
ORIGINATION FORM

Proposed Revisions to a Standard Plans Index

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

Contact Information:

Date: June 5, 2023

Originator: Dino Jameson

Phone: (352) 955-2933

Email: dino.jameson@dot.state.fl.us

Standard Plans:

Index Number: 440-001

Sheet Number (s): 1, 2, and 3 of 3

Index Title: Underdrain

Summary of the changes:

Sheet 1: Updated GENERAL NOTE 5 "Install Type D-3 geotextile in accordance with Specification 514."; Changed all references of "Filter Fabric" to "Geotextile".

Sheet 2: Changed all references of "Filter Fabric" to "Geotextile".

Sheet 3: Changed all references of "Filter Fabric" to "Geotextile".

Areas of the Standard Plans where 985 is referenced for drainage details needs to now reference Specs 514 (Division II specs). The Contractor is not responsible for the producer requirements division III specs, but ensure that the product used is on the APL and used for appropriate intended use. Specs 514 essentially does reference 985 to meet the materials requirement.

Commentary / Background:

In the July 2022 SSRBC workbook, construction requirements for the Contractor for geosynthetic materials from Section 985 was removed. The reason for it was that the construction requirements doesn't belong in Division III of the specifications, as this is for producer requirements. Instead of applying specific requirements to each individual specs that references 985 in Division II, the Department is going to modify specification 514 to cover geosynthetics used for drainage applications. Specs 145 covers the reinforcement (structural) applications and construction requirements and erosion control has specific requirements in various areas of Division II, therefore, both erosion and reinforcement are covered. The only missing link in Division II is the drainage applications. Proposed changes to 514 cover construction requirements and material acceptance. In addition, specs 514 ensures that the Contractor obtains geosynthetic product from a manufacturer that meets 985 spec requirements.

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 – Various sections where 985 is referenced. |
| <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: (Submit package to Rick Jenkins)

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

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

GENERAL NOTES:

1. Install underdrain pipe that is either 4" smooth or 5" corrugated tubing unless otherwise shown in the Plans. The size to be furnished will be based on the nominal internal diameter of a pipe with a smooth interior wall. Except when prohibited by the Plans, the special provisions or this standard, pipe with a corrugated interior wall may be provided based on the following size equivalency.

- 4" smooth interior equivalent to 5" corrugated interior
- 5" smooth interior equivalent to 6" corrugated interior
- 6" smooth interior equivalent to 8" corrugated interior
- 8" smooth interior equivalent to 10" corrugated interior

2. Fine aggregate is quartz sand meeting the requirements of Specifications 902-4.

3. Coarse aggregate is gravel or stone meeting the requirements of Specification 901-2 or 901-3. The gradation is in accordance with Specifications 901, Grades 4, 467, 5, 56 or 57 stone unless otherwise shown restricted in the Plans.

4. Install Underdrain Type I, II, III and V in accordance with Specification 440.

5. Install filter fabric Type D-3 in accordance with Specifications 985. The internal filter fabric of Type V underdrain has a permittivity of 0.7 /sec. and an AOS of #40 sieve.

6. When Type I is used, use a filter fabric sock in accordance with Specification 948.

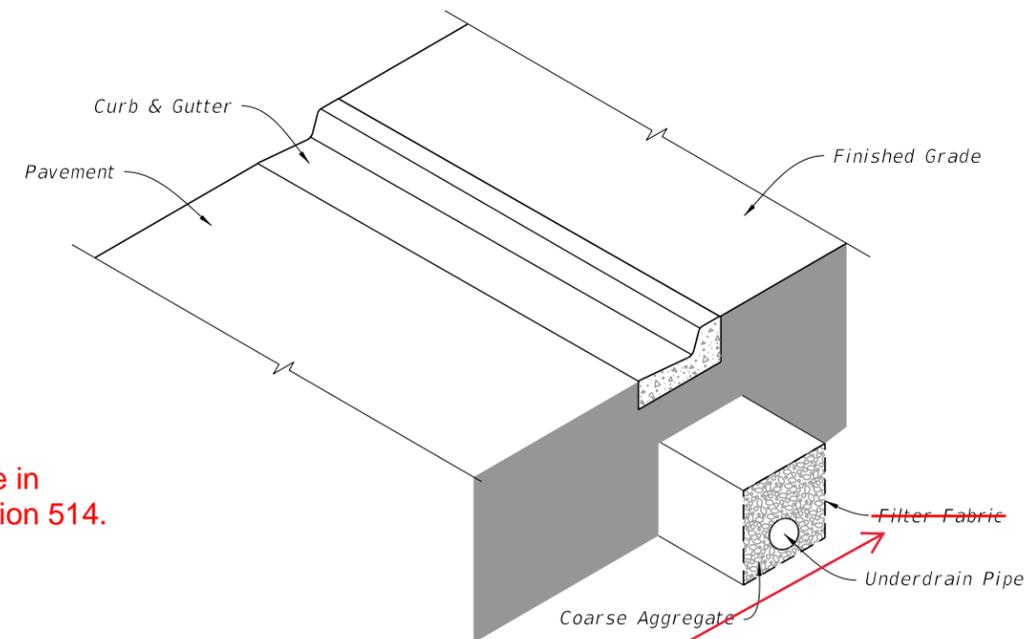
7. See Index 120-002 for the standard location of Type I, II, and III underdrain. The location of Type V underdrain and nonstandard locations of Type I, II, and III underdrain will be as detailed in the plans.

8. Install filter fabric joints with a overlap a minimum of 1'. Install the internal filter fabric of Type V underdrain with an overlap into the coarse aggregate or the fine aggregate a minimum of 1'.

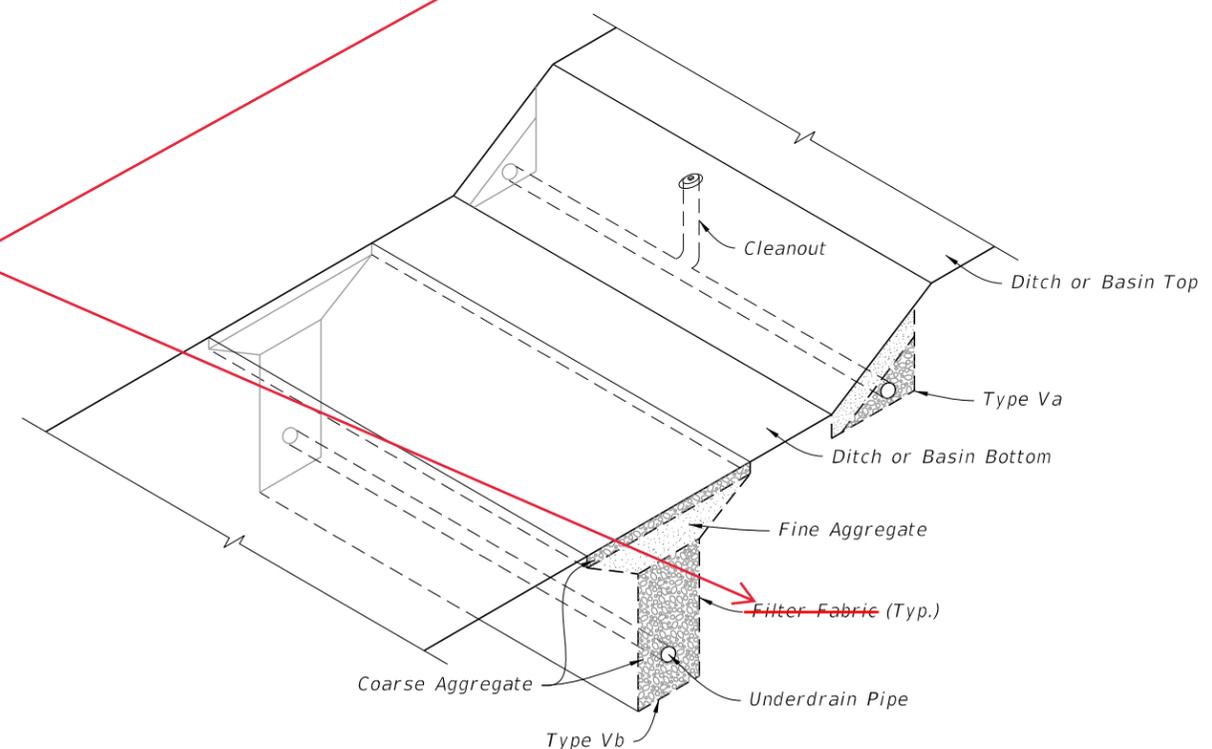
9. Use nonperforated pipes for underdrain outlet and make all bends using 1/8 (45 deg.) elbows. Construct 90 deg. bends with two 1/8 elbows separated by at least 1' of straight pipe. Outlet pipes stubbed into inlets or other drainage structures must be a minimum 6" above the structure flow line. Install concrete aprons, hardware cloth, and sod for outlet pipes discharging to grassed areas as shown in Index 446-001 for Edgedrain Outlets.

UPDATED Note 5
: Install Type D-3 geotextile in accordance with Specification 514.

CHANGED: Geotextile



UNDERDRAIN TYPE I, II, AND III ASSEMBLY
(Type II Shown, Others Similar)



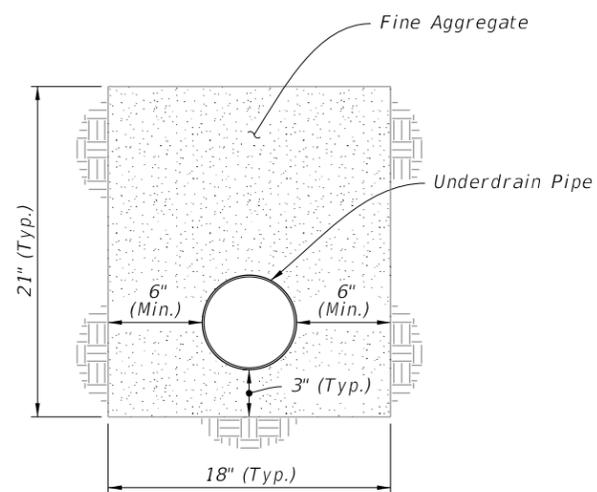
UNDERDRAIN TYPE Va AND Vb ASSEMBLY

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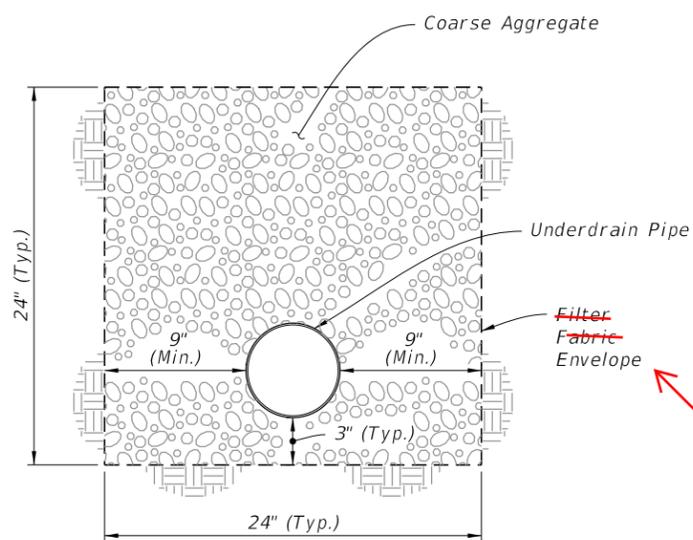
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|-------|---------------------------------|
| 1 | General Notes and Contents |
| 2 | Type I, II, and III Underdrains |
| 3 | Type Va, Vb, and Cleanout |

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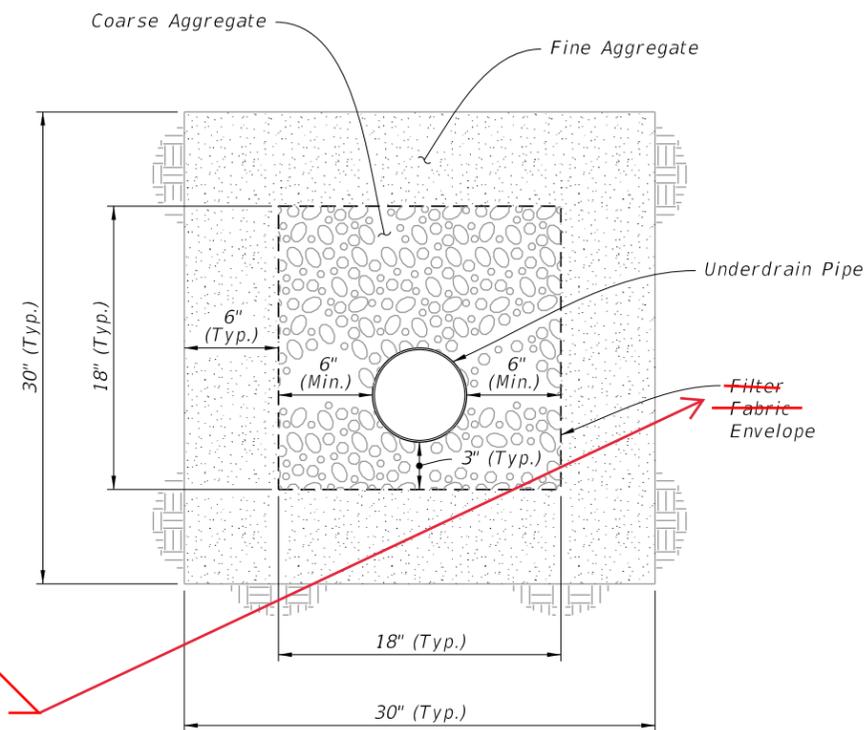
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| LAST REVISION | 11/01/19 | REVISION | 11/01/23 | DESCRIPTION: |
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TYPE I



TYPE II



TYPE III

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| LAST REVISION | DESCRIPTION: |
| 11/01/19 | 11/01/23 |



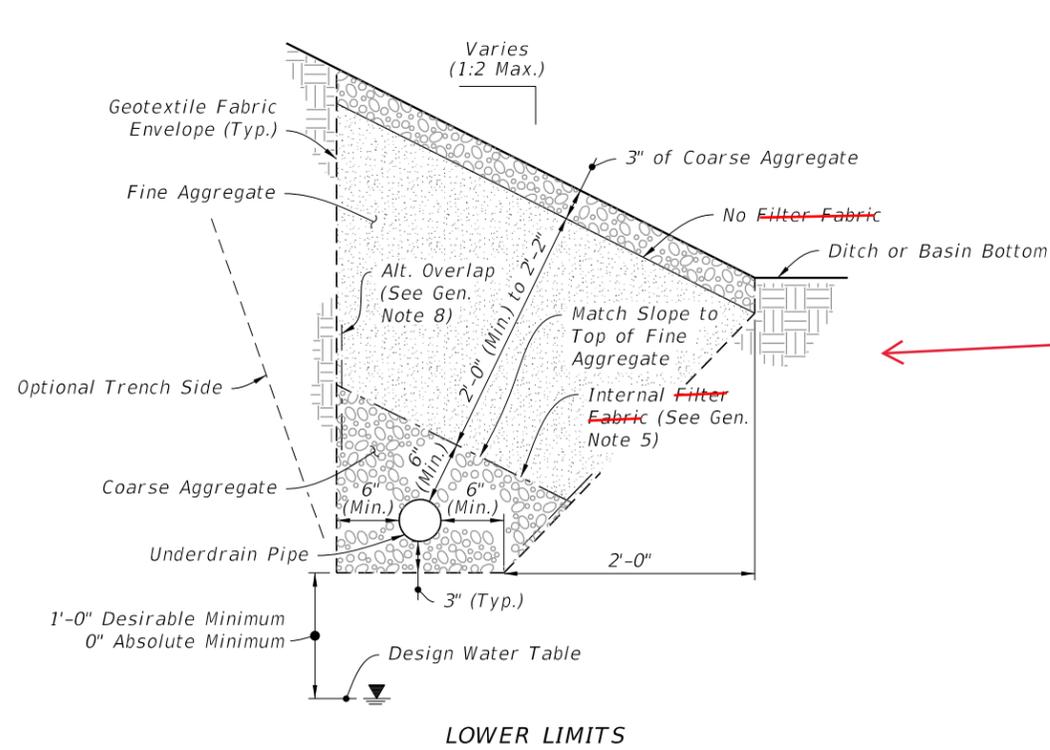
FY 2023-24
STANDARD PLANS

UNDERDRAIN

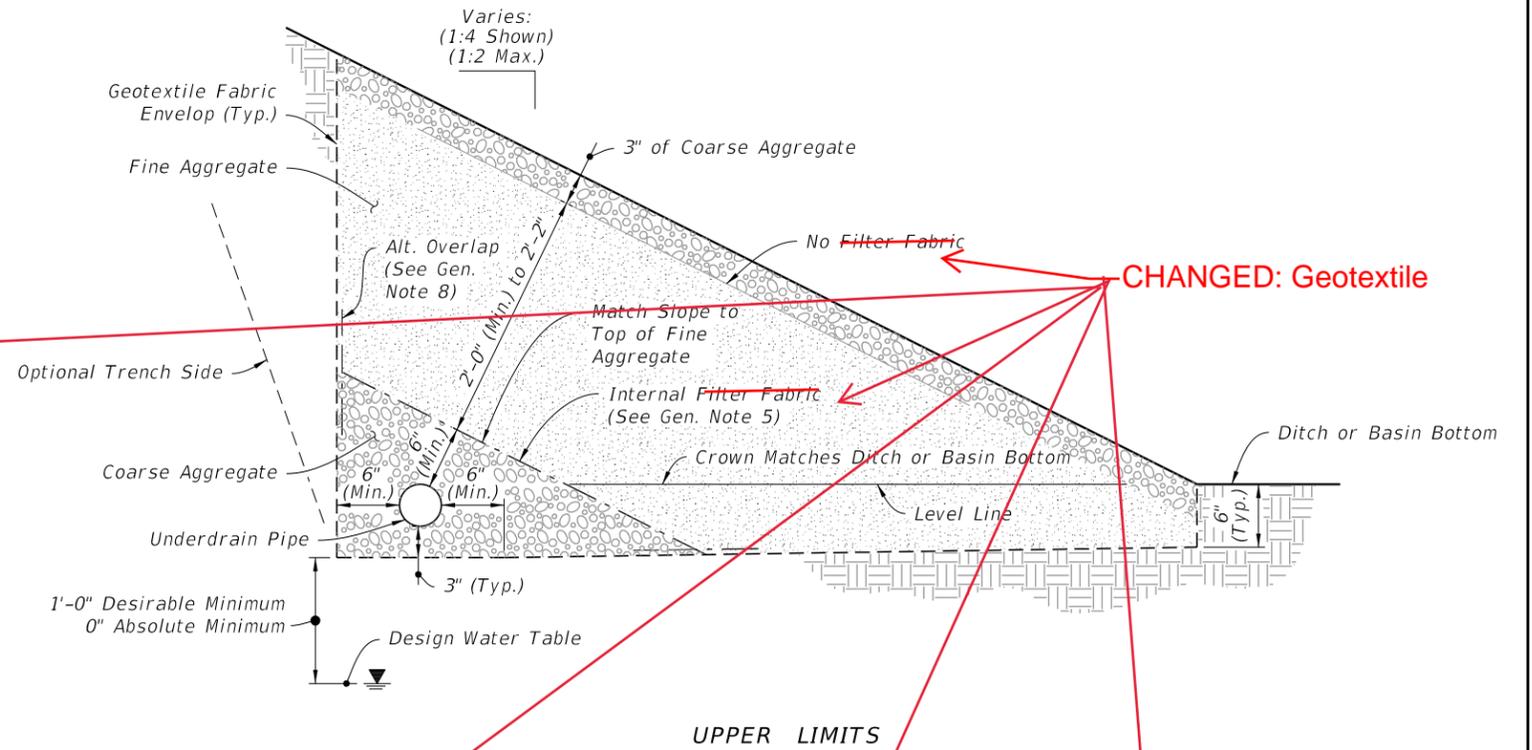
TYPE I, II, AND III

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440-001

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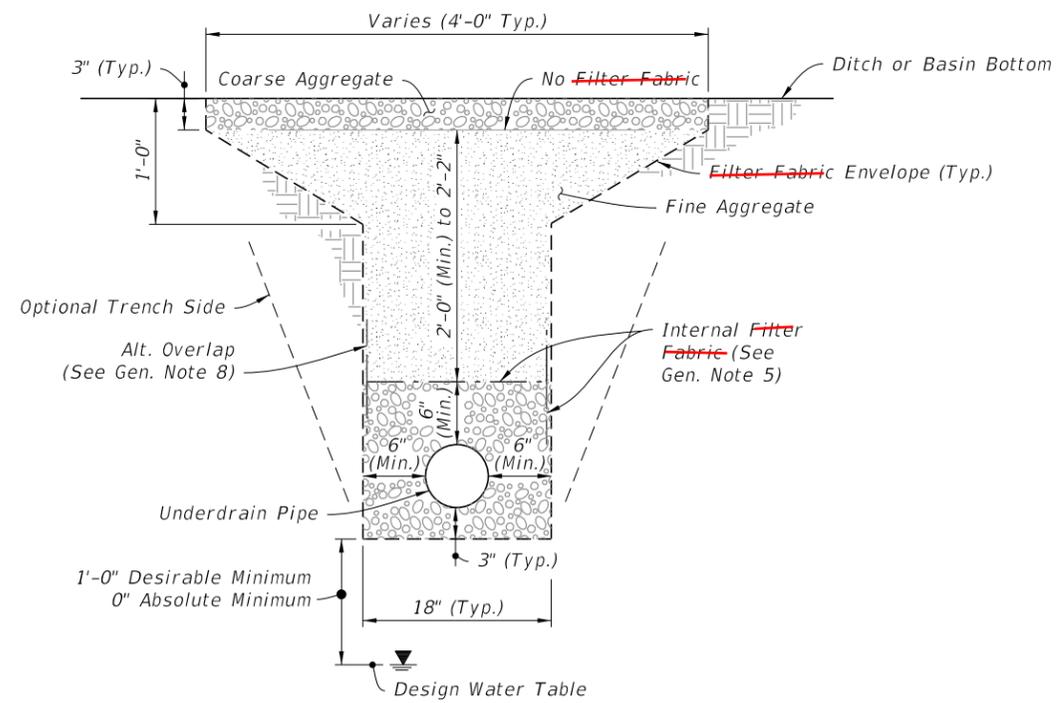


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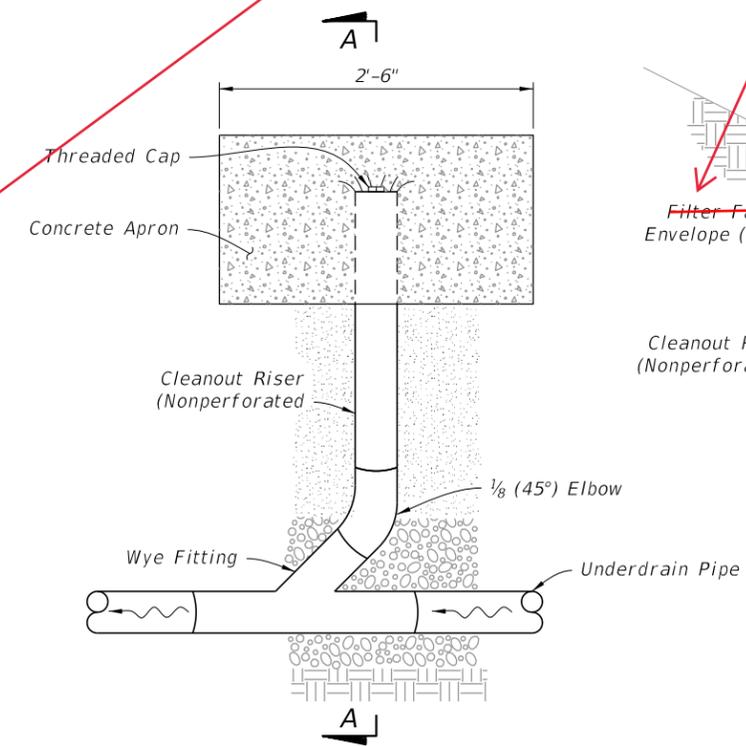


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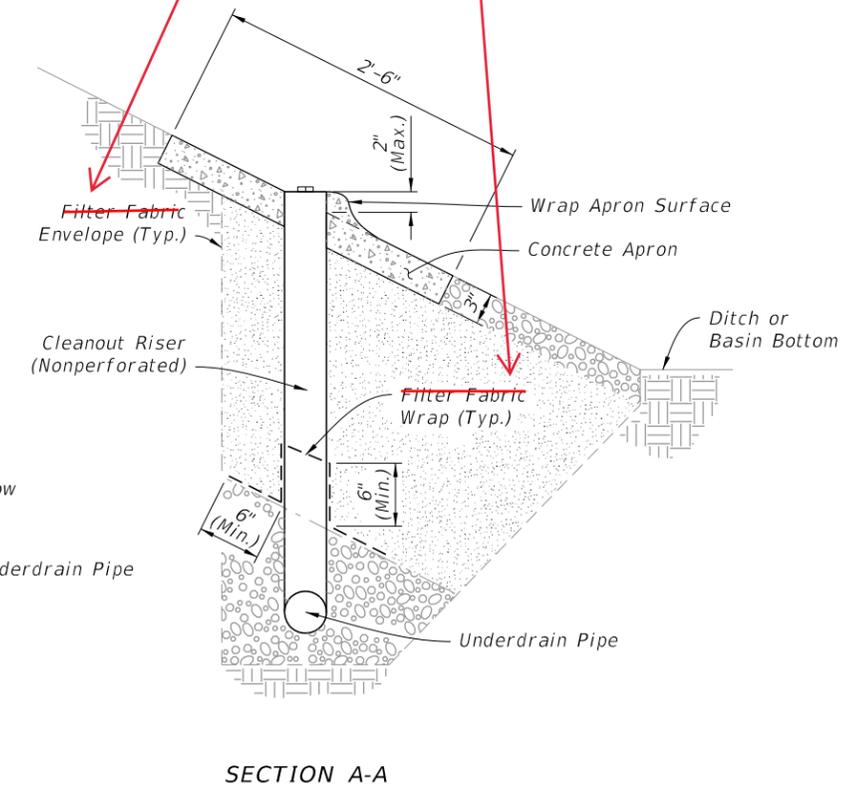
TYPE Va



TYPE Vb



TYPE V CLEANOUT



SECTION A-A

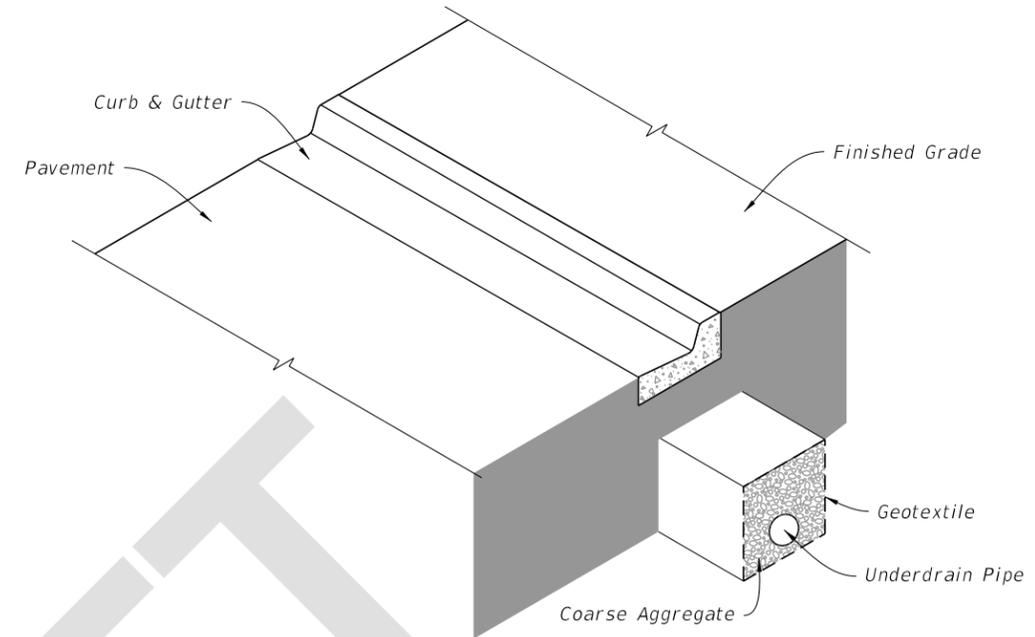
TYPE Va, Vb, AND CLEANOUT

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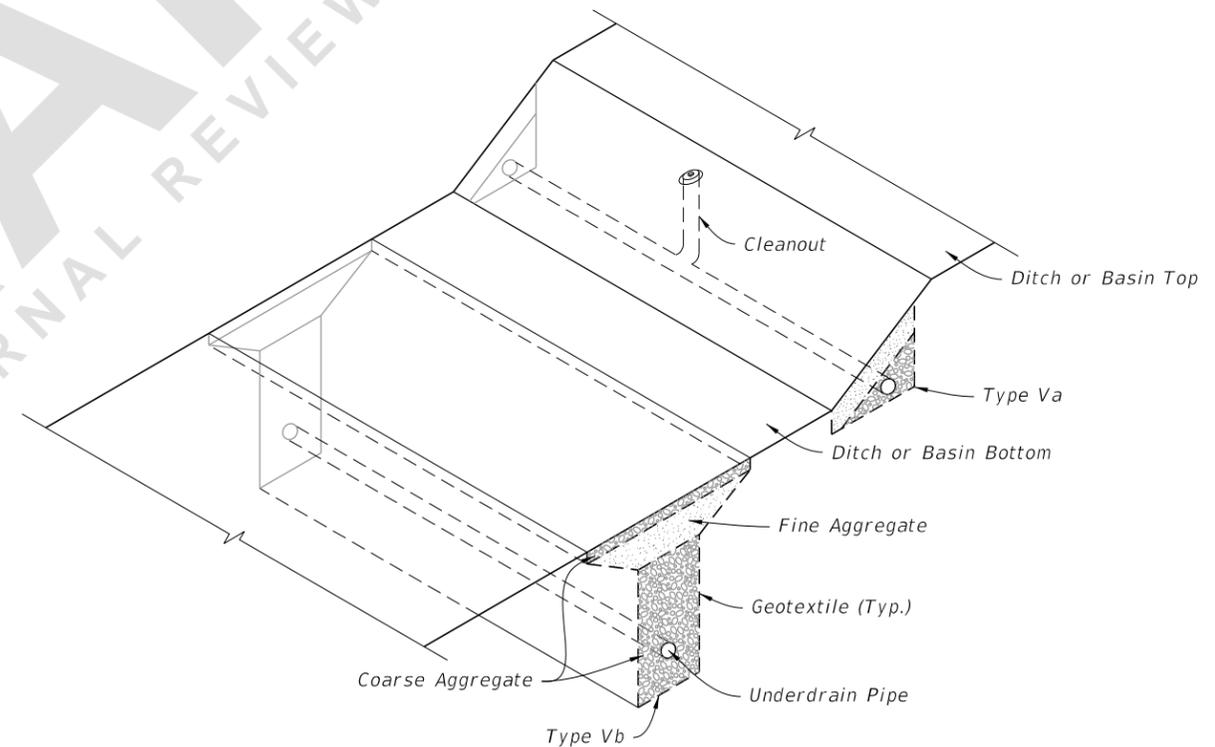
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| 11/01/19 | |
| 11/01/23 | |

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5. Install Type D-3 geotextile in accordance with Specifications 514. The internal geotextile of Type V underdrain has a permittivity of 0.7 /sec. and an AOS of #40 sieve.
6. When Type I is used, use a geotextile sock in accordance with Specification 948.
7. See Index 120-002 for the standard location of Type I, II, and III underdrain. The location of Type V underdrain and nonstandard locations of Type I, II, and III underdrain will be as detailed in the plans.
8. Install geotextile joints with a overlap a minimum of 1'. Install the internal geotextile of Type V underdrain with an overlap into the coarse aggregate or the fine aggregate a minimum of 1'.
9. Use nonperforated pipes for underdrain outlet and make all bends using 1/8 (45 deg.) elbows. Construct 90 deg. bends with two 1/8 elbows separated by at least 1' of straight pipe. Outlet pipes stubbed into inlets or other drainage structures must be a minimum 6" above the structure flow line. Install concrete aprons, hardware cloth, and sod for outlet pipes discharging to grassed areas as shown in Index 446-001 for Edgedrain Outlets.



UNDERDRAIN TYPE I, II, AND III ASSEMBLY
(Type II Shown, Others Similar)

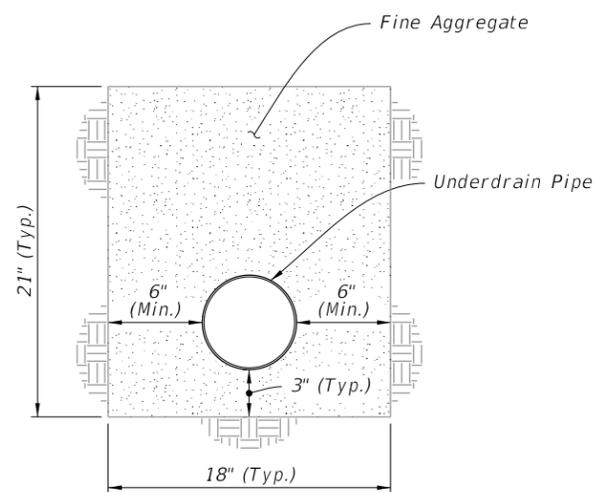


UNDERDRAIN TYPE Va AND Vb ASSEMBLY

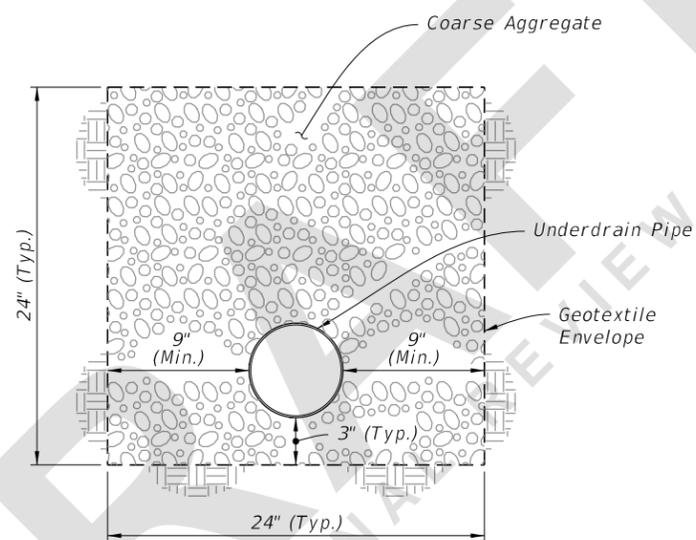
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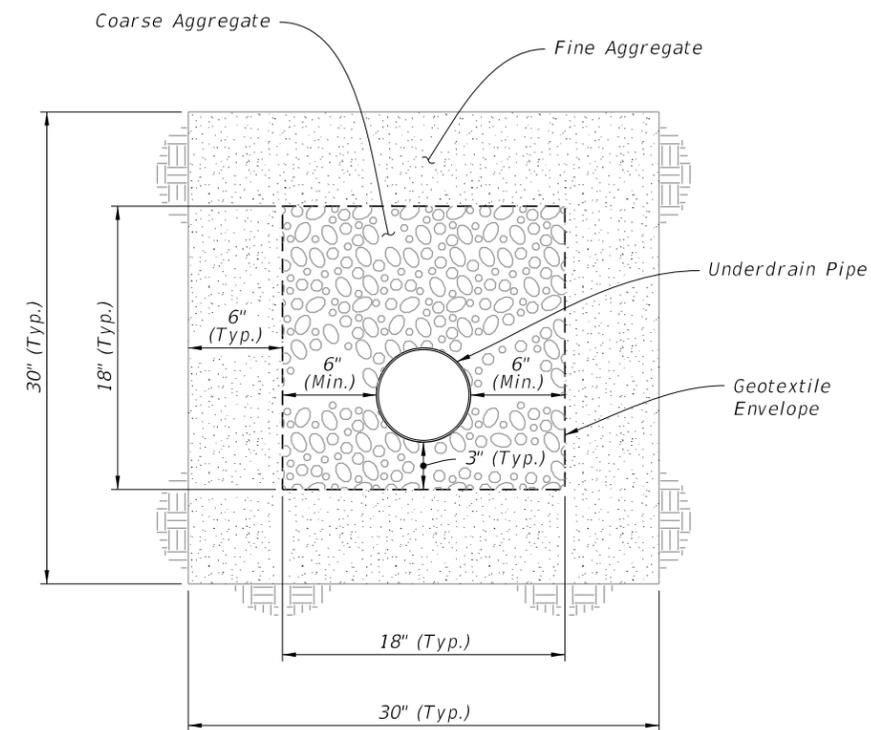
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TYPE I



TYPE II



TYPE III

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LAST REVISION
11/01/23

REVISION

DESCRIPTION:



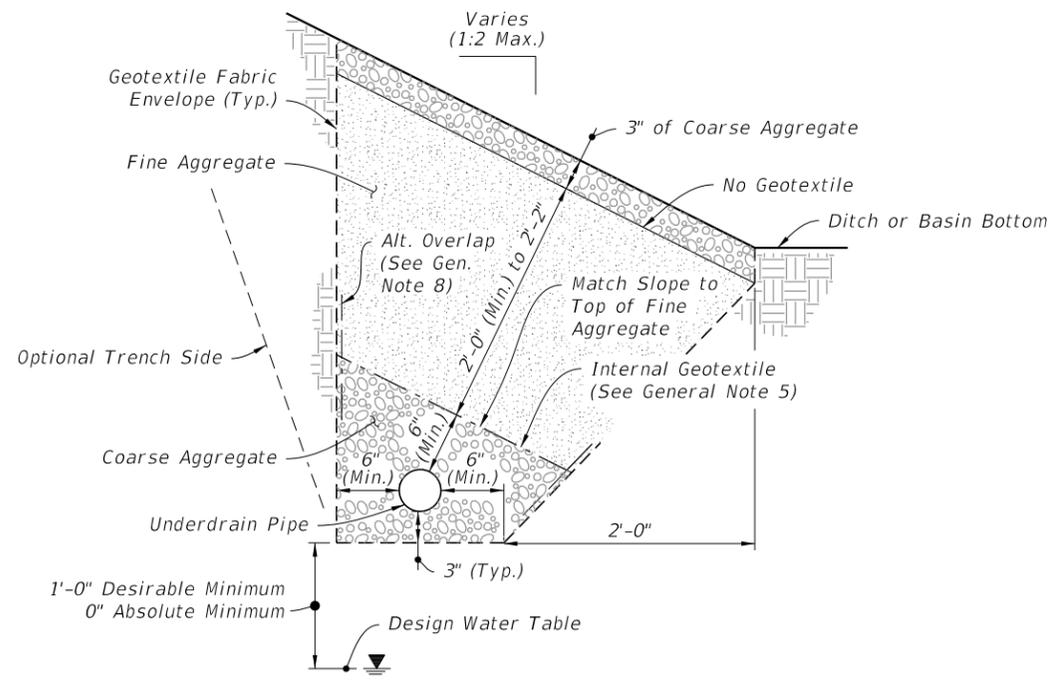
FY 2024-25
STANDARD PLANS

UNDERDRAIN

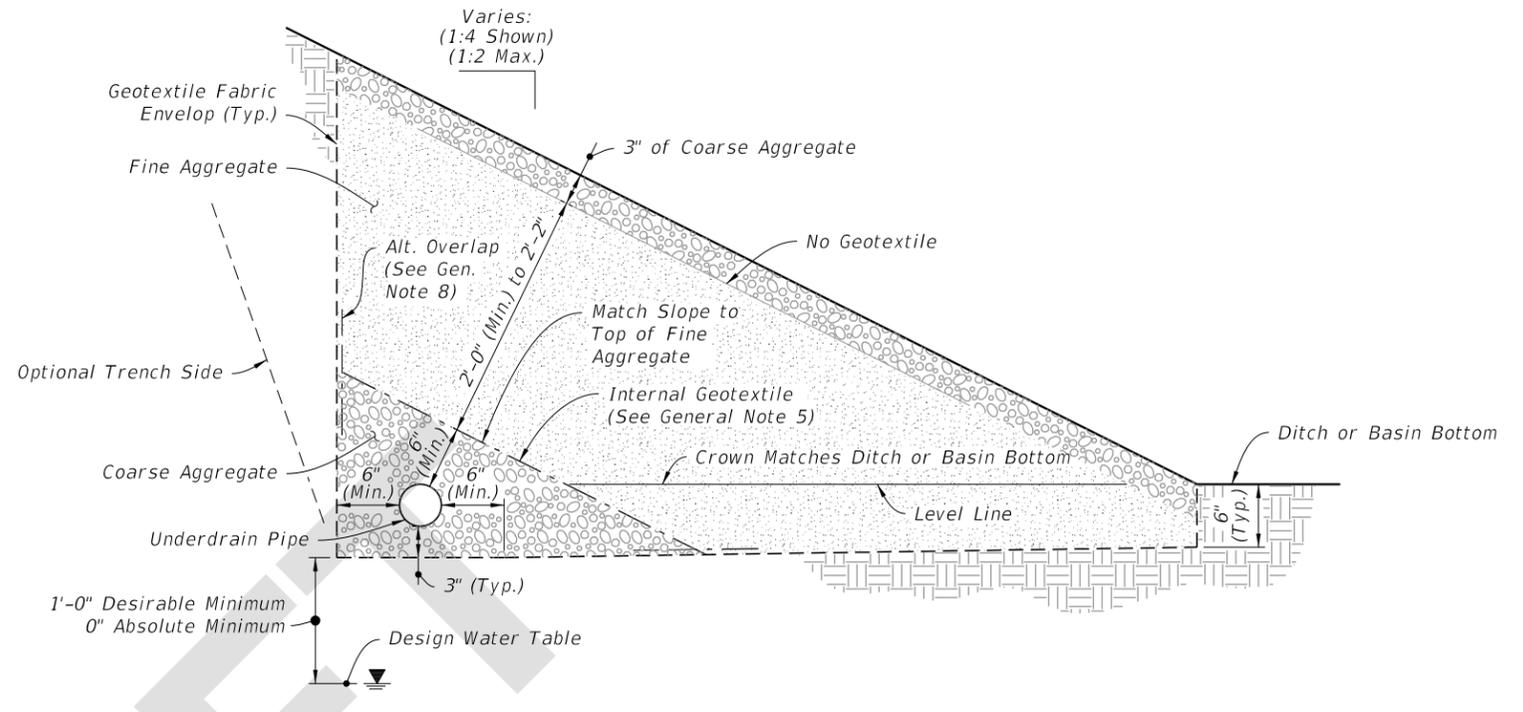
TYPE I, II, AND III

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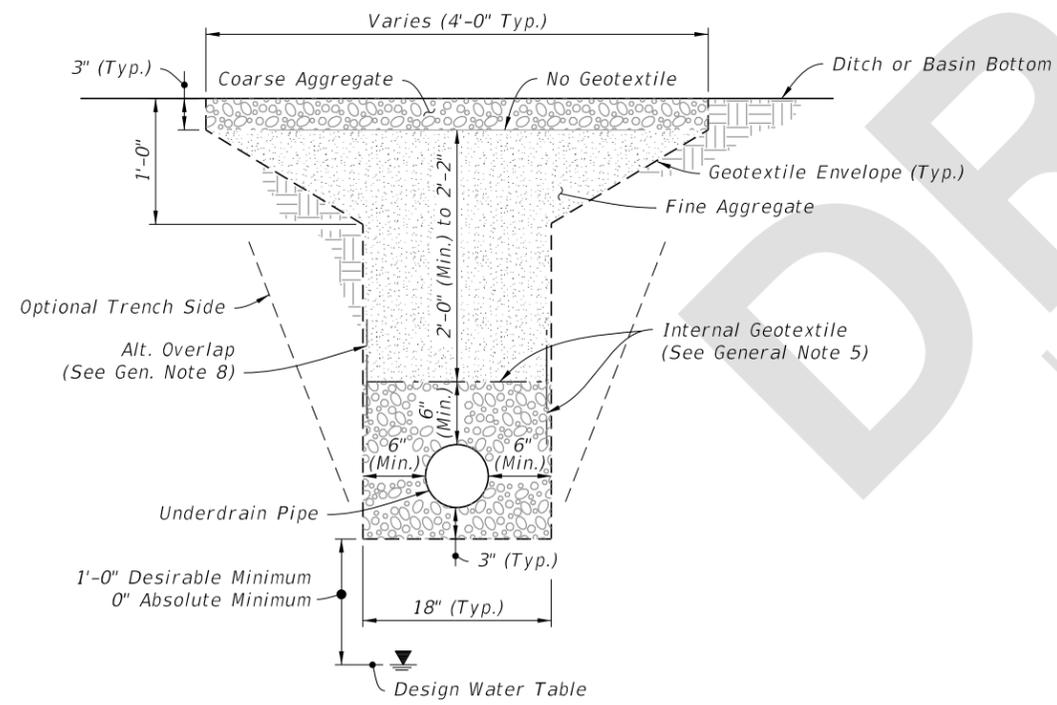


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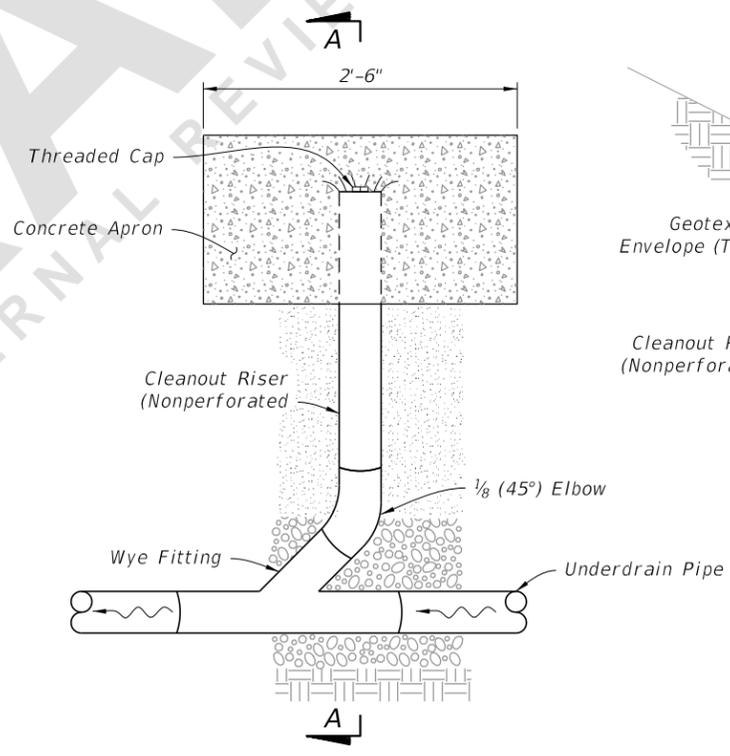


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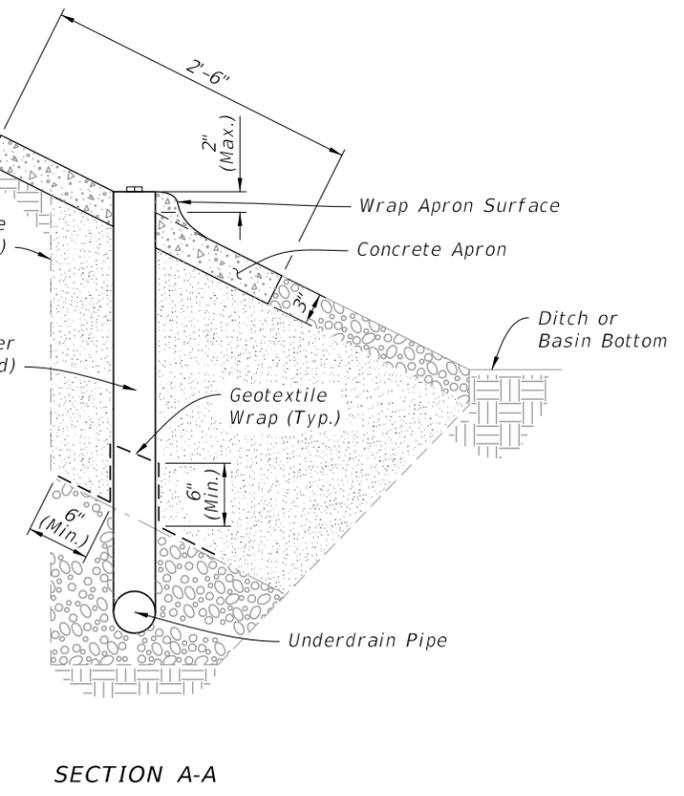
TYPE Va



TYPE Vb



TYPE V CLEANOUT



SECTION A-A

TYPE Va, Vb, AND CLEANOUT

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| | | | | | | | |
|---------------------------|----------|--------------|--|------------------------------|------------|------------------|-----------------|
| LAST REVISION 11/01/23 | REVISION | DESCRIPTION: |  | FY 2024-25 STANDARD PLANS | UNDERDRAIN | INDEX 440-001 | SHEET 3 of 3 |
|---------------------------|----------|--------------|--|------------------------------|------------|------------------|-----------------|