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## ORIGINATION FORM

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### 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  
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**Standard Plans:**

Index Number: 430-090  
Sheet Number (s): 1 and 2 of 3  
Index Title: Safety Modifications for Endwalls

**Summary of the changes:**

Sheet 1: Changed GENERAL NOTE 1 from "Class I" to "Class II".

Sheet 2: Changed "Class I" to "Class II" TABLE 1 - U-ENDWALL DIMENSIONS AND QUANTITIES.

**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                                  |   |
|-------------------------------------|-------------------------------------|---|
| <input type="checkbox"/>            | <input checked="" type="checkbox"/> | Other Standard Plans –                      |
| <input type="checkbox"/>            | <input checked="" type="checkbox"/> | FDOT Design Manual –                        |
| <input type="checkbox"/>            | <input checked="" type="checkbox"/> | Basis of Estimates Manual –                 |
| <input checked="" type="checkbox"/> | <input type="checkbox"/>            | Standard Specifications – Daniel Strickland |
| <input type="checkbox"/>            | <input checked="" type="checkbox"/> | Approved Product List –                     |
| <input type="checkbox"/>            | <input checked="" type="checkbox"/> | Construction –                              |
| <input type="checkbox"/>            | <input checked="" type="checkbox"/> | Maintenance –                               |

**Origination Package Includes:**

(Email or hand deliver package to Rick Jenkins)

- | Yes                                 | N/A                      |  |
|-------------------------------------|--------------------------|--|
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Redline Mark-ups                         |
| <input type="checkbox"/>            | <input type="checkbox"/> | Proposed Standard Plan Instruction (SPI) |
| <input type="checkbox"/>            | <input type="checkbox"/> | Revised SPI                              |
| <input type="checkbox"/>            | <input type="checkbox"/> | Other Support Documents                  |

**Implementation:**

- |                                     |                                  |
|-------------------------------------|----------------------------------|
| <input type="checkbox"/>            | Design Bulletin (Interim)        |
| <input type="checkbox"/>            | DCE Memo                         |
| <input type="checkbox"/>            | Program Mgmt. Bulletin           |
| <input checked="" type="checkbox"/> | FY-Standard Plans (Next Release) |

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Contact the Roadway Design Office for assistance in completing this form

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Email to: Rick Jenkins [rick.jenkins@dot.state.fl.us](mailto:rick.jenkins@dot.state.fl.us) and Darren Martin [darren.martin@dot.state.fl.us](mailto: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  $\pm 1.5$  inches.
2. Increased Slump Concrete: The maximum target slump is 7 inches with a tolerance of  $\pm 1.5$  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  $\pm 1.5$  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  $\pm 1.5$  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  $\pm 2.5$  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.

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)
<del>I (1)</del>	<del>3,000</del>	<del>0.53</del>	<del>3 (2)</del>
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. Use ~~Class I~~ Concrete ← CHANGED TO: Class II
- 2. Channel section C3 x 6.0 may be substituted for the C4 x 5.4 channel.
- 3. All steel reinforcing bars are #4 with 2" cover except as noted. Spacing shown are center to center. Lap bars 1'-5" minimum. Welded wire fabric (two cages max.) with an equivalent cross section area (0.20 sq. in.) may be substituted for bar reinforcement.
- 4. Drill 1/4" holes 8" deep with a rotary drill in existing endwall for dowel bars. Thoroughly clean holes prior to installing Adhesive-Bonded Dowels.
- 5. Quantities shown are for estimating purposes only.
- 6. For supplemental details, see Index 425-001.

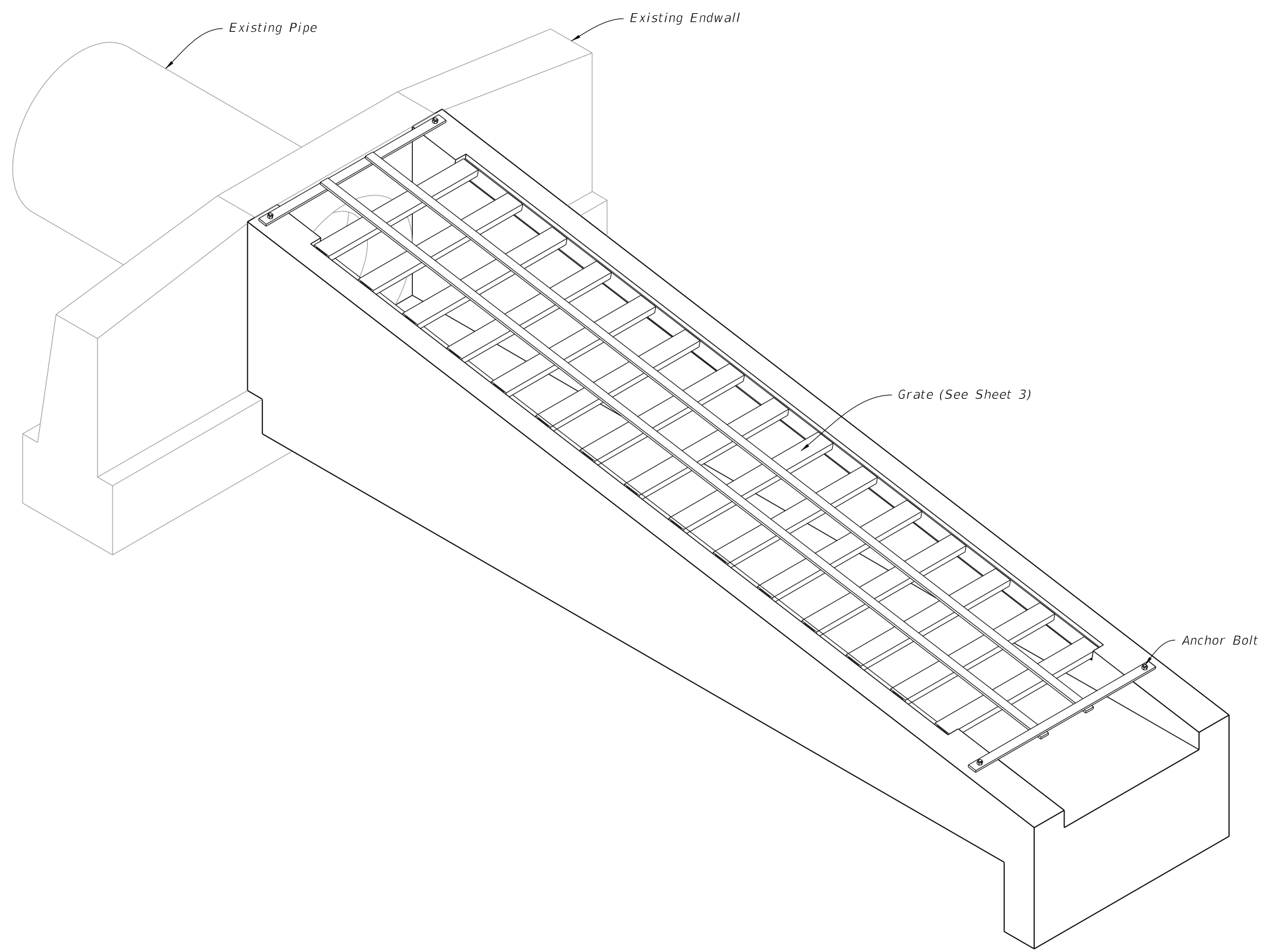
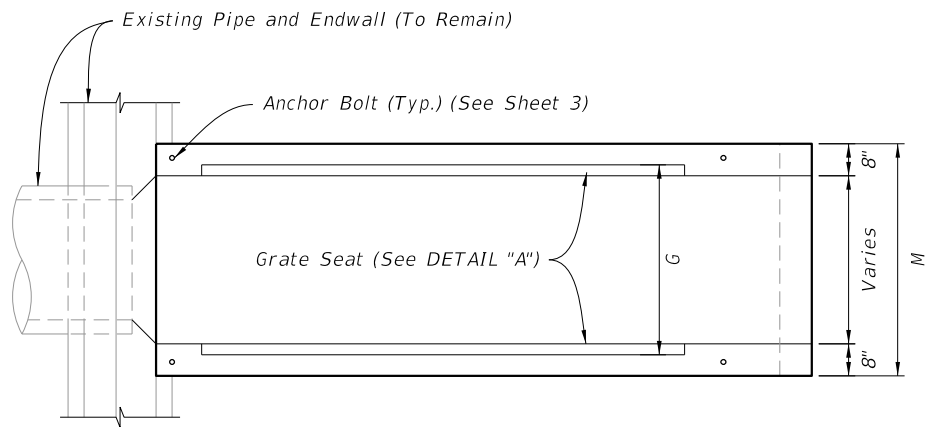


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Sheet	Description
1	General Notes and Contents
2	Endwalls for 1:4 and 1:6 Slopes
3	Steel Grate

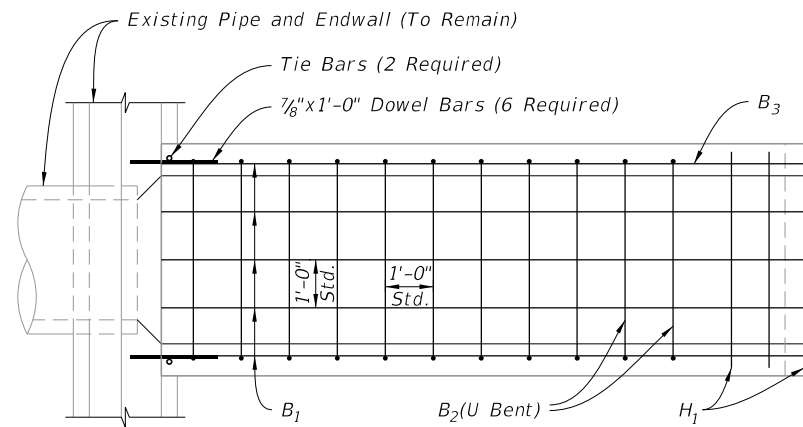
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11/01/21

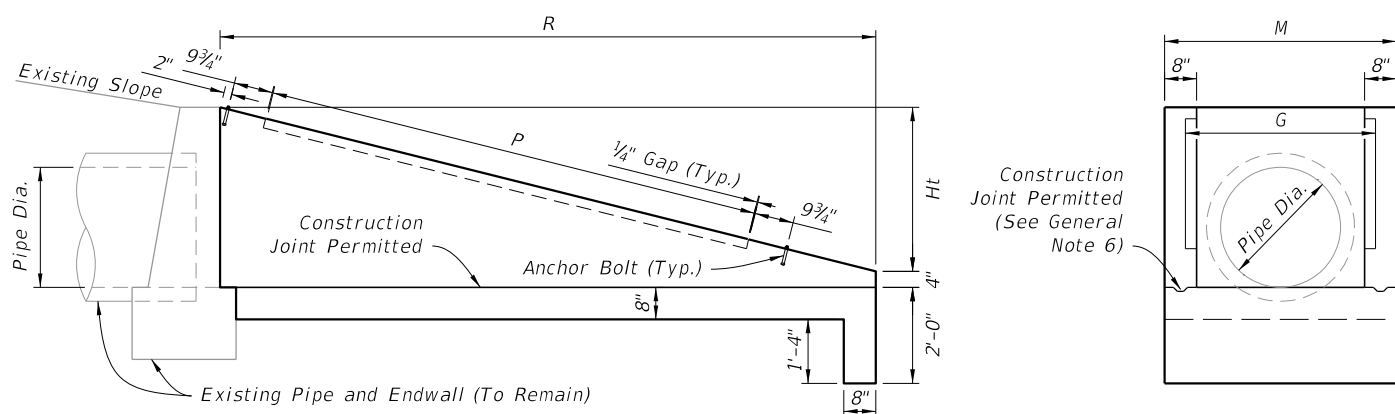


PLAN



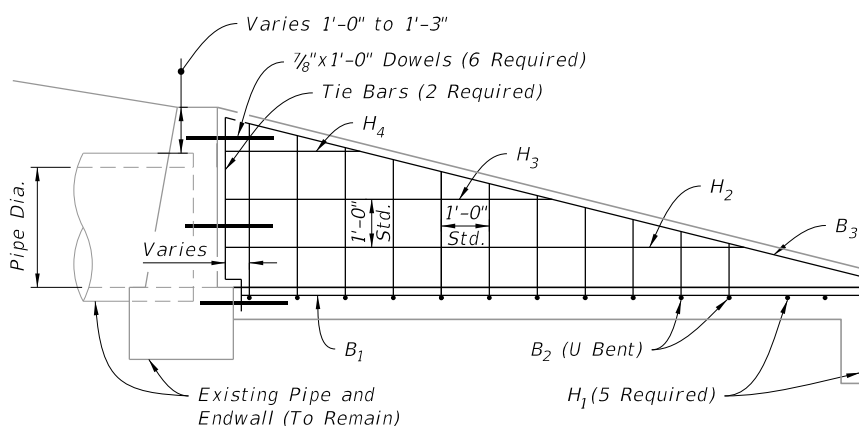
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**LEGEND:**  
 H = Horizontal Bars  
 B = Bent Bars

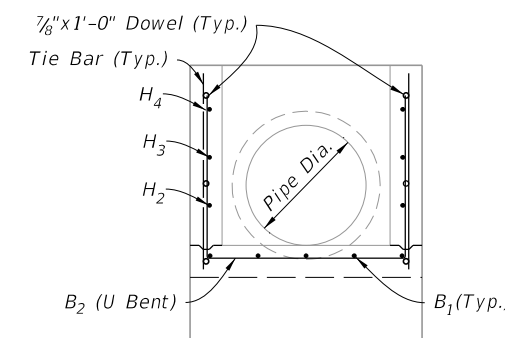


ELEVATION

END VIEW



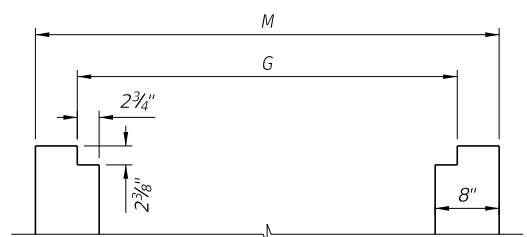
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BACK VIEW

DIMENSIONAL DETAILS

REINFORCING DETAILS



GRATE SEAT

DETAIL "A"

CHANGED TO: Class II

TABLE 1  
 U-ENDWALL DIMENSIONS AND QUANTITIES

Slope	Pipe Dia.	G	M	Ht	R	P	<del>Class I</del> Concrete-CY	Reinforcing Steel-lbs.	Sod SY
1:6	15"	2'-8 1/2"	3'-7"	2'-2"	13'-0"	9'-4"	2.12	167	23
	18"	2'-11 1/2"	3'-10"	2'-5"	14'-6"	11'-4"	2.53	173	25
	24"	3'-5 1/2"	4'-4"	2'-11"	17'-6"	14'-4"	3.48	238	29
	30"	3'-11 1/2"	4'-10"	3'-5"	20'-6"	17'-4"	4.57	315	32
1:4	15"	2'-8 1/2"	3'-7"	2'-2"	8'-8"	5'-4"	1.44	120	19
	18"	2'-11 1/2"	3'-10"	2'-5"	9'-8"	6'-4"	1.72	130	20
	24"	3'-5 1/2"	4'-4"	2'-11"	11'-8"	8'-4"	2.36	167	22
	30"	3'-11 1/2"	4'-10"	3'-5"	13'-8"	10'-4"	3.09	225	25

ENDWALLS FOR 1:4 AND 1:6 SLOPES

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LAST REVISION 11/01/19	REVISION	DESCRIPTION:
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FY 2021-22  
 STANDARD PLANS

SAFETY MODIFICATIONS FOR ENDWALLS

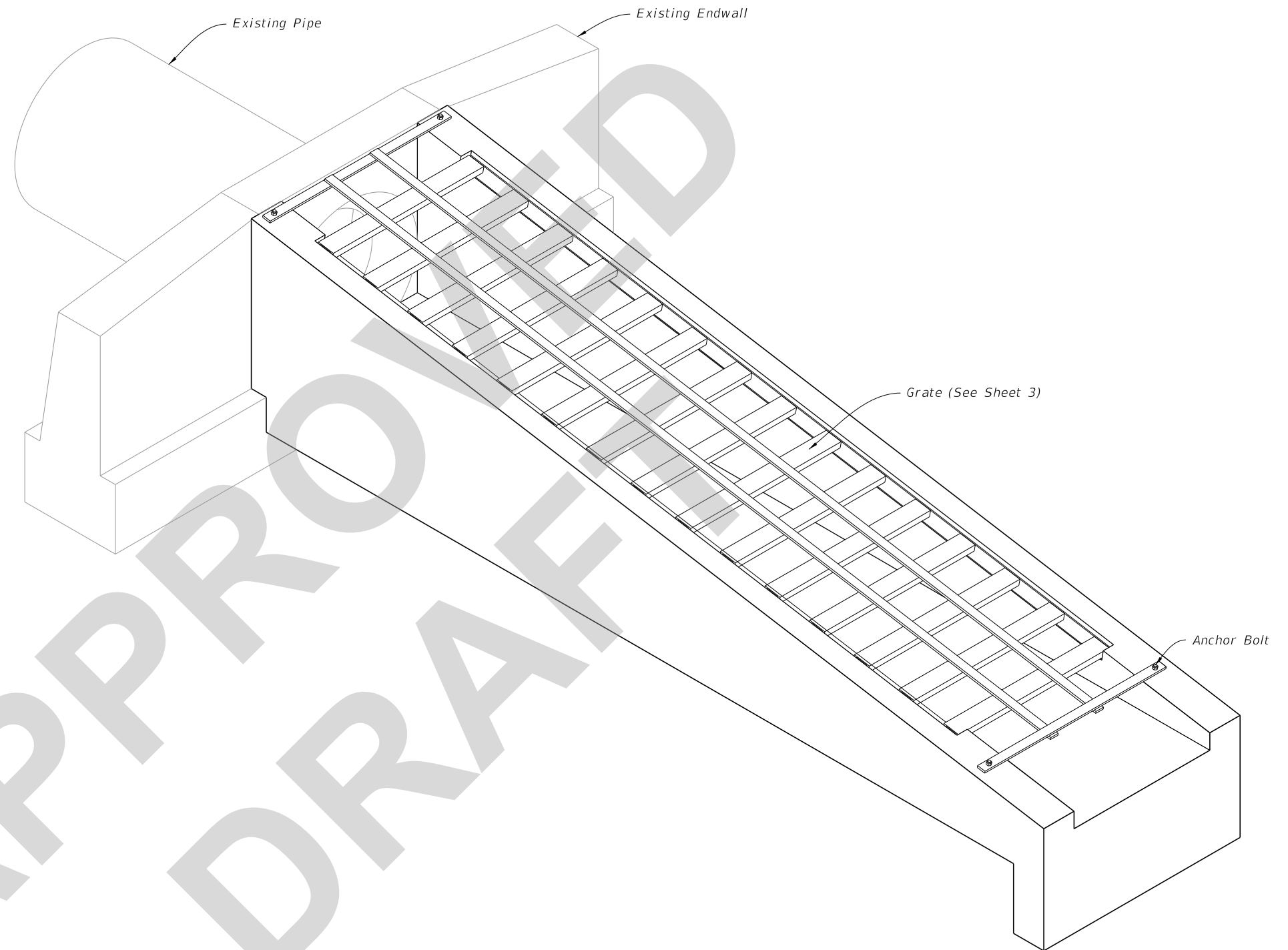
INDEX  
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11/01/21

**GENERAL NOTES:**

1. Use Class II Concrete.
2. Channel section C3 x 6.0 may be substituted for the C4 x 5.4 channel.
3. All steel reinforcing bars are #4 with 2" cover except as noted. Spacing shown are center to center. Lap bars 1'-5" minimum. Welded wire fabric (two cages max.) with an equivalent cross section area (0.20 sq. in.) may be substituted for bar reinforcement.
4. Drill 1/4" holes 8" deep with a rotary drill in existing endwall for dowel bars. Thoroughly clean holes prior to installing Adhesive-Bonded Dowels.
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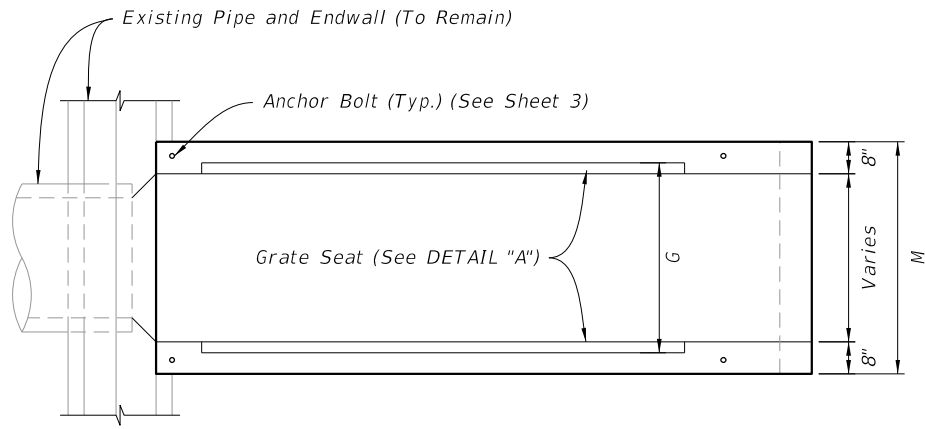
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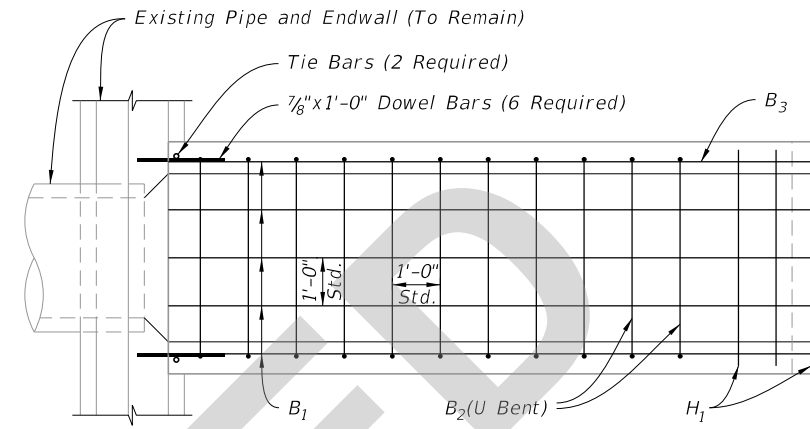
SAFETY MODIFICATIONS

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LAST REVISION 11/01/21	REVISION	DESCRIPTION:	 FY 2022-23 STANDARD PLANS	SAFETY MODIFICATIONS FOR ENDWALLS	INDEX 430-090	SHEET 1 of 3
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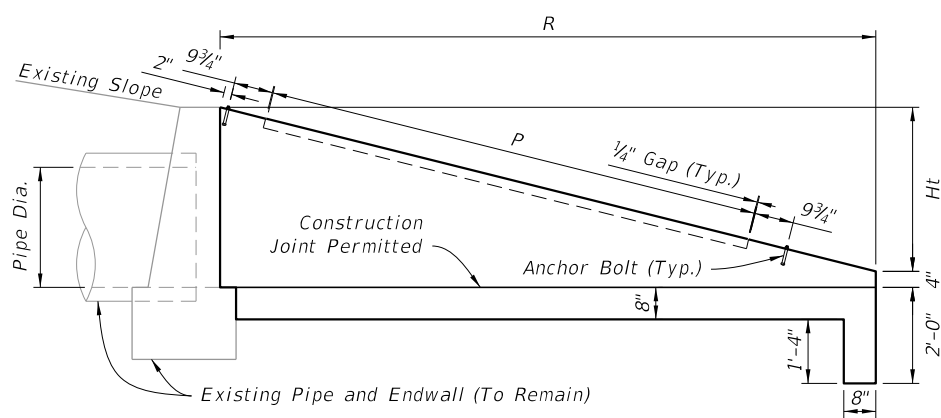


PLAN

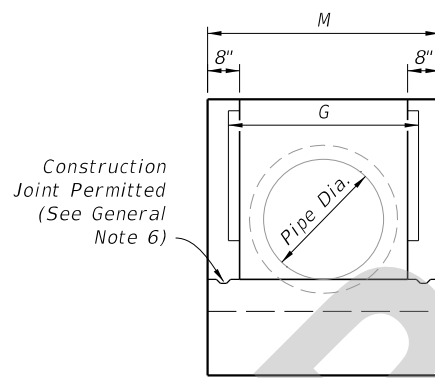


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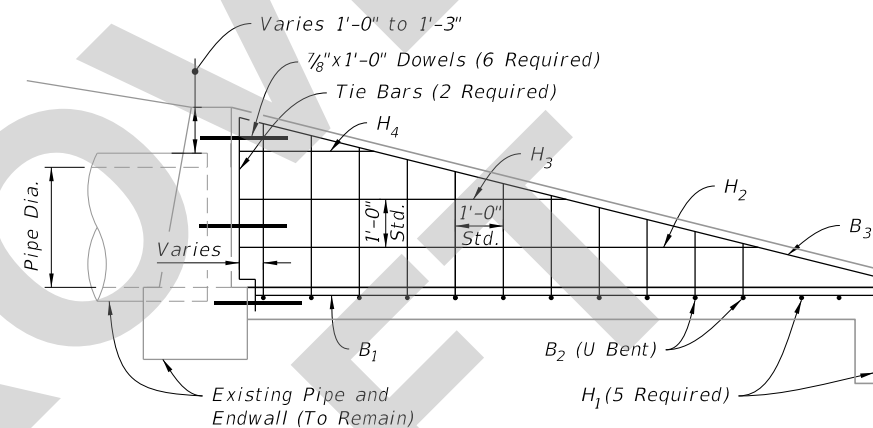
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 H = Horizontal Bars  
 B = Bent Bars



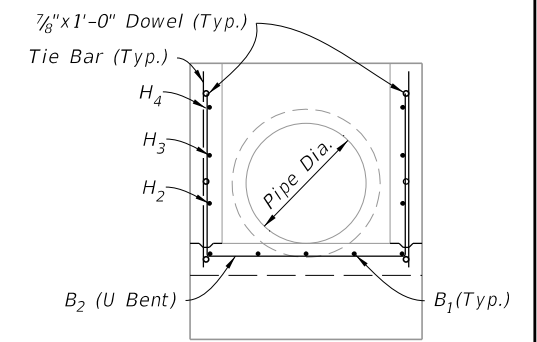
ELEVATION



END VIEW



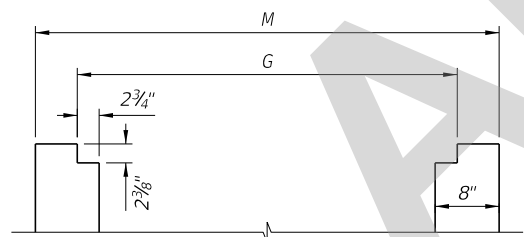
ELEVATION



BACK VIEW

DIMENSIONAL DETAILS

REINFORCING DETAILS



GRATE SEAT

DETAIL "A"

**TABLE 1**  
**U-ENDWALL DIMENSIONS AND QUANTITIES**

Slope	Pipe Dia.	G	M	Ht	R	P	Class II Concrete-CY	Reinforcing Steel-lbs.	Sod SY
1:6	15"	2'-8 1/2"	3'-7"	2'-2"	13'-0"	9'-4"	2.12	167	23
	18"	2'-11 1/2"	3'-10"	2'-5"	14'-6"	11'-4"	2.53	173	25
	24"	3'-5 1/2"	4'-4"	2'-11"	17'-6"	14'-4"	3.48	238	29
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1:4	15"	2'-8 1/2"	3'-7"	2'-2"	8'-8"	5'-4"	1.44	120	19
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ENDWALLS FOR 1:4 AND 1:6 SLOPES

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LAST REVISION 11/01/21	REVISION	DESCRIPTION:
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FY 2022-23  
 STANDARD PLANS

SAFETY MODIFICATIONS FOR ENDWALLS

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