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DATE	REVISION

PROJ. NO.: 100034005	DESIGNED BY: W.F.L.	CHECKED BY: W.F.L.	APPROVED BY: W.F.L.	DATE: AUGUST, 2013	SCALE: NTS
	DRAWN BY: M.R.T.				

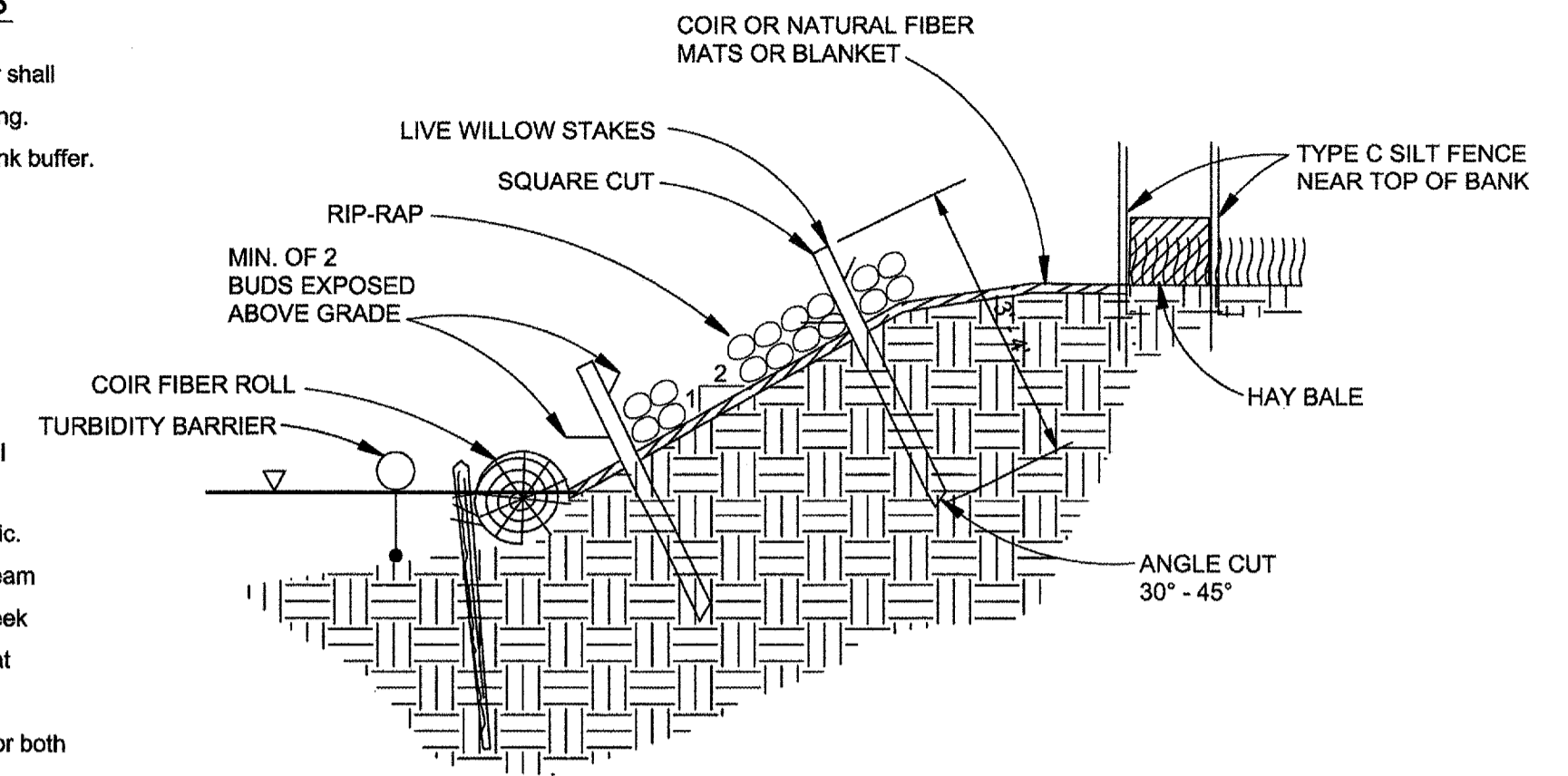
CHEROKEE COUNTY WATER & SEWERAGE AUTHORITY
 HOLLY SPRINGS
 DOWNTOWN SANITARY SEWER SYSTEM
EROSION CONTROL DETAILS

SHEET NO.
EC-07

EROSION CONTROL AT CREEK CROSSINGS

When crossing streams, creeks and rivers with pipelines, the Contractor shall apply the following guidelines to control erosion in the area of the crossing. The Contractor shall strive to minimize the disturbance to the stream bank buffer.

- Prior to any excavation:
 A. Install silt fence (Type C) along both edges of the creek for 60 feet, centered on the pipe line crossing.
- Prior to pipe installation:
 B. Bench down the creek bank for excavation.
 C. Place filter fabric on the benched down area and trench it in 6" on all 4 sides.
 D. Place 6" layer of surge stone or No. 34 stone on top of the filter fabric.
 E. Install turbidity barrier (silt curtain) along both edges of creek, upstream and downstream of excavation, to catch eroded soils falling down creek bank. The barrier is installed in the edge of the creek, with the float at water level and the ballast chain on the creek bed.
 F. Install turbidity barrier at a 45 degree angle across the creek. Anchor both ends to the creek bank. Allow slack in the barrier to allow the barrier to rise and fall with the flow level. Do not anchor the ballast chain in the creek, so that the barrier can float on top of the water.
- During Excavation and Pipe Installation:
 G. During excavation, remove excavated material from the job site.
 H. Backfill over pipe with smooth river stone. (DO NOT USE EXCAVATED MATERIAL.)
 I. For pumping water out of the working area, apply flow diffusion and silt retention techniques to the effluent water as it re-enters the stream. (Place effluent end of hose in silt filter bag laid atop No. 57 stone on the edge of the stream. The silt filter bag shall be a "Dirtbag" as marketed by Gould and Associates or approved equal.)
- After Pipe is Installed:
 J. Reconstruct creek bank to preconstruction contours
 K. After pipe is across creek, dress the top of the creek bank and the creek bank with a coir fiber or natural fiber blanket, rip-rap and live willow stakes.
 L. Grass and mulch the excavated areas beyond the creek bank.
 M. Place a double row of silt fence (Type C) near the top of the bank with hay bales between rows.
 N. Remove the turbidity barrier. Remove the silt fence at the edge of the creek.
 O. Install coir fiber roll along the edge of the creek along both sides of the creek for a distance of 20' upstream and downstream of the disturbed area.
 P. Complete the streambank stabilization in accordance with the detail shown on this sheet.



- LIVE WILLOW STAKE INSTALLATION NOTES:**
- The live willow stakes should be tamped into the ground at right angles to the slope and angled downstream. They should be tamped into the ground carefully for approximately 4/5 of their length.
 - Stakes should be spaced so that there are 2 to 4 cuttings per square yard. They should be placed in a random configuration to prevent gullies from forming and to produce a more natural effect in the revegetation area.
 - Install the live stakes the same day they are prepared. Start the installation at the water's edge and work up the bank. Replace cuttings that split or are damaged during tamping. Be sure the buds are pointing upwards.
 - The live stakes can be used to secure the natural fiber blanket to the slope.

Sb STREAMBANK STABILIZATION (Using permanent Vegetation)
 (NOT TO SCALE)

GENERAL
 THIS VEGETATIVE PLAN WILL BE CARRIED OUT ON ROAD CUT AND FILL SLOPES. SHOULDERS AND OTHER CRITICAL AREAS CREATED BY CONSTRUCTION. SEEDING WILL BE DONE AS SOON AS CONSTRUCTION IN AN AREA IS COMPLETED. PLANS WILL BE MADE TO CONTROL EROSION, TO REDUCE DAMAGES FROM SEDIMENT AND RUNOFF TO DOWNSTREAM AREAS AND TO IMPROVE THE SAFETY AND BEAUTY OF THE DEVELOPMENT AREA.

SOIL CONDITIONS
 DUE TO GRADING AND CONSTRUCTION THE AREAS TO BE TREATED ARE MAINLY SUBSOIL AND SUBSTRATA. FERTILITY IS LOW AND THE PHYSICAL CHARACTERISTICS OF THE EXPOSED MATERIAL ARE UNFAVORABLE TO ALL BUT THE MOST HARDY PLANTS.

TREATMENT SPECIFICATIONS
 CONVENTIONAL SEEDING EQUIPMENT
 GRADE SHAPE AND SMOOTH WHERE NEEDED TO PROVIDE FOR SAFE EQUIPMENT OPERATION AT SEEDING TIME AND FOR MAINTENANCE PURPOSES. THE LIME AND FERTILIZER IN DRY FORM WILL BE SPREAD UNIFORMLY OVER THE AREA IMMEDIATELY BEFORE SEEDBED PREPARATION. A SEEDBED WILL BE PREPARED BY SCARIFYING TO A DEPTH OF 1 TO 4 INCHES AS DETERMINED ON SITE. THE SEEDBED MUST BE WELL PULVERIZED, SMOOTHED AND FIRMED. SEEDING WILL BE DONE WITH CULTIPACKER-SEEDER, DRILL ROTARY SEEDER OR OTHER MECHANICAL OR HAND SEEDER. SEED WILL BE DISTRIBUTED UNIFORMLY OVER A FRESHLY PREPARED SEEDBED AND COVERED LIGHTLY, WITHIN 24 HOURS AFTER SEEDING, STRAW OR HAY MULCH WILL BE SPREAD UNIFORMLY OVER THE AREA LEAVING ABOUT 25 PERCENT OF THE GROUND SURFACE EXPOSED. MULCH WILL BE SPREAD WITH BLOWER-TYPE MULCH EQUIPMENT OR BY HAND AND ANCHORED IMMEDIATELY AFTER IT IS SPREAD. A DISK HARROW WITH THE DISK SET STRAIGHT OR A SPECIAL PACKER DISK MAY BE USED TO PRESS THE MULCH INTO THE SOIL. THE PER ACRE APPLICATION RATES ARE AS FOLLOWS:

A. SEEDING WITH MULCH: (CONVENTIONAL SEEDING EQUIPMENT ON SLOPES LESS THAN 3:1)

AGRICULTURAL LIMESTONE	4000 lbs./acre
FERTILIZER, 5-10-15	1500 lbs./acre
MULCH, STRAW OR HAY	5000 lbs./acre

SEED SPECIES	APPLICATION RATE/ACRE	PLANTING DATES
MILLET, PEARL	50 lbs.	5/1 - 8/1
MILLET, BROWNTOP	40 lbs.	4/15 - 7/1
OATS	128 lbs.	9/15 - 11/15
SUDANGRASS	60 lbs.	5/1 - 8/1
RYE GRASS, ANNUAL	40 lbs.	9/1 - 12/15
BARLEY	144 lbs.	9/15 - 11/1
LESPEDEZA, ANNUAL	40 lbs.	3/1 - 4/1
LOVEGRASS, WEEPING	4 lbs.	4/1 - 8/1
WHEAT	180 lbs.	10/1 - 12/15

B. TOP DRESSING: APPLY WHEN PLANTS ARE 2 TO 4 INCHES TALL
 FERTILIZER (AMMONIUM NITRATE 33.5%) 300 lbs./acre

C. SECOND- YEAR FERTILIZER: (5-10-15 OR EQUIVALENT) 800 lbs./acre

Ds2 DISTURBED AREA STABILIZATION (WITH TEMPORARY SEEDING)

Mulching Application Requirements

Material	Rate	Depth
Straw or hay	2 1/2 Ton/Acre	6" to 10"
Wood waste chips, sawdust, bark	6 to 9 Ton/Acre	2" to 3"
Cutback asphalt	1200 gal./arce or 1/4 gal./sq. yd.	
Polyethylene film	Secure with soil anchors, weights	
Geotextiles, jute matting, netting, etc.	See manufacturer's recommendations	

Ds1 DISTURBED AREA STABILIZATION (WITH MULCHING ONLY)

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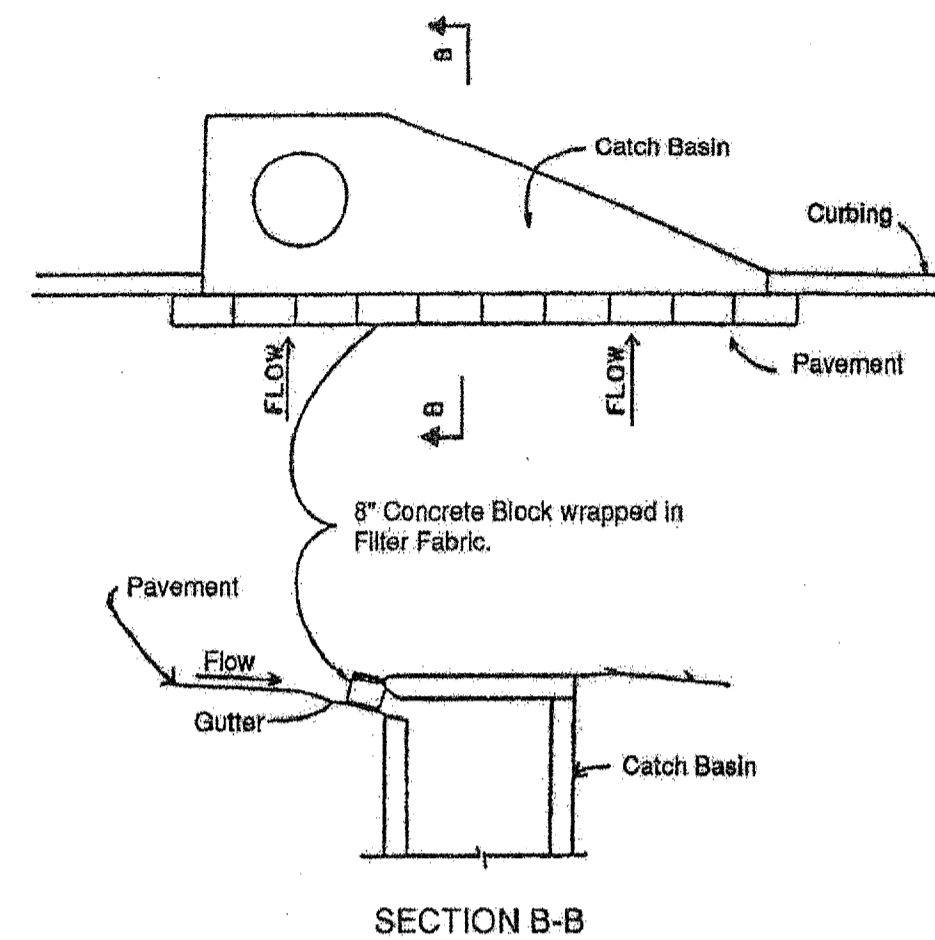
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SEED SPECIES	APPLICATION RATE/ACRE	PLANTING DATES
HULLED COMMON BERMUDA GRASS	10 lbs.	3/1 - 8/15
FESCUE	50 lbs.	9/1 - 10/31
FESCUE	50 lbs.	11/1 - 2/28
RYE GRASS	50 lbs.	11/1 - 2/28
HAY MULCH FOR TEMPORARY COVER	5000 lbs.	6/15 - 8/31

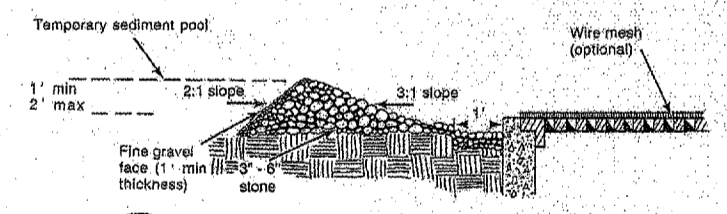
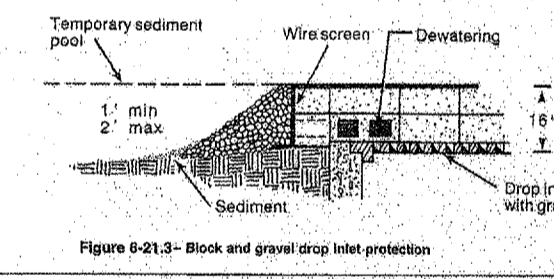
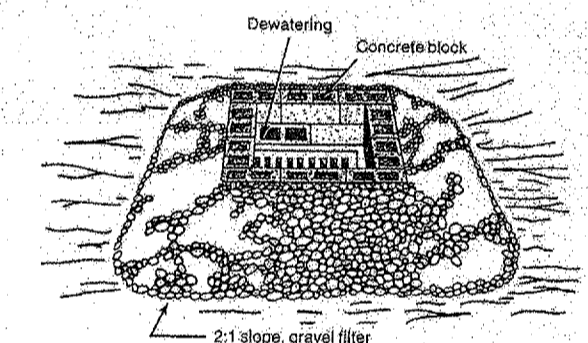
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Ds3 DISTURBED AREA STABILIZATION (WITH PERMANENT VEGETATION)



Sd2-P INLET SEDIMENT TRAP



Sd2-G INLET SEDIMENT TRAP

I certify under penalty of law that this Plan was prepared after a site visit to the locations described herein by myself or my authorized agent, under my supervision.

William F. Livingston
 Professional Engineer
 GSWCC Level II Certified Design Professional