BrR Construction Staging

BrR User Group
Alan Buehrig, ITD

BrR Construction Staging

- Where did this requirement come from?
- How do things work now and how will they need to change?
- ITD policy changes
- Recent example
- Reanalysis

National Bridge Inspection Standards (NBIS)

23 CFR 650 Subpart C

Revised May 6, 2022

§ 650.303 Applicability.

The National Bridge Inspection Standards (NBIS) in this subpart apply to all structures defined as highway bridges located on all public roads, on and off Federal-aid highways, including tribally-owned and federally-owned bridges, private bridges that are connected to a public road on both ends of the bridge, temporary bridges, and bridges under construction with portions open to traffic.

National Bridge Inspection Standards (NBIS)

(b) ***Initial inspection.*** Perform an initial inspection in accordance with Section 4.2, AASHTO Manual (incorporated by reference, *see* § 650.317) for each new, replaced, rehabilitated, and temporary bridge as soon as practical, but within 3 months of the bridge opening to traffic.

(2) Develop and document procedures for completion of new and updated bridge load ratings. Load ratings must be completed as soon as practical, but no later than 3 months after the initial inspection and when a change is identified that warrants a re-rating such as, but not limited to, changes in condition, reconstruction, new construction, or changes in dead or live loads.

BrR Construction Staging

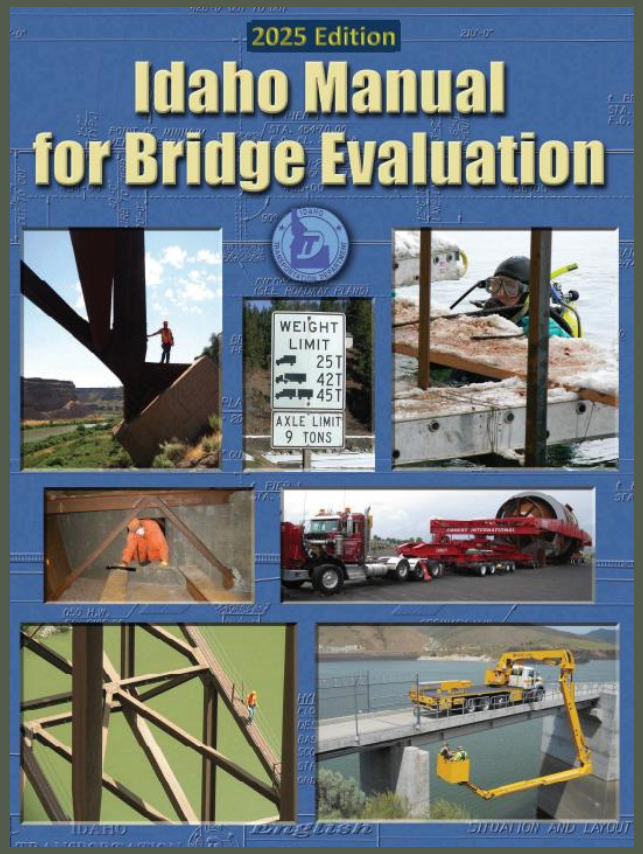
- Where did this requirement come from?
- How do things work now and how will they need to change?
- ITD policy changes
- Recent example
- Reanalysis

National Bridge Inspection Standards (NBIS)

Much more than just "inspection" regulations.

4 Main Parts:

- Inspection
- Load Rating
- Permits
- Scour



ITD Staff

Alan Buehrig
Program Manager

Inspection Engineers/Load Raters
1 PE
3 EITs

Inspection Techs
2 Team Leaders
1 Trainee

UBIT
2 CDL Drivers

BrM Database
1 Project Manager
1 Specialist

Sign Structure Program
1/3 Engineer

Hydraulic Program
1 1/3 Engineer

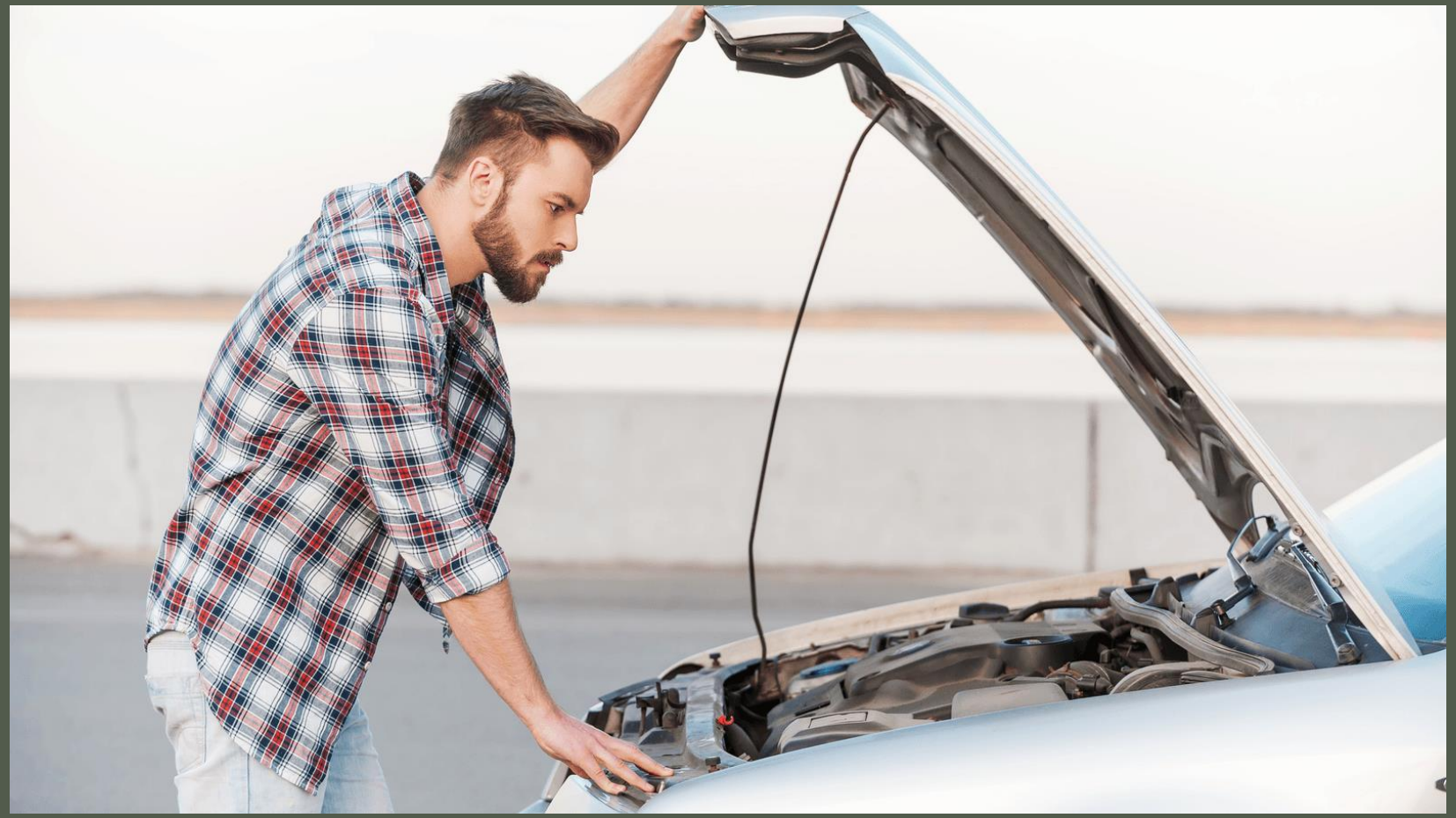
Permits
1/3 Engineer

ITD Load Rating Processing

Load Rating Package

-BrR Model
-Larsa Model
-LRS (LFR)
-LRS (LRFR)
-Supplemental Calcs

ITD Load Rating



ITD Load Rating Processing

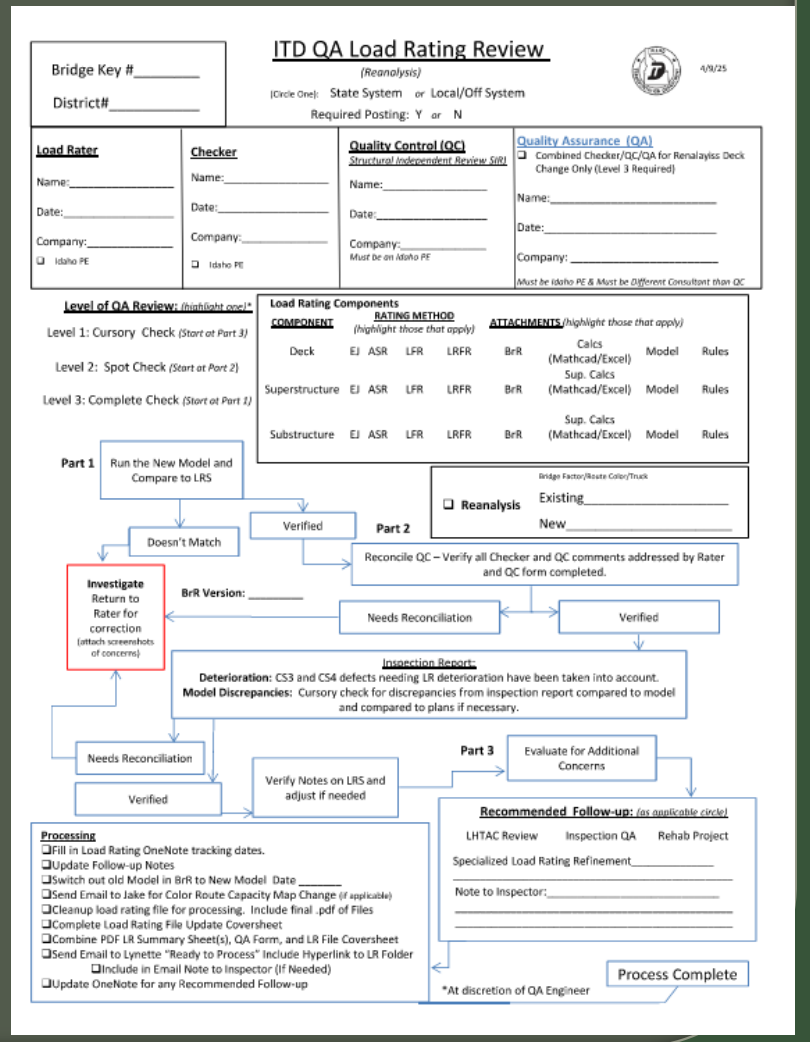
QA Review

-Melissa Henessy
-Alan Buehrig
-Kayla Jacobsen (Forsgren)
-Don Vander Boegh (VBE)

Internal Rating Tracking - Initial Analysis

Wednesday, February 3, 2021 8:43 AM

BRKEY (Rating done)	District	Project KN	Drawing #	Material	Design	Due Date	RATER	CHECKER	SIR (QC)	DATE RATING COMPLETE	DATE CHECKING COMPLETE	DATE CORRECTIONS COMPLETE	DATE BACK CHECK COMPLETE	DATE SIR (QA) CHECK COMPLETE	DATE SIR (QA) CORRECTIONS COMPLETE	DATE SIR (QA) COMPLETED	READY TO PROCESS	SENT TO PATTY	Comment
~~17696~~ Deck Bulb Tee	4	19404	17576	Prestressed Concrete	Stringer/Girder	2/1/2021	Tony Azari	Will J.	Elsa		2/5/2021	########	2/16/2021	3/24/2021	3/30/2021	4/1/2021	X	X	PK 19404, DRW 17576. Tony Azari designed, load rating is unknown status.
~~28633~~	3		17993	Steel	Culvert	2/1/2021	~~Jake L.~~ Done by AI Engineers	~~Scott L.~~	~~Melissa~~	~~2/25/2021~~	~~3/24/2021~~	~~4/12/21~~	~~4/12/2021~~	~~4/19/2021~~	~~4/21/21~~	~~4/21/21~~	~~4/21/21~~		Sent to AI. 6' dia. Pipes. 10" fill causes low rating. 12' min. required. Assign to AI Engineers.
~~10584~~	2	21964	17773	Steel	Culvert	2/7/2021	Scott L.	Anthony	Melissa	3/24/2021	4/7/2021	4/12/2021	4/12/2021	4/19/2021	5/4/2021	9/3/2021	9/14/2021	9/16/2021	Done. PK 21964, DRW 17773, Designed by Great West/Rick Jensen, needs QA
~~16676~~ Deck Bulb Tee	1	19188	17644	Prestressed Concrete	Stringer/Girder	2/9/2021	Leonard R./Sarah G.	Mike J.	Melissa	1/24/2019	2/26/2019	3/4/2019	-	5/19/2021	5/19/2021	7/22/2021	7/22/2021	7/22/2021	Done. Melissa updated rating for construction changes and other needed updates. Mike backchecked (he checked it originally).



ITD QA Load Rating Review

(Reanalysis)

4/9/25

Bridge Key #_____

District#_____

(Circle One): State System or Local/Off System

Required Posting: Y or N

Load Rater
Name:_____
Date:_____
Company:_____
❑ Idaho PE

Checker
Name:_____
Date:_____
Company:_____
❑ Idaho PE

Quality Control (QC)
Structural Independent Review SIR)
Name:_____
Date:_____
Company:_____
Must be an Idaho PE

Quality Assurance (QA)
❑ Combined Checker/QC/QA for Renalayiss Deck Change Only (Level 3 Required)
Name:_____
Date:_____
Company:_____
Must be Idaho PE & Must be Different Consultant than QC

Level of QA Review: *(highlight one)**
Level 1: Cursory Check *(Start at Part 3)*
Level 2: Spot Check *(Start at Part 2)*
Level 3: Complete Check *(Start at Part 1)*

Load Rating Components

COMPONENT	RATING METHOD (highlight those that apply)					ATTACHMENTS (highlight those that apply)		
Deck	EJ	ASR	LFR	LRFR	BrR	Calcs (Mathcad/Excel)	Model	Rules
Superstructure	EJ	ASR	LFR	LRFR	BrR	Sup. Calcs (Mathcad/Excel)	Model	Rules
Substructure	EJ	ASR	LFR	LRFR	BrR	Sup. Calcs (Mathcad/Excel)	Model	Rules

Part 1 Run the New Model and Compare to LRS

❑ **Reanalysis** Bridge Factor/Route Color/Truck
Existing_____
New_____

Verified

Part 2

Doesn't Match

Reconcile QC – Verify all Checker and QC comments addressed by Rater and QC form completed.

Investigate Return to Rater for correction (attach screenshots of concerns)

BrR Version: _____

Needs Reconciliation

Verified

Inspection Report:
Deterioration: CS3 and CS4 defects needing LR deterioration have been taken into account.
Model Discrepancies: Cursory check for discrepancies from inspection report compared to model and compared to plans if necessary.

Needs Reconciliation

Verified

Verify Notes on LRS and adjust if needed

Part 3

Evaluate for Additional Concerns

Recommended Follow-up: *(as applicable circle)*
LHTAC Review Inspection QA Rehab Project
Specialized Load Rating Refinement_____
Note to Inspector:_____

Processing
❑Fill in Load Rating OneNote tracking dates.
❑Update Follow-up Notes
❑Switch out old Model in BrR to New Model Date _____
❑Send Email to Jake for Color Route Capacity Map Change *(if applicable)*
❑Cleanup load rating file for processing. Include final .pdf of Files
❑Complete Load Rating File Update Coversheet
❑Combine PDF LR Summary Sheet(s), QA Form, and LR File Coversheet
❑Send Email to Lynette "Ready to Process" Include Hyperlink to LR Folder
❑Include in Email Note to Inspector (If Needed)
❑Update OneNote for any Recommended Follow-up

Process Complete

*At discretion of QA Engineer

QA Review

Bridge Key #_____

District#_____

ITD QA Load Rating Review

(Reanalysis)

(Circle One): State System *or* Local/Off System

Required Posting: Y *or* N

4/9/25

Load Rater	**Checker**	**Quality Control (QC)**	**Quality Assurance (QA)**
Name:_____	Name:_____	*Structural Independent Review SIR)*	❑ Combined Checker/QC/QA for Renalayiss Deck Change Only (Level 3 Required)
Date:_____	Date:_____	Name:_____	Name:_____
Company:_____	Company:_____	Date:_____	Date:_____
❑ Idaho PE	❑ Idaho PE	Company:_____ *Must be an Idaho PE*	Company: _____ *Must be Idaho PE & Must be Different Consultant than QC*

Quality assurance (QA). The use of sampling and other measures to assure the adequacy of QC procedures in order to verify or measure the quality level of the entire bridge inspection and load rating program.

ITD Load Rating Processing

Update LR File

-BrR Database

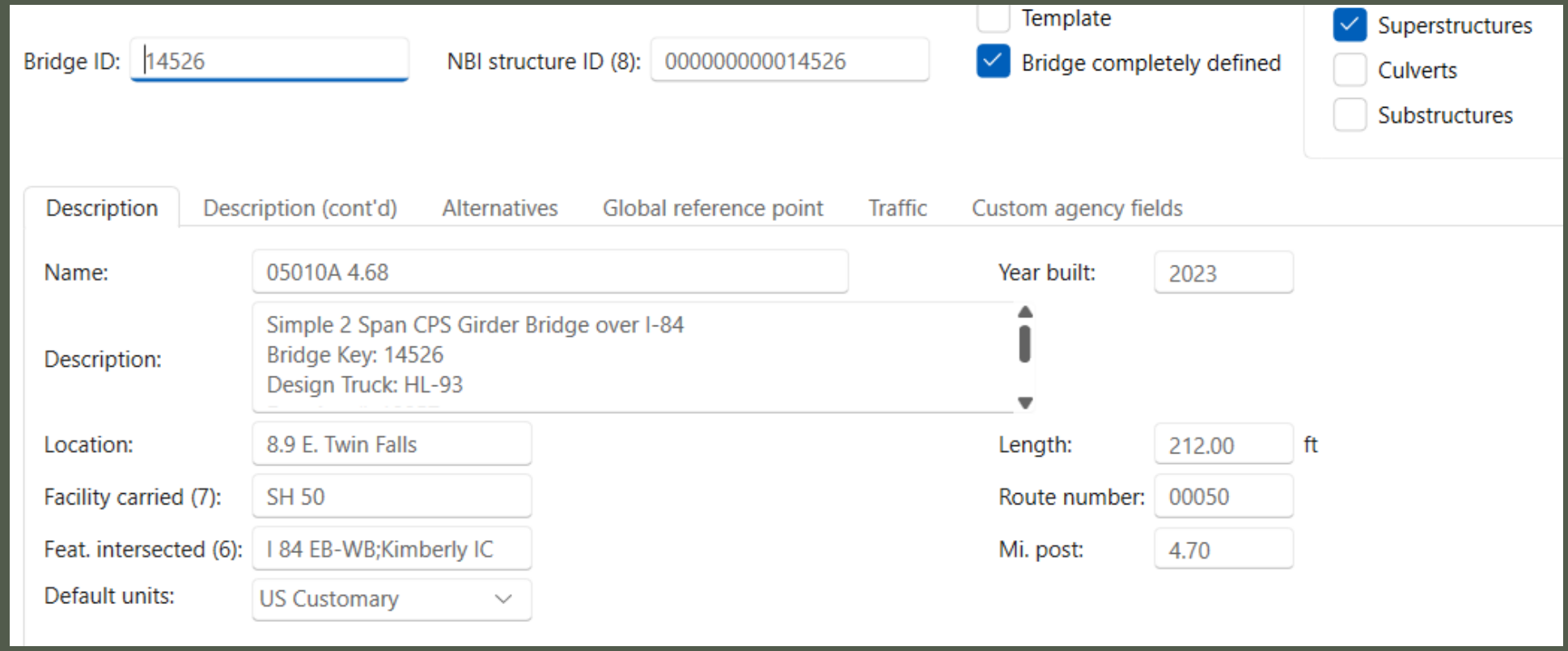
-BrM Database

-Promiles Update

-Local Jurisdiction

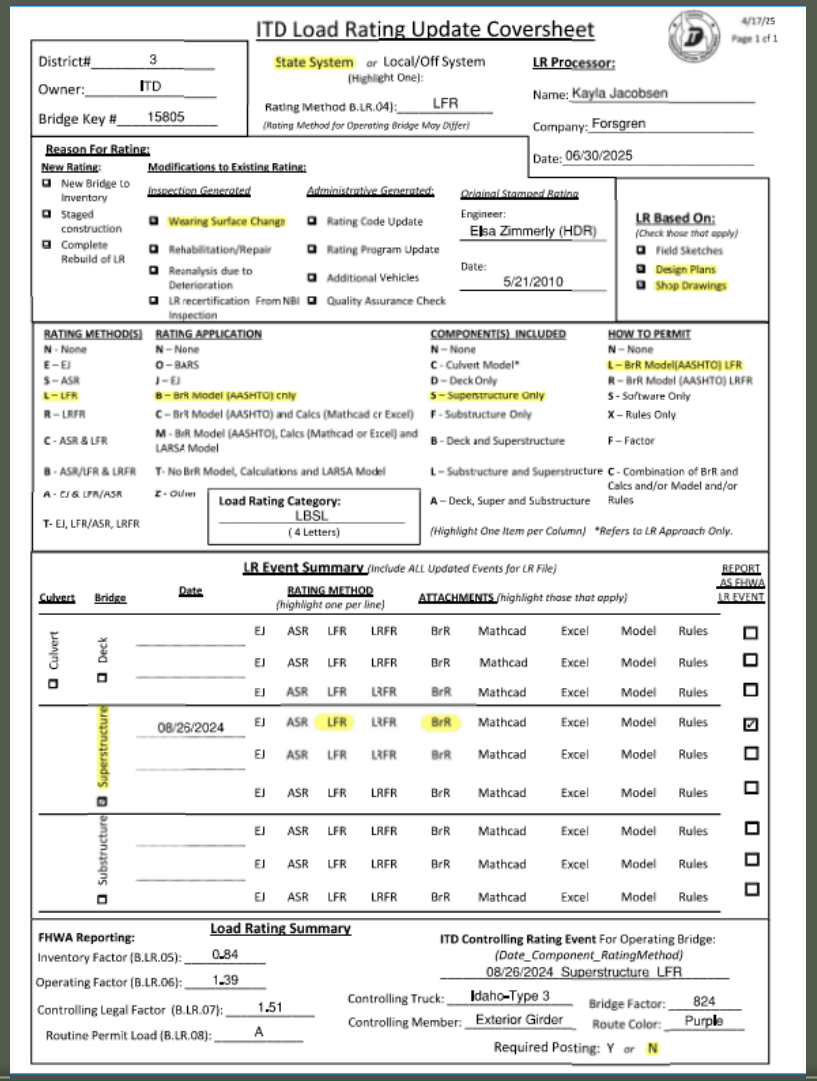
BrR Database Update

Replace Existing File with New File – BrR 7.5.1



BrM Database Update

Load Rating Coversheet



ITD Load Rating Update Coversheet

4/17/25
Page 1 of 1

District# 3
Owner: ITD
Bridge Key # 15805

State System or Local/Off System (Highlight One):
Rating Method B.LR.04): LFR
(Rating Method for Operating Bridge May Differ)

LR Processor:
Name: Kayla Jacobsen
Company: Forsgren
Date: 06/30/2025

Reason For Rating:

New Rating:
- ☐ New Bridge to Inventory
- ☐ Staged construction
- ☐ Complete Rebuild of LR

Modifications to Existing Rating:

Inspection Generated
- ☐ Wearing Surface Change
- ☐ Rehabilitation/Repair
- ☐ Reanalysis due to Deterioration
- ☐ LR recertification From NBI Inspection

Administrative Generated:
- ☐ Rating Code Update
- ☐ Rating Program Update
- ☐ Additional Vehicles
- ☐ Quality Assurance Check

Original Stamped Rating
Engineer: Elsa Zimmerly (HDR)
Date: 5/21/2010

LR Based On:
(Check those that apply)
- ☐ Field Sketches
- ☐ Design Plans
- ☐ Shop Drawings

RATING METHOD(S)	RATING APPLICATION	COMPONENT(S) INCLUDED	HOW TO PERMIT
N - None	N – None	N – None	N – None
E – EJ	O – BARS	C - Culvert Model*	L – BrR Model(AASHTO) LFR
S – ASR	J – EJ	D – Deck Only	R – BrR Model (AASHTO) LRFR
L – LFR	B – BrR Model (AASHTO) only	S – Superstructure Only	S - Software Only
R – LRFR	C – BrR Model (AASHTO) and Calcs (Mathcad or Excel)	F - Substructure Only	X – Rules Only
C - ASR & LFR	M - BrR Model (AASHTO), Calcs (Mathcad or Excel) and LARSA Model	B - Deck and Superstructure	F – Factor
B - ASR/LFR & LRFR	T- No BrR Model, Calculations and LARSA Model	L – Substructure and Superstructure	C - Combination of BrR and Calcs and/or Model and/or Rules
A - EJ & LFR/ASR	Z - Other	A – Deck, Super and Substructure	
T- EJ, LFR/ASR, LRFR			

Load Rating Category: LBSL (4 Letters)

(Highlight One Item per Column) *Refers to LR Approach Only.

LR Event Summary *(Include ALL Updated Events for LR File)*

Culvert	Bridge	Date	RATING METHOD (highlight one per line)	ATTACHMENTS (highlight those that apply)	REPORT AS FHWA LR EVENT
☐ Culvert			EJ ASR LFR LRFR BrR	Mathcad Excel Model Rules	☐
	☐ Deck		EJ ASR LFR LRFR BrR	Mathcad Excel Model Rules	☐
			EJ ASR LFR LRFR BrR	Mathcad Excel Model Rules	☐
	☐ Superstructure	08/26/2024	EJ ASR LFR LRFR BrR	Mathcad Excel Model Rules	☑
			EJ ASR LFR LRFR BrR	Mathcad Excel Model Rules	☐
			EJ ASR LFR LRFR BrR	Mathcad Excel Model Rules	☐
	☐ Substructure		EJ ASR LFR LRFR BrR	Mathcad Excel Model Rules	☐
			EJ ASR LFR LRFR BrR	Mathcad Excel Model Rules	☐
			EJ ASR LFR LRFR BrR	Mathcad Excel Model Rules	☐

FHWA Reporting:

Load Rating Summary

Inventory Factor (B.LR.05): 0.84
Operating Factor (B.LR.06): 1.39
Controlling Legal Factor (B.LR.07): 1.51
Routine Permit Load (B.LR.08): A

ITD Controlling Rating Event For Operating Bridge:
(Date_Component_RatingMethod)
08/26/2024 Superstructure LFR

Controlling Truck: Idaho-Type 3
Bridge Factor: 824
Controlling Member: Exterior Girder
Route Color: Purple
Required Posting: Y or N

BrM Database Update

ITD Load Rating Update Coversheet

4/17/25

Page 1 of 1

District# 3

Owner: ITD

Bridge Key # 15805

State System *or* Local/Off System
(Highlight One):

Rating Method B.LR.04): LFR

(Rating Method for Operating Bridge May Differ)

LR Processor:

Name: Kayla Jacobsen

Company: Forsgren

Date: 06/30/2025

Reason For Rating:

New Rating:

- ☐ New Bridge to Inventory
- ☐ Staged construction
- ☐ Complete Rebuild of LR

Modifications to Existing Rating:

Inspection Generated

- ☑ Wearing Surface Change
- ☐ Rehabilitation/Repair
- ☐ Reanalysis due to Deterioration
- ☐ LR recertification From NBI Inspection

Administrative Generated:

- ☐ Rating Code Update
- ☐ Rating Program Update
- ☐ Additional Vehicles
- ☐ Quality Assurance Check

Original Stamped Rating

Engineer: Elsa Zimmerly (HDR)

Date: 5/21/2010

LR Based On:

(Check those that apply)

- ☐ Field Sketches
- ☑ Design Plans
- ☑ Shop Drawings

BrM Database Update

RATING METHOD(S)	RATING APPLICATION	COMPONENT(S) INCLUDED	HOW TO PERMIT
N - None	**N** – None	**N** – None	**N** – None
E – EJ	**O** – BARS	**C** - Culvert Model*	**L** – BrR Model(AASHTO) LFR
S – ASR	**J** – EJ	**D** – Deck Only	**R** – BrR Model (AASHTO) LRFR
L – LFR	**B** – BrR Model (AASHTO) only	**S** – Superstructure Only	**S** - Software Only
R – LRFR	**C** – BrR Model (AASHTO) and Calcs (Mathcad or Excel)	**F** - Substructure Only	**X** – Rules Only
C - ASR & LFR	**M** - BrR Model (AASHTO), Calcs (Mathcad or Excel) and LARSA Model	**B** - Deck and Superstructure	**F** – Factor
B - ASR/LFR & LRFR	**T**- No BrR Model, Calculations and LARSA Model	**L** – Substructure and Superstructure	**C** - Combination of BrR and Calcs and/or Model and/or Rules
A - EJ & LFR/ASR	**Z** - Other	**A** – Deck, Super and Substructure	
T- EJ, LFR/ASR, LRFR			

Load Rating Category:
LBSL
(4 Letters)

(Highlight One Item per Column) **Refers to LR Approach Only.*

BrM Database Update

LR Event Summary *(Include ALL Updated Events for LR File)*

Culvert	Bridge	Date	RATING METHOD (highlight one per line)	ATTACHMENTS (highlight those that apply)	REPORT AS FHWA LR EVENT
☐ Culvert	☐ Deck		EJ ASR LFR LRFR BrR	Mathcad Excel Model Rules	☐
			EJ ASR LFR LRFR BrR	Mathcad Excel Model Rules	☐
			EJ ASR LFR LRFR BrR	Mathcad Excel Model Rules	☐
	☑ Superstructure	08/26/2024	EJ ASR LFR LRFR BrR	Mathcad Excel Model Rules	☑
			EJ ASR LFR LRFR BrR	Mathcad Excel Model Rules	☐
			EJ ASR LFR LRFR BrR	Mathcad Excel Model Rules	☐
	☐ Substructure		EJ ASR LFR LRFR BrR	Mathcad Excel Model Rules	☐
			EJ ASR LFR LRFR BrR	Mathcad Excel Model Rules	☐
			EJ ASR LFR LRFR BrR	Mathcad Excel Model Rules	☐

BrM Database Update

Load Rating Summary

FHWA Reporting:

Inventory Factor (B.LR.05): 0.84

Operating Factor (B.LR.06): 1.39

Controlling Legal Factor (B.LR.07): 1.51

Routine Permit Load (B.LR.08): A

ITD Controlling Rating Event For Operating Bridge:

(Date_Component_RatingMethod)

08/26/2024 Superstructure LFR

Controlling Truck: Idaho-Type 3

Bridge Factor: 824

Controlling Member: Exterior Girder

Route Color: Purple

Required Posting: Y *or* N

Promiles Update

- Occurs Quarterly
- Involves Extensive Testing and Coordination
- 511 Updates Can Occur as Permitting Restriction When Necessary

BrR Construction Staging

- Where did this requirement come from?
- How do things work now and how will they need to change?
- ITD Policy Changes
- Recent Example
- Reanalysis

Addressing New Policy

- Policy Solution
  - New Bridge Rule
  - Rules about Staged Construction Bridges
- Specific Staging Ratings for Bridges
  - New Bridge
  - Old Bridge

Policy Solution

6.0.3—Staged Construction

In addition to the load rating procedures in the BDM, the BrR model shall include a staged construction superstructure definition for each portion of the bridge that will be used for traffic staging. Staged construction shall abide by the following requirements:

1.) The staged construction superstructure definitions shall be included with the final design submittal of the load rating and revised as needed for the PS&E submittal.

2.) A load rating summary (LRFR and LFR) shall be submitted for the staged construction in addition to the full structure. The HL-93 LRFR inventory rating for each staged construction superstructure definition shall be 1.00 or higher.

3.) Any staged construction of the existing bridge or new bridge shall have an HS-20 rating factor at least as high as the existing bridge (unless approved by the Group Leader).

4.) As stated in the BDM, the HL-93 LRFR inventory rating, including future loads, shall be 1.10 or higher for new bridges on the state system, unless approved by the Group Leader.

Policy Solution

New Bridge Rule

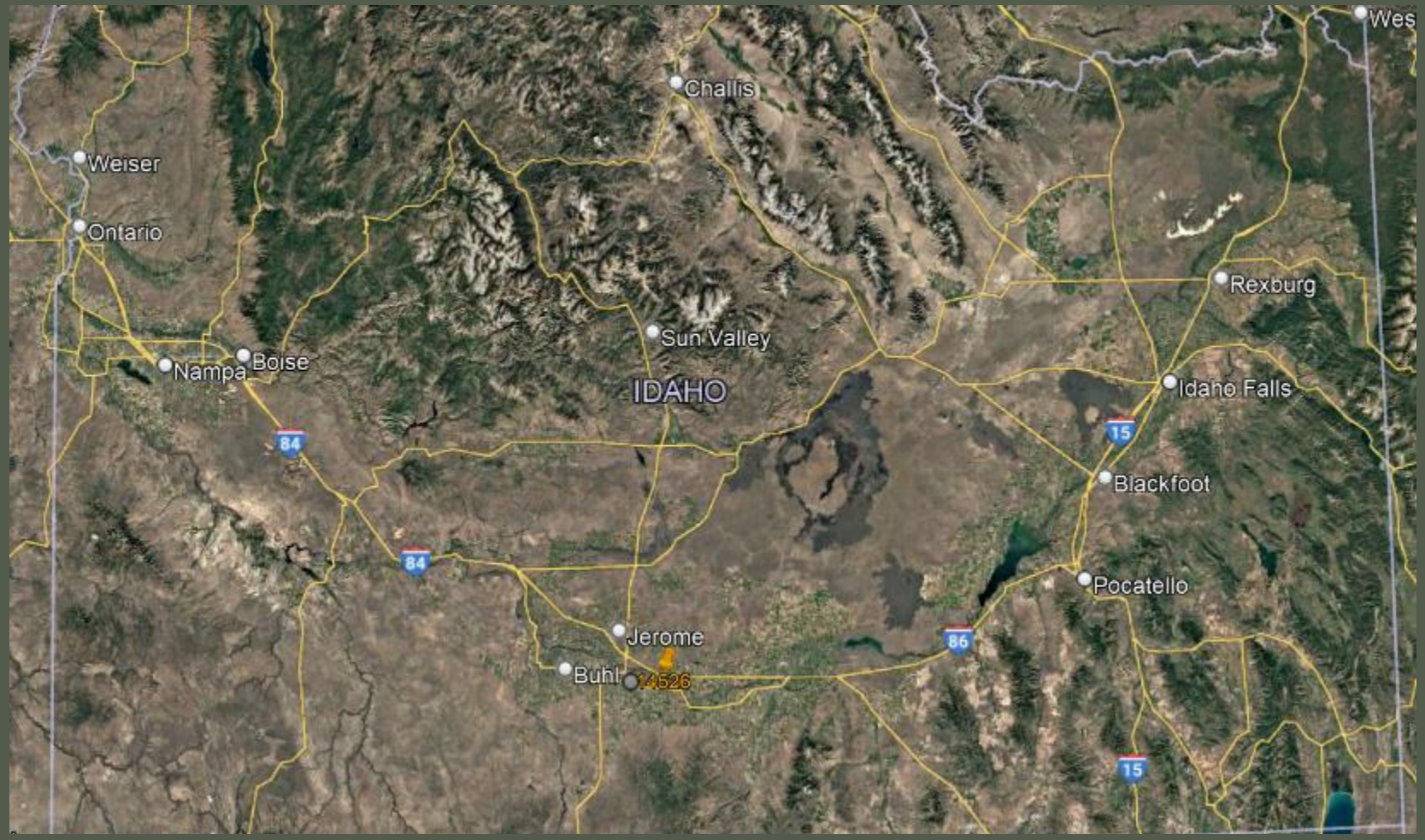
Limited to:

- 70 kip max axle group
- 35 kip max axle

BrR Construction Staging

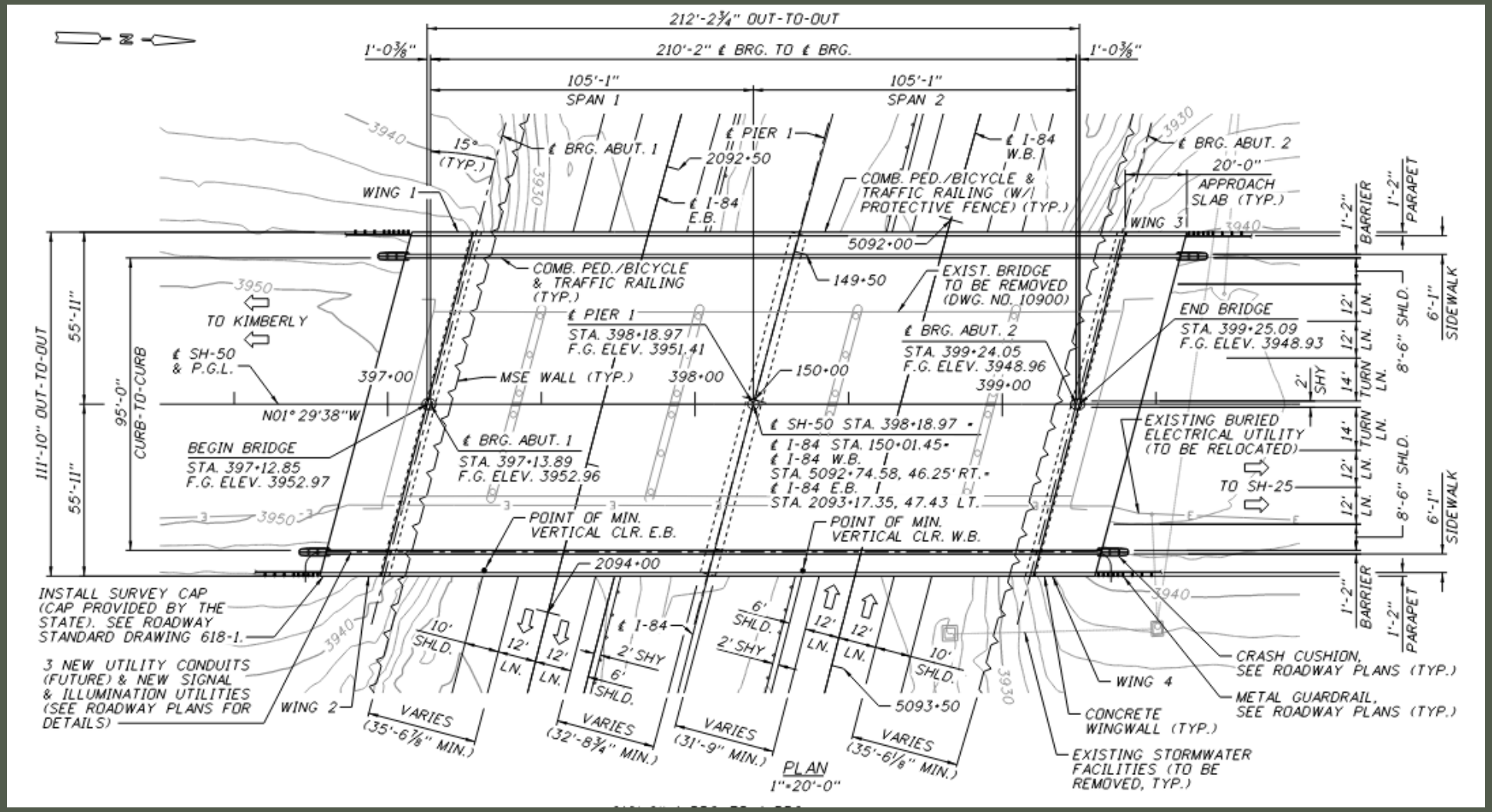
- Where did this requirement come from?
- How do things work now and how will they need to change?
- ITD Policy Changes
- Recent Example
- Reanalysis

Example – Kimberly IC I-84

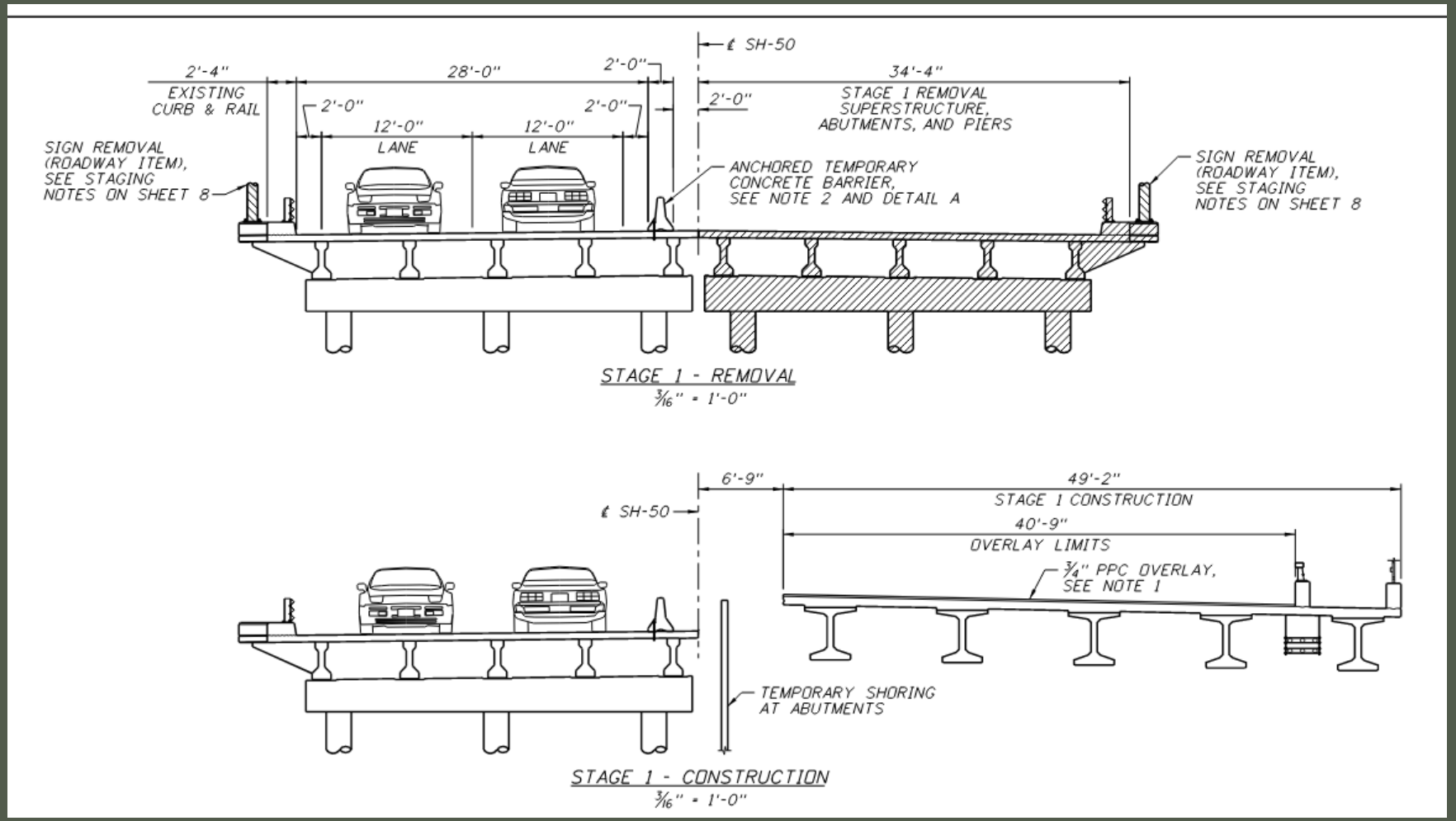


Example – Kimberly IC I-84

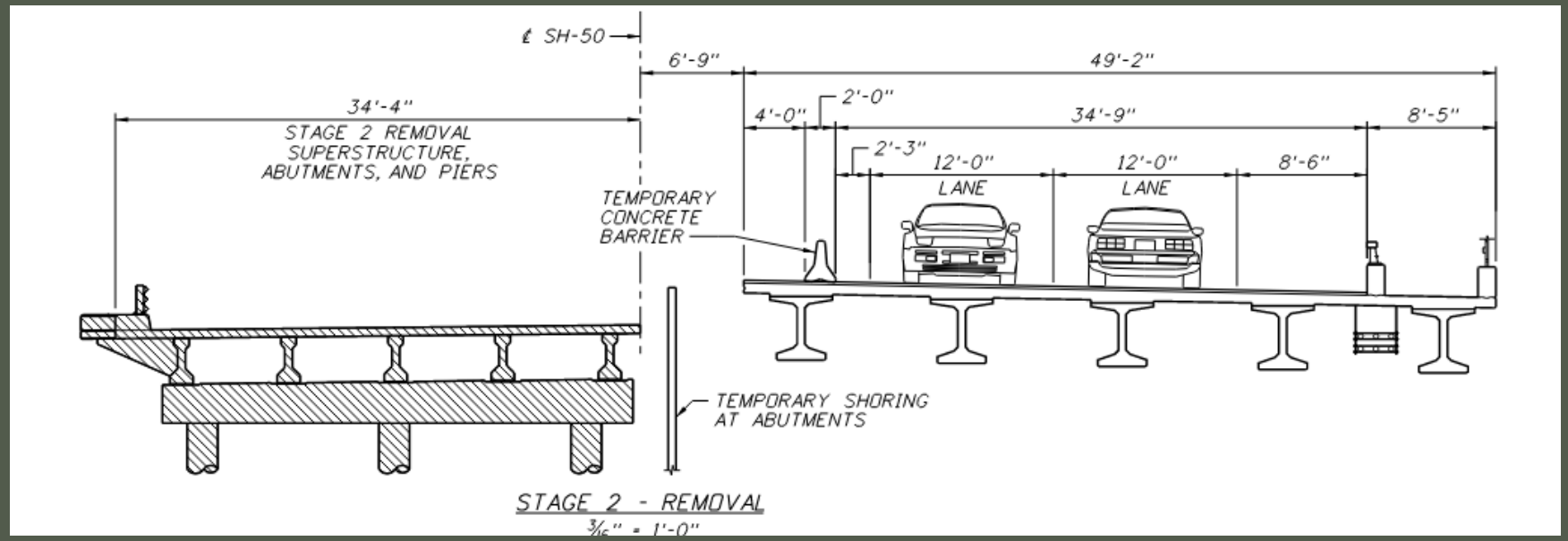
Example – Kimberly IC I-84



Example – Kimberly IC I-84



Example – Kimberly IC I-84



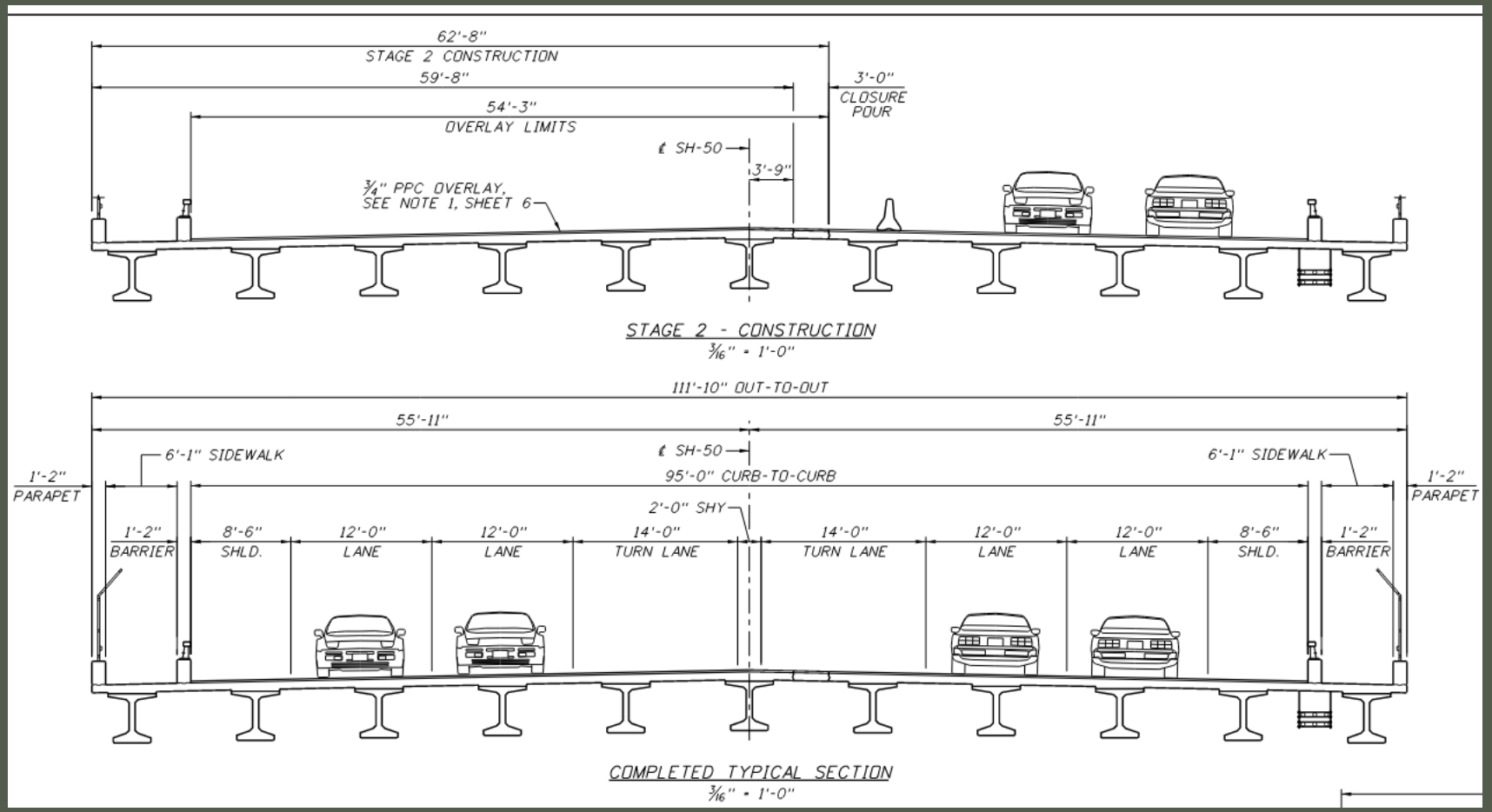
Example – Kimberly IC I-84

1. Approach plus milepost.

Example – Kimberly IC I-84

2. Right side.

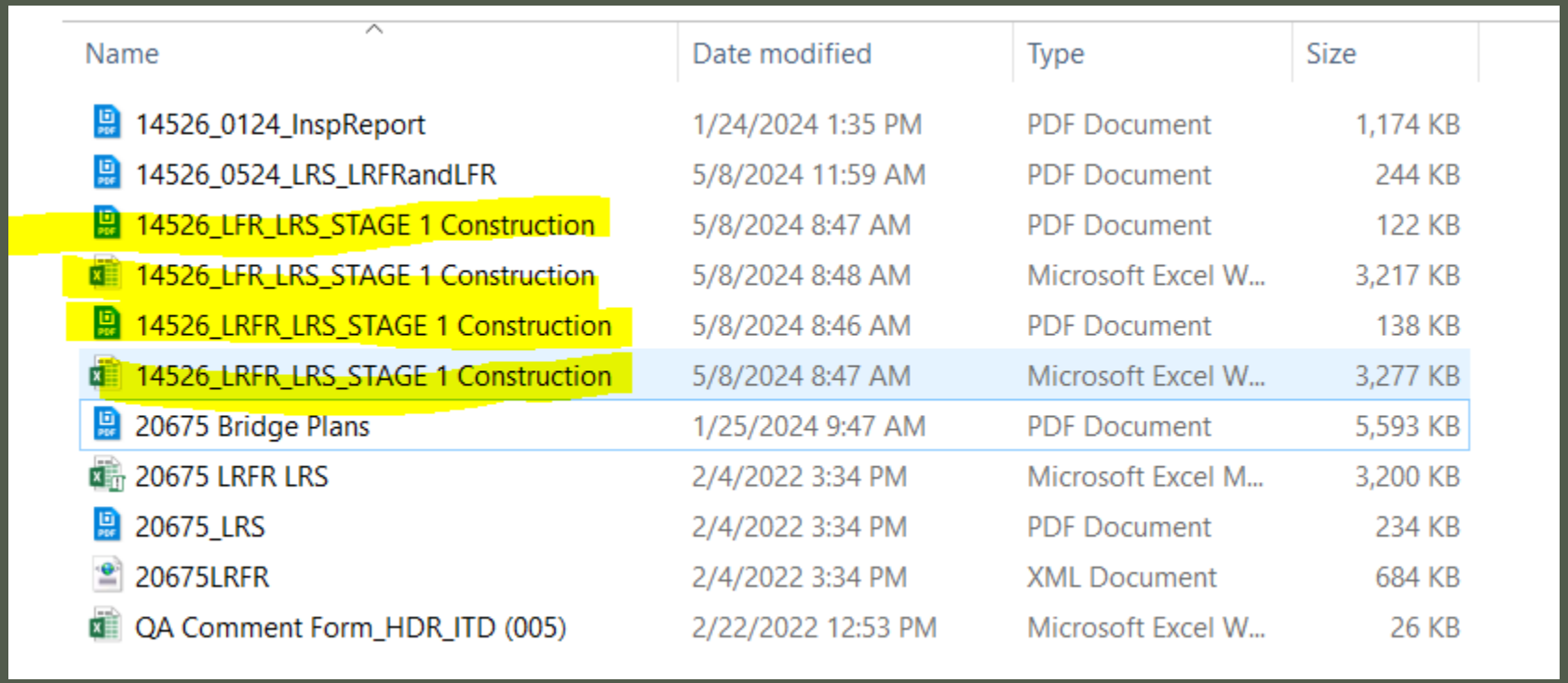
Example – Kimberly IC I-84



Example – Kimberly IC I-84

1. Approach plus milepost.

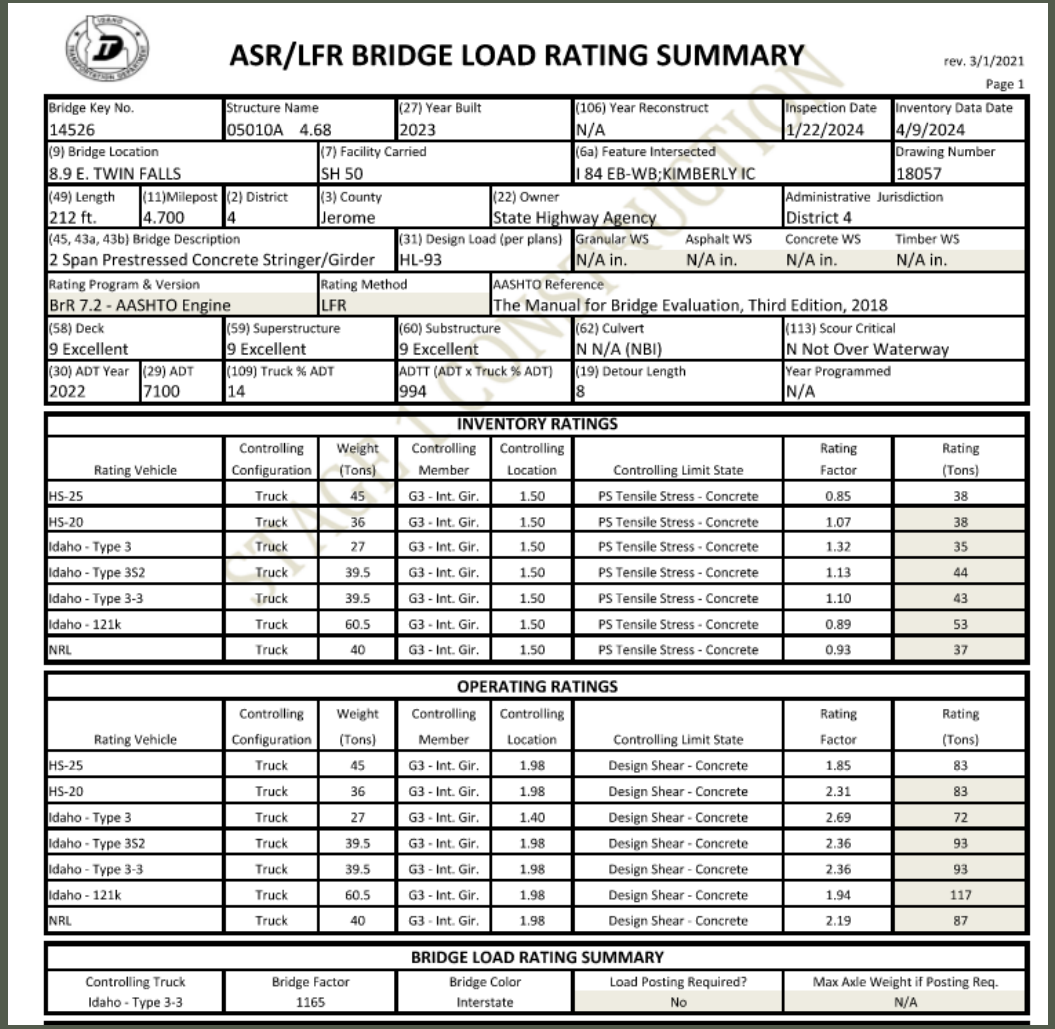
Example – Kimberly IC I-84



Name	Date modified	Type	Size
14526_0124_InspReport	1/24/2024 1:35 PM	PDF Document	1,174 KB
14526_0524_LRS_LRFRandLFR	5/8/2024 11:59 AM	PDF Document	244 KB
14526_LFR_LRS_STAGE 1 Construction	5/8/2024 8:47 AM	PDF Document	122 KB
14526_LFR_LRS_STAGE 1 Construction	5/8/2024 8:48 AM	Microsoft Excel W...	3,217 KB
14526_LRFR_LRS_STAGE 1 Construction	5/8/2024 8:46 AM	PDF Document	138 KB
14526_LRFR_LRS_STAGE 1 Construction	5/8/2024 8:47 AM	Microsoft Excel W...	3,277 KB
20675 Bridge Plans	1/25/2024 9:47 AM	PDF Document	5,593 KB
20675 LRFR LRS	2/4/2022 3:34 PM	Microsoft Excel M...	3,200 KB
20675_LRS	2/4/2022 3:34 PM	PDF Document	234 KB
20675LRFR	2/4/2022 3:34 PM	XML Document	684 KB
QA Comment Form_HDR_ITD (005)	2/22/2022 12:53 PM	Microsoft Excel W...	26 KB

Example – Kimberly IC I-84

- LRS LFR For staged construction
- Staged Construction Watermark



ASR/LFR BRIDGE LOAD RATING SUMMARY

rev. 3/1/2021

Page 1

Bridge Key No.	Structure Name	(27) Year Built	(106) Year Reconstruct	Inspection Date	Inventory Data Date
14526	05010A 4.68	2023	N/A	1/22/2024	4/9/2024

(9) Bridge Location	(7) Facility Carried	(6a) Feature Intersected	Drawing Number
8.9 E. TWIN FALLS	SH 50	I 84 EB-WB;KIMBERLY IC	18057

(49) Length	(11)Milepost	(2) District	(3) County	(22) Owner	Administrative Jurisdiction
212 ft.	4.700	4	Jerome	State Highway Agency	District 4

(45, 43a, 43b) Bridge Description	(31) Design Load (per plans)	Granular WS	Asphalt WS	Concrete WS	Timber WS
2 Span Prestressed Concrete Stringer/Girder	HL-93	N/A in.	N/A in.	N/A in.	N/A in.

Rating Program & Version	Rating Method	AASHTO Reference
BrR 7.2 - AASHTO Engine	LFR	The Manual for Bridge Evaluation, Third Edition, 2018

(58) Deck	(59) Superstructure	(60) Substructure	(62) Culvert	(113) Scour Critical
9 Excellent	9 Excellent	9 Excellent	N N/A (NBI)	N Not Over Waterway

(30) ADT Year	(29) ADT	(109) Truck % ADT	ADTT (ADT x Truck % ADT)	(19) Detour Length	Year Programmed
2022	7100	14	994	8	N/A

INVENTORY RATINGS

Rating Vehicle	Controlling Configuration	Weight (Tons)	Controlling Member	Controlling Location	Controlling Limit State	Rating Factor	Rating (Tons)
HS-25	Truck	45	G3 - Int. Gir.	1.50	PS Tensile Stress - Concrete	0.85	38
HS-20	Truck	36	G3 - Int. Gir.	1.50	PS Tensile Stress - Concrete	1.07	38
Idaho - Type 3	Truck	27	G3 - Int. Gir.	1.50	PS Tensile Stress - Concrete	1.32	35
Idaho - Type 3S2	Truck	39.5	G3 - Int. Gir.	1.50	PS Tensile Stress - Concrete	1.13	44
Idaho - Type 3-3	Truck	39.5	G3 - Int. Gir.	1.50	PS Tensile Stress - Concrete	1.10	43
Idaho - 121k	Truck	60.5	G3 - Int. Gir.	1.50	PS Tensile Stress - Concrete	0.89	53
NRL	Truck	40	G3 - Int. Gir.	1.50	PS Tensile Stress - Concrete	0.93	37

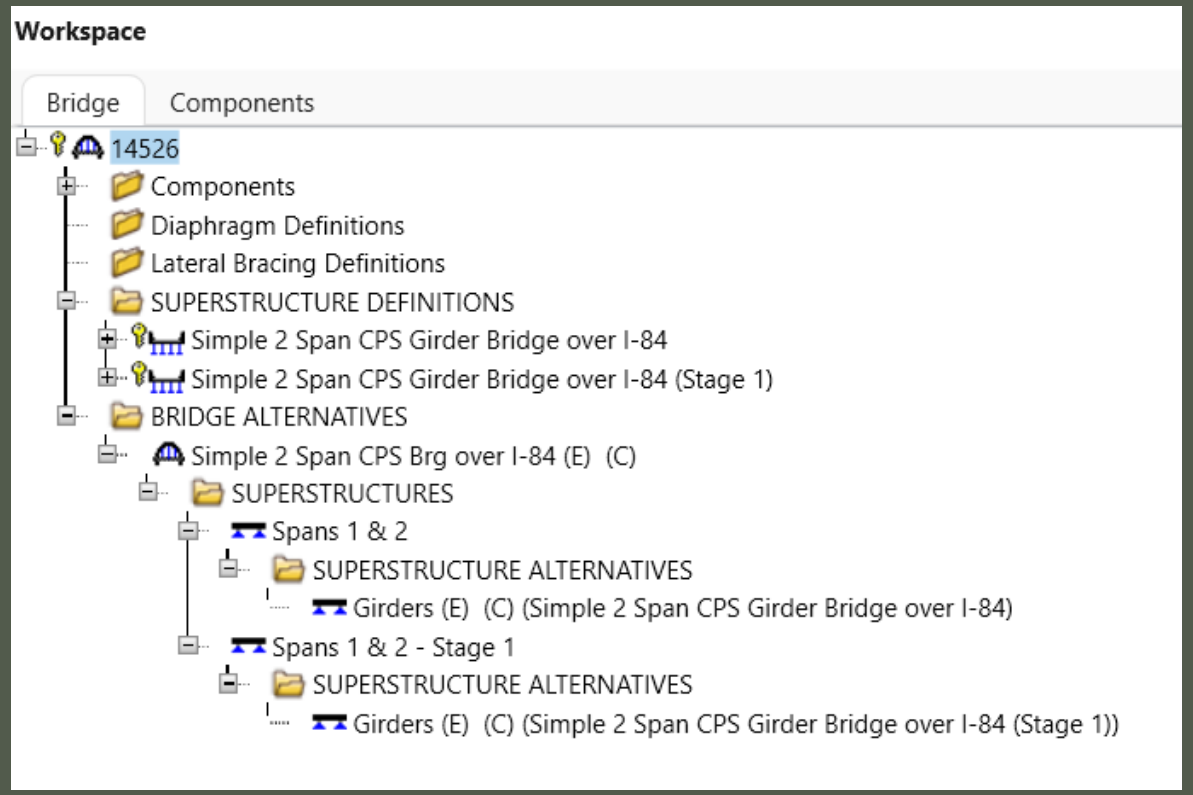
OPERATING RATINGS

Rating Vehicle	Controlling Configuration	Weight (Tons)	Controlling Member	Controlling Location	Controlling Limit State	Rating Factor	Rating (Tons)
HS-25	Truck	45	G3 - Int. Gir.	1.98	Design Shear - Concrete	1.85	83
HS-20	Truck	36	G3 - Int. Gir.	1.98	Design Shear - Concrete	2.31	83
Idaho - Type 3	Truck	27	G3 - Int. Gir.	1.40	Design Shear - Concrete	2.69	72
Idaho - Type 3S2	Truck	39.5	G3 - Int. Gir.	1.98	Design Shear - Concrete	2.36	93
Idaho - Type 3-3	Truck	39.5	G3 - Int. Gir.	1.98	Design Shear - Concrete	2.36	93
Idaho - 121k	Truck	60.5	G3 - Int. Gir.	1.98	Design Shear - Concrete	1.94	117
NRL	Truck	40	G3 - Int. Gir.	1.98	Design Shear - Concrete	2.19	87

BRIDGE LOAD RATING SUMMARY

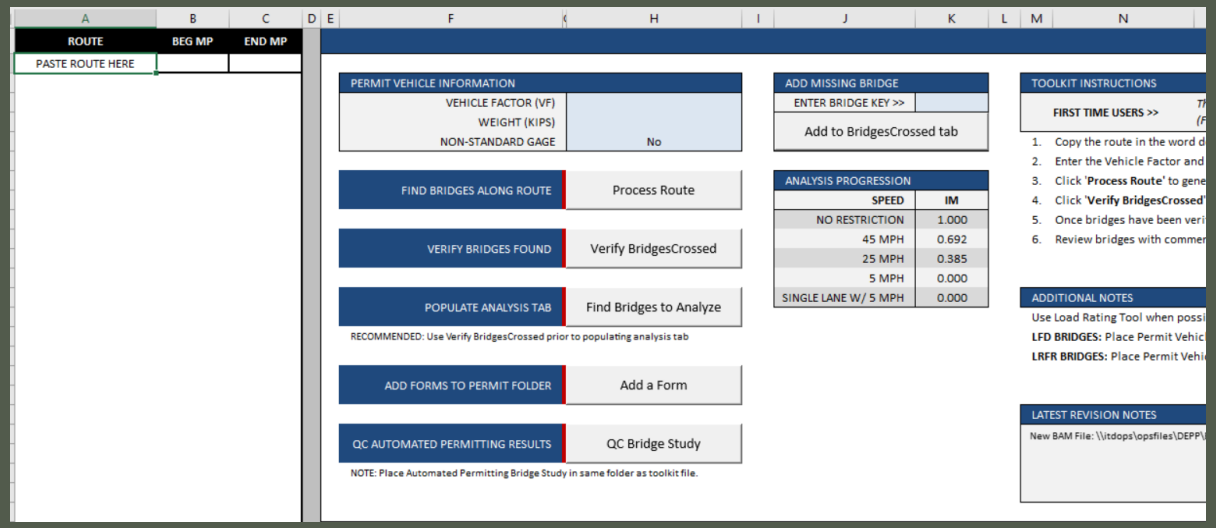
Controlling Truck	Bridge Factor	Bridge Color	Load Posting Required?	Max Axle Weight if Posting Req.
Idaho - Type 3-3	1165	Interstate	No	N/A

Example – Kimberly IC I-84



- Add a Separate Stage Construction Models as Necessary
- Staged Construction Model Will be Deleted after Completion of Bridge

Updating to Permitting



BAM Factor *(NOTE: Toolkit searches for a sheet with the word "Factor" in its name.)*

Change BAM File Link `\\itdops\opsfiles\DEPP\Bridge\AssetManagement\Permits\Factor Lists\2025\1-1-25\1-1-25 BAM Factor.xlsx`

AF	AG	AH	AI	AJ
	Routing	Rating	Additiona	ITD Comment
#N/A	Rule	Rule	Over 35k Sing	New Bridge Rule
#N/A	Rule	Rule	Over 35k Sing	New Bridge Rule
#N/A	Rule	Rule	Over 35k Sing	New Bridge Rule
#N/A	Rule	Rule	Over 35k Sing	New Bridge Rule
#N/A	Rule	Rule	Over 35k Sing	New Bridge Rule

BrR Construction Staging

- Where did this requirement come from?
- How do things work now and how will they need to change?
- ITD Policy Changes
- Recent Example
- Reanalysis

National Bridge Inspection Standards (NBIS)

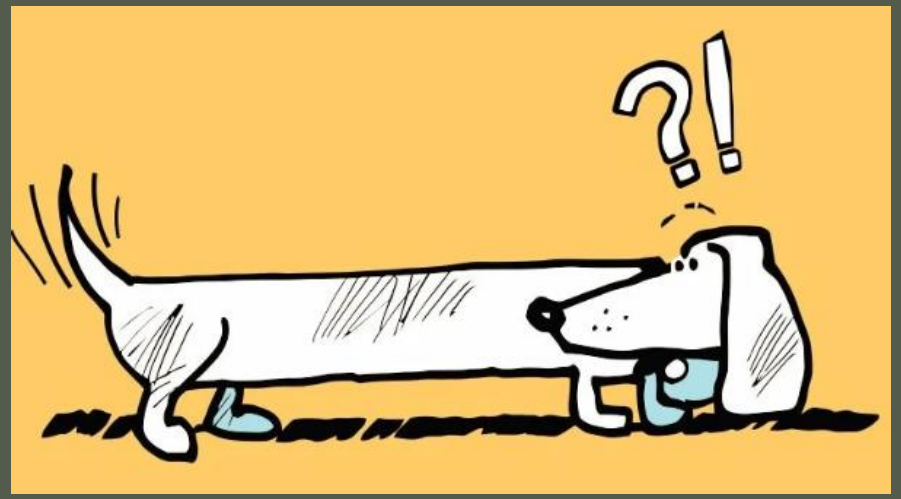
(b) *Initial inspection.* Perform an initial inspection in accordance with Section 4.2, AASHTO Manual (incorporated by reference, *see* § 650.317) for each new, replaced, rehabilitated, and temporary bridge as soon as practical, but within 3 months of the bridge opening to traffic.

(2) Develop and document procedures for completion of new and updated bridge load ratings. Load ratings must be completed as soon as practical, but no later than 3 months after the initial inspection and when a change is identified that warrants a re-rating such as, but not limited to, changes in condition, reconstruction, new construction, or changes in dead or live loads.

LR Renalysis

Ratings Need to be backed by a Professional Engineer.

Load Rating Data is Presented as Part of the Inspection Report.



6.1.8—Qualifications and Responsibilities

A registered Professional Engineer shall be charged with the overall responsibility for bridge-capacity evaluation. The engineering expertise necessary to properly evaluate a bridge varies widely with the complexity of the bridge. A multi-disciplinary approach that utilizes the specialized knowledge and skills of other engineers may be needed in special situations for inspection and office evaluation.

6.1.9—Documentation of Load Rating

The load rating should be adequately documented, including all background information such as field inspection reports, material and load test data, all supporting computations, and a clear statement of all assumptions used in calculating the load rating. If a computer model was used, the input data file should be retained for future use.

LR Reanalysis

Historically 2 parallel tasks completed by separate groups:

- **Load Rating**
- **Inspection**

Effectiveness Concerns:

- 3 months is short!
- Limited Resources.
- Ratings are complex if left out of date.

ITD Load Rating Recertification

Limited Trial Basis FY25

- Tying back together 2 dependent parallel tasks (Inspection and LR).
- Most of Inspectors are now Engineers with LR capability and vice versa.
- 2 Consultants FY25

ITD Load Rating Recertification

ITD Load Rating Recertification

(Routine NBIS Inspection Generated)

Bridge Key #_____

District#_____

Owner:_____

LR QA Engineer: *Completed by ITD*

Name:_____

Company:_____

Date:_____

NBIS Inspection Date:

_____

NBIS Team Lead:

_____

**Load Rater or Checker Must be Present During Inspection*

Load Rater**

❑ *Present During NBIS inspection**

Name:_____

Date:_____

Company:_____

***Load Rater or Checker Must be an Idaho PE*

Checker**

❑ *Present During NBIS inspection**

Name:_____

Date:_____

Company:_____

Quality Control (QC)

(Structural Independent Review)

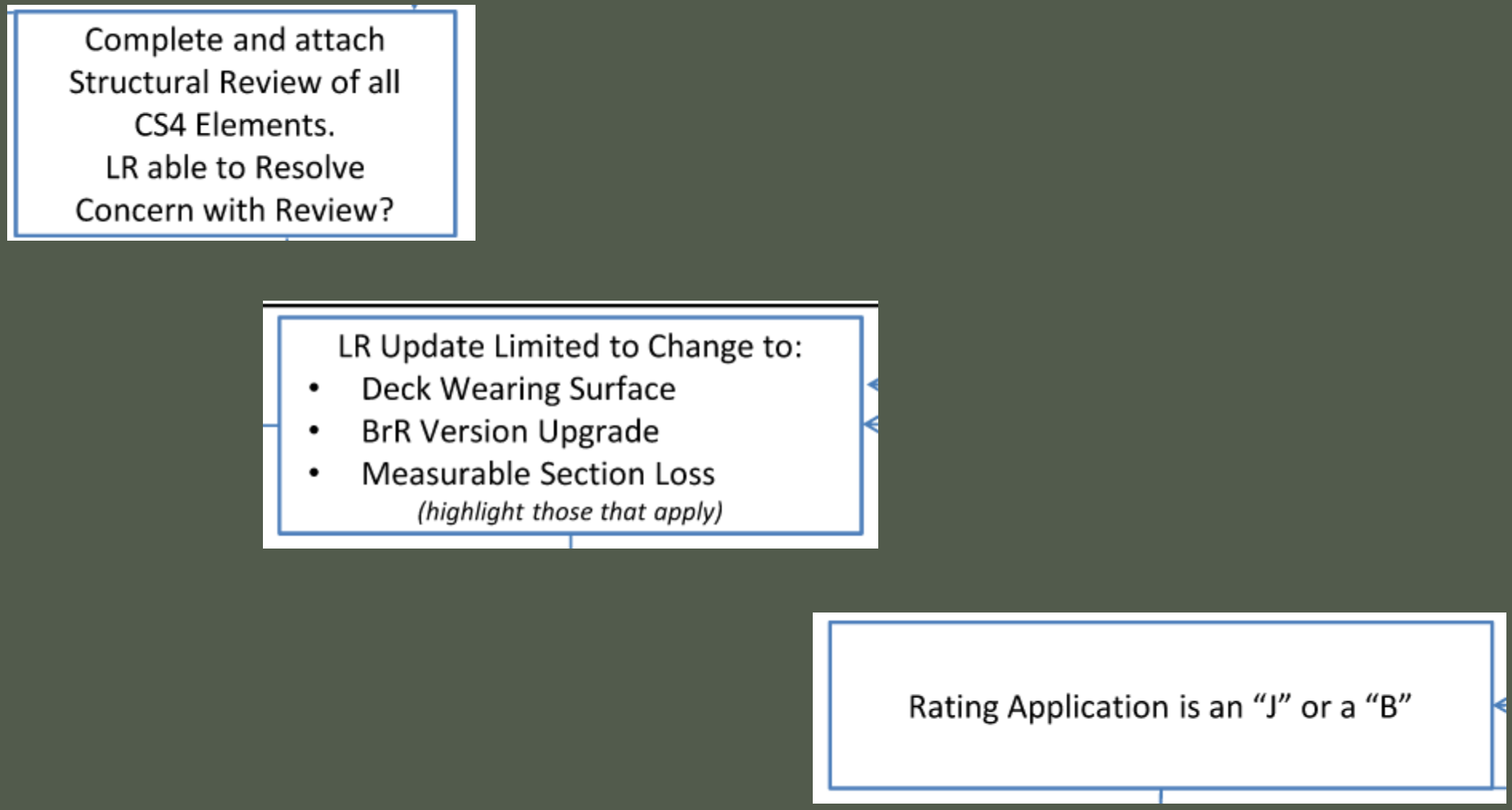
Name:_____

Date:_____

Company:_____

Must be an Idaho PE

LR Renalysis



Pre-SNBI Inspection Report

WEARING SURFACE and DEAD LOAD INFORMATION

Asphalt:	0.0 *inches*	**Concrete:**	0.8 *inches*
Granular:	0.0 *inches*	**Timber:**	0.0 *inches*

POSTING INFORMATION

WEIGHT

Load Analysis Date:

Load Analysis Required: B Initial Analysis Req

Bridge Factor:

Route Color:

	Load Rating Analysis		**Recommended**	**Actual**
	IR (tons)	**OR (tons)**	**Posting(tons)**	**Posting(tons)**
H Truck				
HS Truck				
Type3			**Type3**	
Type 3S2			**Type 3S2**	
Type 3-3			**Type 3-3**	
			Axle Limit	

HEIGHT

	Recommended	**Actual**
Height Posting:		

ACTUAL WIDTH POSTING

Single Lane All Vehicles:	N
Single Lane Trucks/Buses:	N

SNBI Inspection Report

10906 08/04/2025

Load Rating & Posting

Load Rating Event Data

Reason for Load Rating:		Load Rating Date (B.LR.03):	12/27/2023
Load Rater:	Will Johnson	Software Used:	AASHTOWare BrR
Checker:	Scott Litchfield	Secondary Software:	
Quality Control Engineer:			
Design Load (B.LR.01):	HL-93	Asphalt Thickness:	
Design Method (B.LR.02):	LRFD Load and Resistance Factor Design	Concrete Thickness:	0.80 inches
Rating Based On:		Granular Thickness:	
Load Rating Category:		Timber Thickness:	
Load Rating Method (B.LR.04):	LRFR Load and Resistance Factor Rating	Mex WS for Load Capacity:	0.00 inches
Analysis Status:	Analysis Complete		

12/27/2023

0 Design

Vehicle Name	Rating	Tons	Controlling Limit State	Controlling Location	Default
HS-20 Operating	2.17	78.12	1 Strength I - Flexure	G2 Int @ 1.50	Yes
HS-20 Inventory	1.31	47.16	1 Strength I - Flexure	G2 Int @ 1.50	Yes
HL-93 Operating	1.52	54.72	1 Strength I - Flexure	G1 Ext @ 1.50	Yes
HL-93 Inventory	1.17	42.12	1 Strength I - Flexure	G1 Ext @ 1.50	Yes

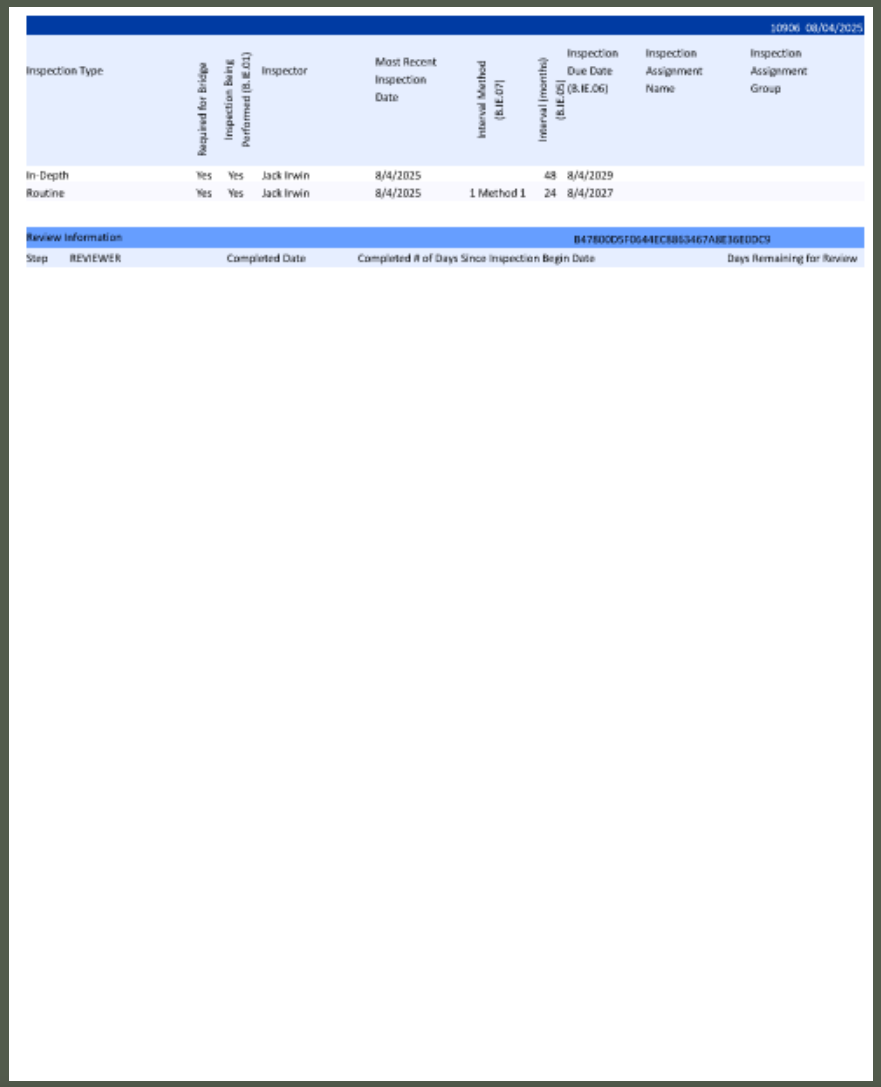
1 Legal

Vehicle Name	Rating	Tons	Controlling Limit State	Controlling Location	Default
Idaho - 121k Operating	1.70	102.85	1 Strength I - Flexure	G2 Int @ 1.50	Yes
AASHTO Notational Rating Load	1.93	77.20	1 Strength I - Flexure	G2 Int @ 1.50	Yes
Idaho - 121k Inventory	1.02	61.71	1 Strength I - Flexure	G2 Int @ 1.50	Yes
NRL Inventory	1.15	46.00	1 Strength I - Flexure	G2 Int @ 1.50	Yes
HL-93 Idaho - Type 3	2.55	0.00	3 Strength II - Flexure	G2 Int @ 1.50	No
HL-93 Idaho - Type 3S2	2.11	0.00	3 Strength II - Flexure	G2 Int @ 1.50	Yes
HL-93 Idaho - Type 3-3	2.06	0.00	3 Strength II - Flexure	G2 Int @ 1.50	Yes
HL-93 Idaho - 121k	1.60	0.00	3 Strength II - Flexure	G2 Int @ 1.50	Yes
HL-93 NRL	1.79	0.00	3 Strength II - Flexure	G2 Int @ 1.50	Yes
FHWA Type EV2 emergency vehicle	2.47	71.01	3 Strength II - Flexure	G2 Int @ 1.50	No
FHWA Type EV2 emergency vehicle	2.64	75.90	1 Strength I - Flexure	G2 Int @ 1.50	Yes
FHWA Type EV3 emergency vehicle	1.63	70.09	3 Strength II - Flexure	G2 Int @ 1.50	No
FHWA Type EV3 emergency vehicle	1.74	74.82	1 Strength I - Flexure	G2 Int @ 1.50	Yes

2 Permit

Vehicle Name	Rating	Tons	Controlling Limit State	Controlling Location	Default
Idaho - Type 3 Operating	2.70	72.90	1 Strength I - Flexure	G2 Int @ 1.50	Yes
Idaho - Type 3S2 Operating	2.25	88.88	1 Strength I - Flexure	G2 Int @ 1.50	Yes
Idaho - Type 3-3 Operating	2.20	86.90	1 Strength I - Flexure	G2 Int @ 1.50	Yes
Idaho - Type 3 Inventory	1.63	44.01	1 Strength I - Flexure	G2 Int @ 1.50	Yes
Idaho - Type 3S2 Inventory	1.34	52.93	1 Strength I - Flexure	G2 Int @ 1.50	Yes
Idaho - Type 3-3 Inventory	1.32	52.14	1 Strength I - Flexure	G2 Int @ 1.50	Yes
HL-93 Idaho - Type 3	4.04	0.00	3 Strength II - Flexure	G1 Ext @ 1.50	Yes
HL-93 Idaho - Type 3S2	3.35	0.00	3 Strength II - Flexure	G1 Ext @ 1.50	No
HL-93 Idaho - Type 3-3	3.27	0.00	3 Strength II - Flexure	G1 Ext @ 1.50	No
HL-93 Idaho - 121k	2.53	0.00	3 Strength II - Flexure	G1 Ext @ 1.50	No
HL-93 NRL	2.84	0.00	3 Strength II - Flexure	G1 Ext @ 1.50	No

Notes / Remarks:



10906 08/04/2025

Inspection Type	Required for Bridge	Inspection Being Performed (B.IE.01)	Inspector	Most Recent Inspection Date	Interval Method (B.IE.07)	Interval (months) (B.IE.05)	Inspection Due Date (B.IE.06)	Inspection Assignment Name	Inspection Assignment Group
In-Depth	Yes	Yes	Jack Irwin	8/4/2025		48	8/4/2029		
Routine	Yes	Yes	Jack Irwin	8/4/2025	1 Method 1	24	8/4/2027		

Review Information B47B0D05FD644EC8853467A8E36E0DC9

Step	REVIEWER	Completed Date	Completed # of Days Since Inspection Begin Date	Days Remaining for Review

Questions