

PBLR EXPECTATIONS

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- PBLR (Preliminary Bridge Layout Review) is a review for bridge projects before any major structural design work is done.

Per TxDOT Bridge Project Development Manual, Ch 4, Section 1

Chapter 4 — *Section 1*
Bridge Plan Review Processes *Preliminary Bridge Layout Review*

- ◆ The layout is submitted to the Bridge Division's PS&E Review Branch for approval.
- ◆ Email the submittal of PBLR folder link in ProjectWise to BRG_PD_PSE@txdot.gov
- ◆ Email Subject: PBLR, CSJ, County
- ◆ The layout is approved when Division review comments are resolved.
- ◆ Begin work on bridge detail sheets only after receiving final approval of the bridge layouts from the Bridge Division.

- Required at 30% to 60% PS&E level.

What is a PBLR Review?

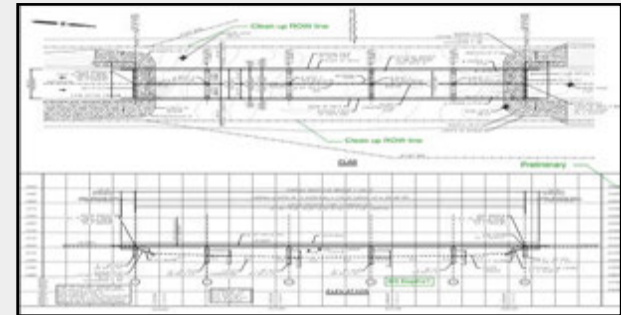
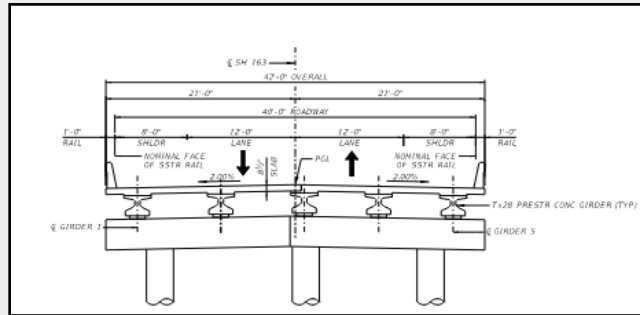


- Steel and spliced girder bridges reviews required at 30%,60%, 90%, 100%.
- This review requires the scour data and hydrology/hydraulics computations.

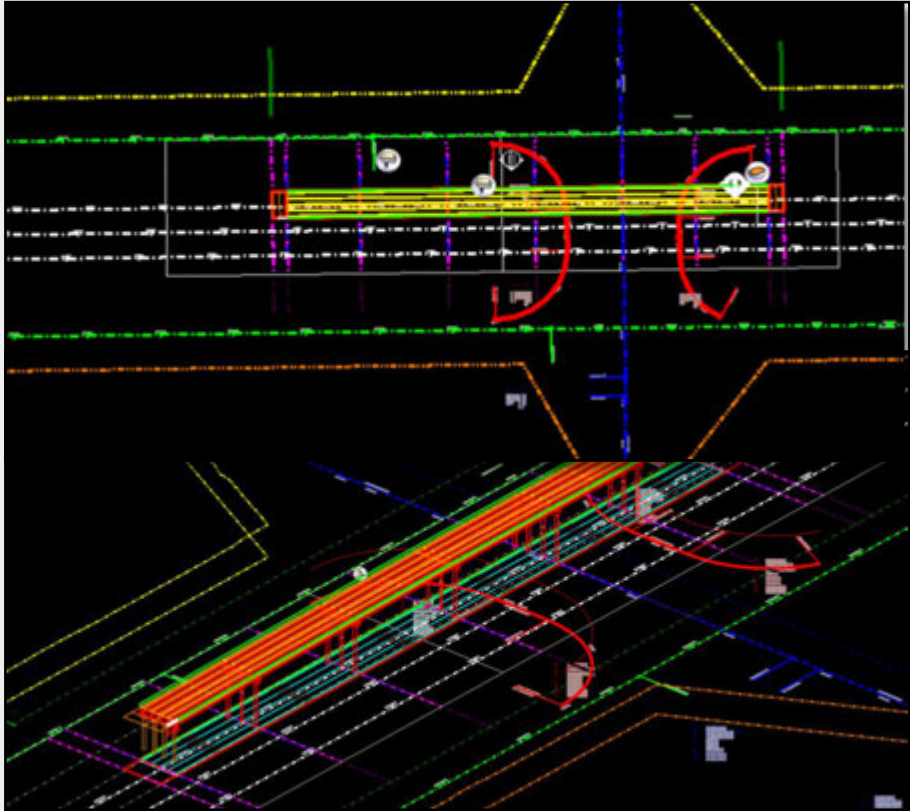
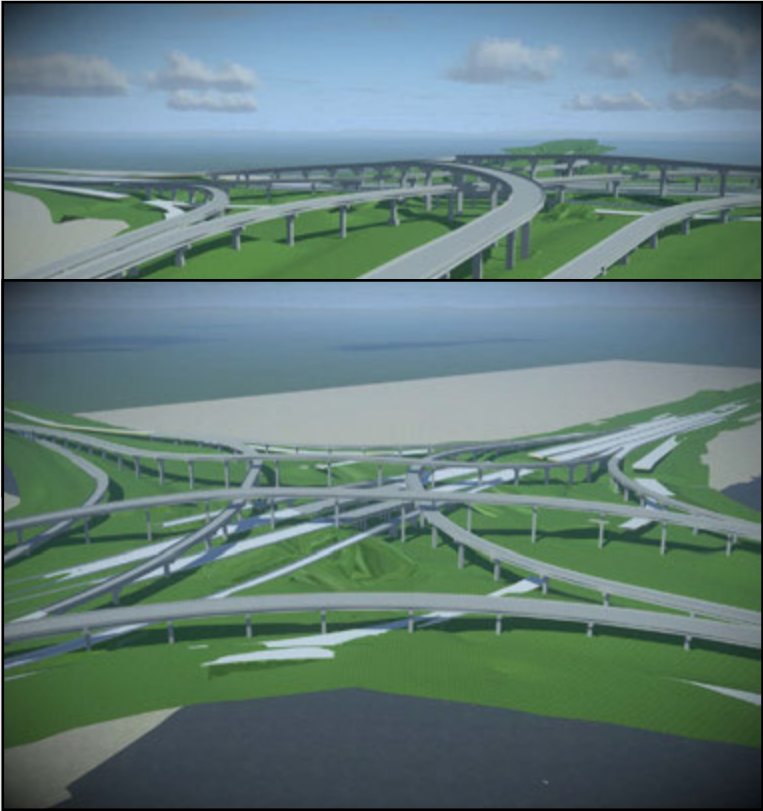




- This package should include:
 - Bridge Layout and transverse sections
 - For phased projects, provide phasing typical sections. (See BDG)
 - Copy of the Bridge 3D Model and associated reference files at time of submittal.
 - Plan and profile sheets of the roadway immediately before and after the bridge.



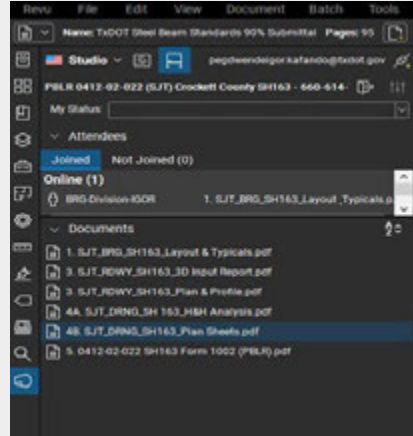
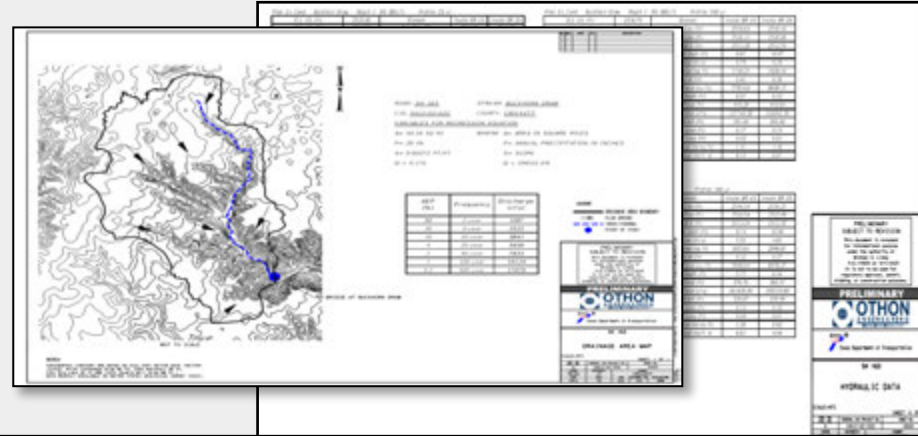
PBLR Package (Continued)



PBLR Package (Continued)



- This package should include:
 - H&H Drainage Analysis Report and any H&H sheets available
 - Form 1002 for bridge work types: New, Replacement, and Widening



P. S. & E. Transmittal Data

Date: _____

This form must be used for PS&E development (Interim 30%-60%-90%+ Reviews and Final PS&E Processing for Letting). It is to be completed for the Controlling CSJ, and should be updated at each stage of PS&E development. (Complete all blanks; state N/A if necessary.)

District: _____ Proposed Letting Date: _____

County: _____ Project: _____

Control: _____ Highway: _____ Length: _____

Limits: _____

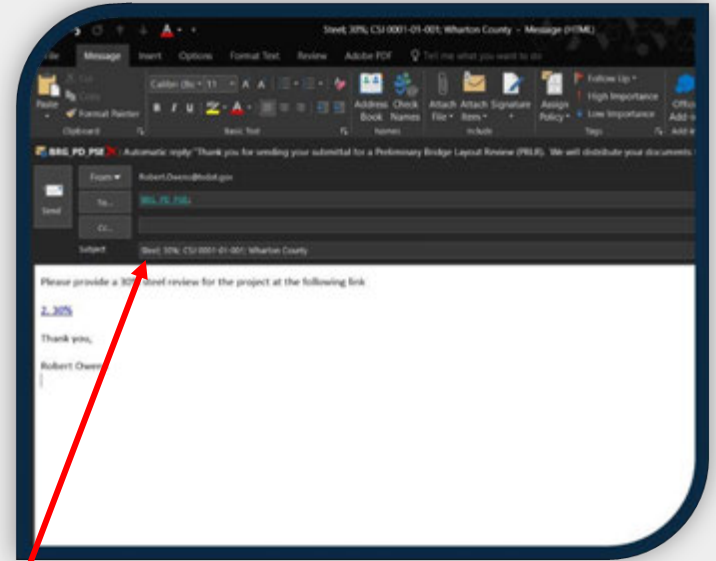
District Contact Person(s): Name: _____ Phone: _____

Name: _____ Phone: _____

PBLR Submittal Process



- Submit to Bridge Management Section of BRG email to BRG_PD_PSE@txdot.gov.
- Copy the Bridge Project Manager and any necessary district personnel.
- The subject of the email should be PBLR CCCC-SS-JJJ (DIST) County RDWY.
- For Steel bridges, the subject line of the email should contain Steel.





- Upon receiving the request from district, the Bridge PM sends an email to the different sections for review depending on the need for review:
 - BRG-DES, Bridge Design: Reviews all PBLRs
 - BRG-GEO, Geotechnical: Reviews all PBLRs
 - BRG-CM, Construction & Maintenance: Reviews PBLRs with developed bridge details
 - DES-PDS, Project Development Section: Reviews all PBLRs
 - DES-HH, Hydraulics: Reviews PBLRs that span over water
 - BRG-BMS, Bridge Management Section: Reviews all PBLRs
 - Others, if required



- The email sent to each section contains the link to the BlueBeam session and the ProjectWise link to bridge layout and necessary documents.
- PBLR request table

Submittal Type:	PBLR	District :	TYL
Funding Cat:	CAT 6	(County) Project CSJ/ Facility Carried @ Feature Crossed:	ID 814: (Smith) CSJ 0910-16--157: CR 336 @ Wiggins Creek
Due Date:	5/18/2023		ID 815: (Smith) CSJ 0910-16-159: CR 411 @ Prairie Creek Trib
Reviewed By:	DD		ID 816: (Smith) CSJ 0910-16-160: CR 471 @ Prairie Creek
Discipline/Office:	BRG		ID 817: (Smith) CSJ 0910-16-161: CR 452 @ Mill Creek
Bridge Designer:	Consultant		ID 818: (Smith) CSJ 0910-16-170: CR 411 @ Caney Creek
Scheduled Let:	7/6/2023	Structure NBI/ Bridge Work/Bridge Type/ Bridge Length/ # of spans:	ID 814: 10-212-0-AA03-36-101/ Replace/ GPITx28/60'/1 span
RTL Date:	4/1/2023		ID 815: 10-212-0-AA04-11-101/ Replace/ PCSB(5SB15)/50'/1 span
			ID 816: 10-212-0-AA04-71-101/ Replace/ GPITx28/70'/1 span
			ID 817: 10-212-0-AA04-52-101/ Replace/ GPITx28/70'/1 span
			ID 818: 10-212-0-AA04-11-102/ Replace/ PCSB(5SB15)/45'/1 span



- PBLR Review Time:
 - Contact BRG Project Manager if PBLR submittal have more than 12 bridges or shorter time is required.
 - Complexity of bridges might require more time for review.

Table 2-2: PBLR Timetable	
No. of Bridge Layouts	Review Time Needed
1 - 3	2 Weeks
4 - 7	3 Weeks
8 - 12	4 Weeks
More than 12	Contact the Bridge Management Section

Please Note: The timetable shown above is for initial Division comments ONLY and does not include the timeline for comment resolution



- Section 2.3 the level of review for each section.....

2.3.4. Design Division - Hydraulics Section

Some of the typical Hydraulics Section items that are reviewed for a preliminary bridge or bridge class culvert layout are:

H&H Drainage Analysis Report

- See example Hydraulic Report Outline for items that should be included in the report.
https://tntoday.dot.state.tx.us/des/Pages/HH_Resources_Examples.aspx

H&H Plan sheets (if available), Drainage Area/Hydrology Sheet, Hydraulic Data Sheet and Bridge/Bridge Class Culvert Layout Sheet

- Show delineation of drainage area
- Show Flow calculations/methodology
- Hydraulic computations Table shows Existing vs Proposed WSEL's and velocities for design and 100 year check
- Cross-section location map with flow direction
- FEMA Designation noted, which includes the zone, map number and effective date
- Floodplain Administrator coordination noted
- Model convergence upstream and downstream (existing & Proposed WSEL's match)
- Datum and any adjustments used are noted
- Hydraulic references (models, studies, etc) noted.
- The latest version of HEC-RAS software version 5.0.7 is used, unless there is a reason for using older version.
- Tailwater documented
- Proposed Headwater upstream of bridge labeled for design storm and 100 year check.
- Proposed tailwater and headwater of bridge class culvert labeled for design storm and 100 year check.
- Piers are not placed in middle of channel
- Bents parallel to streamline
- Hydraulic data shown on bridge layout sheet is consistent with data shown on hydraulic data sheet.
- Stream profile of crossing (optional)
- Proposed/Existing Stream Cross-Section at Structure (optional)



- Section 2.3 the level of review for each section.

2.3.3. Design Division – Project Development Support Section

Detailed guidance of the review is contained in PBLR Checklist.

Some of the typical Project Development Support Section items that are reviewed for a preliminary bridge or bridge class culvert layout are:

- Verify that bridge design is consistent with the approach roadway
- Superelevation Rates/ Radii
- K – values
- Grades
- Vertical Clearance
- Lane, shoulder, and sidewalks widths
- Cross Slopes
- Bridge Approach width and length
- Verify NBI, Functional Class, and Design Speed
- Verify Construction Phasing Typical Sections
- Rail and Handrails, length, types and offsets
- Verify that the 3D Roadway Corridor matches all mentioned above.

2.3.2. Bridge Division - Bridge Field Operations Section – Geotechnical Branch Review

Some of the typical Bridge Field Operations - Geotechnical Branch items that are reviewed for a preliminary bridge layout are:

- Boring spacing, depth, and location
- Appropriateness of foundation type and size
- Conflicts between the proposed foundations and existing foundations, utilities, or other structures
- Retaining wall selection, location, general stability, and interaction with other structure(s)
- Embankment slope, slope protection, and general stability

2.3.1. Bridge Division - Bridge Design Section Review

Some of the typical Bridge Design Section items that are reviewed for a preliminary bridge layout are:

- Span lengths correlate with beam types
- Grade and cross-slope seem sufficient for bridge type
- Bridge geometry sufficient for superstructure type
- Consistent with Bridge Layout Checklist in the most recent TxDOT Bridge Detailing Guide
- Foundation size seems appropriate according to typical design practices
- Identify any discrepancies between roadway information and bridge layout
- Bent stations seem accurate for span lengths
- Rail type sufficient for design speed
- Utility conflicts at bents
- Phasing or widening – constructability
- Horizontal and vertical clearances
- Drainage considerations
- Stream Flow considerations
- Verify the geometry in the 3D model matches all mentioned above

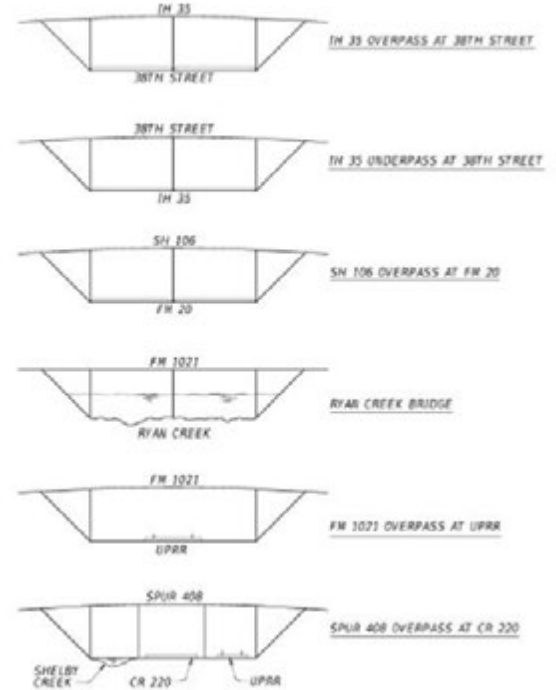
PBLR Level of Review (Continued)



- TXDOT Bridge Detailing Guide (BDG) Chapter 8 provides a more in-depth list of review items for the bridge design review.

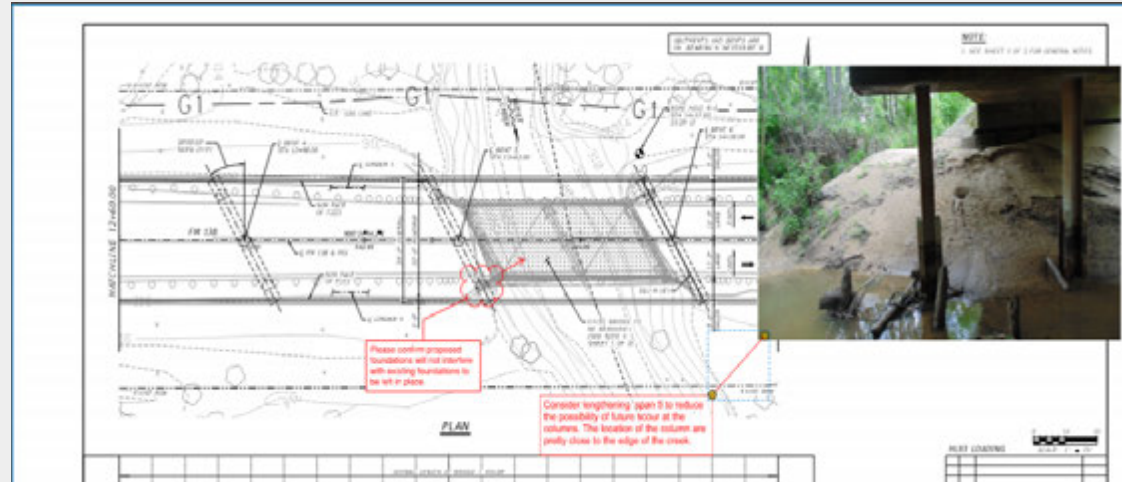
Proper Titles for Bridge Layouts

For bridges crossing a travel way (one that does not cross a body of water), the naming convention is based on the hierarchy of the two intersecting travel ways. Refer to Chapter 2, Section 2, for the hierarchy of Texas highways.



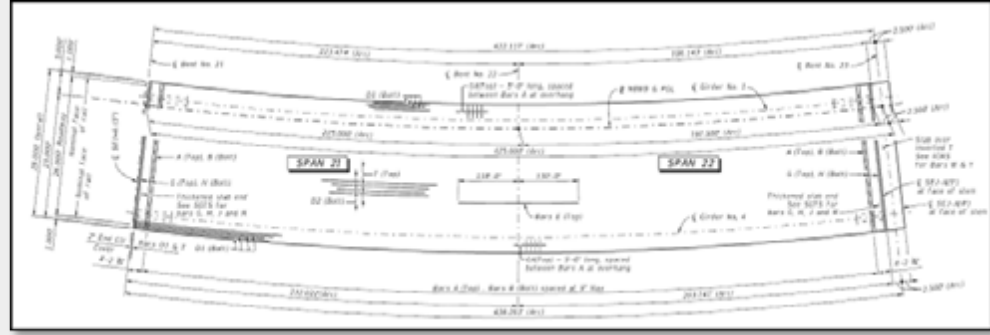


- Common things to verify:
 - In case of replacement verify that bridge limits are reasonable.
 - Review proposed vs existing foundation conflicts.
 - Maximize span lengths to reduce substructure footprint in streams.
 - Simplify bridge geometry.
 - Verify shoring requirement in phased construction.





- Steel Bridge Review Issues:
 - Span configuration
 - Section depth
 - Location conditions for erection





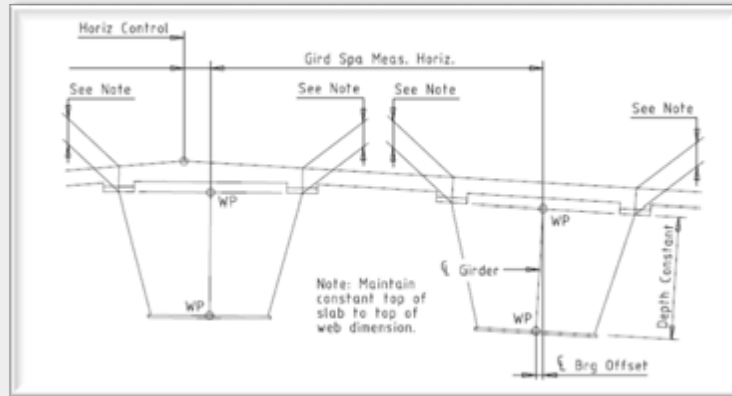
- Steel Bridge Review Issues:
 - Verify shoring requirement in phased construction.
 - Avoid Costly fabrication details





■ Steel Bridge Review Issues:

- In most consultant contracts full bridge structural details aren't required until the 90% submittal.
- Encourage consultants to include more detail in the 60% submittal.
- Prior to 60%, verify that 30% and PBLR comments were addressed and resolved



PBLR Level of Review (Continued)



- The reviewers provide comments on the package in the Bluebeam session.
- Submit PBLR comments to District and BM section for review via Bluebeam software.
- Districts and consultants provide responses to the comments.
- When the responses are deemed acceptable by the Division reviewers then the BRG PM approves the bridge layout/s.

The screenshot displays the Bluebeam software interface, specifically the Markups List window. The window title is "DES-HYD-MT: Edited General Comment (Was a validation method used? If so please include in either findings or conclusion.)". The interface includes a search bar, a filter list, and a table of markups. The table has columns for Subject, Page Label, Comments, Author, Date, Status, Color, Layer, and Space. The table contains several rows of data, including a callout for page 17 and a general comment for page 13.

Subject	Page Label	Comments	Author	Date	Status	Color	Layer	Space
Callout	17	Please confirm existing NBI. Bridge database shows this NBI is in Kaufman Co. but we're looking at a project in Denton Co. NBI at this location appears to be 180610131001012.	BRG-GEOT-AB	1/3/2024 12:35:23 ...		■		
General Comment	13	Recommended to include flow path lines for time of concentration.	DES-HYD-MT	1/5/2024 6:08:51 PM		■		
Callout	14	Why was newer version of software not used?	DES-HYD-MT	1/3/2024 11:32:21 ...		■		
Callout	14	This version is inconsistent with the version listed on in the Notes section.	DES-HYD-MT	1/3/2024 11:37:14 ...		■		



- PBLR approval time can be considered as the minimum time required for initial review plus the time needed for comments resolution.
- A flattened PDF of the approved drawing will be saved in the subfolder in the Plan Review folder in ProjectWise.
- Once approved, the BRG PM will send an approval email to the district with the location of the approved documents.



- TXDOT Bridge Detailing Guide
- Bridge Project Development Manual-2023
- Guidance from District if any.



Bridge Project Development Manual

Bridge Division
August 2023



BRIDGE DETAILING GUIDE

April 2022
BRIDGE DIVISION

Important Document for PBLR Review



- [TXDOT Bridge Design Manual](#)
- [NSBA \(National Steel Bridge Alliance\) Documents](#)
- [TxDOT Steel Preferred Practices for Steel Design](#)
- Steel Girder Bridge Design Checklist (soon to be published)

