

t 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 inflitration 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 ins practice shall be used on derulaed areas as specified on the plans are may be used on neglig eroding or critically eroding, areas. This specification is divided into Temporary Seeding, to quickly establish vegetative cover for short duration Oup 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 tawns, 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, 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

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. Soil Amendments (Fertilizer and Lime Specifications) Soil tests must be performed to determine the exact ratios and application rates for both time 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 iii. Lime materials shall be ground limestone drydrated or burnt time 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 90-100% will pass through a *20 mesh sieve. Incorporate lime and fertilizer into the top 3-5° of soil by disking or other suitable means.

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

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 comour 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 disking or other suitable means.

ii. Permanent Seeding

a. Hinimum soil conditions required for permanent vegetative establishment:

L. Soil pH shall be between 6.0 and 7.0.

Soluble salts shall be less than 500 parts per million (apm).

The soil shall contain less than 40% clay, but enough time grained material 030% 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. Soil shall contain 15% minimum organic matter by weight. Soil must contain sufficient pore space to permit adequate root penetration. If these conditions cannot be met by soils on site, adding topsoil is required in accordance with Section 21 Standard and Specification for Topsoil.

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 o the surface area and to create horizontal erosion check slots to prevent topsoil from skiding down a slope.

Apply soil amendments as per soil test or as included on the plans.

Mix soil amendments into the top 3-5 of topsoil by disking 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 teaving 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

D. Seed Specifications 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 mitrogen-fixing bacteria prepared specifically for the species. Inoculants shall not be used later than

the date indicated on the container. Add tresh 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 Methods of Seeding

i. Hydroseeding: Apply seed uniformly with hydroseeder (sturry includes seed and fertilizer), broadcast or drop seeded or a cultipacter 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 nitrogens 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). Hormally, not more than 2 tons are applied by hydroseeding at any one time. Do not use burnt or hydrated time when hydroseeding. 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. Dril or Outspacker Seeding: Mechanized seeders that apply and cover seed with soil.

a. Outspacker 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.

Much Specifications (in order of preference)

i. Straw shall consist of thoroughly threshed wheat; rie 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.

Wood Cethology Fiber Mulch (WCFM)

a. WCF14 shall consist of specially prepared wood cethology processed into a uniform fibrous physical state.

worst shall be dred green or contain a green dre in the package that will provide an appropriate color to facilitate visual inspection of the uniformly spread sturr. WCFM, including dre, shall contain no germination or growth inhabiting factors. WCFM materials shall be manufactured and processed in such a manner that the wood cellulose filter mulch will remain in uniform suspension in water under agitatio and will blend with seed, fertilizer and other additives to form a homogeneous slum

he mulch material shall form a blotter-like ground cover, on application, having moisture absorption and percolation properties and shall cover and hold crass seed in contact with the soil without inhibiting the growth of the grass seedings. WCFH material shall contain no elements or compounds at concentration levels that will be phyto-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 0.5, 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.

SEQUENCE OF CONSTRUCTION

1 OBTAIN GRADING PERMIT . Install sediment and erosion control devices as shown on plan-7 DAYS 3. CLEAR AND GRUB TO UNITS OF DISTURBANCE 4 DAYS 2 DAYS 4. Install temporary seeding 5. CONSTRUCT BUILDINGS 60 DAYS 6. FINE GRADE SITE AND INSTALL PERMANENT SEEDING AND LANDSCAPE 14 DAYS 7. REMOVE SEDIMENT CONTROL DEVICES AS UPLAND AREAS ARE STABILIZED AND PERMISSION IS GRANTED BY E/S CONTROL INSPECTOR.

 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 till the rate should be increased to 25 tons/acre.

iii. Wood cellulose fiber used as a musch 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 comfain a maximum of 50 lbs. of wood cellulose fiber per 100 gallons of water.

Securing Straw Mulch Orulch Anchoring: Musch anchoring shall be performed immediately following musch 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 A musch anchoring tool is a tractor drawn implement designed to punch and anchor musch 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. It used on sloping land, this practice should be used on the contour if possible.

Wood cellulose filter may be used for anchoring straw. The filter binder shall be applied at a net dry weight of 750 pounds/acre. The wood cellulose filter shall be mixed with water and the mixture shall contain a maximum of 50 pounds of wood cellulose fiber per 100 gallons of water.

of water.

iii. Application of liquid binders should be heavier at the edges where wind catches much, 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 much. Lightweight plastic netting may be stapled over the mulch according to manufacturer's recom-mendations. Netting is usually available in rolls 4' to 15' feet wide and 300 to 3,000 feet long.

Incremental Stabilization - Cut Slopes
i. All cuts slopes shall be dressed, prepared, seeded and mulched as the work progresses. Slopes shall be excavated and stabilized in equal increments not to exceed 15°.
ii. Construction sequence (Refer to Figure 3 below):

a. Excavate and stabilize all temporary swales, side ditches, or berms that will be used to convey runoff from the excavation.
 b. Perform Phase 1 excavation, dress, and stabilize.

Perform Phase 2 excavation, dress and stabilize. Overseed Phase 1 areas as necessary.

d. Perform final phase excavation, dress and stabilize. Overseed previously seeded

Note: Once excavation has begun the operation should be continuous from grubbing through the completion of grading and placement of topsoil (if required) and permanent seed and mulch. Any interruptions int he operation of completing the operation out of the seeding season will necessitate the application of temporary stabilization Incremental Stabilization of Embankments - Fill Slopes

Embankments shall be constructed in lifts as prescribed on the plans. ii. Slopes shall be stabilized immediately when the vertical height of the multiple lifts reaches

15. or when the grading operation ceases as prescribed in the plans.

iii. At the end of each day, temporary berms and pipe slope drains should be constructed along the top edge of the embarkment to intercept surface runoff and convey it down the slope in a non-crosive manner to a discount temporary berms and pipe slope drains should be constructed along the top edge of the embarkment to intercept surface runoff and convey it down the slope in a non-crosive manner to

a sediment trapping device.

Construction seducate: Refer to Figure 4 (below). Excavate and stabilize all temporary swales, side ditches, or berms that will be used to diver trunoff around the fill. Construct slope silt fence on low side of fill as shown in Figure 5, unless other methods shown on the plans address this area. Place Phase 1 embarkment, dress and stabilize.

Place Phase 2 embarkment, dress and stabilize.

Place final phase embankment, dress and stabilize. Overseed previously seeded areas as necessary. oreas as necessary.

Note: Once the placement of till has begun the operation should be continuous from grubbing through the completion of and placement of topsoil (if required) grading and permanent seed and mulch. Any interruptions in the operation or completing the operation out of the seeding season will necessitate the application of temporary stabilization.

STANDARDS AND SPECIFICATIONS FOR TOPSOIL

Placement of topsoil over a prepared subsoil prior to establishment of permanent vegetation. Purpose

To provide a suitable soil medium for vegetative growth. Soils of concern have low moisture content, low nutrient levels, low pti, materials toxic to plants, and/or unacceptable soil gradation

Conditions Where Practice Applies

1. This practice is limited to areas having 2:1 or flatter slopes where: a. The texture of the exposed subsoil/parent material is not adequate to produce vegetative growth. b. The soil material is so shallow that the rooting zone is not deep enough to support plants or furnish continuing supplies of moisture and plant nutrients.

c. The original soil to be vegetated contains material toxic to plant growth d. The soil is so acidic that treatment with limestone is not feasible. II. For the purpose of these Standards and Specifications, areas having slopes steeper than 2:1 require special consideration and design for adequate stabilization. Areas having slopes steeper than 2:1

shall have the appropriate stabilization shown on the plans. Construction and Material Specifications

1. Topsoil salvaged from the existing site may be used provided that it meets the standards as set forth in these specifications. Typically, the depth of topsoil to be salvaged for a given soil type can be found in the representative soil profile section in the Soil Survey published by USDA-SCS in poperation with Maryland Apricultural Experimental Station.

cooperation with Maritand Agricultural Experimental Station.

11. Topsoil Specifications - Soil to be used as topsoil must meet the following:

i. Topsoil shall be a loam, sandy loam, clay loam, silt loam, sandy clay loam, loamy sand. Other
soils may be used it recommended by an agronomist or soil scientist and approved by the
appropriate approval authority. Regardless, topsoil shall not be a mixture of contrasting
textured subsoils and shall contain less than 5% by volume of cinders, stones, slag, coarse tragments, gravel, sticks, roots, trash, or other materials larger than 11/2 in diameter. ii. Topsoil must be free of plants or plant parts such as bermuda grass, quackgrass, Johnson grass,

nutseage, poison by, thistle, or others as specified. scread at the rate of 4-8 tons/acre (200-400 pounds per 1,000 equare feet) prior to the placement of topsoil. Lime shall be distributed uniformly over designated areas and worked into the soil in conjunction with tillage operations as described in the following procedures.

For sites having, disturbed areas under 5 acres: i. Place topsoil (if required) and apply soil amendments as specified in 20.0 Vegetative Stabilization - Section I - Vegetative Stabilization Methods and Materials.

II. For sites having disturbed areas over 5 acres: i. On soil meeting Topsoil specifications, obtain test results dictating fertilizer and lime amendments required to bring the soil into compliance with the following: a. pH for topsoil shall be between 6.0 and 7.5. If the tested soil demonstrates a pH of less than 6.0, sufficient time shall be prescribed to raise the pH to 6.5 or higher.

b. Organic content of topsoil shall be not less than 1.5 percent by weight. c. Topsoil having soluble salt content greater than 500 parts per million shall not be used. d. No sod or seed shall be placed on soil which has been treated with soil sterilants or chemicals used for weed control until sufficient time has elapsed (14 days min.) to permit dissipation of phyto-toxic materials.

Note: Topsoil substitutes or amendments, as recommended by a qualified agronomist or soil scientist and approved by the appropriate approval authority, may be used in lieu of natural topsoil. ii. Place topsoil (if required) and apply soil amendments as specified in 20.0 Vegetative
Stabilization - Section I - Vegetative Stabilization, Methods and Materials.

V. Topsoil Application

i. When top soiling, maintain needed crosion and sediment control practices such as diversions. Grade Stabilization Structures, Earth Dikes, Slope Sitt Fence and Sediment Traps and Basins. ii. Grades on the areas to be top soiled, which have been previously established, shall be

maintained, albeit 4" - 8" higher in elevation.

iii. Topsoil shall be uniformly distributed in a 4" - 8" layer and lightly compacted to a minimum thickness of 4°. Spreading shall be performed in such a manner that sodding or seeding can proceed with a minimum of additional soil preparation and tillage. Any irregularities in the surface resulting from top soiling or other operations shall be corrected in order to prevent the formation of depressions or water pockets. v. Topsoil shall not be placed while the topsoil or subsoil is in a trozen or muddy condition. when

the subsoil is excessively wet or in a condition that may otherwise be detrimental to proper grading and seedbed preparation 11. Alternative for Permanent Seeding - Instead of applying the full amounts of lime and commercial fertilizer, composted studge and amendments may be applied as specified below:

Composted Studge Material for use as a soil conditioner for sites having disturbed areas over 5 acres shall be tested to prescribe amendments and for sites having disturbed areas under 5 acres shall conform to the following requirements:

a. Composted sludge shall be supplied by, or originate from, a person or persons that are

permitted (at the time of acquisition of the compost) by the Maryland Department of the Environment under COMAR 26.04.06. b. Composted sludge shall contain at least 1 percent natrogen, 1.5 percent phosphorus, and 0.2 percent potassium and have a Ph of 7.0 to 8.0. If compost does not meet these requirements the appropriate constituents must be added to meet the requirements prior to use.

. Composted sludge shall be applied at a rate of 1 ton/1,000 square feet. iv. Composted sludge shall be amended with a potassium fertilizer applied at the rate of 4 lb/1,000 square feet, and 1/3 the normal time application rate. References: Quideline Specifications, Soil Preparation and Sodding, MD-VA, Pub. #1, Cooperative Extension Service, University of Maryland and Virginia Polytechnic Institutes. Revised 1973.

SEDIMENT CONTROL NOTES

I) A MINIMUM OF 48 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY DEPARTMENT OF INSPECTIONS, LISCENSES AND PERMITS, SEDIMENT CONTROL DIVISION PRIOR TO THE START OF ANY CONSTRUCTION (313-1855). 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. 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 34, 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 MARUAL, STORM DRAINAGE 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, 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 AREA DISTURBED AREA TO BE ROOFED OR PAVED 4.484 ACRES 1.337 ACRES REA TO BE VEGETATIVELY STABILIZED 3.147 ACRES 9.597 CU.Y09 12.136 CU.Y06.

OFFSITE WASTE/BORROW AREA LOCATION ANY SECRMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE ADDITIONAL SEDMENT 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 DISTURBANCE OR GRADING. OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THIS INITIAL APPROVAL BY THE INSPECTION AGENCY IS MADE. ID TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THREE PIPE LENGHTS OR THAT WHICH SHALL BE BACK-FILLED AND STABILIZED WITHIN

ONE WORKING DAY, WHICHEVER IS SHORTER.

IO' MAXIMUM CENTER TO

STAPLE'

JOINING TWO ADJACENT SILT

for Geotextile Class F:

Tensile Strength

Tensile Modulus

Filtering Efficiency 75% (min.)

folded and stapled to prevent sediment bypass.

FENCE SECTIONS

PERMANENT SEEDING NOTES

all disturbed areas shall be stabilized as follows: SEEDBED PREPARATION:
LOOSEN UPPER THREE INCHES OF SOIL BY RAKING, DISCHIG OR OTHER ACCEPTABLE MEANS BEFORE SEEDING.

50%. 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 LB6./1,000 50.FT) AND 500 LB6. PER ACRE (II.5 LB5./ 1,000 50.FT.) OF 10-20-20 FERTILIZER.

SEEDING:
FOR THE PERIODS MARCH I 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 (14 LBS./1,000 SQ.FT.) KENTUCKY 31 TALL FESCUE AND 2 LBS. PER ACRE (0.05 LBS./1,000 SQ.FT.) OF WEEPING LOYECRASS, DURING THE PERIOD OF OCTOBER 16 THROUGH FEBRUARY 28. PROJECT SITE BY: OPTION (U - TWO TONS PER ACRE OF WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING OPTION (2) - USE 500; OPTION (3) - SEED WITH 100 LBS./ACRE KENTUCKY 31 TALL FESCUE AND MULCH WITH TWO TONS/ACRE WELL ANCHORED STRAW. ALL SLOPES SHOULD

APPLY 1 TO 2 TONS PER ACRE (10 TO 90 LBS./1,000 SQ.FT.) OF UNROTTED SMALL GRAIN STRAW PMEDIATELY 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 & FEET OR HIGHER USE 348 GALLONS PER ACRE (& 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 I TO APRIL 30.

TEMPORARY SEEDING NOTES

APPLY TO GRADED OR CLEARED AREAS LIKELY TO BE REDISTURBED WHERE A SHORT-TERM VEGETATIVE COVER 15 NEEDED. SEPTIMED PREPARATION:

ORD FREPARCA INDI: LOOSEN UPPER THREE INCHES OF SOIL BY RAKING, DISCING OR OTHER ACCEPTABLE NEANS BEFORE SEEDING, IF NOT PREVIOUSLY between stables. SOIL AMENDMENTS:

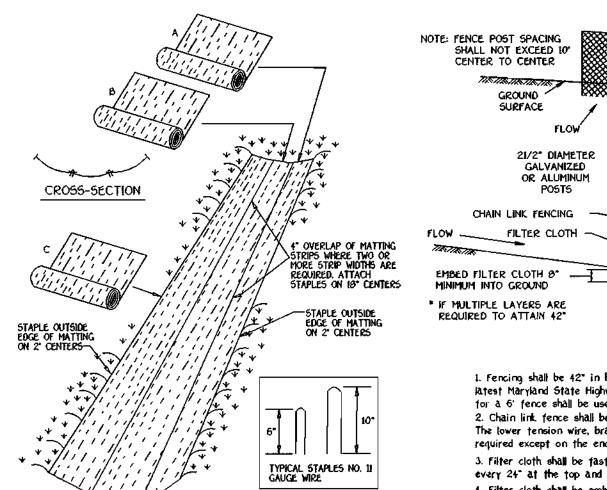
OR THE PERIODS MARCH I THROUGH APRIL 30, AND AUGUST 15 THROUGH NOVEMBER 15, SEED WITH 17 BUSHEL PER ACRE OF ANNUAL RYE (3.2 LBS./ACRE OF WEEPING LOYEGRASS (.07 LBS./ ,000 SQ.FT. FOR THE PERIOD NOVEMBER 16 THRU FEBRUARY 28, PROTECT SITE BY APPLYING 2 TONS PER ACRE OF WELL unchored straw mulch and seed as soon as possible in the

APPLY 600 LBS. PER ACRE 10-10-10 FERTILIZER (14 LBS./

APPLY 1 TO 2 TONS PER ACRE (70 TO 90 LBS/1,000 SQ.FT.) OF UNROTTED SMALL GRAIN STRAW INTEGNATELY AFTER SEEDING. ANCHORING TOOL OR 218 GALLONS PER ACRE (5 GALL),000 SQ.FT.) OF EMULSIFIED ASPHALT ON FLAT ACRES ON SLOPES & FEET OR figher, use 340 gallons per acre (8 gal./1,000 sq.ft.) for REFER TO THE 1988 MARYLAND STANDARDS AND SPECIFICATION FOR SOIL EROSION AND SEDIMENT CONTROL FOR RATE AND METHODS NOT

-36° MINIMUM LENGTH FENCE POST,

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Construction Specifications

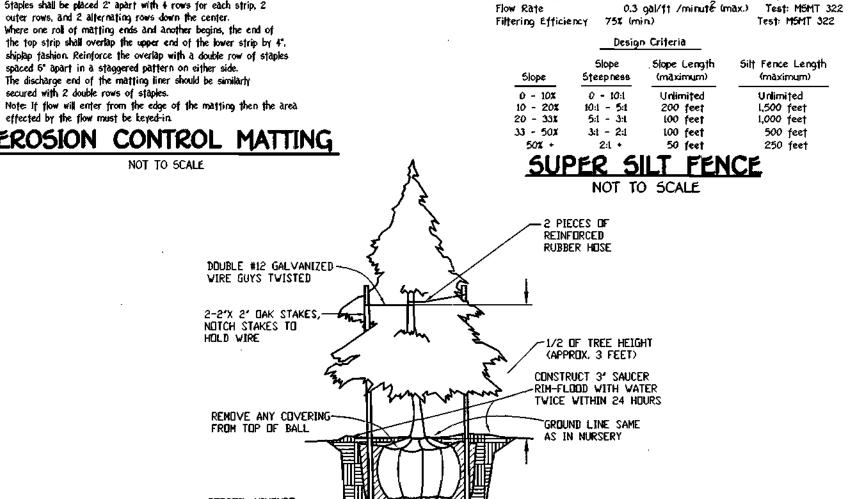
1. Key-in the matting by placing the top ends of the matting in a narrow trench, 6° in depth. Backfill the trench and tamp firmly to conform to the channel cross-section. Secure with a row of staples about 4" down slope from the trench. Spacing between staples is 6". 2 Staple the 4" overlap in the channel center using an 16" spacing

3. Before stapping the outer edges of the matting, make sure the matting is smooth and in firm contact with the soil. 4. Staples shall be placed 2' apart with 4 rows for each strip, 2 outer rows, and 2 alternating rows down the center. 5. Where one roll of matting ends and another begins, the end of

spaced 6" apart in a staggered pattern on either side. 6. The discharge end of the matting liner should be similarly secured with 2 double rows of staples. Note If flow will enter from the edge of the matting then the area

effected by the flow must be keyed-in EROSION CONTROL MATTING

NOT TO SCALE



10' MAXIMUM

WITH I LAYER C

FILTER CLOT

Construction Specifications

latest Maryland State Highway Details for Chain Link Fencing. The specification

2. Chain link fence shall be fastened securely to the fence posts with wire ties.

The lower tension wire, brace and truss rods, drive anchors and post caps are not

3. Filter cloth shall be tastened securely to the chain link fence with ties spaced

5. When two sections of filter cloth adjoin each other, they shall be overlapped

7. Filter cloth shall be fastened securely to each fence post with wire ties or

staples at top and mid section and shall meet the following requirements for

6. Maintenance shall be performed as needed and silt buildups removed when "bulges"

50 (bs/in (min.)

20 bs/in (min.)

1. Fencing shall be 42" in height and constructed in accordance with the

for a 6' fence shall be used, substituting 42" fabric and 6' length posts.

4. Filter cloth shall be embedded a minimum of 8" into the ground.

develop in the silt fence, or when silt reaches 50% of fence height

FLOW

--- 16° MIN. 15T LAYER O

STANDARD SYMBOL

Test: MSMT 509

Test: MSMT 509

SHALL NOT EXCEED 10

TIN TIN TIN TIN TIN TIN

GROUND 1

SURFACE

CHAIN LINK FENCING

FILTER CLOTH

21/2" DIAMETER

GALVANIZED

required except on the ends of the fence.

every 24" at the top and mid section.

Tensile Strength

Tensile Modulus

by 6" and folded.

Geotextile Class F:

EVERGREEN PLANTING DETAIL

OR ALLIMINUM

CENTER TO CENTER

EXISTING PAVEMENT -EARTH FILL ** GEOTEXTILE CLASS 'C' -PIPE AS NECESSARY OR BETTER MINIMUM 6" OF 2"-3" ACCREGATE OVER LENGTH AND WIDTH OF STANDARD SYMBOL EXISTING GROUND STRUCTURE #SCE PROFILE LENGTH 10° MINIMUM PLAN VIEW Construction Specification 1. Length - minimum of 50' (*30' for single residence lot). 2. Width - 10' minimum, should be flared at the existing road to provide a turning radius. 3. Geotextile fabric (filter cloth) shall be placed over the existing ground prior

to placing stone. **The plan approval authority may not require single family residences to use geotextile. 4. Stone - crushed aggregate (2" to 3") or reclaimed or recycled concrete

equivalent shall be placed at least 6" deep over the length and width of the entrance 5. Surface Water - all surface water flowing to or diverted toward construction entrances shall be piped through the entrance, maintaining positive drainage. Pipe installed through the stabilized construction entrance shall be projected with a mountable berm with 51 slopes and a minimum of 6° of stone over the pipe. Pipe has to be sized according to the drainage. When the SCE is located at a high spot and has no drainage to convey a pipe will not be necessary. Pipe should be sized according to the amount of runoff to be conveyed. A 6° minimum will be required.

Location - A stabilized construction entrance shall be located at every point where construction traffic enters or leaves a construction site. Vehicles leaving the site must travel over the entire length of the stabilized construction entrance.

STABILIZED CONSTRUCTION ENTRANCE NOT TO SCALE

SCHEDULE A PERIMETER LANDSCAPE EDGE		
CATEGORY	P-1 ADJACENT TO ROADWAY	P-2 ADJACENT TO ROADWAY
LANDSCAPE TYPE	В	8
LINEAR FEET OF ROADWAY FRONTAGE/PERIMETER	120.30	163.77'
CREDIT FOR EXISTING VEGETATION (YES, NO, X)	NO NO	NO
CREDIT FOR WALL, FENCE OR BERM (YES, NO, X)	NO -	NO NO
number of Trees required: Shade trees Evergreen trees	2 3	3 4
NUMBER OF TREES PROVIDED: SHADE TREES EVERGREEN TREES	5	7

PLANTING SPECIFICATIONS

Plants, related material, and operations shall meet the detailed description as given on the plans and as described herein.

All plant material, unless otherwise specified, shall be nursery grown, uniformly branched, have a vigorous root system, and shall conform to the species, size, root and shape shown on the plant list and the American Association of Nurserymen (AAN) Standards. Plant material shall be healthy, vigorous, tree from defects, decay, distinguish roots, sun scald injuries, abrasions of the bark, plant disease, insect pest eggs, borers and all forms of insect infestations or objectionable disfigurements. Plant material that is weak or which has been cut back from larger grades to meet specified requirements will be rejected. Trees with forked leaders will not be accepted. All plants shall be freshly dug, no healed-in plants from cold storage will be accepted. Unless otherwise specified, all general conditions, planting operations, details and planting specification shall conform to "Landscape Specification Guidelines for Baltimore-Washington Metropolitan Areas", thereinafter "Landscape Guidelines") approved by the Landscape Contractors Association of Metropolitan Washington and the Potomac Chapter of the American Society of Landscape Architect, latest edition, including all agenda.

Contractor shall be required to quarantee all plant material for a period of one year after date of acceptance in accordance with the appropriate section of the Landscape Guidelines. Confractor's attention is directed to the maintenance requirements found within the one year specifications including watering and replacement of specified plant material. Contractor shall be responsible for notifying utility companies, utility contractors and "Miss Utility" a minimum of 40 hours prior to beginning any work.

Contractor may make minor adjustments in spacing and location of plant material to avoid conflicts with utilities. Damage to existing structure and utilities shall be repaired at the expense of the Contractor. Protection of existing vegetation to remain shall be accomplished by the temporary installation of 4 toot high snow fence or blaze orange safety fence at the drip line.

Contractor id responsible for installing all material in the proper planting season for each plant type. All planting is to be completed within the growing season of completion of site construction. Bid shall be base on actual site conditions. No extra payment shall be made for work arising from site conditions differing from those indicated on

drawings and specifications Plant quantities are provided for the convenience of the contractor only. If discrepancies exist between quantities shown on plan and those shown on the plant list, the quantities on the plan take precedence

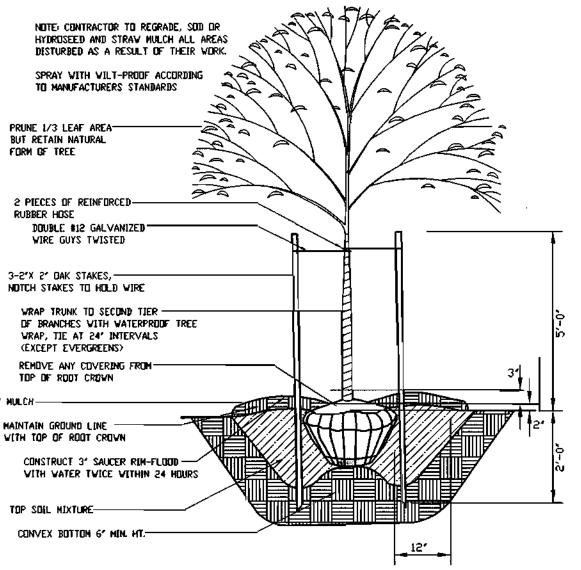
All shrubs shall be planted in continuous trenches or prepared planting beds and mulched with composted hardwood mulch as details and specified except where noted on plans.

Positive drainage shall be maintained in planting beds 2 percent slope).

Planting mix shall be as follows: Deciduous Plants - Two parts topsoil, one part well-rotted cow or horse manure. Add 3 lbs. of standard fertilizer per cubic yard of planting mix. Evergreen Plants - two parts topsoil, one part humus or other approved organic material. Add 3 lbs. of evergreen (acidic) fertilizer per cubic yard of planting mix. Topsoil shall conform to the Landscape Guidelines. Weed Control: Incorporate a pre-emergent herbicide into the planting bed following recommended rates on the label. Caution: Be sure to carefully check

the chemical used to assure its adaptability to the specific ground cover to be treated. All areas within compract limits disturbed during or prior to construction not designated to receive plants and much shall be fine graded and seeded. This plan is intended for landscape use only. see other plan sheets for more information on grading, sediment control, layout, etc.

410-379-5956



TREE PLANTING DETAIL

FISHER, COLLINS & CARTER, INC. JARE OFFICE PARK - 10272 BALTIMORE NATIONAL PI ELLICOTT CITY, MARYLAND 21042 DATE REVISION

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."

36" MINIMUM FENCE-

TANKTANATANATAN

EMBED GEOTEXTILE CLASS F A MINIMUM OF 8" VERTICALLY-INTO THE GROUND

FILTER

CROSS SECTION

STANDARD SYMBOL

POST LENGTH

SECTION B

Construction Specifications

1. Fence posts shall be a minimum of 36" long driven 16" minimum into the

(minimum) round and shall be of sound quality hardwood. Steel posts will be

standard T or U section weighting not less than 1.00 pond per linear foot.

2. Geotextile shall be fastened securely to each fence post with wire ties

or staples at top and mid-section and shall meet the following requirements

20 lbs/in (min)

3. Where ends of geotextile fabric come together, they shall be overlapped,

4. Sift Fence shall be inspected after each rainfall event and maintained when

bulges occur or when sediment accumulation reached 50% of the fabric height. SILT FENCE

NOT TO SCALE

0.3 gal ft / minute (max.) Test: MSHT 322

Test: MEMT 322

11.24.03

ground. Wood posts shall be 11/2" x 11/2" square (minimum) cut, or 13/4" diameter

FLOW

Signature of Engineer EARL D. COLLINS

Signature of Developer

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 any responsible personnel involved in the construction project will have a Certificate of Attendance at a Department of the Environment Approved Trailing Program for the Control of Sediment and Erosion before beginning the project. I the authorize periodic on-site inspection by the Howard Soil Conservation District."

TOM GARNER

Reviewed for HOWARD SCD and meets Technical Requirements Conservation Service

410-480-9105

This development plan is approved for soil erosion and sediment control by the HOWARD SOIL CONSERVATION DISTRICT.

OWNER/DEVELOPER BUILDER WAVERLY WOODS DEVELOPMENT CORPORATION NV HOMES C/O LAND DESIGN AND DEVELOPMENT, LLC. 6085 MARSHALEE DRIVE SUITE 130 8000 MAIN STREET ELKRIDGE, MARYLAND 21075 ELLICOTT CITY, MARYLAND 21043

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING 1/5/04 Date irector - Department of Planning and Zoning PROJECT LOTS NO SECT. 4 AREA ! GTW'S WAVERLY WOODS SECT. 11 AREA 3 97-107 TAX/ZONE | ELEC. DIST. BLOCK NO. ZONE CENSUS TR. 16222-16226 16266-16272 5 & 6 R-20 THIRD 6030.00 16 WATER CODE SEWER CODE 5993000

SEDIMENT/EROSION CONTROL, LANDSCAPE, NOTES & DETAILS

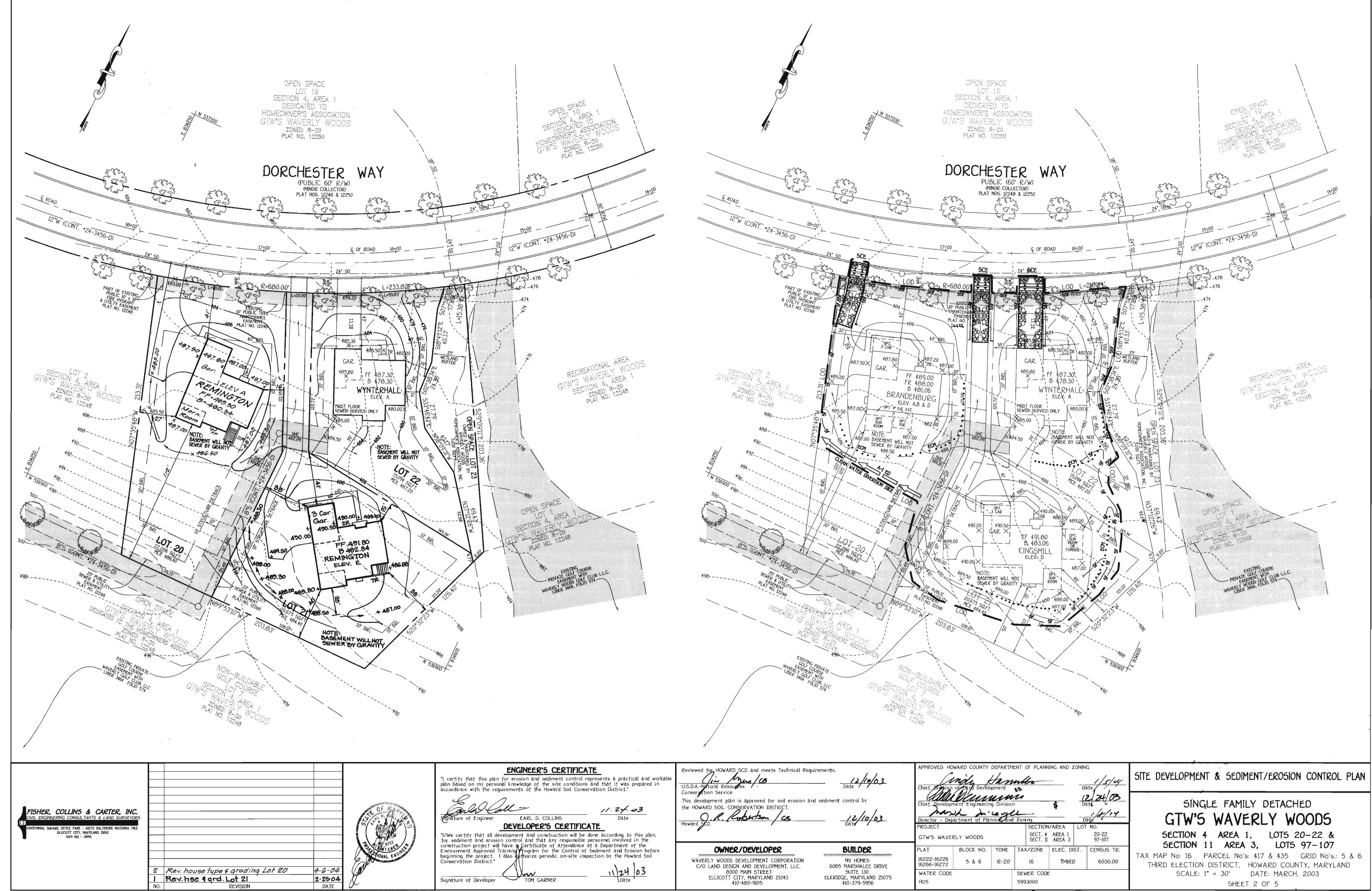
SINGLE FAMILY DETACHED

GTW'S WAVERLY WOODS AREA 1. LOTS 97-107 11 AREA 3.

PARCEL No's: 417 & 435 GRID No's.: 5 & 6 THIRD ELECTION DISTRICT, HOWARD COUNTY, MARYLAND SCALE: 1" = 30' DATE: MARCH, 2003 SHEET 5 OF 5

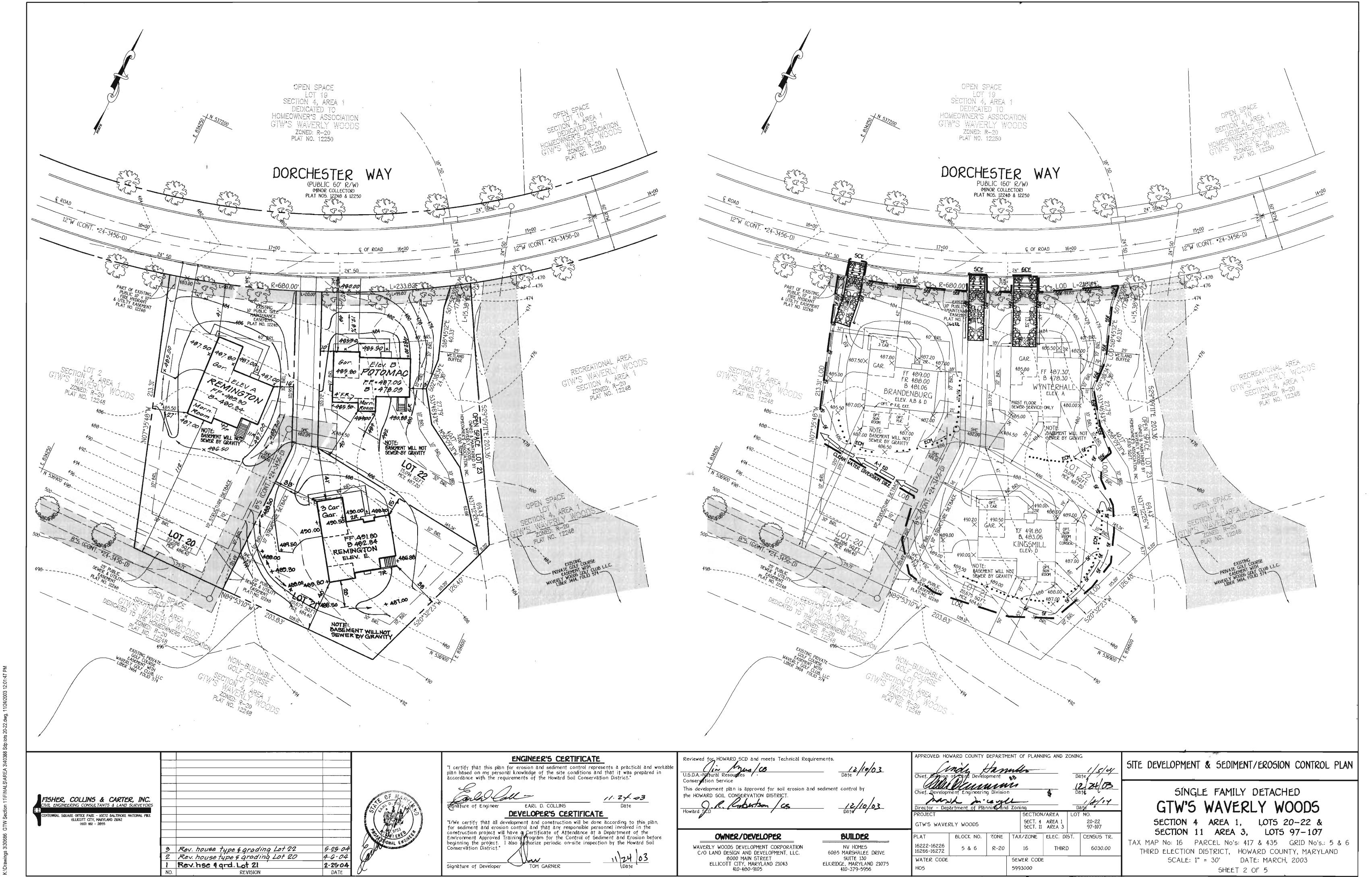
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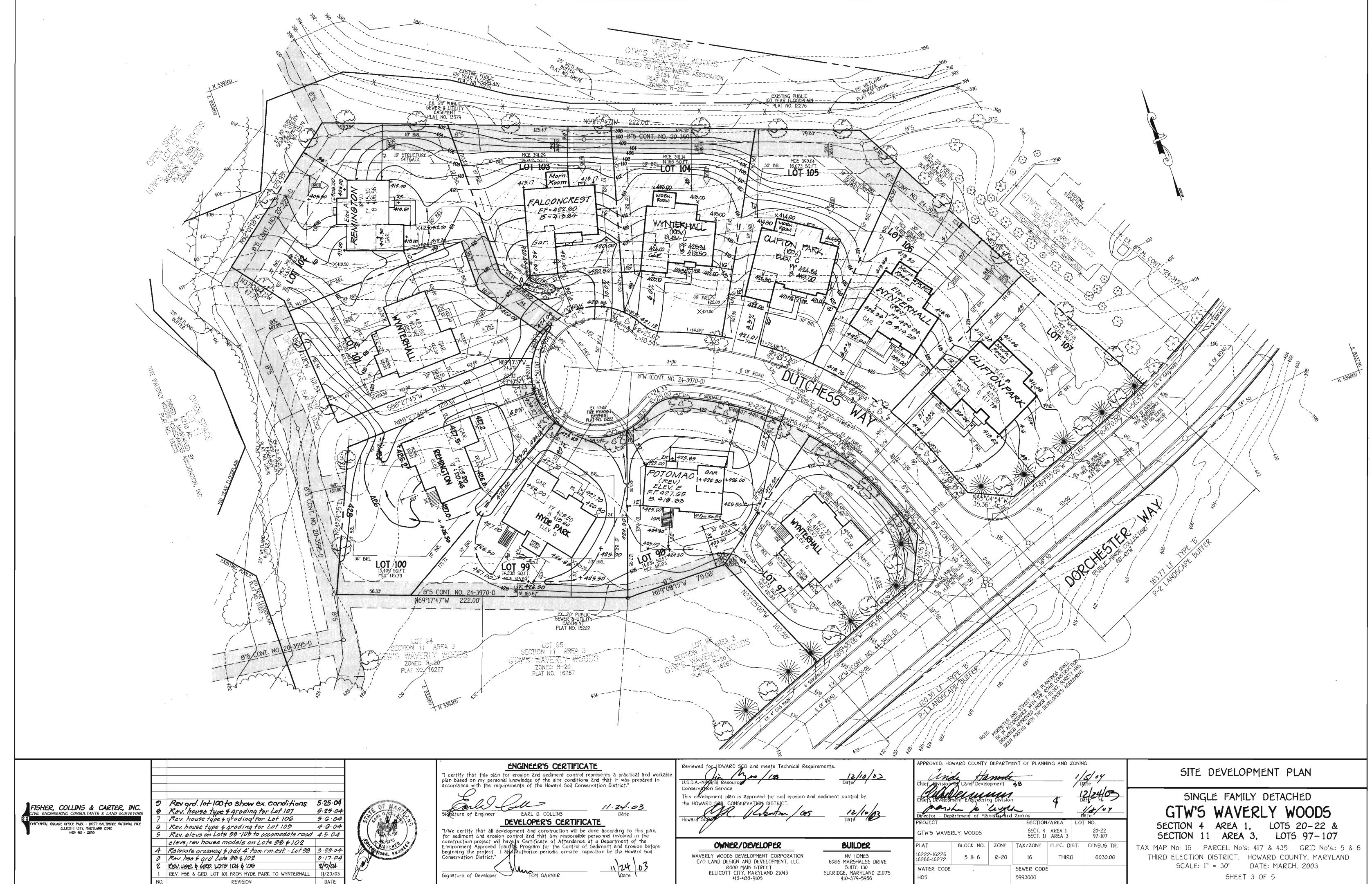
REVISION



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SOP 04-45





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SOP 04-45

