Appendix B: Example.

The example below discusses use of the plans provided. However, note that the plans do not represent a complete set of construction drawings and additional detail beyond that given in this example is required.

A simple span, steel girder bridge with length of 50 ft (from back to back of abutments), zero skew, and clear deck width of 34 ft is to be designed. The bridge will have concrete approach slabs. The bridge deck is 7.5” thick with an additional 1.5” integral wearing surface. The bridge construction centerline aligns with the center of the bridge.

Referring to Table 2, the following sheets are needed for a steel girder bridge design:

<table>
<thead>
<tr>
<th>Sheet Name</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deck plan &amp; haunch detail</td>
<td>DECK 001</td>
</tr>
<tr>
<td>Abutment back wall</td>
<td>DECK 002</td>
</tr>
<tr>
<td>Approach slab</td>
<td>DECK 003</td>
</tr>
<tr>
<td>Barrier &amp; end walls</td>
<td>DECK 004</td>
</tr>
<tr>
<td>Bridge section</td>
<td>DECK 008</td>
</tr>
<tr>
<td>Erection diagram</td>
<td>STEEL 001</td>
</tr>
<tr>
<td>Shear reinforcement</td>
<td>STEEL 002</td>
</tr>
<tr>
<td>Deflection diagram</td>
<td>STEEL 004</td>
</tr>
<tr>
<td>Diaphragms</td>
<td>STEEL 003</td>
</tr>
<tr>
<td>Bearings</td>
<td>BRG 003</td>
</tr>
<tr>
<td>Expansion joint</td>
<td>EXPJT 001</td>
</tr>
</tbody>
</table>

See the attached Example sheets. Items highlighted in yellow are to be filled in with a specific value, while items in red are to be deleted. Numbers in boldface (1) refer to the label referenced on the example.

**DECK 001: Deck Plan**

**Input:**

L (bridge span length) = 50’ (1)

a (out-to-out bridge width) = 36’-6” (see beam dimension table, DECK 008) (3)

Angle of crossing = 90’ (4)

**Select:**

Haunch detail for steel beams and deck plan corresponding to 90° angle of crossing.

**Notes:**

Remove reinforcement notes, deck plan, and haunch detail for bridge types other than steel (2)
Redraw deck plan corresponding to the left side diagram, with 90 degree angle of crossing. F (fascia depth) will vary along the beam length as with beam haunch, as determined by the screed values. (5)

**DECK 002: Abutment Backwall**

**Input:**

D (backwall width) = max(1’-8”, bearing dimension + ½ of bearing width). See BRG 003 for steel beam bearing dimensions = max(1’-8”, (14” + 15”/2 = 21.5”), say 22”. (1)

**Select:**

Abutment backwall for rolled steel beam and both back wall sections.

**Notes:**

Since span exceeds 25’ (see notes on DECK 002 and DECK 003 instructions), one backwall is chosen as a fixed type, while the other is chosen as an expansion type. Delete abutment backwall details for other bridge types. (2)

Bearing dimensions are obtained from BRG 003.

**DECK 003: Approach Slab**

**Input:**

a (out to out width) = 36’-6” (see Beam Dimension Table, DECK 008) (1)

Angle of crossing = 90’ (2)

**Select:**

Concrete approach slab plan and section.

**Notes:**

Delete HMA approach plan and section. (3)

The approach plan is to be redrawn to match a 90° angle of crossing.

**DECK 004: Barrier and End Wall**

**Input:**

L_B (barrier length) = distance between reference lines = bridge length = 50’ (1)

**Select:**
The left side of the barrier plan, corresponding to 90˚ angle of crossing.

Notes:

The right side of the barrier plan is deleted, as is the end wall elevation corresponding to side by side box beams. (2)

Bearing dimensions are obtained from BRG 003.

**DECK 008: Bridge Section for Steel Beams**

**Input:**

a (out-to-out bridge width) (1) = 36’-6”
b (clear roadway width) (1) = 34’
c (half of roadway clear width) (2) = 17’
d (number of beam bays) (3) = 5
e (beam spacing) (3) = 6’-3”
f (bridge width center-to-center of edge beams) (3) =31’-3”
g (beam size) (3) = W30x173
h (center of edge beam to bridge fascia) (4) = 2’-7.5”

**Select:**

Beam span (say 50’), bridge width (34’ clear). (5)

**Notes:**

Based on a bridge span and width selection, the Beam Dimension Table (5) can be consulted to select an applicable beam size and beam spacing; variables a-h are specified in the selection table. Note that beam span on the Beam Dimension Table is measured center-to-center of bearings, which is: bridge span – 2 x (distance from back of abutments to center-to-center of bearings). The distance from the back of the abutment to the center of the bearing is approximately: [distance from back of abutment to end of girder] + [1/2 of bearing length + 1.5”] = [D – (D - 11.25” + 2.5”)] + [1/2(14”) + 1.5”] = 17.25” (see Backwall Section DECK 002, and BRG 003; recall D = backwall width = 22”). Beam span is then 50’ – 2(17.25”) = 47’-1.5”. A conservative estimate of beam size would correspond to a 50’ beam span center-to-center of bearings; this assumption is used in this example.

**STEEL 001: Erection Diagram**

**Input:**

These values are obtained from the Beam Dimension Table on DECK 008.

L (bridge span) = 50’ (1)
Diaphragm spacing = 1 at midspan (S/2) = (47’-1.5”)/2 = 23’-6.75” (2)
d (number of beam bays) = 5 (3)
e (beam spacing) = 6’-3” (3)
f (bridge width center-to-center of fascia beams) = 31’-3” (3)
g (beam size) = W30x173 (3)
X (center of bearing to reference line) = 17.25” (4)
A, B (distance from center of nearest beams to bridge construction centerline) = 6’-3” (3)

Select:
Left side of diagram, corresponding to a 90° angle of crossing.

Notes:
Delete note for non-applicable diaphragm spacing (2) and right side of diagram (5). Erection plan should be redrawn to appropriately match the number of beams (6), 90° angle of crossing, and number of diaphragms (1) and placement.

STEEL 002: Shear Reinforcement

Input:
W (beam length) = beam span (ctc bearings) + 2 x (1/2 of bearing length + 1.5”) = beam span + 2f = 47’-1.5” + 2(8.5”) = 48’-6.5” (see BRG 003 for beam length relationship to bearings).
b (total length of region with studs) = beam length – 12” = 48’-6.5” – 12” = 47’-6.5” (1)
a (number of shear studs) = b/2’ spacing (round up) + 1 = 47’-6.5” / 2’ + 1 = 25 (1)
c (number of spacings of beam end holes) = 2 (3)
d (spacing of beam end holds) = 12” (3)
e (total length of end holes) = 2’ (3)
f (distance from beam end to center of bearing) = 8.5” (2)

Select:
Shear stud developer detail for 90° angle of crossing.

Notes:
Delete shear stud detail for angle of crossing < 90°. (5) Applicable input parameter values are obtained from the accompanying Beam Dimension Table (4). Note some parameters (a, b, W) cannot be directly read from the table as beam span is given as 47’-1.5” in this example and does not correspond to an increment given. Thus these parameters were calculated as shown above. Redraw beam elevation to correspond to actual diaphragm/stiffener number and placement and end holes.
**STEEL 004: Deflection Diagram**

**Input:**

a (number of ordinates) = 10  (1)
b (ordinate spacing) = beam span / 10 = 47'-1.5” / 10 = 4.71’
c (span of beam) = 47’-1.5”  (1)

Select: --

**Notes:**

Ordinate location and camber values are read from the Ordinate Dimension and Theoretical Camber Tables. Note that these values are only applicable for the exact beam lengths given on the tables (2)

---

**STEEL 003: Diaphragms**

**Input:**

a (beam spacing) = 6’-3” (1)
b (number of spaces between holes) = 4 (2)
c (vertical hole spacing) = 3” (2)
d (total distance between fastener holes) = 12” (2)
e (diaphragm depth) = 18” (4)
θ (angle of crossing) = 90° (3)

Select:

It is assumed that either diaphragm detail is acceptable (channel or built-up alternate), so both are provided and left to the contractor to choose. (4)

**Notes:**

Parameters b, c, d, e are read from the Diaphragm Dimension Table. (6)  
Section A-A should be redrawn to match the 90° angle of crossing specified.  
Delete Top Flange Clip Detail, since angle of crossing is 90°. (5)

---

**BRG 003: Bearings**

**Input:**

B (width of bearing pad) = 15” (1), (4)
D (sole plate width) =17”  (1), (3), (4)
E (distance from retainer bolt to center of beam) = 10-3/4” (1)
G (length of bearing pad) = 14” (2), (4)
H (length of sole plate) = 15” (2), (3)  
J (bearing pad thickness) = 2-3/8” (4)  
s (number of shim plates) = 3 (4), (5)  
n (number of interior elastomer layers) = 2 (4), (5)  
t (interior elastomer layer thickness) = ¾” (4), (5)  
L (height of side retainer) = 4-7/8” (5)  
N (thickness of sole plate) = 2” (3)

Select:

Bearing type (expansion or fixed).

Notes:

Bearing pad parameters are read from the Bearing pad dimension table (6). Fixed and expansion bearing details are to be used for the corresponding back wall types.

**EXPJT 001: Expansion Joints**

Input:

The table in the Notes section (1) is project dependent and is to be filled out by the designer.

Select: --

Notes:

The designer must select an appropriate expansion joint type to accommodate the total bridge movement. These selections are not provided on this sheet.
TYPICAL ABUTMENT BACKWALL: SPREAD BOX BEAM

TYPICAL ABUTMENT BACKWALL: BULB TEE BEAM

FOR INFORMATION ONLY:
- The backwall thicknesses are the center of:
  * 2" OF THE CONCRETE FOUNDATION PLUS THE BEARING WIDTH - FOR BOTH CROSSINGS
  * TYPICAL X section for the bridge site - NOT TO SCALE
- The Column Notes are for information only and should not be required in the bridge

NOTES:
- The backwall thicknesses are the center of:
  * 2" OF THE CONCRETE FOUNDATION PLUS THE BEARING WIDTH - FOR BOTH CROSSINGS
  * TYPICAL X section for the bridge site - NOT TO SCALE
- The Column Notes are for information only and should not be required in the bridge
PLAN OF APPROACH SLAB (EXPANSION SIDE)

<table>
<thead>
<tr>
<th>REF LINE A OR B</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
</tr>
<tr>
<td>2</td>
</tr>
</tbody>
</table>

EVA BAR @ 1'-0" MAX (TOP & BOTTI)

ANGLE OF CROSSING 60° OR GREATER

ISOLATION SLAB FOR CONCRETE APPROACH SHOWN

NOTE:

- USE APPROACH SLAB DETAILS ON STANDARD PLAN R-45 SERIES WHEN LENGTH OF BRIDGE CONTRIBUTING TO EXPANSION AT AN ABUTMENT IS LESS THAN 25 FEET FOR CONCRETE BEAM BRIDGES, AND LESS THAN 10 FEET FOR ROLLED STEEL BRIDGES.

- THE ABOVE NOTE IS FOR INFORMATION ONLY AND SHOULD NOT BE INCLUDED ON THIS SHEET.

FILE: Deck_003.dgn

SUPERSTRUCTURE DETAILS

DATE: 05/09/18

DESIGN UNIT: JN:

NO SCALE
**DECK SECTION**

(AESTHETIC PARAPET TUBE RAILING SHOWN)

---

**NOTE:**

DECK CROSS-SECTION IS SHOWN WITH BRIDGE RAILING AESTHETIC PARAPET TUBE. OTHER RAILINGS ARE AVAILABLE. SEE MDOT BRIDGE DESIGN GUIDE

THE ABOVE NOTE IS FOR INFORMATION ONLY AND SHOULD NOT BE INCLUDED ON THIS SHEET.

**NOTES:**

FOR SUPERELEVATED SECTIONS REFER TO MDOT DESIGN GUIDES FOR DETERMINING THE CROSS SLOPE.

---

**DIMENSION TABLE**

<table>
<thead>
<tr>
<th>BEAM SPAN (FT)</th>
<th>0'-0&quot;</th>
<th>4'-0&quot;</th>
<th>8'-0&quot;</th>
<th>12'-0&quot;</th>
<th>16'-0&quot;</th>
<th>20'-0&quot;</th>
<th>24'-0&quot;</th>
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</tr>
</tbody>
</table>

---

**SUPERSTRUCTURE DETAILS**

ROLLED STEEL BEAM

---

**DESIGN UNIT:**

NO SCALE
FOR INFORMATION ONLY:

- Field connections shall be bolted with 7/16" high strength bolts, except as noted.
- Field notes shall be 7/16" for 7/16" high strength bolts.
- Structural steel shall be designed according to the AASHTO LRFD Bridge Design Specification.
- Structural steel shall conform to AASHTO specifications. Refer to the AASHTO specifications for all requirements.
- Building connections shall be bolted with 7/16" high strength bolts, except as noted.
- Field notes shall be 7/16" for 7/16" high strength bolts.
- Field notes shall be 7/16" for 7/16" high strength bolts.

SERVICE BEAM REACTIONS (KIPS)

<table>
<thead>
<tr>
<th>BEAM SPAN (IN)</th>
<th>DC</th>
<th>LR</th>
<th>HL</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>13</td>
<td>2</td>
<td>103</td>
</tr>
<tr>
<td>40</td>
<td>25</td>
<td>2</td>
<td>155</td>
</tr>
<tr>
<td>60</td>
<td>37</td>
<td>2</td>
<td>200</td>
</tr>
</tbody>
</table>

NOTES:

1. Beam reactions are based on 1.2 times the current design load.
2. All structural steel shall be hot-dipped galvanized according to the AASHTO specifications.
3. The beams shall be cambered with ordinates as shown on the camber diagram.
4. Shear developers shall be 1/2" diameter studs.
5. Holes shall be 3/8" Ø for 7/16" Ø high strength bolts.
6. Structural steel shall conform to AASHTO specifications. Refer to the AASHTO specifications for all requirements.
BEAM ELEVATION

** FOR 30', 40' OR 50' SPANS

*** FOR 60' SPAN

BEAM DIMENSION TABLE

<table>
<thead>
<tr>
<th>BEAM SPAN</th>
<th>BEAM TYPE</th>
<th>a</th>
<th>b</th>
<th>c</th>
<th>d</th>
<th>e</th>
<th>f</th>
<th>k</th>
</tr>
</thead>
<tbody>
<tr>
<td>20'</td>
<td>W21 x 93</td>
<td>31</td>
<td>20'</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td>5</td>
<td>7</td>
</tr>
<tr>
<td>30'</td>
<td>W21 x 93</td>
<td>36</td>
<td>30'</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td>5</td>
<td>7</td>
</tr>
<tr>
<td>40'</td>
<td>W24 x 117</td>
<td>21</td>
<td>40'</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td>5</td>
<td>7</td>
</tr>
<tr>
<td>50'</td>
<td>W30 x 173</td>
<td>26</td>
<td>50'</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td>5</td>
<td>7</td>
</tr>
</tbody>
</table>

FOR 60' SPAN

THIS TABLE IS FOR INFORMATION ONLY AND SHOULD NOT BE INCLUDED ON THE FINAL DESIGN DRAWINGS.

END ROW PLAN REVISIONS

SUBMITTAL DATE: 05/09/18

FILE: steel 002.dgn

TSC: ROLLED STEEL BEAM

DRAWING SHEET 002

NO. SCALE

FINAL REV. PLAN REVIEWS

DESIGN UNIT

NO. DATE I

DRAWING SHEET

DATE

DESCRIPTION

ACCOUNT

DESIGNER

ENGINEER

DRAWER

CONTRACTOR

INVOICE

C/O

SHEET

FILE: steel 002.dgn

1:50

RULLED STEEL BEAM
Theoretical Camber Table

<table>
<thead>
<tr>
<th>Beam Type</th>
<th>Beam Span</th>
<th>Camber</th>
<th>Camber</th>
<th>Camber</th>
<th>Camber</th>
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<tbody>
<tr>
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<tr>
<td>W30 x 173</td>
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<td>0.28</td>
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<tr>
<td>W24 x 117</td>
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<tr>
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<td>0.24</td>
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<tr>
<td>W21 x 93</td>
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<td>0.94</td>
<td>0.55</td>
<td>0.48</td>
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<td>0.25</td>
<td>0.25</td>
<td>0.25</td>
<td>0.25</td>
</tr>
</tbody>
</table>

* Camber Table values only account for beam deflection due to beam self weight, deck & haunch weight, diaphragms and barriers. Adjustments to values shall be made to account for the roadway profile.
EXPANSION BEARING

ELASTOMERIC EXPANSION BEARING

SOLE PLATE DETAILS

ELASTOMERIC BEARING DETAILS

END VIEW

SIDE VIEW

BEARING ASSEMBLY DIMENSIONS

ANCHOR BOLT DETAIL

ANCHOR BOLT DETAIL

FOR INFORMATION ONLY:

ANCHOR BOLTS SHALL BE INSTALLED AFTER BEAMS ARE ERECTED IN PLACE.

ANCHOR BOLTS SHALL CONFORM TO SECTION 908.15.

TO MDOT STANDARD SPECIFICATION 707.03.C.16.

ANCHOR BOLT LENGTHS SHOWN ARE MINIMUM. BOLTS LONGER THAN THAT SHOWN MAY BE FURNISHED.

STEEL FOR SOLE PLATES AND OTHER BEARING COMPONENTS SHALL MEET THE REQUIREMENTS OF AASHTO M 270 GRADE 36.

GALVANIZED IN ACCORDANCE WITH AASHTO M 111, AS POSITION DOWELS FOR PRECAST BEAMS.

NOTE:

ELASTOMERIC BEARING DETAILS - FIXED

SOLE PLATES ARE TO BE BEVELED WHEN THE CALCULATED BEVEL IS GREATER THAN 0.5%.

ELASTOMERIC BEARINGS FOR BEAM SPANS 20' AND 30' ARE PLAIN PADS WITH NO SHIMS PLATES.

REQUIRED IN THE DESIGN OF THE ELASTOMERIC BEARING PADS.

FOR SINGLE SPAN STRUCTURES 25'-0" OR LESS IN LENGTH, ALLOWANCE FOR EXPANSION IS NOT

THE ABOVE NOTES ARE FOR INFORMATION ONLY AND SHOULD NOT BE INCLUDED ON THIS SHEET.
NOTES:

J OINT T YPES

The expansion joint device shall be of a type that includes a continuous neoprene or equivalent seal across the deck. Unless otherwise noted on the plans, the contractor has the option of using any of the devices listed below:

<table>
<thead>
<tr>
<th>DEVICE MANUFACTURED</th>
<th>DEVICE</th>
</tr>
</thead>
<tbody>
<tr>
<td>WABO STRIP SEAL - TYPE M</td>
<td>WATSON-BOWMAN ACME, INC.</td>
</tr>
<tr>
<td>WABO STRIP SEAL - TYPE A</td>
<td>WATSON-BOWMAN ACME, INC.</td>
</tr>
<tr>
<td>STEELFLEX-SSA</td>
<td>D.S. BROWN</td>
</tr>
<tr>
<td>STEELFLEX-SSCM</td>
<td>D.S. BROWN</td>
</tr>
<tr>
<td>ONFLEX 40 55</td>
<td>STRUCTURAL RUBBER PRODUCTS CO.</td>
</tr>
<tr>
<td>ONFLEX 40 SSA</td>
<td>STRUCTURAL RUBBER PRODUCTS CO.</td>
</tr>
</tbody>
</table>

The model of the joint type selected shall be suitable to accommodate the total movement noted on the plans.

Complete working drawings of all details of fabrication of the expansion joint device shall be submitted for review in accordance with Standard Specification 504.02. This requirement is waived for expansion joint devices for which a set of standard installation details has been approved. Standard installation details can be obtained from the design division.

FABRICATION AND INSTALLATION

Handle shipping bolts prior to placement of concrete.

The expansion joint shall be shop fabricated to conform to the contour of the bridge deck, barriers, etc. It shall be installed in accordance with manufacturer's recommendations subject to notes herein and the approval of the engineer.

The deck reinforcing steel to steel frame anchors to maximum extent practicable without degrading galvanized or epoxy coatings.

The top of the expansion joint device shall be set 1/8" - 1/4" below the concrete slab (pavement).

The steel anchorages for strip seal glands shall be hot dip galvanized in accordance with subsection 701.03.17 of the standard specifications.

The area of the steel anchorage and sealing gland which will be in contact with a sealant, or lubricant-adhesive shall be cleaned with toluene or other approved solvent.

In the event that splicing is required of the sealing gland, it shall be spliced by an approved method (such as cold vulcanization) by a trained representative of the manufacturer.

DETAILS AT CURBS OR BARRIERS

The details on this sheet show an approved means of terminating the expansion joint device at curbs or barriers. Variations or alternative schemes will be considered and may be used if approved by the engineer.

MATERIALS

The cost of all materials and labor required for proper installation of the expansion joint and the terminal assemblies at the curbs, sidewalks, or barriers is included in the payment for the expansion joint device.

FOR INFORMATION ONLY:

Expansion joints are not required when length of bridge contributing to expansion at an abutment is less than 50 feet for concrete beam bridges and less than 25 feet for rolled steel bridges.

The above note is for information only and should not be included on this sheet.
APPENDIX L. RECOMMENDED BRIDGE PLANS

The following sheets are given here in PDF format. However, they are available from MDOT in high-resolution Microstation and Autocad form for use.
** WATER STOP

SECTION AT END WALL

** CROSS SLOPE

NO. RAILING LEVEL UNDER SLAB FASCIA

DATE

AUTH

FINAL ROW PLAN REVISIONS   (SUBMITTAL DATE:           )

SECTION AND HIGH SIDE OF SLAB - NORMAL CROWN

** WATER STOP

LEVEL UNDER RAILING

PARAPET TUBE AESTHETIC BRIDGE RAILING,

DESCRIPTION

EA04 BARS (BOTT)

EA04 BARS (TOP)

ADDITIONAL REINF

ED06 BAR

ED05 BARS

TOP/DECK

BOTT TRANSVERSE

EA05 BARS

EM06 BAR

EM05 BARS

TOP LONGITUDINAL REINFORCEMENT

EL04 BAR

CROWN

** WATER STOP

NO SCALE

---

** FOR INFORMATION ONLY: DEC CROSS SECTION IS SHOWN WITH BEAM SPACING DISTRIBUTION AND RELATED REQUIREMENTS. THE ABOVE NOTE IS FOR INFORMATION ONLY AND SHOULD NOT BE INCLUDED ON THIS SHEET.

---

** NOTES:

SUPERSTRUCTURE DETAILS

---

---
DECK SECTION

TYPICAL RAILING SECTION

SECTION AT END WALL

SECTION AT END WALL

FOR INFORMATION ONLY:

NOTES:

DIMENSION TABLE
FOR INFORMATION ONLY

NOTE: THE LONGITUDINAL "EA" BARS IN THE TOP AND BOTTOM FLANGES SHALL BE GRADE 60 KSI.

CONTRACTOR'S EXPENSE AND APPROVED BY THE ENGINEER.

NO SCALE

PLEASE REVIEW AND COMMENT ON THIS FINAL DESIGN DRAWING.

NOTES:

THE TOP SURFACE OF THE BEAMS SHALL BE INTENTIONALLY ROUGHENED.

THE PREFERRED PRESTRESSING STRANDS SHALL BE GIVEN AN INITIAL PRESTRESS AS FOLLOWS:

TOTAL ESTIMATED CHANGE OF LENGTH OF BOTTOM FLANGE AT TRANSFER OF PRESTRESS FORCE IS X".

PRESTRESSING STRANDS SHALL BE 0.6" NOMINAL DIAMETER MEETING THE REQUIREMENTS OF AASHTO M203 (ASTM A416), AUTOMATICALLY TENSIONED TO 40.5 TON/STRAND.

THE ESTIMATED BEAM CAMBER AT RELEASE IS XX". THIS CAMBER IS DUE TO PRESTRESS AND DEAD LOAD OF THE BEAM PLUS ANY DEFLECTION DUE TO THERMAL EXPANSION.

THE TOP SURFACE OF THE BEAMS SHALL BE INTENTIONALLY ROUGHENED.

CONCRETE SURFACE COATINGS ARE NOT INCLUDED TO PROVIDE ADDITIONAL CAPACITY.

CONCRETE INSERTS FOR BACKWALLS SHALL BE 1" DIAMETER (AT EXPANSION ABUTMENT) & 7/8" DIAMETER (AT FIXED ABUTMENT); BURKE, TYPE CT-2 OR TYPE CX-4; OR EQUAL. INSERTS (COIL OR FERRULE) MUST BE ELECTROPLATE GALVANIZED IN ACCORDANCE WITH ASTM B633, SERVICE CONDITION 4. INSERTS SHALL BE CAST WITH THE BEAMS.

FIELD INSTALLATION OF ADHESIVE ANCHORS SHALL USE A NON-SHRINK GROUT (WHICH IS CEMENTIOUS) LISTED IN MDOT'S QUALIFIED PRODUCTS LIST.

ACCORDING TO ASTM B633, SERVICE CONDITION 4. INSERTS SHALL BE CAST WITH THE BEAMS. FIELD INSTALLATION OF ADHESIVE ANCHORS SHALL USE A NON-SHRINK GROUT (WHICH IS CEMENTIOUS) LISTED IN MDOT'S QUALIFIED PRODUCTS LIST.

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PRESTRESSED BEAM DETAILS

FILE: 002
prest_SBB_002.dgn

SPREAD BOX BEAM
SBB

05/09/18

(SLAB TIE)
ED04 BAR

PREFORMED HOLES
É BEARING & É 2" Ø

END BLOCK
3'-0"

HOLES (TYP)
É 2" Ø PREFORMED

SECTION THRU END BLOCK

PLAN OF BEAM SHOWING 90° CROSSING

PLAN OF BEAM SHOWING SKEWED CROSSING

FOR INFORMATION ONLY:

THE ABOVE NOTES ARE FOR INFORMATION ONLY AND SHOULD NOT BE INCLUDED ON
THE FINAL DESIGN DRAWINGS.

THE ENDS OF THE BOX BEAMS SHALL BE SKEWED TO BE PARALLEL TO THE REFERENCE LINE.
USE HAUNCH REINFORCEMENT WHEN BEAM HAUNCH > 4".

THE ENDS OF THE BOX BEAMS SHALL BE ADJUSTED FOR SKEWED CROSSING.

TABLE ARE BASED ON 90° CROSSING AND SHALL BE BASED ON BEAM END SKEW.
"g" & "h" VALUES SHOWN IN THE BEAM DIMENSIONS BASED ON BEAM END SKEW.
VALUES IN BEAM DIMENSIONS TABLE WITH VALUES FROM THIS TABLE.

TABLE OF SLAB TIES

FOR INFORMATION ONLY:

THE ENDS OF THE BOX BEAMS SHALL BE ADJUSTED FOR SKEWED CROSSING.
NOTE: THE ABOVE NOTES ARE FOR INFORMATION ONLY AND SHOULD NOT BE INCLUDED ON THIS SHEET.

REF LINE
PREFORMED HOLES
É BEARING & É 2" Ø

REF LINE
PREFORMED HOLES
É BEARING & É 2" Ø

REF LINE
PREFORMED HOLES
É BEARING & É 2" Ø

REF LINE
PREFORMED HOLES
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PREFORMED HOLES
É BEARING & É 2" Ø

REF LINE
PREFORMED HOLES
É BEARING & É 2" Ø

90° CROSSING
SKEWED CROSSING

SECTION A-A

PLAN OF BEAM SHOWING 90° CROSSING

PLAN OF BEAM SHOWING SKEWED CROSSING

SECTION A-A

BEAM DIMENSIONS

<table>
<thead>
<tr>
<th>Beam Dimension</th>
<th>17 x 16</th>
<th>21 x 17</th>
<th>25 x 18</th>
<th>29 x 19</th>
<th>33 x 20</th>
<th>37 x 21</th>
<th>41 x 22</th>
<th>45 x 23</th>
<th>49 x 24</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beam Span</td>
<td>20'</td>
<td>30'</td>
<td>40'</td>
<td>50'</td>
<td>60'</td>
<td>70'</td>
<td>80'</td>
<td>90'</td>
<td>100'</td>
</tr>
<tr>
<td>Beam Size</td>
<td>1'-0&quot;</td>
<td>1'-6&quot;</td>
<td>2'-0&quot;</td>
<td>2'-6&quot;</td>
<td>3'-0&quot;</td>
<td>3'-6&quot;</td>
<td>4'-0&quot;</td>
<td>4'-6&quot;</td>
<td>5'-0&quot;</td>
</tr>
<tr>
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<tr>
<td>Beam Sizes</td>
<td>1'-0&quot;</td>
<td>1'-6&quot;</td>
<td>2'-0&quot;</td>
<td>2'-6&quot;</td>
<td>3'-0&quot;</td>
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<td>4'-6&quot;</td>
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<td>4'-0&quot;</td>
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<td>5'-0&quot;</td>
</tr>
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</tr>
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<td>2'-6&quot;</td>
<td>3'-0&quot;</td>
<td>3'-6&quot;</td>
<td>4'-0&quot;</td>
<td>4'-6&quot;</td>
<td>5'-0&quot;</td>
</tr>
</tbody>
</table>
17" X 36" OR 21" X 36" BEAM

21" X 48" BEAM

27" X 48" OR 33" X 48" BEAM

39" X 48" OR 48" X 48" BEAM

NOTES:
- STRAND INFORMATION.
- SEE DEBONDING TABLE ON DWG "SBB 004" FOR STRAND INFORMATION.
### PRESTRESSED BEAM DETAILS

**SPREAD BOX BEAM**

**FILE:** prest_SBB_004.dgn

**PREVIOUS SUBMITTAL DATE:**

**H (in):**
- 110
- 100
- 90
- 80
- 70
- 60
- 50
- 40
- 30
- 20
- 10

**W (in):**
- 48
- 39
- 33
- 27
- 21
- 21
- 17
- 15
- 15
- 7
- 6
- 6
- 4
- 6
- 6
- 4
- 4

**NO. OF STRANDS**
- (2)6, (2)10, (2)12, [2]2, [2]4
- (2)12, (2)14, (2)30, [2]12, [2]20
- (2)2, (4)4
- (2)2, (2)4, (2)6
- (2)2, (4)8, (2)12
- (2)2, (4)4
- (2)2, (2)4

**BEAM SPAN & BEAM END:**
- 20
- 30
- 40
- 50
- 60
- 70
- 80
- 90
- 100

**BEAM DIMENSIONS:**
- 2" FROM 1ST LAYER
- 4" FROM 2ND LAYER
- 6" FROM 3RD LAYER

**TOTAL NO. OF STRANDS:**
- 6
- 6
- 6
- 6
- 6
- 6
- 6
- 6
- 6
- 6
- 6
- 6
- 6
- 6
- 6
- 6

**NO SCALE**

**FOR INFORMATION ONLY:**

- **NOTE:** FOR INFORMATION ONLY AND SHOULD NOT BE INCLUDED ON THE FINAL DESIGN DRAWINGS.

**NOTES:**

- **B E V E L CORNER BLOCKING DETAIL**
  - Use when \( \leq 70° \)

**PLAN & ELEV**

**INSERT DETAIL @ BEAM END (EXPANSION ABUTMENT):**

SEE DECK 002 FOR BACKWALL DETAILS

**INSERT DETAIL @ BEAM END (FIXED ABUTMENT):**

SEE DECK 002 FOR BACKWALL DETAILS

**FOR INFORMATION ONLY:**

- **NOTE:** FOR INFORMATION ONLY.

**GET DETAILED IN SPECIFICATIONS:**

- PLACE STRIP BOX SPREAD BOX BEAM INSERTS AT 5" OR 3" FROM EACH BEAM END TO AVOID INTERFERENCE WITH "D" DENOTES BACKWALL THICKNESS.
- PLACE SPREAD BOX BEAM BACKWALL INSERTS AT 5" OR 7" UP FROM BOTTOM OF BEAM TO AVOID INTERFERENCE WITH STRANDS. (3" FOR 21" BEAMS) (5" FOR >21" BEAMS)
- PLACE SPREAD BOX BEAM BACKWALL INSERTS AT 5" OR 7" DOWN FROM TOP OF BEAM TO AVOID INTERFERENCE WITH STRANDS. (5" FOR 21" BEAMS) (7" FOR >21" BEAMS)
- PLACE STRIP BOX SPREAD BOX BEAM INSERTS AT 5" OR 7" DOWNSIDE FROM BOTTOM OF BEAM TO AVOID INTERFERENCE WITH STRANDS. (5" FOR 21" BEAMS) (7" FOR >21" BEAMS)

**NOTE:** FOR INFORMATION ONLY AND SHOULD NOT BE INCLUDED ON THIS SHEET.
17" X 36" BEAM (INTERIOR)

21" X 48" BEAM (INTERIOR)

27" X 48" OR 33" X 48" BEAM (INTERIOR)

17" X 36" BEAM (FASCIA)

21" X 48" BEAM (FASCIA)

27" X 48" OR 33" X 48" BEAM (FASCIA)

NOTES:

- 4 EQ SPA - EA04 BARS OR ED04 BAR
- 2 EQ SPA - EA06 BARS ENDS (TYP)
- ED05 BARS @ 12" MAX IN THE BEAM DEPTH LENGTH EQUAL TO STRANDS FOR A SHALL ENCLOSE AT ENDS, D05 BARS
- 3 EQ SPA - EA04 BARS OR EA06 BARS
- CUT STRAND (IF "EA" BAR OR REQUIRED) (TYP)
- PLACE A04 BAR CENTER (MAY BE PLACED UNDER STRANDS)
- PLACE A04 BAR IN CORNER IF STRAND NOT IN CORNER IF PLACE A04 BAR CENTER (MAY BE PLACED UNDER STRANDS)
- OMIT SHEAR KEY
- 05/09/18

CS:

FILE: prest_SBS_003.dgn

NO SCALE

SECT

DRAWING

NO SCALE

AUTH

NO. (TYP)

DATE

AUTH (TYP)

NO. (TYP)

AUTH (TYP)

AUTH (TYP)
**PRESTRESSED BEAM DETAILS**

**SIDE BY SIDE BOX BEAM**

<table>
<thead>
<tr>
<th>Beam Span (in)</th>
<th>Beam Dimensions</th>
<th>1st Layer From Bottom</th>
<th>2nd Layer From Bottom</th>
<th>3rd Layer From Bottom</th>
<th>Total No. of Strands</th>
<th>No. of Debonding Strands</th>
<th>Debonding Lengths (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>30</td>
<td></td>
<td>30</td>
<td>30</td>
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<td>6</td>
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<td>60</td>
<td>80</td>
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<td></td>
<td>90</td>
<td>90</td>
<td>8</td>
<td>8</td>
<td>7</td>
</tr>
</tbody>
</table>

**NO. OF STRANDS**

- POST-TENSIONING DETAIL
- AS REQUIRED FOR THE POST-TENSIONING SYSTEM PROVIDED.
- NOTE: STRESS POCKETS, ANCHOR PLATES AND TENDON COUPLERS SHALL BE PLACED AFTER GROUT CURES (TYP).
- TYPE R-2 GROUT. REMOVE FORM AS REQ'D TO CONTAIN 3" (FT) Ø PIPE.

**FILE:** prest_SBS_005.dgn

**PREPARED FOR:**

**DRAWN BY:**

**DATE:** 05/09/18

**DESIGN UNIT:**

**DRAWING SHEET NO.**

**DESIGNATION:**

**DIMENSIONS:**

- Beam Span (in)
- Beam Dimensions (in)
- 1st Layer From Bottom
- 2nd Layer From Bottom
- 3rd Layer From Bottom
- Total No. of Strands
- No. of Debonding Strands
- Debonding Lengths (ft)

**DESCRIPTION:**

- POST-TENSIONING DETAIL
- NOTE: STRESS POCKETS, ANCHOR PLATES AND TENDON COUPLERS SHALL BE AS REQUIRED FOR THE POST-TENSIONING SYSTEM PROVIDED.
- TYPE R-2 GROUT. REMOVE FORM AS REQ'D TO CONTAIN 3" (FT) Ø PIPE.

**DETAIL A**

**CORNER BLOCKING DETAIL**

**DIMENSION TABLE**

<table>
<thead>
<tr>
<th>Beam Depth (in)</th>
<th>20</th>
<th>30</th>
<th>40</th>
<th>50</th>
<th>60</th>
<th>70</th>
<th>80</th>
<th>90</th>
</tr>
</thead>
<tbody>
<tr>
<td>Width</td>
<td>20</td>
<td>30</td>
<td>40</td>
<td>50</td>
<td>60</td>
<td>70</td>
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<tr>
<td>Height</td>
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<td>40</td>
<td>50</td>
<td>60</td>
<td>70</td>
<td>80</td>
<td>90</td>
</tr>
</tbody>
</table>

**NOTA:**

- POST-TENSIONING TENDONS NORMAL TO POST TENSIONING TENDONS.
- 4" Ø HOLE/DUCT (MAX) & 1" x 7" x 7" WASHER (TYP).
- EK04 BARS (TYP).
- MEETING ASTM C509 GASKET GRADE 1, SPONGE NEOPRENE 10" Ø.
FOR INFORMATION ONLY:

The design of these structures is based on the AASHTO LRFD Bridge Design Specifications. For the design of these structures, the AASHTO LRFD Bridge Design Specifications shall be referenced. The resulting loads are based on the AASHTO LRFD Bridge Design Specifications. The resulting loads are based on the AASHTO LRFD Bridge Design Specifications.

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BEAM ELEVATION

---

BEAM DIMENSION TABLE

<table>
<thead>
<tr>
<th>Beam Span</th>
<th>Type</th>
<th>c</th>
<th>d</th>
<th>e</th>
<th>f</th>
<th>g</th>
<th>h</th>
</tr>
</thead>
<tbody>
<tr>
<td>20'</td>
<td>W12 x 36</td>
<td>10&quot;</td>
<td>12&quot;</td>
<td>20&quot;</td>
<td>17&quot;</td>
<td>14&quot;</td>
<td>7&quot;</td>
</tr>
<tr>
<td>30'</td>
<td>W16 x 42</td>
<td>10&quot;</td>
<td>12&quot;</td>
<td>20&quot;</td>
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<td>12&quot;</td>
<td>20&quot;</td>
<td>17&quot;</td>
<td>14&quot;</td>
<td>7&quot;</td>
</tr>
<tr>
<td>50'</td>
<td>W24 x 54</td>
<td>10&quot;</td>
<td>12&quot;</td>
<td>20&quot;</td>
<td>17&quot;</td>
<td>14&quot;</td>
<td>7&quot;</td>
</tr>
<tr>
<td>60'</td>
<td>W30 x 60</td>
<td>10&quot;</td>
<td>12&quot;</td>
<td>20&quot;</td>
<td>17&quot;</td>
<td>14&quot;</td>
<td>7&quot;</td>
</tr>
</tbody>
</table>

---

SHEAR STUD DEVELOPER DETAILS

---

DETAIL OF STUD

---

PLAN

TOP OF SLAB

SECTION

---

DRAWING SHEET NO. SCALE

---

FILE: BEAM_002.dgn

---

STRUCTURAL STEEL DETAILS

---

DATE: 05/09/18

---

AUTHOR: CS:

---

DESCRIPTION: FINAL ROW PLAN REVISIONS

---

** FOR 30', 40' OR 50' SPANS

*** FOR 60' SPAN

---

2" MINIMUM PENETRATION OF STUD INTO DECK SLAB.

---

INCREASE LENGTH OF STUD AS NEEDED TO MAINTAIN SECTION

---

PLACE FORMS METAL STAY IN BEAM

---

W36 x 170

---

W30 x 173

---

W24 x 117

---

W21 x 93

---

10" 12" 9" 7"

---

61'-5" 51'-5" 41'-3" 31'-2" 21'-2"

---

31 26 21 16 11

---

60'-5" 50'-5" 40'-3" 30'-2" 20'-2"

---

8" 8" 7" 6"

---

2'-6" 2'-0" 1'-6" 1'-3" 1'-3"

---

W
THEORETICAL CAMBER TABLE *

<table>
<thead>
<tr>
<th>Beam</th>
<th>Beam Span</th>
<th>1-0</th>
<th>1-10</th>
<th>1-20</th>
<th>1-30</th>
<th>1-40</th>
<th>1-50</th>
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<th>1-70</th>
<th>1-80</th>
<th>1-90</th>
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<tbody>
<tr>
<td>W36</td>
<td>10</td>
<td>0</td>
<td>0.30</td>
<td>0.17</td>
<td>0.15</td>
<td>0.08</td>
<td>0</td>
<td>0</td>
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<td>0</td>
</tr>
<tr>
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<td>0</td>
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<tr>
<td>W24</td>
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</tr>
<tr>
<td>W21</td>
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<td>0.46</td>
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<td>0</td>
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<tr>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<tr>
<td>W21</td>
<td>10</td>
<td>0</td>
<td>0.30</td>
<td>0.17</td>
<td>0.15</td>
<td>0.08</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

* Camber Table Values Only Account for Deflection Due To Beam Self Weight, Deck & Haunch Weight, Diaphragms and Shrinkage. Adjustment to the Values Shall Be Made to Account for the roadway profile.

NOTE: Elevation values of cambered beams shall be determined by dividing the theoretical ordinate values in the table by two and adding the result to the theoretical camber values at midspan.
**PRESTRESSED BOX BEAM BEARING DETAILS**

**FINAL ROW PLAN REVISIONS**

- **FILE:** prest_SBB_005.dgn
- **DATE:** 05/09/18

**NOTES:**

- **FOR INFORMATION ONLY:**

**REQUIRED IN ALL BEAM ENDS.**

**THE REQUIREMENTS OF AASHTO M 270 GRADE 36.**

**STEEL FOR SOLE PLATES AND OTHER BEARING COMPONENTS SHALL MEET**

**CONCRETE BEAMS.**

**POSITION DOWELS SHALL BE HOT-DIP GALVANIZED ACCORDING TO AASHTO M 232.**

**THE ABOVE NOTES ARE FOR INFORMATION ONLY AND SHOULD NOT BE INCLUDED ON THE SHEET.**

**NOTES:**

- **SIDE BY SIDE BOX BEAM BEARING DIMENSION TABLE**

- **FOR INFORMATION ONLY:**

**SIDE BY SIDE BOX BEAM BEARING DIMENSION TABLE**

**REQUIRED IN ALL BEAM ENDS.**

**THE REQUIREMENTS OF AASHTO M 270 GRADE 36.**

**STEEL FOR SOLE PLATES AND OTHER BEARING COMPONENTS SHALL MEET**

**CONCRETE BEAMS.**

**POSITION DOWELS SHALL BE HOT-DIP GALVANIZED ACCORDING TO AASHTO M 232.**

**THE ABOVE NOTES ARE FOR INFORMATION ONLY AND SHOULD NOT BE INCLUDED ON THE SHEET.**
**PRESTRESSED BULB-TEE BEAM BEARING DETAILS**

**FILE:** prest_BT_004.dgn

**SUBMITTAL DATE:**

**DESCRIPTION:**

- **SECTION A-A:**
  - Plan of Sole Plate
  - Plan of Elastomeric Pad

- **SECTION B-B**
  - Section A-A
  - Section B-B

- **SECTION C-C**
  - Section C-C

**NOTES:**

- Bead out concrete at elastomeric bearings.
- Position stud shall be bewt. chamfered according to AASHTO M 218. Position stud shall be driven in position to prevent embedment of concrete within position stud. Position stud shall be extended to cover embedment of concrete within position stud. Position stud shall be extended to cover embedment of concrete within position stud.

**DIMENSION TABLE**

<table>
<thead>
<tr>
<th>Beam Span (A)</th>
<th>(B)</th>
<th>(C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>12&quot;</td>
<td>90</td>
<td>70</td>
</tr>
<tr>
<td>24&quot;</td>
<td>100</td>
<td>80</td>
</tr>
<tr>
<td>36&quot;</td>
<td>110</td>
<td>90</td>
</tr>
</tbody>
</table>

The table is for information only and should be included on the final design drawings.
ELASTOMERIC EXPANSION BEARING

SOLE PLATE DETAILS

ELASTOMERIC BEARING DETAILS

BEARING ASSEMBLY DIMENSIONS

FOR INFORMATION ONLY:
- ANCHOR BOLTS SHALL BE INSTALLED AFTER BEAMS ARE ERECTED IN PLACE.
- ANCHOR BOLTS SHALL CONFORM TO SECTION 908.15.
- ANCHOR BOLTS AND POSITION DOWELS SHALL BE GALVANIZED ACCORDING TO MDOT STANDARD SPECIFICATION 707.03.C.16.
- ANCHOR BOLT LENGTHS SHOWN ARE MINIMUM. BOLTS LONGER THAN THOSE SHOWN MAY BE FURNISHED.
- AASHTO M 270 GRADE 36 STEEL FOR SOLE PLATES AND OTHER BEARING COMPONENTS SHALL MEET THE REQUIREMENTS OF AASHTO M 111, AS POSITION DOWELS FOR PRECAST BEAMS.
- EXPANSION BEARINGS FOR BEAM SPANS 20' AND 30' ARE PLAIN PADS WITH NO SHIMS PLATES.
- EXPANSION BEARING PADS ARE REQUIRED IN THE DESIGN OF THE ELASTOMERIC BEARING PADS.

NOTE:
- FOR SINGLE SPAN STRUCTURES 25'-0" OR LESS IN LENGTH, ALLOWANCE FOR EXPANSION IS NOT REQUIRED.

SOLE PLATES ARE TO BE BEVELED WHEN THE CALCULATED BEVEL IS GREATER THAN 0.5%.

ELASTOMICR PADS & SOLE PLATES ARE BONDED.

ANCHOR BOLT DETAIL

ANCHOR BOLT WITH HEX NUT AND WASHER (TYP)

ANCHOR BOLT (TYP)

ELASTOMERIC BEARING DETAILS - FIXED

ANCHOR BOLT (TYP)

FOR INFORMATION ONLY:
- THE ABOVE NOTES ARE FOR INFORMATION ONLY AND SHOULD NOT BE INCLUDED ON THIS SHEET.
EXPANSION JOINT DETAILS

**NOTES:**

- **APPLICATION:**
  - The expansion joint device shall be of a type that includes a continuous seal across the deck. Details shall be shown on the plans. The contractor is the owner of any of the devices erected.

- **MANUFACTURER:**
  - The model of the joint type selected shall be submitted to accommodate the total movement noted on the plans.

- **DESCRIPTION:**
  - Complete detailed drawings of all details of fabrication of the expansion joint device shall be submitted in accordance with the design specifications.

- **REQUIREMENTS:**
  - It is required that for expansion joint device, a set of standard installation details be submitted for approval. Standard installation details can be obtained from the design division.

- **FABRICATION AND INSTALLATION:**
  - General note: When required, parts of concrete shall be fabricated to conform to the contour of the bridge deck. Details, etc., shall be detailed in accordance with the plans, recommendations, subject to notes herein and the approved of the engineer.

- **SPECIFICATION 104.02:**
  - This requirement is waived for expansion joint device.

- **DESCRIPTION:**
  - The expansion joint device shall be shop fabricated to conform to the contour of the bridge deck. Details, etc., shall be detailed in accordance with the plans, recommendations, subject to notes herein and the approved of the engineer.

- **DETAILS ON THIS SHEET:**
  - The details on this sheet show approved means of terminating the expansion joint device at curbs or barriers. Variations or alternative schemes will be considered and may be used if approved by the engineer.

- **MATERIALS:**
  - The cost of all materials and labor required for proper installation of the expansion joint device at the bridge, and the details of fabrication at the factory, are included in the bid for the expansion joint device.

- **FOR INFORMATION ONLY:**
  - Expansion joints are not required when length of bridge contributing to expansion at an abutment is less than 25 feet.

- **EXPANSION JOINT DETAILS**

<table>
<thead>
<tr>
<th>LOCATION OF JOINT</th>
<th>TREND AMOUNT</th>
<th>LOCATION OF JOINT</th>
</tr>
</thead>
<tbody>
<tr>
<td>LODE AT SITE</td>
<td>1200000</td>
<td>1200000</td>
</tr>
<tr>
<td>ALLOWANCE PER OF 50 INCH</td>
<td></td>
<td></td>
</tr>
<tr>
<td>UNDERDRAIN, FDN</td>
<td></td>
<td></td>
</tr>
<tr>
<td>APPROACH SLAB</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SLEEPER SLAB</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ROAD PLANS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FOR INFORMATION ONLY:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **FILE:**
  - expjt_001.dgn

- **EXPJT:**
  - 001

- **NOTE:**
  - The attachment is for information only and should not be used for bidding.

- **FOR INTEGRITY:**
  - The engineer shall review and approve all expansion joint device details.