

STORMWATER MANAGEMENT COST ESTIMATE				
<u>ALL COSTS GIVEN ARE COMPLETE IN PLACE.</u>				
DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL COST
SUB-TOTAL:			\$	
10% CONTINGENCY	PROVIDED IN OVERALL BONDING TABLE			
TOTAL PROJECT COST				\$

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SUB-TOTAL				\$
10% CONTINGENCY		PROVIDED IN OVERALL BONDING TABLE		
TOTAL PROJECT COST				\$

<div style="display: flex; align-items: center; justify-content: space-between;"> <div style="border: 1px solid black; border-radius: 50%; width: 40px; height: 40px; display: flex; align-items: center; justify-content: center;"> TS </div> <div> TEMPORARY SEEDING MIXTURE </div> </div>		
TABLE 3.31 -B "QUICK REFERENCE FOR ALL REGIONS"		
<u>PLANTING DATES:</u>	<u>SPECIES:</u>	<u>RATE (LBS./ACRE)</u>
SEPT. 1 - FEB. 15	50/50 MIX OF ANNUAL RYEGRASS (CLOVER MULTIFLORUM) & CEREAL (WINTER) RYE (SECALE CEREALE)	50-100
FEB. 16 - APR. 30	ANNUAL RYEGRASS (CLOVER MULTI-FLORUM)	50-100
MAY 1 - AUG 31	GERMAN MILLET (SETARIA ITALICA)	50

PLANTING DATES:	SPECIES:	RATE (LBS./ACRE)
SEPT. 1- FEB. 15	50/50 MIX OF ANNUAL RYEGRASS (LOLIUM MULIFLORUM) & CEREAL (WINTER) RYE (SECALE CEREALE)	50-100
FEB. 16- APR. 30	ANNUAL RYEGRASS (LOLIUM MULTI-FLORUM)	60-100
MAY 1- AUG 31	GERMAN MILLET (SETARIA ITALICA)	50

[illegible]

1. DESIGN OF DETENTION BASINS SHALL CONFORM TO THE REQUIREMENTS OF THE COUNTY OF ROCKHIDE DRAINAGE STANDARDS (REF. SECTIONS 50302, 50303, AND 50502). THE DESIGN OF THE FACILITY AND PREPARATION OF AS-BUILT PLANS SHALL BE BY A CERTIFIED PROFESSIONAL ENGINEER LICENSED TO PRACTICE IN THE COMMONWEALTH OF VIRGINIA.
2. ACCESS TO THE FACILITY MUST BE PROVIDED IN ACCORDANCE WITH THE COUNTY OF ROCKHIDE DESIGN AND CONSTRUCTION STANDARDS FOR DETENTION PONDS, LATEST EDITION.
3. IF THE FACILITY IS OVER FOUR (4) FEET DEEP, TAKES OVER TWO (2) HOURS TO DRAIN, OR THE INTERIOR SLOPE EXCEEDS 3 (H) : 1 (V), CONCERNING CONCERNING MAY BE REQUIRED. ADDITIONALLY, IF THE FACILITY IS IN A CONGESTED AREA OR WILL IN ANY WAY PSE A HAZARD TO THE GENERAL PUBLIC, FENCING MAY BE REQUIRED. FENCING SHALL BE A MINIMUM OF SIX (6) FEET HIGH, A MINIMUM OF STANDARD NINE GAUGE LINK FENCE, AND MUST HAVE ONE OR MORE LOCKING DOUBLE GATES (MINIMUM TEN FEET WIDE) FOR ACCESS.
4. DETENTION POND SHALL BE BONDED IN ACCORDANCE WITH THE ROCKHIDE COUNTY BONDING POLICY FOR SUBDIVISIONS AND SITE DEVELOPMENT. A SEPARATE BOND FOR THE DETENTION FACILITY WILL BE REQUIRED AND ADMINISTERED APART FROM THE SUBDIVISION DEVELOPMENT BOND. REFERENCE ESTIMATE - THIS SHEET.
5. REFERENCE THE COUNTY OF ROCKHIDE DESIGN AND CONSTRUCTION STANDARDS FOR DETENTION PONDS, LATEST EDITION, FOR ACCEPTANCE AND MAINTENANCE OF THE FACILITY. CERTIFIED AS-BUILTS ARE REQUIRED AND MUST INCLUDE:
 - A. DIMENSIONS OF THE FACILITY
 - B. VOLUME @ MAXIMUM DEPTH
 - C. ELEVATIONS OF STRUCTURES, SPILLWAYS, AND TOP
 - D. MATERIALS VERIFICATION INCLUDING RESULTS OF DENSITY TESTS CONDUCTED BY AN INDEPENDENT SOIL TESTING LABORATORY
 - E. LOCATION AND ELEVATION OF BENCHMARK.
6. ONE FOOT MINIMUM FREEBOARD REQUIRED FOR THE 100 YR WATER SURFACE ELEVATION.

1. SITE PREPARATION SHALL BE IN ACCORDANCE WITH THE COUNTY OF ROCKINGE DESIGN AND CONSTRUCTION STANDARDS FOR DETENTION POND. LATEST EDITION.
2. SLOPES STEEPER THAN 3 TO 1 (HORIZONTAL TO VERTICAL) SHALL BE BENCHED OR STEPPED PRIOR TO PLACING FILL ON THEM.
3. ON-SITE FILL MATERIAL OR BORROW FILL MATERIAL MAY BE UTILIZED. FILL MATERIAL SOILS, IN GENERAL:
 - A. SHALL BE COMPACTABLE
 - B. SHALL BE WITHIN AN ACCEPTABLE RANGE OF MOISTURE CONTENT WHICH IS READILY CONTROLLED
 - C. SHALL NOT BE HIGHLY SUSCEPTIBLE TO VOLUME CHANGE (SHRINKAGE OR SWELL) OR SETTLEMENT
4. FILL MATERIALS CONTAINING ROCKS LARGER THAN SIX (6) INCHES (152 CM) SHALL NOT BE USED. THE UPPERMOST TWO (2) FEET (61 CM) SHALL NOT HAVE ANY ROCK LARGER THAN TWO (2) INCHES (51 CM) IN DIAMETER.
5. THE APPROVED FILL SHALL BE PLACED IN EIGHT (8) INCH (20 CM) LOOSE LIFTS, EACH LIFT SHALL BE SPREAD IN UNIFORM LAYERS. FILL SOIL SHALL BE UTILIZED ONLY WITHIN A MOISTURE RANGE OF +/- 5% OF THE OPTIMUM MOISTURE CONTENT. COMPACTION OF THE FILL SHALL BE PERFORMED WITH APPROVED EQUIPMENT. COMPACTION OF THE LAYERS SHALL BE CONTINUOUS AND UNIFORM.
6. EMBANKMENT MATERIAL IN FILL AREAS SHALL BE PLACED IN LIFTS NOT EXCEEDING EIGHT (8) INCHES AND SHALL BE COMPACTED TO A MINIMUM 95% DENSITY IN ACCORDANCE WITH SECTION 303 OF THE VIRGINIA DEPARTMENT OF TRANSPORTATION ROAD AND BRIDGE SPECIFICATIONS.
7. FIELD DENSITY TESTS ARE TO BE CONDUCTED BY AN INDEPENDENT SOILS TESTING LABORATORY UNDER THE DIRECTION OF A QUALIFIED GEOTECHNICAL ENGINEER. THE RESULTS OF THESE TESTS SHALL BE SUBMITTED TO THE COUNTY OF ROCKINGE WITH AS-BUILT PLANS AS A CONDITION OF ACCEPTANCE OF THE FACILITY BY THE COUNTY. FIELD DENSITY TESTS, AS DIRECTED BY THE ENGINEER SHALL BE PERFORMED PERIODICALLY TO DETERMINE THE DEGREE OF COMPACTION. ANY AREAS FAILING TO MEET THE ABOVE REQUIREMENTS SHALL BE REWORKED AND/OR RECOMPACT UNTIL THE REQUIRED DEGREE OF COMPACTION IS ACHIEVED.
8. ANTI-SEEP COLLARS SHALL BE INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK, LATEST EDITION.
9. ALL DISTURBED AREAS SHALL BE COVERED WITH FOUR (4) INCHES OF TOPSOIL AND SEED.
10. THE MINIMUM SLOPE OF THE BASIN "FLOOR" SHALL BE ONE (1) PERCENT GRADED TO DRAIN TO THE PRINCIPAL SPILLWAY.



This method of inlet protection is applicable where heavy flows are expected and where an overflow capability and ease of maintenance are desirable.

* Gravel shall be VDOT #3, #357 or #5 coarse aggregate.

DEPARTMENT
OF
ENGINEERING AND INSPECTIONS

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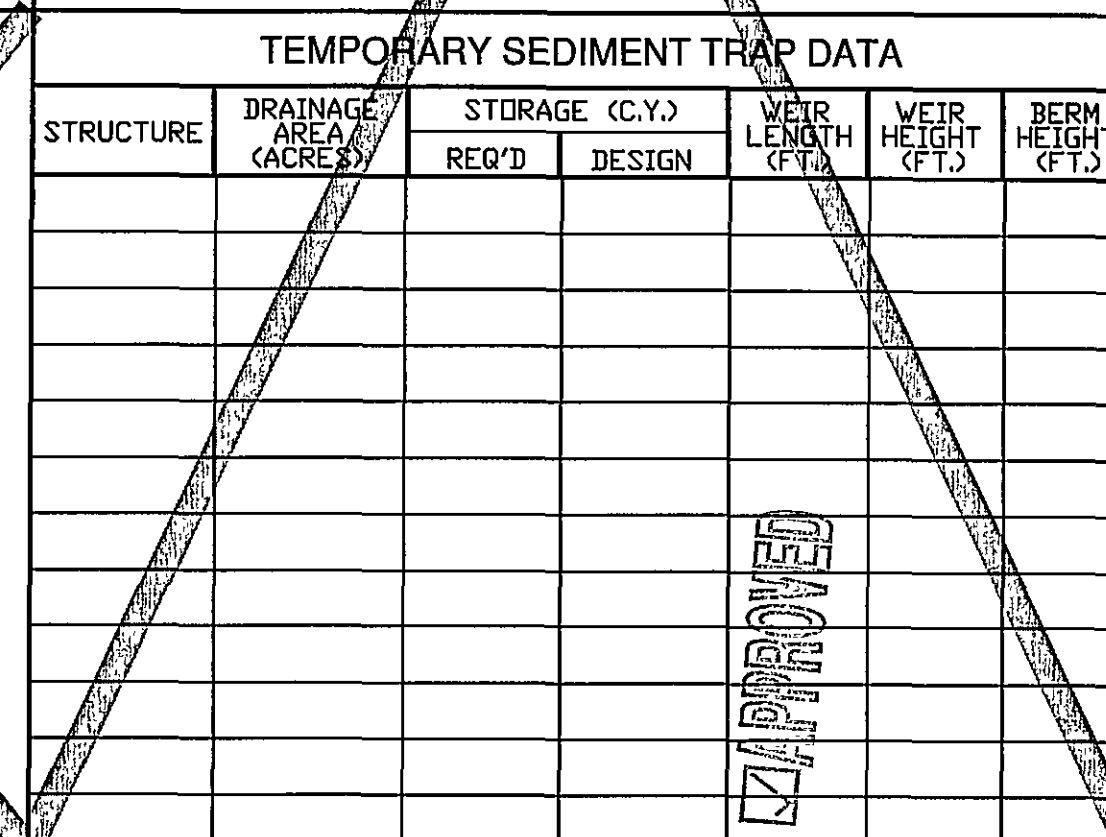
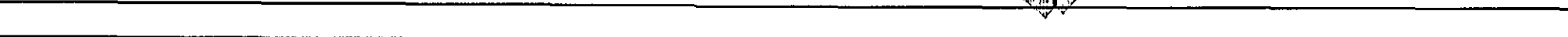
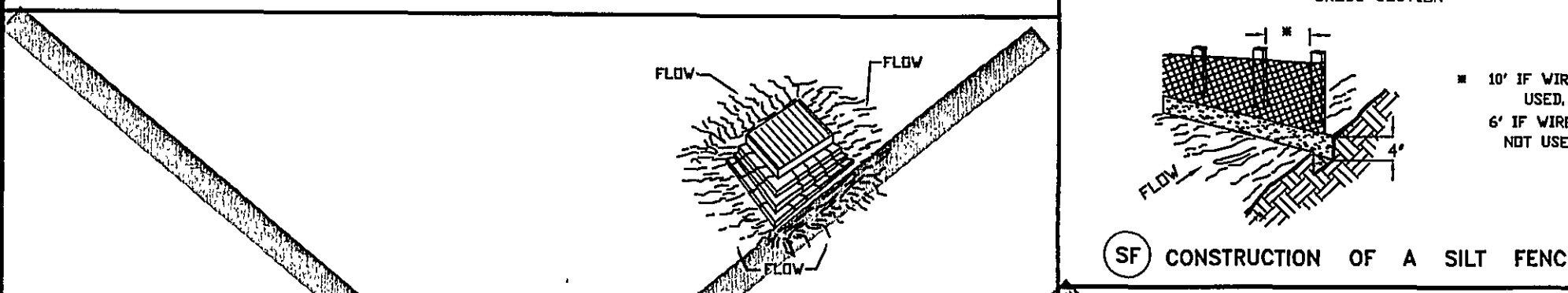
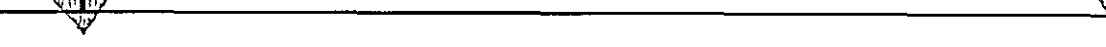


Diagram illustrating the construction of a washboard or wash rack. The structure is V-shaped, with the following components labeled:

- CONSTRUCT A WASHBOARD OR WASH RACK IF REQUIRED.** (Indicated by a line pointing to the V-shaped structure)
- VDOT #1 Coarse Aggregate** (Indicated by a line pointing to the material filling the V-shape)
- Filter Cloth** (Indicated by a line pointing to the material lining the bottom of the V-shape)
- Ref. Table 302-A of Virginia ESD Handbook For requirements.** (Indicated by a line pointing to the filter cloth)

■ MUST EXTEND FULL WIDTH OF INGRESS & EGRESS OPERATION.



ALL COSTS GIVEN ARE COMPLETE IN PLACE				
DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL COST
INLET PROTECTION	EA.	1	100	100.00
SILT FENCE	LF	110	4.00	440.00
SEEDING	AC.	0.03	2,400	72.00
SUB-TOTAL				\$ 612.00
10% CONTINGENCY				\$ 61.00
TOTAL PROJECT COST				\$ 673.00

1. ALL SOIL EROSION & SEDIMENT CONTROL MEASURES SHALL BE ACCOMPLISHED IN STRICT ACCORDANCE WITH THE STANDARDS AND SPECIFICATIONS CONTAINED IN THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK, LATEST EDITION.
2. THE APPROVING AUTHORITY MAY ADD, TO DELETE, RELOCATE, CHANGE, OR OTHERWISE MODIFY ANY CODE OR CERTAIN PORTIONS OF THE HANDBOOK WHERE FIELD CONDITIONS ARE ENCOUNTERED THAT WARRANT SUCH MODIFICATIONS.
3. ALL SOIL EROSION AND SEDIMENT CONTROL MEASURES AS SHOWN ON THE PLAN SHALL BE PLACED IN ADVANCE OF THE WORK BEING PERFORMED, AS FAR AS PRACTICAL.
4. IN NO CASE DURING CONSTRUCTION SHALL WATER RUNOFF BE DIVERTED OR ALLOWED TO FLOW TO LOCATIONS WHERE ADEQUATE PROTECTION HAS NOT BEEN PROVIDED.
5. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO LEAVE THE SITE ADEQUATELY PROTECTED AGAINST EROSION, SEDIMENTATION, OR ANY DAMAGE TO ANY ADJACENT PROPERTY. THE EROSION AND SEDIMENT CONTROL MEASURES SHALL BE MAINTAINED THROUGHOUT THE LIFE OF THE PROJECT.
6. FOR THE EROSION CONTROL, KEY SYMBOLS SHOWN ON THE PLANS, REFER TO THE VIRGINIA UNIFORM CODING SYSTEM FOR EROSION AND SEDIMENT CONTROL PRACTICES CONTAINED IN THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK, LATEST EDITION. THESE SYMBOLS AND KEYS ARE TO BE UTILIZED ON ALL EROSION CONTROL PLANS SUBMITTED TO RANDOLPH COUNTY.

TYPE A

15 OCTOBER TO 1 FEBRUARY
K-31 FESCUE @ 5 LB / 1000 SF
BORDWY WINTER RYE @ 1/2 LB / 1000 SF

1 FEBRUARY TO 1 JUNE
K-31 FESCUE @ 5 LB / 1000 SF
ANNUAL RYE @ 1/2 LB / 1000 SF

1 JUNE TO 1 SEPTEMBER
K-31 FESCUE @ 5 LB / 1000 SF
GERMAN MILLET @ 1/2 LB / 1000 SF

1 SEPTEMBER TO 15 OCTOBER
K-31 FESCUE @ 5 LB / 1000 SF
ANNUAL RYE @ 1/2 LB / 1000 SF

TYPE B (SLOPES 30 OR STEEPER)

15 MARCH TO 1 MAY
CROWN VETCH @ 1/2 LB / 1000 SF
PERENNIAL RYEGRASS @ 1/2 LB / 1000 SF
RED TOP @ 1/8 LB / 1000 SF

15 AUGUST TO 1 OCTOBER
CROWN VETCH @ 1/2 LB / 1000 SF
PERENNIAL RYEGRASS @ 1/2 LB / 1000 SF
RED TOP @ 1/8 LB / 1000 SF

LIME: 140 LB / 1000 SF PULVERIZED AGRICULTURAL LIMESTONE

FERTILIZER: 5-20-10 @ 25 LB / 1000 SF
38-0-0 @ 7 LB / 1000 SF

MULCH: IF REQUIRED, SHALL BE USED OVER ALL SEEDED AREAS AND SHALL BE APPLIED IN ACCORDANCE WITH SECTION 1.75 OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK, LATEST EDITION.

SOIL CONDITIONING: INCORPORATION OF LIME AND FERTILIZER, SELECTION OF CERTIFIED SEED, MULCHING, MAINTENANCE OF NEW SEEDLINGS, AND RESEEDING SHALL BE IN ACCORDANCE WITH SPECIFICATIONS CONTAINED WITHIN THE VIRGINIA SOIL EROSION AND SEDIMENT CONTROL HANDBOOK, LATEST EDITION. ADDITIONAL SEEDING TO BE PERFORMED AS REQUIRED BY THE INSPECTOR.

SEED APPLICATION: APPLY SEED UNIFORMLY WITH A CYCLONE SEEDER, DRILL, CULTIPACKER SEEDER, OR HYDRASEEDER ON A FIRM, FRABLE, SEEDBED. MAXIMUM SEEDING DEPTH SHALL BE 1/4 INCH.

TOTAL DISTURBED AREA = 0.03 AC. = 1,307 SQ. FT.

BEAUMONT UTILITY EXTENSION EROSION & SEDIMENT CONTROL FORMWATER MANAGEMENT DETAILS	SHEET 3 OF 4
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DATE: 11/02/93
SCALE: NO SCALE
DRAWING BY: CLN,AF (G:\CAD\DETAILS\EROS)
DESIGNED BY:
APPROVED BY: GWS,III

BEAUMONT UTILITY EXTENSION
EROSION & SEDIMENT CONTROL
STORMWATER MANAGEMENT DETAILS