Bridge Layouts & PBLR Requirements

Hunter Walton, P.E., TxDOT Bridge Division

Texas Department of Transportation

July 10, 2024

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Welcome to Bridge Briefings

We will begin at 11:30 AM

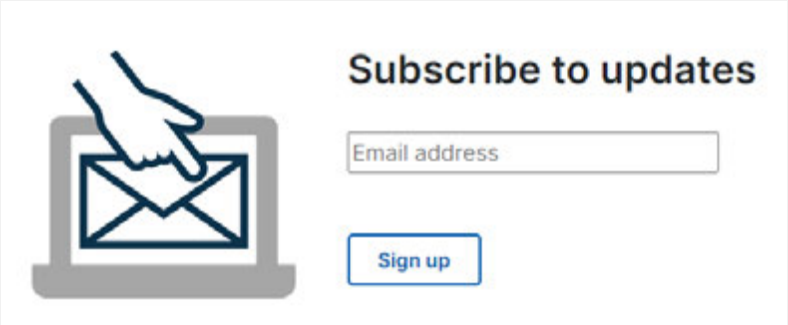
Reminders

- Place questions in the Q&A box for us to answer at the end
- Slides will be posted on the Bridge Website:

  https://www.txdot.gov/business/resources/highway/bridge/webinar-presentations/bridge-briefings.html

- Please sign up for updates here:

  https://www.txdot.gov/about/divisions/bridge-division.html



PDH

- Please remember Bridge Division does not provide documentation for TX Board PDH approval. Each engineer should exercise personal judgement when counting webinar topics for their professional development hours. For more info on what qualifies for Continuing Education, please visit https://pels.texas.gov/CEPInfo.htm

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Schematics 101

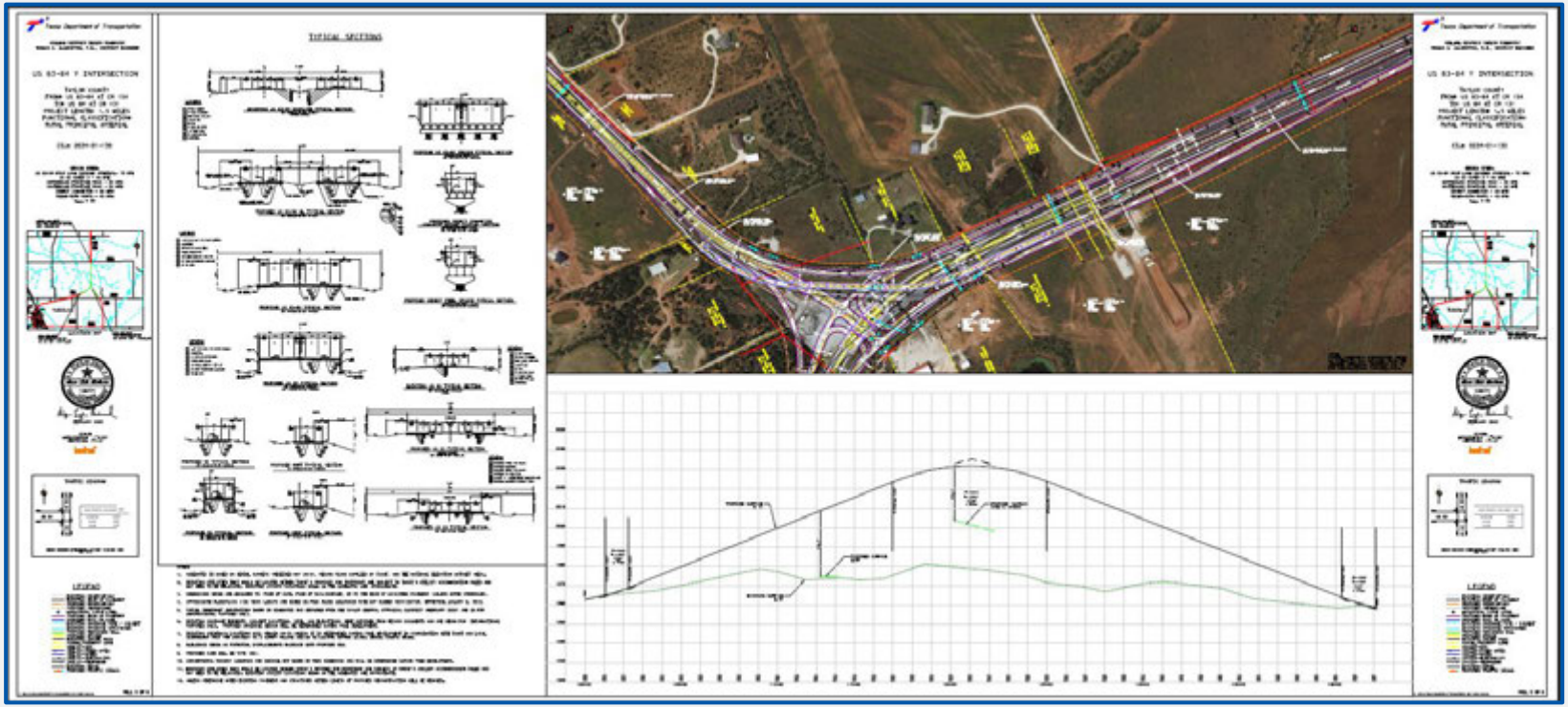
What is a schematic?

- It precedes Bridge Layouts
- Should be able to stand alone, even if part of a larger project
- Includes Roadway Alignment, Profile and Typical Sections
- Includes bridge limits and estimated structure depths/types
- Must be submitted to the Design Division for review

See the Roadway Design Manual, Chapter 1, Section 3 for specific schematic requirements. Available on TxDOT Online Manuals Here or search "Roadway Design Manual" at onlinemanuals.txdot.gov

See the Project Development Process Manual, Chapter 2, Section 4 for specific schematic requirements. Available on TxDOT Online Manuals Here or search "Project Development Process Manual" at onlinemanuals.txdot.gov

Schematics 101 - Example Schematic Sheet



Schematic Resources

Span Lengths & Approximate Structure Depths

- AASHTO Bridge Design Specifications summarize approximate structure Depths

Table 2.5.2.6.3-1—Traditional Minimum Depths for Constant Depth Superstructures

Superstructure		Minimum Depth (Including Deck) When variable depth members are used, values may be adjusted to account for changes in relative stiffness of positive and negative moment sections	
Material	Type	Simple Spans	Continuous Spans
Reinforced Concrete	Slabs with main reinforcement parallel to traffic	$\frac{1.2(S+10)}{30}$	$\frac{S+10}{30} \geq 0.54$ ft.
	T-beams	$0.070L$	$0.065L$
	Box Beams	$0.060L$	$0.055L$
	Pedestrian Structure Beams	$0.035L$	$0.033L$
Prestressed Concrete	Slabs	$0.030L \geq 6.5$ in.	$0.027L \geq 6.5$ in.
	CIP Box Beams	$0.045L$	$0.040L$
	Precast I-beams	$0.045L$	$0.040L$
	Pedestrian Structure Beams	$0.033L$	$0.030L$
	Adjacent Box Beams	$0.030L$	$0.025L$
Steel	Overall Depth of Composite I-beam	$0.040L$	$0.032L$
	Depth of I-beam Portion of Composite I-beam	$0.033L$	$0.027L$
	Trusses	$0.100L$	$0.100L$

Schematic Resources

Vertical Clearances

- TxDOT Roadway Design Manual Provides Required Clearances in Table 2-11

Table 2-11. Vertical Clearance Requirements[1]

Functional Classification	Vehicle Overpasses[2] (ft)	Overhead Sign Structures and Bicycle / Pedestrian Overpasses (ft)
Local/Collector/Arterial	16.5[3]	17.5
Freeway[4]	16.5	17.5
Texas Highway Freight Network (THFN)[5]	18.5	19.5

Notes:

1. Vertical clearance requirements include an additional 0.5-ft. to accommodate future resurfacing as required by AASHTO's *A Policy on Geometric Design of Highways and Streets*.
2. Intersecting roadway goes over the functionally classified roadway.
3. Exceptional cases near as practical to 16.5 ft but never less than 14.5 ft.
4. See Chapter 3, Section 6 for additional vertical clearance guidance on freeways.
5. Additional vertical clearance requirements if project criteria specified in Ch. 3, Section 8 are met.

Schematic Resources

Horizontal Clearances (Clear Zone)

- TxDOT Roadway Design Manual Provides Required Clearances in Table 2-12

Notes:
1. Devices such as traffic signal supports, railroad signal/warning device supports, and controller cabinets must be located as far from travel lanes as feasible. If not feasible to place outside of the clear zone, these devices may be excluded from clear zone requirements. Other non-breakaway devices must be located outside the prescribed clear zone or these devices must be protected with barrier.
2. Average ADT over project life (i.e., 0.5 x (present ADT plus future ADT)). Use total ADT on two-way roadways and directional ADT on one-way roadways.
3. Without barrier or other safety treatment of appurtenances.
4. Measured from edge of travel lane for all cut sections and for all fill sections where side slopes are 1V:4H or flatter. Where fill slopes are steeper than 1V:4H it is desirable to provide a 10 ft area free of obstacles beyond the toe of slope.
5. Desirable, rather than minimum, values should be used where feasible.
6. Purchase of 5-ft or less of additional right-of-way strictly for satisfying clear zone provisions is not required.
7. For curbed facilities with a shoulder, bike lane or any buffer in addition to the curb offset, the minimum measurement begins at the edge of the through travel lane. The clear zone criteria is met if either 10-ft from the through travel lane or the distance measured from the FOC is met.

Table 2-12: 4R Clear Zones

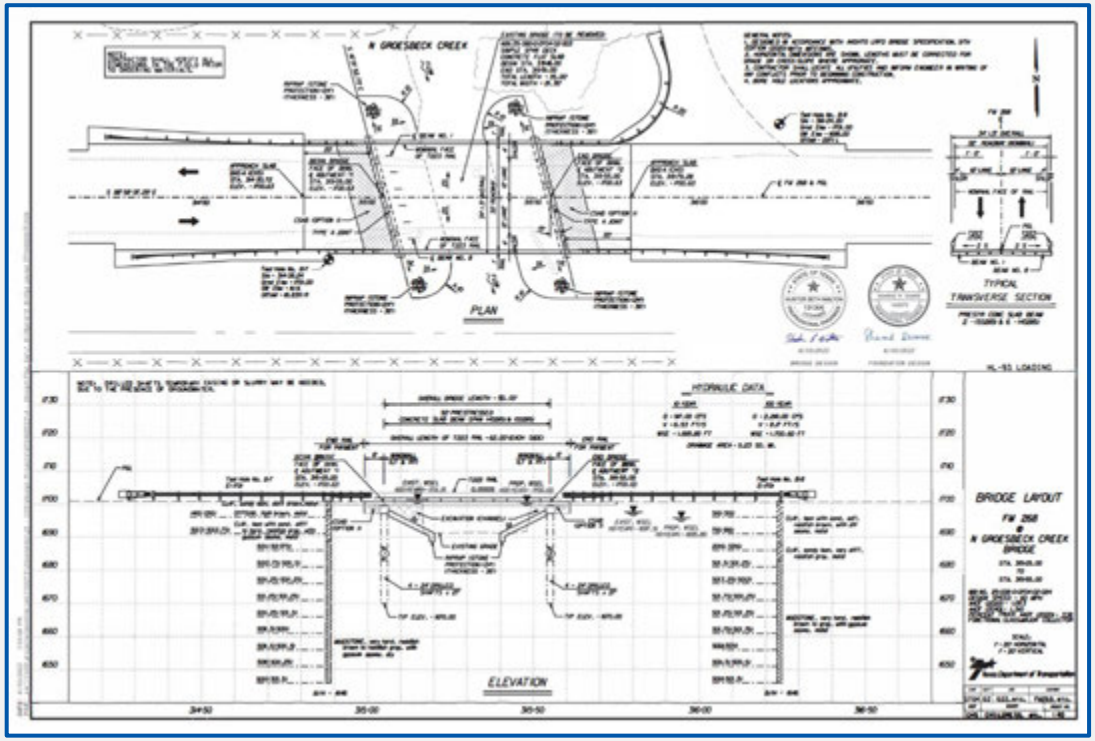
Location	Functional Classification	Design Speed (mph)	Avg. Daily Traffic[2]	Clear Zone Width (ft)[1,3,4,5]	
-	-	-	-	Minimum	Desirable
Rural	Freeways	All	All	30 (16 for ramps)	
Rural	Arterial	All	≤ 750 ≥ 750	16 30	30 --
Rural	Collector	≥ 50	All	Use above rural arterial criteria.	
Rural	Collector	≤ 45	All	10	--
Rural	Local	All	All	10	--
Suburban	All	All	< 8,000	10[6]	10[6]
Suburban	All	All	8,000 - 12,000	10[6]	20[6]
Suburban	All	All	12,000 - 16,000	10[6]	25[6]
Suburban	All	All	>16,000	20[6]	30[6]
Urban	Freeways	All	All	30 (16 for ramps and collector-distributor)	
Urban	All (Curbed)	≥ 50	All	Use above suburban criteria insofar as available border width permits.	
Urban	All (Curbed)[7]	≤ 45	All	4 from FOC	6 from FOC
Urban	All (Uncurbed)	≥ 50	All	Use above suburban criteria.	
Urban	All (Uncurbed)	≤ 45	All	10[6]	--

Bridge Layouts

- Typically follow Schematics in the review and development process
- Tells an overall picture
- Must be submitted to Bridge Division for Review at 30% (PBLR)
- Provides a general summary of the bridge and its components as well as the Contractor's Scope of Work
- Helps with estimating cost and developing bids
- Helps identify other plan sheets needed in bridge design package
  - Design Details
  - Standards

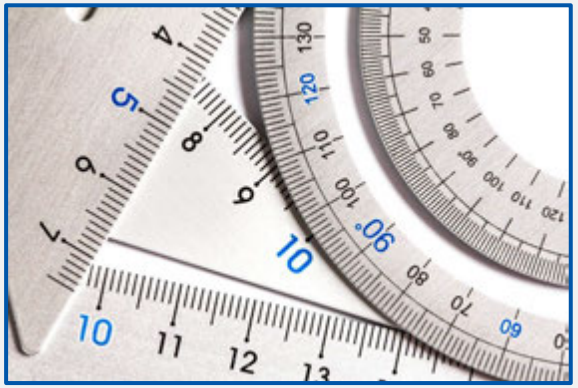
Bridge Layouts - Example Bridge Layout

- Geometry
  - Alignment
  - Profile
  - Bridge Limits
  - Skew
- Structure Components
  - Superstructure Type
  - Substructure Locations
  - Bridge Rails
- Clearances
- Hydraulics (as applicable)

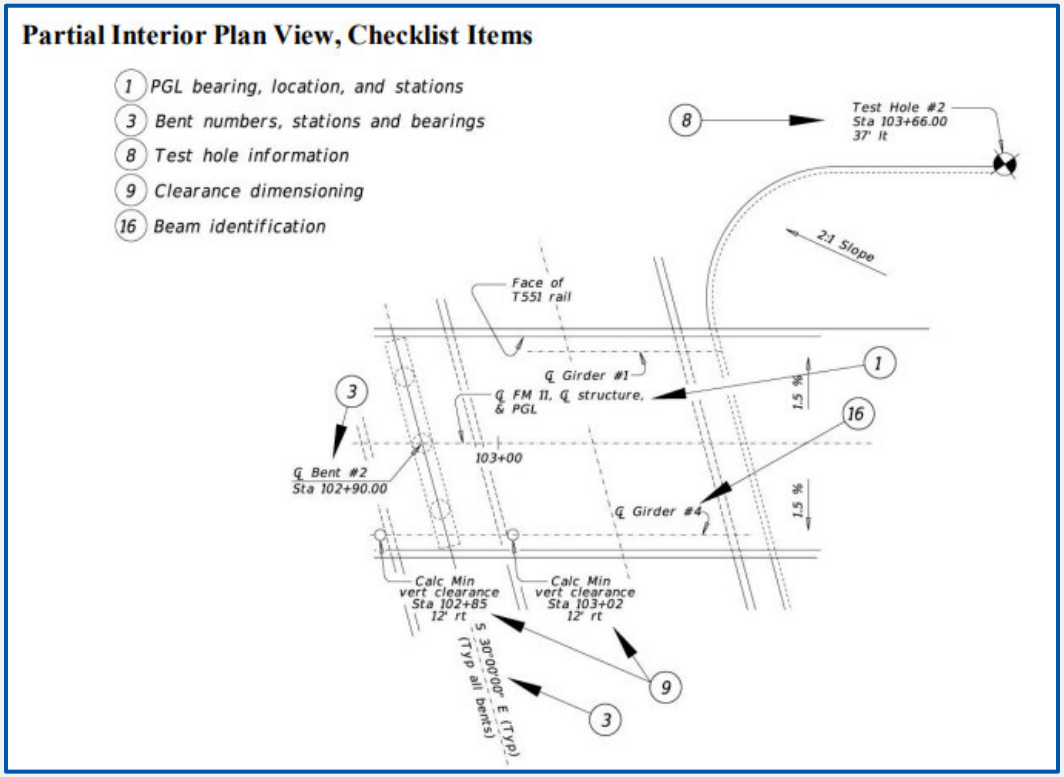


Bridge Layouts

- Minimum Required Details
  - Plan View – Ascending Stations from Left to Right
    - Bridge Class Culverts are an exception
  - Elevation View – Section along the PGL or Control Line
  - Typical Transverse Section – Superstructure only*
- Scale – Match Vertical and Horizontal **(DO NOT MIX)**
  - 1″ = 20′
  - 1″ = 40′
- Dimensions
  - Elevation view lengths to nearest 0.01′
  - Plan view & Typical Sections to Feet and Inches to nearest ¼″
  - Piling and Drilled Shaft Lengths and Column Heights rounded up to next whole foot
  - Stations and Elevations to nearest 0.01′



Bridge Layouts

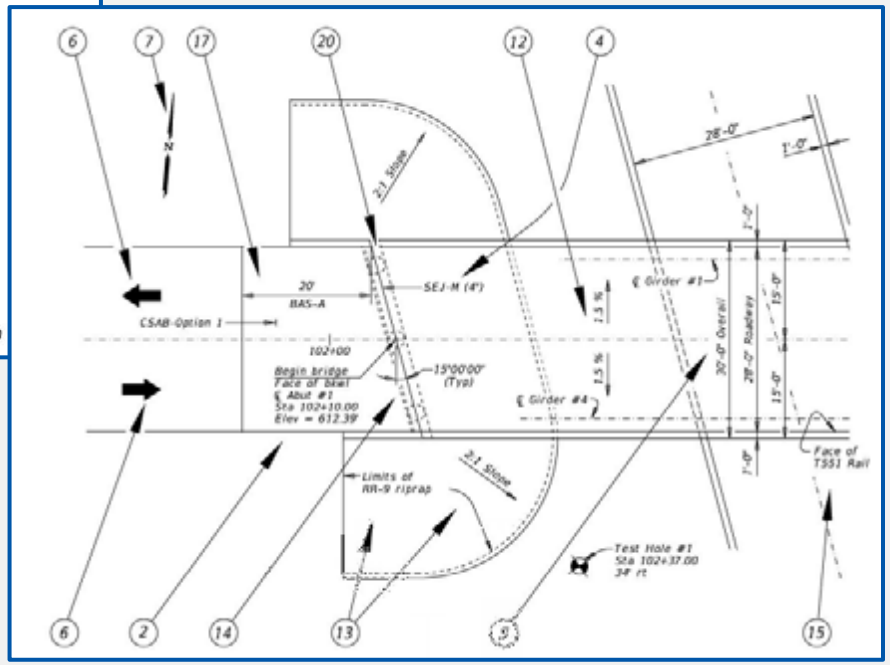


- Consistency in labeling
- Vertical & Horizontal Clearances
- Exterior Beam/Girder Numbering
- When multiple sheets are required, provide reasonable Match Line positioning to provide clear details

Bridge Layouts

Partial End Plan View, Checklist Items

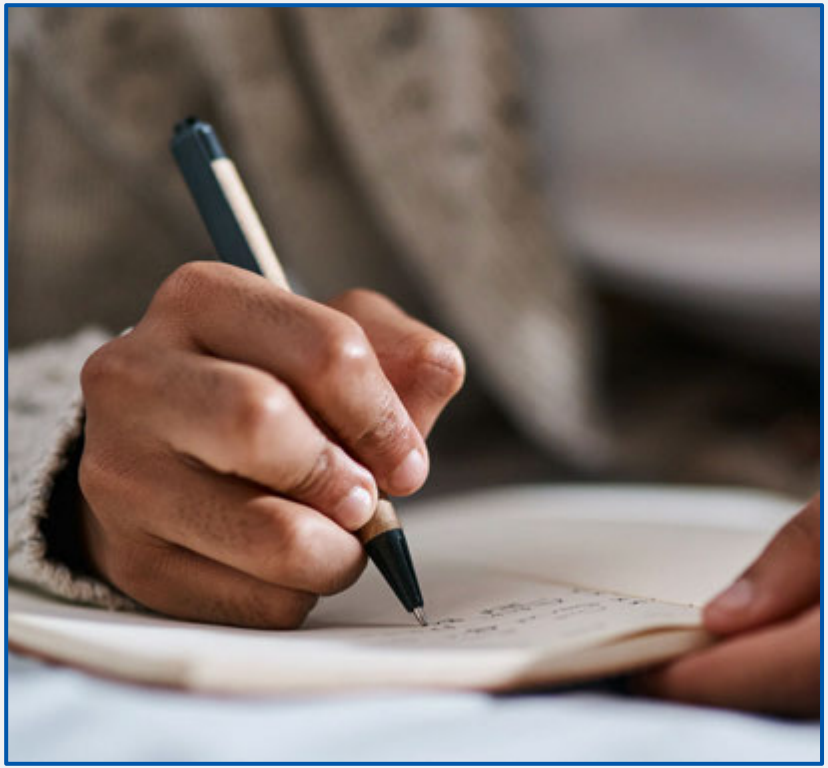
- (2) Begin bridge information
- (4) Deck joint information
- (5) Structure widths
- (6) Traffic direction
- (7) North arrow
- (12) Cross slope
- (13) Riprap information
- (14) Skew angle
- (15) Railing information
- (17) Approach information
- (20) Foundation type and location



- Identify Rip-rap slope and limits
  - Identify Retaining Walls with labeling consistent to Wall Plans & Details
- Include details of existing structures in bridge replacements
  - Existing NBI
  - Structure Description
  - Removal Limits

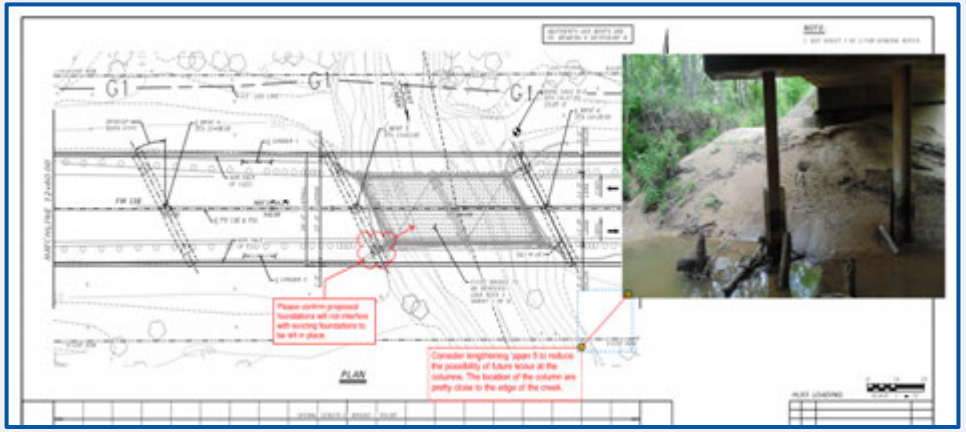
Bridge Layouts

- Provide General Notes on Bridge Layout
- Notes are specific to Bridge
  - Not the general project notes
- See the TxDOT Bridge Detailing Guide, Ch 8, Section 10 for example general notes



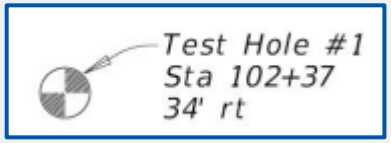
Bridge Layouts

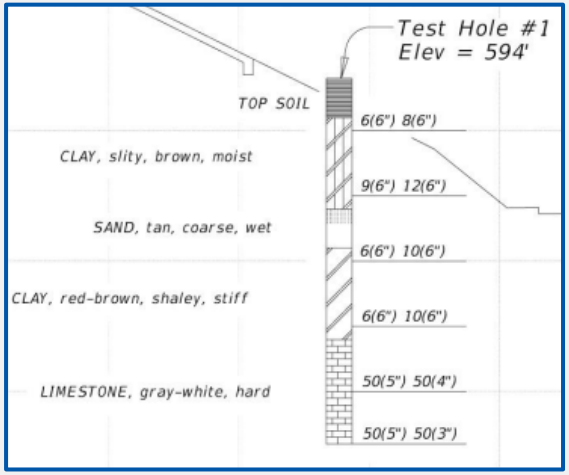
- When replacing structures, verify bridge limits are reasonable
- Verify foundation conflicts
- Optimize span lengths to reduce substructure footprint in streams
- Simplify bridge geometry
- Identify temporary shoring requirement in phased construction



Bridge Layouts

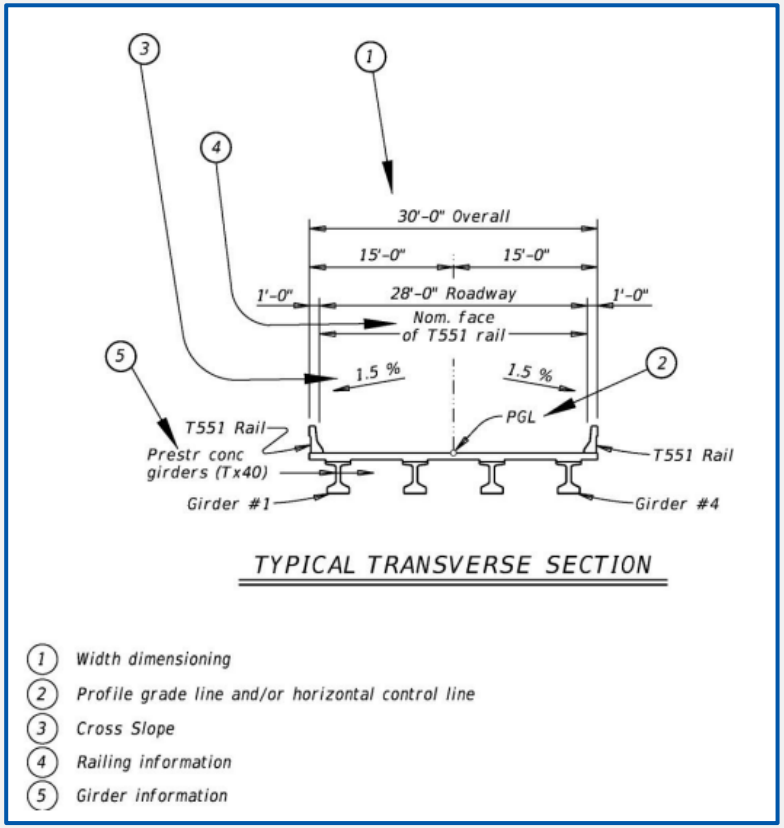
- Identify Test Holes in Plan View with Station and Offset
- Ideally detail test holes in elevation view, at the correct elevation and scale
  - If this cannot be detailed to scale or interferes with other required detailing, provide a Test Hole Profile sheet per the following versions
    - Form #1: A vertical only bridge elevation sheet with scale exaggerated as needed to show soil strata in relationship to foundations
    - Form #2: Superimposed on a separate sheet on a vertical only scale
    - Form #3: Wincore PDF reports rasterized and placed on plan sheets
    - Verify labeling matches bridge layout plan location information for Form #2 & #3



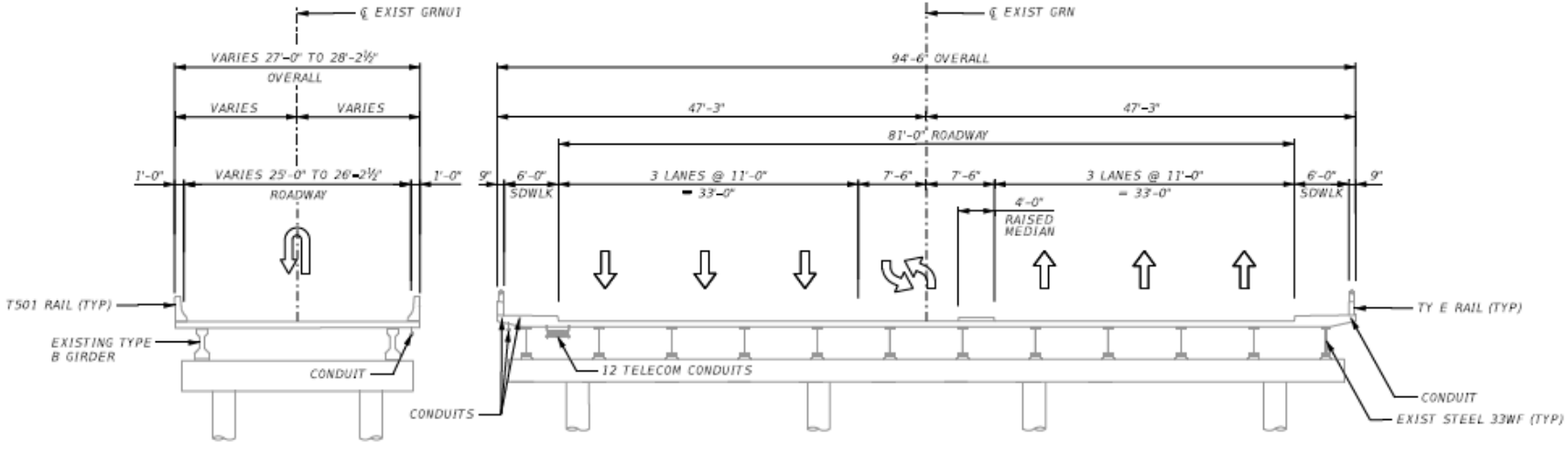


Bridge Layouts

- Typical Section may be provided on Bridge Layout Sheets
  - Wide bridges typically require separate sheets
- Phased Construction requires separate sheets, detailing the following:
  - Existing Typical Section
  - Each stage of phasing
    - Demolition and construction may be shown in a single stage
  - Final Typical Section

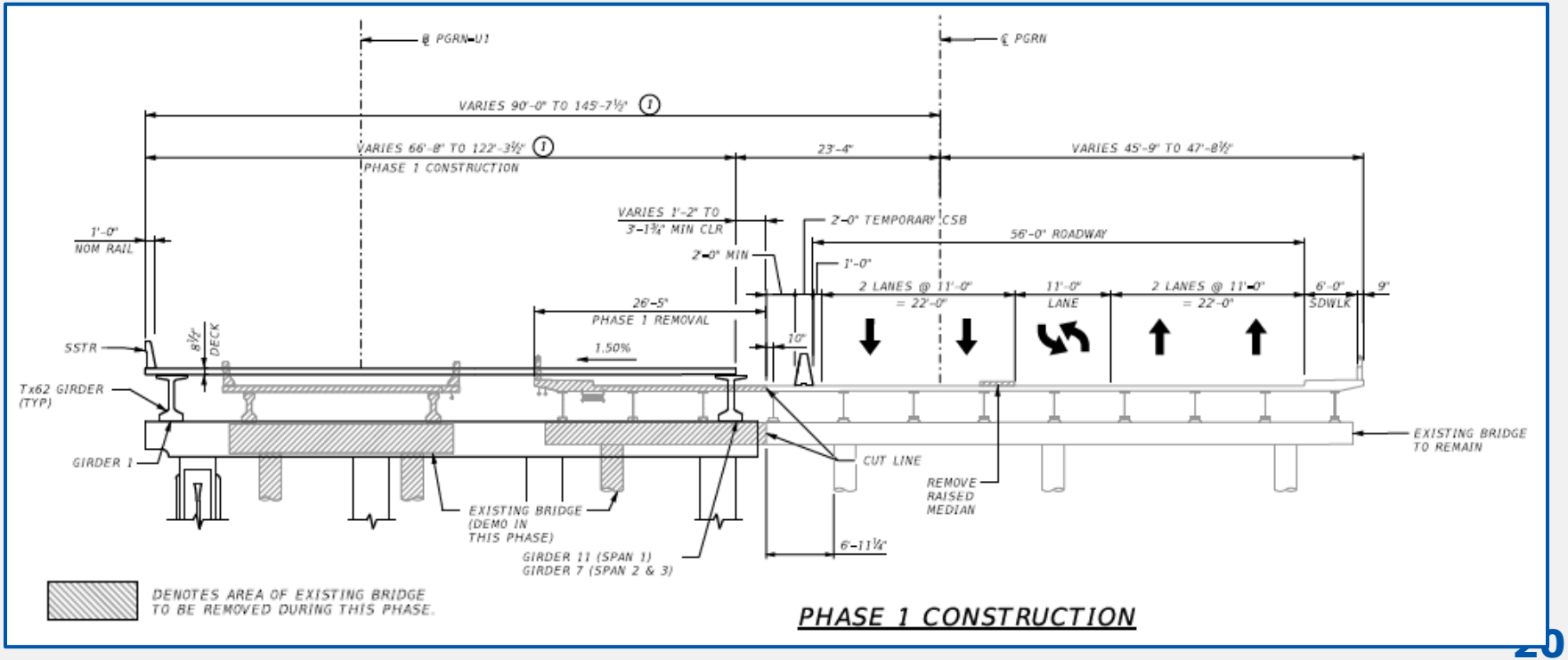


Bridge Layouts – Example Phasing Sections

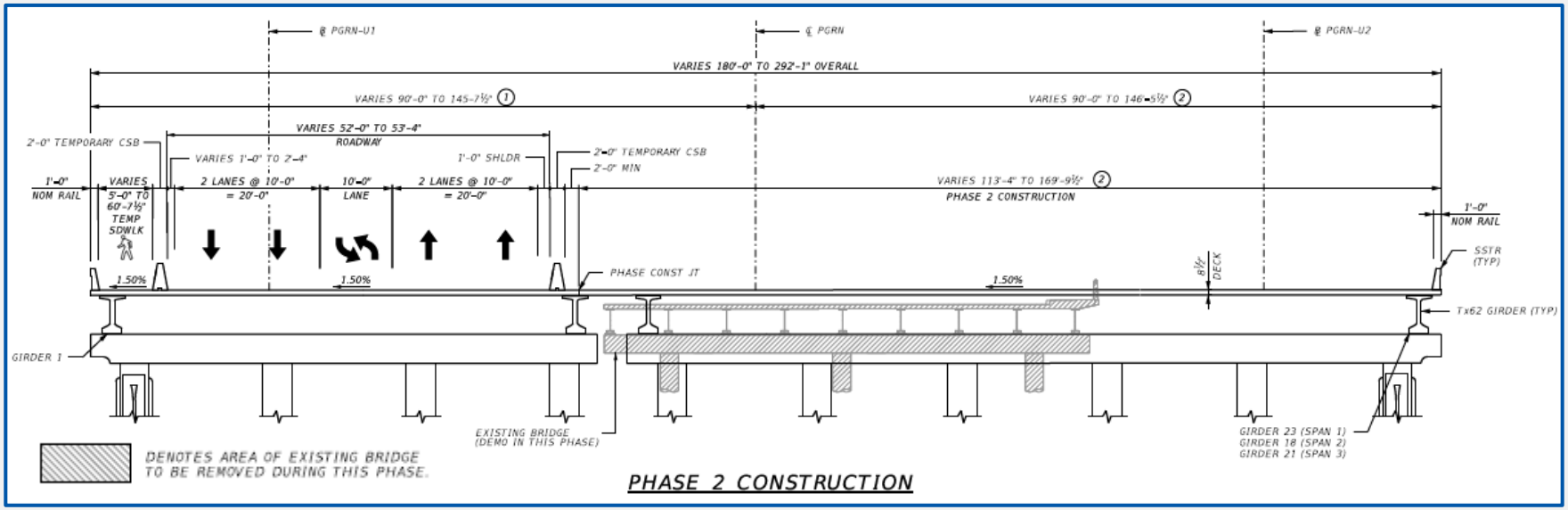


EXISTING TYPICAL SECTION

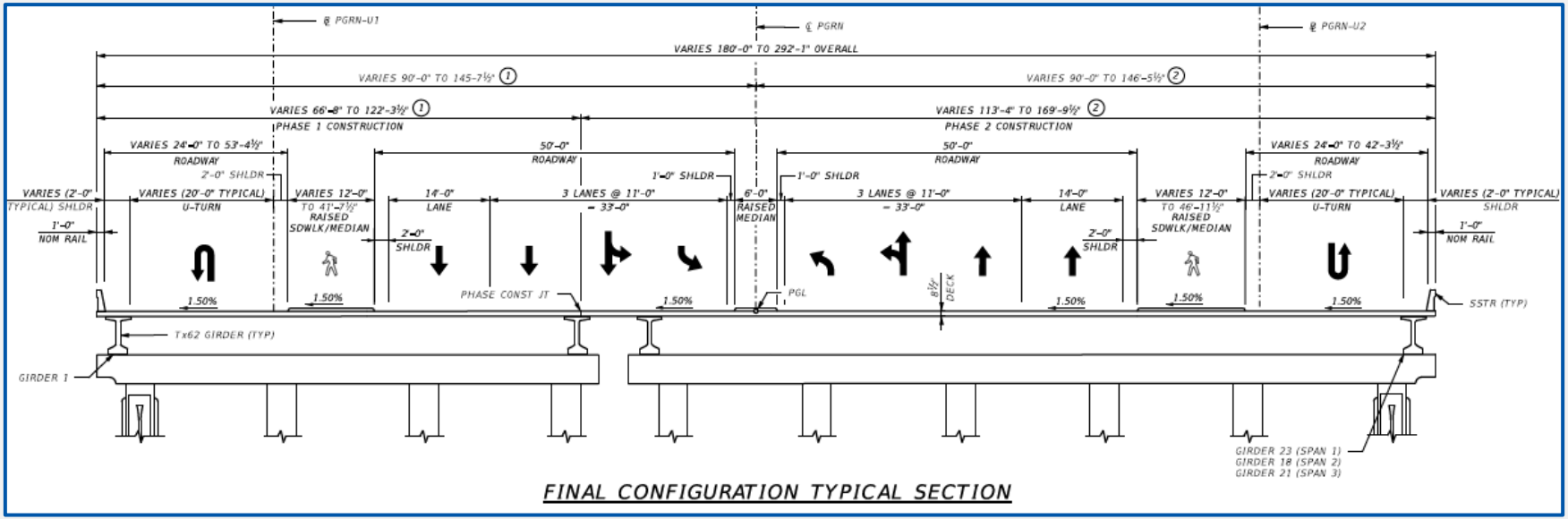
Bridge Layouts – Example Phasing Sections



Bridge Layouts – Example Phasing Sections

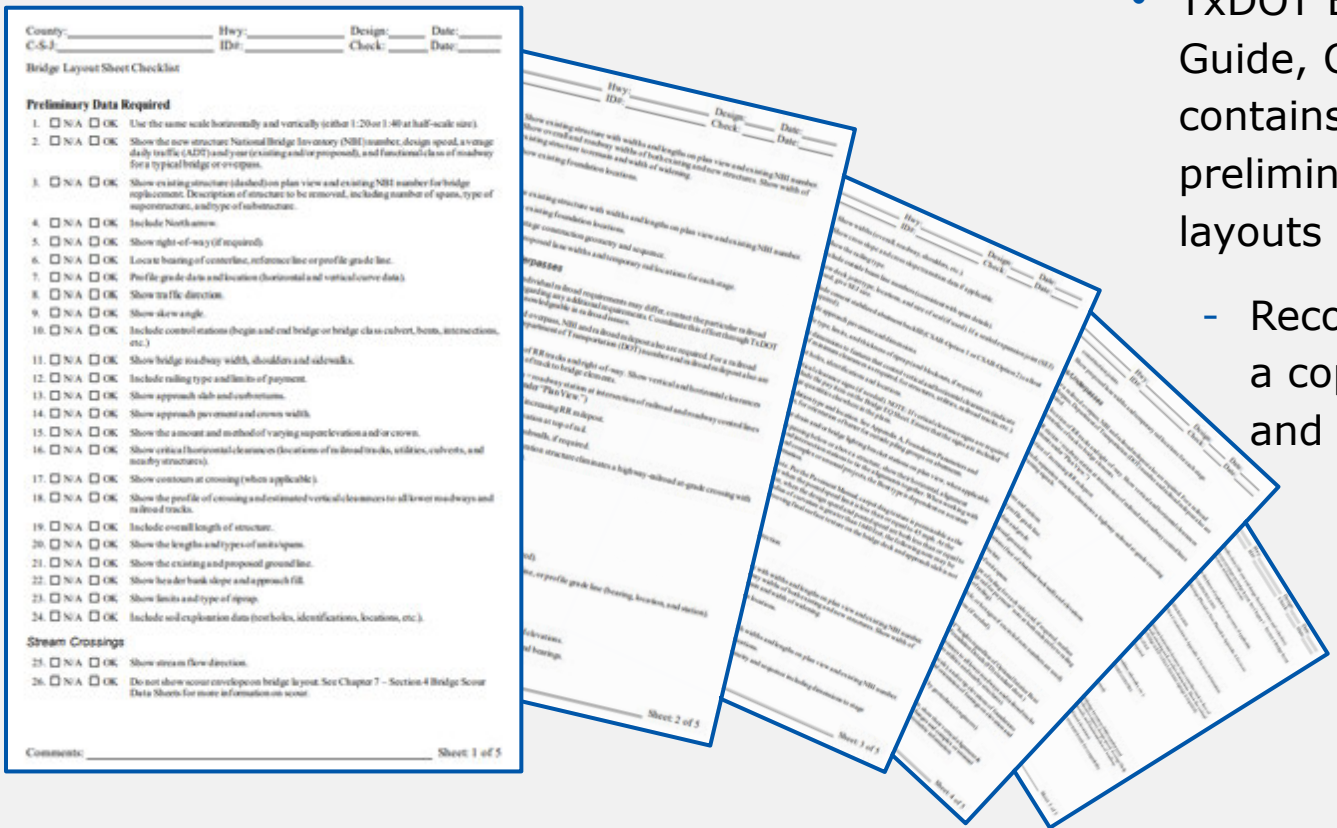


Bridge Layouts – Example Phasing Sections



FINAL CONFIGURATION TYPICAL SECTION

Bridge Layouts - Checklists



County:_____ Hwy:_____ Design:_____ Date:_____
C-S-J:_____ ID#: _____ Check: _____ Date:_____

Bridge Layout Sheet Checklist

Preliminary Data Required

1. ☐ N/A ☐ OK Use the same scale horizontally and vertically (either 1:20 or 1:40 at half-scale size).
2. ☐ N/A ☐ OK Show the new structure National Bridge Inventory (NBI) number, design speed, average daily traffic (ADT) and year (existing and/or proposed), and functional class of roadway for a typical bridge or overpass.
3. ☐ N/A ☐ OK Show existing structure (dashed) on plan view and existing NBI number for bridge replacement. Description of structure to be removed, including number of spans, type of superstructure, and type of substructure.
4. ☐ N/A ☐ OK Include North arrow.
5. ☐ N/A ☐ OK Show right-of-way (if required).
6. ☐ N/A ☐ OK Locate bearing of centerline, reference line or profile grade line.
7. ☐ N/A ☐ OK Profile grade data and location (horizontal and vertical curve data).
8. ☐ N/A ☐ OK Show traffic direction.
9. ☐ N/A ☐ OK Show skew angle.
10. ☐ N/A ☐ OK Include control stations (begin and end bridge or bridge class culvert, bents, intersections, etc.)
11. ☐ N/A ☐ OK Show bridge roadway width, shoulders and sidewalks.
12. ☐ N/A ☐ OK Include railing type and limits of payment.
13. ☐ N/A ☐ OK Show approach slab and curb returns.
14. ☐ N/A ☐ OK Show approach pavement and crown width.
15. ☐ N/A ☐ OK Show the amount and method of varying superelevation and/or crown.
16. ☐ N/A ☐ OK Show critical horizontal clearances (locations of railroad tracks, utilities, culverts, and nearby structures).
17. ☐ N/A ☐ OK Show contours at crossing (when applicable).
18. ☐ N/A ☐ OK Show the profile of crossing and estimated vertical clearances to all lower roadways and railroad tracks.
19. ☐ N/A ☐ OK Include overall length of structure.
20. ☐ N/A ☐ OK Show the lengths and types of units/spans.
21. ☐ N/A ☐ OK Show the existing and proposed ground line.
22. ☐ N/A ☐ OK Show header bank slope and approach fill.
23. ☐ N/A ☐ OK Show limits and type of riprap.
24. ☐ N/A ☐ OK Include soil exploration data (test holes, identifications, locations, etc.).

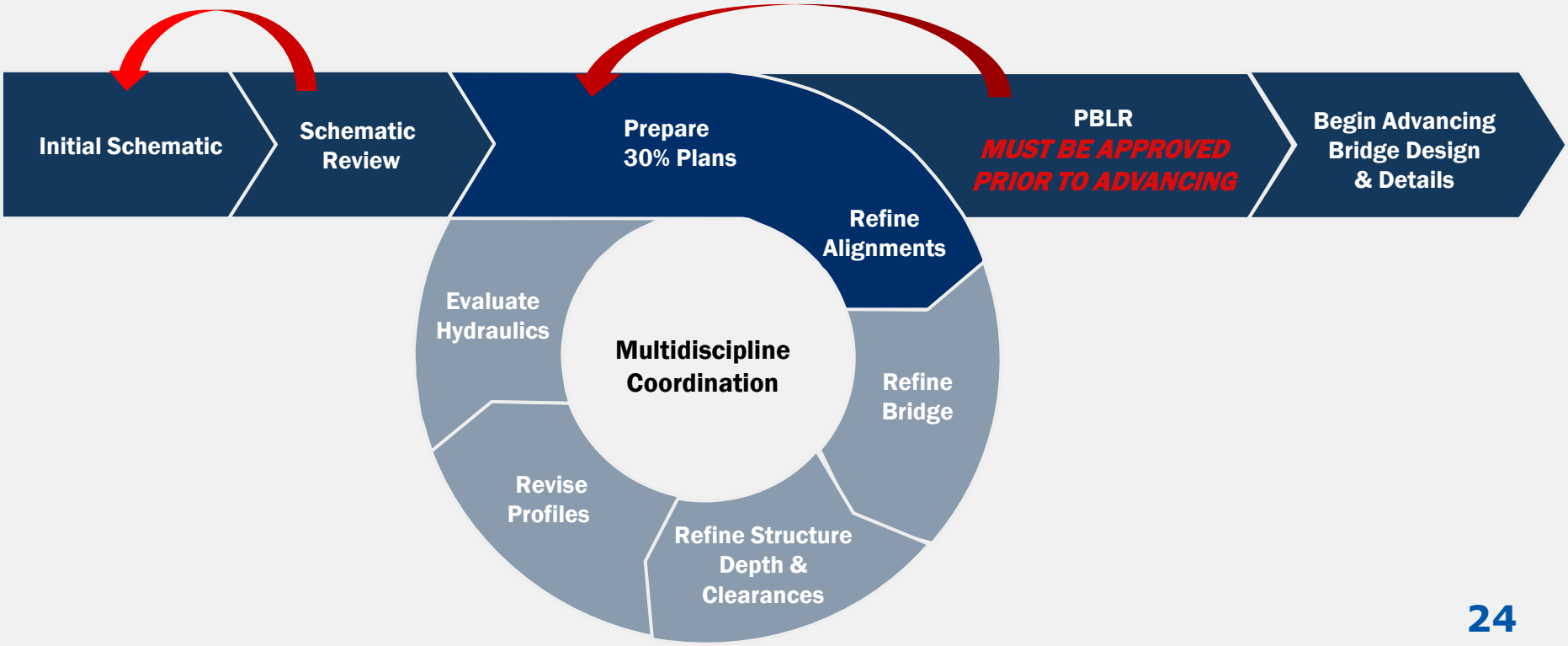
Stream Crossings

25. ☐ N/A ☐ OK Show stream flow direction.
26. ☐ N/A ☐ OK Do not show scour envelopes on bridge layout. See Chapter 7 – Section 4 Bridge Scour Data Sheets for more information on scour.

Comments: _____ Sheet 1 of 5

- TxDOT Bridge Detailing Guide, Chapter 8, Section 3 contains checklists for preliminary and final bridge layouts
  - Recommend completing a copy at each submittal and keeping as a record

Project Development Process



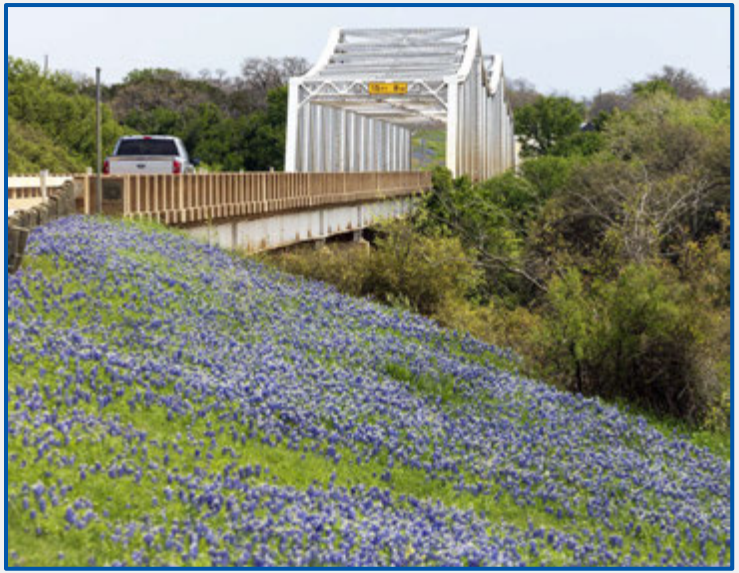
What is PBLR?

Preliminary Bridge Layout Review

A high-level engineering review of the bridge layout to identify data inconsistencies or challenges in the proposed design, and to ensure compliance with current design standards

Why is PBLR Required ?

- Required on all bridge projects with federal funding regardless of funding category, and for all bridges crossing TxDOT right of way.
- Must be approved prior to beginning bridge design.
- Used for early concept approval

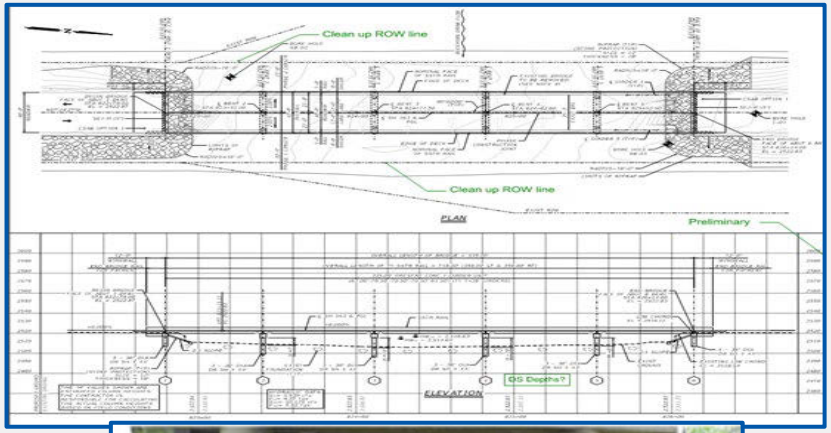


When to submit?

- **Typical PBLR**: Required at 30% to 60% PS&E level
- **Steel Girder Bridge Reviews**: Required at 30%,60%, 90%, 100%
- **Spliced Girder Bridge Reviews**: Required at 30%,60%, 90%, 100%

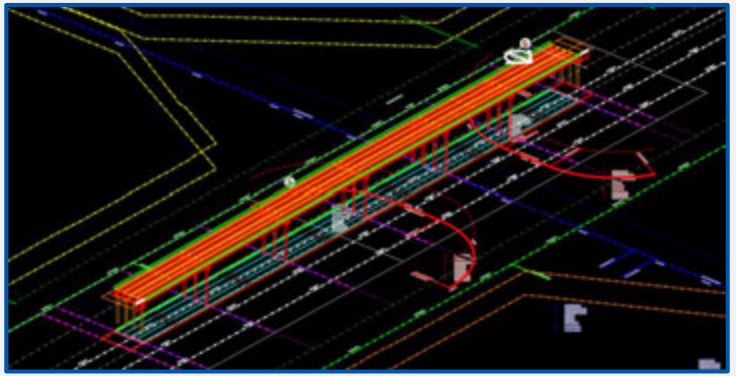
PBLR Package

- Bridge Layout – Plan, Profile and Transverse Sections
- For phased projects, provide phasing section details
- Bridge 3D Model and associated reference files at time of submittal
- Plan and profile sheets of the roadway immediately before and after the bridge
- A Hydraulics & Hydrology (H&H) Drainage Analysis Report
  - If the bridge crosses a waterway, the H&H Drainage Analysis Report must include the required scour evaluation
- Form 1002



PBLR Package

- 3D Model Completeness Checklist
  - https://ftp.txdot.gov/pub/txdot/des/ord/3d-model-completion-checklist.pdf
- Include references in PBLR folder
- Verify OBM version
  - (OBM 10.12.01.83)
- Exception to 3D Bridge Models
  - Culverts
  - Repair/Maintenance
  - Rail Retrofits



TxDOT PS&E Preparation Manual PS&E Preparation Manual (PSE) (txdot.gov)

TxDOT Bridge Project Development Manual TxDOT Bridge Project Development Manual_2023.docx

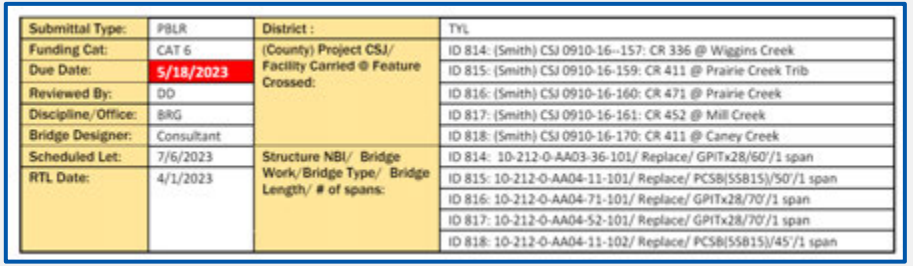
TxDOT Bridge Detailing Guide, Chapter 8 Bridge Detailing Guide (txdot.gov)

Bridge Layout Checklist 8chk1.pdf (txdot.gov)

Where are resources and requirements ?

PBLR Submittal Process

- The District Bridge Engineer must approve preliminary layouts prior to submission
- Submit to Bridge Management Section of BRG. Email PBLR folder link in ProjectWise 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
  - For Spliced Girder bridges, the subject line of the email should contain Spliced Girder



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 Duration

- Contact BRG Project Manager if PBLR submittal has more than 12 bridges or shorter review time is required
- Complexity of bridges might require more time for review i.e Steel or Spliced Girder

No. of Bridge Layouts	Review Time Needed
1 – 3	2 Weeks
4 - 7	3 Weeks
8 - 12	4 Weeks
More than 12	Contact BRG Management Section

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

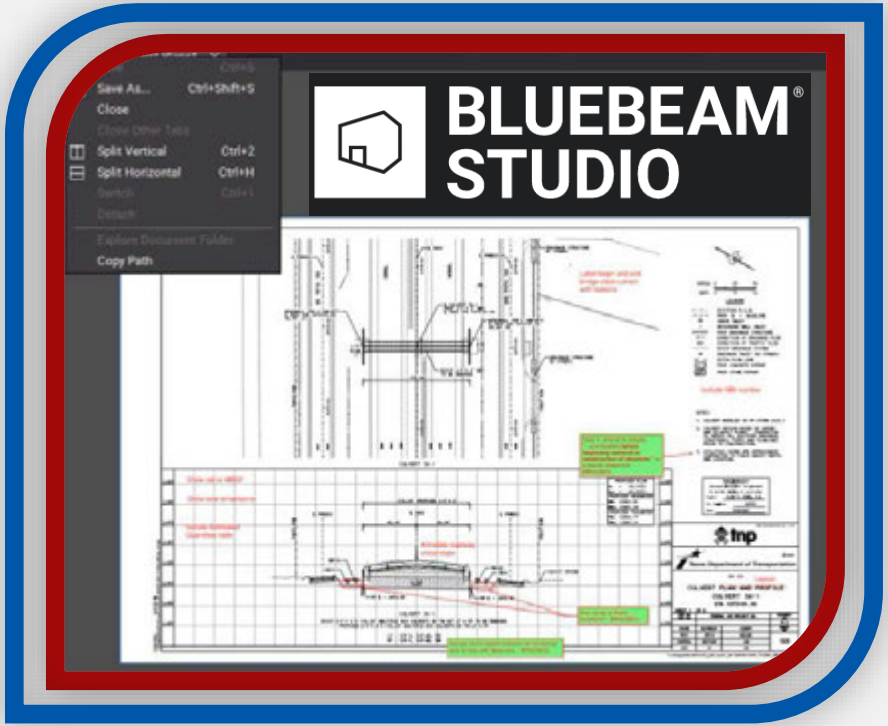
Bridge Division
Bridge Design Section

Bridge Division
Bridge Management Section

Bridge Division
Field Ops Section –
C&M & Geotechnical

Design Division
Hydraulics Section

Design Division
Project Development Support Section



Bluebeam integration for plan reviews

Bridge Division
Bridge Design Section

Bridge Division
Bridge Management Section

Bridge Division
Field Ops Section – C&M & Geotechnical

Design Division
Hydraulics Section

Design Division
Project Development Support Section

BRG Design reviews for:

- Appropriateness of superstructure type
- Possible design issues or challenges
- Layout completeness
- Layout consistency
- Appropriateness of rail type

Bridge Division
Bridge Design Section

Bridge Division
Bridge Management Section

Bridge Division
Field Ops Section – C&M & Geotechnical

Design Division
Hydraulics Section

Design Division
Project Development Support Section

Bridge Management reviews for:

- Cost-effectiveness of design
- Possible design issues or challenges
- Work that may exceed Category 6 funding eligibility rules
- Required vertical clearance
- Adherence to Railroad Exhibit A requirements

Bridge Division
Bridge Design Section

Bridge Division
Bridge Management Section

Bridge Division
Field Ops Section –
C&M & Geotechnical

Design Division
Hydraulics Section

Design Division
Project Development Support Section

Field Ops – Geotechnical reviews for:

- Boring spacing, length, and location
- Appropriateness of foundation selection
- Conflicts and design challenges
- Retaining wall and embankment stability
- Need for temporary special shoring
- Scour analysis and channel stability

Bridge Division
Bridge Design Section

Bridge Division
Bridge Management Section

Bridge Division
Field Ops Section –
C&M & Geotechnical

Design Division
Hydraulics Section

Design Division
Project Development Support Section

DES Hydraulics Section reviews for:

- Completeness of the H&H report
- Foundation placement and orientation
- Completeness of the H&H Plan Sheets, Drainage Area/Hydrology Sheet, Hydraulic Data Sheet, and/or Bridge Class Culvert Layout Sheet
- Documentation of design calculations, methods, and assumptions

Bridge Division
Bridge Design Section

Bridge Division
Bridge Management Section

Bridge Division
Field Ops Section –
C&M & Geotechnical

Design Division
Hydraulics Section

Design Division
Project Development Support Section

DES Project Development Support Section reviews for:

- Consistency between bridge and roadway widths
- Roadway geometry
- Required vertical clearances
- Lane, shoulder, and sidewalk widths
- NBI, functional class, and design speed
- Rail types, lengths, and offsets

PBLR Approval

- 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.

Common PBLR and PS&E Comments

BRG Design Comments

- Appropriate Rail Type Selection
- Appropriate Expansion Joints
- Bridge class culverts missing begin and end call outs
- CSAB - Option 1 or 2
- Appropriate superstructure selection (span length)

Common PBLR and PS&E Comments

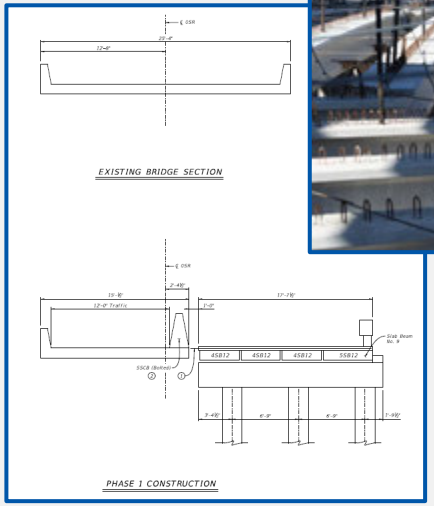
BRG Design Comments (Cont.)

- Missing Existing Structure Data
  - Removal Limits
- Wingwall Lengths
- Incorrect Rail Lengths or End Limits
- Missing 3D Models

Common PBLR and PS&E Comments

BRG C&M Comments

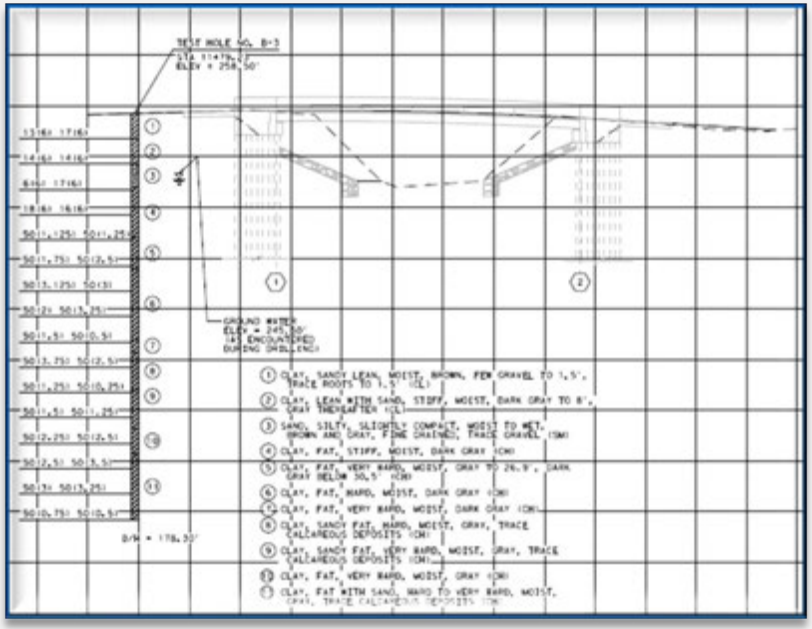
- Use Stone Protection Riprap at stream crossings
- Phased construction, use of mechanical couplers or welded bar splices
- Phased construction, analyze the stability of structure with partial removal
- Breaking out substructure quantities into CL C Cap and CL C Column



Common PBLR and PS&E Comments

BRG Geotech Comments

- Boring spacing depth, and location
- Appropriate foundation type and size
- Conflicts between proposed and existing foundations or utilities
- Temporary special shoring requirements for construction
- Scour analysis and channel stability

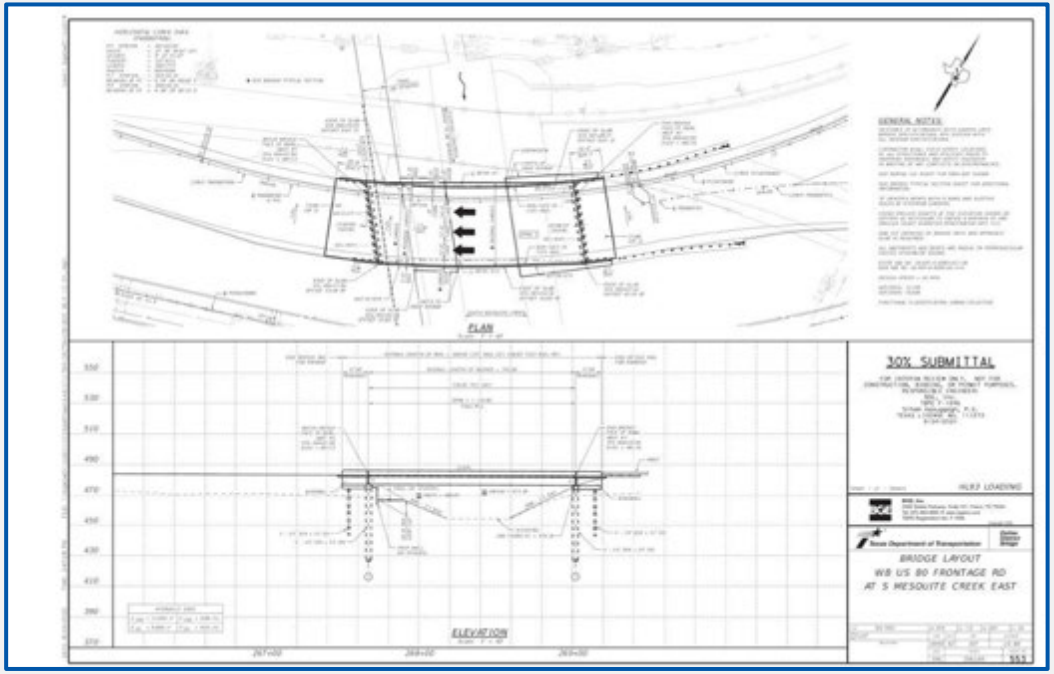


Common PBLR and PS&E Comments

DES Comments

- Design speed is too low, refer to Chapter 2 of Roadway Design Manual

- Proper bike and pedestrian accommodations must be considered



What ?

Steel Bridge Reviews

*A **comprehensive detailed** engineering review of bridges with a **steel superstructure.** Reviews are done at **PBLR, 30%, 60%, 90%, and 100%** design milestone submittals*

Why ?

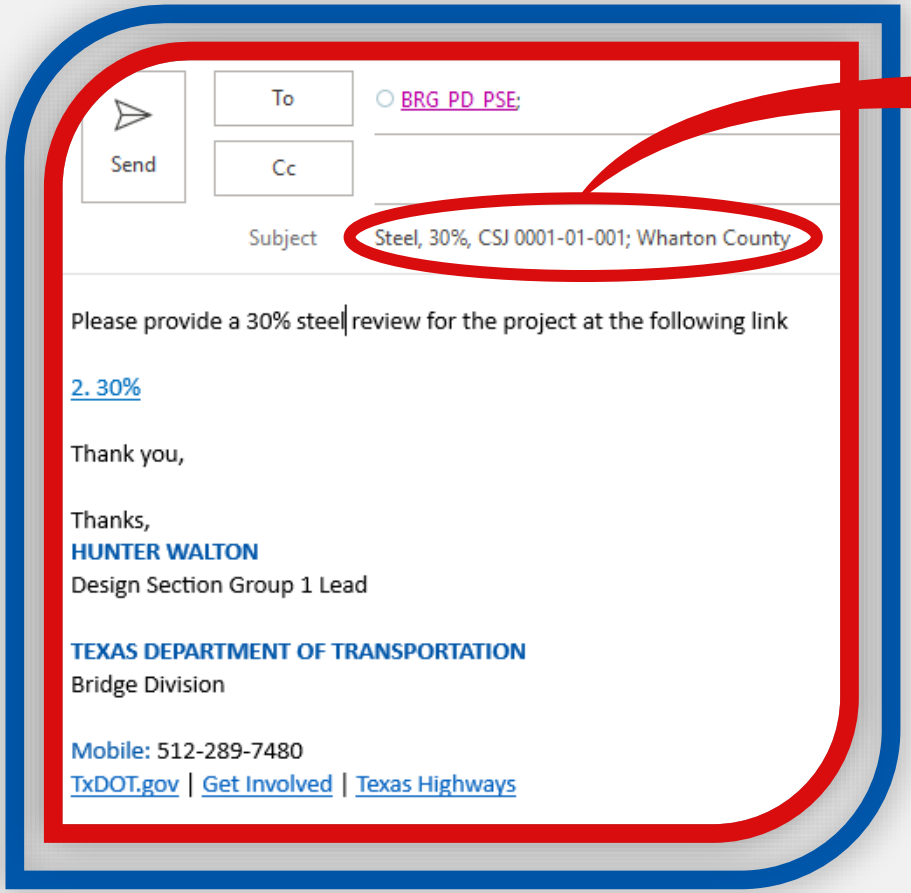
Submit

- Required on all bridge projects with a steel superstructure
- Comments at each review phase must be resolved, and plans revised prior to the next submittal
- Reviews prevent inclusion of unnecessary and costly design details that deviated from what is used in Texas for steel bridges
- Recommend having Construction Phase Services for consultant contracts

When to Submit ? For Review

Design milestones

- PBLR
- 30%
- 60%
- 90% or 100%



Include on Subject Line:

Type of review – Steel

Design milestone – PBLR, 30%, 60%, 90%, or 100%

CSJ

County name

EXAMPLE

Subject: Steel; 30%; CSJ 0001-01-001; Wharton County

Bridge Division
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* **Bridge Division**
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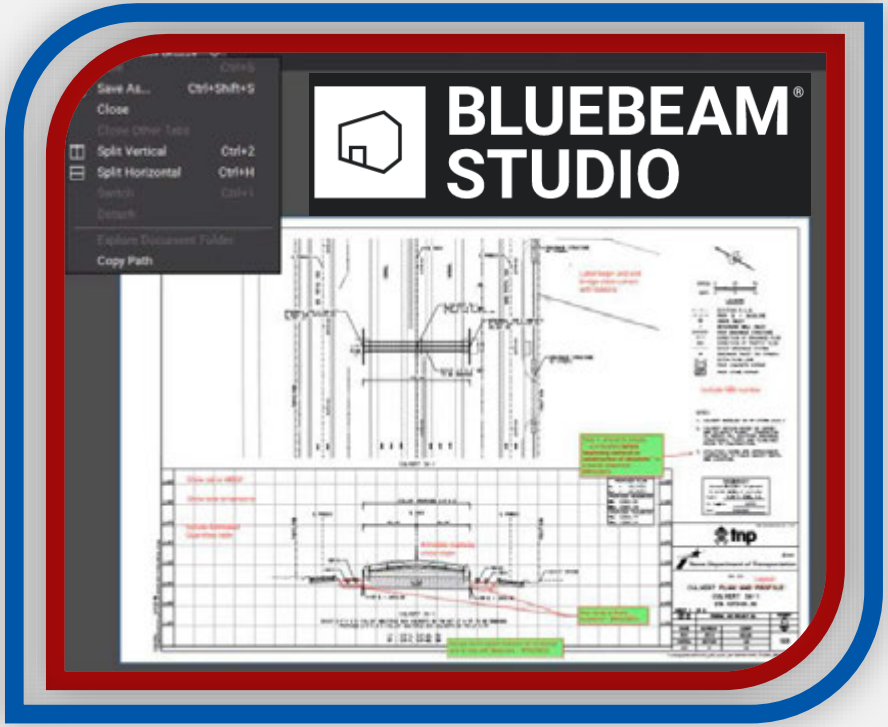
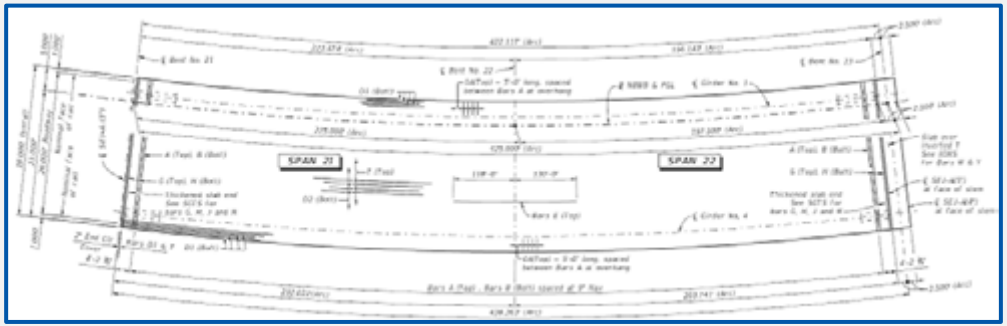


*** Optional for 60%, 90% & 100%**

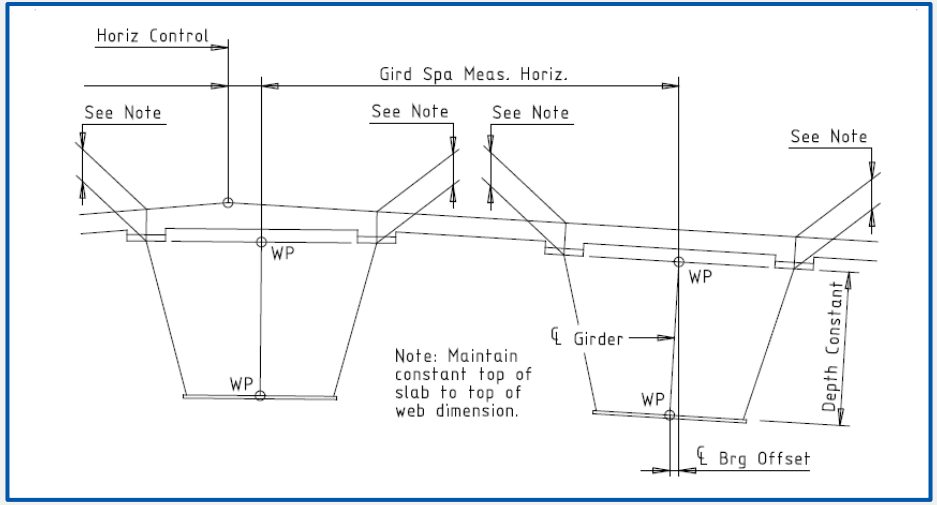
Steel Bridge Review Issues - PBLR & 30%

- Span configuration
- Section depth
- Location conditions for erection
- Specification requirements for straight versus curved girders



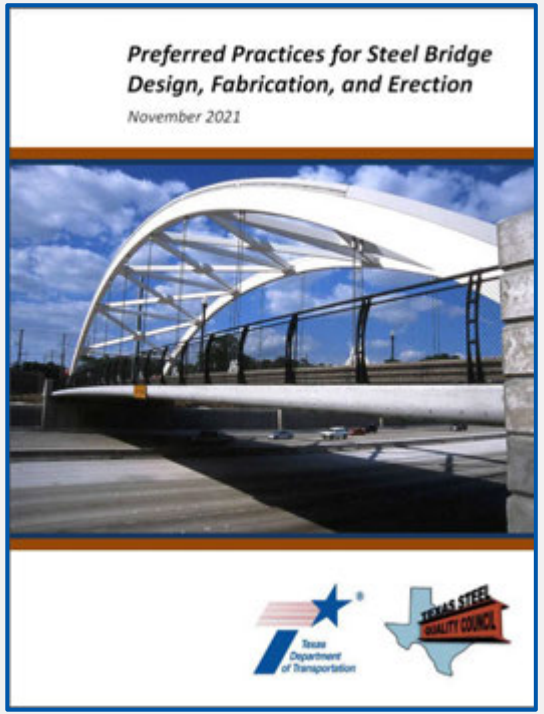
Steel Bridge Review Issues - 60% to 90%

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



Steel Bridge Review Issues - 90% Review Items

- Essentially, consult TxDOT Preferred Practices, but major items (not all inclusive) are noted for emphasis
- Verify that previous comments were resolved
- Other resources include fabricators and erectors
- Avoid costly fabrication details
- Again, consider Construction Phased Services

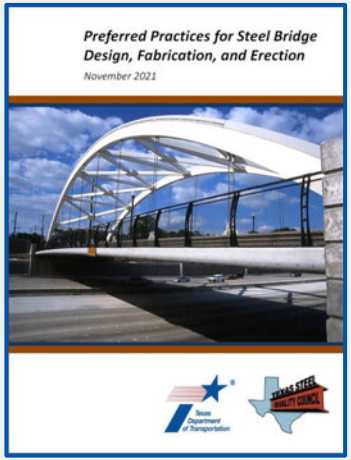


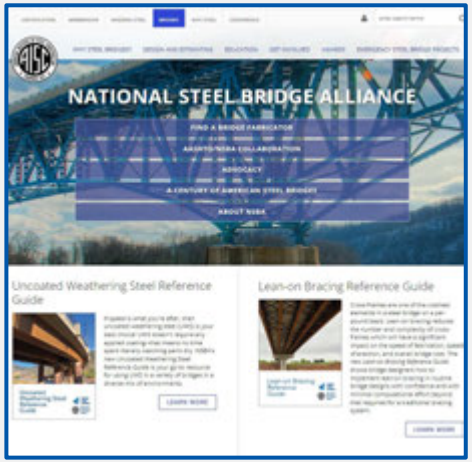
Where to Find Guidance ?

- **TxDOT PBLR and PS&E Review Standard Operating Procedures** https://crossroads/content/dam/crossroads/divisions/bridge/documents/bridge-management/pblrpse-brg-sop-2023.pdf
- **Bridge Project Development Manual-2023** https://onlinemanuals.txdot.gov/TxDOTOnlineManuals/txdotmanuals/bpd/bpd.pdf
- **TxDOT Bridge Detailing Guide, Chapter 8** https://ftp.txdot.gov/pub/txdot-info/brg/design/bridge-detailing-guide.pdf
- **Checklist** https://ftp.txdot.gov/pub/txdot-info/brg/design/pdf/8chk1.pdf

Where to Find Guidance?

- **TxDOT Bridge Design Manual**
  https://crossroads/content/dam/crossroads/divisions/bridge/documents/bridge-design/txdot-bridge-design-manual-2023.pdf
- **NSBA** (National Steel Bridge Alliance) Documents
  https://www.aisc.org/nsba/
- **AASHTO LRFD**
- **TxDOT Steel Preferred Practices for Steel Design**
  https://ftp.dot.state.tx.us/pub/txdot-info/library/pubs/bus/bridge/steel_bridge.pdf





What ?

Spliced Girder Bridge Reviews

*A **comprehensive detailed** engineering review of bridges with a **spliced girder superstructure.** Reviews are done at **PBLR, 30%, 60%, 90%, and 100%** design milestone submittals*

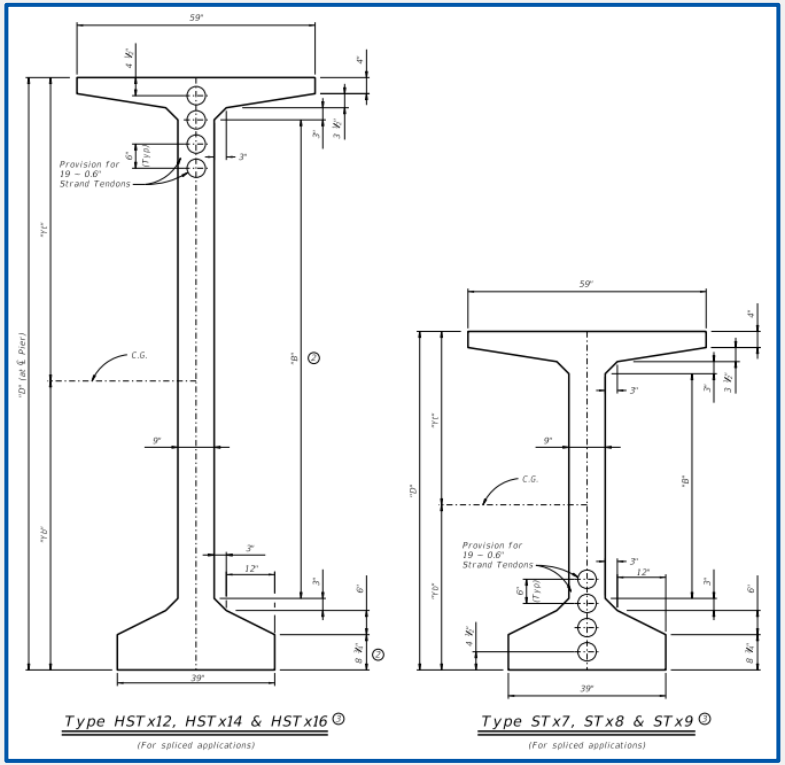
Why Submit ?

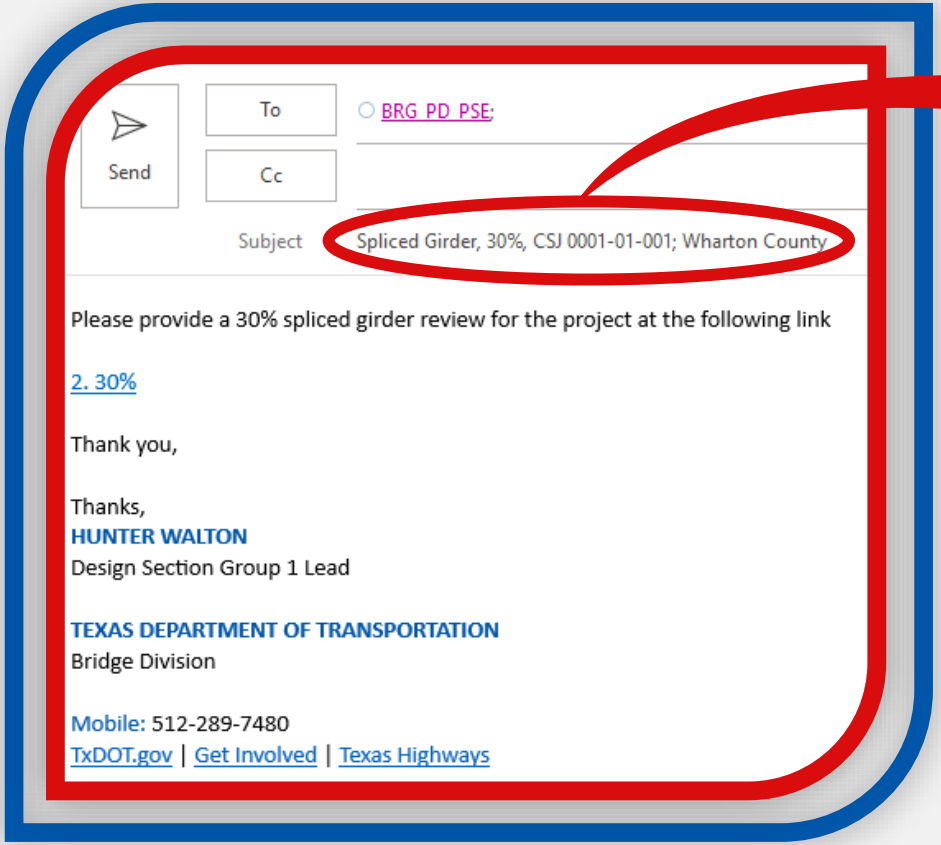
- Required on all bridge projects with a spliced girder superstructure.
- Comments at each review phase must be resolved, and plans revised prior to the next submittal
- Reviews prevent inclusion of unnecessary and costly design details and verifies inclusion of alternate designs to provide a fair basis for fabrication
- Recommend having Construction Phase Services for consultant contracts

When to Submit For Review ?

Design milestones

- PBLR
- 30%
- 60%
- 90% or 100%





Include on Subject Line:

Type of review – Spliced Girder

Design milestone – PBLR, 30%, 60%, 90%, or 100%

CSJ

County name

EXAMPLE:

Subject: Spliced Girder; 30%; CSJ 0001-01-001; Wharton County

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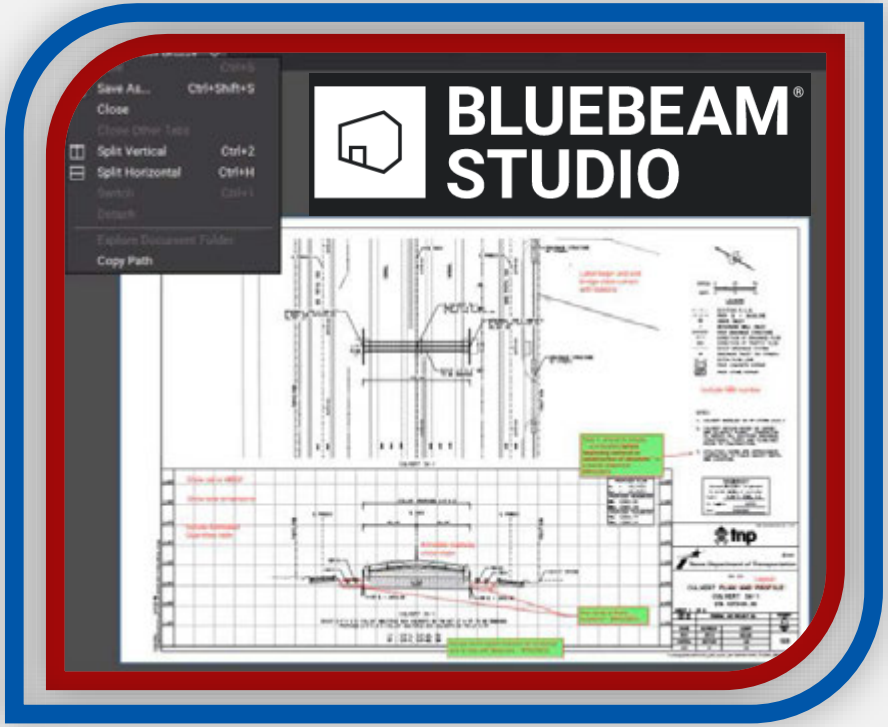
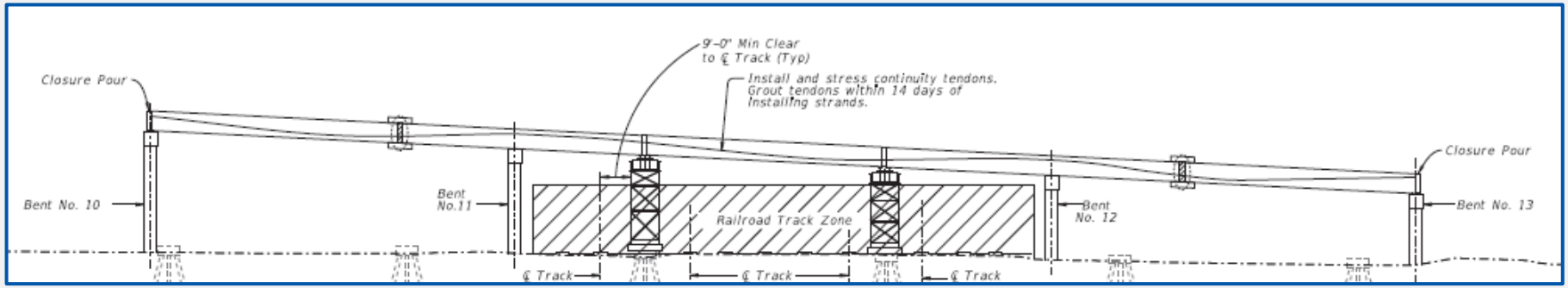


*** Optional for 60%, 90% & 100%**

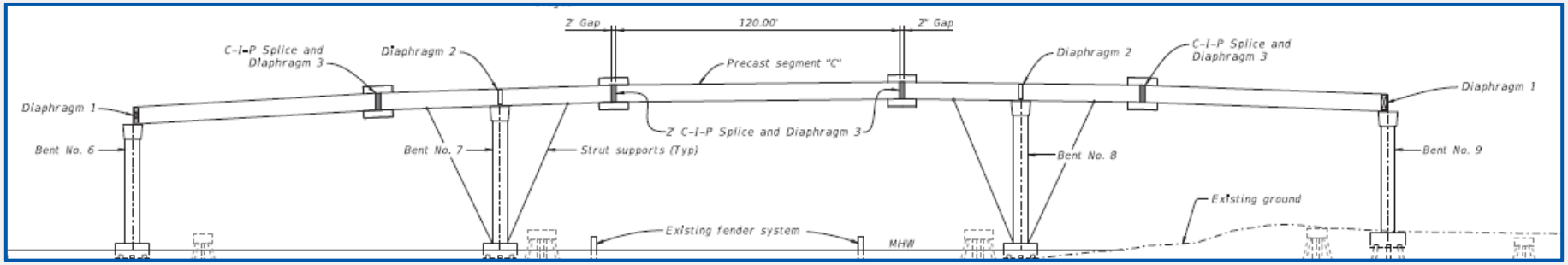
Spliced Girder Bridge Review Issues - PBLR & 30%

- Span configuration
- Section depth
- Location conditions for erection



Spliced Girder Bridge Review Issues - 60% to 90%

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



Summary

- Bridge Layouts are an important and necessary part of any Bridge Project
- PBLR improves project development and intends to identify major issues prior to advanced bridge design & development while verifying standard practice is followed
- Reminder to submit PBLR files in ProjectWise **not Box.com**

Next Bridge Briefing: August 15th

Design Directive Updates

Texas Department of Transportation

July 10, 2024