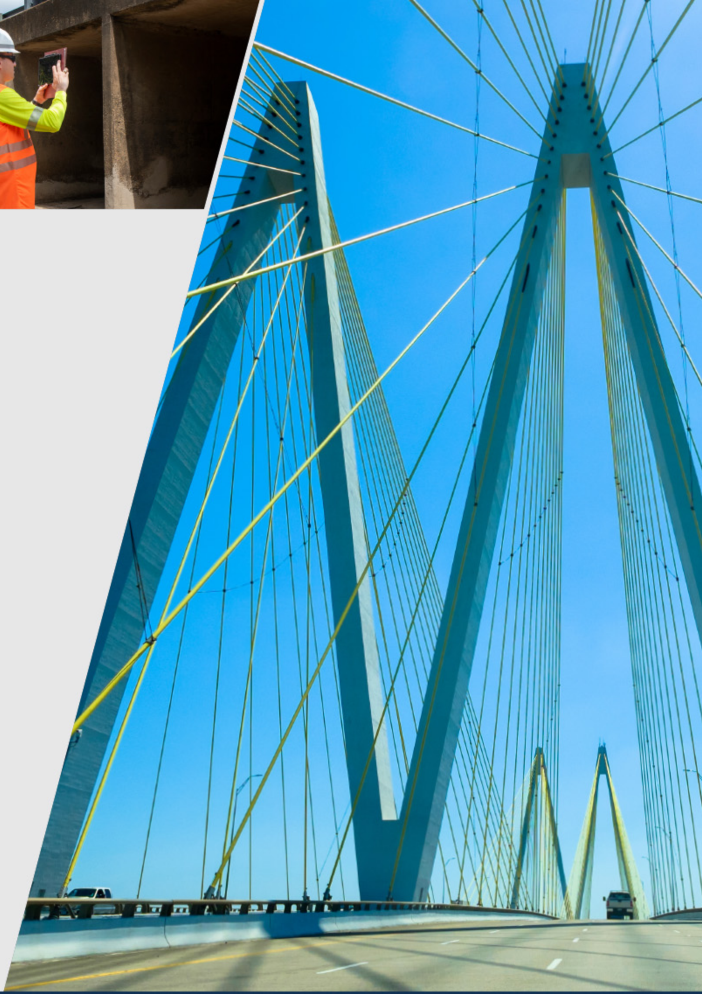
TxDOT Bridge Detailing Guide

(April 2022 Release)



May 17, 2022

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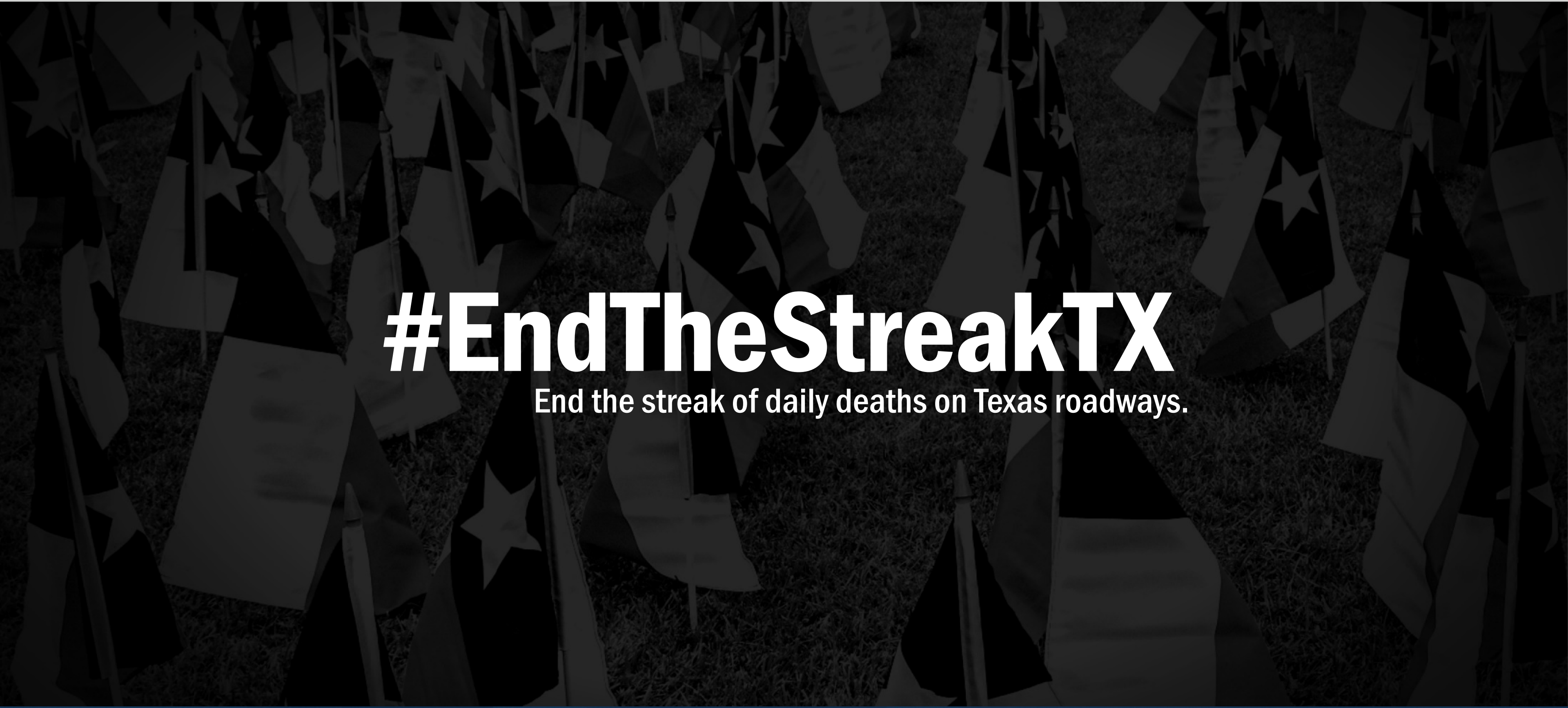

#EndTheStreakTX
End the streak of daily deaths on Texas roadways.

A Few Small Updates...

- Material Notes -> General Notes -> Box Notes
- Added documentation to General Notes for TxDOT Bridge Design manual used
  - Notes updated to reflect Nov 2021 release of TxDOT Bridge Design Manual.

MATERIAL NOTES:

Provide Class C (HPC) Concrete (f'c = 3,600 psi).
Provide Grade Grade 60 reinforcing steel for Bars V and Z.
Provide Grade 60 epoxy coated reinforcing steel for Bars A, B, S, T, and U.
Galvanize Dowels D.

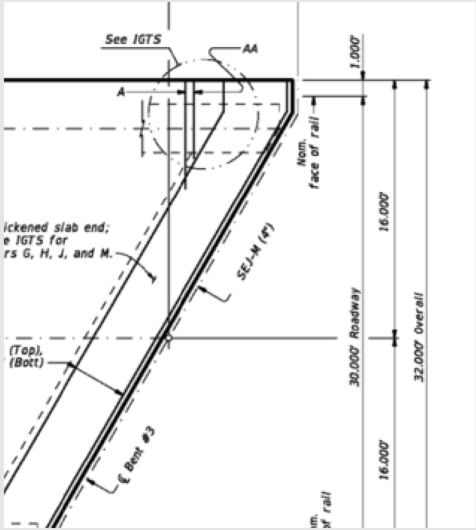
GENERAL NOTES:

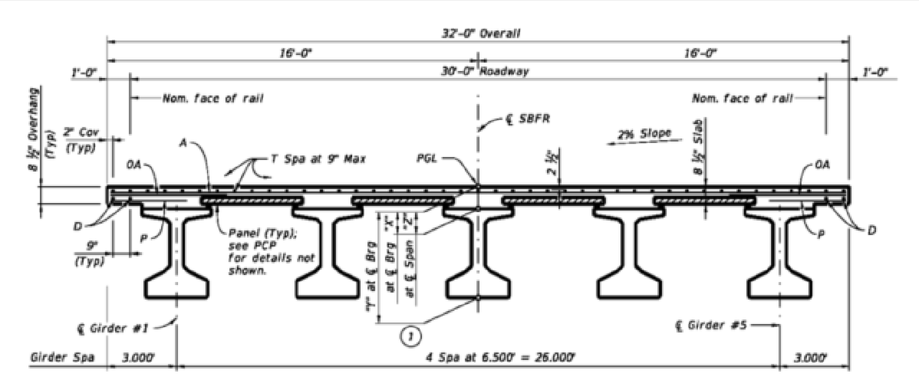
Designed according to AASHTO LRFD Bridge Design Specifications, 9th Edition (2020) and TxDOT Bridge Design Manual (Nov 2021).
See Common Foundation Details (FD) standard sheet for all foundation details and notes not shown.
Calculated foundation load = 250 tons / dr sh.

Cover dimensions are clear dimensions, unless noted otherwise.
Reinforcing bar dimensions shown are out-to-out of bar.

A Few Small Updates...

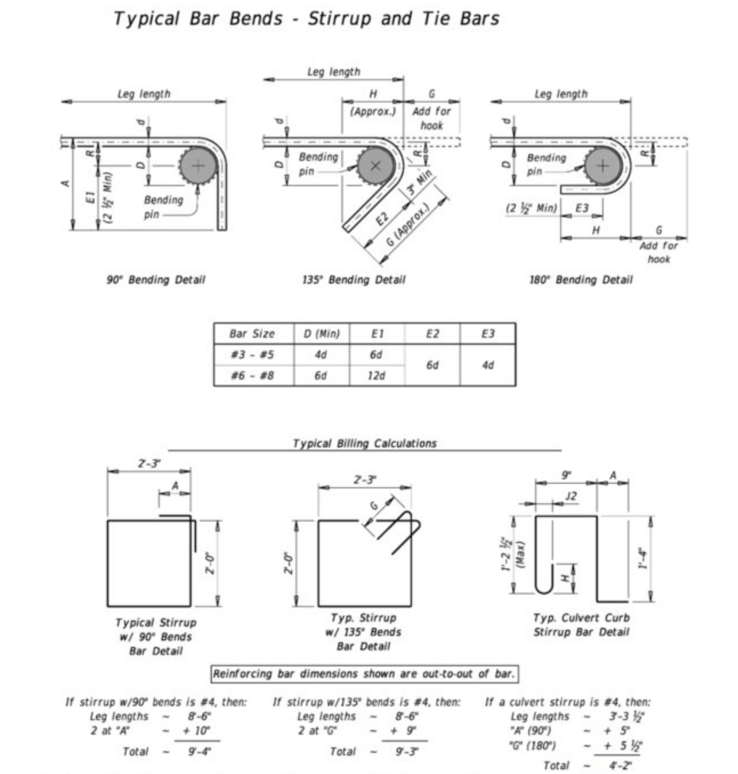
- Updated callouts to current items and for consistency between examples
- Corrected various minor errors throughout
- Updated information, checklists and details for current state of practice





TYPICAL TRANSVERSE SECTION

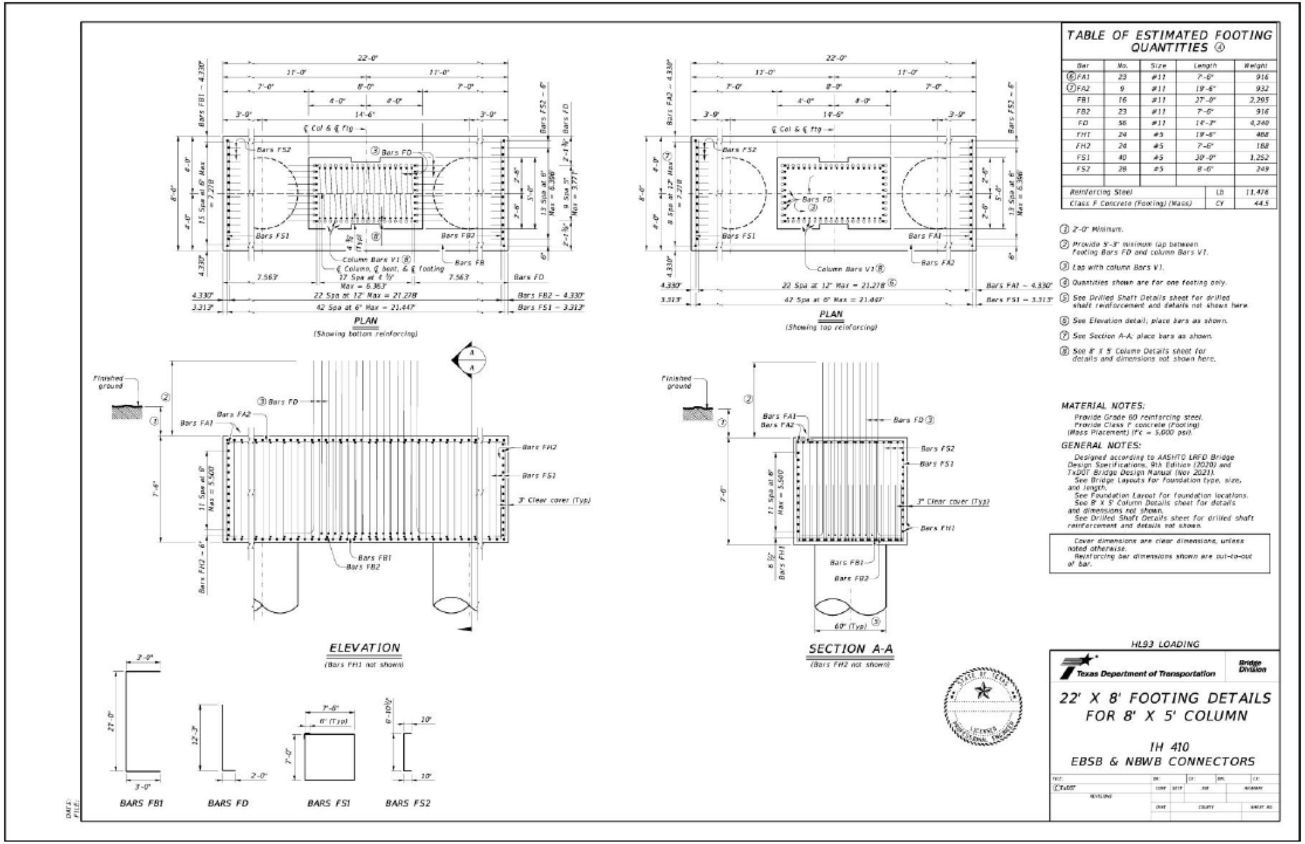
- Updated Bar Labels for new Inverted Tee detailing shown in Appendix A
- Development Length notes have been updated for compliance with AASHTO LRFD Bridge Design Specifications, 9th Edition (2020) including enhanced verbiage for Non-Contact Lap Splices
- Added 180 degree Bending Detail for Stirrup and Tie Bars
- Added Typical Culvert Curb Stirrup Bar Detail



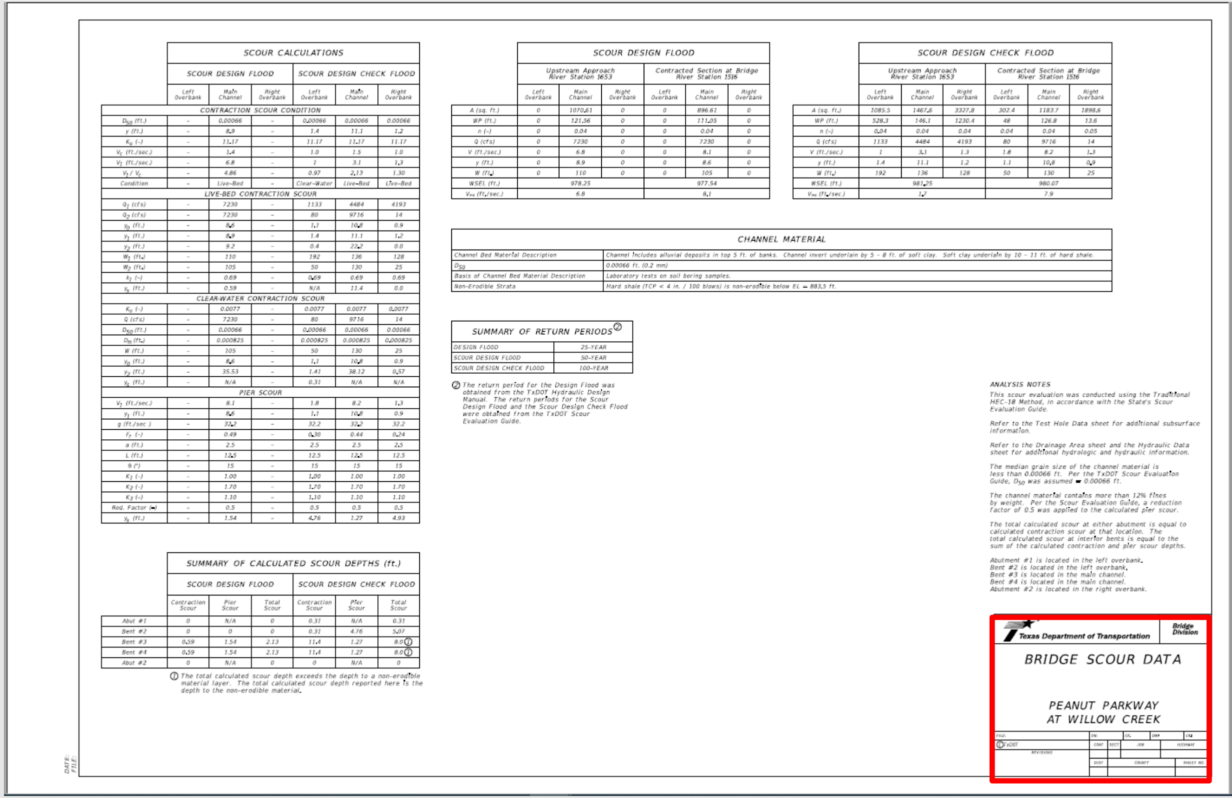
Bar Size	D (Min)	E1	E2	E3
#3 - #5	4d	6d	6d	4d
#6 - #8	6d	12d		

Figure 5-3: Standard Bends – Stirrup and Tie Bars. Online users can click here to view this illustration in PDF.

- Updated Unique Drilled Shaft Footing examples



- Added Bridge Scour Data checklist and example sheet



- Updated Checklists
- Updated Bridge Layouts
  - Added General Notes
  - Added Load Rating

HL93 LOADING
SUPERSTRUCTURE INV/OPR RATINGS: 1.02/1.75

Texas Department of Transportation | Bridge Division

BRIDGE LAYOUT
US 281 SBML OVERPASS
AT FM 1555

NBI NO. 55-555-0-5555-55-554

FILE: | DN: | CK: | DW: | CK:
©TxDOT | CONT | SECT | JOB | HIGHWAY
REVISIONS | DIST | COUNTY | SHEET NO.

GENERAL NOTES:

Designed according to AASHTO LRFD Bridge Design Specifications, 9th Edition (2020) and TxDOT Bridge Design Manual (Nov 2021).

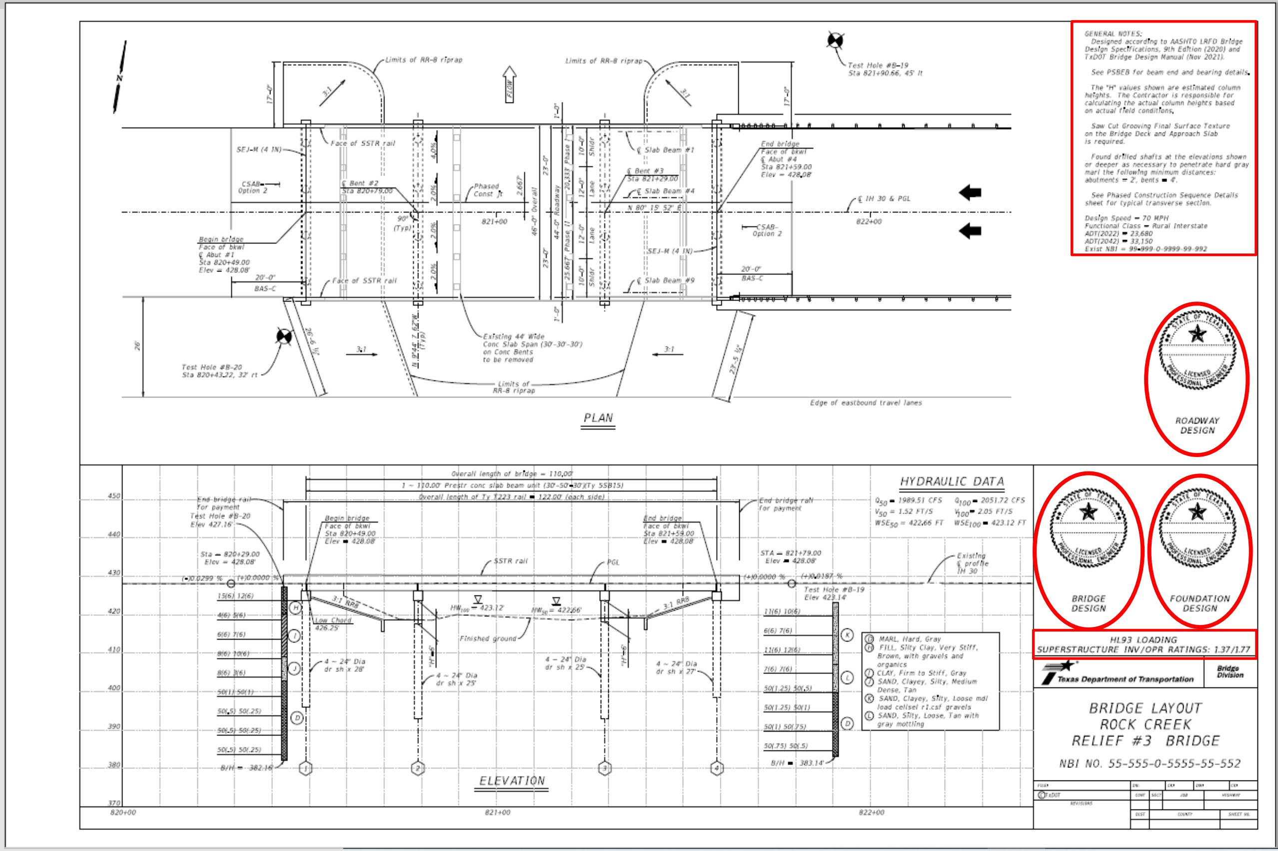
See IGEB standard for girder end and bearing details. See bent details for dowel locations.
"D" denotes doweled end condition.

The "H" values shown are estimated column heights. The Contractor is responsible for calculating the actual column heights based on actual field conditions.

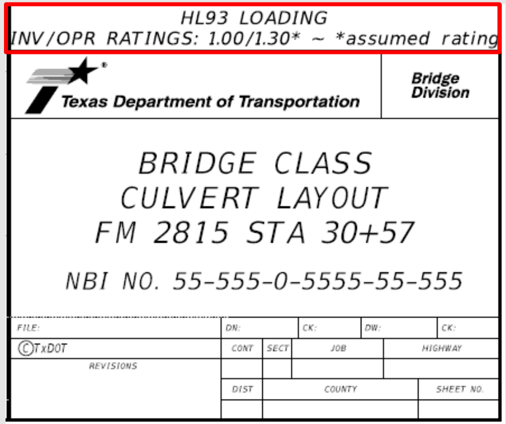
Saw Cut Grooving Final Surface Texture on the Bridge Deck and Approach Slab is required.

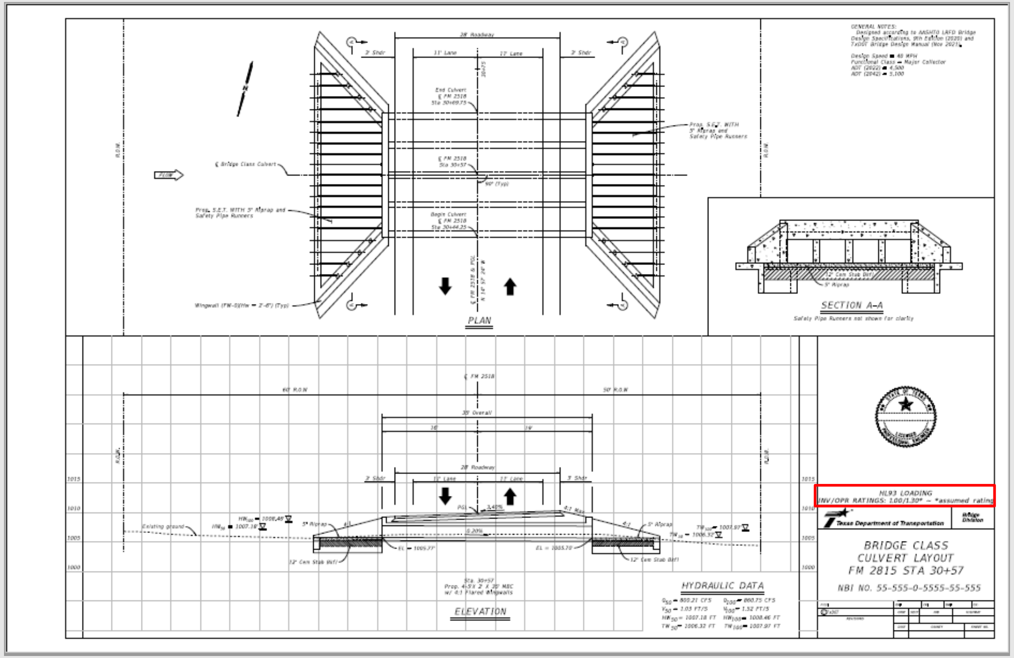
Design Speed = 70 MPH
Functional Class = Principal Arterial
ADT (2022) = 8,500
ADT (2042) = 13,100

- Showing 3 PE Seals
- Showing new General Notes
  - List of bearing/dowel callouts with corresponding general note for bridge layouts
  - Saw cut grooving of the bridge deck not required for posted speed </= 45 mph and radius >1,640 ft
- Showing new Load Rating INV/OPR

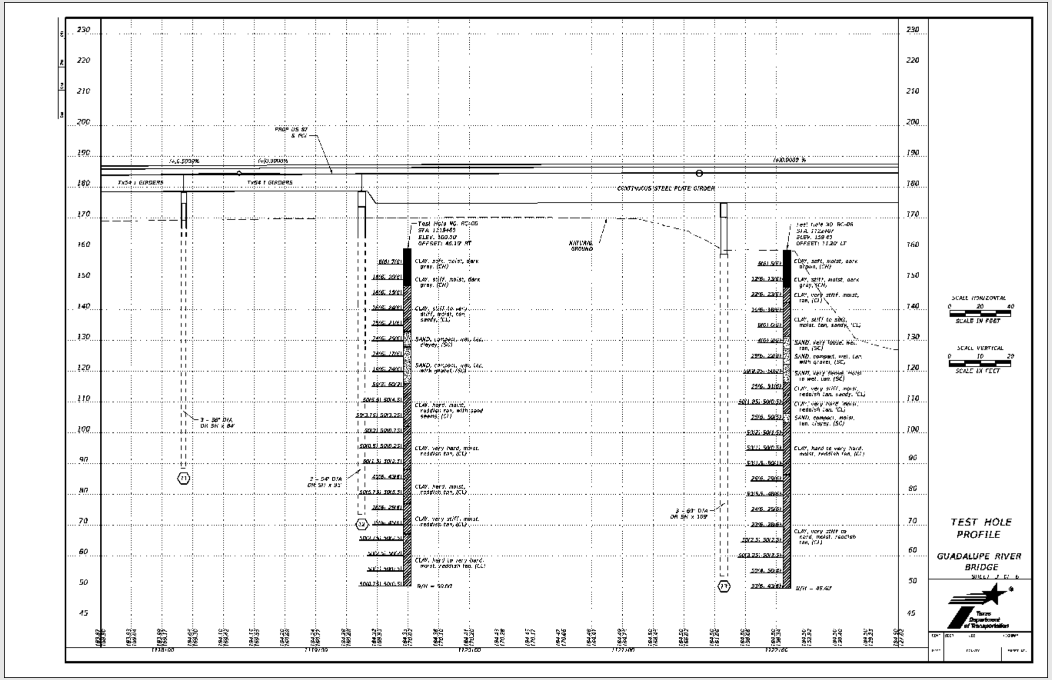


- Added Bridge Class Culvert Layout Checklist and Layout Example

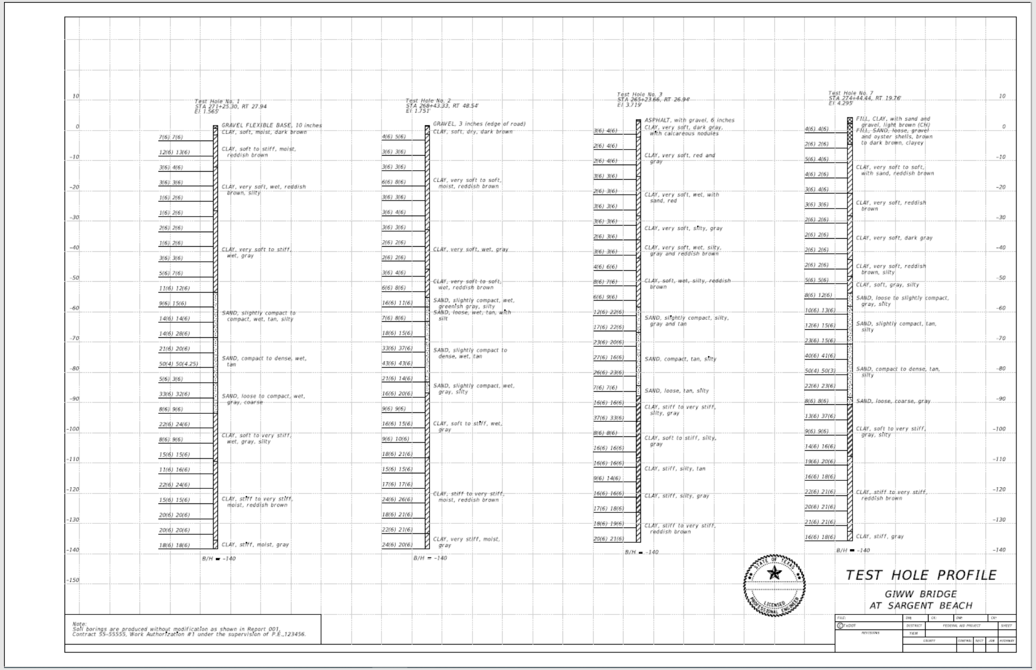




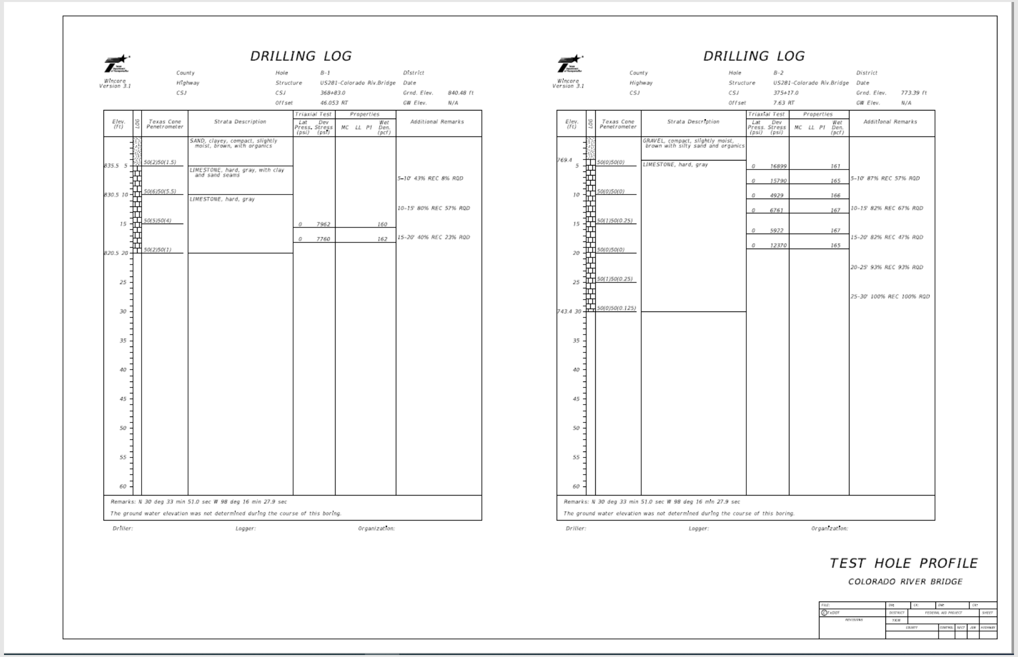
- Added 3 Alternate Form Test Hole Profile Sheet Examples
    - Elevation view with ghost bridge



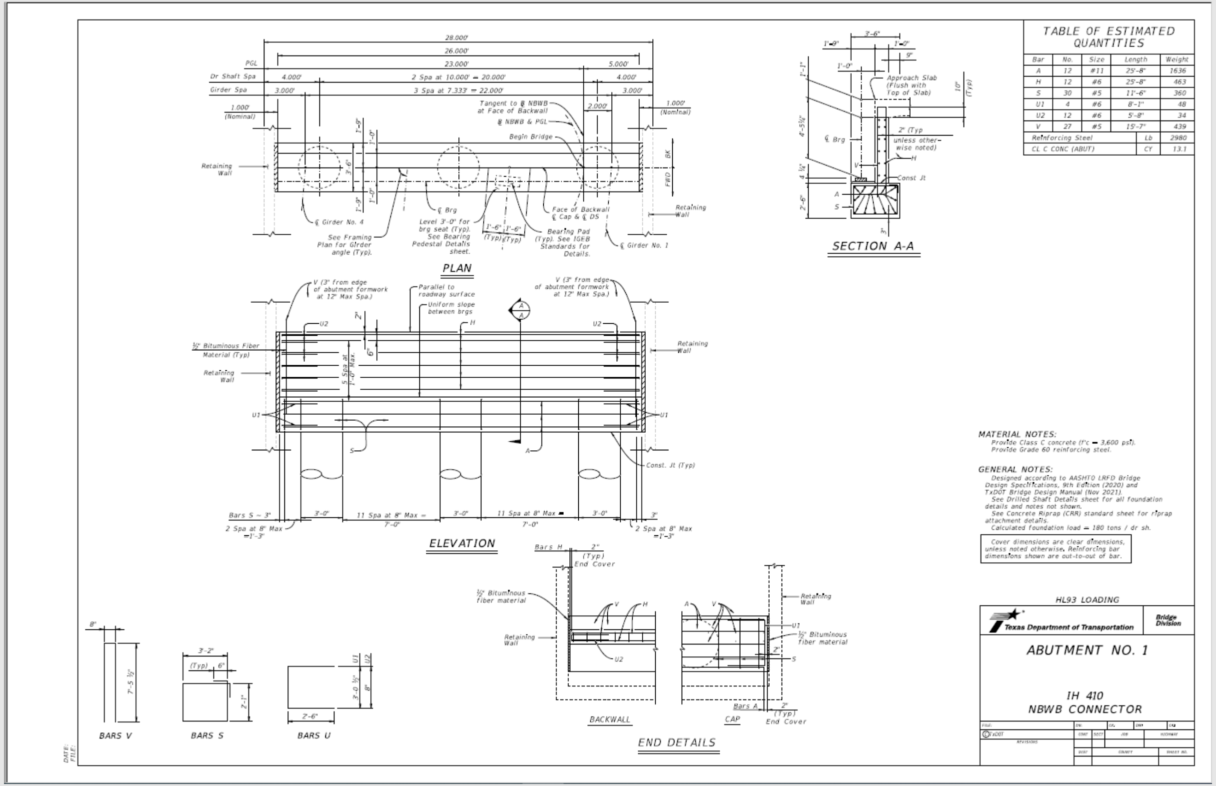
- Added 3 Alternate Form Test Hole Profile Sheet Examples
  - Elevation view with no horizontal scale



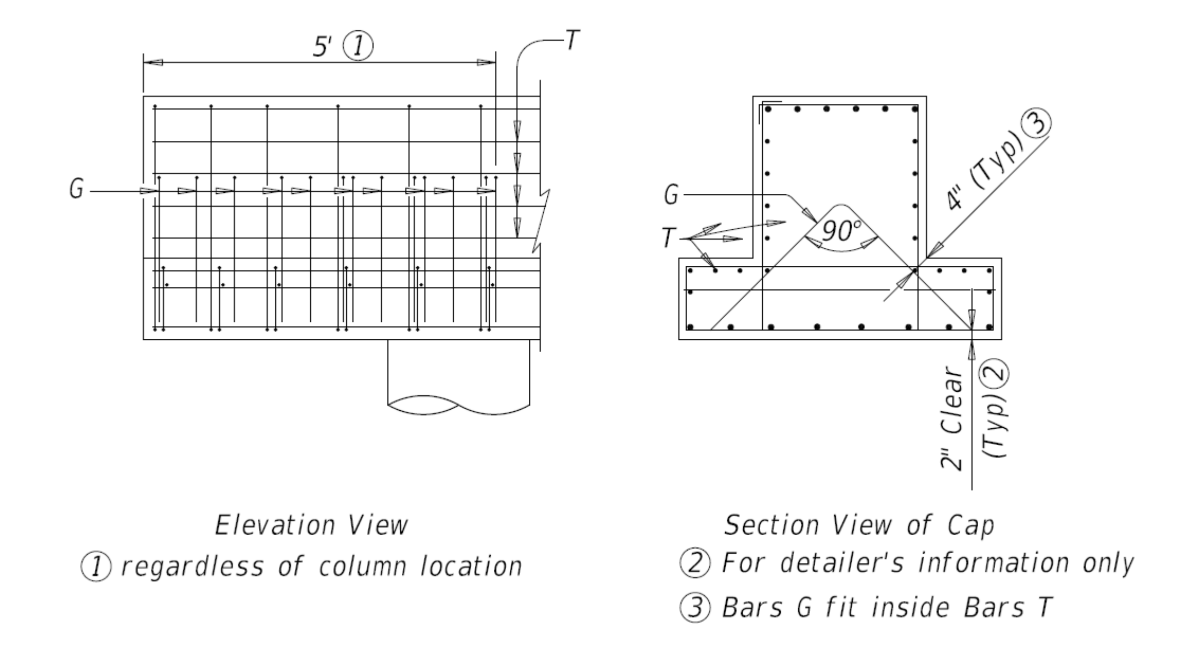
- Added 3 Alternate Form Test Hole Profile Sheet Examples
  - Wincore Drilling Log Rasters



- Added Abutment End Treatment at Retaining Walls Section and Example sheet

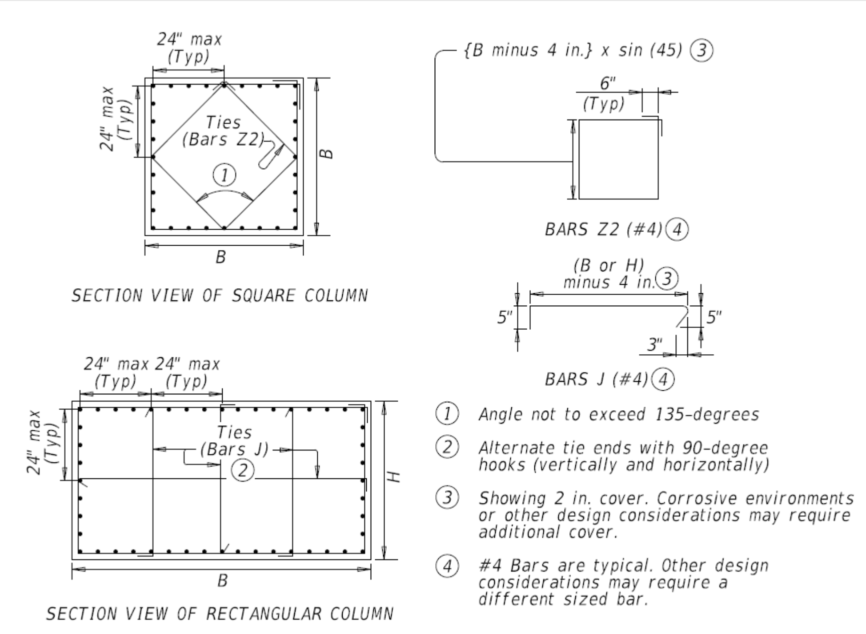


- Updated detailing for end sections of Skewed Inverted Tee Bent Caps (Based on Research Project 6905 "Performance of Skew Reinforcing in Inverted-T Bridge Caps")
- Added Example sheets



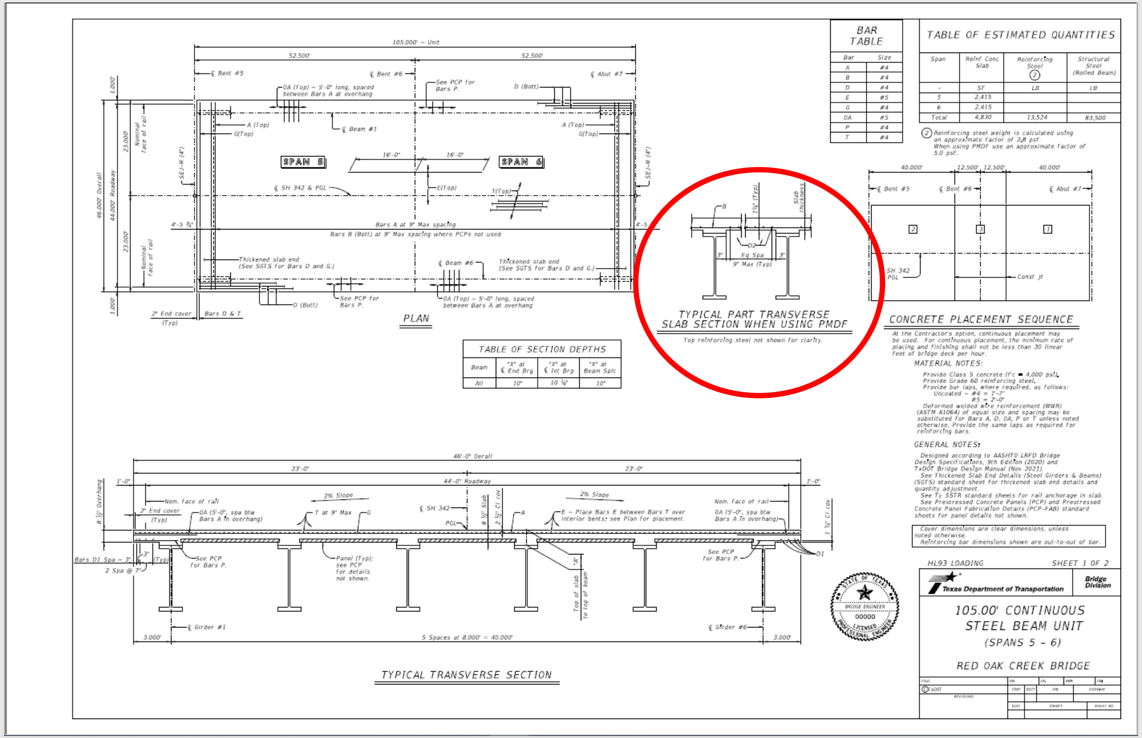
Appendix A – PRESTR CONC I-GDR Spans

- Updated column reinforcing for compliance with AASHTO LRFD 9th Ed.
- Previous editions allowed as much as 48 in between restrained bars. 9th Ed. only allows 24 in.
- Columns with a least dimension of more than 30 in will now require more than a perimeter tie for that face.



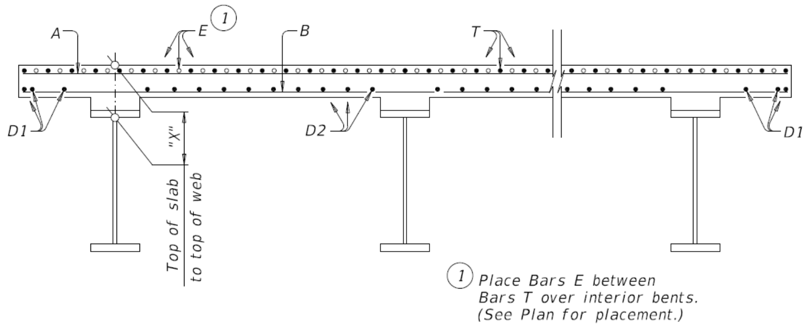
Appendix E – Steel Beam and Plate Girder Spans

- Adjusted plan notes and added details to Example sheets
- Added Typical Part Transverse slab section when using PMDF
- Updated reinforcing steel weights for consistency between using PMDF or panels
- Added transition zones to girder elevation sheets

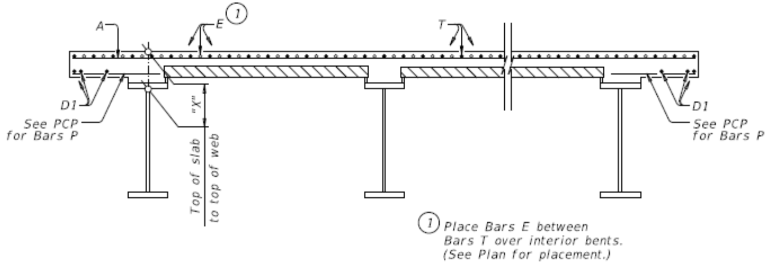


Appendix E – Steel Beam and Plate Girder Spans

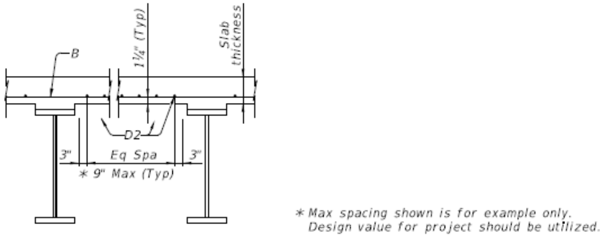
- Expanded Typical Transverse Sections to include PCPs for straight bridges and added Typical Radial Section for curved bridges



TYPICAL RADIAL SECTION



TYPICAL TRANSVERSE SECTION

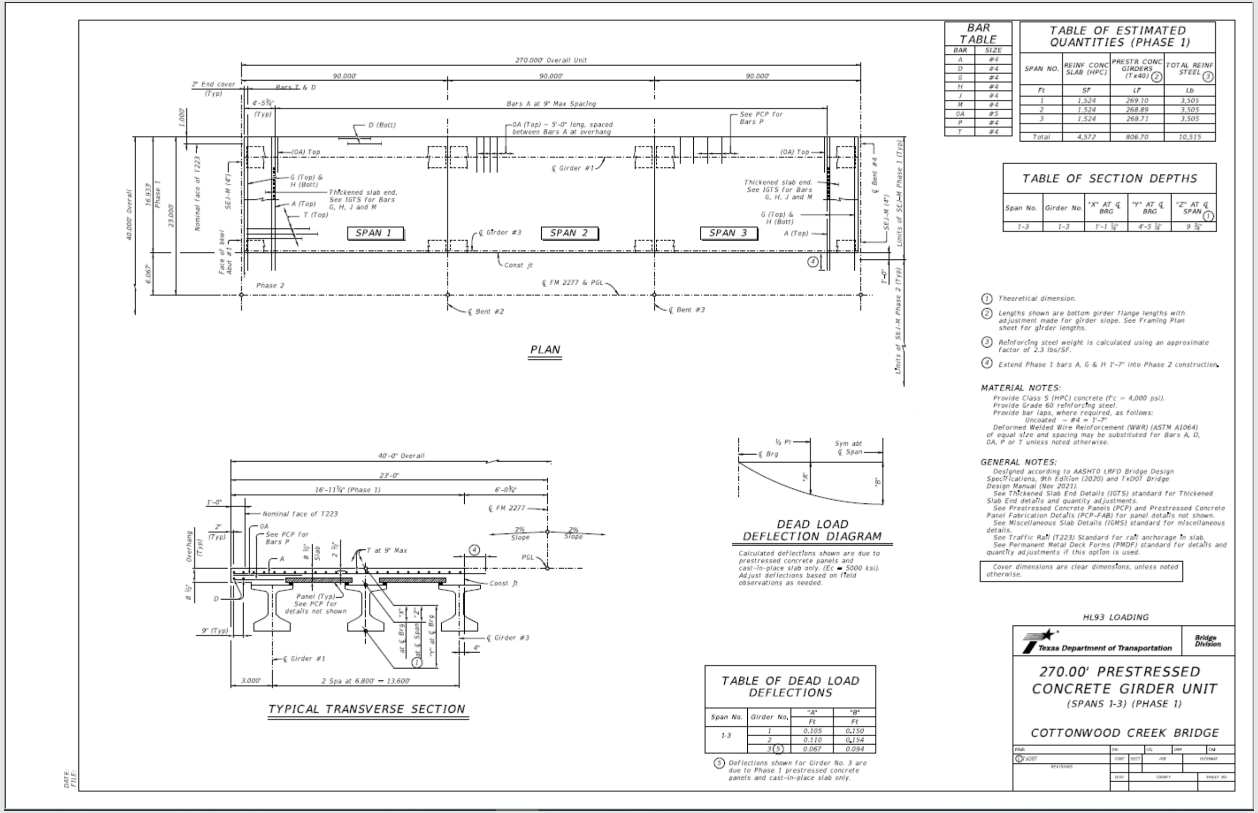


TYPICAL PART TRANSVERSE
SLAB SECTION WHEN USING PMDF

Top reinforcing steel not shown for clarity.

Appendix F – Phased Bridges

- NEW APPENDIX to provide guidance on detailing for phased bridges
- Includes Checklist for details relevant to phased bridges
- Includes Estimate & Quantity Sheet, Bridge Layout, Phased Typical Sections and Detail Sheets



Possible Future Updates

- Appendix Section on Spread Box Beams
- Update Box Beams for some changes to standards in Cap/Column sizes
- Section or Appendix Section on Widenings (Look for examples in new Bridge Design Guide)

Questions?

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