

SECTION I- VEGETATIVE STABILIZATION METHODS AND MATERIALS

 Install erosion and sediment control structures (either temporary or permanent) such as diversions, grade stabilization structures, berms, waterways, or sediment control basins. 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 graund 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 soilby disking or other suitable means.

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 disk harrows or chisel plows or rippers mounted on construction equipment. After the soil is loosened it should not be rolked 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.

c. Incorporate time and fertilizer into the top 3 - 5" of soil by disking or other suitable means

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 serecial espedeza 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 pare 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 stats to prevent topsoil from sliding down a slope.

d. 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 application. Where site conditions will not permit normal seedbed preparation, loosen surface soil by dragging with a heavy chian or other equipment to roughen the surface. Steep slopes (steeper than 31) should be tracked by a dozer leaving the soil in an irregular condition with ridges running parallel to the cantour of the slape. The top 1 - 3" of sail should be loose and friable. Seedbed loosening may not be necessary on newly disturbed areas.

 All seed must meet the requirements of the Maryland State Seed Low. 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 sawing such material on this job. 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 alter 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<sup>3</sup> 4F can weaken bacteria and make the inoculant less effective.

 i. <u>Hydroseeding</u>: Apply seed uniformly with hydroseeder (slurry includes seed and fertilizer), broadcast or drop seeder, or a cultipacker seeder. a. If fertilizer is being applied at the time of seeding, the application rate amounts will not exceed the following: nitragen; maximum of 100 lbs. per acre total of soluble nitragen; 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. :. Seed and fertilizer shall be mixed on site and seeding shall be done immediately and without

 Dry Seeding: This includes use of conventional drop or broadcost spreaders. a. Seed spread dry shall be incorporated into the subsoil at the rates prescribed on the Temporary or Permanent Seeding Summaries or Tables 25 or 26. The seeded area shall then be rolled with a weighted roller to provide good seed to soil contact.

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)

Straw shall consist of thoroughly threshed wheat, rye or out straw, reasonably 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 Cellulase Fiber Mulch (WCFM) a. WCFM shall consist of specialty prepared wood cellulose processed into a uniform fibrous

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 grass seedlings.

e. WCFM material shall contain no elements or compounds at concentration levels that will be

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. If grading is completed outside for the seeding season, mulch along should 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 sail surface is not exposed. If a mulch applied to be used the area should be increased to 2.5 tons/acre. onchoring tool is to be used, the rate should be increased to 2.5 tons/ocre. iii. Wood cellulase fiber used as a mulch shall be applied at a net dry weight of 1,500 lbs, per acre. The wood cellulase fiber shall be mixed with water, and the mixture shall contain a maximum of 50 lbs. of wood cellulase fiber per 100 gallons of water.

H. Securing Straw Mulch (Mulch Anchoring): Mulch enchoring shell be performed immediately following mulch application to minimize less by wind or water. This may be done by one of the following methods (fisted by preference), depending upon size of area and erosion hazard: i. A mulch anchoring tools 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.

iii. Application of liquid binders should be heavier at the edges where wind catches mulch, such as in valleys and on creats of banks. The remainder of area should 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 stopled 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

Sod - to provide quick cover on disturbed areas (2:1 grade or flatter)

 Class of turfgrass sod shall be Maryland or Virginia State Certified or Approved. Sod labels shall be made available to the job foreman and inspector. ii. Sod shall be machine cut at a uniform soil thickness of 3/4", plus or minus 1/4", at the time of cutting. Measurement for thickness shall exclude top growth and thatch. Individual pieces of sad shall be cut to the suppliers width and length. Maximum allowable deviation from standard widths and lengths shall be 5 percent. Broken pads and torn or uneven ends will not be acceptable. iii. Standard size sections of sod shall be strong enough to support their own weight and retain their size and shape when suspended vertically with a firm grasp on the upper 10 percent of the section.

 Sod shall not be harvested or transplanted when moisture content (excessively dry or wet) may adversely affect it survival. v Sod shall be harvested, delivered, and installed within a period of 36 hours. Sad not transplanted within this period shall be approved by an agranomist or soil scientist prior to its installation.

 During periods of excessively high temperature or in areas having dry subsoil, the subsoil shall be lightly irrigated immediately prior to laying the sod. iii. Wherever possible, sod sholl be loid with the long edges parallel to the contour and with staggering joints. Sod shall be rolled and tamped, pegged or atherwise secured to prevent slippage on slopes and to ensure solid contact between sod roots and the underlying soil surface. iv. Sad shall be watered immediately following rolling or tamping until the underside of the new sad pad and sall surface below the sad are thoroughly wet. The operations of laying, tamping and irrigating for any piece of sad shall be completed within eight hours.

 in the absence of adequate rainfall, watering shall be performed daily or as often as necessary during the first week and in sufficient quantities to maintain moist sall to a depth of 4". Watering should be done during the heat of the day to prevent wilting. ii. After the first week, sod watering is required as necessary to maintain adequate moisture

iii. The first mowing of sod should not be attempted until the sod is firmly rooted. No more than 1/3 of the grass leaf shall be removed by the initial cutting or subsequent cuttings. Grass height shall be maintained between 2" and 3" unless otherwise specified.

# 21.0 STANDARD AND SPECIFICATIONS

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

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

Conditions Where Practice Applies I. 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 taxic 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 slapes steeper than 2:1 require special consideration and design for adequate stabilization. Areas having slapes steeper than 2:1 shall have the appropriate stabilization shown on the plans.

Construction and Material Specifications I. Topsoil salvaged from the existing site may be 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 cooperation with Maryland Agricultural Experiment Station.

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

i. Topsoil shall be a loam, sandy loam, clay loam, silt laam, dandy clay loam, loamy sand. Other soils may be used if 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, slog, coorse fragments, gravel, sticks, roots, trash, or other materials larger than 1½" in diameter. ii. Topsoil must be free of plants or plant parts such as bermuda grass, quackgrass, Johnsongrass, nutsedge, poison ivy, thistle, or others as specified. iii. Where the subsoil is either highly acidic or composed of heavy clays, ground limestone shall be spread at the rate of 4-8 tons/acre (200-400 pounds per 1,000 square feet) prior to the placement of topsoil. Lime shall be distributed uniformly over the designated areas and worked into the soil in conjunction with tillage operations as described in the following procedures.

RED FESCUE OR

II. 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.

i. On soil meeting Topsoil specifications, obtain test results dictating fertilized and lime amendments required to bring the soil into compliance with the following: a. pH for topsoilshall be between 6.0 and 7.5. If the tested soil demonstrates a pH of less than 6.0, sufficient lime 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 dissipation of phyto-toxic materials. Note: Topsoil substitutes or amendments, as recommended by a qualified agronomist or soil scientist and approved by the appropriate authority, may be used in lieu of natural topsoil.

When topsalling, maintain needed erosion and sediment control practices such as diversions Grade Stabilization Structures, Earth Dikes, Slope Silt Fence and Sediment Traps and Basins.

ii. Grades on the areas to be topsoiled, 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 sadding or seeding can proceed with a minimum of additional sail preparation and tillage. Any irregularities in the surface resulting from topsoiling or other operations shall be corrected in order to prevent the formation of

iv. Topsoil shall not be placed while the topsoil or subsail is in a frozen or muddy candition, when the subsail is excessively wet or in a candition that may otherwise be detrimental to proper grading and seedbed preparation.

VI. Alternative for Permanent Seeding - Instead of applying the full amounts of lime and commercial fertilizer, camposted sludge and amendments may be applied as specified below: i. Composted Studge Material for use as a soli 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 canform 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 nitrogen, 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.

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 lime application rate. References: Guideline Specifications, Soil Preparation and Sodding. MD-VA, Pub. \*1, Cooperative Extension Service, University of Maryland and Virginia Polytechnic Institutes. Revised 1973.

19.0 STANDARDS AND SPECIFICATIONS

Reshaping of the existing land surface in accordance with a plan as determined by engineering survey and layout.

The purpose of a land grading specification is to provide for erosion control and vegetative establishment on those areas where the existing land surface is to be reshaped by grading according to

Design Criteria

The grading plan should be based upon the incorporation of building designs and street layouts that fit and utilize existing topography and desirable natural surroundings to avoid extreme grade modifications. Information submitted must provide sufficient topographic surveys and soil investigations to determine limitations that must be imposed on the grading operation related to slope stability, effect on adjacent properties and drainage patterns, measures for drainage and water removal and vegetative treatment, etc.

Many counties have regulations and design procedures already established for land grading and cut and fill slopes. Where these requirements exist, they shall be followed. The plan must show

existing and proposed contours of the greats) to be graded. The

plan shall also include practices for erasion control, slape stabilization, safe disposal of runoff water and drainage, such as waterways, lined ditches, reverse slape benches (include grade and

phasing of these practices. The following shall be incorporated into the plant

1. Provisions shall be made to safely conduct surface runoff to storm drains, protected outlets or to stable water courses to

insure that surface runoff will not damage slopes or other graded

2. Cut and fill slopes that are to be stabilized with grasses shall not be steeper than 2:1. (Where the slope is to be moved the slope should be no steeper than 3:1: 4:1 is preferred because of safety factors related to moving steep slopes.) Slopes exceeding 2:1 shall require special design and stabilization considerations

3. Reverse benches shall be provided whenever the vertical (height) of any 2:1 slope exceeds 20 feets for 3:1 slope it shall be increased to 30 feet and for 4:1 to 40 feet. Benches shall be located to divide the slope face as equally as possible and shall convey the water to a stable outlet. Solls, seeps, rock outcraps, etc., shall also be taken into consideration when designing benches.

Benches shall be a minimum of six feet wide to provide for ease

b. Benches shall be designed with a reverse slope of 611 or flatter to the toe of the upper slope and with a minimum of one foot in depth. Bench gradient to the outlet shall be between 2 percent and 3 percent, unless accompanies by appropriate design and

c. The flow length within a bench shall not exceed 800' unless accompanied by appropriate design and computations. For flow channel stabilization see temporary swale.

shall be adequately shown on the plans.

c. Composted sludge shall be applied at a rate of 1 ton/1,000 square feet.

4. Surface water shall be diverted from the face of all out and/or fill slapes by the use of earth dikes, ditches and swales or conveyed downslope by the use of a designed structure, except

a. The face of the slope is or shall be stabilized, and the face of all graded slopes shall be protect from surface runoff until they are stabilized.

b. The face of the slope shall not be subject to any concentrated flows of surface water such as from natural drainageways, graded swales, downspouts, etc. c. The face of the slope will be protected by special erosion control materials, to include, but not limited to: approved vegetative stabilization practices (see Section G), rip-rap or other approved stabilization methods.

5. Cut slopes accurring in ripoble rock shall be serrated as shown on the following diagram. These serrations shall be made with conventional equipment as the excavation is made. Each step or serration shall be constructed on the contour and will have steps out at nominal two-foot intervals with nominal three-foot horizontal shelves. These steps will vary depending on the slape ratio or the out slape. The nominal slape line is it. These steps will weather and act to hold moleture. Time, fertilizer and ased thus producing a much quicker and larger lived vegetative cover and better slope stabilization. Overland flow shall be

 Subsurface drainage shall be provided where necessary to intercept seepage that would otherwise adversely affect slape stability or create excessively wet site conditions. 7. Slopes shall not be created so close to property lines as to endanger adjoining properties without adequately protecting such properties against sedimentation, erosion, slippage, settlement, subsidence or other related damages.

diverted from the top of all serrated cut slopes and carried to a

8. Fill material shall be free of brush: rubbish: rocks: logs: stumps: building debris: and other objectionable material. It should be free of stones over two (2) inches in diameter where compacted by hand or mechanical tampers or over elight (8) inches diameter where compacted by rollers or other equipment. Frazen material shall not be placed in the fill nor shall the fill material be placed on a frazen foundation.

 Stockpiles, borrow areas, and spail shall be shown on the plans and shall be subject to the provisions of this Standard and Specification. 10. All disturbed areas shall be stabilized structurally or vegetatively in compilance with 20.0 Standards and Specifications for Vegetative Stabilization.

...DITCH OR DIVERSION TO DIVERT FLOW (IF REQUIRED)

BENCH-2 TO 3 PERCENT GRADE AND DRAIN TO A STABLE DUTLET

LAND GRADING

6' MINIMUM ----

exceed 8" in thickness.

phases of development.

Construction Specification 1. All fills shall be compacted as required to reduce erosion-

Fill intended to support buildings, structures and conduits,

2. All fill shall be placed and compacted in layers not to

etc.. shall be compacted in accordance with local requirements

3. Except for approved landfills or nonstructural fills, fill

material shall be free of brush, rubbish, rocks, loss, stumps.

building debris and other objectionable materials that would

interfere with or prevent construction of satisfactory fills.

4. Frozen material or soft, mucky or highly compressible

5. All benches shall be kept free of sediment during all

7. All graded areas shall be permanently stabilized

Subsurface Drain or other approved methods

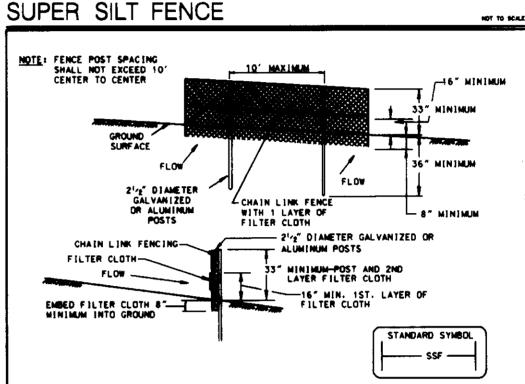
immediately following finished grading-

6. Seeps or aprings encountered during construction shall be handled in accordance with the Standard and Specification for

materials shall not be incorporated into fill slopes or structural fills. Fill shall not be placed on a frozen

X:1 Y (MAX)

### SILT FENCE **MBT TO BCALE** DRIVEN A MINIMUM OF 16" INTO STANDARD SYMBOL \$F -----JOINING TWO ADJACENT SILT --- 16" MINIMUM HEIGHT ( FENCE SECTIONS ground. Wood posts shall be 11/2" x 11/2" square (minimum) cut, or 13/4" diameter (minimum) round and shall be of sound quality hardwood. Steel posts will be 2. Geotextile shall be fastened securely to each fence post with wire ties PERSPECTIVE VIEW POST LENGTH or stoples at top and mid-section and shall meet the following requirements CLOTH-FENCE POST SECTION 50 Ibe/in (min.) Tensile Strength 20 lbs/in (min.) Test: MSMT 509 Tensile Modulus GROUND 0.3 gal ft\*/ minute (max.) Test: MSMT 322 Test: MSMT 322 EMBED GEOTEXTILE CLASS F - FENCE POST DRIVEN A A MINIMUM OF 8" VERTICALLY 3. Where ends of geotextile fabric come together, they shall be overlapped. 4. Stiff Fence shall be inspected after each rainfall event and maintained when bulges accur or when sediment accumulation reached 50% of the fabric height-



Fencing shall be 42" in height and constructed in accordance with the latest Maryland State Highway (SHA) Details for Chain Link Fencing. The SHA specifications for a 6 foot fence shall be used, substituting 42 inch fabric and 6 foot length poets.

The posts do not need to be set in concrete.

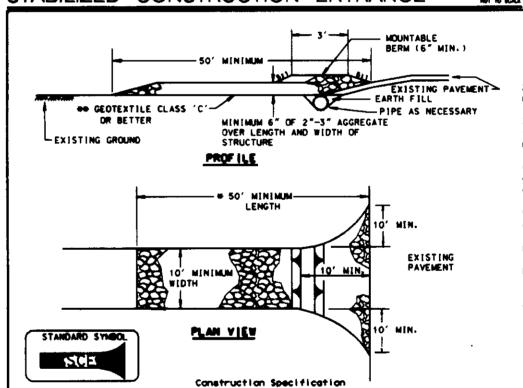
2. Chain link fence shall be fastened securely to the fence posts with wire ties.

3. Filter cloth shall be fastened securely to the chain link fence with ties spaced every 24" at the tap and mid section.

4. Filter cloth shall be embedded a minimum of 8" into the ground. 5. When two sections of geotextile filter cloth adjoin each other, they shall be

6. Mgintenance shall be performed as needed and sitt buildups removed when "buildes" develop in the silt fence.

STABILIZED CONSTRUCTION ENTRANCE



2. Width - 10' minimum, should be flored at the existing road to provide a turning

3. Georexfile fabric (filter cloth) shall be placed over the existing ground prior to placing stone. Withe plan approval authority may not require single family residences to use geotextile.

4. Stone – crushed aggregate (2" to 3") or reclaimed or recycled concrete

5. Surface Water - all surface water flowing to ar diverted toward construction entrances shall be piped through the entrance, maintaining positive drainage. Pipe Installed through the stablitzed construction entrance shall be protected with a mountable berm with 5:1 slapes and a minimum of 6" of stane over the pipe. Fipe 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

occording to the amount of runoff to be conveyed. A 6" minimum will be required. 6. Loggian - 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.

TABLE 26 - TEMPORARY SEEDING RATES, DEPTHS, AND DATES PLANT HARDINESS ZONE 66 MINIMUM SEEDING RATES 56 HARDINESS ZONES 37 AND SEEDING DATES 30

PLANTING

| 8  | REED CANARYGRASS (75%)                       | 40        | .92        | WET TO             | 36         |   |   |  |   |    | $\longmapsto$ |   | 」 " |  |   |  |
|----|--|-----------|------------|--------------------|------------|---|---|--|---|----|---------------|---|-----|--|---|--|
|    | REDTOP (6%) PLUS<br>BIRDSFOOT TREEFOIL (19%) | 10        | .07<br>.23 |                    | <b>6</b> a |   | x |  | × |    |               |   |     |  |   |  |
|    |  |           |            |                    | 6b         | × |   |  |   |    | x             |   |     |  |   |  |
|    |  |           |            |                    | 70         | × |   |  |   |    |               | × |     |  |   |  |
|    |  |           |            |                    | 7b         | х |   |  |   |    |               | × |     |  |   |  |
| 9  | TALL FESCUE (85%) OR                         | 125       | 2.9        | WET TO             | 5b         |   | × |  |   | ×  |               |   | 1   |  |   |  |
|    | POA TRIVIALIS (7%) BIRDSFOOT TREEFOIL (7%)   | 10<br>10  | .23<br>.23 | .23 MODERATELY DRY | <b>6</b> a |   | x |  | × | ×  |               |   |     |  |   |  |
|    |  |           |            |                    | 6b         | х |   |  |   |    | ×             |   |     |  |   |  |
| 10 | TALL FESCUE (80%)<br>HARD FESCUE (20%)       | 120<br>30 | 3.4        |                    | 5b         |   | x |  |   | ×  |               |   | J , |  |   |  |
|    |  |           | .69        |                    | <b>6</b> a |   | × |  |   | ×  |               |   |     |  |   |  |
|    |  |           |            |                    | 6b         | х |   |  |   |    | X             |   |     |  |   |  |
|    |  |           |            | 1                  | 7a         | x |   |  |   |    |               | x |     |  |   |  |
|    |  |           |            |                    | 7b         | х |   |  |   |    | ,             | × |     |  |   |  |
| 11 | HARD FESCUE (100%)                           | .75       | 1,7        | WET TO DRY         | 5b         |   | × |  |   | ×  |               |   | ĸ   |  |   |  |
|    |  |           |            |                    |            |   |   |  |   | 6a |               | × |     |  | × |  |
|    | İ  |           |            |                    | 6b         | x |   |  |   |    | x             |   | ]   |  |   |  |
|    |  |           |            |                    | 7 <b>a</b> | × |   |  |   |    |               | × |     |  |   |  |

|  |  | DEPTH                |                   |              |              |                      |              |   |                  |               |              |                      |  |  |
|--|--|----------------------|-------------------|--------------|--------------|----------------------|--------------|---|------------------|---------------|--------------|----------------------|--|--|
| SPECIES                                  |  | <del>-  </del>       |                   | 7a an        |              | 7b                   | 6b           |   |                  | 6a and 5b     |              |                      |  |  |
|  | PER ACRE   | LBS/1000<br>SQ.FT.   | INCHES            | 2/1-<br>4/30 | 5/1-<br>8/14 | 8/15-<br>11/30       | 3/1-<br>4/30 |   | 8/15-<br>11/15   | 3/15-<br>5/31 | 6/1-<br>7/31 | 8/1-<br>10/3         |  |  |
| CHOOSE ONE:<br>BARLEY<br>OATS<br>RYE **  | 2.5 BU.(122lbs)<br>3 BU.(96 lbs)<br>2.5 BU. (140lbs) | 2.80<br>2.21<br>3.22 | 1-2<br>1-2<br>1-2 | X<br>X<br>X  |              | BY<br>10/15<br><br>X | X<br>X<br>X  |   | BY<br>10/15<br>X | X<br>X<br>X   | -            | BY<br>1071<br>-<br>X |  |  |
| BARLEY OR<br>RYE PLUS<br>FOXTAIL MILLET* | 150 lbs  | 3.45                 | 1                 | ×            | ×            | 10/15<br>X           | ×            | × | 10/15<br>X       | ×             | x            | 10/1<br>X            |  |  |
| WEEPING<br>LOVEGRASS 41                  | 4 lbs  | .09                  | 1/4-1/2           | •            | ×            | ,                    | -            | X | -                | -             | х            | -                    |  |  |
| ANNUAL RYEGRASS                          | 50 lbs   | 1.15                 | 1/4-1/2           | х            | -            | 11/1                 | x            | • | 11/1             | ×             | ,            | 8/15                 |  |  |
| MILLET42                                 | 50 lbs   | 1,15                 | 1/2               | -            | ×            | -                    | -            | × | -                |               | ×            |                      |  |  |

15 LBS./1000 S.F., 600LBS./ACRE LIME RATE 100LBS./1000 S.F., 2 TONS/ACRE 37 REFER TO FIGURE A - ADOPTED FROM USDA, ARS MISCELLANEOUS PUBLICATION #1475, JANUARY 1990 38 BETWEEN FALL AND SPRING SEEDING DATES, USE MULCH ONLY IF GROUND IS FROZED AND RESEED WHEN THAWED

39 MAY BE USED AS A NURSE GROP FOR LATE FALL / EARLY WINTER PERMANENT SEEDINGS, ADD 86 LBS./AC. TO THE PERMANENT SEEDING MIXTURE 40 MARYLAND STATE HIGHWAY ADMINISTRATION TEMPORARY SEED MIX 41 MAY BE USED AS A NURSE CROP FOR MID-SUMMER PERMANENT SEEDINGS, ADD 2 LBS./AC, TO PERMANENT SEED MIX

42 MAY BE USED AS A NUMBE CROP FOR MID-SUMMER PERMANENT SEEDINGS, ADD 10 LBS./AC, TO THE PERMANENT SEEDING MIX.

FERTILIZER RATE: (10-20-20) N 2LBS./1000 S.F., 90 LBS./AC. P205 4LBS./1000 S.F., 175 LBS./AC. K20 4LBS./1000 S.F., 175 LBS./AC LIME RATE 100LBS./1000 S.F., 2 TONS/AC

Approved : Howard County Health Department for Public Water and Sewerage Systemes. Joya M. On Map 51 3-14-17 Address Chart Street Address Lot/Parcel 9441 Baltimore National Pike Parcel 79 Subdivision Name Section/Area Block No. | Zone | Tax/Zone | Elec. Dist. B-2 Map 24 6023.01 2nd 4

OWNER: PETROS KARRAS & ELIAS KARRAS 12930 FOLEY QUARTER ROAD ELLICOTT CITY, MD. 21042 DEVELOPER: MAR-CHECK INC. 1410 N. CRAIN HIGHWAY SUITE 9-A GLEN BURNIE MD. 21061 CHECKERS RESTAURANT 9441 BALTIMORE NATIONAL PIKE ELLICOTT CITY, MD.

S & E CONTROL NOTES SHEET NO. 3 OF 5 DATE: 4 MARCH 1997 2nd ELECTION DISTRICT SCALE: AS SHOWN

SDP-97-64

CITE RECOMMENDED PLANTING DATES

Table 25 Permanent Seeding for Low Maintenance Areas

| MIX | SEED MIX (USE CERTIFIED MATERIAL IF AVAILABLE)  | PLA       | NTING              | SITE CONDITIONS          | USDA<br>HARDI- | RECOMMENDED PLANTING DA | DAIES        |               | 1            |               |                |                |   |
|-----|---|-----------|--------------------|--------------------------|----------------|-------------------------|--------------|---------------|--------------|---------------|----------------|----------------|---|
|     | TOOL SERVICES MATERIAL II AVAILABLE?  | LBS/AC.   | LBS/1000<br>SQ.FT. |                          | NESS<br>ZONES  | 3/1 -<br>5/15           | 3/15-<br>6/1 | 5/16-<br>8/14 | 6/2-<br>7/31 | 8/1 -<br>10/1 | 8/15-<br>10/15 | 8/15-<br>11/15 |   |
| 1   | TALL FESCUE (75%),<br>CANADA BLUEGRASS (10%),<br>KENTUCKY BLUEGRASS (10%),<br>REDTOP (5%)   | 150       | 3,4                | MOIST TO DRY             | 5b             |                         | x            |               |              | х             |                |                | A |
|     |   |           |                    |                          | 6a             |                         | x            |               |              | х             |                |                |   |
|     |   |           |                    |                          | 6b             | x                       |              |               |              |               | х              |                |   |
|     |   |           |                    |                          | 70             | х                       |              |               |              | ·             |                | ×              |   |
|     |   |           |                    |                          | 7 <b>b</b>     | x                       |              |               |              |               |                | x              |   |
| 2   | KENTUCKY BLUEGRASS (50%),<br>CREEPING RED FESCUE OR A HARD FESCUE<br>(40%),<br>REDTOP (10%) | 150       | 3.4                | MOIST TO                 | 5b             |                         | ×            |               |              | х             |                |                | B |
|     |   |           |                    | MODERATELY<br>DRY TO DRY | 6a             |                         | ×            |               |              | ×             |                |                |   |
|     |   |           |                    |                          | 6b             | x                       |              |               |              |               | ×              |                |   |
| 3   | TALL FESCUE (85%),  | 125<br>15 | 2.9<br>.34         | MOIST TO DRY             | 5b             |                         | ×            |               |              | ×             |                |                | С |
|     | PERENNIAL RYEGRASS (10%),<br>KENTUCKY BLUEGRASS (5%)  | 10        | .23                |                          | 6a             |                         | x            |               |              | x             |                |                |   |
|     |   |           |                    |                          | 6b             | x                       |              |               |              |               | ×              |                |   |
|     |   |           |                    |                          | 7a             | ×                       |              |               |              |               |                | ×              |   |
|     |   |           |                    |                          | 7Ь             | ×                       |              |               |              | <u> </u>      |                | ×              |   |

PERENNIAL RYEGRASS (20%) × TALL FESCUE (85%) OR PERENNIAL RYEGRASS (50%) 2.5 .46 MOIST TO DRY PLUS CROWNVETCH OR | x | .09 .46 DRY TO VERY 76 X | x | x | DRY TO VERY TALL FESCUE (83%) OR 2.5 .07 WEEPING LOVEGRASS (2X) PLUS SERECIA LESPEDEZA (15X) 1 x 1 x 1 l x l

ENGINEERS CIRTIFICATE:

"Leartify 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 requirem Howard Soil Conservation District."

DEVELOPER'S CERTIFICATE: 'I/We certify that all development and construction will be done

according to this plan, and that any responsible personnel involved n 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. also authorize periodic on-site inspection by the Howard Soil Conservation District."

Ship Famair Skyp Lanimore Signature of Developer

LUN Jumma USDA-Natural Resources
Conservation Service

3/11/97

This development plan is approved for soil erosion

APPROVED: DEPT, OF PLANNING AND ZONING 3/17/97 Descrition

3.5.97 Date

- USE IN AREAS OF MO'37 SHADE, POA TRIVIALIS THRIVES IN WET SHADY AREAS. - TALL FESCUE 1 AY BE SEEDED ALONE. THE HARD FESCUE PROVIDES BETTER SHADE TOLERANCE AND PRODUCES A BETTER STAND. - LOW FERTILITY ASS REQUIRES INFREQUENT MOWING, GOOD COMPANION FOR WILD FLOWERS. Review for HOWARD SCD and meets Technical Requirements. and sediment control by the HOWARD SOIL CONSERVATION DISTRICT

- USED IN MEDIAN AREAS BY SHA. SHADE TOLERANT.

SUITABLE FOR SEEDING IN MID-SUMMER.

- POPULAR MIX - PRODUC'S PERMANENT GROUNDCOVER QUICKLY, BLUEGRASS THICKENS STAND. - BEST USE ON SHADY 5 OPES NOT ON POORLY DRAINED CLAYS,

Checkers CLEARWATER, FLORIDA 34617 (813)441-3500

STV Incorporated

Print name below signature

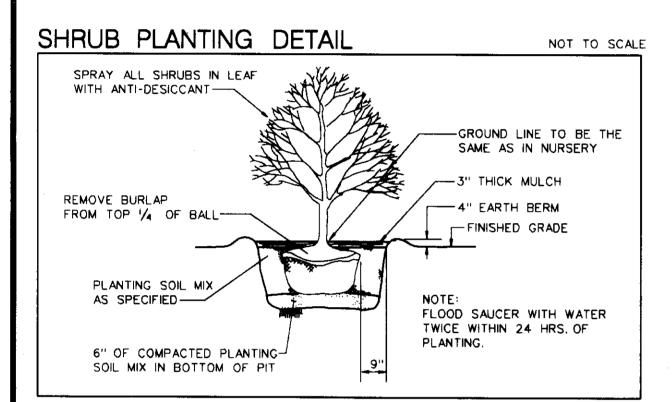
- USE ON LOW MAINTENALZE, STEEP SLOPES, USE TALL FESCUE IN DRAUGHTY COND. CROWN VETCH BEST FOR 56, 60, 66.

- USE ON POORLY DR/ NED SOILS, DITCHES OR WATERWAYS. BIRDSFOOT TREEFOILS BEST FOR ZONES 56, 64 ABOVE 2,000 FT

- WEEPING LOYEGRASS MAY BE SEEDED WITH TALL FESCUE IN MID-SUMMER. SERECIA LESPEDEZA IS BEST SUITED FOR ZONES 74 AND 76.

Sewer Code **Water Code** 5753700

JOB NO. 61-1289

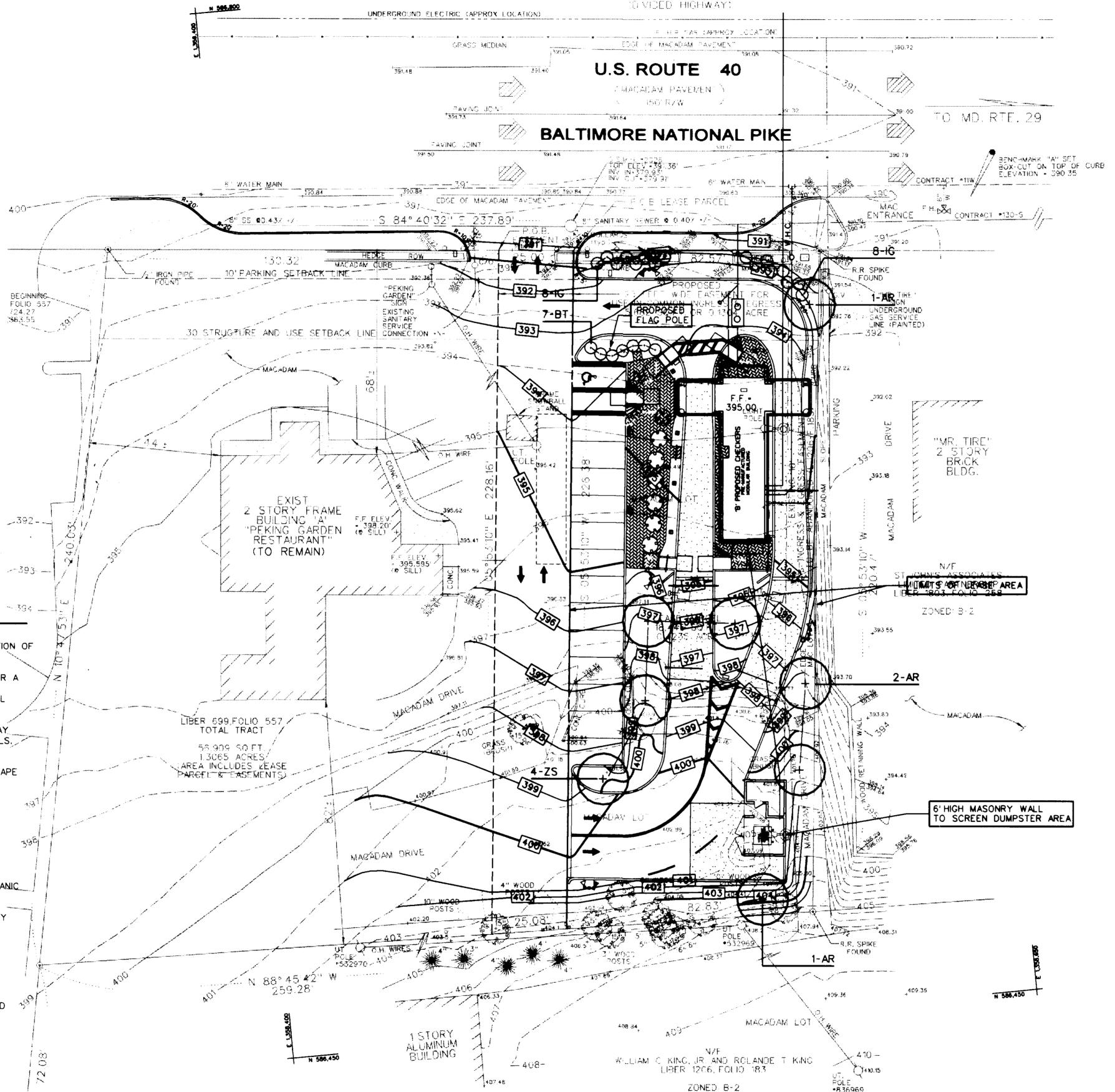


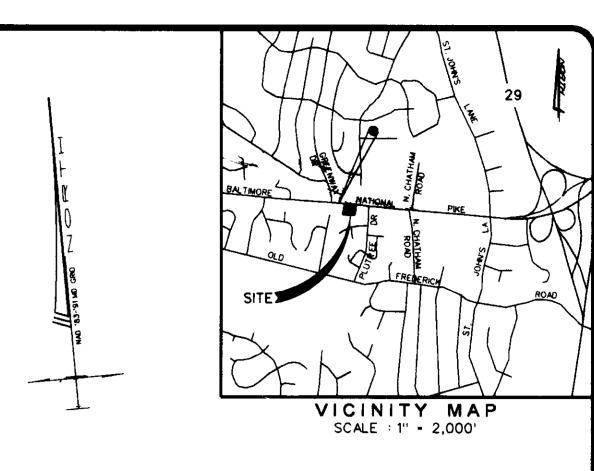
## **GENERAL NOTES:**

- 1. QUALITY AND SIZE OF PLANTS, SPREAD OF ROOTS, AND SIZE OF BALLS SHALL BE IN ACCORDANCE WITH THE STANDARDS OF THE AMERICAN ASSOCIATION OF NURSERYMEN, "AMERICAN STANDARDS FOR NURSERY STOCK".
- 2. CONTRACTOR SHALL BE REQUIRED TO GUARANTEE ALL PLANTS MATERIALS FOR A PERIOD OF ONE YEAR AFTER INSTALLATION IS COMPLETE AND APPROVED. AT THE END OF ONE YEAR ALL PLANT MATERIAL WHICH IS DEAD OR DYING SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE AS ORIGINALLY SPECIFIED.
- MAKE MINOR ADJUSTMENTS IN SPACING AND/OR LOCATION OF PLANT MATERIALS. CONTRACTOR TO VERIFY 'AS BUILT' LOCATION OF ALL UTILITIES.

3. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO UTILITIES AND MAY

- 4. NO SUBSTITUTIONS SHALL BE MADE WITHOUT THE APPROVAL OF THE LANDSCAPE ARCHITECT.
- 5. ALL AREAS NOT STABILIZED IN PAVING OR PLANT MATERIALS SHALL BE SODDED.
- 6. ALL SHADE TREES SHALL BRANCH A MIN. OF 6'-0" ABOVE GROUND LEVEL. TREES SHALL BE PLANTED AND STAKED IN ACCORDANCE WITH THE PLANTING DETAIL SHOWN.
- 7. PLANTING SOIL MIX: 2/3 EXISTING SOIL (WITH ALL STONES OR DEBRIS 2" OR LARGER REMOVED), 1/3 PEAT HUMUS, COMPOSTED SLUDGE OR OTHER ORGANIC MATERIAL.
- 8. ALL GROUNDCOVER AND SHRUB BEDS SHALL RECEIVE 3" TOPSOIL THOROUGHLY WORKED INTO THE TOP 6" OF EXISTING SOIL. ALL BEDS TO BE MULCHED 3" DEEP WHEN PLANT INSTALLATION IS COMPLETE.
- 9. ALL PLANT PIT LOCATIONS SHALL BE EXCAVATED TO DEPTH AND
- 10. DIMENSIONS INDICATED ON APPROPRIATE PLANTING DETAILS. ALL SOIL EXCAVATED FROM PLANTING PITS SHALL BE REMOVED FROM THE SITE. PLANTING PITS SHALL BE BACKFILLED WITH PLANT SOIL MIXTURE AS SPECIFIED IN NOTE 8 ABOVE.
- ALL LIGHTING IS TO BE DIRECTED DOWNWARD AND AWAY FROM THE RIGHT-OF-WAY OR RESIDENTIALLY ZONED PROPOERTY.
- 11. THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH SECTION 16.124, LANDSCAPING, OF THE HOWARD COUNTY SUBDIVISION AND LAND DEVELOPMENT REGULATIONS. FINANCIAL SURETY FOR THE REQUIRED 10 LANDSCAPE TREES, IN THE AMOUNT OF \$1,000.00, WILL BE REQUIRED AS PART OF THE SURETY SUPPLIED WITH THE GRADING PERMIT.





### SCHEDULE A PERIMETER LANDSCAPE EDGE

| CATEGORY  | ADJACENT TO<br>ROADWAYS | ADJACENT TO<br>PERIMETER<br>PROPERTIES |
|---|-------------------------|--|
| LANDSCAPE TYPE  | В                       | Α                                      |
| LINEAR FEET OF ROADWAY<br>FRONTAGE / PERIMETER  | 82 L.F.                 | 301.8 L.F.                             |
| CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED)  | N/A                     | N/A                                    |
| CREDIT FOR WALL, FENCE OR BEAM (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED)  | N/A                     | 53.5 L.F.                              |
| NUMBER OF PLANTS REQUIRED SHADE TREES EVERGREEN TREES SHRUBS  | 2<br>2<br>0             | 5<br>0<br>0                            |
| NUMBER OF PLANTS PROVIDED SHADE TREES EVERGREEN TREES OTHER TREES (2:1 SUBSTITUTION) SHRUBS (10:1 SUBSTITUTION) (DESCRIBE PLANT SUBSTITUTION CREDITS BELOW IF NEEDED) | 2<br>0<br>0<br>23       | 5<br>0<br>0<br>0                       |

## SCHEDULE B PARKING LOT INTERNAL LANDSCAPING

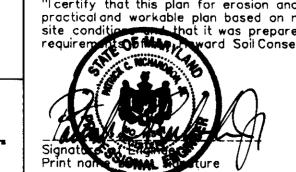
| NUMBER OF PARKING SPACES  | 14 |
|---|----|
| NUMBER OF TREES REQUIRED  | 1  |
| NUMBER OF TREES PROVIDED SHADE TREES OTHER TREES (2:1 SUBSTITUTION) | 1  |

# PLANT SCHEDULE

| <u>KEY</u> | OTY.      | BOTANICAL/COMMON NAME                                    | SIZE             | ROOT     | REMARKS   |
|------------|-----------|--|------------------|----------|-----------|
| TREES      | <u> </u>  |  |                  |          |           |
| AR         | 4         | ACER RUBRUM RED SUNSET'/<br>RED SUNSET MAPLE             | 21/2 -3"<br>CAL. | B&B      | CONSISTEN |
| ZS         | 4         | ZELKOVA SERRATA VILLAGE GREEN'/<br>VILLAGE GREEN ZELKOVA | 21/2 -3"<br>CAL. | B&B      | CONSISTAN |
| SHRUE      | <u>ss</u> |  |                  |          |           |
| вт         | 7         | BERBERIS THUNBERGII ROSE GLOW'/<br>ROSE GLOW BARBERRY    | 15-18"<br>HT.    | #2 CONT. |           |
| IG         | 15        | ILEX GLABRA COMPACTA'/<br>COMPACT INKBERRY               | 18-24"<br>HT.    | B&B      |           |
|            |           |  |                  |          |           |

CLEARWATER, FLORIDA 34617 (813)441-3500

STV Incorporated 21 Governor's Court Bultimors, MD 21244-2722 (410) 944-9112



ENGINEERS CIRTIFICATE:

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

> Skip Lanmus Signature of Developer Print name below signature

DEVELOPER'S CERTIFICATE: 1/We certify that all development and construction will be done according to this plan, and that any responsible personnel is volved n the construction project will have a Certificate of Attendance at a Department of the Environment Approved Training Program fo the Control of Sediment and Erosion before beginning the project. also authorize periodic on-site inspection by the Howard Soil Conservation District."

WEDA-Natural Resources
Conservation Service This development plan is approved for soil erosion sediment control by the HOWARD SOIL CONSERVATION DISTRICT.

Review for HOWARD SCD and meets Technical Requirements.

APPROVED: DEPT. OF PLANNING AND ZONING Rev./ Date Descrition

•836969

Approved : Howard County Health Department for Public Water and Sewerage Systemes. 3-14-97 Address Chart Lot/Parcel Street Address Parcel 79 9441 Baltimore National Pike Subdivision Name Section/Area Plat No. Block No. Zone Tax/Zone Elec. Dist. Census Track 4 B-2 Map 24 6023.01 2nd Water Code Sewer Code

5753700

506

OWNER: PETROS KARRAS & ELIAS KARRAS 12930 FOLEY QUARTER ROAD ELLICOTT CITY, MD. 21042 DEVELOPER: MAR-CHECK INC. 1410 N. CRAIN HIGHWAY SUITE 9-A GLEN BURNIE MD. 21061 CHECKERS RESTAURANT 9441 BALTIMORE NATIONAL PIKE ELLICOTT CITY , MD.

SHEET NO. 5 OF 5 DATE: 4 MARCH 1997 SCALE: 1" - 20' 2nd ELECTION DISTRICT

JOB NO. 61-1289