STANDARDS AND SPECIFICATIONS FOR VEGETATIVE STABILIZATION

DEFINITION

Using vegetation as cover for barren soil to protect it from forces that cause erosion.

PURPOSE

Vegetative stabilization specifications are used to promote the establishment of vegetation on exposed soil. When soil is stabilized with vegetation, the soil is less likely to erode and more likely to allow infiltration of rainfall, thereby reducing sediment loads and run-off to downstream areas, and improving wildlife habitat and visual resources.

CONDITIONS WHERE PRACTICE APPLIES

This practice shall be used on denuded areas as specified on the plans and may be used on highly erodible or critically eroding areas. This specification is divided into Temporary Seeding, to quickly establish vegetative cover for short duration (up to one year), and Permanent Seeding, for long term vegetative cover. Examples of applicable areas for Temporary Seeding are temporary Soil Stockpiles, cleared areas being left idle between construction phases, earth dikes, etc. and for Permanent Seeding are lawns, dams, cut and fill slopes and other areas at final grade, former stockpile and staging areas, etc.

EFFECTS ON WATER QUALITY AND QUANTITY

Planting vegetation in disturbed areas will have an effect on the water budget, especially on volumes and rates of runoff, infiltration evaporation, transpiration, percolation, and groundwater recharge. Vegetation, over time, will increase organic matter content and improve the water holding capacity of the soil and subsequent plant growth.

Vegetation will help reduce the movement of sediment, nutrients, and other chemicals carried by runoff to receiving waters. Plants will also help protect groundwater supplies by assimilating those substances present within the root zone.

Sediment control devices must remain in place during grading, seedbed preparation, seeding, mulching and vegetative establishment to prevent large quantities of sediment and associated chemicals and nutrients from washing into surface waters.

SECTION 1 - VEGETATIVE STABILIZATION METHODS AND MATERIALS

A. Site Preparation
   i. Install erosion and sediment control structures (either temporary of permanent) such as diversions, grade stabilization structures, berms, waterways, or sediment control basins.
   ii. Perform all grading operations at right angles to the slope. Final grading and shaping is not usually necessary for temporary seeding.
   iii. Schedule required soil tests to determine soil amendment composition and application rates for sites having disturbed area over 5 acres.

B. Soil Amendments (Fertilizer and Lime Specifications)
   i. Soil tests must be performed to determine the exact ratios and application rates for both lime and fertilizer on sites having disturbed areas over 5 acres. Soil analysis may be performed by the University of Maryland or a recognized commercial laboratory. Soil samples taken for engineering purposes may also be used for chemical analyses.
   ii. Fertilizers shall be uniform in composition, free flowing and suitable for accurate application by approved equipment. Manure may be substituted for fertilizer with prior approval from the appropriate approval authority. Fertilizers shall all be delivered to the site fully labeled according to the applicable state fertilizer laws and shall bear the name, trade name or trademark and warrantee of the producer.
   iii. Lime materials shall be ground limestone (hydrated or burnt lime may be substituted) which contains at least 50% total oxides (calcium oxide plus magnesium oxide). Limestone shall be ground to such fineness that at least 50% will pass through a •100 mesh sieve and 98-100% will pass through a •20 mesh sieve.
   iv. Incorporate lime and fertilizer into the top 3-5" of soil by discing or other suitable means.

C. Seedbed Preparation
   i. Temporary Seeding
      a. Seedbed preparation shall consist of loosening soil to a depth of 3" to 5" by means of suitable agricultural or construction equipment, such as disc harrows or chisel plows or rippers mounted on construction equipment. After the soil is loosened it should not be rolled or dragged smooth, but left in the roughened condition. Sloped areas (greater than 3:1) should be tracked leaving the surface in an irregular condition with ridges running parallel to the contour of the slope.
      b. Apply fertilizer and lime as prescribed on the plans.
      c. In corporate lime and fertilizer into the top 3-5" of soil by discing or other suitable means.
   ii. Permanent Seeding
      a. Minimum soil conditions required for permanent vegetative establishment:
         1. Soil pH shall be between 6.0 and 7.0.
         2. Soluble salts shall be less than 500 parts per million (ppm).
         3. The soil shall contain less than 40% clay, but enough fine grained material (>30% silt plus clay) to provide the capacity to hold a moderate amount of moisture. An exception is if lovegrass or serecia lespedezas is to be planted, then a sandy soil (<30% silt plus clay) would be acceptable.
         4. Soil shall contain 1.5% minimum organic matter by weight.
         5. Soil must contain sufficient pore space to permit adequate root penetration.
         6. If these conditions cannot be met by soils on site, adding topsoil is required in accordance with Section 21 Standard and Specification for Topsoil.
      b. Areas previously graded in conformance with the drawings shall be maintained in a true and even grade, then scarified or otherwise loosened to a depth of 3-5" to permit bonding of the topsoil to the surface area and to create horizontal erosion check slots to prevent topsoil to the surface area and to create horizontal erosion check slots to prevent topsoil from sliding down a slope.
      c. Apply soil amendments as per soil test or as included on the plans.
      d. Mix soil amendments into the top 3-5" of topsoil by discing or other suitable means. Lawn areas should be raked to smooth the surface, remove large objects like stones and branches, and ready the area for seed and application. Where site conditions will not permit normal seedbed preparation, loosen surface soil by dragging with a heavy chain or other equipment to roughen the surface. Steep slopes (steeper than 3:1) should be tracked by a dozer leaving the soil in an irregular condition with ridges running parallel to the contour of the slope. The top 1-3" of soil should be loose and friable. Seedbed loosening may not be necessary on newly disturbed areas.

D. Seed Specifications
   i. All seed must meet the requirements of the Maryland State Seed Law. All seed shall be subject to re-testing by a recognized seed laboratory. All seed used shall have been tested within the 6 months immediately preceding the date of sowing such material on this job.
   Note: Seed tags shall be made available to the inspector to verify type and rate of seed used.
   ii. Inoculant - The inoculant for treating legume seed in the seed mixtures shall be a pure culture of nitrogen-fixing bacteria prepared specifically for the species. Inoculants shall not be used later than the date indicated on the container. Add fresh inoculant as directed on package. Use four times the recommended rate when hydroseeding. Note: It is very important to keep inoculant as cool as possible until used. Temperatures above 75°-80° F. can weaken bacteria and make the inoculant less effective.

E. Methods of Seeding
   i. Hydroseeding: Apply seed uniformly with hydroseeder (slurry includes seed and fertilizer), broadcast or drop seeded, or a cultipacker seeder.
      a. If fertilizer is being applied at the time of seeding, the application rates amounts will not exceed the following: nitrogen; maximum of 100 lbs. per acre total of soluble nitrogen; P205 (phosphorous): 200 lbs/ac; K20 (potassium): 200 lbs/ac.
      b. Lime - use only ground agricultural limestone, (Up to 3 tons per acre may be applied by hydroseeding). Normally, not more than 2 tons are applied by hydroseeding at any one time. Do not use burnt or hydrated lime when hydroseeding.
      c. Seed and fertilizer shall be mixed on site and seeding shall be done immediately and without interruption.
   ii. Dry Seeding: This includes use of conventional drop or broadcast spreaders.
      a. Seed spread dry shall be incorporated into the subsoil at the rates prescribed on the Temporary or Permanent Seeding Summaries or Tables 265 or 26. The seeded area shall then be rolled with a weighted roller to provide good seed to soil contact.
      b. Where practical, seed should be applied in two directions perpendicular to each other. Apply half the seeding rate in each direction.
   iii. Drill or Cultipacker Seeding: Mechanized seeders that apply and cover seed with soil.
      a. Cultipacking seeders are required to bury the seed in such a fashion as to provide at least 1/4 inch of soil covering. Seedbed must be firm after planting.
      b. Where practical, seed should be applied in two directions perpendicular to each other. Apply half the seeding rate in each direction.

F. Mulch Specifications (In order of preference)
   i. Straw shall consist of thoroughly threshed wheat, rye or oat straw, reasonable bright in color, and shall not be musty, moldy, caked, decayed, or excessively dusty and shall be free of noxious weed seeds as specified in the Maryland Seed Law.
   ii. Wood Cellulose Fiber Mulch (WCFM)
      a. WCFM shall consist of specially prepared wood cellulose processed into a uniform fibrous physical state.
      b. WCFM shall be dyed green or contain a green dye in the package that will provide an appropriate color to facilitate visual inspection of the uniformly spread slurry.
      c. WCFM, including dye, shall contain no germination or growth inhibiting factors.
      d. WCFM materials shall be manufactured and processed in such a manner that the wood cellulose fiber mulch will remain in uniform suspension in water under agitation and will blend with seed, fertilizer and other additives to form a homogeneous slurry. The mulch material shall form a blotter-like ground cover, on application, having moisture absorption and percolation properties and shall cover and hold grass seed in contact with the soil without inhibiting the growth of the grass seedlings.
      e. WCFM material shall contain no elements or compounds at concentration levels that will be phytol-toxic.
      f. WCFM must conform to the following physical requirements: fiber length to approximately 10 mm., diameter approximately 1 mm., pH range of 4.0 to 8.5, ash content of 1.6% maximum and water holding capacity of 90% minimum.
   Note: Only sterile straw mulch should be used in areas where one species of grass is desired.

G. Mulching Seeded Areas - Mulch shall be applied to all seeded areas immediately after seeding.
   i. If grading is completed outside of the seeding season, mulch along shall be applied as prescribed in this section and maintained until the seeding season returns and seeding can be performed in accordance with these specifications.
   ii. When straw mulch is used, it shall be spread over all seeded areas at the rate of 2 tons/acre. Mulch shall be applied to a uniform loose depth of between 1" and 2". Mulch applied shall achieve a uniform distribution and depth so that the soil surface is not exposed. If a mulch anchoring tool is to be used, the rate should be increased to 2.5 tons/acre.
   iii. Wood cellulose fiber used as a mulch shall be applied at a net dry weight of 1,500 lbs. per acre. The wood cellulose fiber shall be mixed with water, and the mixture shall contain a maximum of 50 lbs. of wood cellulose fiber per 100 gallons of water.

H. Securing Straw Mulch (Mulch Anchoring): Mulch anchoring shall be performed immediately following mulch application to minimize loss by wind or water. This may be done by one of the following methods (listed by preference), depending upon size of area and erosion hazard:
   i. A mulch anchoring tool is a tractor drawn implement designed to punch and anchor mulch into the soil surface a minimum of two (2) inches. This practice is most effective on large areas, but is limited to flatter slopes where equipment can operate safely. If used on sloping land, this practice should be used on the contour if possible.
   ii. Wood cellulose fiber may be used for anchoring straw. The fiber binder shall be applied at a net dry weight of 750 pounds/acre. The wood cellulose fiber shall be mixed with water and the mixture shall contain a maximum of 50 pounds of wood cellulose fiber per 100 gallons of water.
   iii. Application of liquid binders should be heavier at the edges where wind catches mulch, such as in valleys and crest of banks. The remainder of area should be appear uniform after binder application. Synthetic binders - such as Acrylic DLR (Agro-Tack), DCA-70 Petroset, Terra Tax II, Terra Tack AR or other approved equal may be used at rates recommended by the manufacturer to anchor mulch.
   iv. Lightweight plastic netting may be stapled over the mulch according to manufacturer's recommendations. Netting is usually available in rolls 4' to 15' feet wide and 300 to 3,000 feet long.

SEDIMENT CONTROL NOTES

1. A Minimum Of 48 Hours Notice Must Be Given To The Howard County Department Of Inspections, Licenses And Permits, Sediment Control Division Prior To The Start Of Any Construction (313-1855).
2. All Vegetative And Structural Practices Are To Be Installed According To The Provisions Of This Plan And Are To Be In According To The Provisions Of This Plan And Are To Be In Conformance With The Most Current Maryland Standards And Specifications For Soil Erosion And Sediment Control And Revisions Thereto.
3. Following Initial Soil Disturbance Or Re-Disturbance, Permanent Or Temporary Stabilization Shall Be Completed Within: A) 7 Calendar Days For All Perimeter Sediment Control Structures, Dikes, Perimeter Slopes And All Slopes Steeper Than 3:1, B) 14 Days As To All Other Disturbed Or Graded Areas On The Project Site. 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. 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 1994 Maryland Standards And Specifications For Soil Erosion And Sediment Control For Permanent Seeding (Sec. 51), Sod (Sec. 54), Temporary Seeding (Sec. 50), Permanent Seeding (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	1.627 Acres
Area Disturbed	0.549 Acres
Area To Be Roofed Or Paved	0.175 Acres
Area To Be Vegetatively Stabilized	0.374 Acres
Total Cut	250 Cu.Yds.
Total Fill	350 Cu.Yds.
Off-Site Waste/Borrow Area Location	N/A

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 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 Approvals May Not Be Authorized Until This Initial Approval By The Inspection Agency Is Made.
11. Trenches For The Construction Of Utilities Is Limited To Three Pipe Lengths Or That Which Shall Be Back-Filled And Stabilized Within One Working Day, Whichever Is Shorter.

PERMANENT SEEDING NOTES

ALL DISTURBED AREAS SHALL BE STABILIZED AS FOLLOWS:

SEEDBED PREPARATION:
LOOSEN UPPER THREE INCHES OF SOIL BY RAKING, DISCING OR OTHER ACCEPTABLE MEANS BEFORE SEEDING.

SOIL AMENDMENTS:
APPLY TWO TONS PER ACRE DOLOMITIC LIMESTONE (92 LBS/1,000 SQ.FT.) AND 600 LBS. PER ACRE 0-20-20 FERTILIZER (14 LBS./1,000 SQ.FT.) BEFORE SEEDING HARROW OR DISC INTO UPPER THREE INCHES OF SOIL. AT TIME OF SEEDING, APPLY 400 LBS. PER ACRE 38-0-0 UREAFORM FERTILIZER (9 LBS./1,000 SQ.FT.) AND 500 LBS. PER ACRE (11.5 LBS./1,000 SQ.FT.) OF 10-20-20 FERTILIZER.

SEEDING:
FOR THE PERIODS MARCH 1 THROUGH APRIL 30, AND AUGUST 1 THROUGH OCTOBER 15, SEED WITH 100 LBS. PER ACRE (2.3 LBS./1,000 SQ.FT.) OF KENTUCKY 31 TALL FESCUE. FOR THE PERIOD MAY 1 THROUGH JULY 31, SEED WITH 60 LBS/ACRE (1.4 LBS./1,000 SQ.FT.) KENTUCKY 31 TALL FESCUE AND 2 LBS. PER ACRE (0.05 LBS./1,000 SQ.FT.) OF WEEPING LOVEGRASS. DURING THE PERIOD OF OCTOBER 16 THROUGH FEBRUARY 28, PROJECT SITE BY: OPTION (1) - TWO 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 100 LBS./ACRE KENTUCKY 31 TALL FESCUE AND MULCH WITH TWO TONS/ACRE WELL ANCHORED STRAW. ALL SLOPES SHOULD BE HYDROSEEDED.

MULCHING:
APPLY 1 TO 2 TONS PER ACRE (10 TO 90 LBS./1,000 SQ.FT.) OF UNROTTED SMALL GRAIN STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING 200 GALLONS PER ACRE (5 GAL./1,000 SQ.FT.) OF EMULSIFIED ASPHALT ON FLAT ACRES. ON SLOPES 8 FEET OR HIGHER USE 348 GALLONS PER ACRE (8 GAL./1,000 SQ.FT.) FOR ANCHORING.

MAINTENANCE:
INSPECT ALL SEEDED AREAS AND MAKE NEEDED REPAIRS, REPLACEMENTS AND RESEEDINGS.

* FOR PUBLIC PONDS SUBSTITUTE CHEMUNG CROWNVETCH AT 15 LBS./ACRE AND KENTUCKY 31 TALL FESCUE AT 40 LBS/ACRE AS THE SEEDING REQUIREMENT. OPTIMUM SEEDING DATE FOR THIS MIXTURE IS MARCH 1 TO APRIL 30.

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, IF NOT PREVIOUSLY LOOSENED.

SOIL AMENDMENTS:
APPLY 600 LBS. PER ACRE 10-10-10 FERTILIZER (14 LBS./1,000 SQ.FT.)

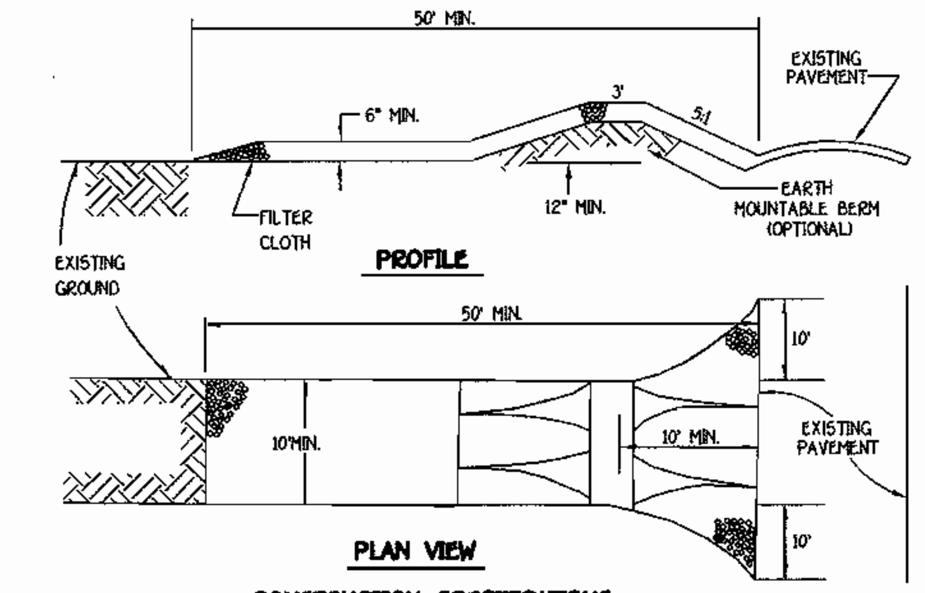
SEEDING:
FOR THE PERIODS MARCH 1 THROUGH APRIL 30, AND AUGUST 15 THROUGH NOVEMBER 15, SEED WITH 1? BUSHEL PER ACRE OF ANNUAL RYE (3.2 LBS./ACRE OF WEEPING LOVEGRASS (.07 LBS./1,000 SQ.FT. FOR THE PERIOD NOVEMBER 16 THRU FEBRUARY 28, PROTECT SITE BY APPLYING 2 TONS PER ACRE OF WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING, OR USE SOD.

MULCHING:
APPLY 1 TO 2 TONS PER ACRE (70 TO 90 LBS./1,000 SQ.FT.) OF UNROTTED SMALL GRAIN STRAW IMMEDIATELY AFTER SEEDING. ANCHORING TOOL OR 218 GALLONS PER ACRE (5 GAL.1,000 SQ.FT.) OF EMULSIFIED ASPHALT ON FLAT ACRES ON SLOPES 8 FEET OR HIGHER, USE 348 GALLONS PER ACRE (8 GAL./1,000 SQ.FT.) FOR ANCHORING.

REFER TO THE 1988 MARYLAND STANDARDS AND SPECIFICATION FOR SOIL EROSION AND SEDIMENT CONTROL FOR RATE AND METHODS NOT COVERED.

SEQUENCE OF CONSTRUCTION

1.	OBTAIN GRADING PERMIT.	1 DAY
2.	INSTALL SEDIMENT AND EROSION CONTROL DEVICES AS SHOWN ON PLAN.	1 DAY
3.	CLEAR AND GRUB TO LIMITS OF DISTURBANCE AND MASS GRADE TO SUN-BASE.	1 DAY
4.	INSTALL TEMPORARY SEEDING.	1 DAY
5.	CONSTRUCT BUILDINGS.	2 MONTHS
6.	FINE GRADE SITE AND INSTALL PERMANENT SEEDING AND LANDSCAPE.	1 DAY
7.	REMOVE SEDIMENT CONTROL DEVICES AS UPLAND AREAS ARE STABILIZED AND PERMISSION IS GRANTED BY E/S CONTROL INSPECTOR.	2 DAYS

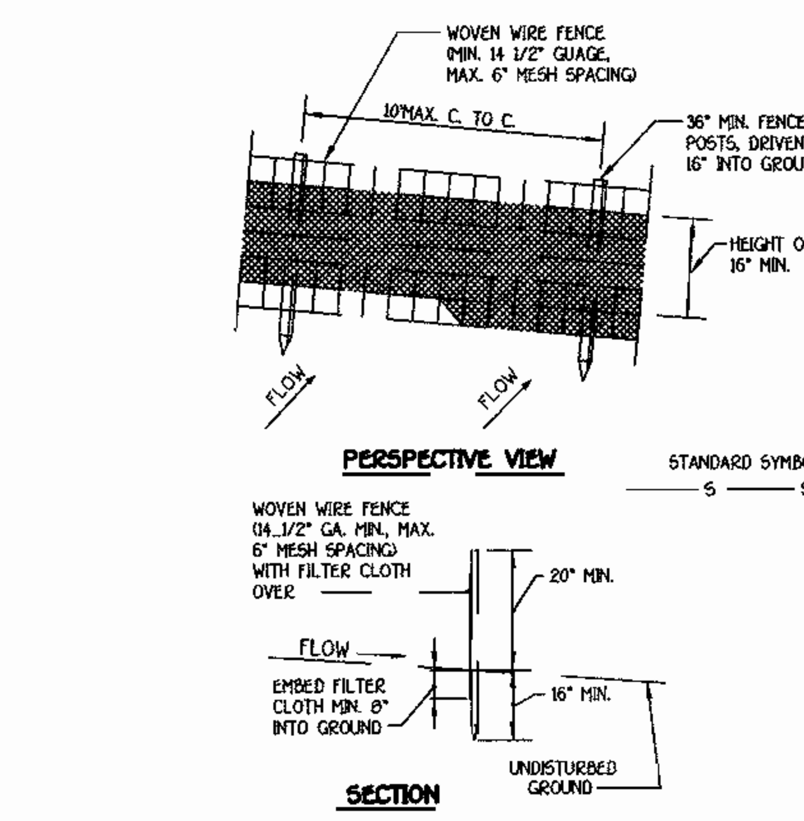


CONSTRUCTION SPECIFICATIONS

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 THE 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.

STABILIZED CONSTRUCTION ENTRANCE - 2

NOT TO SCALE



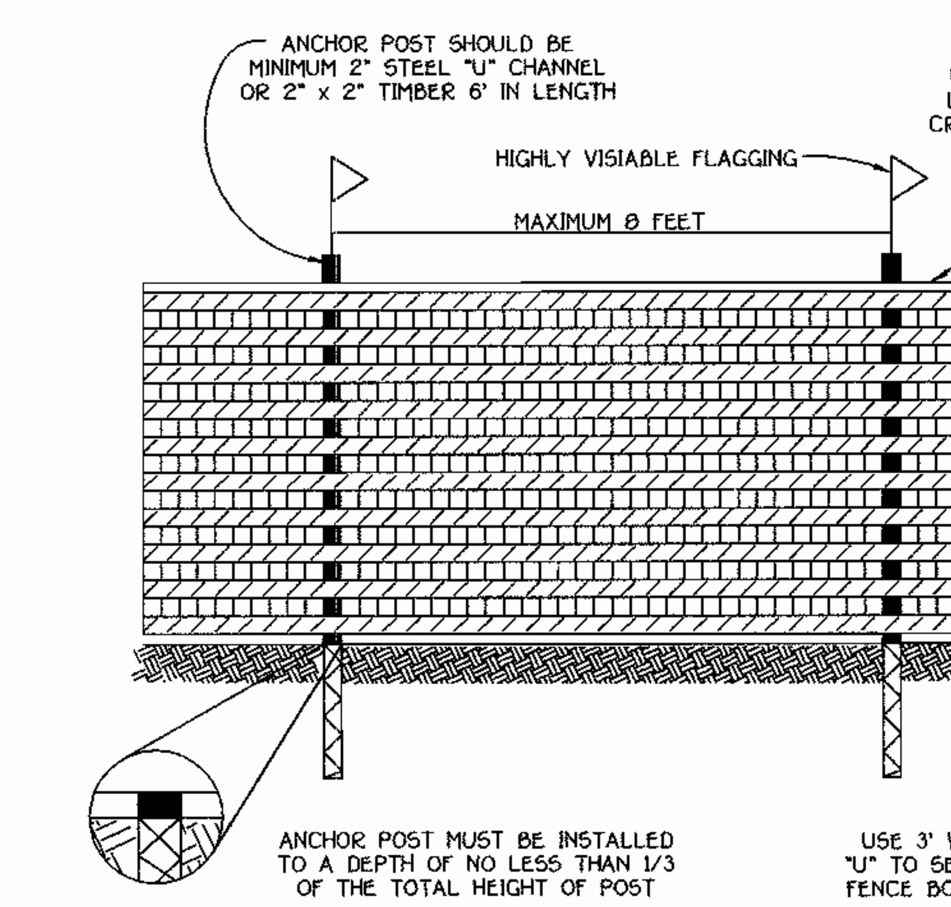
CONSTRUCTION NOTES FOR FABRICATED SILT FENCE

1. WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OF 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, 14. GA. 6" MAX. MESH OPENING
FILTER CLOTH: FILTER X, MIRAFI 100X, STABILINKA T14 ON OR APPROVED EQUAL
PREFABRICATED UNIT: GEOFAB, ENVIROFENCE, OR APPROVED EQUAL.

SILT FENCE

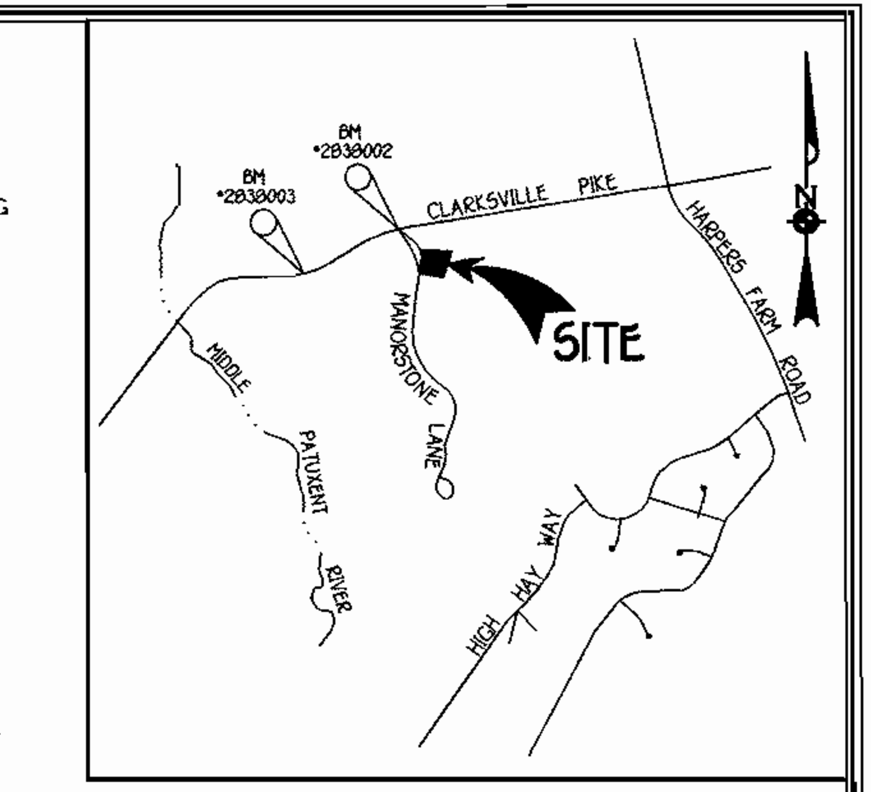
NOT TO SCALE



NOTES:
1. FOREST PROTECTION DEVICE ONLY.
2. RETENTION AREA WILL BE SET AS PART OF THE REVIEW PROCESS.
3. BOUNDARIES OF RETENTION AREA SHOULD BE STAKED AND FLAGGED PRIOR TO INSTALLING DEVICE.
4. ROOT DAMAGE SHOULD BE AVOIDED.
5. PROTECTIVE SIGNAGE MAY ALSO BE USED.
6. DEVICE SHOULD BE MAINTAINED THROUGHOUT CONSTRUCTION.

TREE PROTECTION DETAIL

BLAZE ORANGE PLASTIC MESH

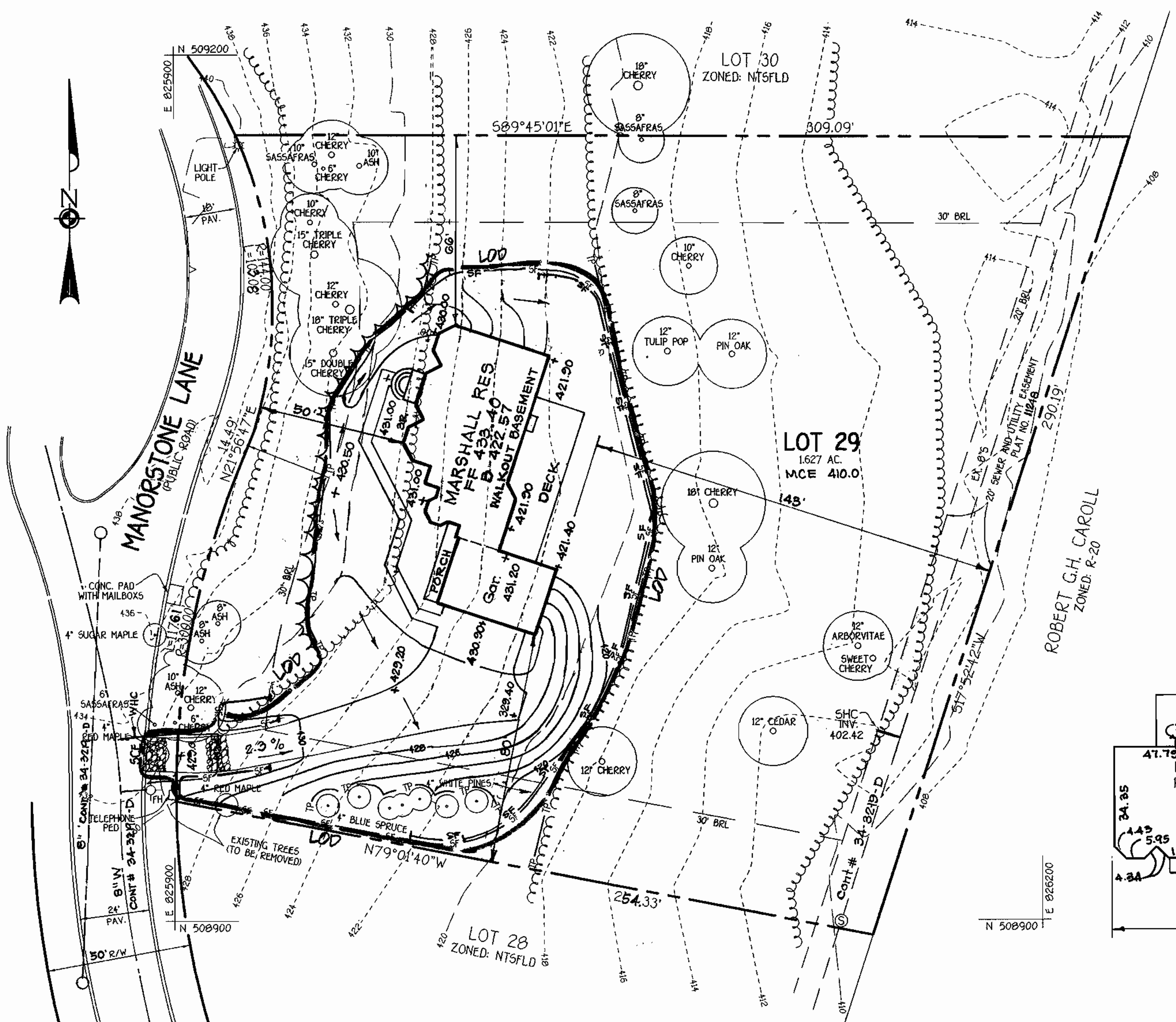


VICINITY MAP

SCALE: 1"=2000'

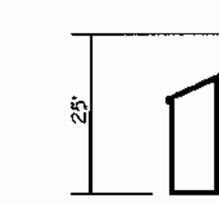
BENCHMARKS

STA. NO. 2838003
N508916.632 E824630.474
ELEV. 367.20
STA. NO. 2838002
N509424.956 E825625.556
ELEV. 434.53

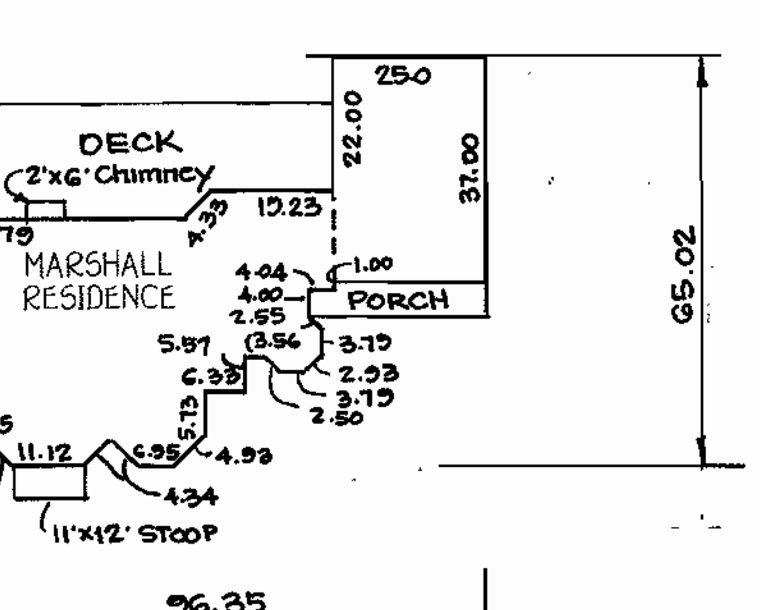


GENERAL NOTES:

1. SUBJECT PROPERTY ZONED NTSFLD PER 10/18/93 COMPREHENSIVE ZONING PLAN.
2. TOTAL AREA OF SITE: 1.627 ACRES
3. TOTAL NUMBER OF LOTS SUBMITTED: 1 SINGLE FAMILY DETACHED.
4. MAXIMUM LOT COVERAGE PERMITTED IS 15%.
5. THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION INSPECTION DIVISION AT (410) 313-1880 AT LEAST (5) FIVE WORKING DAYS PRIOR TO THE START OF WORK.
6. THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK.
7. THIS PLAN IS SUBJECT TO HOWARD COUNTY REFERANCE NUMBERS S-92-21, F-93-141 W&S CONT. •34-3219-D.
8. BOUNDARY AND PERFORMED BY: FISHER, COLLINS AND CARTER INC. ON OR ABOUT JANUARY, 1992.
9. TOPOGRAPHIC SURVEY PERFORMED BY: FISHER, COLLINS & CARTER INC. ON OR ABOUT AUGUST, 2001.
10. HORIZONTAL AND VERTICAL CONTROL DATUM IS BASED ON MD. COORDINATE SYSTEM NAD 27 AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS:
    STA 2838003 N 508916.632 E 824630.474 EL.=367.20
    STA 2838002 N 509424.956 E 825625.556 EL.=434.53
11. ANY DAMAGE TO THE COUNTY'S RIGHT-OF-WAY SHALL BE CORRECTED AT THE DEVELOPER'S EXPENSE.
12. THIS PLAN IS FOR HOUSE SITING AND LOT GRADING ONLY. IMPROVEMENTS SHOWN WITHIN THE RIGHT-OF-WAYS OF THIS S.D.P. ARE NOT USED FOR CONSTRUCTION. FOR CONSTRUCTION SEE APPROVED ROAD CONSTRUCTION PLANS F-93-141 AND/OR APPROVED WATER AND SEWER PLANS CONTRACT NO. 34-3219-D
13. CONTRACTOR WILL CHECK SEWER HOUSE CONNECTION ELEVATION AT EASEMENT LINE PRIOR TO CONSTRUCTION.
14. STORMWATER MANAGEMENT IS PROVIDED BY VILLAGE OF RIVER HILL SECTION 2 AREA 1 F-93-18.
15. IN ACCORDANCE WITH FDP PHASE 194-A PLAT REF: 3054-A-1503 NO STRUCTURE SHALL BE LOCATED UPON LOTS DEVOTED TO SINGLE FAMILY LOW DENSITY LAND USE WITHIN 30 FEET OF ANY 50' STREET RIGHT-OF-WAY, NOR WITHIN 30 FEET OF ANY 60' OR GREATER STREET RIGHT-OF-WAY, NOR WITHIN 100 FEET OF A PRINCIPAL ARTERIAL HIGHWAY, NOR WITHIN 30 FEET OF ANY SIDE PROPERTY LINE, OR PIPELINE RIGHT-OF-WAY, NOR WITHIN 20' OF ANY REAR PROPERTY LINE, EXCEPT, HOWEVER, THAT STRUCTURES MAY BE CONSTRUCTED AT ANY LOCATION WITHIN SUCH SET-BACK AREAS PROVIDED ALL STRUCTURES AND CONSTRUCTION IS DEVELOPED IN ACCORDANCE WITH A SITE DEVELOPMENT PLAN APPROVED BY HOWARD COUNTY PLANNING BOARD.
16. FOR DRIVEWAY ENTRANCE DETAIL REFER TO HOWARD COUNTY DESIGN MANUAL IV DETAIL R.6.03.
17. THIS PLANS CONFORMS TO THE 5th EDITION OF THE SUBDIVISION REGULATIONS.
18. THIS PLAN IS EXEMPT FROM THE FOREST CONSERVATION REQUIREMENT PER SECTION 16.1202(b)(1)(IV) OF THE HO.CO. CODE AND FOREST CONSERVATION MANUAL FOR A PLANNED UNIT DEVELOPMENT
19. This plan is exempt from landscape requirements due to preliminary plan approval prior to January, 1993.



PROFILE



PLAN

$\frac{3{,}387}{15}$ = 22,578 SF MIN. LOT SIZE

ADDRESS CHART

LOT NO.	STREET NAME
29	11565 MANORSTONE LANE

LEGEND

SYMBOL	DESCRIPTION
- - - - - - -	EXISTING CONTOUR 2' INTERVAL
—— ——	EXISTING CONTOUR 10' INTERVAL
————	PROPOSED CONTOUR
+424.00	SPOT ELEVATION
FF	FIRST FLOOR ELEVATION
B	BASEMENT ELEVATION
—SF—SF—	SILT FENCE
—TP—TP—	TREE PROTECTION
⌒⌒⌒⌒	EXISTING TREE LINE
LOD	LIMIT OF DISTURBANCE

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042
(410) 461 - 2855

DATE	REVISION
1-22-03	Rev. hse & grd. per new arch. drwg.

STATE OF MARYLAND — EARL D. COLLINS — NO. 9853 — REGISTERED PROFESSIONAL ENGINEER

ENGINEER'S CERTIFICATE

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

Signature of Engineer — 1-31-02 Date

DEVELOPER'S CERTIFICATE

"I/We certify that all development and construction will be done according to this plan for sediment and erosion control, and that all responsible personnel involved in the construction project will have a Certificate of Attendance at a Department of the Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I also authorize periodic on-site inspection by the Howard Soil Conservation District."

Signature of Developer/Builder — PAT MARSHALL Owner — 1/28/02 Date

Reviewed for HOWARD SCD and meets Technical Requirements. — 3/25/02 Date
U.S.D.A.-Natural Resources Conservation Service

This development plan is approved for soil erosion and sediment control by the HOWARD SOIL CONSERVATION DISTRICT. — 3/25/02 Date
Howard SCD

DEVELOPER/OWNER

PAT MARSHALL
1923 BARRINGTON COURT
MITCHELLVILLE, MARYLAND 20721
301-925-6240

APPROVED: DEPARTMENT OF PLANNING AND ZONING
Director - Department of Planning and Zoning — 4/1/02 Date
Chief, Division of Land Development — 3/28/02 Date
Chief, Development Engineering Division — 3/26/02 Date

SUBDIVISION			SECTION/AREA		LOT NO.
COLUMBIA VILLAGE OF HARPER'S CHOICE			5	9	29
PLAT NO.	BLOCK NO.	ZONE	TAX MAP	ELEC. DIST.	CENSUS TR.
11248	15	NTSFLD	29	5TH	6055.02
WATER CODE			SEWER CODE		
103			6740000		

SITE DEVELOPMENT/
SEDIMENT & EROSION CONTROL PLAN

COLUMBIA VILLAGE OF HARPER'S CHOICE

SECTION 5 AREA 9 PHASE 1
LOT 29

TAX MAP No. 29 PARCEL No. 126
5TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
SCALE: 1"=30' DATE: JANUARY 25, 2002
SHEET 1 OF 1

SDP 02-078

STANDARDS AND SPECIFICATIONS FOR VEGETATIVE STABILIZATION

DEFINITION

Using vegetation as cover for barren soil to protect it from forces that cause erosion.

PURPOSE

Vegetative stabilization specifications are used to promote the establishment of vegetation on exposed soil. When soil is stabilized with vegetation, the soil is less likely to erode and more likely to allow infiltration of rainfall, thereby reducing sediment loads and run-off to downstream areas, and improving wildlife habitat and visual resources.

CONDITIONS WHERE PRACTICE APPLIES

This practice shall be used on denuded areas as specified on the plans and may be used on highly erodible or critically eroding areas. This specification is divided into Temporary Seeding, to quickly establish vegetative cover for short duration (up to one year), and Permanent Seeding, for long term vegetative cover. Examples of applicable areas for Temporary Seeding are temporary Soil Stockpiles, cleared areas being left idle between construction phases, earth dikes, etc. and for Permanent Seeding are lawns, dams, cut and fill slopes and other areas at final grade, former stockpile and staging areas, etc.

EFFECTS ON WATER QUALITY AND QUANTITY

Planting vegetation in disturbed areas will have an effect on the water budget, especially on volumes and rates of runoff, infiltration evaporation, transpiration, percolation, and groundwater recharge. Vegetation, over time, will increase organic matter content and improve the water holding capacity of the soil and subsequent plant growth.
Vegetation will help reduce the movement of sediment, nutrients, and other chemicals carried by runoff to receiving waters. Plants will also help protect groundwater supplies by assimilating those substances present within the root zone.
Sediment control devices must remain in place during grading, seedbed preparation, seeding, mulching and vegetative establishment to prevent large quantities of sediment and associated chemicals and nutrients from washing into surface waters.

SECTION 1 - VEGETATIVE STABILIZATION METHODS AND MATERIALS

A. Site Preparation
   i. Install erosion and sediment control structures (either temporary or permanent) such as diversions, grade stabilization structures, berms, waterways, or sediment control basins.
   ii. Perform all grading operations at right angles to the slope. Final grading and shaping is not usually necessary for temporary seeding.
   iii. Schedule required soil tests to determine soil amendment composition and application rates for sites having disturbed area over 5 acres.

B. Soil Amendments (Fertilizer and Lime Specifications)
   i. Soil tests must be performed to determine the exact ratios and application rates for both lime and fertilizer on sites having disturbed areas over 5 acres. Soil analysis may be performed by the University of Maryland or a recognized commercial laboratory. Soil samples taken for engineering purposes may also be used for chemical analyses.
   ii. Fertilizers shall be uniform in composition, free flowing and suitable for accurate application by approved equipment. Manure may be substituted for fertilizer with prior approval from the appropriate approval authority. Fertilizers shall all be delivered to the site fully labeled according to the applicable state fertilizer laws and shall bear the name, trade name or trademark and warrantee of the producer.
   iii. Lime materials shall be ground limestone (hydrated or burnt lime may be substituted) which contains at least 50% total oxides (calcium oxide plus magnesium oxide). Limestone shall be ground to such fineness that at least 50% will pass through a #100 mesh sieve and 98-100% will pass through a #20 mesh sieve.
   iv. Incorporate lime and fertilizer into the top 3-5" of soil by discing or other suitable means.

C. Seedbed Preparation
   i. Temporary Seeding
      a. Seedbed preparation shall consist of loosening soil to a depth of 3" to 5" by means of suitable agricultural or construction equipment, such as disc harrows or chisel plows or rippers mounted on construction equipment. After the soil is loosened it should not be rolled or dragged smooth, but left in the roughened condition. Sloped areas (greater than 3:1) should be tracked leaving the surface in an irregular condition with ridges running parallel to the contour of the slope.
      b. Apply fertilizer and lime as prescribed on the plans.
      c. In corporate lime and fertilizer into the top 3-5" of soil by discing or other suitable means.
   ii. Permanent Seeding
      a. Minimum soil conditions required for permanent vegetative establishment:
         1. Soil pH shall be between 6.0 and 7.0.
         2. Soluble salts shall be less than 500 parts per million (ppm).
         3. The soil shall contain less than 40% clay, but enough fine grained material (>30% silt plus clay) to provide the capacity to hold a moderate amount of moisture. An exception is if lovegrass or serecia lespedezas is to be planted, then a sandy soil (<30% silt plus clay) would be acceptable.
         4. Soil shall contain 1.5% minimum organic matter by weight.
         5. Soil must contain sufficient pore space to permit adequate root penetration.
         6. If these conditions cannot be met by soils on site, adding topsoil is required in accordance with Section 21 Standard and Specification for Topsoil.
      b. Areas previously graded in conformance with the drawings shall be maintained in a true and even grade, then scarified or otherwise loosened to a depth of 3-5" to permit bonding of the topsoil to the surface area and to create horizontal erosion check slots to prevent topsoil to the surface area and to create horizontal erosion check slots to prevent topsoil from sliding down a slope.
      c. Apply soil amendments as per soil test or as included on the plans.
      d. Mix soil amendments into the top 3-5" of topsoil by discing or other suitable means. Lawn areas should be raked to smooth the surface, remove large objects like stones and branches, and ready the area for seed and application. Where site conditions will not permit normal seedbed preparation, loosen surface soil by dragging with a heavy chain or other equipment to roughen the surface. Steep slopes (steeper than 3:1) should be tracked by a dozer leaving the soil in an irregular condition with ridges running parallel to the contour of the slope. The top 1-3" of soil should be loose and friable. Seedbed loosening may not be necessary on newly disturbed areas.

D. Seed Specifications
   i. All seed must meet the requirements of the Maryland State Seed Law. All seed shall be subject to re-testing by a recognized seed laboratory. All seed used shall have been tested within the 6 months immediately preceding the date of sowing such material on this job.
   Note: Seed tags shall be made available to the inspector to verify type and rate of seed used.
   ii. Inoculant - The inoculant for treating legume seed in the seed mixtures shall be a pure culture of nitrogen-fixing bacteria prepared specifically for the species. Inoculants shall not be used later than the date indicated on the container. Add fresh inoculant as directed on package. Use four times the recommended rate when hydroseeding. Note: It is very important to keep inoculant as cool as possible until used. Temperatures above 75°-80° F. can weaken bacteria and make the inoculant less effective.

E. Methods of Seeding
   i. Hydroseeding: Apply seed uniformly with hydroseeder (slurry includes seed and fertilizer), broadcast or drop seeded, or a cultipacker seeder.
      a. If fertilizer is being applied at the time of seeding, the application rates amounts will not exceed the following: nitrogen; maximum of 100 lbs. per acre total of soluble nitrogen; P205 (phosphorous): 200 lbs/ac; K20 (potassium): 200 lbs/ac.
      b. Lime - use only ground agricultural limestone, (Up to 3 tons per acre may be applied by hydroseeding). Normally, not more than 2 tons are applied by hydroseeding at any one time. Do not use burnt or hydrated lime when hydroseeding.
      c. Seed and fertilizer shall be mixed on site and seeding shall be done immediately and without interruption.
   ii. Dry Seeding: This includes use of conventional drop or broadcast spreaders.
      a. Seed spread dry shall be incorporated into the subsoil at the rates prescribed on the Temporary or Permanent Seeding Summaries or Tables 265 or 26. The seeded area shall then be rolled with a weighted roller to provide good seed to soil contact.
      b. Where practical, seed should be applied in two directions perpendicular to each other. Apply half the seeding rate in each direction.
   iii. Drill or Cultipacker Seeding: Mechanized seeders that apply and cover seed with soil.
      a. Cultipacking seeders are required to bury the seed in such a fashion as to provide at least 1/4 inch of soil covering. Seedbed must be firm after planting.
      b. Where practical, seed should be applied in two directions perpendicular to each other. Apply half the seeding rate in each direction.

F. Mulch Specifications (In order of preference)
   i. Straw shall consist of thoroughly threshed wheat, rye or oat straw, reasonable bright in color, and shall not be musty, moldy, caked, decayed, or excessively dusty and shall be free of noxious weed seeds as specified in the Maryland Seed Law.
   ii. Wood Cellulose Fiber Mulch (WCFM)
      a. WCFM shall consist of specially prepared wood cellulose processed into a uniform fibrous physical state.
      b. WCFM shall be dyed green or contain a green dye in the package that will provide an appropriate color to facilitate visual inspection of the uniformly spread slurry.
      c. WCFM, including dye, shall contain no germination or growth inhibiting factors.
      d. WCFM materials shall be manufactured and processed in such a manner that the wood cellulose fiber mulch will remain in uniform suspension in water under agitation and will blend with seed, fertilizer and other additives to form a homogeneous slurry. The mulch material shall form a blotter-like ground cover, on application, having moisture absorption and percolation properties and shall cover and hold grass seed in contact with the soil without inhibiting the growth of the grass seedlings.
      e. WCFM material shall contain no elements or compounds at concentration levels that will be phytol-toxic.
      f. WCFM must conform to the following physical requirements: fiber length to approximately 10 mm., diameter approximately 1 mm., pH range of 4.0 to 8.5, ash content of 1.6% maximum and water holding capacity of 90% minimum.

Note: Only sterile straw mulch should be used in areas where one species of grass is desired.

G. Mulching Seeded Areas - Mulch shall be applied to all seeded areas immediately after seeding.
   i. If grading is completed outside of the seeding season, mulch along shall be applied as prescribed in this section and maintained until the seeding season returns and seeding can be performed in accordance with these specifications.
   ii. When straw mulch is used, it shall be spread over all seeded areas at the rate of 2 tons/acre. Mulch shall be applied to a uniform loose depth of between 1" and 2". Mulch applied shall achieve a uniform distribution and depth so that the soil surface is not exposed. If a mulch anchoring tool is to be used, the rate should be increased to 2.5 tons/acre.
   iii. Wood cellulose fiber used as a mulch shall be applied at a net dry weight of 1,500 lbs. per acre. The wood cellulose fiber shall be mixed with water, and the mixture shall contain a maximum of 50 lbs. of wood cellulose fiber per 100 gallons of water.

H. Securing Straw Mulch (Mulch Anchoring): Mulch anchoring shall be performed immediately following mulch application to minimize loss by wind or water. This may be done by one of the following methods (listed by preference), depending upon size of area and erosion hazard:
   i. A mulch anchoring tool is a tractor drawn implement designed to punch and anchor mulch into the soil surface a minimum of two (2) inches. This practice is most effective on large areas, but is limited to flatter slopes where equipment can operate safely. If used on sloping land, this practice should be used on the contour if possible.
   ii. Wood cellulose fiber may be used for anchoring straw. The fiber binder shall be applied at a net dry weight of 750 pounds/acre. The wood cellulose fiber shall be mixed with water and the mixture shall contain a maximum of 50 pounds of wood cellulose fiber per 100 gallons of water.
   iii. Application of liquid binders should be heavier at the edges where wind catches mulch, such as in valleys and crest of banks. The remainder of area should be appear uniform after binder application. Synthetic binders - such as Acrylic DLR (Agro-Tack), DCA-70 Petroset, Terra Tax II, Terra Tack AR or other approved equal may be used at rates recommended by the manufacturer to anchor mulch.
   iv. Lightweight plastic netting may be stapled over the mulch according to manufacturer's recommendations. Netting is usually available in rolls 4' to 15' feet wide and 300 to 3,000 feet long.

SEDIMENT CONTROL NOTES

1. A Minimum Of 48 Hours Notice Must Be Given To The Howard County Department Of Inspections, Licenses And Permits, Sediment Control Division Prior To The Start Of Any Construction (313-1855).
2. All Vegetative And Structural Practices Are To Be Installed According To The Provisions Of This Plan And Are To Be In According To The Provisions Of This Plan And Are To Be In Conformance With The Most Current Maryland Standards And Specifications For Soil Erosion And Sediment Control And Revisions Thereto.
3. Following Initial Soil Disturbance Or Re-Disturbance, Permanent Or Temporary Stabilization Shall Be Completed Within: A) 7 Calendar Days For All Perimeter Sediment Control Structures, Dikes, Perimeter Slopes And All Slopes Steeper Than 3:1, B) 14 Days As To All Other Disturbed Or Graded Areas On The Project Site. 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. 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 1994 Maryland Standards And Specifications For Soil Erosion And Sediment Control For Permanent Seeding (Sec. 51), Sod (Sec. 54), Temporary Seeding (Sec. 50), Permanent Seeding (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	1.627 Acres
Area Disturbed	0.549 Acres
Area To Be Roofed Or Paved	0.175 Acres
Area To Be Vegetatively Stabilized	0.374 Acres
Total Cut	250 Cu.Yds.
Total Fill	350 Cu.Yds.
Off-Site Waste/Borrow Area Location	N/A

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 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 Approvals May Not Be Authorized Until This Initial Approval By The Inspection Agency Is Made.
11. Trenches For The Construction Of Utilities Is Limited To Three Pipe Lengths Or That Which Shall Be Back-Filled And Stabilized Within One Working Day, Whichever Is Shorter.

PERMANENT SEEDING NOTES

ALL DISTURBED AREAS SHALL BE STABILIZED AS FOLLOWS:

SEEDBED PREPARATION:
LOOSEN UPPER THREE INCHES OF SOIL BY RAKING, DISCING OR OTHER ACCEPTABLE MEANS BEFORE SEEDING.

SOIL AMENDMENTS:
APPLY TWO TONS PER ACRE DOLOMITIC LIMESTONE (92 LBS/1,000 SQ.FT.) AND 600 LBS. PER ACRE 0-20-20 FERTILIZER (14 LBS./1,000 SQ.FT.) BEFORE SEEDING HARROW OR DISC. INTO UPPER THREE INCHES OF SOIL. AT TIME OF SEEDING, APPLY 400 LBS. PER ACRE 38-0-0 UREAFORM FERTILIZER (9 LBS./1,000 SQ.FT.) AND 500 LBS. PER ACRE (11.5 LBS./1,000 SQ.FT.) OF 10-20-20 FERTILIZER.

SEEDING:
FOR THE PERIODS MARCH 1 THROUGH APRIL 30, AND AUGUST 1 THROUGH OCTOBER 15, SEED WITH 100 LBS. PER ACRE (2.3 LBS./1,000 SQ.FT.) OF KENTUCKY 31 TALL FESCUE, FOR THE PERIOD MAY 1 THROUGH JULY 31, SEED WITH 60 LBS/ACRE (1.4 LBS./1,000 SQ.FT.) KENTUCKY 31 TALL FESCUE AND 2 LBS. PER ACRE (0.05 LBS./1,000 SQ.FT.) OF WEEPING LOVEGRASS. DURING THE PERIOD OF OCTOBER 16 THROUGH FEBRUARY 28. PROJECT SITE BY: OPTION (1) - TWO TONS PER ACRE OF WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING; OPTION (2) - USE SOO; OPTION (3) - SEED WITH 100 LBS./ACRE KENTUCKY 31 TALL FESCUE AND MULCH WITH TWO TONS/ACRE WELL ANCHORED STRAW. ALL SLOPES SHOULD BE HYDROSEEDED.

MULCHING:
APPLY 1 TO 2 TONS PER ACRE (10 TO 90 LBS./1,000 SQ.FT.) OF UNROTTED SMALL GRAIN STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING 200 GALLONS PER ACRE (5 GAL./1,000 SQ.FT.) OF EMULSIFIED ASPHALT ON FLAT ACRES. ON SLOPES 8 FEET OR HIGHER USE 348 GALLONS PER ACRE (8 GAL./1,000 SQ.FT.) FOR ANCHORING.

MAINTENANCE:
INSPECT ALL SEEDED AREAS AND MAKE NEEDED REPAIRS, REPLACEMENTS AND RESEEDINGS.
* FOR PUBLIC PONDS SUBSTITUTE CHEMUNG CROWNVETCH AT 15 LBS./ACRE AND KENTUCKY 31 TALL FESCUE AT 40 LBS/ACRE AS THE SEEDING REQUIRMENT. OPTIMUM SEEDING DATE FOR THIS MIXTURE IS MARCH 1 TO APRIL 30.

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, IF NOT PREVIOUSLY LOOSENED.

SOIL AMENDMENTS:
APPLY 600 LBS. PER ACRE 10-10-10 FERTILIZER (14 LBS./1,000 SQ.FT.)

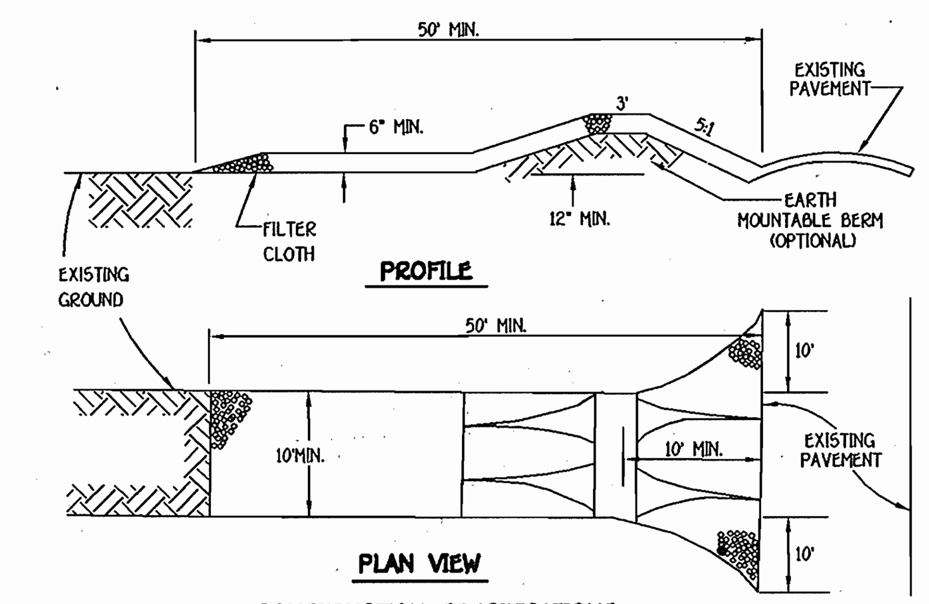
SEEDING:
FOR THE PERIODS MARCH 1 THROUGH APRIL 30, AND AUGUST 15 THROUGH NOVEMBER 15, SEED WITH 1? BUSHEL PER ACRE OF ANNUAL RYE (3.2 LBS./ACRE OF WEEPING LOVEGRASS (.07 LBS./1,000 SQ.FT. FOR THE PERIOD NOVEMBER 16 THRU FEBRUARY 28, PROTECT SITE BY APPLYING 2 TONS PER ACRE OF WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING, OR USE SOD.

MULCHING:
APPLY 1 TO 2 TONS PER ACRE (70 TO 90 LBS./1,000 SQ.FT.) OF UNROTTED SMALL GRAIN STRAW IMMEDIATELY AFTER SEEDING. ANCHORING TOOL OR 218 GALLONS PER ACRE (5 GAL.1,000 SQ.FT.) OF EMULSIFIED ASPHALT ON FLAT ACRES ON SLOPES 8 FEET OR HIGHER, USE 348 GALLONS PER ACRE (8 GAL./1,000 SQ.FT.) FOR ANCHORING.

REFER TO THE 1988 MARYLAND STANDARDS AND SPECIFICATION FOR SOIL EROSION AND SEDIMENT CONTROL FOR RATE AND METHODS NOT COVERED.

SEQUENCE OF CONSTRUCTION

1.	OBTAIN GRADING PERMIT.	1 DAY
2.	INSTALL SEDIMENT AND EROSION CONTROL DEVICES AS SHOWN ON PLAN.	1 DAY
3.	CLEAR AND GRUB TO LIMITS OF DISTURBANCE AND MASS GRADE TO SUN-BASE.	1 DAY
4.	INSTALL TEMPORARY SEEDING.	1 DAY
5.	CONSTRUCT BUILDINGS.	2 MONTHS
6.	FINE GRADE SITE AND INSTALL PERMANENT SEEDING AND LANDSCAPE.	1 DAY
7.	REMOVE SEDIMENT CONTROL DEVICES AS UPLAND AREAS ARE STABILIZED AND PERMISSION IS GRANTED BY E/S CONTROL INSPECTOR.	2 DAYS

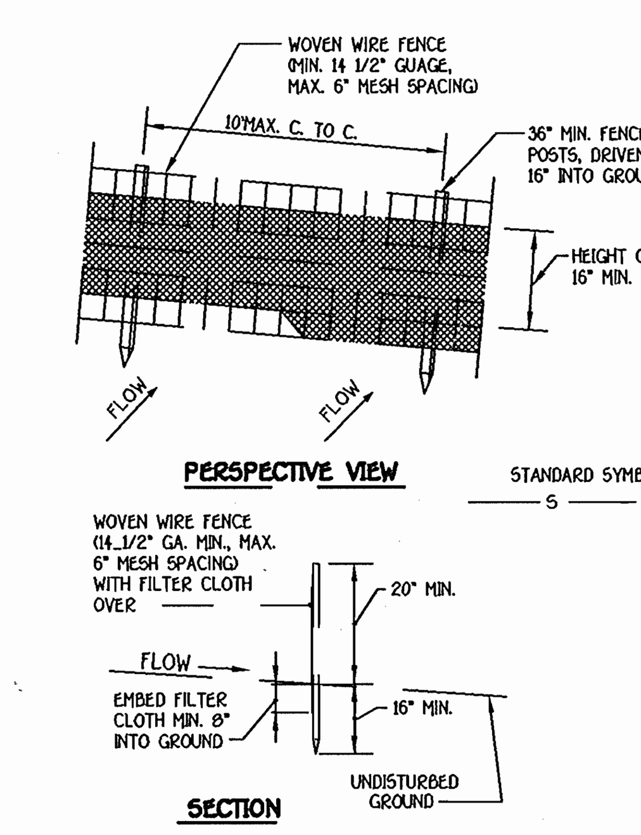


CONSTRUCTION SPECIFICATIONS

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 THE 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.

STABILIZED CONSTRUCTION ENTRANCE - 2

NOT TO SCALE



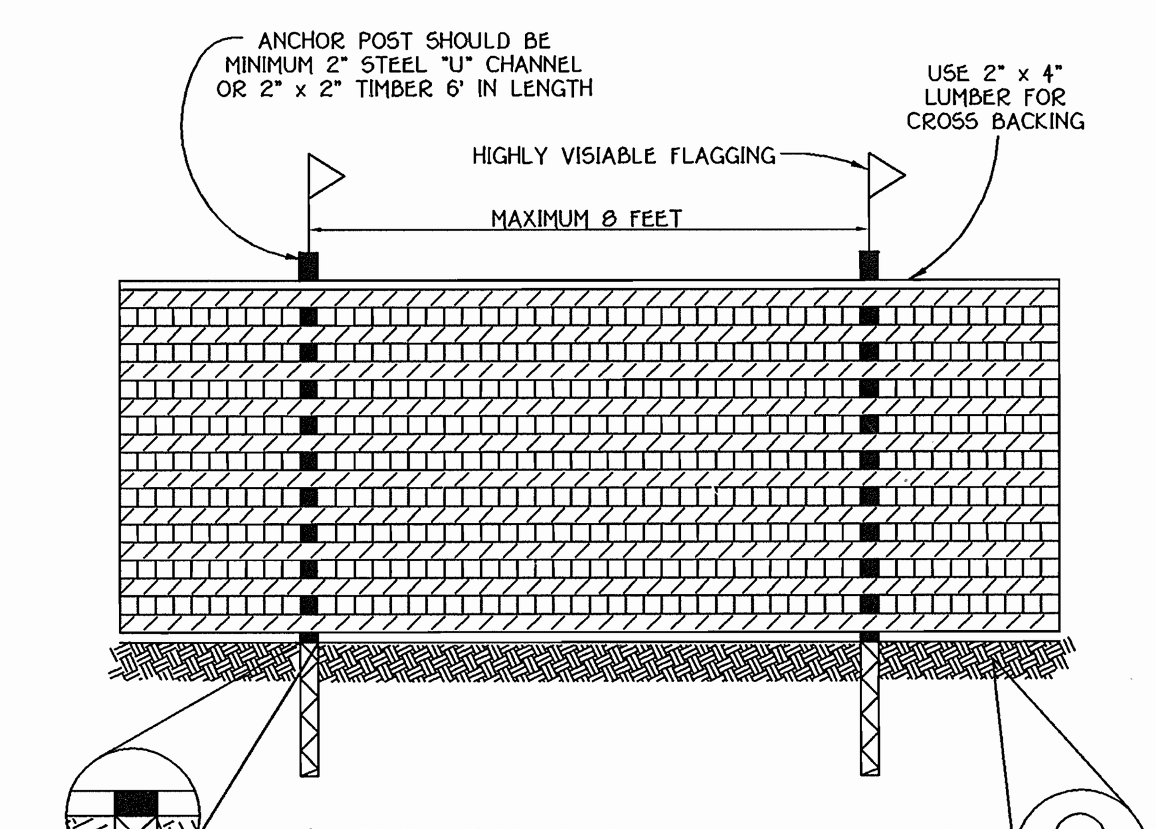
CONSTRUCTION NOTES FOR FABRICATED SILT FENCE

1. WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OF 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, 14. GA. 6" MAX. MESH OPENING
FILTER CLOTH: FILTER X, MIRAFI 100X, STABILINKA T14 ON OR APPROVED EQUAL
PREFABRICATED UNIT: GEOFAB, ENVIROFENCE, OR APPROVED EQUAL.

SILT FENCE

NOT TO SCALE

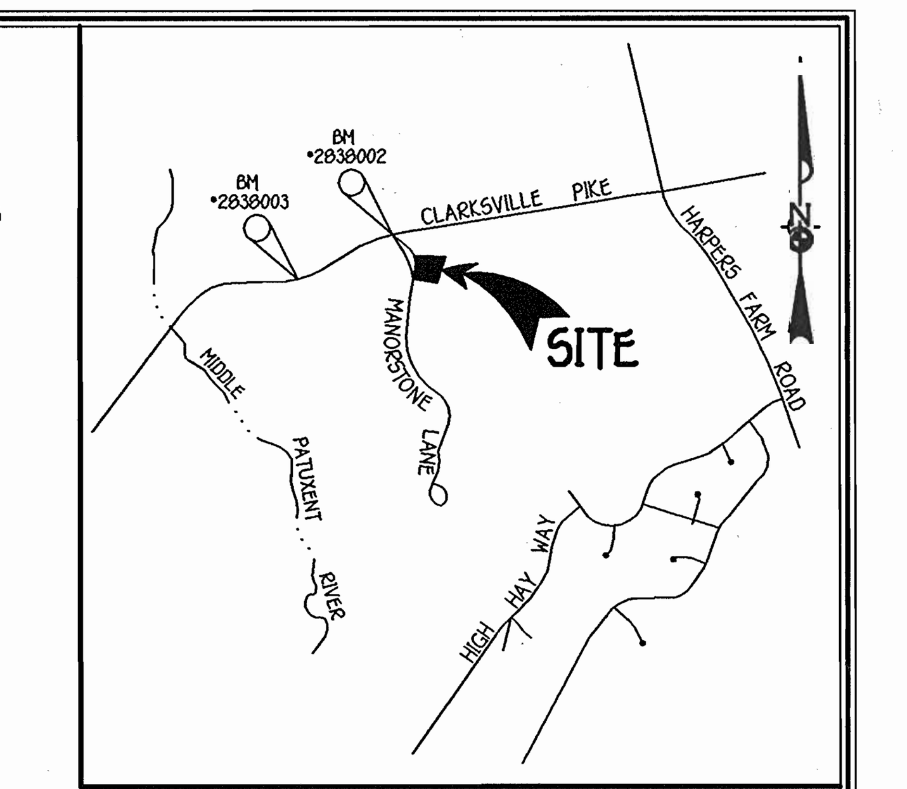


NOTES:
1. FOREST PROTECTION DEVICE ONLY.
2. RETENTION AREA WILL BE SET AS PART OF THE REVIEW PROCESS.
3. BOUNDARIES OF RETENTION AREA SHOULD BE STAKED AND FLAGGED PRIOR TO INSTALLING DEVICE.
4. ROOT DAMAGE SHOULD BE AVOIDED.
5. PROTECTIVE SIGNAGE MAY ALSO BE USED.
6. DEVICE SHOULD BE MAINTAINED THROUGHOUT CONSTRUCTION.

TREE PROTECTION DETAIL

NOT TO SCALE

BLAZE ORANGE PLASTIC MESH



VICINITY MAP

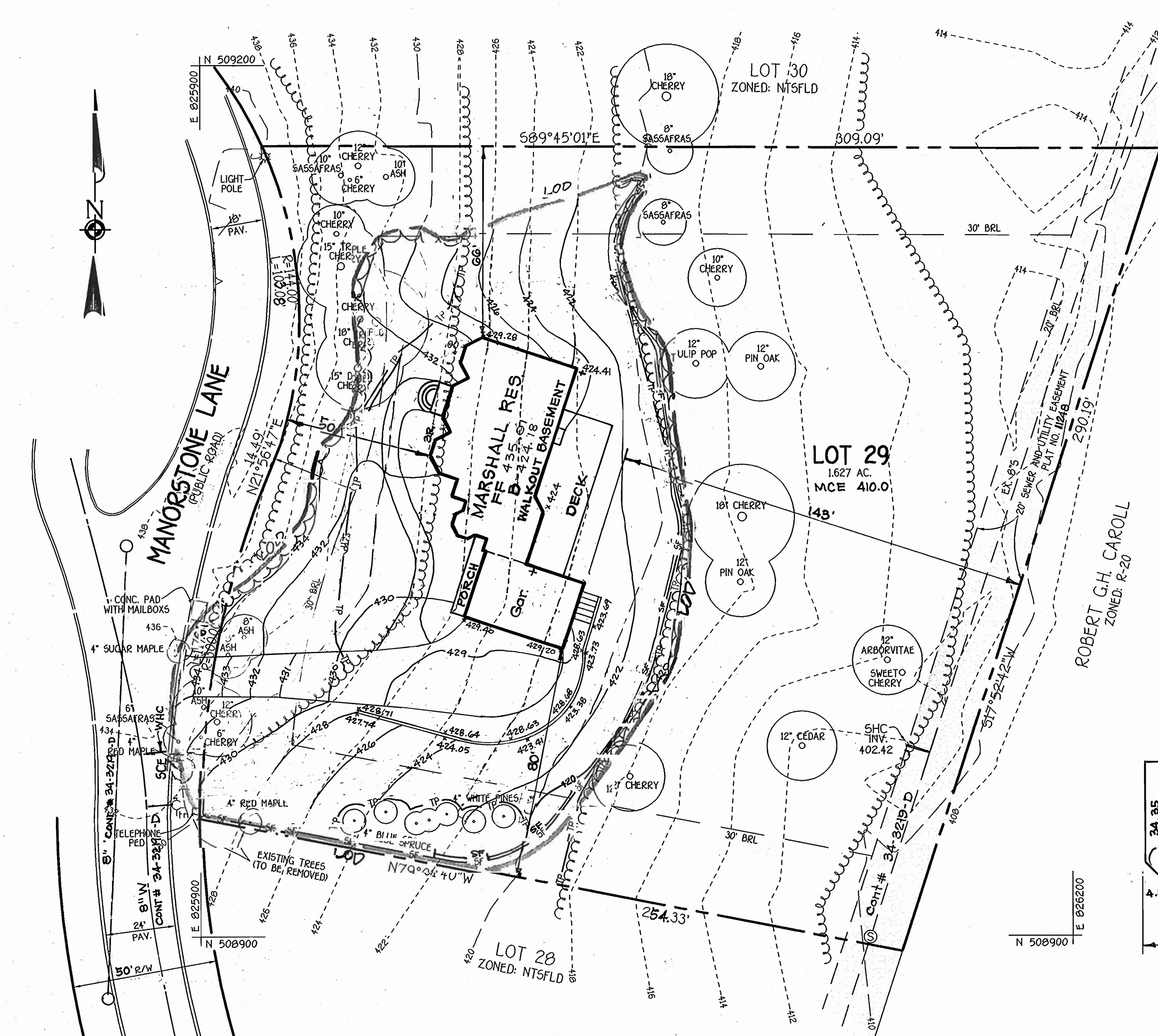
SCALE: 1"=2000'

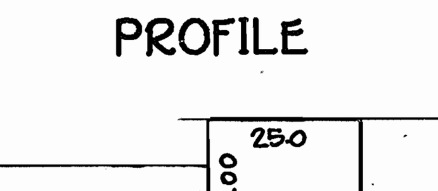
BENCHMARKS

STA. NO. 2838003
N508916.632 E824630.474
ELEV. 367.20
STA. NO. 2838002
N509424.956 E825625.556
ELEV. 434.53

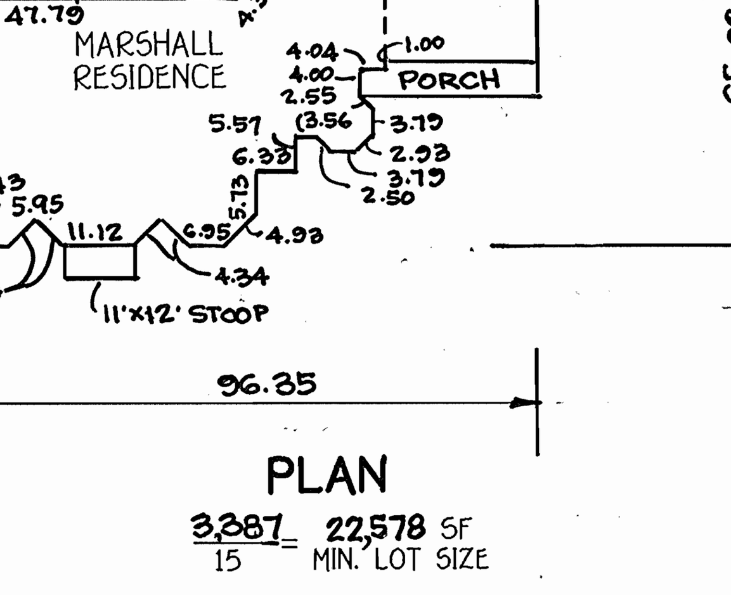
GENERAL NOTES:

1. SUBJECT PROPERTY ZONED NTSFLD PER 10/18/93 COMPREHENSIVE ZONING PLAN.
2. TOTAL AREA OF SITE: 1.627 ACRES
3. TOTAL NUMBER OF LOTS SUBMITTED: 1 SINGLE FAMILY DETACHED.
4. MAXIMUM LOT COVERAGE PERMITTED IS 15%.
5. THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION INSPECTION DIVISION AT (410) 313-1880 AT LEAST (5) FIVE WORKING DAYS PRIOR TO THE START OF WORK.
6. THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK.
7. THIS PLAN IS SUBJECT TO HOWARD COUNTY REFERANCE NUMBERS S-92-21, F-93-141 W&S CONT. #34-3219-D.
8. BOUNDARY AND PERFORMED BY: FISHER, COLLINS AND CARTER INC. ON OR ABOUT JANUARY, 1992.
9. TOPOGRAPHIC SURVEY PERFORMED BY: FISHER, COLLINS & CARTER INC. ON OR ABOUT AUGUST, 2001.
10. HORIZONTAL AND VERTICAL CONTROL DATUM IS BASED ON MD. COORDINATE SYSTEM NAD 27 AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS:
STA 2838003 N 508916.632 E 824630.474 EL.=367.20
STA 2838002 N 509424.956 E 825625.556 EL.=434.53
11. ANY DAMAGE TO THE COUNTY'S RIGHT-OF-WAY SHALL BE CORRECTED AT THE DEVELOPER'S EXPENSE.
12. THIS PLAN IS FOR HOUSE SITING AND LOT GRADING ONLY. IMPROVEMENTS SHOWN WITHIN THE RIGHT-OF-WAYS OF THIS S.D.P. ARE NOT USED FOR CONSTRUCTION. FOR CONSTRUCTION SEE APPROVED ROAD CONSTRUCTION PLANS F-93-141 AND/OR APPROVED WATER AND SEWER PLANS CONTRACT NO. 34-3219-D
13. CONTRACTOR WILL CHECK SEWER HOUSE CONNECTION ELEVATION AT EASEMENT LINE PRIOR TO CONSTRUCTION.
14. STORMWATER MANAGEMENT IS PROVIDED BY VILLAGE OF RIVER HILL SECTION 2 AREA 1 F-93-18.
15. IN ACCORDANCE WITH FDP PHASE 194-A PLAT REF: 3054-A-1503 NO STRUCTURE SHALL BE LOCATED UPON LOTS DEVOTED TO SINGLE FAMILY LOW DENSITY LAND USE WITHIN 30 FEET OF ANY 50' STREET RIGHT-OF-WAY, NOR WITHIN 30 FEET OF ANY 60' OR GREATER STREET RIGHT-OF-WAY, NOR WITHIN 100 FEET OF A PRINCIPAL ARTERIAL HIGHWAY, NOR WITHIN 30 FEET OF ANY SIDE PROPERTY LINE, OR PIPELINE RIGHT-OF-WAY, NOR WITHIN 20' OF ANY REAR PROPERTY LINE, EXCEPT, HOWEVER, THAT STRUCTURES MAY BE CONSTRUCTED AT ANY LOCATION WITHIN SUCH SET-BACK AREAS PROVIDED ALL STRUCTURES AND CONSTRUCTION IS DEVELOPED IN ACCORDANCE WITH A SITE DEVELOPMENT PLAN APPROVED BY HOWARD COUNTY PLANNING BOARD.
16. FOR DRIVEWAY ENTRANCE DETAIL REFER TO HOWARD COUNTY DESIGN MANUAL IV DETAIL R.6.03.
17. THIS PLANS CONFORMS TO THE 5th EDITION OF THE SUBDIVISION REGULATIONS.
18. THIS PLAN IS EXEMPT FROM THE FOREST CONSERVATION REQUIREMENT PER SECTION 16.1202(b)(1)(IV) OF THE HO.CO. CODE AND FOREST CONSERVATION MANUAL FOR A PLANNED UNIT DEVELOPMENT
19. This plan is exempt from landscape requirements due to preliminary plan approval prior to January, 1993.





PROFILE



PLAN

$\frac{3387}{15}$ = 22,578 SF MIN. LOT SIZE

ADDRESS CHART	
LOT NO.	STREET NAME
29	11565 MANORSTONE LANE

LEGEND	
SYMBOL	DESCRIPTION
- - - - - - -	EXISTING CONTOUR 2' INTERVAL
—— ——	EXISTING CONTOUR 10' INTERVAL
————	PROPOSED CONTOUR
+424.00	SPOT ELEVATION
FF	FIRST FLOOR ELEVATION
B	BASEMENT ELEVATION
—SF—SF—	SILT FENCE
—TP—TP—	TREE PROTECTION
⌒⌒⌒⌒	EXISTING TREE LINE
LOD	LIMIT OF DISTURBANCE

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042
(410) 461 - 2855

DATE	REVISION
7-3-03	REVISED SITE GRADING
1-22-03	Rev. hse & grd. per new arch. drwg.

STATE OF MARYLAND — EARL D. COLLINS — No. 9... — REGISTERED PROFESSIONAL ENGINEER

ENGINEER'S CERTIFICATE

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

Signature of Engineer — 1-31-02 Date

DEVELOPER'S CERTIFICATE

"I/We certify that all development and construction will be done according to this plan for sediment and erosion control, and that all responsible personnel involved in the construction project will have a Certificate of Attendance at a Department of the Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I also authorize periodic on-site inspection by the Howard Soil Conservation District."

Patricia Marshall — 1/28/02
Signature of Developer/Builder — PAT MARSHALL Owner — Date

Reviewed for HOWARD SCD and meets Technical Requirements.
Jim Myers — 3/25/02
U.S.D.A.-Natural Resources Conservation Service — Date

This development plan is approved for soil erosion and sediment control by the HOWARD SOIL CONSERVATION DISTRICT.
John R Robertson — 3/25/02
Howard SCD — Date

DEVELOPER/OWNER

PAT MARSHALL
1923 BARRINGTON COURT
MITCHELLVILLE, MARYLAND 20721
301-925-6240

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Director, Department of Planning and Zoning — 4/1/02 Date
Chief, Division of Land Development — 3/28/02 Date
Chief, Development Engineering Division — 3/26/02 Date

SUBDIVISION			SECTION/AREA		LOT NO.
COLUMBIA VILLAGE OF HARPER'S CHOICE			5	9	29
PLAT NO.	BLOCK NO.	ZONE	TAX MAP	ELEC. DIST.	CENSUS TR.
11248	15	NTSFLD	29	5TH	6055.02
WATER CODE			SEWER CODE		
103			6740000		

SITE DEVELOPMENT/
SEDIMENT & EROSION CONTROL PLAN

COLUMBIA VILLAGE OF HARPER'S CHOICE

SECTION 5 AREA 9 PHASE 1
LOT 29

TAX MAP No. 29 PARCEL No. 126
5TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
SCALE: 1"=30' DATE: JANUARY 25, 2002

SHEET 1 OF 1

SDP 02-078