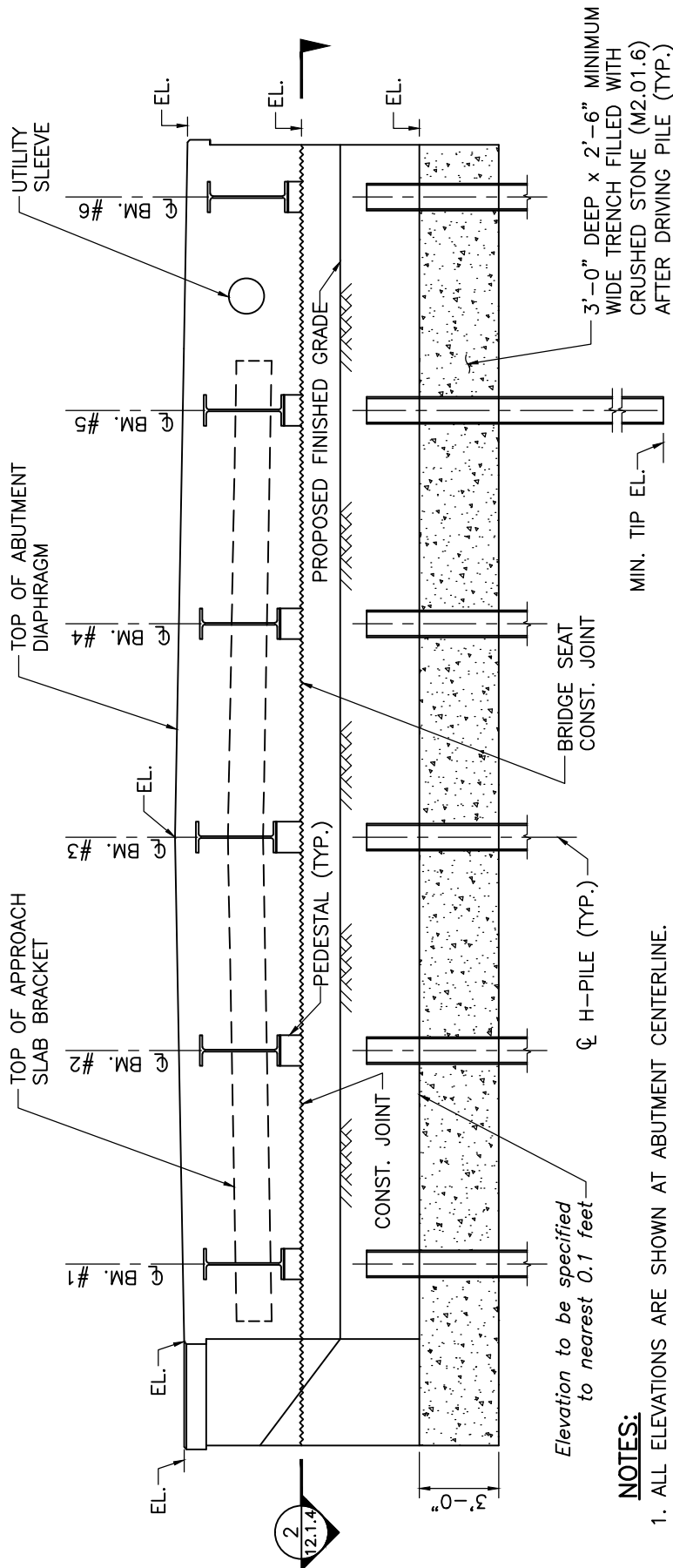


# SECTION AT CENTERLINE OF ABUTMENT INTEGRAL ABUTMENTS

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**12.1.3**



## NOTES:

1. ALL ELEVATIONS ARE SHOWN AT ABUTMENT CENTERLINE.
2. DETAILS ABOVE DECK LEVEL AND INDEPENDENT WINGWALLS OMITTED FOR CLARITY.

## SECTION 1

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

TOP OF PEDESTAL ELEVATIONS					
BM. #1	##.##	BM. #4	##.##	BM. #5	##.##
BM. #2	##.##	BM. #3	##.##	BM. #6	##.##

## NOTE:

ELEVATIONS DO NOT INCLUDE ERECTION PAD THICKNESS.

## NOTES:

1. Show and label stage construction joint(s), if any.
2. Show and label construction joint(s), if any. Construction joints shall be located at intervals of not more than 24'.
3. Provide top of pedestal elevations to nearest 0.01 ft.
4. Rolled beams are shown. Show actual beam type and position of the beams relative to the piles at the centerline of the abutment.
5. Show steps in the bridge seat, if any, centered between stringers.



## SECTION 2

**SECTION 2**  
SCALE:  $\frac{1}{4}" = 1'-0"$

NOTES:

1. Stage construction joint(s), if any, shall be shown on the plan view on Construction Drawings.
2. The plan view of each abutment shall be shown and aligned with elevation view.
3. Show steps in the bridge seat, if any, centered between stringers and square to the abutment centerline.
4. Minimize the number of required steps (refer to Dwg. No. 12.3.1 thru 12.3.4).
5. Movement joint between Integral and Independent Wingwalls shall be dimensioned as specified on Dwg. No. 12.1.6.

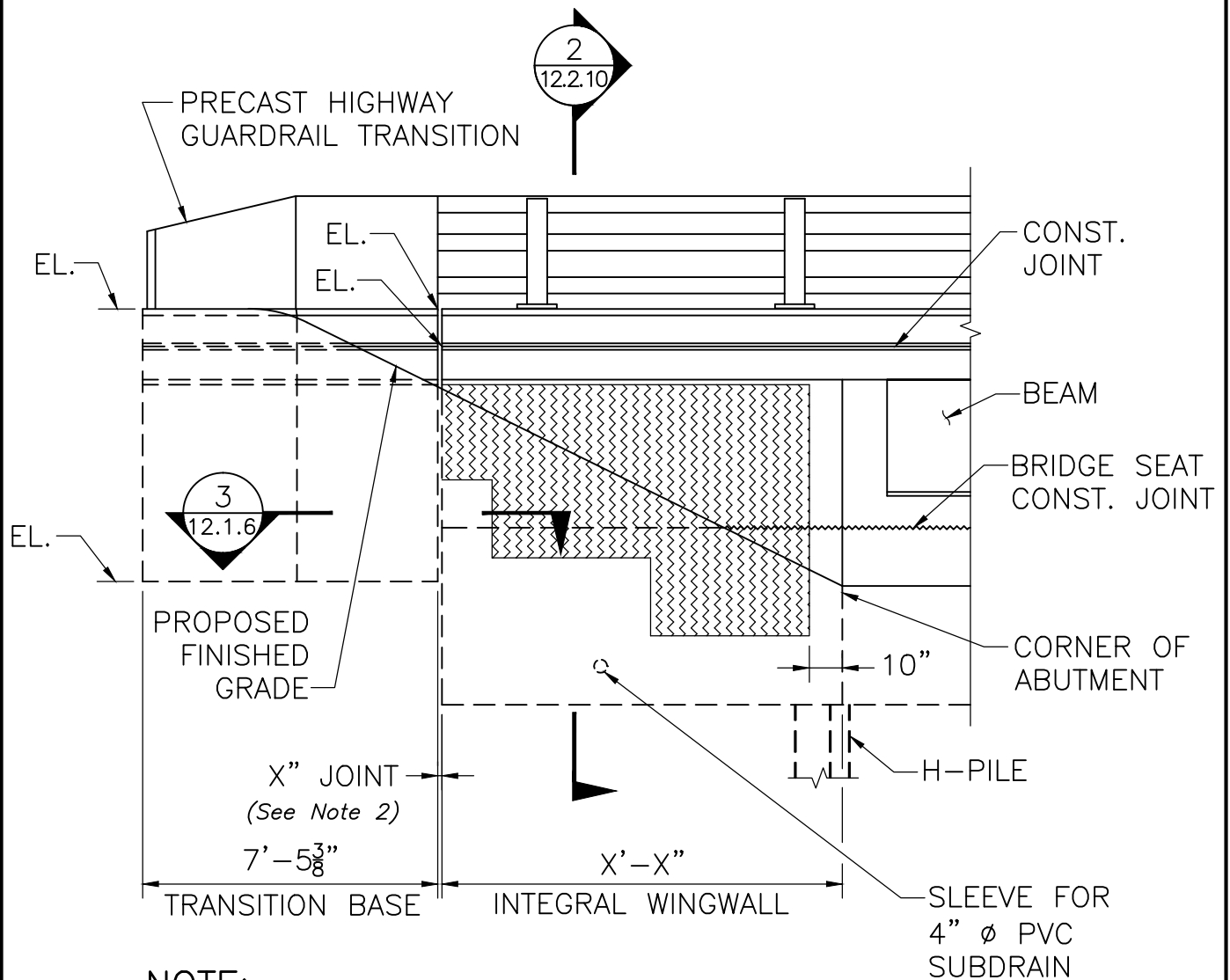


HORIZONTAL SECTION  
AT BRIDGE SEAT  
INTEGRAL ABUTMENTS

DATE OF ISSUE  
JUNE 2013

DRAWING NUMBER
----------------

### 12.1.4



**NOTE:**  
RAILING PICKETS NOT SHOWN FOR CLARITY.

## WINGWALL ELEVATION

SCALE:  $\frac{1}{4}" = 1'-0"$

### NOTES:

1. Rolled Beam with Type S3-TL4 railing shown. Modify for other beam types and railing/barriers as required.
2. See Dwg. No. 12.1.6 to determine movement joint width.
3. Show each wingwall in elevation.
4. Refer to Chapter 3 for wingwall and guardrail transition base geometry.
5. Striations shall be provided on wingwall only. They shall not be provided on front face of abutments. See Section 3.4 for general striation details.



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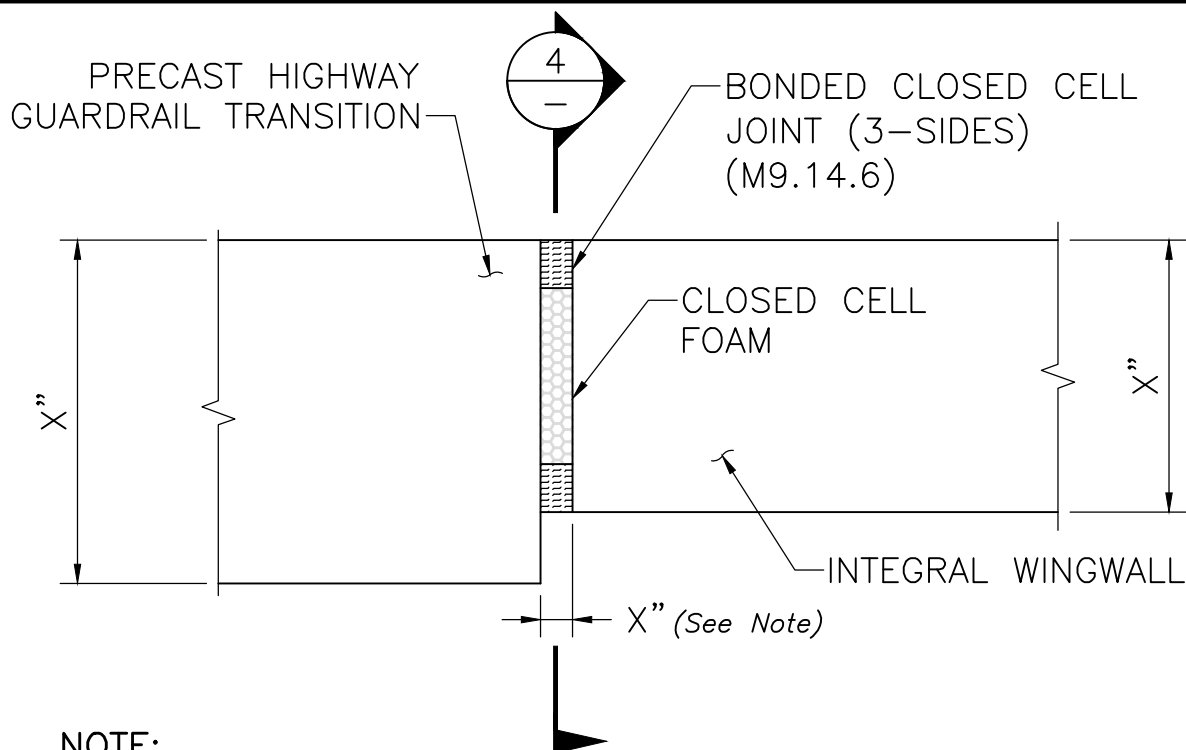
## WINGWALL ELEVATION

INTEGRAL ABUTMENTS

DATE OF ISSUE  
JUNE 2013

DRAWING NUMBER

**12.1.5**

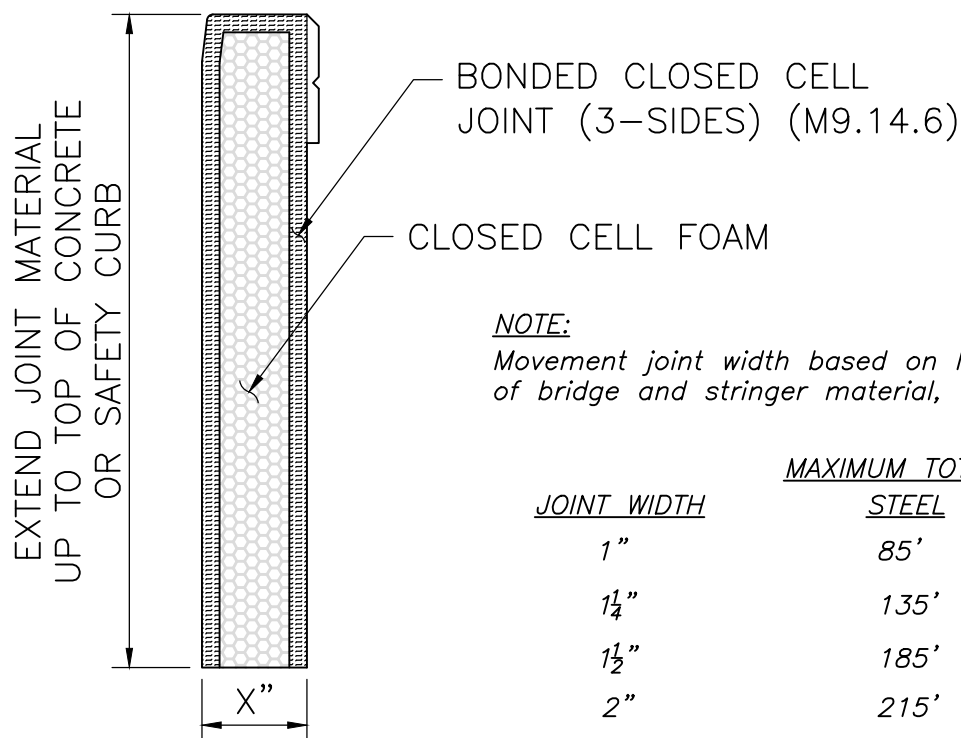


**NOTE:**

REINFORCEMENT NOT SHOWN FOR CLARITY.

### SECTION 3

SCALE: 1" = 1'-0"



**NOTE:**

Movement joint width based on length of bridge and stringer material, as shown below.

JOINT WIDTH	MAXIMUM TOTAL BRIDGE LENGTH	
	STEEL	CONCRETE
1"	85'	200'
1 1/4"	135'	300'
1 1/2"	185'	450'
2"	215'	550'
2 1/2"	265'	600'
3"	300'	

### SECTION 4

SCALE: 1/2" = 1'-0"



LRFD BRIDGE  
MANUAL, PART II

## WINGWALL SECTION AND MOVEMENT JOINT SECTION

INTEGRAL ABUTMENTS

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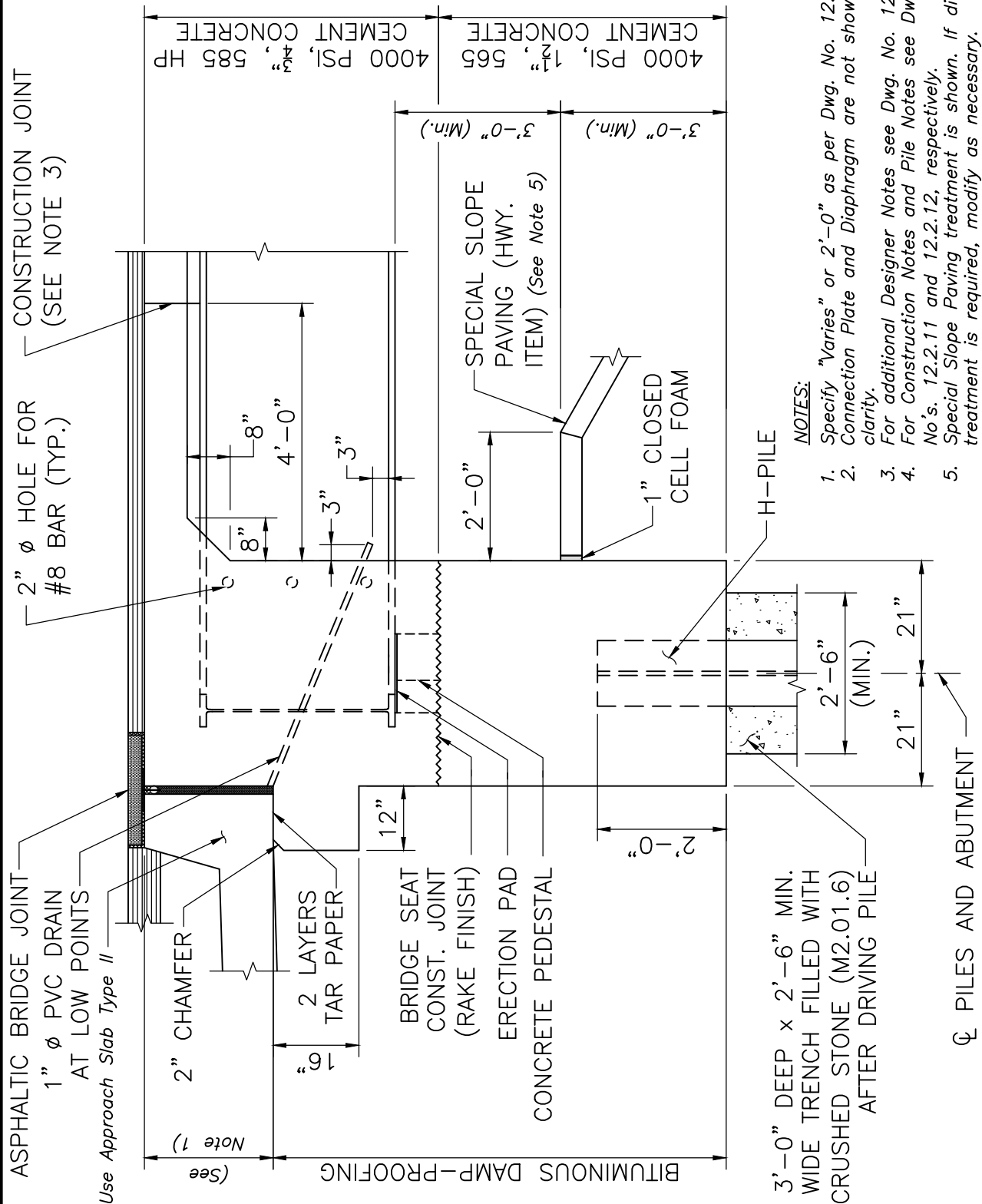
**12.1.6**

# ABUTMENT SECTION ROLLED BEAMS INTEGRAL ABUTMENTS

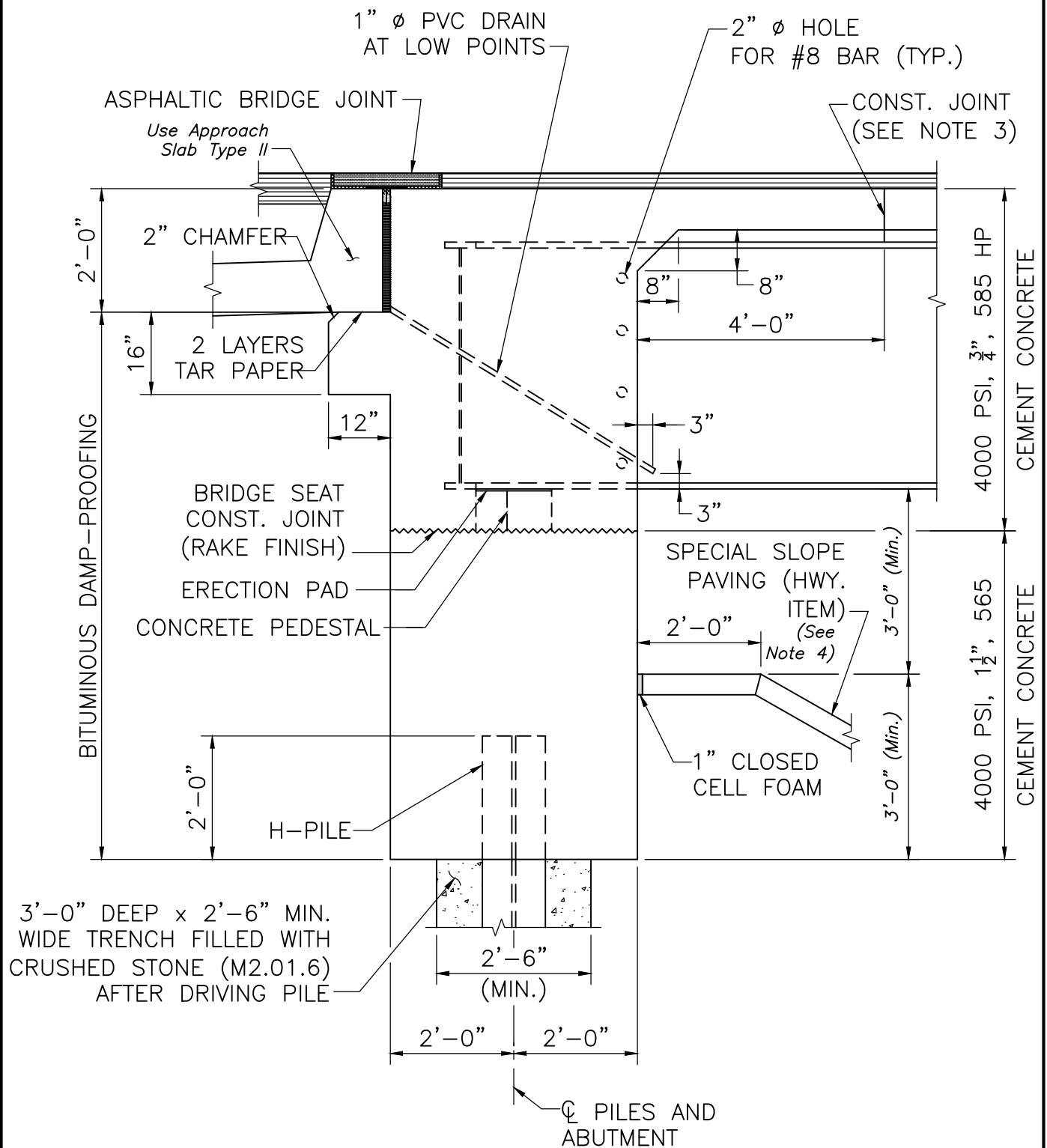
DATE OF ISSUE  
JUNE 2013

DRAWING NUMBER

**12.2.1**



## INTEGRAL ABUTMENT SECTION



## INTEGRAL ABUTMENT SECTION

SCALE:  $\frac{1}{2}$ " = 1'-0"

### NOTES:

1. Connection Plate and Diaphragm are not shown for clarity.
2. For additional Designer Notes see Dwg. No. 12.2.14.
3. For Construction Notes and Pile Notes see Dwg. No's. 12.2.11 and 12.2.12, respectively.
4. Special Slope Paving treatment is shown. If different treatment is required, modify as necessary.



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MANUAL, PART II

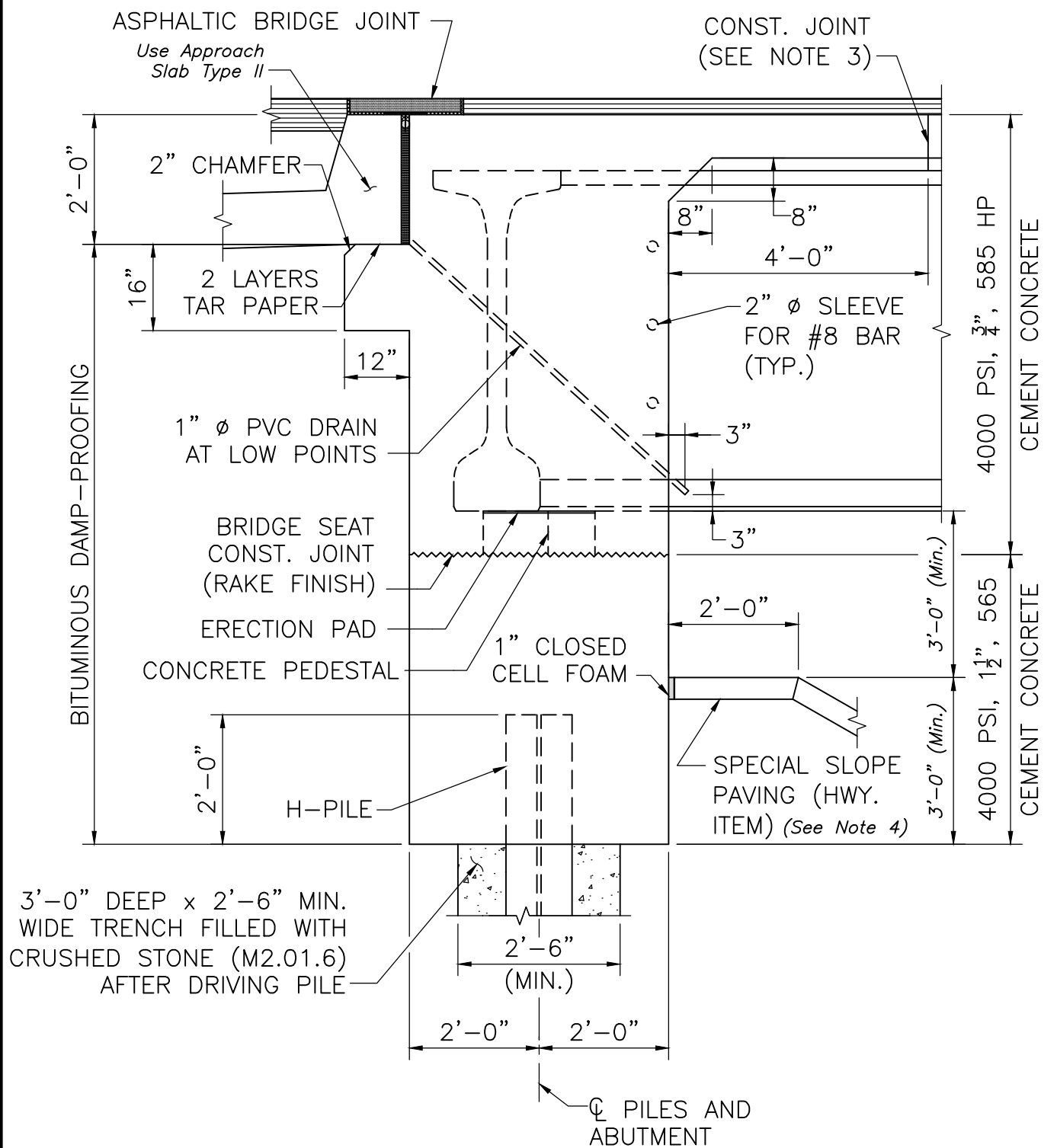
## ABUTMENT SECTION PLATE GIRDERS INTEGRAL ABUTMENTS

DATE OF ISSUE  
JUNE 2013

DRAWING NUMBER

**12.2.2**





## INTEGRAL ABUTMENT SECTION

SCALE:  $\frac{1}{2}" = 1'-0"$

### NOTES:

1. Connection Plate and Diaphragm are not shown for clarity.
2. For additional Designer Notes see Dwg. No. 12.2.14.
3. For Construction Notes and Pile Notes see Dwg. No's. 12.2.11 and 12.2.12, respectively.
4. Special Slope Paving treatment is shown. If different treatment is required, modify as necessary.



LRFD BRIDGE  
MANUAL, PART II

## ABUTMENT SECTION NEBT BEAMS INTEGRAL ABUTMENTS

DATE OF ISSUE  
JUNE 2013

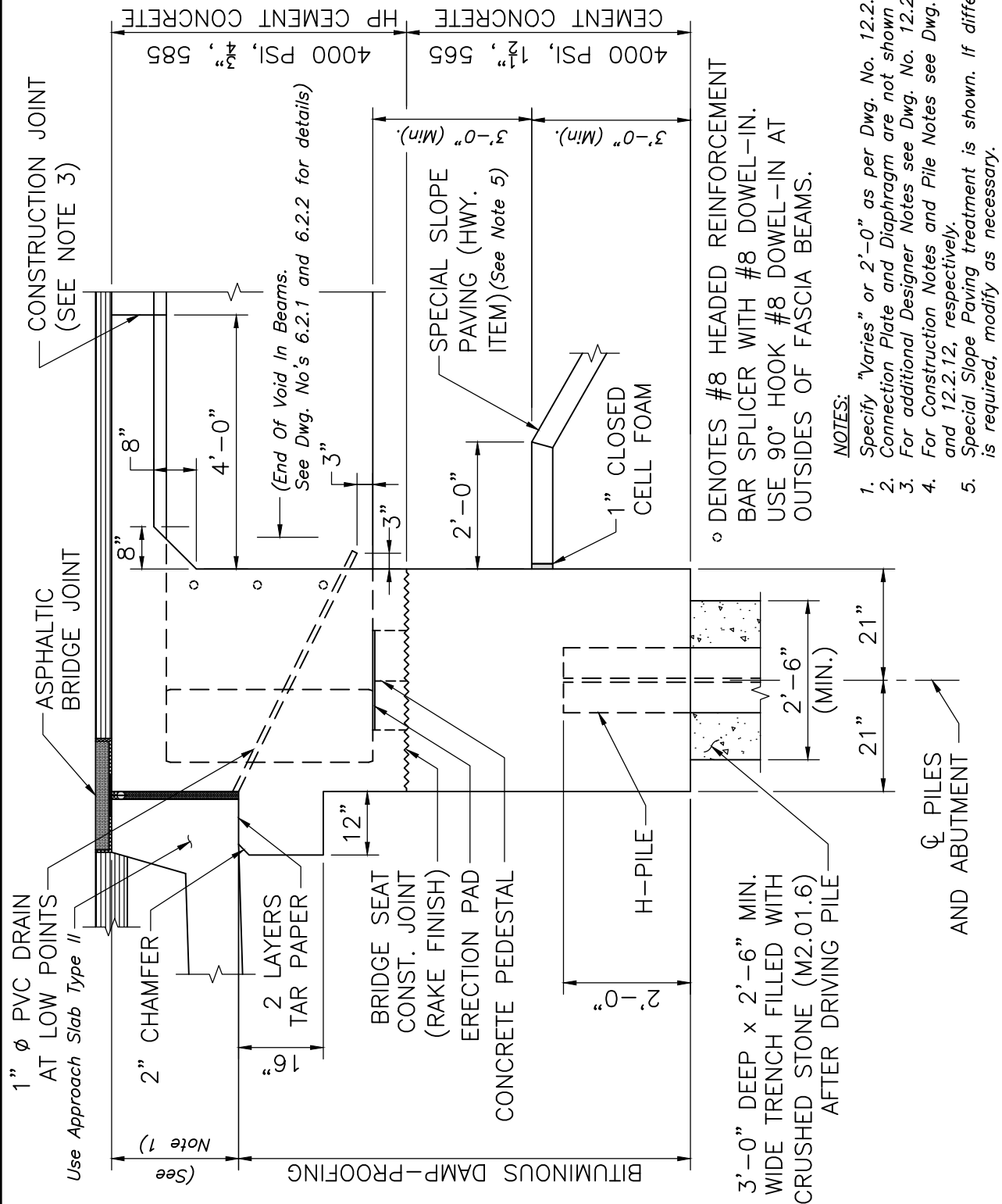
DRAWING NUMBER

**12.2.3**

# ABUTMENT SECTION SPREAD BOX BEAMS INTEGRAL ABUTMENTS

DATE OF ISSUE  
JUNE 2013

DRAWING NUMBER  
**12.2.4**

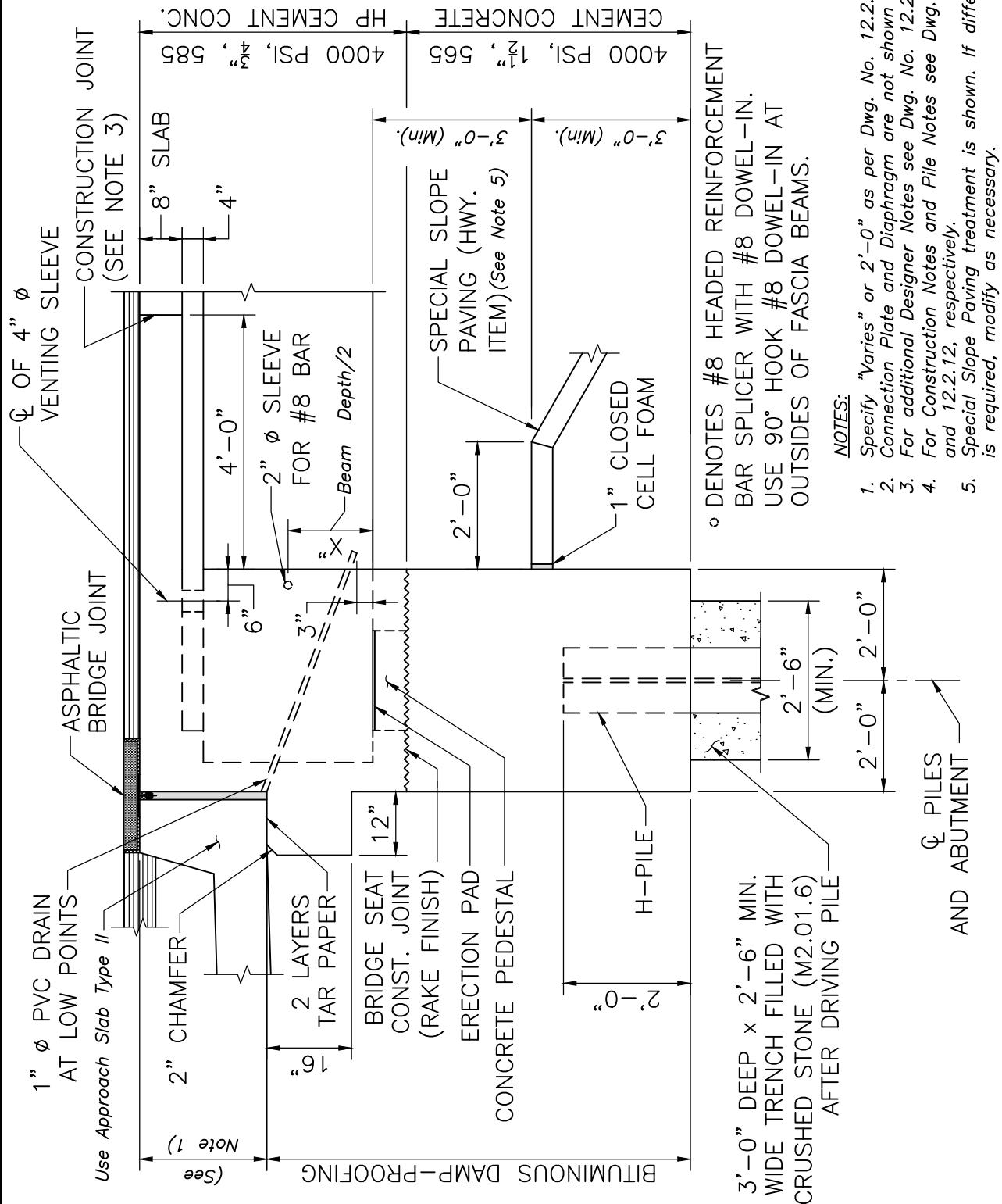


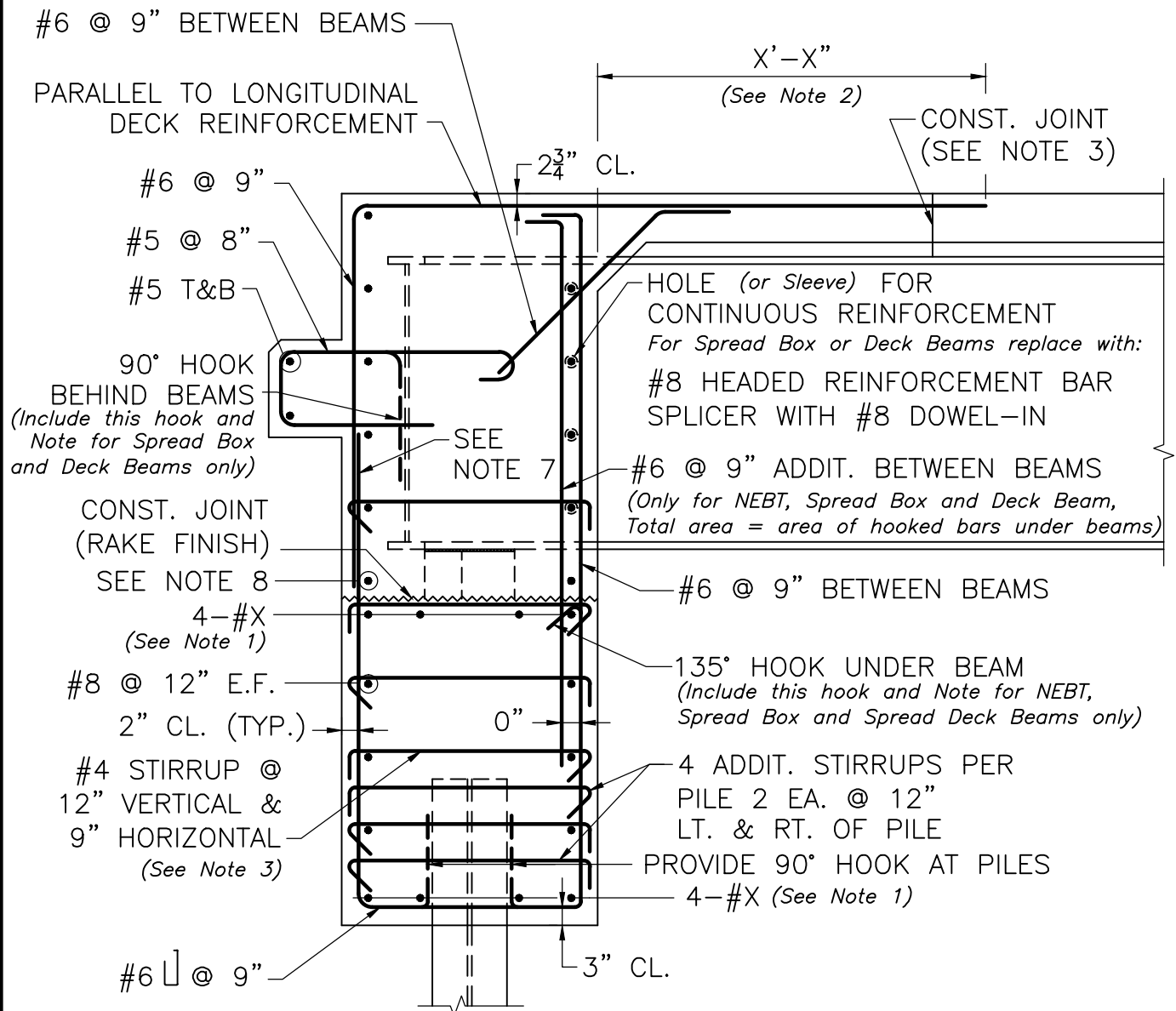
**INTEGRAL ABUTMENT SECTION**  
SCALE:  $\frac{1}{2}" = 1'-0"$

# ABUTMENT SECTION NEXT F BEAMS INTEGRAL ABUTMENTS

DATE OF ISSUE  
 JUNE 2013

DRAWING NUMBER  
**12.2.5**





## TYPICAL INTEGRAL ABUTMENT REINFORCEMENT

SCALE:  $\frac{1}{2}" = 1'-0"$

### NOTES:

1. For Designer Notes see Dwg. No. 12.2.14.
2. For Integral Abutment Construction Notes see Dwg. No. 12.2.11.
3. For Integral Abutment Pile Notes see Dwg. No. 12.2.12.
4. Plate Girder shown. Substitute actual beam type for design under consideration.



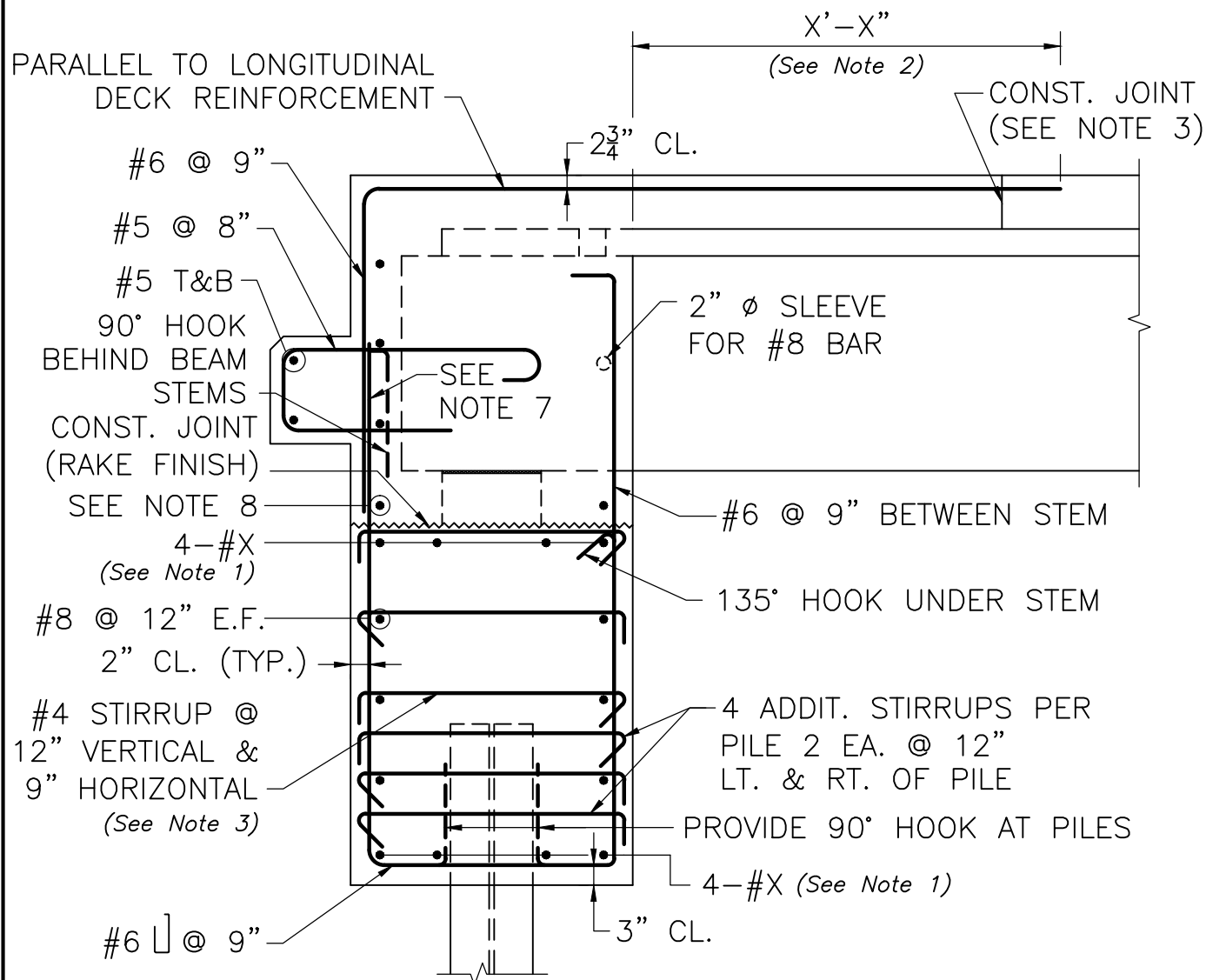
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## ABUTMENT REINFORCEMENT INTEGRAL ABUTMENTS

DATE OF ISSUE  
JUNE 2013

DRAWING NUMBER

**12.2.6**



## TYPICAL INTEGRAL ABUTMENT REINFORCEMENT

SCALE:  $\frac{1}{2}" = 1'-0"$

### NOTES:

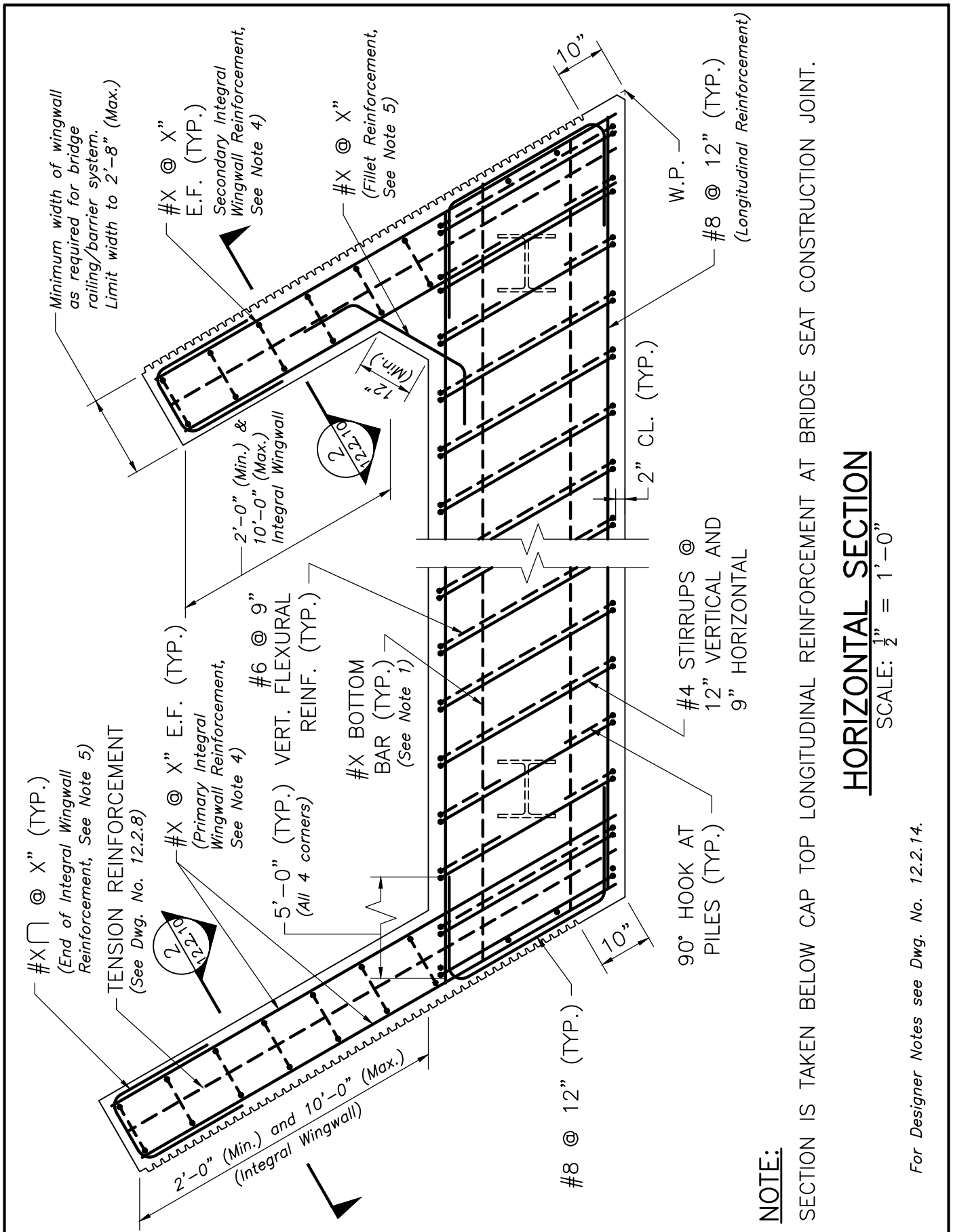
1. For Designer Notes see Dwg. No. 12.2.14.
2. For Integral Abutment Construction Notes see Dwg. No. 12.2.11.
3. For Integral Abutment Pile Notes see Dwg. No. 12.2.12.



# HORIZONTAL SECTION INTEGRAL ABUTMENTS

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DRAWING NUMBER  
**12.2.9**



**NOTE:**

SECTION IS TAKEN BELOW CAP TOP LONGITUDINAL REINFORCEMENT AT BRIDGE SEAT CONSTRUCTION JOINT.

## **HORIZONTAL SECTION**

For Designer Notes see Dwg. No. 12.2.14.

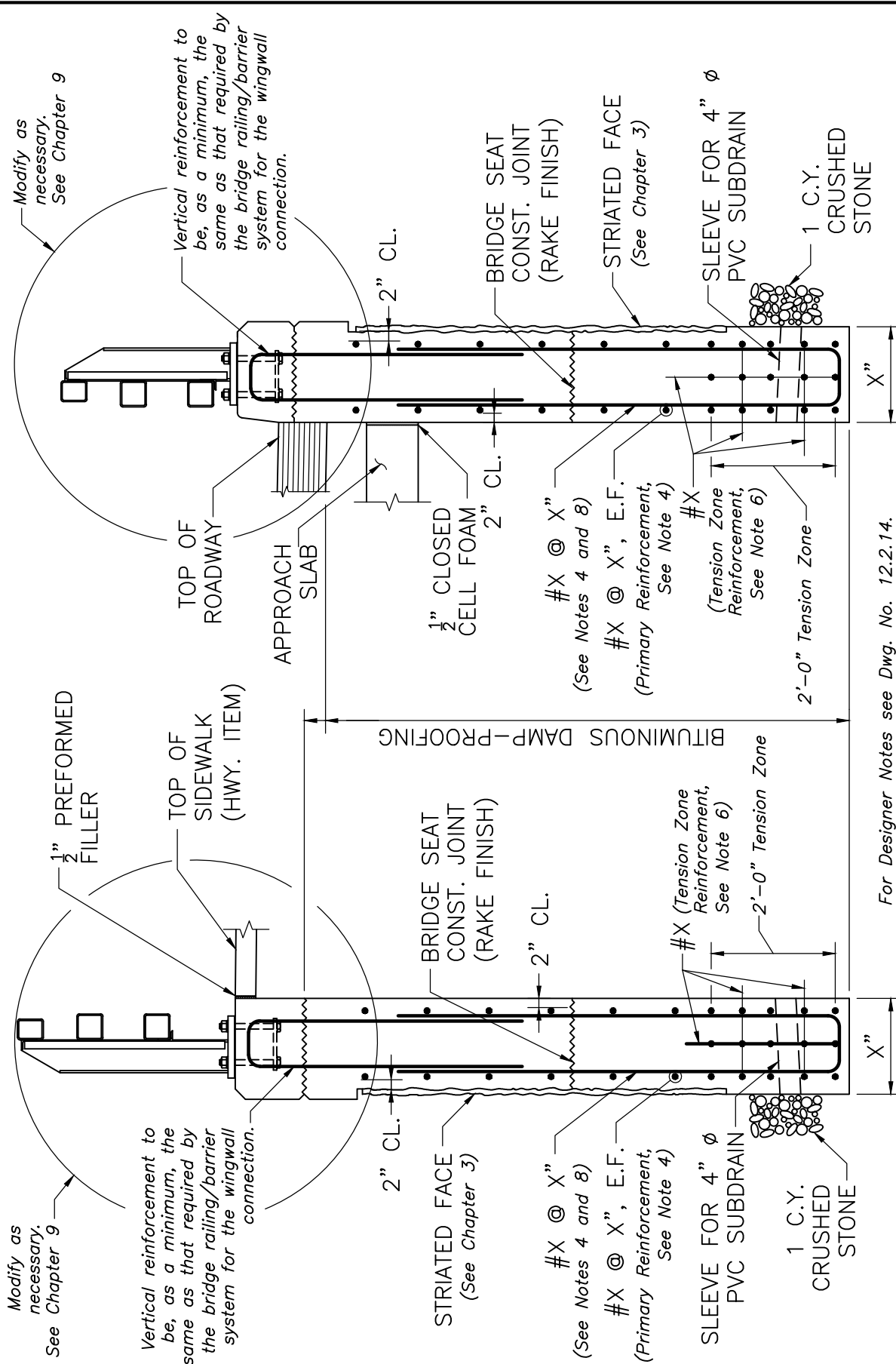


INTEGRAL WINGWALL  
SECTIONS  
INTEGRAL ABUTMENTS

DATE OF ISSUE  
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DRAWING NUMBER

**12.2.10**





Place these notes on the Construction Drawing containing the Abutment Section (Dwg. Nos. 12.2.1 thru 12.2.5) and place the Abutment Section Reinforcement drawing (Dwg. Nos. 12.2.6 and 12.2.7) on that same sheet. Use the appropriate notes to the particular superstructure type.

## CONSTRUCTION NOTES:

1. ALL REINFORCEMENT SHALL BE COATED.
2. DECK SLAB REINFORCEMENT NOT SHOWN FOR CLARITY. CONTINUE DECK SLAB REINFORCEMENT TO BACK OF ABUTMENT.
3. THE CONTRACTOR SHALL FOLLOW THE DECK PLACEMENT SEQUENCE AS SHOWN ON THESE CONSTRUCTION DRAWINGS.
4. ALL CONCRETE SHALL CONTAIN SUPERPLASTICIZER TO ENSURE ADEQUATE CONSOLIDATION.
5. BOTH ABUTMENTS SHALL BE BACKFILLED SIMULTANEOUSLY. NO MORE THAN TWO (2) FEET OF DIFFERENTIAL BACKFILL HEIGHT SHALL BE PERMITTED. BACKFILLING SHALL NOT BEGIN UNTIL THE ABUTMENT AND DECK CONSTRUCTION IS COMPLETE.
6. ALL UNPAINTED WEATHERING STEEL EMBEDDED IN THE ABUTMENT AND WITHIN 12" OF THE ABUTMENT FACE SHALL BE PAINTED. THE FINISH COAT COLOR SHALL MATCH COLOR CHIP NO. 30045 OF FEDERAL STANDARD 595B.  
*(Do not include this note if weathering steel is not used.)*
7. THE CONTRACTOR MAY USE MECHANICAL REINFORCING BAR SPLICERS IN LIEU OF TENSION LAP SPLICES TO FACILITATE CONSTRUCTION. HOWEVER, NO ADDITIONAL COMPENSATION WILL BE PROVIDED FOR THE USE OF MECHANICAL REINFORCING BAR SPLICERS.  
*(Dimension the length required for a Class "C" Lap Splice. If a Class "C" Lap Splice will not fit into the depth provided, replace Note 7 with the following:)*  
MECHANICAL REINFORCING BAR SPLICERS SHALL BE INSTALLED TO MAKE THIS REINFORCEMENT CONTINUOUS.
8. MECHANICAL REINFORCING BAR SPLICERS SHALL BE INSTALLED AT STAGE CONSTRUCTION JOINTS FOR ALL TRANSVERSE REINFORCEMENT.  
*(Do not include this note if stage construction is not used.)*
9. THE TOP OF THE APPROACH SLAB SHALL MATCH THE TOP OF THE ABUTMENT DIAPHRAGM.



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## CONSTRUCTION NOTES

INTEGRAL ABUTMENTS

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**12.2.11**

## INTEGRAL ABUTMENT PILE NOTES:

*These Notes shall be modified, if necessary, based upon the recommendations contained within the Geotechnical Report.*

1. A TRENCH WITH A DEPTH OF 3'-0" AND A MINIMUM WIDTH OF 2'-6" SHALL BE CONSTRUCTED DIRECTLY BELOW THE BOTTOM OF THE PILE CAP ELEVATION. AFTER THE PILES ARE DRIVEN, THE TRENCH SHALL BE FILLED WITH CRUSHED STONE (M2.01.6).
2. ALL SPLICES SHALL HAVE COMPLETE PENETRATION BUTT WELDS. THERE SHALL BE NO SPLICES WITHIN THE TOP 20 FEET OF PILE. SPLICE WELDS SHALL BE 100% UT.
3. THE FACTORED AXIAL DESIGN LOAD PER PILE IS X KIPS AS PER AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS STRENGTH I LOAD COMBINATION. *(Designer to specify the Limit State and the Group Load Combination that produce the highest axial load)*
4. THE FACTORED STRUCTURAL RESISTANCE PER PILE IS X KIPS AND IS THE PRODUCT OF THE NOMINAL STRUCTURAL RESISTANCE OF X KIPS AND A RESISTANCE FACTOR OF 0.XX.
5. THE FACTORED GEOTECHNICAL PILE RESISTANCE IS X KIPS. THE ESTIMATED TIP ELEVATION IS XXX FEET.  
*(Use this note only when the Factored Geotechnical Capacity controls the pile axial capacity, such as from friction or friction and end bearing as specified in the Geotechnical Report.)*
- 6a. THE MINIMUM TIP ELEVATION IS XXX FEET.  
*(Use this note only when the required pile length is not determined by the required axial capacity, i.e., lateral loading, scour resistance, or other factors, as recommended in the Geotechnical Report, determine the pile length.)*
- 6b. PILES SHALL BE DRIVEN TO BEDROCK WITH AN ESTIMATED TIP ELEVATION OF XXX FEET. HEAVY DUTY PILE SHOES SHALL BE INSTALLED ON THE TIPS OF ALL PILES. PREFABRICATED PILE SHOES MAY BE USED IF APPROVED BY THE ENGINEER.  
*(Include this note only when the Factored Structural Capacity controls the pile axial capacity due to end bearing on rock as specified in the Geotechnical Report.)*
- 6c. DETERMINATION OF THE DRIVEN PILE RESISTANCE, PILE DRIVING CRITERIA, AND PILE INTEGRITY SHALL BE PERFORMED USING THE XX *(Designer to specify the Formula Method, WEAP, PDA, Static - Cyclic (Express) Load Test, Static Load Test, or other system, as recommended in the Geotechnical Report)*  
DRIVING/TESTING METHOD WITH A RESISTANCE FACTOR OF 0.XX.  
PILES SHALL BE INSTALLED TO ACHIEVE A FACTORED DRIVEN RESISTANCE EQUAL TO OR GREATER THAN THE FACTORED AXIAL DESIGN LOAD.
7. THE CONTRACTOR SHALL SUBMIT A PILE SCHEDULE, PILE INSTALLATION, AND PILE DRIVING/TESTING PLAN FOR REVIEW AND APPROVAL OF THE ENGINEER.
8. PILES SHALL CONFORM TO AASHTO M270 GRADE 50.

## REQUIRED PILE LOCATION TOLERANCES:

1. CONFORMANCE TO THE FOLLOWING TOLERANCES IS OF EXTREME IMPORTANCE TO FOUNDATIONS OF THIS TYPE.
2. PRIOR TO DRIVING, EACH ABUTMENT PILE SHALL BE HELD BY TEMPLATE TO WITHIN 1" OF PLAN LOCATION.
3. AFTER EACH ABUTMENT PILE IS DRIVEN, THE TOP OF THE PILE SHALL BE WITHIN 3" OF PLAN LOCATION.



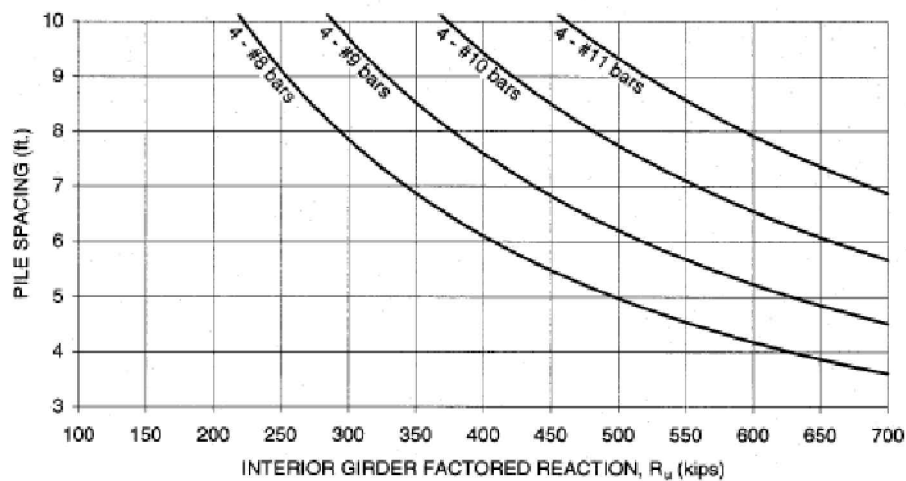
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## PILE NOTES

INTEGRAL ABUTMENTS

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JUNE 2013

DRAWING NUMBER  
**12.2.12**



### PILE CAP TOP AND BOTTOM LONGITUDINAL REINFORCEMENT

Barrier/Railing Type	Shallow Superstructure (less than 64" deep)	Medium Depth Superstructure (64" to 82" deep)	Deep Superstructure (greater than 82" deep)
CT - TL2	#6 @ 6"	#6 @ 10"	#6 @ 11"
S3 - TL4	#6 @ 6"	#6 @ 10"	#6 @ 11"
CP - PL2	#6 @ 6"	#6 @ 10"	#6 @ 11"
CF - PL3	#6 @ 6"	#6 @ 10"	#6 @ 11"

### MINIMUM REQUIRED INTEGRAL WINGWALL PRIMARY REINFORCEMENT

Integral Wingwall Thickness	Bar Size	Spacing (in.)
$t \leq 18"$	#4	12"
$18" < t \leq 24"$	#5	12"
$24" < t \leq 32"$	#6	12"

### MINIMUM REQUIRED INTEGRAL WINGWALL SECONDARY REINFORCEMENT

NOTE:

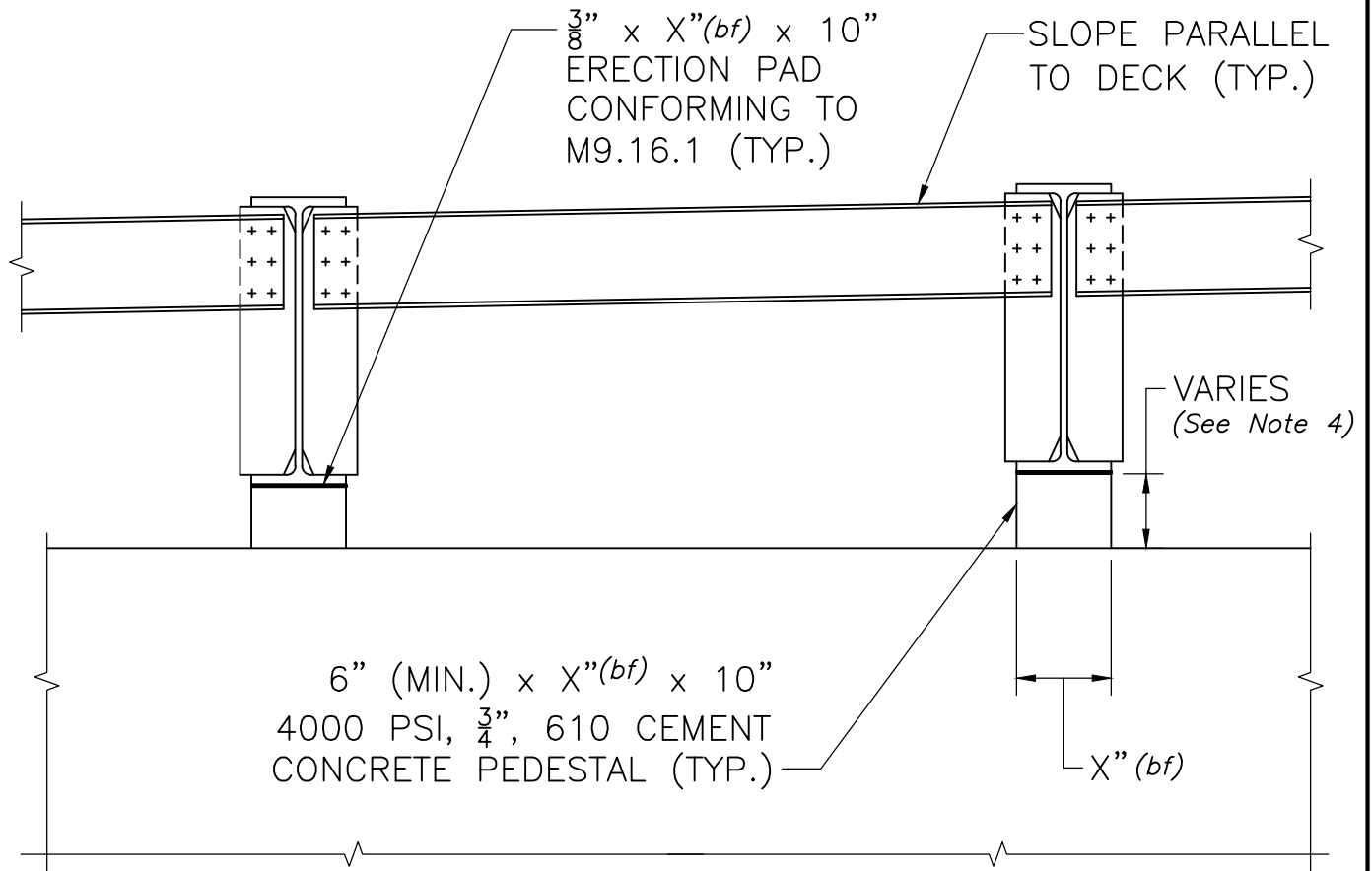
Please refer to Part I, Chapter 3, Section 3.9 of this Bridge Manual for additional information on design and detailing of the Integral Abutment Bridges.



## NOTES:

1. *Cap Top and Bottom Longitudinal Reinforcement shall be as per Table on Dwg. No. 12.2.13.*
2. *The horizontal leg of the L-shaped connection bars shall be extended into the deck beyond the inside face of the abutment diaphragm for a length of:*
  - *for Simple Span Bridges:*  
*10% of the Span Length + Ld*
  - *for Continuous Span Bridges:*  
*10% of the End Span Length + Ld*
3. *Continue stirrups to bridge seat construction joint or to a level just below approach slab support bracket, whichever is higher. Specify same spacings as horizontal and vertical bars.*
4. *Minimum Required Primary (Longitudinal) and Secondary (Vertical) Integral Wingwall Reinforcement shall be as per Dwg. No. 12.2.13.*
5. *The Fillet Reinforcement as well as the End of Integral Wingwall Reinforcement shall be of the same size and spacing as the Primary Integral Wingwall Reinforcement.*
6. *The Tension Zone Reinforcement shall be of the same size as the Primary Integral Wingwall Reinforcement and shall be distributed throughout the tension zone as shown.*
7. *Check constructability of NEBT integral abutment bridges on skew. Ensure sufficient clearance between flanges and the back of the abutment for placement of reinforcement and consolidation of concrete. The minimum clear cover between flanges and the back of the abutment shall be 4". The abutment thickness may be increased to accommodate these requirements. Box and Deck Beam ends shall be skewed for this purpose.*
8. *Reinforcement configuration shown is conceptual. The Designer shall modify the arrangement as necessary by design.*
9. *Deck drains shall be specified for all integral abutment bridges with HMA wearing surface and shall be located in relation to the abutment diaphragm as shown on Dwg. No. 7.3.1.*





## BEAM END DETAILS

SCALE:  $\frac{1}{2}" = 1'-0"$

### NOTES:

1. Provide End Diaphragm Details as shown on Dwg. No. 5.1.4.
2. End diaphragms shall be placed parallel to the centerline of abutment as shown in the Framing Plan.
3. If stage construction is present, omit end diaphragms in the affected bays and provide additional reinforcing that is to be spliced using dowel bar splicers.
4. Minimum pedestal height shall be 6"; maximum shall be 12" excluding pad thickness. Steps in bridge seat construction joint may be used to accommodate bridge cross slope. Use only the minimum number of steps necessary.



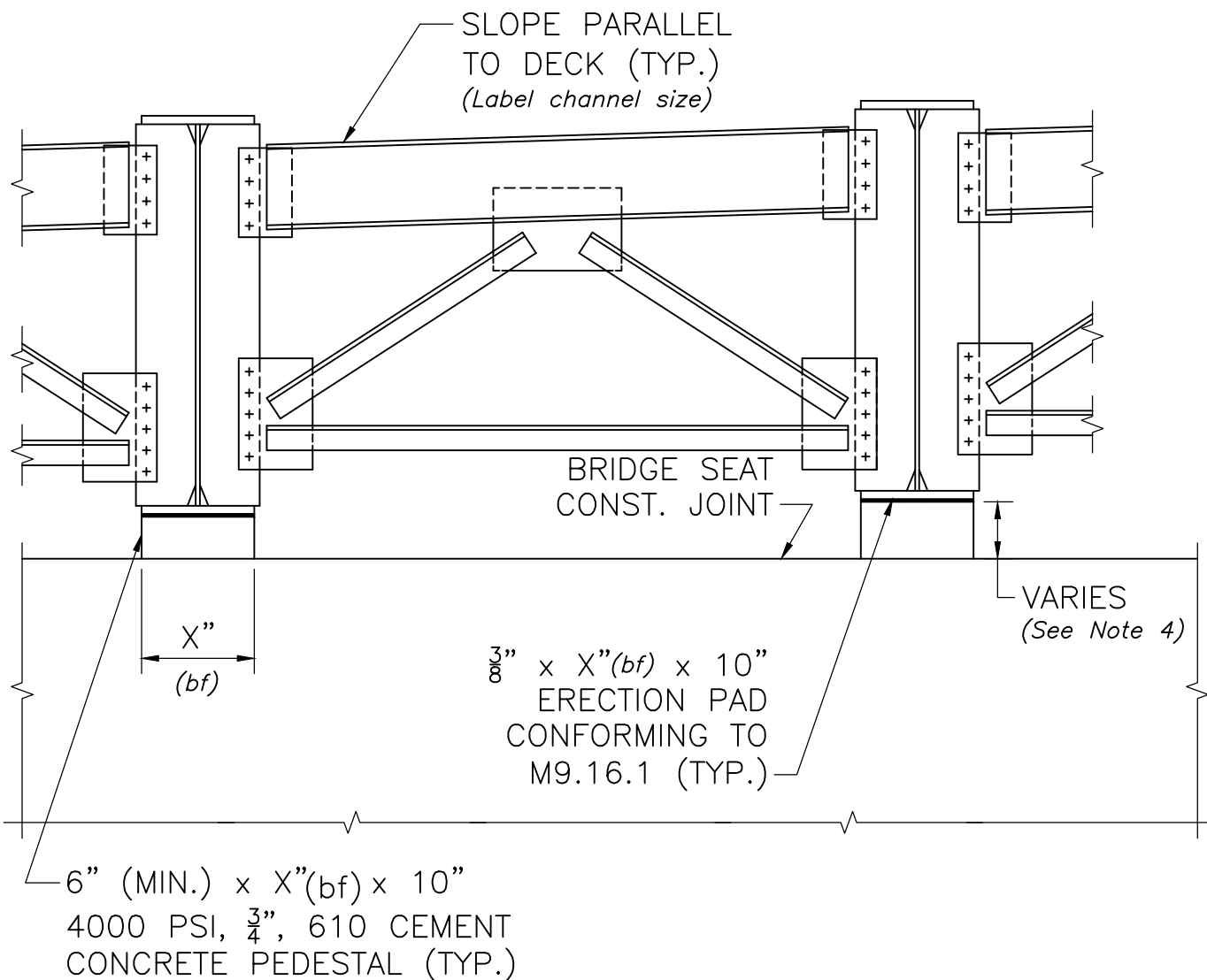
LRFD BRIDGE  
MANUAL, PART II

## BEAM END DETAILS ROLLED BEAMS INTEGRAL ABUTMENTS

DATE OF ISSUE  
JUNE 2013

DRAWING NUMBER

12.3.1

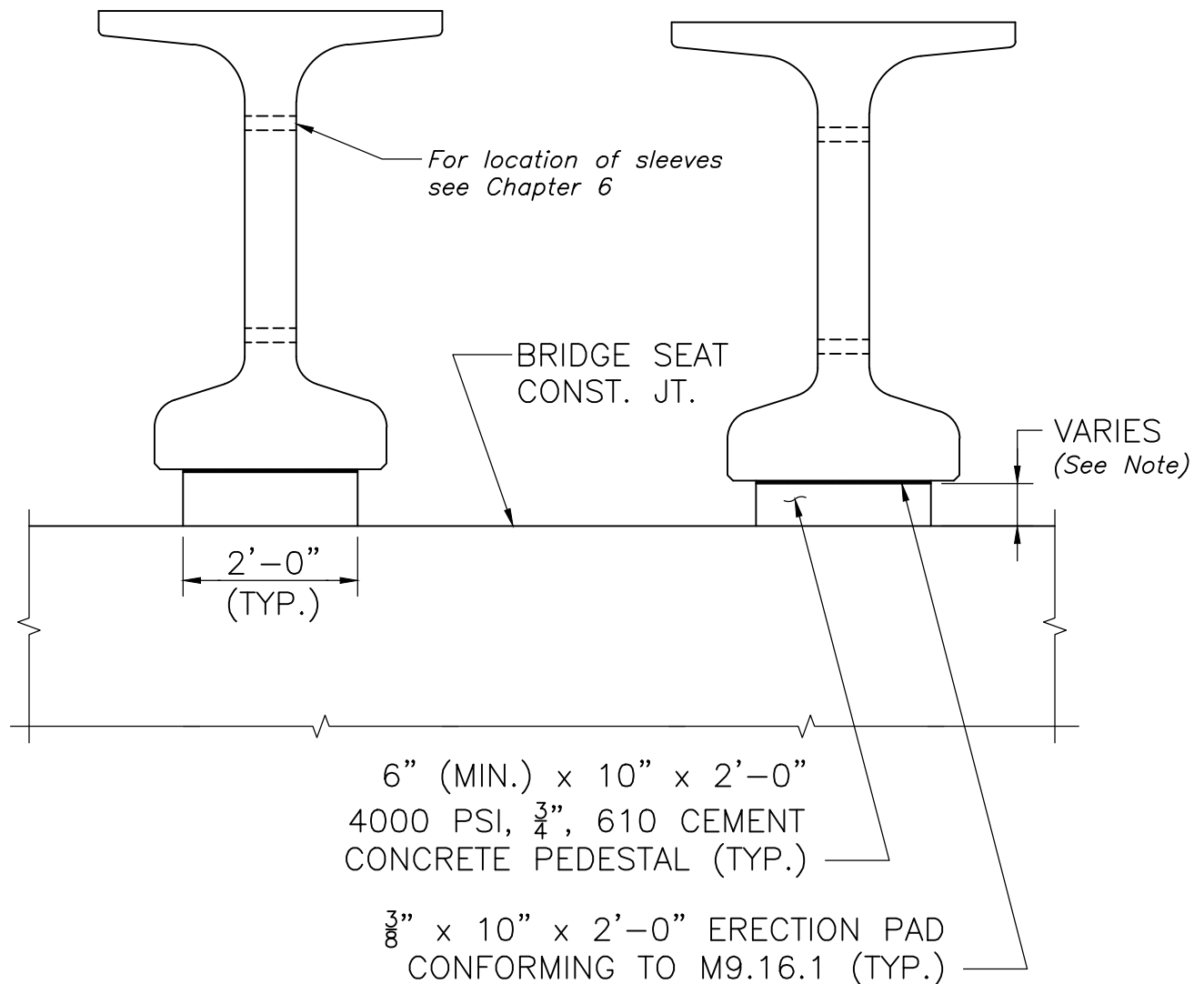


## BEAM END DETAILS

SCALE:  $\frac{1}{2}$ " = 1'-0"

### NOTES:

1. Provide End Cross Frame Details as shown on Dwg. No. 5.2.7.
2. End Cross Frames shall be placed parallel to the centerline of abutment and be shown in the Framing Plan.
3. If stage construction is present, omit End Cross Frames in the affected bays and provide additional reinforcing that is to be spliced using dowel bar splicers.
4. Minimum pedestal height shall be 6"; maximum shall be 12" excluding pad thickness. Steps in bridge seat construction joint may be used to accommodate bridge cross slope. Use only the minimum number of steps necessary.



### NOTE:

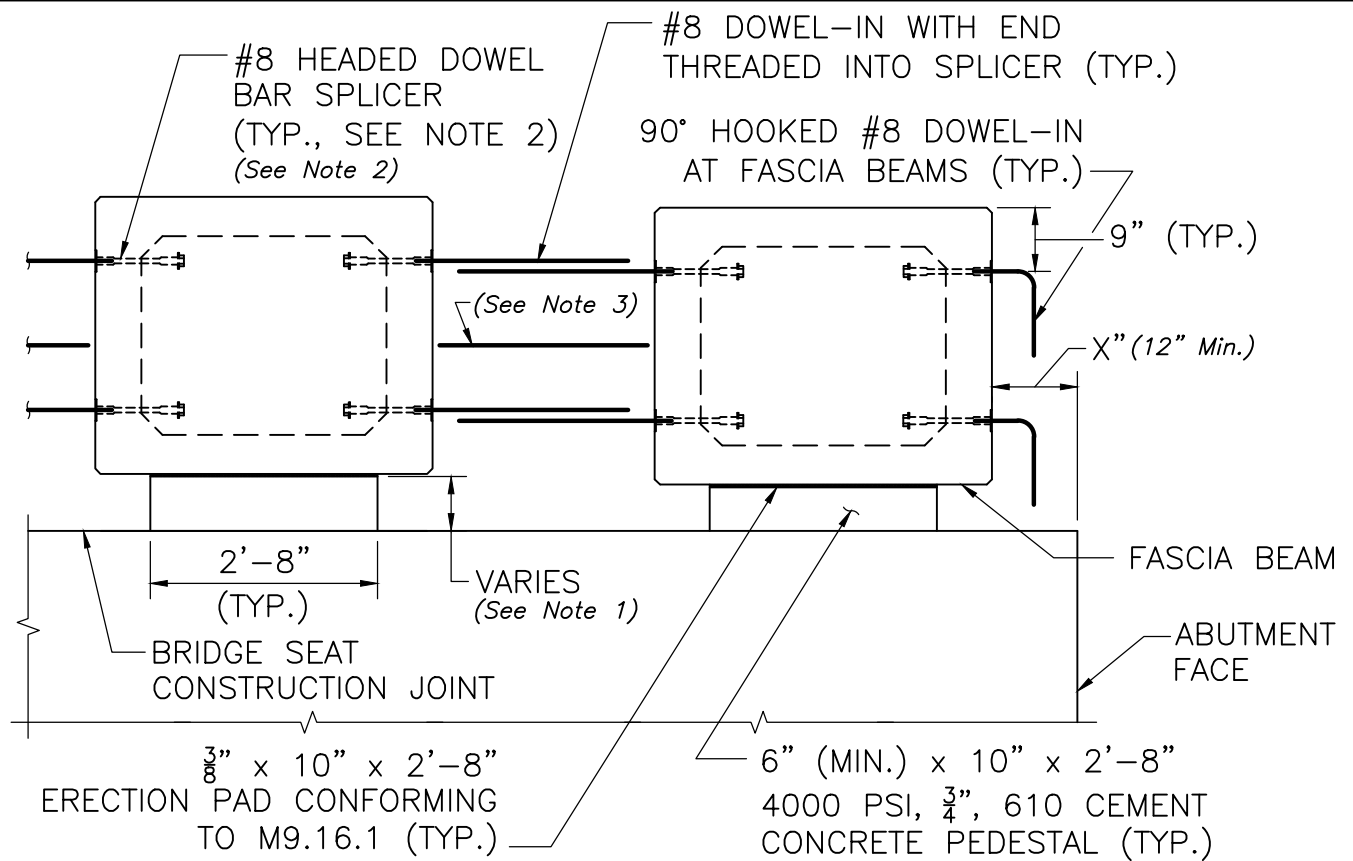
THE LATERAL STABILITY OF THE BEAMS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR DURING ERECTION AND CONSTRUCTION. A LATERAL SUPPORT SYSTEM SHALL BE DESIGNED BY THE CONTRACTOR IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN AND BRIDGE CONSTRUCTION SPECIFICATIONS.

## BEAM END DETAILS

SCALE:  $\frac{1}{2}$ " = 1'-0"

### NOTE:

Minimum pedestal height shall be 6" and maximum shall be 12", excluding erection pad thickness. Steps in bridge seat construction joint may be used to accommodate bridge cross slope. Use only the minimum number of steps necessary.



### NOTES:

1. THE LATERAL STABILITY OF THE BEAMS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR DURING ERECTION AND CONSTRUCTION. A LATERAL SUPPORT SYSTEM SHALL BE DESIGNED BY THE CONTRACTOR IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN AND BRIDGE CONSTRUCTION SPECIFICATIONS.
2. #8 HEADED DOWEL BAR SPLICERS SHALL BE CAST-IN-PLACE IN THE PRECAST BEAMS BY THE FABRICATOR AND SHALL BE EMBEDDED AS REQUIRED TO PROVIDE A MINIMUM NOMINAL TENSILE RESISTANCE OF 71.0 KIPS AS SPECIFIED BY THE MANUFACTURER.

## BEAM END DETAILS

SCALE:  $\frac{1}{2}" = 1'-0"$

### NOTES:

1. Minimum pedestal height shall be 6"; maximum shall be 12" excluding pad thickness. Steps in bridge seat construction joint may be used to accommodate bridge cross slope; use only the minimum number of steps necessary.
2. Provide #8 headed splicers by beam depth as follows:  
 Beam depth 28" and less: 1 headed splicer at mid depth of beam;  
 Beam depth greater than 28": 2 headed splicers as shown.
3. Provide #8 intermediate reinforcing bars by beam depth as follows:  
 Beam depth 32" and less: no intermediate bar;  
 Beam depth greater than 32": 1 intermediate bar midway between splicers.
4. Modify detail as required for Deck Beam stringer bridges.



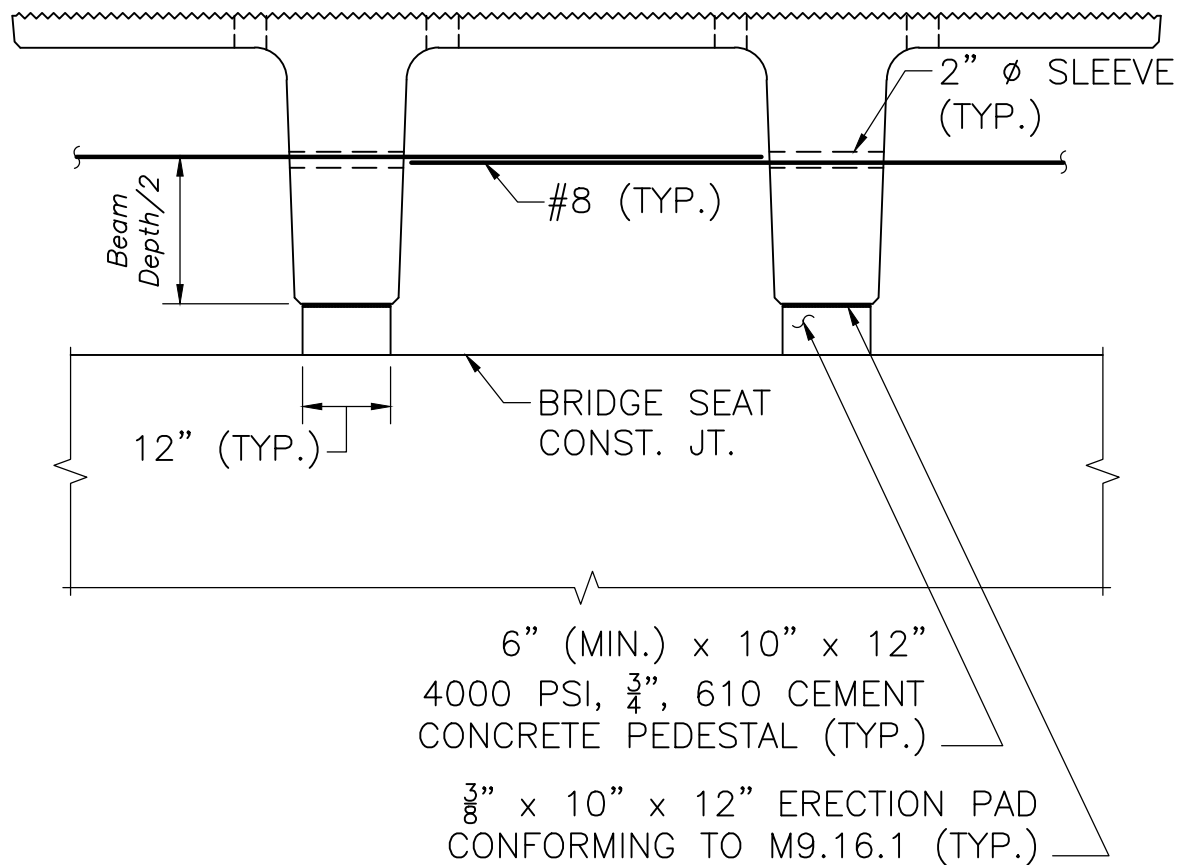
LRFD BRIDGE  
MANUAL, PART II

## BEAM END DETAILS SPREAD BOX BEAMS INTEGRAL ABUTMENTS

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**12.3.4**





### NOTE:

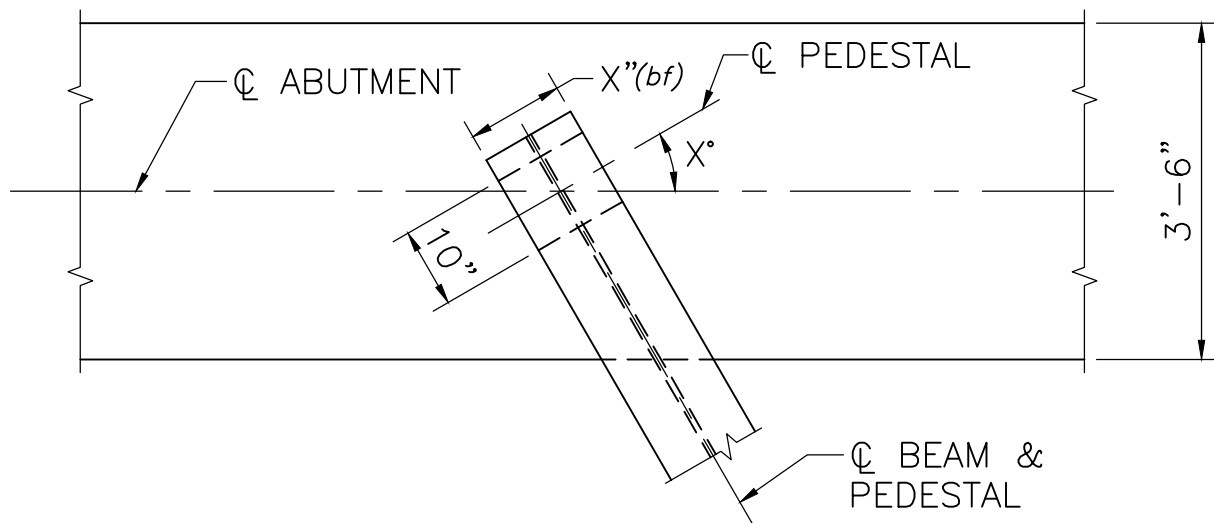
THE LATERAL STABILITY OF THE BEAMS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR DURING ERECTION AND CONSTRUCTION. A LATERAL SUPPORT SYSTEM SHALL BE DESIGNED BY THE CONTRACTOR IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN AND BRIDGE CONSTRUCTION SPECIFICATIONS.

## BEAM END DETAILS

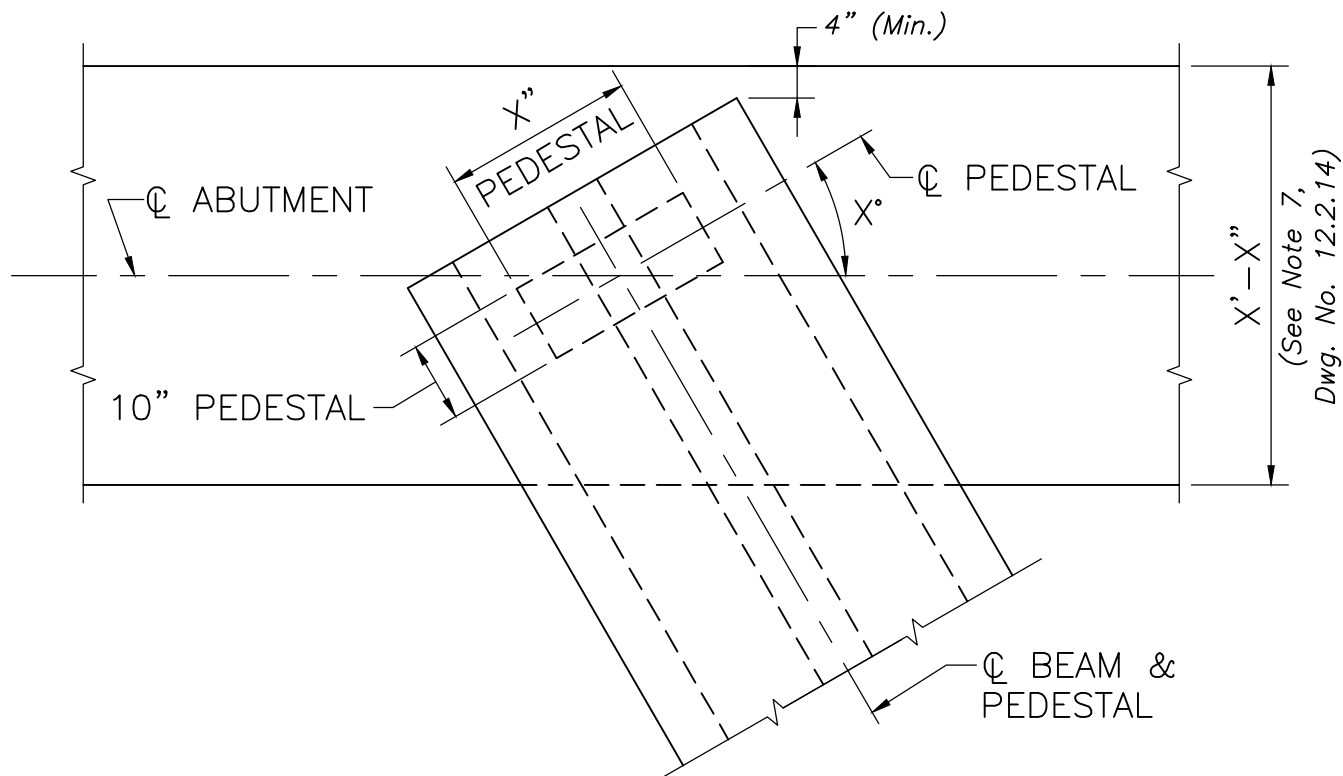
SCALE:  $\frac{1}{2}" = 1'-0"$

### NOTE:

*Minimum pedestal height shall be 6" and maximum shall be 12", excluding erection pad thickness. Steps in bridge seat construction joint may be used to accommodate bridge cross slope. Use only the minimum number of steps necessary.*



### ROLLED BEAMS/PLATE GIRDERS



### NEBT/SPREAD BOX AND DECK BEAMS

## PEDESTAL PLAN

SCALE:  $\frac{1}{2}$ " = 1'-0"



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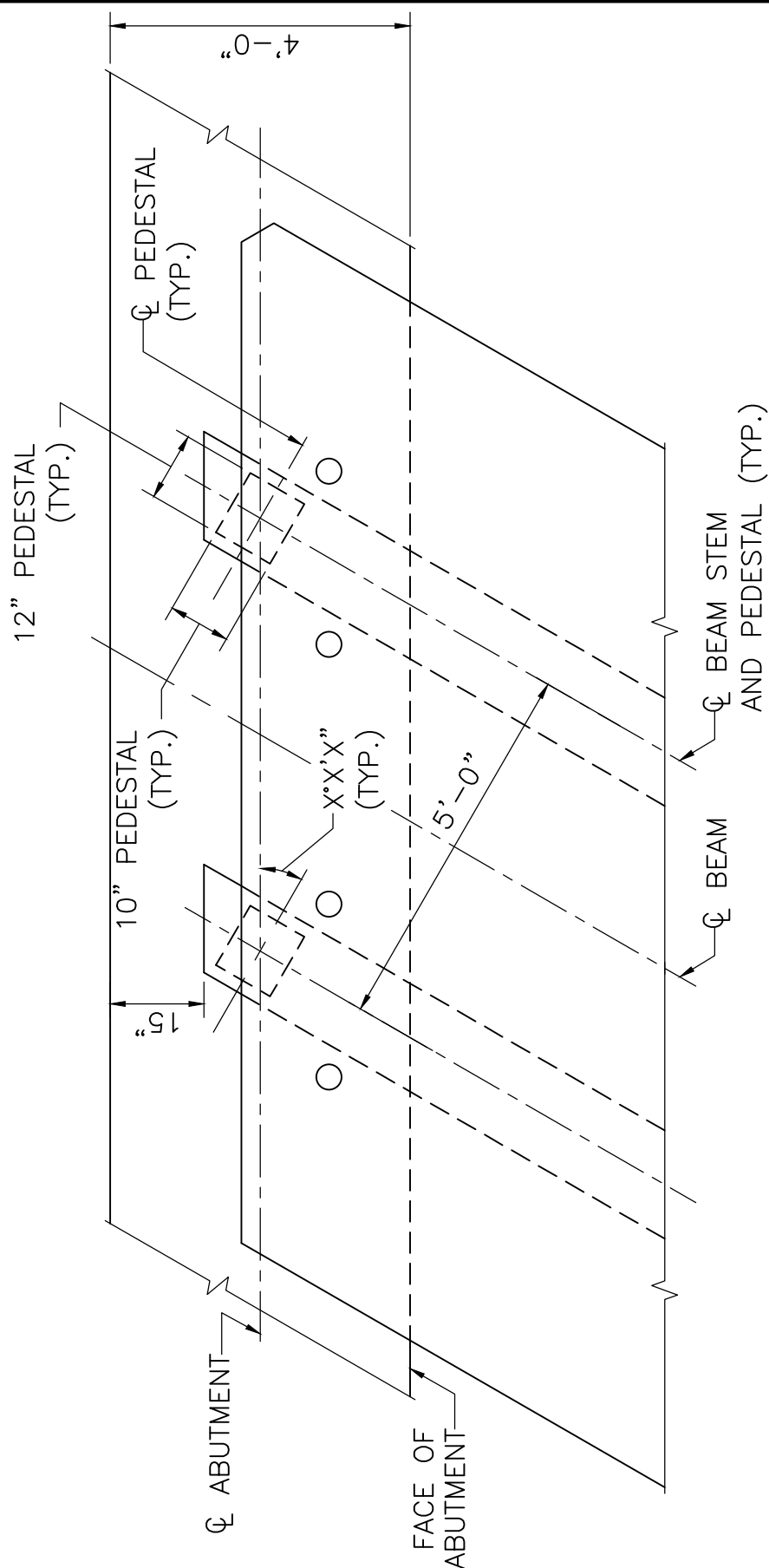
## PEDESTAL PLAN

### INTEGRAL ABUTMENTS

DATE OF ISSUE  
JUNE 2013

DRAWING NUMBER

**12.3.6**



# **PEDESTAL PLAN**

SCALE:  $\frac{1}{2}$ " = 1'-0"

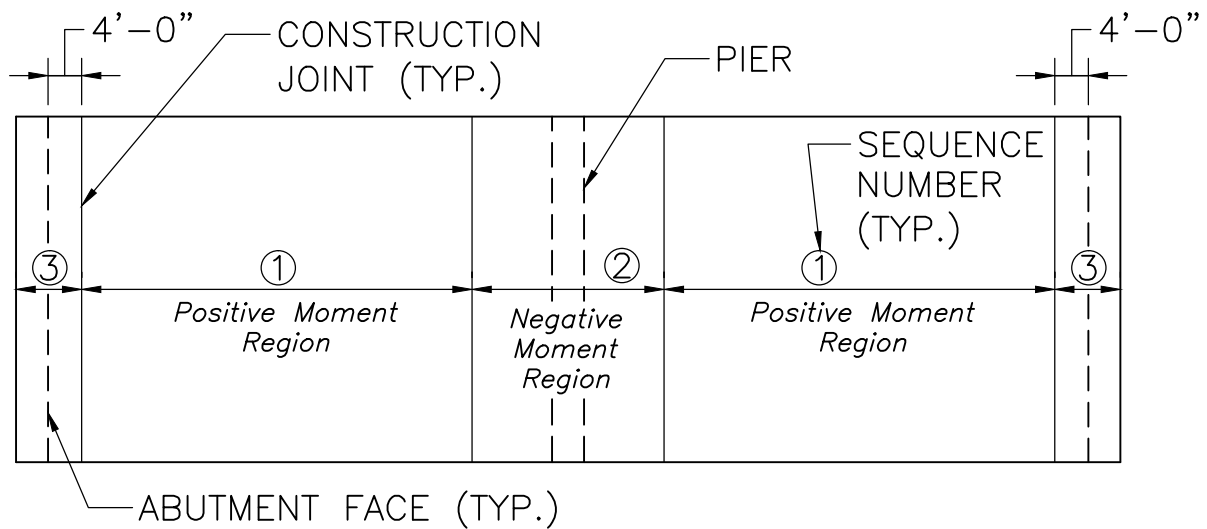


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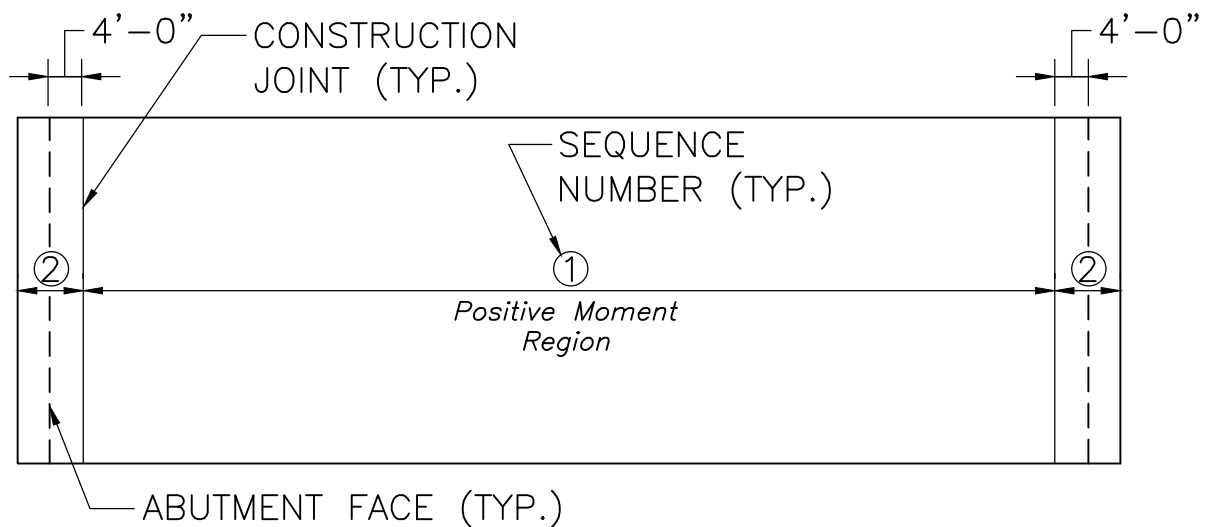
## **PEDESTAL PLAN NEXT F BEAMS INTEGRAL ABUTMENTS**

DATE OF ISSUE  
JUNE 2013

DRAWING NUMBER  
**12.3.7**



### MULTIPLE SPAN BRIDGE



### SINGLE SPAN BRIDGE

## DECK PLACEMENT SEQUENCE

SCALE: 1" = 20'-0"



LRFD BRIDGE  
MANUAL, PART II

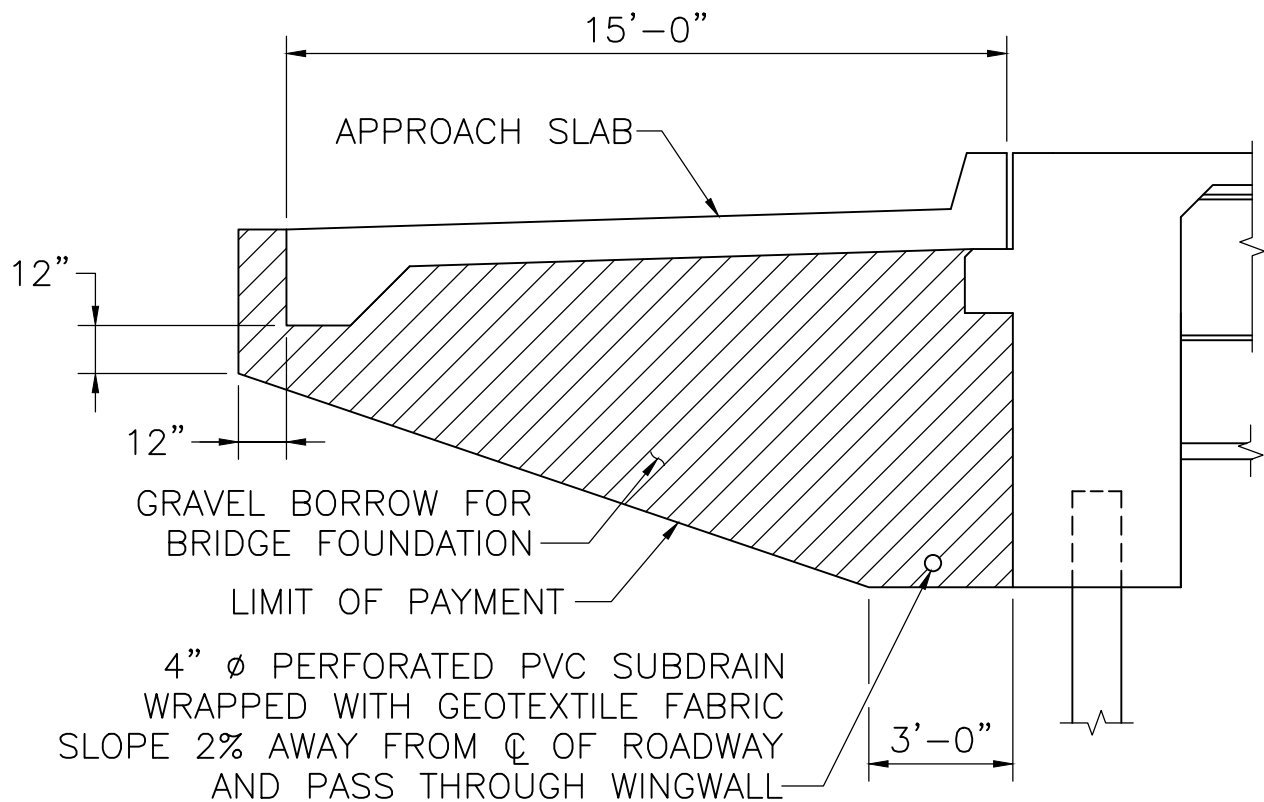
## DECK PLACEMENT SEQUENCE

INTEGRAL ABUTMENTS

DATE OF ISSUE  
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DRAWING NUMBER

**12.4.1**



## INTEGRAL ABUTMENT BACKFILL

SCALE:  $\frac{1}{4}" = 1'-0"$



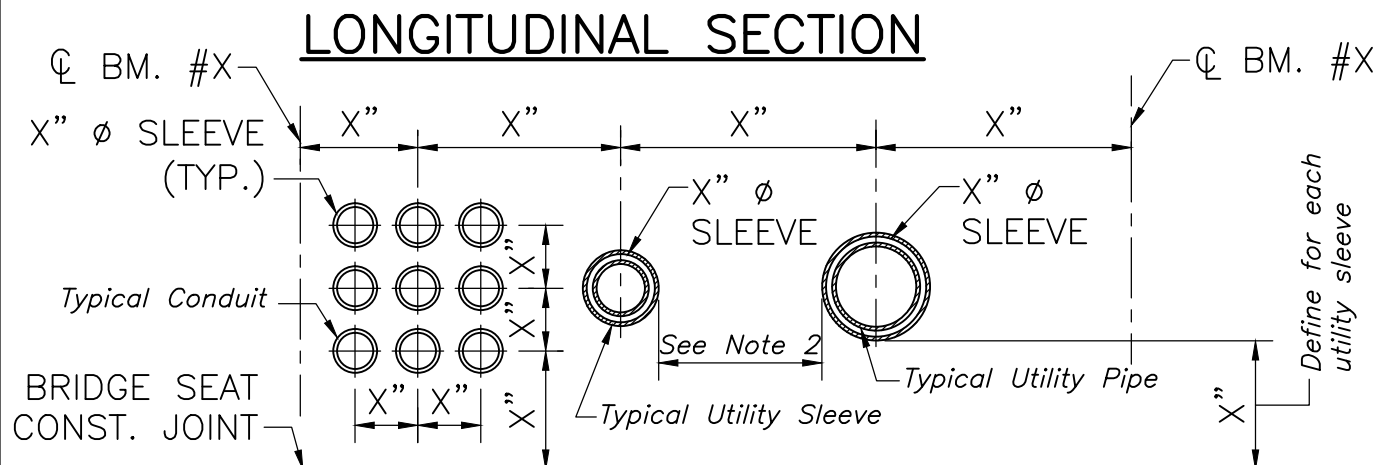
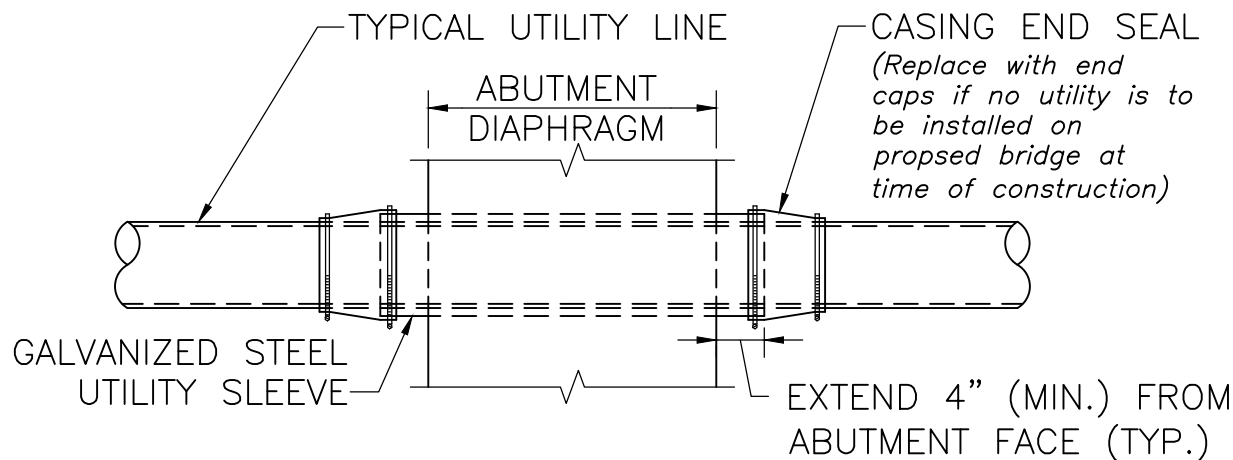
LRFD BRIDGE  
MANUAL, PART II

## ABUTMENT BACKFILL

### INTEGRAL ABUTMENTS

DATE OF ISSUE  
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**12.4.2**



### NOTES:

1. DIMENSIONS ARE SQUARE TO BEAMS.
2. UTILITY SLEEVES SHALL BE STEEL PIPE CONFORMING TO ASTM A-53, TYPE S, GRADE B, STANDARD WEIGHT, PLAIN ENDS, HOT-DIP GALVANIZED AND SHALL BE SET IN THE FORMS PRIOR TO PLACING ABUTMENT DIAPHRAGM CONCRETE.

## UTILITY DETAILS AT ABUTMENT

SCALE:  $\frac{1}{2}" = 1'-0"$

### NOTES:

1. Designer shall contact the respective utility owners and send copies of all correspondence to the Utilities/Railroad Engineer regarding which utilities are to be carried by the structure and what the required sleeve diameters shall be.
2. Minimum clearances between the outsides of the sleeves shall be 4".
3. Label all utilities and utility pipe diameters.
4. For those bridges which do not carry Interstate Highways and are not currently required to support a utility, provide a single 16"  $\phi$  sleeve in the bay under the sidewalk, as a provision for future utility placement.



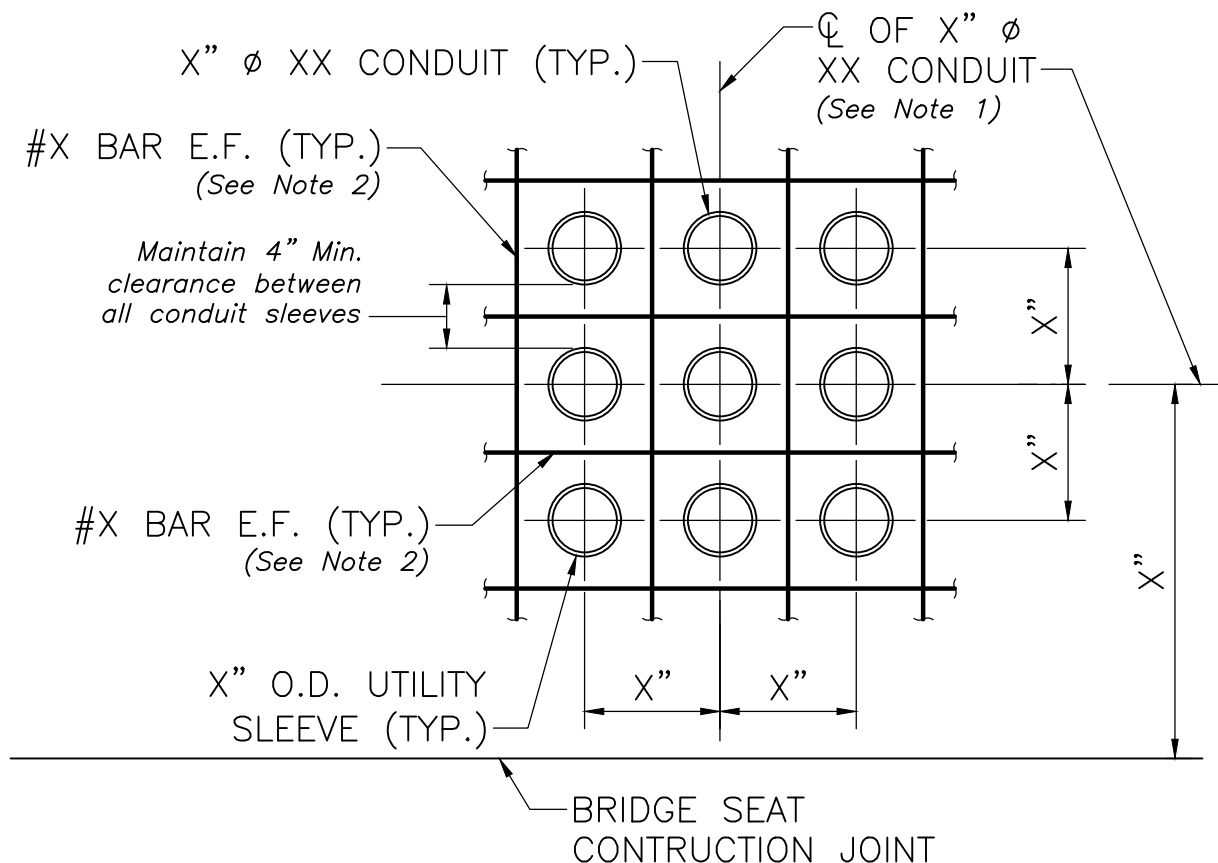
LRFD BRIDGE  
MANUAL, PART II

UTILITY DETAILS  
AT ABUTMENT  
INTEGRAL ABUTMENTS

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**12.4.3**



### NOTE:

ALL REINFORCEMENT PASSING THROUGH CONDUIT BANK SHALL BE LAPPED WITH TYPICAL ABUTMENT REINFORCEMENT USING CLASS "C" TENSION LAP SPLICES.

## UTILITY DETAILS FOR CONDUIT BANK

SCALE: 1" = 1'-0"

### NOTES:

1. Specify the number and type of utility conduits, i.e. electrical, cable, telephone, etc.
2. Specify reinforcement bars that will provide at a minimum the same As (in<sup>2</sup>/ft) as required for the typical abutment reinforcement.