2021 ANNUAL BRIDGE INSPECTION

Tri-City Railroad
1st Subdivision

Prepared for the:

Tri-City Railroad Company, LLC
P.O. Box 6000

Kennewick, WA 99336

By Kasey Kirschling and Chester Pruett
reviewed by Ken Kirschling, PE

RailStar engineering, LLC

July, 2021

www.railstarengineering.com

TABLE OF CONTENTS

Summary 1
Findings & Recommendations 1
Method of Inspection 2
Report Format 3
Bridge List 5
Bridge Inspection Summary (including dates of most recent inspections) 6
Recommended Work by Priority 7
Recommended Work by Bridge 9
Recommended Low Effort (Low Cost) Work 12
1st Subdivision Bridge Inspection Records **.....13**
MP 19.74 (B45.7 - Irrigation Canal) 13
MP 19.96 (B45.5 - Columbia Park Trail) 18
Section 1 (South Approach) 18
Section 2 (Main Section) 22
Section 3 (North Approach) 27
MP 21.00 (B44.4 - Yakima River Bridge) 32
Section 1 (South Approach I) 32
Section 2 (South Approach II) 36
Section 3 (Main Section) 40
Section 4 (North Approach I) 45
Section 5 (North Approach II) 48
MP 22.64 (B42.7 - Berry's Bridge) 51
MP 27.61 (B37.7 - Scale) 56

2021 ANNUAL BRIDGE INSPECTION
TRI-CITY RAILROAD COMPANY, LLC (TCRY)
1ST SUBDIVISION

SUMMARY

All bridges and a scale of the Tri-City Railroad Company were inspected by Chester Pruett and Kasey Kirschling of Railstar Engineering on the 15th of July, 2021 and found to be in good condition, due in large part to extensive bridge and track rehab work in 2015 and 2020. A few problems do exist, however.

The most serious problem is in Bridge B45.5 over Columbia Park Trail. The concrete bearing block at the SW corner of Pier 1 is cracked, crumbling, and can no longer be relied upon to carry load. This problem has been noted for several years and immediate repair is highly recommended.

Also in Bridge B45.4 are a couple construction problems from 2015 rehab work. Many of the new bridge ties are the wrong size and subsequent efforts to shim them have been unsuccessful. There are gaps under many ties and shims continue to work loose and fall onto the roadway. A less immediate issue is the premature failure of grout pads under the new steel bents in both approaches.

New ties, rail and ballast were installed in "Berry's Bridge" (B42.7 over Interstate 182) last year (2020) and are performing well. At the same time, the Yakima River Bridge (B44.4) received new ties and rail, a big improvement, but there is evidence of rail movement and some of the HCP clips anchoring the ties to the steel are working loose.

FINDINGS & RECOMMENDATIONS

The work performed last year on the decks of the Yakama River Bridge (B44.4) and "Berry's Bridge" (B42.7), was thoroughly inspected. The new ballast and curve alignment of Berry's Bridge are holding up well. However, the left rail in the Yakama River Bridge is moving south, skewing ties in Sections 3, 4 & 5. Furthermore, ties not anchored in Section 5 have begun to rotate or "tip" southward. Many of the HCP clips securing the ties to the steel stringers are loosening, especially in Section 2 (Through Plate Girders). Some clips have loosened enough to no longer secure ties.

Three ties on the headwall of the north abutment of the Yakima River Bridge (B44.4) rest in unusual steel saddles that don't bear evenly across the concrete headwall. The ties are shimmed with several ¼" shims under the tie plates. While the existing ties are performing adequately, it is understood ties of the correct height are on order. Eventually, the steel saddles will work loose. A more permanent solution is desirable.

Some shims under ties in Section 2 (the span over the roadway) of the Columbia Park Trail Bridge (B45.5) have worked loose and fallen out, creating a danger to auto traffic below. Railroad forces have worked to keep this under control, but shims continue to fall out leaving gaps under many ties and

putting great load on the remaining ties. The ties without shims will start crushing unless proper shims or proper sized ties are installed.

In the new steel approaches to the same bridge, the grout pads used where the steel bents rest upon the concrete pedestals have been spalling ever since 2016. While not an immediate threat to operations, they continue to deteriorate and will require repair long before any other component in the new section of this bridge. For some reason the tube-shaped intermediate stringer bearings on the concrete piers never received grout pads during construction in 2015 and simply rest on shims. These shims worked out and were repaired two years ago but are likely to work loose again. Founding these bearings on grout pads would solve this problem.

The most serious issue identified in this year's inspection is the disintegration of a concrete bearing block on the SW corner of Pier 1 of Section 2 of the Columbia Park Trail Bridge. This block is intended to support the west end of the floorbeam receiving steel stringers of Section 1. It's cracked, broken and can no longer be relied upon to support the floorbeam. Alternatively, the load passes to stringers bearing upon the intermediate steel tube bearings mentioned above. This may induce out-of-plane bending at the connection, possibly leading to cracking in the future. A new block should be made and properly fit up to the bearing plate of the floorbeam. It's also highly recommended that grout pads are installed below the tube bearings. The engineer and TCRY maintenance forces discussed how TCRY could affect these repairs themselves.

Observed over several years of inspection of Barry's Bridge (B42.7), the hasp for the hatch under the south end of the steel box girder (at the south abutment) is broken. The hatch is light enough to allow easy access to the interior. To head off a potential liability issue, it is recommended that the hasp be repaired and strengthened to prevent entry. It is also recommended to free the hinges on the north end hatch and secure it as well.

Whenever a new bridge is constructed between a highway and railroad, an agreement between the State DOT and the railroad is generally written which describes, among other things, who is responsible for inspection and who is responsible for maintenance. We recommend locating that document. Apparently, the U.S. Department of Energy owned the railroad when Bridge B42.7 was constructed.

The scale adjacent to the Railroad's maintenance building at MP 27.6 appears to be in overall good condition. We are told the scale is still serviceable. This was not a scale inspection, per se, but an inspection of the beams that carry live load which were found to be in good condition and the structure safe to support rail traffic.

METHOD OF INSPECTION

This was an ***Annual*** railroad bridge inspection, adhering to methodologies described in the ***AREMA Bridge Inspection Handbook*** developed by Committee 10 - Structures, Maintenance & Construction, and in compliance with recent FRA regulations spelled out in 49 CFR Parts 213 and 237, "Bridge Safety Standards."

Jose Romero of TCRY was in radio contact with train crews and with Martin Romero, who was on site and provided On-Track Safety in the form of Train Approach Warning ("Watchman-Lookout" Protection) when it was necessary to foul the track.

All members of steel and concrete structures were accessed and carefully observed visually. Where direct visual examination was not possible, access was gained using free climbing.

NOTE: The order of numbering of bridge sections has been reversed from previous inspections which ran north to south in harmony with the bridge designations, to **south increasing north**. This is in harmony with the mileposts and bridge member numbering on bridge documents. It is also the direction used by the railroad for MOW.

REPORT FORMAT

The first report is a ***BRIDGE LIST***, arranged by Mile Post. Bridges composed of different types of construction are divided into ***SECTIONS***, such as East Approach, Main Section and West Approach. The number and type of spans are next, followed by the name of the nearest *Station* or town.

A ***"BRIDGE INSPECTION SUMMARY"*** report follows the bridge list. This is rather like a bridge list, but shows a condition summary field for each bridge and the date of the last inspection.

Three lists of recommended bridge work are next, organized first by PRIORITY (***"RECOMMENDED BRIDGE WORK, GROUPED by PRIORITY")***, next by BRIDGE (***"RECOMMENDED BRIDGE WORK by BRIDGE")***, and lastly a list of low cost work items ***("SUGGESTED LOW COST BRIDGE WORK")***.

Finally, are the ***INSPECTION RECORDS*** for each bridge. Each record contains five basic bodies of information – ***PHOTOGRAPHS, INVENTORY INFORMATION, THE INSPECTION RECORD***, ***SUB/SUPERSTRUCTURE DETAILS*** and ***RECOMMENDED WORK***.

1. INVENTORY INFORMATION

The top band contains inventory information, that being information that identifies and describes each bridge section and does not change between inspections. This includes the bridge list fields as well as year constructed, deck type and so forth. Abbreviations for bridge types are described as follows:

TYPE	DESCRIPTION	MATERIAL
Beam Span	Steel Beam Span	Steel
Conc Slab Span	Reinforced Concrete Slab Span	Concrete
Thru Truss	Steel Through Truss	Steel
TPG	Through Plate Girder	Steel

2. INSPECTION INFORMATION

The next band identifies the date and type of inspection, as well as who conducted it. Fields for typical inspection focus are included, such as “Line & Surface,” Deck Condition,” and so on.

3. RECOMMENDED REPAIRS

If there are any, a table for prioritized recommended repairs follows. The specific meaning of each priority is as follows:

PRIORITY	DESCRIPTION
1	Unsafe. Stop operation over structure.
2	Repair as soon as possible. Monitor very frequently, at least weekly.
3	Repair within one to three years. Monitor frequently, at least monthly.
4	Repair within three to five years.
5	Repair as funds permit.

If available, information concerning work that has been completed is also included.

SUBSTRUCTURE AND SUPERSTRUCTURE DETAIL TABLES

Tables for substructure and superstructure observations and anomalies complete each report. Basically, one table represents substructure elements - timber ***BENTS*** for timber trestles and pile piers, and ***PIERS*** and abutments for concrete/steel substructures. Another table represents the superstructure - timber ***STRINGERS*** for timber, and ***STEEL/CONCRETE SPANS*** (expanded by panels if necessary) for the appropriate material of construction. These tables provide a map easily followed while walking through each structure, increasing the efficiency and accuracy of the process.

This information is pertinent from inspection to inspection and serves to ensure that anomalies discovered in previous inspections are checked. Rather than being filed away, they are propagated forward with each inspection. The inspector visually checks each location and confirms - with the date of the current inspection - each bent, pier, span or panel. If conditions have changed, a new line with revised information is created.

“✓” or “O.K.” signifies the member has been inspected visually or hammer sounded and appears to be functioning as intended.

Bridge List

OWNER: **Port of Benton**

REGION:

RAILROAD: **Tri-City Railroad**

Bridge List - Tri-City Railroad - 1st Subdivision

UEBI	Mile Post	Bridge	Sec	Section Name	Spans	Type	Intersects	Near
11400	19.74	B45.7	1		1	Beam Span	Conc. Lined Irrigation Canal	Richland WA
11401	19.96	B45.5	1	South Approach	4	Beam Span	Columbia Park Trail (2-lane Hwy)	Richland WA
11401	19.96	B45.5	2	Main Section	1	TPG	Columbia Park Trail (2-lane Hwy)	Richland WA
11401	19.96	B45.5	3	North Approach	4	Beam Span	Columbia Park Trail (2-lane Hwy)	Richland WA
11402	21.00	B44.4	1	South Approach I	11	Conc Slab Span	Yakima River	Richland WA
11402	21.00	B44.4	2	South Approach II	2	TPG	Yakima River	Richland WA
11402	21.00	B44.4	3	Main Section	2	Thru Truss	Yakima River	Richland WA
11402	21.00	B44.4	4	North Approach I	1	TPG	Yakima River	Richland WA
11402	21.00	B44.4	5	North Approach II	1	Beam Span	Yakima River	Richland WA
11403	22.64	B42.7	1		4	Steel Box Girder	Interstate Highway 182	Richland WA
11404	27.61	B37.7	1		3	Scale - Fulcrum		Richland WA

Number of Sections: **11** ***Number of Spans:*** **34** ***Number of Bridges:*** **5**

OWNER: **Port of Benton**

REGION:

RAILROAD: **Tri-City Railroad**

LINE: **1st Subdivision**

Total Number of Bridges: **5**

Total Number of Sections: **11**

Total Number of Spans: **34**

Bridge Inspection Summary

OWNER: **Port of Benton**

REGION:

RAILROAD: **Tri-City Railroad**

Bridge Inspection Summary -

Tri-City Railroad - 1st Subdivision

Mile Post	Bridge	Sec	Section Name	Spans	Type	Last Inspection Date	Brief Summary of Findings
19.74	B45.7	1		1	Beam Span	7/16/2022	Good condition except for loose and missing steel shims under ties (left rail only). RR forces attempt to keep tight.
19.96	B45.5	1	South Approach	4	Beam Span	7/15/2021	New in 2015. Grout pads under bent legs cosmetically repaired but in poor condition.
19.96	B45.5	2	Main Section	1	TPG	7/15/2021	Concrete bearing block at southwest corner is broken and no longer carrying load. Shims under ties loose, risk falling onto highway.
19.96	B45.5	3	North Approach	4	Beam Span	7/15/2021	New in 2015. Minor ballast leak on left side of dump bent. Grout pads under bent legs cosmetically repaired but in poor condition.
21.00	B44.4	1	South Approach I	11	Conc Slab Span	7/15/2021	Good condition.
21.00	B44.4	2	South Approach II	2	TPG	7/15/2021	Good condition. New ties in 2020.
21.00	B44.4	3	Main Section	2	Thru Truss	7/15/2021	Good condition. New ties in 2020.
21.00	B44.4	4	North Approach I	1	TPG	7/15/2021	Good condition. New ties in 2020.
21.00	B44.4	5	North Approach II	1	Beam Span	7/15/2021	Good condition. New ties in 2020. Backwall ties in steel "saddles" and are incorrect height. Replacements of proper size are supposed to be coming.
22.64	B42.7	1		4	Steel Box Girder	7/15/2021	Hasp weld has broken on girder access door at south end and door can be opened. Technically a confined space, unsafe on hot days due to internal temperature. Door at north end also partially open but not easily accessible to trespassers.
27.61	B37.7	1		3	Scale - Fulcrum	7/15/2021	Good condition although would benefit from cleaning and repair of wiring for lights. Recommend replace loose, warped boards on deck as they could be tripping hazzard.

Total Bridge Count: **5** ***Section Count:*** **11** ***Span Count:*** **34**

Priority 2 Work

Line	Brg No	Sec	Repair Description	Work By	WorkItem	Est Cost
1st Subdivision	B45.5	2	REPLACE BROKEN BEARING BLOCK ON LEFT SIDE OF PIER 1.	Contractor	1	
1st Subdivision	B45.5	2	Reposition and secure loose shims under ties. Consider permanent fix such as replacement with treated plywood toenailed into ties or long steel shims bolted to top flange (similar to a cover plate).	Contractor	3	

Priority 3 Work

Line	Brg No	Sec	Repair Description	Work By	WorkItem	Est Cost
1st Subdivision	B45.5	1	Either remove intermediate tube bearings on concrete pier if beams are adequate to span entire distance or make tubes tight under beams and cast grout pads beneath with high strength polymer grout.	Contractor	1	
1st Subdivision	B45.5	1	Repair ballast leak and tamp approach behind South headwall.	Railroad	3	
1st Subdivision	B45.5	1	Repair grout pads under steel bents by completely removing defective material and pouring new pads with properly suited grout.	Contractor	4	
1st Subdivision	B45.5	3	Either remove intermediate tube bearings on concrete pier if beams are adequate to span entire distance or make tubes tight under beams and cast grout pads beneath with high strength polymer grout.	Contractor	1	
1st Subdivision	B45.5	3	Repair grout pads under steel bents by completely removing defective material and pouring new pads properly with properly suited grout.	Contractor	4	
1st Subdivision	B45.5	3	Repair ballast leak on left side of dump bent.	Railroad	5	
1st Subdivision	B44.4	2	Adjust and tighten loose HCP tie clips.	Railroad	2	
1st Subdivision	B44.4	3	Adjust and tighten loose HCP tie clips.	Railroad	5	
1st Subdivision	B44.4	4	Adjust and tighten loose HCP tie clips.	Railroad	2	
1st Subdivision	B44.4	5	Install ties of correct height on abutment backwall. Consider removing unusual steel "saddles" holding ties and making top of backwall level and even so ties don't rock.	Railroad	1	
1st Subdivision	B44.4	5	Adjust and tighten loose HCP tie clips.	Railroad	3	
1st Subdivision	B42.7	1	Repair girder access doors at south and north abutments. Repair broken weld in lock hasp on south door and secure. Close and secure north door.	Railroad	1	
1st Subdivision	B42.7	1	Find out if WASHDOT inspects, how often and if they enter girders.	Engineer/Inspector	2	
1st Subdivision	B37.7	1	Replace warped, loose deck boards. Could be tripping hazzard if scale is used.	Railroad	1	

Priority 4 Work

Line	Brg No	Sec	Repair Description	Work By	WorkItem	Est Cost
1st Subdivision	B44.4	1	Extend inner guard rail completely across section 5.	Railroad	1	
1st Subdivision	B44.4	3	Install 2 of 2 missing anchor bolts (!) at SE corner of Span 1, and 1 of 2 same type of bolt at NW corner of Span 2.	Contractor	3	
1st Subdivision	B37.7	1	Clean beams and drain channel floor in scale pit.	Railroad	2	

Completed Work

Line	Brg No	Sec	Repair Description	Work By	Completed
1st Subdivision	B45.7	1	Clean debris from bearing areas	Railroad	1/1/2017
1st Subdivision	B45.7	1	Reposition and secure loose steel shims under ties (left rail only). Consider permanent fix such as replacement with treated plywood toenailed into ties or long steel shims bolted to top flange (similar to a cover plate).	Railroad	10/18/2019
1st Subdivision	B45.5	1	Loose bolts in tie spacers and loose hook bolts tightened. Note: have not secured with the correct size nails as of 8/27/2020 but TCRY intends to do so. (Nails originally used were not large enough to prevent nuts from turning.)	Railroad	8/27/2020
1st Subdivision	B45.5	3	Loose bolts in tie spacers and loose hook bolts tightened. Note: have not secured with the correct size nails as of 8/27/2020 but TCRY intends to do so. (Nails originally used were not large enough to prevent nuts from turning.)	Railroad	8/27/2020
1st Subdivision	B44.4	2	Ties and rail replaced in 2020.	Railroad	8/15/2020
1st Subdivision	B44.4	3	Ties and rail replaced in 2020. Note: 35 replaced in 2018.	Contractor	8/15/2020
1st Subdivision	B44.4	3	Underwater inspection coordinated by HDR.	Engineer/Inspector	10/18/2019
1st Subdivision	B44.4	3	35 new ties installed by railroad forces in late 2018 in Panels 2 thru 6 in Span 1, and Panels 3 and 4 in Span 2.	Railroad	1/1/2019
1st Subdivision	B44.4	4	Ties and rail replaced in 2020.	Contractor	8/15/2020
1st Subdivision	B44.4	5	Ties and rail replaced in 2020.	Contractor	8/15/2020
1st Subdivision	B42.7	1	Ballast, ties and rail all replaced in 2020.	Contractor	10/7/2020

Recommended Bridge Work by Bridge, Grouped by Line (Including Completed)

Owner: Port of Benton
Region:
Railroad: Tri-City Railroad

1st Subdivision

Brg. B45.7 Section No. 1

MP 19.74 **1 Span Beam Span**

Repair Description	Work by	Program Yr	Priority	Workitem	Done?	Est Cost or Date Completed
Clean debris from bearing areas	Railroad			1	☑	1/1/2017
Reposition and secure loose steel shims under ties (left rail only). Consider permanent fix such as replacement with treated plywood toenailed into ties or long steel shims bolted to top flange (similar to a cover plate).	Railroad			2	☑	10/18/2019
					SUM OF ESTIMATED COSTS:	

Brg. B45.5 Section No. 1 South Approach

MP 19.96 **4 Spans Beam Span**

Repair Description	Work by	Program Yr	Priority	Workitem	Done?	Est Cost or Date Completed
Either remove intermediate tube bearings on concrete pier if beams are adequate to span entire distance or make tubes tight under beams and cast grout pads beneath with high strength polymer grout.	Contractor		3	1	☐	
Repair ballast leak and tamp approach behind South headwall.	Railroad		3	3	☐	
Repair grout pads under steel bents by completely removing defective material and pouring new pads with properly suited grout.	Contractor		3	4	☐	
Loose bolts in tie spacers and loose hook bolts tightened. Note: have not secured with the correct size nails as of 8/27/2020 but TCRY intends to do so. (Nails originally used were not large enough to prevent nuts from turning.)	Railroad			2	☑	8/27/2020
					SUM OF ESTIMATED COSTS:	

Brg. B45.5 Section No. 2 Main Section

MP 19.96 **1 Span TPG**

Repair Description	Work by	Program Yr	Priority	Workitem	Done?	Est Cost or Date Completed
REPLACE BROKEN BEARING BLOCK ON LEFT SIDE OF PIER 1.	Contractor		2	1	☐	
Reposition and secure loose shims under ties. Consider permanent fix such as replacement with treated plywood toenailed into ties or long steel shims bolted to top flange (similar to a cover plate).	Contractor		2	3	☐	
					SUM OF ESTIMATED COSTS:	

Brg. B45.5 Section No. 3 North Approach

MP 19.96 **4 Spans Beam Span**

Repair Description	Work by	Program Yr	Priority	Workitem	Done?	Est Cost or Date Completed
Either remove intermediate tube bearings on concrete pier if beams are adequate to span entire distance or make tubes tight under beams and cast grout pads beneath with high strength polymer grout.	Contractor		3	1	☐	
Repair grout pads under steel bents by completely removing defective material and pouring new pads properly with properly suited grout.	Contractor		3	4	☐	
Repair ballast leak on left side of dump bent.	Railroad		3	5	☐	

1st Subdivision (Cont.)

Repair Description	Work by	Program Yr	Priority	Workitem	Done?	Est Cost or Date Completed
Loose bolts in tie spacers and loose hook bolts tightened. Note: have not secured with the correct size nails as of 8/27/2020 but TCRY intends to do so. (Nails originally used were not large enough to prevent nuts from turning.)	Railroad			2	☑	8/27/2020

SUM OF ESTIMATED COSTS:

Brg. B44.4 Section No. 1 South Approach I

MP 21.00 **11 Spans Conc Slab Span**

Repair Description	Work by	Program Yr	Priority	Workitem	Done?	Est Cost or Date Completed
Extend inner guard rail completely across section 5.	Railroad		4	1	☐	

SUM OF ESTIMATED COSTS:

Brg. B44.4 Section No. 2 South Approach II

MP 21.00 **2 Spans TPG**

Repair Description	Work by	Program Yr	Priority	Workitem	Done?	Est Cost or Date Completed
Adjust and tighten loose HCP tie clips.	Railroad		3	2	☐	
Ties and rail replaced in 2020.	Railroad			1	☑	8/15/2020

SUM OF ESTIMATED COSTS:

Brg. B44.4 Section No. 3 Main Section

MP 21.00 **2 Spans Thru Truss**

Repair Description	Work by	Program Yr	Priority	Workitem	Done?	Est Cost or Date Completed
Adjust and tighten loose HCP tie clips.	Railroad		3	5	☐	
Install 2 of 2 missing anchor bolts (!) at SE corner of Span 1, and 1 of 2 same type of bolt at NW corner of Span 2.	Contractor		4	3	☐	
Ties and rail replaced in 2020. Note: 35 replaced in 2018.	Contractor			1	☑	8/15/2020
Underwater inspection coordinated by HDR.	Engineer/Inspector			2	☑	10/18/2019
35 new ties installed by railroad forces in late 2018 in Panels 2 thru 6 in Span 1, and Panels 3 and 4 in Span 2.	Railroad			4	☑	1/1/2019

SUM OF ESTIMATED COSTS:

Brg. B44.4 Section No. 4 North Approach I

MP 21.00 **1 Span TPG**

Repair Description	Work by	Program Yr	Priority	Workitem	Done?	Est Cost or Date Completed
Adjust and tighten loose HCP tie clips.	Railroad		3	2	☐	
Ties and rail replaced in 2020.	Contractor			1	☑	8/15/2020

SUM OF ESTIMATED COSTS:

Brg. B44.4 Section No. 5 North Approach II

MP 21.00 **1 Span Beam Span**

Repair Description	Work by	Program Yr	Priority	Workitem	Done?	Est Cost or Date Completed
Install ties of correct height on abutment backwall. Consider removing unusual steel "saddles" holding ties and making top of backwall level and even so ties don't rock.	Railroad		3	1	☐	
Adjust and tighten loose HCP tie clips.	Railroad		3	3	☐	
Ties and rail replaced in 2020.	Contractor			2	☑	8/15/2020

SUM OF ESTIMATED COSTS:

Brg. B42.7 Section No. 1

MP 22.64 **4 Spans Steel Box Girder**

Repair Description	Work by	Program Yr	Priority	Workitem	Done?	Est Cost or Date Completed
Repair girder access doors at south and north abutments. Repair broken weld in lock hasp on south door and secure. Close and secure north door.	Railroad		3	1	☐	
Find out if WASHDOT inspects, how often and if they enter girders.	Engineer/Inspector		3	2	☐	
Ballast, ties and rail all replaced in 2020.	Contractor			3	☑	10/7/2020

SUM OF ESTIMATED COSTS:

Brg. B37.7 Section No. 1

MP 27.61 **3 Spans Scale - Fulcrum**

Repair Description	Work by	Program Yr	Priority	Workitem	Done?	Est Cost or Date Completed
Replace warped, loose deck boards. Could be tripping hazzard if scale is used.	Railroad		3	1	☐	
Clean beams and drain channel floor in scale pit.	Railroad		4	2	☐	

SUM OF ESTIMATED COSTS:

Owner: Port of Benton
Region:
Railroad: Tri-City Railroad
Line: 1st Subdivision

Priority 3 Work

Line	Brg No	Sec	Repair Description	Work By	WorkItem	Est Cost
1st Subdivision	B45.5	3	Repair ballast leak on left side of dump bent.	Railroad	5	
1st Subdivision	B37.7	1	Replace warped, loose deck boards. Could be tripping hazzard if scale is used.	Railroad	1	

Priority 4 Work

Line	Brg No	Sec	Repair Description	Work By	WorkItem	Est Cost
1st Subdivision	B37.7	1	Clean beams and drain channel floor in scale pit.	Railroad	2	

BRIDGE INSPECTION RECORD

Lat. N 46° 14.1996'
Long. W 119° 14.7228'

Unique Bridge ID: B45.7
11400
Mile Post: 19.74

Owner: Port of Benton
Region:
Railroad: TRI-CITY RAILROAD
Line: 1st Subdivision
Gen Bridge Notes:

Bridge Name: Irrigation Canal Bridge
Nearest Station: Richland WA
County: Benton Overhead?
Crosses/Carries: Conc. Lined Irrigation Canal No
Access: Truck to Abutment.

Mileposts increase to: N
Members increase to: E

Abutments	2	Alignment	Curve		Section	1	
Conc/Steel Piers		Guard Rail?	Yes	1	Spans (type)	Beam Span	
Timber Bents		Walk	None				
Timber Piers		Fiber Optic?	No				
Skewed?	No	Other Fixtures	No		Ave Span		
Lines of Beams, Girders or Stringers	2				Section Lgth	26'	

Est Height: 10 No Tracks: 1 Deck: Open Year Const: 1950

Gen Section Notes: Two Beams:
36" Deep, ¾" Web, 16½"x1¼" Flange.
26' Bearing to Bearing, 27' Out to Out.
7'-0" ctr-ctr.

Line & Surface	Good
Deck	N/A
Ties	New, 7-1/2" x 13" x 10' @ 14"
Walkway	N/A
Approaches	Slightly low.
Headwalls	OK
Wingwalls	Small crack in left w.w. of abut. 1.
Erosion	None apparent
Drift	No
Vegetation	Minor

Date: 7/15/2021 Inspection Type: Annual
Project No: 1515 Inspector(s): C. Pruett, K. Kirschling

General Inspection Comments: Warm and clear skies.

Brief Summary including Urgent Condition: Good condition except for loose and missing steel shims under ties (left rail only). RR forces attempt to keep tight.

Slow Order?

PIERS (including ABUTMENTS)

Pier	Date	Hgt	Description	Pier Notes
1	07/16/21	4	Concrete.	Small crack in left wingwall.
2	07/16/21	4	Concrete.	✓

STEEL/CONCRETE SPANS (by PANEL)

Span	Panel	Lngth	Date	Panel Notes
1	1	26	07/16/21	Steel shims under ties are loose or missing. Left rail only, no shims required under right. RR forces attempt to keep tight.

Recommended and Completed Work

Wrkltm No.	Date Recmnd	Date Confirmd	Recommended Work Description	Priority	By:	Done?	Completed
2	08/05/16		Reposition and secure loose steel shims under ties (left rail only). Consider permanent fix such as replacement with treated plywood toenailed into ties or long steel shims bolted to top flange (similar to a cover plate).	3	Railroad	☑	10/18/2019
1	03/27/12		Clean debris from bearing areas	4	Railroad	☑	1/1/2017

Signed (Inspector): ☑

B45.7 **Left Side.**

B45.7 **Left Side of Abutment 1.**

B45.7 **Looking North.**

B45.7 **Northeast Bearing.**

BRIDGE INSPECTION RECORD

Lat. N 46° 14.3796'
Long. W 119° 14.8788'

Unique Bridge ID: B45.5
11401
Mile Post: 19.96

Owner: Port of Benton
Region:
Railroad: TRI-CITY RAILROAD
Line: 1st Subdivision

Bridge Name: Columbia Park Trail
Nearest Station: Richland WA
County: Benton
Overhead?
Crosses/Carries: Columbia Park Trail (2-lane Hwy) No
Access: Bridge is over a highway, allowing truck access from below. High fill approaches for track, however, are too narrow to accommodate rubber tire vehicle along side.

Gen Bridge Notes:
Sections 1 and 3 replaced with steel trestles in 2015.

Mileposts increase to N
Members increase to E

Abutments		Alignment	Tangent	N/A	Section 1	South Approach	
Conc/Steel Piers	4	Guard Rail?	Yes	4	Spans (type)	Beam Span	
Timber Bents		Walk	None	Est Height 22	No Tracks 1	Deck Open	Year Const 2015
Timber Piers		Fiber Optic?	No				
Skewed?	Yes	Other Fixtures	No	Ave Span 15'	Gen Section Notes:	Steel bents are on concrete sills.	
Lines of Beams, Girders or Stringers	4			Section Lgth 56'			

Line & Surface: Slightly uneven. Approaches to main span slightly lower.
Deck: N/A
Ties: New in 2015.
Walkway: N/A
Approaches: Low (slightly)
Headwalls: Ballast leak behind South headwall.
Wingwalls: OK
Erosion: None
Drift: None
Vegetation: Minor

Date: 7/15/2021
Inspection Type: Annual
Project No: 1515
Inspector(s): C. Pruett, K. Kirschling

General Inspection Comments: Warm and clear skies. Shims under intermediate bearings on concrete pier slightly loose. Ballast leak at South headwall.

Brief Summary including Urgent Condition: New in 2015. Grout pads under bent legs cosmetically repaired but in poor condition.

Slow Order?

PIERS (including ABUTMENTS)

Pier	Date	Hgt	Description	Pier Notes
1	07/16/21	1	Steel Cap on four steel H-Piles. This part of original approach.	Ballast leak on left side.
2	07/16/21	18	4-column steel bent. New 2015.	New in 2015 but grout pads performing poorly. Cracking and spalling noted in previous reports. Cosmetic repairs using grout attempted since 2018 inspection.
3	07/16/21	18	4-column steel bent. New 2015.	New in 2015 but grout pads performing poorly. Cracking and spalling noted in previous reports. Cosmetic repairs using grout attempted since 2018 inspection.
4	07/16/21	18	4-column steel bent. New 2015. Skewed.	New in 2015 but grout pads performing poorly. Cracking and spalling noted in previous reports. Cosmetic repairs using grout attempted since 2018 inspection.
5	07/16/21	18	Concrete Pier No. 1 of Section 2. Skewed. This part of bridge is original.	Failed bearing block under left stringer, common to sections 1 and 2, described in detail in Section 2. The shims under the intermediate bearings were noted loose during the 2018 inspection. They were repositioned and tighted in 2019 but are unsecured and working loose, just as they had between 2015 construction and 2019.

STEEL/CONCRETE SPANS (by PANEL)

Span	Panel	Lngth	Date	Panel Notes
1	0	15	07/16/21	4 rolled steel beams. Some tie spacer bolts are too short but functioning.
2	0	15	07/16/21	4 rolled steel beams. Some tie spacer bolts are too short but functioning.

3	**0**	15	**07/16/21**	4 rolled steel beams. Some tie spacer bolts are too short but functioning.
4	**0**	15	**07/16/21**	4 rolled steel beams. Some tie spacer bolts are too short but functioning.

Recommended and Completed Work

WrkItm No.	Date Recmnd	Date Confirmd	Recommended Work Description	Priority	By:	Done?	Completed
1	12/30/15	07/15/21	Either remove intermediate tube bearings on concrete pier if beams are adequate to span entire distance or make tubes tight under beams and cast grout pads beneath with high strength polymer grout.	3	Contractor	☐	
3	07/15/21	07/15/21	Repair ballast leak and tamp approach behind South headwall.	3	Railroad	☐	
4	11/01/17	07/15/21	Repair grout pads under steel bents by completely removing defective material and pouring new pads with properly suited grout.	3	Contractor	☐	
2	11/01/17	10/18/19	Loose bolts in tie spacers and loose hook bolts tightened. Note: have not secured with the correct size nails as of 8/27/2020 but TCRY intends to do so. (Nails originally used were not large enough to prevent nuts from turning.)	3	Railroad	☑	8/27/2020

Signed (Inspector): ☑ 

B45.5 **Looking North from East side.**

B45.5 **Bent 3 Looking South.**

B45.5 **Ballast leak at West side of South headwall.**

B45.5 **Example of cracking grout pad.**

BRIDGE INSPECTION RECORD

Lat. N 46° 14.3796'
Long. W 119° 14.8788'

Unique Bridge ID: B45.5
11401
Mile Post: 19.96

Owner: Port of Benton
Region:
Railroad: TRI-CITY RAILROAD
Line: 1st Subdivision

Bridge Name: Columbia Park Trail
Nearest Station: Richland WA
County: Benton
Overhead?
Crosses/Carries: Columbia Park Trail (2-lane Hwy) No
Access: Bridge is over a highway, allowing truck access from below. High fill approaches for track, however, are too narrow to accommodate rubber tire vehicle along side.

Gen Bridge Notes:
Sections 1 and 3 replaced with steel trestles in 2015.

Mileposts increase to N
Members increase to E

Abutments		Alignment	Tangent	N/A	Section	2	Main Section
Conc/Steel Piers	2	Guard Rail?	Yes	1	Spans (type)	TPG	
Timber Bents		Walk	None	Est Height 23	No Tracks 1	Deck Open	Year Const 1950
Timber Piers		Fiber Optic?	No				
Skewed?	Yes	Other Fixtures	No	Ave Span		Gen Section Notes:	7 panels skewed by 2 (one florebeam bears on pier top).
Lines of Beams, Girders or Stringers	2			Section Lgth	66'		

Line & Surface: Slightly uneven. Approaches to main span slightly lower.
Deck: N/A
Ties: New in 2015.
Walkway: N/A
Approaches: N/A
Headwalls: N/A
Wingwalls: N/A
Erosion: None
Drift: N/A
Vegetation: None

Date: 7/15/2021
Inspection Type: Annual
Project No: 1515
Inspector(s): C. Pruett, K. Kirschling
General Inspection Comments: Warm and clear skies.
Brief Summary including Urgent Condition: Concrete bearing block at southwest corner is broken and no longer carrying load. Shims under ties loose, risk falling onto highway.
Slow Order?

PIERS (including ABUTMENTS)

Pier	Date	Hgt	Description	Pier Notes
1	08/27/20		Concrete	Concrete bearing block under left (west) end of lateral beam common to both sections 1 and 2 is broken and no longer carrying load. It is likely that intermediate bearing for Section 1 stringer is picking up that load which may lead to cracking in steel.
2	08/27/20		Concrete	✓

STEEL/CONCRETE SPANS (by PANEL)

Span	Panel	Lngth	Date	Panel Notes
1	1	9.4	08/27/20	2 rolled steel beams. Some hook bolts and tie spacer bolts are loose. Shims under ties are made of various materials and many are loose, some missing.
1	2	9.4	08/27/20	2 rolled steel beams. Some hook bolts and tie spacer bolts are loose. Shims under ties are made of various materials and many are loose, some missing.
1	3	9.4	08/27/20	2 rolled steel beams. Some hook bolts and tie spacer bolts are loose. Shims under ties are made of various materials and many are loose, some missing.
1	4	9.4	08/27/20	2 rolled steel beams. Some hook bolts and tie spacer bolts are loose. Shims under ties are made of various materials and many are loose, some missing.
1	5	9.4	08/27/20	2 rolled steel beams. Some hook bolts and tie spacer bolts are loose. Shims under ties are made of various materials and many are loose, some missing.

1	**6**	9.4	**08/27/20**	2 rolled steel beams. Some hook bolts and tie spacer bolts are loose. Shims under ties are made of various materials and many are loose, some missing.
1	**7**	9.4	**08/27/20**	2 rolled steel beams. Some hook bolts and tie spacer bolts are loose. Shims under ties are made of various materials and many are loose, some missing.

Recommended and Completed Work

WrkItm No.	Date Recmnd	Date Confirmd	Recommended Work Description	Priority	By:	Done?	Completed
1	10/18/19	07/15/21	REPLACE BROKEN BEARING BLOCK ON LEFT SIDE OF PIER 1.	2	Contractor	☐	
3	11/01/17	07/15/21	Reposition and secure loose shims under ties. Consider permanent fix such as replacement with treated plywood toenailed into ties or long steel shims bolted to top flange (similar to a cover plate).	2	Contractor	☐	

Signed (Inspector): 

B45.5 **Main Span Looking North.**

B45.5 **Section 2 Pier 2.**

B45.5 Bearing block at SW corner of Pier 1.

B45.5 Gaps between the ties over Pier 1.

BRIDGE INSPECTION RECORD

Lat. N 46° 14.3796'
Long. W 119° 14.8788'

Unique Bridge ID: B45.5
11401
Mile Post: 19.96

Owner: Port of Benton
Region:
Railroad: TRI-CITY RAILROAD
Line: 1st Subdivision

Bridge Name: Columbia Park Trail
Nearest Station: Richland WA
County: Benton
Overhead?
Crosses/Carries: Columbia Park Trail (2-lane Hwy) No
Access: Bridge is over a highway, allowing truck access from below. High fill approaches for track, however, are too narrow to accommodate rubber tire vehicle along side.

Gen Bridge Notes:
Sections 1 and 3 replaced with steel trestles in 2015.

Mileposts increase to N
Members increase to E

Abutments		Alignment	Tangent	N/A	Section	3	North Approach
Conc/Steel Piers	4	Guard Rail?	Yes	4	Spans (type)	Beam Span	
Timber Bents		Walk	None	Est Height 22	No Tracks 1	Deck Open	Year Const 2015
Timber Piers		Fiber Optic?	No				
Skewed?	Yes	Other Fixtures	No	Ave Span	15'	Gen Section Notes:	Steel bents are on concrete sills.
Lines of Beams, Girders or Stringers	4			Section Lgth	56'		

Line & Surface	Slight wow. Slightly uneven. Approaches to main span slightly lower.	Date	7/15/2021
Deck	N/A	Inspection Type	Annual
Ties	New in 2015.	Project No	1515
Walkway	N/A	Inspector(s)	C. Pruett, K. Kirschling
Approaches	Low (slightly)	General Inspection Comments	Warm and clear skies. Shims under intermediate bearings on concrete pier slightly loose.
Headwalls	Ballast leak at left side of dump bent.		
Wingwalls	OK	Brief Summary including Urgent Condition	New in 2015. Minor ballast leak on left side of dump bent. Grout pads under bent legs cosmetically repaired but in poor condition.
Erosion	None		
Drift	No		
Vegetation	Minor	Slow Order?	

PIERS (including ABUTMENTS)

Pier	Date	Hgt	Description	Pier Notes
1	07/16/21	18	Concrete Pier No. 2 of Section 2. Skewed. Original part of bridge.	The shims under the intermediate bearings were noted loose during the 2018 inspection. Those shims have since been repositioned and tighted but they are unsecured so will likely work loose in future, just as they have since 2015 construction.
2	07/16/21	18	4-column steel bent. New 2015. Skewed.	New in 2015 but grout pads performing poorly. Cracking and spalling noted in previous reports. Cosmetic repairs using grout attempted since 2018 inspection.
3	07/16/21	18	4-column steel bent. New 2015.	New in 2015 but grout pads performing poorly. Cracking and spalling noted in previous reports. Cosmetic repairs using grout attempted since 2018 inspection.
4	07/16/21	18	4-column steel bent. New 2015.	New in 2015 but grout pads performing poorly. Cracking and spalling noted in previous reports. Cosmetic repairs using grout attempted since 2018 inspection.
5	07/16/21	1	Steel Cap on four steel H-Piles. This is part of original approach.	✓

STEEL/CONCRETE SPANS (by PANEL)

Span	Panel	Lngth	Date	Panel Notes
1	0	15	07/16/21	4 rolled steel beams. Some hook bolts and tie spacer bolts are loose. Some tie spacer bolts are too short but functioning.
2	0	15	07/16/21	4 rolled steel beams. Some hook bolts and tie spacer bolts are loose. Some tie spacer bolts are too short but functioning.
3	0	15	07/16/21	4 rolled steel beams. Some hook bolts and tie spacer bolts are loose. Some tie spacer bolts are too short but functioning.

4	**0**	15	**07/16/21**	4 rolled steel beams. Some hook bolts and tie spacer bolts are loose. Some tie spacer bolts are too short but functioning.

Recommended and Completed Work

WrkItm No.	Date Recmnd	Date Confirmd	Recommended Work Description	Priority	By:	Done?	Completed
1	12/30/15	07/15/21	Either remove intermediate tube bearings on concrete pier if beams are adequate to span entire distance or make tubes tight under beams and cast grout pads beneath with high strength polymer grout.	3	Contractor	☐	
4	11/01/17	07/15/21	Repair grout pads under steel bents by completely removing defective material and pouring new pads properly with properly suited grout.	3	Contractor	☐	
5	10/18/19	07/15/21	Repair ballast leak on left side of dump bent.	3	Railroad	☐	
2	11/01/17	07/15/21	Loose bolts in tie spacers and loose hook bolts tightened. Note: have not secured with the correct size nails as of 8/27/2020 but TCRY intends to do so. (Nails originally used were not large enough to prevent nuts from turning.)	3	Railroad	☑	8/27/2020

Signed (Inspector): 

B45.5 **Right Side of Section 3**

B45.5 **Looking North from Pier 2.**

B45.5 **Deteriorating grout pads under bent legs.**

BRIDGE INSPECTION RECORD

Lat. N 46° 15.1500'
Long. W 119° 15.4668'

Unique Bridge ID: B44.4
11402
Mile Post: 21.00

Owner: Port of Benton
Region:
Railroad: TRI-CITY RAILROAD
Line: 1st Subdivision
Gen Bridge Notes:

Bridge Name: Yakima River Bridge
Nearest Station: Richland WA
County: Benton Overhead?
Crosses/Carries: Yakima River No
Access: Truck to Abutment.

Mileposts increase to N
Members increase to E

Abutments		Alignment	Tangent	N/A	Section	1	South Approach I
Conc/Steel Piers	11	Guard Rail?	Yes	11	Spans (type)	Conc Slab Span	
Timber Bents		Walk	West				
Timber Piers		Fiber Optic?	No				
Skewed?	No	Other Fixtures	No				
Lines of Beams, Girders or Stringers							

Est Height: 20 No Tracks: 1 Deck: Ballast Year Const:
Ave Span: 15'
Section Lgth: 165'
Gen Section Notes:

Line & Surface	OK
Deck	OK
Ties	OK
Walkway	Good condition.
Approaches	OK
Headwalls	OK
Wingwalls	OK
Erosion	No
Drift	No
Vegetation	Minor

Date: 7/15/2021
Inspection Type: Annual
Project No: 1515
Inspector(s): C. Pruett, K. Kirschling

General Inspection Comments: Warm and clear skies.

Brief Summary including Urgent Condition: Good condition.

Slow Order?

PIERS (including ABUTMENTS)

Pier	Date	Hgt	Description	Pier Notes
1	07/16/21	18		✓
2	07/16/21	18		✓
3	07/16/21	18		✓
4	07/16/21	18		✓
5	07/16/21	18		✓
6	07/16/21	19		✓
7	07/16/21	19		✓
8	07/16/21	19		✓
9	07/16/21	19		✓
10	07/16/21	19		✓
11	07/16/21	19		Pier common with section 2

STEEL/CONCRETE SPANS (by PANEL)

Span	Panel	Lngth	Date	Panel Notes
1	1	15	07/16/21	✓

2	**I**	15	**07/16/21**	✓
3	**I**	15	**07/16/21**	✓
4	**I**	15	**07/16/21**	✓
5	**I**	15	**07/16/21**	✓
6	**I**	15	**07/16/21**	✓
7	**I**	15	**07/16/21**	✓
8	**I**	15	**07/16/21**	✓
9	**I**	15	**07/16/21**	✓
10	**I**	15	**07/16/21**	✓
11	**I**	15	**07/16/21**	✓

Recommended and Completed Work

WrkItm No.	Date Recmnd	Date Confirmd	Recommended Work Description	Priority	By:	Done?	Completed
1	03/27/12	07/15/21	Extend inner guard rail completely across section 5.	4	Railroad	☐	

Signed (Inspector): 

B44.4 **Deck of Section 1 Looking South.**

B44.4 **Section 1 Looking North.**

B44.4 **Underside of Section 1 Near Bent 3.**

B44.4 **Bents Under Section 1.**

BRIDGE INSPECTION RECORD

Lat. N 46° 15.1500'
Long. W 119° 15.4668'

Unique Bridge ID: B44.4
11402
Mile Post: 21.00

Owner: Port of Benton
Region:
Railroad: TRI-CITY RAILROAD
Line: 1st Subdivision
Gen Bridge Notes:

Bridge Name: Yakima River Bridge
Nearest Station: Richland WA
County: Benton Overhead?
Crosses/Carries: Yakima River No
Access: Truck to Abutment.

Mileposts increase to N
Members increase to E

Abutments		Alignment	Tangent	N/A	Section	2	South Approach II
Conc/Steel Piers	3	Guard Rail?	Yes	2	Spans (type)	TPG	
Timber Bents		Walk	None				
Timber Piers		Fiber Optic?	No				
Skewed?	No	Other Fixtures	No				
Lines of Beams, Girders or Stringers							

Est Height: 26 No Tracks: 1 Deck: Open Year Const: 1907
Ave Span:
Section Lgth: 175'

Gen Section Notes: Span 2 has "1907" on plate, but substructure is newer. New ties installed across entire deck in Sections 2 - 5 in 2020, including intentional camber that appears "humped" at each span but flattens out under live load.

Line & Surface	Good. Appears humped, but includes LL camber.
Deck	N/A
Ties	New in 2020. One tie has tall stack of 1/4" shims - plan is to replace with proper size.
Walkway	N/A
Approaches	N/A
Headwalls	N/A
Wingwalls	N/A
Erosion	None apparent. (Can see CMP around piles in Pier 13)
Drift	No
Vegetation	None

Date: 7/15/2021 Inspection Type: Annual
Project No: 1515 Inspector(s): C. Pruett, K. Kirschling

General Inspection Comments: Warm and clear skies. Minor corrosion overall and some pack rust developing, for example between top cover plates.

Brief Summary including Urgent Condition: Good condition. New ties in 2020.

Slow Order?

PIERS (including ABUTMENTS)

Pier	Date	Hgt	Description	Pier Notes
11	07/16/21	17	Concrete. Pier shared with section 1	✓
12	07/16/21	17	Concrete.	✓
13	07/16/21	20	Deep C.I.P. concrete cap on steel H-piles. Pier shared with sections 3	Moderate drift.

STEEL/CONCRETE SPANS (by PANEL)

Span	Panel	Lngth	Date	Panel Notes
1	1	9.75	07/16/21	Minor corrosion throughout.
1	2	9.75	07/16/21	Minor corrosion throughout.
1	3	9.75	07/16/21	Minor corrosion throughout and pack rust between top cover plates.
1	4	9.75	07/16/21	Bent bottom lateral brace. Minor corrosion throughout and pack rust between top cover plates.
1	5	9.75	07/16/21	Minor corrosion throughout and pack rust between top cover plates.
1	6	9.75	07/16/21	Minor corrosion throughout and pack rust between top cover plates.

1	7	9.75	07/16/21	Minor corrosion throughout.
1	8	9.75	07/16/21	Minor corrosion throughout.
2	1	10.25	07/16/21	Minor corrosion throughout.
2	2	10.25	07/16/21	Minor corrosion throughout.
2	3	10.25	07/16/21	Minor corrosion throughout and pack rust between top cover plates.
2	4	10.25	07/16/21	Minor corrosion throughout and pack rust between top cover plates.
2	5	10.25	07/16/21	Minor corrosion throughout and pack rust between top cover plates.
2	6	10.25	07/16/21	Minor corrosion throughout and pack rust between top cover plates.
2	7	10.25	07/16/21	Minor corrosion throughout and pack rust between top cover plates.
2	8	10.25	07/16/21	Minor corrosion throughout.
2	9	10.25	07/16/21	Minor corrosion throughout.

Recommended and Completed Work

WrkItm No.	Date Recmnd	Date Confirmd	Recommended Work Description	Priority	By:	Done?	Completed
2	07/15/21		Adjust and tighten loose HCP tie clips.	3	Railroad	☐	
1	03/27/12	07/15/21	Ties and rail replaced in 2020.	2	Railroad	☑	8/15/2020

Signed (Inspector): ☑ 

B44.4 **Right side of Span 1 TPG.**

B44.4 **Right Side Bearings of Section 2.**

B44.4 **Side of Span 2 Looking Northwest.**

B44.4 **Example of loose tie clips in Span 2.**

BRIDGE INSPECTION RECORD

Lat. N 46° 15.1500'
Long. W 119° 15.4668'

Unique Bridge ID: B44.4
11402
Mile Post: 21.00

Owner: Port of Benton
Region:
Railroad: TRI-CITY RAILROAD
Line: 1st Subdivision
Gen Bridge Notes:

Bridge Name: Yakima River Bridge
Nearest Station: Richland WA
County: Benton Overhead?
Crosses/Carries: Yakima River No
Access: Truck to Abutment.

Mileposts increase to N
Members increase to E

Abutments		Alignment	Tangent	N/A	Section	3	Main Section
Conc/Steel Piers	3	Guard Rail?	Yes	2	Spans (type)	Thru Truss	
Timber Bents		Walk	None				
Timber Piers		Fiber Optic?	No				
Skewed?	No	Other Fixtures	No		Ave Span		
Lines of Beams, Girders or Stringers	2				Section Lgth	220'	

Est Height: 26 No Tracks: 1 Deck: Open Year Const:

Gen Section Notes: New ties installed across entire deck in Sections 2 - 5 in 2020, including intentional camber that appears "humped" at each span but flattens out under live load.

Line & Surface: Good. Appears humped, but includes LL camber.
Deck: N/A
Ties: New in 2020.
Walkway: N/A
Approaches: N/A
Headwalls: N/A
Wingwalls: N/A
Erosion: Unknown (under water).
Drift: No
Vegetation: None

Date: 7/15/2021 Inspection Type: Annual
Project No: 1515 Inspector(s): C. Pruett, K. Kirschling

General Inspection Comments: Warm and clear skies. Anchor bolts missing southeast bearing, span 1 (2 of 2!) and northwest bearing, span 2 (1 of 2). Minor rust streaks running down L0 U1 or Right side.

Brief Summary including Urgent Condition: Good condition. New ties in 2020.

Slow Order?

PIERS (including ABUTMENTS)

Pier	Date	Hgt	Description	Pier Notes
13	07/16/21	20	Deep C.I.P. concrete cap on steel H-piles. Pier shared with section 2. Normally in H2O.	Minor drift.
14	07/16/21	20	Deep C.I.P concrete cap on steel H-piles. Normally in H20	Minor drift. Concrete block under left bearing of 1st truss starting to deteriorate.
15	07/16/21	20	Deep C.I.P. concrete cap on steel H-piles. Pier shared with section 4. Normally in H2O.	Minor drift.

STEEL/CONCRETE SPANS (by PANEL)

Span	Panel	Lngth	Date	Panel Notes
1	1	15.75	07/16/21	Both bolts missing from right (southeast) span to bearing connection. Minor corrosion throughout. Rust streaks on right side of L0U1, possibly from water retained behind peeling paint.
1	2	15.75	07/16/21	Minor corrosion throughout.
1	3	15.75	07/16/21	Minor corrosion throughout.
1	4	15.75	07/16/21	Panel point 4 bent member (minor). Minor corrosion throughout.
1	5	15.75	07/16/21	Minor corrosion throughout.
1	6	15.75	07/16/21	Minor corrosion throughout.

1	7	15.75	07/16/21	Minor corrosion throughout.
2	1	15.75	07/16/21	Minor corrosion throughout.
2	2	15.75	07/16/21	Minor corrosion throughout.
2	3	15.75	07/16/21	Minor corrosion throughout.
2	4	15.75	07/16/21	Minor corrosion throughout.
2	5	15.75	07/16/21	Minor corrosion throughout.
2	6	15.75	07/16/21	Minor corrosion throughout.
2	7	15.75	07/16/21	One bolt missing from left (northwest) span to bearing connection. Minor corrosion throughout.

Recommended and Completed Work

WrkItm No.	Date Recmnd	Date Confirmd	Recommended Work Description	Priority	By:	Done?	Completed
5	07/15/21		Adjust and tighten loose HCP tie clips.	3	Railroad	☐	
3	11/01/17	07/15/21	Install 2 of 2 missing anchor bolts (!) at SE corner of Span 1, and 1 of 2 same type of bolt at NW corner of Span 2.	4	Contractor	☐	
1	12/30/15	07/15/21	Ties and rail replaced in 2020. Note: 35 replaced in 2018.	2	Contractor	☑	8/15/2020
4	12/30/15	07/15/21	35 new ties installed by railroad forces in late 2018 in Panels 2 thru 6 in Span 1, and Panels 3 and 4 in Span 2.	2	Railroad	☑	1/1/2019
2	12/30/15	07/15/21	Underwater inspection coordinated by HDR.	3	Engineer/Inspector	☑	10/18/2019

Signed (Inspector): ☑ 

B44.4 Deck Sections 2&3 Looking North.

B44.4 Floor System & Anchor Bolts Under Section 3.

B44.4 **Pier 1 of Section 3.**

B44.4 **Left Side of Section 3.**

BRIDGE INSPECTION RECORD

Lat. N 46° 15.1500'
Long. W 119° 15.4668'

Unique Bridge ID: B44.4
11402
Mile Post: 21.00

Owner: Port of Benton
Region:
Railroad: TRI-CITY RAILROAD
Line: 1st Subdivision
Gen Bridge Notes:

Bridge Name: Yakima River Bridge
Nearest Station: Richland WA
County: Benton Overhead?
Crosses/Carries: Yakima River No
Access: Truck to Abutment.

Mileposts increase to N
Members increase to E

Abutments		Alignment	Tangent	N/A	Section	4	North Approach I
Conc/Steel Piers	2	Guard Rail?	Yes	1	Spans (type)	TPG	
Timber Bents		Walk	None	Est Height 26	No Tracks 1	Deck Open	Year Const
Timber Piers		Fiber Optic?	No				
Skewed?	No	Other Fixtures	No	Ave Span		Gen Section Notes:	New ties installed across entire deck in Sections 2 - 5 in 2020, including intentional camber that appears "humped" at each span but flattens out under live load.
Lines of Beams, Girders or Stringers	3			Section Lgth	79'		

Line & Surface	Good. Appears humped, but includes LL camber.	Date	7/15/2021
Deck	N/A	Inspection Type	Annual
Ties	New in 2020.	Project No	1515
Walkway	N/A	Inspector(s)	C. Pruett, K. Kirschling
Approaches	N/A	General Inspection Comments	Warm and clear skies. Grout pads under bearings starting to show signs of deterioration. Paint chipping off. Minor corrosion beneath.
Headwalls	N/A		
Wingwalls	N/A	Brief Summary including Urgent Condition	Good condition. New ties in 2020.
Erosion	Minor around piles.		
Drift	No		
Vegetation	None	Slow Order?	

PIERS (including ABUTMENTS)

Pier	Date	Hgt	Description	Pier Notes
15	07/15/21	20	Deep C.I.P. concrete cap on steel H-piles.	Pier common with section 3. One pile damaged on lower concrete encasement.
16	07/15/21	20	Deep C.I.P. concrete cap on steel H-piles.	Pier common with section 5

STEEL/CONCRETE SPANS (by PANEL)

Span	Panel	Lngth	Date	Panel Notes
1	1		07/15/21	✓
1	2		07/15/21	✓
1	3		07/15/21	✓
1	4		07/15/21	✓
1	5		07/15/21	✓
1	6		07/15/21	✓
1	7		07/15/21	✓
1	8		07/15/21	✓

Recommended and Completed Work

WrkItm No.	Date Recmnd	Date Confirmd	Recommended Work Description	Priority	By:	Done?	Completed
2	07/15/21		Adjust and tighten loose HCP tie clips.	3	Railroad	☐	
1	12/30/15	10/18/19	Ties and rail replaced in 2020.	3	Contractor	☑	8/15/2020

Signed (Inspector): 

B44.4 **Deck of Sections 4&5 Looking North.**

B44.4 **Looking Sorth from East side.**

BRIDGE INSPECTION RECORD

Lat. N 46° 15.1500'
Long. W 119° 15.4668'

Unique Bridge ID: B44.4
11402
Mile Post: 21.00

Owner: Port of Benton
Region:
Railroad: TRI-CITY RAILROAD
Line: 1st Subdivision
Gen Bridge Notes:

Bridge Name: Yakima River Bridge
Nearest Station: Richland WA
County: Benton Overhead?
Crosses/Carries: Yakima River No
Access: Truck to Abutment.

Mileposts increase to N
Members increase to E

Abutments	1	Alignment	Tangent	N/A	Section	5	North Approach II
Conc/Steel Piers	1	Guard Rail?	Yes	1	Spans (type)	Beam Span	
Timber Bents		Walk	None	Est Height 20	No Tracks 1	Deck Open	Year Const 1950
Timber Piers		Fiber Optic?	No				
Skewed?	No	Other Fixtures	No	Ave Span		Gen Section Notes:	New ties installed across entire deck in Sections 2 - 5 in 2020, including intentional camber that appears "humped" at each span but flattens out under live load.
Lines of Beams, Girders or Stringers	2			Section Lgth	31'		

Line & Surface	Good. Appears humped, but includes LL camber.
Deck	N/A
Ties	New in 2020. Backwall ties incorrect height in "saddles."
Walkway	N/A
Approaches	Low (slightly)
Headwalls	New backwall ties shimmed. Plan is to replace with correct size.
Wingwalls	OK
Erosion	Minor around piles in pier 16.
Drift	No
Vegetation	None

Date: 7/15/2021
Inspection Type: Annual
Project No: 1515
Inspector(s): C. Pruett, K. Kirschling

General Inspection Comments: Warm and clear skies.

Brief Summary including Urgent Condition: Good condition. New ties in 2020. Backwall ties in steel "saddles" and are incorrect height. Replacements of proper size are supposed to be coming.

Slow Order?

PIERS (including ABUTMENTS)

Pier	Date	Hgt	Description	Pier Notes
16	07/15/21	15	Deep C.I.P. concrete cap on steel H-piles.	Pier common with Section 4.
17	07/15/21	5	Concrete abutment.	Backwall ties in steel "saddles" and are incorrect height.

STEEL/CONCRETE SPANS (by PANEL)

Span	Panel	Lngth	Date	Panel Notes
1	1	31	07/15/21	✓

Recommended and Completed Work

WrkItm No.	Date Recmnd	Date Confirmd	Recommended Work Description	Priority	By:	Done?	Completed
1	03/27/12	07/15/21	Install ties of correct height on abutment backwall. Consider removing unusual steel "saddles" holding ties and making top of backwall level and even so ties don't rock.	3	Railroad	☐	
3	07/15/21		Adjust and tighten loose HCP tie clips.	3	Railroad	☐	
2	12/30/15	07/15/21	Ties and rail replaced in 2020.	3	Contractor	☑	8/15/2020

Signed (Inspector): 

B44.4 **Shims under the ties over North abutment.**

B44.4 **Ties on Section 5 Looking East.**

BRIDGE INSPECTION RECORD

Lat. N 46° 15.4998'
Long. W 119° 17.2500'

Unique Bridge ID: B42.7
11403
Mile Post: 22.64

Owner: Port of Benton
Region:
Railroad: TRI-CITY RAILROAD
Line: 1st Subdivision

Bridge Name: Berry's Bridge
Nearest Station: Richland WA
County: Benton
Overhead? No
Crosses/Carries: Interstate Highway 182

Gen Bridge Notes:

Suggest finding out who is responsible for maintenance. There should be an agreement. If it's the State - do they inspect it? How about drawings? (On-Line with WASHDOT?)

Access: Bridge is over interstate highway and frontage roads. High fill approaches for track, however, are too narrow as is to accommodate rubber tire vehicle along side.

Mileposts increase to N
Members increase to E

Abutments	2	Alignment	Curve		Section	1	
Conc/Steel Piers	3	Guard Rail?	Yes	4	Spans (type)	Steel Box Girder	
Timber Bents		Walk	Both				
Timber Piers		Fiber Optic?	No				
Skewed?	No	Other Fixtures	No				
Lines of Beams, Girders or Stringers							

Est Height: 30 | No Tracks: 1 | Deck: Ballast | Year Const:

Ave Span: 125' | Section Lgth: 500'

Gen Section Notes: Curved steel box girder, continuous over the three piers.

Line & Surface	Good
Deck	Good
Ties	New ties, rail and ballast in 2020.
Walkway	Good (wide ballast with handrails)
Approaches	Slightly low.
Headwalls	Good
Wingwalls	Good
Erosion	No
Drift	N/A
Vegetation	None

Date: 7/15/2021 | Inspection Type: Annual
Project No: 1515 | Inspector(s): C. Pruett, K. Kirschling

General Inspection Comments:
Warm and clear skies.
Hasp weld has broken on south girder inspection door, and door can be opened.
Technically a confined space, unsafe on hot days due to internal temperature.
North door is partially open although difficult to reach, should be secured.

Brief Summary including Urgent Condition:
Hasp weld has broken on girder access door at south end and door can be opened. Door at north end also partially open but not easily accessible to trespassers.

Slow Order?

PIERS (including ABUTMENTS)

Pier	Date	Hgt	Description	Pier Notes
1	07/15/21	4	Concrete.	✓
2	07/15/21	20	Concrete.	✓
3	07/15/21	20	Concrete.	✓
4	07/15/21	20	Concrete.	✓
5	07/15/21	8	Concrete.	✓

STEEL/CONCRETE SPANS (by PANEL)

Span	Panel	Lngth	Date	Panel Notes
1	1	125	07/15/21	Broken hasp in girder inspection door. Cast-in-place concrete ballast deck on continuous steel box beam.
2	2	125	07/15/21	Cast-in-place concrete ballast deck on continuous steel box beam.
3	3	125	07/15/21	Cast-in-place concrete ballast deck on continuous steel box beam.
4	4	125	07/15/21	Access door seized slightly open. Cast-in-place concrete ballast deck on continuous steel box beam.

Recommended and Completed Work

WrkItm No.	Date Recmnd	Date Confirmd	Recommended Work Description	Priority	By:	Done?	Completed
1	03/27/12	07/15/21	Repair girder access doors at south and north abutments. Repair broken weld in lock hasp on south door and secure. Close and secure north door.	3	Railroad	☐	
2	12/30/15	07/15/21	Find out if WASHDOT inspects, how often and if they enter girders.	3	Engineer/Inspector	☐	
3			Ballast, ties and rail all replaced in 2020.		Contractor	☑	10/7/2020

Signed (Inspector): 

B42.7 **Looking South from North end.**

B42.7 **Left Side Looking North.**

B42.7 **Looking North Along Deck.**

B42.7 **Inside of span 1 looking North.**

BRIDGE INSPECTION RECORD

Lat. N 46° 19.2500'
Long. W 119° 17.2500'
Unique Bridge ID 11404
Unique Bridge ID: B37.7
Mile Post: 27.61

Owner: Port of Benton
Region:
Railroad: TRI-CITY RAILROAD
Line: 1st Subdivision
Gen Bridge Notes:

Bridge Name: Scale
Nearest Station: Richland WA
County: Benton
Overhead?
Crosses/Carries:
Overhead? No
Access:

Mileposts increase to:
Members increase to:

Abutments	2	Alignment	Tangent	N/A	Section	1	
Conc/Steel Piers	2	Guard Rail?	No	3	Spans (type)	Scale - Fulcrum	
Timber Bents		Walk	None				
Timber Piers		Fiber Optic?	No				
Skewed?	No	Other Fixtures	No				
Lines of Beams, Girders or Stringers	2						

Est Height: 0 | No Tracks: 2 | Deck: Direct Fixation | Year Const:
Ave Span:
Section Lgth:
Gen Section Notes: Scale track supported on three continous beam spans. Dead track supported on transverse beams.

Line & Surface	OK
Deck	Boards loose and warped.
Ties	N/A
Walkway	N/A
Approaches	OK
Headwalls	OK
Wingwalls	Concrete walls around scale pit OK.
Erosion	None
Drift	N/A
Vegetation	None

Date: 7/15/2021
Inspection Type: Annual
Project No: 1515
Inspector(s): C. Pruett, K. Kirschling

General Inspection Comments: Second inspection this year (2020). First, in Feb., was to locate. A few photos were taken then. Returned today and accessed scale pit for first time (through scale house). Concrete pit and all beams in good contition. Jose Romero said scale is still operable.
Drain channel below starting to fill with debris.

Brief Summary including Urgent Condition: Good condition although would benefit from cleaning and repair of wiring for lights. Recommend replace loose, warped boards on deck as they could be tripping hazzard.

Slow Order?

STEEL/CONCRETE SPANS (by PANEL)

Span	Panel	Lngth	Date	Panel Notes
1	0		07/15/21	Very minor corrosion at bearings of main beams supporting "live" weigh rails. Transverse beams (supporting dead rails) in very good condition.
2	0		07/15/21	Very minor corrosion at bearings of main beams supporting "live" weigh rails. Transverse beams (supporting dead rails) in very good condition.
3	0		07/15/21	Very minor corrosion at bearings of main beams supporting "live" weigh rails. Transverse beams (supporting dead rails) in very good condition.

Recommended and Completed Work

WrkItm No.	Date Recmnd	Date Confirmd	Recommended Work Description	Priority	By:	Done?	Completed
1	09/03/20	07/15/21	Replace warped, loose deck boards. Could be tripping hazzard if scale is used.	3	Railroad	☐	
2	09/03/20	07/15/21	Clean beams and drain channel floor in scale pit.	4	Railroad	☐	

Signed (Inspector): Christie Pruett ☑

B37.7 **Scale Deck Looking South.**

B37.7 **Scale Pit Center.**

B37.7 **Scale Pit Looking North.**

B37.7 **Scale Pit Loking South.**