

SEWER HOSE CONNECTION INVERTS AT PROPERTY LINE

LOT	ELEVATION
1	370.30
2	368.33
3	367.96
4	352.14
5	336.06
6	336.74
7	352.01
8	358.31
9	362.10
10	362.30
11	362.10
12	360.20
13	359.10
14	352.95
15	347.54
16	340.98
17	339.08
18	338.09
19	337.40
20	334.32
21	333.22
22	332.85
23	331.95
24	323.75
25	326.32
26	340.18
27	370.70
28	363.07

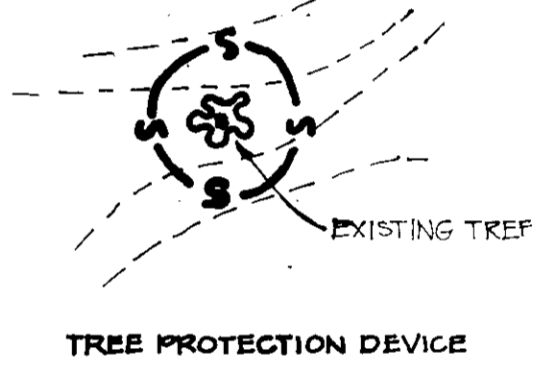
TRAP NO. 2
 TYPE - STONE OUTLET
 DRAINAGE AREA - 2.05 ACRES
 STORAGE REQUIRED - 3690 CU. FT.
 STORAGE PROVIDED - 3748 CU. FT.
 BOTTOM DIMENSIONS - 24x40'
 BOTTOM ELEV. - 348'
 CREST ELEV. - 351'
 TOP ELEV. - 352'
 CLEAN OUT ELEV. - 349.5'
 SIDE SLOPE - 1:1
 DEPTH - 4'

TEMPORARY SEDIMENT TRAP NO. 1
 TYPE - SEDIMENT BASIN
 DRAINAGE AREA - 12.20 ACRES
 STORAGE REQUIRED - 21,960 CU. FT.
 STORAGE PROVIDED - 30,868 CU. FT.
 OUTLET PIPE - 18" MCCMP
 CLEAN OUT ELEV. - 333.0'
 EMBANKMENT HEIGHT - 7'
 OUTLET ELEV. - 336.0'

TRAP NO. 5
 TYPE - STONE OUTLET
 DRAINAGE AREA - 1.83 ACRES
 STORAGE REQUIRED - 3274 CU. FT.
 STORAGE PROVIDED - 3381 CU. FT.
 BOTTOM DIMENSIONS - 25x40'
 BOTTOM ELEV. - 346'
 CREST ELEV. - 349'
 TOP ELEV. - 350'
 SIDE SLOPE - 1:1
 DEPTH - 4'

TRAP NO. 3
 TYPE - STONE OUTLET
 DRAINAGE AREA - 1.62 ACRES
 STORAGE REQUIRED - 2916 CU. FT.
 STORAGE PROVIDED - 2304 CU. FT.
 BOTTOM DIMENSIONS - 25x35'
 BOTTOM ELEV. - 349'
 CREST ELEV. - 351'
 TOP ELEV. - 352'
 SIDE SLOPE - 1:1
 DEPTH - 4'

TRAP NO. 4
 TYPE - STONE OUTLET
 DRAINAGE AREA - 1.13 ACRES
 STORAGE REQUIRED - 4034 CU. FT.
 STORAGE PROVIDED - 2304 CU. FT.
 BOTTOM DIMENSIONS - 30x20'
 BOTTOM ELEV. - 364'
 TOP ELEV. - 368'
 CREST ELEV. - 367'
 SIDE SLOPE - 1:1
 DEPTH - 4'



NOTE: SEDIMENT CONTROLS ARE NOT TO BE REMOVED UNTIL PERMISSION TO DO SO, IS GIVEN BY THE SEDIMENT CONTROL INSPECTOR.

- LEGEND:
- EXISTING GRADE - ---
 - PROPOSED GRADE - - - - -
 - DIRECTION OF DRAINAGE - ->
 - SPOT ELEVATION - x 389.50
 - WETLAND - [Hatched Area]
 - STABILIZED CONST. ENTR. - [Solid Black Area]
 - EARTH DIKE - -|
 - SILT FENCE - -S-
 - LIMIT OF DISTURBANCE - - - - -

SEQUENCE OF CONSTRUCTION

1. OBTAIN GRADING PERMIT.
2. INSTALL ALL SEDIMENT CONTROL MEASURES SHOWN ON THIS PLAN.
3. OBTAIN BUILDING PERMIT AND CONSTRUCT HOUSES.
4. REMOVE TRAP NO. AND AND GRADE LOT 4, 5, 12 AND 16 IN ACCORDANCE WITH THE SITE DEVELOPMENT PLAN.
5. STABILIZE ALL DISTURBED AREA IN ACCORDANCE WITH HOWARD COUNTY SOIL CONSERVATION DISTRICT.

PATER AND PUBLIC SERVICE DIVISION
 HEALTH DEPARTMENT
 01/11/91
 DEPARTMENT OF PLANNING & ZONING
 2/14/91
 DEPARTMENT OF PLANNING & ZONING
 4/15/91
 APPROVED FOR PUBLIC WATER & PUBLIC SEWERAGE SYSTEM MAINTENANCE AND PUBLIC ROAD SURVEY DEPARTMENT OF PUBLIC WORKS
 1/31/91
 1-30-91

ORIA ENGINEERING INC.
 10-16-91 HOUSE LAYOUT LOT 5
 10-14-91 HOUSE LAYOUT LOT 8
 8-1-91 TRUCK (T-100)
 6-22-91 HOUSE LAYOUT LOT (A) - (D)

These plans have been reviewed for the Howard County Conservation District and meet the technical requirements for soil and sediment control.
 James W. Helm 1-23-91
 John K. Robertson 1/23/91

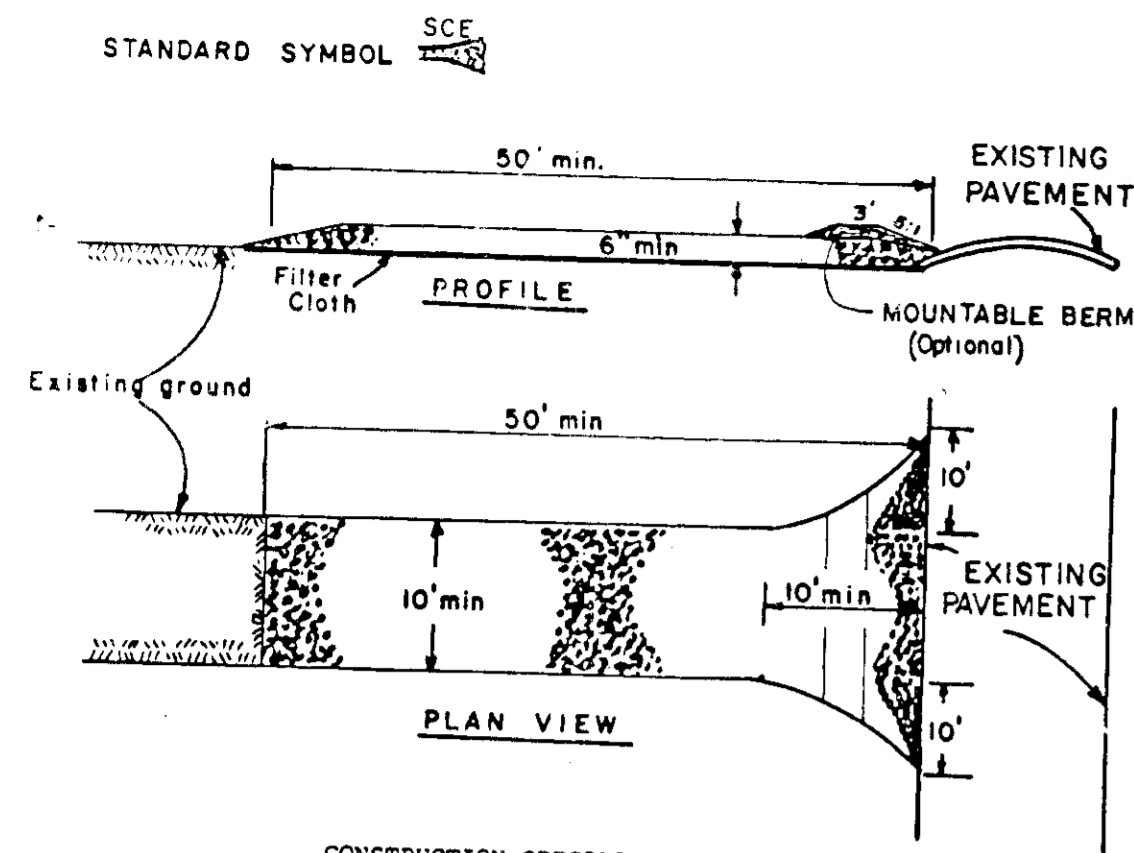
ENGINEER'S CERTIFICATE
 I certify that this plan, design and section work represents a practical and workable plan based on my personal knowledge of the site conditions and was prepared in accordance with the requirements of the Howard County Conservation District.
 1/23/91

DEVELOPER'S CERTIFICATE
 I hereby certify that all development and construction will be done according to these plans and that the responsible person in the construction project will have a permit of Attendance at a Department of Natural Resources Approved Training Program for Sediment Control and Erosion before construction of the project and authorize the person in the signature of the Howard County Conservation District.
 developer

BRIARCLIFFE 1-28

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F 13					5750000
MLL	GRADING AND SEDIMENT CONTROL PLAN				
GUS	BRIARCLIFFE				
MLL	LOTS 1-28				
DEVELOPER: ROBERT AWALT BUILDERS, WINTRIDGE INC. 9051 BALTIMORE NATIONAL PIKE ELLICOTT CITY, MD. 21043 SDP-91-23					
JAN. 10, 1991					

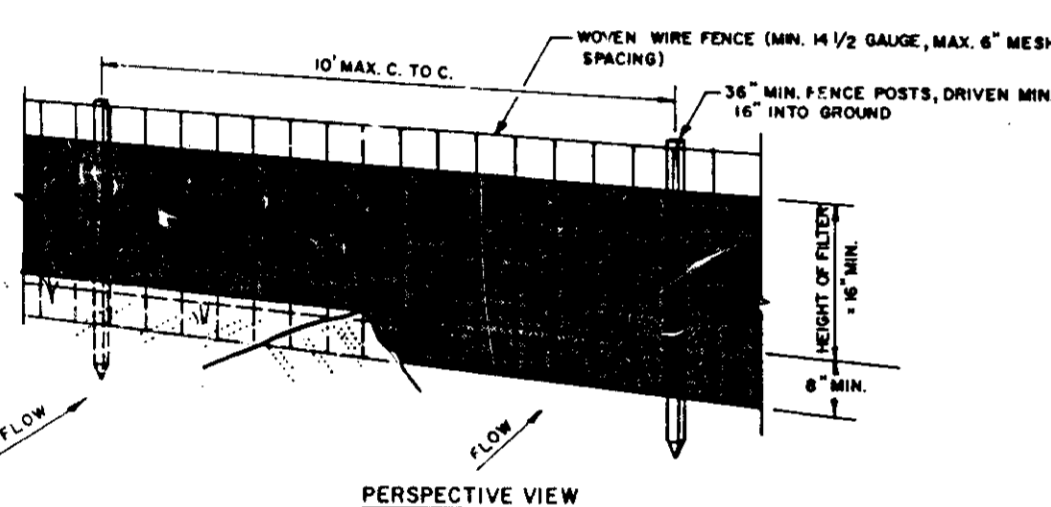
STABILIZED CONSTRUCTION ENTRANCE
not to scale



CONSTRUCTION SPECIFICATIONS

1. Stone Size - Use 2" stone, or reclaimed or recycled concrete equivalent.
2. Length - As required, but not less than 50 feet (except on a single residence lot where a 30 foot minimum length would apply).
3. Thickness - Not less than six (6) inches.
4. Width - Ten (10) foot minimum, but not less than the full width at points where ingress or egress occurs.
5. Filter Cloth - Will be placed over the entire area prior to placing of stone. Filter will not be required on a single family residence lot.
6. Surface Water - All surface water flowing or diverted toward construction entrances shall be piped across the entrance. If piping is impractical, a mountable berm with 5:1 slopes will be permitted.
7. Maintenance - The entrance shall be maintained in a condition which will prevent tracking or flowing of sediment onto public rights-of-way. This may require periodic top dressing with additional stone as conditions demand and repair and/or cleanout of any measures used to trap sediment. All sediment spilled, dropped, washed or tracked onto public rights-of-way must be removed immediately.
8. Washing - Wheels shall be cleaned to remove sediment prior to entrance onto public rights-of-way. When washing is required, it shall be done on an area stabilized with stone and which drains into an approved sediment trapping device.
9. Periodic inspection and needed maintenance shall be provided after each rain.

SILT FENCE



SECTION

CONSTRUCTION NOTES FOR FABRICATED SILT FENCE

1. WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES.
2. FILTER CLOTH TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION.
3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVERLAPPED BY SIX INCHES AND FOLDED.
4. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN BULGES DEVELOP IN THE SILT FENCE.

- POSTS: STEEL EITHER T OR U TYPE OR 2" HARDWOOD
- FENCE: WOVEN WIRE, 1 1/2 GA. 6" MAX. MESH OPENING
- FILTER CLOTH: FILTER X, MIRAFL 100, STABILINA 1140N OR APPROVED EQUAL
- PREFABRICATED UNIT: GEOPAB, ENVIRONMENT, OR APPROVED EQUAL



PERMANENT SEEDING NOTES

Apply to graded or cleared areas not subject to immediate further disturbance where a permanent long-lived vegetative cover is needed.

Seedbed Preparation: Loosen upper three inches of soil by raking, discing or other acceptable means before seeding, unless previously loosened.

Soil Amendments: In lieu of soil test recommendations, use one of the following schedules:

- 1) Preferred - Apply 2 tons per acre dolomitic limestone (92 lbs/1000 sq ft) and 600 lbs per acre 10-10-10 fertilizer (14 lbs/1000 sq ft) before seeding. Harrow or disc into upper three inches of soil. At time of seeding, apply 400 lbs per acre 30-0-0 ureaform fertilizer (9 lbs/1000 sq ft).
- 2) Acceptable - Apply 2 tons per acre dolomitic limestone (92 lbs/1000 sq ft) and 1000 lbs per acre 10-10-10 fertilizer (23 lbs/1000 sq ft) before seeding. Harrow or disc into upper three inches of soil.

Seeding - For the periods March 1 thru April 30, and August 1 thru October 15, seed with 60 lbs per acre (1.4 lbs/1000 sq ft) of Kentucky 31 Tall Fescue. For the period May 1 thru July 31, seed with 60 lbs Kentucky 31 Tall Fescue per acre and 2 lbs per acre (.05 lbs/1000 sq ft) of weeping lovegrass. During the period of October 16 thru February 28, protect site by: Option (1) 2 tons per acre of well anchored straw mulch and seed as soon as possible in the spring. Option (2) Use sod. Option (3) Seed with 60 lbs/acre Kentucky 31 Tall Fescue and mulch with 2 tons/acre well anchored straw.

Mulching - Apply 1 1/2 to 2 tons per acre (70 to 90 lbs/1000 sq ft) of unrotted small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 218 gallons per acre (5 gal/1000 sq ft) of emulsified asphalt on flat areas. On slopes 8 feet or higher, use 348 gallons per acre (8 gal/1000 sq ft) for anchoring.

Maintenance - Inspect all seeded areas and make needed repairs, replacements and reseeds.

TEMPORARY SEEDING NOTES

Apply to graded or cleared areas likely to be redisturbed where a short-term vegetative cover is needed.

Seedbed Preparation: Loosen upper three inches of soil by raking, discing or other acceptable means before seeding, unless previously loosened.

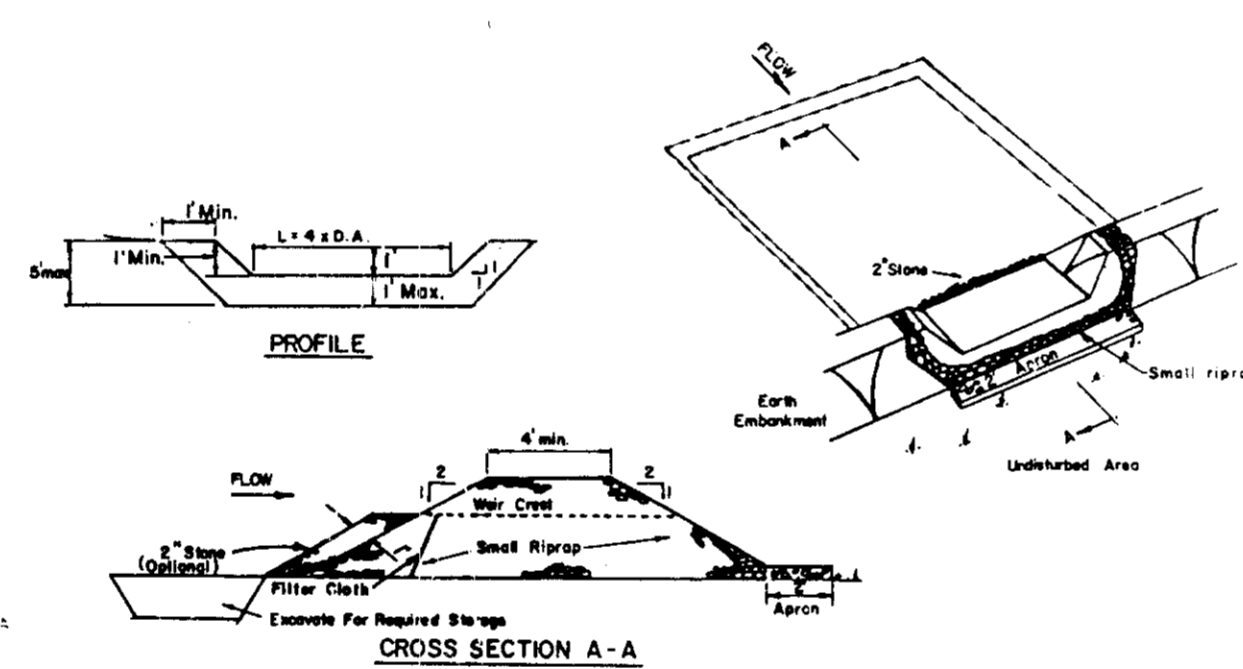
Soil Amendments: Apply 600 lbs per acre 10-10-10 fertilizer (14 lbs/1000 sq ft)

Seeding: For periods March 1 thru April 30 and from August 15 thru November 15, seed with 24 bushel per acre of annual rye (3.2 lbs/1000 sq ft). For the period May 1 thru August 14, seed with 3 lbs per acre of weeping lovegrass (.07 lbs/1000 sq ft). For the period November 16 thru February 28, protect site by applying 2 tons per acre of well anchored straw mulch and seed as soon as possible in the spring, or use sod.

Mulching: Apply 1 1/2 to 2 tons per acre (70 to 90 lbs/1000 sq ft) of unrotted small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 218 gal per acre (5 gal/1000 sq ft) of emulsified asphalt on flat areas. On slopes, 8 ft or higher, use 348 gal per acre (8 gal/1000 sq ft) for anchoring.

Refer to the 1983 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for rate and methods not covered.

STONE OUTLET SEDIMENT TRAP



OPTION: A one foot layer of 2" stone may be placed on the upstream side of the riprap in place of the embedded filter cloth.

CONSTRUCTION SPECIFICATIONS FOR ST-V

1. Area under embankment shall be cleared, grubbed and stripped of any vegetation and root mat. The pool area shall be cleared.
2. The fill material for the embankment shall be free of roots and other woody vegetation as well as over-sized stones, rocks, organic material or other objectionable material. The embankment shall be compacted by traversing with equipment while it is being constructed.
3. All cut and fill slopes shall be 2:1 or flatter.
4. The stone used in the outlet shall be small riprap 4"-8" along with a 1" thickness of 2" aggregate placed on the up-grade side on the small riprap and embedded filter cloth in the riprap.
5. Sediment shall be removed and trap restored to its original dimensions when the sediment has accumulated to 1/2 the design depth of the trap.
6. The structure shall be inspected after each rain and repairs made as needed.
7. Construction operations shall be carried out in such a manner that erosion and water pollution is minimized.
8. The structure shall be removed and the area stabilized when the drainage area has been properly stabilized.

STANDARD AND SPECIFICATIONS FOR VEGETATIVE STABILIZATION WITH SOD

SPECIFICATIONS

1. Class of turfgrass sod shall be Maryland or Virginia State Certified, or Maryland or Virginia State approved sod.
2. Sod shall be machine cut at a uniform soil thickness of 3/4 inch, plus or minus 1/4 inch, at the time of cutting. Measurement for thickness shall exclude top growth and thatch.
3. Standard size sections of sod shall be strong enough to support their own weight and retain their size and shape when suspended vertically with a firm grasp on the upper 10 percent of the section.
4. Individual pieces of sod shall be cut to the suppliers width and length. Maximum allowable deviation from standard widths and lengths shall be 5 percent. Broken pads and torn or uneven ends will not be acceptable.
5. Sod shall not be harvested or transplanted when moisture content (excessively dry or wet) may adversely affect its survival.
6. Sod shall be harvested, delivered and installed within a period of 36 hours. Sod not transplanted within this period shall be inspected and approved prior to its installation.

Site Preparation

Fertilizer and lime application rates shall be determined by soil tests. Under unusual circumstances where there is insufficient time for a complete soil test, fertilizer and lime materials may be applied in amounts shown under B, below.

- A. Prior to sodding, the surface shall be cleared of all trash, debris, and of all roots, brush, wires, grade stakes and other objects that would interfere with planting, fertilizing or maintenance operations.
- B. Where the soil is acid or composed of heavy clays, ground limestone shall be spread at the rate of 2 tons/acre or 100 pounds per 1,000 square feet. In all soils 1,000 pounds per acre or 25 pounds per 1,000 square feet of 10-10-10 fertilizer or equivalent shall be uniformly applied and mixed into the top 3 inches of soil with the required lime.
- C. All areas receiving sod shall be uniformly fine graded. Hard-packed earth shall be scarified prior to placement of sod.

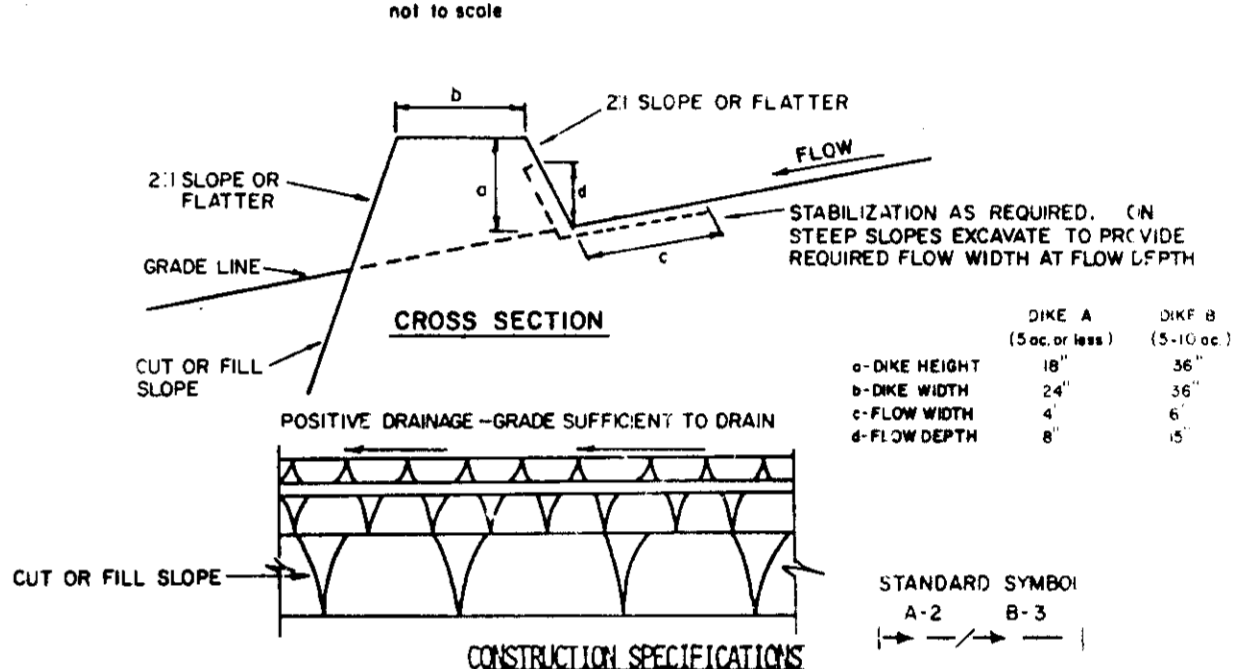
SEDIMENT CONTROL NOTES

- 1) A minimum of 24 hours notice must be given to the Howard County Office of Inspection and Permits prior to the start of any construction. (992-2437)
- 2) All vegetative and structural practices are to be installed according to the provisions of this plan and are to be in conformance with the 1983 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL.
- 3) Following initial soil disturbance or redisturbance, permanent or temporary stabilization shall be completed within: a) 7 calendar days for all perimeter sediment control structures, dikes, perimeter slopes and all slopes greater than 3:1, b) 14 days as to all other disturbed or graded areas on the project site.
- 4) All sediment traps/basins shown must be fenced and warning signs posted around their perimeter in accordance with Vol. 1, Chapter 12, of the HOWARD COUNTY DESIGN MANUAL, Storm Drainage.
- 5) All disturbed areas must be stabilized within the time period specified above in accordance with the 1983 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for permanent seedings (Sec. 51) sod (Sec. 54), temporary seeding (Sec. 50) and mulching (Sec. 52.) Temporary stabilization with mulch alone can only be done when recommended seeding dates do not allow for proper germination and establishment of grasses.
- 6) All sediment control structures are to remain in place and are to be maintained in operative condition until permission for their removal has been obtained from the Howard County Sediment Control Inspector
- 7) Site Analysis:
Total Area of Site: 10,608 Acres
Area Disturbed: 10,608 Acres
Area to be roofed or paved: 1.96 Acres
Area to be vegetatively stabilized: 8.64 Acres
Total Cut: 8906 Cu. yds
Total Fill: 8000 Cu. yds
Offsite waste/borrow area location: _____
- 8) Any sediment control practice which is disturbed by grading activity for placement of utilities must be repaired on the same day of disturbance.
- 9) Additional sediment controls must be provided, if deemed necessary by the Howard County DPW sediment control inspector.
- 10) On all sites with disturbed areas in excess of 2-acres, approval of the inspection agency shall be requested upon completion of installation of perimeter erosion and sediment controls, but before proceeding with any other earth disturbance or grading. Other building or grading inspection approvals may not be authorized until this initial approval by the inspection agency is made.

GENERAL NOTES

- 1) Refer to "1983 Maryland Standards and Specifications for Soil Erosion and Sediment Control" for standard details and detailed specifications of each practice specified herein.
- 2) With the approval of the sediment control inspector, minor field adjustments can and will be made to insure the control of any sediment. Changes in sediment control practices require prior approval of the sediment control inspector and the County Soil Conservation District.
- 3) At the end of each working day, all sediment control practices will be inspected and left in operational condition.
- 4) Following initial soil disturbance or redisturbance, permanent or temporary stabilization shall be completed within: a) seven calendar days as to the surface of all perimeter controls, dikes, berms, ditches, perimeter slopes, and all slopes greater than 3:1 horizontal to 1 vertical (3:1) and b) fourteen days as to all other disturbed or graded areas on the project site.
- 5) Any change to the grading proposed on this plan requires re-submission to County Soil Conservation District for approval.
- 6) Dust control will be provided for all disturbed areas. Refer to "1983 Maryland Standards and Specifications for Soil Erosion and Sediment Control, pp 830) and 81.02 for acceptable methods and specifications for dust control.
- 7) Any variation from the sequence of operations stated on this plan requires approval of the sediment control inspector and the County Soil Conservation District prior to the initiation of the change.
- 8) Excess cut or borrow material shall go to or come from, respectively, a site with an approved sediment control plan.
The following item may be used as applicable:
Refer to "Maryland's Guidelines to Waterway Construction" by the Water Resources Administration (WRA), dated January, 1986 for standard details and detailed specifications of each practice specified herein for waterway construction.

EARTH DIKE
not to scale



1. ALL DIKES SHALL BE COMPACTED BY EARTH-MOVING EQUIPMENT.
2. ALL DIKES SHALL HAVE POSITIVE DRAINAGE TO AN OUTLET.
3. TOP WIDTH MAY BE WIDER AND SIDE SLOPES MAY BE FLATTER IF DESIRED TO FACILITATE CROSSING BY CONSTRUCTION TRAFFIC.
4. FIELD LOCATION SHOULD BE ADJUSTED AS NEEDED TO UTILIZE A STABILIZED SAFE OUTLET. EARTH DIKES SHALL HAVE AN OUTLET THAT FUNCTIONS WITH A MINIMUM OF EROSION. THE DIKE SHALL BE CONSTRUCTED TO A SEDIMENT TRAPPING DEVICE SUCH AS A SEDIMENT TRAP OR SEDIMENT BASIN WHERE EITHER THE DIKE CHANNEL OR THE DRAINAGE AREA ABOVE THE DIKE ARE NOT ADEQUATELY STABILIZED.
5. STABILIZATION SHALL BE: (A) IN ACCORDANCE WITH STANDARD SPECIFICATIONS FOR SEED AND STRAW MULCH OR STRAW MULCH IF NOT IN SEEDING SEASON, (B) FLOW CHANNEL AS PER THE CHART BELOW.

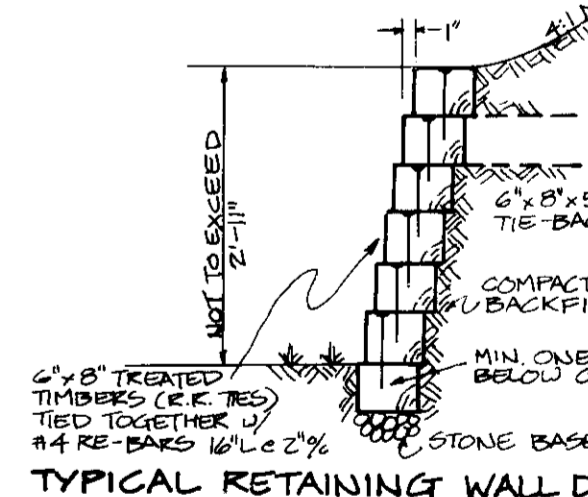
FLOW CHANNEL STABILIZATION

TYPE OF TREATMENT	CHANNEL GRADE	DIKE A	DIKE B
1	5-3.0%	SEED AND STRAW MULCH	SEED AND STRAW MULCH
2	3.1-5.0%	SEED AND STRAW MULCH	SEED USING JUTE, OR EXCELSTOR; SOIL 2" STONE
3	5.1-8.0%	SEED WITH JUTE, OR SOIL	LINED RIP-RAP 4-8"
4	8.1-20%	LINED RIP-RAP 4-8"	ENGINEERING DESIGN

- A. STONE TO BE 2 INCH STONE, OR RECYCLED CONCRETE EQUIVALENT, IN A LAYER AT LEAST 3 INCHES IN THICKNESS AND BE PRESSED INTO THE SOIL WITH CONSTRUCTION EQUIPMENT.
- B. RIP-RAP TO BE 4-8 INCHES IN A LAYER AT LEAST 8 INCHES THICKNESS AND PRESSED INTO THE SOIL.
- C. APPROVED EQUIVALENTS CAN BE SUBSTITUTED FOR ANY OF THE ABOVE MATERIALS.
7. PERIODIC INSPECTION AND REQUIRED MAINTENANCE MUST BE PROVIDED AFTER EACH RAIN EVENT.

John R. Robertson 1/23/91

Howard
James H. H. 1-28-91



APPROVED: FOR PUBLIC WATER AND PUBLIC SEWERAGE SYSTEMS
HOWARD COUNTY HEALTH DEPARTMENT

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

APPROVED: FOR PUBLIC WATER AND PUBLIC SEWERAGE, STORM DRAINAGE SYSTEMS AND PUBLIC ROADS
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

2/5/91
2/19/91
2/15/91
1/21/91
1-30-91

oria engineering inc.
Consulting Engineers • Land Planners • Surveyors
3230 Bethany Lane, Suite 4, Ellicott City, Maryland
301-465-0400

ENGINEER'S CERTIFICATE

I hereby certify that this plan for erosion and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions and it was prepared in accordance with the requirements of Howard Soil Conservation District.

Signature of Engineer: _____ Date: 2/19-91

DEVELOPER'S/BUILDER'S CERTIFICATE

I/We certify that all development and construction will be done in accordance with this plan, and that any responsible personnel involved in the construction will have a Certificate of Attendance at the Department of Natural Resources Approved Training Program for the Control of Sediment before beginning the project. I also authorize periodic inspection by the Howard Soil Conservation Service.

Builder/Developer: _____ Date: 2/15/91

SEDIMENT & EROSION CONTROL DETAILS

BRIARCLIFFE
LOTS 1-28

OWNER/DEVELOPER: ROBERT AWALT BUILDERS HUNTRIDGE INC.
9051 BALTIMORE NATIONAL PIKE
ELLCOTT CITY, MD. 21043