ORIGINATION FORM

Proposed Revisions to a Standard Plans Index

(Please provide all information — Incomplete forms will be returned)

Contact Information:

Date: June 3, 2021
Originator: Tim Holley
Phone: (850) 414-4117
Email: tim.holley@dot.state.fl.us

Standard Plans:

Index Number: 430-020
Sheet Number (s): 1 and 2 of 2
Index Title: Flared End Section

Summary of the changes:

Sheet 1: Changed GENERAL NOTE 3 - Cast Toe Walls in place using Class II Concrete.

Sheet 2: Changed "Class I" to "Class II" in the TABLE; Corrected the Dimension "B" in the Plan View of the Straight Flare Detail to "P".

Commentary / Background:

Changed to reflect Materials specification change that removes the designation for Class I Concrete.
Please see the attached Standard Specification Section 346 DRAFT for the Class I revisions proposed by the State Materials Office.

Other Affected Offices / Documents: (Provide name of person contacted)

Yes	No	
☐	☑	Other Standard Plans –
☐	☑	FDOT Design Manual –
☐	☑	Basis of Estimates Manual –
☑	☐	Standard Specifications – Daniel Strickland
☐	☑	Approved Product List –
☐	☑	Construction –
☐	☑	Maintenance –

Origination Package Includes:

(Email or hand deliver package to Rick Jenkins)

Yes	N/A	
☑	☐	Redline Mark-ups
☐	☐	Proposed Standard Plan Instruction (SPI)
☐	☐	Revised SPI
☐	☐	Other Support Documents

Implementation:

- ☐ Design Bulletin (Interim)
- ☐ DCE Memo
- ☐ Program Mgmt. Bulletin
- ☑ FY-Standard Plans (Next Release)

Contact the Roadway Design Office for assistance in completing this form

Email to: Rick Jenkins rick.jenkins@dot.state.fl.us and Darren Martin darren.martin@dot.state.fl.us

STRUCTURAL PORTLAND CEMENT CONCRETE.
(REV 7-14-21)

SUB ARTICLE 346-2.3 is deleted and the following substituted:

346-2.3 Supplementary Cementitious Materials: Supplementary cementitious materials are required to produce binary or ternary concrete mixes in all classes of concrete specified in Table 346-3, except for the following when used in slightly aggressive environments: ~~Class I,~~ Class I (Pavement), and Class II.

The quantity of portland cement replaced with supplementary cementitious materials must be on an equal weight replacement basis of the total cementitious materials in accordance with Table 346-2.

346-2.3.1 Highly Reactive Pozzolans: Materials that have a very high degree of pozzolanic reactivity due to their very fine particle sizes, including silica fume, metakaolin and ultrafine fly ash.

346-2.3.2 Binary Concrete Mixes: Concrete mixes containing portland cement and one supplementary cementitious material.

346-2.3.3 Ternary Concrete Mixes: Concrete mixes containing portland cement and any two of supplementary cementitious materials, either fly ash, slag, or highly reactive pozzolans.

ARTICLE 346-3.1 is deleted and the following substituted:

346-3.1 General: The classifications of concrete are designated as ~~Class I,~~ Class I (Pavement), Class II, Class II (Bridge Deck), Class III, Class III (Seal), Class IV, Class IV (Drilled Shaft), Class V, Class V (Special), Class VI, and Class VII. The 28-day specified minimum compressive strength, maximum water to cementitious materials ratio and target slump of each class are detailed in Table 346-3. The required air content for all classes of concrete is less than or equal to 6.0%.

For purposes of this Specification the concrete is further classified as follows:

1. Conventional Concrete: The target slump is described in Table 346-3 with a tolerance of ± 1.5 inches.
2. Increased Slump Concrete: The maximum target slump is 7 inches with a tolerance of ± 1.5 inches when a Type F, G, I or II admixture is used.
3. Slip-form Concrete: The target slump is 1.5 inches with a tolerance of ± 1.5 inches.
4. Flowing Concrete: Use flowing concrete only in the manufacturing of precast and prestressed products. Request Engineer's authorization to use flowing concrete for cast-in-place applications. The target slump is 9 inches with a tolerance of ± 1.5 inches. Meet the requirements of Section 8.6 Volume II of the Materials Manual.

5. Self-Consolidating Concrete (SCC): Use SCC only in the manufacturing of precast and prestressed products. The minimum target slump flow is 22.5 inches with a tolerance of ± 2.5 inches. Meet the requirements of Section 8.4 Volume II of the Materials Manual.

ARTICLE 346-3.3 is deleted and the following substituted:

346-3.3 Master Proportion Table: Proportion the materials to produce the classes of concrete in accordance with Table 346-3.

The calculation of the water to cementitious materials ratio (w/cm) is based on the total cementitious materials including portland cement and any supplementary cementitious materials used in the mix.

Table 346-3
Master Proportion Table

Class of Concrete	28-day Specified Minimum Compressive Strength (f'c) (psi)	Maximum Water to Cementitious Materials Ratio (pounds per pounds)	Target Slump Value (inches)
~~I (1)~~	~~3,000~~	~~0.53~~	~~3 (2)~~
I (Pavement)	3,000	0.50	1.5 or 3 (3)
II (1)	3,400	0.53	3 (2)
II (Bridge Deck)	4,500	0.44	3 (2)
III (4)	5,000	0.44	3 (2)
III (Seal)	3,000	0.53	8
IV	5,500	0.41(4)	3 (2)
IV (Drilled Shaft)	4,000	0.41	8.5
V (Special)	6,000	0.37(4)	3 (2)
V	6,500	0.37(4)	3 (2
VI	8,500	0.37(4)	3 (2)
VII	10,000	0.37(4)	3 (2)

Notes:
(1) For precast three-sided culverts, box culverts, endwalls, inlets, manholes and junction boxes, the target slump value and air content will not apply. The maximum allowable slump is 6 inches, except as noted in (2). The Contractor is permitted to use concrete meeting the requirements of ASTM C478 (4,000 psi) in lieu of the specified ~~Class I or~~ Class II concrete for precast endwalls, inlets, manholes and junction boxes.
(2) Increased slump and slip form concrete as defined in 346-3.1
(3) Meet the requirements of Section 350.
(4) When silica fume or metakaolin is required, the maximum water to cementitious material ratio will be 0.35. When ultrafine fly ash is used, the maximum water to cementitious material ratio will be 0.30.

GENERAL NOTES:

1. Provide flared end sections meeting the requirements of ASTM C76 with the exception that dimensions and reinforcement meet the criteria in the table on sheet 2. Circumferential reinforcement may consist of either one cage or two cages of steel. Use concrete compressive strength of 4000 psi.

2. Connections between the flared end section and the pipe culvert may be any of the following types unless otherwise shown on the plans.

   a. Joints meeting the requirements of Section 449 of the Standard Specifications (O-Ring Gasket). Flared end section joint dimensions and tolerances shall be identical or compatible to those used in the pipe culvert joint. When pipe culvert and flared end section manufacturers are different, the manufacturer of the flared end sections must certify the compatibility of joint designs.

   b. Joints sealed with preformed plastic gaskets. Use gaskets that meet the requirements Specification 942-2 of the Standard Specifications and the minimum sizes for gaskets as specified for equivalent sizes of elliptical pipe.

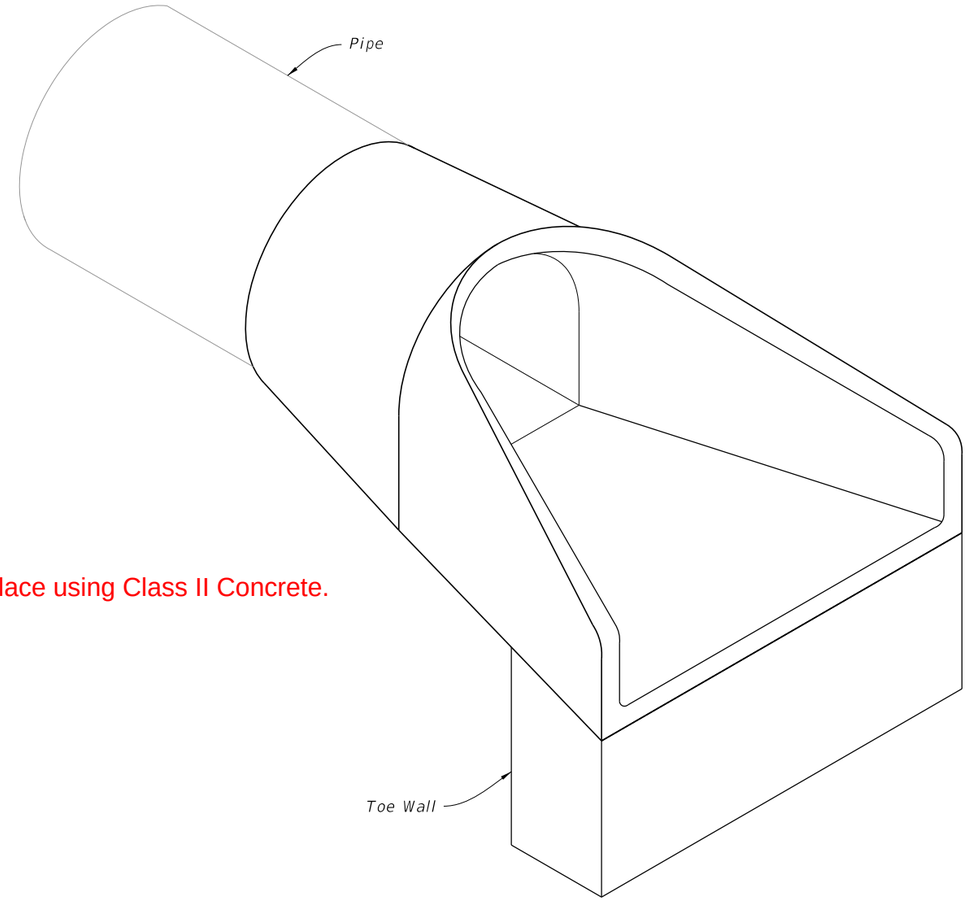
   c. Reinforced concrete jackets, as detailed on sheet 2. When non-coated corrugated metal pipe is called for in the Plans, use bituminous coated pipe in the jacketed area as specified on Index 430-001. Construct concrete jacket as specified in Index 430-001.

3. ~~Toe walls are to be cast-in-place using Class I Concrete.~~

4. On skewed pipe culverts place the flared end sections in line with the pipe culvert. Warp the side slopes as required to fit the flared end sections.

5. Quantities shown are for estimating purposes only.

CHANGED TO: Cast Toe Walls in place using Class II Concrete.



FLARED END SECTION

TABLE OF CONTENTS:

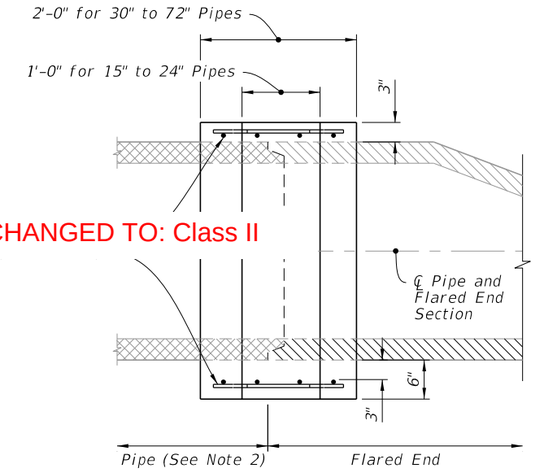
10/16/2020 8:38:39 AM

11/01/21

LAST REVISION	REVISION	DESCRIPTION:	FDOT	FY 2021-22 STANDARD PLANS	FLARED END SECTION	INDEX	SHEET
~~11/01/19~~						430-020	1 of 2

Pipe Dia.	T	Reinf. sq. in. Per Foot	Bell or Spigot	A	B	C	D	E	P	R 1	R 2	FLAT	h	Toe Wall Class I Conc. (CY.)
12"	2"	0.07	1½"	4"	2'-0"	4'-0⅞"	6'-0⅞"	2'-0"	19Ⅴ16"	10⅛"	9"	3½"	12"	.06
15"	2¼"	0.07	2"	6"	2'-3"	3'-10"	6'-1"	2'-6"	24⅝16"	12½"	11"	3½"	12"	.07
18"	2½"	0.07	2½"	9"	2'-3"	3'-10"	6'-1"	3'-0"	29"	15½"	12"	4"	15"	.11
21"	2¾"	0.07	2¼"	9"	2'-11"	3'-2"	6'-1"	3'-6"	31⅝"	16⅛"	13"	4"	15"	.12
24"	3"	0.07	2½"	9½"	3'-7½"	2'-6"	6'-1½"	4'-0"	33⅞16"	16⅓16"	14"	4½"	18"	.17
27"	3¼"	0.148	2½"	10½"	4'-0"	2'-1½"	6'-1½"	4'-6"	36"	18⅝16"	14½"	4½"	18"	.19
30"	3½"	0.148	3"	1'-0"	4'-6"	1'-7¾"	6'-1¾"	5'-0"	37"	18½"	15"	5"	21"	.24
36"	4"	0.148	3½"	1'-3"	5'-3"	2'-10¾"	8'-1¾"	6'-0"	47⅓16"	24⅝16"	20"	5½"	21"	.29
42"	4½"	0.148	3¾"	1'-9"	5'-3"	2'-11"	8'-2"	6'-6"	53⅞"	27½"	22"	5½"	24"	.36
48"	5"	0.148	4¼"	2'-0"	6'-0"	2'-2"	8'-2"	7'-0"	56½"	28½"	22"	5¾"	24"	.39
54"	5½"	0.174	4¾"	2'-3"	5'-5"	2'-11"	8'-4"	7'-6"	65½"	33⅛"	24"	6¼"	24"	.42
60"	6"	0.174	5"	2'-6"	5'-0"	3'-3"	8'-3"	8'-0"	72½"	36⅓16"	24"	6¾"	24"	.44
66"	6½"	0.174	5½"	2'-0"	6'-6"	1'-9"	8'-3"	8'-6"	72"	36⅛"	24"	7¼"	24"	.47
72"	7"	0.174	6"	2'-0"	6'-6"	1'-9"	8'-3"	9'-0"	77⅓16"	38⅕16"	24"	7¾"	24"	.50

CHANGED TO: Class II



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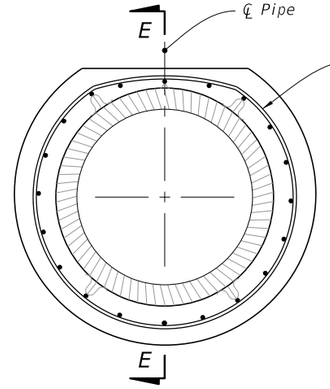
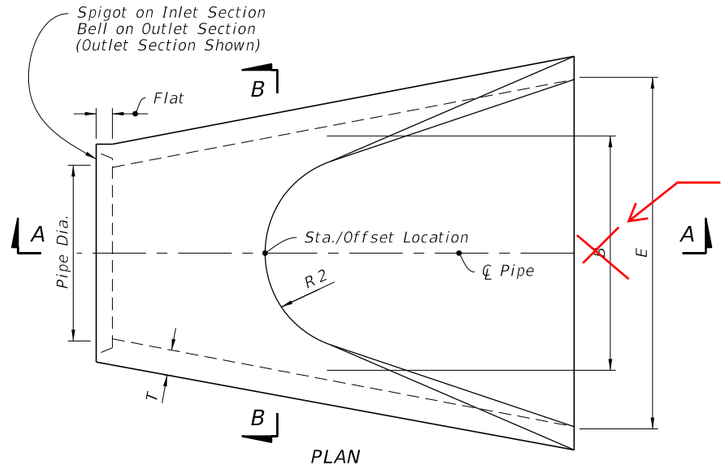


END VIEW

NOTES:

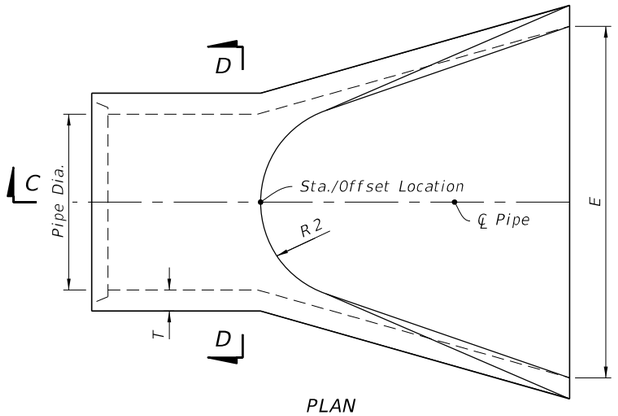
1. Use a wire mesh with 0.126 square inches of steel area per linear foot both directions. Use wire spaced 2" minimum to 6" maximum on centers.
2. Concrete pipe shown, other pipe material similar.

REINFORCED CONCRETE JACKET DETAIL



CORRECTED VERABLE TO: "P"

PLAN



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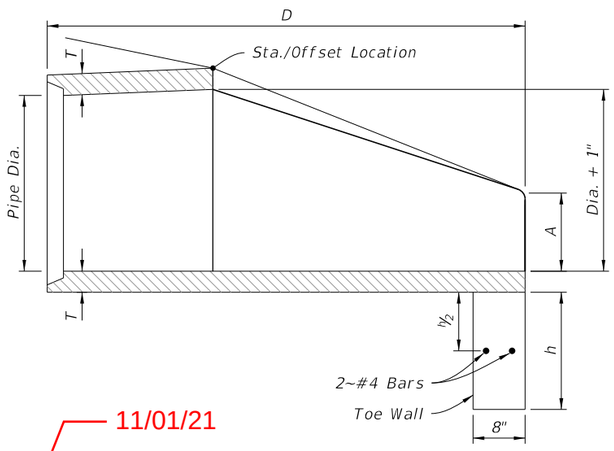

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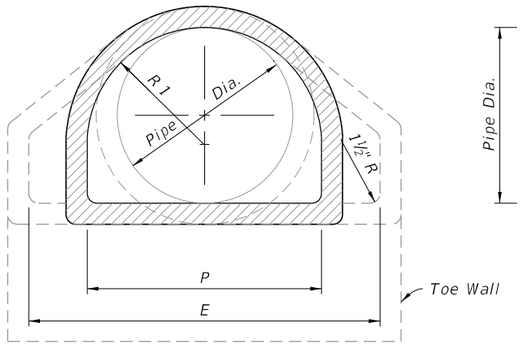

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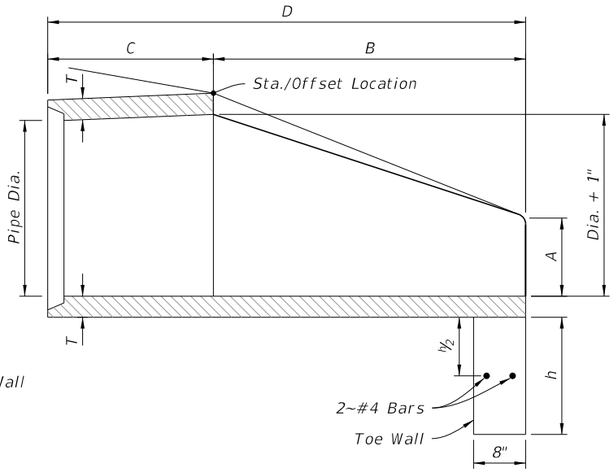

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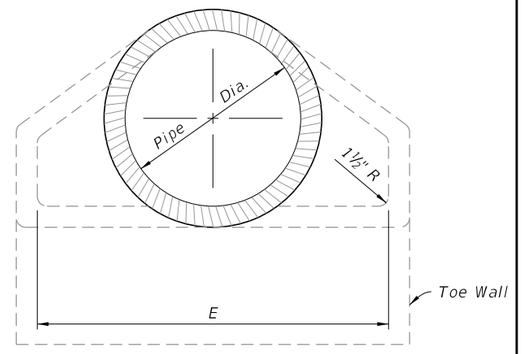

SECTION D-D

STRAIGHT FLARE

OPTIONAL SHAPE

10/12/2020 7:15:18 AM

11/01/21

LAST REVISION	REVISION	DESCRIPTION:				
11/01/19			FDOT FY 2021-22 STANDARD PLANS	FLARED END SECTION	INDEX 430-020	SHEET 2 of 2

GENERAL NOTES:

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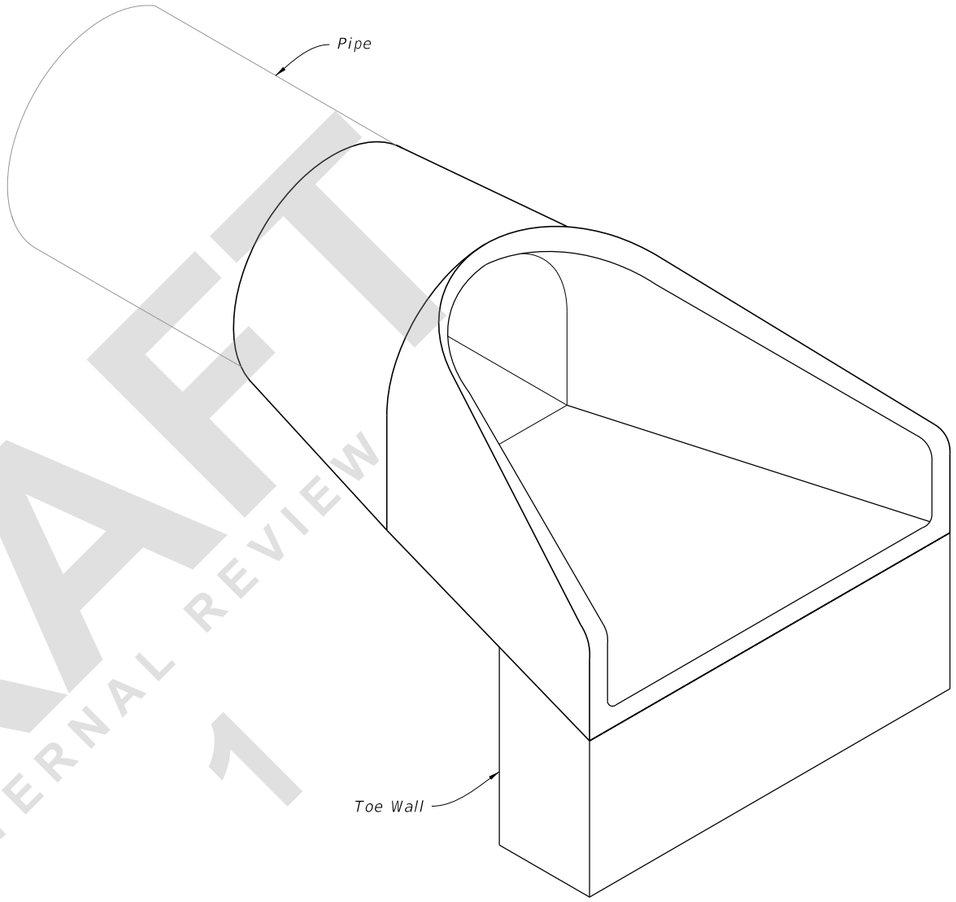

FLARED END SECTION

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LAST REVISION	REVISION	DESCRIPTION:	FDOT	FY 2022-23 STANDARD PLANS	FLARED END SECTION	INDEX	SHEET
11/01/19						430-020	1 of 2

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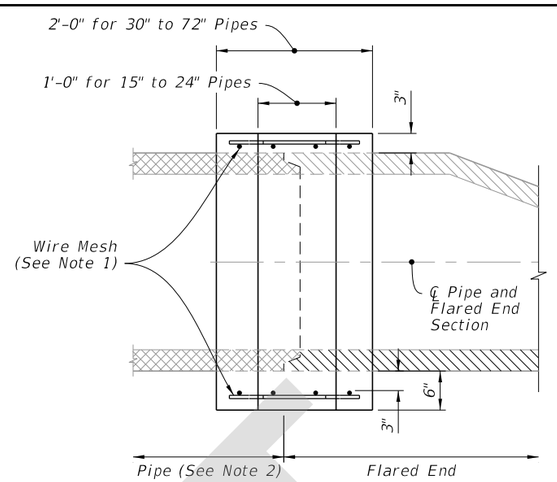

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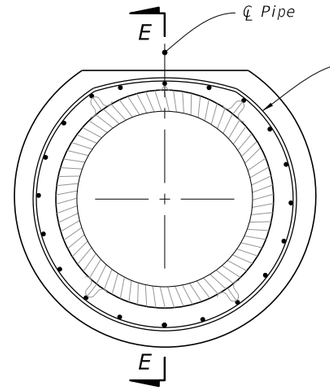

END VIEW

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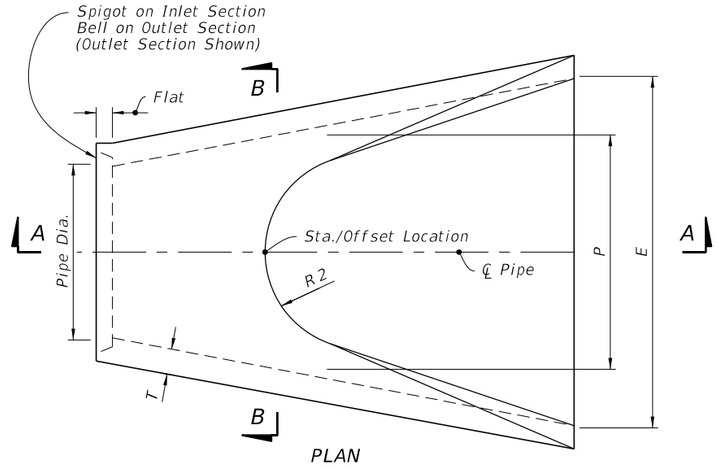
REINFORCED CONCRETE JACKET DETAIL



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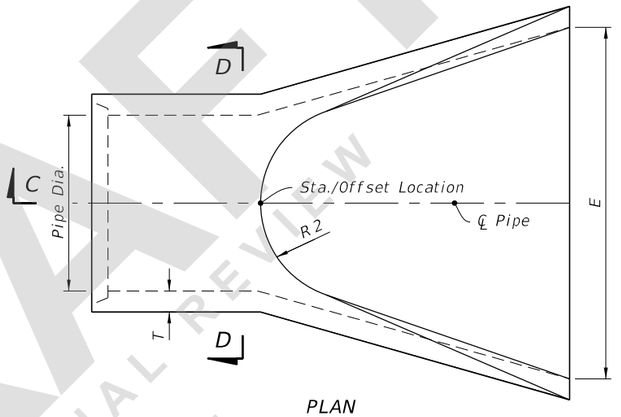

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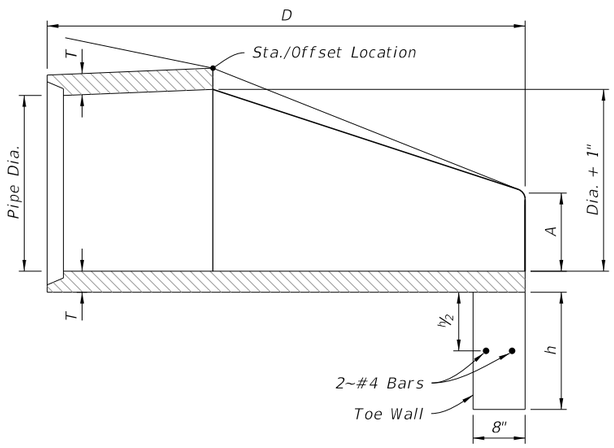

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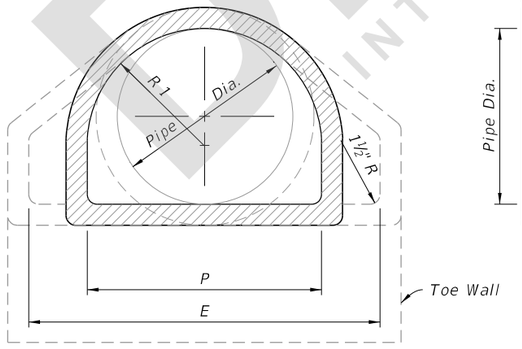

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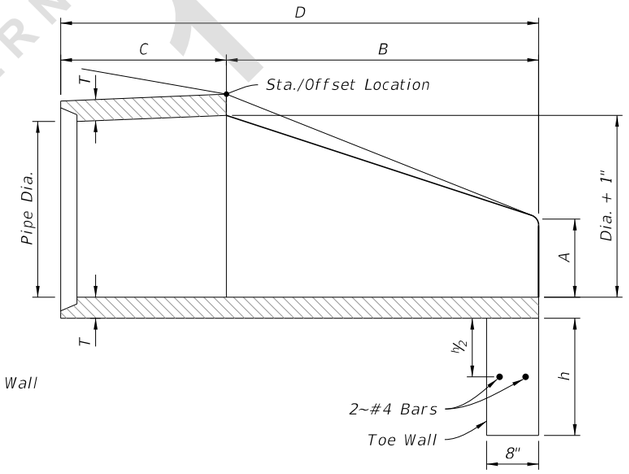

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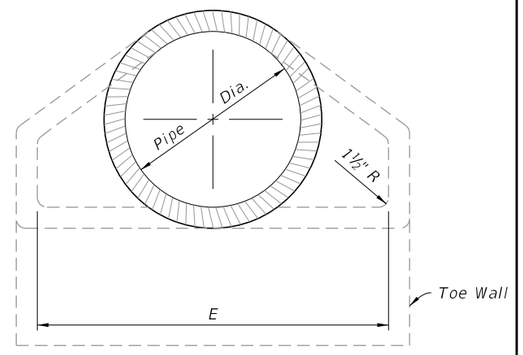

SECTION D-D

STRAIGHT FLARE

OPTIONAL SHAPE

6/23/2021 2:30:02 PM

LAST REVISION	REVISION	DESCRIPTION:	FDOT	FY 2022-23 STANDARD PLANS	FLARED END SECTION	INDEX	SHEET
11/01/21						430-020	2 of 2