



BC Ministry of Forests, Lands, and Natural Resource Operations

Permanent Bridge Inspection Report

Page: 1 of 4

Date Printed: 2023/04/14

User Id: IDIR\TYSMILLE

Database: PROD

Report Id: CBR001A

Site #:	CK-2213	Structure Name:	CK-2213	Road Name:	PEERS	Inspection Date:	2022/08/21
KM:	0.20	User km:	0.20	Crossing Name:	Coquihalla River	Next Inspection Date:	2024/10/31
Project File ID #:	8126	Br.	01	Forest District:	Chilliwack Natural Resource District		
Deck Type:	Concrete			Running Surface:	Concrete		
Curb Type:				Abutments (looking downstream)	Left	Concrete Cast in Place	
Superstructure:	Steel I-beam				Right	Concrete Cast in Place	
Total Length (metres):	100.	# Spans:	3	Span Width:			Span Length(s) (metres): 15.4, 38.9, 45.7
UTM Zone:	10		UTM Easting:	622149		UTM Northing:	5471689
Inspector Name:	M. Hanson			Year Superstructure Installed:	1988		
Access:	Driving East from Hope on Highway #5, turn right on Peers Creek FSR.						

ABUTMENTS

Bearings	Fair	upstream left bank anchor bolts on girder 1 are leaning but not broken; expansion slots at limit at right bank
Ballast Wall	Fair	
Concrete Cast in Place	Fair	
Caps or Sills	Fair	
Riprap	Fair	right bank over-steepened but appears adequately sized and functioning well

APPROACHES

Alignment	Fair	T junction at right bank, HC left bank
Bridge Ahead Signs Missing	1	
Brushing Required	Yes	left approach
Delineator Missing Left (approaching structure)	0	
Delineator Missing Right (approaching structure)	0	
Fender Condition	Fair	realign upstream left bank barriers
Posted Load Rating (Enter 0 if sign missing)	64	
Road Surface	Fair	

DECK

Span 1

Concrete Deck	Fair	deck panel edges have spalled at various locations, typically where concrete risers are anchored
Curb Rail/Blocks/Posts	Fair	

Corporate Bridge Register (CBR)

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- 2) Historic Load Rating data not available, contact FLNRO Regional Office for detailed information.



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Deck Joints		Fair					
Grout Pockets		Fair					
Hardware		Fair					
Overall Deck Condition		Fair					
Running Surface		Fair					
Span 2							
Concrete Deck		Fair	deck delaminating along pier joint, no exposed rebar noted; deck panel edges have spalled at various locations, typically where concrete risers are anchored				
Curb Rail/Blocks/Posts		Fair					
Deck Joints		Fair	expansion joint over pier 2 has mechanical damage to the embedded steel plate and delamination along the left deck panel; however appears to be functioning as intended				
Grout Pockets		Fair					
Hardware		Fair					
Overall Deck Condition		Fair					
Running Surface		Fair					
Span 3							
Concrete Deck		Fair	deck delaminating along pier joint, no exposed rebar noted; deck panel edges have spalled at various locations, typically where concrete risers are anchored				
Curb Rail/Blocks/Posts		Fair	damage noted to concrete curb riser downstream location				
Deck Joints		Fair	expansion joint over pier 2 has mechanical damage to the embedded steel plate and delamination along the left deck panel; however appears to be functioning as intended				
Grout Pockets		Fair					
Hardware		Fair					
Overall Deck Condition		Fair					
Running Surface		Fair					
PIERS							
Pier 1							
Bearings		Fair	span 1 girder 2 bearing grout cracked; anchor bolts for girders 1 and 2 on span 1 are leaning but have not failed				
Bracing or Sheathing		Fair					
Caps		Fair					
Overall		Fair					
Piles or Posts		Good					

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Site #:	CK-2213	Structure Name:	CK-2213	Road Name:	PEERS	Inspection Date:	2022/08/21
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Riprap	Fair	
Pier 2		
Bearings	Fair	
Bracing or Sheathing	Fair	
Caps	Good	
Overall	Fair	
Piles or Posts	Good	
Riprap	Poor	none

SUPERSTRUCTURE

Span 1

Bracing	Good	
Diaphragms	Good	
Girders	Good	painted
Hardware	Good	

Span 2

Diaphragms	Fair	end diaphragm at pier 2 has 150mm x 150mm delamination between girder 2 and 3
Girders	Fair	girder 2 has 2 locations with hairline cracks along bottom flange with efflorescence, developing into spalling and delamination; girder 3 has spalled and is delaminating

Span 3

Bracing	Good	
Diaphragms	Good	
Girders	Good	exteriors are painted
Hardware	Good	

CHANNEL	Estimated Present Water Level Depth:	0.5	Estimated Present Water Level Width:	20.0
	Estimated High Water Level Clearance:	2.5		

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HAZARDS	High Water:	No	Scour:	No	Ice:	No	Debris:	No	Aggradation:	Yes
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Comment:	significant channel deposition as a result of recent high flow events								
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REPAIRS	#	Status	Priority	Estimate	Description
	13	Suggested	High	\$ 0.00	Replace load rating and bridge ahead signs
	14	Suggested	Medium		Brush left approach
	15	Suggested	Low		Repair spalled concrete on edges of deck panels and curb risers
	16	Suggested	Medium		Realign the upstream left bank concrete no post barriers

MONITORS	#	Description
	5	monitor concrete spalls, cracks, and delamination in girders on span 2
	6	Monitor leaning anchor bolts and expansion slots

GENERAL	Inspector's Comment:	
	PEng's Comment:	Replace the load rating and bridge ahead signs. Brush left approach. Repair spalled concrete on edges of deck panels and at curb riser locations. Realign the upstream left bank concrete no post barriers. The original structural design noted L60 or 54 tonnes capacity; however, a structural evaluation of the girders was completed by Associated Engineering Ltd noting they have capacity to support the CL-625 vehicle. The concrete decks do not show signs of deterioration and there weren't any signs of settlement or distress in the substructure. The current load rating of CL-625 or 63 tonnes can continue. Monitor the concrete spalls, cracks, efflorescence, and delamination in girders on span 2 and in all deck panels. Monitor leaning anchor bolts at expansion slots at right bank.

GENERAL	Estimated Load Restriction (year):	2048	Estimated Replacement (year):	2048
	Current Inspection Load Rating:	See footnote	Design Load GVW (tonnes):	54
	Professional Inspection Required?	No	Report Status:	In Progress By IDIR\TYSMILLE on 2023/04/14 10:19:12

See attached Close Proximity Inspection completed by Onsite Engineering Ltd for further information.



Permit to Practice: 1003022

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BRIDGE INFORMATION:

Bridge No./Name CK-2213: Peers Creek FSR
(0.2 km)

Inspection Date August 21, 2022

Inspected By Mike Hanson, P.Eng.
Dylon Montgomery, EIT

Temperature (°C) 23

Access Method Snooper Truck

Year Built 1988

Camp/Town River Right

Number of Spans 3 **Span Lengths (m)** 15.4, 38.9, 45.7

Superstructure Span 1: 2 Steel I-beam girders.

Span 2: 3 Concrete girders.

Span 3: 2 Steel I-beam girders with a flare section supported by an additional girder on either side.

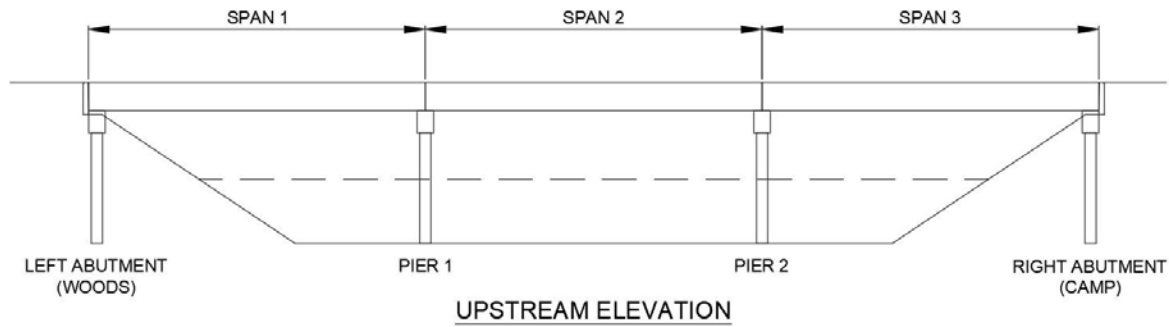
Deck Composite precast concrete deck panels with flare at the right end.

Curb Untreated timber curbs and concrete risers.

Abutments Cast in place ballast walls, wing walls, and sills.



STANDARD NAMING CONVENTION:



NOTE:

- ABUTMENTS, SPANS, AND PIERS NUMBERED FROM LEFT TO RIGHT WHEN LOOKING DOWNSTREAM
- PILES AND GIRDERS NUMBERED UPSTREAM TO DOWNSTREAM

GENERAL BRIDGE CONDITION:

Bridge Element	<u>Previous</u>	<u>Current</u>
Superstructure	Good	Fair
Substructure	Good to Fair	Fair
Deck	Fair	Fair
Load Posting	64 000 kg	64 000 kg
Date for Next Close Proximity Inspection	2022	2025

BRIDGE INSPECTION SUMMARY:

The bridge is generally in fair condition with no significant issues noted.

The approaches are in fair condition with paved T-intersection at the right approach and overgrown trees at the left approach which require brushing. There is no load posting at the left approach and the signage at the right approach has been removed (laying down). The deck has areas of minor mechanical damage, delamination, and efflorescence on the underside. The abutments are in fair condition with minor concrete spalls and some cracking in the grout below the bearings. The steel girders are in good condition, with no significant issues noted. The concrete girders on span 2 have several locations with minor spalling, cracking, delamination, and efflorescence indicating potential corrosion to the reinforcing steel in the bottom flange.

Recent high flow activity in the channel from the November 2021 storm event has deposited a significant amount of material throughout the channel. This recent activity does not appear to have affected the bridge, however it has altered the channel flow pattern.

The estimated replacement of this bridge is 2048 based on a 60 year life span of steel and concrete bridges.

INSPECTION NOTES:

Approaches:

- The approaches are in fair condition.
- T-junction at right approach and sharp horizontal curve at left approach.
- Large gravel stockpile at the left approach may impede or restrict larger truck access.
- Vegetation overgrown at left approach and requires brushing.
- Concrete approach barrier at the left upstream corner has fallen down the embankment.
- Right load posting has been removed (laying down), no signage at left approach.
- Minor potholes at left approach.
- Left 'Narrow Road Ahead' sign has been knocked over.

Deck:

- The deck is in fair condition.
- Minor wear from walking tracked vehicle across bridge.
- Minor rub damage on the curbs.
- One concrete curb riser has rebar exposed from impact damage.
- Minor debris at left end.
- Deck delaminating along pier joints on span 2, no exposed rebar noted.
- Expansion joint over pier 2 has mechanical damage to the embedded steel plate and delamination along the left deck panel; however, appears to be functioning as intended.
- Underside of deck has several spalls where concrete risers are anchored. No exposed rebar noted.

Substructure:**Abutments:**

- The abutments are in fair condition.
- Left abutment being used as a storage area for nearby encampment, restricting inspection and maintenance access.
- Evidence of campfires below bridge at the left abutment.
- Left upstream anchor bolts on girder 1 are leaning but not broken.
- Expansion slots are at their limits at the right abutment.

Piers:

- The piers are in good condition.
- Span 1 girder 2 bearing grout cracked at pier 1.
- Anchor bolts for girders 1 & 2 span 1 at pier 1 are leaning but not broken.
- Height of piers reduced by recently deposited material within the channel.

Girders:

- The girders are in fair condition.
- Span 2 girder 2 has a crack along the bottom flange of the girder with efflorescence, indicating water ingress within the girder. The bottom flange of the girder is starting to delaminate (600

mm x 800 mm area noted) indicating corrosion of the reinforcing steel due No clear source of water ingress in the girder.

- Girder 2 span 2 has 2 areas with hairline cracking in the bottom flange that is developing into spalling and delamination near pier 1.
- Span 1 girder 1 has a minor fabrication defect in the bottom flange near pier 1.
- End diaphragm at Span 2, Pier 2 has 150 mm x 150 mm delamination between girder 2 and 3.

Channel:

- 20 m estimated present water width.
- 0.5 m estimated present water depth.
- 2.5 m estimated high water clearance.
- Right abutment riprap is over steepened but appears adequately sized and functioning well.
- Left abutment has minimal riprap protection and the embankment has minor erosion; no impact on the abutment at this time.
- Large slope failure upstream of the bridge on the left embankment due to recent high flow events.
- Significant channel deposition as a result of recent high flow events, reducing channel capacity.

LIST OF MAINTENANCE/ REPAIR ITEMS:

Item No.	Description	Priority
1	Replace load rating signage	High
2	Brush left approach	Medium
3	Repair spalled concrete on edges of deck panels at curb riser locations.	Low

LIST OF MONITORING ITEMS:

1. Monitor concrete spalls, cracks, and delamination in girders for further deterioration.
2. Monitor leaning anchor bolts and expansion slots.

Prepared by:



Mike Hanson, P.Eng.
Bridge Engineer

Reviewed by:

A handwritten signature in black ink, likely belonging to Michael Foster.

Michael Foster, P.Eng.
Reviewing Engineer

Attached: Photo Plates



Photo 1
Bridge elevation from downstream



Photo 2
Bridge elevation from upstream



Photo 3
Looking downstream



Photo 4
Looking upstream



Photo 5
Left approach looking towards bridge



Photo 6
Left approach looking away from bridge



Photo 7
Right approach looking towards bridge



Photo 8
Right approach looking away from bridge



Photo 9
General deck condition



Photo 10
General railing condition



Photo 11
Typical barrier condition



Photo 12
Typical grouted deck panel joint condition



Photo 13
Left abutment



Photo 14
Right abutment



Photo 15
Left upstream wing wall



Photo 16
Left downstream wing wall



Photo 17
Right upstream wing wall



Photo 18
Right downstream wing wall



Photo 19
Typical span 1 girder condition



Photo 20
Typical span 2 girder condition



Photo 21
Typical span 3 girder condition

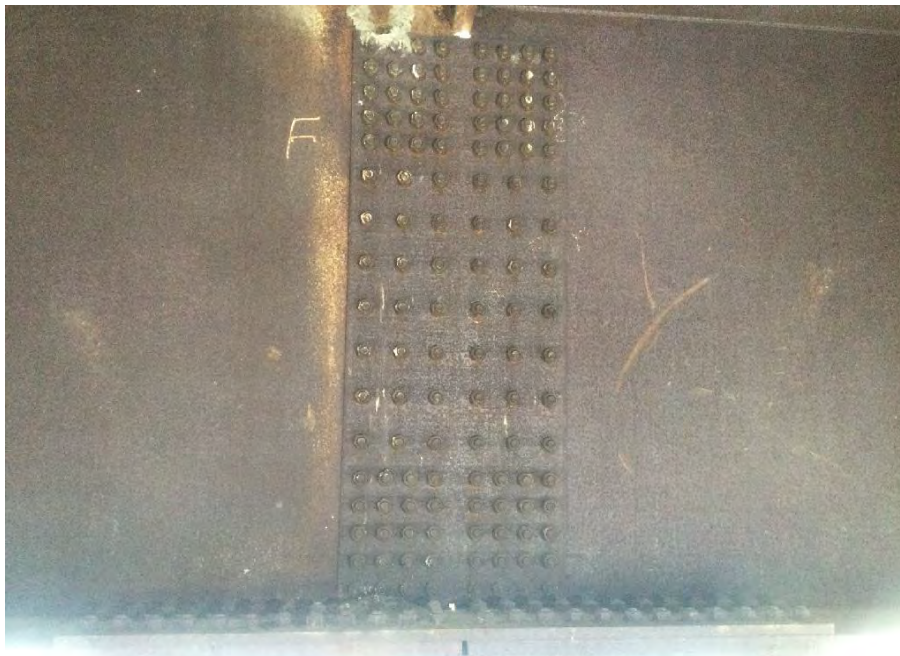


Photo 22
Typical splice condition



Photo 23
Typical underside of deck condition



Photo 24
Typical bearing condition



Photo 25
Pier 1



Photo 26
Pier 2



Photo 27
Right load rating signage knocked over



Photo 28
Concrete curb riser spalling



Photo 29
Curb mechanical damage



Photo 30
Expansion joint damage over pier 2



Photo 31
Left 'Narrow Road Ahead' sign knocked over



Photo 32
Left upstream barrier falling down embankment



Photo 33
Channel looking upstream



Photo 34
Exterior soffit condition showing efflorescence



Photo 35

Pier 1 span 1 girder 2 bearing grout cracked



Photo 36

Span 1 girder 1 minor warp in bottom flange



Photo 37

Efflorescence and delamination on girder 2 span 2



Photo 38

Span 2 girder 3 at pier 1 spall and delamination



Photo 39

Span 2 end diaphragm at pier 2 delamination between girders 2 and 3



Photo 40

Over steepened right bank riprap



Photo 41

Deck spalling at curb rail anchorage location



Photo 42

Slope failure upstream of the crossing