

- USE ON LOW MAINTENANCE, STEEP SLOPES. USE TALL FESCUE IN DRAUGHTY COND. CROWN VETCH BEST FOR 56, 6a, 6b. SUITABLE FOR SEEDING IN MID-SUMMER.
- WEEPING LOVEGRASS MAY BE SEEDED WITH TALL FESCUE IN MID-SUMMER. SERECIA LESPEDEZA IS BEST SUITED FOR ZONES
- USE ON POORLY DRAINED SOILS, DITCHES OR WATERWAYS. BIRDSFOOT TREEFOILIS BEST FOR ZONES 56, 6a ABOVE
- USE IN AREAS OF MOIST SHADE. POA TRIVIALIS THRIVES IN
- WET SHADY AREAS. TALL FESCUE MAY BE SEEDED ALONE. THE HARD FESCUE PROVIDES BETTER SHADE TOLERANCE AND PRODUCES A
- LOW FERTILITY GRASS. REQUIRES INFREQUENT MOWING. GOOD COMPANION FOR WILD FLOWERS.

### 20.0 STANDARD AND SPECIFICATIONS FOR VEGETATIVE STABILIZATION

### SECTION 1- VEGETATIVE STABILIZATION METHODS AND MATERIALS

i. Install erosion and sediment control structures (either temporary or permanent) such as diversions, grade stabilization structures, berms, waterways, or sediment control basins. ii. Perform all grading operations at right angles to the slope. Final grading and shaping is not usually necessary for temporary seeding.

#### iii. Schedule required soil tests to determine soil amendment composition and application rates B. Soil Amendments (Fertilizer and Lime Specifications)

i. Soil tests must be performed to determine the exact ratios and application rates for both fime 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

iii. Lime materials shallbe ground limestone (hydrated or burnt lime may be substituted) which contains at least 50% total oxides (calcium oxide plus magnesium oxide). Limestone shallbe 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.

### C. Seedbed Preparation

i. Temporary Seeding a. Seedbed preparation shall consist of laosening 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 laosened it should not be rolled or dragged smooth but left in the roughened condition. Sloped areas (greater than 3:1) should be tracked leaving the surface in an irregular condition with ridges running parallel to the contour of the slope.

- b. Apply fertilizer and time as prescribed on the plans. c. Incorporate lime and fertilizer into the top 3 - 5" of soil by disking or other suitable means.
- ii. Permanent Seeding
- a. Minimum soil canditions required for permanent vegetative establishment:
- Soil pH shall be between 6.0 and 7.0.
   Soluble salts shall be less than 500 parts per million (ppm).
   The soil shall contain less than 40% clay but enough fine grained material (>30% silt plus clay) to provide the capacity to hold a moderate amount of moisture. An exception is if lovegrass or serecia lespedeza is to be planted, then a sandy soil (<30% silt plus clay) would be acceptable.</li>
   Soil shall contain 1.5% 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
- b. Areas previously graded in conformance with the drawings shall be maintained in a true and even grade, then scarified or otherwise loosened to a depth of 3 5" to permit bonding of the topsoil to the surface area and to create horizontal erosion check slots to prevent topsoil from sliding down a slope.
- c. Apply soil amendments as per soil test or as included on the plans.

d. Mix soil amendments into the top 3 - 5" of topsoil by 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 chain or other equipment to roughen the surface. Steep slopes (steeper than 3.7) should be tracked by a dozer leaving the soil in an irregular condition with ridges running parallel to the contour of the slope. The top 1 - 3" of soil should be loose and friable. Seedbed loosening may not be necessary on newly disturbed areas.

#### D. Seed Specifications

i. All seed must meet the requirements of the Maryland State Seed Law. All seed shall be subject to re-testing by a recognized seed laboratory. All seed used shall have been tested within the 6 months immediately preceding the date of sowing such material on this job.

Note: Seed tags shall be made available to the inspector to verify type and rate of seed used ii. Inoculant - The inoculant for treating legume seed in the seed mixtures shall be a pure culture of nitrogen-fixing bacteria prepared specifically for the species. Inoculants shall not be used after than the date indicated on the container. Add fresh inoculant as directed an 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 75-803 keV con weaken bacteria and make the inoculant less effective.

### . Methods of Seeding

SPECIES

CHOOSE ONE:

BARLEY OR

LOVEGRASS 41

MILLET 42

FOXTAL MILLET 40

ANNUAL RYEGRASS

RYE PLUS

BARLEY

OATS

SAL 28

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: nitrogen; maximum of 100 lbs. per acre total of soluble nitrogen; P205 (phosphorous): 200/lbs/ac.; K20 (potassium): 200 lbs/ac.

b. Lime - Use only ground agricultural limestone (up to 3 tons per acre may be applied by hydroseeding). Normally, not more than 2 tons are applied by hydroseeding at any one time. Do not use burnt or hydrated lime when hydroseeding. c. Seed and fertilizer shall be mixed on site and seeding shall be done immediately and without

- 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 25 or 26. The seeded area shall then be rolled with a weighted ratter to provide good seed to soil contact.
- b. Where practical, seed should be applied in two directions perpendicular to each other. Apply half the seeding rate in each direction.
- iii. Drill or Cultipacker Seeding: Mechanized seeders that apply and cover seed with soil. a. Cultipacking seeders are required to bury the seed in such a fashion as to provide at least 1/4 inch of soil covering. Seedbed must be firm after planting.
- b. Where practical, seed should be applied in two directions perpendicular to each other. Apply half the seeding rate in each direction. . Mulch Specifications (In order of preference)

i. Straw shall consist of thoroughly threshed wheat, rye or oat 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.

PER ACRE

2.5 BU.(122lbs)

3 BU.(96 lbs)

2.5 BU, (140lbs)

50 tbs

50 lbs

40 MARYLAND STATE HIGHWAY ADMINISTRATION TEMPORARY SEED MIX

36 APPLICABLE ON SLOPES OF 3:1 OR FLATTER

MINIMUM SEEDING RATES

SQ.FT.

3.22

3.45

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

TABLE 26 - TEMPORARY SEEDING RATES, DEPTHS, AND DATES

**PLANTING** 

DEPTH 36

INCHES

1-2

1-2

1/4-1/2

1/4-1/2

39 MAY BE USED AS A NURSE CROP FOR LATE FALL / EARLY WINTER PERMANENT SEEDINGS, ADD 56 LBS./AC. TO THE PERMANENT SEEDING MIXTURE

FERTILIZER RATE: (10-10-10)

15 LBS./1000 S.F., 600 LBS./ACRE

LIME RATE 100 LBS./1000 S.F., 2 TONS/ACRE

7a and 7b

10/15

10/15

- 11/1

### ii. Wood Cellulose Fiber Mulch (WCFM)

- a. WCFM shall consist of specially prepared wood cellulose processed into a uniform fibrous
- b. WCFM shall be dyed green or contain a green dye in the package that will provide an appropriate color to facilitate visual inspection of the uniformly spread slurry.
- c. WCFM, including dye, shall contain no germination or growth inhibiting factors.
- d. WCFM materials shall be manufactured and processed in such a manner that the wood cellulose fiber mulch will remain in uniform suspension in water under agitation and will blend with seed, fertilizer and other additives to form a homogeneous slurry. The mulch material shall form a blotter-like ground cover, on application, having moisture absorption and percolation properties and shall cover and hold grass seed in contact with the soil without inhibiting the
- 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,

i. 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. i. When straw mulch is used, it shall be spread over all seeded areas at the rate of 2 tons/acre. Much shall be applied to a uniform loose depth of between 1" and 2". Much applied shall achieve a uniform distribution and depth so that the soil surface is not exposed. If a much

iii. Wood cellulose fiber used as a mulch shall be applied at a net dry weight of 1,500 lbs. per acre. The wood cellulose fiber shall be mixed with water, and the mixture shall contain a maximum of 50 lbs. of wood cellulose fiber per 100 gallons of water.

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

ii. Wood cellulose fiber may be used for anchoring straw. The fiber binder shall be applied at a net dry weight of 750 pounds/acre. The wood cellulose fiber shall be mixed with water, and the mixture shall contain a maximum of 50 pounds of wood cellulose fiber per 100 gallons of water. iii. Application of liquid binders should be heavier at the edges where wind catches mulch, such as in valleys and on crests 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

iv. Lightweight plastic netting may be stapled over the mulch according to manufacturer's recommendations. Netting is usually available in rolls 4' to 15' feet wide and 300 to 3,000 feet

### SECTION IV - SOD

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

### A. General Specifications

i. Class of turfgrass sod shall be Maryland or Virginia State Certified or Approved. Sod labels 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 sod shall be cut to the suppliers width and length. Maximum allowable deviation from standard widths and lengths shall be 5 percent. Broken pads and torn or uneven ends will not be

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

iv. Sod shall not be harvested or transplanted when moisture content (excessively dry or wet)

v. Sod shall be harvested, delivered, and installed within a period of 36 hours. Sod not transplanted within this period shall be approved by an agranomist or soil scientist prior to its installation.

### B. Sod Installation

PLANT HARDINESS ZONE 66

2/1- 5/1- 8/15- 3/1- 5/1- 8/15- 3/15- 6/1- 8/1-4/30 8/14 11/30 4/30 8/14 11/15 5/31 7/31 10/31

HARDINESS ZONES 37 AND SEEDING DATES 38

10/15

10/15

11/1

6a and 5b

10/1

i. During periods of excessively high temperature or in areas having dry subsoil, the subsoil shall be lightly irrigated immediately prior to laying the sod. ii. The first row of sod shallbe laid in a straight line with subsequent rows placed parallel to and tightly wedged against each other. Lateral joints shall be staggered to promote more uniform growth and strength. Ensure that sod is not stretched or overlapped and that all joints are butted tight in order to prevent voids which would cause air drying of the roots. iii. Wherever possible, sod shall be laid with the long edges parallel to the contour and with staggering joints. Sod shall be rolled and tamped, pegged or otherwise secured to prevent slippage on slopes and to ensure solid contact between sod roots and the underlying soil surface. iv. Sod shall be watered immediately following rolling or tamping until the underside of the new sod pad and soil surface below the sod are thoroughly wet. The operations of laying, tamping and irrigating for any piece of sod shall be completed within eight hours.

i. 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 soil 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.

# PLANNING BOARD

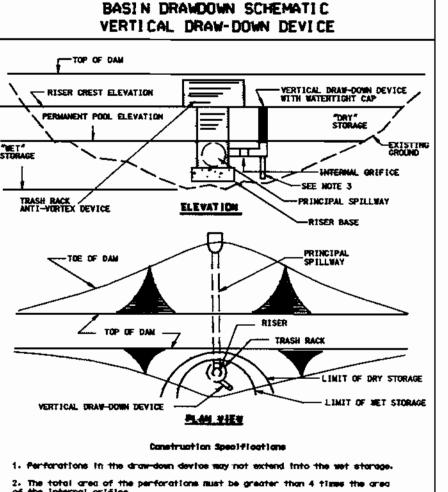
of HOWARD COUNTY

### DETAIL 22 - SILT FENCE DRIVEN A MINIMUM OF 16" OROUND ⊢16" MINIMUM HEIGHT ( FLOW MINIMUM FENCE RESCRECTIVE WITH FILTER CLOTH - FENCE POST SECTION MINIMUM 20" ABOVE GROUND UNDISTURBED MBED GEOTEXTILE CLASS F - FENCE POST DRIVEN A A MINIMUM OF 8" VERTICALLY CROSS SECTION STANDARD SYMBOL SF — IDINING TWO ADJACENT SILT FENCE SECTIONS Construction Specifications . Fence posts shall be a minimum of 36" long driven 16" minimum into the ground. Wood poets shall be 114" x 114" square (minimum) out, or 154" diameter (minimum) round and shall be of sound quality hardwood. Steel posts will be standard T or U section weighting not less than 1.00 pand per linear foot. Geotextile chail be fastened securely to each tence post with wire tier or stoples at top and mid-section and shall meet the following requirements for Gentertile Cines F:

Tensi le Strength 50 (ba/in (pin.) Test: MSMT 509 20 lbe/in (min-) Test: MSMT 509 0-3 gal ft / minute (max-) Test: MSMT 322 Tensi le Modulius Flow Rate Filtering Efficiency 75% (min.) Test: MSMT 32

5. Where ends of geotextile fabric came together, they shall be overlapped. folded and stabled to prevent sediment bypass. 4. Stif Fence shall be inspected ofter each rainfall event and maintained when bulges occur or when sediment accumulation reached 50% of the fabric height.

U.S. DEPARTMENT OF AGRICULTURE PAGE HARYLAND DEPARTMENT OF ENVIRONMENT
E - 15 - 3 HATER HANGEMENT ADMINISTRATION SOIL CONSERVATION SERVICE



The total area of the perforations must be greater than 4 times the area of the internal orifice. 3. The perforated partian of the draw-down device shall be wrapped with  $\frac{h_2^\mu}{h}$  hardware aloth and geotextile fabric. The geotextile fabric shall meet the specifications for Geotextile Class E. 4. Provide support of drow-down device to prevent sagging and floatation. An acceptable preventative measure is to stake both sides of draw-down device with 1" steel angle, or 1' by 4" square or 2" round wooden posts set 3" minimum into the ground then joining them to the device by wrapping with 12 guage minimum wire.

U. C. DEPARTMENT OF AGRICULTURE PAGE MAYLAND DEPARTMENT OF ENVIRONMENT SOIL CONDENVATION SERVICE C - 18 - 38 WATER MANAGEMENT ADMINISTRATION

NOTE: PERFORATION LENGTH = 18"
PERFORATION SIZE = 1"
PERFORATION SPACING = 4/row@ 5"OC
INTERNAL ORIFICE DIAMETER = 1.82"

TABLE 27 GEOTEXTILE PADRICS

TRUPP 27 GPV IPATTED TANKING						
GLA <del>SS</del>	APPARENT OPENING SIZE MM. NAX.	GRAD TENSILE STRENGTH LO. MIN.	BURST STRØNGTH PSI.MIN.			
A	0.30**	250	500 320			
Ď	0.60	200				
C	0.30	200	320			
0	0.60	90	145			
<i>F</i>	0.30	90	145			
f +SILT FENCE+	0.40-0.80*	90	190			

\* US STO. SIEVE CW-02215 \*\* O.50 MAX. FOR SUPER SILT FENCE

### 24.0 MATERIALS SPECIFICATIONS

THE PROPERTIES SHALL BE DETERMINED IN ACCORDANCE WITH THE FOLLOWING PROCEDURES

-APPARENT OPENING SIZE MSMTM 323-GRAB TENSILE STRENGTH ASTM D 1682:4X8" SPECIMEN, 1X2 "CLAMPS, 12" /MIN. STRAIN RATE IN BOTH PRINCIPAL DIRECTIONS OF GEOTEXTILE FABRIC. -BURST STRENGTH ASTM D 3786

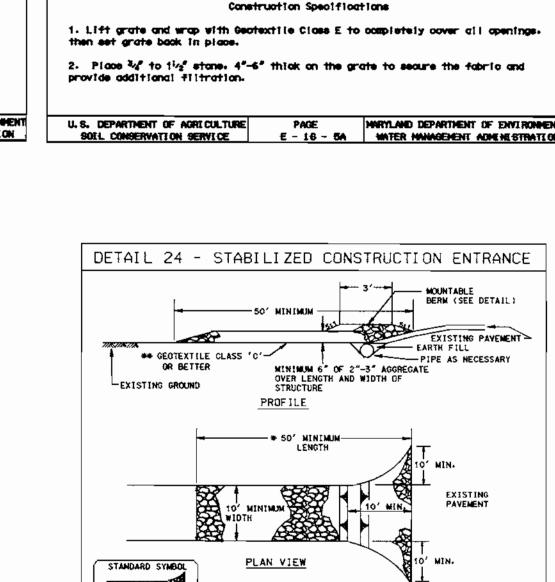
THE FABRIC SHALL BE INSERT TO COMMONLY ENCOUNTERED CHEMICALS AND HYDROCARBONS, AND WILL BE ROT AND MILDEW RESISTANT, IT SHALL BE MANUFACTURED FROM FIBERS CONSISTING OF LONG CHAIN SYNTHETIC POLYMERS, AND COMPOSED OF A MINIMUM OF 85% BY WEIGHT OF POLYOLEPHINS, POLYESTERS, OR POLYAMIDES. THE GEOTEXTILE FABRIC SHALL RESIST DETERIORATION FROM ULTRAVIOLET EXPOSURE.

IN ADDITION, CLASSES A THROUGH E SHALL HAVE A 0.01 CM./SEC. MINIMUM PERMEABILITY WHEN TESTED IN ACCORDANCE WITH MSMT 507, AND AN APPARENT MINIMUM ELONGATION OF 20 % WHEN TESTED IN ACCORDANCE WITH THE GRAB TENSILE STRENGTH REQUIREMENTS LISTED ABOVE.

CLASS F GEOTEXTILE FABRICS FOR SILT FENCE SHALL HAVE A 50LB./IN. MIN. TENSILE STRENGTH AND A 20LB./IN. MIN.TENSILE MODULES WHEN TEST IN ACCORDANCE WITH MSMT 509. THE MATERIAL SHALL ALSO HAVE A 0.3 GAL./FT. /MIN. FLOW RATE AND 75% MIN. FILTERING EFFICIENCY WHEN TESTED IN ACCORDANCE WITH MSMT 322.

GEOTEXTILE FABRICS USED IN THE CONSTRUCTION OF SILT FENCE SHALL RESIST DETERIORATION FROM ULTRAVIOLET EXPOSURE. THE FABRIC SHALL CONTAIN SUFFICIENT AMOUNTS OF ULTRAVIOLET RAY INHIBITORS AND STABILIZERS TO PROVIDE A MINIMUM OF 12 MONTHS OF EXPECTED USABLE CONSTRUCTION LIFE AT A TEMPERATURE RANGE OF 0 TO 120 DEGREES F

1	PERMIT INFORMATION CHART								
SUBDIVISION NAME	SUBDIVISION NAME		SECTION/AREA		LOT/PARCEL				
	OAKLAND RIDGE INDUSTRIAL PARK EQUESTRIAN CENTER		SECTION I		PARCEL E-2				
PLAT • OR L/F 4035, 5326, 9602	BLOCK •	ZONING NT IND	TAX/ZONING MAP 30	ELECTION DIST 2ND	CENSUS TRACT 6023.01				
WATER CODE 60	14		SEWER CODE	5657400					



DETAIL 23B - AT GRADE INLET PROTECTION

PLAN/CUT AWAY VIEW

CROSS SECTION

AGIP

MAX. DRAINAGE AREA = 1/4 ACRE

-6" DVERLAP

 Length - minimum of 50' (\*30' for single residence (ot). Width - 10' minimum, should be flored at the existing road to provide a turning

Construction Specification

- Geotextlie fabric (fliter 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.

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

 Surface Water - all surface water flowing to or diverted toward construction entrances shall be piped through the entrance, maintaining positive draingge. Pipe installed through the stabilized construction entrance shalt be protected with a mountable borm with 5:1 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.

6. 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. U. S. DEPARTMENT OF AGRICULTURE PAGE MARYLAND DEPARTMENT OF ENVIRONMENT

REVISION

SOIL CONSERVATION SERVICE			F - 17 - 3	WATER MANAGEMENT ADMENISTRATION		

OWNER/DEVELOPER: RUMSEY ROAD, LLC c/o NORTHERN CHESAPEAKE BUILDERS CORP. 7307 YORK ROAD BALTIMORE, MARYLAND 21204

Attn: NORMAN E. ROCKWELL, JR. PH:410-828-4300 CHESAPEAKE 4

### OFFICE BUILDING **SEDIMENT**

# **CONTROL DETAILS**

# Richardson Engineering, LLC

730 W. Padonia Road Cockeysville, Maryland 21030 Phone: 410-560-1502 Fax: 410-560-0827

DATE NO.



CHECKED BY: PCR DESIGNED BY: PCR DRAWN BY: TLS & CADDS PROJECT NO.: 00007

DATE: 9/27/00 SCALE: AS SHOWN DRAWING NO. 3 OF 6

FILE NO. SDP-00-139

## TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT. I WILL PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. DEVELOPER BY THE ENGINEER: I CERTIFY THAT THIS PLAN OF 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. I HAVE NOTIFIED THE DEVELOPER THAT HE MUST PORVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. ENGINEER APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

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

DATE / CHIEF. DEVELOPMENT ENGINEERING DIVISION & DATE

DATE

MEETSTECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL USDA /- NATURAL RESOURCES CONERVATION SERVICES THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEETS THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION

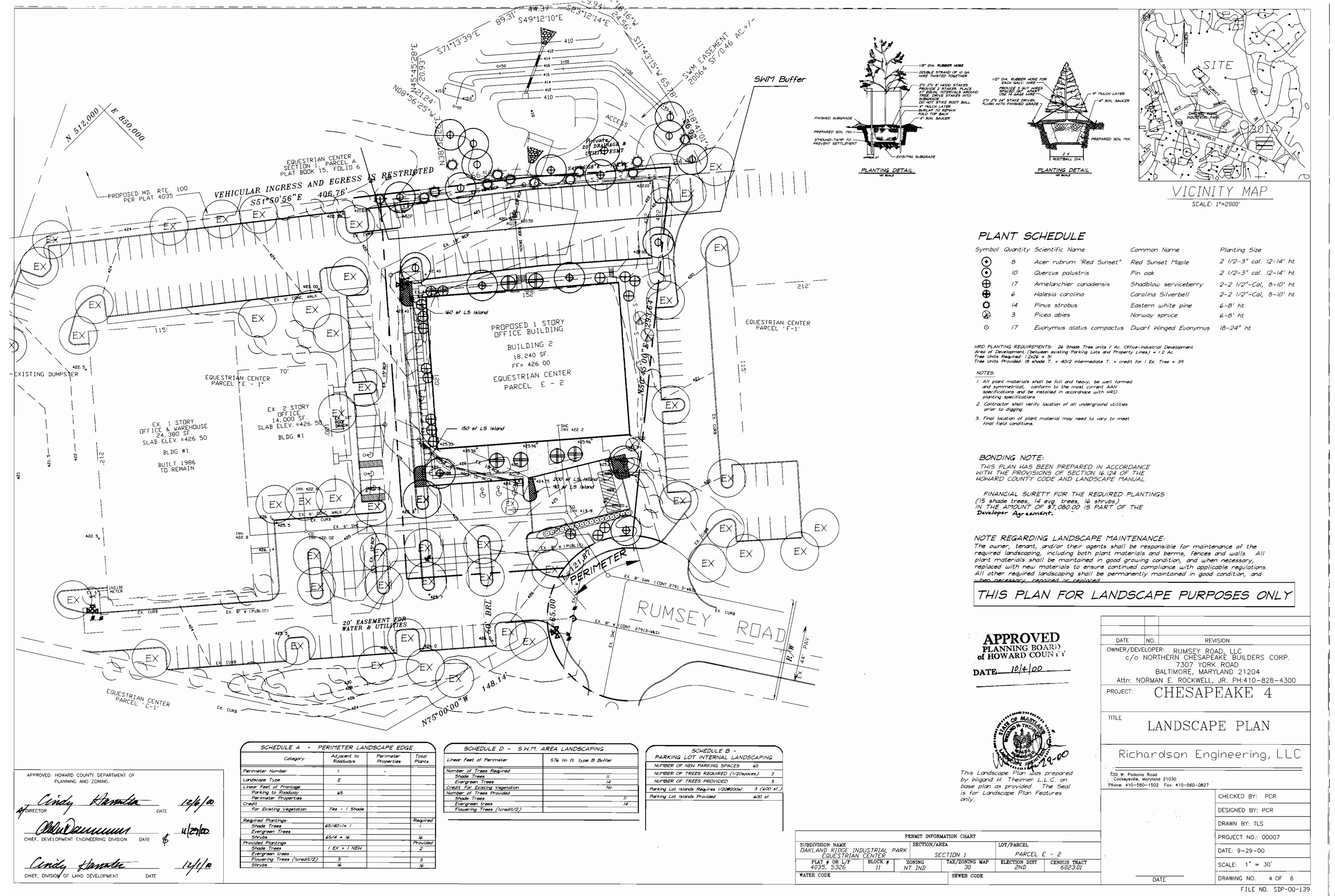
HOWARD SOIL CONSERVATION DISTRICT

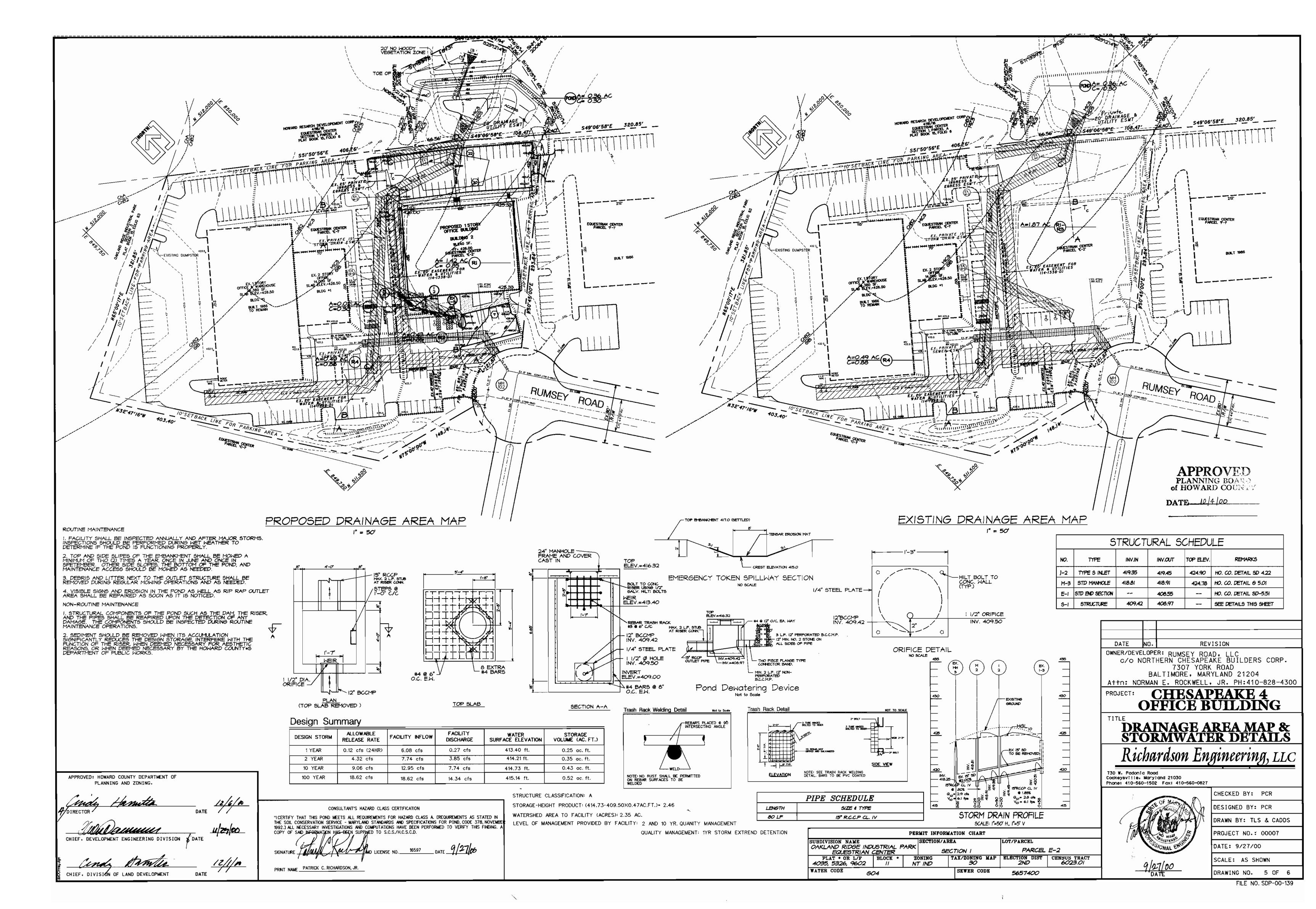
41 MAY BE USED AS A NURSE CROP FOR MID-SUMMER PERMANENT SEEDINGS, ADD 2 LBS./AC. TO PERMANENT SEED MIX 42 MAY BE USED AS A NURSE CROP FOR MID-SUMMER PERMANENT SEEDINGS. ADD 10 LBS./AC. TO THE PERMANENT SEEDING MIX.

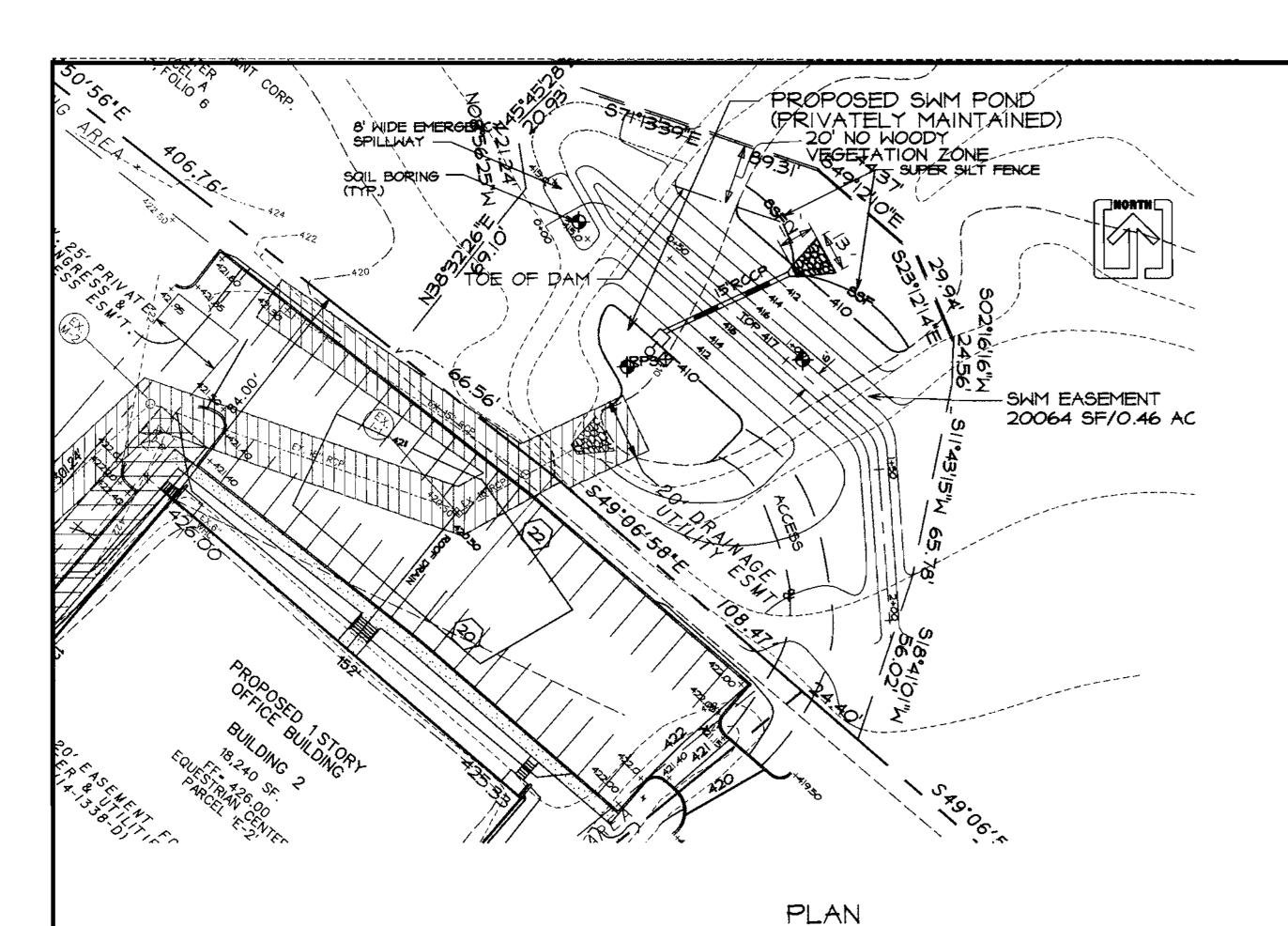
Silt Fence Length Slope Steepness Stope Length unitmited uni imi ted 125 feet 1,000 fee: 100 feet 750 feet 5:1 to 3:1

Stif Fence Design Criteria

Note: In areas of less than 2% slope and sandy solls (USDA general oldesification system. soil Class A) maximum slape length and slit fence length will be unlimited. In these greas a silt fence may be the only perimeter control







# Sequence of Development Sediment Control Basin and Stormwater Management Pond

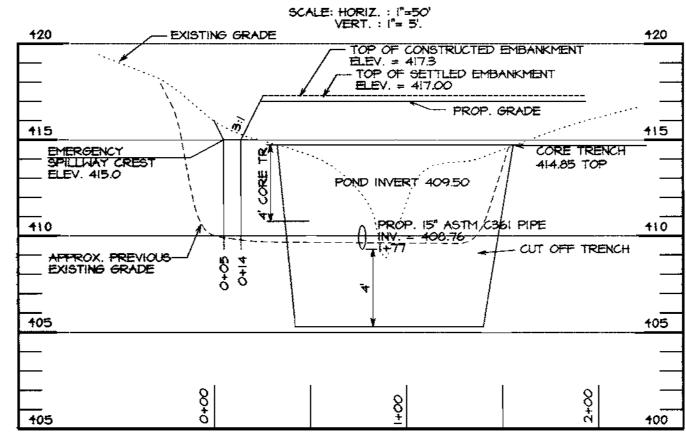
- I. OBTAIN ALL NECESSARY PERMITS.
- 2. NOTIFY HOWARD COUNTY DEPARTMENT OF INSPECTIONS AT LEAST 48 HOURS PRIOR TO BEGINNING CONSTRUCTION.
- 3. INSTALL ALL NECESSARY SEDIMENT CONTROL MEASURES AS SHOWN ON THIS
- 4. INSTALL THE CUTOFF & CORE TRENCH AND THE OUTFALL PIPE AS SHOWN. STABILIZE ALL AREAS. INSPECTION OF THE CUTOFF & CORE TRENCH IS REQUIRED FOR CERTIFICATION OF THE AS-BUILT POND, CONSTRUCT EMBANKMENT TO HEIGHT SHOWN.
- 5. EXCAVATE THE POND TO THE REQUIRED DIMENSIONS AND DEPTH.
- 6. INSTALL THE RISER STRUCTURE, BARREL AND DRAW DOWN DEVICE.
- 7. AFTER CONSTRUCTION IS COMPLETE AND WITH THE APPROVAL OF THE SEDIMENT CONTROL INSPECTOR, REMOVE SILT AND DISPOSE OF TO AN APPROVED LOCATION. REMOVE SEDIMENT CONTROL DRAW DOWN DEVICE. INSTALL PLATE IN LOW FLOW AND INSTALL PERMANENT DRAW DOWN DEVICE.
- 8. STABILIZE ALL AREAS THAT ARE DISTURBED USING PERMANENT SEEDING AND AND MULCHING.
- 9. AS-BUILT THE POND WITHIN 30 DAYS AFTER COMPLETION AND SUBMIT AS-BUILT PLANS TO HOWARD COUNTY FOR APPROVAL

DATE 10/4/00

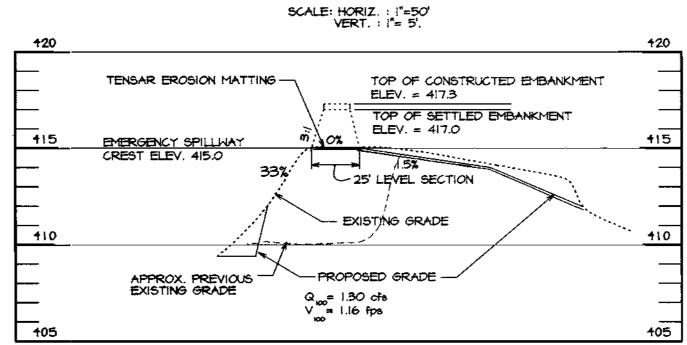
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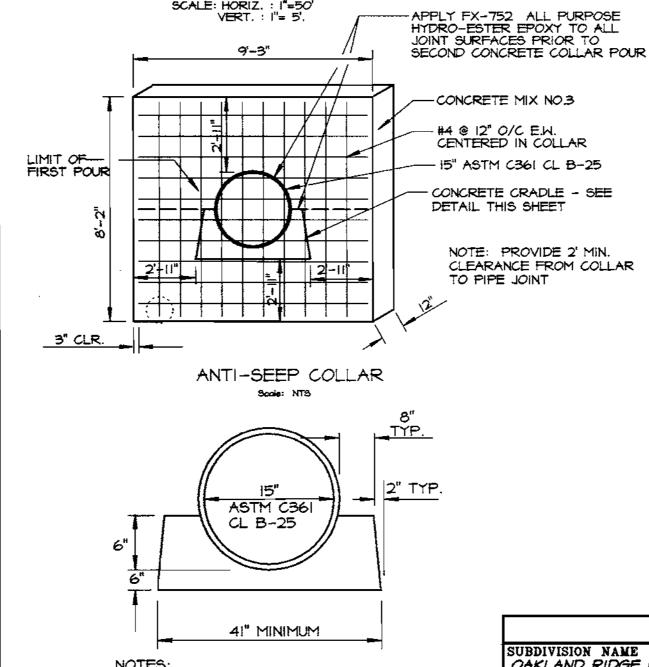
### 425 420 - TOP OF CONSTRUCTED EMBANKMENT ELEV. = 417.30 EXISTING TOP OF SETTLED EMBANKMENT ELEV. = 417.00 GRADE -----415 100YR WS 415.14 10YR W5 414.73 2 YR W5 414.2 RISER WER --- PROP. GRADE 4:1 PHREATIC LINE APPROX. PREVIOUS ---EXISTING GRADE POND INVERT 409.50 \_\_8'-2"x9'-3" ANTI-SEEP COLLAR RIP RAP ON FILTER CLOTH 15" ASTM C361 CL B-25 \ @ 0.88% Q = 7.74 cfs 400 PROFILE THRU PRINCIPAL SPILLWAY



### PROFILE ALONG EMBANKMENT



PROFILE ALONG EMERGENCY SPILLWAY



Concrete Cradle Detail SCALE: NTS

These specifications are appropriate to all ponds within the scope of the Standard for practice MD-378. All references to ASTM and AASHTO specifications apply to the most recent version.

Areas designated for borrow areas, embankment, and structural works shall be cleared, grubbed and stripped of topsoil. All trees, vegetation, roots and other objectionable material shall be removed. Channel banks and sharp breaks shall be sloped to no steeper than 1:1. All trees shall be cleared and grubbed within 15' of the toe of the embankement

Areas to be covered by the reservoir will be cleared of all trees, brush, logs, fences, rubbish and other objectionable material unless otherwise designated on the plans. Trees, brush and stumps shall be cut approximately level with the ground surface. For dry stormwater management ponds, a minimum of a 25-foot radius around the inlet structure shall be cleared.

All cleared and grubbed material shall be disposed of outside and below the limits of the darm and reservoir as directed by the owner or his representative. When specified, a sufficient quantity of topsoil will be stockpiled in a suitable location for use on the embankment and other designated areas.

Compaction - The movement of the houling and spreading equipment over the fill shall be controlled so that the entire surface of each lift shall be traversed by not less than one tread track of heavy equipment or compection shall be achieved by a minimum of four complete passes of a sheepsfoot rubber tired or vibratory roller. Fill material shall contain sufficient moisture such that the required degree of compaction will be obtained with the equipment used. The fill material shall contain sufficient moisture so that if formed into a ballit will not crumble yet not be so wet that water can be squeezed out. When required by the reviewing agency the minimum required density shall not be less than 95 of maximum dry density with a moisture content within +/-2% of the optimum. Each layer of fill shall be compacted as necessary to obtain that density, and is to be certified by the Engineer at the time of construction. All compaction is to be determined by AASHTO Method T-99.(Standard Practor)

Cut Off Trench - The cutoff trench shall be excavated into impervious material atong or parallel to the centerline of the embankment as shown on the plans. The bottom width of the trench shall be governed by the equipment used for excavation, with the minimum width being four feet. The depth shall be at least four feet below existing grade or as shown on the plans. The side slopes of the trench shall be 1 to 1 or flatter. The backfill shall be compacted with construction equipment, rollers, or hand tampers to assure maximum density and minimum permeability.

Embankment Core - The core shall be parallel to the centerline of the embankment as shown on the plans. The top width of the core shall be a minimum of four feet. The height shall extend up to at least the 10 year water elevation or as shown on the plans. The side slopes shall be 1 to 1 or flatter. The core shall be compacted with construction equipment, rollers, or hand tampers to assure maximum density and minimum permeabilit in addition, the core shall be placed concurrently with the outer shall of the embankment

Backfill adjacent to pipes or structures shall be of the type and quality conforming to that specified for the adjoining fill material. The fill shall be placed in horizontal layers not to exceed four inches in thickness and compacted by hand tampers or other manually directed compaction equipment. The material needs to fill completely all spaces under and adjacent to the pipe. At no time during the backfilling operation shall driven equipment be allowed to operate closer than four feet, measured horizontally, to any part of a structure. Under no circumstances shall enjument be driven over any part of a concrete structure or pipe, unless there is a compacted fill of 24" or greater over the structure or pipe.

Structure backfill may be flowable fill meeting the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 313 as modified. The mixture shall have a 100-200 psi: 28 day unconfined compressive strength. The flowable fill shall have a minimum pH of 4.0 and a minimum resistivity of 2,000 anm-cm. Material shall be placed such that a minimum of 6" (measured perpendicular to the outside of the pipe) of flowable fill shall be under (bedding), over and, on the sides of the pipe. It only needs to extend up to the spring line for rigid conduits. Average slump of the fill shall be 7" to assure flowability of the material. Adequate measures shall be taken (sand bags, etc.) to prevent floating the pipe. When using flowable fill, off metal pipe shall be bituminous coated. Any adjoining soil fill shall be placed in horizontal layers not to exceed four inches in thickness and compaced by hand tampers or other manually directed compaction equipment. The material shall completely fill all voids adjacent to the flowable fill zone. At no time during the backfilling operation shall driven equipment be allowed to operate closer than four feet, measured horizontally, to any part of a structure. Under no circumstances shall equipment be driven over any part of a structure or pipe unless there is a compacted fill of 24" or greater over the structure or pipe. Backfill material outside the structural backfill (flowable fill) zone shall be of the type and quality conforming to that specified for the core of the embankment or other embankment materials.

All pipes shall be circular in cross section.

Corrugated Metal Pipe - All of the following criteria shall apply for corrugated metal pipe: t. Materials - (Polymer Coated Steel Pipe) - Steel pipes with polymeric coatings shall have a minimum coating thickness of 0.01 inch (10 mil) on both sides of the pipe. This pipe and ts appurtenances shall conform to the requirements of AASHTO Specification M-245 & M-246 with watertight coupling bands or flonges.

Materials - (Auminum Coated SteelPipe) - This pipe and its appurtenances shall conform to the requirements of AASHTO Specification M-274 with watertight coupling bands or flanges. Auminum Coated SteelPipe, when used with flowable fill or when soil and/or water conditions warrant the need for increased durability, shall be tully bituminous coated per requirements of AASHTO Specification M-190 Type A. Any aluminum coating damaged or otherwise removed shall be replaced with cold applied bituminous coating compound. Aluminum surfaces that are to be in contact with concret shall be painted with one coat of zinc chromate primer or two coats of asphalt. Materials - (Aluminum Pipe) - This pipe and its appurtenances shall conform to the requirements of AASHTO Specification M-196 or M-211 with watertight coupling bands or flanges, Aluminum Coated Steel Pipe, w

with watertight coupling bands or Hanges. Auminium Coated SteelPipe, when used with flowable filter when soil and/or water conditions warrant the need for increased durability, shall be fully biturninous coated per requirements of AASHTO Specification M-190 Type A. Aluminum surfaces that are to be in contact with concrete shall be pointed with one coat of zinc chromate primer. Hot dip galvanized botts may be used for connections. The pH of the surrounding soils shall be between 4 and 9. Coupling bands, anti-seep collars, end sections, etc., must be composed of the same material and coatings as the pipe. Metals must be insulated from dissimilar materials with use of rubber or plastic insulating materials at least 24 mils in thickness.

3. Connections - All connections with pipes must be completely watertight. The drain pipe or barrel connection to the riser shall be welded all around when the pipe and riser are metal. Anti-seep collars shall be connected to the pipe in such a manner as to be completely watertight. Dimple bands are not considered to be watertight. All connections shall use a rubber or neoprene gasket when joining pipe sections. The end of each pipe shall be re-rolled an adequate number or corrugations to accommodate the band width. The following type connections are acceptable for pipes less than 24" in diameter: flanges on both ends of the pipe with a circular % closed cell neoprene gasket, pre-punched to the flange both circle, sandwiched between adjacent flanges; a 12" wide standard lap type band with 12" wide by % thick closed cell circular neoprene gasket; and a 12" wide hugger type band with 0-ring gaskets having a minimum diameter off/2" greater than the corrugation depth. Pipes 24" in diameter and larger shall be connected by a 24" long amuliar corrugated band using a minimum of 4 (four) rods and lugs, 2 on each connection pipe end. A 12" wide by % thick closed cell circular neoprene gasket will be installed with 12" on the end of each pipe. Flanged joints with % closed cell gaskets the full width of the flange is also acceptable.

Helically corrugated pipe shall have either continuously welded seams or have lock seams with internal caulking or a neoprene bead.

- . Bedding The pipe shallbe firmly and uniformly bedded throughout its entire length. Where rock or soft, spongy or other unstable soil is encountered, all such material shall be removed and replaced with suitable earth compacted to provide adequate support.
- 6. Other details (anti-seep collars, valves, etc.) shall be as shown on the drawings. Reinforced Concrete Pipe - All of the following criteria shall apply for reinforced
- Materials Reinforced concrete pipe shall have bell and spigot joints with rubber gaskets and shall equal or exceed ASTM Designation C-361. 2. Bedding - Alreinforced concrete pipe conduits shall be taid in a concrete bedding for their entire length. This bedding shall consist of high slump concrete placed under the pipe and up the sides of the pipe at least 10% of its outside diameter with a minimum, thickness of 3 inches, or as shown on the drawings.
- 3. Laying pipe Belt and spigot pipe shall be placed with the bell end upstream. Joints shall be made in accordance with recommendations of the manufacturer of the material. After the joints are sealed for the entire line, the bedding shall be placed so that all spaces under the pipe are filled. Care shall be exercised to prevent any deviation from the original line and grade of the pipe. The first joint must be located within 2 feet from the riser.
- 4. Backfilling shall conform to "Structure Backfill."
- 5. Other details (anti-seep colliars, valves, etc.) shall be as shown on the drawings.

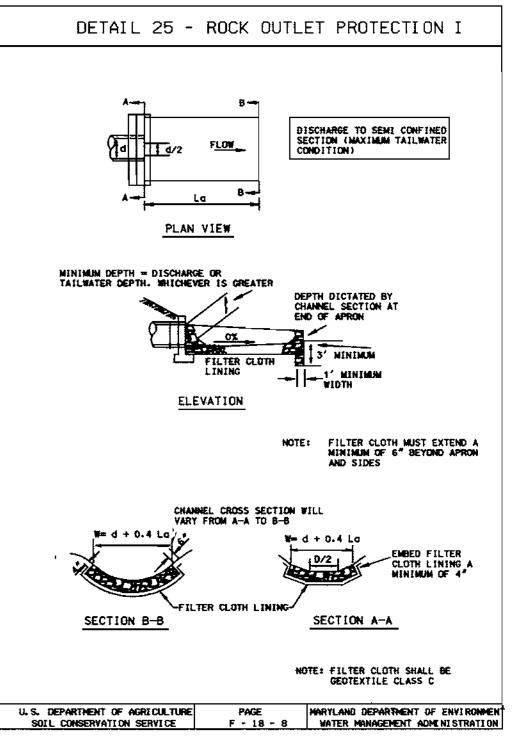
All work an permanent structures shall be carried out in areas free from water. The Contractor shall construct and maintain all temporary dikes, levees, cofferdams, droinage channels, and stream diversions necessary to protect the areas to be occupied by the permanent works. The contractor shall also furnish, install, operate, and maintain all necessary pumping and other equipment required for removal of water from the various parts of the work and for maintaining the excavations, foundation, and other parts of the work free from water as required or directed by the engineer for constructing each part of the work. After having served their purpose, all temporary protective works shall be removed or leveled and graded to the extent required to prevent obstruction in any degree whatsoever of the flow of water to the spillway or outlet works and so as not to interfere in any way with the operation or maintenance of the structure. Stream diversions shall be maintained until the full flow can be passed through the permanent works. The removal of water from the required excavation and the foundation shall be accomplished in a manner and to the extent that will maintain stability of the excavated slopes and bottom of the required excavations and will allow satisfactory performance of all bottom of the required excavations and will allow satisfactory performance of all construction operations. During the placing and compacting of material in required excavations, the water level at the locations being refilled shall be maintained below the bottom of the excavation at such locations which may require draining the water to sumps from which the water shall be pumped.

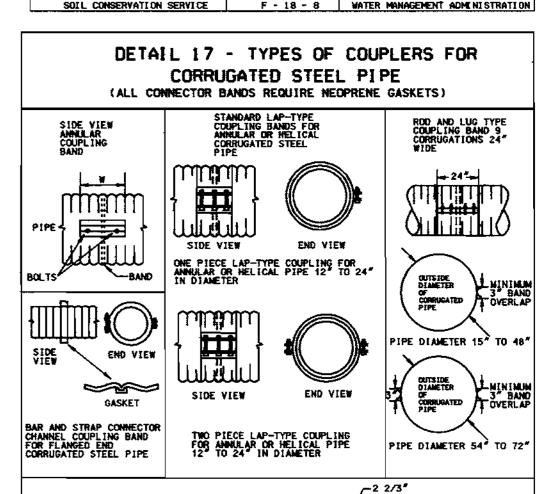
All borrow areas shall be graded to provide proper drainage and left in a slightly condition. All exposed surfaces of the embankment, spillway, spoil and borrow areas, and berms shall be stabilized by seeding, liming, fertilizing and mulching in accordance with the Maryland Soil Conservation Service Standards and Specifications for Critical Area Planting (MD-342) or as shown on the accompanying drawings.

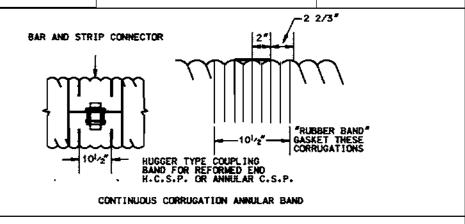
Construction operations will be carried out in such a marker that erosion will be controlled and water and air pollution minimized. State and local laws concerning pollution abatement will be followed. Construction plans shall detail erosion and sediment control measures to be employed during the construction process.

Construct fencing in accordance with the State Highway Administration Standard Details 690.02. Use specification for a 6-foot fence, substituting 42" fabric and 6'-8" line posts. Construct the gate in accordance with SHA Standard Detail 692.01 with 42" fabric. The fabric used for the fence and gate must conform to AASHTO Designation M181-74. Dark vinyl coating is required for the fence posts and wire fabric in accordance with the Landscape Manual adopted by resolution 56-90 October 1, 1990.

PERMIT INFORMATION CHART LOT/PARCEL OAKLAND RIDGE INDUSTRIAL PARK PARCEL E-2 EQUESTRIAN CENTER SECTION CENSUS TRACT 6023.01 BLOCK . TAX/ZONING MAP | ELECTION DIST PLAT • OR L/F ZONING 4035, 5326, 9602 2ND *30* NT IND WATER CODE SEWER CODE 604 5657400







J. S. DÉPARTMENT OF AGRICULTURE PAGE MARYLAND DEPARTMENT OF ENVIRONMENT SOIL CONSERVATION SERVICE C - 18 - 27 WATER MANAGEMENT ADMINISTRATION

DATE REVISION OWNER/DEVELOPER: RUMSEY ROAD, LLC
c/o NORTHERN CHESAPEAKE BUILDERS CORP.

7307 YORK ROAD BALTIMORE, MARYLAND 21204 Attn: NORMAN E. ROCKWELL, JR. PH:410-828-4300

CHESAPEAKE 4
OFFICE BUILDING

STORMWATER MANAGEMENT DETAILS

Kichardson Engineering, LLC

730 W. Padonia Road Cockeysville, Maryland 21030 Phone: 410-560-1502 Fax: 410-560-0827



DESIGNED BY: PCR DRAWN BY: TLS & CADDS PROJECT NO.: 00007 DATE: 9/27/00

CHECKED BY: PCR

SCALE:

DRAWING NO. 6 OF 6 FILE NO. SDP-00-139

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING. CHIEF, DEVELOPMENT ENGINEERING DIVISION & DATE

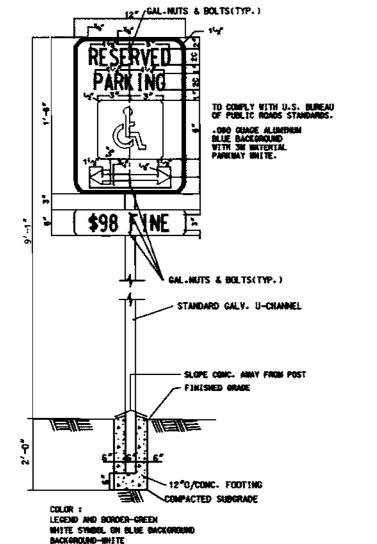
CHIEF. DIVISION OF LAND DEVELOPMENT

GENERAL NOTES: SPECIFICATIONS FOR MISCELLANEOUS MATERIA

HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION 1990, ERRATA & ADDENDA.

2. SOIL CONSERVATION SERVICE MARYLAND STANDARDS AND SPECIFICATIONS POND CODE 378 JANUARY, 2000.

MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION JANUARY, 1982, STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIAL.



HANDICAP PARKING

SIGN DETAIL

SCALE : 1" = 30"

SPECIAL EARTHWORK CONSIDERATIONS:

following requirements:

All fill placed for the core trench, access roadway, embankments, utility backfill, or any other location requiring stable support or minimal settlement shall be constructed as controlled,

Within the described construction greats, in which new if

o. Proof-roll the stripped soil surface in the proposed

is to be placed, strip the vegetation, topsoil, and any organic,

edges of the proposed construction a minimum of 5 feet.

engineer or highly qualified serior level soils technician, to

c. Compacted fill should be placed in relatively horizontal 8-

inch (maximum) loose lifts. Each lift should be uniformly and

evenly blade mixed during spreading to ensure uniformity of the

material in each layer. Each layer should be compacted to a

any additional till. The moisture content of the materials shall

should be deepty scarified. Where the slopes are steeper than 5

benched, when considered necessary by the Engineer, in order that

horizontal to I vertical (5H:IV), the slope should be stepped or

be maintained in order to attain the required degree of

d. Where fills are to be placed on slopes, the original ground

the placement of fill may be accomplished in relatively

minimum of 95 percent of the Standard Proctor maximum dry density as determined by ASTM D-698 (AASHTO T -99), prior to placement of

contaminated, or otherwise unsuitable materials to expose clean

soils. The stripped area shall extend outward from the exterior

construction area with a fully loaded, tandem-axie dump truck, or

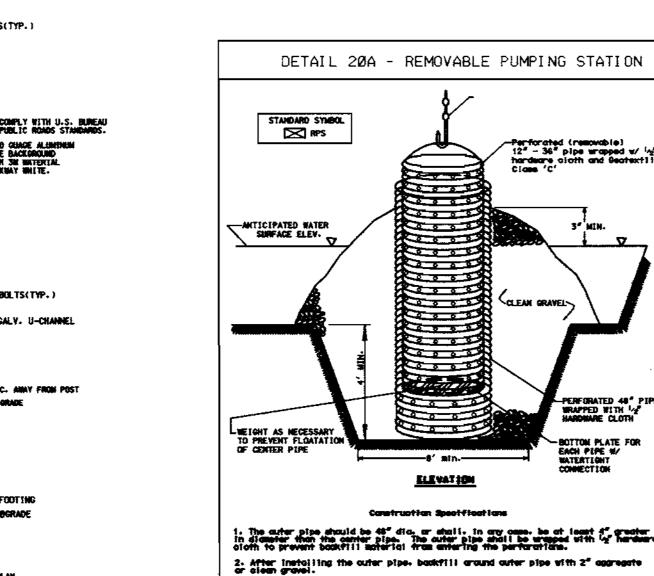
verify and establish a uniform, dense and stable condition. Any

soft, vielding, organic, contaminated or otherwise unacceptable

spots detected shall be cut out and replaced with controlled,

other approved equipment, under the observation of a geotechnical

compacted fill. Controlled, compacted fill shall meet the



U. S. DEPARTMENT OF AGRICULTURE PAGE MARYLAND DEPARTMENT OF ENTIRONGENT SUIL CONSERVATION SERVICE D - 12 - 4 WATER MANAGEMENT ACKNESTRATION

