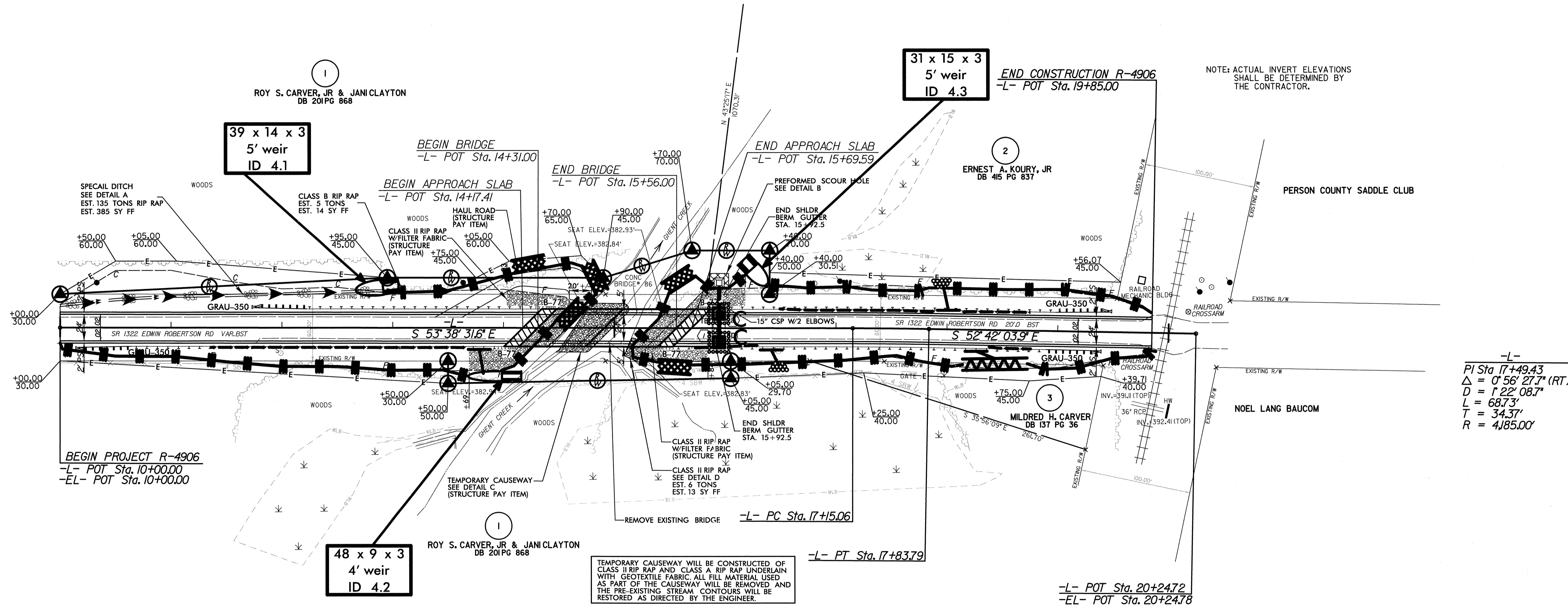


EROSION CONTROL PLAN



-L-
 PI Sta 17+49.43
 $\Delta = 0' 56' 27.7''$ (RT)
 $D = 1' 22' 08.7''$
 $L = 68.73'$
 $T = 34.37'$
 $R = 4185.00'$

INSTALL FILTER FABRIC UNDER TEMPORARY ROCK SILT CHECK(S) TYPE A IN PERMITTED WETLANDS.

NOTE: PERIMETER EROSION CONTROL MEASURES SHALL BE INSTALLED DURING CLEARING AND GRUBBING PHASE.

NOTE: UTILIZE SPECIAL STILLING BASIN WHERE APPLICABLE.

ROADSIDE ENVIRONMENTAL UNIT
 DEPARTMENT OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 RALEIGH, N.C.
 2006 STANDARD SPECIFICATIONS

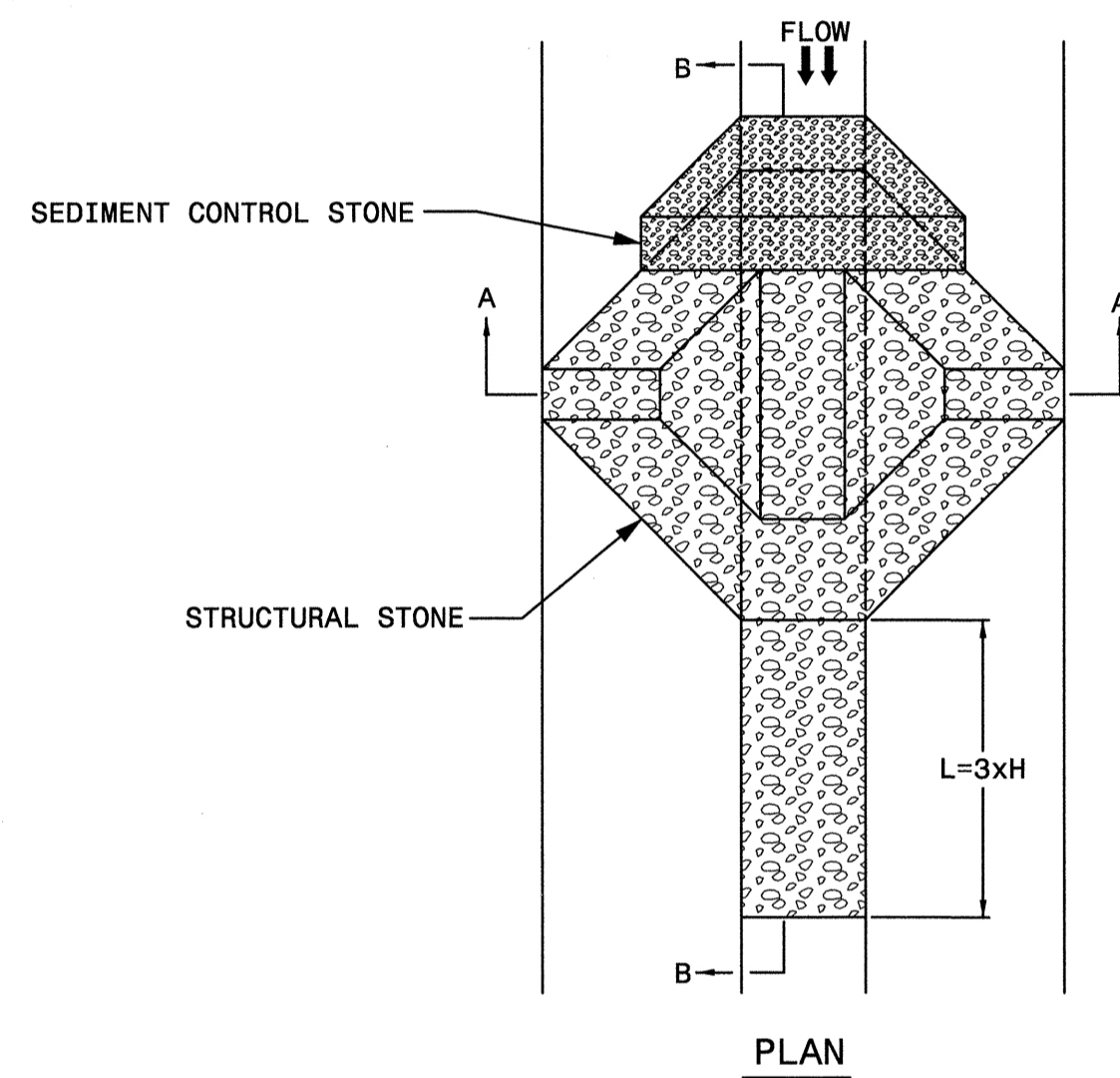
NOTES: ANY DEVIATION FROM OPTIONS GIVEN WILL REQUIRE PRIOR APPROVAL BY ENGINEER.
 ADDITIONAL EROSION CONTROL DEVICES MAY NEED TO BE INSTALLED AS DIRECTED BY THE ENGINEER.

Std. #	Description	Symbol
1605.01	Temporary Silt Fence	
1606.01	Special Sediment Control Fence	▲▲▲▲▲▲▲▲▲▲
1622.01	Temporary Berms and Slope Drains	←←←
1630.06	Special Stilling Basin	■
1633.01	Temporary Rock Silt Check Type-A	▣
	Temporary Rock Silt Check Type-B	▶
1634.02	Temporary Rock Sediment Dam Type-B	◼

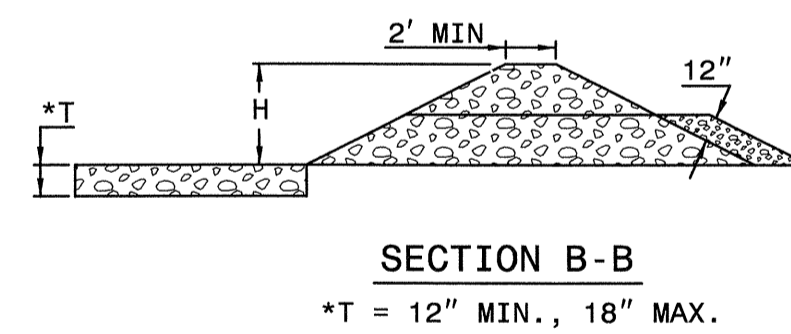
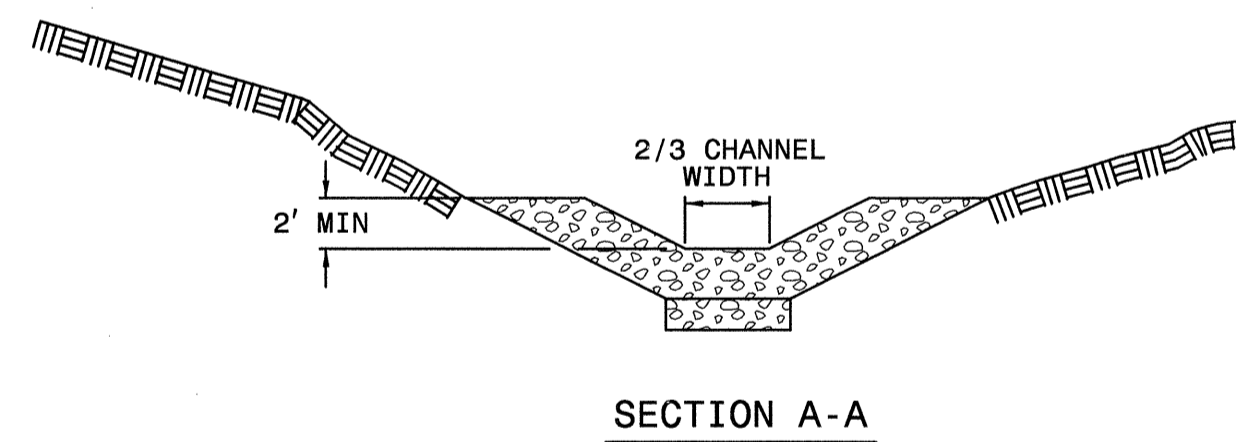
8/17/99

EROSION CONTROL PLAN

STATE OF NORTH CAROLINA
 DEPT. OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 RALEIGH, N.C.
 ENGLISH STANDARD DRAWING FOR
TEMPORARY ROCK SILT CHECK TYPE 'A'
 SHEET 1 OF 1
1633.01

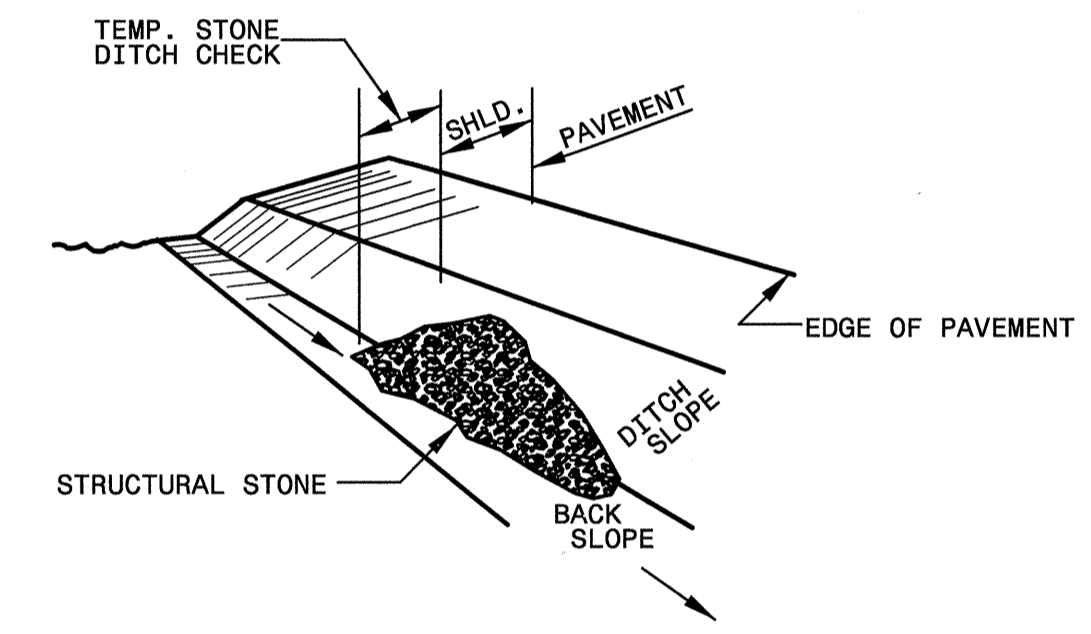


NOTE
 STRUCTURAL STONE SHALL BE STONE FOR EROSION CONTROL (CLASS "B") AND SHALL BE PAID FOR AT THE CONTRACT BID PRICE FOR "LUMP SUM FOR EROSION CONTROL."
 SEDIMENT CONTROL STONE SHALL BE NO. 5 OR NO. 57 STONE AND SHALL BE PAID FOR AT THE CONTRACT BID PRICE FOR "LUMP SUM FOR EROSION CONTROL."

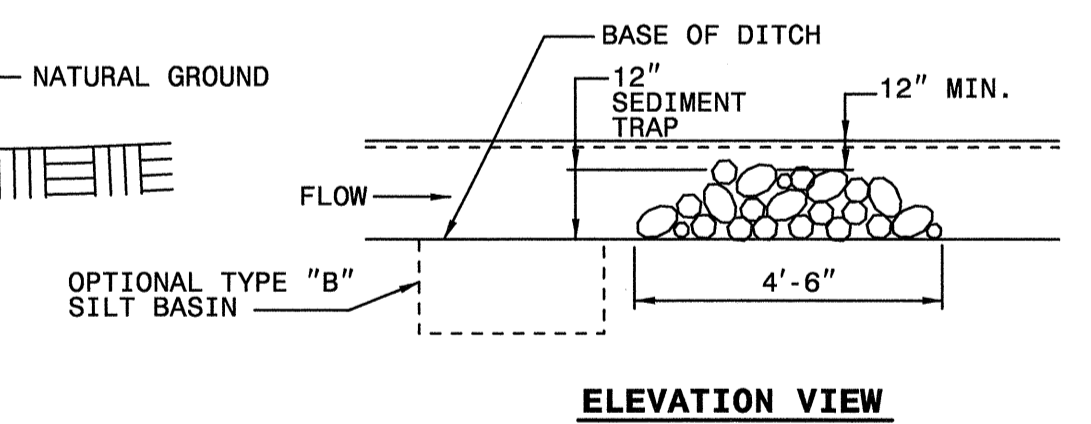
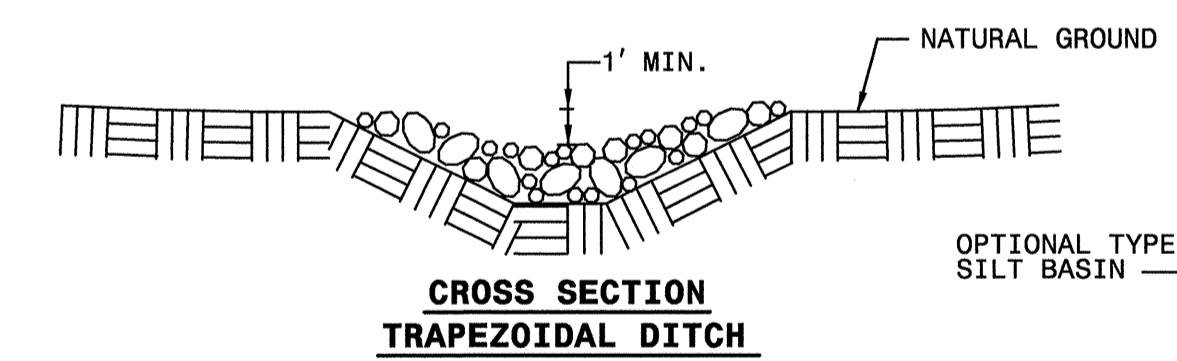
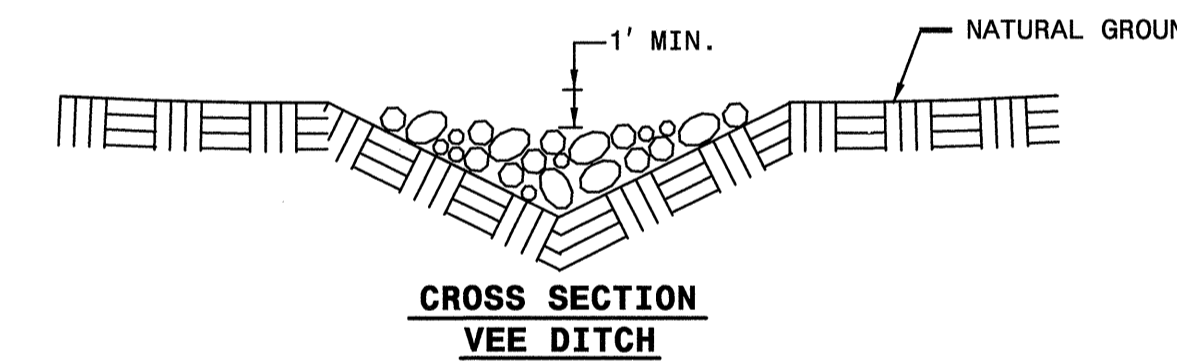


STATE OF NORTH CAROLINA
 DEPT. OF TRANSPORTATION
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 RALEIGH, N.C.
 ENGLISH STANDARD DRAWING FOR
TEMPORARY ROCK SILT CHECK TYPE 'A'
 SHEET 1 OF 1
1633.01

TEMPORARY ROCK SILT CHECK TYPE 'B' DETAIL



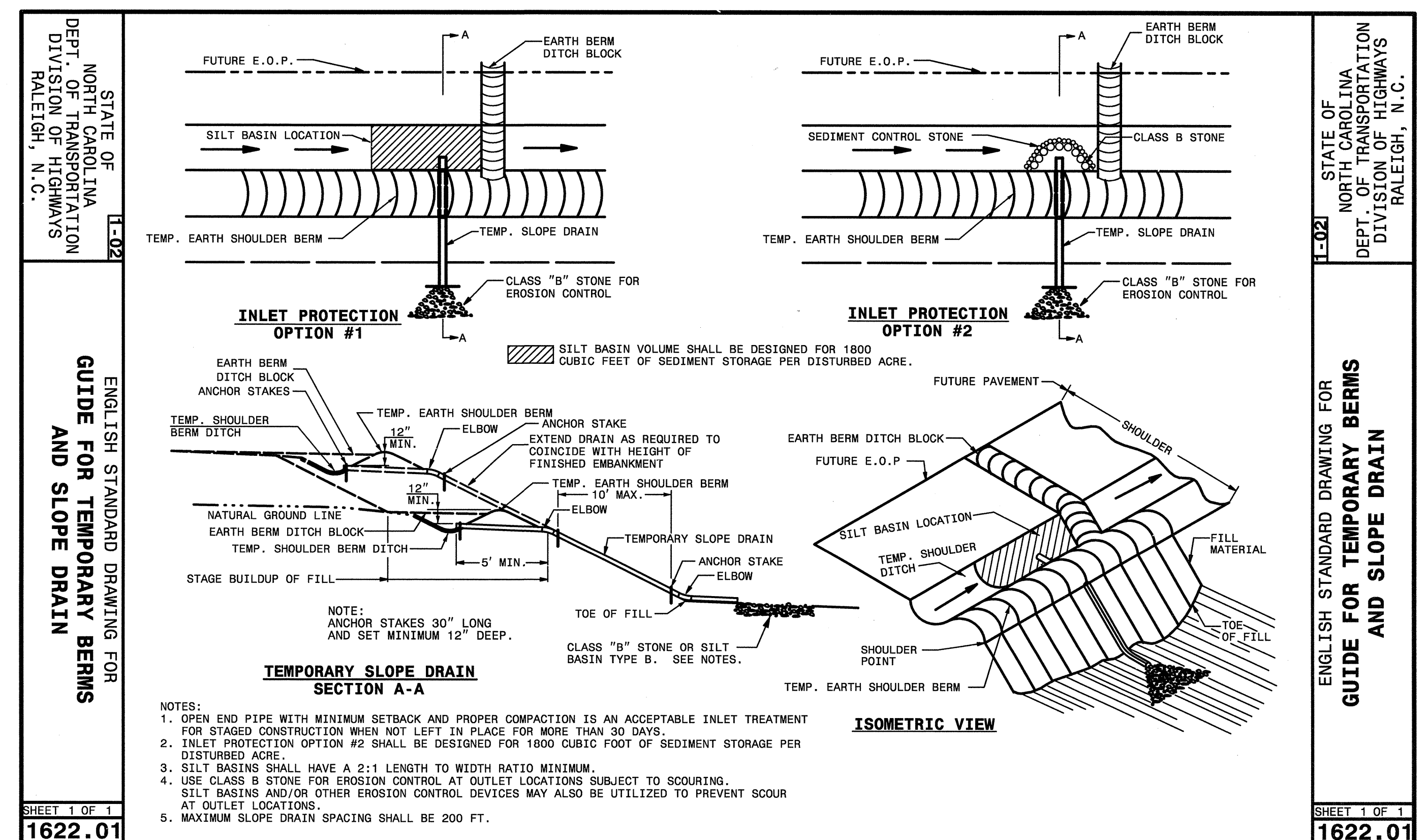
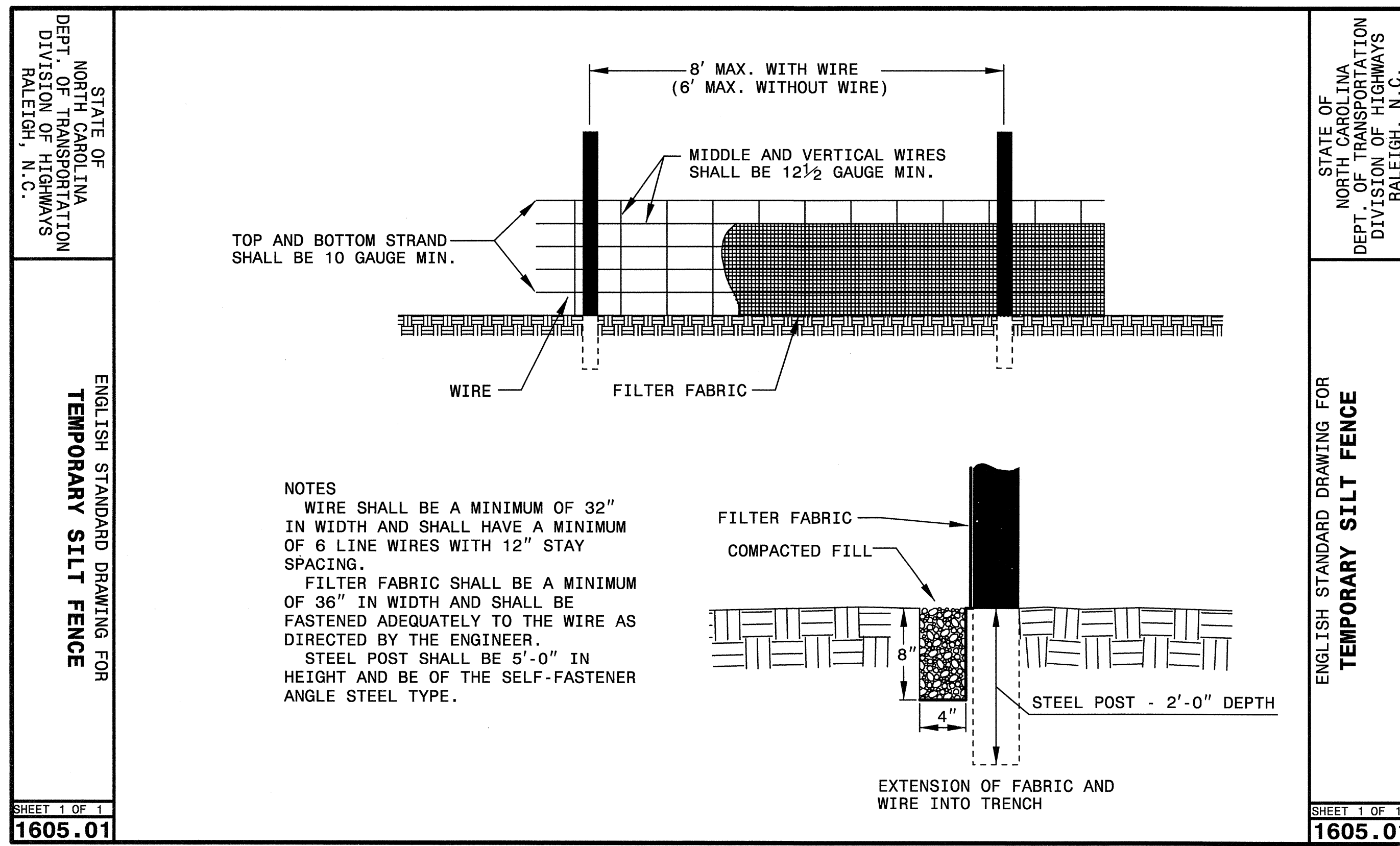
NOTES:
 USE CLASS 'B' EROSION CONTROL STONE FOR STRUCTURAL STONE.
 THE ENGINEER MAY DIRECT THE OPTION OF CLASS "A" STONE FOR SITES HAVING LESS THAN ONE (1) ACRE DRAINAGE AREA AND A DITCH GRADE LESS THAN 3%.



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EROSION CONTROL PLAN

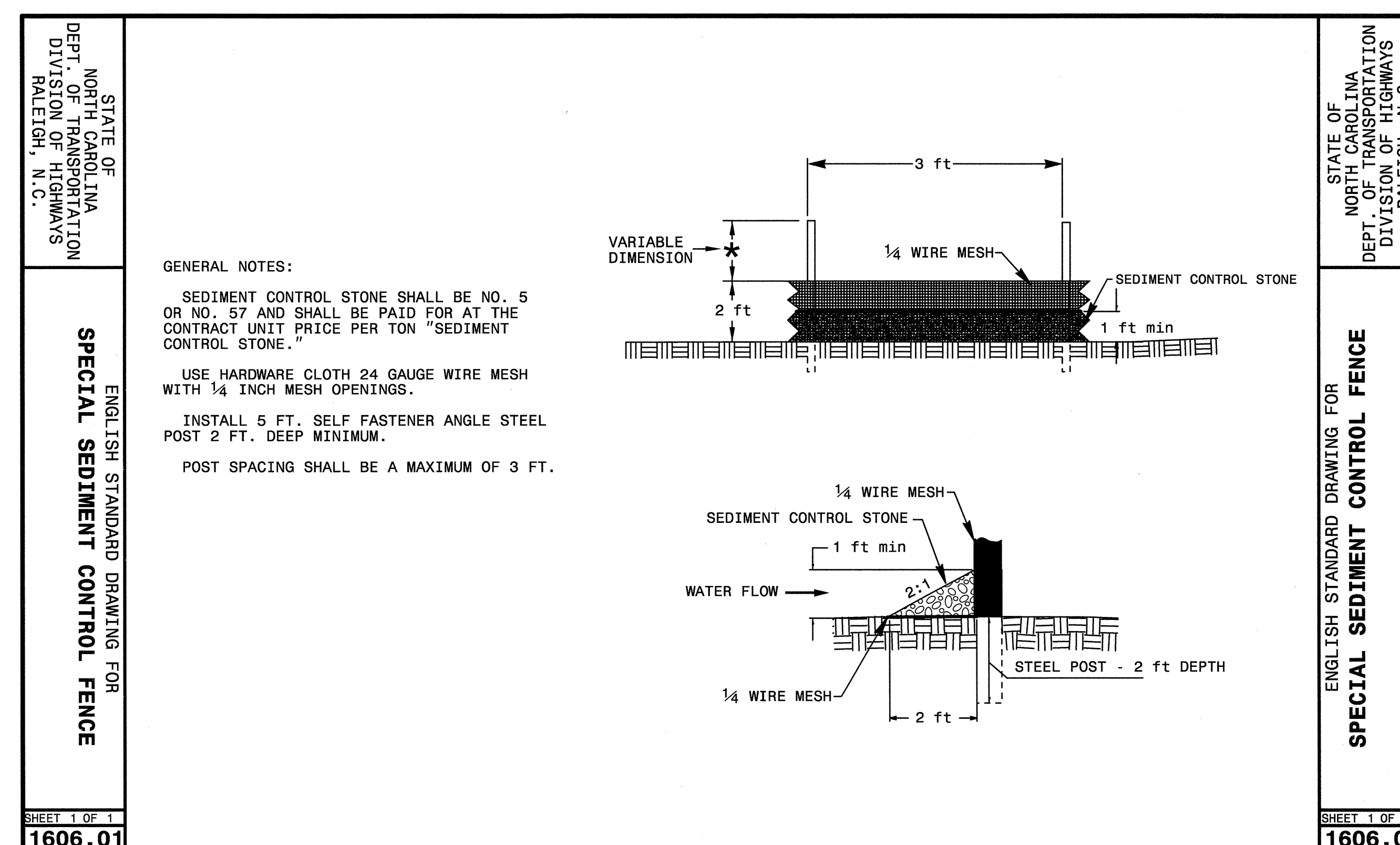
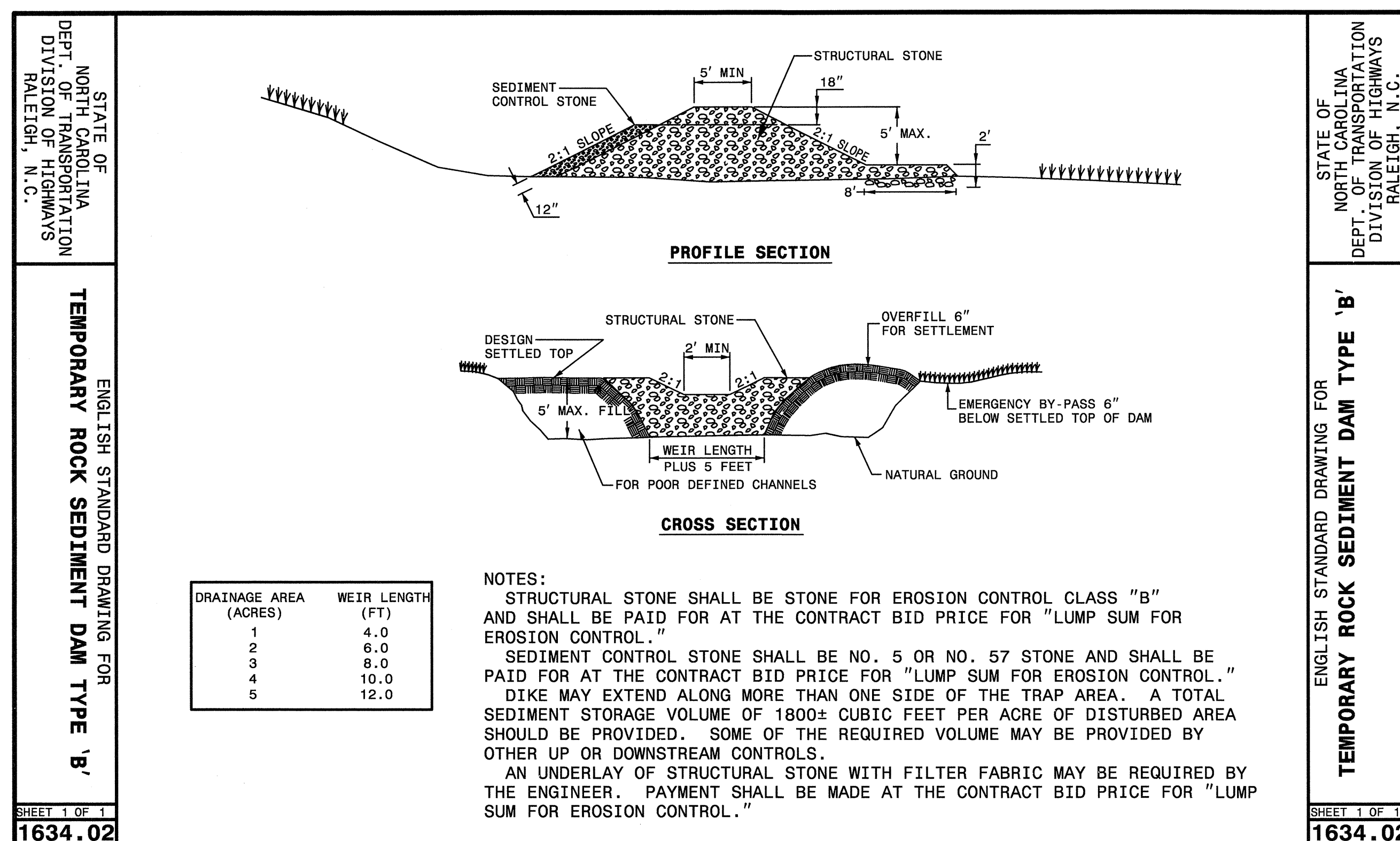


ROADSIDE ENVIRONMENTAL UNIT
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2006 STANDARD SPECIFICATIONS

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EROSION CONTROL PLAN



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ADDITIONAL EROSION CONTROL DEVICES MAY NEED TO BE INSTALLED AS DIRECTED BY THE ENGINEER.

EROSION CONTROL PLAN

Special Stilling Basin(s):

The work covered by this section consists of furnishing, placing, and removing a special stilling basin(s) as directed by the Engineer. The special stilling basin(s) shall be used to filter pumped water during the drilled pier operation, footing excavation, or culvert construction.

The filter fabric shall meet the requirements of Section 1056 for Type 2 Fabric.

Sediment control stone shall meet the requirements of Section 1005. Install stone according to the detail shown on the plans.

The special stilling basin(s) shall be a water permeable fabric bag that traps sand, silt, and fines as sediment laden water is pumped into it. This device shall be constructed such that it is portable and can be used adjacent to the drilled pier operation, footing excavation, or culvert construction.

The special stilling basin(s) shall be a bag constructed to a minimum size of 10' x 15' made from a nonwoven fabric. It shall have a sewn-in 8 in. (maximum) spout for receiving pump discharge. The bag seams shall be sewn with a double needle machine using a high strength thread. The seams shall have a minimum wide width strength as follows:

Test Method	Minimum Specifications
ASTM D-4884	60 lb/in

The fabric used to construct the bag shall be stabilized to provide resistance to ultra-violet degradation and meet the following specifications for flow rates, strength, and permeability:

Property	Test Method	Units	Minimum Specifications
Weight	ASTM D-3776	oz/yd	8.0
Grab tensile	ASTM D-4632	lb	200.0
Puncture	ASTM D-4833	lb	130.0
Flow rate	ASTM D-4491	gal/min/sf	80.0
Permittivity	ASTM D-4991	1/sec	1.2
UV Resistance	ASTM D-4355	%	70.0

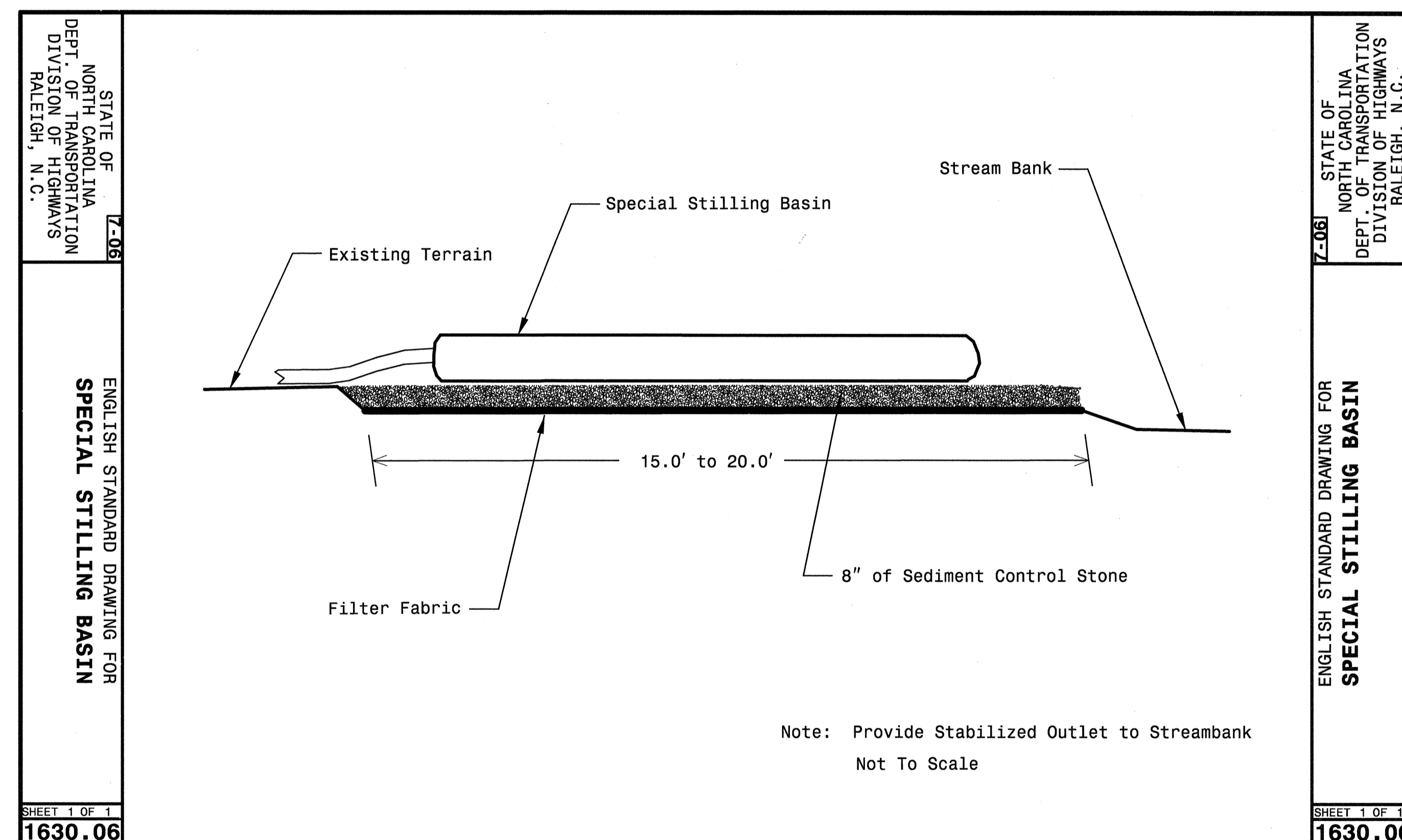
The Contractor shall install the special stilling basin in accordance with the details in the plans and at locations as directed by the Engineer.

The special stilling basin(s) shall be placed so the incoming water flows into and through the bag without causing erosion. The neck or spout of the bag shall be tied off tightly to stop the water from flowing out of the bag without going through the walls.

The special stilling basin(s) shall be replaced and disposed of when it is 3/4 full of sediment or when it is impractical for the bag to filter the sediment out at a reasonable flow rate. Prior approval from the Engineer must be received before removal and replacement.

The Contractor shall be responsible for providing a sufficient quantity of bags to contain silt from pumped effluent during the drilled pier operation, footing excavation, or culvert construction.

The quantity of sediment control stone, filter fabric for drainage, and special stilling basin(s) as measured above will be paid for at contract price for "Lump Sum for Erosion Control". Such price and payment will be full compensation for all work covered by this provision, including but not limited to, furnishing all materials, placing and maintaining the special stilling basin(s), and removal and disposal of silt accumulations and bag.

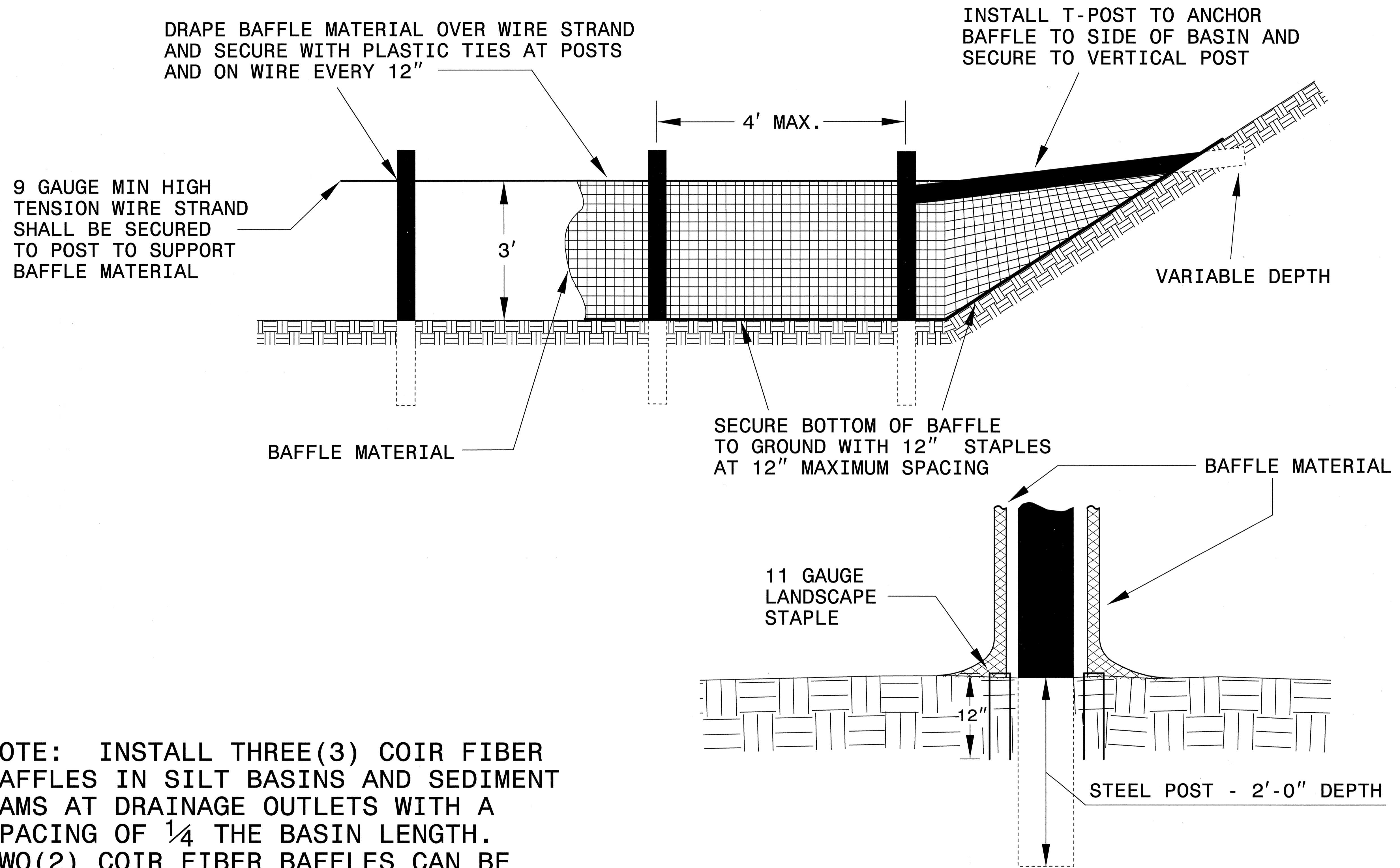


ROADSIDE ENVIRONMENTAL UNIT
DEPARTMENT OF TRANSPORTATION
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COIR FIBER BAFFLE DETAIL

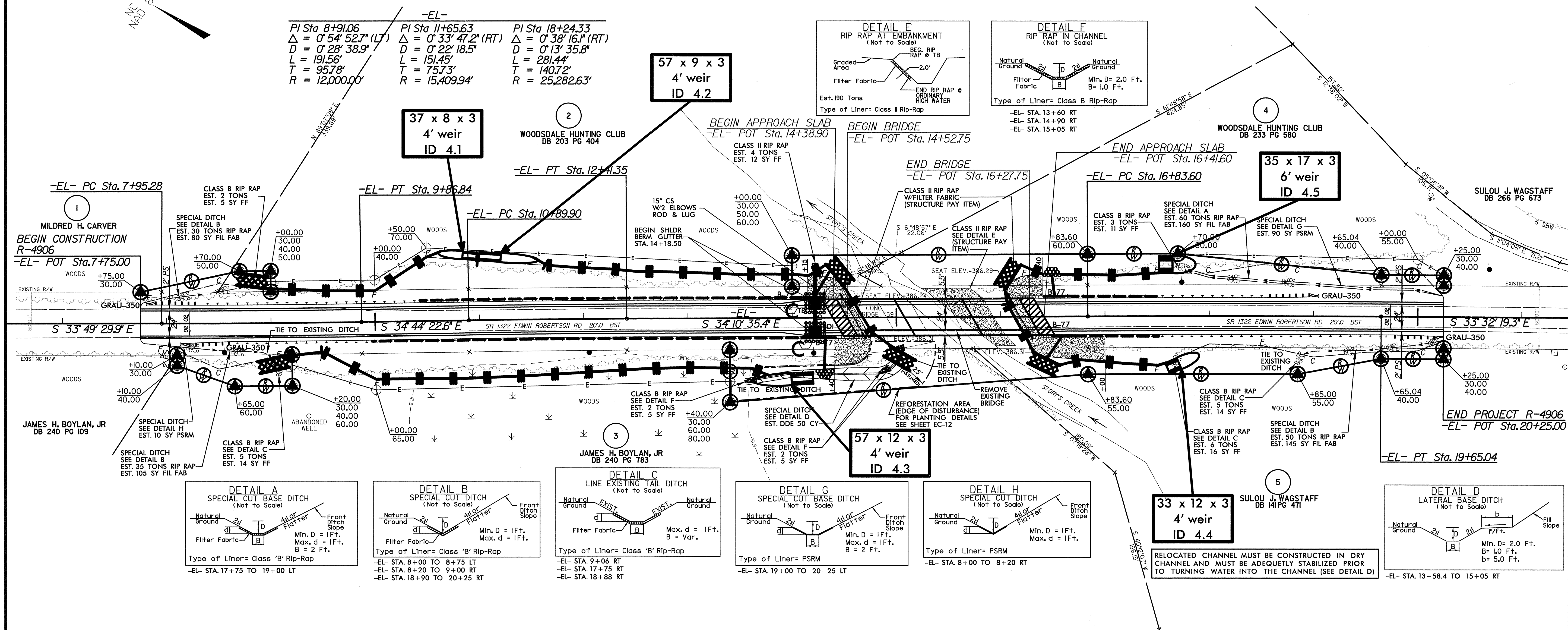
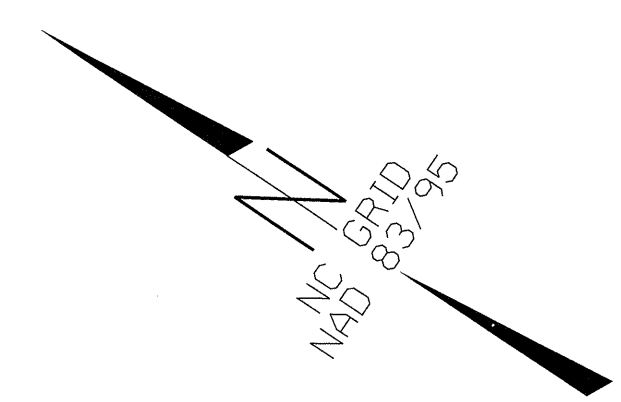


NOTE: INSTALL THREE(3) COIR FIBER BAFFLES IN SILT BASINS AND SEDIMENT DAMS AT DRAINAGE OUTLETS WITH A SPACING OF $\frac{1}{4}$ THE BASIN LENGTH. TWO(2) COIR FIBER BAFFLES CAN BE INSTALLED IN SILT BASINS AND DAMS LESS THAN 20 FT. IN LENGTH WITH A SPACING OF $\frac{1}{3}$ THE BASIN LENGTH.

BAFFLE MATERIAL SHALL BE SECURED TO THE BOTTOM AND SIDES OF BASIN USING 12" LANDSCAPE STAPLES

EROSION CONTROL PLAN

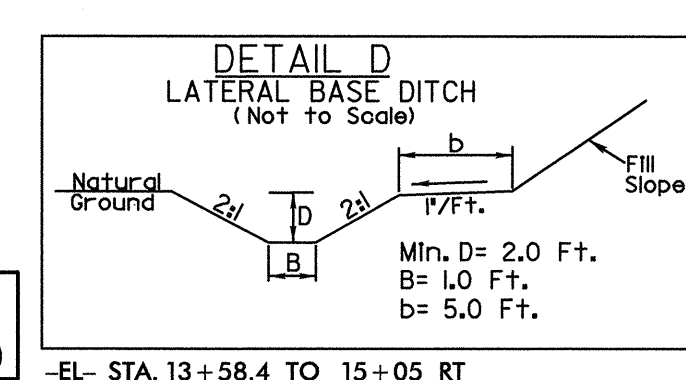
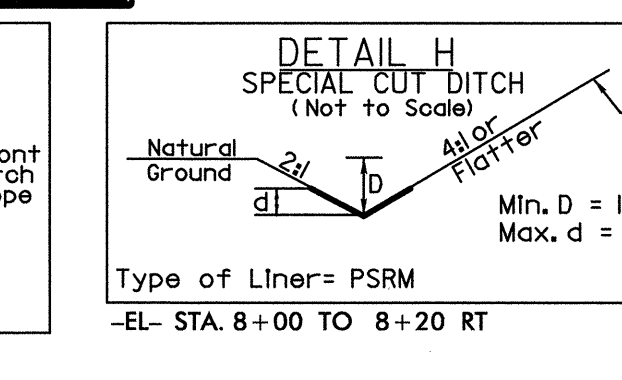
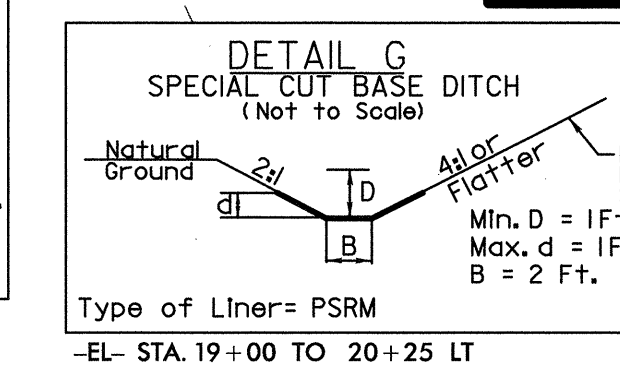
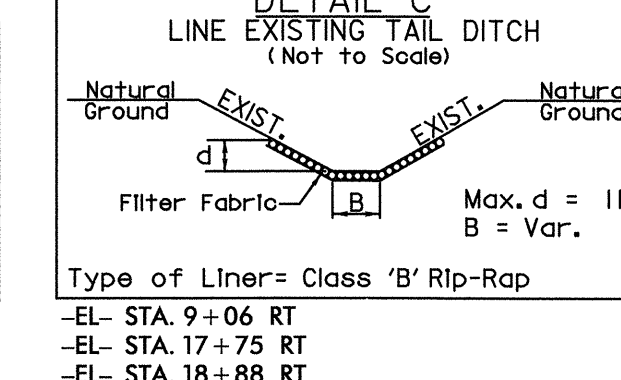
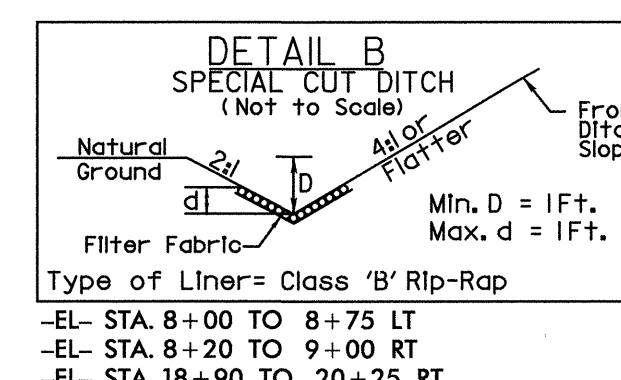
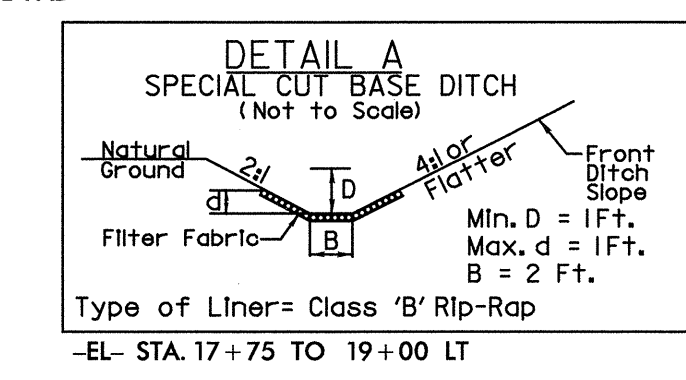
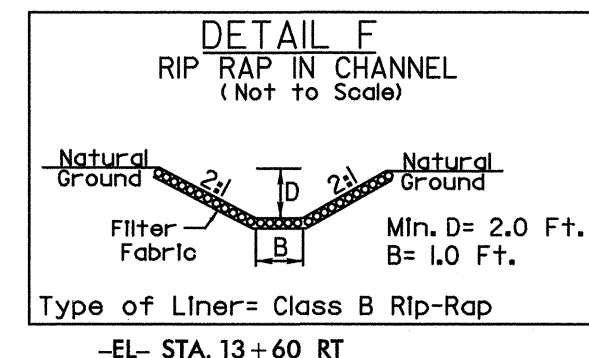
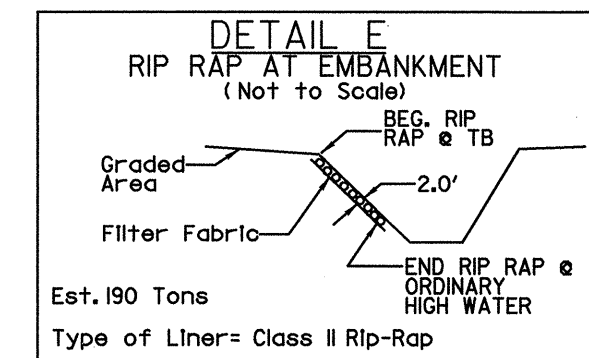
8/17/99



PI Sta 8+91.06
 $\Delta = 0' 54' 52.7''$ (LT)
 $D = 0' 28' 38.9''$
 $L = 191.56'$
 $T = 95.78'$
 $R = 12,000.00'$

PI Sta 11+65.63
 $\Delta = 0' 33' 47.2''$ (RT)
 $D = 0' 22' 18.5''$
 $L = 151.45'$
 $T = 75.73'$
 $R = 15,409.94'$

PI Sta 18+24.33
 $\Delta = 0' 38' 16.1''$ (RT)
 $D = 0' 13' 35.8''$
 $L = 281.44'$
 $T = 140.72'$
 $R = 25,282.63'$



ROADSIDE ENVIRONMENTAL UNIT
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ADDITIONAL EROSION CONTROL DEVICES MAY NEED TO BE INSTALLED AS DIRECTED BY THE ENGINEER.

NOTE: PERIMETER EROSION CONTROL MEASURES SHALL BE INSTALLED DURING CLEARING AND GRUBBING PHASE.

NOTE: UTILIZE SPECIAL STILLING BASIN WHERE APPLICABLE.

Std. #	Description	Symbol
1605.01	Temporary Silt Fence	
1622.01	Temporary Berms and Slope Drains	← ←
1630.06	Special Stilling Basin	□
1632.03	Rock Inlet Sediment Trap Type C	□
1633.01	Temporary Rock Silt Check Type-A	▨
1634.02	Temporary Rock Sediment Dam Type-B	◻

EROSION CONTROL PLAN

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.		<p>NOTE</p> <p>STRUCTURAL STONE SHALL BE STONE FOR EROSION CONTROL (CLASS "B") AND SHALL BE PAID FOR AT THE CONTRACT BID PRICE FOR "LUMP SUM FOR EROSION CONTROL."</p> <p>SEDIMENT CONTROL STONE SHALL BE NO. 5 OR NO. 57 STONE AND SHALL BE PAID FOR AT THE CONTRACT BID PRICE FOR "LUMP SUM FOR EROSION CONTROL."</p>	STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.
ENGLISH STANDARD DRAWING FOR TEMPORARY ROCK SILT CHECK TYPE 'A'	ENGLISH STANDARD DRAWING FOR TEMPORARY ROCK SILT CHECK TYPE 'A'	SHEET 1 OF 1 1633.01	SHEET 1 OF 1 1633.01

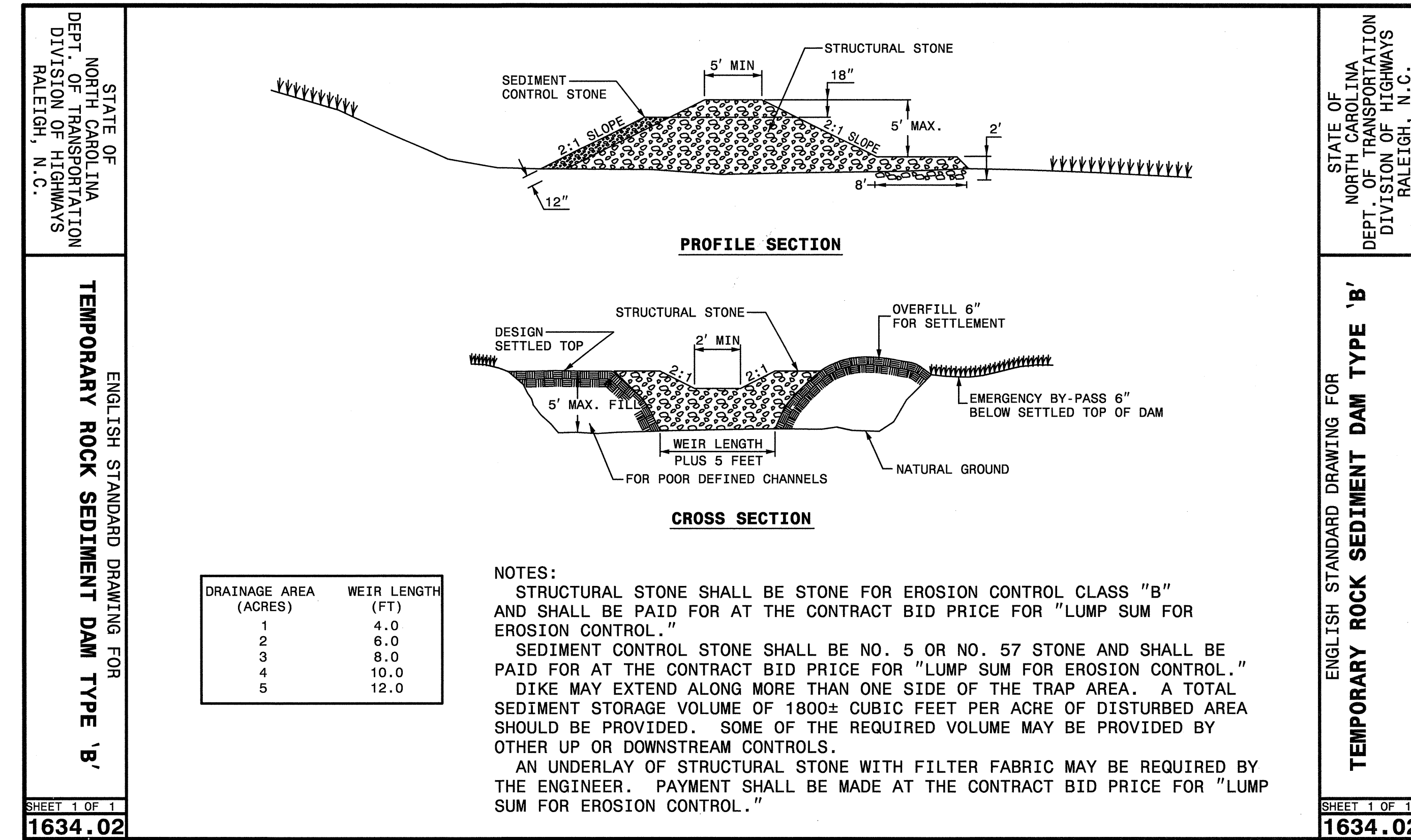
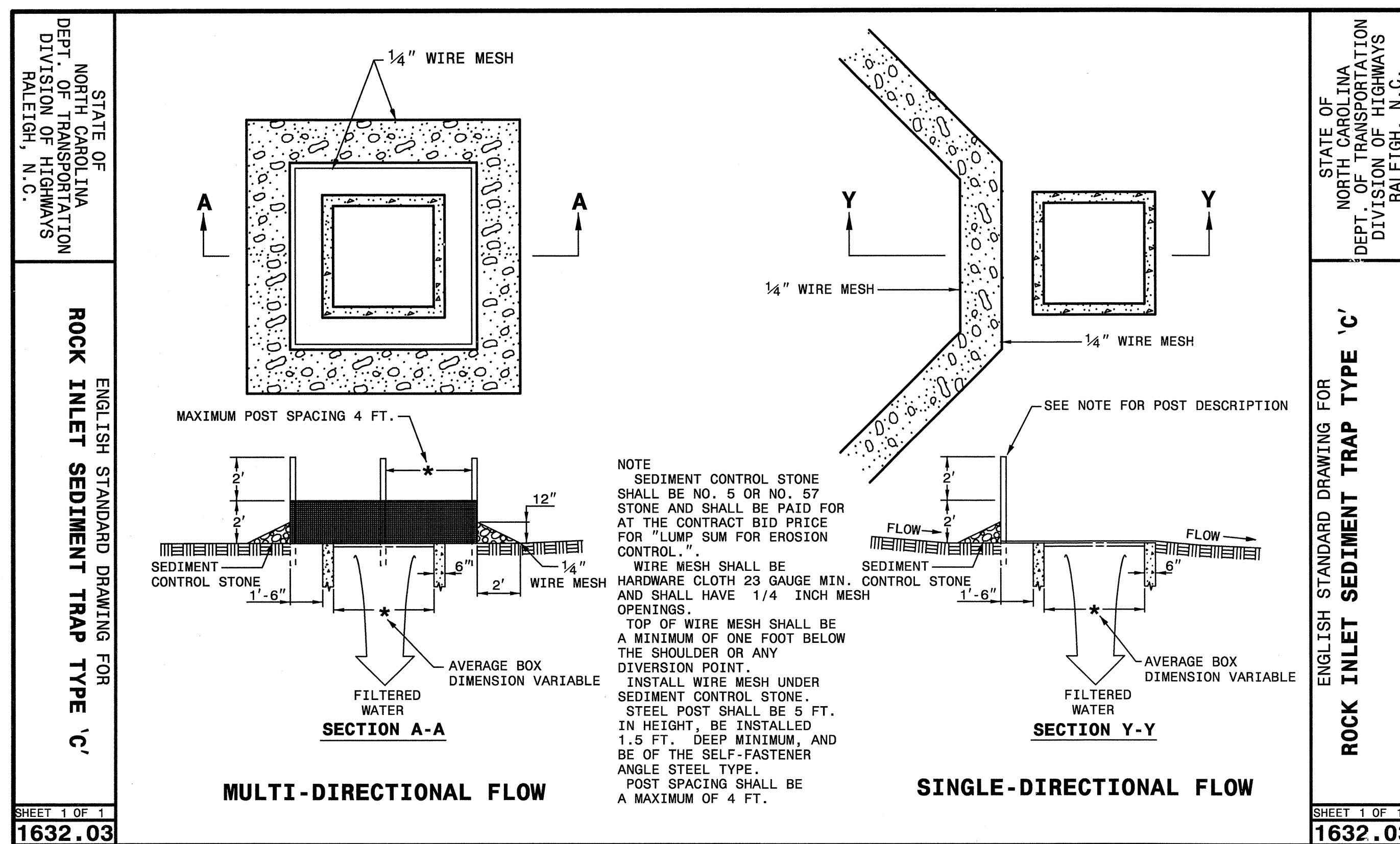
STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.		<p>NOTES</p> <p>WIRE SHALL BE A MINIMUM OF 32" IN WIDTH AND SHALL HAVE A MINIMUM OF 6 LINE WIRES WITH 12" STAY SPACING.</p> <p>FILTER FABRIC SHALL BE A MINIMUM OF 36" IN WIDTH AND SHALL BE FASTENED ADEQUATELY TO THE WIRE AS DIRECTED BY THE ENGINEER.</p> <p>STEEL POST SHALL BE 5'-0" IN HEIGHT AND BE OF THE SELF-FASTENER ANGLE STEEL TYPE.</p>	STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.
ENGLISH STANDARD DRAWING FOR TEMPORARY SILT FENCE	ENGLISH STANDARD DRAWING FOR TEMPORARY SILT FENCE	SHEET 1 OF 1 1605.01	SHEET 1 OF 1 1605.01

ROADSIDE ENVIRONMENTAL UNIT
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EROSION CONTROL PLAN



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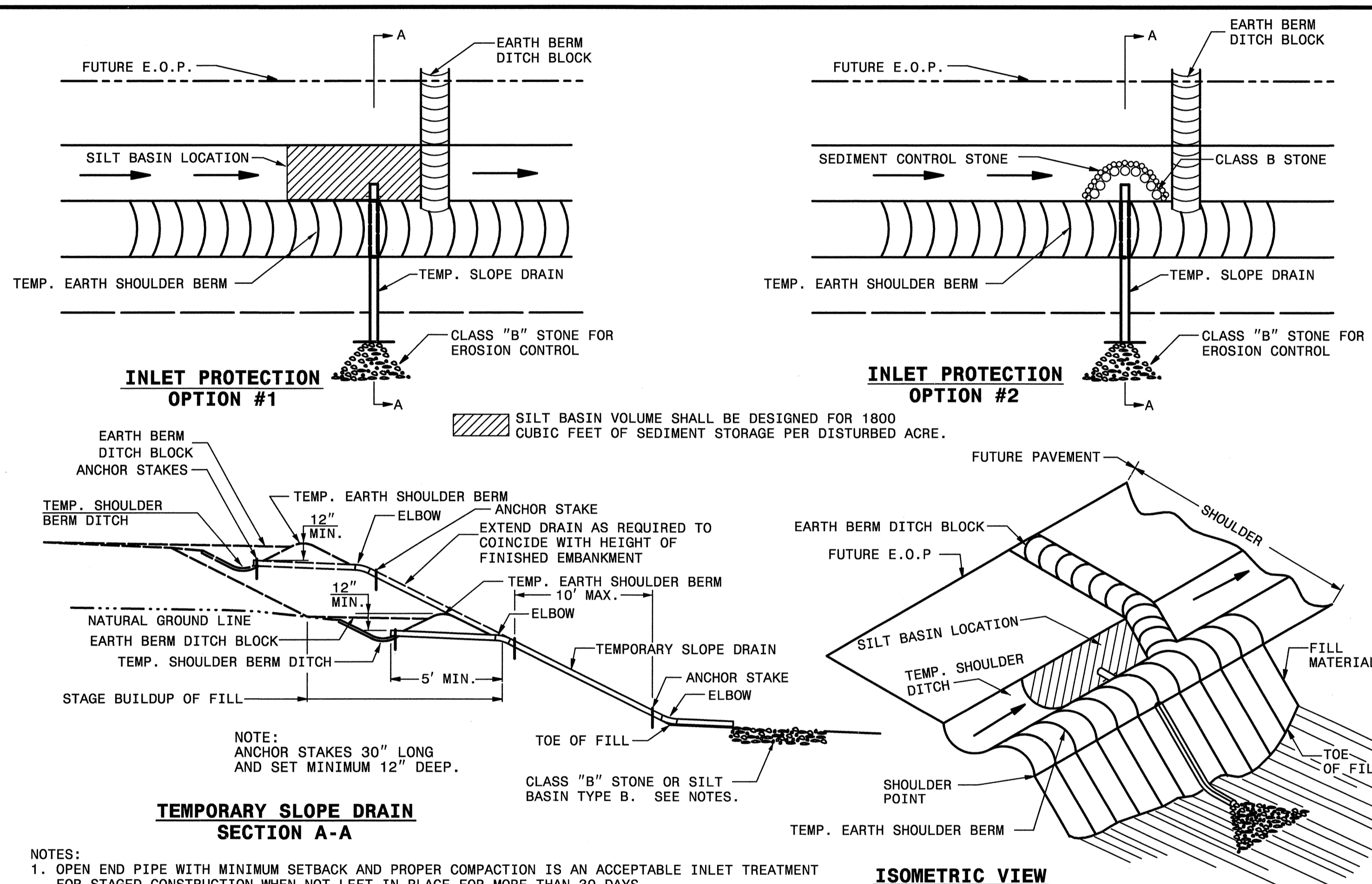
EROSION CONTROL PLAN

STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

1-02

ENGLISH STANDARD DRAWING FOR
**GUIDE FOR TEMPORARY BERMS
AND SLOPE DRAIN**

SHEET 1 OF 1
1622.01



- NOTES:
1. OPEN END PIPE WITH MINIMUM SETBACK AND PROPER COMPACTION IS AN ACCEPTABLE INLET TREATMENT FOR STAGED CONSTRUCTION WHEN NOT LEFT IN PLACE FOR MORE THAN 30 DAYS.
 2. INLET PROTECTION OPTION #2 SHALL BE DESIGNED FOR 1800 CUBIC FOOT OF SEDIMENT STORAGE PER DISTURBED ACRE.
 3. SILT BASINS SHALL HAVE A 2:1 LENGTH TO WIDTH RATIO MINIMUM.
 4. USE CLASS B STONE FOR EROSION CONTROL AT OUTLET LOCATIONS SUBJECT TO SCOURING. SILT BASINS AND/OR OTHER EROSION CONTROL DEVICES MAY ALSO BE UTILIZED TO PREVENT SCOUR AT OUTLET LOCATIONS.
 5. MAXIMUM SLOPE DRAIN SPACING SHALL BE 200 FT.

STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

1-02

ENGLISH STANDARD DRAWING FOR
**GUIDE FOR TEMPORARY BERMS
AND SLOPE DRAIN**

SHEET 1 OF 1
1622.01

ROADSIDE ENVIRONMENTAL UNIT
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2006 STANDARD SPECIFICATIONS

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EROSION CONTROL PLAN

Special Stilling Basin(s):

The work covered by this section consists of furnishing, placing, and removing a special stilling basin(s) as directed by the Engineer. The special stilling basin(s) shall be used to filter pumped water during the drilled pier operation, footing excavation, or culvert construction.

The filter fabric shall meet the requirements of Section 1056 for Type 2 Fabric.

Sediment control stone shall meet the requirements of Section 1005. Install stone according to the detail shown on the plans.

The special stilling basin(s) shall be a water permeable fabric bag that traps sand, silt, and fines as sediment laden water is pumped into it. This device shall be constructed such that it is portable and can be used adjacent to the drilled pier operation, footing excavation, or culvert construction.

The special stilling basin(s) shall be a bag constructed to a minimum size of 10' x 15' made from a nonwoven fabric. It shall have a sewn-in 8 in. (maximum) spout for receiving pump discharge. The bag seams shall be sewn with a double needle machine using a high strength thread. The seams shall have a minimum wide width strength as follows:

Test Method	Minimum Specifications
ASTM D-4884	60 lb/in

The fabric used to construct the bag shall be stabilized to provide resistance to ultra-violet degradation and meet the following specifications for flow rates, strength, and permeability:

Property	Test Method	Units	Minimum Specifications
Weight	ASTM D-3776	oz/yd	8.0
Grab tensile	ASTM D-4632	lb	200.0
Puncture	ASTM D-4833	lb	130.0
Flow rate	ASTM D-4491	gal/min/sf	80.0
Permittivity	ASTM D-4991	1/sec	1.2
UV Resistance	ASTM D-4355	%	70.0

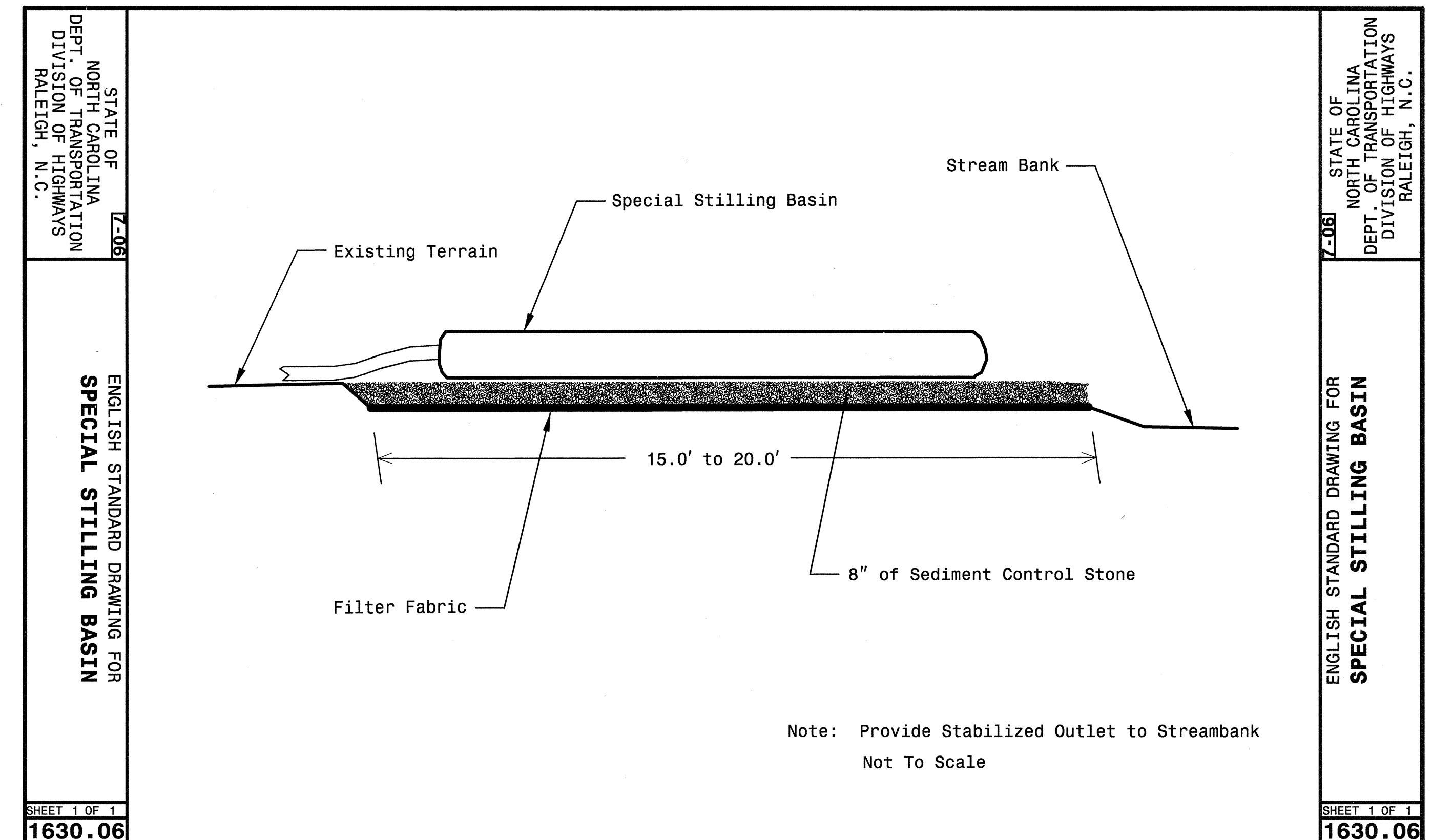
The Contractor shall install the special stilling basin in accordance with the details in the plans and at locations as directed by the Engineer.

The special stilling basin(s) shall be placed so the incoming water flows into and through the bag without causing erosion. The neck or spout of the bag shall be tied off tightly to stop the water from flowing out of the bag without going through the walls.

The special stilling basin(s) shall be replaced and disposed of when it is 3/4 full of sediment or when it is impractical for the bag to filter the sediment out at a reasonable flow rate. Prior approval from the Engineer must be received before removal and replacement.

The Contractor shall be responsible for providing a sufficient quantity of bags to contain silt from pumped effluent during the drilled pier operation, footing excavation, or culvert construction.

The quantity of sediment control stone, filter fabric for drainage, and special stilling basin(s) as measured above will be paid for at contract price for "Lump Sum for Erosion Control". Such price and payment will be full compensation for all work covered by this provision, including but not limited to, furnishing all materials, placing and maintaining the special stilling basin(s), and removal and disposal of silt accumulations and bag.



Reforestation:

Reforestation will be planted within disturbed areas of the buffer zone, in areas designated by the Engineer. Reforestation is not shown on the plan sheets. See the reforestation detail sheet.

The entire Reforestation operation shall comply with section 1670 of the Standard Specifications.

Seasonal limitations: Seedlings shall be planted from November 15 through March 15.

Seedlings shall be planted as soon as practical following permanent Seeding and Mulching. Seedlings shall be planted in a 16 ft. (5 meters) wide swath adjacent to mowing pattern line.

Root dip: The roots of reforestation seedlings shall be coated with a slurry of water, and either a fine clay ("kaolin") or a superabsorbent that is made to be used as a bare root dip. The type, mixture ratio, method of application, and the time of application shall be submitted to the Engineer for approval. With the approval of the Engineer, seedlings may be coated before delivery to the job or at the time of planting, but at no time shall the roots of the seedlings be allowed to dry out. The roots shall be moistened immediately prior to planting.

The quantity of reforestation seedlings as measured above will be paid for at the contract price for "Lump Sum for Erosion Control". Such price and payment will be full compensation for all work covered by this provision, including but not limited to, furnishing all materials and installation.

ROADSIDE ENVIRONMENTAL UNIT
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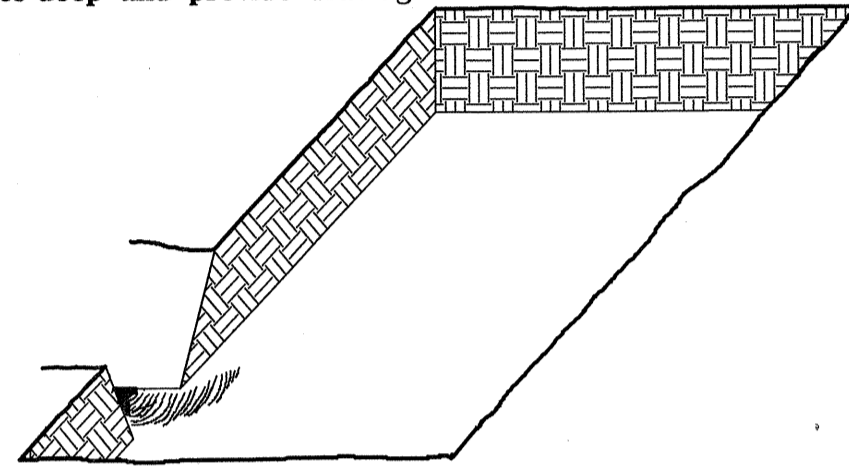
ADDITIONAL EROSION CONTROL DEVICES MAY NEED TO BE INSTALLED AS DIRECTED BY THE ENGINEER.

PLANTING DETAILS

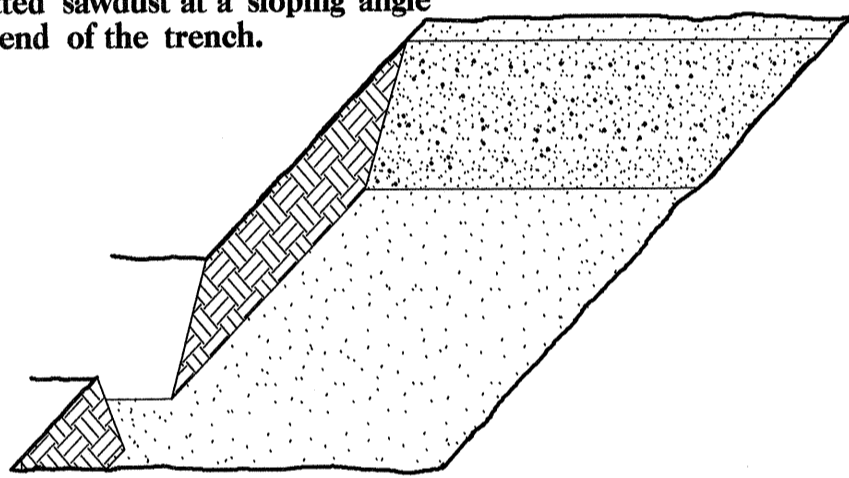
SEEDLING / LINER BAREROOT PLANTING DETAIL

HEALING IN

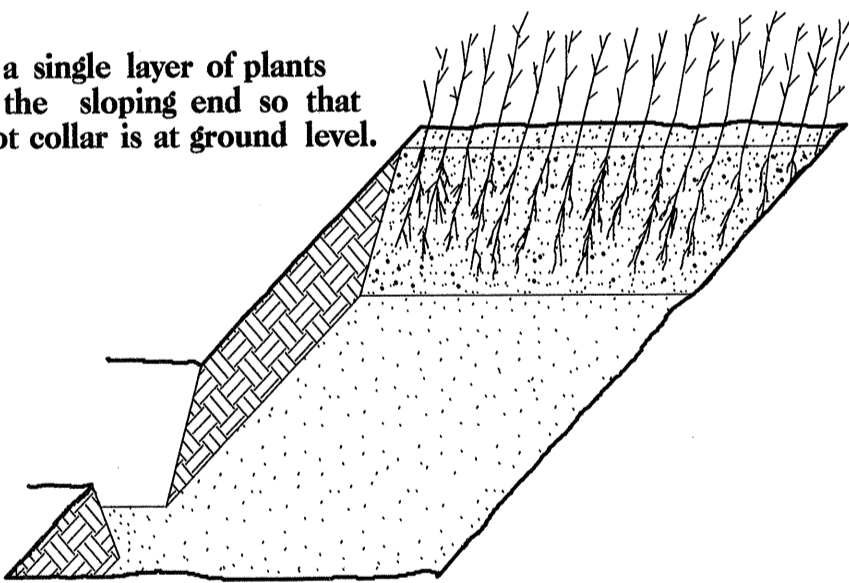
1. Locate a healing-in site in a shady, well protected area.
2. Excavate a flat bottom trench 12 inches deep and provide drainage.



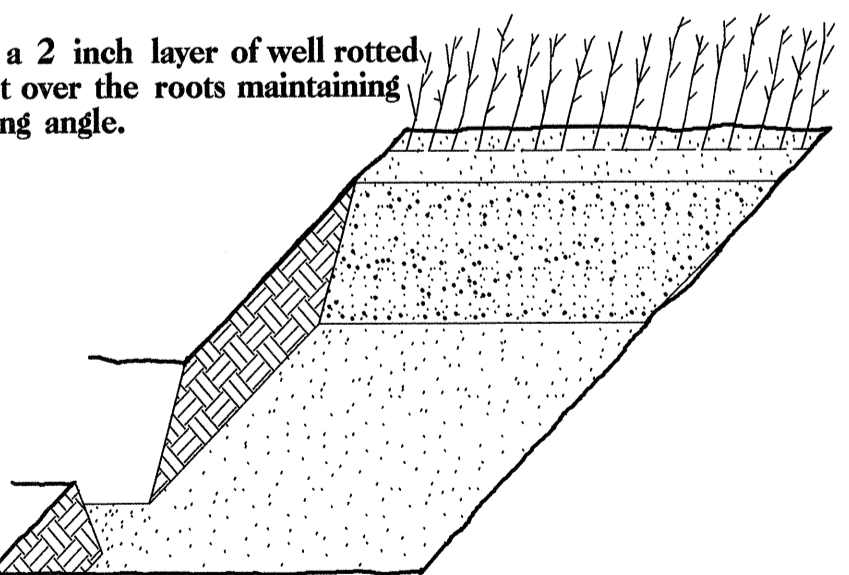
3. Backfill the trench with 2 inches well rotted sawdust. Place a 2 inch layer of well rotted sawdust at a sloping angle at one end of the trench.



4. Place a single layer of plants against the sloping end so that the root collar is at ground level.

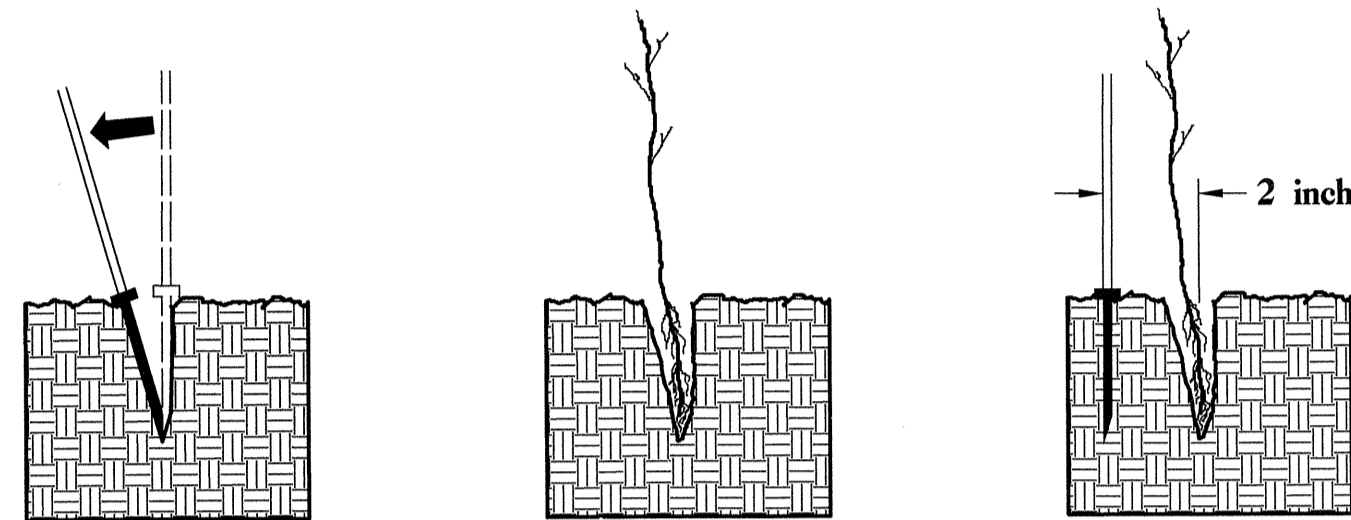


5. Place a 2 inch layer of well rotted sawdust over the roots maintaining a sloping angle.

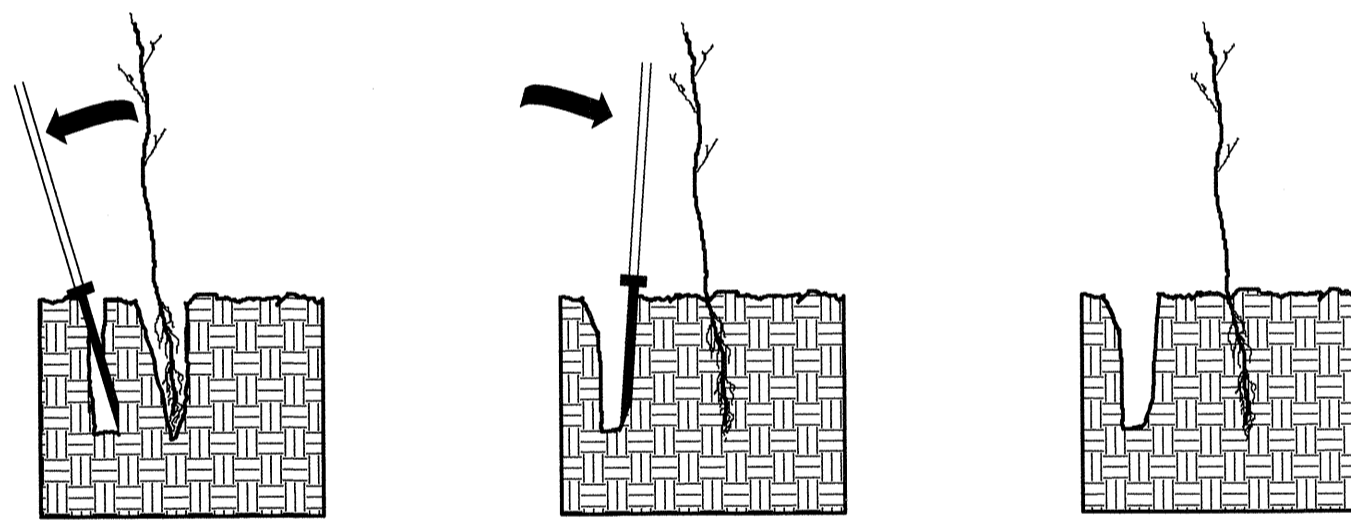


6. Repeat layers of plants and sawdust as necessary and water thoroughly.

DIBBLE PLANTING METHOD USING THE KBC PLANTING BAR



1. Insert planting bar as shown and pull handle toward planter.
2. Remove planting bar and place seedling at correct depth.
3. Insert planting bar 2 inches toward planter from seedling.



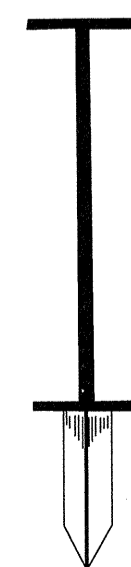
4. Pull handle of bar toward planter, firming soil at bottom.
5. Push handle forward firming soil at top.
6. Leave compaction hole open. Water thoroughly.

PLANTING NOTES:

PLANTING BAG
During planting, seedlings shall be kept in a moist canvas bag or similar container to prevent the root systems from drying.



KBC PLANTING BAR
Planting bar shall have a blade with a triangular cross section, and shall be 12 inches long, 4 inches wide and 1 inch thick at center.



ROOT PRUNING
All seedlings shall be root pruned, if necessary, so that no roots extend more than 10 inches below the root collar.

REFORESTATION

- REFORESTATION ACTIVITIES WILL OCCUR FROM STA. 13*60 TO STA. 15*05 RT (SOUTHERN SIDE OF ROADWAY)
- TREE REFORESTATION SHALL BE PLANTED 6 FT. TO 10 FT. ON CENTER, RANDOM SPACING, AVERAGING 8 FT. ON CENTER, APPROXIMATELY 680 PLANTS PER ACRE. REFORESTATION WILL OCCUR WITHIN THE AREA ALONG STORY'S CREEK UP TO THE EDGE OF DISTURBANCE. (PLANTINGS TO EXTEND TO THE EDGE OF DISTURBANCE.)
- TOTAL AREA OF REFORESTATION - 0.15 ACRE

REFORESTATION

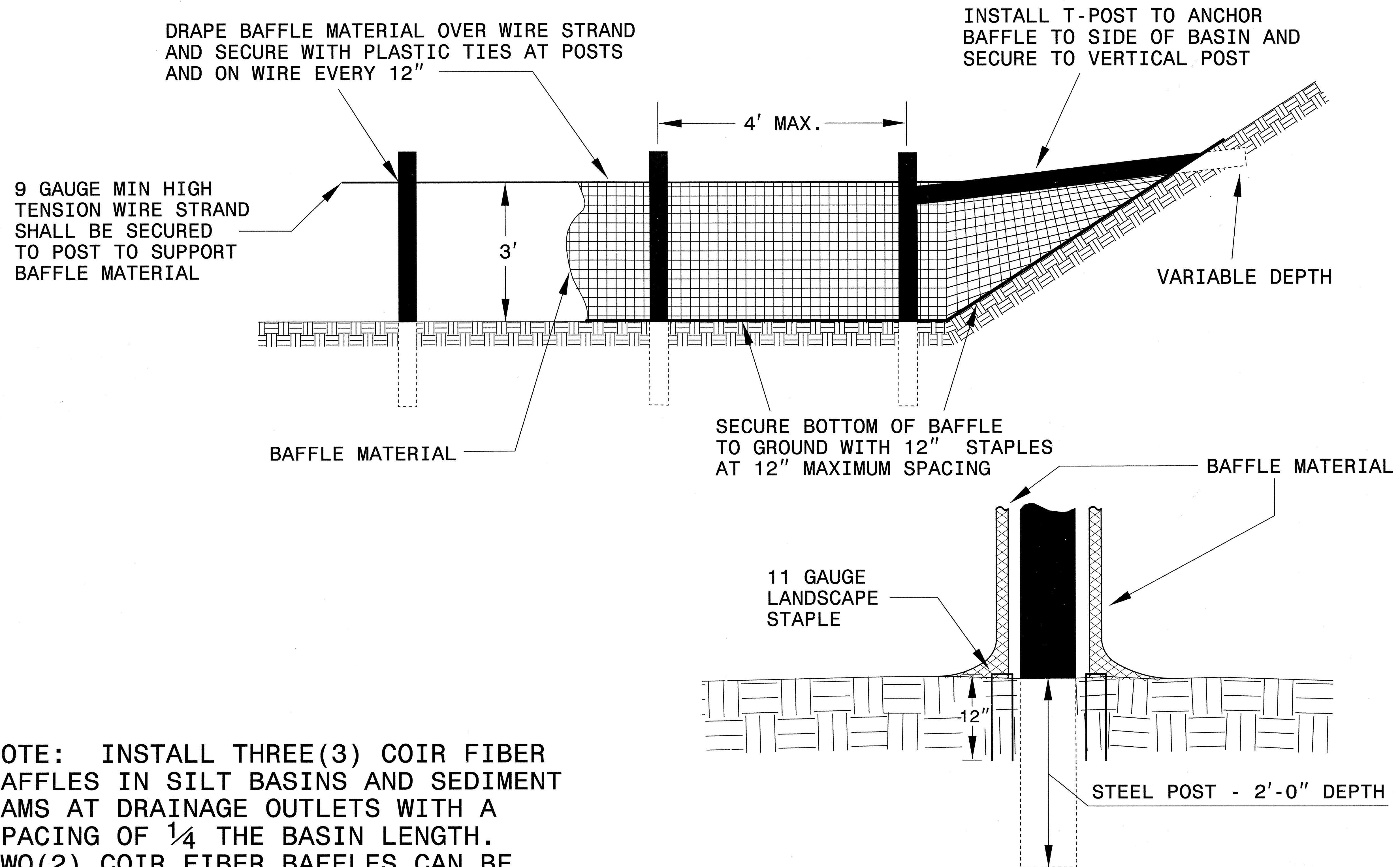
MIXTURE, TYPE, SIZE, AND FURNISH SHALL CONFORM TO THE FOLLOWING:

26 - (25%) PLATANUS OCCIDENTALIS	AMERICAN SYCAMORE	12 in - 18 in BR
36 - (35%) LIRIODENDRON TULIPIFERA	YELLOW POPLAR	12 in - 18 in BR
26 - (25%) FRAXINUS PENNSYLVANICA	GREEN ASH	12 in - 18 in BR
15 - (15%) JUGLANS NIGRA	BLACK WALNUT	12 in - 18 in BR
103 - TOTAL PLANTINGS		

REFORESTATION DETAIL SHEET

N.C.D.O.T. - ROADSIDE ENVIRONMENTAL UNIT

COIR FIBER BAFFLE DETAIL



NOTE: INSTALL THREE(3) COIR FIBER BAFFLES IN SILT BASINS AND SEDIMENT DAMS AT DRAINAGE OUTLETS WITH A SPACING OF $\frac{1}{4}$ THE BASIN LENGTH. TWO(2) COIR FIBER BAFFLES CAN BE INSTALLED IN SILT BASINS AND DAMS LESS THAN 20 FT. IN LENGTH WITH A SPACING OF $\frac{1}{3}$ THE BASIN LENGTH.

BAFFLE MATERIAL SHALL BE SECURED TO THE BOTTOM AND SIDES OF BASIN USING 12" LANDSCAPE STAPLES