to the narrow deck width. Additional structural deck planks and running planks should be installed prior to the next peeper truck inspection.

INSPECTION NOTES:

Approaches:

- The approaches are generally in good condition.
- Moderate horizontal curve on the camp end approach.
- Brushing is required on the camp end approach; visibility is limited.

Deck:

- The deck is generally in fair condition.
- Curb rails are in good condition however some risers are only connected with one bolt.
- Impact damage to bolts on upstream curb rail.
- Incorrect bolts and washers used for the curb rail, malleable washers have not been installed.
- Minor conk growth observed on the underside of the deck.

Abutments:

- The camp end and woods end abutments are generally in fair condition.
- Debris accumulation on caps and bearings.
- Small hairline cracks at interface of wingwalls and breast walls, condition unchanged.
- Anchor bolts are bent away from the stream, condition unchanged.
- Trees and vegetation are overgrown around abutments.

Girders:

- The steel girders are generally in good condition
- Peeper truck access is limited due to narrow running planks.
- Girders inspected from ground level.

BRIDGE INSPECTION

LIST OF MAINTENANCE ITEMS TO BE COMPLETED:

Items	Description	Priority
1.	Replace curb rail hardware and install additional bolts to conform to Ministry standards	High
2.	Consider installing additional running planks and structural planks to make functional bridge deck wider and allow for peeper truck inspection.	Medium
3.	Clean debris from bearings areas	Low
4.	Brushing required along approaches and around abutments.	Low

MONITOR DURING FUTURE INSPECTIONS:

- Continue monitoring the condition of the abutment anchor bolts.

Prepared by:



Mike Hanson, EIT
Project Engineer

Reviewed by:



David Chen, P.Eng.
Project Manager

APR 24 2013

Attached:

1. CBR Report
2. Annotated Photo Sheets

BRIDGE INSPECTION

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

Permanent Bridge Inspection Report

Page 1 of 3
Date Printed: 2013/03/25
User Id: BCEID\WRILEY1
Database: PROD
Report Id: CBR001A

Structure #:	N4-015	Site #:	N4-015	Road Name:	DOWNIE MAIN	Inspection Date:	2012/09/21
KM:	15.39	User km:	3.60	Crossing Name:	DOWNIE Cr	Next Inspection Date:	2015/10/16
Project File ID #:	8065	Br.	01	Forest District:	Columbia Forest District		
Deck Type:	Timber - Untreated			Running Surface:	Timber Planks		
Superstructure	Steel I-beam			Abutments (Left/Right):	Concrete Cast in Place		
Total Length (metres):	34.5	# Spans:	1	Span Length(s) (metres):	34.5		
UTM Zone:	11	UTM Easting:	406437	UTM Northing:	5707555		
Inspector Name:	R. Veitch, M. Hanson			Year Built:	1986		
Access:	Last peeper inspection in 2009.						

ABUTMENTS

Bearings	Fair	Debris accumulation on bearings.
Bracing	Not Applicable	
Ballast Wall	Good	Timber ballast wall.
Concrete Cast in Place	Good	Small hairline cracks at interface of wingwalls and breast walls, condition unchanged.
Corrosion Protection	Not Applicable	
Caps or Sills	Good	Debris accumulation on caps.
Fill	Good	
Hardware	Fair	Anchor bolts are bent away from stream, condition unchanged.
Piles or Posts	Not Applicable	
Riprap	Good	
Wing Wall	Good	Cast in place concrete.

APPROACHES

Alignment	Fair	Moderate horizontal curve on camp end approach.
Bridge Ahead Signs Missing	0	
Brushing Required	Yes	Limited visibility on camp end.
Delineator Missing Left	0	
Delineator Missing Right	0	
Fender Condition	None	
Road Surface	Fair	

DECK

Span 1

Curb Rail/Blocks/Posts	Good	Some risers are only connected with one bolt.
Deck to Girder Bolts	Unrated	Not accessible.



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Permanent Bridge Inspection Report

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Date Printed: 2013/03/25
User Id: BCEID\WRILEY1
Database: PROD
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Structure #:	N4-015	Site #:	N4-015	Road Name:	DOWNIE MAIN	Inspection Date:	2012/09/21
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Hardware	Fair	Impact damage to bolts on upstream curb rail. Incorrect bolts and washers used for the curb rail, malleable washers have not been installed.
Hand Rails/Walkouts	Not Applicable	
Nails	Good	
Overall Deck Condition	Fair	
Running Planks	Good	
Sub Deck	Fair	Minor conk growth observed on the underside of the deck.
Ties	Good	

SUPERSTRUCTURE

Span 1

Bracing	Good	Galvanized
Diaphragms	Good	Galvanized
Girders	Good	Peeper truck access is limited due to narrow running planks, girders inspected from ground level.
Hardware	Good	
Under Trussing	Not Applicable	

CHANNEL	Estimated Present Water Level Depth:	1.5	Estimated Present Water Level Width:	19.0
	Estimated High Water Level Clearance:	4.0		

HAZARDS	High Water:	No	Scour:	No	Ice:	No	Debris:	No	Aggradation:	Yes
	Comment:	Large gravel bar upstream of bridge.								

REPAIRS	#	Status	Priority	Estimate	Description
	1	Recommended	High	\$2,500.00	Replace curb rail hardware and install additional bolts to conform to Ministry standards
	2	Recommended	Medium	\$3,500.00	Consider installing additional running planks and structural planks to make functional bridge deck wider and allow peeper truck inspection.
	3	Recommended	Low	\$300.00	Clean debris from bearing areas.
	4	Recommended	Low	\$450.00	Brushing required along approaches and around abutments.

MONITORS	#	Description
	1	Continue monitoring the condition of the abutment anchor bolts.

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BC Ministry of Forests and Range

Permanent Bridge Inspection Report

Page 3 of 3
Date Printed: 2013/03/25
User Id: BCEID\WRILEY1
Database: PROD
Report Id: CBR001A

Structure #:	N4-015	Site #:	N4-015	Road Name:	DOWNIE MAIN	Inspection Date:	2012/09/21	
GENERAL	Professional Inspection Required?	No	Regional Review Date:		P. Eng Reviewer Name:			
	Replacement Date for full log haul traffic (year):	2046	Replacement Date for light vehicle traffic (year):	2046				
	Current Load Rating GVW (tonnes):	91	Design Load GVW (tonnes):	91	Design Vehicle Config.:			
	Inspector's Estimated Full Log Haul Replacement (year):	2046						
	Inspector's Comment:	The bridge is generally in fair condition; however, the peeper truck was unable to be used due to the narrow deck width. Additional structural deck planks and running planks should be installed prior to the next peeper truck inspection.						
	PEng Reviewer's Comment:							
	District Staff Comment:							

Structure #	Crossing Name	Forest Service Road	User km	CBR km		
N4-015	Downie Creek	Downie Main	3.6	15.4		



Figure 1-1: Upstream elevation.



Figure 1-2: Looking towards woods end.



Figure 1-3: Looking towards camp end.



Figure 1-4: Looking upstream.



Figure 1-5: Looking downstream.

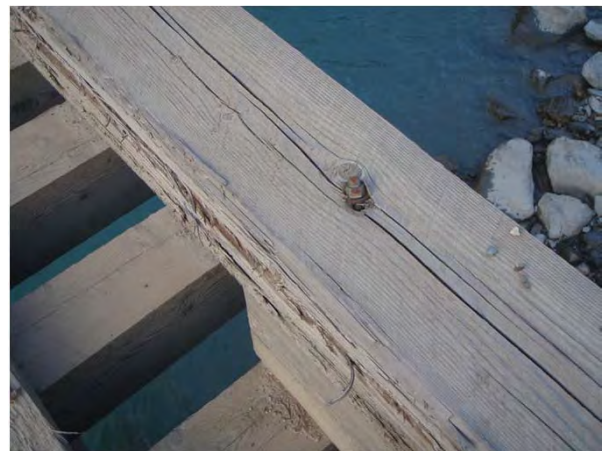


Figure 1-6: Typical damaged curb rail bolt on upstream rail (note no malleable washer).

Structure #	Crossing Name	Forest Service Road	User km	CBR km		
N4-015	Downie Creek	Downie Main	3.6	15.4		



Figure 1-7: No malleable washer on underside of curb rail connection.



Figure 1-8: Typical condition of underside of deck.



Figure 1-9: Downstream face looking towards camp end.



Figure 1-10: Camp end abutment.



Figure 1-11: Camp end downstream bearing.



Figure 1-12: Slotted plate and bent anchor bolt on camp end downstream corner.

Structure #	Crossing Name	Forest Service Road	User km	CBR km		
N4-015	Downie Creek	Downie Main	3.6	15.4		



Figure 1-13: Camp end upstream bearing (note debris accumulation in bearing area.



Figure 1-14: Camp end downstream bearing.



Figure 1-15: Woods end abutment.



Figure 1-16: Woods end ballast wall.

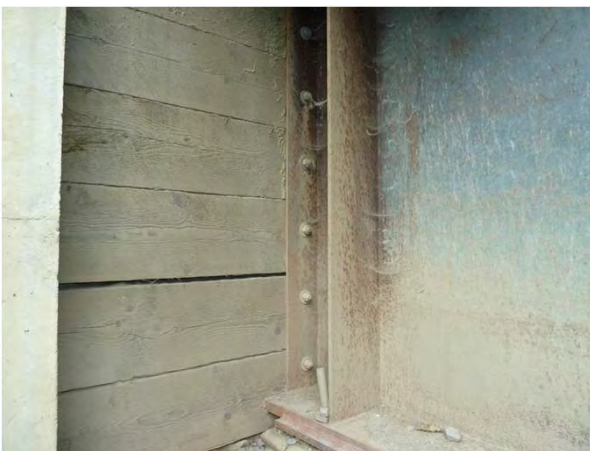


Figure 1-17: Typical ballast wall to girder connection.



Figure 1-18: Woods end downstream bearing.

Structure #	Crossing Name	Forest Service Road	User km	CBR km		
N4-015	Downie Creek	Downie Main	3.6	15.4		



Figure 1-19: Bent anchor bolt woods end downstream side.



Figure 1-20: Woods end upstream bearing.