

## EXHIBIT J-1

### MEDIAN BACKFILL

Taken from Land Development Code

**DIVISION 2**  
**SECTION 2930**  
**MEDIAN BACKFILL / ACCEPTABLE TOPSOIL**

**PART 1- GENERAL**

**1.01 SUMMARY**

1. This section specifies requirements for the preparation, supplying and spreading of acceptable topsoil at a minimum eighteen-inch (18") depth within all roadway medians.
2. Beneath the (18" depth) topsoil is a Select (S) Soil which follows FDOT Standard index #505.

**SEE MEDIAN BACKFILL DETAIL**

**1.02 QUALITY ASSURANCE**

A. Qualifications

- A. Testing Agency: Independent testing laboratory as approved by F.D.O.T. and Collier County.

B. Test Requirements

1. Prior to delivery to the construction site, submit a representative one pound sample of acceptable topsoil for analysis to an independent laboratory to ensure conformance to requirements specified in 2.01. Submit all test results to the Engineer for written approval before delivery.
2. After delivery of acceptable topsoil to the construction site, submit a representative one pound sample for analysis to an independent laboratory to ensure conformance to requirements specified in 2.01. Submit test results to the Engineer for approval. In the event that the delivered sample is not consistent with the sample approved prior to delivery, the Engineer will reject the delivered topsoil.

C. Certification:

1. Prior to delivery of acceptable topsoil to the construction site, furnish the Engineer with a written statement from topsoil supplier giving the certification of the soil analysis.
  - i. Manufacturer's certification and/or testing laboratory clarification that content of soil conditioners meet specification requirements.

- ii. Manufacturer's certificate of fertilizer's chemical composition including, but limited to, percentage and derivation of nitrogen, phosphorus, potassium, and micro-nutrients.
- iii. Submit all certification to Engineer/Landscape Architect a minimum of one week prior to installation of any material.

D. Test Reports:

1. Reports shall be identified by project name, date and soil mix type.
2. The following reports are required:
  1. ph range
  2. major and minor element analysis
  3. soluble salt concentrations
  4. sand fraction analysis
  5. % Calcium
  6. Testing laboratory recommendations as to suitability of soil for planting and drainage.

### **1.03 DELIVERY, STORAGE, AND HANDLING**

- A. Do not deliver the acceptable topsoil to the construction site until the Engineer has approved in writing the test results for the representative sample.

### **1.04 SUBMITTALS**

A. Test Reports

Submit laboratory analysis of acceptable topsoil to the Engineer in accordance with 1.02 Section D.

B. Certification

Submit to the Engineer certification required by 1.02.

## **PART 2 – PRODUCTS**

### **2.01 MATERIALS**

A. Topsoil

Topsoil shall be fertile, friable blended or native sandy soil.

1. Acceptable topsoil shall be of uniform quality, free from hard clods, stiff clay, hard pan, sods, partially disintegrated stone, lime, cement, ashes, slag, concrete, tar residues, tarred paper, boards, chips, sticks or any other undesirable material.
2. There shall be no exotic or noxious weeds or weed seeds (i.e. Nut grass, Bermuda grass, sedges and the like).
3. In no case shall there be more than 5% by volume of stones, coarse sand, gravel or clay lumps larger than one inch (1") in diameter.

4. Acceptable topsoil shall contain a minimum of 2.5% organic matter, not to exceed 4% as determined by loss on ignition of moisture-free samples and the ph range shall be 5.0 to 7.5 inclusive and shall contain no substance which will impede plant growth.
5. Maximum Soluble Salts: 300 ppm
6. Acceptable topsoil shall be graded as follows:

PASSING	RETAINED ON	PERCENTAGE
1" SCREEN		100%
1" SCREEN	2 mm (No. 10) Sieve	not more than 5%

7. The components of blended topsoil are peat moss and sand (.05-.002 mm) or Florida peat, sand (.05-.002mm), wood chips, and compost.
  - A. Test ph of topsoil and planting soil mixtures by method acceptable to current industry standards. If ph is not between 5.0 and 7.5, add approved soil conditioner/additive to bring ph within that range.
  - B. Within the select soil range subsurface drainage is required.
    - a. Good soil water infiltration and percolation. Water must be able to penetrate and move through the soil; one-inch per hour is considered optimal.
    - b. Good subsurface drainage should be present to a depth of 762 mm (30 inches) – 1,219 mm (48 inches) which is the normal critical rooting zone. There should be no impervious layer/hardpan, or soil interfaces to disrupt the flow of water downward and away from the roots.
    - c. Adequate aeration. Oxygen must be both able to diffuse in from the atmosphere and be able to move readily through the soil profile.
    - d. Desirable soil should have adequate available water holding capabilities. Soil should be able to retain 10 percent to 15 percent of the available water after gravitational water has drained away.
  - C. Physical Soil Characteristics and Infiltration Rates ( Reference FDOT, "Florida Highway Landscape Guide", April 14, 1995)

**PART 3 – EXECUTION**

**3.01 PREPARATION**

**SEE MEDIAN BACKFILL DETAIL**

### **3.02 APPLICATION**

**SEE MEDIAN BACKFILL DETAIL**

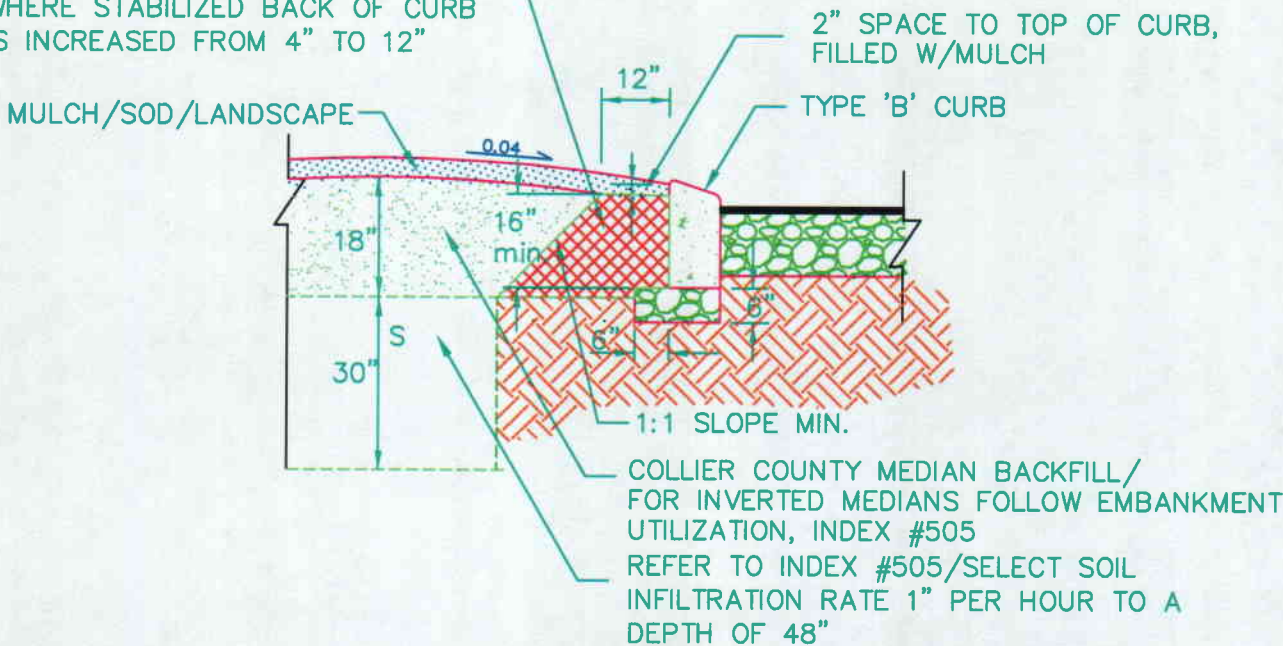
### **3.03 CLEANUP**

- A. Immediately clean up spills, soil and conditioners on paved and finished surface areas.
- B. Remove debris and excess materials from project site daily.

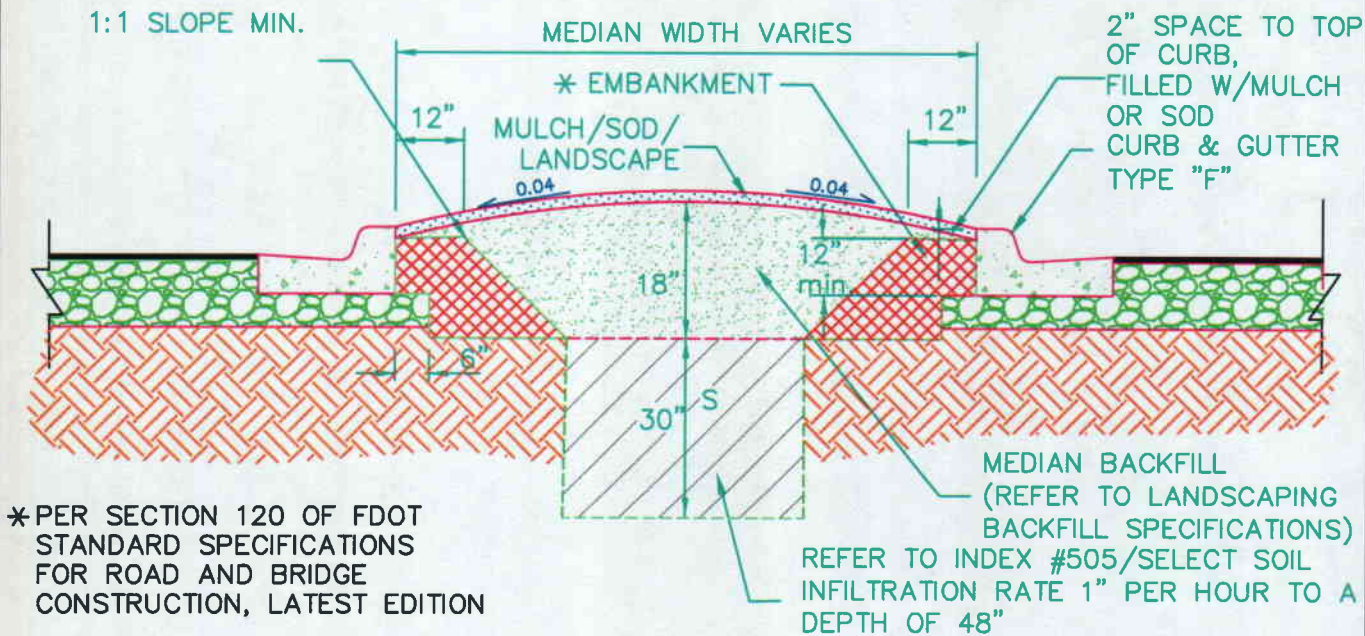
**END OF SECTION**

# MEDIAN BACKFILL

\* EMBANKMENT/PROVISIONAL SPECIFICATION TO INDEX NO. 506 WHERE STABILIZED BACK OF CURB IS INCREASED FROM 4" TO 12"



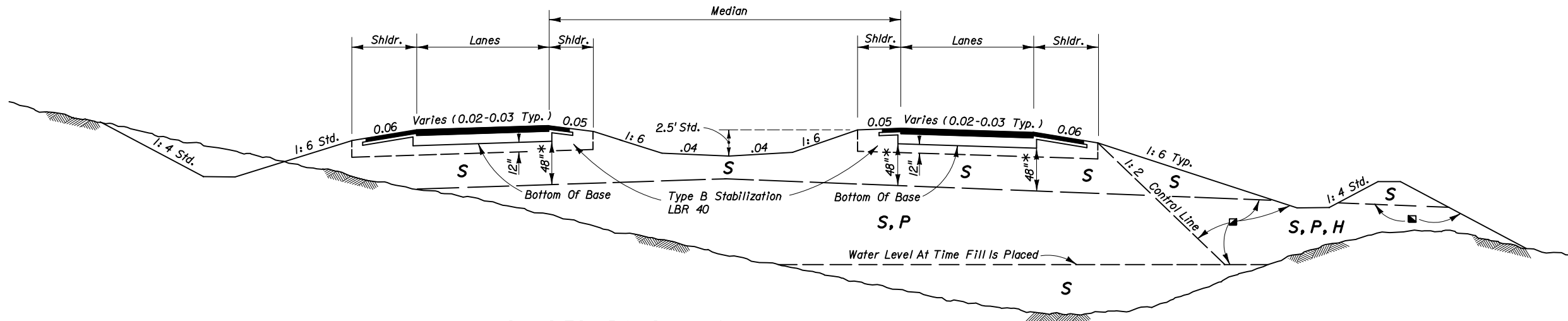
**DETAIL 'A'**



\*PER SECTION 120 OF FDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, LATEST EDITION

**DETAIL 'B'**

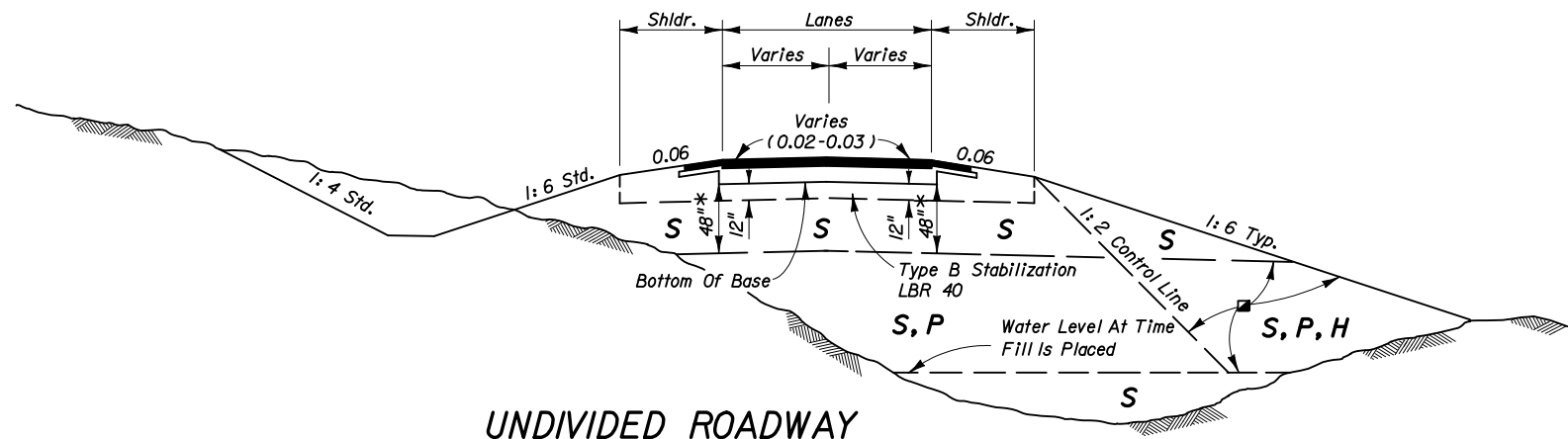
<p><b>BOARD OF COUNTY COMMISSIONERS</b>  <b>COLLIER COUNTY, FLORIDA</b>  <b>TECM DEPARTMENT</b>                  2885 SOUTH HORSESHOE DRIVE                  NAPLES, FLORIDA 34104 (239) 774-8484</p>	TITLE	DRAWN BY: TD
	<p><b>MEDIAN BACKFILL DETAIL</b></p>	REVIEWED BY: DB,JFO,PL
		APPROVED BY.: JAY AHMAD
		APPROVED DATE: Rev. 3/5/08
		SCALE: NTS
	DATE: 4/03/07	FILE NO. BACKFILL



**DIVIDED ROADWAYS**

**GENERAL NOTES**

- Roadway dimensions are representative. Subgrade dimensions and control lines are standard. The details shown on this Index do not supersede the details shown in the plans or on Index Nos. 500 or 506.
- Plastic (P) soils may be placed above the existing water level (at the time of construction) to within 4 feet of the proposed base. It should be placed uniformly in the lower portion of the embankment for some distance along the project rather than full depth for short distances.
- High Plastic (H) soils excavated within the project limits may be used in embankment construction as indicated on this index. High Plastic soils are not to be used for embankment construction when obtained from outside the project limits.
- Select (S) soils having an average organic content of more than two and one-half (2.5) percent, or having an individual test value which exceeds four (4) percent, shall not be used in the subgrade portion of the roadbed.  
  
Select (S), Plastic (P), or High Plastic (H) soils having an average organic content of more than five (5) percent, or an organic content individual test result which exceeds seven (7) percent, shall not be used in the portion of embankment inside the control line, unless written authorization is provided by the District Geotechnical Engineer; these soils may be used for embankment construction outside the control line, unless restricted by the plans or otherwise specified in the plans, provided they can be compacted sufficiently to sustain a drivable surface for operational vehicles as approved by the Engineer.  
  
Average organic content shall be determined from the test results from a minimum of three randomly selected samples from each stratum or stockpile of a particular material. Tests shall be performed in accordance with AASHTO T 267 on the portion of a sample passing the No. 4 sieve.
- Highly organic soils, composed primarily of partially decayed organic matter, often dark brown or black in color with an odor of decay, and sometimes fibrous, shall be designated as muck. Further, any stratum or stockpile of soil which contains pockets of highly organic material may be designated as Muck (M).  
  
Highly organic soils shall not be used within the subgrade or embankment portion of the roadbed, with the exception of muck used as a supplement to construct a finish soil layer as described in Section 162 of the FDOT Standard Specifications.



**UNDIVIDED ROADWAY**

**DESIGN NOTES**

- The designer shall take into consideration the expectancy of roadway widening to the outside, and where widening is anticipated, specify in the plans the location of the future widening control line for utilization of High Plastic (H) soils and/or soils classified as organic material in the embankment.
- The designer shall take into consideration the position of the drainage swales in the portion of the embankment where Plastic (P) soils, High Plastic (H) soils, or soils classified as organic material would be allowed. The designer shall limit the use of Plastic (P) soils, High Plastic (H) soils, and/or soils classified as organic material to locations that will not inhibit the infiltration of stormwater from the swales.

SYMBOL	SOIL	CLASSIFICATION (AASHTO M 145)
S	Select	A-1, A-3, A-2-4 **
P	Plastic	A-2-5, A-2-6, A-2-7, A-4, A-5, A-6, A-7 (ALL WITH LL < 50)
H	High Plastic	A-2-5, A-2-7, A-5 Or A-7 (ALL WITH LL > 50)
M	Muck	A-8

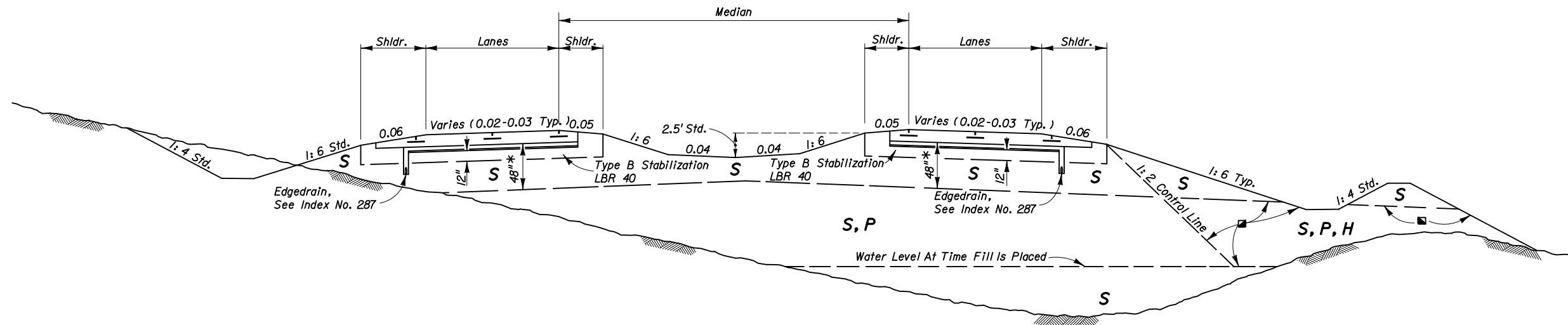
Classification listed left to right in order of preference.

■ See General Notes Nos. 4 & 5 for utilization of soils classified as organic material or muck.

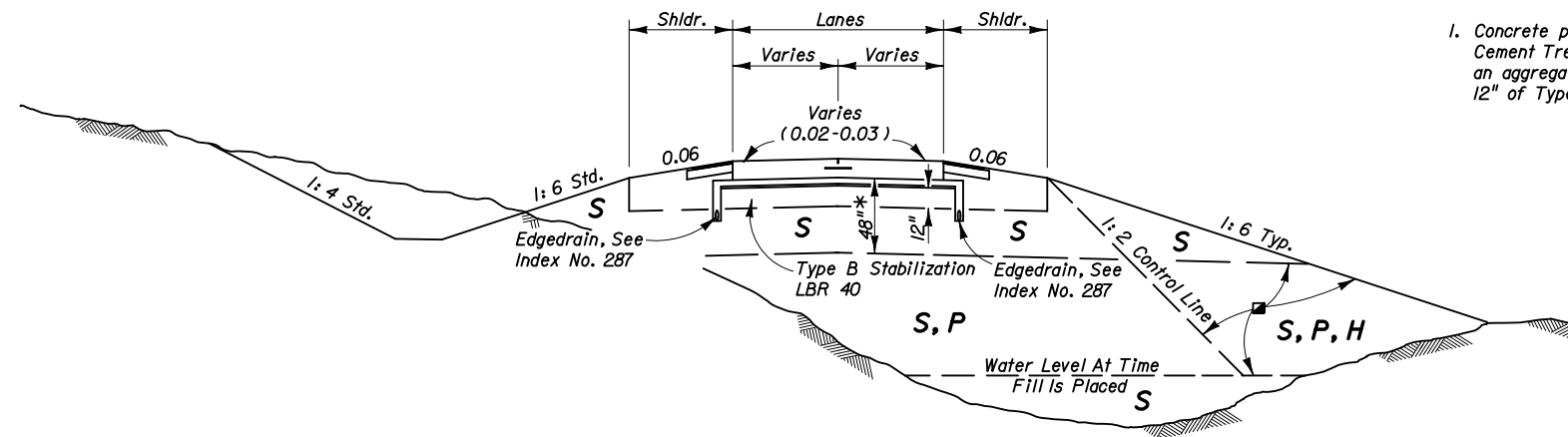
\*\* Certain types of A-2-4 material are likely to retain excess moisture and may be difficult to dry and compact. They should be used in the embankment above the water level existing at time of construction. They may be used in the subgrade portion of the roadbed when approved by the District Materials Engineer. A-2-4 material placed below the existing water level must be nonplastic and contain less than 15% passing the No. 200 U.S. Standard sieve.

\* For cut sections this dimension may be reduced to 24"; see Index No. 500. For minor collectors and local facilities this dimension may be reduced to 18".

**FLEXIBLE PAVEMENT**



**DIVIDED ROADWAYS**



**UNDIVIDED ROADWAY**

**DESIGN NOTE**

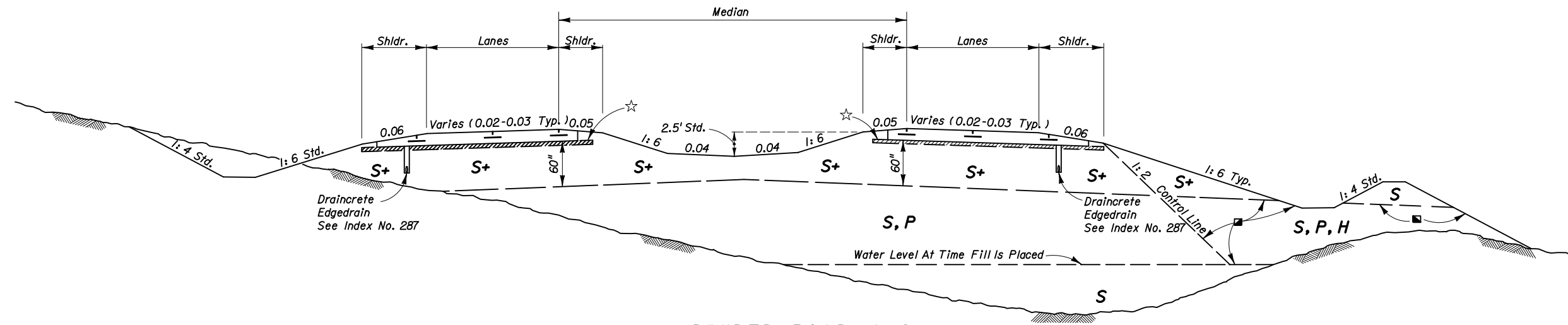
1. Concrete pavement is to be placed over 4" of Asphalt Treated Permeable Base (ATPB) or Cement Treated Permeable Base (CTPB) as identified in the plans. This will be placed on an aggregate separator layer using 1" Type SP. This will be placed on a working platform using 12" of Type B Stabilization.

<u>SYMBOL</u>	<u>SOIL</u>	<u>CLASSIFICATION (AASHTO M 145)</u>
S	Select	A-1, A-3, A-2-4 **
P	Plastic	A-2-5, A-2-6, A-2-7, A-4, A-5, A-6, A-7 (ALL WITH LL < 50)
H	High Plastic	A-2-5, A-2-7, A-5 Or A-7 (ALL WITH LL > 50)
M	Muck	A-8

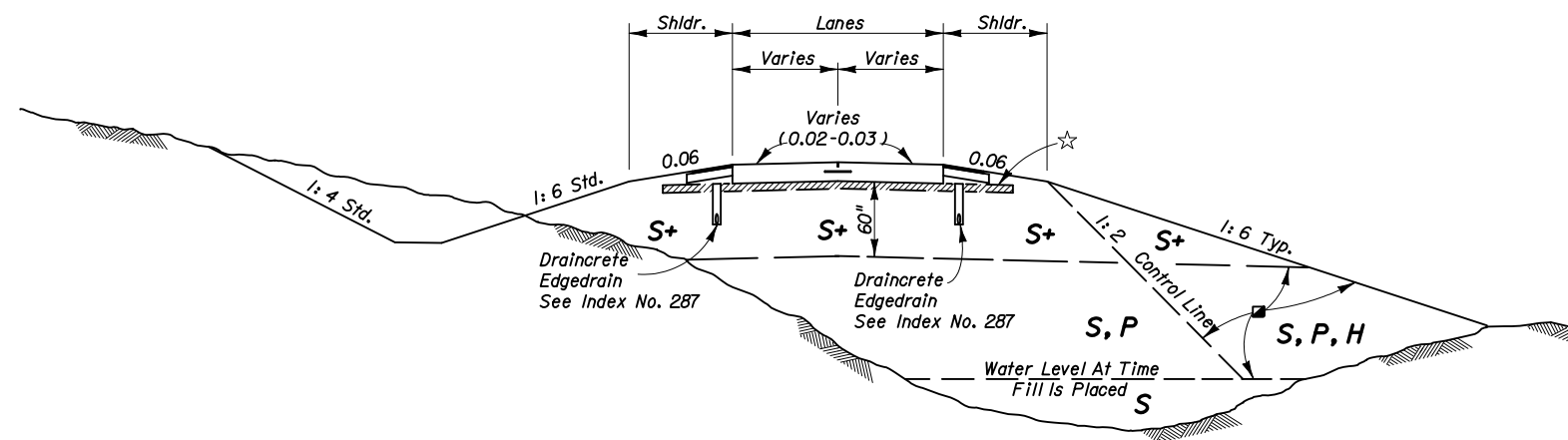
Classification listed left to right in order of preference.

- ☑ See General Notes Nos. 4 & 5 for utilization of soils classified as organic material or muck.
- \*\* Certain types of A-2-4 material are likely to retain excess moisture and may be difficult to dry and compact. They should be used in the embankment above the water level existing at time of construction. They may be used in the subgrade portion of the roadbed when approved by the District Materials Engineer. A-2-4 material placed below the existing water level must be nonplastic and contain less than 15% passing the No. 200 U.S. Standard sieve.
- \* For cut sections this dimension may be reduced to 24"; see Index No. 500. For minor collectors and local facilities this dimension may be reduced to 18".





**DIVIDED ROADWAYS**



**UNDIVIDED ROADWAY**

SYMBOL	SOIL	CLASSIFICATION (AASHTO M 145)
S	Select	A-1, A-3, A-2-4 **
S+	Special Select	A-3 *** With Minimum Average Lab Permeability of $5 \times 10^{-5}$ cm/sec. (0.14 ft./day) as per FM 1-T215
P	Plastic	A-2-5, A-2-6, A-2-7, A-4, A-5, A-6, A-7 (ALL WITH LL < 50)
H	High Plastic	A-2-5, A-2-7, A-5 Or A-7 (ALL WITH LL > 50)
M	Muck	A-8

Classification listed left to right in order of preference.

■ See General Notes Nos. 4 & 5 for utilization of soils classified as organic material or muck.

\*\*\* When allowed by the plans, some types of A-2-4 material may be approved in writing by the District Materials Engineer. This material must meet the minimum lab permeability requirement, be nonplastic, and not exceed 12% passing the No. 200 U.S. Standard sieve.

\*\* Certain types of A-2-4 material are likely to retain excess moisture and may be difficult to dry and compact. They should be used in the embankment above the water level existing at time of construction. A-2-4 material placed below the existing water level must be nonplastic and contain less than 15% passing the No. 200 U.S. Standard sieve.

☆ 3" of #57 or #89 Coarse Aggregate Mixed Into Top 6".

Note: SPECIAL SELECT SOIL OPTION may be used only when approved in writing by the District Materials Engineer and shown in the plans.

**RIGID PAVEMENT - SPECIAL SELECT SOIL OPTION**



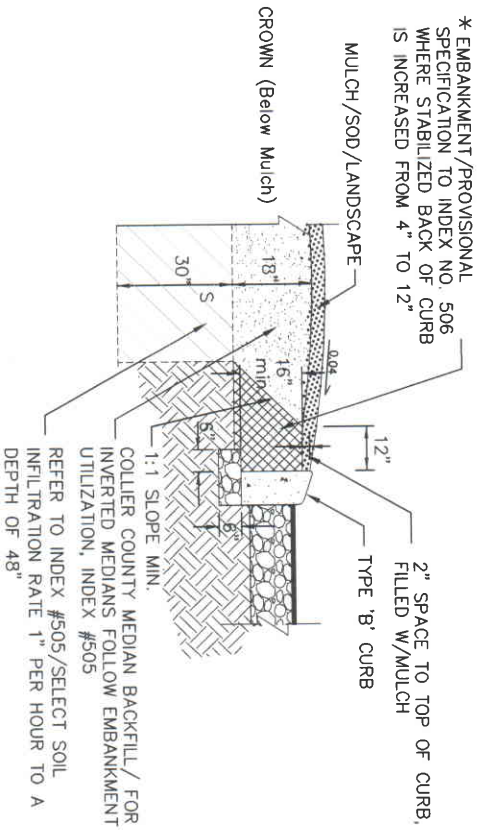
2008 FDOT Design Standards

**EMBANKMENT UTILIZATION**

Last Revision	Sheet No.
07/01/07	3 of 3
Index No.	
<b>505</b>	

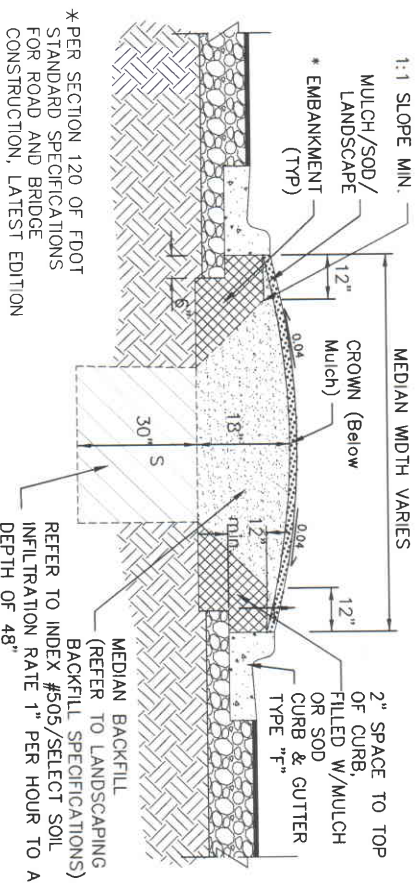


# MEDIAN BACKFILL



DETAIL 'A'

REFER TO LANDSCAPE SPECIFICATIONS FOR ADDITIONAL INFORMATION.



DETAIL 'B'

NO.	DATE	REVISIONS	BY

COLLETER COUNTY TRANSPORTATION DIVISION, TRANSPORTATION ENGINEERING AND CONSTRUCTION MANAGEMENT DEPARTMENT	A. GNOLI J. BARBER & R. BRINDAGE, INC. Professional Engineers, Planners & Land Surveyors 1000 North 10th Street, Suite 1000 Tallahassee, Florida 32309	DESIGNED BY: DWG CHECKED BY: ETT DATE: JULY 14, 2008 SCALE: 1" = 15' TYP. SCALE: 1" = 25'	PLAN SIZE 1000 STANDB. AND PROJECT NO. 03-0481 A03-DWG \$300-719
EDWARD F. TRYKA, III, P.E. No. 60284 JULY 14, 2008	TITLE SANTA BARBARA BLVD. EXTENSION TYPICAL SECTIONS MEDIAN BACKFILL DETAIL	SHEET 14 OF 225 T&E NO. 5393	

## AASHTO Soil Classification System (from ASTM M 145)

General Classification	Granular Materials 35% or less passing the 0.075 mm sieve							Silt-Clay Materials >35% passing the 0.075 mm sieve			
Group Classification	A-1		A-3	A-2				A-4	A-5	A-6	A-7
	A-1-a	A-1-b		A-2-4	A-2-5	A-2-6	A-2-7				A-7-5 A-7-6
Sieve Analysis, % passing											
2.00 mm (No. 10)	50 max	---	---	---	---	---	---	---	---	---	---
0.425 (No. 40)	30 max	50 max	51 max	---	---	---	---	---	---	---	---
0.075 (No. 200)	15 max	25 max	10 max	35 max	35 max	35 max	35 max	36 min	36 min	36 min	36 min
Characteristics of fraction passing 0.425 mm (No. 40)											
Liquid limit	---	---	---	40 max	41 min	40 max	41 min	40 max	41 min	40 max	41 min
Plasticity index	6 max		N.P.	10 max	10 max	11 min	11 min	10 max	10 max	11 min	11 min <sup>a</sup>
Usual types of significant constituent materials	stone fragments, gravel and sand		fine sand	silty or clayey gravel and sand				silty soils		clayey soils	
General rating as a subgrade	excellent to good							fair to poor			

<sup>a</sup>Plasticity index of A-7-5 subgroup is equal to or less than the LL - 30. Plasticity index of A-7-6 subgroup is greater than LL - 30