TxDOT Standard Bridges

BRG-DES

Texas Department of Transportation

July 24, 2025

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What is a standard?

Per TxDOT PS&E manual, Section 2, Standard Drawing Reliability,

Plan sheets of TxDOT standard drawings are considered a product of the company which have evolved and been developed by many people over a considerable number of years, and in the case of existing standards, the details shown on the drawings have proven to be reliable through their years of use.

- TxDOT Bridge Division currently maintains:

  - 824 standards (1273 sheets)

- Two kinds of standard

  - Statewide Standard Drawings

  - District Standard Drawings

- There are working drawing now on the Standards Website for bridge repairs.

WORKING DRAWINGS

Rev Date	Std Name	Description	File Name
08-22		Index Sheet of Working Drawings	WD-Table-22.dgn
		BRIDGE REPAIRS	
Rev Date	**Std Name**	**Description**	**File Name**
08-22		Bridge Deck Overlay Notes	WD-BDON-22.dgn
08-22		Cleaning and Sealing Bridge Joints (Pan Girders)	WD-CSBJ(PG)-22.dgn
08-22		Cleaning and Sealing Bridge Joints	WD-CSBJ-22.dgn
08-22		Precompressed Foam Expansion Joint Seal	WD-PFEJ-22.dgn
08-22		Elastomeric Bearing Replacement (Concrete)	WD-EBR(C)-22.dgn
08-22		Elastomeric Bearing Replacement (Steel)	WD-EBR(S)-22.dgn
08-22		Prestressed Concrete Beam Repair	WD-PCBR-22.dgn
08-22		Bridge Protective Beam Wrap	WD-BPBW-22.dgn
08-22		Steel Beam Repair	WD-SBR-22.dgn
08-22		Pile Encasement	WD-PED-22.dgn

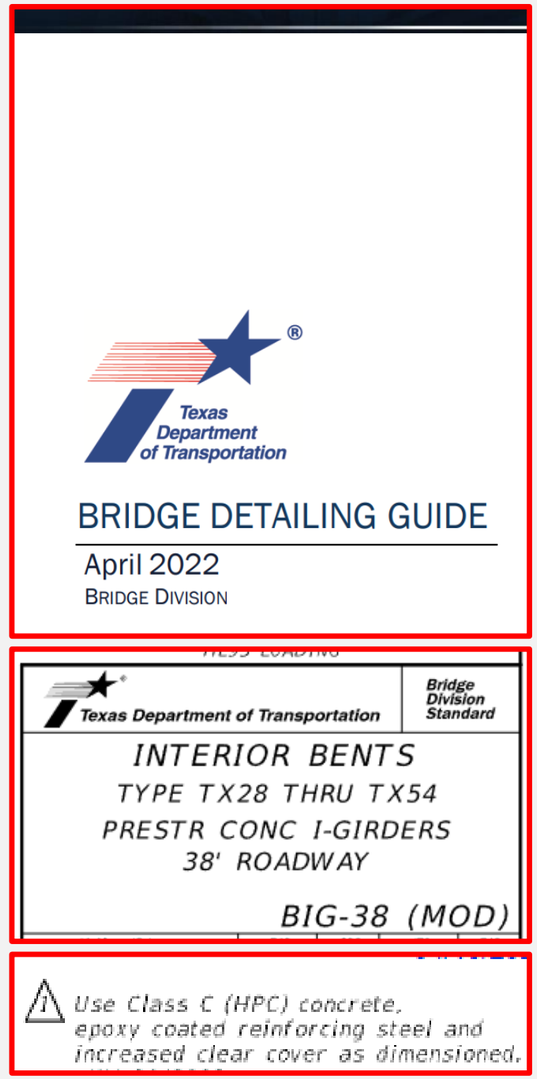
Types of Standard Drawings

Per the Bridge Detailing Guide: Chapter 2, Section 3 (https://ftp.txdot.gov/pub/txdot-info/brg/design/bridge-detailing-guide.pdf)

- **Statewide Standard Drawing -** Drawings are not considered to be an available standard until they are issued via the TxDOT internet site. The original version is kept on file in the Bridge Design Section of the Bridge Division. The electronic file of this original is available here on TxDOT's Internet web site. Any reproducible copies made from the electronic file may be used in plan sets and are not required to be signed or sealed.

- **Modified Standard Drawing -** Any change, however minor, to a standard drawing for use in a specific project, must be briefly described and dated in the revision block of the plan sheet. Bubble around the change made on the sheet. This sheet must be signed and sealed by the engineer of record. Additionally, the designation "(MOD)" must be placed after the standard name inside the title block.

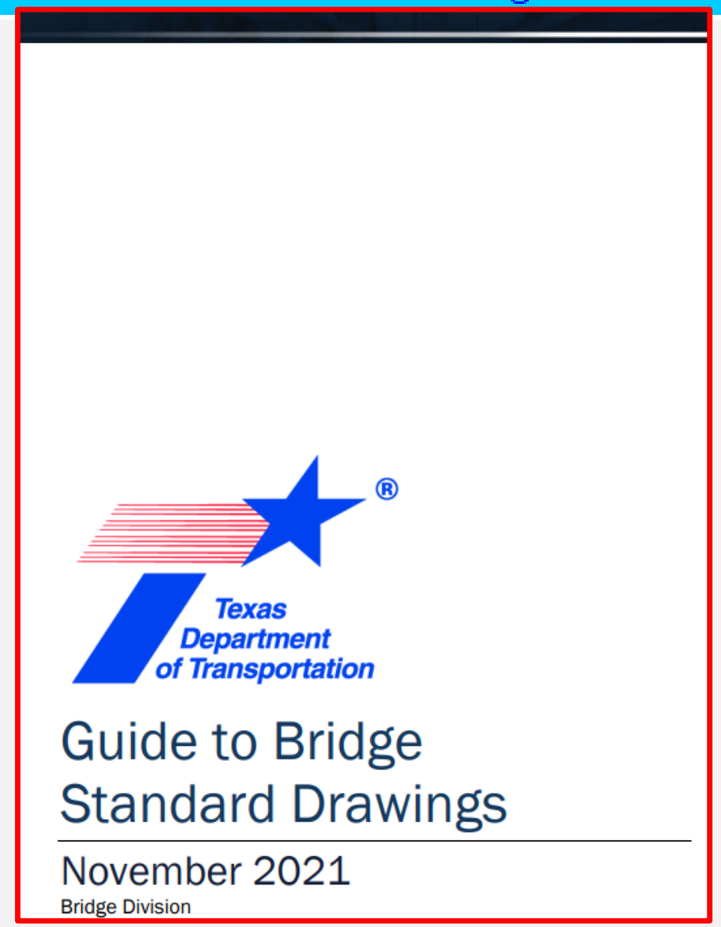
- **District Standard Drawing -** Any drawings used regularly within a district that were developed by that district, or statewide standards that are revised to fit the individual needs of that district, may be considered a district standard. Each district must identify their standards by including the district name in the title block. **Only the issuing district may use this drawing as a standard without signing and sealing.**



Standard Bridges: Guide to Bridge Standard Drawings

Rev Date	Subject	File Name
11-21	Guide to Bridge Standard Drawings	guideste.pdf
11-21	Standard Bridge Spreadsheet	std-brg.xlsm

- Guide to Bridge Standard Drawings
  - Provides information on the appropriate use of Bridge Standards.
  - Provides information on which standards should be used together.

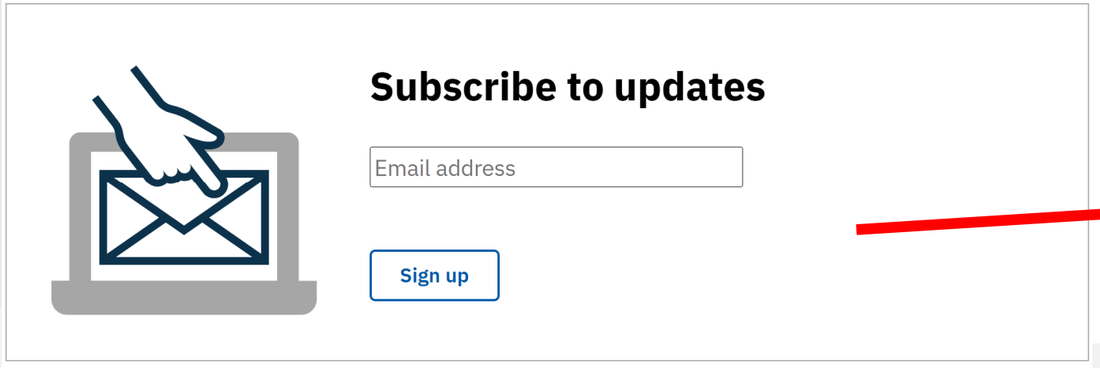


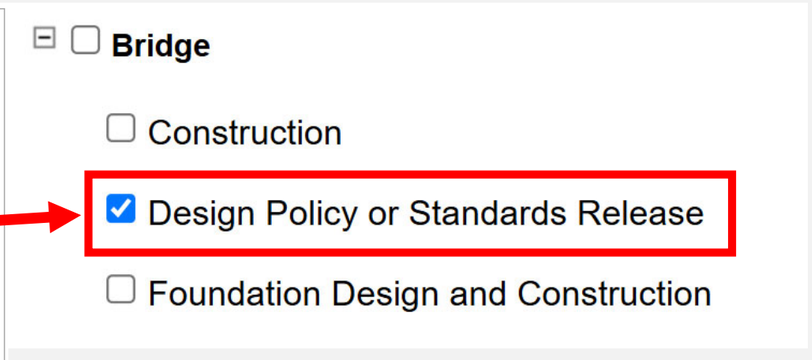
Standard Bridges: Recent Memo Releases

- Any Updates/Revisions/Retirements to standards are shown in a memo.
- Check in with the Memo section of the Bridge Standards Webpage to get the latest news on what is available for use!
- Question or comments, please contact BRG_Bridge3DDesign<bridge3ddesign@txdot.gov>.
- https://www.txdot.gov/about/divisions/bridge-division.html

Memorandums of Issued/Revised Standards
From September 2000 to Present

Rev Date	Subject	File Name
06/11/2025	Prestressed U-Beam Standards Drawings - Retired	memo89.pdf
05/06/2025	Revised Retaining Wall Standard Drawings and New Working Drawings	memo88.pdf
02/04/2025	Concrete Slab & Girder (Pan Form) Standards Drawings - Retired	memo87.pdf
01/31/2025	Prestressed Decked Slab Beams Standard Drawings - Retired	memo86.pdf
11/22/2024	Revised I-Girder and X Beam Standard Drawings	memo85.pdf
10/15/2024	New and Revised Miscellaneous Standard Drawing	memo84.pdf
08/06/2024	New Wide Flange I-Girder Standards	memo83.pdf
06/18/2024	New and Revised Culvert and Drainage Standards	memo82.pdf
06/18/2024	New and Revised Bridge Railing Standards	memo81.pdf
06/18/2024	New Wildlife Accommodation Standards and Working Drawings	memo80.pdf
05/29/2024	New Foundation Note sheet and Foundation Load Sheets for Designers Information	memo79.pdf
02/23/2024	New and Revised Working Drawings	memo78.pdf
10/23/2023	Revised Prestressed Concrete I-Girder Standard Drawings	memor77.pdf
07/31/2023	All Standard Drawings Update for Sheet Models and File Names	memoi76.pdf
06/26/2023	Revised Culvert Standard Drawings	memoi75.pdf
04/17/2023	New OBM Templates	memoi74.pdf
03/09/2023	New and Revised Miscellaneous, Bridge Railing, Culvert, I-Girder and U-beam Standard Drawings	memoi73.pdf
01/18/2023	New and Revised Concrete I-Girder Standard Drawings	memoi72.pdf
08/23/2022	Revised Prestressed Concrete X Beam Standard Drawings	memor71.pdf
08/23/2022	Revised Retaining Wall Standard Drawings	memor70.pdf
08/08/2022	New Working Drawings	memoi69.pdf
06/15/2022	New and Revised Retaining Wall Standard Drawings	memoi68.pdf





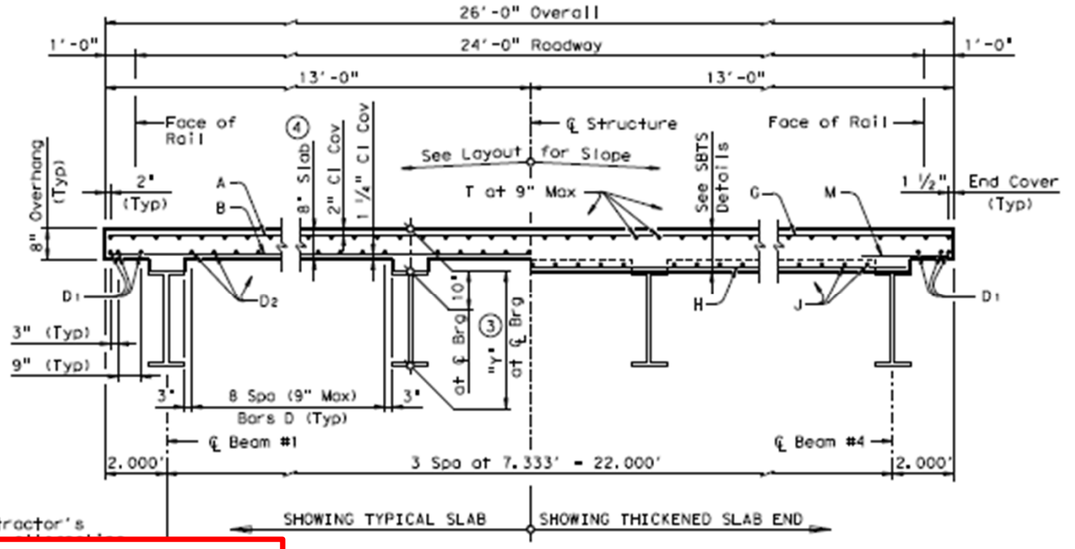
What Makes a "Standard Bridge"?

A standard bridge is…..

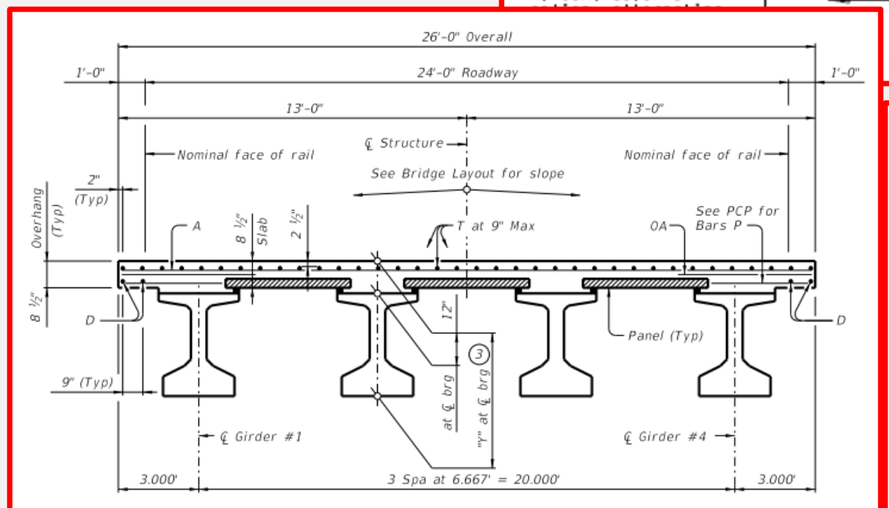
Plan sheets are comprised of non-modified Bridge TxDOT standard drawings.

These Bridge TxDOT standards are restricted by:

- Superstructure Type
  - Roadway width (24', 28', 30', etc…)
  - Skew (0°, 15°, 30°, 45°)
  - Girder Size (Tx28 – Tx62)
- Traffic Rails



TYPICAL TRANSVERSE SECTION



TYPICAL TRANSVERSE SECTION

(Showing girder type Tx46)

1. *If multi-span units (with slab continuous over interior bents) are indicated on the Bridge Layout, see standard IGCS for adjustment to slab reinforcement and quantities.*
2. *Span lengths for Prestressed Concrete I-Girder type:*
   Type Tx28 for spans lengths 40.000' thru 75.000'.
   Type Tx34 for spans lengths 40.000' thru 85.000'.
   Type Tx40 for spans lengths 40.000' thru 100.000'.
   Type Tx46 for spans lengths 40.000' thru 115.000'.
   Type Tx54 for spans lengths 40.000' thru 125.000'.
3. *"Y" value shown is based on theoretical girder camber, dead load deflection from an 8 ½" concrete slab, a constant roadway grade, and using precast panels (PCP). The Contractor will adjust this value as necessary for any roadway vertical curve.*

Type of a " Standard Bridge"?

Superstructure	Girder Size	Skew	Roadway Width
Prestressed I-Girders	Tx28, Tx34, Tx40, Tx46, Tx54, Tx62,	0˚, 15˚,30˚, or 45˚	24', 28', 30', 32', 34', 38', 40', 44'
Prestressed Box Beams	4B20, 5B20, 4B28, 5B28, 4B34, 5B34, 4B40, 5B40	0˚	24', 28', 30'
Prestressed Slab Beams	4SB12, 4SB15, 5SB12, 5SB15,	0˚, 15˚, or 30˚	24', 28', 30'
Cast in Place Slab Span	Unit (25'), Unit(25'-25'), Unit(25.5'-25.5'), Unit(25'-25'-25'), Unit(25.5'-25.5'-25.5'), Unit(25'-30-25'), Unit(25.5'-30.5'-25.5')	0˚, 15˚, or 30˚	24', 28', 30', 38', 44'
Prestressed X-Beams	5XB20, 5XB28, 5XB34, 5XB40	0˚, 15˚, or 30˚	32', 38', 40', 44'
Steel Beams	Varies (W18x130 thru W40x149)	0˚, 15˚, or 30˚	24', 28', 30'

Standard Railings

Traffic Rail Standards

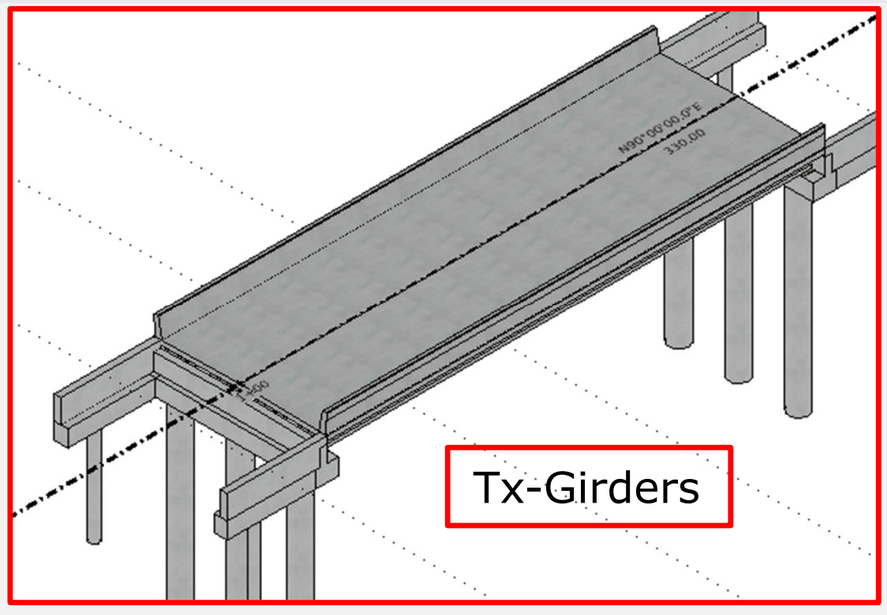
- Check applicability of standard Traffic Rails
  - See *Bridge Railing Manual* for rail selection guidance
- All rails are considered rigid except T631 & T631LS
  - The T631 and T631 LS Standard traffic rail are classified as flexible

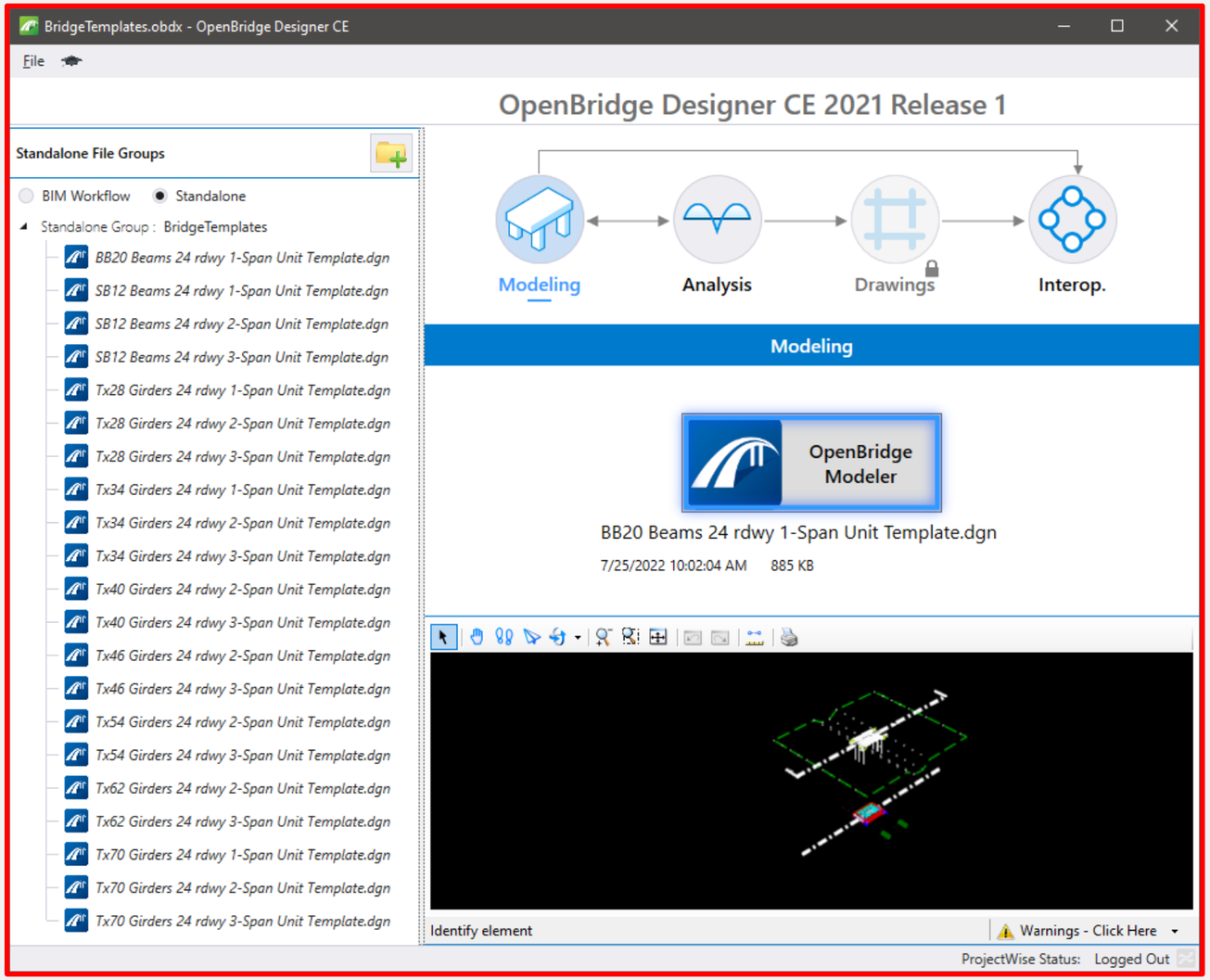
TRAFFIC RAILS

Rev Date	Std Name	Description	File Name
09-19	T1F	Steel Post w/Alum Tube & Opt Curb Drain Slots (TL-3)(33" tall)	rlstd001-19.dgn
09-19	T1W	Steel Rail w/Curb & Opt Curb Drain Slots (TL-3) (32" tall)	rlstd002-19.dgn
09-19	T2P	Steel Rail w/Curb & Opt Curb Drain Slots (TL-4) (42" tall)	rlstd035-19.dgn
09-19	T221	Concrete Vertical Parapet (TL-3)(32"tall)	rlstd004-19.dgn
09-19	T222	Concrete Vertical Parapet (TL-4)(36"tall)	rlstd003-19.dgn
09-19	T223	Concrete Beam & Post w/6' Openings (TL-3)(32" tall)	rlstd005-19.dgn
09-19	T224	Concrete Beam & Post w/10' Openings (TL-5)(42" tall)	rlstd042-19.dgn
09-19	T402	Concrete Parapet w/Steel Posts & Rail (TL-4)(42" tall)	rlstd007-19.dgn
07-20	T411	Concrete Traffic Rail w/Windows (Tx Classic)(TL-2)(32" tall)	rlstd008-20.dgn
09-19	T551	Concrete Safety F-Shape (TL-3)(32" tall)	rlstd009-19.dgn
09-19	T552	T551 w/Multiple Drain Slots (TL-3)(32" tall)	rlstd010-19.dgn
03-23	T631	Steel Rail w/ W-Beam (TL-3) (31" tall)	RL-T631-23.dgn
03-23	T631LS	Steel Rail w/ W-Beam (TL-2) (31" tall)	RL-T631LS-23.dgn
09-19	T66	Concr Bm, Post & Curb w/5.25' Max Openings (TL-3)(32" tall)	rlstd012-19.dgn
09-19	SSTR	Concrete Single Slope Traffic Rail (TL-4)(36" tall)	rlstd014-19.dgn
09-19	T80HT	Concrete & Steel Heavy Truck Traffic Rail (TL-5)(50" tall)	rlstd015-19.dgn
09-19	T80SS	Concrete Single Slope Heavy Truck Traffic Rail (TL-5)(42" tall)	rlstd016-19.dgn

Standard Bridges: Bridge OBM templates

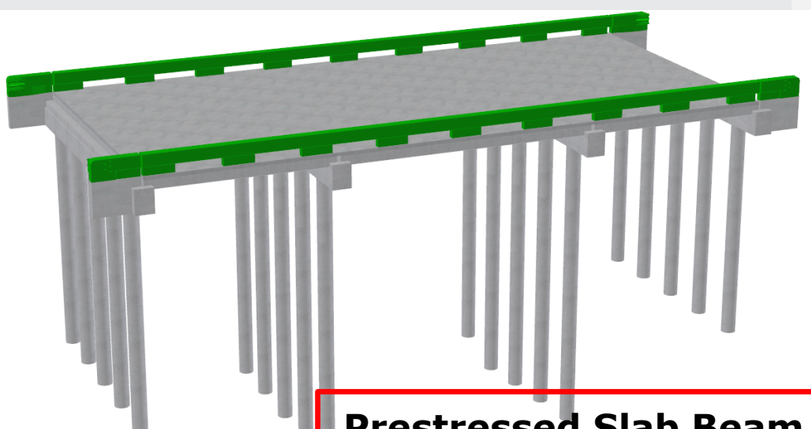
- We have full bridge templates for Standard Bridges.
- The user will be able to copy these models to their project.
- Open the template, modify the alignment, modify span length, and change rail type.
- The engineer is responsible for accuracy of the model for their project.





Standard Bridges: Bridge OBM templates

- Bridge Templates that model standard bridges
  - Prestressed Tx-Girders
  - Prestressed Slab Beam.
  - Prestress Adjacent Box Beams
  - Prestressed Spread Box beams (X-Beams)



Prestressed Slab Beam

Bridge Standards

Subscribe to Updates

Last Update: Thursday, July 17, 2025

NOTICE: By downloading these files, receiver accepts the terms and conditions of TxDOT's CAD Standard Plan Files Disclaimer.

INSTRUCTIONS: Click on the MicroStation (DGN) filename to download.

MicroStation (DGN) filenames that have the companion PDF icon can be viewed in Adobe® Acrobat® Reader by clicking on the PDF icon.

BRIDGE DIVISION STANDARDS

bridge-ex.xlsx ~ The Bridge Division standards list.

Supporting MicroStation files for displaying and plotting standards:

1. txdot.rsc ~ Font resource file (updated 08/03/07).
2. ljetpsb2014.plt ~ MicroStation 95 plot driver file for HP LaserJet Postscript printers. Such as HP9000dn and HP9040n. Supporting files also needed are controld and ljetb.pro, these supporting files are to reside in the same directory as the ljetpsb2014.plt. (updated 03/14/14)
3. brgttf01.zip ~ Bridge True Type Fonts are now used on Bridge Standards. For proper display of Bridge standards in MicroStation extract these font files into the C:\Windows\Fonts directory. Compare the PDF file with the DGN file for validation on correct fonts displayed in MicroStation.(updated June 2022)
4. Bridge templates that model standard bridges for Open Bridge Modeler (OBM).
   - A. Prestressed TxGirders.zip
   - B. Prestressed Slab Beams.zip
   - C. Prestr. Adjacent Box Beams.zip
   - D. Prestr. Spread Box Beams (X-Beams).zip

What Makes a "Standard Box Culvert"?

Box Culvert Standards

- Single Box Culverts.

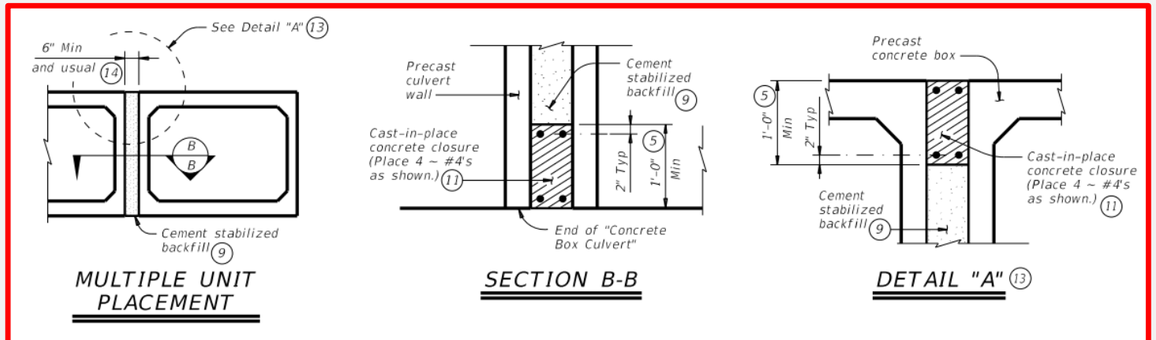
  - C.I.P Span length: 3', 4', 5',6',7',8',9' and 10'

  - Precast Span length: 3', 4', 5',6',7',8',9',10', 11' and 12'

- Which Should we use Precast or Cast-in-Place?

  - Insert both into plans. Allow the Contractor to decide.

Rev Date	Std Name	Description	File Name
03-23		Index Sht of Culvert & Drainage Stds	CD-table-23.dgn
		SINGLE BOX CULVERTS	
Rev Date	**Std Name**	**Description**	**File Name**
02-20	SCC-MD	Cast-In-Place Miscellaneous Details	sccmdste-20.dgn
04-21	SCC-3 & 4	C-I-P 3' & 4' Span Boxes	scc34ste-21.dgn
04-21	SCC-5 & 6	C-I-P 5' & 6' Span Boxes	scc56ste-21.dgn
04-21	SCC-7	C-I-P 7' Span Boxes	scc07ste-21.dgn
04-21	SCC-8	C-I-P 8' Span Boxes	scc08ste-21.dgn
04-21	SCC-9	C-I-P 9' Span Boxes	scc09ste-21.dgn
04-21	SCC-10	C-I-P 10' Span Boxes	scc10ste-21.dgn
02-20	SCP-MD	Precast Miscellaneous Details	scpmdsts-20.dgn
02-20	SCP-3	Precast 3' Span Boxes	scp03sts-20.dgn
02-20	SCP-4	Precast 4' Span Boxes	scp04sts-20.dgn
02-20	SCP-5	Precast 5' Span Boxes	scp05sts-20.dgn
02-20	SCP-6	Precast 6' Span Boxes	scp06sts-20.dgn
02-20	SCP-7	Precast 7' Span Boxes	scp07sts-20.dgn
02-20	SCP-8	Precast 8' Span Boxes	scp08sts-20.dgn
02-20	SCP-9	Precast 9' Span Boxes	scp09sts-20.dgn
02-20	SCP-10	Precast 10' Span Boxes	scp10sts-20.dgn
02-20	SCP-11	Precast 11' Span Boxes	scp11sts-20.dgn
02-20	SCP-12	Precast 12' Span Boxes	scp12sts-20.dgn



What Makes a "Standard Box Culvert"?

Box Culvert Standards

- Multiple Box Culverts
  - C.I.P span length: 3', 4', 5',6',7',8',9' and 10'
  - Number of Spans – Up to 6 spans
  - Design fill
  - Straight Wings, Flared and Parallel wings
- Yes! We can use Precast for multiple box culverts.

  - The standard Precast Miscellaneous Details (SCP-MD) covers these details.

MULTIPLE BOX CULVERTS

Rev Date	Std Name	Description	File Name
02-20	MC-MD	Cast-In-Place Miscellaneous Details	mc-mdste-20.dgn
02-20	MC-3-23	C-I-P 3' Spans for Lengthening	mc323ste-20.dgn
02-20	MC-4-23	C-I-P 4' Spans for Lengthening	mc423ste-20.dgn
02-20	MC-5-20	C-I-P 5' Spans thru 20' Fill	mc520ste-20.dgn
02-20	MC-5-23	C-I-P 5' Spans thru 23' Fill	mc523ste-20.dgn
02-20	MC-6-16	C-I-P 6' Spans thru 16' Fill	mc616ste-20.dgn
02-20	MC-6-20	C-I-P 6' Spans thru 20' Fill	mc620ste-20.dgn
02-20	MC-6-23	C-I-P 6' Spans thru 23' Fill	mc623ste-20.dgn
02-20	MC-7-10	C-I-P 7' Spans thru 10' Fill	mc710ste-20.dgn
02-20	MC-7-16	C-I-P 7' Spans thru 16' Fill	mc716ste-20.dgn
02-20	MC-7-20	C-I-P 7' Spans thru 20' Fill	mc720ste-20.dgn
02-20	MC-7-23	C-I-P 7' Spans thru 23' Fill	mc723ste-20.dgn
02-20	MC-8-13	C-I-P 8' Spans thru 13' Fill	mc813ste-20.dgn
02-20	MC-8-16	C-I-P 8' Spans thru 16' Fill	mc816ste-20.dgn
02-20	MC-8-20	C-I-P 8' Spans thru 20' Fill	mc820ste-20.dgn
02-20	MC-8-23	C-I-P 8' Spans thru 23' Fill	mc823ste-20.dgn
02-20	SW-0	Straight Wings for 0 Deg Skew	sw-0stde-20.dgn
02-20	FW-0	Flared Wings for 0 Deg Skew	fw-0stde-20.dgn
02-20	FW-S	Flared Wings for Skews	fw-sstde-20.dgn
02-20	PW	Parallel Wings Skewed/Non Skewed	pwstde01-20.dgn

Bid Codes Number

- Sort Bid Codes in Numerical Order

- Spelling of Bid Code & Bid Code Number must exactly match spelling from master list of TxDOT bid codes from TxDOT website.

- Not an issue if Axiom is used.

0400 6005	0416 6001	0416 6004	0420 6013
CEM STABIL BKFL	DRILL SHAFT (18 IN)	DRILL SHAFT (36 IN)	CL C CONC (ABUT) ①
CY	LF	LF	CY

SUMMARY OF ESTIMATED QUANTITIES

BID ITEM / BID CODE	0400 6005	0416 6002	0420 6013	0420 6029	0420 6037	0422 6007	0425 6012	0432 6033	0450 6006	0454 6004	0496 6009
BID ITEM DESCRIPTION / BRIDGE ELEMENT	CEM STABIL BKFL	DRILL SHAFT (24 IN)	CL C CONC (ABUT)	CL C CONC (CAP)	CL C CONC (COLUMN)	REINF CONC SLAB (SLAB BEAM)	PRESTR CONC SLAB BEAM (5SB15)	RIPRAP (STONE PROTECTION) (18 IN)	RAIL (TY T223)	ARMOR JOINT (SEALED)	REMOV STR (BRIDGE 0 - 99 FT LENGTH)
	CY	LF	CY	CY	CY	SF	LF	CY	LF	LF	EA
2 - ABUTMENTS											
2 - INTERIOR BENTS											
1 - ' PRESTRESSED CONC. SLAB BEAM UNIT											
OVERALL TOTALS:											

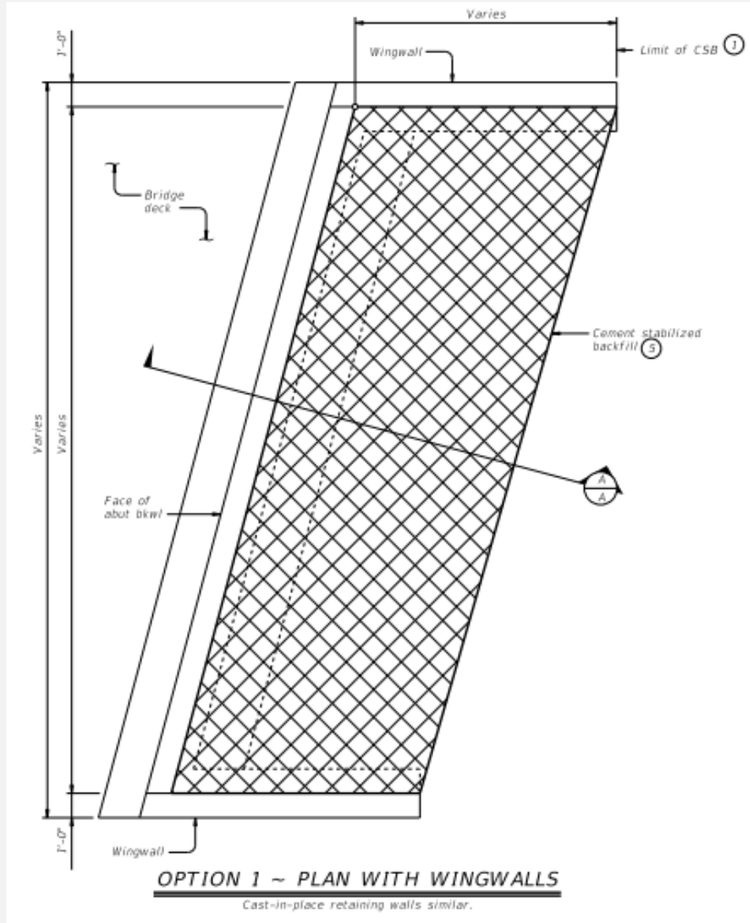
EQ Sheet: Quantity Tolerances

- From Bridge Detailing Guide

Bid Tolerances		
Bid Item #	**Common Item**	**Show to Nearest**
400	Structural Excavation	1 CY
400	Cement Stabilized Backfill	1 CY
402	Trench Excavation Protection	1 LF
409	Prestressed Concrete Piling	1 LF
416	Drill Shaft Foundations	1 LF
420	Concrete	0.1 CY
422	Reinforced Concrete Slab	1 SF
425	Prestressed Concrete Beams	0.01 LF
432	Riprap	1 CY
434	Elastomeric Bearings	EA
442	Structural Steel	See Estimated Quantities in Appendix E
450	Railing	0.1 LF
454	Expansion Joint	1 LF
514	Permanent Concrete Traffic Barrier	0.1 LF
786	Carbon Fiber Reinforced Polymer	0.1 SF

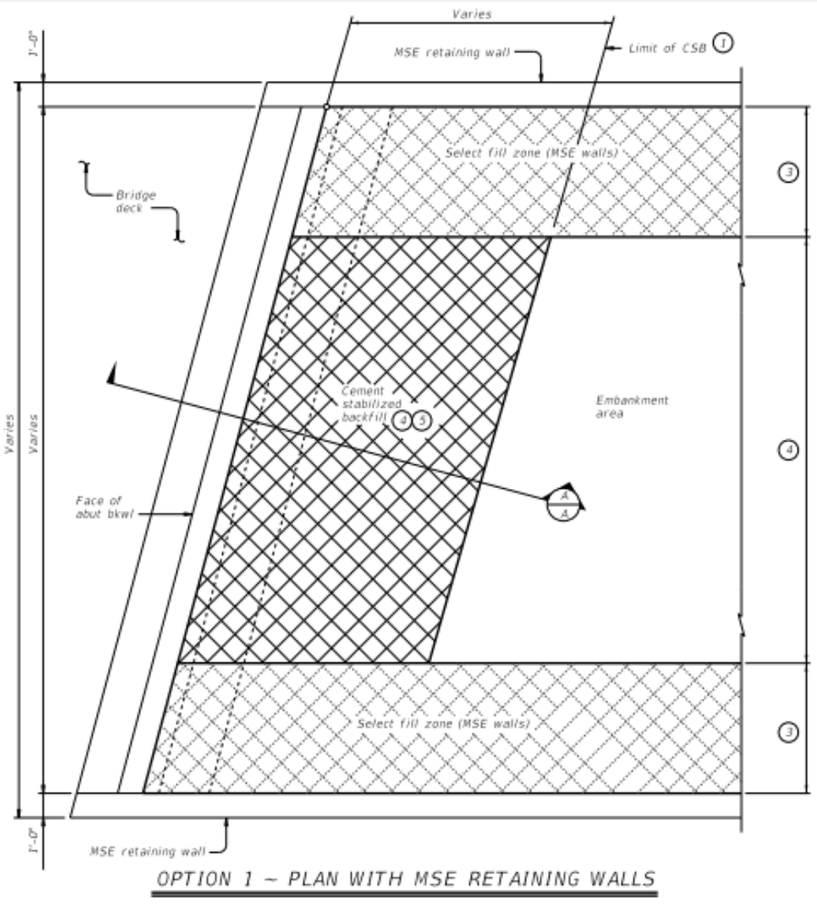
EQ Sheet: Cement Stabilized Backfill

- If no approach slab, need pavement thickness.
- Note that Section A-A is perpendicular to the abutment.
- When adjacent to MSE retaining walls, assume the select fill width is approximately 80% of retaining wall height.
- Verify slope is no steeper than 1:1
- Option 2 for PI greater than 30 or pavement built in poor native soil, see General note.



OPTION 1 ~ PLAN WITH WINGWALLS

Cast-in-place retaining walls similar.



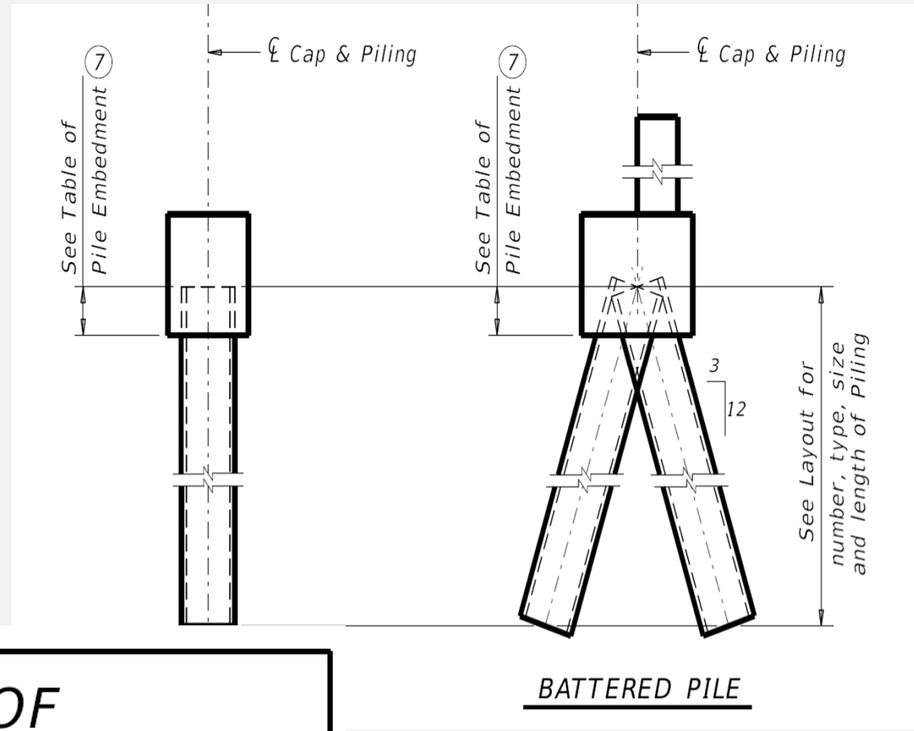
OPTION 1 ~ PLAN WITH MSE RETAINING WALLS

EQ Sheet: Pile Lengths

- When calculating pile lengths for payment, include embedment of pile into caps. See FD Standard.

- Account for batter in battered pile length.

- Use bearing seat or step/cap elevations as basis to calculate top of cap. Do not measure top of cap elevations from the layout.

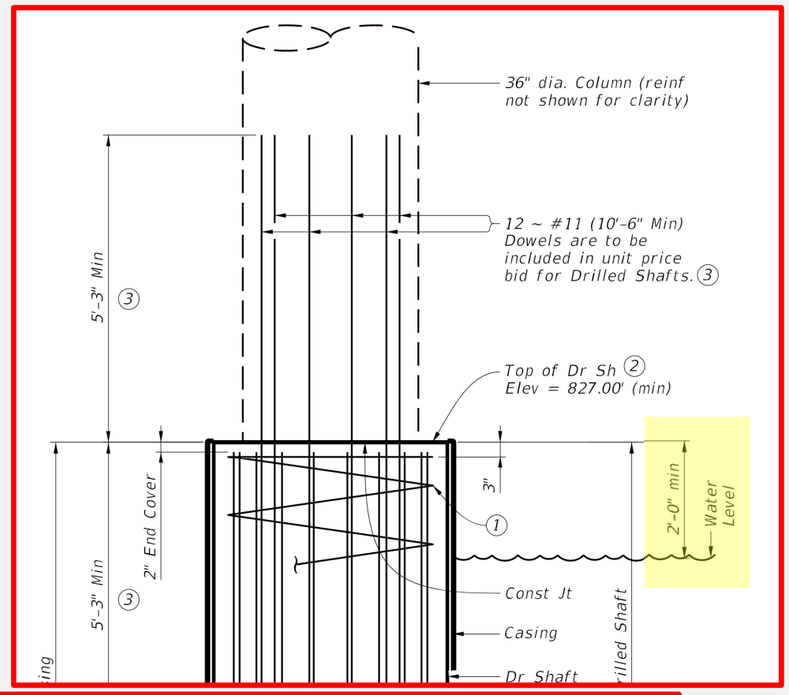


BATTERED PILE

TABLE OF PILE EMBEDMENT	
Pile Type	Embedment Depth (Ft)
16" Sq Concrete 18" Sq Concrete HP14 Steel HP16 Steel	1'-0"
20" Sq Concrete 24" Sq Concrete HP18 Steel	1'-6"

EQ Sheet: Column Lengths

- Use column heights shown on bridge layout to calculate total CY.
  - Note 1 on interior bent sheets will help quickly get column EQ.
- In ground, bottom of column is 1’ min below ground line.
- In water, bottom of column is 2’ min above water line.



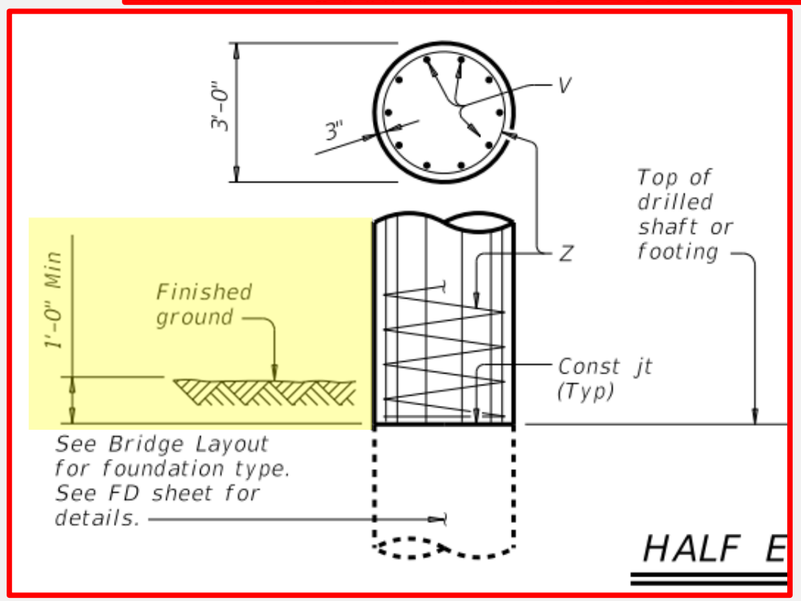
(1) Quantities shown are based on an "H" value of 36'. For each linear foot variation in "H" value, make the following adjustments:
Bars V length, 1'-0"
Bars Z length, 31'-5"
Reinforcing steel, 220 Lb
Class "C" conc (col), 1.05 CY

(2) This standard may not be used for "H" heights exceeding 36'. In areas of very soft soil or where scour is anticipated, allowable "H" heights must be evaluated by the Engineer prior to the use of this standard.

(3) Omit Dowels D at end of multi-span units. Adjust reinforcing steel total accordingly.

(4) Foundation Loads based on "H" = 36'.

(5) Measured parallel to top of cap cross-slope.



Standard Bridge: 34 ft Roadway Details

PRESTRESSED CONCRETE I-GIRDER 34' ROADWAY DETAILS

Rev Date	Std Name	Description	File Name
01-23	IGSD-34	Std Designs,Ty Tx28 Thru Tx62 Girders,34' Rdwy	IG-IGSD34-23.dgn
01-23	AIG-34	Abut,Ty Tx28 Thru Tx54 Girders,34' Rdwy	IG-AIG3400-23.dgn
01-23	AIG-62-34	Abut,Ty Tx62 Girders,34' Rdwy	IG-AIG623400-23.dgn
01-23	AIG-34-15	Abut,Ty Tx28 Thru Tx54 Girders,34' Rdwy 15 Deg	IG-AIG3415-23.dgn
01-23	AIG-62-34-15	Abut,Ty Tx62 Girders,34' Rdwy,15 Deg	IG-AIG623415-23.dgn
01-23	AIG-34-30	Abut,Ty Tx28 Thru Tx54 Girders,34' Rdwy,30 Deg	IG-AIG3430-23.dgn
01-23	AIG-62-34-30	Abut,Ty Tx62 Girders,34' Rdwy,30 Deg	IG-AIG623430-23.dgn
01-23	AIG-34-45	Abut,Ty Tx28 Thru Tx54 Girders,34' Rdwy,45 Deg	IG-AIG3445-23.dgn
01-23	AIG-62-34-45	Abut,Ty Tx62 Girders,34' Rdwy,45 Deg	IG-AIG623445-23.dgn
01-23	BIG-34	Bent,Ty Tx28 Thru Tx54 Girders,34' Rdwy	IG-BIG3400-23.dgn
01-23	BIG-62-34	Bent,Ty Tx62 Girders,34' Rdwy	IG-BIG623400-23.dgn
01-23	BIG-34-15	Bent,Ty Tx28 Thru Tx54 Girders,34' Rdwy,15 Deg	IG-BIG3415-23.dgn
01-23	BIG-62-34-15	Bent,Ty Tx62 Girders,34' Rdwy,15 Deg	IG-BIG623415-23.dgn
01-23	BIG-34-30	Bent,Ty Tx28 Thru Tx54 Girders,34' Rdwy,30 Deg	IG-BIG3430-23.dgn
01-23	BIG-62-34-30	Bent,Ty Tx62 Girders,34' Rdwy,30 Deg	IG-BIG623430-23.dgn
01-23	BIG-34-45	Bent,Ty Tx28 Thru Tx54 Girders,34' Rdwy,45 Deg	IG-BIG3445-23.dgn
01-23	BIG-62-34-45	Bent,Ty Tx62 Girders,34' Rdwy,45 Deg	IG-BIG623445-23.dgn
01-23	BTIG-34	Trestle Bent,Ty Tx28 Thru Tx54,34' Rdwy	IG-BTIG3400-23.dgn
01-23	BTIG-34-15	Trestle Bent,Ty Tx28 Thru Tx54,34' Rdwy,15 Deg	IG-BTIG3415-23.dgn
01-23	BTIG-34-30	Trestle Bent,Ty Tx28 Thru Tx54,34' Rdwy,30 Deg	IG-BTIG3430-23.dgn
01-23	BTIG-34-45	Trestle Bent,Ty Tx28 Thru Tx54,34' Rdwy,45 Deg	IG-BTIG3445-23.dgn
01-23	SIG-34	Span,Ty Tx28 Thru Tx54 Girders,34' Rdwy	IG-SIG3400-23.dgn
01-23	SIG-62-34	Span,Ty Tx62 Girders,34' Rdwy	IG-SIG623400-23.dgn
01-23	SIG-34-15	Span,Ty Tx28 Thru Tx54 Girders,34' Rdwy,15 Deg	IG-SIG3415-23.dgn
01-23	SIG-62-34-15	Span,Ty Tx62 Girders,34' Rdwy,15 Deg	IG-SIG623415-23.dgn
01-23	SIG-34-30	Span,Ty Tx28 Thru Tx54 Girders,34' Rdwy,30 Deg	IG-SIG3430-23.dgn
01-23	SIG-62-34-30	Span,Ty Tx62 Girders,34' Rdwy,30 Deg	IG-SIG623430-23.dgn
01-23	SIG-34-45	Span,Ty Tx28 Thru Tx54 Girders,34' Rdwy,45 Deg	IG-SIG3445-23.dgn
01-23	SIG-62-34-45	Span,Ty Tx62 Girders,34' Rdwy,45 Deg	IG-SIG623445-23.dgn

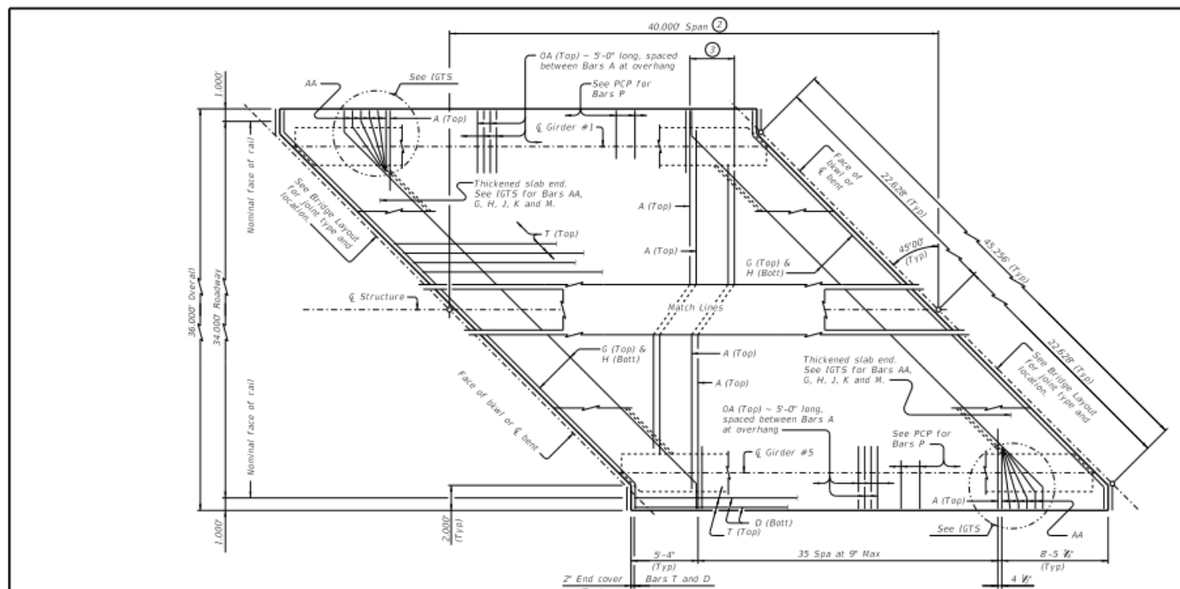
PRESTRESSED CONCRETE I-GIRDERS

Rev Date	Std Name	Description	File Name
03-23		Index sht of Prestr I-Girder Standards	IG-table-23.dgn

PRESTRESSED CONCRETE I-GIRDER DETAILS

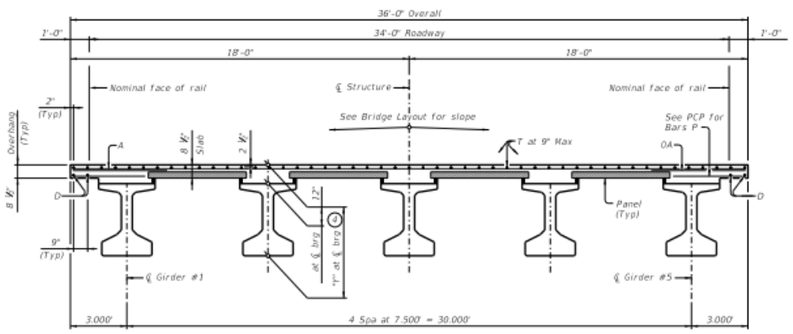
Rev Date	Std Name	Description	File Name
01-23	IGCS	Continuous Slab Details	IG-IGCS-23.dgn
03-23	IGD	Prestressed Concrete I-Girder Details	IG-IGD-23.dgn
08-17	IGEB	Elastomeric Bearing & Girder End Details	igebsts1-17.dgn
10-19	IGFRP	GFRP Slab Top Mat Reinforcement	igfrp001-19.dgn
10-19	IGMS	Miscellaneous Slab Details	igmssts1-19.dgn
03-22	IGND	Prestressed I-Girder Non-Standard Designs	igndsts1-22.dgn
08-17	IGSK	Shear Key Details for I-Girders	igskstds-17.dgn
08-17	IGTS	Thickened Slab End Details	igtssts1-17.dgn
08-17	MEBR(C)	Minimum Erection & Bracing Requirements	mebcsts1-17.dgn

Std Brg: 34’ Roadway - Prestressed Conc TX-Gdr. Spans



PLAN ~ 40' SPAN (1)

BAR TABLE	
BAR	SIZE
A	#4
AA	#5
D	#4
G	#4
H	#4
J	#4
K	#4
M	#4
OA	#5
P	#4
T	#4



TYPICAL TRANSVERSE SECTION

(Showing girder type Tx46)

TABLE OF SECTION DEPTHS	
GIRDER TYPE	"Y" AT ℄ BRG (4)
	Ft/In
Tx28	3'-4"
Tx34	3'-10"
Tx40	4'-4"
Tx46	4'-10"
Tx54	5'-6"

(1) If multi-span units (with slab continuous over interior bents) are indicated on the Bridge Layout, see standard TGCS for adjustment to slab reinforcement and quantities.

(2) Span lengths for prestressed concrete I-Girder type:
Type Tx28 for spans lengths 40.000' thru 75.000'.
Type Tx34 for spans lengths 40.000' thru 85.000'.
Type Tx40 for spans lengths 40.000' thru 95.000'.
Type Tx46 for spans lengths 40.000' thru 110.000'.
Type Tx54 for spans lengths 40.000' thru 125.000'.
See appropriate "Plan Detail" for span length.

(3) Bars A (Top) at 9" Max Spacing.

(4) "Y" value shown is based on theoretical girder camber, dead load deflection from an 8 ½" concrete slab, a constant roadway grade, and using precast panels (PCP). The Contractor will adjust this value as necessary for any roadway vertical curve.

HL93 LOADING — SHEET 1 OF 2

Texas Department of Transportation — Bridge Division Standard

PRESTRESSED CONCRETE I-GIRDER SPANS (TYPE Tx28 THRU Tx54)

34' ROADWAY 45° SKEW

SIG-34-45

FILE: ID-SIG3445-23.dgn	DN: TJR	CK: VC	DW: SFS	CK: TJR
©TxDOT January 2023	CONT	SECT	JOB	HIGHWAY
REVISIONS	DIST	COUNTY		SHEET NO.

FILE

TABLE OF ESTIMATED QUANTITIES

SPAN LENGTH	REINF CONCRETE SLAB	Prestressed Concrete Girders			TOTAL REINF STEEL (6)
		ABUT TO INT BT (5)	INT BT TO INT BT (5)	ABUT TO ABUT (5)	
Ft	SF	LF	LF	LF	Lb
40	1,440	196.98	197.50	196.46	3,312
45	1,620	221.98	222.50	221.46	3,726
50	1,800	246.98	247.50	246.46	4,140
55	1,980	271.98	272.50	271.46	4,554
60	2,160	296.98	297.50	296.46	4,968
65	2,340	321.98	322.50	321.46	5,382
70	2,520	346.98	347.50	346.46	5,796
75	2,700	371.98	372.50	371.46	6,210
80	2,880	396.98	397.50	396.46	6,624
85	3,060	421.98	422.50	421.46	7,038
90	3,240	446.98	447.50	446.46	7,452
95	3,420	471.98	472.50	471.46	7,866
100	3,600	496.98	497.50	496.46	8,280
105	3,780	521.98	522.50	521.46	8,694
110	3,960	546.98	547.50	546.46	9,108
115	4,140	571.98	572.50	571.46	9,522
120	4,320	596.98	597.50	596.46	9,936
125	4,500	621.98	622.50	621.46	10,350

(5) Fabricator will adjust lengths for girder slopes as required.

(6) Reinforcing steel weight is calculated using an approximate factor of 2.3 lbs/SF.

Std Brg: 34’ Roadway - Abutment Details

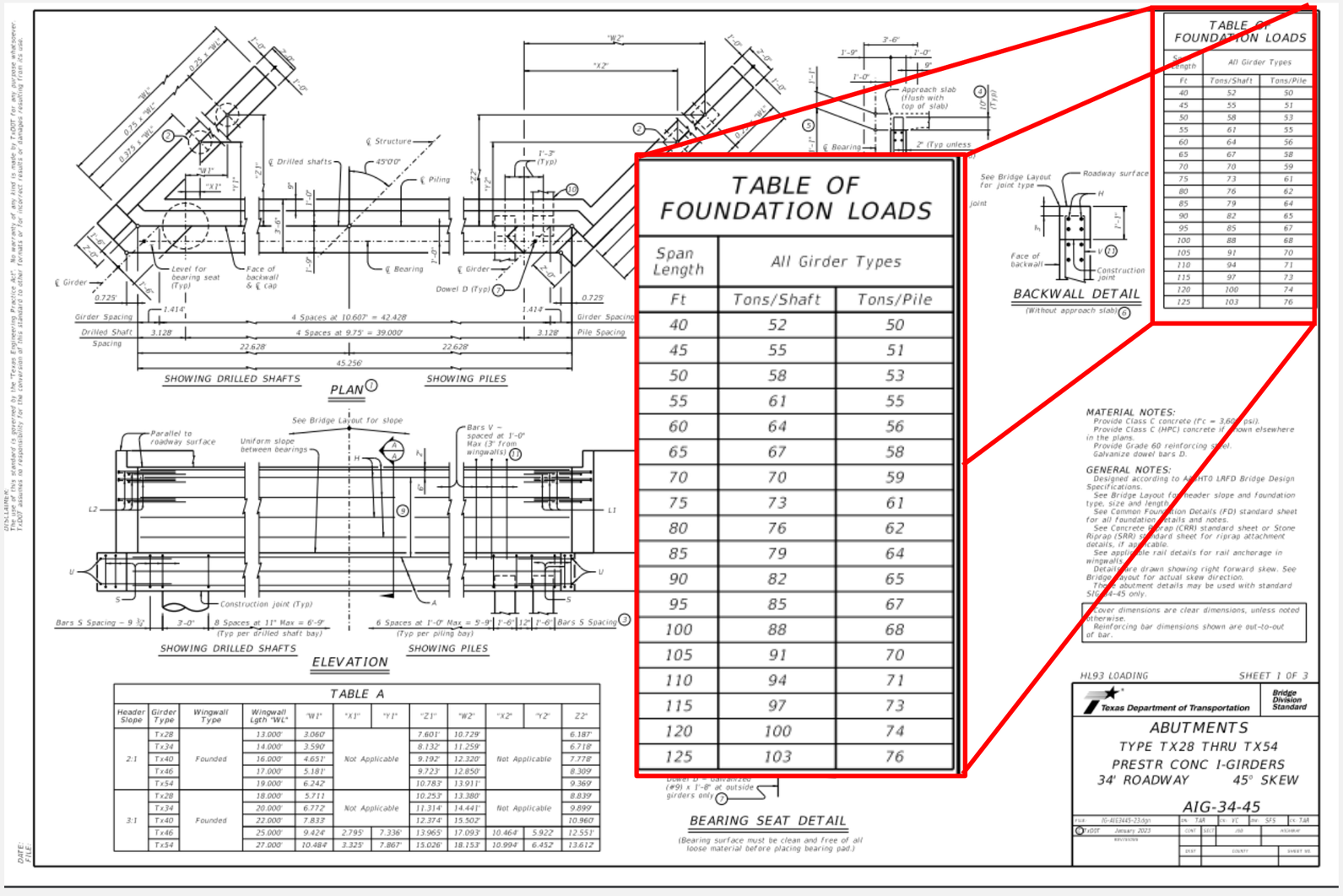


TABLE OF FOUNDATION LOADS

Span Length	All Girder Types	
Ft	Tons/Shaft	Tons/Pile
40	52	50
45	55	51
50	58	53
55	61	55
60	64	56
65	67	58
70	70	59
75	73	61
80	76	62
85	79	64
90	82	65
95	85	67
100	88	68
105	91	70
110	94	71
115	97	73
120	100	74
125	103	76

TABLE A

Header Slope	Girder Type	Wingwall Type	Wingwall Lgth "WL"	"W1"	"X1"	"Y1"	"Z1"	"W2"	"X2"	"Y2"	Z2"
2:1	Tx28	Founded	13.000'	3.060'	Not Applicable		7.601'	10.729'	Not Applicable		6.187'
	Tx34		14.000'	3.590'			8.132'	11.259'			6.718'
	Tx40		16.000'	4.651'			9.192'	12.320'			7.778'
	Tx46		17.000'	5.181'			9.723'	12.850'			8.309'
	Tx54		19.000'	6.242'			10.783'	13.911'			9.369'
3:1	Tx28	Founded	18.000'	5.711'	Not Applicable		10.253'	13.380'	Not Applicable		8.839'
	Tx34		20.000'	6.772'			11.314'	14.441'			9.899'
	Tx40		22.000'	7.833'			12.374'	15.502'			10.960'
	Tx46		25.000'	9.424'	2.795'	7.336'	13.965'	17.093'	10.464'	5.922'	12.551'
	Tx54		27.000'	10.484'	3.325'	7.867'	15.026'	18.153'	10.994'	6.452'	13.612'

MATERIAL NOTES:
Provide Class C concrete (f'c = 3,600 psi).
Provide Class C (HPC) concrete if shown elsewhere in the plans.
Provide Grade 60 reinforcing steel.
Galvanize dowel bars D.

GENERAL NOTES:
Designed according to AASHTO LRFD Bridge Design Specifications.
See Bridge Layout for header slope and foundation type, size and length.
See Common Foundation Details (FD) standard sheet for all foundation details and notes.
See Concrete Riprap (CRR) standard sheet or Stone Riprap (SRR) standard sheet for riprap attachment details, if applicable.
See applicable rail details for rail anchorage in wingwalls.
Details are drawn showing right forward skew. See Bridge Layout for actual skew direction.
These abutment details may be used with standard SIGN 4-45 only.

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

Texas Department of Transportation — Bridge Division Standard

TYPE Tx28 Girders

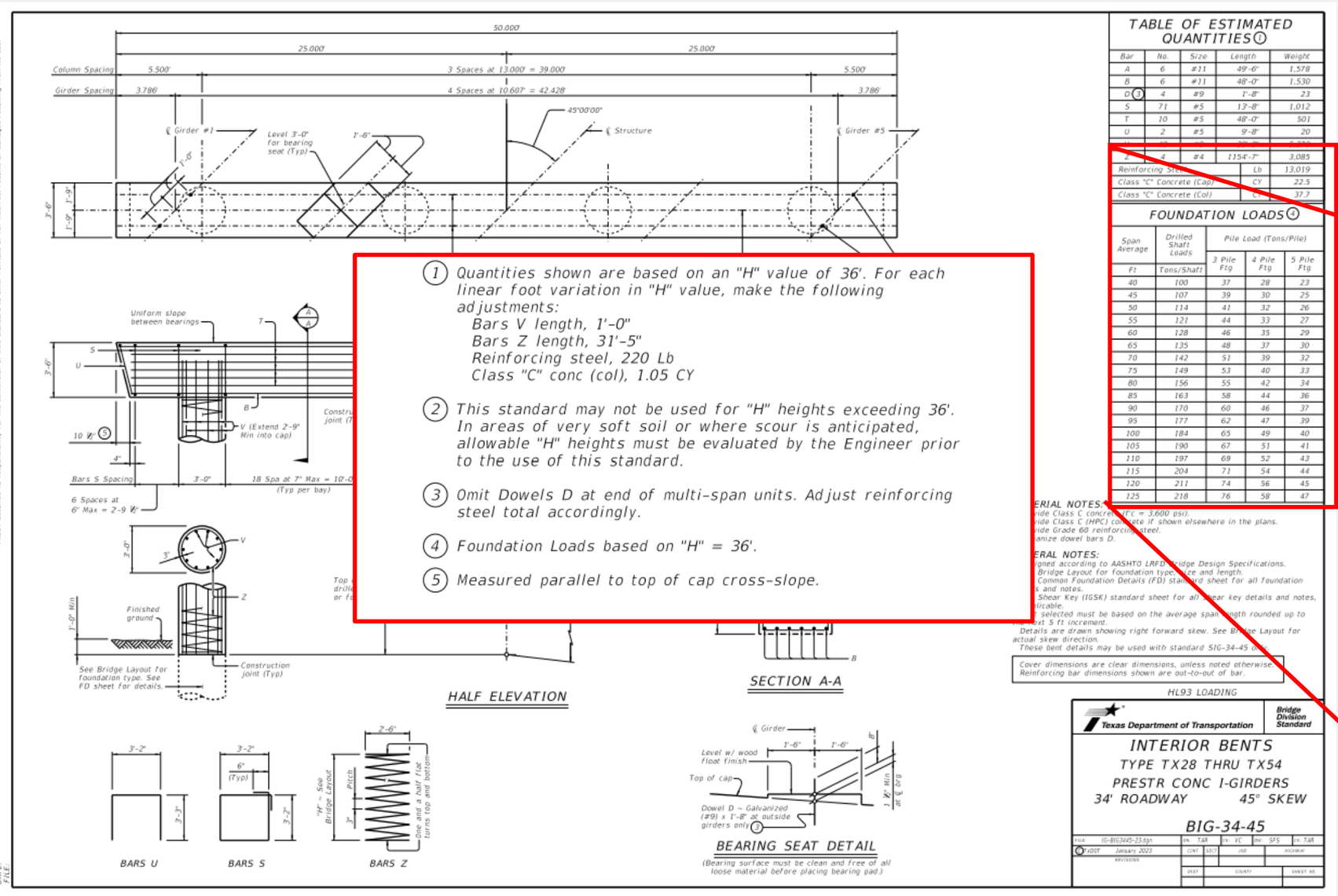
Bar	No.	Size	Length	Weight
A	11	#11	45'-3"	2,645
D (7)	2	#9	1'-8"	11
H	8	#6	45'-3"	544
L1	9	#6	5'-11"	80
L2	9	#6	5'-9"	78
S	44	#5	11'-6"	528
U	4	#6	11'-7"	70
V	49	#5	11'-4"	579
wH1	14	#6	19'-5"	408
wH2	20	#6	17'-8"	531
wS	38	#4	7'-10"	199
wV	38	#5	11'-4"	449

Reinforcing Steel	Lb	6,122
Class "C" Concrete	CY	31.6

(7) Omit Dowels D at end of multi-span unit. Adjust reinforcing steel total accordingly.

(13) Quantities shown are for one abutment only (with approach slab). With no approach slab, add 1.9 CY Class "C" concrete and 272 lbs reinforcing steel for 4 additional Bars H.

Std Brg: 34’ Roadway - Interior Bents Details



1 Quantities shown are based on an "H" value of 36'. For each linear foot variation in "H" value, make the following adjustments:
- Bars V length, 1'-0"
- Bars Z length, 31'-5"
- Reinforcing steel, 220 Lb
- Class "C" conc (col), 1.05 CY

2 This standard may not be used for "H" heights exceeding 36'. In areas of very soft soil or where scour is anticipated, allowable "H" heights must be evaluated by the Engineer prior to the use of this standard.

3 Omit Dowels D at end of multi-span units. Adjust reinforcing steel total accordingly.

4 Foundation Loads based on "H" = 36'.

5 Measured parallel to top of cap cross-slope.

TABLE OF ESTIMATED QUANTITIES 1

Bar	No.	Size	Length	Weight
A	6	#11	49'-6"	1,578
B	6	#11	48'-0"	1,530
D 3	4	#9	1'-8"	23
S	71	#5	13'-8"	1,012
T	10	#5	48'-0"	501
U	2	#5	9'-8"	20
V	40	#9	38'-0"	5,270
Z	4	#4	1154'-7"	3,085
Reinforcing Steel		Lb		13,019
Class "C" Concrete (Cap)		CY		22.5
Class "C" Concrete (Col)		CY		37.7

FOUNDATION LOADS 4

Span Average	Drilled Shaft Loads	Pile Load (Tons/Pile)		
		3 Pile Ftg	4 Pile Ftg	5 Pile Ftg
Ft	Tons/Shaft			
40	100	37	28	23
45	107	39	30	25
50	114	41	32	26
55	121	44	33	27
60	128	46	35	29
65	135	48	37	30
70	142	51	39	32
75	149	53	40	33
80	156	55	42	34
85	163	58	44	36
90	170	60	46	37
95	177	62	47	39
100	184	65	49	40
105	190	67	51	41
110	197	69	52	43
115	204	71	54	44
120	211	74	56	45
125	218	76	58	47

ERIAL NOTES:
ide Class C concrete (f'c = 3,600 psi).
ide Class C (HPC) concrete if shown elsewhere in the plans.
ide Grade 60 reinforcing steel.
anize dowel bars D.

ERAL NOTES:
igned according to AASHTO LRFD Bridge Design Specifications.
Bridge Layout for foundation type, skew and length.
Common Foundation Details (FD) standard sheet for all foundation
s and notes.
Shear Key (IGSK) standard sheet for all shear key details and notes,
licable.
selected must be based on the average span length rounded up to
next 5 ft increment.
Details are drawn showing right forward skew. See Bridge Layout for
actual skew direction.
These bent details may be used with standard SIG-34-45 only.

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

HL93 LOADING

Texas Department of Transportation — Bridge Division Standard

INTERIOR BENTS
TYPE TX28 THRU TX54
PRESTR CONC I-GIRDERS
34' ROADWAY 45° SKEW

BIG-34-45

FILE: IG-BIG3445-23.dgn | DN: TAR | CK: YC | DW: SFS | CK: TAR
©TxDOT January 2023 | CONT | SECT | JOB | HIGHWAY
REVISIONS | DIST | COUNTY | SHEET NO.

DATE:
FILE:

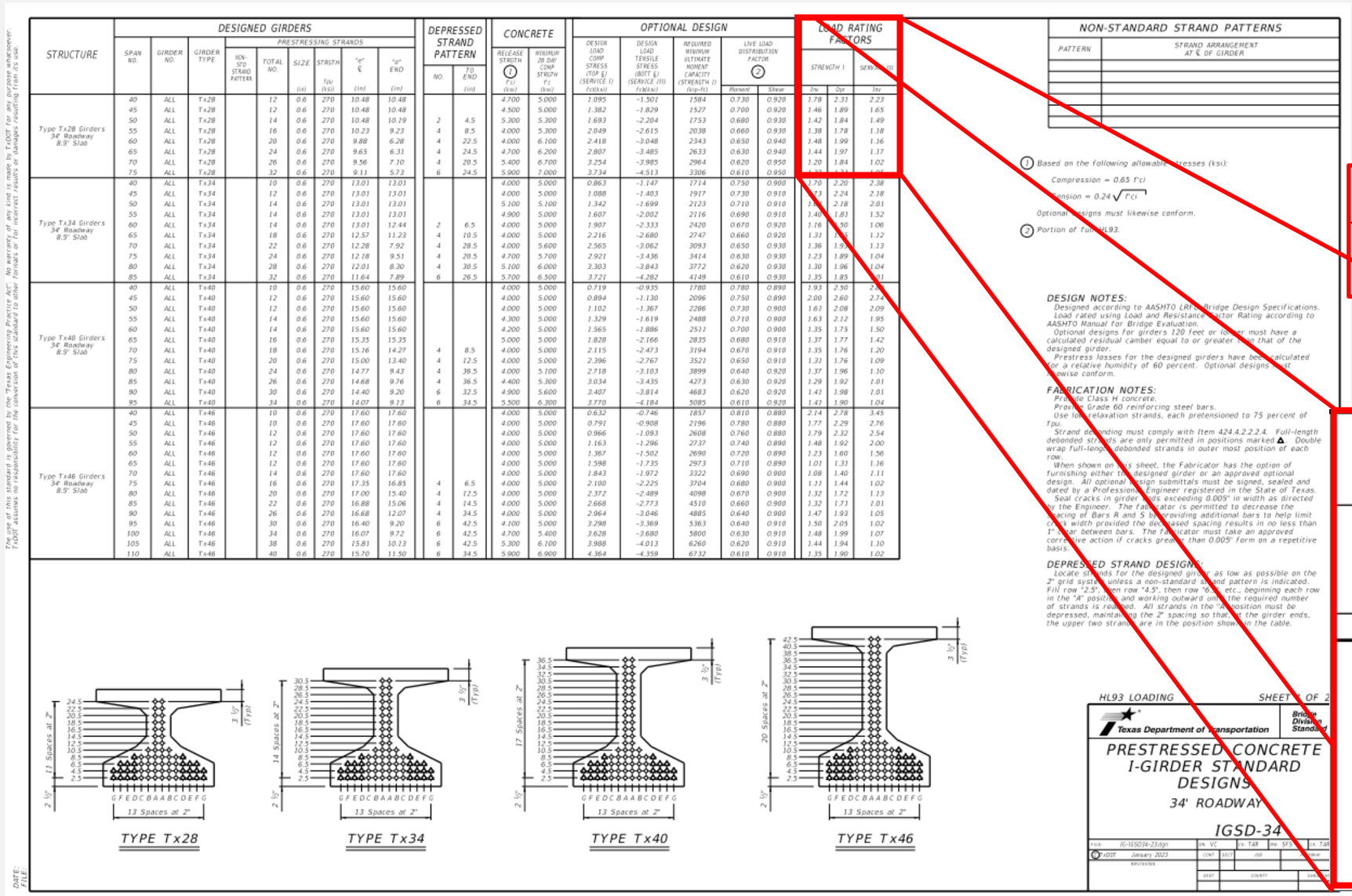
TABLE OF ESTIMATED QUANTITIES 1

Bar	No.	Size	Length	Weight
A	6	#11	49'-6"	1,578
B	6	#11	48'-0"	1,530
D 3	4	#9	1'-8"	23
S	71	#5	13'-8"	1,012
T	10	#5	48'-0"	501
U	2	#5	9'-8"	20
V	40	#9	38'-0"	5,270
Z	4	#4	1154'-7"	3,085
Reinforcing Steel		Lb		13,019
Class "C" Concrete (Cap)		CY		22.5
Class "C" Concrete (Col)		CY		37.7

FOUNDATION LOADS 4

Span Average	Drilled Shaft Loads	Pile Load (Tons/Pile)		
		3 Pile Ftg	4 Pile Ftg	5 Pile Ftg
Ft	Tons/Shaft			
40	100	37	28	23
45	107	39	30	25
50	114	41	32	26
55	121	44	33	27
60	128	46	35	29
65	135	48	37	30
70	142	51	39	32
75	149	53	40	33
80	156	55	42	34
85	163	58	44	36
90	170	60	46	37
95	177	62	47	39
100	184	65	49	40
105	190	67	51	41
110	197	69	52	43
115	204	71	54	44
120	211	74	56	45
125	218	76	58	47

Std Brg: 34’ Roadway - IGSD Details



STRUCTURE	SPAN NO.	GIRDER NO.	GIRDER TYPE	PRESTRESSING STRANDS: NON-STD STRAND PATTERN	TOTAL NO.	SIZE (in)	STRGTH fpu (ksi)	"e" @℄ (in)	"e" @END (in)	DEPRESSED STRAND PATTERN: NO.	TO END (in)	CONCRETE: RELEASE STRGTH ① f'ci (ksi)	MINIMUM 28 DAY COMP STRGTH f'c (ksi)	OPTIONAL DESIGN: DESIGN LOAD COMP STRESS (TOP ℄) (SERVICE I) fc(ksi)	DESIGN LOAD TENSILE STRESS (BOTT ℄) (SERVICE III) fc(ksi)	REQUIRED MINIMUM ULTIMATE MOMENT CAPACITY (STRENGTH I) (kip-ft)	LIVE LOAD DISTRIBUTION FACTOR ②: Moment	LIVE LOAD DISTRIBUTION FACTOR ②: Shear	LOAD RATING FACTORS: STRENGTH I Inv	STRENGTH I Opr	SERVICE III Inv
Type Tx28 Girders 34' Roadway 8.5" Slab	40	ALL	Tx28		12	0.6	270	10.48	10.48			4.700	5.000	1.095	-1.501	1584	0.730	0.920	1.78	2.31	2.23
	45	ALL	Tx28		12	0.6	270	10.48	10.48			4.500	5.000	1.382	-1.829	1527	0.700	0.920	1.46	1.89	1.65
	50	ALL	Tx28		14	0.6	270	10.48	10.19	2	4.5	5.300	5.300	1.693	-2.204	1753	0.680	0.930	1.42	1.84	1.49
	55	ALL	Tx28		16	0.6	270	10.23	9.23	4	8.5	4.000	5.300	2.049	-2.615	2038	0.660	0.930	1.38	1.78	1.18
	60	ALL	Tx28		20	0.6	270	9.88	6.28	4	22.5	4.000	6.100	2.418	-3.048	2343	0.650	0.940	1.48	1.99	1.16
	65	ALL	Tx28		24	0.6	270	9.65	6.31	4	24.5	4.700	6.200	2.807	-3.485	2633	0.630	0.940	1.44	1.97	1.17
	70	ALL	Tx28		26	0.6	270	9.56	7.10	4	20.5	5.400	6.700	3.254	-3.985	2964	0.620	0.950	1.20	1.84	1.02
	75	ALL	Tx28		32	0.6	270	9.11	5.73	6	24.5	5.900	7.000	3.734	-4.513	3306	0.610	0.950	1.27	1.71	1.05
Type Tx34 Girders 34' Roadway 8.5" Slab	40	ALL	Tx34		10	0.6	270	13.01	13.01			4.000	5.000	0.863	-1.147	1714	0.750	0.900	1.70	2.20	2.38
	45	ALL	Tx34		12	0.6	270	13.01	13.01			4.000	5.000	1.088	-1.403	1917	0.730	0.910	1.73	2.24	2.18
	50	ALL	Tx34		14	0.6	270	13.01	13.01			5.100	5.100	1.342	-1.699	2123	0.710	0.910	1.63	2.18	2.01
	55	ALL	Tx34		14	0.6	270	13.01	13.01			4.900	5.000	1.607	-2.002	2116	0.690	0.910	1.40	1.81	1.52
	60	ALL	Tx34		14	0.6	270	13.01	12.44	2	6.5	4.000	5.000	1.907	-2.333	2420	0.670	0.920	1.16	1.50	1.06
	65	ALL	Tx34		18	0.6	270	12.57	11.23	4	10.5	4.000	5.000	2.216	-2.680	2747	0.660	0.920	1.31	1.70	1.12
	70	ALL	Tx34		22	0.6	270	12.28	7.92	4	28.5	4.000	5.600	2.565	-3.062	3093	0.650	0.930	1.36	1.93	1.13
	75	ALL	Tx34		24	0.6	270	12.18	9.51	4	20.5	4.700	5.700	2.921	-3.436	3414	0.630	0.930	1.23	1.89	1.04
	80	ALL	Tx34		28	0.6	270	12.01	8.30	4	30.5	5.100	6.000	3.303	-3.843	3772	0.620	0.930	1.30	1.96	1.04
	85	ALL	Tx34		32	0.6	270	11.64	7.89	6	26.5	5.700	6.500	3.721	-4.282	4149	0.610	0.930	1.35	1.85	1.01
Type Tx40 Girders 34' Roadway 8.5" Slab	40	ALL	Tx40		10	0.6	270	15.60	15.60			4.000	5.000	0.719	-0.935	1780	0.780	0.890	1.93	2.50	2.74
	45	ALL	Tx40		12	0.6	270	15.60	15.60			4.000	5.000	0.894	-1.130	2096	0.750	0.890	2.00	2.60	2.74
	50	ALL	Tx40		12	0.6	270	15.60	15.60			4.000	5.000	1.102	-1.367	2286	0.730	0.900	1.61	2.08	2.09
	55	ALL	Tx40		14	0.6	270	15.60	15.60			4.300	5.000	1.329	-1.619	2488	0.710	0.900	1.63	2.12	1.95
	60	ALL	Tx40		14	0.6	270	15.60	15.60			4.200	5.000	1.565	-1.886	2521	0.700	0.900	1.35	1.75	1.50
	65	ALL	Tx40		16	0.6	270	15.35	15.35			5.000	5.000	1.828	-2.166	2835	0.680	0.910	1.37	1.77	1.42
	70	ALL	Tx40		18	0.6	270	15.16	14.27	4	8.5	4.000	5.000	2.115	-2.473	3194	0.670	0.910	1.35	1.76	1.20
	75	ALL	Tx40		20	0.6	270	15.00	13.40	4	12.5	4.000	5.000	2.396	-2.767	3521	0.650	0.910	1.31	1.76	1.09
	80	ALL	Tx40		24	0.6	270	14.77	9.43	4	36.5	4.000	5.100	2.718	-3.103	3899	0.640	0.920	1.37	1.96	1.10
	85	ALL	Tx40		26	0.6	270	14.68	9.76	4	36.5	4.400	5.300	3.034	-3.435	4273	0.630	0.920	1.29	1.92	1.01
	90	ALL	Tx40		30	0.6	270	14.40	9.20	6	32.5	4.900	5.600	3.407	-3.814	4683	0.620	0.920	1.41	1.98	1.01
	95	ALL	Tx40		34	0.6	270	14.07	9.13	6	34.5	5.500	6.300	3.770	-4.184	5085	0.610	0.920	1.41	1.90	1.04
Type Tx46 Girders 34' Roadway 8.5" Slab	40	ALL	Tx46		10	0.6	270	17.60	17.60			4.000	5.000	0.632	-0.746	1857	0.810	0.880	2.14	2.78	3.45
	45	ALL	Tx46		10	0.6	270	17.60	17.60			4.000	5.000	0.791	-0.908	2196	0.780	0.880	1.77	2.29	2.76
	50	ALL	Tx46		12	0.6	270	17.60	17.60			4.000	5.000	0.966	-1.093	2608	0.760	0.880	1.79	2.32	2.54
	55	ALL	Tx46		12	0.6	270	17.60	17.60			4.000	5.000	1.163	-1.296	2737	0.740	0.890	1.48	1.92	2.00
	60	ALL	Tx46		12	0.6	270	17.60	17.60			4.000	5.000	1.367	-1.502	2690	0.720	0.890	1.23	1.60	1.56
	65	ALL	Tx46		12	0.6	270	17.60	17.60			4.000	5.000	1.598	-1.735	2973	0.710	0.890	1.01	1.31	1.16
	70	ALL	Tx46		14	0.6	270	17.60	17.60			4.000	5.000	1.843	-1.972	3322	0.690	0.900	1.08	1.40	1.11
	75	ALL	Tx46		16	0.6	270	17.35	16.85	4	6.5	4.000	5.000	2.100	-2.225	3704	0.680	0.900	1.11	1.44	1.02
	80	ALL	Tx46		20	0.6	270	17.00	15.40	4	12.5	4.000	5.000	2.372	-2.489	4098	0.670	0.900	1.32	1.72	1.13
	85	ALL	Tx46		22	0.6	270	16.88	15.06	4	14.5	4.000	5.000	2.668	-2.773	4510	0.660	0.900	1.32	1.71	1.01
	90	ALL	Tx46		26	0.6	270	16.68	12.07	4	34.5	4.000	5.000	2.964	-3.046	4885	0.640	0.900	1.47	1.93	1.05
	95	ALL	Tx46		30	0.6	270	16.40	9.20	6	42.5	4.100	5.000	3.298	-3.369	5363	0.640	0.910	1.50	2.05	1.02
	100	ALL	Tx46		34	0.6	270	16.07	9.72	6	42.5	4.700	5.400	3.628	-3.680	5800	0.630	0.910	1.48	1.99	1.07
	105	ALL	Tx46		38	0.6	270	15.81	10.13	6	42.5	5.300	6.100	3.988	-4.013	6260	0.620	0.910	1.44	1.94	1.10
	110	ALL	Tx46		40	0.6	270	15.70	11.50	6	34.5	5.900	6.900	4.364	-4.359	6732	0.610	0.910	1.35	1.90	1.02

NON-STANDARD STRAND PATTERNS

PATTERN	STRAND ARRANGEMENT AT ℄ OF GIRDER

① Based on the following allowable stresses (ksi):
Compression = 0.65 f'ci
Tension = $0.24\sqrt{f'ci}$
Optional designs must likewise conform.

② Portion of full HL93.

DESIGN NOTES:
Designed according to AASHTO LRFD Bridge Design Specifications.
Load rated using Load and Resistance Factor Rating according to AASHTO Manual for Bridge Evaluation.
Optional designs for girders 120 feet or longer must have a calculated residual camber equal to or greater than that of the designed girder.
Prestress losses for the designed girders have been calculated for a relative humidity of 60 percent. Optional designs must likewise conform.

FABRICATION NOTES:
Provide Class H concrete.
Provide Grade 60 reinforcing steel bars.
Use low-relaxation strands, each pretensioned to 75 percent of fpu.
Strand debonding must comply with Item 424.4.2.2.2.4. Full-length debonded strands are only permitted in positions marked Δ. Double wrap full-length debonded strands in outer most position of each row.
When shown on this sheet, the Fabricator has the option of furnishing either the designed girder or an approved optional design. All optional design submittals must be signed, sealed and dated by a Professional Engineer registered in the State of Texas.
Seal cracks in girder ends exceeding 0.005" in width as directed by the Engineer. The fabricator is permitted to decrease the spacing of Bars R and S by providing additional bars to help limit crack width provided the decreased spacing results in no less than 1" clear between bars. The fabricator must take an approved corrective action if cracks greater than 0.005" form on a repetitive basis.

DEPRESSED STRAND DESIGN:
Locate strands for the designed girder as low as possible on the 2" grid system, unless a non-standard strand pattern is indicated. Fill row "2.5", then row "4.5", then row "6.5", etc., beginning each row in the "A" position and working outward until the required number of strands is reached. All strands in the "A" position must be depressed, maintaining the 2" spacing so that the girder ends, the upper two strands are in the position shown in the table.

HL93 LOADING SHEET 1 OF 2

Texas Department of Transportation — Bridge Division Standard

PRESTRESSED CONCRETE I-GIRDER STANDARDS DESIGNS
34' ROADWAY
IGSD-34

FILE: IG-IGSD24-23.dgn	DN: VC	CK: TAR	DW: SFS	CK: TAR
©TxDOT January 2023	CONT	SECT	JOB	HIGHWAY
REVISIONS	DIST	COUNTY		SHEET

DATE:
FILE:

- Controlling INV/OPR rating needs to be on Bridge layout sheet.

HL93 LOADING
SUPERSTRUCTURE INV / OPR RATINGS: X.XX/X.XX

Texas Department of Transportation — Bridge Division

LOAD RATING FACTORS

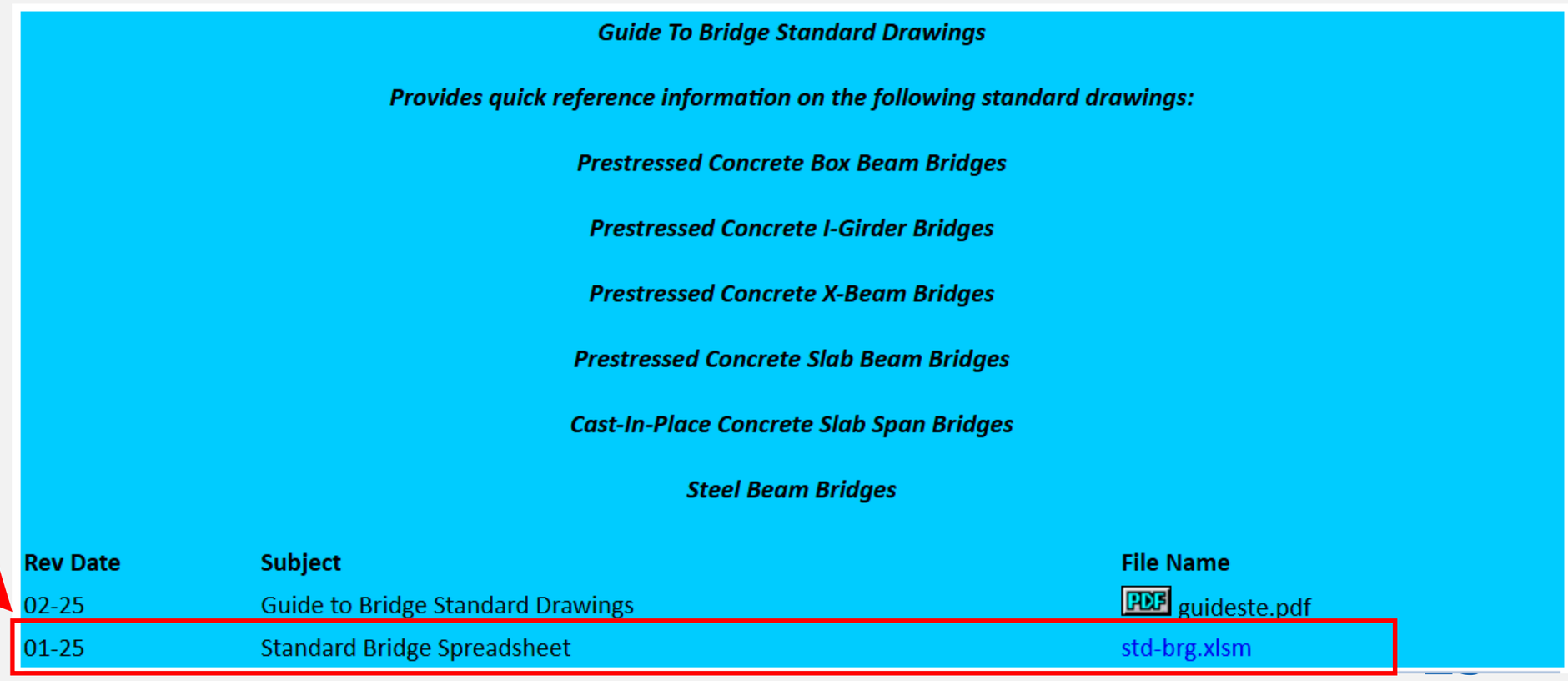
STRENGTH I		SERVICE III
Inv	Opr	Inv
1.78	2.31	2.23
1.46	1.89	1.65
1.42	1.84	1.49
1.38	1.78	1.18
1.48	1.99	1.16
1.44	1.97	1.17
1.20	1.84	1.02
1.27	1.71	1.05

Standard Bridge Spreadsheet

Simple easy to use spreadsheet that can “design”

any standard bridges in Texas.

Download link on the standards webpage!



Guide To Bridge Standard Drawings

Provides quick reference information on the following standard drawings:

Prestressed Concrete Box Beam Bridges

Prestressed Concrete I-Girder Bridges

Prestressed Concrete X-Beam Bridges

Prestressed Concrete Slab Beam Bridges

Cast-In-Place Concrete Slab Span Bridges

Steel Beam Bridges

Rev Date	Subject	File Name
02-25	Guide to Bridge Standard Drawings	PDF guideste.pdf
01-25	Standard Bridge Spreadsheet	std-brg.xlsm

Standard Bridge Spreadsheet

- Let's do an example project….