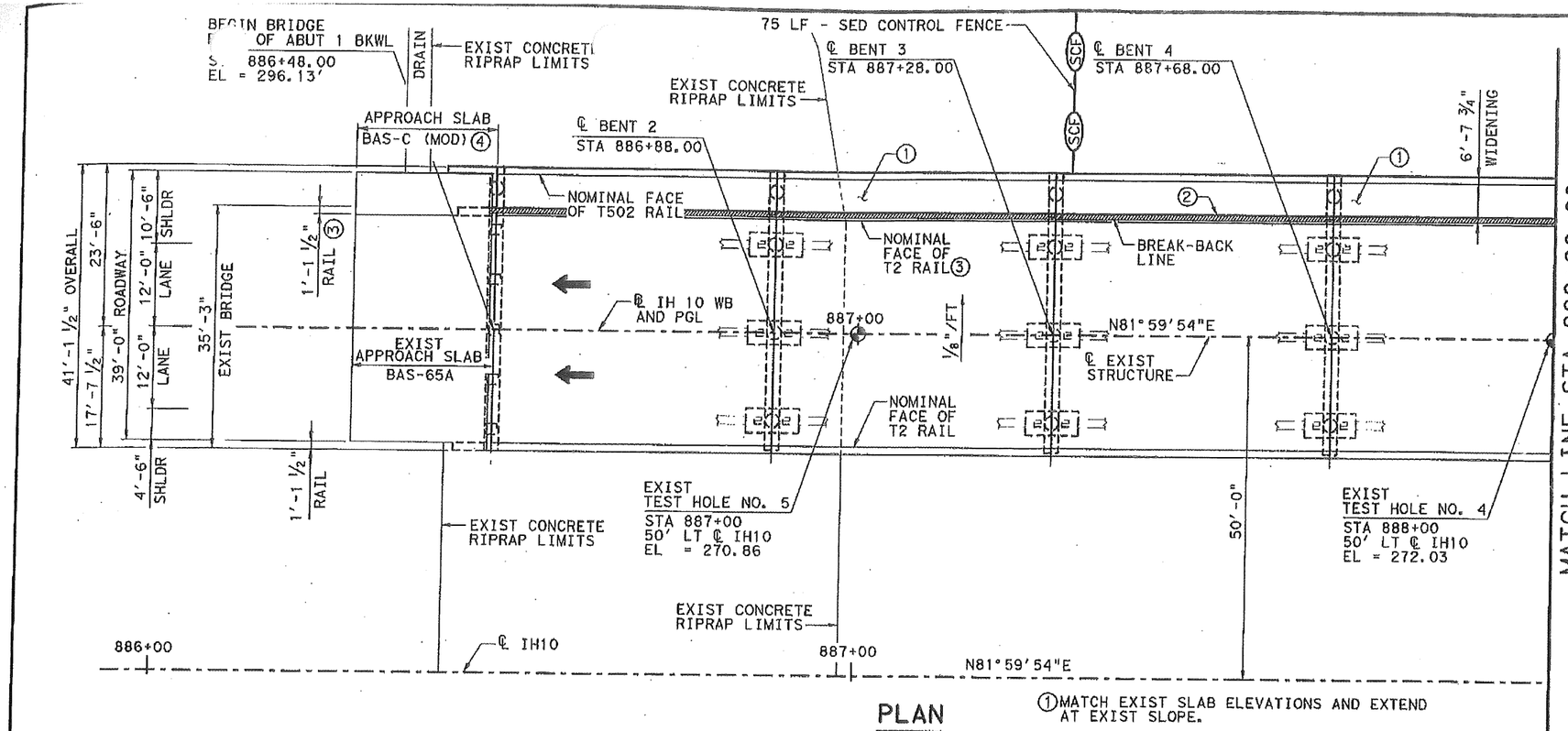


PLAN

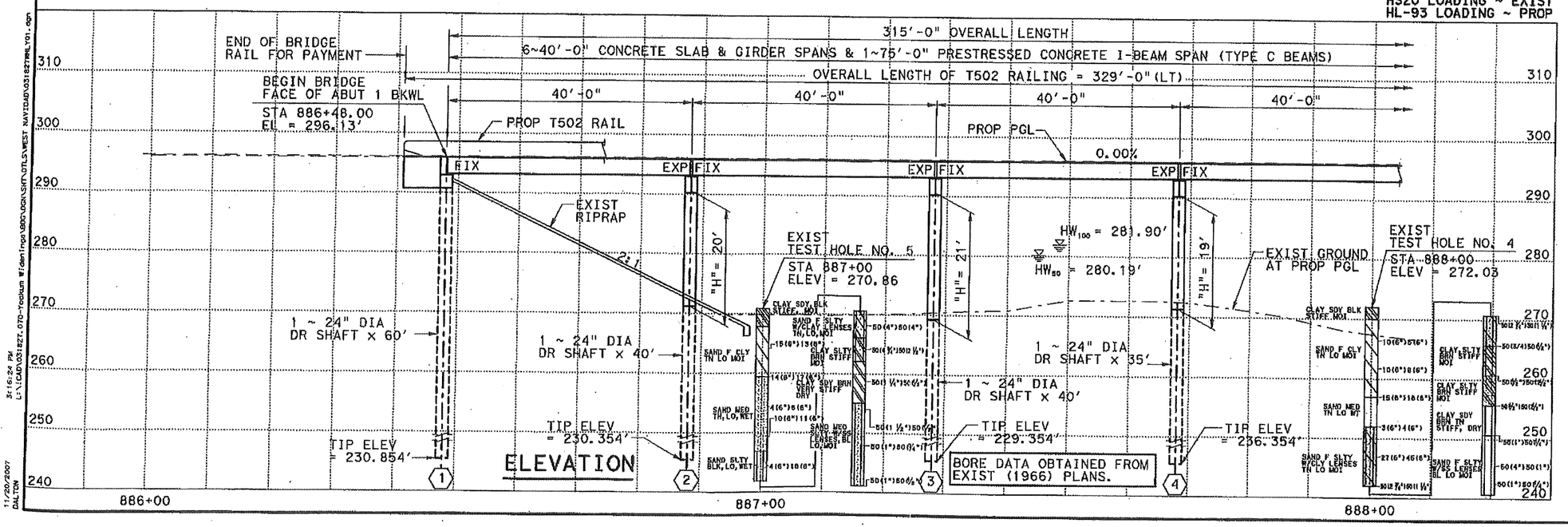
FIELD VERIFY ALL LOCATIONS, GRADES AND ELEVATIONS PRIOR TO COMMENCING WORK.

① MATCH EXIST SLAB ELEVATIONS AND EXTEND AT EXIST SLOPE.

② REMOVE CROSS-HATCHED PORTION OF EXIST SLAB.

③ EXIST T2 RAIL TO BE REMOVED.

④ MATCH EXIST APPROACH SLAB LENGTH.



ELEVATION

BORE DATA OBTAINED FROM EXIST (1966) PLANS.

ALL ABUTMENTS AND BENTS ARE N08°00'06"W AT BEARING

GENERAL NOTES

DESIGNED ACCORDING TO AASHTO LRFD SPECIFICATIONS.

0 20 40
HORIZONTAL SCALE

0 20 40
VERTICAL SCALE

STATE OF TEXAS
JAMES B. HALL II
82722
REGISTERED PROFESSIONAL ENGINEER
11/20/07

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HOUSTON, TX 77007-5842
(713) 869-7900 (713) 869-5502 FAX

IH 10
BRIDGE LAYOUT
WEST NAVIDAD RIVER WBL

NBI NO.: 130760053507075
RDWY FUNCT CLASS = RURAL INTERSTATE
DESIGN SPEED = 70 MPH
EXIST ADT (2005) = 22270 vpd
PROP ADT (2025) = 31180 vpd

SHEET 1 OF 4

FED. RD. DIV. NO.	PROJECT NO.	SHEET NO.
6		49

STATE	DIST.	COUNTY	
TEXAS	YKM	FAYETTE	
CONT	SECT	JOB	HIGHWAY NO.
0535	07	044	IH 10

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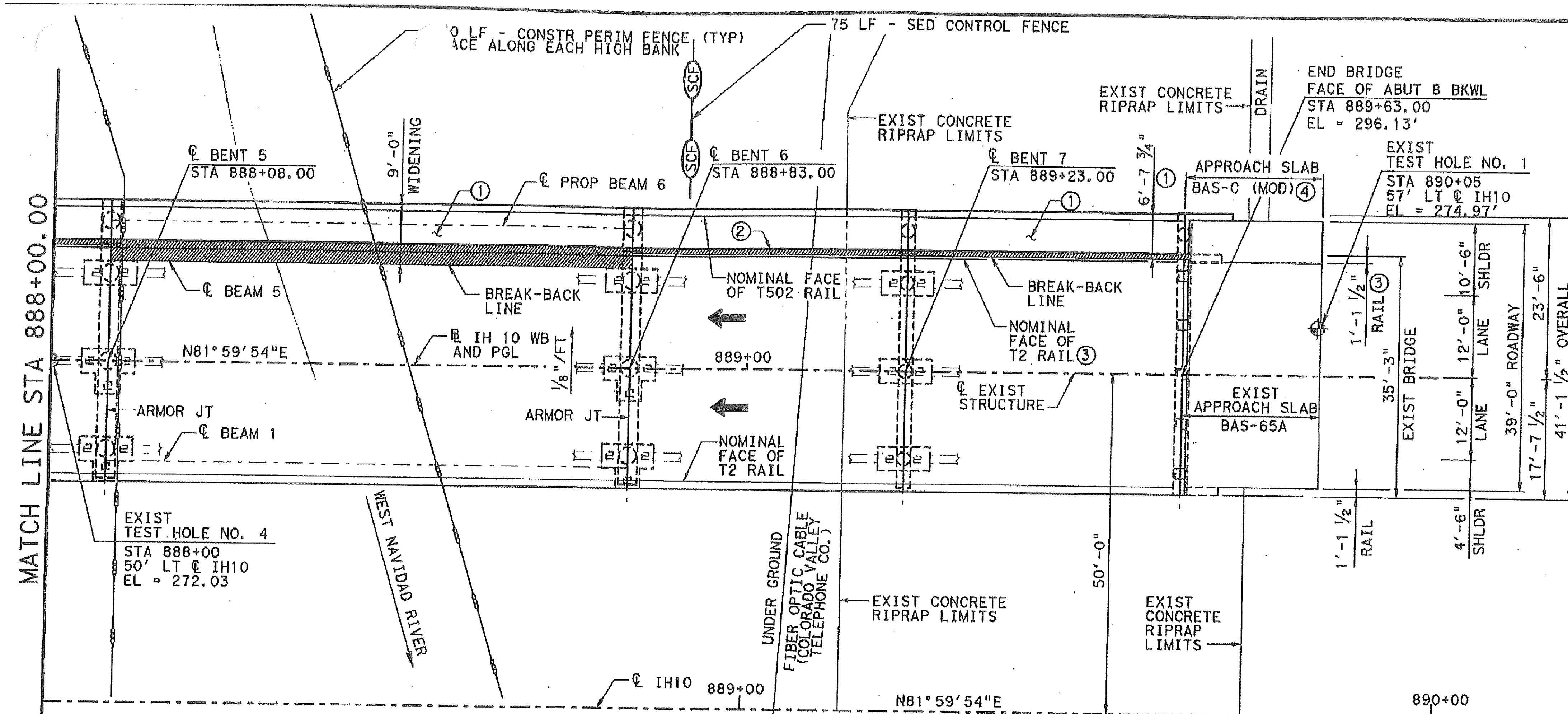


ALL ABUTMENTS AND BENTS ARE N08°00'6"W AT BEARING

GENERAL NOTES

DESIGNED ACCORDING TO AASHTO LRFD SPECIFICATIONS.

FIELD VERIFY ALL LOCATIONS, GRADES AND ELEVATIONS PRIOR TO COMMENCING WORK.

PLAN

① MATCH EXIST SLAB ELEVATIONS AND EXTEND AT EXIST SLOPE.

② REMOVE CROSS-HATCHED PORTION OF EXIST SLAB.

③ EXIST T2 RAIL TO BE REMOVED.

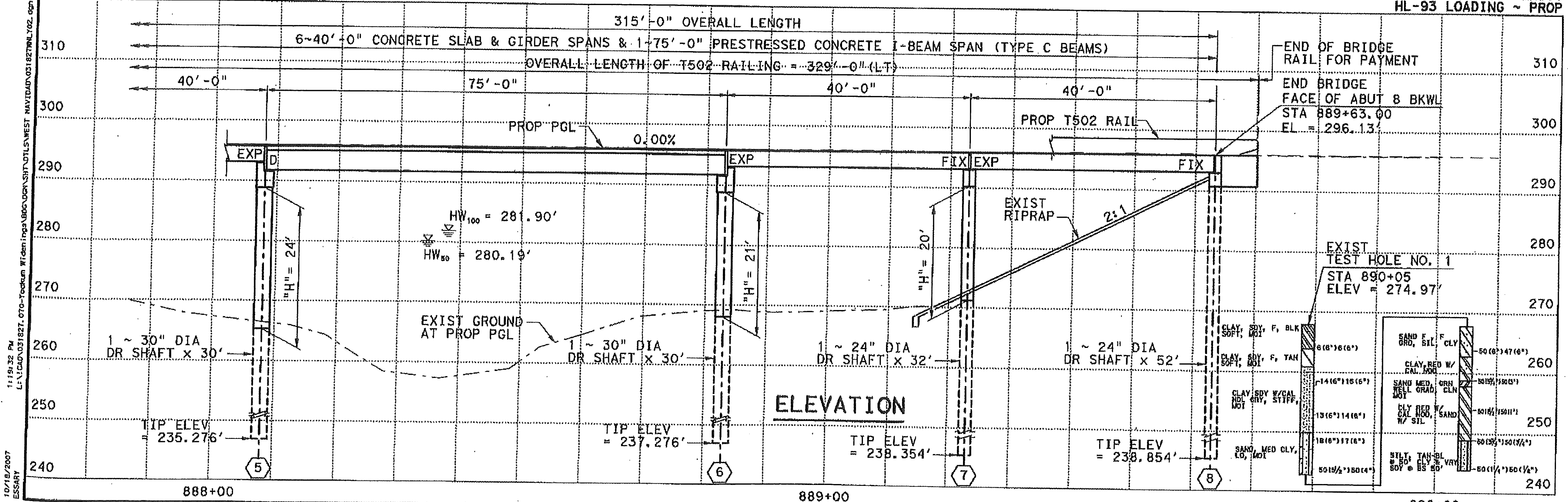
④ MATCH EXIST APPROACH SLAB LENGTH.

0 20 40
HORIZONTAL SCALE

0 20 40
VERTICAL SCALE

JAMES B. HALL II
82722
REGISTERED PROFESSIONAL ENGINEER
STATE OF TEXAS
10/18/07

HS20 LOADING ~ EXIST
HL-93 LOADING ~ PROP



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IH 10
BRIDGE LAYOUT
WEST NAVIDAD RIVER WBL

NBI NO.: 130760053507075
RDWY FUNCT CLASS = RURAL INTERSTATE
DESIGN SPEED = 70 MPH
EXIST ADT (2005) = 22270 vpd
PROP ADT (2025) = 31180 vpd

SHEET 2 OF 4

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6			50
STATE	DIST.		COUNTY
TEXAS	YKM		FAYETTE
CONT	SECT	JOB	HIGHWAY NO.
0535	07	044	IH 10

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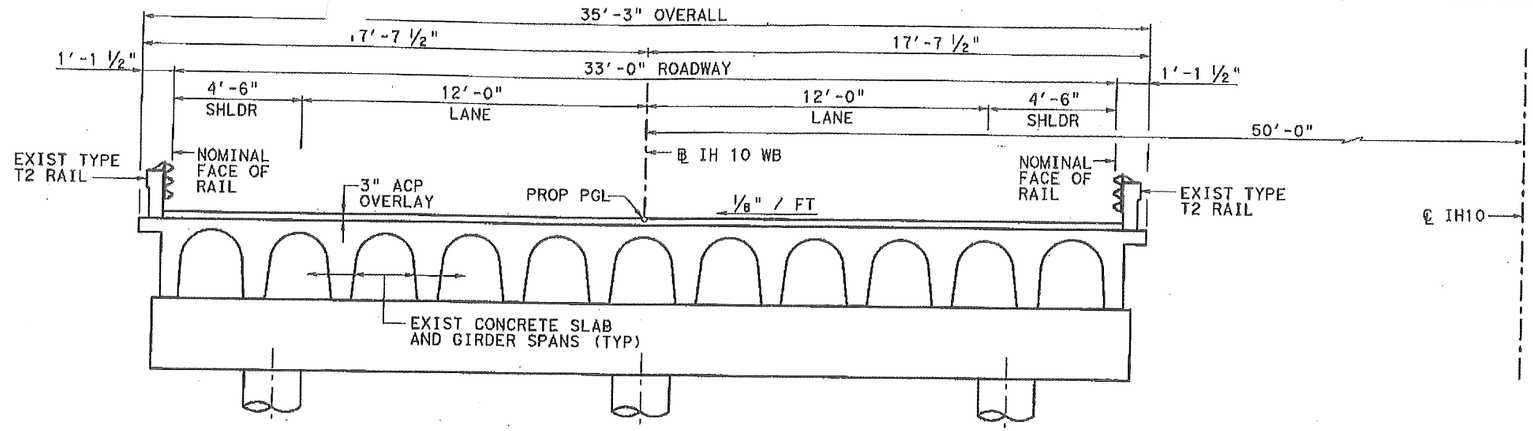
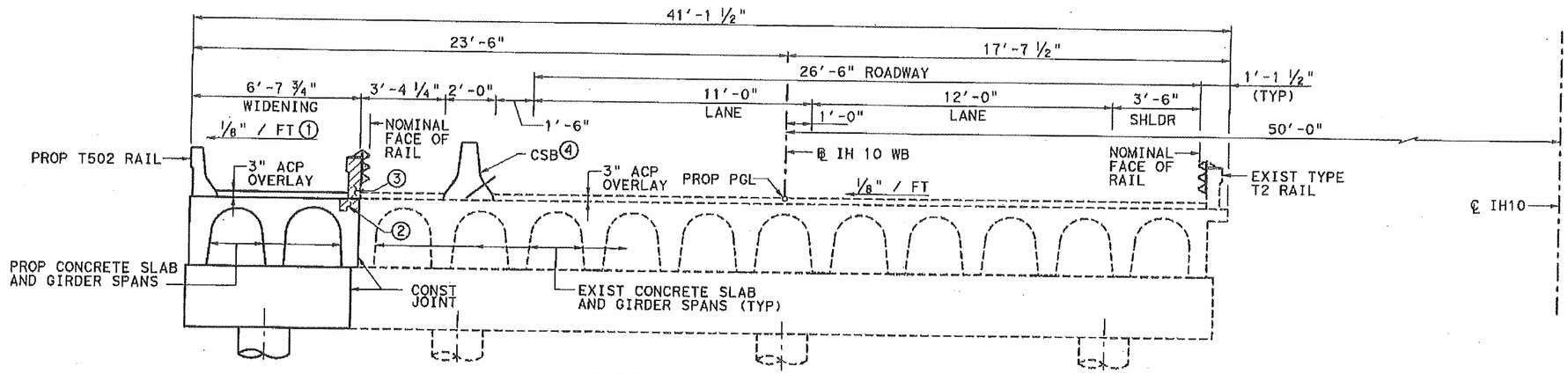


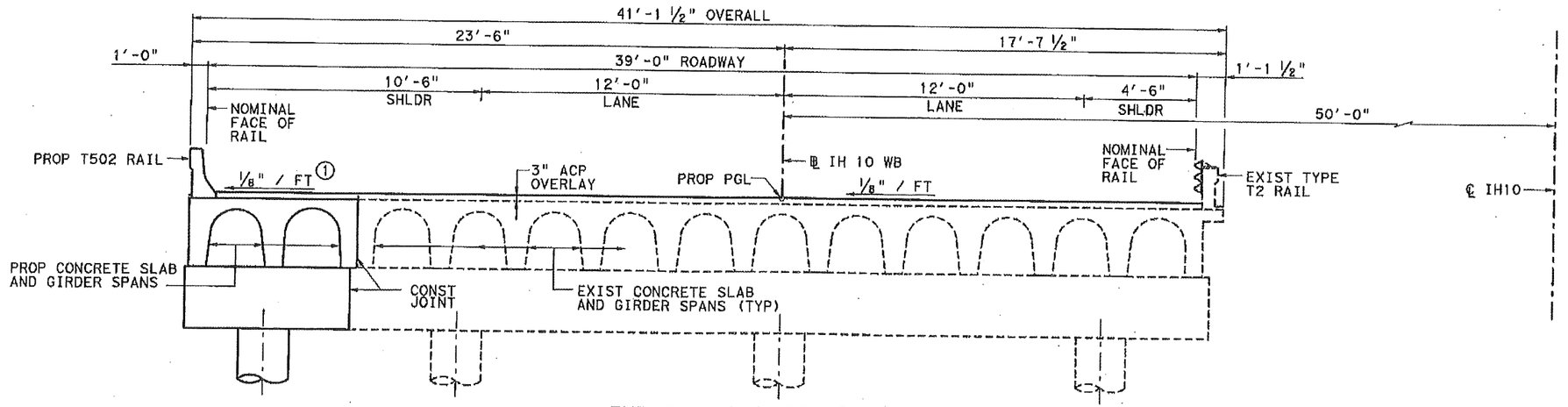
EXIST TYPICAL SECTION

(SPANS 1-4 & 6)



TYPICAL CONSTRUCTION SECTION

(SPANS 1-4 & 6)



TYPICAL PROP SECTION

(SPANS 1-4 & 6)

(1) MATCH EXIST SLAB ELEVATION AND EXTEND AT EXIST SLOPE.

(2) REMOVE CROSS-HATCHED PORTION OF EXIST SLAB.

(3) REMOVE EXIST T2 RAIL.

(4) SEE TxDOT STANDARD CSB FOR TRAFFIC BARRIER PLACEMENT ON BRIDGE DECK.

HS20 LOADING ~ EXIST
HL-93 LOADING ~ PROP

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92722
REGISTERED PROFESSIONAL ENGINEER
STATE OF TEXAS
10/18/07

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IH 10
BRIDGE LAYOUT TYPICAL SECTIONS

WEST NAVIDAD RIVER WBL

SCALE: 3/16" = 1'-0" SHEET 3 OF 4

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6			51
STATE	DIST.	COUNTY	
TEXAS	YKM	FAYETTE	
CONT	SECT	JOB	HIGHWAY NO.
0535	07	044	IH 10

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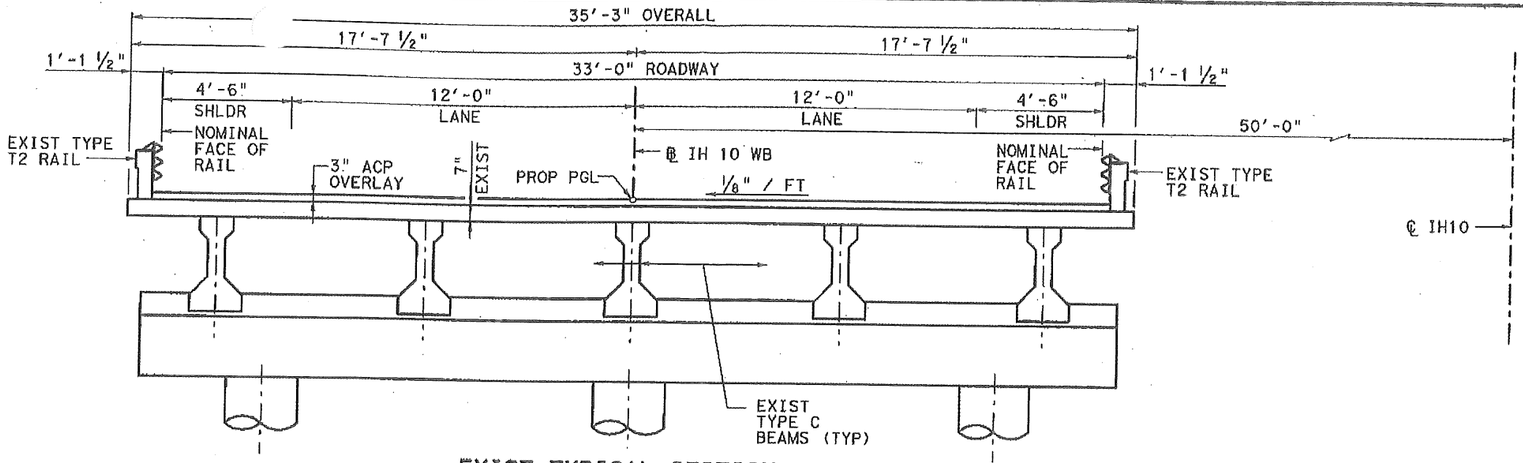
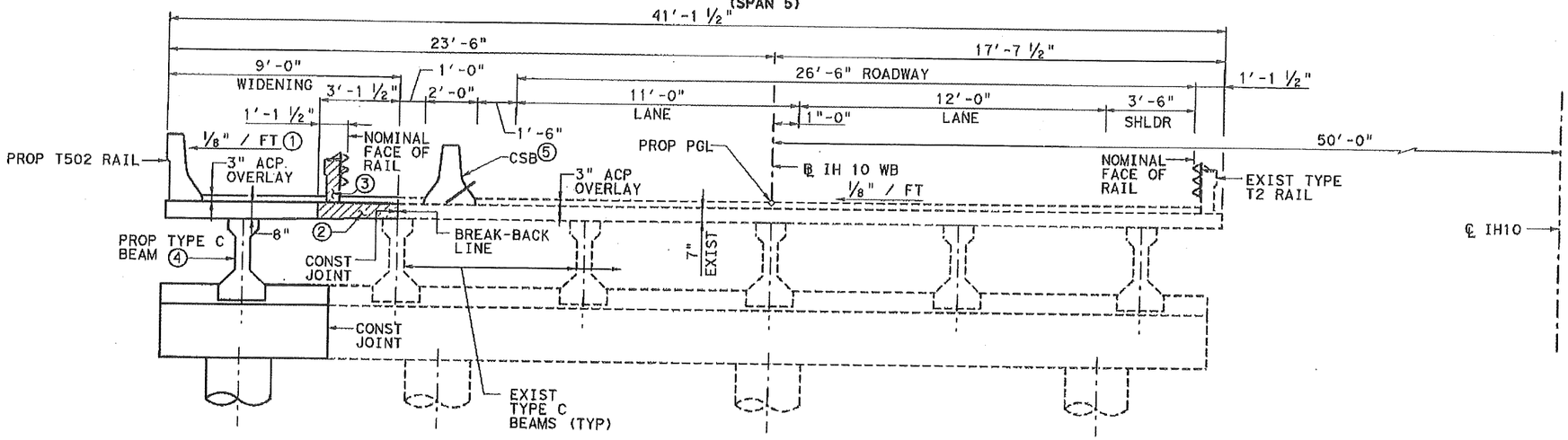
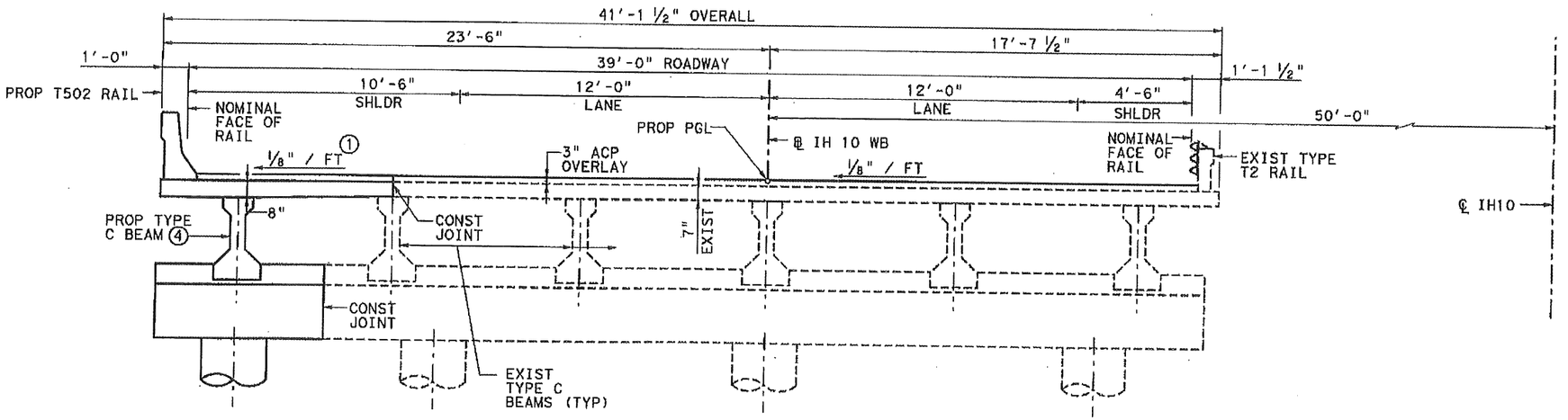


EXIST TYPICAL SECTION
(SPAN 5)



TYPICAL CONSTRUCTION SECTION
(SPAN 5)



TYPICAL PROP SECTION
(SPAN 5)

① MATCH EXIST SLAB ELEVATION AND EXTEND AT EXIST SLOPE.

② REMOVE CROSS-HATCHED PORTION OF EXIST SLAB.

③ REMOVE EXIST T2 RAIL.

④ SPAN 5 ONLY.

⑤ SEE TxDOT STANDARD CSB FOR TRAFFIC BARRIER PLACEMENT ON BRIDGE DECK.

HS20 LOADING ~ EXIST
HL-93 LOADING ~ PROP

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82722
REGISTERED PROFESSIONAL ENGINEER
STATE OF TEXAS
10/18/07

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IH 10
BRIDGE LAYOUT
TYPICAL SECTIONS

WEST NAVIDAD RIVER WBL

SCALE: 3/16" = 1'-0" SHEET 4 OF 4

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6			52
STATE	DIST.	COUNTY	
TEXAS	YKM	FAYETTE	
CONT	SECT	JOB	HIGHWAY NO.
0535	07	044	IH 10

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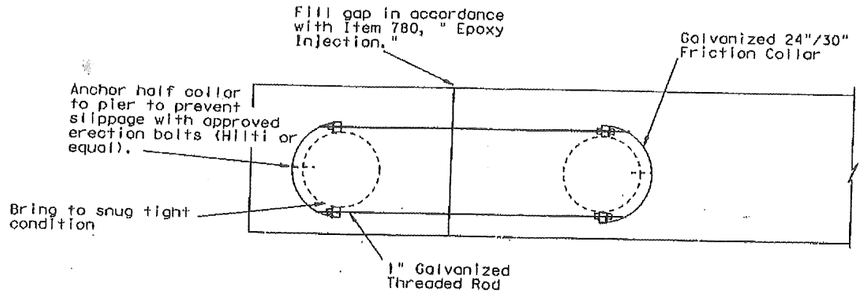
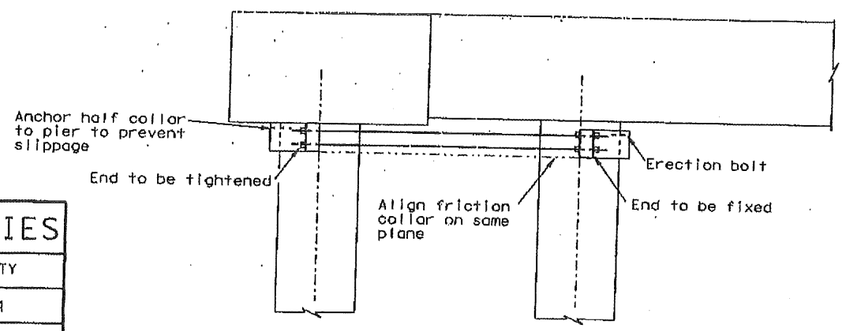


PLAN
TYPICAL BENT REPAIR



ELEVATION
TYPICAL BENT REPAIR

TABLE OF ESTIMATED QUANTITIES		
Item Description	UNIT	QTY
24" Symons Friction Collar	SET	4
30" Symons Friction Collar	SET	2
1"- Approx. 5'-6" Galvanized Threaded Rod	EA	24 #

#Appropriate hardware should be included (Hardened Washers and nuts)

NOTES FOR BENT REPAIR:

1. Provide galvanized equipment and hardware specified in plans and in accordance with Item 445, "Galvanizing" and Item 447 "Structural Bolting."

2. Threaded rod must have a minimum yield strength of 36 ksi.

3. Ensure friction collars are aligned on same plane before anchoring with erection bolts. Bolt locations for friction collar anchorage may be adjusted due to field conditions as approved.

4. Tightness of threaded rod may be adjusted and approved by engineer in the field.

TIGHTENING PROCEDURE:

1. Simultaneously snug tighten threaded rods from Tightening End (Item 447) to ensure even distribution of loads and proper seating.

2. After snug tightness is achieved on both sides, mark nuts and threaded rods on one side In accordance with Item 447, "Structural Bolting", and turn the nuts half a turn (4.4 kips).

3. In the same manner proceed to the other side, mark threaded rods and nuts, then turn nuts one full turn (8.8 kips).

4. Return to the threaded rods on the first side and turn nut half of a full turn, finishing with a total of one full turn (8.8 kips).

5. Return to all threaded rods and grind threads behind nut to prevent backing off of nut.

STATE OF TEXAS
BRIAN D. MERRILL
63924
REGISTERED PROFESSIONAL ENGINEER
12/4/2008

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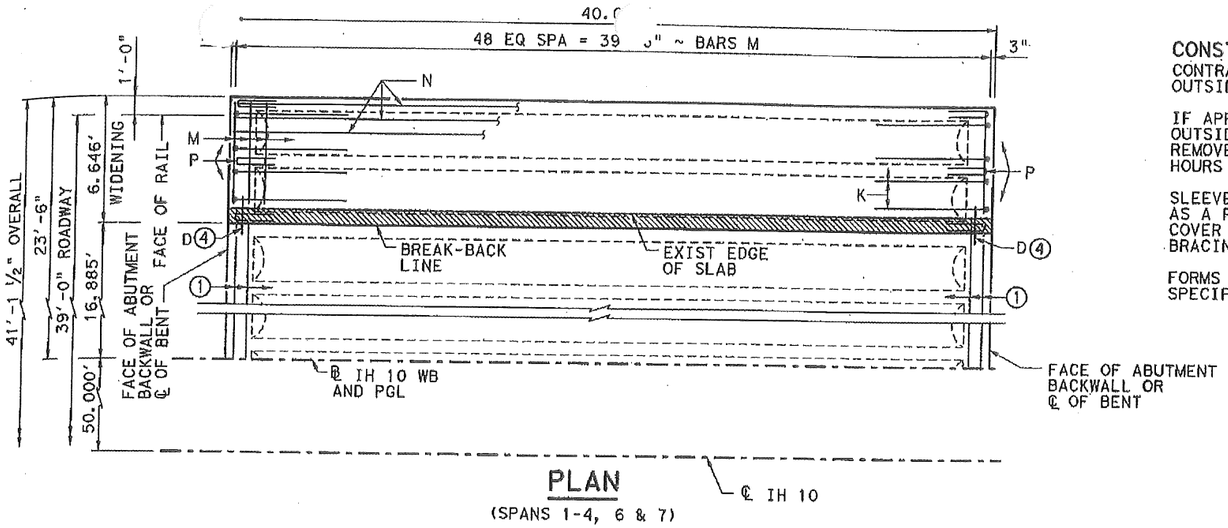
IH 10
BENT REPAIR
AT WEST
NAVIDAD RIVER WBL

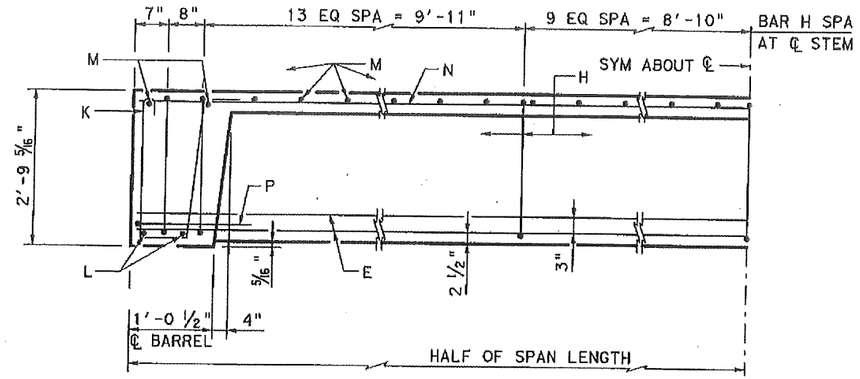
FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	IM 0106(093)		60A
STATE	DIST.	COUNTY	
TEXAS	YKM	FAYETTE	
CONT	SECT	JOB	HIGHWAY NO.
0535	07	044	IH 10

STOCK SIZES
HOLES SIZES

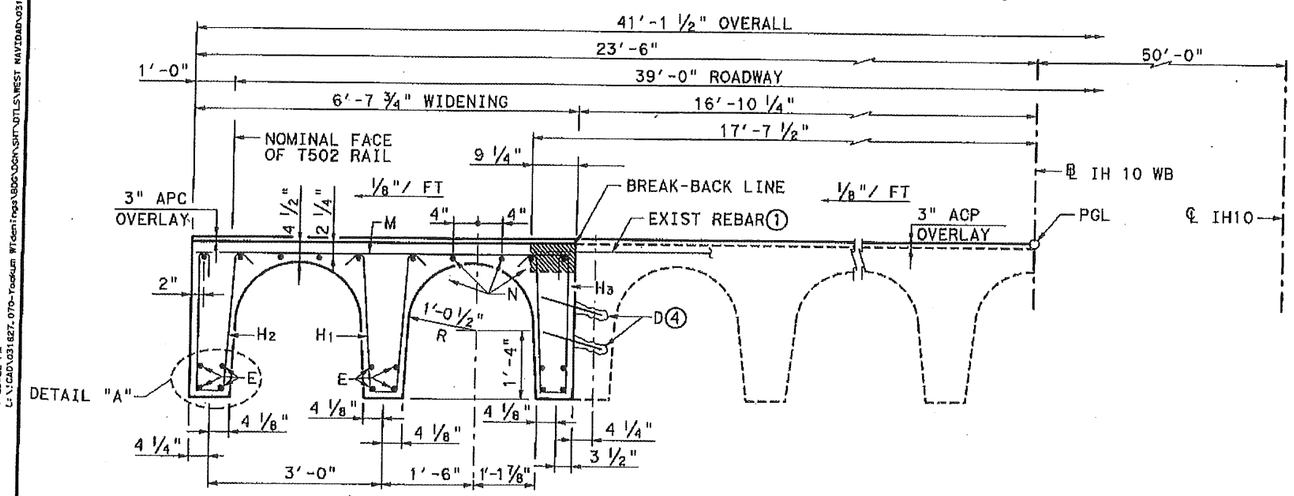


PLAN

(SPANS 1-4, 6 & 7)



TYPICAL HALF GIRDER SECTION



TYPICAL TRANSVERSE SECTION

CONSTRUCTION NOTES:

CONTRACTOR MUST PROVIDE ADEQUATE MEANS OF SUPPORTING OUTSIDE FORMS DURING PLACEMENT OF CONCRETE.

IF APPROVED BY THE ENGINEER, FORMS FOR THE VERTICAL OUTSIDE FACE OF THE OUTSIDE GIRDER AND OVERHANG MAY BE REMOVED AFTER THE CONCRETE HAS AGED FOR A MINIMUM OF 24 HOURS AND HAS ATTAINED A COMPRESSIVE STRENGTH OF 1,500 psi.

SLEEVE NUTS OR COIL TIE ANCHORS MAY BE WELDED TO BARS M AS A FORM SUPPORT ONLY, PROVIDED AT LEAST 1" CONCRETE COVER IS PROVIDED OVER SUCH ANCHORS. OTHER ADEQUATE FORM BRACING METHODS, EXTERNAL OR INTERNAL, ARE ACCEPTABLE.

FORMS MAY BE SUPPORTED FROM BENT CAPS ONLY WHEN SPECIFIED ON BENT DETAILS.

TABLE OF ESTIMATED QUANTITIES

BAR	NO.	SIZE	LENGTH	WEIGHT
D ④	4	# 6	3'- 0"	18
E	12	#11	39'- 8"	2529
H1 ②	47	# 4	6'- 4"	199
H2 ②	47	# 4	6'- 4"	199
H3 ②	47	# 4	6'- 3"	196
K	12	# 4	6'- 9"	54
L	4	# 5	6'- 4"	26
M	49	# 5	6'- 4"	324
N	10	# 5	39'- 8"	414
P	6	# 5	4'- 2"	26
REINFORCING STEEL			LB	③ 3932
CLASS "S" CONCRETE			CY	14.6

① CLEAN, STRAIGHTEN AND EXTEND EXIST SLAB BARS INTO PROP CONSTRUCTION.

② INCREASE H BAR QUANTITY BY 3 FOR EACH BEAM END AT AN ARMOR JOINT.

③ INCREASE REINFORCING STEEL TOTAL BY 38 LBS FOR EACH SPAN END AT AN ARMOR JOINT.

④ DRILL AND GROUT BARS D AT BOTH DIAPHRAGMS IN ACCORDANCE WITH TxDOT STANDARD SPEC ITEM 420 "CONCRETE STRUCTURES".

GENERAL NOTES

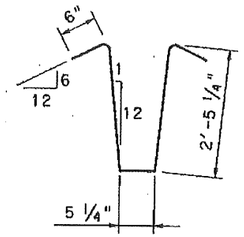
DESIGNED ACCORDING TO AASHTO LRFD SPECIFICATIONS.

CONCRETE STRENGTH ~ f'c = 4000 psi

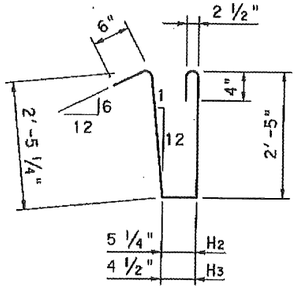
ALL STEEL REINFORCING SHALL BE GRADE 60.

PAY QUANTITY OF CLASS "S" CONCRETE WILL BE PLAN QUANTITY WHICH INCLUDES THE QUANTITY OF CONCRETE REQUIRED TO PROVIDE A CAMBER IN TOP OF SLAB AFTER REMOVAL OF FORMS OF ½" AT CENTERLINE SPAN.

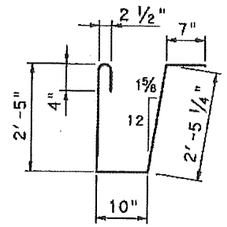
BAR LAPS, UNLESS OTHERWISE NOTED, ARE AS FOLLOWS:
#4 ~ 1'-5"
#5 ~ 1'-9"



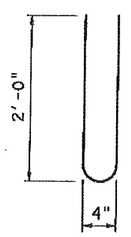
BARS H1



BARS H



BARS K



BARS P

James B. Hall II
STATE OF TEXAS
JAMES B. HALL II
82722
REGISTERED PROFESSIONAL ENGINEER
10/18/07

HS20 LOADING EXIST
HL-93 LOADING PROP

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IH 10

40.000' CONCRETE SLAB AND GIRDER SPANS (1-4, 6 & 7)

WEST NAVIDAD RIVER WBL

SCALE: N. T. S. SHEET 1 OF 2

FED. RD. DIV. NO.	PROJECT NO.	SHEET NO.
6		61

STATE	DIST.	COUNTY
TEXAS	YKM	FAYETTE

CONT	SECT	JOB	HIGHWAY NO.
0535	07	044	IH 10

10/15/2007
ESSARY

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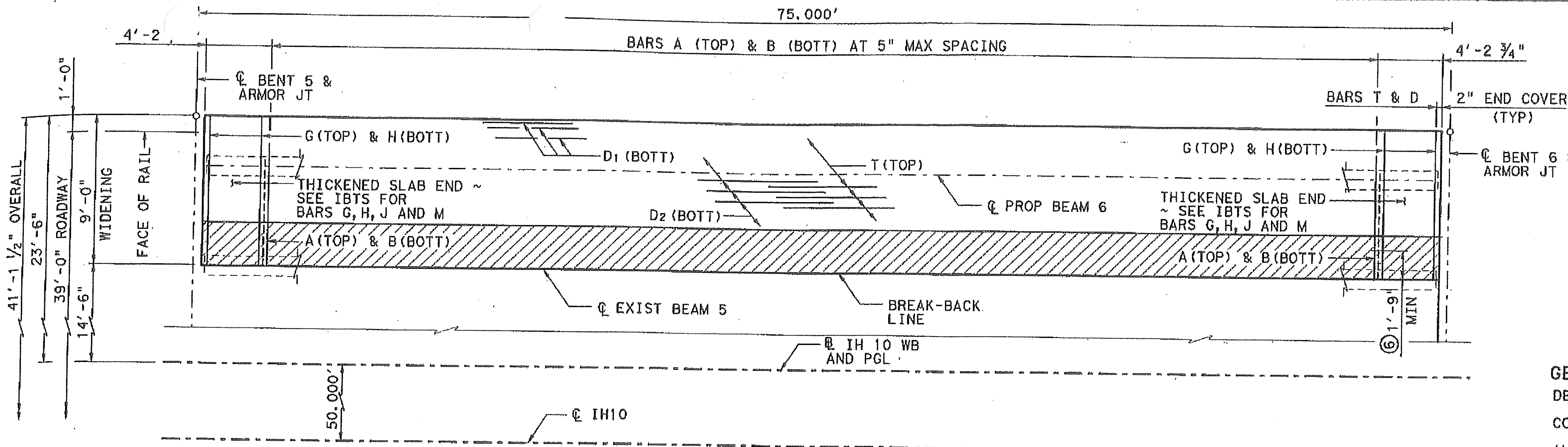
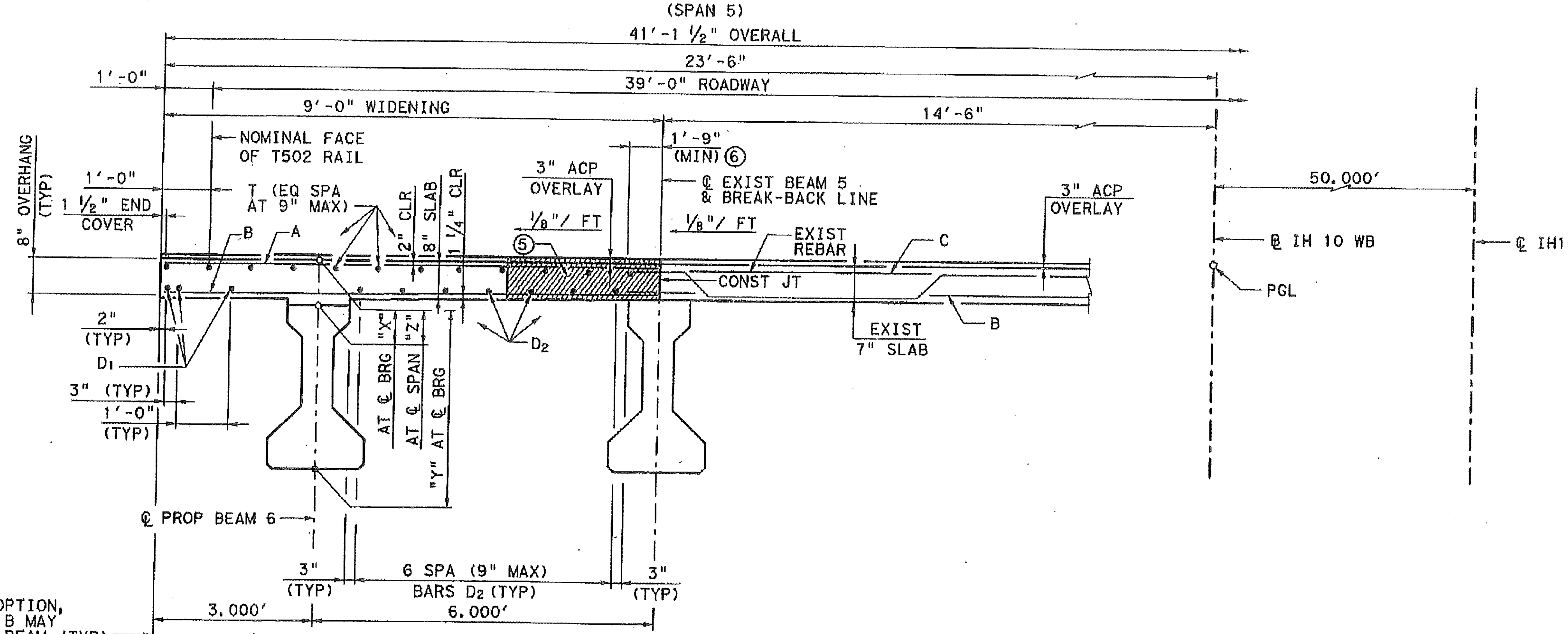


PLAN
(SPAN 5)



TYPICAL TRANSVERSE SECTION

GENERAL NOTES

DESIGNED ACCORDING TO AASHTO LRFD SPECIFICATIONS.

CONCRETE STRENGTH ~ f′c = 4000 psi

ALL STEEL REINFORCING SHALL BE GRADE 60.

PCP OR PMDF NOT ALLOWED.

SEE IBTS STANDARD FOR THICKENED SLAB END DETAILS.

SEE AJ STANDARD SHEET FOR DETAILS, LENGTHS AND WEIGHTS OF AJ TO BE PLACED WITH UNIT.

SEE IBMS STANDARD FOR MISCELLANEOUS DETAILS.

SEE RAILING DETAILS FOR RAIL ANCHORAGE IN SLAB.

BAR LAPS, UNLESS OTHERWISE NOTED, ARE AS FOLLOWS:
#4 ~ 1′-5"
#5 ~ 1′-9"

JAMES B. HALL II
62722
10/18/07

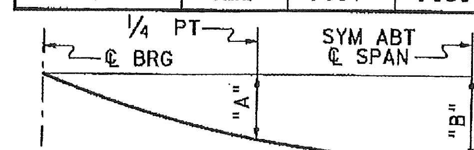
HS20 LOADING ~ EXIST
HL-93 LOADING ~ PROP

BAR TABLE

BAR	SIZE
A	#5
B	#5
D	#5
G	#5
H	#5
J	#5
M	#5
T	#4

DEAD LOAD DEFLECTIONS

SPAN	BEAM	"A"	"B"
5	ALL	.057′	.080′



DEFLECTIONS SHOWN ARE DUE TO CONCRETE SLAB ONLY. (Ec = 5000 ksi). CALCULATED DEFLECTIONS SHOWN ARE THEORETICAL AND ACTUAL DIMENSIONS MAY BE LESS. THESE VALUES MAY REQUIRE FIELD VERIFICATION.

SECTION DEPTHS

SPAN	BEAM	"X" AT ℄ BRG	"Y" AT ℄ BRG	"Z" AT ℄ SPAN ①
5	6	11"	4′-3"	8 ¾"

① THEORETICAL DIMENSION.

② BEAM LENGTHS SHOWN ARE BOTTOM BEAM FLANGE LENGTHS WITH ADJUSTMENTS MADE FOR BEAM SLOPE. ACTUAL LENGTH PER BEAM = 74.67

③ QUANTITY INCLUDES SLAB, HAUNCH AND THICKENED SLAB END.

④ REINFORCING STEEL WEIGHT IS CALCULATED USING AN APPROXIMATE FACTOR OF 6.5 LB/FT2 FOR SLAB.

ESTIMATED QUANTITIES

SPAN	REINF CONCRETE SLAB	PRESTR CONCRETE BEAMS (TY C) ②	CLASS "S" CONCRETE	REINF STEEL ④
NO.	SF	FT	CY	LB
5	675	74.67	16.2 ③	4388

⑤ SEE IBTS DETAILS FOR THICKENED END SLAB.

⑥ CLEAN, STRAIGHTEN AND EXTEND EXIST SLAB BARS INTO PROP CONSTRUCTION. EXTEND BARS TO MEET MINIMUM BAR LAP REQUIREMENTS. MATCH PROPOSED BARS G & H WITH EXISTING A, B & C BARS.

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IH 10
75.00′ PRESTRESSED CONCRETE BEAM SPAN (SPAN 5)
WEST NAVIDAD RIVER WBL

SCALE: N.T.S. SHEET 1 OF 1

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6			63
STATE	DIST.	COUNTY	
TEXAS	YKM	FAYETTE	
CONT	SECT	JOB	HIGHWAY NO.
0535	07	044	IH 10

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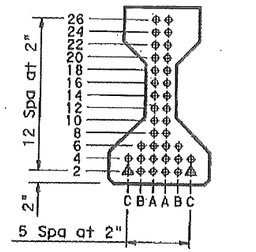
DESIGNED BEAMS (DEPRESSED STRANDS)

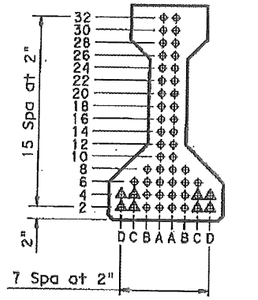
STRUCTURE	SPAN NO.	BE. NO.	BEAM TYPE	NON-STD STRAND PATTERN	PRESTRESSING STRANDS TOTAL NO.	SIZE (In)	STRGTH fpu (ksi)	"e" ℄ (In)	"e" END (In)	DEPRESSED NO.	DEPRESSED TO (In)	CONCRETE RELEASE STRGTH f'ci (ksi)	CONCRETE MINIMUM 28 DAY COMP STRGTH f'c (ksi)
WEST NAVIDAD	5	6	C		32	½	270K	12.84	7.84	8	28.0	5.528	5.528

OPTIONAL DESIGN

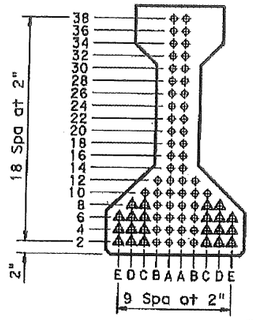
DESIGN LOAD COMP STRESS (TOP ℄) (SERVICE I) fot (ksi)	DESIGN LOAD TENSILE STRESS (BOTT ℄) (SERVICE III) fob (ksi)	REQUIRED MINIMUM ULTIMATE MOMENT CAPACITY (STRENGTH I) (ft-kips)	LIVE LOAD DISTRIB FACTOR ①
3.197	-3.737	3564	0.667



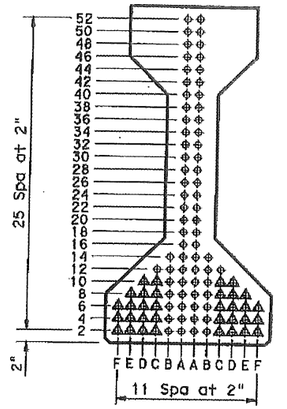
TYPE A BM ②



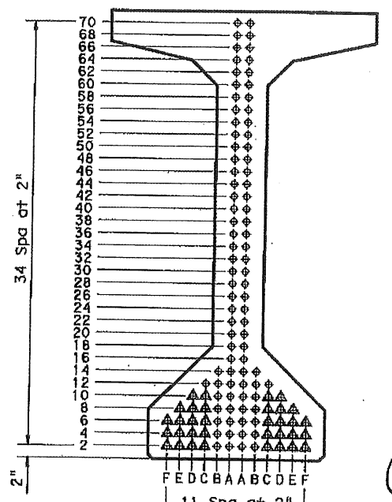
TYPE B BM ②



TYPE C BM ②



TYPE IV BM ②
(AASHTO TYPE IV BM)



TYPE VI BM ②
(AASHTO TYPE VI BM)

NON-STANDARD STRAND PATTERNS

PATTERN	STRAND ARRANGEMENT AT ℄ OF BEAM

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 65 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:

1. Alternate rows of depressed strands shall be debonded for two feet from each end of the beam.
2. One half of the straight strands, as nearly as possible, shall be debonded for four feet from each end of the beam.
3. The debonding pattern shall be symmetrical about the vertical axis of the beam for both depressed and straight strands.
4. 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.
5. 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.
6. 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 Δ. 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

James O. Hall II
STATE OF TEXAS
JAMES O. HALL II
62722
REGISTERED PROFESSIONAL ENGINEER
10/18/07

Texas Department of Transportation
Bridge Division

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

IBND

FILE:	ibndstd1.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT	January 2005	DISTRICT	PROJECT NO.		SHEET
REVISIONS		YKM			64
01-08: Full-length debonding		COUNTY	CONTROL	SECT	JOB	HIGHWAY
		FAYETTE	0535	07	044	IH 10

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