Α

Vertical Bars

(Equally spaced)

18" For Pile Cap

Intermediate Bent, Pile Cap End Bent

and Pile Cap Footing

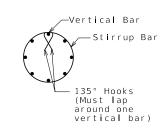
Bottom of Beam Cap or Pile Cap Footing—

Min. Galvanized

Penetration (Flev.

(See Foundation Data) —

SECTION A-A (6)



DETAIL OF SEISMIC (6) STIRRUP BAR

Bent Number

Vertical Bars

Upper Stirrup Bars

Lower Stirrup Bars

D1, CECIP Pile (O.D.)

Closure Plate Thickness

Pile Point Reinforcement

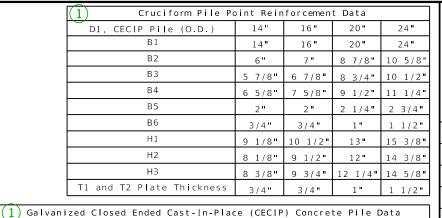
Min. Nominal Wall Thickness

L1, Length of Vertical Bars

Notes:

Grade 50

specified on the plans.



Х

Х

Concrete for cast-in-place pile shall be Class B-1. Steel for closure plate shall be ASTM A709 Grade 50.

material certification shall be required.

Welded or seamless steel shell (pipe) shall be ASTM A252 Modified Grade 3 (fy = 50,000 psi) with physical and chemical requirements that meet ASTM A572 Grade 50. Pipe certification and source

Steel for cruciform pile point reinforcement shall be ASTM A709

The minimum wall thickness of any spot or local area of any type

The contractor shall determine the pile wall thickness required to avoid damage from all driving activities, but wall thickness shall not be less than the minimum specified. No additional payment will be made for furnishing a thicker pile wall than

Closure plate shall not project beyond the outside diameter of the pipe pile. Satisfactory weldments may be made by beveling tip end of pipe or by use of inside backing rings. In either case, proper gaps shall be used to obtain weld penetration full

Splices of pipe for cast-in-place concrete pile shall be made watertight and to the full strength of the pipe above and below the splice to permit hard driving without damage. Pipe damaged

Pipe sections used for splicing shall be at least 5 feet in

At the contractor's option, the hooks of vertical bars embedded in the beam cap may be oriented inward or outward.

The hooks of vertical bars embedded in the beam cap should not be turned outward, away from the pile core.

The hook of vertical bars embedded in the pile cap footing should be oriented outward for all seismic categories.

during driving shall be replaced without cost to the

thickness of pipe. Payment for furnishing and installing closure plate will be considered completely covered by the contract unit price for Galvanized Cast-In-Place Concrete Piles.

3 Steel casting for conical pile point reinforcement shall be ASTM A27 Grade 65-35 ASTM A148 Grade 90-60.

shall not be more than 12.5% under the specified nominal wall thickness.

12/2/2024 MO 000

LOB NO. CONTRACT ID

PROJECT NO.

BRIDGE NO

-Field Fabricated Commercial Backing Ring with pins

GALVANIZED CLOSED ENDED CAST-IN-PLACE (CECIP) CONCRETE PILE WITHOUT PILE POINT REINFORCEMENT

Closure Plate

Nominal Wall

Thickness

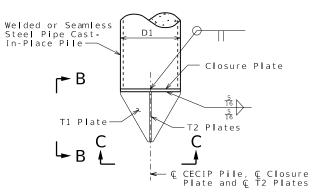
Pile cut-off elevation

(See bent sheets)

Steel Pipe Cast-In-Place Pile

STEEL PIPE PILE SPLICE

* Galvanizing material shall be omitted or removed one inch clear of weld locations in accordance with Sec 702.



T2 Plate B6

Welded or Seamless Steel Pipe Cast-In-Place Pile-Conical Point (Inside flange) steel casting C CECIP Pile and Conical Point

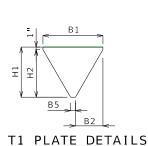
MANUFACTURED CONICAL PILE POINT

(Omit closure plate)

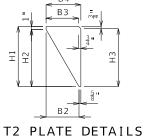
** If the conical pile point is not pre-beveled, place a 3/8" bevel at 40 degrees on the pipe.

CRUCIFORM PILE POINT

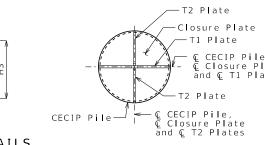
Note: Cost of closure plate is included with cast-in-place concrete pile.



B3 В2



(2 REQUIRED)



SECTION C-C

€ Closure Plate and € T1 Plate -

Closure Plate-

© CECIP Pile C Closure Plate and © T1 Plate

ELEVATION B-B

CRUCIFORM PILE POINT REINFORCEMENT

Closure plate need not be galvanized. Reinforcing steel for cast-in-place piles is included in the Bill of Reinforcing Steel.

All reinforcement for cast-in-place pile is included in the

estimated quantities for bents.

For Foundation Data table, see Sheet No. . .

GALVANIZED CLOSED ENDED CAST-IN-PLACE (CECIP) CONCRETE PILE

PILE01_CECIP Guidance

Standard Drawing Guidance (do not show on plans):

Do not use 20" and 24" diameter closed ended cast-in-place (CECIP) concrete pile without approval of Structural Project Manager or Liaison.

Typical Data for CECIP Piles					
D1, CECIP Pile (O.D.) (by design)	14"	16"	20"	24"	
Min. Nominal Wall Thickness (by design)		1/2" (See EPG 751.36.2.2.2 for commonly available nominal wall thicknesses.)			
Closure Plate Thickness (4)	3	/ 4 "	1"	1 1/2"	
Pile Point Reinforcement	"Cru	"Cruciform", "Conical" or "None"			
Vertical Bars	6-#5-Vxxx	6-#6-Vxxx	8-#6-Vxxx	12-#6-Vxxx	
L1, Length of Vertical Bars	5'-	5'-3" 7'-3"		-3"	
Upper Stirrup Bars (2)		3-#4-Pxxx			
Lower Stirrup Bars	5-#4-	5-#4-Pxxx 7-#4-Pxxx			

For LFD seismic performance category (SPC) A and LRFD seismic design category (SDC) A, minimum number of vertical bars, size and length and seismic stirrup bar information is provided in Galvanized Closed Ended Cast-In-Place (CECIP) Concrete Pile Data. Modify reinforcement size, length of vertical bars (L1), number of vertical bars, number of stirrup bars, and bar mark information as needed for specific project.

Min. L1 = 5'-3" for $14"\emptyset$ and $16"\emptyset$ CECIP &

7'-3" for 20"Ø and 24"Ø CECIP

Min. Lower Stirrup Bars = 5-#4 for $14\#\emptyset$ and $16\#\emptyset$ CECIP &

7-#4 for 20"Ø and 24"Ø CECIP

Min. Vertical Bars = 6-#5 for 14"Ø CECIP,

6-#6 for 16"Ø CECIP,

8-#6 for 20"Ø CECIP &

12-#6 for 24"Ø CECIP

For SPC B, C and D, modify reinforcement as needed to meet AASHTO 17th edition (LFD) and for SDC B, C and D, modify reinforcement as needed to meet AASHTO Guide Specification for LRFD Seismic Bridge Design (SGS).

For hard driving conditions consider ASTM A148 Grade 90-60. If conical pile points are not used, this note may be removed.

1					
4)	Minimum	inimum Closure Plate Thickness			
	CECIP Pile (O.D.), D1	No pile point reinforcement required	Cruciform pile point reinforcement required		
	14"	3 / 4 "	3 / 4 "		
	16"	3 / 4 "	3/4"		
	20"	3 / 4 "	1"		
	24"	3 / 4 "	1 1/2"		

- Use appropriate note based on seismic category (See EPG 751.50, Notes G5a9a & G5a9b)
- These details of bar array 6, 8 and 12 count, can be used as needed in sheet details "Section A-A" & "DETAIL OF SEISMIC STIRRUP BAR" by using centroid as the handle.





