

Technical Note e-Notification

No. 15 June 2023

Technical Note 15

1. Additional Load Rating QC Requirements

Commentary: Additional guidance is being provided regarding the load rating QC documentation. The following Load Rating QC Requirements will be added to LRGD Section 3.5.1.

- The QC Date on the Load Rating Summary Form (LRSF) and QC Checklist date with digital signature shall be the date QC comments were resolved and completed and should be within the 5-week load rating period.
- The QC Engineer shall attach any/all comments generated through the QC process to the QC Checklist.
- A new QC Checklist is required any time revisions are made to the load rating model or LRSF
- For each load rating, only one individual shall take QC responsibilities and his/her name shall match in the QC Checklist and in the QC box of the LRSF.
- The EOR shall sign the LRSF only after the QC process is completed and the QC Engineer digitally signs the QC Checklist.

2. Load Rating & Posting Evaluation Process (Three Months)

Commentary: The subsequent language in this section shall <u>supersede</u> LRGD Section 19.3 and Technical Note 06 Item 3. These modifications are required to ensure the three-month load rating approval process requirement is met after an inspection is completed in accordance with FHWA SNBI (2022) and Code of Federal Regulations Title 23, Part 650.

The "Lead QA Consultant" referenced in Sections 2 and 3 of this technical note and supplemental figures refers to the party designated by BMO to perform load rating program quality assurance management. Figures 1, 2a, and 2b are intended to provide additional guidance on the three-month load rating and posting documentation requirements established by FHWA. The date ranges shown have been allocated to load rating activities based on the shortest span of three months in the calendar year with the end date falling on the weekend. The Day #s provided are guidelines that will allow for the efficiency and predictability of this workflow. Since the Day #s shown may vary depending on weekends, holidays, and other impeding circumstances, the business day counts shown should control over Day #s, but the three-month timeframe shall not be exceeded. In addition, if any step is expected to take longer than shown, coordination should be completed with members of subsequent parties to meet the three-month requirement. Overall, if a Posting Form is required, it shall be signed by the SBME (or Designee) within three months of the bridge inspection completion date with the NBI data being updated accordingly.



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The Load Rating/Posting Process described in this section shall be implemented 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.
- When a recently built structure is inspected with no load rating on file or has no as-built alternative in the load rating model.

A Bridge Inspection Team Lead (or BMO) should determine the need for a load rating update or new load rating upon completion of a bridge inspection (Day 1). A load rating update is required for all initial routine inspections. A Load Rating Request Form (BIGD Attachment 3.1) should be submitted to BMO within five business days (by Day 7). Load rating requests in response to Critical Findings should be submitted within 24 hours of the finding. BMO should review the Load Rating Request Form and, if approved, distribute to the assigned load rater within two business days (by Day 9). Load rating, including QC Review should be completed within five weeks (by Day 44) of receiving the load rating request.

Load Rating Submittal

Once the load rating is completed and LRSF is signed and sealed, the following documents should be uploaded to the ProjectWise bridge file within two business days (by Day 46) after the LRSF is signed and sealed:

- All required documentation per LRGD 5.2 and 20.2.1.1
- Appendix A20.1: LRSF (in Excel format)
- Posting Rescission Form (if applicable), first published August 31, 2022 (use latest version)

In addition, an email shall be sent to the Lead QA Consultant via SCDOT_LR_BMO_Approval@mbakerintl.com containing the ProjectWise link. The subject line shall be titled "LR Submittal Asset ID ##### (District #, _____ County)."

Posting Avoidance Measures

If the load rating results dictate that a load posting is required, the load rater shall determine if posting avoidance measures (refined methods of analysis, material, or load testing, etc.) would be effective or if they would not significantly impact the need to post the bridge. Load posting shall follow the general guidance in Sections 6A.8 and 6B.7 of the MBE supplemented by further considerations as noted in Section 2 of this technical note.

Local agency owned bridges are not expected to undergo rigorous posting avoidance measures such as load testing or refined methods of analysis. The owner can elect to pursue independent posting avoidance measures to improve load posting in accordance with the LRGD.



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If posting avoidance measures are viable, the load rater shall include the BMO Approvals Form with their submittal. The form shall state the posting avoidance method to be used with the estimated date of completion of the posting avoidance measure and load rating (through QA). Due to complex modeling procedures or scheduling of testing, posting avoidance measures may exceed the 5-week load rating timeframe. In this case, the load rater should also recommend an interim measure on the BMO Approvals Form by selecting "Other" with "Interim Measure" as the reasoning. Examples of interim measures may include:

- Documented engineering judgment
- Calculations to prove a posting is not required
- Closing the bridge or shoulder to traffic until repairs can be completed
- Load posting the bridge

Interim measures will be taken on a bridge if BMO determines that the safety of the traveling public is a concern at any time. If the interim measure is approved by the SBME (or Designee), the Lead QA Consultant shall document the approval in the BMO Approvals Form within five business days of approval.

If an interim measure is approved and implemented, a signed and sealed LRSF and NBI data update are still required no later than three months after the bridge inspection completion date. If engineering judgment is the approved methodology, the NBI Load Rating Method field shall be coded as: Field evaluation and documented engineering judgment. If the original BMO Approvals Form completion date requires an extension for any reason, a new BMO Approvals Form shall be submitted stating the revised date of completion.

Once the posting avoidance measure is completed, the results shall be incorporated into the load rating. QC shall be completed on the updated load rating with new signatures on all documentation (LRSF, QC checklist, Posting Form, etc.) and submitted to the LR QA Consultant via BMO approval email. If the posting avoidance measure(s) still results in the need to post the bridge, the load rater should include the Posting Form in their submittal to the Lead QA Consultant within two business days of the LRSF being signed.

Bridge Signing/Posting Form

Tips for completing the Posting Form are as follows:

- The "Load Rating Engineer" and "Quality Control Engineer" boxes shall be filled out. Dates shall match those on the LRSF.
- In Section 3 of the Posting Form, list any posting avoidance measure(s) which were considered prior to recommending bridge posting; also list any special considerations required in developing the posting limits proposed. An example is as follows:



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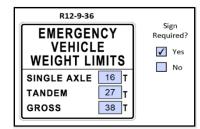
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SECTION 3: COMMENTS

Concrete tee beam bridge, built in 1922, H-15 design load, has 8" thick wearing surface. It was determined that posting avoidance measures in LRGD 19.2 will not have a significant impact on the posting need.

• For "Sign Required?" select "Yes" only for signs requiring posting. For signs that do not require posting, leave all tonnage fields blank, and select "No" for "Sign Required?". An example of a required Emergency Vehicle sign is as follows:



If a Posting Form is required as part of the load rating submittal, unsigned posting forms should not be sent to the District. BMO will coordinate signed posting forms with the District.

Posting Rescission

This section outlines the procedure for documenting the removal of load posting using a Posting Rescission Form. Load postings are typically rescinded when load rating results indicate that posting is no longer necessary. To initiate a posting rescission, the load rater shall include a Posting Rescission Form with the load rating submittal and shall follow the file naming structure: #####-LR_Posting-Rescission-20YY-MM-DD-001. The Document Date should match the LRSF signed and sealed date. When uploading to ProjectWise, "Rescission" should be entered as the freeform value to follow proper file naming convention.

Alternatively, postings may be removed by the SBME (or Designee) during load posting review if load rating values have improved to a satisfactory degree. In such cases, the Lead QA Consultant will generate a Posting Form formatted for "Do Not Post" for the bridge file based on the BMO's decision. In this case, starting with the publication of this Technical Note, the Posting Form tonnage values should remain, "Sign Required?" should be checked "No" and comments added to Section 3 stating the reasoning why the posting is not needed.

The District Engineering Administrator (DEA) or local agency owner may choose to retain a load posting despite the load rating or BMO originated Posting Rescission Form. In this case, the DEA shall generate a new Posting Form in ProjectWise with the posting values in the field, along with



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District signatures. The DEA should also include justification for retaining the load posting in Section 3 of the Posting Form. The Posting Form Document Date should be the date of approval. If the DEA or local agency owner agrees to the posting removal, no further action is necessary.

QA Process

The load rater and Lead QA Consultant shall log the following key dates shown in attached Figures 1-6, as applicable for any initial and updated load ratings, including updates to as-let models after initial inspections:

- Date inspection is completed
- Date of load rating request approval
- Date load rating submittal email is sent to Lead QA Consultant
- Date QA is completed
- Date Posting Form is signed by SBME (or Designee)
- Date NBI data is updated

If a load rating is selected for QA review, the Lead QA Consultant should notify the load rater no later than two business days (by Day 50) after the load rating submittal. The QA Engineer should review, prepare QA comments, and return them to the load rater within five business days (by Day 57). The load rater should address QA comments within five business days of receiving comments (by Day 64) and resubmit to the QA Engineer. Once the QA Engineer backchecks and approves the rating, the load rater should resubmit the load rating to the Lead QA Consultant within four business days (by Day 70). It is important to note that at this point of the load rating process, the three-month deadline becomes most critical over the business day counts.

In order to further clarify the QA procedures, the following four cases are anticipated and appropriate actions shall be taken within three months from the bridge inspection completion date:

- 1) Not selected for QA and no posting recommendation: Load rater shall complete NBI data updates.
- 2) Not selected for QA and posting is recommended: No further action from load rater. Lead QA Consultant shall complete NBI data updates once the posting review with BMO is complete.
- 3) Selected for QA and no posting recommendation: Load rater shall address comments and complete NBI data updates once QA is complete.
- 4) Selected for QA and posting recommendation: Load rater shall address comments. Lead QA Consultant shall complete NBI data updates once QA and posting review with BMO are complete.



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Final Posting Review

The Lead QA Consultant should review all documents, provide posting recommendations, and present noteworthy findings to BMO within three weeks (by Day 72) upon receipt.

If BMO elects to pursue further evaluation measures that are anticipated to exceed the three-month load rating approval process (load testing, refined methods of analysis), an interim measure shall be taken and documented within the BMO Approvals Form. Examples of interim measures are described under the Posting Avoidance Measures heading above. It is important to note that interim measures are only temporary until further evaluation is completed. The interim measure shall be completed within the 3-month timeframe to meet FHWA requirements and ensure safety of the traveling public. Completion of an interim measure should not take place of finalizing the load rating with a signed and sealed LRSF and appropriate quality checks. Once further evaluation is completed and incorporated in the load rating, a complete load rating submittal shall be sent to the Lead QA Consultant via the BMO Approval email.

If BMO makes the final decision to post, the Lead QA Consultant should assist to develop load posting documentation within five business days (by Day 79) of the posting decision. The SBME (or Designee) should sign the Posting Form and distribute to the District within seven business days upon receipt (by Day 88) and no later than three months after the bridge inspection completion date. For new posting forms signed by the SBME (or Designee), or posting forms originated in BMO, the BMO Assistant Bridge Inspection Program Manager (ABIPM) should create the HMMS flag. If an HMMS flag already exists, it shall be edited using the comments section. The Lead QA Consultant should update the traffic status/load rating data (by Day 88) no later than three months after the bridge inspection completion date.

3. Posting Sign Tracking and Installation Process (30 Days)

Commentary: The subsequent language in this section shall <u>supersede</u> LRGD Technical Note 10 Item 5 and is required to ensure the 30-day posting sign installation requirements are met in accordance with FHWA SNBI (2022) and Code of Federal Regulations Title 23, Part 650. Posting sign installation time frame is applicable to all publicly owned highway bridges longer than 20 feet.

Figures 3-6 are intended to provide additional guidance on the 30-day posting installation requirement established by FHWA. Figures 3 and 4 are applicable to SCDOT owned bridges. Figures 5 and 6 are applicable to local agency owned Bridges. The Day #s provided are guidelines that will allow for the efficiency and predictability of this workflow. Since the Day #s shown may vary depending on weekends, holidays, and other impeding circumstances, the business day counts shown should control over the Day #s, but 30-day timeframe shall not be exceeded. In addition, if



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any step is expected to take longer than shown, coordination should be completed with members of subsequent parties to meet the 30-day posting installation requirement.

Once the SBME (or Designee) signs the Posting Form, the posting signs shall be installed within 30 days through the following process. The Lead QA Consultant should notify the BMO ABIPM within two business days of signature (by Day 5) and should upload the Posting Form to ProjectWise within two weeks (by Day 15). The BMO ABIPM should coordinate the posting with the District, enter the bridge into the Posting Sign Tracking Spreadsheet, and generate the HMMS flag within two business days of receipt (by Day 7). If an HMMS flag already exists, it shall be edited using the comments section.

A sample screenshot of the Posting Sign Tracking Spreadsheet is as follows:

Asset ID	Distri ct	County	Facility Carried	Route Type	Route Crossing	Owner	NHS	RIMS Traffic Status	Date Signed	Interim Installation Date	Projected Installation Date		Date Traffic Status Updated	Legal	EV Posting
783	5	Darlington	US 401	US Route	Sparrow Swamp	SCDOT	Not NHS	Р	1/23/2023	2/7/2023	2/22/2023	2/16/2023		2,2,3	2,2
782	5	Darlington	US 401	US Route	Newman Swamp	SCDOT	Not NHS	Α	1/23/2023	2/7/2023	2/22/2023	2/16/2023		2,2,3	2,2
856	5	Darlington	SC-34	SC Route	Black Ck	SCDOT	Not NHS	Р	1/27/2023	2/11/2023	2/26/2023	2/6/2023		2,2,3	2,2

In addition to the Posting Sign Tracking Spreadsheet, BMO has implemented an updated reporting procedure for all approved bridge postings. Outstanding postings shall be reviewed and tracked on a weekly basis. BMO shall provide weekly notifications to all applicable SCDOT personnel (including FHWA) on any signs not installed that are nearing the 30-day posting requirement (as early as Day 21).

Posting Sign Installation Process

If the District or local agency owner elects to implement a more conservative posting than required by the rating, posted with Rating Factor > 1.0, or BMO waived, then this decision shall be documented in the Bridge File with a Posting Form for future inspections, load ratings, and general understanding. The decision should be made within three business days of BMO ABIPM notification (by Day 12). A District-initiated Posting Form with the elected posting shall be created and signed by the DEA (or their Designee). No other signatures on the form will be required. A note shall be included in the comment section indicating the decision was made by the District or local agency owner to post at lower value(s) than required by the rating. The DEA is considered a Designee of the SBME only when the District elects to post lower than the rating requires. In coordination with the District, the Lead QA Consultant shall upload the signed Posting Form in the ProjectWise Bridge File to document the decision(s). Any email correspondence should also be included in the Bridge File for documentation. The District shall edit the existing HMMS flag, if one exists, using the comments section. Otherwise, the District shall create a new HMMS flag to initiate the bridge posting sign installation.



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The District should coordinate with the sign crew or local agency owner (by Day 15) to ensure the posting signs are installed within 30 days after the SBME (or Designee) signs the Posting Form. Once signs are installed, the Bridge Inspection Team Lead shall update the appropriate NBI data and include pictures of the signs within 3 months of the installation date and follow all requirements of the BIGD. The inspection report should be uploaded to ProjectWise within 2 weeks of the inspection.

Posting Sign Removal Process

If a bridge is posted and load rating results indicate it does not need to be posted, then the inspector, load rater, or Lead QA Consultant shall coordinate with the District to determine if the posting sign can be removed. If the District or local agency owner elects to keep the sign, follow the process outlined under the Posting Rescission heading in Section 2.

If the District confirms the posting sign will be removed, the inspector shall update the NBI load posting status to "Open, with No Restrictions" once it is confirmed the signs have been removed. If the District or local agency owner elects to leave the posting sign in place or post at a higher value than the existing sign, then no further action is needed. If the posting values were changed, NBI data updates are required to be made by the load rater per the BIGD.

In addition to the documentation required for situations where existing postings are removed or revised as described above, the final deliverables presented in Section 20.2.1.1 of the LRGD shall also be submitted to the Bridge File, as is customary for each load rating.

Please	direct any	questions	concerning	the a	above	to:
		1				

Michael Baker International

email: SCDOT_LR_Help Desk@listserv.bakerprojects.com

Approved: Rob Porcy June 15, 2023
Chief Engineer for Bridges Date

LRGD Technical Note 01, August 9, 2019

LRGD Technical Note 02, January 17, 2020

LRGD Technical Note 03, June 17, 2020

LRGD Technical Note 04, January 17, 2020

LRGD Technical Note 05, December 17, 2019

LRGD Technical Note 06, July 13, 2021

LRGD Technical Note 07, June 16, 2021



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LRGD Technical Note 08, April 13, 2020

LRGD Technical Note 09, July 13, 2021

LRGD Technical Note 10, October 5, 2020

LRGD Technical Note 11, February 22, 2021

LRGD Technical Note 12, May 25, 2022

LRGD Technical Note 13, August 25, 2021

LRGD Technical Note 14, August 31, 2022

Three-Month Load Rating & Posting Evaluation Calendar

Sunda	ay	Monday		Tuesday		Wednesday	Thursda		Friday		Saturda	ау	
		,		(Day 1) 31		(Day 2) February 1	(Day 3)	2	(Day 4) 3		(Day 5)	4	
BITL BMO Lea		Load Rater ad QA Consultant		Bridge Inspection Completed									
						Submit LR Request (I	Jp to 5 Business Da	ıys)					
(Day 6)	5	(Day 7)	6	(Day 8)	7	(Day 9) 8	(Day 10)	9	(Day 11)	10	(Day 12)	11	
				BMO Receives Loa Request	ad Rating		Begin Load Rating						
		Submit LR Req (Up to 5 Business				pprove LR Request siness Days)	Load	Rating & QO	(Up to 5 Weeks)				
(Day 41)	March 12	(Day 42)	13	(Day 43)	14	(Day 44) 15	(Day 45)	16	(Day 46)	17	(Day 47)	18	
						LRSF Signed & Sealed			Load Rating Files L to ProjectW				
			Lo	ad Rating & QC (Up	to 5 Weel	cs)			ectWise & Notify Le 2 Business Days)	ead QA			
(Day 48)	19	(Day 49)	20	(Day 50)	21	(Day 51) 22	(Day 52)	23	(Day 53)	24	(Day 54)	25	
		Begin QA Proc	ess	Lead QA Consult Notify Load Ra Selected for	ter if								
							Consultant to Perform QA Review (Up to 5 Business Days) ad QA Consultant to Review Posting & Present to BMO						
(Day 55)	26	(Day 56)	27	(Day 57)	28	(Up to 3 Weeks). If po (Day 58) 29					(Day 61)	April 1	
(Day 55)				Lead QA Consult Send Load Rate Comments	tant to er QA	(Ddy 38)	(Day 39)	50	(Day 60)	31	(Day 61)	74511 2	
				Consultant to Perfor Business Days)	rm QA	Selected for QA:	Address QA Comm	ents (Up to	5 Business Days)				
						nsultant to Review Posting &							
(Day 62)	2	(Day 63)	3	(Day 64) QA Comments Ad	dressed	(Day 65) 5	(Day 66)	6	(Day 67)	7	(Day 68)	8	
			Selected for QA: Address Q (Up to 5 Business I		i	Selected for QA:	Backcheck & Appr	oval (Up to	4 Business Days)				
		(3			ead QA Co	nsultant to Review Posting &	Present to BMO (L	Jp to 3 Wee	ks)				
(Day 69)	9	(Day 70)	10	(Day 71)	11	(Day 72) 12	(Day 73)	13	(Day 74)	14	(Day 75)	15	
			QA Process Complete Load Rater to Resubmit Lead QA Consultant QA: Backcheck & Appro	lbmit to			Lead QA Consultant to Present Posting Recommendation. BMO to Evaluate & Make Posting						
		(Up to 4 Business		Review Posting & F	Present to	Decision BMO (Up to 3 Weeks)			lop Posting Docum	entation			
(Day 76)	16	(Day 77)	17	(Day 78)	18	(Day 79) ₁₉	(Day 80)	Up to 5 Bus 20	(Day 81)	21	(Day 82)	22	
						Lead QA Consultant to Present Posting Documentation							
									to Update NBI Data siness Days)				
(D - 02)						n (Up to 5 Business Days)			n (Up to 7 Business				
(Day 83)	23	(Day 84)	24	(Day 85)	25	(Day 86) 26	(Day 87)	27	(Day 88) DOT Signature	28 es &		29	
									Distributio				
				Lead Q	A Consulta	ant to Update NBI Data (Up to	7 Business Days)						
				E	BMO to Si	gn Posting Form (Up to 7 Busi	ness Days)						
	30		May 1		2	3		4		5		6	

Figure 1

Three-Month Load Rating and Posting Evaluation Flowchart

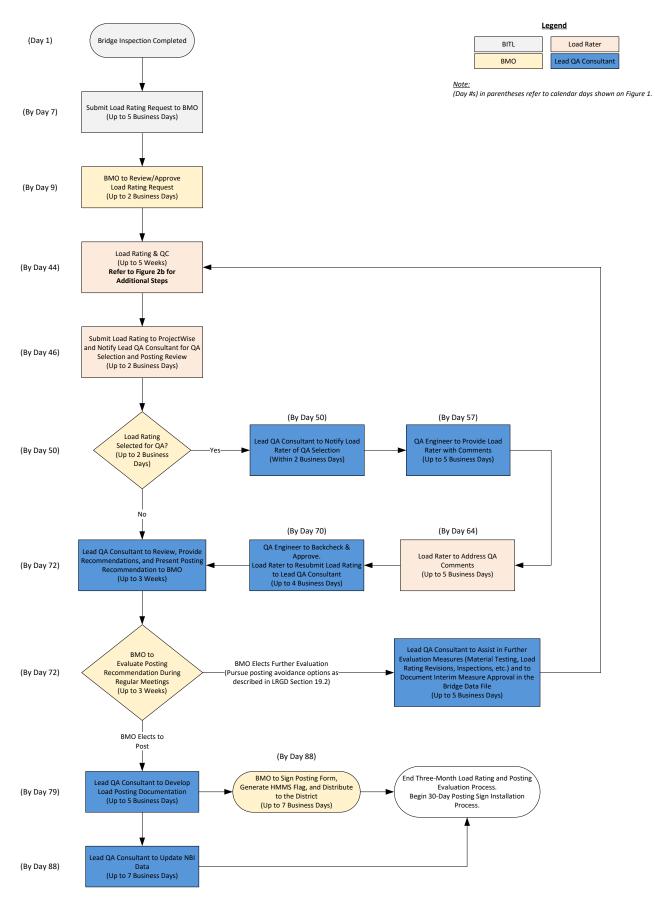


Figure 2a

SCDOT Load Rating Procedure Flowchart

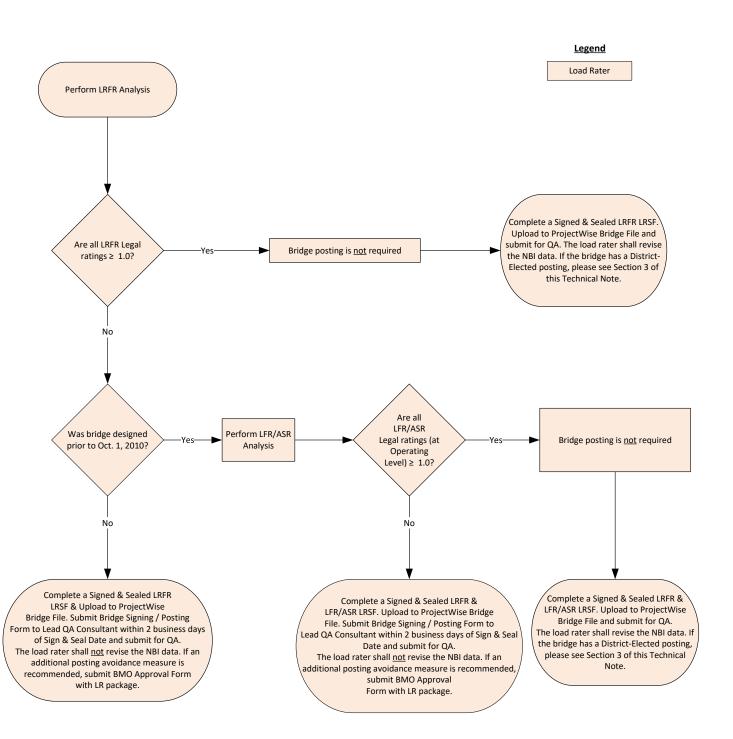


Figure 2b

30-Day Posting Sign Installation Process Calendar (SCDOT Owned Bridges)

Sur	nday	Monda	ıy	Tuesday		Wednesda	y	Thursday		Friday		Saturday	
	April 23		24	·	25		26	<u> </u>	27	(Day 1)	28	(Day 2)	29
BM	Legend C Lead SCDOT Distr	I QA Consultant								SBME Signs Postin	g Form		
(Day 3)	30	(Day 4)	May 1	(Day 5)	2	(Day 6)	3	(Day 7)	4	(Day 8)	5	(Day 9)	6
				BMO ABIPM Receiv Notification of Appro	oval			District Receives P	osting				
				otify ABIPM of Signatur siness Days)	re			d Posting to District iness Days)		Optional District P Reduction / Resci			
(Day 10)	7	(Day 11)	8	(Day 12)	9	(Day 13)	10	(Day 14)	11	(Day 15)	12	(Day 16)	13
				Posting Reduction of Rescission Documente Desired by District	ed (if					District Sign Crew R Posting Form			
				g Reduction / Rescission siness Days)	1	District to [
(Day 17)	14	(Day 18)	15	(Day 19)	16	(Day 20)	17	(Day 21)	18	(Day 22)	19	(Day 23)	20
						to Install Posting Signs (Up to 2 Weeks)							
(Day 24)	21	(Day 25)	22	(Day 26)	23	(Day 27)	24	(Day 28)	25	(Day 29)	26	(Day 30)	27
										Posting Signs Inst (BITL to Completo Inspection & Upda Data within 3 Mor Installation)	e Sign Ite NBI Iths of		
				Di	strict to	o Install Posting Sign	ns (Up to 2	: Weeks)					

Figure 3

30-Day Posting Sign Installation Process Flowchart (SCDOT Owned Bridges)

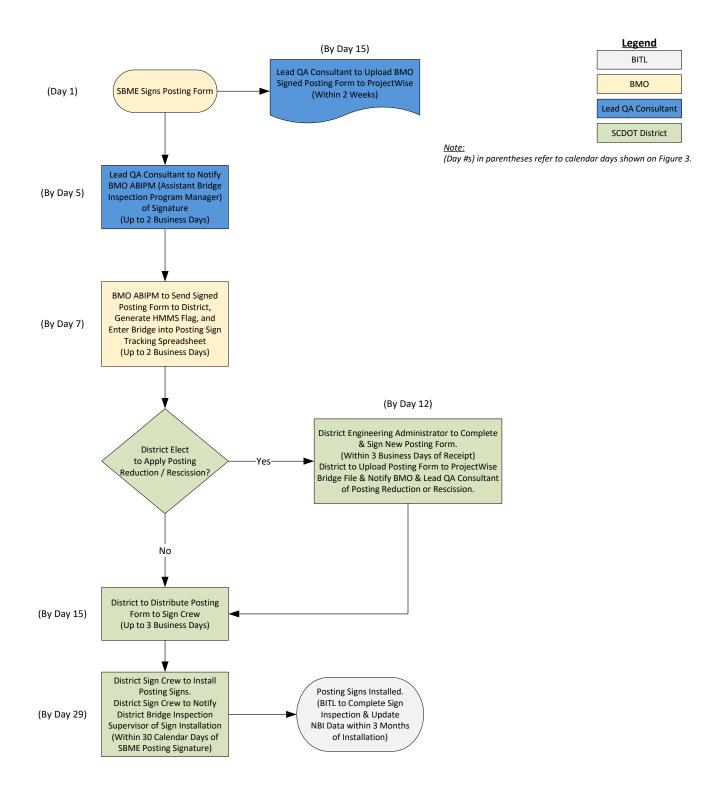


Figure 4

30-Day Posting Sign Installation Process Calendar (Local Agency Owned Bridges)

Sunday		Monda	ау	Tuesday	,	Wednesda	ау	Thursday		Friday		Saturday	
	April 23		24		25		26		27	(Day 1)	28	(Day 2)	29
ВМО		d QA Consultant								SBME Signs Postin	g Form		
SCDOT Distric	ct B	ridge Owner											
(Day 3)	30	(Day 4)	May 1	(Day 5)	2	(Day 6)	3	(Day 7)	4	(Day 8)	5	(Day 9)	6
				BMO ABIPM Re Notification of A				District Receives Po	osting	District to Distri Posting Form to Agency Own	Local		
		Lead QA Cor	nsultant to N (Up to 2 Bus	otify ABIPM of Sign siness Days)	ature			d Posting to District siness Days)		District to Coord Optional Posting Re			
(Day 10)	7	(Day 11)	8	(Day 12)	9	(Day 13)	10	(Day 14)	11	(Day 15)	12	(Day 16)	13
										Posting Reduct Documented (if De Local Agency Ov	sired by		
				District to C	Coordinate	Optional Posting Re	eduction (l	Jp to 6 Business Days)				
(Day 17)	14	(Day 18)	15	(Day 19)	16	(Day 20)	17	(Day 21)	18	(Day 22)	19	(Day 23)	20
					Posting	Signs to be Installe	d (Up to 2	Weeks)					
(Day 24)	21	(Day 25)	22	(Day 26)	23	(Day 27)	24	(Day 28)	25	(Day 29)	26	(Day 30)	27
										Posting Signs Ins (BITL to Complet Inspection & Upda Data within 3 Mo Installation	e Sign ate NBI nths of		
					Posting	Signs to be Installe	d (Up to 2	Weeks)					

Figure 5

30-Day Posting Sign Installation Process Flowchart (Local Agency Owned Bridges)

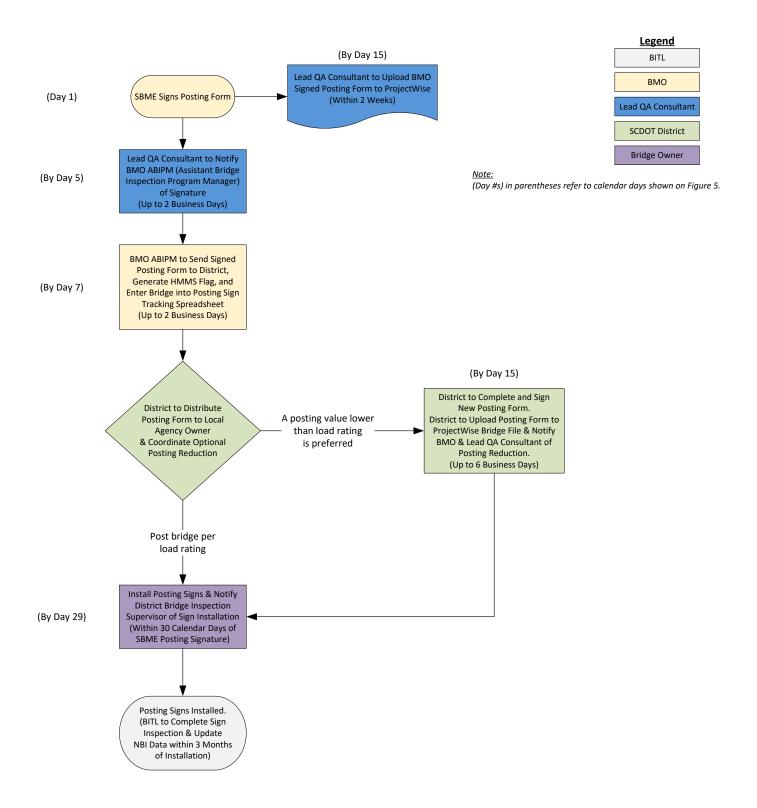


Figure 6