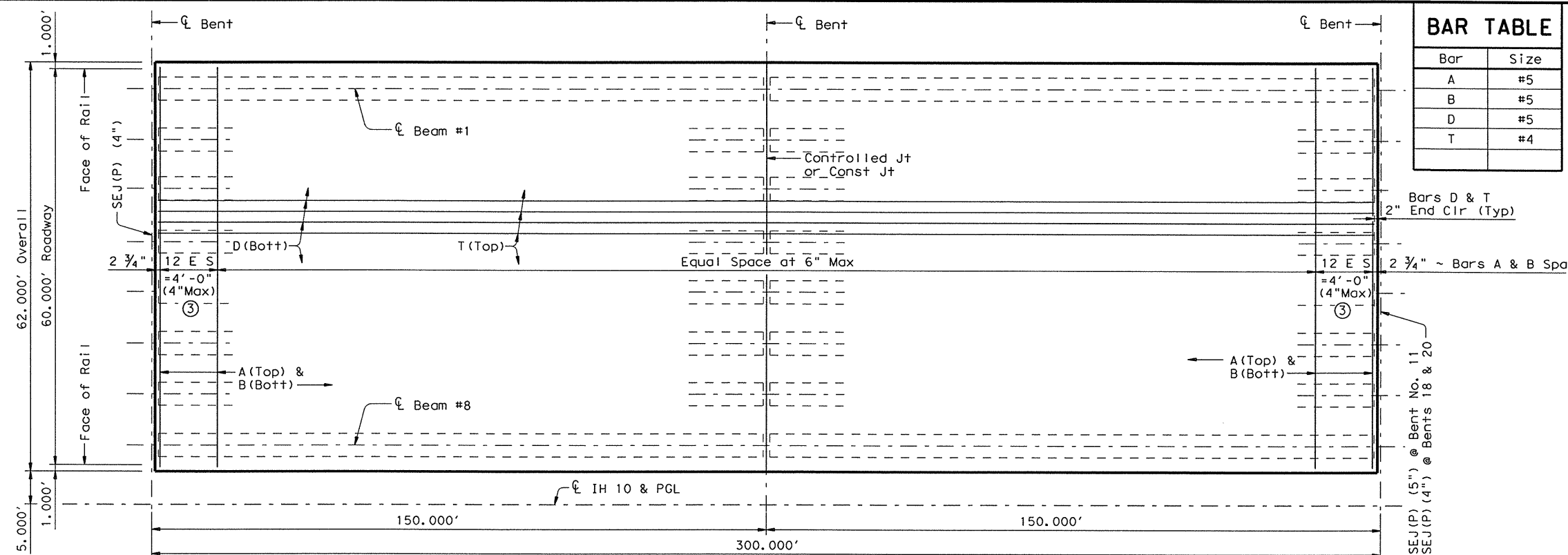
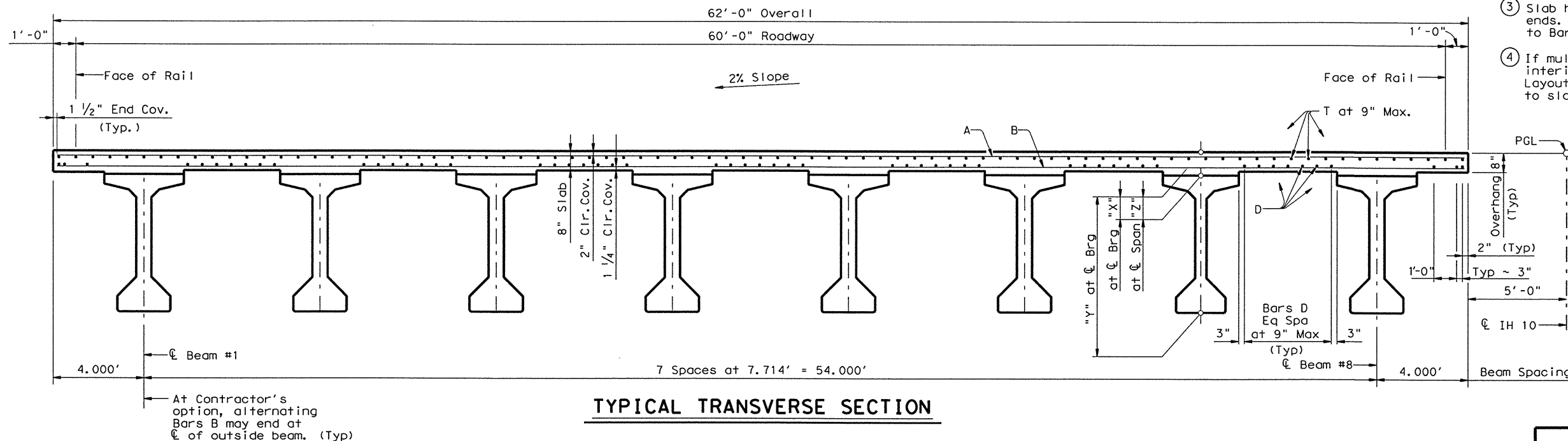


LEVELS DIS: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100  
PATH: BRG-RP01.dgn  
6482pb01.dgn



PLAN ④



TYPICAL TRANSVERSE SECTION

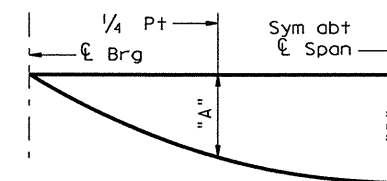
TABLE OF SECTION DEPTHS			
Span No.	"X" at $\bar{\ell}$ Brg	"Y" at $\bar{\ell}$ Brg	④ "Z" at $\bar{\ell}$ Span
9	10 1/2"	6'-10 1/2"	9 1/8"
10	9 3/4"	6'-9 3/4"	9 1/8"
16	11"	6'-11"	9 1/8"
17	11"	6'-11"	9"
18	11"	6'-11"	9"
19	11"	6'-11"	9"

④ Theoretical dimension

Span No.	Beam No.	"A" Ft	"B" Ft
ALL	ALL	0.137	0.192

Calculated deflections shown are due to the concrete slab on interior beams only ( $E_c = 5000$  ksi). Adjust values as required for exterior beams and if optional slab forming is used. These values may require field verification.

DEAD LOAD DEFLECTION DIAGRAM



BAR TABLE	
Bar	Size
A	#5
B	#5
D	#5
T	#4

TABLE OF ESTIMATED QUANTITIES				
SPANS 9 & 10				
Span	Reinf Concrete Slab	② Prestre Concrete Beams (Ty VI)	Class "S" Concrete	① Reinf Steel
No.	SF	LF	CY	Lb
9	9300	1197.85	250.1	60450
10	9300	1197.68	246.9	60450
Total	18600	2395.53	497.0	120900
SPANS 16 & 17				
Span	Reinf Concrete Slab	② Prestre Concrete Beams (Ty VI)	Class "S" Concrete	① Reinf Steel
No.	SF	LF	CY	Lb
16	9300	1197.87	252.3	60450
17	9300	1197.87	251.2	60450
Total	18600	2395.74	503.5	120900
SPANS 18 & 19				
Span	Reinf Concrete Slab	② Prestre Concrete Beams (Ty VI)	Class "S" Concrete	① Reinf Steel
No.	SF	LF	CY	Lb
18	9300	1197.87	251.2	60450
19	9300	1197.87	251.2	60450
Total	18600	2395.74	502.4	120900

- ① Reinforcing steel weight is calculated using an approximate factor of 6.5 Lbs/SF.
- ② Lengths shown are bottom beam flange lengths with adjustments made for beam slope. 149.73 LF each beam
- ③ Slab has no end diaphragms and no thickened slab ends. Slab has no changes to reinforcing except to Bars A and B as indicated.
- ④ If multi-span units (with slab continuous over interior bents) are indicated on the Bridge Layout, see Standard IBCS for adjustment to slab reinforcement and quantities.

GENERAL NOTES:

Designed according to AASHTO LRFD Bridge Specifications, 3rd Edition (2004) and 2005 Interim Revisions. Multi-span units, with slab continuous over interior bents, may be formed with the details shown on this sheet and Standard IBCS. See PCP or PMDF Standards for details and quantity adjustments if either of these options are used. See IBMS Standard for miscellaneous details. All reinforcing shall be Grade 60. Concrete strength  $f'_c = 4,000$  psi. Bar laps, where required, shall be as follows: Uncoated ~ #4 = 1'-5" ~ #5 = 1'-9" See railing details for rail anchorage in slab.

HL93 LOADING

Texas Department of Transportation  
Bridge Division

300.00' PRESTRESSED  
CONCRETE BEAM UNIT  
UNIT NOS. 5, 8 & 9

TRINITY RIVER BRIDGE  
EASTBOUND LANES

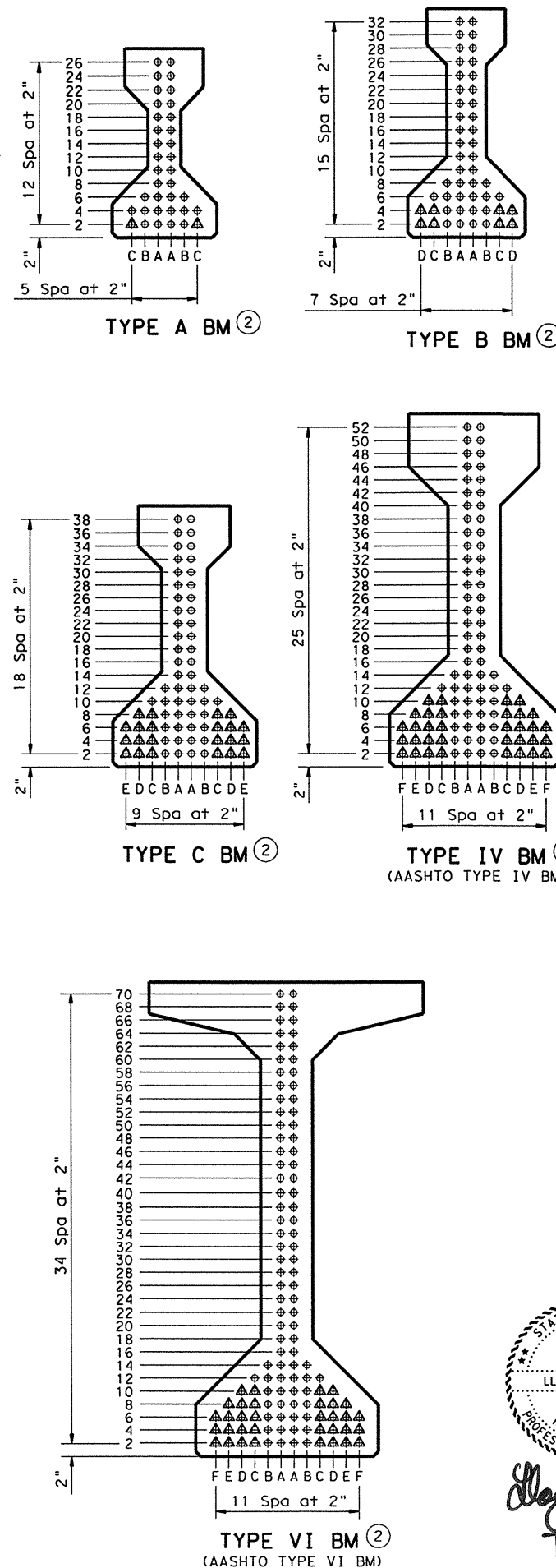
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© TXDOT May 2005	DISTRICT	FEDERAL AID PROJECT	SHEET	
REVISIONS	BMT		364	
COUNTY	CONTROL	SECT	JOB	HIGHWAY
CHAMBERS	0508	02	085	IH 10

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ACC:	
LEVELS D1:	
1	

STRUCTURE	DESIGNED BEAMS (DEPRESSED STRANDS)													
	SPAN NO.	BEAM NO.	BEAM TYPE	NON-STD STRAND PATTERN	PRESTRESSING STRANDS								CONCRETE	
					TOTAL					DEPRESSED		RELEASE STRGTH f'ci (ksi)	MINIMUM 28 DAY COMP STRGTH f'c (ksi)	
					NO.	SIZE (in)	STRGTH fpu (ksi)	"e" c̄ (in)	"e" END (in)	NO.	TO (in)			
TRINITY RIVER BRIDGE EASTBOUND	1-7 21-23	ALL	VI		52	1/2	270K	30.94	19.40	10	70.0	4.622	5.000	
	8,20	ALL	VI		82	1/2	270K	25.86	11.03	32	70.0	5.715	5.715	
	9,10 15-19	2-7	VI		88	1/2	270K	24.13	10.31	38	70.0	5.865	6.273	
	9,10 15-19	1&8	VI		96	1/2	270K	21.57	10.07	46	70.0	6.351	6.728	
	14	ALL	VI		42	1/2	270K	31.83	21.54	8	62.0	4.000	5.000	
TRINITY RIVER BRIDGE WESTBOUND	1-7 21-23	ALL	VI		52	1/2	270K	30.94	19.40	10	70.0	4.622	5.000	
	8,20	ALL	VI		82	1/2	270K	25.86	11.03	32	70.0	5.715	5.715	
	9 15-19	2-7	VI		88	1/2	270K	24.13	10.31	38	70.0	5.865	6.273	
	9 15-19	1&8	VI		96	1/2	270K	21.57	10.07	46	70.0	6.351	6.728	
	10	ALL	VI		56	1/2	270K	30.54	18.11	12	70.0	4.810	5.000	
	14	ALL	VI		64	1/2	270K	29.65	17.40	14	70.0	5.364	5.364	

OPTIONAL DESIGN			
DESIGN LOAD COMP STRESS (TOP $\bar{c}$ ) (SERVICE I)	DESIGN LOAD TENSILE STRESS (BOTT $\bar{c}$ ) (SERVICE III)	REQUIRED MINIMUM ULTIMATE MOMENT CAPACITY (STRENGTH I)	LIVE LOAD DISTRIB FACTOR
fct (ksi)	fcu (ksi)	(ft-kips)	①
2.592	-3.403	10494	0.827
3.487	-4.496	13515	0.793
3.743	-4.653	13403	0.634
3.779	-4.736	13867	0.697
2.311	-2.966	9047	0.748
2.592	-3.403	10494	0.827
3.487	-4.496	13515	0.793
3.743	-4.653	13403	0.634
3.779	-4.736	13867	0.697
2.869	-3.641	10900	0.725
3.127	-3.952	11748	0.716



#### GENERAL NOTES:

- Designed in accordance with AASHTO LRFD Specifications. All concrete shall be Class H. All reinforcing bars shall be Grade 60.
- When shown on this sheet, the Fabricator has the option of furnishing either the designed depressed strand beam or an approved optional design. All optional design submittals shall be signed, sealed and dated by a registered Professional Engineer.
- Optional designs for beams 120 feet or longer shall have a calculated residual camber equal to or greater than that of the designed beam.
- Prestress losses for the designed beams have been calculated for a relative humidity of 75 percent. Optional designs shall likewise conform.
- Certain beams with depressed strands are subject to cracking in the end of the beam. When such cracks occur, all subsequent beams of the same type and strand pattern shall have strands debonded in the following manner:
- Alternate rows of depressed strands shall be debonded for two feet from each end of the beam.
  - One half of the straight strands, as nearly as possible, shall be debonded for four feet from each end of the beam.
  - The debonding pattern shall be symmetrical about the vertical axis of the beam for both depressed and straight strands.
  - Strands shall be debonded so that the centers of gravity of the depressed strands and the straight strands will remain within one inch of their original location.
  - Strands shall be encased in plastic tubing along entire debonded length, and ends of tubing shall be sealed with waterproof tape. Split plastic tubing may be used provided the seam of the tubing is sufficiently sealed with waterproof tape to prohibit grout infiltration. Wrapping of strands with tape to provide debonding will not be permitted.
  - Revised shop drawings will not be required.
- For depressed strand designed beams, strands shall be located as low as possible on the 2" grid system unless a Non-Standard Strand Pattern is indicated. Fill row "2", then row "4", then row "6", 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 shall be depressed, maintaining the 2" spacing so that, at the beam ends, the upper two strands are in the position shown in the table.
- Strands for the designed beam shall be low relaxation strands pretensioned to 75 percent of fpu each.

- ① Portion of full HL93
- ② Full-length debonded strands are only permitted in strand positions marked  $\Delta$ . Double wrap full-length debonded strands in outermost position of each row. Full-length debonding must comply with Item 426.4.F.4.

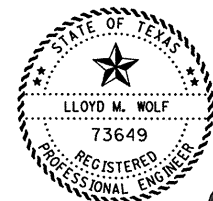
#### HL93 LOADING

Texas Department of Transportation  
Bridge Division

### PRESTRESSED CONCRETE I-BEAM DESIGNS (NON-STANDARD SPANS)

#### IBND

FILE: ibndst1.dgn	DN: TxDOT	CK: TxDOT	SW: TxDOT	CK: TxDOT
① TxDOT January 2005	DISTRICT	FEDERAL AID PROJECT	SHEET	
REVISIONS		BMT	375	
01-06: Full-length debonding		COUNTY	CONTROL	SECT
		CHAMBERS	0508	02 085 IH 10



Lloyd M. Wolf  
1/5/06