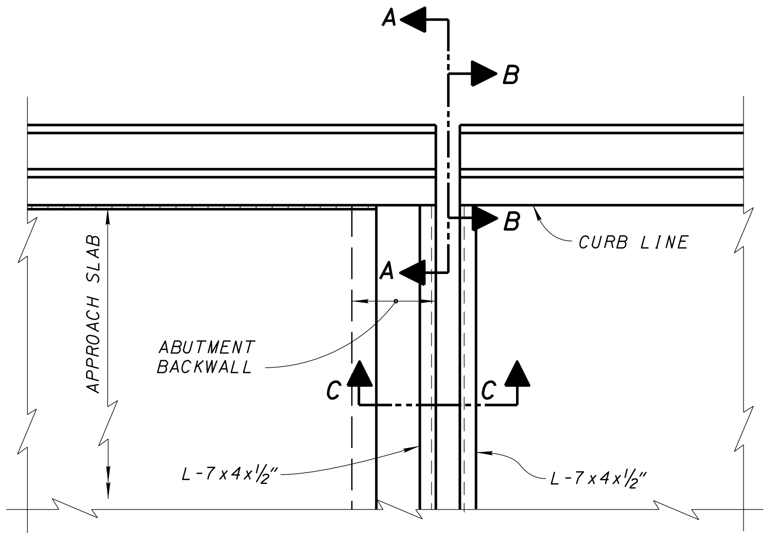
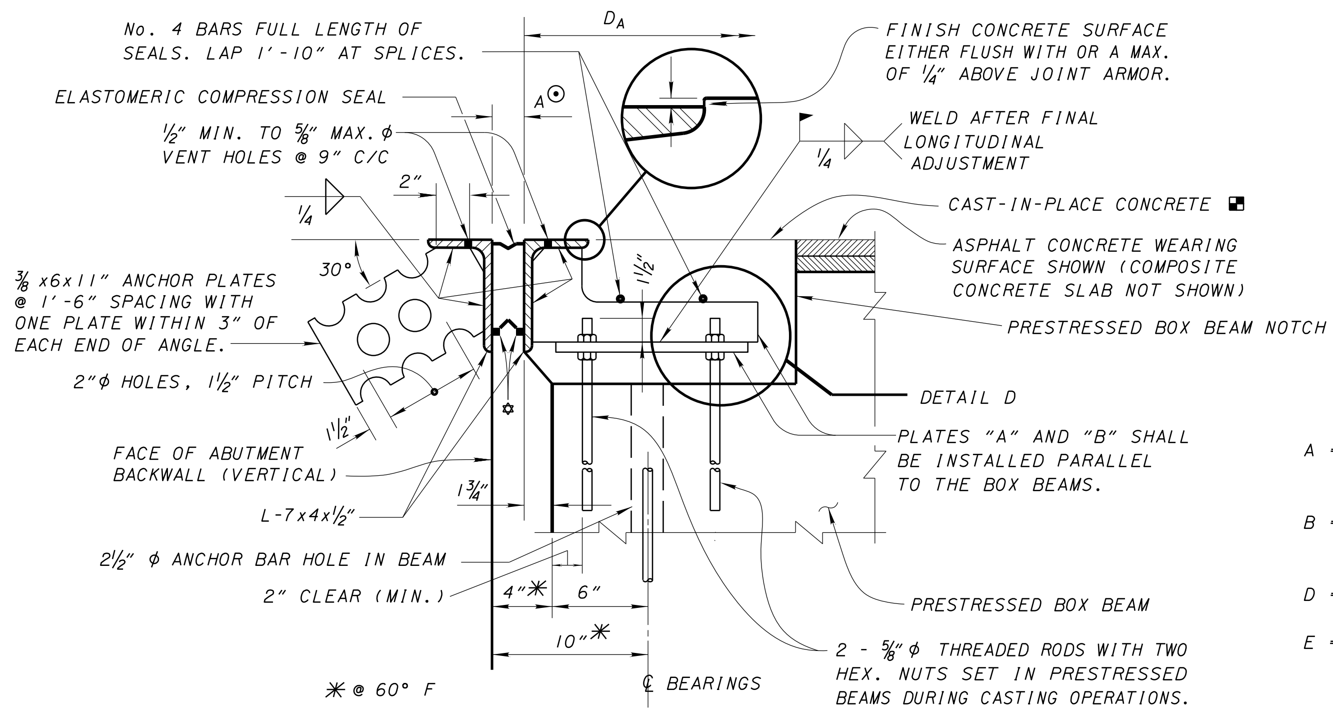


PART PLAN AT ABUTMENT

FOR BRIDGES WITH DEFLECTOR PARAPET RAILING

(BR-1 RAILING SHOWN, SBR-1-99 SHALL BE SIMILAR)

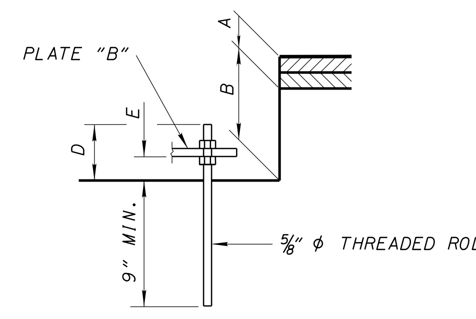


SECTION C-C

WITH ROADWAY GRADIENT OF 2% OR LESS SHOWN

NOTE: FOR DIMENSIONS A⊙, D_A, ADDITIONAL NOTES AND DETAILS SEE SHEET 4 / 4 .

✡ - ½″ø RETAINER BAR



DETAIL D

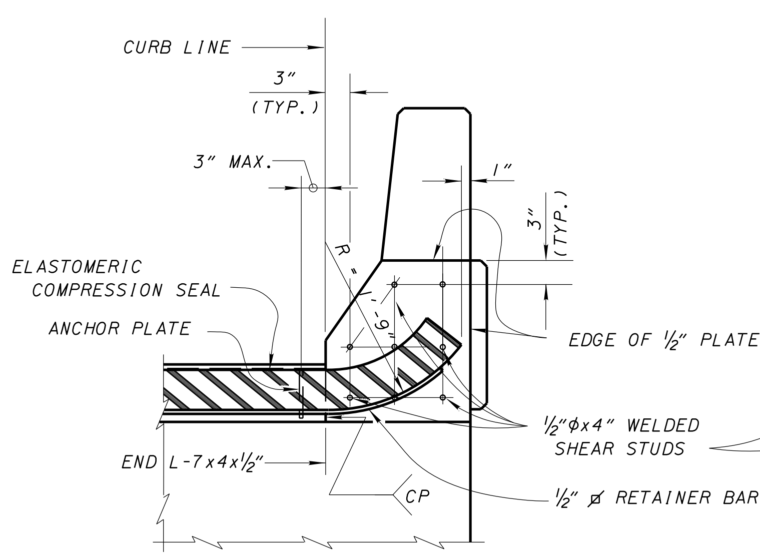
A = ASPHALT CONCRETE WEARING SURFACE THICKNESS (OR COMPOSITE SLAB THICKNESS) AT NOTCH.

B = 5″ NOTCH FOR 17″ BEAMS OR 7″ NOTCH FOR 21″ THRU 42″ BEAMS.

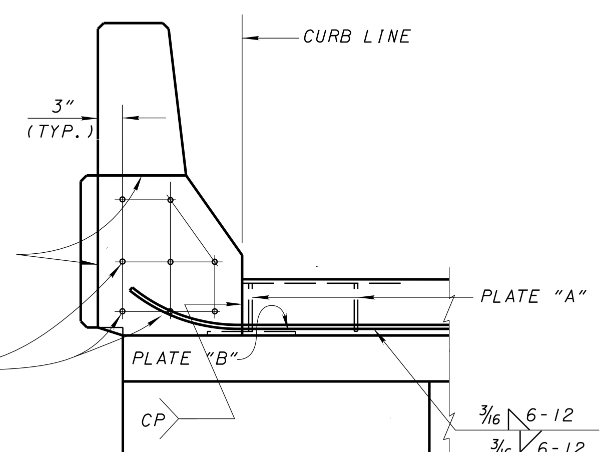
D = A + B - 4″ (SHALL BE SHOWN ON THE PROJECT PLANS)

E = A + B - 6″ (IF DIM. "E" IS LESS THAN 3″, A BED OF NON-SHRINK GROUT, CMS 705.22, SHALL BE PLACED AND COMPACTED UNDER EACH PLATE "B" AFTER FINAL VERTICAL ADJUSTMENT.)

◪ - SURFACE TEXTURE ON DECK JOINTS SHALL BE PARALLEL WITH THE JOINT FOR SKEWED BRIDGES WITH ASPHALT CONCRETE WEARING SURFACE. CONCRETE MIN. COMPRESSIVE STRENGTH - 4.5 KSI



SECTION A-A

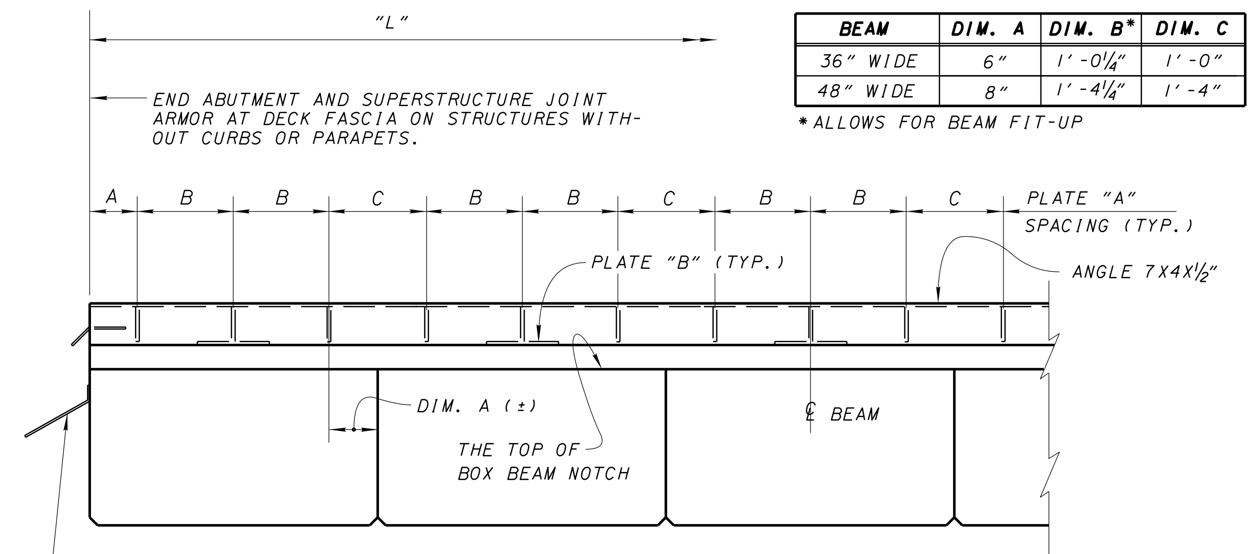


SECTION B-B

LEGEND:

R = RADIUS

SEE SHEET 4 / 4 FOR NOTES AND PLATES A & B



BEAM	DIM. A	DIM. B*	DIM. C
36″ WIDE	6″	1′-0¼″	1′-0″
48″ WIDE	8″	1′-4¼″	1′-4″

*ALLOWS FOR BEAM FIT-UP

SEE SHEET 3 / 4 FOR STEEL DEFLECTOR DETAIL.

NOTE: WHERE THE TOTAL WIDTH OUT TO OUT OF BOX BEAMS IS EQUAL TO THE BRIDGE ROADWAY WIDTH, JOINT ARMOR SHALL BE OF SUFFICIENT LENGTH TO ALLOW FOR FIT-UP OF BEAMS. SEE FORMULA FOR LENGTH "L".

L = LENGTH OF JOINT, EDGE TO EDGE OF DECK (FEET)
  = [(N-1)(½)+N(W)]/(12 COS θ)
N = NUMBER OF BEAMS
W = NOMINAL WIDTH OF BEAMS (INCHES)
θ = SKEW ANGLE OF JOINT

END OF SUPERSTRUCTURE

WITHOUT CURBS OR PARAPETS

DESIGN AGENCY
OFFICE OF STRUCTURAL ENGINEERING

STATE OF OHIO DEPARTMENT OF TRANSPORTATION

ENGINEER OF BRIDGES

11-15-82
DATE

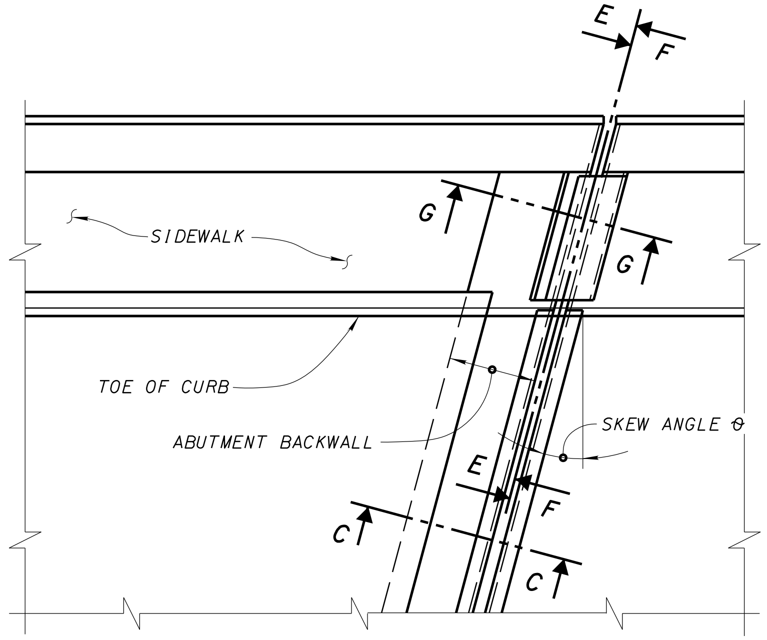
DESIGNED	CHECKED	REVIEWED
RLD/AJM	JS/MPB	WTL/RLD

DRAWN AJM

EXJ-3-82

REVISIONS 08-1-84 02-14-97 04-20-01 07-19-02 01-18-13

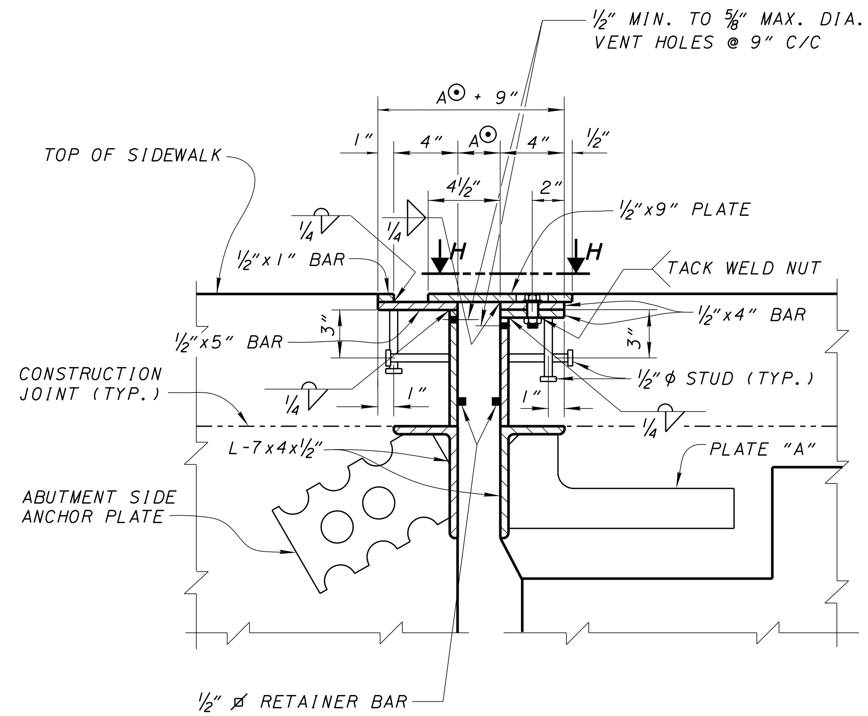
STANDARD
COMPRESSION SEAL EXPANSION JOINTS AT ABUTMENTS FOR PRESTRESSED BOX BEAM STRUCTURES



PART PLAN AT ABUTMENT

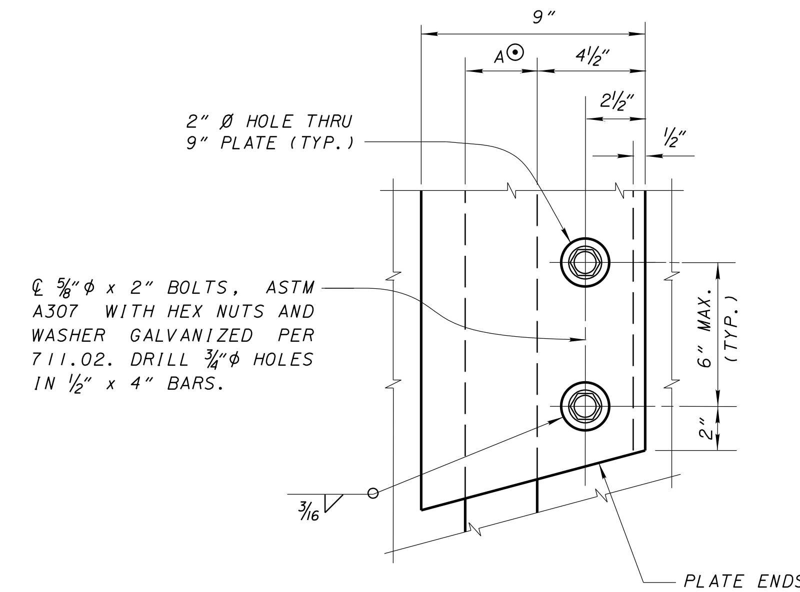
FOR BRIDGES WITH SIDEWALK PARAPET RAILING

SEE SHEET 1/4 FOR SECTION C-C.

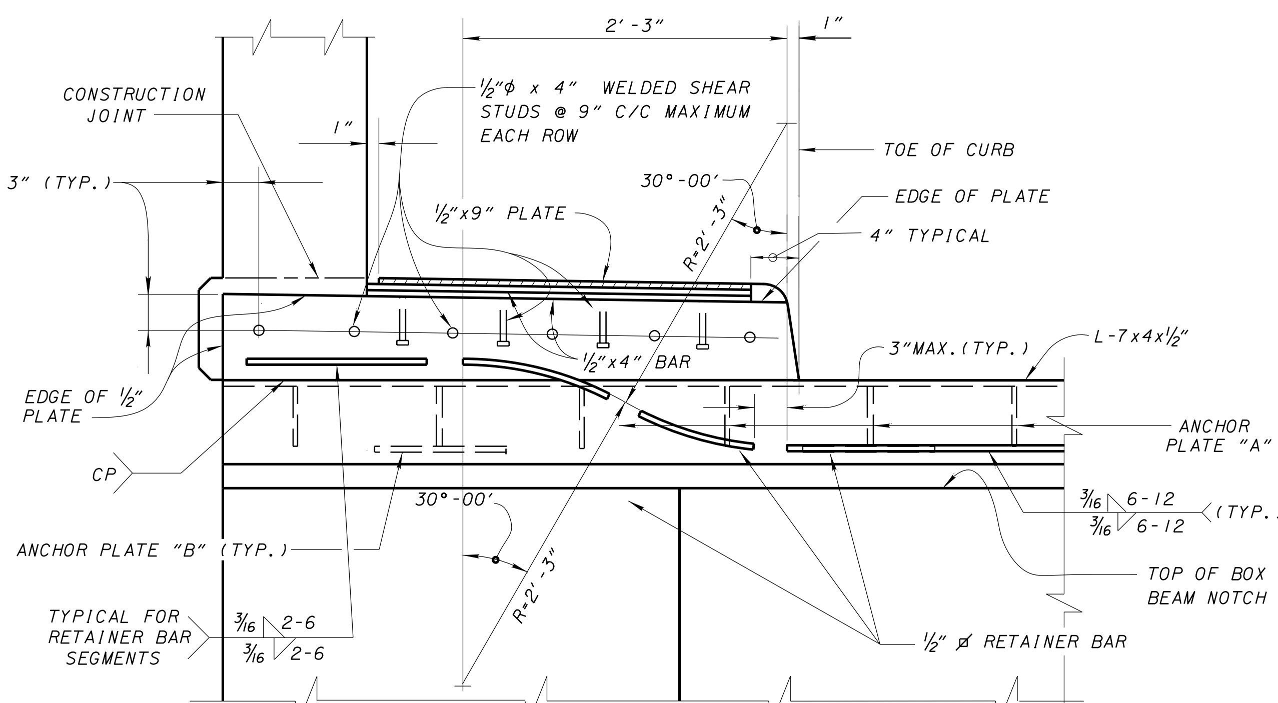


SECTION G-G

NOTE: FOR DIMENSION A⊙, ADDTIONAL NOTES AND DETAILS, SEE SHEET 4/4.



VIEW H-H

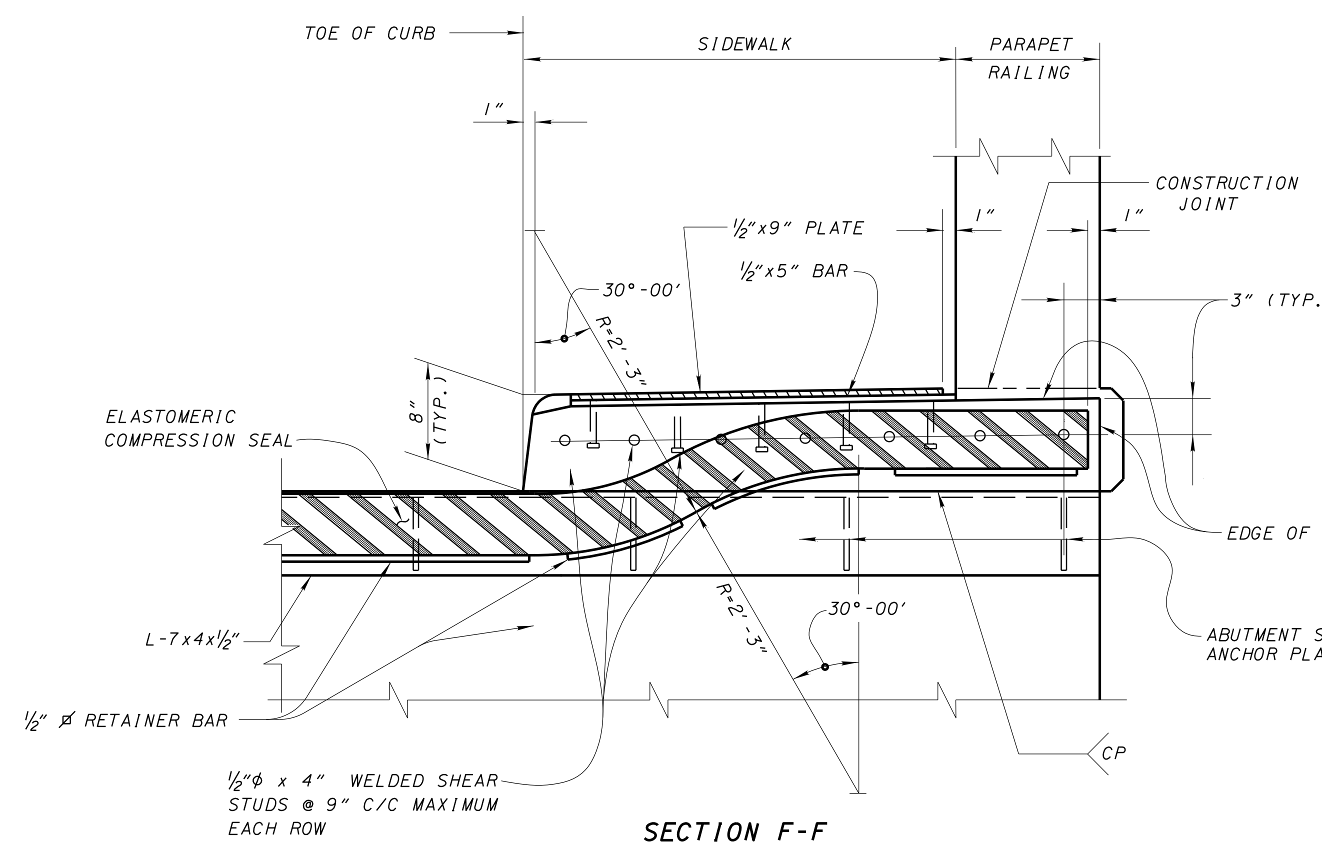


SECTION E-E

SEAL NOT SHOWN

SEE SECTION F-F FOR OTHER DETAILS NOT SHOWN

LEGEND:
R = RADIUS



SECTION F-F

SEE SECTION E-E FOR OTHER DETAILS NOT SHOWN

SEE SHEET 4/4 FOR NOTES AND PLATES A & B.

SEE SHEET 1/4 FOR ADDTIONAL DETAILS.

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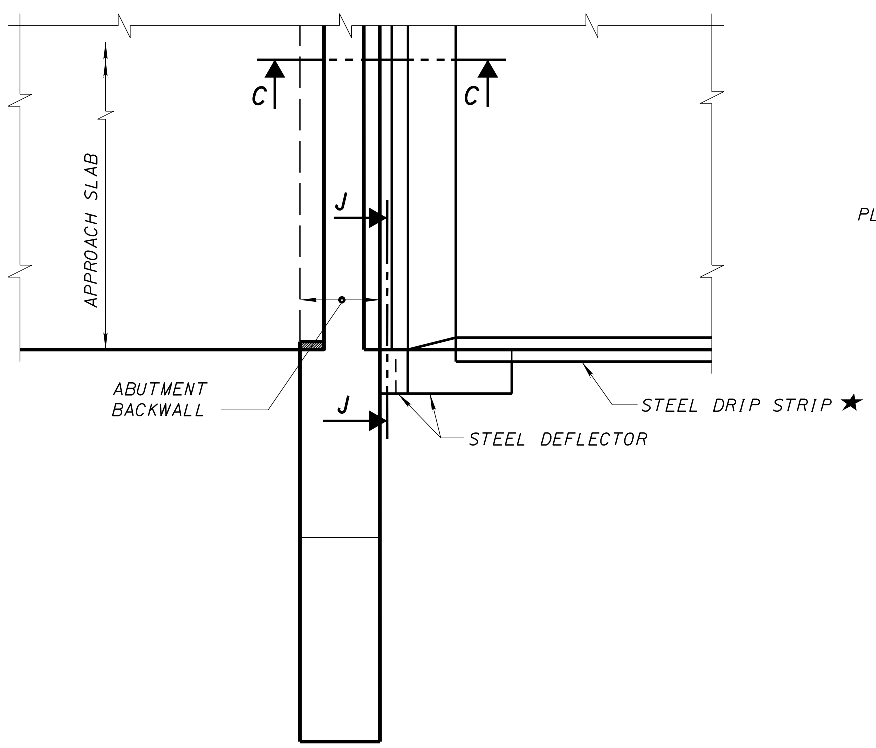
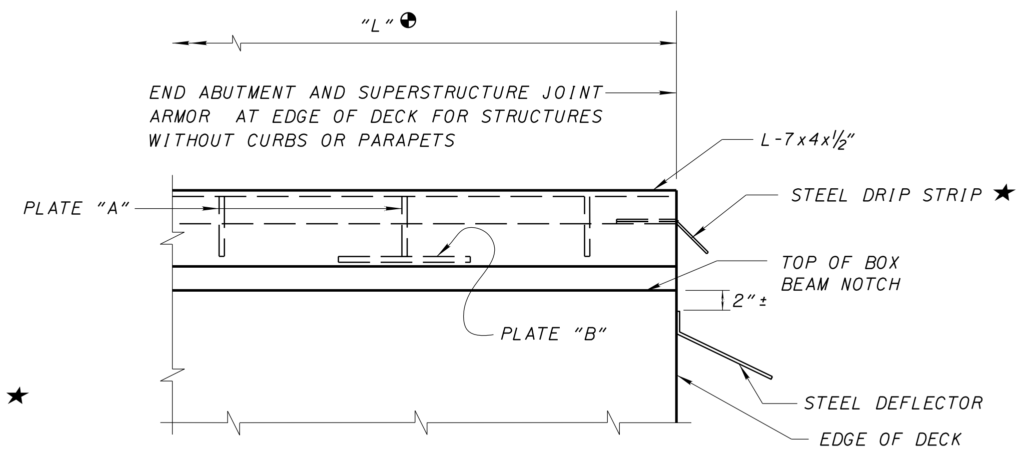


PART PLAN AT ABUTMENT FOR FULL WIDTH STRUCTURES

(SEE SHEET 1 / 4 FOR SECTION C-C)



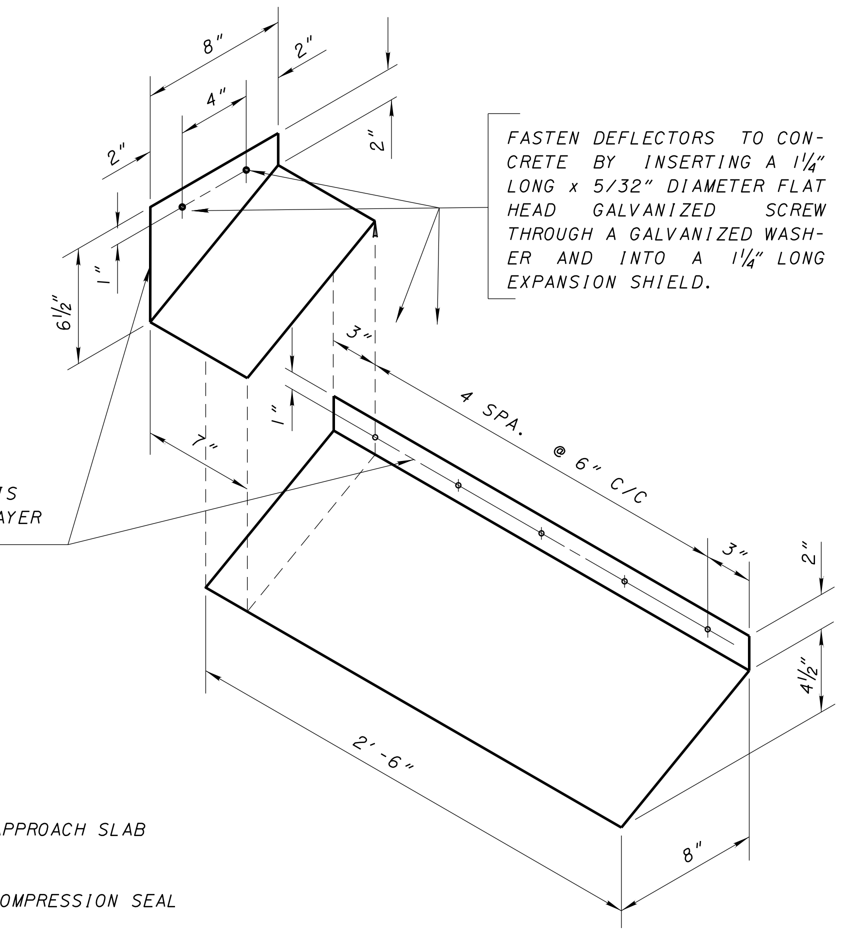
SECTION J-J

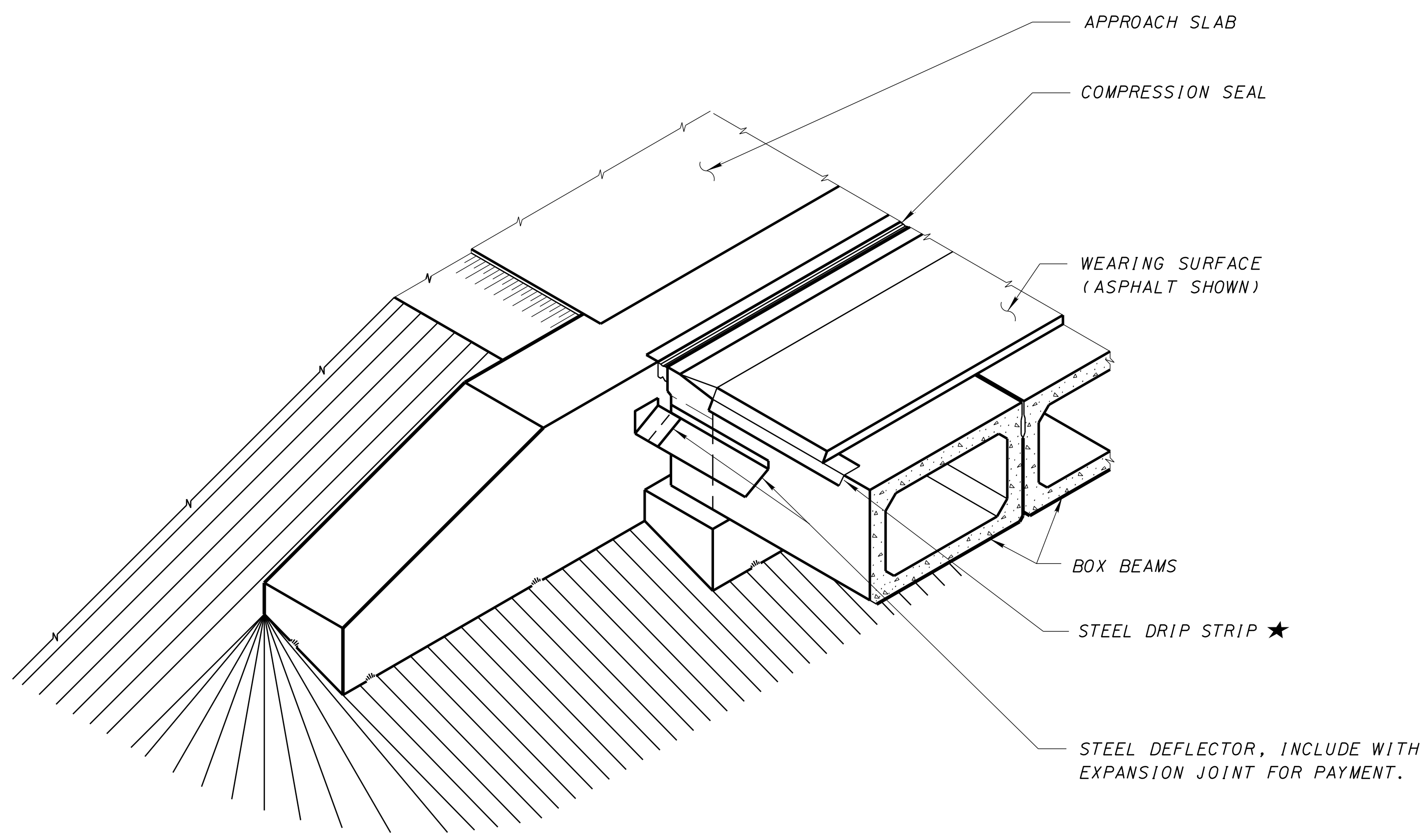
NOTES:

◕ SEE SHEET 1 / 4 FOR DEFINITION OF DIMENSION "L".

▣ SEALANT SHALL MEET ASTM C920, TYPE S

★ SEE STEEL DRIP STRIP STANDARD BRIDGE DRAWING (NOT INCLUDED WITH EXPANSION JOINT FOR PAYMENT)





SEE SHEET 4 / 4 FOR NOTES AND PLATES A & B.

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STANDARD
COMPRESSION SEAL EXPANSION JOINTS AT ABUTMENTS FOR PRESTRESSED BOX BEAM STRUCTURES

GENERAL NOTES:

COMPRESSION SEAL: FURNISH MATERIAL CONFORMING TO 705.11. THE SEAL CONFIGURATION SHOULD BE SIMILAR TO THE DETAILS SHOWN HEREIN. ACCEPTED MANUFACTURERS ARE: D.S. BROWN (MODEL CV4000), WATSON-BOWMAN-ACME (MODEL WJ400) OR AN APPROVED EQUIVALENT. INSTALL THE SEAL ACCORDING TO THE MANUFACTURER'S SPECIFICATIONS AND UNDER THE SUPERVISION OF THE MANUFACTURER'S DESIGNATED REPRESENTATIVE.

JOINTS IN COMPRESSION SEALS: FURNISH SEALS IN ONE CONTINUOUS PIECE UNLESS OTHERWISE APPROVED BY THE ENGINEER.

ARMOR STEEL: ALL ANGLE SHAPES SHALL BE ASTM A709, GRADE 50 OR 50W. ALL OTHER STEEL PARTS INCLUDING RETAINERS, SHALL BE ASTM A709, GRADE 36, 50 OR 50W.

JOINTS IN ARMOR STEEL: SHOP OR FIELD JOINTS IN THE ARMOR SHALL BE COMPLETE PENETRATION WELDS GROUND FLUSH WHERE IN CONTACT WITH THE SEAL AND THE RETAINER.

ARMOR COATING: COAT ALL STEEL PARTS OF THE JOINT ASSEMBLY ACCORDING TO 516.

TEMPORARY SUPPORTS: THE FABRICATOR SHALL DESIGN AND INSTALL TEMPORARY SUPPORTS TO RESIST SHIPPING, ERECTION AND CONSTRUCTION FORCES WITHOUT DAMAGE TO THE STEEL ARMOR OR COATING. THESE SUPPORTS SHALL BE ADJUSTABLE IN THE FIELD TO ACCOUNT FOR VARIABLE TEMPERATURE SETTINGS. INSTALL THE SUPPORTS AFTER THE FABRICATION AND COATING IS COMPLETE.

STEEL DEFLECTORS: FURNISH 22 GAGE STAINLESS STEEL CONFORMING TO ASTM A240, TYPE 304 OR EQUIVALENT, WITH A NO. 1 FINISH.

NON-SHRINKING GROUT: FURNISH MATERIAL CONFORMING TO 705.22. LIMIT THE BATCH SIZE SUCH THAT PLACEMENT CAN BE COMPLETED WITHIN 30 MINUTES. DO NOT USE MORTAR OLDER THAN 30 MINUTES. DO NOT ADD WATER TO INCREASE FLOWABILITY WHICH HAS BEEN DECREASED BY DELAYED USE OF MORTAR. INCLUDE WITH SUPERSTRUCTURE CONCRETE FOR PAYMENT.

THREADED RODS: FURNISH 5/8" DIAMETER THREADED RODS AND NUTS CONFORMING TO ASTM A709, GRADE 36 OR A307. GALVANIZE ACCORDING TO 711.02. INCLUDE WITH THE BOX BEAMS FOR PAYMENT.

BASIS OF PAYMENT: THE DEPARTMENT WILL PAY FOR CONCRETE PLACED IN THE BOX BEAM NOTCH SEPARATELY UNDER ITEM 511.

CONSTRUCTION PROCEDURE:

1. PLACE JOINT ASSEMBLY SO THE TWO (2) L7x4x1/2" ANGLES REMAIN PARALLEL TO EACH OTHER AND PERPENDICULAR TO THE ROADWAY GRADIENT.
2. FOR STRUCTURES WITH A COMPOSITE CONCRETE WEARING SURFACE, PLACE THE SUPERSTRUCTURE CONCRETE IN THE SPAN ADJACENT TO THE ABUTMENT PRIOR TO THE PLACEMENT OF ABUTMENT BACKWALL CONCRETE.
3. ⊙ NOT MORE THAN FOUR HOURS PRIOR TO THE DAY'S PEAK AMBIENT TEMPERATURE, SET ABUTMENT EXPANSION JOINT WIDTH TO DIMENSION "A" WHICH SHALL BE DETERMINED AS FOLLOWS:

   $A = 2\frac{1}{4}" \pm D_{TA}$, WHERE:
   A = JOINT WIDTH (INCHES) MEASURED NORMAL TO JOINT
   D_{TA} = ADJUSTMENT (INCHES) FOR A PEAK AMBIENT TEMPERATURE OTHER THAN 60°F (SEE CHART).

4. PLACE THE BACKWALL CONCRETE DURING STABLE OR RISING AMBIENT TEMPERATURES. CONCLUDE PLACEMENT AT OR IMMEDIATELY BEFORE THE DAY'S PEAK AMBIENT TEMPERATURE.
5. HAND PLACE AND VIBRATE CONCRETE UNDER JOINT ARMOR TO ACHIEVE COMPLETE CONSOLIDATION.
6. LOOSEN ANY TEMPORARY JOINT ARMOR SUPPORTS AFTER INITIAL SET OF THE CONCRETE, PREFERABLY NOT LATER THAN TWO HOURS AFTER CONCLUSION OF THE CONCRETE PLACEMENT.
7. FOR STRUCTURES WITH A NONCOMPOSITE ASPHALT WEARING SURFACE, PLACE THE CONCRETE IN THE BOX BEAM NOTCH ACCORDING TO STEP 5 AFTER THE BACKWALL CONCRETE HAS BEEN PLACED. TEXTURE THE SURFACE PARALLEL TO THE JOINT. CONCRETE MIN. COMPRESSIVE STRENGTH - 4.5 KSI

NOTES TO DESIGNER:

DESIGN LIMITS: THIS DESIGN IS INTENDED FOR STRUCTURES WITH SKEW ANGLES NOT GREATER THAN 15°, ROADWAY GRADES OF 2% OR LESS AND D_M (SEE CHART ON THIS SHEET) NOT LARGER THAN 150 FEET.

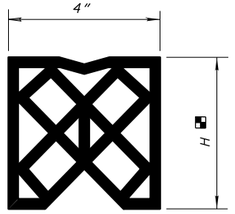
THE DESIGNER SHALL SUPPLY DETAILS FOR STRUCTURES WITH ROADWAY GRADES GREATER THAN 2%.

ANCHOR BAR HOLES IN ABUTMENT SEATS SHALL BE 2" ϕ UNLESS OTHERWISE SHOWN ON PROJECT PLANS.

COMPRESSION SEALS AT FIXED BEARINGS SHALL BE AS SHOWN WHERE DIMENSION "A" = 2 1/4" AT ANY AMBIENT TEMPERATURE.

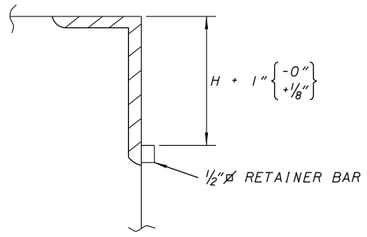
PRESTRESSED CONCRETE BOX BEAMS SHALL BE MODIFIED AS FOLLOWS FOR COMPRESSION SEAL INSTALLATION:

1. STIRRUP REINFORCING STEEL IN NOTCHED AREAS AT ENDS OF COMPOSITE BEAMS SHALL NOT PROJECT ABOVE THE TOP OF CONCRETE.
2. ENDS OF FASCIA BEAMS SHALL BE NOTCHED FULL WIDTH OF BEAMS.
3. 12 INCH DEEP BEAMS REQUIRE A SPECIAL DESIGN.
4. HOLES FOR ANCHOR BARS SHALL BE 2 1/2" DIAMETER.
5. BEAM ENDS FOR STRUCTURES ON GRADES OVER 2% SHALL BE MADE VERTICAL.

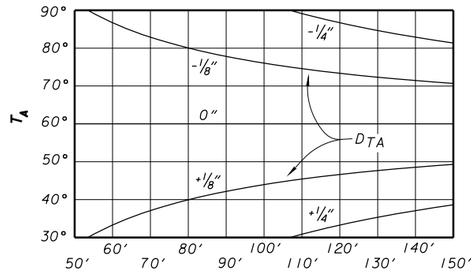


COMPRESSION SEAL DETAIL

■ SEE THE MANUFACTURER'S CATALOGUE FOR THE SEAL ACTUALLY CHOSEN FOR USE.



LOCATION OF SEAL RETAINER BARS



$D_M = D_A \cos \Theta$

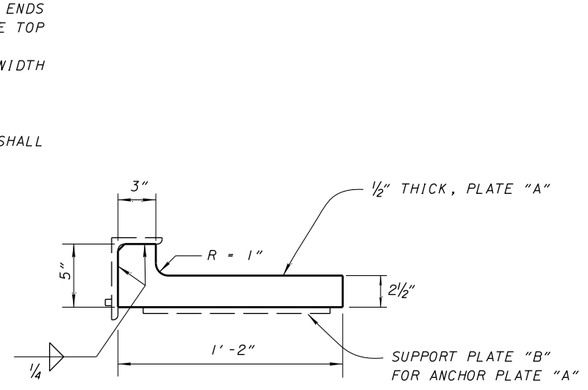
T_A = ANTICIPATED PEAK AMBIENT TEMPERATURE (°F).

D_A = ACTUAL DISTANCE, IN FEET, TO THE THERMAL NEUTRAL EXPANSION POINT OF THE SUPERSTRUCTURE ALONG THE CENERLINE OF THE ROADWAY. THE THERMAL NEUTRAL POINT OF THE SUPERSTRUCTURE IS THE POINT THAT HAS ZERO HORIZONTAL MOVEMENT DURING TEMPERATURE CHANGES.

D_M = MODIFIED DISTANCE FOR DETERMINING JOINT ADJUSTMENT (FEET).

Θ = SKEW ANGLE OF EXPANSION JOINT.

DIMENSION "A" ADJUSTMENT D_{TA}



ARMOR ANCHOR PLATE "A"

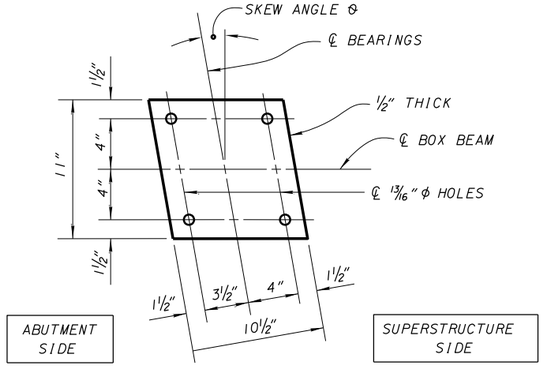


PLATE "B" PLAN

DESIGN AGENCY
OFFICE OF STRUCTURAL ENGINEERING

STATE OF OHIO DEPARTMENT OF TRANSPORTATION
Robert B. Taylor — 11-15-82
ENGINEER OF BRIDGES — DATE

STANDARD
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EXJ-3-82