

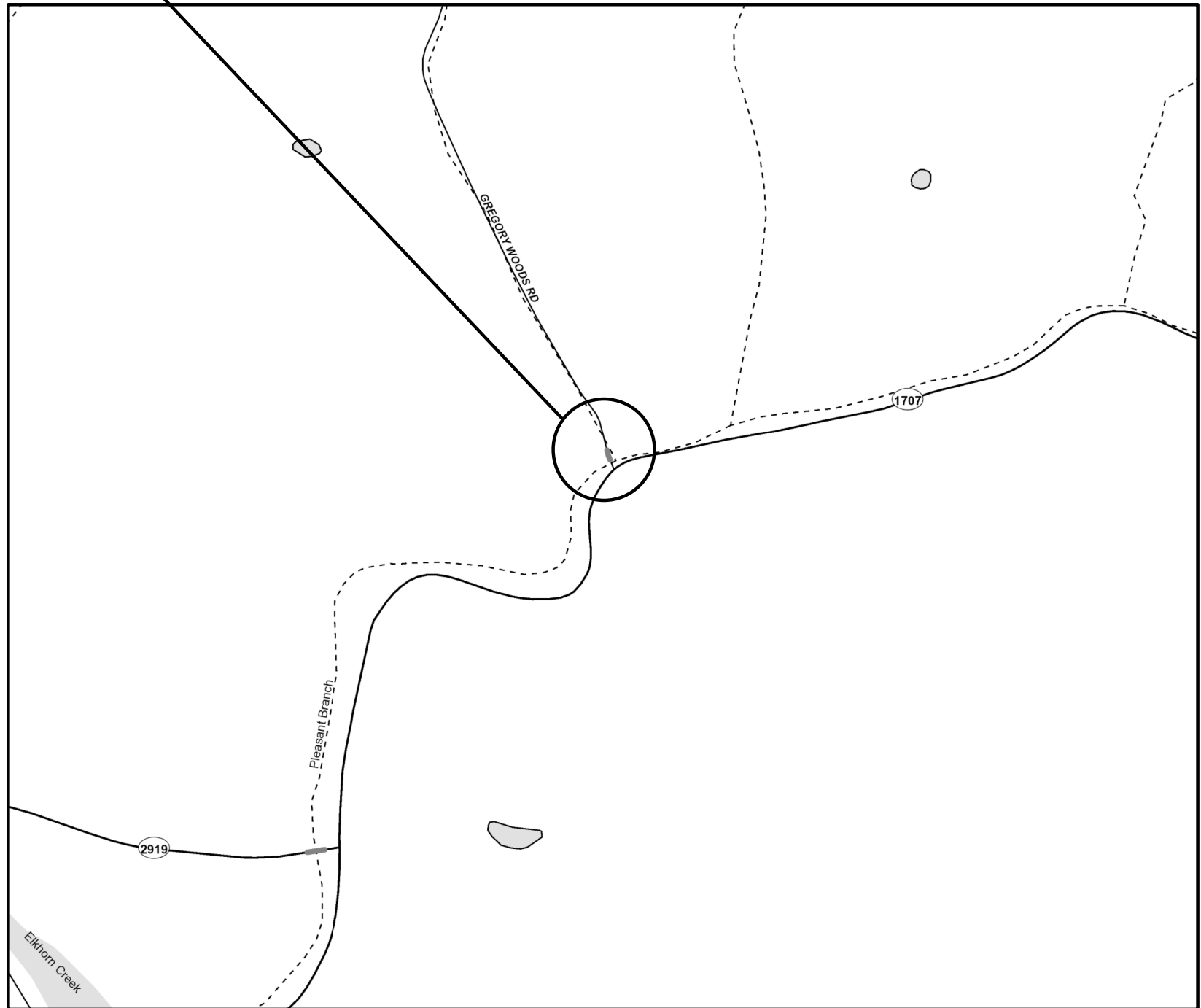
# FRANKLIN COUNTY GREGORY WOODS ROAD OVER PLEASANT BRANCH BRIDGE REPLACEMENT

*Prepared For:*  
**FRANKLIN COUNTY FISCAL COURT**

*FRANKLIN COUNTY FISCAL COURT*

HUSTON WELLS	JUDGE/EXECUTIVE
TAMBRA HARROD	DEPUTY JUDGE/EXECUTIVE
SHERRY SEBASTIAN	MAGISTRATE, DISTRICT 1
JW BLACKBURN	MAGISTRATE, DISTRICT 2
MICHAEL MUELLER	MAGISTRATE, DISTRICT 3
SCOTTY TRACY	MAGISTRATE, DISTRICT 4
MARTI BOOTH	MAGISTRATE, DISTRICT 5
LAMBERT MOORE	MAGISTRATE, DISTRICT 6

PROJECT  
LOCATION



LOCATION MAP

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*Justin D. Agler*

JUSTIN D. AGLER, PE  
DATE: 03/04/2022

KY PE 37417

NO.	DATE	DESCRIPTION	BY

1950 HAGGARD CT  
LEXINGTON, KENTUCKY 40505  
(859) 299-5226

GREGORY WOODS ROAD  
OVER PLEASANT BRANCH  
BRIDGE REPLACEMENT  
FRANKLIN COUNTY, KENTUCKY

COVER SHEET

DRAWN BY: JDA	DATE: 02/2022
CHECKED BY: DWS	SCALE: N.T.S.
JOB NO.: 2031-2204-90	SHEET: 1 of 17

## GENERAL NOTES

**SPECIFICATIONS:**

ALL REFERENCES TO THE STANDARD SPECIFICATIONS ARE TO THE 2019 EDITION OF THE KENTUCKY DEPARTMENT OF HIGHWAYS STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION WITH CURRENT SUPPLEMENTAL SPECIFICATIONS. ALL REFERENCES TO THE AASHTO SPECIFICATIONS ARE TO THE EIGHTH EDITION, 2017, OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, WITH INTERIMS.

**DESIGN LOAD:**

THIS BRIDGE IS DESIGNED FOR KY HL93 LIVE LOAD CONSISTING OF A COMBINATION OF THE DESIGN TRUCK OR DESIGN TANDEM, AND A DESIGN LANE LOAD. THE KY HL93 LIVE LOAD IS DETERMINED BY INCREASING THE HL93 LIVE LOAD BY 25%. THIS BRIDGE IS DESIGNED FOR A WIND LOAD BASED ON A WIND VELOCITY OF 100 MPH.

**DESIGN METHOD:**

ALL REINFORCED CONCRETE MEMBERS ARE DESIGNED BY THE LOAD AND RESISTANCE FACTOR METHOD AS SPECIFIED IN THE CURRENT AASHTO SPECIFICATIONS.

**MATERIALS DESIGN SPECIFICATIONS:**

FOR CLASS "A" REINFORCED CONCRETE      F'C = 3,500 PSI  
 FOR CLASS "AA" REINFORCED CONCRETE      F'C = 4,000 PSI  
 FOR STEEL REINFORCEMENT                      FY = 60,000 PSI  
 FOR STRUCTURAL STEEL (PILES)                FY = 50,000 PSI

**FOUNDATION DATA:**

SEE FOUNDATION LAYOUT SHEET

**FOUNDATION PRESSURE:**

PILES IN END BENTS ARE DESIGNED FOR A MAXIMUM LOAD OF 99 TONS PER PILE.

**CONCRETE:**

CLASS "A" CONCRETE IS TO BE USED THROUGHOUT THE SUBSTRUCTURE. PRESTRESSED GIRDER CONCRETE SHALL BE IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS.

THE CONTRACTOR SHALL COMPLY WITH SECTIONS 601.03.09(D), 601.03.14, AND 601.03.15 IN THE STANDARD SPECIFICATIONS IN REGARDS TO CONCRETE CONSTRUCTION.

**FOUNDATION CONSTRUCTION:**

CONTRACTOR SHALL NOTIFY THE ENGINEER 24 HOURS PRIOR TO POURING CONCRETE FOR THE FOUNDATION.

EXCAVATION, CONCRETE FORMING AND REBAR PLACEMENT SHALL BE COMPLETED PRIOR TO ENGINEER INSPECTION.

ENGINEER INSPECTION SHALL BE PERFORMED PRIOR TO POURING OF CONCRETE FOR THE FOUNDATION. IF THE CONCRETE IS POURED PRIOR TO THE ENGINEER INSPECTION, THE CONTRACTOR SHALL BE REQUIRED TO REMOVE THE CONCRETE AT HIS/HER OWN EXPENSE.

**REINFORCEMENT:**

DIMENSIONS SHOWN FROM THE FACE OF CONCRETE TO BARS ARE CLEAR DISTANCES UNLESS OTHERWISE SHOWN. SPACING OF BARS IS FROM CENTER TO CENTER OF BARS. CLEAR DISTANCE TO FACE OF CONCRETE IS 2" UNLESS OTHERWISE NOTED.

**BEVELED EDGES:**

ALL EXPOSED EDGES SHALL BE BEVELED 3/4" UNLESS OTHERWISE SHOWN.

**BILL OF INCIDENTAL MATERIAL:**

THE QUANTITIES SHOWN IN THE BILL OF INCIDENTAL MATERIALS ARE APPROXIMATE ONLY AND THE CONTRACTOR IS RESPONSIBLE FOR FURNISHING ENOUGH MATERIAL TO COMPLETE THE WORK IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS. THE COST OF THESE ITEMS IS TO BE INCLUDED IN THE LUMP SUM BID FOR THIS PROJECT.

**BENCH MARKS:**

ELEVATIONS OF BENCH MARKS ARE ASSUMED ELEVATIONS.

**REMOVAL OF EXISTING STRUCTURE:**

THE EXISTING SUPERSTRUCTURE IS TO BE COMPLETELY REMOVED. ALL PORTIONS OF THE EXISTING SUBSTRUCTURES ARE TO BE REMOVED DOWN TO AN ELEVATION APPROXIMATELY 1' BELOW THE NEW STRUCTURE'S BRIDGE SEAT ELEVATION. ALL DEMOLITION AND DISPOSAL TO BE THE RESPONSIBILITY OF THE CONTRACTOR.

**PRESTRESSED CONCRETE BOX BEAMS:**

PRECAST CONCRETE BOX BEAMS TO BE PAID FOR BY THE CONTRACTOR.

CONTRACTOR IS RESPONSIBLE FOR PROVIDING ACCESS TO THE JOB SITE FOR DELIVERY AND SETTING OF THE BOX BEAMS. CONTRACTOR IS ALSO RESPONSIBLE FOR COORDINATING WITH THE FABRICATOR AND SETTING OF THE BOX BEAMS.

**CONSTRUCTION IN STREAM:**

CONTRACTOR IS RESPONSIBLE FOR MAINTAINING FLOW OF STREAM DURING CONSTRUCTION AND IS ALSO RESPONSIBLE FOR MAINTAINING A DRY EXCAVATION DURING POURING OF CONCRETE FOR THE FOUNDATION INCLUDING ANY NECESSARY PUMPING, DIKES OR OTHER METHODS REQUIRED TO PROVIDE DRY EXCAVATION.

**SHOP DRAWINGS:**

REFER TO CONSTRUCTION SPECIFICATIONS FOR SHOP DRAWINGS. WHEN ANY CHANGES IN THE DESIGN PLANS ARE PROPOSED BY THE FABRICATOR OR SUPPLIER, THE SHOP DRAWINGS REFLECTING THESE CHANGES SHALL BE SUBMITTED TO THE DEPARTMENT/DESIGN ENGINEER THROUGH THE CONTRACTOR.

**DIMENSIONS:**

DIMENSIONS ARE FOR A NORMAL TEMPERATURE OF 60 DEGREES FAHRENHEIT. LAYOUT DIMENSIONS ARE HORIZONTAL MEASUREMENTS.

**ON-SITE INSPECTION:**

EACH CONTRACTOR SUBMITTING A BID FOR THIS WORK SHALL MAKE A THOROUGH INSPECTION OF THE PROJECT SITE PRIOR TO SUBMITTING A BID AND SHALL BE THOROUGHLY FAMILIARIZED WITH EXISTING CONDITIONS SO THAT WORK CAN BE EXPEDITIOUSLY PERFORMED AFTER A CONTRACT IS AWARDED. SUBMISSION OF A BID WILL BE CONSIDERED EVIDENCE OF THIS INSPECTION HAVING BEEN MADE. SITE CONDITIONS WHICH DIFFER FROM THE PLANS SHALL BE BROUGHT TO THE ATTENTION OF THE OWNER. IF NO SUCH NOTICE IS PROVIDED, ANY CLAIMS RESULTING FROM SITE CONDITIONS WILL NOT BE HONORED BY THE OWNER.

**PRE-DRILLING PILES:**

PRE-DRILLED HOLES FOR PILES SHALL EXTEND TO ELEVATION 537.9 (END BENT 1) OR 538.2 (END BENT 2) OR A MINIMUM ONE (1) FOOT EMBEDMENT INTO BEDROCK AND PROVIDE A MINIMUM PILE LENGTH OF 15'-0". TEMPORARY CASING MAY BE REQUIRED TO PREVENT THE COLLAPSE OF THE HOLE. IF CASING IS USED, THEN IT SHALL BE REMOVED AS THE HOLE IS BEING BACKFILLED. THE COST OF ALL MATERIALS, LABOR, AND EQUIPMENT NEEDED TO PRE-DRILL AND BACKFILL THE HOLES SHALL BE INCLUDED IN THE PRICE PER LINEAR FOOT FOR "PRE-DRILLING FOR PILES."

**GUARDRAIL**

CONTRACTOR RESPONSIBLE FOR GUARDRAIL ON BRIDGE AND A PORTION OF THE APPROACHES AS INDICATED.

**PILE POINTS**

PROVIDE PILE POINTS FOR ALL POINT BEARING PILES. ENSURE PILE POINTS ARE IN ACCORDANCE WITH SECTION 604 OF THE STANDARD SPECIFICATIONS.

**STAKEOUT**

STAKEOUT TO BE PERFORMED BY CONTRACTOR.

**MAINTENANCE OF TRAFFIC**

COUNTY ROAD DEPARTMENT WILL PROVIDE STATIC SIGNAGE FOR ROAD CLOSURE OR DETOUR(S). BRIDGE CONTRACTOR IS RESPONSIBLE FOR ACTIVE CONTROL AND FLAGGING.

**COMPLETION OF STRUCTURE**

THE CONTRACTOR IS REQUIRED TO COMPLETE THE STRUCTURE IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS. MATERIAL, LABOR OR CONSTRUCTION OPERATIONS, NOT OTHERWISE SPECIFIED ARE TO BE INCLUDED IN THE LUMP SUM BID MOST APPROPRIATE TO THE WORK INVOLVED. THIS MAY INCLUDE COFFERDAMS, SHORING, EXCAVATIONS, BACKFILLING, THE REMOVAL OF ALL OR PART OF EXISTING STRUCTURES, PHASED CONSTRUCTION, INCIDENTAL MATERIALS, LABOR OR ANYTHING ELSE REQUIRED TO COMPLETE THE STRUCTURE.

## STANDARD DRAWINGS

STANDARD DRAWINGS LISTED BELOW ARE THE CURRENT EDITION AND ARE TO BE USED WITH THESE PLANS.

BBP - 003 - 02	ELASTOMERIC BEARING PADS FOR BOX BEAMS
BDE - 001 - 01	PILE END BENT 0° SKEW
BDP - 001 - 05	BOX BEAM GENERAL NOTES & REFERENCES
BDP - 002 - 03	BOX BEAM BEARING DETAILS
BDP - 003 - 03	BOX BEAM MISCELLANEOUS DETAILS
BDP - 004 - 03	BOX BEAM TENSION ROD DETAILS
BDP - 005 - 05	RAILING SYSTEM TYPE II
BDP - 008 - 04	BOX BEAM CB21 DETAILS
BHS - 007 - 07	RAILING SYSTEM TYPE II GUARDRAIL TREATMENT
BJE - 001 - 13	ARMORED EDGES
BPS - 003 - 09	HP 12X53 STEEL PILE
RGX - 100 - 06	TREATMENT OF EMBANKMENTS AT END BENTS
RGX - 105 - 08	TREATMENT OF EMBANKMENTS AT END BENTS

## SPECIAL PROVISIONS

SPECIAL PROVISION 69 FOR EMBANKMENT AT BRIDGE END BENT STRUCTURES

## ESTIMATE OF QUANTITIES

ITEM	QUANT.	UNIT
CONCRETE, CLASS 'A'	237	CU YD
REINFORCING STEEL	2461	LB
PRESTRESSED BEAMS, CB21	260	LF
STRUCTURE EXCAVATION, COMMON	89	CU YD
CYCLOPEAN RIPRAP	34	TONS
HP 12X53 STEEL PILE	232	LF
PILE POINTS	8	EA
PRE-DRILLING FOR PILES (SOIL)	104	LF
PRE-DRILLING FOR PILES (ROCK)	15	LF
STRUCTURE GRANULAR BACKFILL	52	CU YD
GEOTEXTILE FABRIC, TYPE IV	157	SQ YD
ARMORED EDGE	40	LF
GUARDRAIL	104	LF

NOTE:  
QUANTITIES ARE FOR INFORMATIONAL PURPOSES ONLY.

## BILL OF INCIDENTAL MATERIALS

MATERIAL	LOCATION	NO.	SIZE
1/2" CORK EXP. JT. MAT'L.	ABUTMENTS	4	3'-0" x 2'-8"
1/2" CORK	ABUTMENTS	10	1'-6" x 2'-2"
BEARING PAD TYPE BI	ABUTMENTS	20	--
4" DIA. PERFORATED PIPE	ABUTMENTS	--	68 LF
4" DIA. NON-PERFORATED PIPE	ABUTMENTS	--	20 LF

NOTE: BILL OF INCIDENTAL MATERIALS ARE FOR INFORMATIONAL PURPOSES ONLY

NO.	DATE	DESCRIPTION	BY



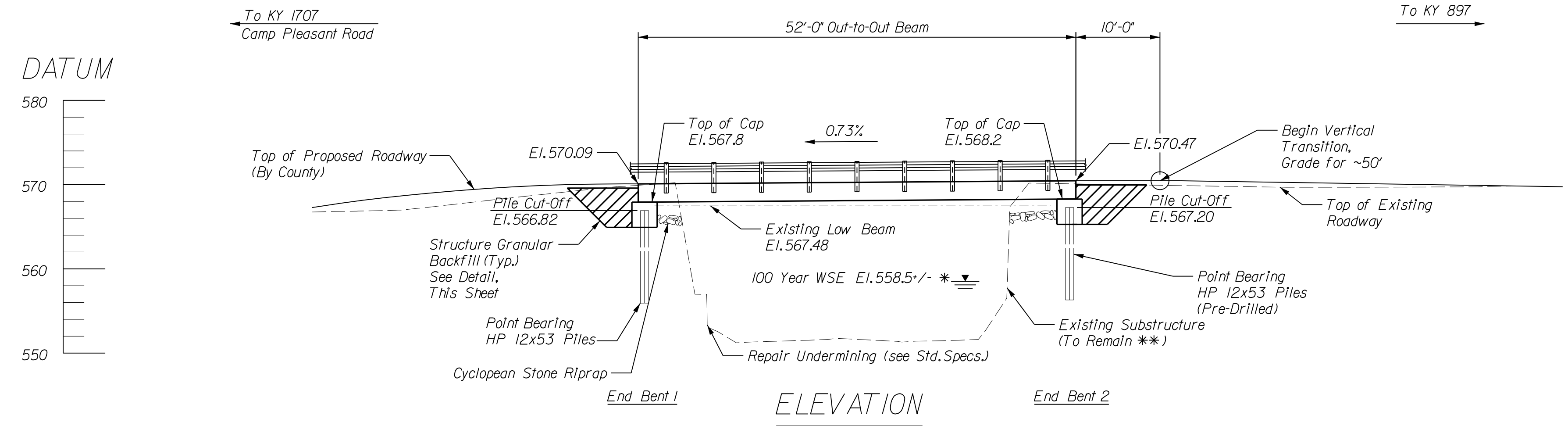
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KENTUCKY, INC.

1950 HAGGARD CT  
LEXINGTON, KENTUCKY 40505  
(859) 299-5226

**GREGORY WOODS ROAD  
OVER PLEASANT BRANCH  
BRIDGE REPLACEMENT  
FRANKLIN COUNTY, KENTUCKY**

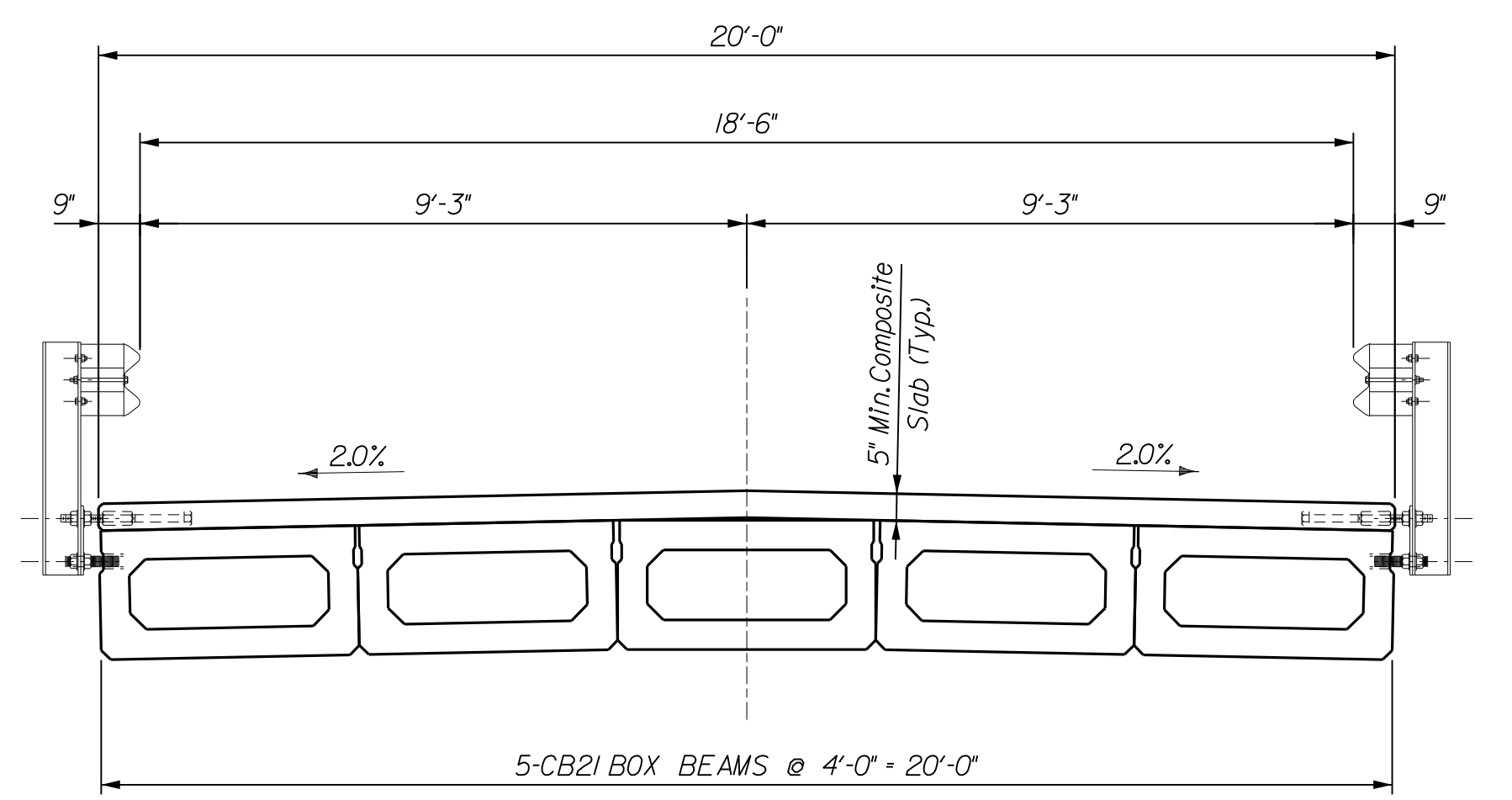
GENERAL NOTES

DRAWN BY:	JDA	DATE:	02/2022
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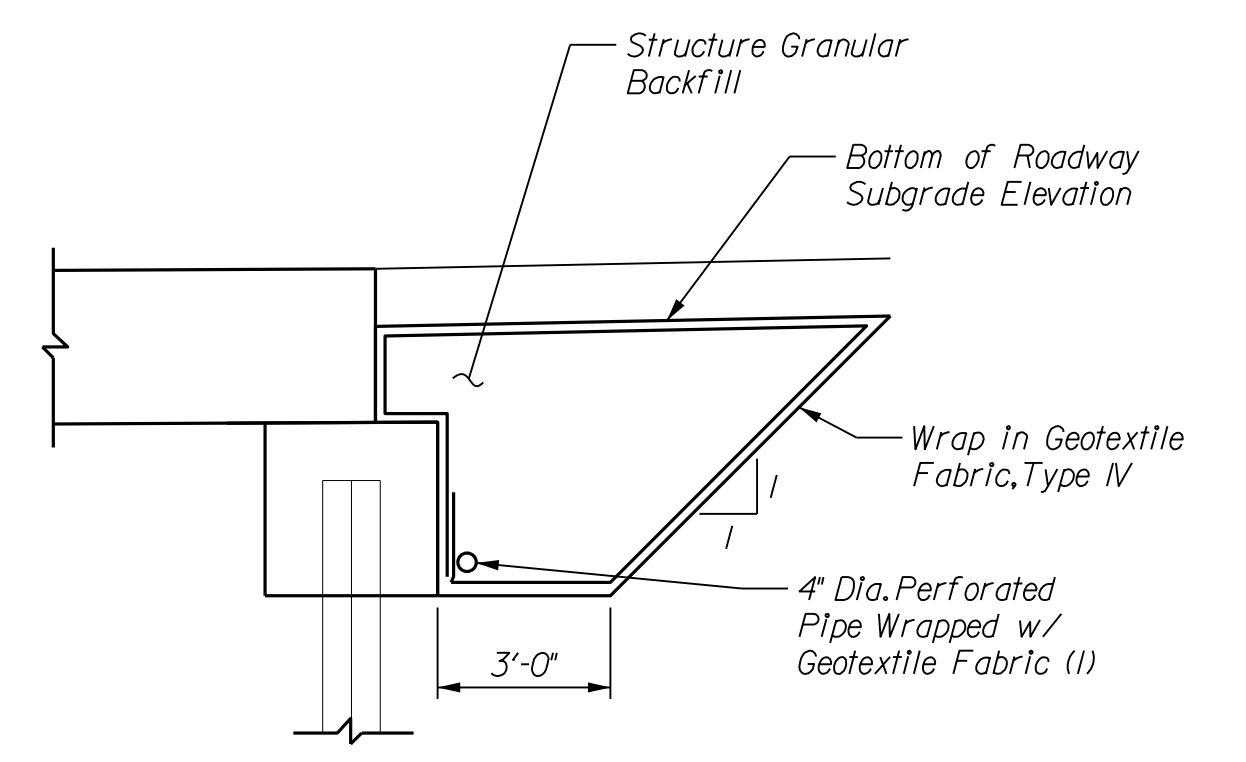
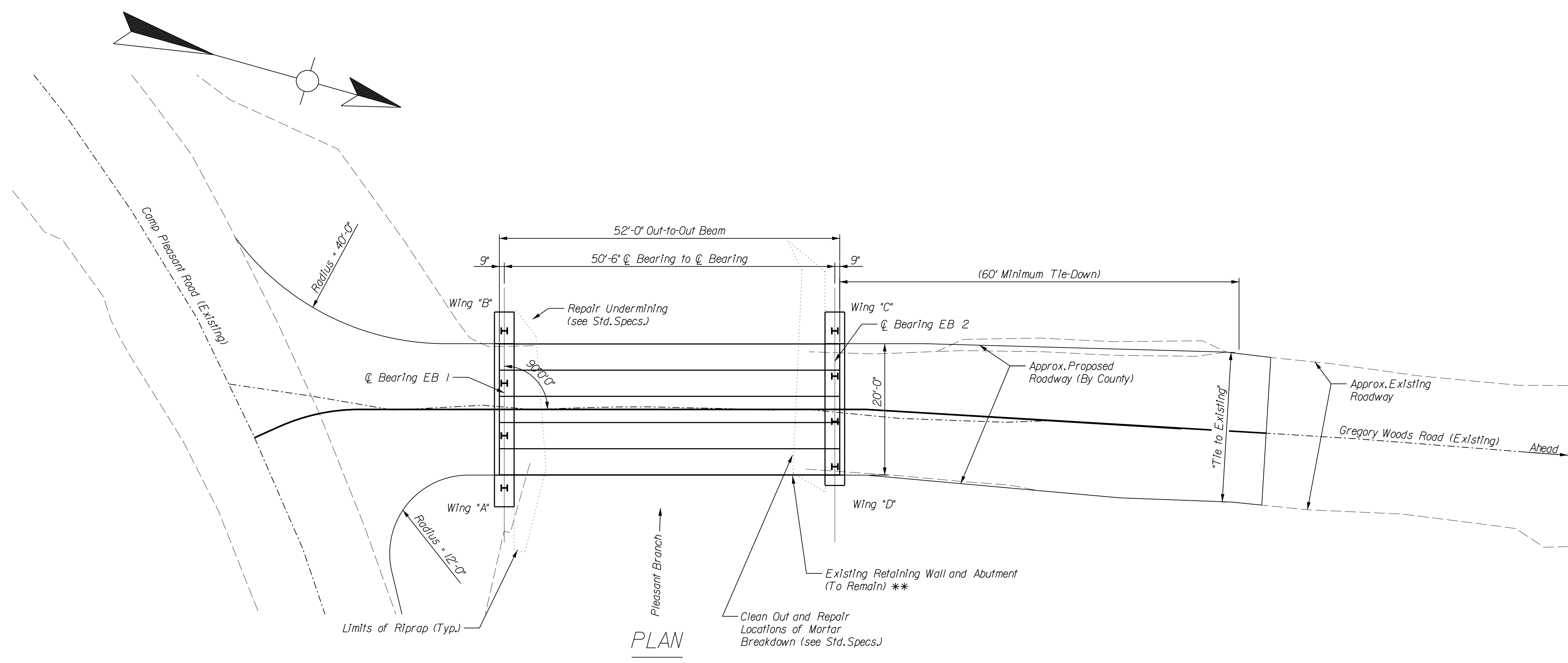


Note: Treatment of Embankments at End Bents  
See Standard Drawing RGX-100-06 & RGX-105-08

Type CB21 Box Beam Structure  
~18'-6" Roadway 0° Skew ~ 1.25\*HL93 (KYHL93) Live Loading  
\* WSE based on DOW hydraulic model for Zone "A" streams in Franklin County  
\*\* Remove Existing Substructure to Depth of 1' Below Proposed Beams



Note: Guardrail System II  
See Standard Drawing BDP-005-05



(1) Connect to 4" Dia. Non-Perforated Pipe and Provide Positive Drainage

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FRANKLIN COUNTY, KENTUCKY

LAYOUT

DRAWN BY:	JDA	DATE:	02/2022
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## GENERAL NOTES

PROPOSED PILES SHALL BE DRIVEN AT THE LOCATIONS INDICATED, IN ACCORDANCE WITH SECTION 604 OF THE STANDARD SPECIFICATIONS.

PILE POINTS - PROVIDE PILE POINTS FOR ALL POINT BEARING PILES. ENSURE PILE POINTS ARE IN ACCORDANCE WITH SECTION 604 OF THE STANDARD SPECIFICATIONS.

TEST PILES - TEST PILES ARE INDICATOR PILES AND SHALL BE DRIVEN WHERE DESIGNATED ON THE PLANS TO DETERMINE THE LENGTH OF PILES REQUIRED. ALL TEST PILES SHALL BE ACCURATELY LOCATED SO THAT THEY MAY BE USED IN THE FINISHED STRUCTURE. SELECTION OF THE PRODUCTION PILES TO BE USED AS TEST PILES MAY BE MODIFIED WITH THE APPROVAL OF THE ENGINEER. NO REDUCTION IN THE TOTAL NUMBER OF TEST PILES MAY BE MADE AND EACH SUBSTRUCTURE SHALL INCLUDE AT LEAST ONE TEST PILE.

MINIMUM PILE LENGTH - THE MINIMUM PILE LENGTH IN-PLACE SHALL BE 15'. GEOTECHNICAL INFORMATION HAS INDICATED ROCK MAY BE ENCOUNTERED AT SHALLOWER DEPTHS AND SOME PRE-DRILLING WILL BE REQUIRED TO SEAT THE PILE TO THIS LENGTH. LIKEWISE, THE GEOTECHNICAL INFORMATION HAS INDICATED SOME OR ALL OF THE PILES WILL REQUIRE PRE-DRILLING AT SHALLOWER DEPTHS DUE TO THE PRESENCE OF DEBRIS CONTAINED WITHIN THE EXISTING MATERIAL. THEREFORE, IT IS RECOMMENDED THAT ALL PILE LOCATIONS BE PRE-DRILLED FOR A MINIMUM DEPTH AS REQUIRED TO MAINTAIN A MINIMUM PILE LENGTH OF 15'.

PILE DRIVING CRITERIA - DRIVE POINT BEARING PILES TO PRACTICAL REFUSAL, DESCRIBED AS FOLLOWS: FOR THIS PROJECT MINIMUM BLOW REQUIREMENTS ARE REACHED AFTER TOTAL PENETRATION BECOMES 1/4" OR LESS FOR 5 CONSECUTIVE BLOWS. PRACTICAL REFUSAL IS OBTAINED AFTER THE PILE IS STRUCK AN ADDITIONAL 5 BLOWS WITH TOTAL PENETRATION OF 1/4" OR LESS. ADVANCE THE PRODUCTION PILING TO THIS DRIVING RESISTANCE AND TO THE DEPTH DETERMINED BY THE TEST PILES OR TO THE MINIMUM REQUIRED IN-PLACE LENGTH OF PILE OF 15'.

IMMEDIATELY CEASE DRIVING OPERATIONS IF THE PILE VISIBLY YIELDS OR BECOMES DAMAGED DURING DRIVING. IF HARD DRIVING IS ENCOUNTERED BECAUSE OF DENSE STRATA OR AN OBSTRUCTION, SUCH AS DEBRIS OR A BOULDER, BEFORE THE PILE HAS ADVANCED TO THE MINIMUM REQUIRED LENGTH, PRE-DRILLING THE HOLE MAY BE REQUIRED OR THE INSTALLATION OF A TEMPORARY CASING MAY BE REQUIRED.

### DEFINITION OF TERMS

PILE CUT-OFF ELEVATION: ELEVATION OF THE TOP OF THE PILE IN THE FINISHED STRUCTURE.

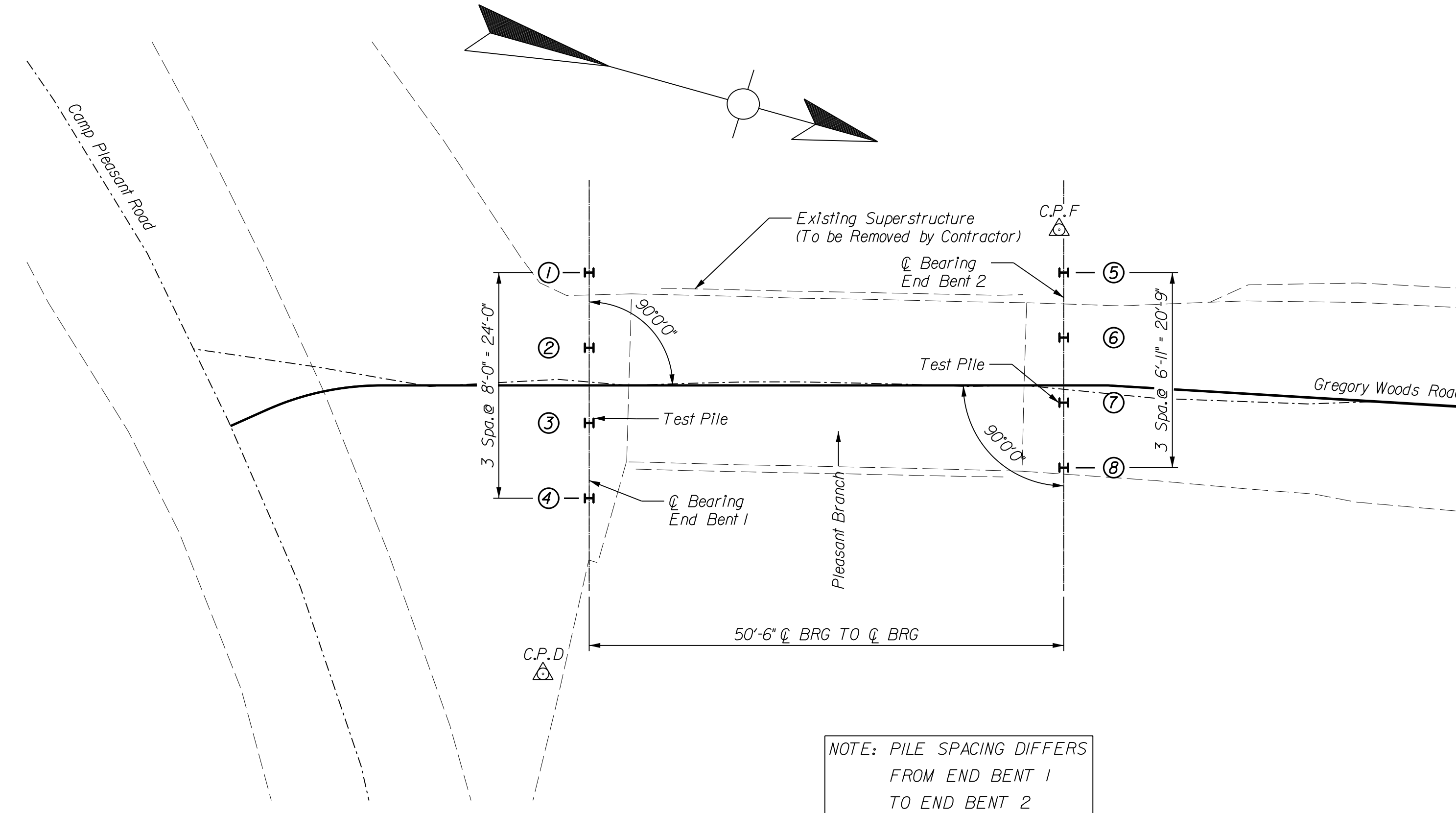
PILE LENGTH IN PLACE: ACTUAL PILE LENGTH BELOW THE PILE CUT-OFF ELEVATION IN THE FINISHED STRUCTURE.

POINT OF PILE ELEVATION AS DRIVEN: ACTUAL POINT OF PILE ELEVATION IN FINISHED STRUCTURE.

DESIGN AXIAL LOAD: LOAD CARRIED BY EACH PILE AS ESTIMATED FROM STRUCTURAL DESIGN CALCULATIONS FOR FACTORED LRFD LOADING

CALCULATED FIELD BEARING: REQUIRED FOR PILES BEARING ON ROCK WHEN DRIVEN TO PRACTICAL REFUSAL.

PILE RECORD						
Pile No.	Top of Pile Elevation	Top of Rock Elevation	As-Built Pile Tip Elevation	Estimated Pile Tip Elevation	Pile Length in Place	Design Axial Load
	FEET	FEET	FEET	FEET	FEET	TONS
1	566.82			537.9		99
2	566.82			537.9		99
3	566.82			537.9		99
4	566.82			537.9		99
5	567.20			538.2		99
6	567.20			538.2		99
7	567.20			538.2		99
8	567.20			538.2		99



COORDINATES			
POINT NO.	EAST	NORTH	ELEVATION
C.P.D	1480264.27	297074.37	
C.P.F	1480203.91	297114.44	
1	1480221.86	297067.53	
2	1480229.56	297069.70	
3	1480237.26	297071.87	
4	1480244.96	297074.04	
5	1480208.17	297116.15	
6	1480214.83	297118.02	
7	1480221.49	297119.89	
8	1480228.15	297121.77	

NO.	DATE	DESCRIPTION	BY



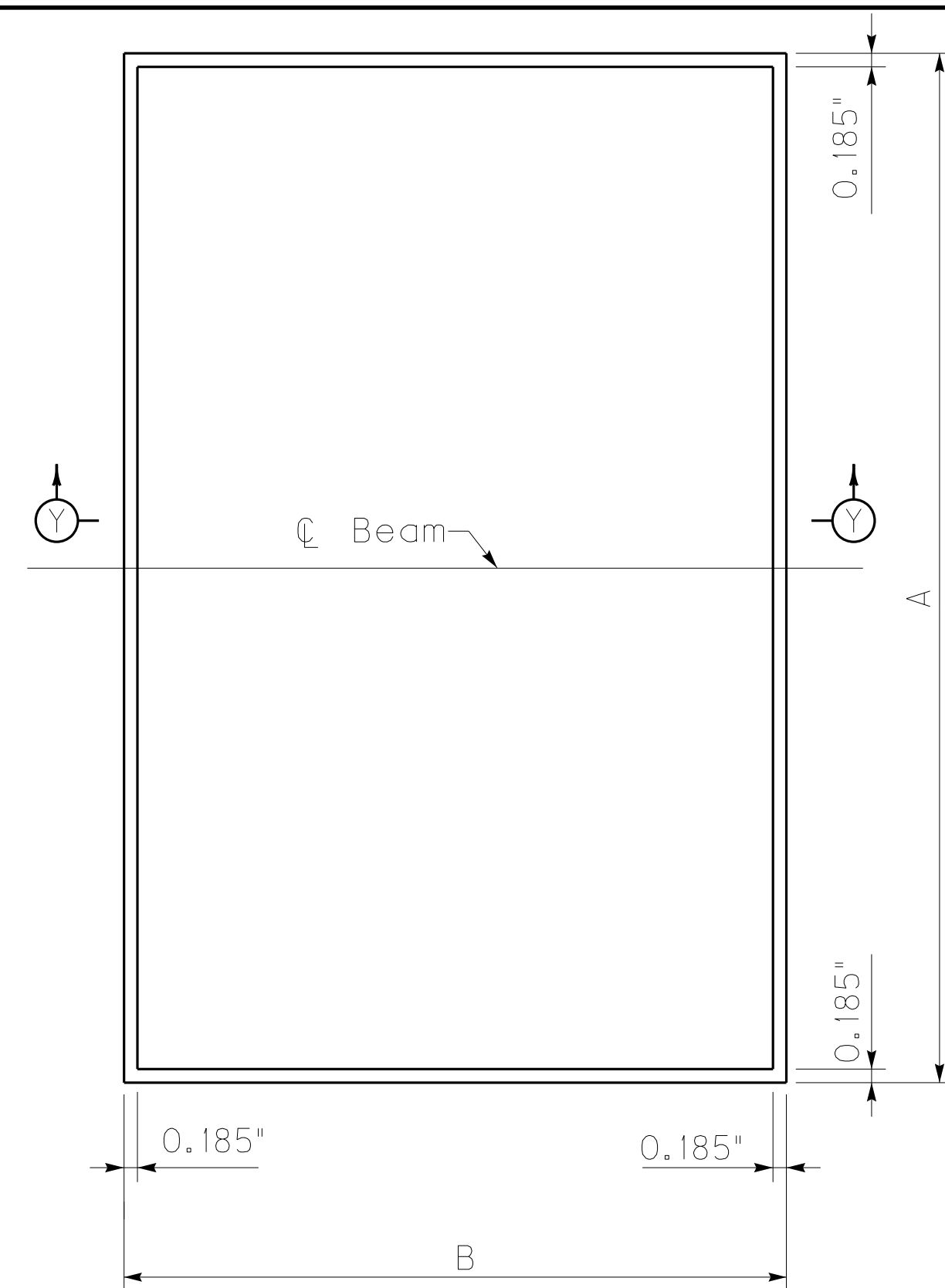
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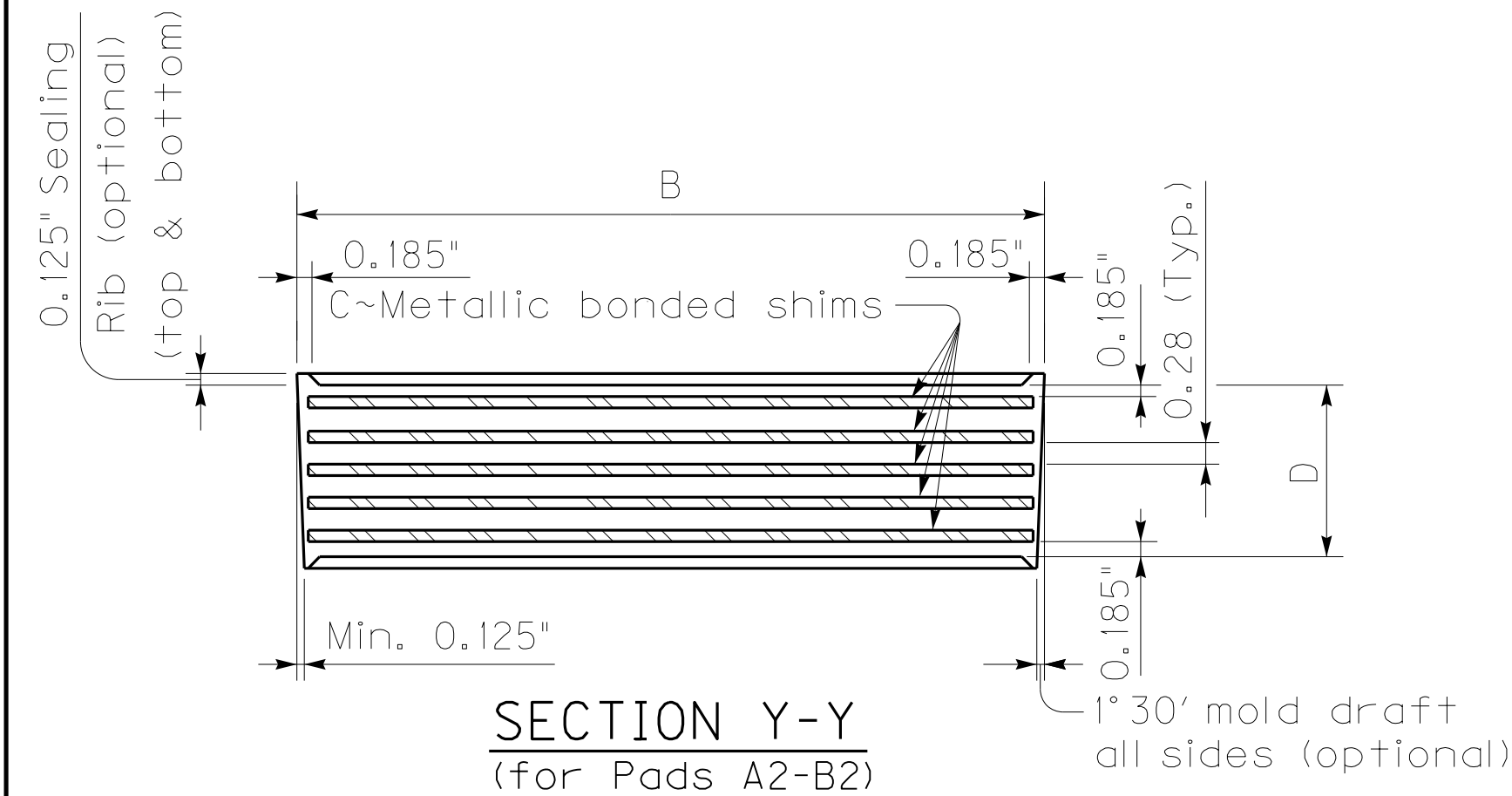
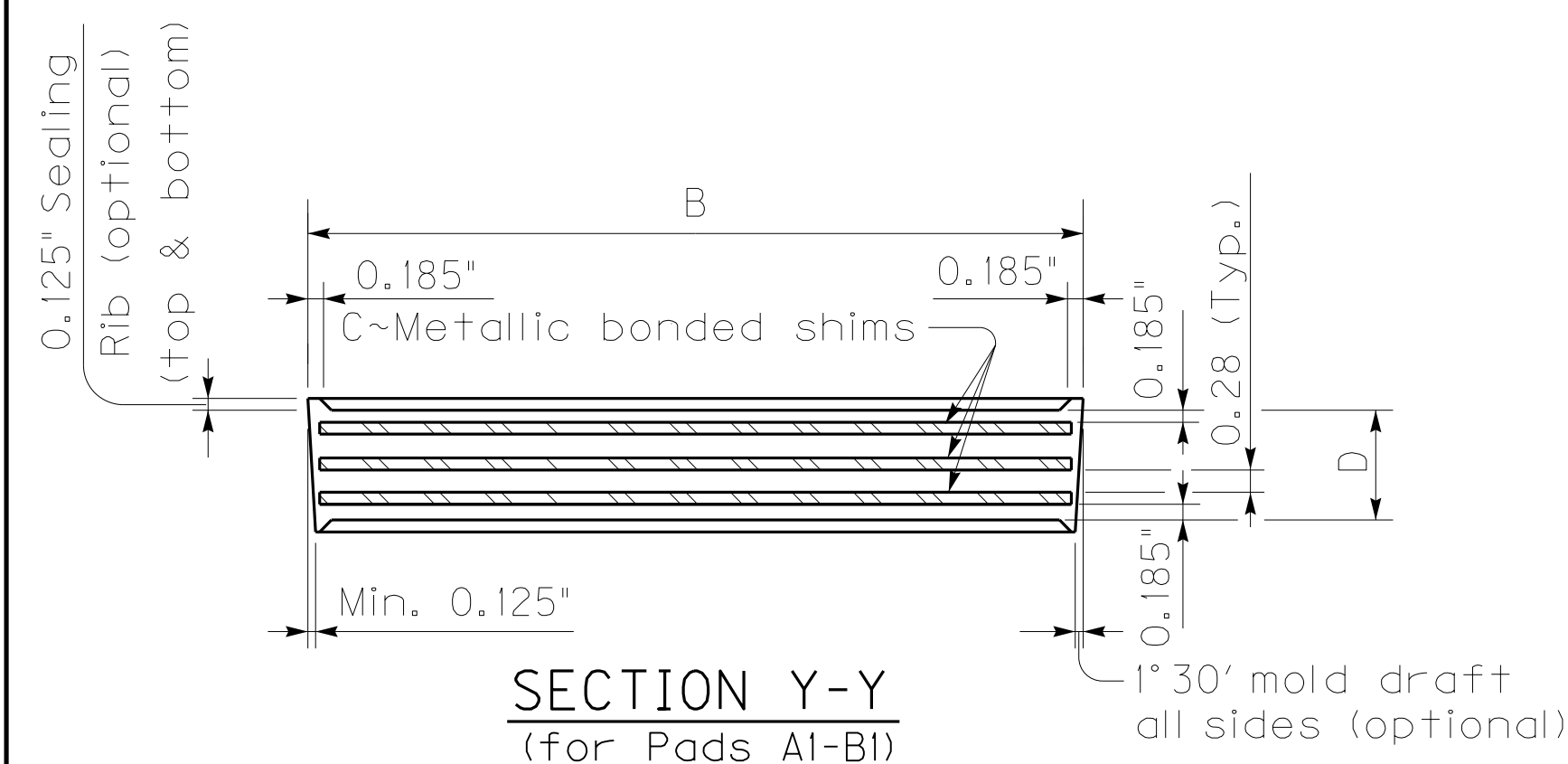
FOUNDATION LAYOUT AND  
HORIZONTAL CONTROL

DRAWN BY: JDA	DATE: 02/2022
CHECKED BY: DWS	SCALE: N.T.S.
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DIMENSIONS FOR BOX-BEAM PADS						
PAD	A	B	C	D	*MAXIMUM REACTION	MAXIMUM MOVEMENT (One Direction)
A1	1'-10"	7"	3~0.12" x 21.630" x 6.630"	1.290"	173k	0.500"
A2	1'-10"	7"	5~0.12" x 21.630" x 6.630"	2.090"	173k	0.750"
B1	11"	7"	3~0.12" x 10.630" x 6.630"	1.290"	69k	0.500"
B2	11"	7"	5~0.12" x 10.630" x 6.630"	2.090"	69k	0.750"

\* These reactions are based on service loads, use actual reactions to determine anchorage requirements for pads.



### GENERAL NOTES

SPECIFICATIONS: Fabricate the Elastomeric Bearing Pads to the design and dimensions as shown on these drawings and to AASHTO LRFD Bridge Construction Specifications, Section 18.

Ensure bearings are low temperature Grade 3 with durometer hardness of 50 and subjected to the load testing requirements corresponding to Design Method A.

Include the price of bearing pads in the bid for the beams.

KENTUCKY  
DEPARTMENT OF HIGHWAYS

**ELASTOMERIC BEARING  
PADS FOR  
BOX BEAMS**

STANDARD DRAWING NO. BBP-003-02

SUBMITTED \_\_\_\_\_ DATE \_\_\_\_\_  
DIRECTOR DIVISION OF STRUCTURAL DESIGN

APPROVED \_\_\_\_\_ DATE \_\_\_\_\_  
STATE HIGHWAY ENGINEER

NO.	DATE	DESCRIPTION	BY



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FRANKLIN COUNTY, KENTUCKY

ELASTOMERIC BEARING PADS  
FOR BOX BEAMS

DRAWN BY: JDA	DATE: 02/2022
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JOB NO.: 2031-2204-90	SHEET: 5 of 17

SUPERSTRUCTURE HEIGHT	
SDH = Beam-Pad Height (haunch-slab) [if applicable]	
H2	27' < SDH ≤ 35'

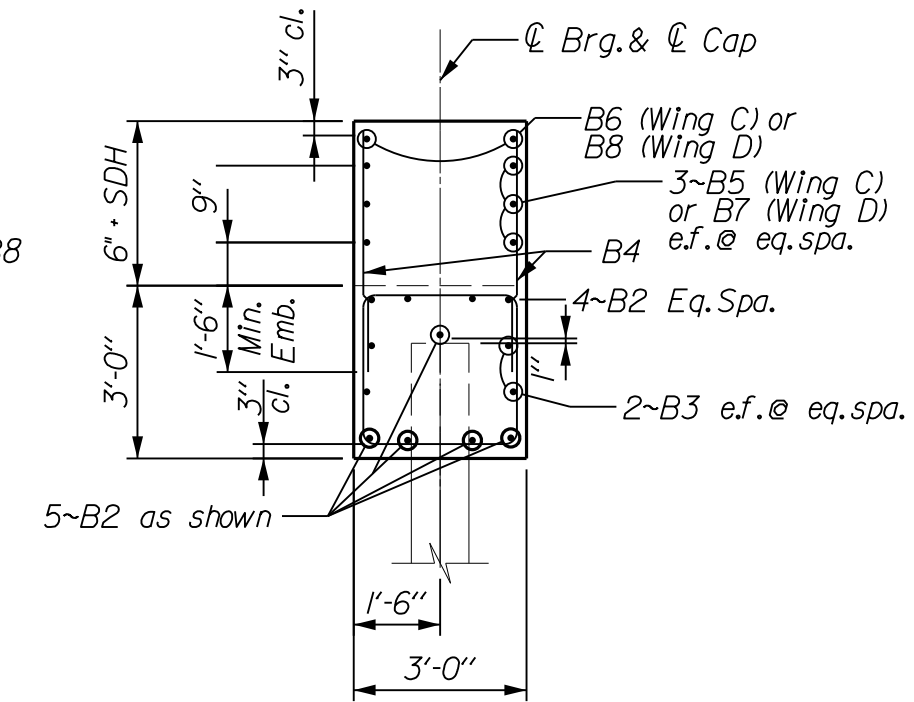
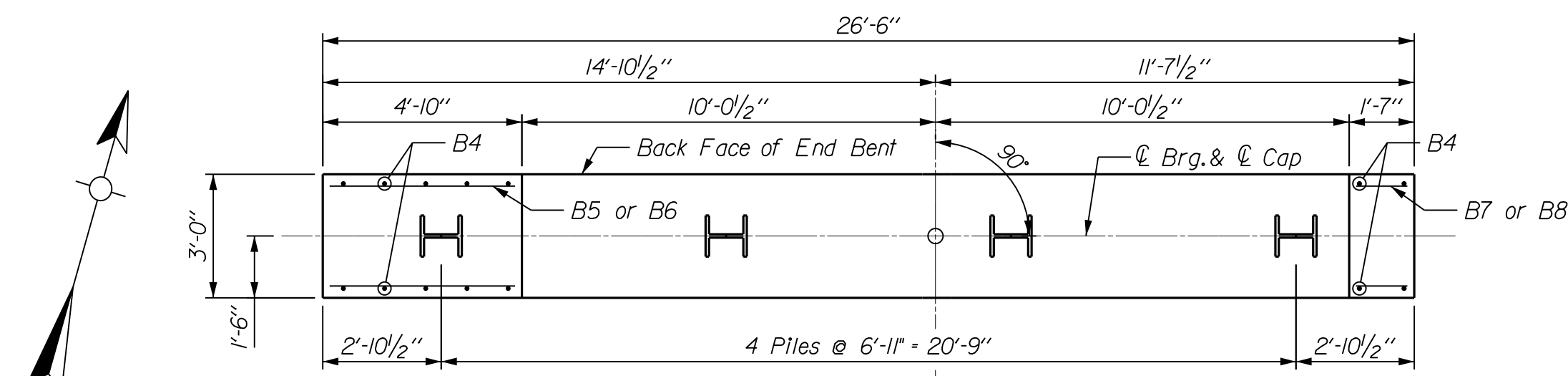
CAP BILL OF REINFORCEMENT				
20'-0" BRIDGE WIDTH				
MARK	TYPE	NO.	SIZE	LENGTH
A1e	14s	27	5	11'-6"
A2e	Str.	9	8	29'-5"
A3e	Str.	4	5	29'-5"
B1e	14s	24	5	11'-6"
B2e	Str.	9	8	26'-2"
B3e	Str.	4	5	26'-2"

WING BILL OF REINFORCEMENT				
MARK	TYPE	NO.	SIZE	LENGTH
A4e	Str.	20	5	4'-1"
A5e	Str.	12	5	4'-6"
A6e	Str.	4	6	4'-6"
B4e	Str.	14	5	4'-1"
B5e	Str.	6	5	4'-6"
B6e	Str.	2	6	4'-6"
B7e	Str.	6	5	1'-3"
B8e	Str.	2	6	1'-3"

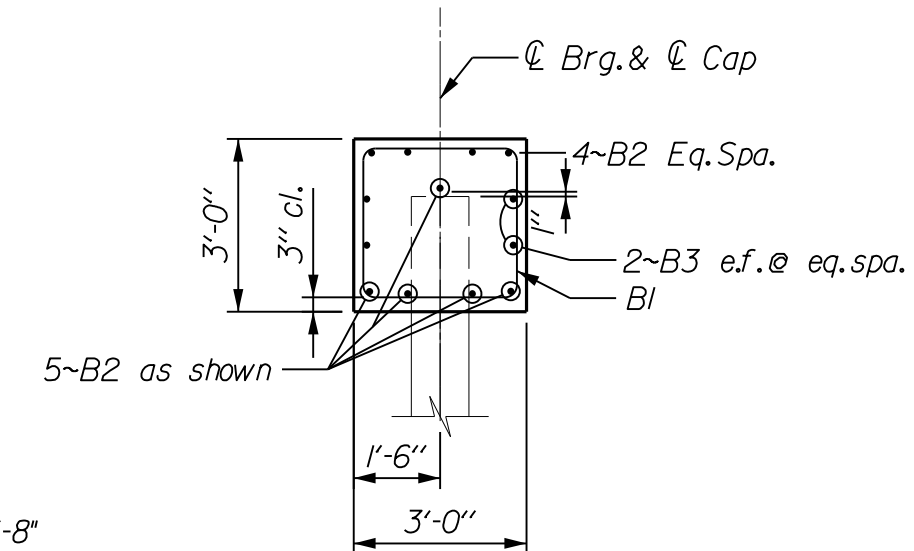
PILES	
NO.	4
PE	2'-10 1/2"
PS	8'-0"
PL	24'-0"

DIMENSIONS	
A	2 1/2"
B	3
C	10"
D	1'-8"
E	7
F	6'-0"
G	5
H	4'-0"
J	3
L	29'-9"
WL	4'-10"
WU	4'-10"
WV	0
WX	0

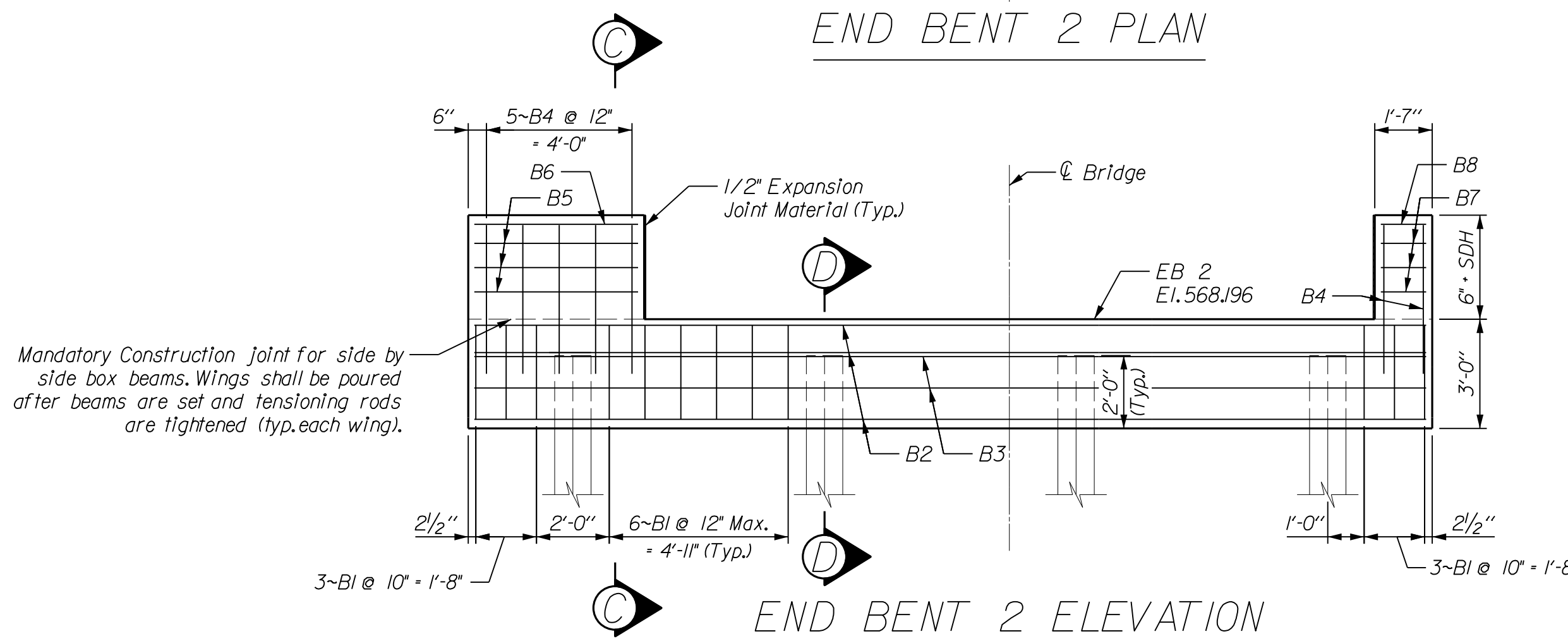
QUANTITIES	
END BENT 1	
CONCRETE (CY.)	12.8
STEEL (LBS.)	1322
END BENT 2	
CONCRETE (CY.)	10.9
STEEL (LBS.)	1139



SECTION C-C

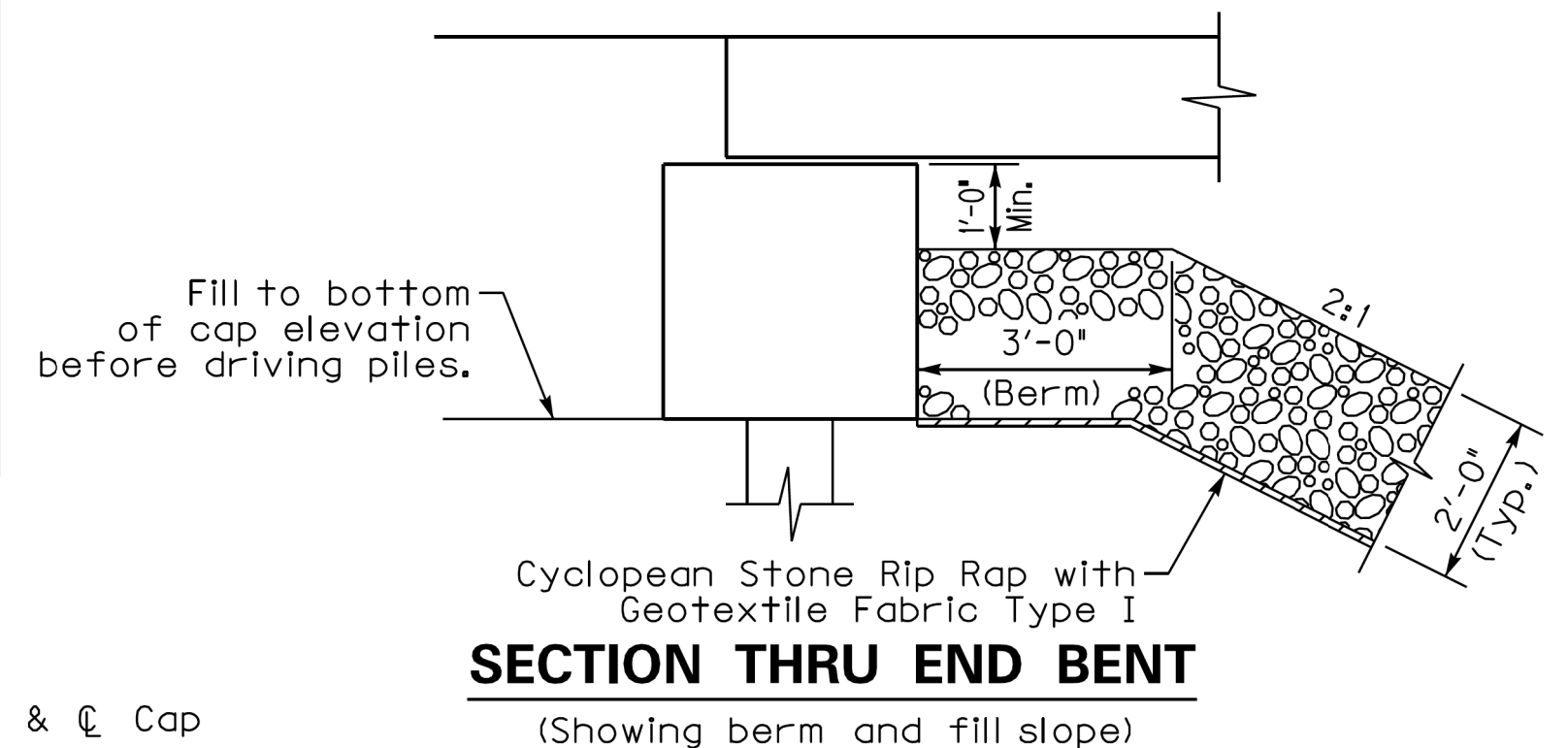


SECTION D-D

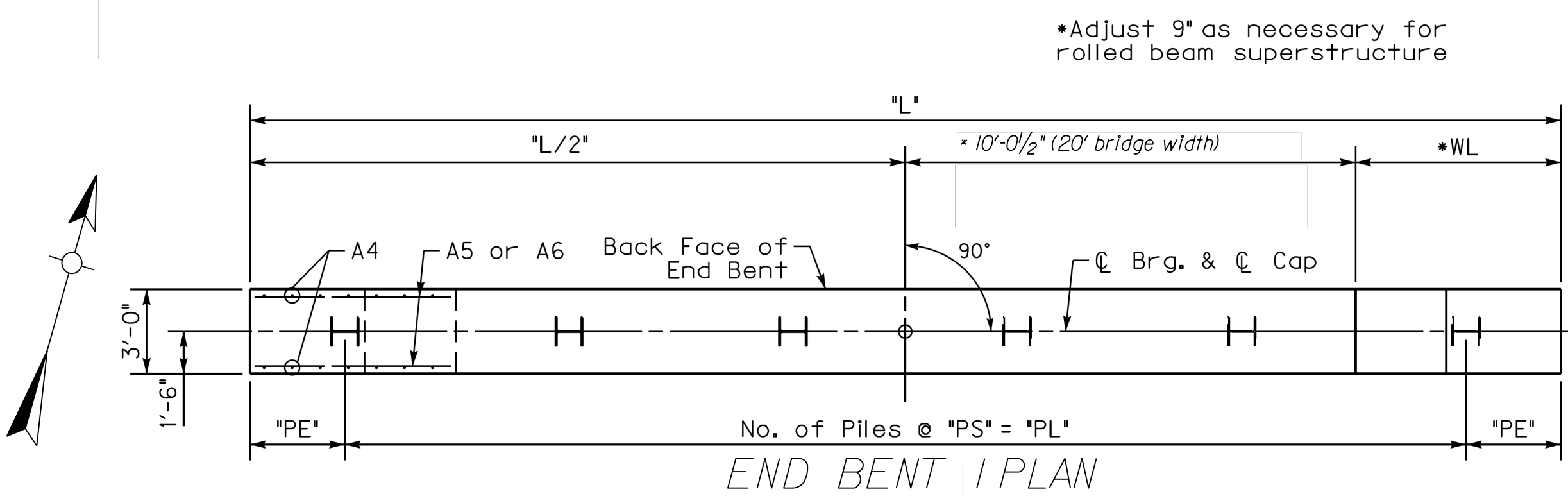


END BENT 2 ELEVATION

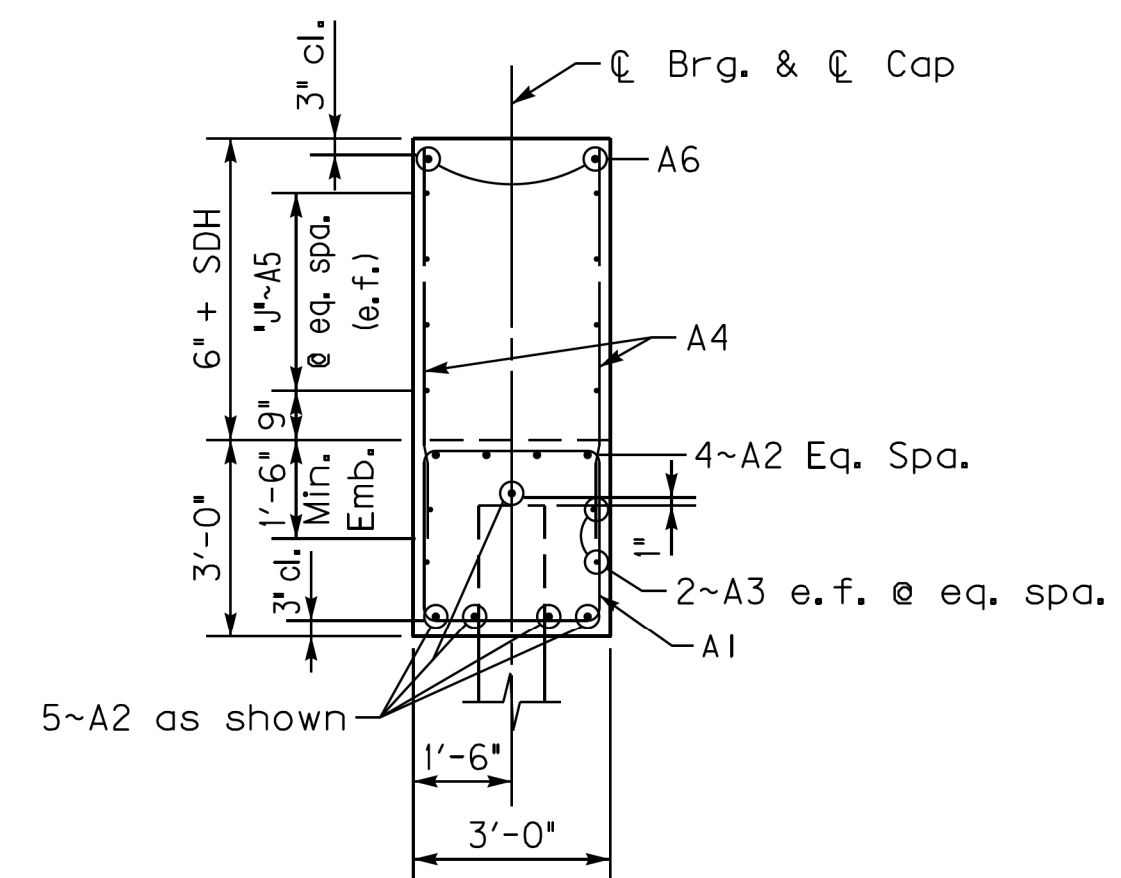
- NOTES:
- 1) Conform to KYTC, Standard Specifications, Current Edition.
  - 2) Concrete to be Class "A", 3500 psi.
  - 3) Rebar to be epoxy coated A615, Grade 60.
  - 4) Maintain 2" clear cover to reinforcement unless otherwise noted.
  - 5) End Bents are designed for the maximum span of the following steel and concrete beams as shown in the current standards:  
H1 - B12, CB12, B17, CB17, B21 or rolled steel beams up to 16' nominal depth.  
H2 - CB21, B27, CB27, B33 or rolled steel beams up to 24' nominal depth.  
H3 - CB33, B42, CB42 or rolled steel beams up to 36' nominal depth.
  - 6) Piles may be HP12x53 or 16" Steel Pipes with 1/2" wall thickness.
  - 7) Piles driven to rock must be driven to Refusal. Friction Piles must be driven to (Pile Load/0.4) using the Gates Method.
  - 8) Pile load given is Factored Strength Load.
  - 9) Piles must be driven 10' into existing ground or to refusal on bedrock. Piles at wet crossings must be driven to 10' below stream bed or to refusal on bedrock. A minimum pile length of 10' is required in all circumstances.
  - 10) Contractor shall provide a hammer capable of driving the piling to refusal or capacity without encountering excessive blow counts or damaging the pile. Contractor shall be responsible for all damaged piling.



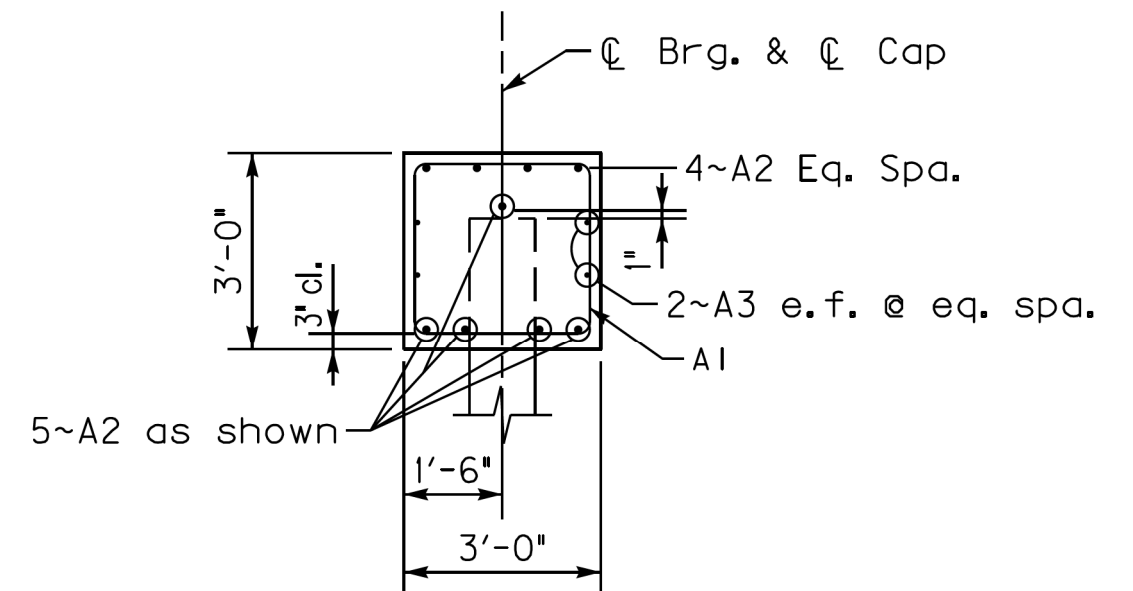
SECTION THRU END BENT (Showing berm and fill slope)



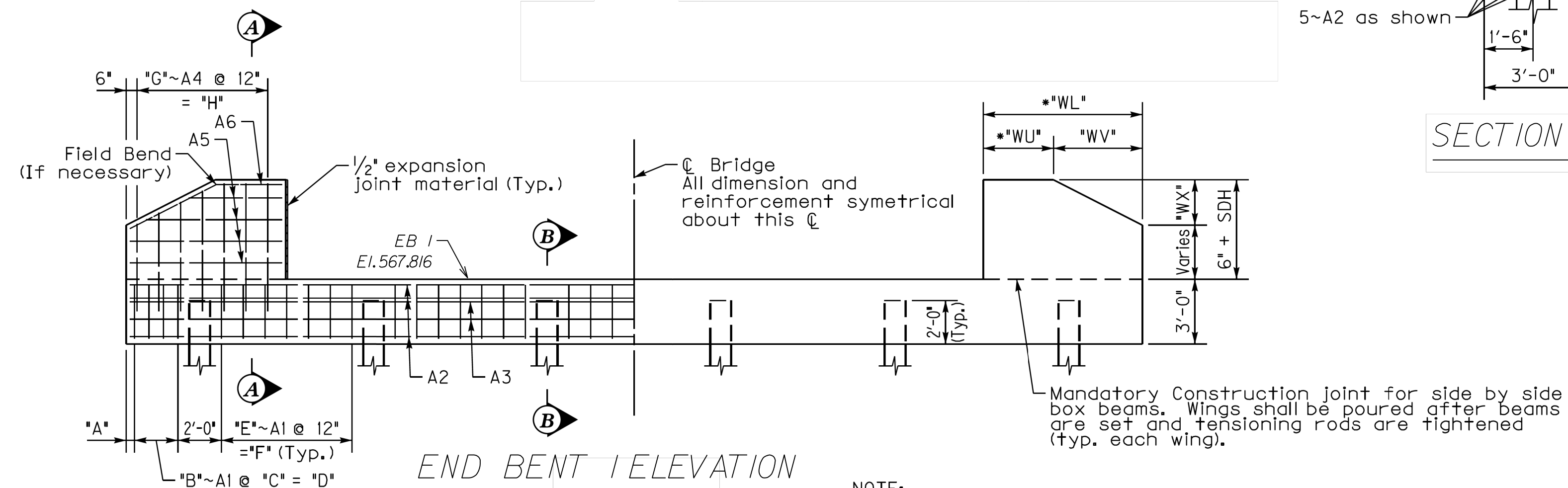
END BENT 1 PLAN



SECTION A-A

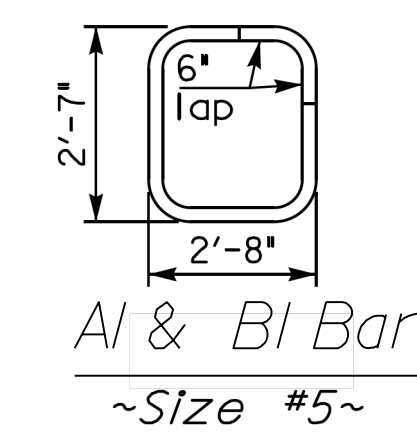


SECTION B-B



END BENT 1 ELEVATION

NOTE:  
Trim A4-A6 bars as necessary.



**KENTUCKY DEPARTMENT OF HIGHWAYS**

**PILE END BENT**

**0° SKEW**

**??**

STANDARD DRAWING NO. BDE-001-01

SUBMITTED *Mark Nite* 12-02-11  
DIRECTOR DIVISION OF STRUCTURAL DESIGN DATE

APPROVED *[Signature]* 12-02-11  
STATE HIGHWAY ENGINEER DATE

NO.	DATE	DESCRIPTION	BY

**DLZ**  
KENTUCKY, INC.

1950 HAGGARD CT  
LEXINGTON, KENTUCKY 40505  
(859) 299-5226

GREGORY WOODS ROAD  
OVER PLEASANT BRANCH  
BRIDGE REPLACEMENT  
FRANKLIN COUNTY, KENTUCKY

PILE END BENT  
0° SKEW

DRAWN BY:	JDA	DATE:	02/2022
CHECKED BY:	DWS	SCALE:	N.T.S.
JOB NO.:	2031-2204-90	SHEET:	6 of 17

# PRECAST PRESTRESSED BOX BEAMS

## General Notes

**SPECIFICATIONS:** All references to the standard Specifications are to the current edition of the Kentucky Department of Highways Standard Specifications for Road and Bridge Construction, with current supplemental specifications. All references to the AASHTO Specifications are to the current edition of the AASHTO LRFD Bridge Design Specifications, with interims.

**DESIGN LOADS:** Beam sections are designed for 1.25•HL93 (KYHL93) Live Load.

**DESIGN LOAD DISTRIBUTION:** Contrary to AASHTO LRFD Bridge Design Specifications, the design moment and shear distribution for all beams is 0.5 lanes.

**FUTURE WEARING SURFACE:** These beams are designed for a 15 PSF future wearing surface load.

**SUBSTRUCTURE DESIGN LOADS:** Unfactored design reaction forces per beam end.

DC (kips): Beam, Slab (if applicable), and Type II railing dead loads.

DW (kips): Future wearing surface.

LL (kips): Beam Live Load reaction per lane x Design load distribution.

LL+I (kips): LL with Dynamic load allowance.

**DESIGN DEFLECTIONS:**

$\Delta_d$  (in.): Sum of the downwards deflections caused by the design 5' deck, railing, and future wearing surface. (Positive Downwards)

$\Delta_c$  (in.): Upwards midspan camber of the beam caused by prestressing minus the downward deflection of the beam due to self weight. (Positive Upwards)

**MATERIAL DESIGN SPECIFICATIONS:**

for Steel Reinforcement	FY = 60000 PSI
for Prestressed Girder Concrete (Typ. U.N.O.)	F'c = 7000 PSI
	F'ci = 5500 PSI
for Class "AA" Concrete	F'c = 4000 PSI
for Prestressing Steel	F's = 270000 PSI

**DESIGN LENGTH:** Beam lengths shown in the Standards represent total beam length. Use the next greater designed section for non-Standard lengths.

**CONSTRUCTION METHOD:** Transferring bond stress to the concrete will not be allowed, nor releasing of end anchors until the concrete has attained a minimum compressive strength of 5500 PSI as shown by standard cylinders made and cured identically with the girders; attain 7000 PSI at or prior to 28 days. Apply an initial prestress force of 33817 lbs. per low relaxation strand. Beams with honeycomb of such extent as to affect the strength of resistance to deterioration will not be accepted. The allowance of .0005L (length) is made for shortening of beams due to shrinkage and elastic change. Furnish shop plans showing a detensioning plan by numbering, in sequence, the strand pattern.

**PRESTRESSING STRANDS:** Ensure prestressing strands to be 1/2" oversize (0.167 sq. in.) uncoated seven-wire stress relieved, low-relaxation strands conforming to AASHTO M 203, Grade 270. If an alternate strand arrangement or strand type is preferred by the Contractor, the designer that developed the original plans will provide the design and also revise the original plans to reflect the changes. These design and plan modifications will be done at the Contractor's expense.

**CORROSION INHIBITOR:** Provide a corrosion inhibitor for B-type (non-composite) beams from the list of approved materials.

**BEVELED EDGES:** Bevel all exposed edges 3/4".

**BEAM SEALER:** Seal the full length of the exterior face of all exterior beams with the extent from the top of the beam to 1'-0" underneath the beam. Use an approved sealer as specified by the Division of Structural Design.

**REINFORCEMENT:** Dimensions shown from the face of concrete to reinforcement are clear distances. Spacing of reinforcement is from center to center of reinforcement. All steel reinforcement is to be epoxy coated in accordance with Section 811.10 of the Specifications. Consider bars marked "C" to be a stirrup for purposes of bend diameters. Non-epoxy reinforcement may be used for fabrication purposes, only, provided that the steel is not used in the top 5/2" of the beam and the location of the steel is indicated on the shop drawings.

**FABRICATION:** Beams shall not be fabricated more than 120 days before the deck is to be poured.

**GROUT:** Provide non-shrink grout for anchor dowels, shear keys, and tensioning rod block-outs conforming with Section 601.03.03 of the Specifications. When side by side superstructure is utilized, grouting will be completed after lateral tension rods have been fully tightened and before leveling devices have been removed. Include the cost of furnishing and placing grout in the price of beam.

**RAILING SYSTEM TYPE II:** Furnish this material per these specifications.

ITEM	DESCRIPTION	MATERIAL SPECIFICATION	COATING SPECIFICATION
Post	W6x25	ASTM A36 or A572	A123
Channel	C7x9.8	ASTM A36 or A572	A123
Plate	1/2 "x 7"	ASTM A36 or A572	A123
Tubing	8x4x0.1875	ASTM A500 or A501	A123
Bolts	5/8 "	ASTM A307	A153
Nuts	for 5/8 "	ASTM A563, Grade A or better	A153
Washers	for 5/8 "	ASTM A563, Grade A or better	A153
Stud	1 1/4 "	ASTM A108 (1045 C.D. Bar)	B633, Type II, Class 25
Ferrule	2 1/2 "x 5"	ASTM A108 (11L17 Steel)	B633, Type II, Class 25
Wire	3/8 "	ASTM A510 (1018 Steel)	B633, Type II, Class 25
Nut	for 1 1/4 " Bolt	ASTM A108 (12L14 Steel)	B633, Type II, Class 25
Nut	for 1 1/4 " Stud	ASTM A325M	B633, Type II, Class 25
Washers	for 1 1/4 " Stud	ASTM A325M	B633, Type II, Class 25

Use the current edition of the references listed below with these standards.

**STANDARD DRAWINGS**

BBP-003	Elastomeric Bearing Pads
BHS-007	Railing System Type II
BJE-001	Armored Edge & Neoprene Joints
RBR-001	Steel Beam Guardrail
RBR-005	Guardrail Components

**SPECIAL NOTES**

for Corrosion Inhibitors

KENTUCKY  
DEPARTMENT OF HIGHWAYS

BOX BEAM  
GENERAL NOTES  
& REFERENCES

SUBMITTED:  2-04-19  
ACTING DIRECTOR DIVISION OF HIGHWAY DESIGN DATE

047

NO.	DATE	DESCRIPTION	BY



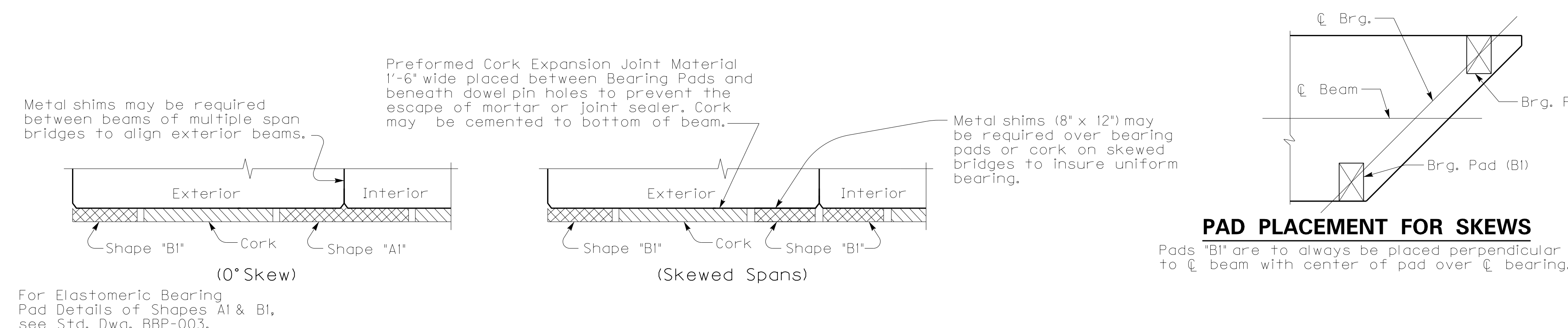
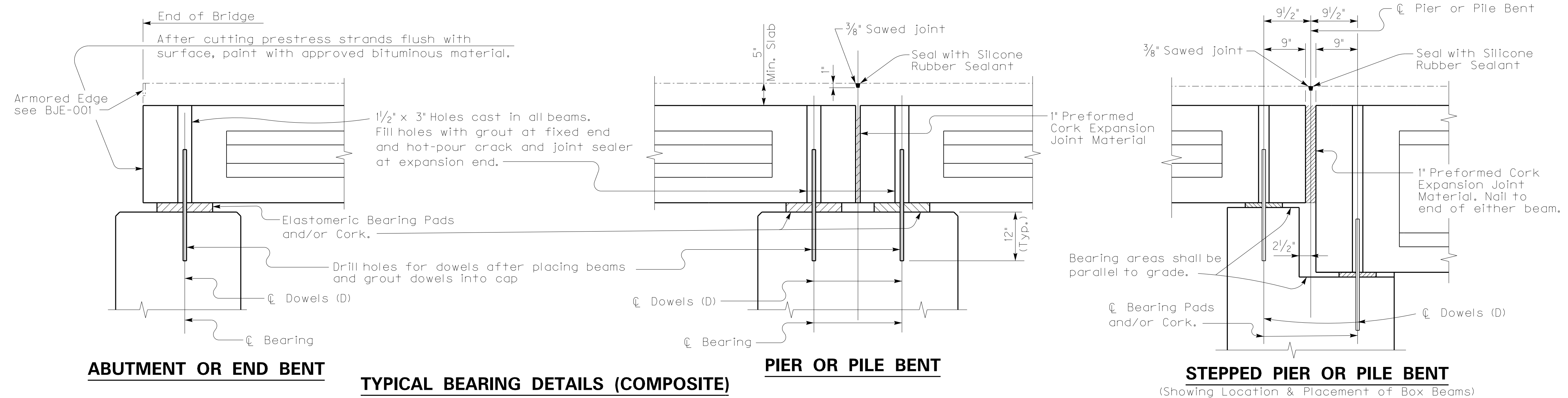
**DLZ**  
KENTUCKY, INC.

1950 HAGGARD CT  
LEXINGTON, KENTUCKY 40505  
(859) 299-5226

GREGORY WOODS ROAD  
OVER PLEASANT BRANCH  
BRIDGE REPLACEMENT  
FRANKLIN COUNTY, KENTUCKY

BOX BEAM GENERAL NOTES  
& REFERENCES

DRAWN BY: JDA	DATE: 02/2022
CHECKED BY: DWS	SCALE: N.T.S.
JOB NO.: 2031-2204-90	SHEET: 7 of 17



**GENERAL NOTES**  
 Provide metal shims conforming to ASTM A36 and galvanize in accordance with ASTM A123. As alternates, cork, polymer, or elastomer shims may be used. Include the cost of furnishing and placing these shims in the price per beam.

**KENTUCKY DEPARTMENT OF HIGHWAYS**

**BOX BEAM BEARING DETAILS**

STANDARD DRAWING NO. BDP-002-03

SUBMITTED: \_\_\_\_\_ DATE: \_\_\_\_\_  
DIRECTOR DIVISION OF BRIDGE DESIGN

APPROVED: \_\_\_\_\_ DATE: \_\_\_\_\_  
STATE HIGHWAY ENGINEER

NO.	DATE	DESCRIPTION	BY

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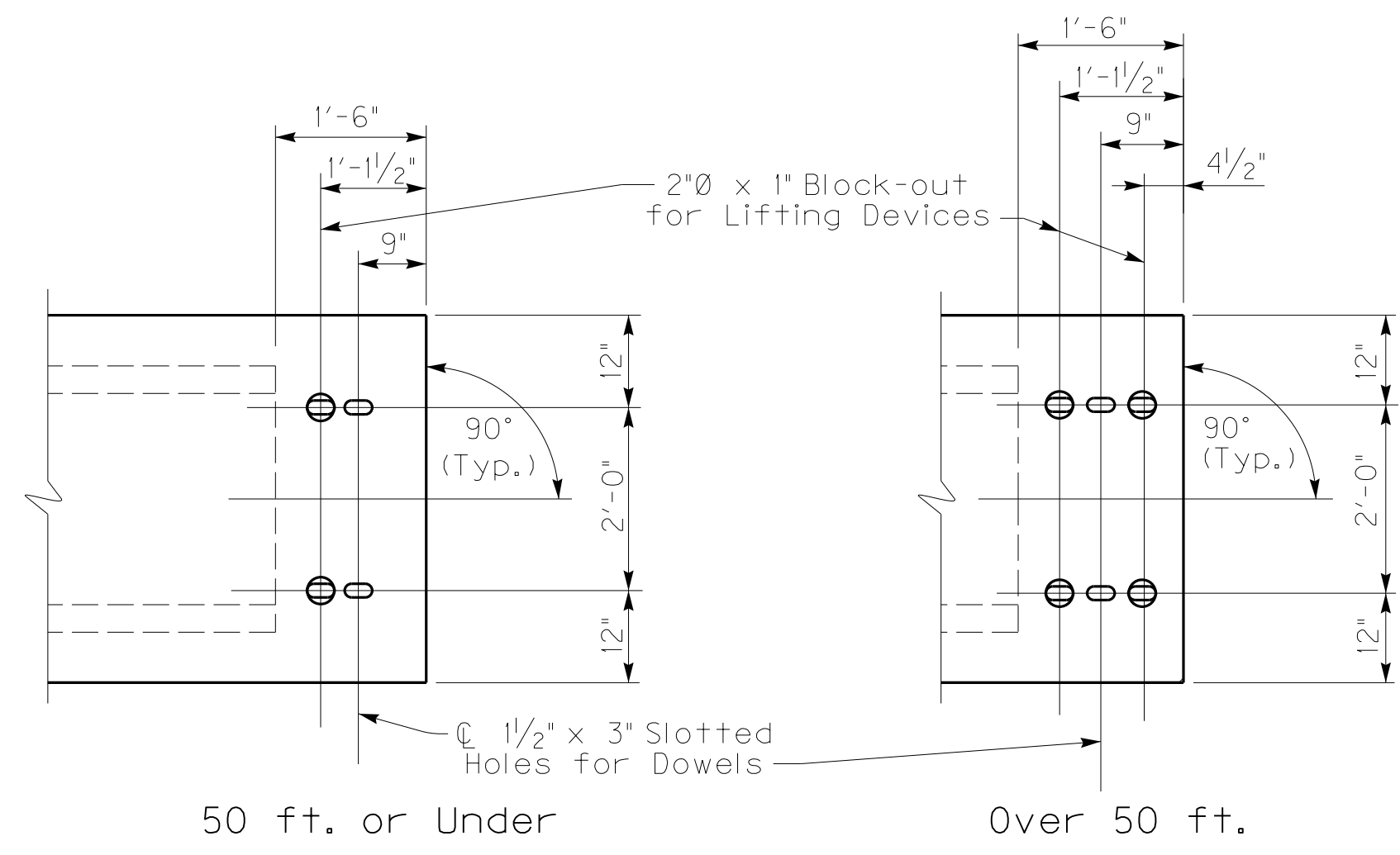
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 (859) 299-5226

**GREGORY WOODS ROAD  
 OVER PLEASANT BRANCH  
 BRIDGE REPLACEMENT  
 FRANKLIN COUNTY, KENTUCKY**

**BOX BEAM  
 BEARING DETAILS**

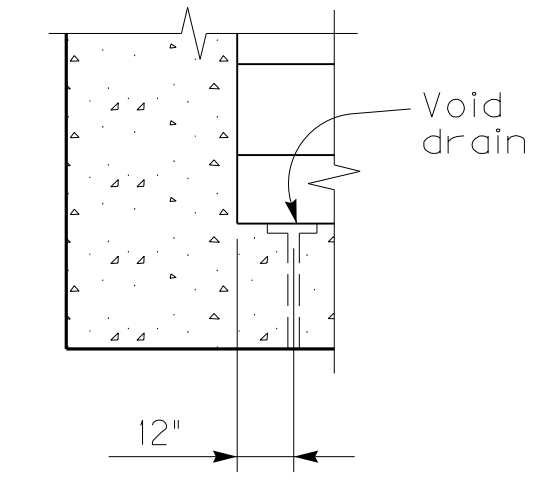
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CHECKED BY: DWS	SCALE: N.T.S.
JOB NO.: 2031-2204-90	SHEET: 8 of 17





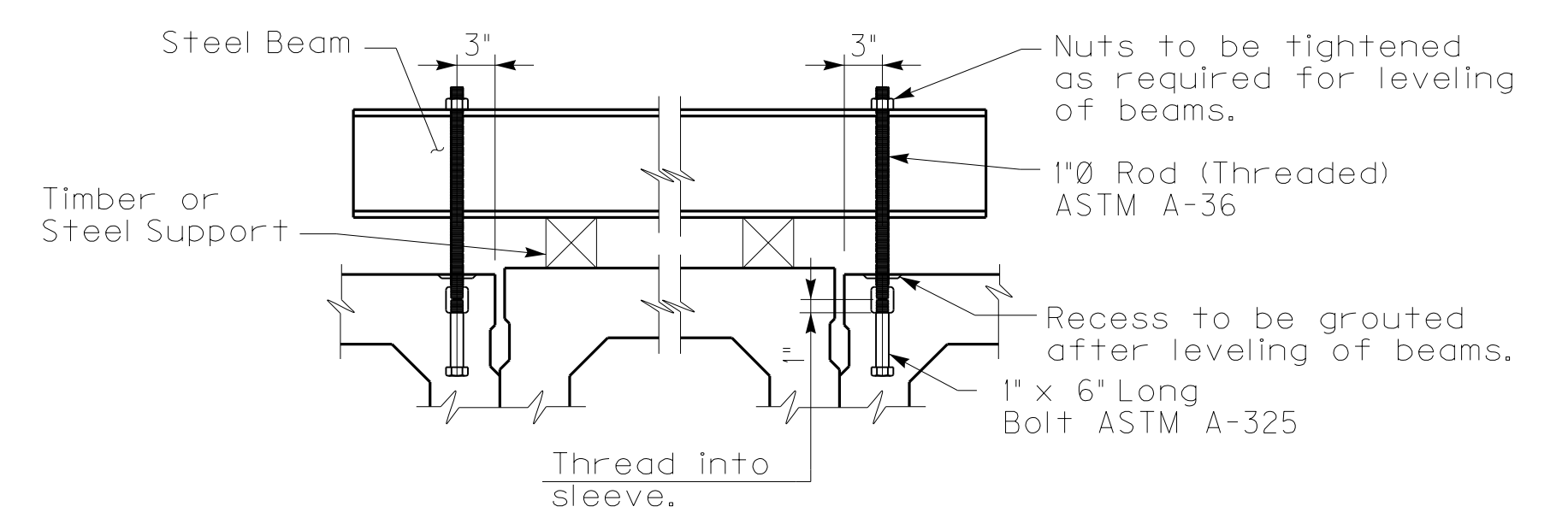
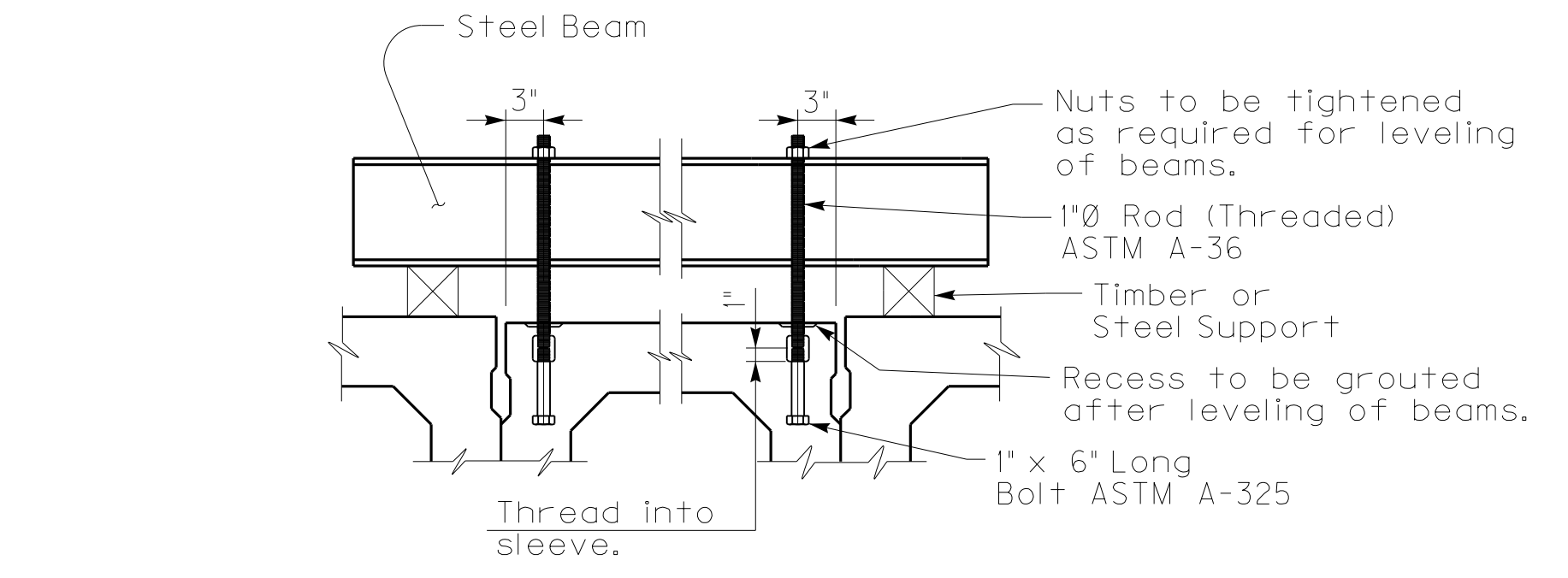
NOTE: Void omitted on 12" beams.

**TYPICAL STRAIGHT END**



**VOID DRAIN DETAIL**

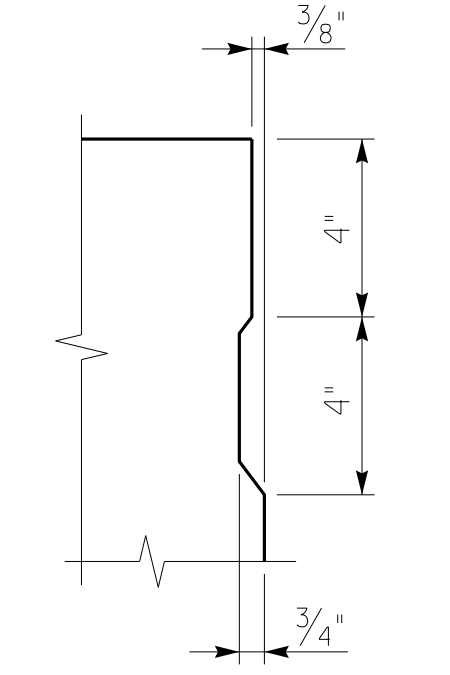
Locate two drains at each end of each void. Provide 1"Ø drains of a type approved by the Division of Materials.



**LEVELING DEVICE DETAILS**

Locate inserts at the center of beams up to 50 ft. and at diaphragm locations of beams over 50 ft. Include the cost of materials and labor involved in leveling beams in the price for beams. Submit alternate leveling devices to the Division of Bridge Design for approval.

NOTE: Omit shear key on exterior face of exterior beam.



**SHEAR KEY DETAIL**

KENTUCKY  
DEPARTMENT OF HIGHWAYS

**BOX BEAM  
MISCELLANEOUS  
DETAILS**

STANDARD DRAWING NO. BDP-003-03

SUBMITTED \_\_\_\_\_ DIRECTOR DIVISION OF BRIDGE DESIGN \_\_\_\_\_ DATE \_\_\_\_\_  
APPROVED \_\_\_\_\_ STATE HIGHWAY ENGINEER \_\_\_\_\_ DATE \_\_\_\_\_

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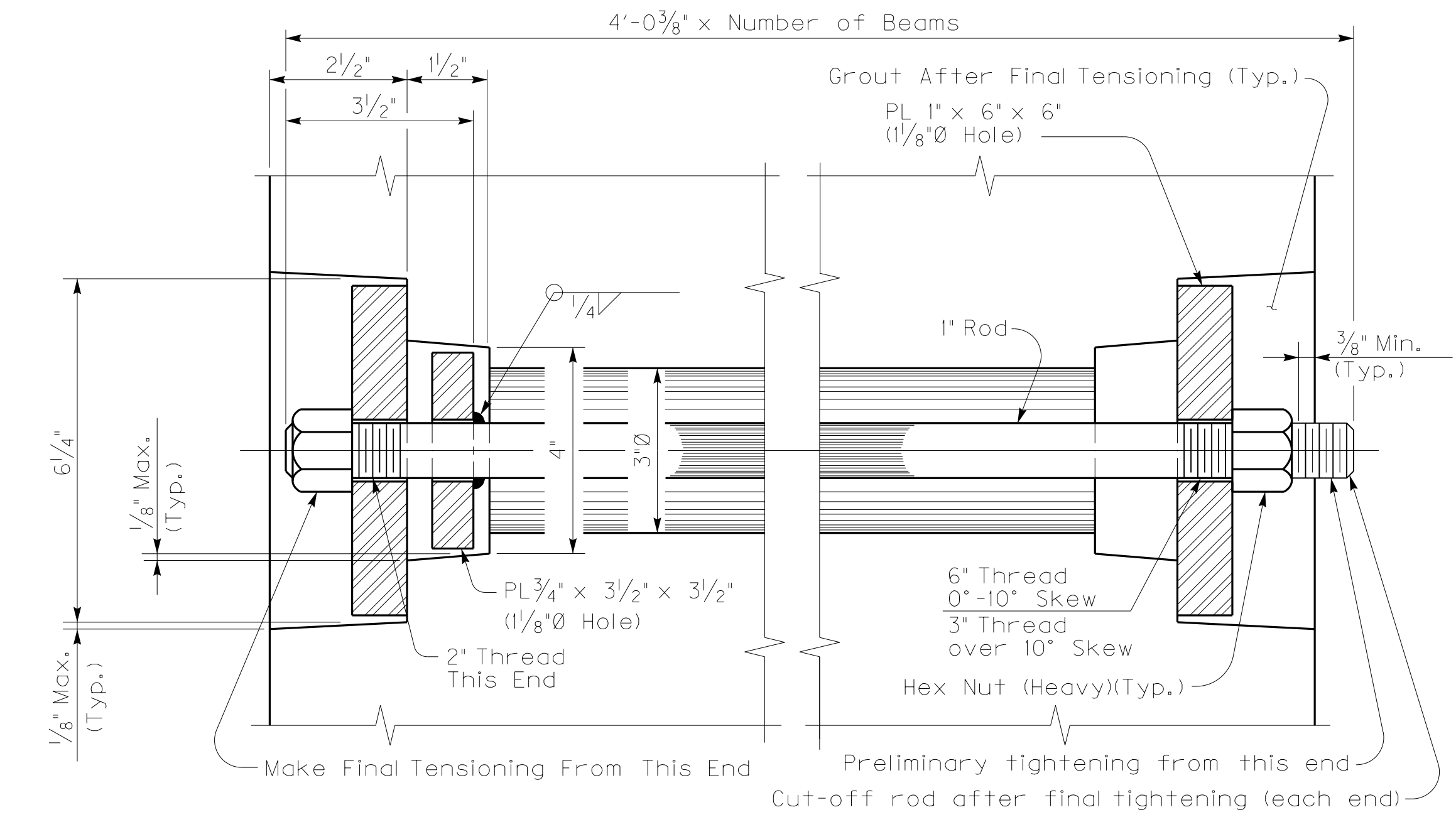
GREGORY WOODS ROAD  
OVER PLEASANT BRANCH  
BRIDGE REPLACEMENT  
FRANKLIN COUNTY, KENTUCKY

BOX BEAM  
MISCELLANEOUS DETAILS

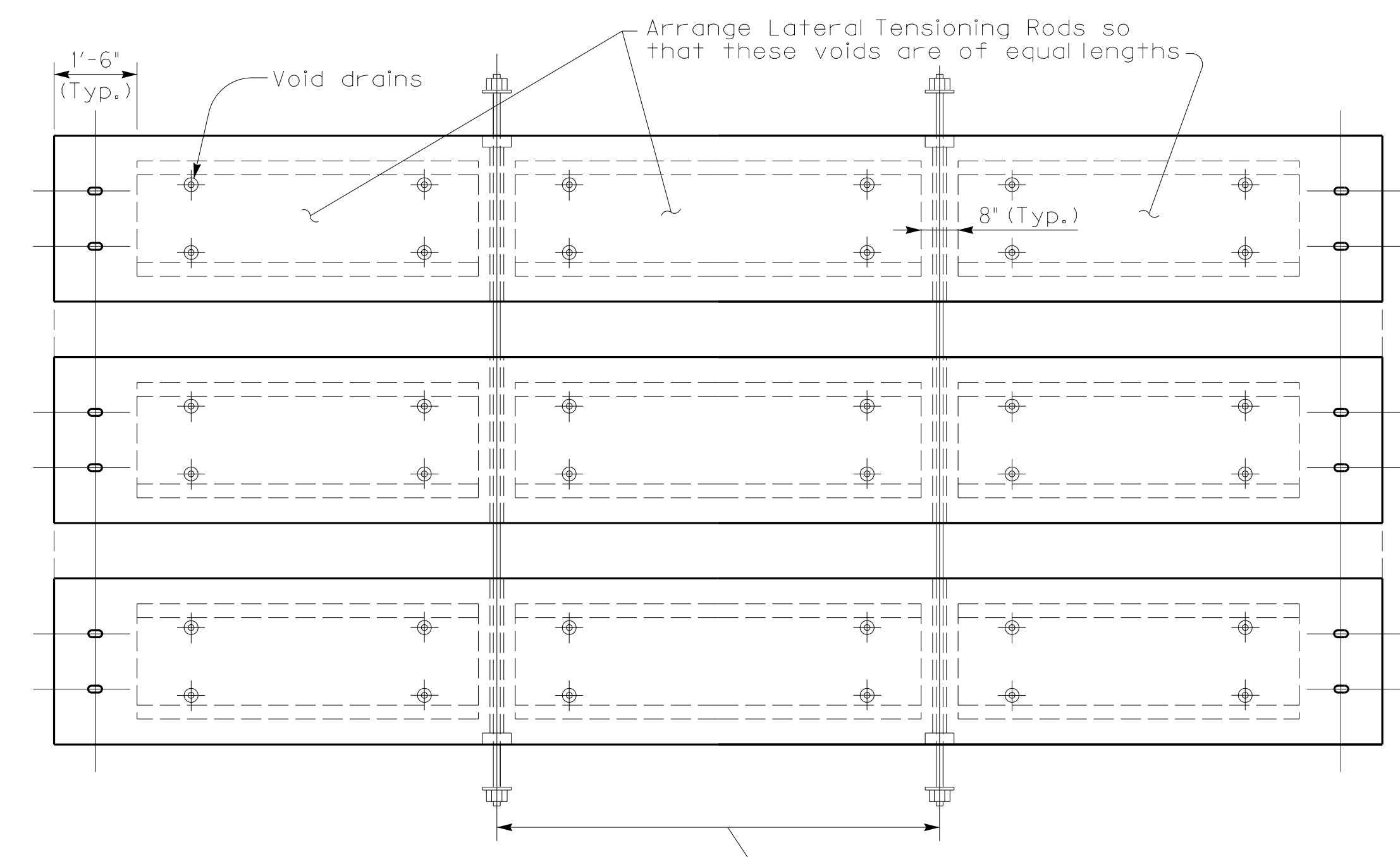
DRAWN BY: JDA	DATE: 02/2022
CHECKED BY: DWS	SCALE: N.T.S.
JOB NO.: 2031-2204-90	SHEET: 9 of 17

**GENERAL NOTES**

LATERAL TENSIONING RODS: After the deck units are in place, apply a preliminary tension to the lateral tensioning rods. Perform final tensioning that yields 20,000 psi as developed by a torque of 200 ft./lbs. Provide lateral tensioning rods and plates conforming to ASTM A36 with heavy hex nuts conforming to ASTM A307. All tension rods, plates, and nuts to be galvanized in accordance with ASTM A123 or A153 as applicable.



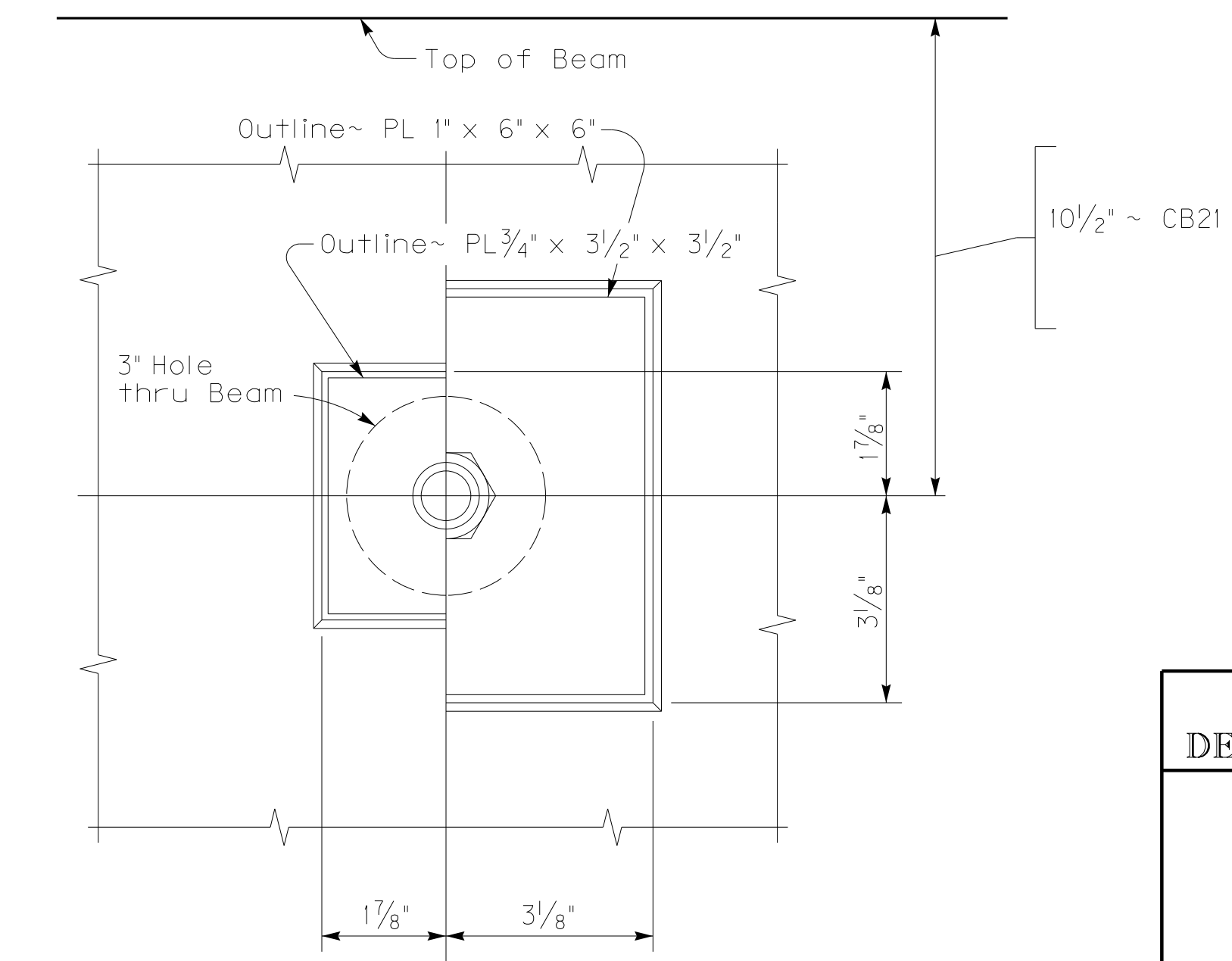
**SECTION THRU LATERAL TENSIONING ROD**



**SECTIONAL PLAN SHOWING LATERAL TENSIONING METHOD FOR STRAIGHT SPANS**

(The above arrangement is applicable from 0° skews to and including 10° skews)

One lateral tensioning rod per beam 50 ft. long or less  
Two lateral tensioning rods per beams over 50 ft. long.



**SECTIONAL END PLAN**

(Lateral Tension Rod Details)

KENTUCKY  
DEPARTMENT OF HIGHWAYS  
**BOX BEAM  
TENSION ROD  
DETAILS**

SUBMITTED: *[Signature]* 2-04-19  
ACTING DIRECTOR DIVISION OF HIGHWAY DESIGN DATE

048

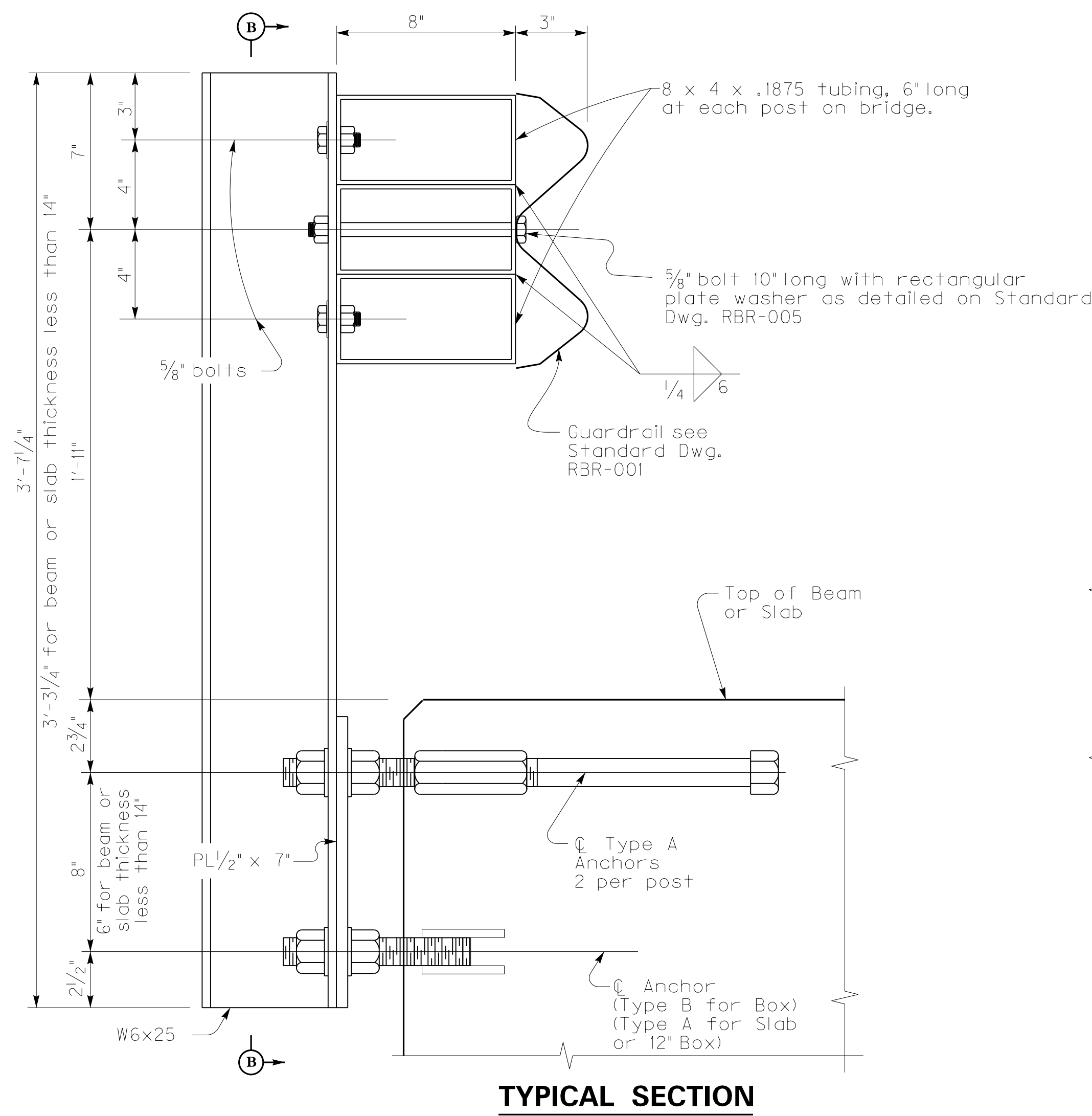
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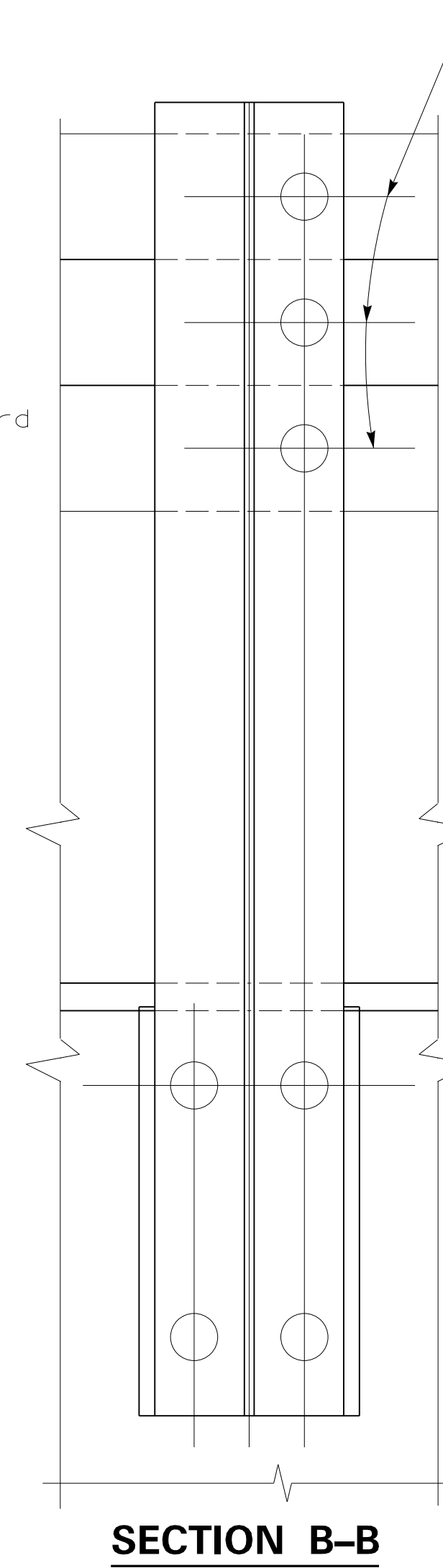
GREGORY WOODS ROAD  
OVER PLEASANT BRANCH  
BRIDGE REPLACEMENT  
FRANKLIN COUNTY, KENTUCKY

BOX BEAM  
TENSION ROD DETAILS

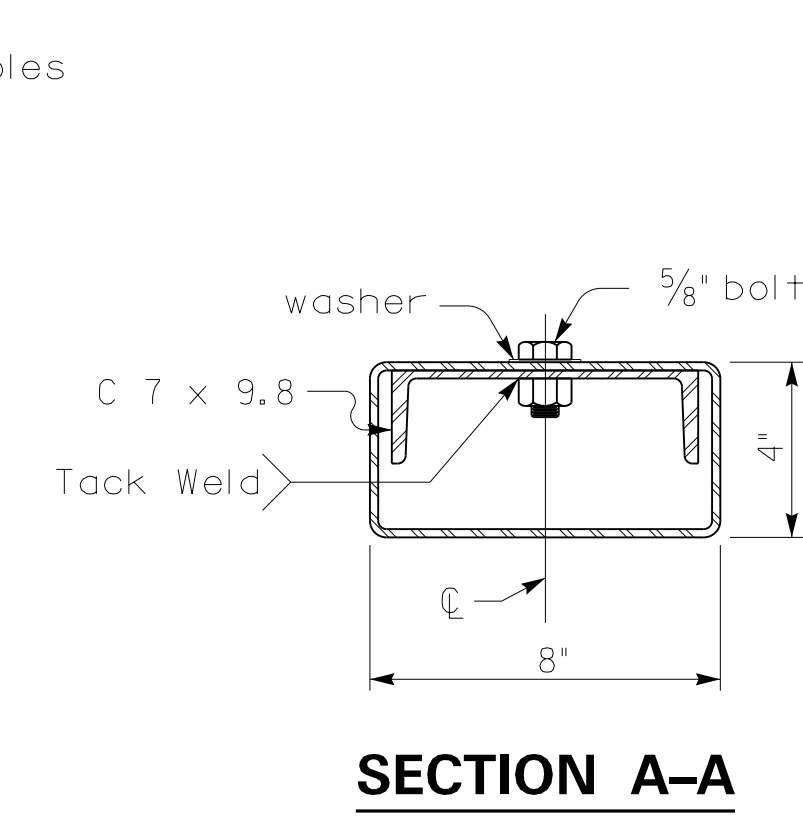
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CHECKED BY: DWS	SCALE: N.T.S.
JOB NO.: 2031-2204-90	SHEET: 10 of 17



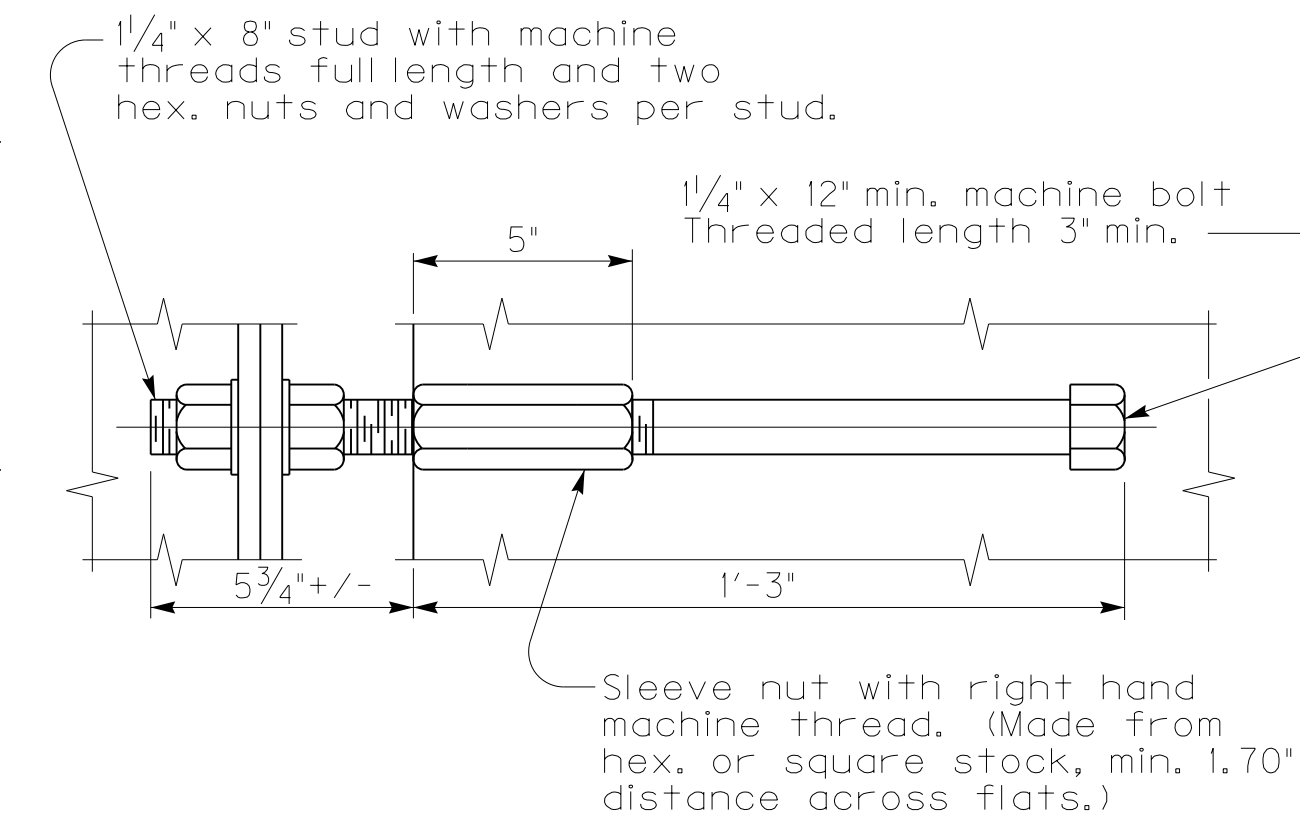
**TYPICAL SECTION**



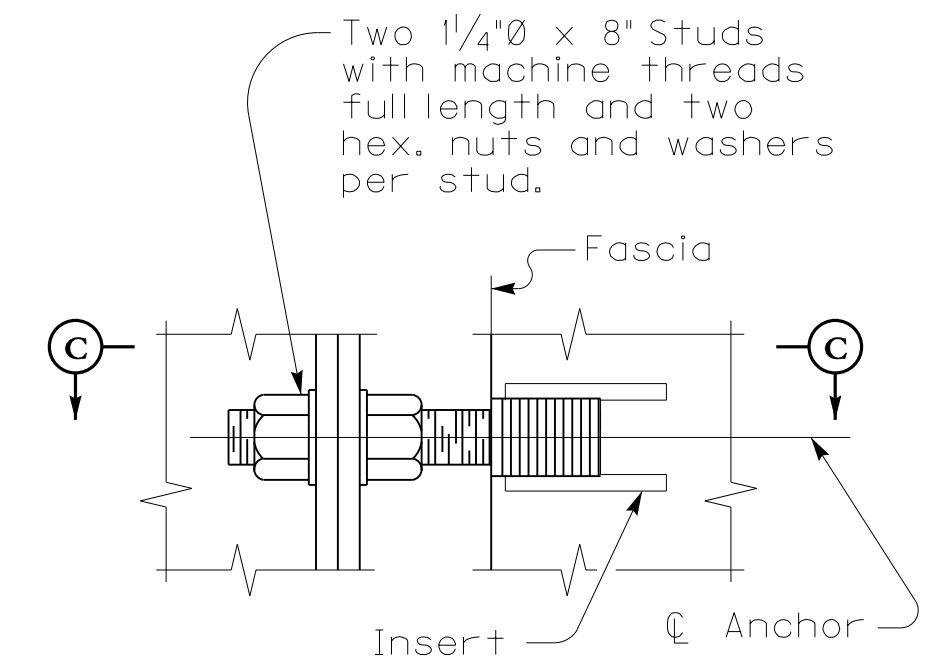
**SECTION B-B**



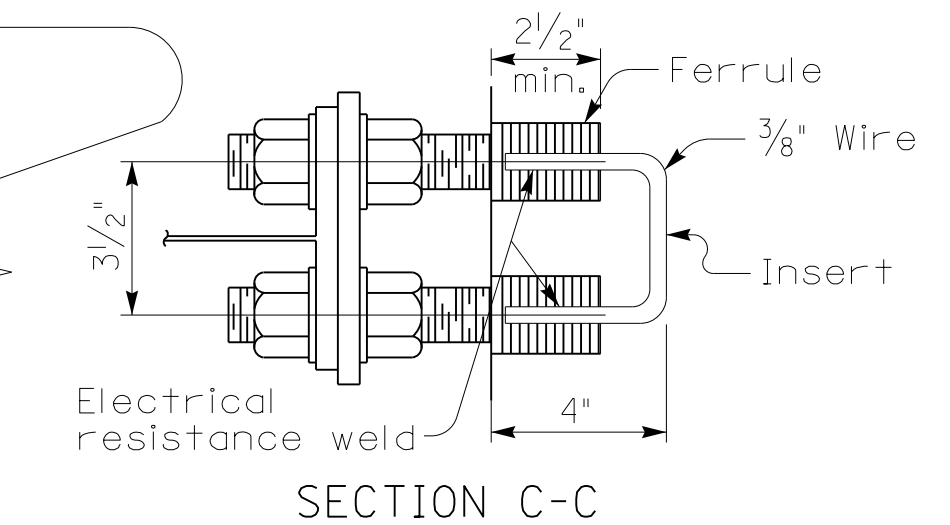
**SECTION A-A**



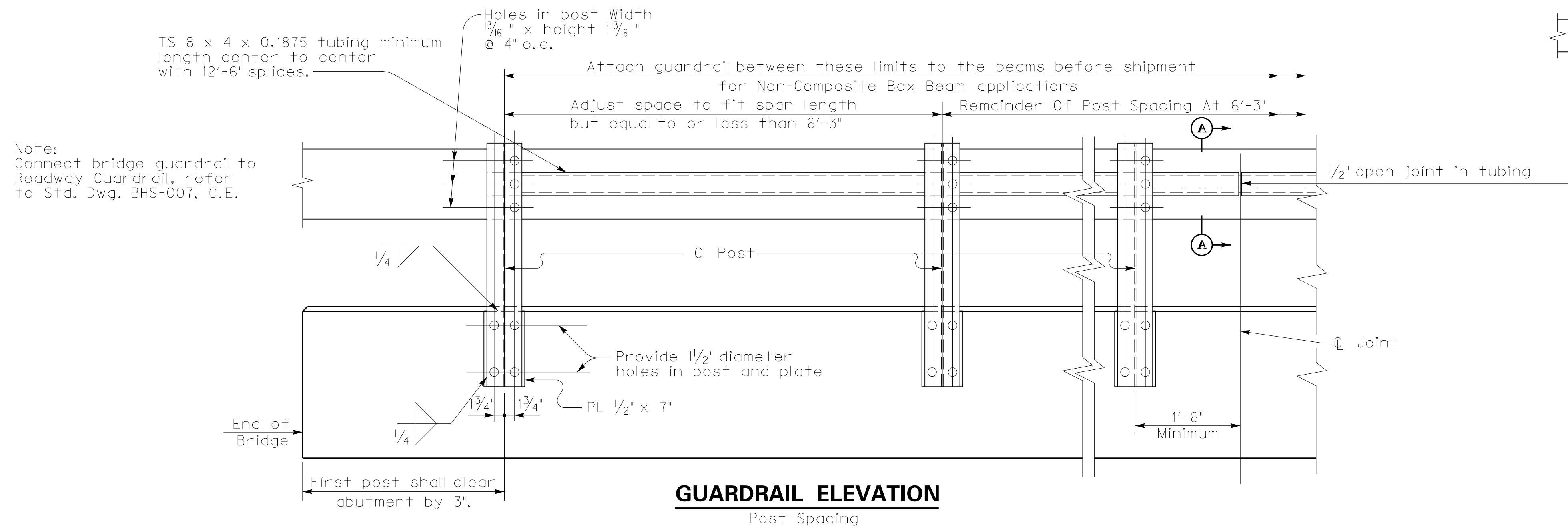
**TYPE A ANCHOR DETAIL**



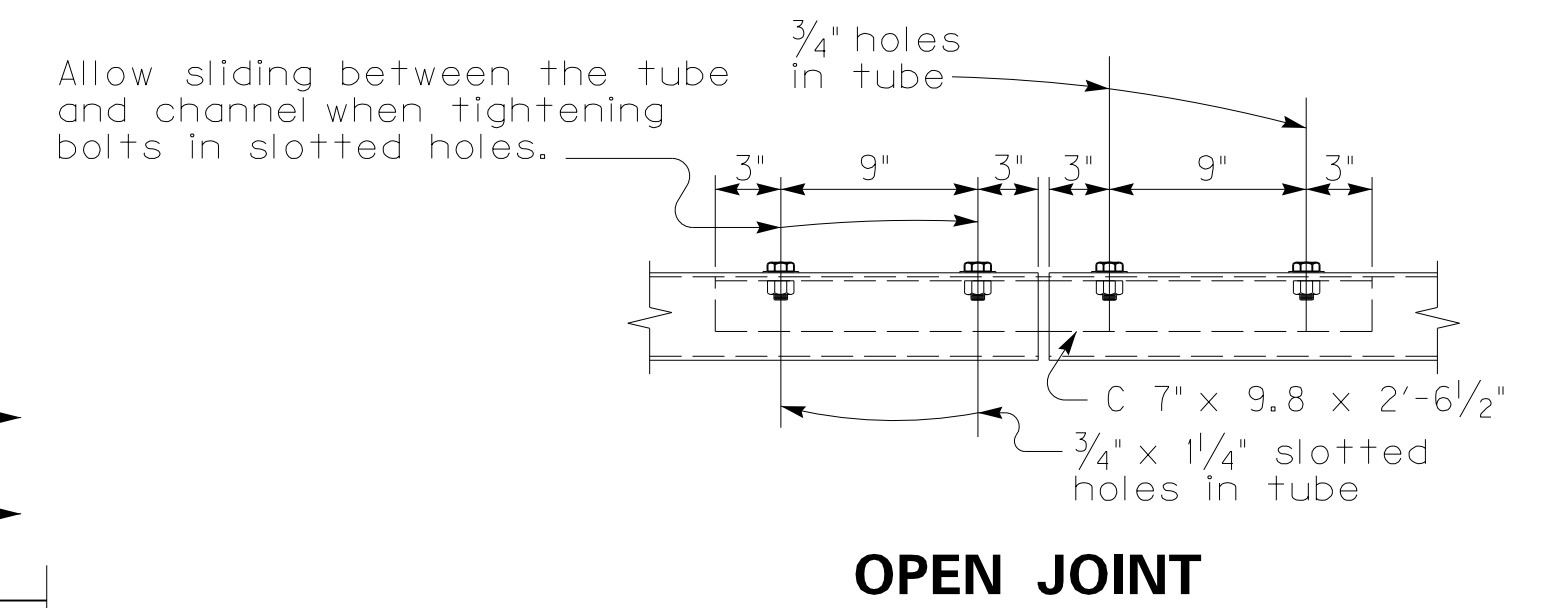
**TYPE B ANCHOR DETAIL**



**SECTION C-C**



**GUARDRAIL ELEVATION**



**OPEN JOINT**

**KENTUCKY  
DEPARTMENT OF HIGHWAYS**

**RAILING  
SYSTEM  
TYPE II**

STANDARD DRAWING NO. BDP-005-05

SUBMITTED \_\_\_\_\_ DATE \_\_\_\_\_  
 DIRECTOR DIVISION OF STRUCTURAL DESIGN

APPROVED \_\_\_\_\_ DATE \_\_\_\_\_  
 STATE HIGHWAY ENGINEER

NO.	DATE	DESCRIPTION	BY



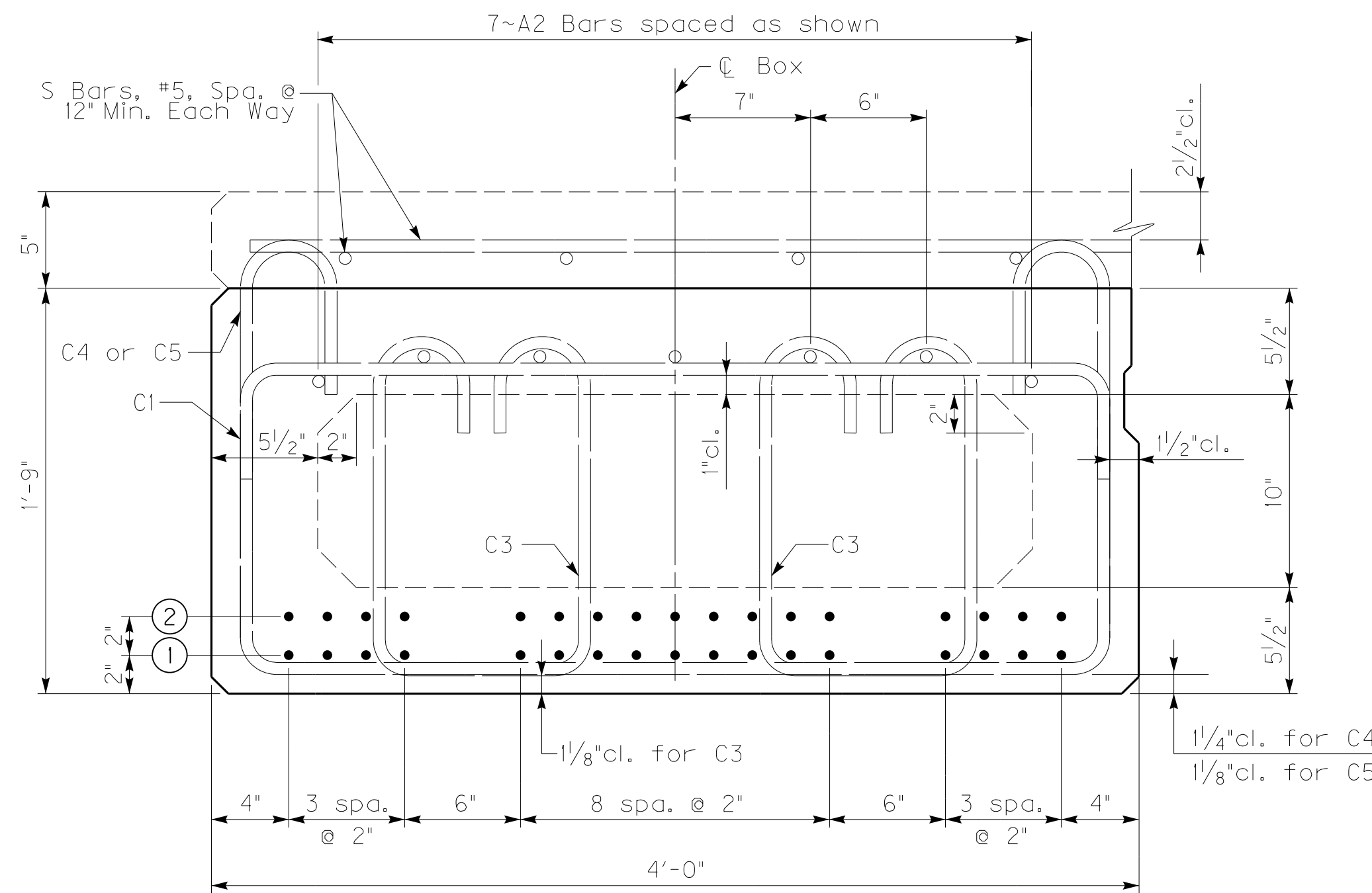
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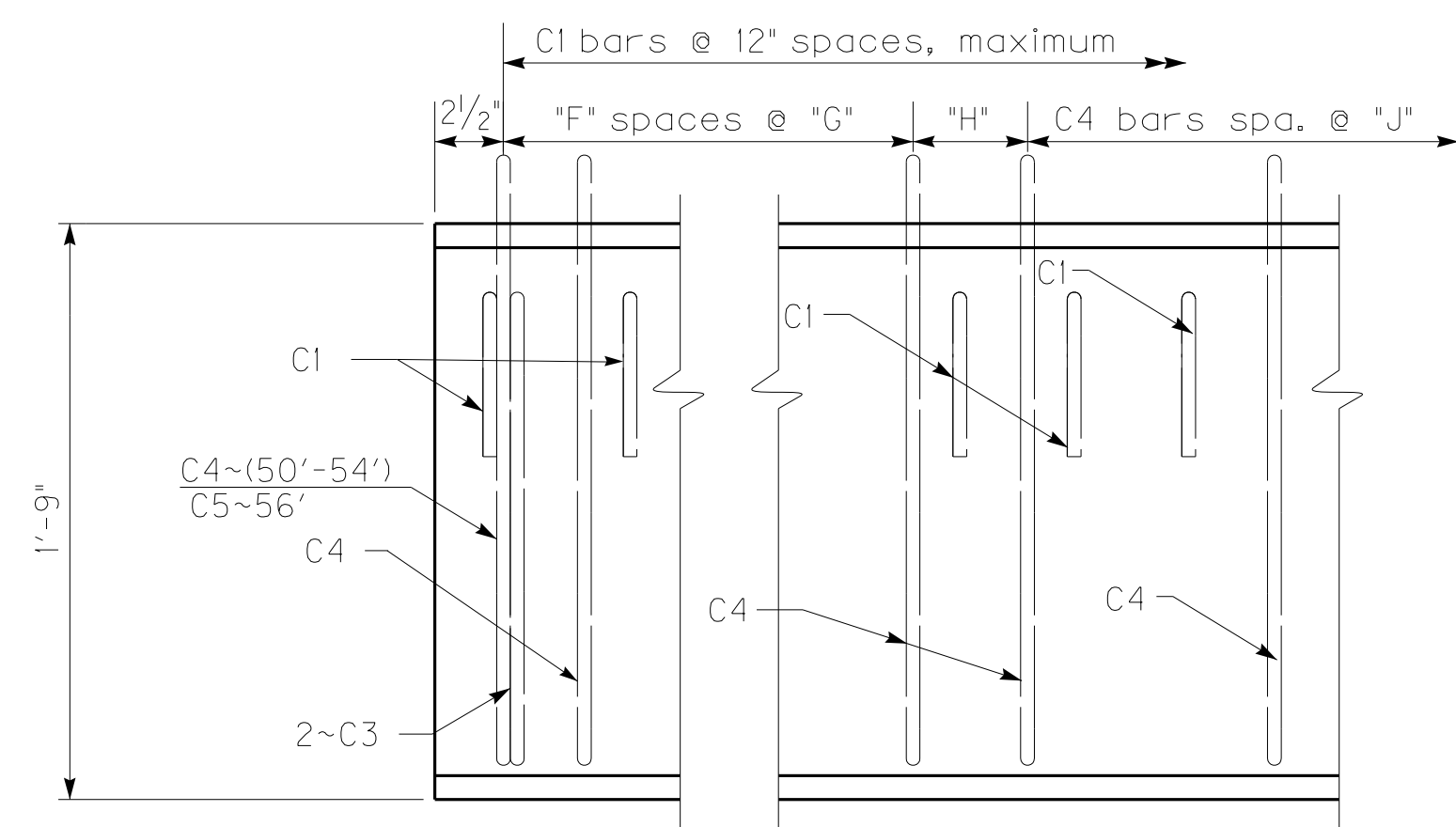
GREGORY WOODS ROAD  
OVER PLEASANT BRANCH  
BRIDGE REPLACEMENT  
FRANKLIN COUNTY, KENTUCKY

RAILING SYSTEM  
TYPE II

DRAWN BY: JDA	DATE: 02/2022
CHECKED BY: DWS	SCALE: N.T.S.
JOB NO.: 2031-2204-90	SHEET: 11 of 17

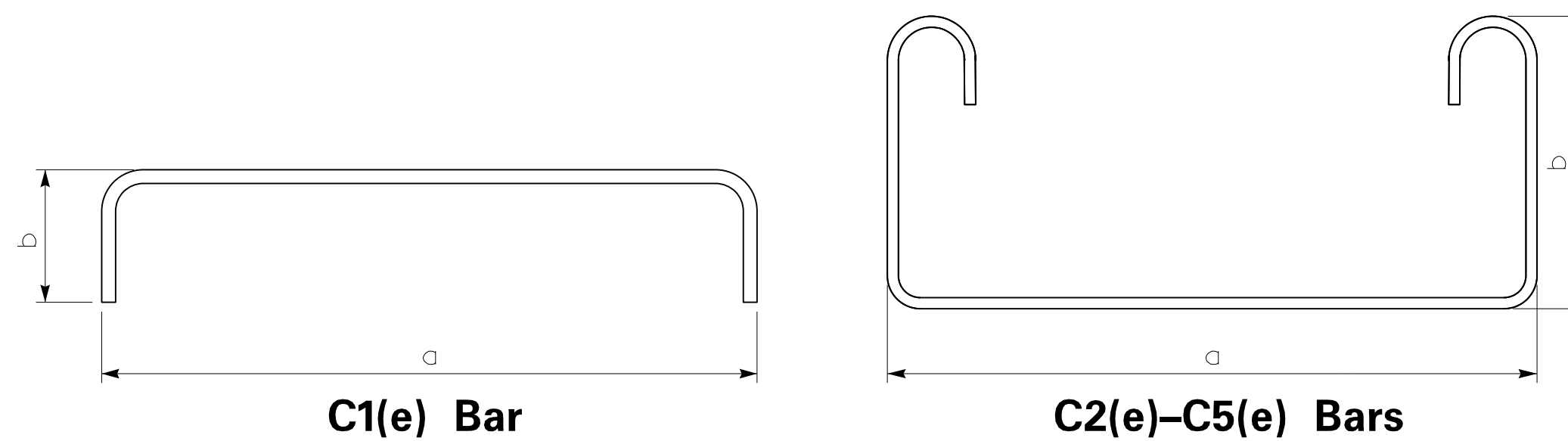


**CB21 BEAM**



**CB21 ELEVATION OF 0° SKEW**

(Refer to BDP-003, for skewed details)



**Bent Reinforcement**

Mark	Size	a	b
C1(e)	#5	3'-9"	6"
C2(e)	#4	3'-9"	1'-5 1/4"
C3(e)	#5	11 3/8"	1'-5 3/8"
C4(e)	#4	3'-9"	1'-10 1/4"
C5(e)	#5	3'-9"	1'-10 3/8"

**TABLE OF STRAND DATA**

Beam Type	Beam Length (feet)	Number of Strands Required	
		Row ①	Row ②
CB21	52	17	4

**TABLE OF DIMENSION DATA**

Beam Type	Beam Length (feet)	"F"	"G"	"H"	"J"
CB21	52	7	9	14 1/2	16

**TABLE OF BAR QUANTITIES**

Beam Type	Beam Length (feet)	C1	C2	C3	C4	C5
CB21	52	53		4	46	

**DESIGN DATA**

Beam Type	Beam Length (feet)	DC kips	DW kips	LL kips	LL+I kips	Δd (in.)	Δc (in.)
CB21	52	25.0	1.5	47.0	59.1	0.3	1.1

**Straight Reinforcement**

Mark	Size	Length
A1(E)	#5	Beam Length Minus 3"
A2(E)	#4	Beam Length Minus 3"
D(E)	#8	2'-0"

KENTUCKY DEPARTMENT OF HIGHWAYS

**BOX BEAM  
CB21  
DETAILS**

STANDARD DRAWING NO. BDP-008-04

SUBMITTED \_\_\_\_\_ DATE \_\_\_\_\_  
APPROVED \_\_\_\_\_ STATE HIGHWAY ENGINEER \_\_\_\_\_ DATE \_\_\_\_\_

DRAWN BY: JDA DATE: 02/2022

CHECKED BY: DWS SCALE: N.T.S.

JOB NO.: 2031-2204-90 SHEET: 12 of 17



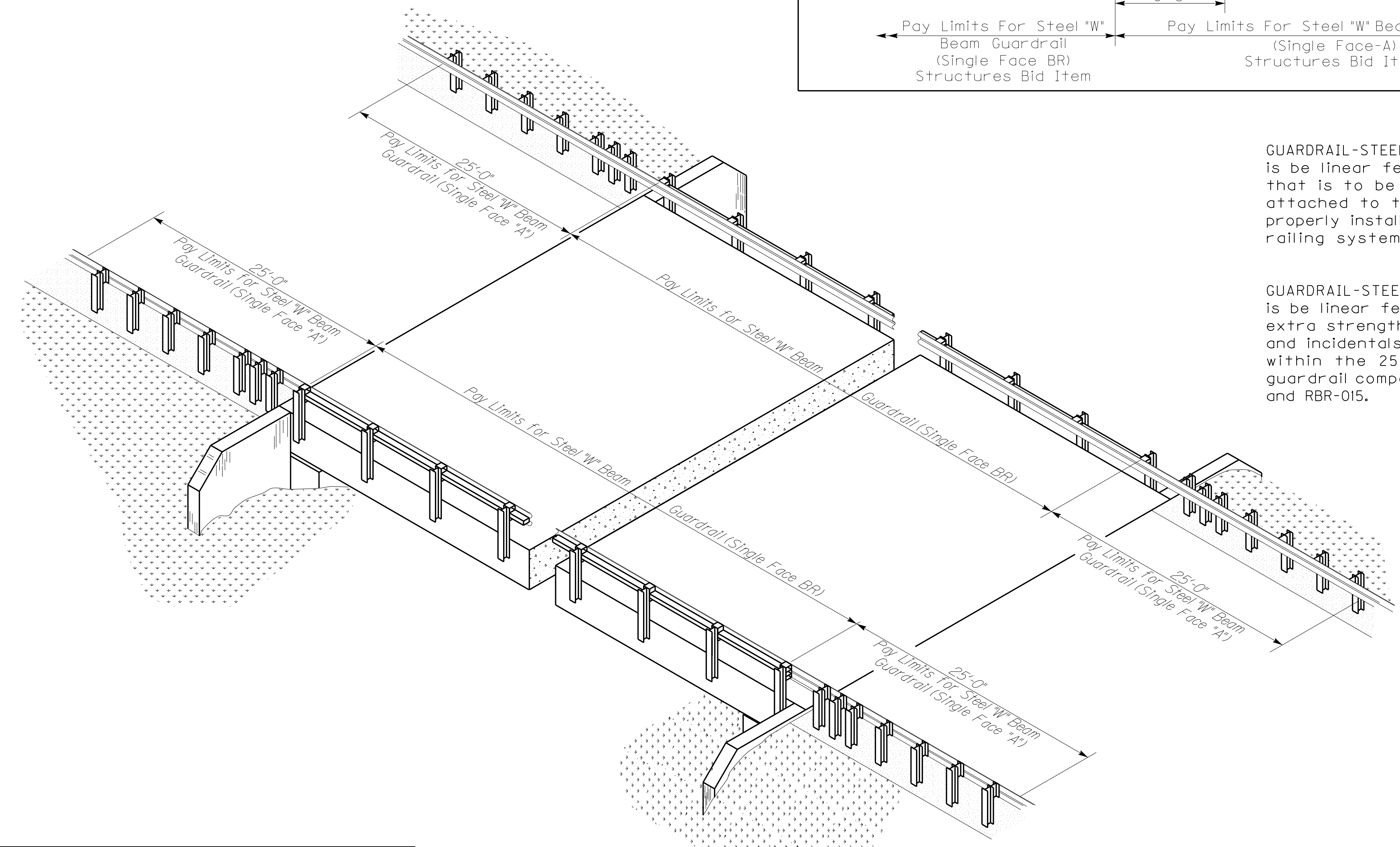
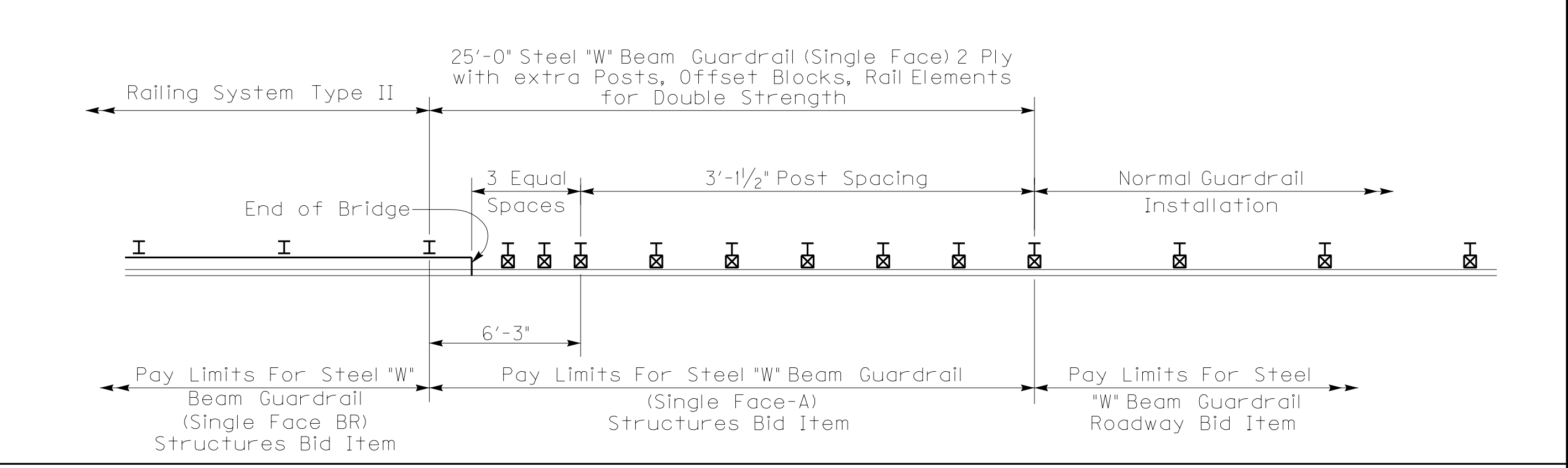
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GREGORY WOODS ROAD  
OVER PLEASANT BRANCH  
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FRANKLIN COUNTY, KENTUCKY

BOX BEAM  
CB21 DETAILS

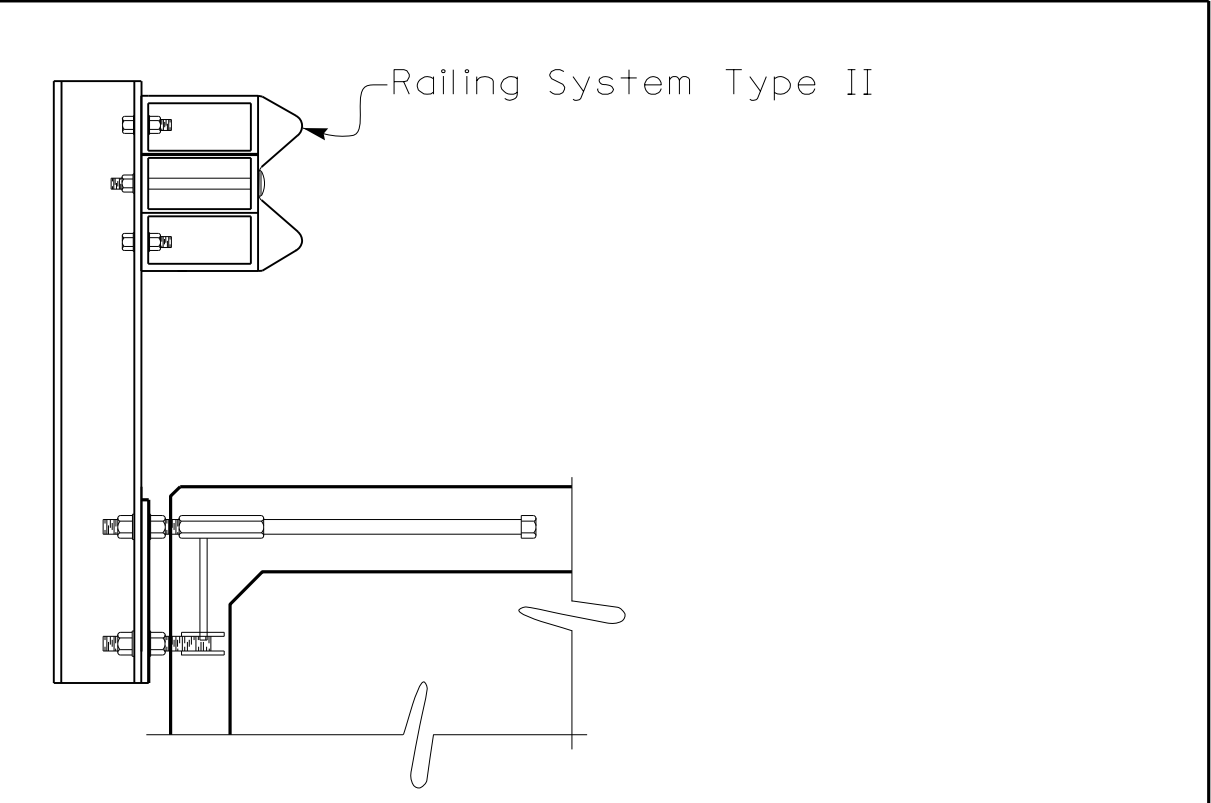
NO.	DATE	DESCRIPTION	BY



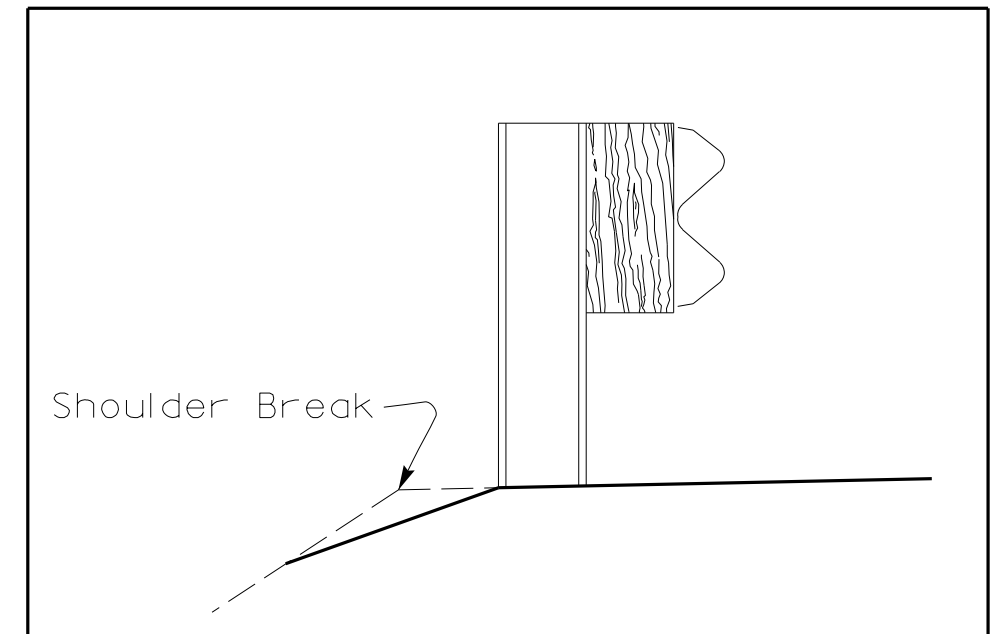
**BID ITEM NOTES**

**GUARDRAIL-STEEL W BEAM (SINGLE FACE BR):** The bid unit for this item is be linear feet. This item shall include the Railing System Type II that is to be installed on the bridge between the endmost posts attached to the bridge and all labor and incidentals necessary to properly install the railing system. For non-composite box beams, the railing system is attached to the beam prior to shipment.

**GUARDRAIL-STEEL W BEAM (SINGLE FACE A):** The bid unit for this item is be linear feet. This item includes the W-Beam guardrail (2 ply for extra strength), guardrail posts, offset blocks, hardware, and labor and incidentals necessary to properly install the approach guardrail within the 25'-0" limits at each corner of the structure. For guardrail components, refer to Standard Drawings RBR-001, RBR-005 and RBR-015.



BRIDGE GUARDRAIL INSTALLATION



ROADWAY SHOULDER G.R. INSTALLATION

KENTUCKY DEPARTMENT OF HIGHWAYS	
<b>RAILING SYSTEM TYPE II GUARDRAIL TREATMENT</b>	
STANDARD DRAWING NO. BHS-007-07	
SUBMITTED _____	DIRECTOR DIVISION OF STRUCTURAL DESIGN _____ DATE _____
APPROVED _____	STATE HIGHWAY ENGINEER _____ DATE _____

NO.	DATE	DESCRIPTION	BY

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GREGORY WOODS ROAD  
OVER PLEASANT BRANCH  
BRIDGE REPLACEMENT  
FRANKLIN COUNTY, KENTUCKY

RAILING SYSTEM  
TYPE II  
GUARDRAIL TREATMENT

DRAWN BY: JDA	DATE: 02/2022
CHECKED BY: DWS	SCALE: N.T.S.
JOB NO.: 2031-2204-90	SHEET: 13 of 17

# General Notes

**SPECIFICATIONS:** All references to the Specifications are to the current edition of the Kentucky Department of Highways Standard Specifications for Road and Bridge Construction. All references to the AASHTO Specifications are to the current edition of the AASHTO LRFD Bridge Design Specifications.

**INSTALLATION PROCEDURE:** Seal the ends of the joint seal to prevent the entrance of water and foreign material.

**WELDING SPECIFICATIONS:** Ensure techniques and welding procedure comply with current joint specification ANSI/AASHTO/AWS D1.5 Bridge Welding Code.

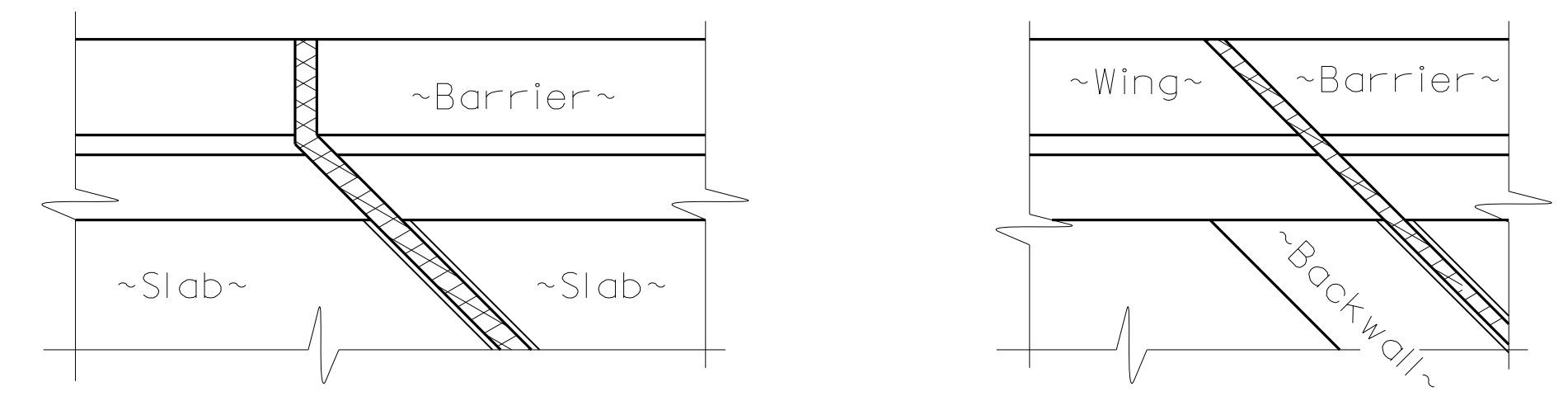
**MATERIAL SPECIFICATIONS:** Ensure steel material is new, commercial grade steel suitable for welding. Acceptance will be based on visual inspection by the Engineer. Joint sealing material, only, is in accordance with Section 807 of the Specifications. Ensure stud shear connectors conform to ASTM A108 and A29, Grade 1015.

**LOCATION:** Locate armored edges and/or expansion dams in accordance with detail plans.

**PAINT:** Clean and paint all structural steel in accordance with the Specifications, except that no field coating will be required.

**SHOP DRAWINGS:** Contrary to the Specifications, no shop plans are required.

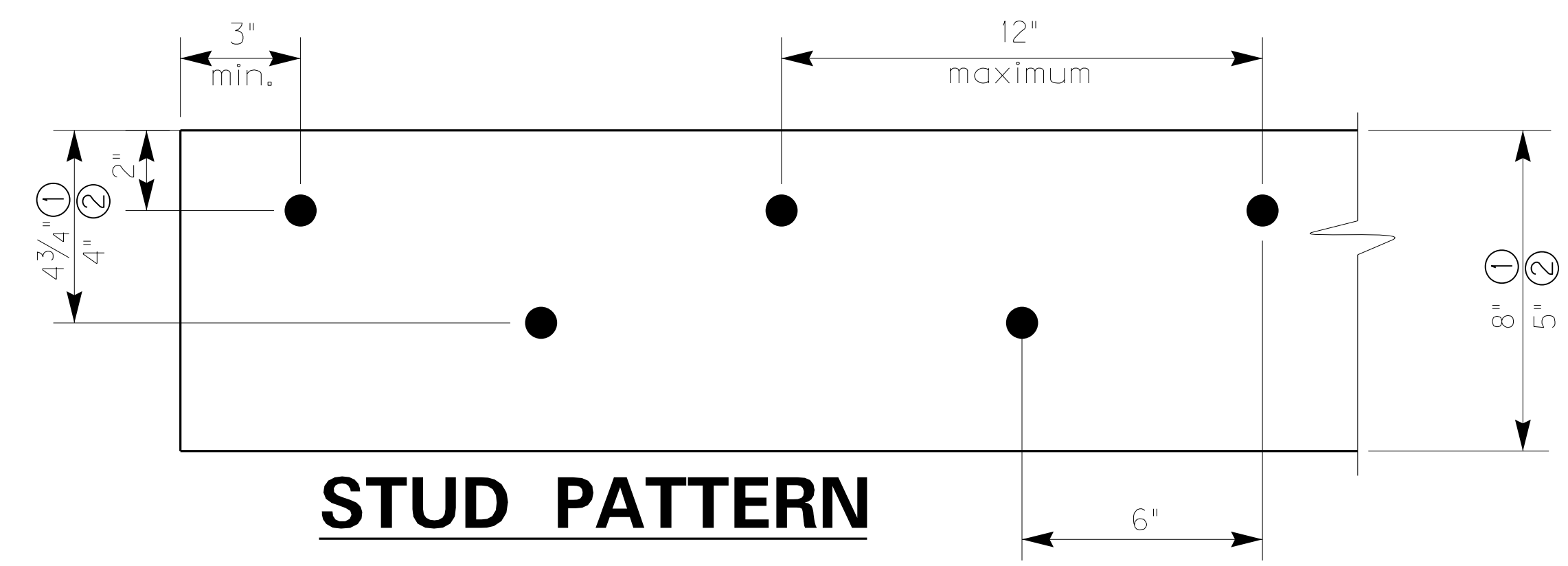
**BASIS OF PAYMENT:** The accepted quantities of Neoprene Expansion Dam which includes the armored edges & preformed compression joint seal will be paid for at the contract unit price per linear foot for each size, measured along centerline of joint between the vertical faces of the barriers. When only an Armored Edge is required the cost of furnishing and placing the armored edge will be paid for at the contract unit price per linear foot, measured along the Armored Edge between the vertical faces of the barriers. Measure along armored edge from fascia to fascia of slab when used with Type II railing and no curb.



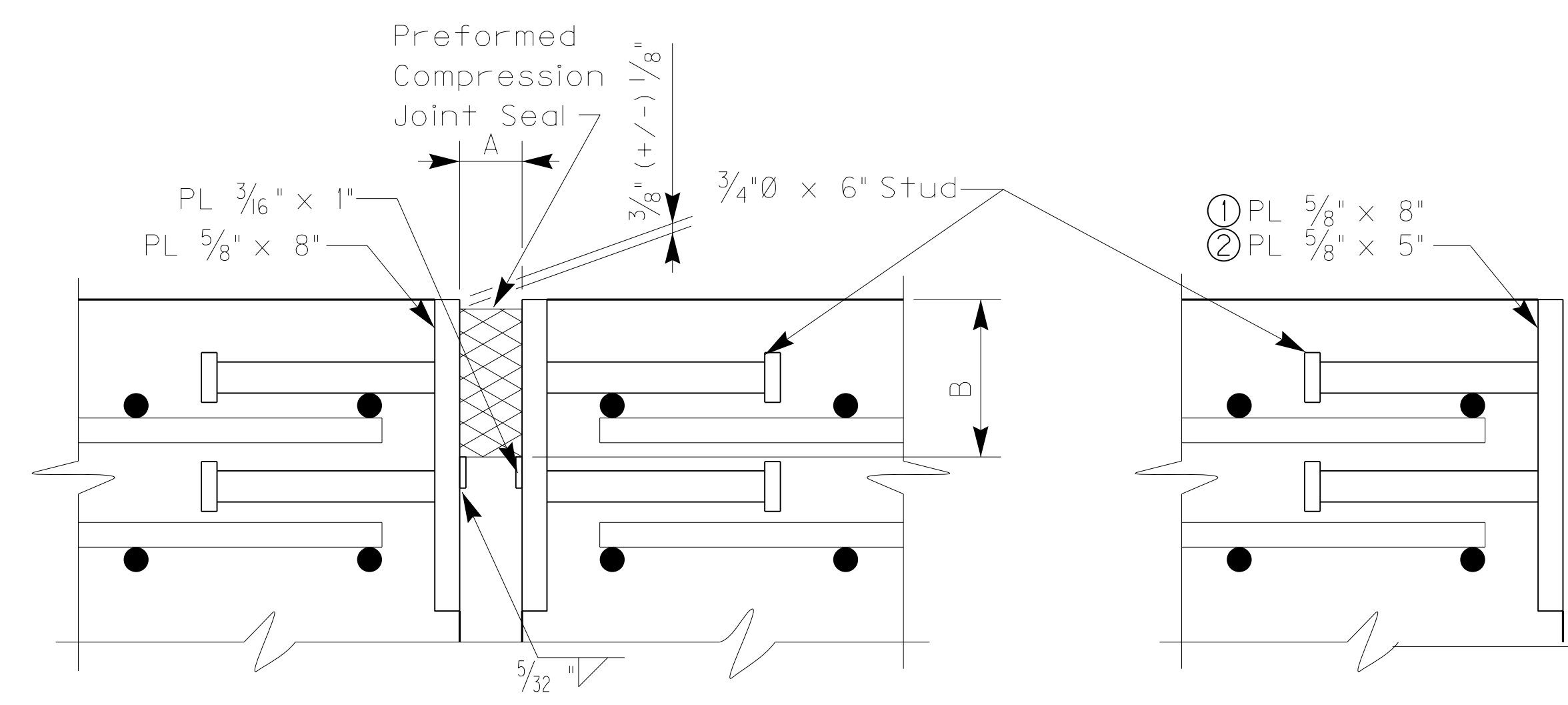
@ Piers or Bents @ Backwall Substructures

## TYPICAL BARRIER-JOINT TREATMENTS

*Details are for skewed joints*



### STUD PATTERN



### SECTION THROUGH JOINT

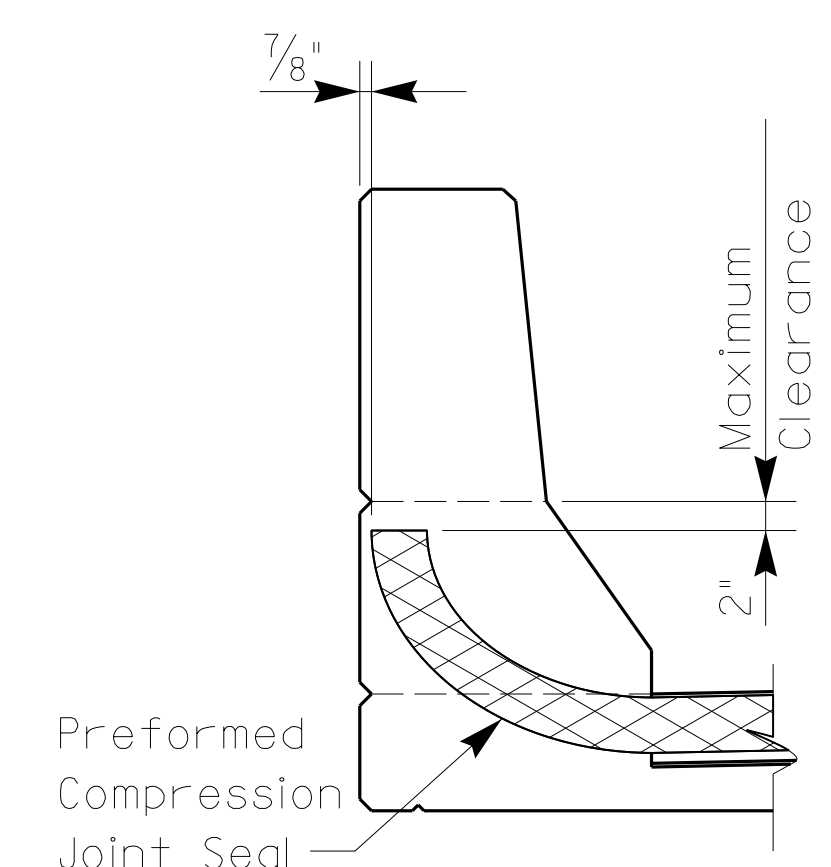
"A" - Minimum joint opening @ 60°F  
 "B" - Manufacturer's compressed seal height 1/4".

### SECTION THROUGH ARMORED EDGE

- ① Assembly weight = 18.8 lbs./ft.
- ② Assembly weight = 12.4 lbs./ft.

Joint Data	
Dim. A @ 60°F (in)	Move-ment (in)
1 1/2	1
2	1 1/2
2 1/2	2

The joint seal supplied must accommodate the required movement shown. Set Dimension A with temperature change increment and as required by the manufacturer to obtain the required movement.



### SECTION THROUGH BARRIER

- ① Applies to 8" slab thickness
- ② Applies to 5" slab thickness

Temperature Change Increment per 10°F			
Concrete		Steel	
Span Length (ft)	Incre-ment (in)	Span Length (ft)	Incre-ment (in)
0 - 80	1/32	0 - 60	1/32
81 - 140	1/16	61 - 100	1/16
141 - 200	3/32	101 - 140	3/32
201 - 260	1/8	141 - 180	1/8
261 - 320	5/32		

KENTUCKY  
DEPARTMENT OF HIGHWAYS

**NEOPRENE EXPANSION DAMS AND ARMORED EDGES**

STANDARD DRAWING NO. BJE-001-13

SUBMITTED \_\_\_\_\_ DATE \_\_\_\_\_  
DIRECTOR DIVISION OF STRUCTURAL DESIGN

APPROVED \_\_\_\_\_ DATE \_\_\_\_\_  
STATE HIGHWAY ENGINEER

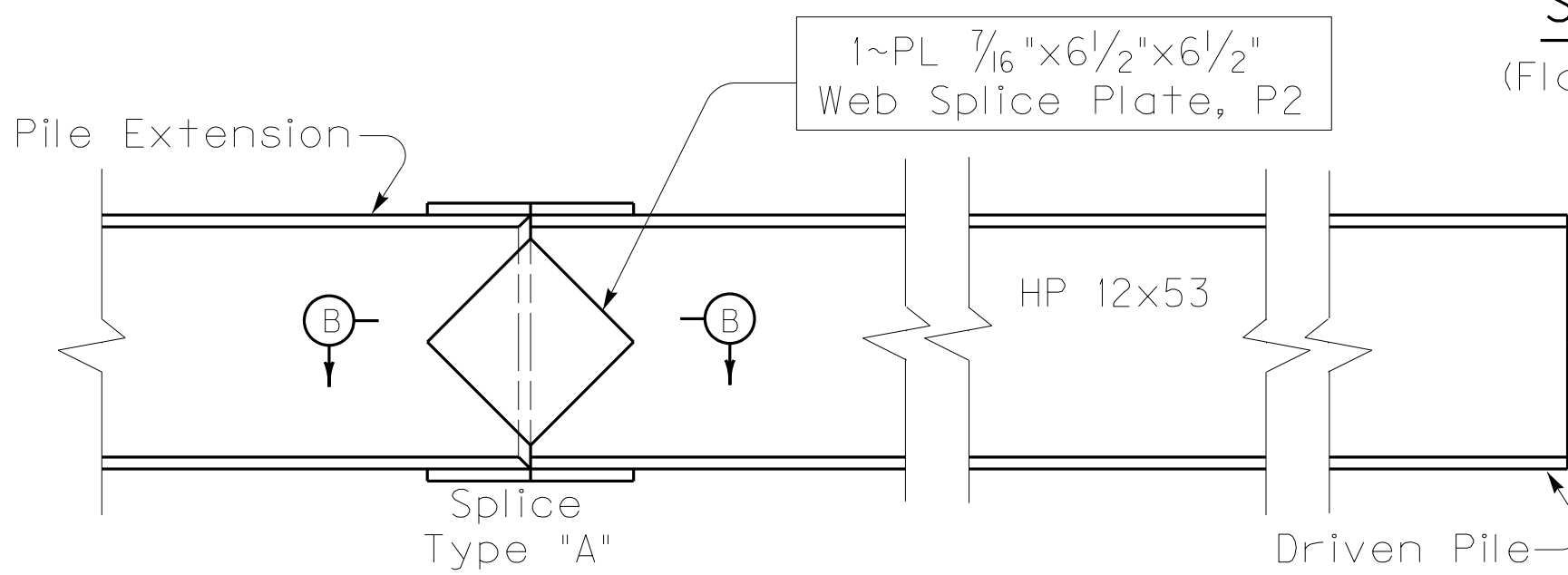
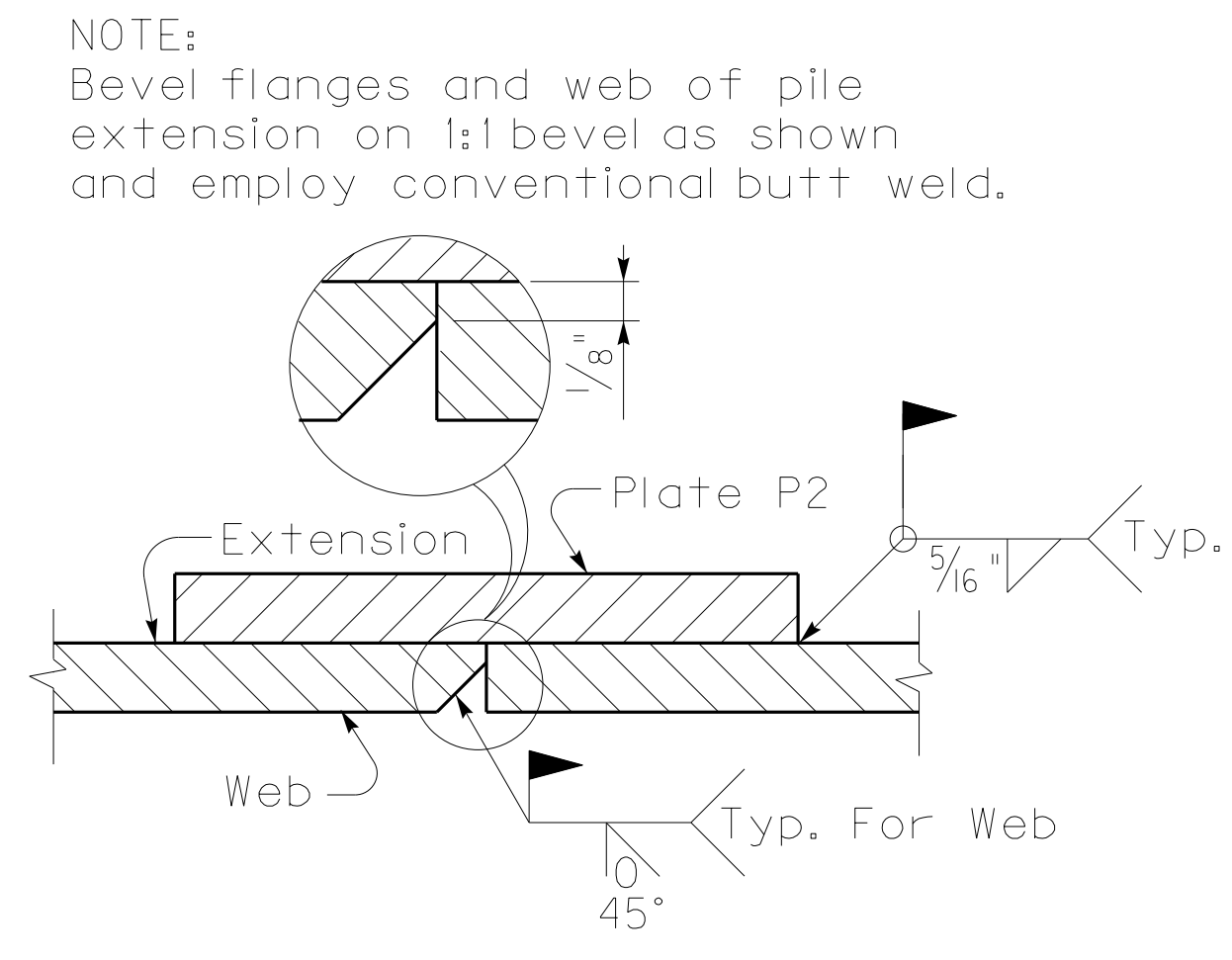
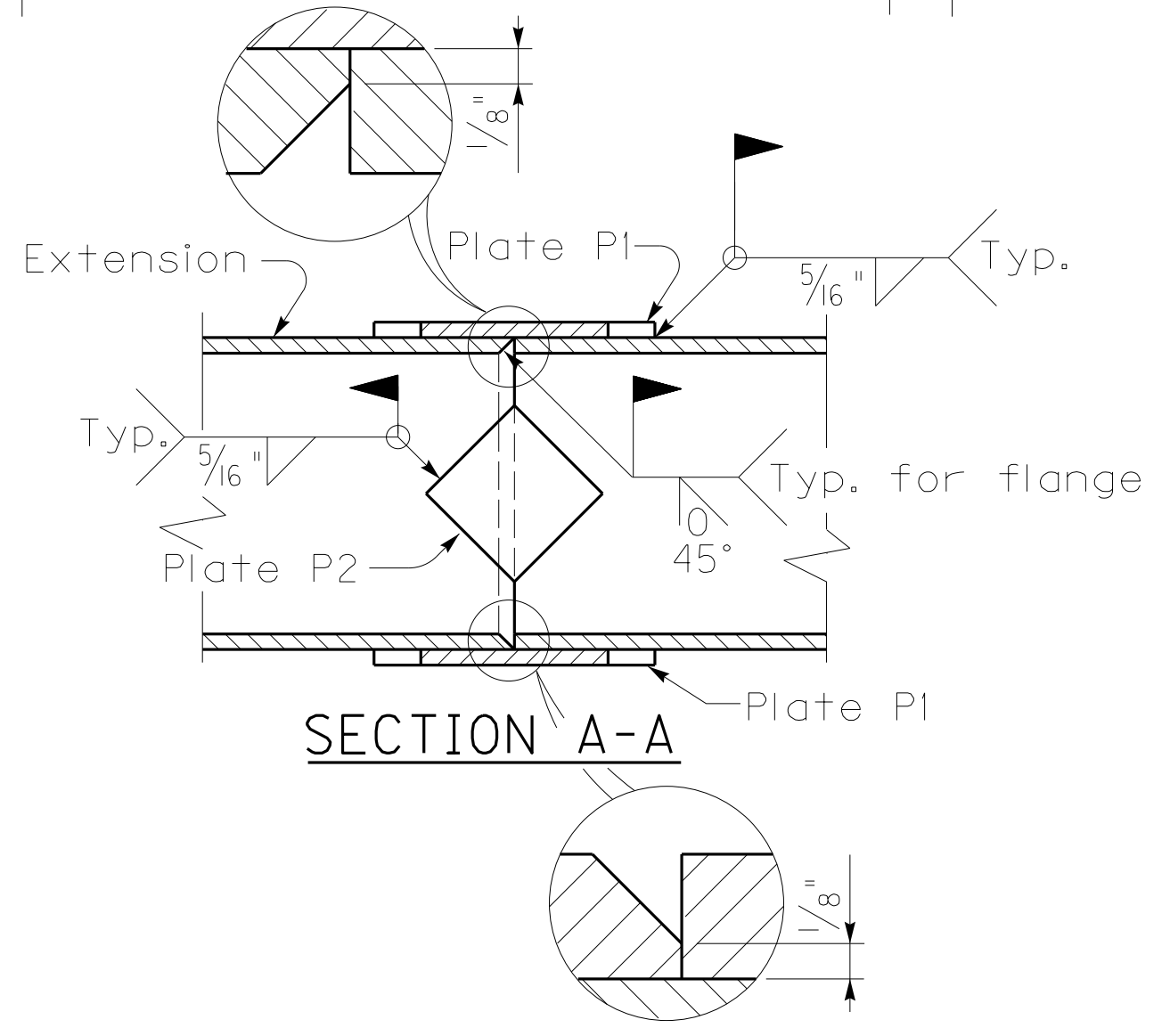
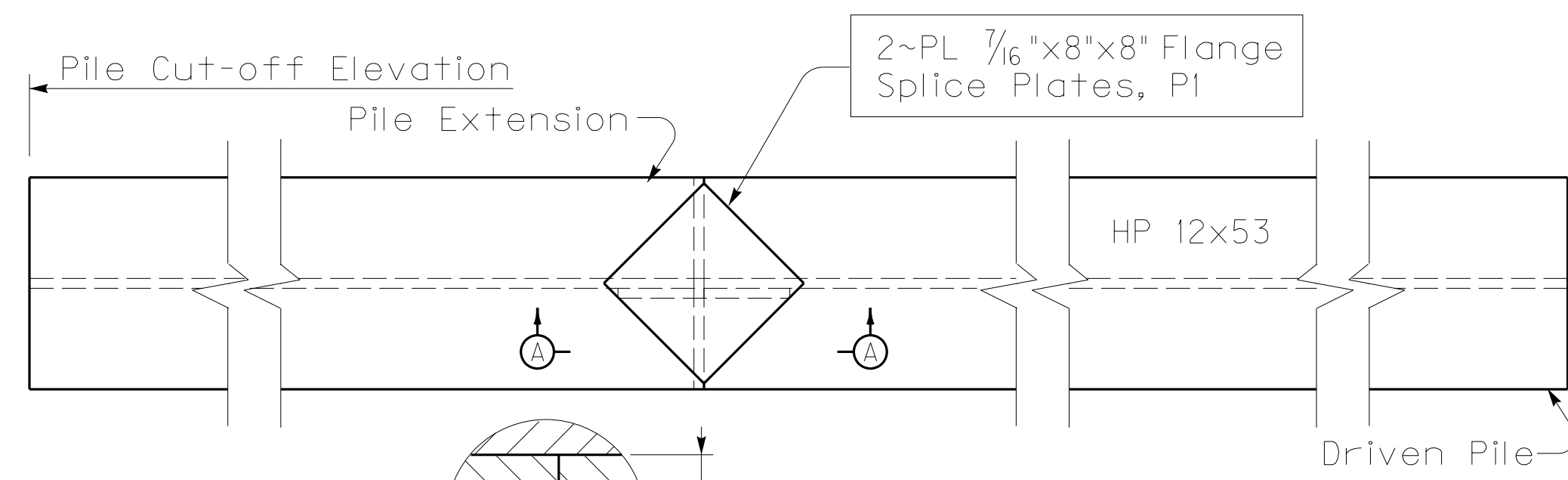
NO.	DATE	DESCRIPTION	BY

1950 HAGGARD CT  
 LEXINGTON, KENTUCKY 40505  
 (859) 299-5226

GREGORY WOODS ROAD  
 OVER PLEASANT BRANCH  
 BRIDGE REPLACEMENT  
 FRANKLIN COUNTY, KENTUCKY

NEOPRENE EXPANSION  
 DAMS AND  
 ARMORED EDGES

DRAWN BY: JDA	DATE: 02/2022
CHECKED BY: DWS	SCALE: N.T.S.
JOB NO.: 2031-2204-90	SHEET: 14 of 17



**GENERAL NOTES**

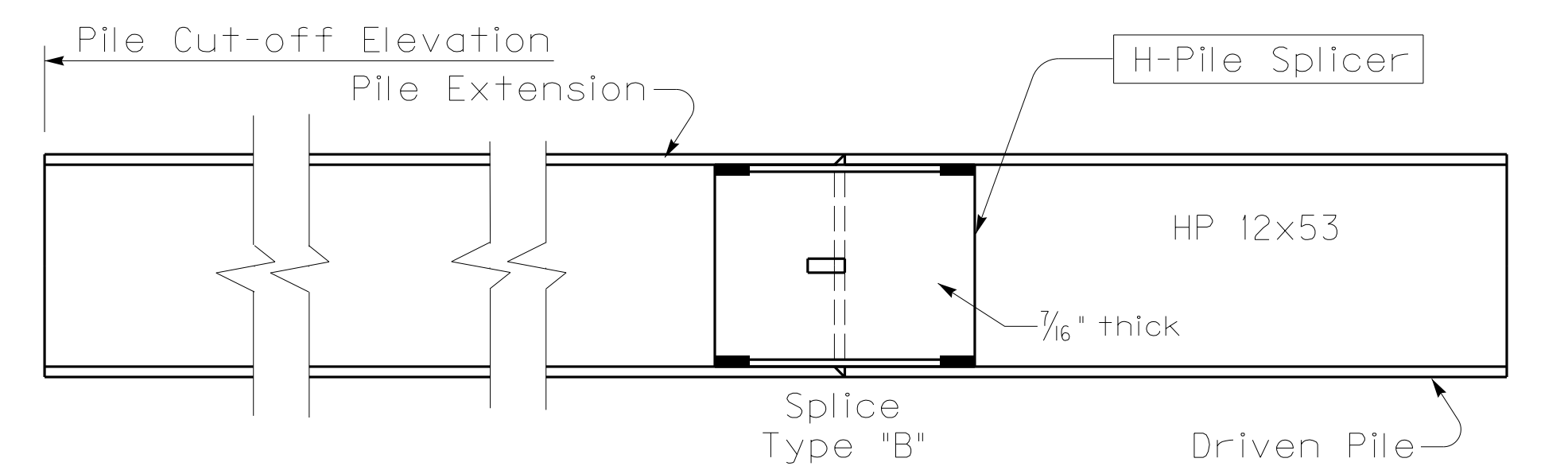
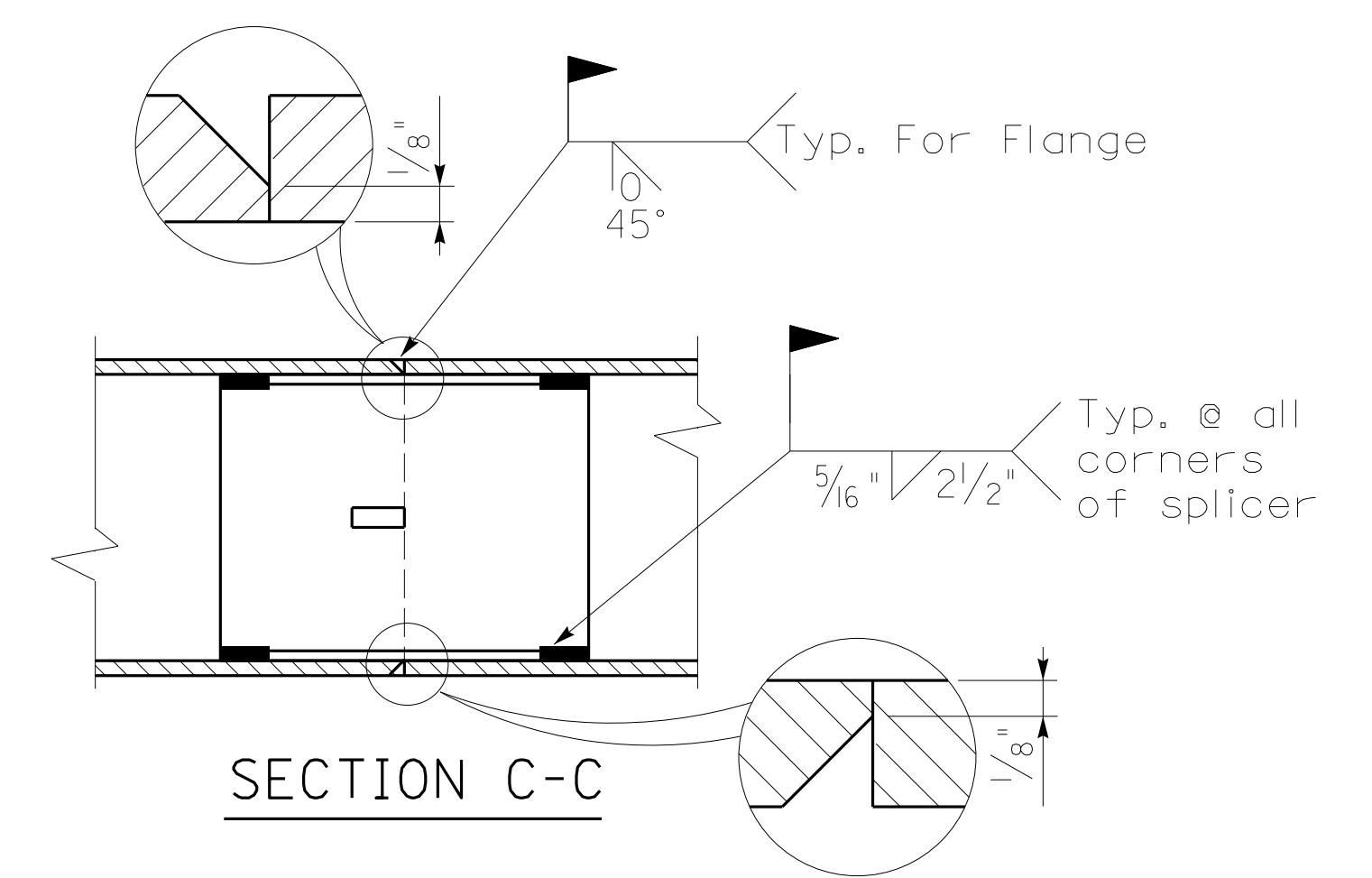
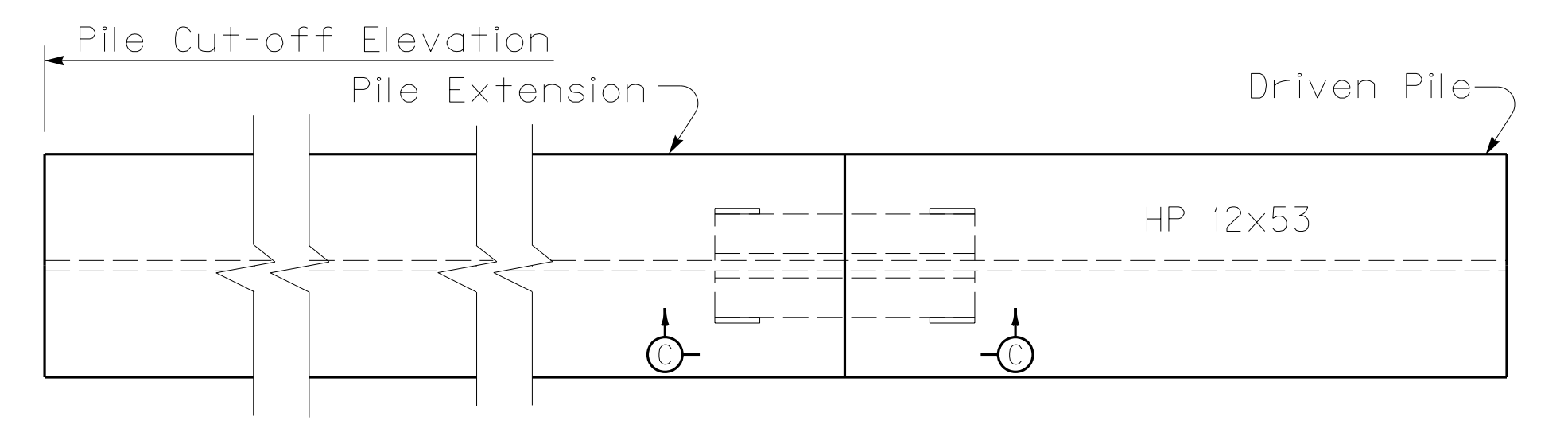
**SPECIFICATIONS:** Kentucky Department of Highways Standard Specifications for Road and Bridge Construction, current edition.

**MATERIALS:** Ensure structural steel piles conform to A.S.T.M. A709 Grade 50, current Specifications.

**SPLICE PLATES:** Ensure all pile splicing options conform to A.S.T.M. A709 Grade 50, current Specifications. In lieu of Splice Option "A" or Splice option "B", splice plates may be flame cut from HP12x53 sections. If flange sections are used, the portion cut at the web must be turned outside in order to obtain a tight fit. Grind the edges smooth prior to welding.

**SPLICE OPTION "B":** The pile splicer shown in the details for Splice Option "B" may be Champion H-Pile Splicer, Model HP 30000, or an approved equal. Ensure the splicer is in accordance to the manufacturer's recommendations and subject to the Engineer's approval.

**FIELD WELDS:** Ensure field welding material and workmanship for all piling conforms to the current Joint Specifications ANSI/AASHTO/AWS D1.5 Bridge Welding Code. Splice piles as indicated above only when driven below cut-off elevation.



**NOTE:** Bevel flanges and web of pile extension on 1:1 bevel as shown and employ conventional butt weld.

**PAYMENT:** Payment for the piles in accordance with plans and specifications will be made at the contract price per linear foot.

**PAINT:** No painting is required on steel piles.

**MILL TEST REPORTS:** Furnish mill test reports in triplicate to the Department showing that all materials furnished conform to the Specifications.

<b>KENTUCKY DEPARTMENT OF HIGHWAYS</b>	
<b>HP12x53 STEEL PILE</b>	
STANDARD DRAWING NO. BPS-003-09	
SUBMITTED _____	DIRECTOR DIVISION OF STRUCTURAL DESIGN _____ DATE _____
APPROVED _____	STATE HIGHWAY ENGINEER _____ DATE _____

NO.	DATE	DESCRIPTION	BY

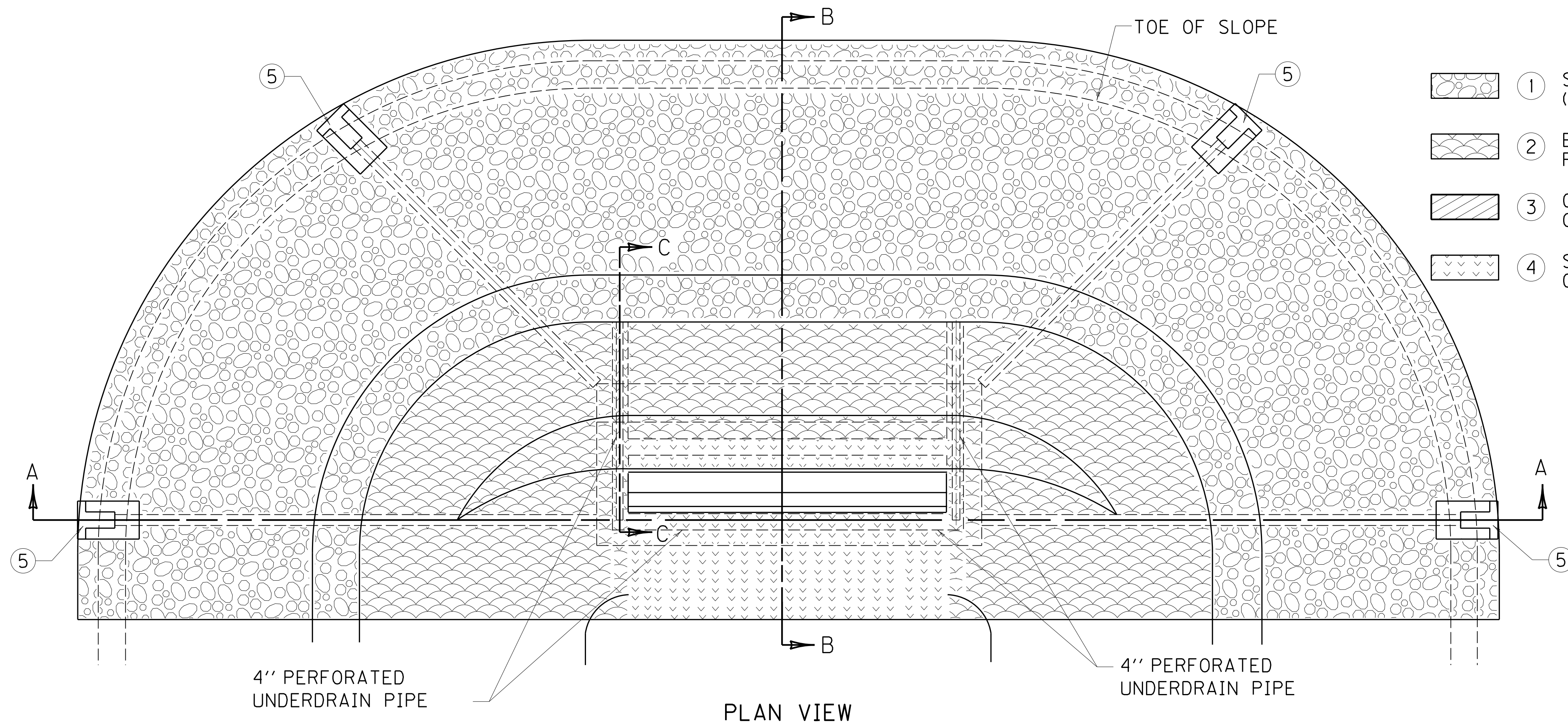
**DLZ**  
KENTUCKY, INC.

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LEXINGTON, KENTUCKY 40505  
(859) 299-5226

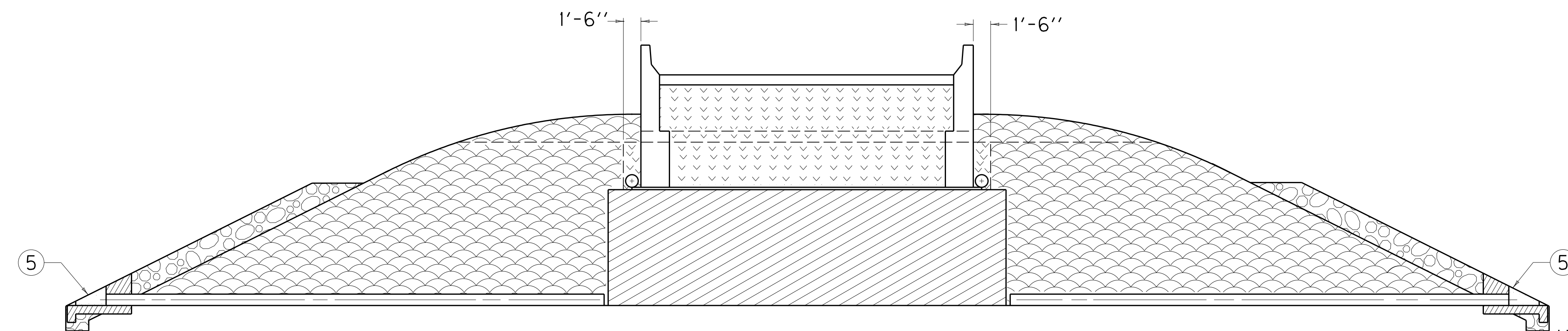
**GREGORY WOODS ROAD  
OVER PLEASANT BRANCH  
BRIDGE REPLACEMENT  
FRANKLIN COUNTY, KENTUCKY**

**HP 12 X 53  
STEEL PILE**

<b>DRAWN BY:</b> JDA	<b>DATE:</b> 02/2022
<b>CHECKED BY:</b> DWS	<b>SCALE:</b> N.T.S.
<b>JOB NO.:</b> 2031-2204-90	<b>SHEET:</b> 15 of 17



LEGEND	
	① SLOPE PROTECTION (SEE BRIDGE PLANS)
	② EMBANKMENT (GRANULAR, ROCK OR SOIL PER PLANS)
	③ GRANULAR PILE CORE OR COHESIVE PILE CORE
	④ STRUCTURE GRANULAR BACKFILL



~ NOTES ~

- THE PURPOSE OF THIS DRAWING AND CUR. STD. DWG. RGX-105 IS TO DEFINE THE LIMITS OF THE FOUR MATERIALS SHOWN. FOR SIMPLICITY PURPOSES, AN END-BENT ON A ZERO DEGREE SKEW IS SHOWN. THE SAME PRINCIPLES WOULD APPLY FOR MORE VARIED STRUCTURES.
- ① SLOPE PROTECTION REQUIRED WHEN AND AS NOTED ON THE BRIDGE PLANS.
  - ② GRANULAR OR ROCK EMBANKMENT REQUIRED WHEN AND AS NOTED ON THE ROADWAY PLANS.
  - ③ GRANULAR PILE CORE REQUIRED WITH GRANULAR OR ROCK EMBANKMENT. COHESIVE PILE CORE REQUIRED WITH DRILLED SHAFTS AND PRE-DRILLED PILES.
  - ④ STRUCTURE GRANULAR BACKFILL REQUIRED AT ALL TIMES.
  - ⑤ 8" PERFORATED UNDERDRAIN PIPE. FOR HEADWALL CONSTRUCTION SEE CUR. STD. DWG RDP-010.

USE WITH CUR. STD. DWGS. RDP-010, RGX-105

KENTUCKY  
DEPARTMENT OF HIGHWAYS

TREATMENT OF  
EMBANKMENTS  
AT END-BENTS

STANDARD DRAWING NO. RGX-100-06

SUBMITTED \_\_\_\_\_ DIRECTOR DIVISION OF DESIGN \_\_\_\_\_ DATE \_\_\_\_\_  
APPROVED \_\_\_\_\_ STATE HIGHWAY ENGINEER \_\_\_\_\_ DATE \_\_\_\_\_

NO.	DATE	DESCRIPTION	BY



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KENTUCKY, INC.

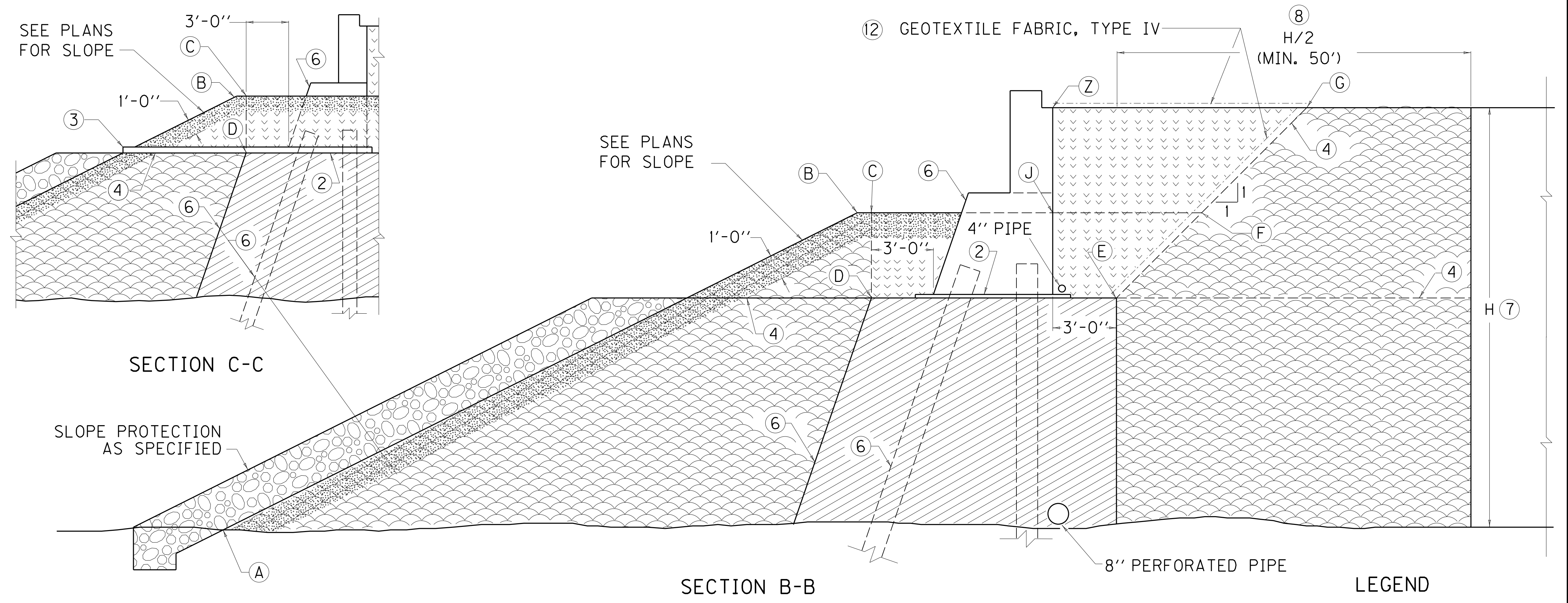
1950 HAGGARD CT  
LEXINGTON, KENTUCKY 40505  
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GREGORY WOODS ROAD  
OVER PLEASANT BRANCH  
BRIDGE REPLACEMENT  
FRANKLIN COUNTY, KENTUCKY

TREATMENT OF  
EMBANKMENTS  
AT END-BENTS

DRAWN BY:	JDA	DATE:	02/2022
CHECKED BY:	DWS	SCALE:	N.T.S.
JOB NO.:	2031-2204-90	SHEET:	16 of 17





BID ITEMS AND UNIT TO BID

PERFORATED PIPE-4 IN	LF
PERFORATED PIPE-8 IN	LF
GRANULAR EMBANKMENT	CUYD
COHESIVE PILE CORE	CUYD
GRANULAR PILE CORE	CUYD
STRUCTURE GRANULAR BACKFILL	CUYD
FABRIC-GEOTEXTILE TYPE IV	SQYD

- CONSTRUCTION SEQUENCE "A"**
1. CONSTRUCT EMBANKMENT TO SLOPES A, B, F, AND G SUCH THAT NO UNCOMPACTED OR LOOSE MATERIAL SHALL REMAIN.
  2. EXCAVATE FOR END-BENT TO C, D, E, AND F.
  3. INSTALL PILES (OR OTHER FOUNDATION).
  4. PLACE 2" MORTAR BED OR ANY CLASS CONCRETE.
  5. CONSTRUCT CONCRETE END-BENT.
  6. INSTALL 4" PERFORATED UNDERDRAIN PIPE AND BACKFILL.
  7. BACKFILL TO C, D, E, F, G, Z, AND J.
- ① **CONSTRUCTION SEQUENCE "B"**
1. CONSTRUCT EMBANKMENT TO TEMPORARY SLOPE ④.
  2. INSTALL PILES (OR OTHER FOUNDATION).
  3. PLACE 2" MORTAR BED OR ANY CLASS CONCRETE.
  4. CONSTRUCT CONCRETE END-BENT.
  5. INSTALL 4" PERFORATED UNDERDRAIN PIPE AND BACKFILL.
  6. BACKFILL TO FINISHED GRADE.

- ~ NOTES ~
- ① CONSTRUCTION SEQUENCE "B" IS A PERMITTED ALTERNATE ONLY WHEN GRANULAR OR ROCK EMBANKMENT IS REQUIRED.
  - ② 2" MORTAR BED OR ANY CLASS CONCRETE.
  - ③ 4" PERFORATED UNDERDRAIN PIPE WRAPPED WITH GEOTEXTILE FABRIC FOR DRAINING THE EXCAVATED TRENCH AND STRUCTURE GRANULAR BACKFILL.
  - ④ ACCEPTABLE ALTERNATE FOR TEMPORARY SLOPE (CONSTRUCTION SEQUENCE "B").
  5. SHADED PORTIONS [diagonal lines] AND [stippled] REPRESENT LIMITS OF NON-ERODIBLE GRANULAR EMBANKMENT.
  - ⑥ SLOPES ARE EQUAL.
  - ⑦ "H" = EMBANKMENT HEIGHT MEASURED FROM SUBGRADE ELEVATION AT POINT Z TO THE LOWEST ELEVATION AT THE TOE OF THE SLOPE.
  - ⑧ LIMITS OF EMBANKMENT CONSTRUCTION (H/2 OR 50' MIN.) REQUIRING 2' MAX LIFT THICKNESS.
  9. SEE CURRENT SPECIAL PROVISION NO. 69 FOR CONSTRUCTION AND MATERIAL REQUIREMENTS, METHOD OF MEASUREMENT AND BASIS OF PAYMENT.
  10. STRUCTURE GRANULAR BACKFILL PLACED AS A COMPLETE SEPARATE OPERATION AFTER CONSTRUCTION OF ALL OTHER EMBANKMENT.
  11. *NO INDIVIDUAL FRAGMENTS LARGER THAN 4 INCHES IN ANY DIMENSION PERMITTED WITHIN 3'-0" OF THE STRUCTURE.*
  - ⑫ PLACE GEOTEXTILE FABRIC, TYPE IV PRIOR TO PLACING STRUCTURE GRANULAR BACKFILL (WITH SOIL EMBANKMENT ONLY) AND AGGREGATE BASE COURSE (WITH ALL EMBANKMENT MATERIALS).

**LEGEND**

	SLOPE PROTECTION (SEE BRIDGE PLANS)
	GRANULAR PILE CORE OR COHESIVE PILE CORE
	STRUCTURE GRANULAR BACKFILL
	EMBANKMENT (GRANULAR, ROCK OR SOIL PER PLANS)

USE WITH CUR. STD. DWG. RGX-100

KENTUCKY  
DEPARTMENT OF HIGHWAYS

**TREATMENT OF EMBANKMENTS AT END-BENTS - DETAILS**

STANDARD DRAWING NO. RGX-105-08

SUBMITTED: \_\_\_\_\_ DIRECTOR DIVISION OF DESIGN \_\_\_\_\_ DATE \_\_\_\_\_

APPROVED: \_\_\_\_\_ STATE HIGHWAY ENGINEER \_\_\_\_\_ DATE \_\_\_\_\_

NO.	DATE	DESCRIPTION	BY

**DLZ**  
KENTUCKY, INC.

1950 HAGGARD CT  
LEXINGTON, KENTUCKY 40505  
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GREGORY WOODS ROAD  
OVER PLEASANT BRANCH  
BRIDGE REPLACEMENT  
FRANKLIN COUNTY, KENTUCKY

TREATMENT OF  
EMBANKMENTS  
AT END-BENTS - DETAILS

DRAWN BY: JDA	DATE: 02/2022
CHECKED BY: DWS	SCALE: N.T.S.
JOB NO.: 2031-2204-90	SHEET: 17 of 17