

**BITUMINOUS CONCRETE PLACEMENT
AT ASPHALTIC PLUG JOINTS (APJ)**

1. THE REQUIREMENTS OF SPECIAL PROVISION SECTION 4.06 SHALL BE MET EXCEPT IN LIEU OF DENSITY TESTING, THE METHODS DESCRIBED BELOW SHALL BE FOLLOWED TO ASSURE PROPER COMPACTION.
2. TOP LIFT MUST BE UNIFORM THICKNESS; INTERMEDIATE LIFTS CAN BE PLACED AT 1 1/4" TO 2 1/2" COMPACTED.
3. REQUIREMENTS FOR PROPER COMPACTION:
 - a. MINIMUM 265° F DELIVERY TEMPERATURE OF MATERIAL. PLACE AND SPREAD MATERIAL BEFORE IT COOLS TO 260° F. MATERIAL BELOW TEMPERATURE REQUIREMENT WILL BE REJECTED.
 - b. COMPACT NON-SURFACE LIFTS WITH VIBRATORY PLATE COMPACTOR MEETING THE FOLLOWING REQUIREMENTS:
 - i. DESIGNED TO COMPACT ASPHALT
 - ii. EQUIPPED WITH A WATER TANK
 - iii. CENTRIFUGAL FORCE 3200 LBS TO 6000 LBS
 - iv. WEIGHS MINIMUM 160 LBS (WITHOUT WATER)
 - v. MINIMUM 4400 VIBRATIONS PER MINUTE
 - c. COMPACT TOP LIFT WITH 3 1/2 TO 4 1/2 TON DOUBLE DRUM ROLLER, DESIGNED TO COMPACT BITUMINOUS CONCRETE.
 - d. PROVIDE NUMBER OF PASSES BASED ON LIFT THICKNESS AS FOLLOWS:

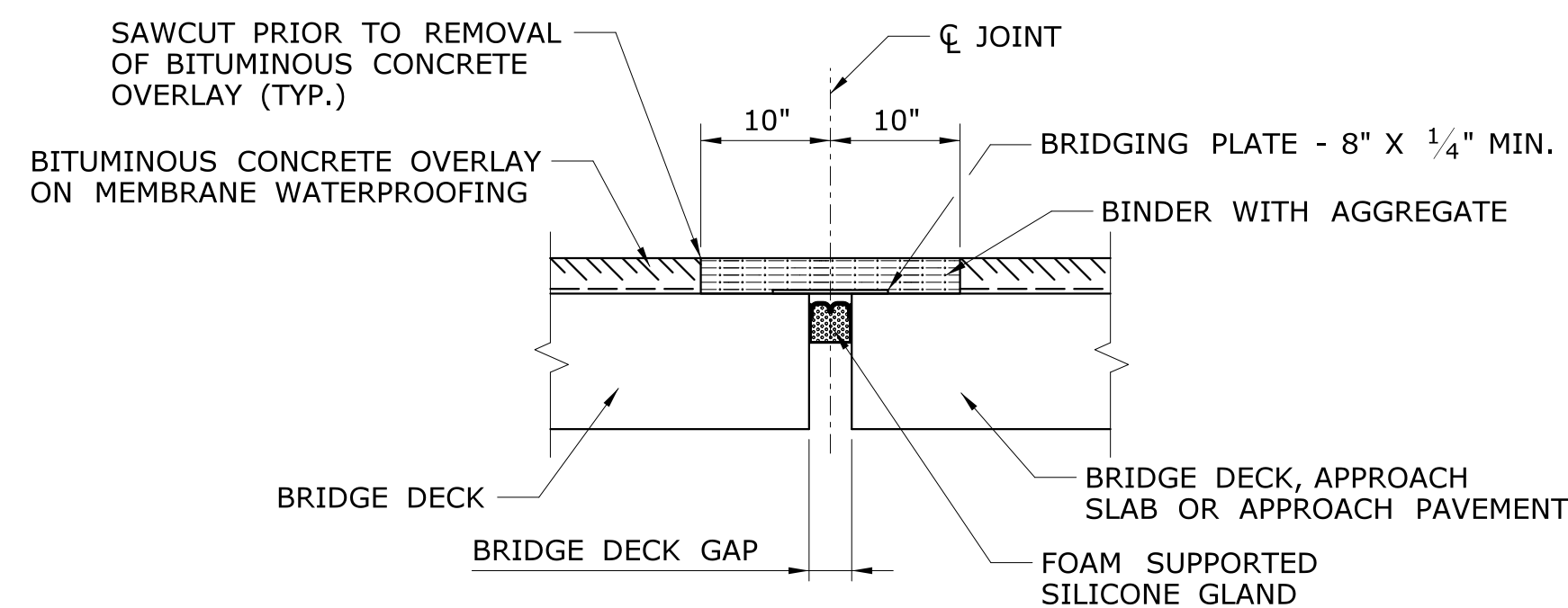
LIFT THICKNESS (INCHES)	NUMBER OF PASSES
1 1/4 TO 1 1/2	8
1 1/2 TO 2	10
2 TO 2 1/2	12
 - e. ADDITIONAL COMPACTING EQUIPMENT MAY BE REQUIRED TO COMPLETE LIFT COMPACTION BEFORE MATERIAL COOLS TO 180° F.
 - f. AT CORNERS OR OTHER AREAS INACCESSIBLE TO PLATE TAMPER, HAND TAMP 20 TIMES MINIMUM BEFORE MATERIAL COOLS TO 180° F.
4. ALTERNATE EQUIPMENT MAY BE REQUESTED AS A SUPPLEMENT TO CONTRACTOR'S QC PLAN. THE EQUIPMENT AND PROCEDURES MUST BE APPROVED BY THE ENGINEER PRIOR TO USE.
5. IF THESE METHODS ARE NOT PERFORMED TO THE SATISFACTION OF THE ENGINEER, DENSITY VERIFICATION MAY BE REQUIRED WHEREIN THE CONTRACTOR SHALL PROVIDE DENSITY TESTING WITH A QC NUCLEAR DENSITY GAUGE OR COLLECT CORE SAMPLES AS SPECIFIED IN SECTION 4.06.

ASPHALTIC PLUG EXPANSION JOINT SYSTEM NOTES

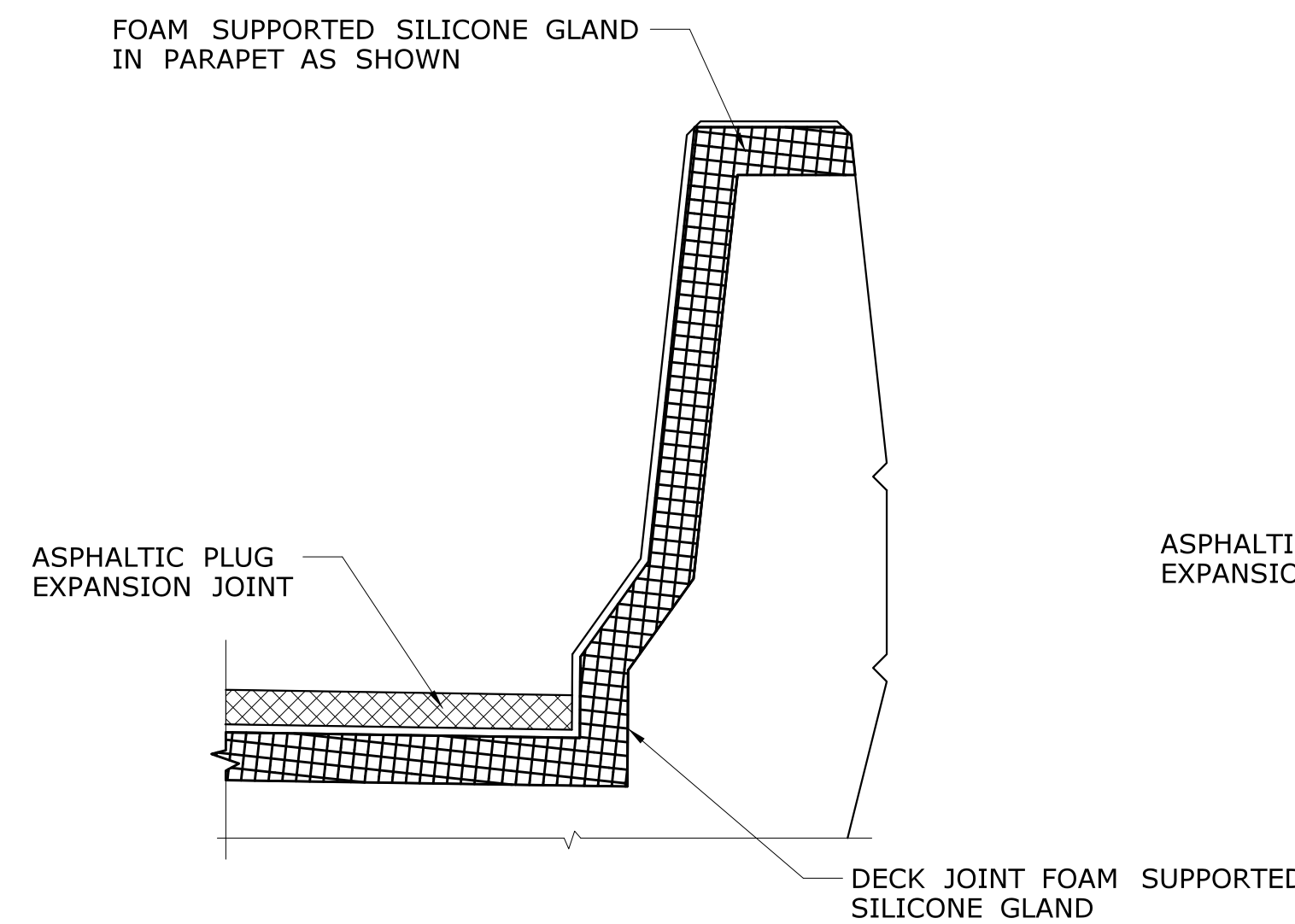
1. A BRIDGING PLATE SHALL BE USED TO SPAN THE GAP BETWEEN TWO DECK ENDS OR THE JOINT BETWEEN A DECK END AND A CONCRETE APPROACH SLAB.
2. DISCONTINUE THE INSTALLATION OF THE BRIDGING PLATE WHERE THE APPROACH SLAB IS DISCONTINUED (TYPICALLY IN THE ROADWAY SHOULDERS). SEE "ASPHALTIC PLUG EXPANSION JOINT SYSTEM" SPECIAL PROVISION.
3. NEW STEEL BRIDGING PLATES SHALL BE A MINIMUM OF 1/4" THICK BY 8" WIDE. FOR JOINT OPENINGS WHICH EXCEED 3", A 3/8" THICK BY 12" WIDE PLATE WILL BE REQUIRED.
4. NO BRIDGING PLATE SHALL BE USED AT THE FOLLOWING LOCATIONS:
 - A. JOINT BETWEEN A DECK END AND A CONCRETE APPROACH PAVEMENT
 - B. WHERE A BRIDGE DECK END MEETS A BITUMINOUS APPROACH PAVEMENT
5. THE REMOVAL OF ALL EXISTING JOINT SYSTEMS, BITUMINOUS CONCRETE OVERLAY, MEMBRANE WATERPROOFING AND BOND BREAKER WITHIN THE LIMITS SHOWN TO BE INCLUDED FOR PAYMENT UNDER THE ITEM "REMOVAL OF EXISTING WEARING SURFACE".
6. TEMPORARY CLOSED CELL BACKER ROD DIAMETER SHALL BE DETERMINED AFTER MEASURING THE JOINT OPENING, THE ROD SHALL BE 25% LARGER THAN THE JOINT OPENING.
7. INSTALLATION OF MEMBRANE WITHIN THE LIMITS SHOWN TO BE PAID UNDER THE ITEM, "MEMBRANE WATERPROOFING (XXXXXXXXXXXXXXXX)".
8. THE FURNISHING AND PLACING OF HMA SX.XXX TO BE INCLUDED FOR PAYMENT UNDER THE ITEM "HMA SX.XXX".
9. SAW-CUTTING AND REMOVAL OF PAVEMENT FOR JOINT INSTALLATION TO BE INCLUDED FOR PAYMENT UNDER THE ITEM "ASPHALTIC PLUG EXPANSION JOINT SYSTEM".
10. INSTALLATION OF FOAM SUPPORTED SILICONE GLAND TO BE PAID UNDER THE ITEM "PERFORMED JOINT SEAL".
11. ASPHALTIC PLUG EXPANSION JOINT SYSTEMS MAY BE INSTALLED ONLY WITHIN THE TEMPERATURE RANGE SPECIFIED IN THE SPECIAL PROVISION "ASPHALTIC PLUG EXPANSION JOINT SYSTEM". REFERENCE THE RANGE OF THERMAL MOVEMENT FOR THE SELECTED JOINT PRODUCT IN THE TABLE FOR "INSTALLATION RESTRICTIONS" IN THE SPECIAL PROVISION.
12. EXPLORATION OF PAVEMENT THICKNESS AND JOINT LOCATION TO BE INCLUDED IN THE GENERAL COST OF THE ITEM "REMOVAL OF EXISTING WEARING SURFACE".
13. CONTRACTOR SHALL NOTIFY THE DEPARTMENT IF THE EXISTING PAVEMENT IS DETERMINED TO BE LESS THAN 2" OR GREATER THAN 6" WITHIN THE BRIDGE LIMITS.

JOINT WORK FOR BRIDGES

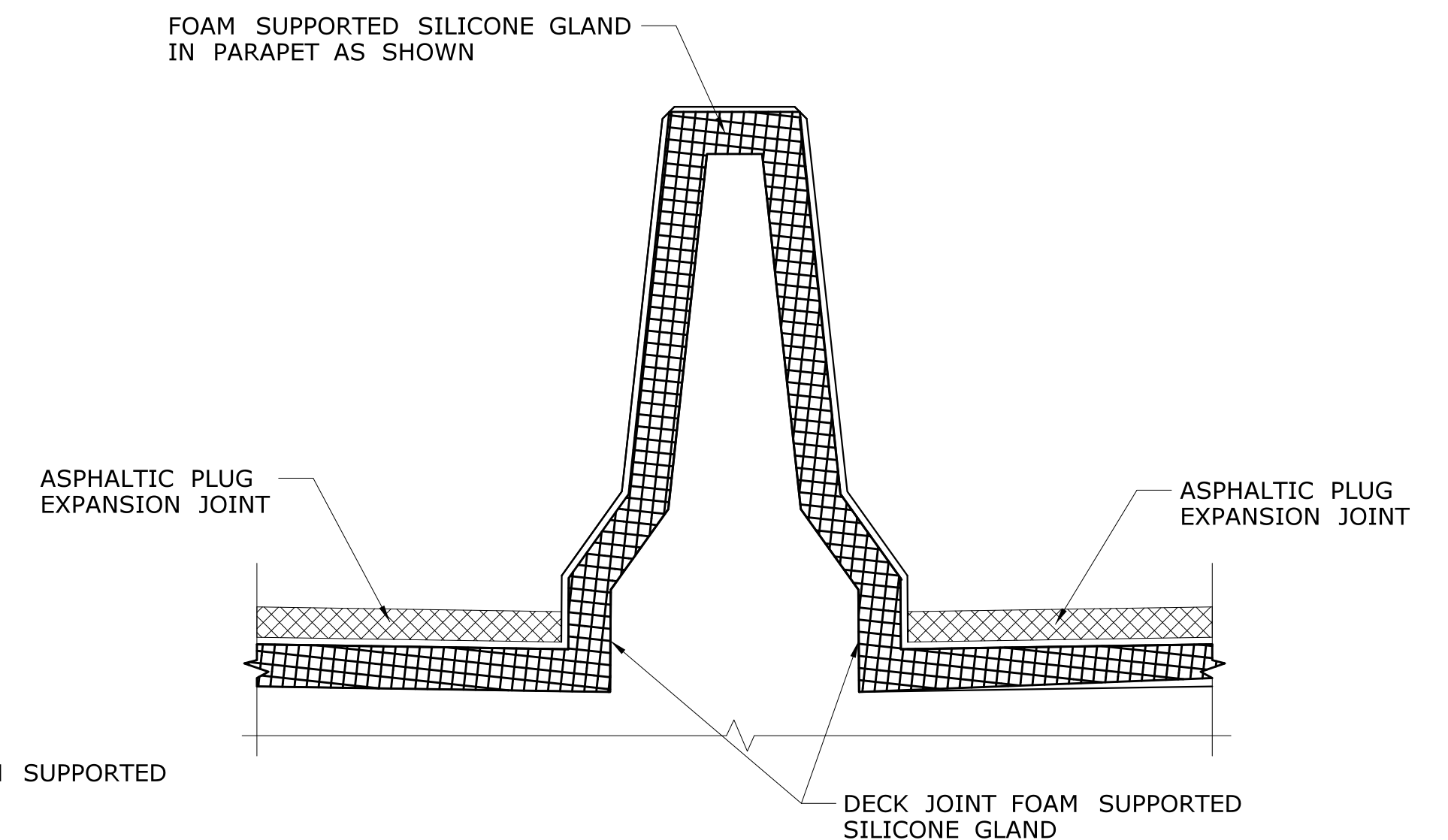
1. ALL WORK TO REMOVE BITUMINOUS CONCRETE OVERLAY, MEMBRANE WATERPROOFING, EXISTING JOINT COMPONENTS AND SEALING ELEMENTS, SHALL BE INCLUDED IN THE COST OF "REMOVAL OF EXISTING WEARING SURFACE".
2. WHERE EXISTING BRIDGE DECK JOINTS ARE CONCEALED BENEATH BITUMINOUS CONCRETE OVERLAY THE CONTRACTOR SHALL VERIFY THE BRIDGE DECK JOINT LOCATION AND SUBMIT THE LIMITS OF SAW-CUTTING FOR THE ENGINEERS APPROVAL.
3. THE FURNISHING AND PLACING OF TEMPORARY PAVEMENT IN THE JOINT CUT-OUT SHALL CONFORM TO "BITUMINOUS CONCRETE PLACEMENT AT ASPHALTIC PLUG JOINTS (APJ)" AND SHALL BE INCLUDED FOR PAYMENT UNDER THE ITEM "HMA S0.375."
4. MEMBRANE WATERPROOFING SHALL BE "MEMBRANE WATERPROOFING (XXXXXXXXXX)" AND SHALL BE PLACED PRIOR TO PLACEMENT OF PAVEMENT OVERLAY.
5. ROUGH OR DAMAGED CONCRETE DECK SURFACES SHALL BE REPAIRED WITH A CONCRETE LEVELING MATERIAL INCLUDED FOR PAYMENT UNDER THE ITEM "ASPHALTIC PLUG EXPANSION JOINT SYSTEM".
6. THE DEPTH OF PROPOSED ASPHALTIC PLUG JOINT IS ESTIMATED TO BE 4" AVERAGE.



**TYPICAL SECTION
ASPHALTIC PLUG EXPANSION JOINT SYSTEM**
NOT TO SCALE

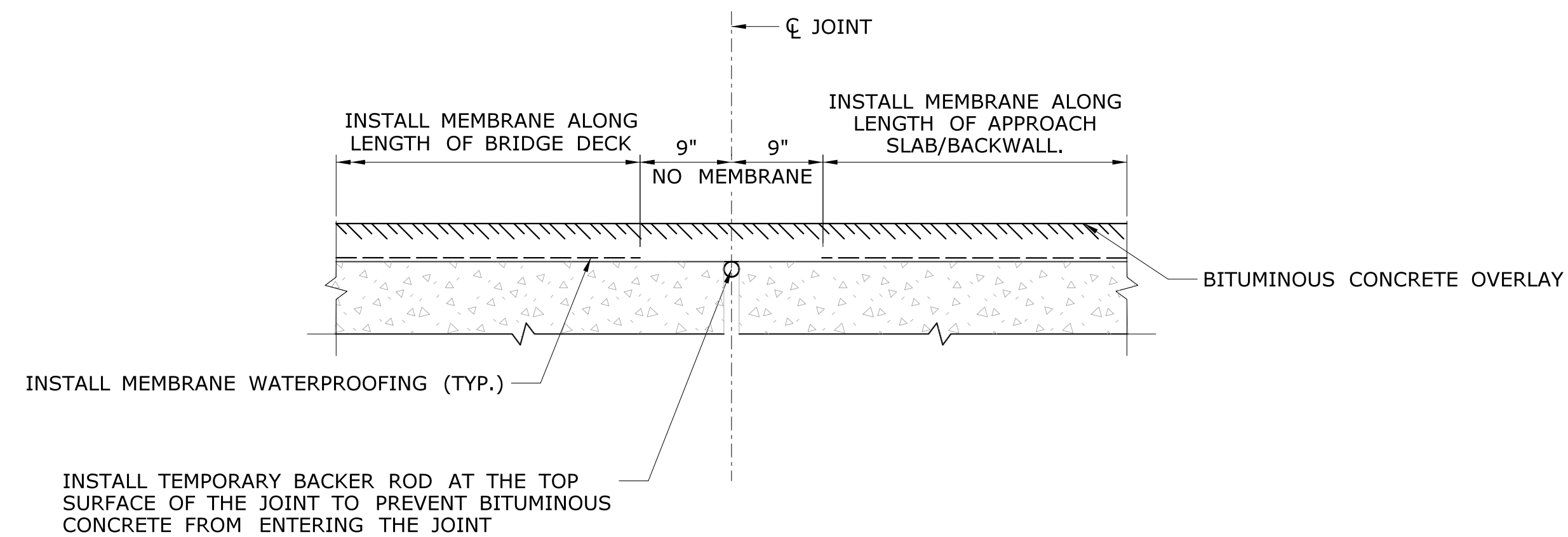


**SCHEMATIC OF ASPHALTIC PLUG JOINT
AT PARAPET**
NOT TO SCALE



**SCHEMATIC OF ASPHALTIC PLUG JOINT
AT MEDIAN BARRIER**
NOT TO SCALE

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SCALE AS NOTED				PROJECT NO. - DRAWING NO. S-01 SHEET NO.			
REV.	DATE	REVISION DESCRIPTION	SHEET NO.	Plotted Date: 12/26/2019	Filename: ...S-01 - APJ Notes and Details.dgn		

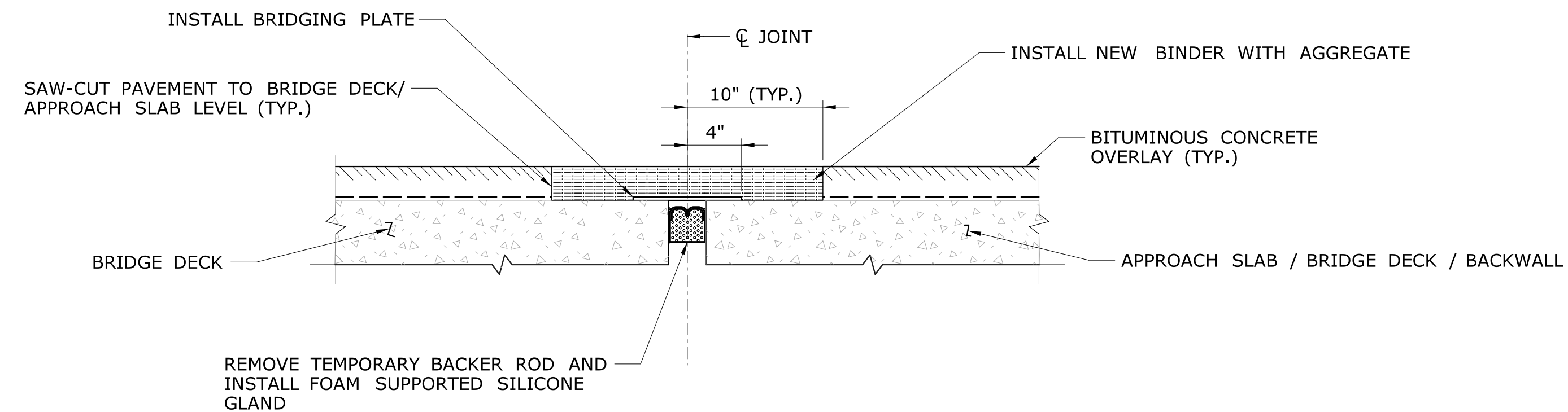


PLACEMENT OF PAVEMENT ALONG THE BRIDGE

N.T.S.

SUGGESTED SEQUENCE OF WORK

- STEP 1: CONTRACTOR SHALL PERFORM AN EXPLORATION AT THE GUTTERLINE (AT THE FOUR CORNERS OF THE BRIDGE) AND THE CROWN (AT THE BEGINNING AND END OF THE BRIDGE). A MINIMUM OF SIX REPRESENTATIVE DEPTH MEASUREMENTS SHALL BE TAKEN PER BRIDGE AT THESE LOCATIONS TO DETERMINE THE DEPTH OF PAVEMENT AND THE LOCATION OF THE DECK ENDS (CENTERLINE OF PROPOSED JOINT. ADDITIONAL MEASUREMENTS SHALL BE TAKEN IF NEEDED IN ACCORDANCE WITH SPECIAL PROVISION FOR "REMOVAL OF EXISTING WEARING SURFACE." CONTRACTOR SHALL ALSO MEASURE THE DECK JOINT GAP OPENING FOR SIZING OF THE FOAM SUPPORTED SILICONE GLAND.
- STEP 2: REMOVE EXISTING PAVEMENT MATERIAL AND JOINT MATERIAL TO BRIDGE DECK LEVEL ALONG ENTIRE LENGTH OF BRIDGE. REMOVE BRIDGING PLATES PRIOR TO MILLING THE BRIDGE DECK.
- STEP 3: INSTALL TEMPORARY BACKER ROD FLUSH WITH THE BRIDGE DECK AND APPROACH SLAB OR BACKWALL.
- STEP 4: INSTALL MEMBRANE WATERPROOFING TO THE TOP OF DECK AND APPROACH SLAB WITHIN THE LIMITS SHOWN.
- STEP 5: PLACE BITUMINOUS CONCRETE OVERLAY AS INDICATED ON THE PLANS.
- STEP 6: SAW-CUT PAVEMENT FULL DEPTH AT 10" EACH SIDE OF CENTERLINE OF JOINT, AND REMOVE ALL PAVEMENT MATERIAL BETWEEN SAW-CUTS. TO BE PAID FOR UNDER THE ITEM "ASPHALTIC PLUG EXPANSION JOINT SYSTEM".
- STEP 7: INSTALL PROPOSED ASPHALTIC PLUG EXPANSION JOINT SYSTEM WITH FOAM SUPPORTED SILICONE GLAND AND BRIDGING PLATE. LOCATING PINS SHALL NOT BE USED TO SECURE THE BRIDGING PLATE.
- STEP 8: INSTALL CRACK SEAL AT CURB LINE ALONG THE LENGTH OF THE BRIDGE, BOTH SIDES. CRACK SEALING SHALL BE INCLUDED FOR PAYMENT UNDER ITEM "JOINT AND CRACK SEALING OF BITUMINOUS CONCRETE PAVEMENT."

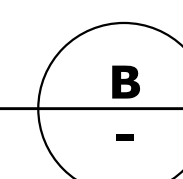


INSTALL ASPHALTIC PLUG EXPANSION JOINT

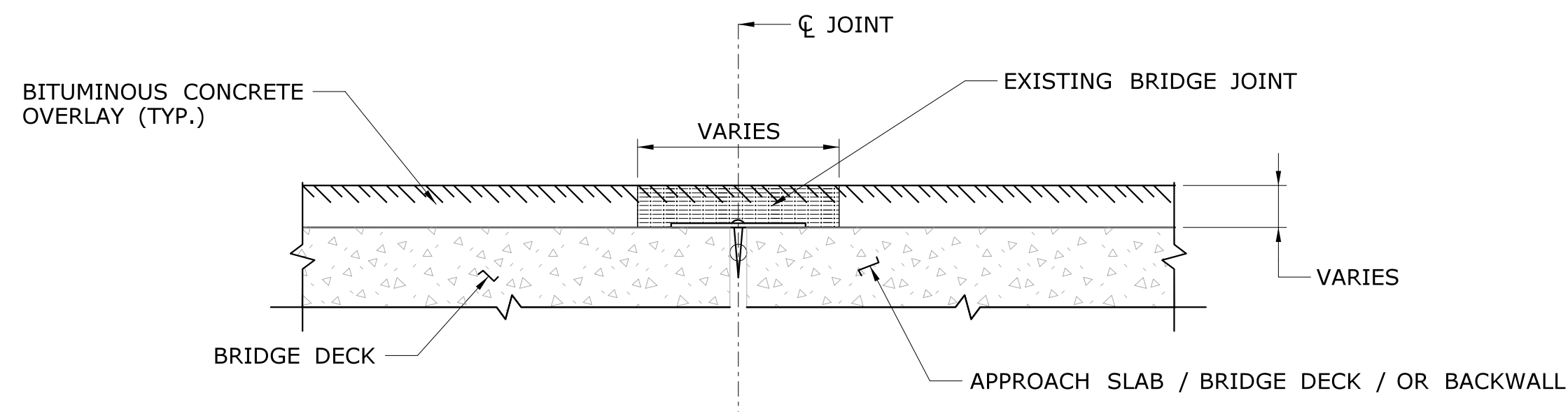
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INSTALLATION OF ASPHALTIC PLUG JOINT WITH BRIDGING PLATE

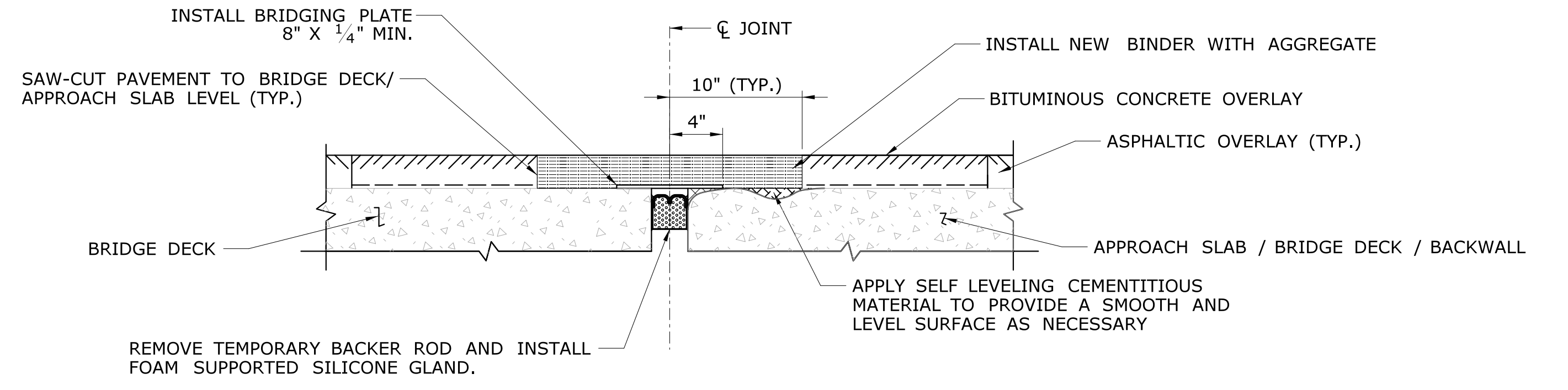
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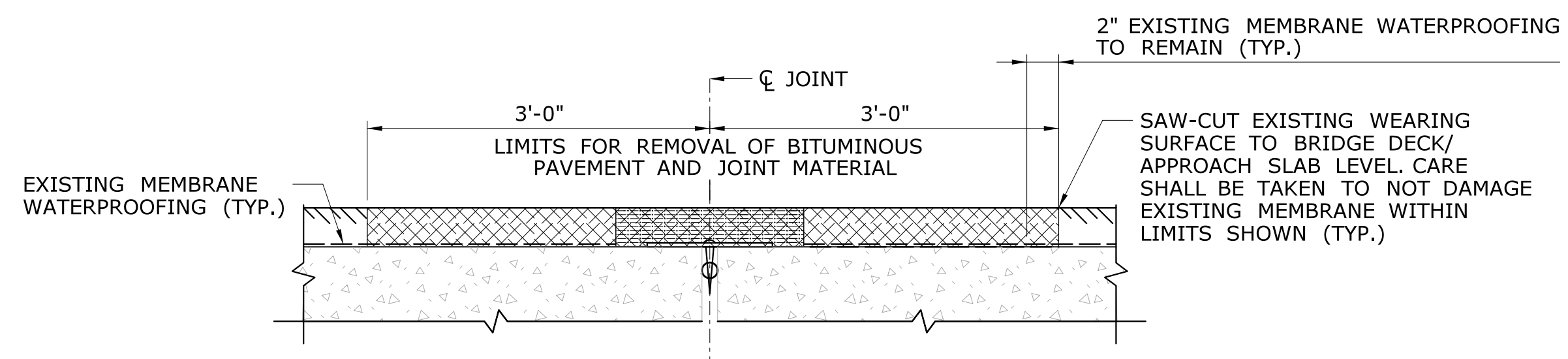
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REV.	DATE	REVISION DESCRIPTION	SHEET NO.	Plotted Date: 12/26/2019	<p>DRAWING TITLE: APJ SEQUENCE NEW CONSTRUCTION</p>				



EXISTING CONDITION
N.T.S.



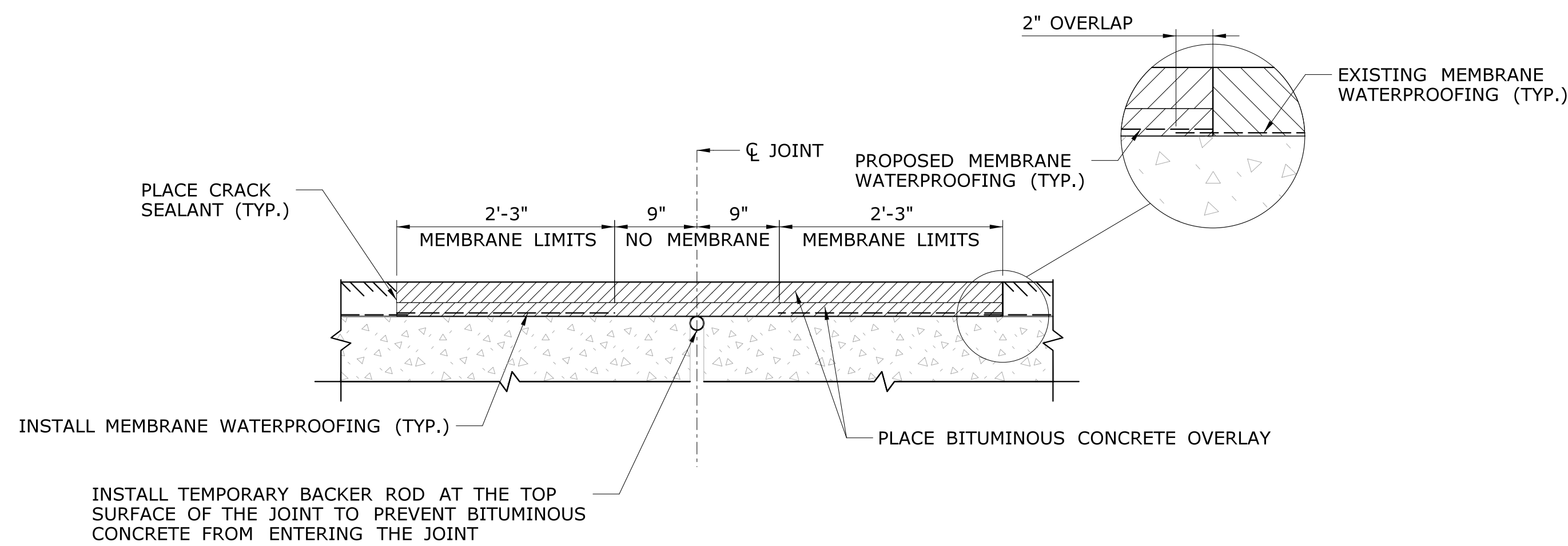
INSTALL ASPHALTIC PLUG EXPANSION JOINT SYSTEM
N.T.S.



JOINT AND PAVEMENT REMOVAL
N.T.S.

SUGGESTED SEQUENCE OF WORK

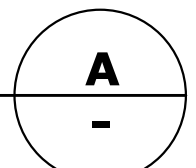
- STEP 1: CONTRACTOR SHALL PERFORM AN EXPLORATION AT THE GUTTERLINE (AT THE FOUR CORNERS OF THE BRIDGE) AND THE CROWN (AT THE BEGINNING AND END OF THE BRIDGE). A MINIMUM OF SIX REPRESENTATIVE DEPTH MEASUREMENTS SHALL BE TAKEN PER BRIDGE AT THESE LOCATIONS TO DETERMINE THE DEPTH OF PAVEMENT AND THE LOCATION OF THE DECK ENDS (CENTERLINE OF PROPOSED JOINT). ADDITIONAL MEASUREMENTS SHALL BE TAKEN IF NEEDED IN ACCORDANCE WITH SPECIAL PROVISION FOR "REMOVAL OF EXISTING WEARING SURFACE." CONTRACTOR SHALL ALSO MEASURE THE DECK JOINT GAP OPENING FOR SIZING OF THE FOAM SUPPORTED SILICONE GLAND.
- STEP 3: SAW-CUT THE BITUMINOUS PAVEMENT TO THE LIMITS SHOWN IN DETAIL FOR "JOINT AND PAVEMENT REMOVAL." SAW CUT SHALL NOT DAMAGE THE BRIDGE DECK OR APPROACH SLAB. TO BE PAID FOR UNDER ITEM "REMOVAL OF EXISTING WEARING SURFACE".
- STEP 4: REMOVE THE EXISTING PAVEMENT MATERIAL AND JOINT MATERIAL FULL DEPTH WITHIN THE LIMITS SHOWN TO BE PAID UNDER THE ITEM "REMOVAL OF EXISTING WEARING SURFACE".
- STEP 5: INSTALL TEMPORARY BACKER ROD FLUSH WITH THE BRIDGE DECK AND APPROACH SLAB.
- STEP 6: REPAIR DETERIORATED CONCRETE AS DETERMINED BY THE ENGINEER TO BE PAID UNDER "PARTIAL DEPTH PATCH" OR "FULL DEPTH PATCH (HIGH EARLY STRENGTH)".
- STEP 7: PLACE TEMPORARY PAVEMENT IN JOINT CUT-OUT AS REQUIRED TO BE PAID UNDER "HMA SX.XX". REMOVE TEMPORARY PAVEMENT PRIOR TO STEP 8 TO BE PAID UNDER THE ITEM "REMOVAL OF EXISTING WEARING SURFACE".
- STEP 8: INSTALL MEMBRANE WATERPROOFING TO THE TOP OF THE DECK, BACKWALL, AND APPROACH SLAB WITHIN THE LIMITS SHOWN.
- STEP 9: PLACE CRACK SEALANT ON VERTICAL EDGE OF PAVEMENT ALONG SAW-CUT LINES AND STAGE CONSTRUCTION SAW-CUT LINES.
- STEP 10: PLACE BITUMINOUS CONCRETE OVERLAY AS INDICATED ON THE PLANS.
- STEP 11: PLACE CRACK SEALANT ON THE HORIZONTAL SURFACE AT PAVEMENT CUT-OUT JOINTS.
- STEP 12: SAW-CUT PAVEMENT FULL DEPTH AT 10" FROM THE CENTER OF THE JOINT (BOTH SIDES OF JOINT) AND REMOVE ALL PAVEMENT MATERIAL BETWEEN SAW-CUTS INCLUDING THE TEMPORARY BACKER ROD. TO BE PAID UNDER THE ITEM "ASPHALTIC PLUG JOINT EXPANSION SYSTEM".
- STEP 13: INSTALL PROPOSED ASPHALTIC PLUG EXPANSION JOINT SYSTEM WITH FOAM SUPPORTED SILICONE GLAND AND BRIDGING PLATE. LOCATING PINS SHALL NOT BE USED TO SECURE THE BRIDGING PLATE.
- STEP 14: PLACE CRACK SEAL AT CURB LINE ALONG THE LENGTH OF THE BRIDGE, BOTH SIDES. CRACK SEALING SHALL BE INCLUDED FOR PAYMENT UNDER ITEM "JOINT AND CRACK SEALING OF BITUMINOUS CONCRETE PAVEMENT."



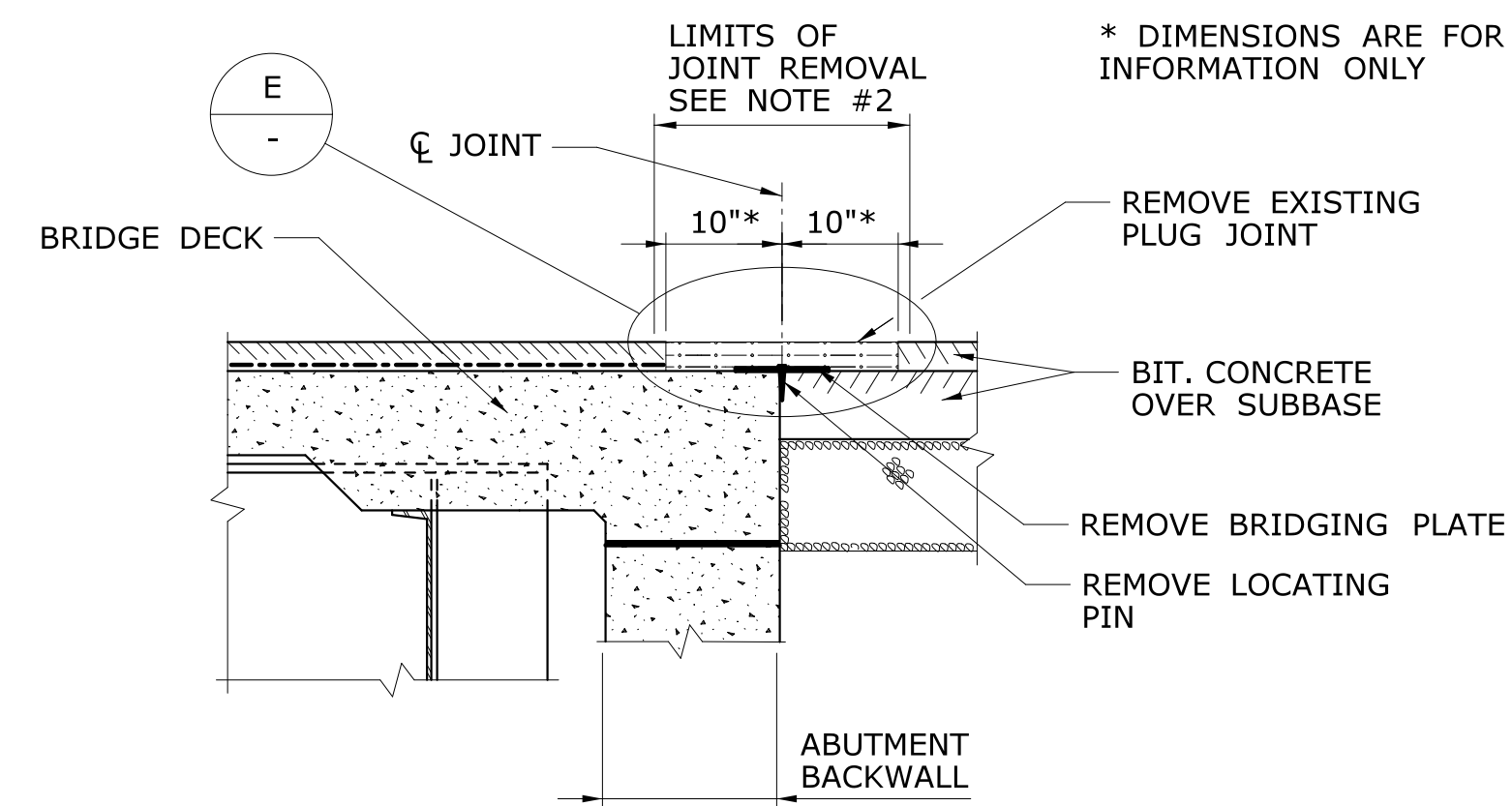
PLACEMENT OF PAVEMENT IN JOINT CUTOUT
N.T.S.

INSTALLATION OF ASPHALTIC PLUG JOINT WITH BRIDGING PLATE

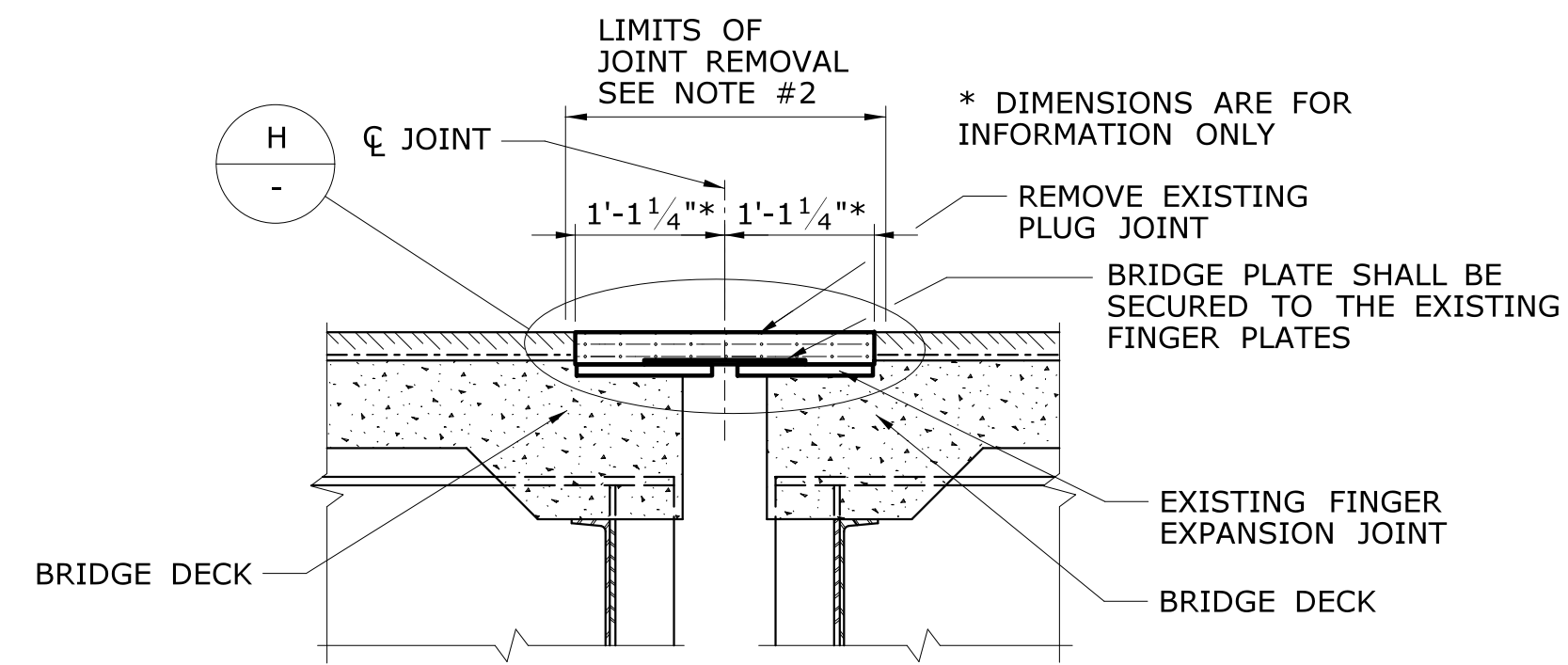
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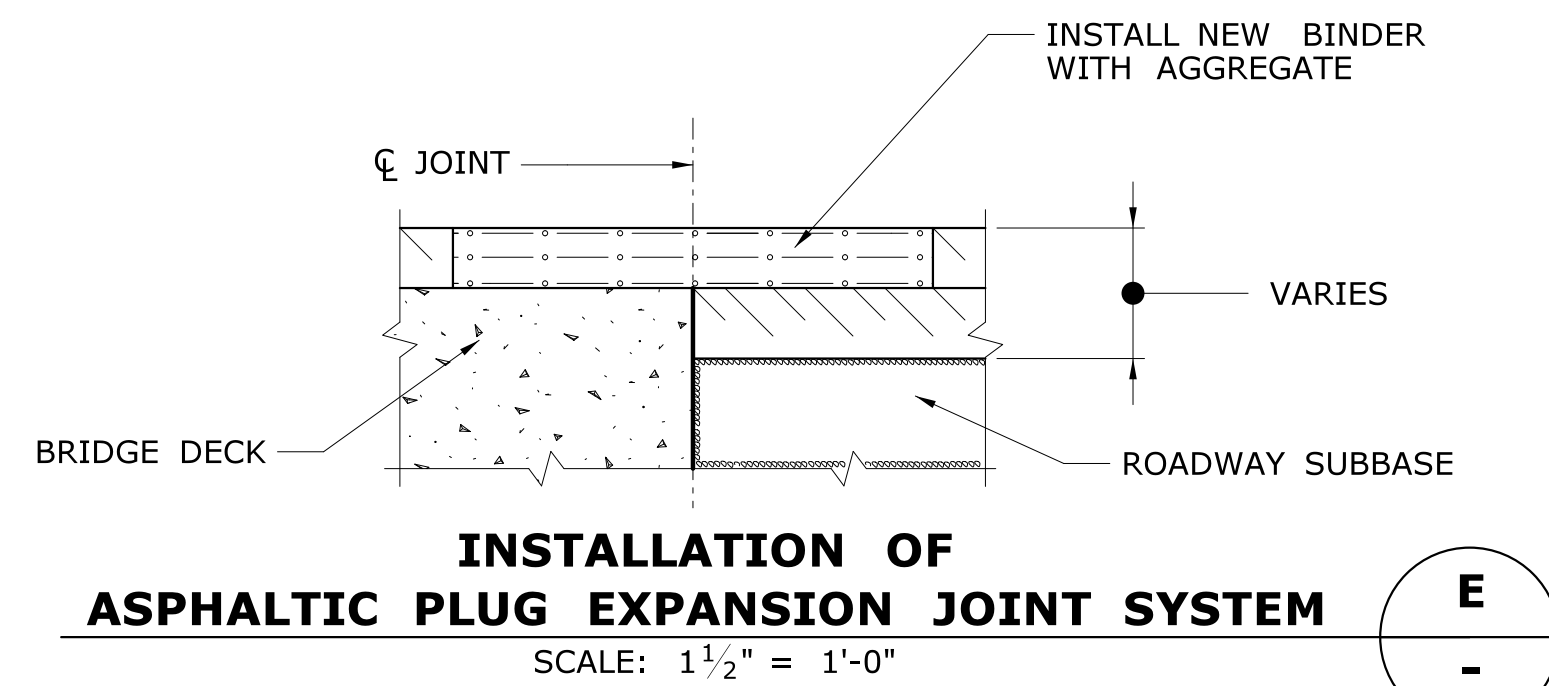


REMOVAL - EXISTING ASPHALTIC PLUG JOINT AT THE SHOULDER
SCALE: 3/4" = 1'-0"

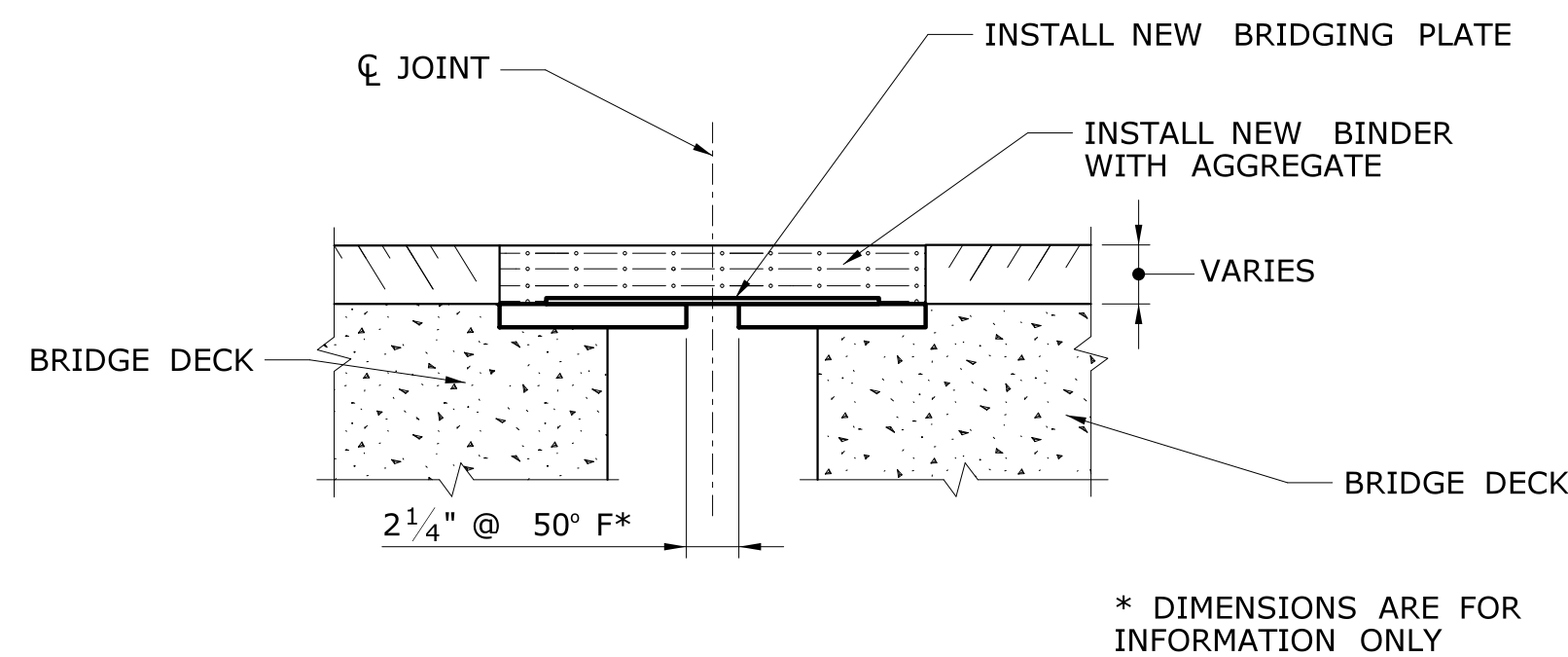


REMOVAL OF EXISTING ASPHALTIC PLUG JOINTS AT PIERS WITH FINGER JOINT PLATES
SCALE: 3/4" = 1'-0"

- NOTES:
1. THE REMOVAL OF ALL EXISTING JOINT MATERIAL AND BITUMINOUS CONCRETE WITHIN THE LIMITS OF THE PROPOSED JOINT TO BE PAID FOR UNDER THE ITEM "ASPHALTIC PLUG EXPANSION JOINT SYSTEM"
 2. WHERE EXISTING BRIDGE DECK JOINTS ARE CONCEALED BENEATH BITUMINOUS CONCRETE OVERLAY THE CONTRACTOR SHALL VERIFY THE BRIDGE DECK JOINT LOCATION AND HAVE THE LIMITS OF SAW CUTTING APPROVED BY THE ENGINEER.
 3. LIMITS OF SAW CUTTING (1" MIN. BEYOND EXISTING PLUG JOINT OR AS DIRECTED BY THE ENGINEER) SHALL BE PAID FOR UNDER THE ITEM "ASPHALTIC PLUG EXPANSION JOINT SYSTEM" (TYP.)
 4. NEW STEEL BRIDGING PLATES SHALL HAVE A MINIMUM THICKNESS OF 1/4". FOR JOINT OPENINGS THAT EXCEED 3" A 3/8" THICK BY 12" WIDE SHALL BE REQUIRED.

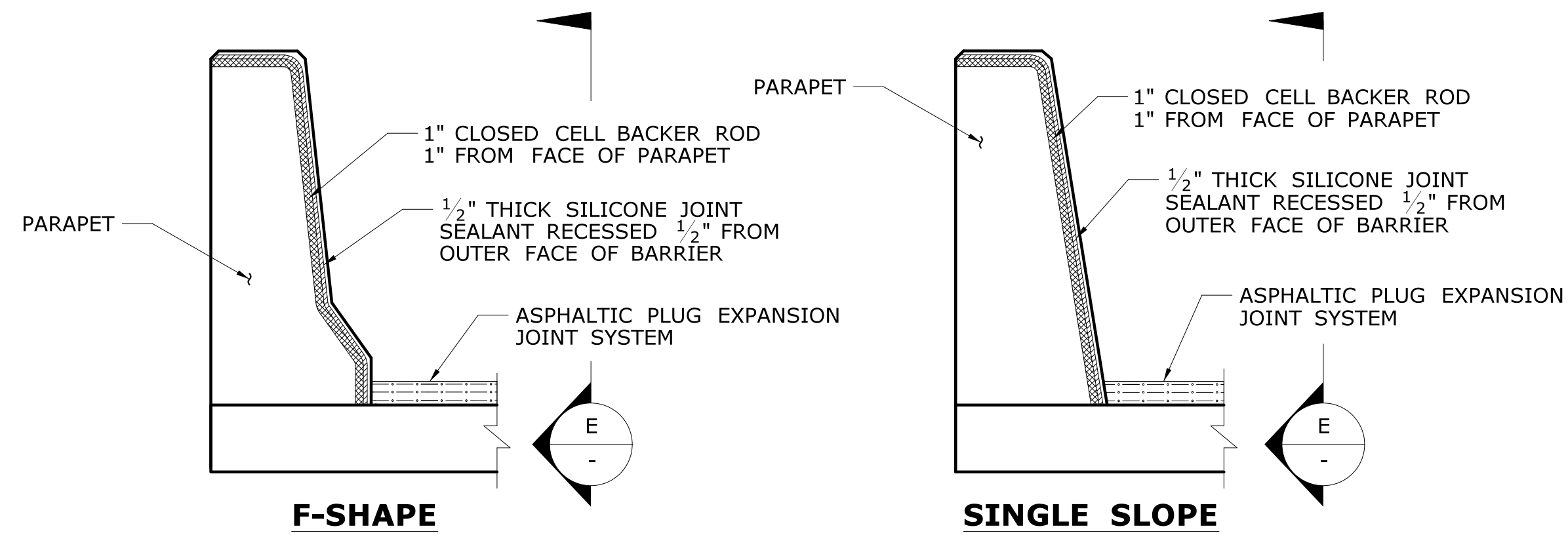


INSTALLATION OF ASPHALTIC PLUG EXPANSION JOINT SYSTEM
SCALE: 1 1/2" = 1'-0"



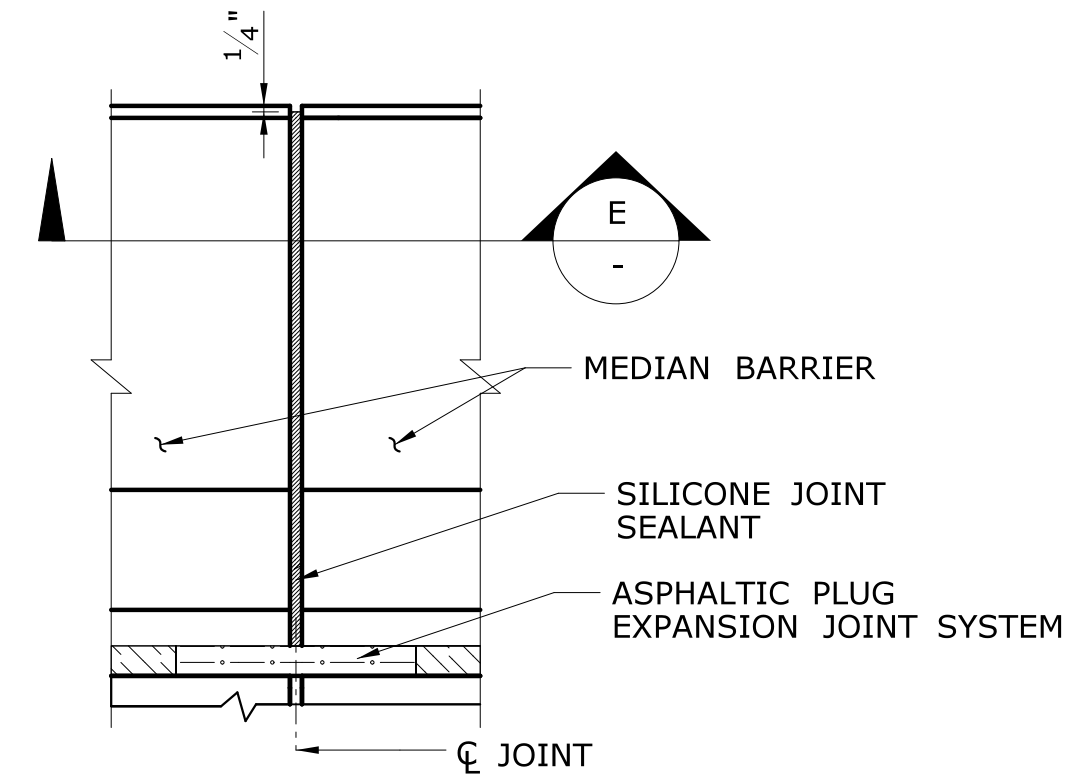
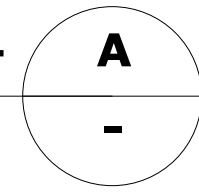
INSTALLATION OF ASPHALTIC PLUG JOINTS AT PIERS WITH FINGER JOINT PLATES
SCALE: 1" = 1'-0"

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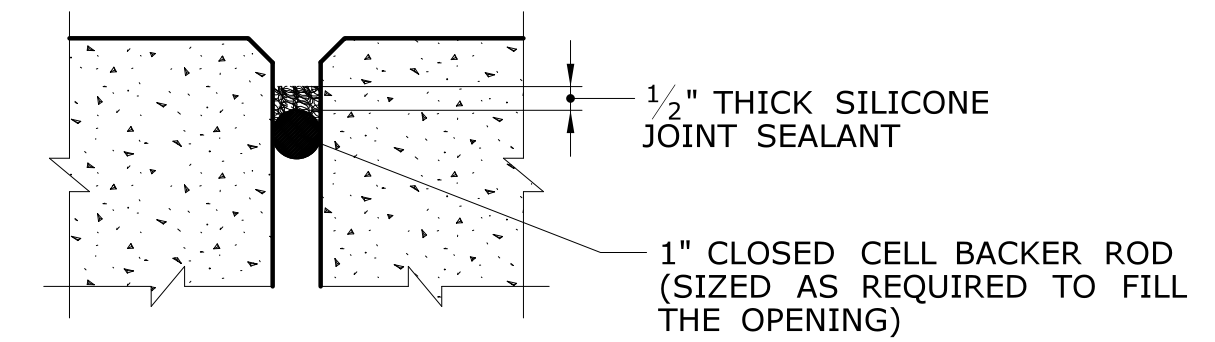
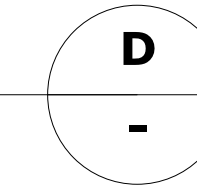
JOINT TREATMENT AT PARAPET

SCALE: 3/4" = 1'-0"



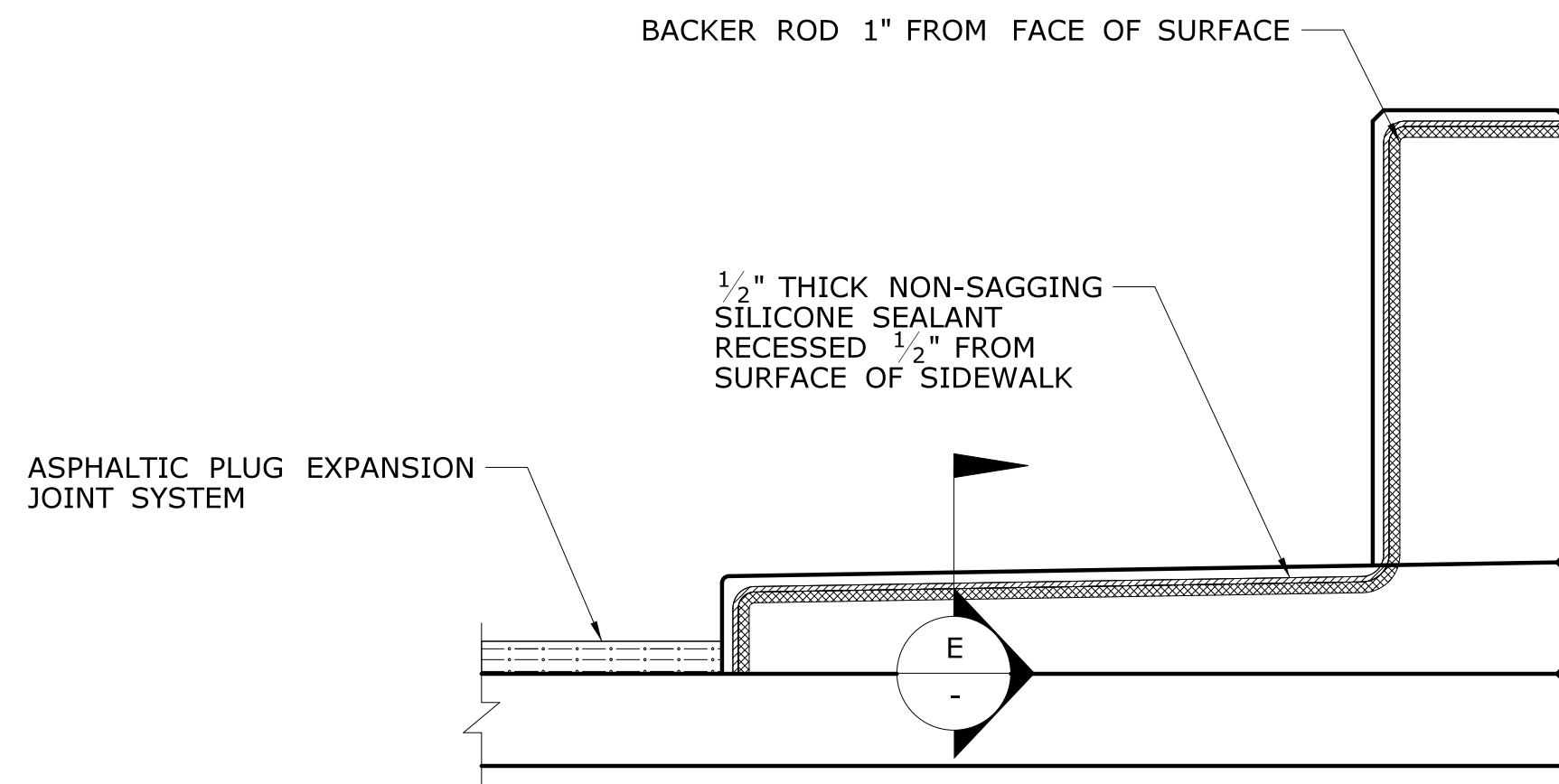
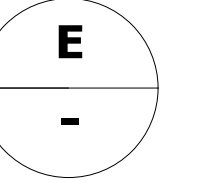
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SCALE: 3/4" = 1'-0"



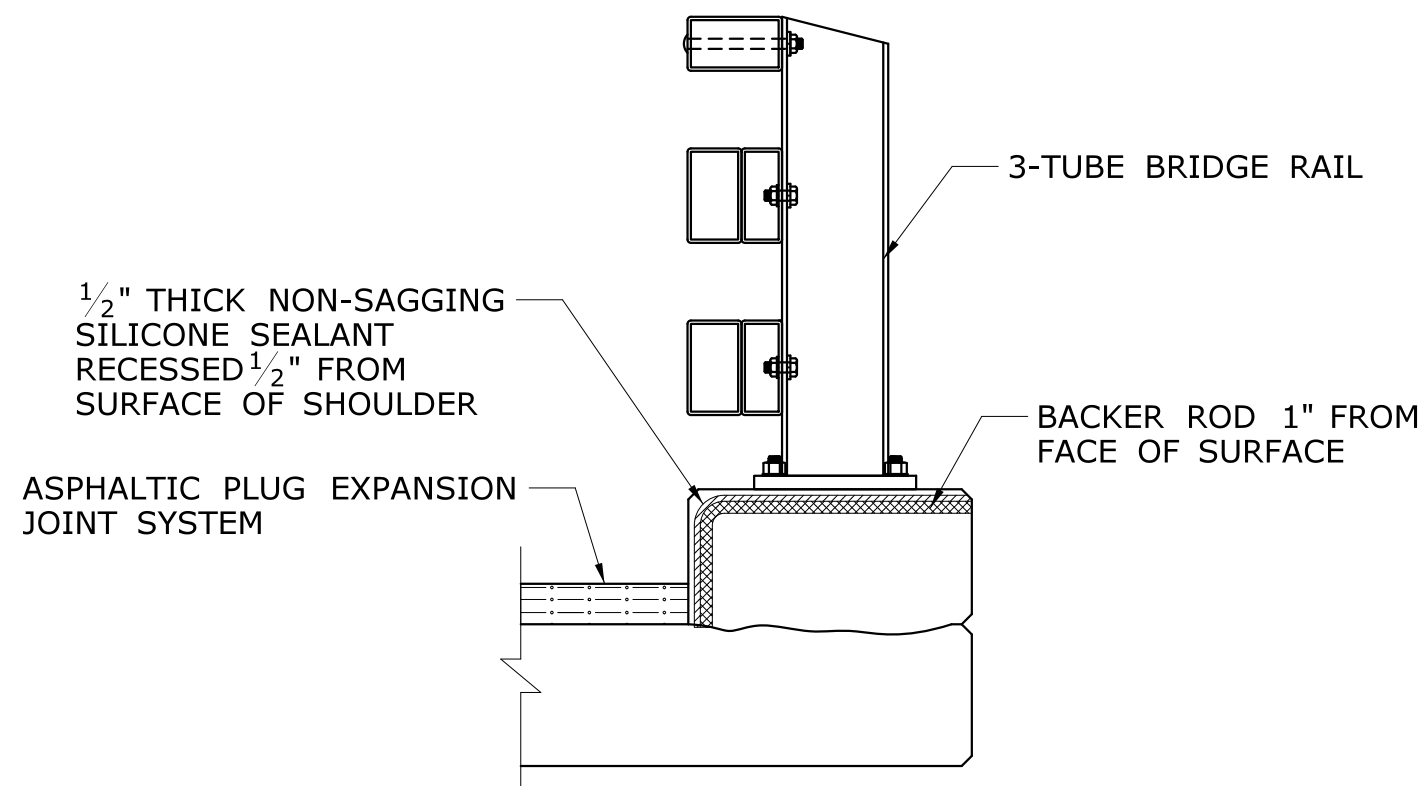
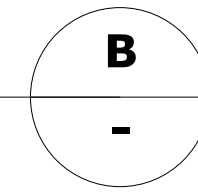
SECTION THROUGH MEDIAN/SHOULDER BARRIER JOINT

NTS



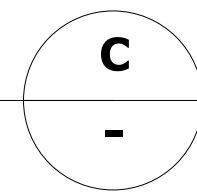
JOINT TREATMENT AT SIDEWALK
(SIMILAR DETAILS APPLY AT RAISED CONCRETE MEDIANS)

NTS



JOINT TREATMENT AT 3-TUBE BRIDGE RAIL

NTS



NOTE:

PRIOR TO INSTALLING THE NEW BACKER ROD AND SILICONE JOINT SEALANT, REMOVE EXISTING JOINT MATERIAL. CLEAN JOINT SIDES BY SANDBLASTING. DUST SHALL BE REMOVED BY THE METHOD APPROVED BY THE ENGINEER. THIS WORK WILL BE PAID FOR UNDER THE ITEM "ASPHALTIC PLUG EXPANSION JOINT SYSTEM".

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SCALE IN FEET 0 40 80 SCALE 1"=40'	APPROVED BY:	DRAWING TITLE: APJ ALTERNATE DETAILS - 2		SHEET NO.			
REV. DATE REVISION DESCRIPTION SHEET NO. Plotted Date: 12/26/2019	Filename: ...S-05 - APJ Alternate Details - 2.dgn						