

### STANDARDS AND SPECIFICATIONS FOR VEGETATIVE STABILIZATION

Using vegetation as cover for barren soil to protect it from erosion. 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 runoff to downstream areas, and improving wildlife habitat and visual resources.

**DEFINITION:** This practice shall be used on denuded areas as specified on the plan and may be used on highly erodible or critically eroding areas. This specification is intended to 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 fills, etc. and for Permanent Seeding are lawns, ornamental and fill slopes and other areas of final grade, former stockpiles and filling 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, seeded 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

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

B. Soil Amendments (Fertilizer and Lime Specifications)

1. 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.
2. Fertilizers shall be uniform in composition, free flowing and suitable for accurate application by approved equipment. Fertilizer may be substituted for fertilizer with prior approval of the appropriate approval authority. Fertilizers shall be delivered to the site fully labeled according to the applicable state fertilizer laws and shall bear the name, trade name or trademark of the producer.
3. Lime materials shall be ground limestone (hydrated or burnt lime) 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 #20 mesh sieve and 90-100% will pass through a #40 mesh sieve. Lime and fertilizer into the top 3-5" of soil by disk or other suitable means.

C. Seeded Preparation

1. Temporary Seeding
  - a. Seeded preparation shall consist of loosening soil to a depth of 3" to 5" by means of suitable agricultural equipment such as a disc harrow or chisel plow or ripper mounted on construction equipment. After the soil is loosened it should not be rolled or dragged until it is 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 plan.
  - c. Incorporate lime and fertilizer into the top 3-5" of soil by disk or other suitable means.
2. 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 (20% silt plus clay) to provide the capacity to hold a moderate amount of moisture. An exception is if loess or silt loess is to be planted, then a silt loess (20% silt plus clay) would be acceptable.
  - 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 form seedbeds to the 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 plan.
  - d. Soil amendments shall be applied by disk or other suitable means. Lawn areas should be raked to smooth the surface, remove large objects like stones and branches, and apply amendments. Where site conditions will not permit normal seeded 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. Seeded loosening may not be necessary on newly disturbed areas.

D. Seed Specifications

1. All seed must meet the requirements of the Maryland State Seed Law. All seed shall be subject to a pre-planting inspection by a recognized seed laboratory which has been tested within the 6 months immediately preceding the date of sowing such material on this job.
2. Note: Seed tags shall be made available to the inspector to verify type and rate of seed used.
3. All seed shall be of the type and variety specified on the plan. Seed shall be of a pure culture of nitrogen-fixing bacteria prepared specifically for the species. Inoculants shall not be used unless the date is indicated on the container. Add seed inoculant to the seed at a rate of four times the recommended rate which hydroseeding. Note: It is very important to keep inoculant as cool as possible until used. Temperatures above 75-80°F. can weaken bacteria and reduce the inoculant's effectiveness.

E. Methods of Seeding

1. Hydroseeding: Apply seed uniformly with hydroseeder (slurry includes seed and fertilizer), broadcast or drop seeded, or a mulchpacker seeder.
2. If fertilizer is used, the time of seeding, the application rates amounts will not exceed the following: Nitrogen maximum of 100 lbs. per acre total of soluble nitrogen (20% nitrogen) and 100 lbs. per acre of phosphate.
3. Lime - use only ground agricultural limestone, up to 3 tons per acre may be applied by hydroseeding normally, not more than 1.5 tons per acre may be applied by hydroseeding at any one time. Do not use burnt or hydrated lime when hydroseeding.
4. Seed and fertilizer shall be mixed on site and seeding shall be done immediately and without interruption.

F. Dry Seeding

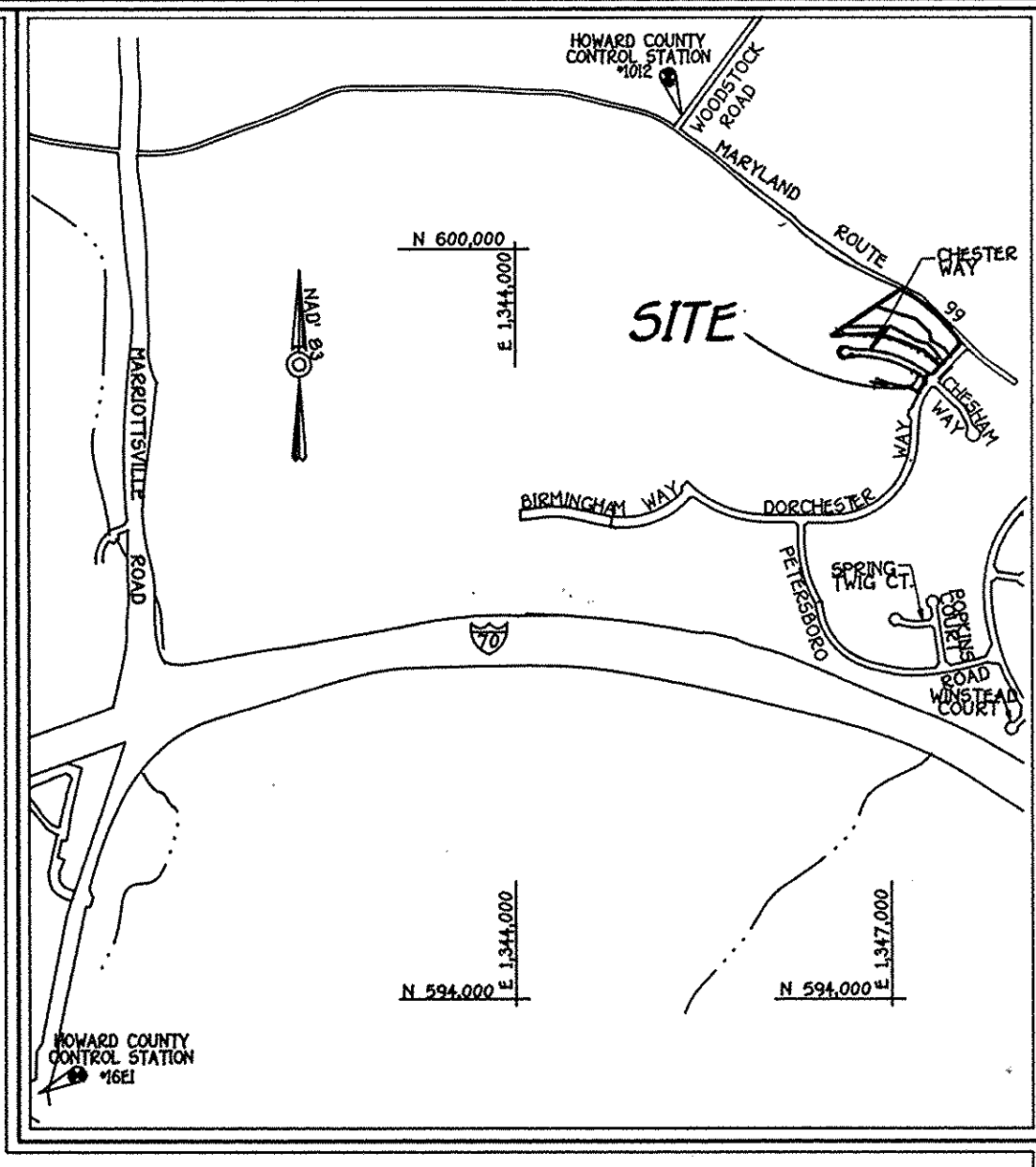
1. This includes use of conventional drop or broadcast spreaders.
2. Seed sowing rate shall be incorporated into the plan as specified on the plan.
3. Temporary or Permanent Seeding Summaries or Tables 265 or 266. The seeded area shall be rolled or tracked with a weighted roller to ensure good seed to soil contact.
4. Where practical, seed should be applied in two directions perpendicular to each other. Apply half the seeding rate in each direction.

G. Mulch Specifications (in order of preference)

1. Straw shall consist of threshed wheat, rye or oat straw, reasonable bright in color, and shall not be overly moldy, caked, soaked, or excessively dusty and shall be free of noxious weed seeds.
2. 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 dried green or contain a green dye in package that will provide adequate coverage to facilitate visual inspection of the ground surface.
  - c. WCFM, including dye, shall contain no germination or growth inhibiting factors.
  - d. WCFM shall be manufactured and processed in a manner that ensures 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 penetration characteristics that will hold water and hold the seed in contact with the soil without inhibiting the growth of the grass seedlings.
  - e. The material shall contain no elements or compounds at concentration levels that will be phytotoxic.
  - f. WCFM must conform to the following physical requirements: fiber length to be approximately 1/2 inch, diameter approximately .001 to .002 inch, ash content of 10% maximum and water holding capacity of 90% minimum.
3. Anchoring Straw Mulch (ASM) - shall be used in areas where seed is desired.

H. Mulching Seeded Areas - Mulch shall be applied to all seeded areas immediately after seeding.

1. If grading is completed outside of the seeding season, mulch 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.
2. 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 uniform loose depth of 2.0" 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.
3. Wood cellulose fiber used as a mulch shall be applied at a net dry weight of 1500 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.
4. Securing Straw Mulch (anchoring): Mulch anchoring shall be performed immediately following mulch application to minimize the loss of the mulch. This may be done by one of the following methods (listed by preference), depending upon size of area and erosion hazard:
  - a. A mulch anchoring tool is a tractor drawn implement designed to punch and anchor mulch into the soil surface to a minimum depth of two (2) inches. The tool shall be capable of anchoring large areas, but is limited to flatter slopes where equipment can operate safely. If used on sloping areas, this practice should be used on the contour if possible.
  - b. Wood cellulose fiber may be used for anchoring straw. The fiber binder shall be applied at a net dry weight of 100 lbs. per acre. The fiber binder shall be mixed with water and the mixture shall contain a maximum of 50 pounds of wood cellulose fiber per 100 gallons of water.
  - c. Application of liquid binders shall be heavier at the edges where wind catches much, such as in ditches and crests of banks. The remaining area shall be applied more uniform after binder application. Synthetic binders - such as Acrylic (D.R. Agri-Tack), DCA-70 Petropet, Terra Tax II, Terra Tack AS or other approved binders of equal or better quality may be used if recommended by the manufacturer to anchor mulch.
  - d. Lightweight plastic netting may be established over the mulch according to manufacturer's recommendations. Netting is usually available in rolls 4' to 15' feet wide and 3000 feet long.



VICINITY MAP  
SCALE: 1" = 2400'

**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.

**SILT FENCE**  
NOT TO SCALE

**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 (183-185B).
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 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. 30 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 Show 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. 50), Soil (Sec. 54), Temporary Seeding (Sec. 50), Permanent Seeding (Sec. 50), Soil (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	0.26	Acres
Area Disturbed	0.26	Acres
Area To Be Seeded Or Paved	0.10	Acres
Area To Be Vegetatively Stabilized	0.16	Acres
Total Cut	100	Cu.Yds.
Total Fill	100	Cu.Yds.
Off-Site Waste/Borrow Area Location	-	Cu.Yds.
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 Control 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 BAKING, DISCING OR OTHER ACCEPTABLE MEANS BEFORE SEEDING. IF NOT PREVIOUSLY LOOSENED.

**SOIL AMENDMENTS:** APPLY TWO TONS PER ACRE DOLOMITIC LIMESTONE (92 LBS./1000 SQT.) AND 600 LBS. PER ACRE 10-20-20 FERTILIZER (14 LBS./1000 SQT.) BEFORE SEEDING HARROW OR DISC INTO UPPER THREE INCHES OF SOIL AT TIME OF SEEDING. APPLY 400 LBS. PER ACRE 10-20-20 UREA-BASED FERTILIZER (9 LBS./1000 SQT.) AND 500 LBS. PER ACRE (115 LBS./1000 SQT.) 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 12:3 LBS./1000 SQT.) OF KENTUCKY 31 TALL FESCUE FOR THE PERIOD MAY 1 THROUGH JULY 31, SEED WITH 60 LBS./ACRE (4 LBS./1000 SQT.) KENTUCKY 31 TALL FESCUE AND 2 LBS. PER ACRE (200 LBS./1000 SQT.) OF WEEPING LOVEGRASS. DURING THE PERIOD OF OCTOBER 16 THROUGH FEBRUARY 28, PROTECT SITE BY APPLYING 2 TONS PER ACRE OF WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING OPTION (2) - USE 500 OZ. OPTION (2) 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./1000 SQT.) OF UNROTATED SMALL GRASS STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING 200 GALLONS PER ACRE (5 GAL./1000 SQT.) OF EMULSIFIED ASPHALT ON FLAT AREAS ON SLOPES 6 FEET OR HIGHER USE 340 GALLONS PER ACRE (8 GAL./1000 SQT.) FOR ANCHORING.

**MAINTENANCE:** INSPECT ALL SEEDER AREAS AND MAKE NEEDED REPAIRS, REPLACEMENTS AND RESEEDING.

\* FOR PUBLIC PONDS SUBSTITUTE CHEMUNG CROWNWEATH AT 15 LBS./ACRE AND KENTUCKY 31 TALL FESCUE AT 45 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 BAKING, DISCING OR OTHER ACCEPTABLE MEANS BEFORE SEEDING, IF NOT PREVIOUSLY LOOSENED.

**SOIL AMENDMENTS:** APPLY 600 LBS. PER ACRE 10-10-10 FERTILIZER (14 LBS./1000 SQT.)

**SEEDING:** FOR THE PERIODS MARCH 1 THROUGH APRIL 30, AND AUGUST 1 THROUGH NOVEMBER 30, SEED WITH 100 LBS. PER ACRE OF ANNUAL RYE (3.2 LBS./ACRE OF WEEPING LOVEGRASS (07 LBS./1000 SQT.) FOR THE PERIOD NOVEMBER 16 THROUGH 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 SOE.

**MULCHING:** APPLY 1 TO 2 TONS PER ACRE (70 TO 90 LBS./1000 SQT.) OF UNROTATED SMALL GRASS STRAW IMMEDIATELY AFTER SEEDING. ANCHORING TOOL OR 200 GALLONS PER ACRE (5 GALLONS/1000 SQT.) OF EMULSIFIED ASPHALT ON FLAT AREAS ON SLOPES 6 FEET OR HIGHER. USE 340 GALLONS PER ACRE (8 GAL./1000 SQT.) FOR ANCHORING.

REFER TO THE 1994 MARYLAND STANDARDS AND SPECIFICATION FOR SOIL EROSION AND SEDIMENT CONTROL FOR RATE AND METHODS NOT COVERED.

**SEQUENCE OF CONSTRUCTION**

1. OBTAIN GRADING PERMIT.
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 SUB-BASE. (1 DAY)
4. INSTALL TEMPORARY SEEDING. (1 DAY)
5. CONSTRUCT BUILDING. (40 DAYS)
6. FINE GRADE SITE AND INSTALL PERMANENT SEEDING AND LANDSCAPE. (2 DAYS)
7. REMOVE SEDIMENT CONTROL DEVICES AS UPLAND AREAS ARE STABILIZED AND PERMISSION IS GRANTED BY E/S CONTROL INSPECTOR. (1 DAY)

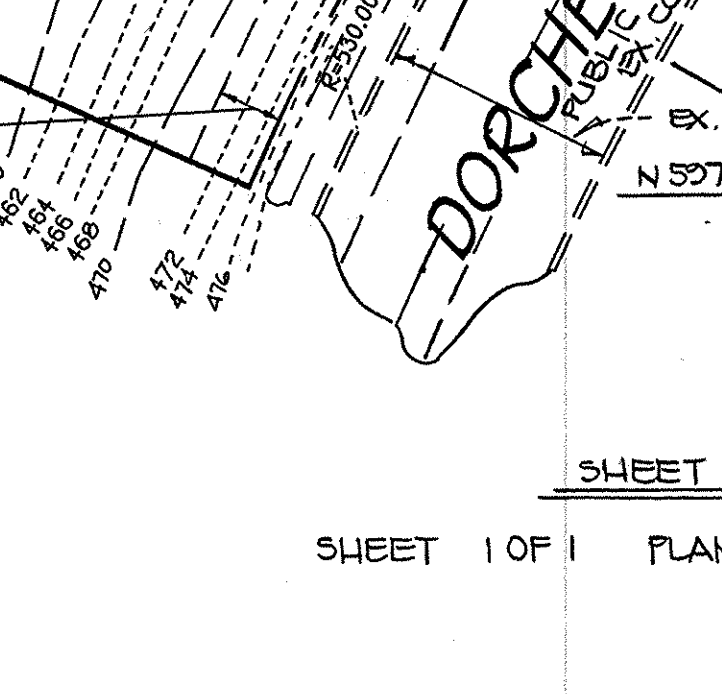
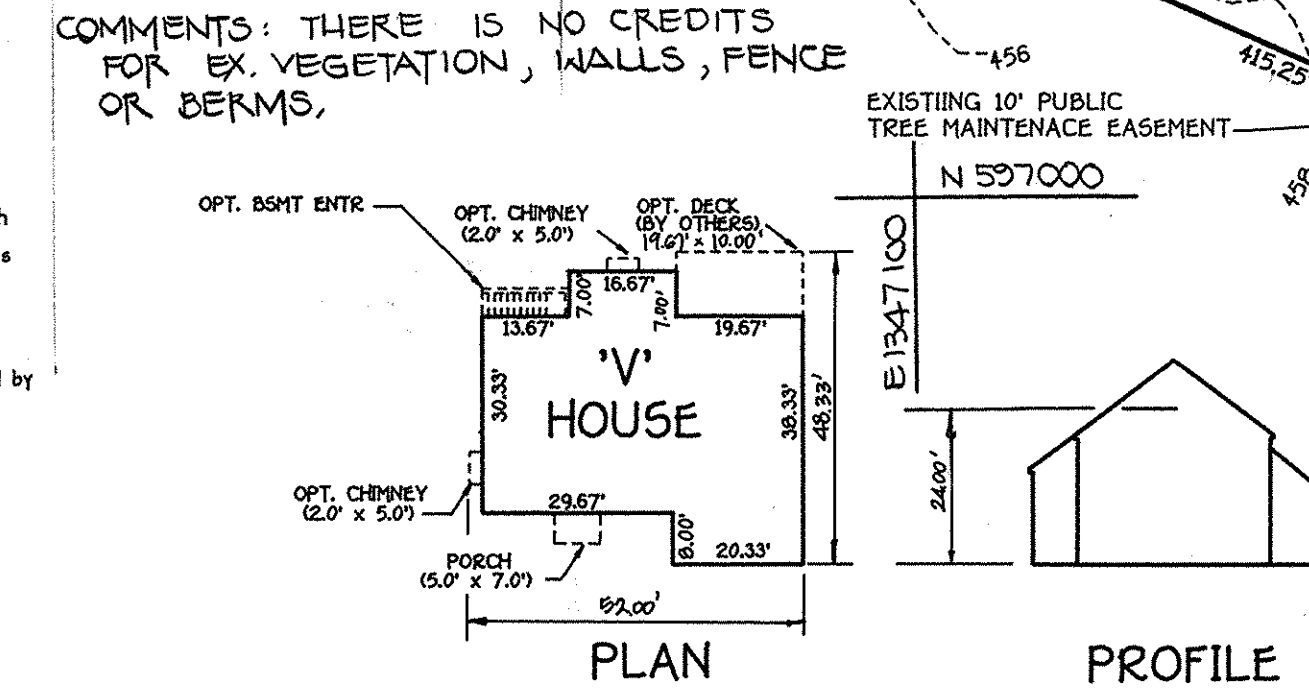
**ADDRESS CHART**

LOT NUMBER	STREET ADDRESS
161	10501 CHESTER WAY

**LANDSCAPE SCHEDULE 'A'**

CATEGORY	ADJACENT TO ROADWAYS
LANDSCAPE TYPE	B
LINEAR FEET	88
NUMBER PLANTS REQ.	
SHADE TREES	1
EVERGREEN TREES	2
NUMBER PLANTS PRO.	
SHADE TREES	1
EVERGREEN TREES	2

COMMENTS: THERE IS NO CREDITS FOR EX. VEGETATION, WALLS, FENCE OR BERMS.



**LEGEND**

SYMBOL	DESCRIPTION
---	EXISTING CONTOUR 2' INTERVAL
---	EXISTING CONTOUR 10' INTERVAL
---	PROPOSED CONTOUR 2' INTERVAL
---	PROPOSED CONTOUR 10' INTERVAL
• 624	SPOT ELEVATION
-S-	SILT FENCE
FF	FIRST FLOOR ELEVATION
BE	BASEMENT ELEVATION
⊕	PROPOSED WALKOUT
-X-X-	TREE PROTECTION
L.O.D.	LIMIT OF DISTURBANCE
(S)	EXISTING STREET TREE

**FISHER, COLLINS & CARTER, INC.**  
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
CENTRAL OFFICE: 10727 BALTIMORE NATIONAL FEE  
ELICOTT CITY, MARYLAND 21117  
(410) 441-2855

**LOT INFORMATION**

LOT #	LOT SIZE SQ. FT.	MIN. CELLAR ELEV.	INV. ELEV. @ PROP. LINE
161	11,526	41.7	457.84

**LANDSCAPE SCHEDULE**

SYMBOL	TYPE	SIZE	NUMBER
⊕	GLEDETIA TRIACANTHOS INERMIS SHADENMASTER THORNLESS HONEYLOCUST	2 1/2" - 3"	1
⊕	PINUS STROBUS - EASTERN WHITE PINE	6" - 8"	2

**ENGINEER'S CERTIFICATE**

I 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 that it was prepared in accordance with the requirements of the Howard Soil Conservation District.

Signature of Engineer (Print name below signature) *Chad Simmons* Date *8/19/97*

**DEVELOPER'S CERTIFICATE**

I/we certify that all development and construction will be done according to this plan, and that any 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 Soil Erosion before beginning the project. I also authorize periodic on-site inspection by the Howard Soil Conservation District.

Signature of Developer (Print name below signature) *TEJAY K. CONNELLY* Date *8-19-97*

Reviewed for HOWARD SCD and meets Technical Requirements.

Signature of Engineer *Chad Simmons* Date *9/24/97*

Signature of Developer *Tejay K. Connelly* Date *8/19/97*

**DEVELOPER/OWNER**  
WAVERLY WOODS DEVELOPMENT CORPORATION  
c/o LAND DESIGN AND DEVELOPMENT, INC.  
10805 HICKORY RIDGE ROAD, SUITE #215  
COLUMBIA, MARYLAND 21044  
TELEPHONE: 410-740-2100

**BUILDER**  
PATRIOT HOMES  
P.O. BOX, 1018  
COLUMBIA, MD 21044

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Signature of Planning and Zoning *Richard Blood* Date *9/22/97*

Signature of Department of Planning and Zoning *Richard Blood* Date *9/22/97*

Signature of Chief, Development Engineering Division *Richard Blood* Date *9/22/97*

**SUBDIVISION**  
GTW'S WAVERLY WOODS

**SECTION/AREA**  
5

**LOT NO.**  
161

**PLAT NO.**  
12712

**BLOCK NO.**  
6

**ZONE**  
RSC

**TAX/ZONE**  
16

**ELEC. DIST.**  
3RD

**CENSUS TR.**  
6030

**WATER CODE**  
HO-5

**SEWER CODE**  
5993000

**SITE DEVELOPMENT PLAN**

**GTW'S WAVERLY WOODS**

**SECTION 5**

**LOT 161**

TAX MAP No: 16 PARCEL: 20  
THIRD ELECTION DISTRICT, HOWARD COUNTY, MARYLAND  
SCALE: AS SHOWN DATE: AUGUST 1997

SHEET 1 OF 1