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STRUCTURE	DESIGNED GIRDERS								DEPRESSED STRAND PATTERN	CONCRETE	OPTIONAL DESIGN				LOAD RATING FACTORS							
	SPAN NO.	GIRDER NO.	GIRDER TYPE	PRESTRESSING STRANDS							NO.	TO END (in)	RELEASE STRGTH (1) f'ci (ksi)	MINIMUM 28 DAY COMP STRGTH f'c (ksi)	DESIGN LOAD COMP STRESS (TOP ☉) (SERVICE I) fct(ksi)	DESIGN LOAD TENSILE STRESS (BOT ☉) (SERVICE III) fcb(ksi)	REQUIRED MINIMUM ULTIMATE MOMENT CAPACITY (STRENGTH I) (kip-ft)	LIVE LOAD DISTRIBUTION FACTOR (2)		STRENGTH I		SERVICE III
				TOTAL NO.	SIZE (in)	STRGTH fpu (ksi)	"e" ☉ (in)	"e" END (in)										Moment	Shear	Inv	Opr	Inv

NON-STANDARD STRAND PATTERNS	
PATTERN	STRAND ARRANGEMENT AT ☉ OF GIRDER

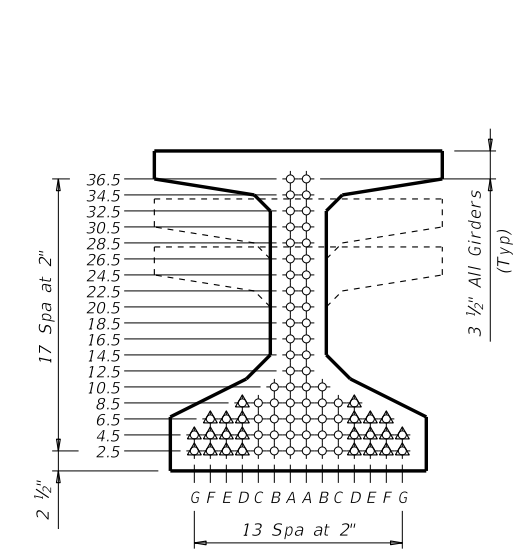
- ① Based on the following allowable stresses (ksi):  
 Compression = 0.65 f'ci  
 Tension = 0.24 √ f'ci  
 Optional designs must likewise conform.
- ② Portion of full HL93.

**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 \_\_ percent. Optional designs must likewise conform.

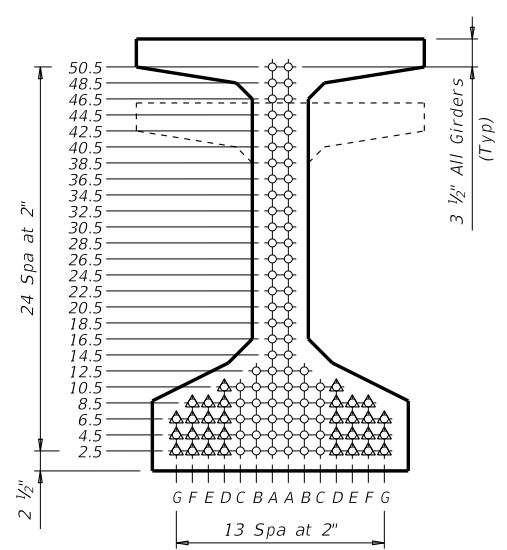
**FABRICATION NOTES:**  
 Provide Class H concrete. Provide Grade 60 reinforcing steel bars. Use low relaxation strands, each pretensioned to 75 percent of fpu. Strand debonding must comply with Item 424.4.2.2.4. Full-length debonded strands are only permitted in positions marked Δ. Double wrap full-length 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 DESIGNS:**  
 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, at the girder ends, the upper two strands are in the position shown in the table.

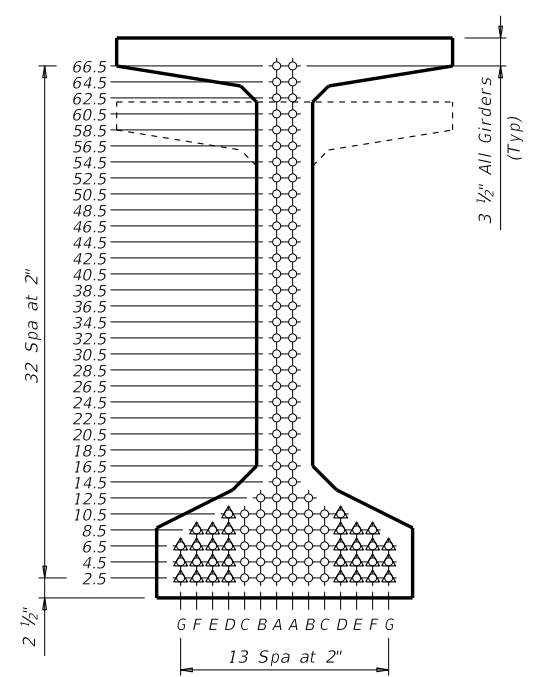
To complete this sheet input the girder designs in the table and the relative humidity under Design Notes. In all cases, remove this block. This sheet must be signed, sealed, and dated by a registered Professional Engineer.



**TYPE Tx28, Tx34 & Tx40**



**TYPE Tx46 & Tx54**



**TYPE Tx62 & Tx70**

HL93 LOADING

		<b>Bridge Division Standard</b>	
<b>PRESTRESSED CONCRETE I-GIRDER DESIGNS (NON-STANDARD SPANS)</b>			
<b>IGND</b>			
FILE: igndsts1-22.dgn	DN: TxDOT	CK: TxDOT	DW: EFC
©TxDOT August 2017	CON: TxDOT	SECT: August 2017	CK: TAR
REVISIONS			
10-19: Modified for depressed strands only.			
3-22: Added Load Rating.			
DIST: COUNTY		SHEET NO.	

DATE:  
FILE: