## HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

### **LEGEND**

LIMITS OF DISTURBANCE

INLET PROTECTION

TREE PROTECTION FENCE

# NORTH LAUREL PARK HOWARD COUNTY, MARYLAND CAPITAL PROJECT No. D-1146

SIP SCE STABILIZED CONSTRUCTION ENTRANCE TREE TO BE REMOVED **EX. BUILDINGS** WATERS OF THE U.S. **FENCES EX. TREES** PROP. TREES MAJOR CONTOUR MINOR CONTOUR UNDERGROUND ELECTRIC POWER POLE AERIAL TELEPHONE LINE

### DESIGN CERTIFICATE

6/27/03

Mark Richmond

DESIGNER'S SIGNATURE

(P.E). R.L.S.. OR R.L.A.)

MARK RICHMOND

PRINTED NAME

### OWNER'S/DEVELOPER'S CERTIFICATION

"I/WE HEREBY CERTIFY THAT ALL CLEARING, GRADING, CONSTRUCTION AND/OR DEVELOPMENT WILL BE DONE PURSUANT TO THIS PLAN AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A MARYLAND DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT.

7/10/03

OWNER/DEVELOPER SIGNATURE

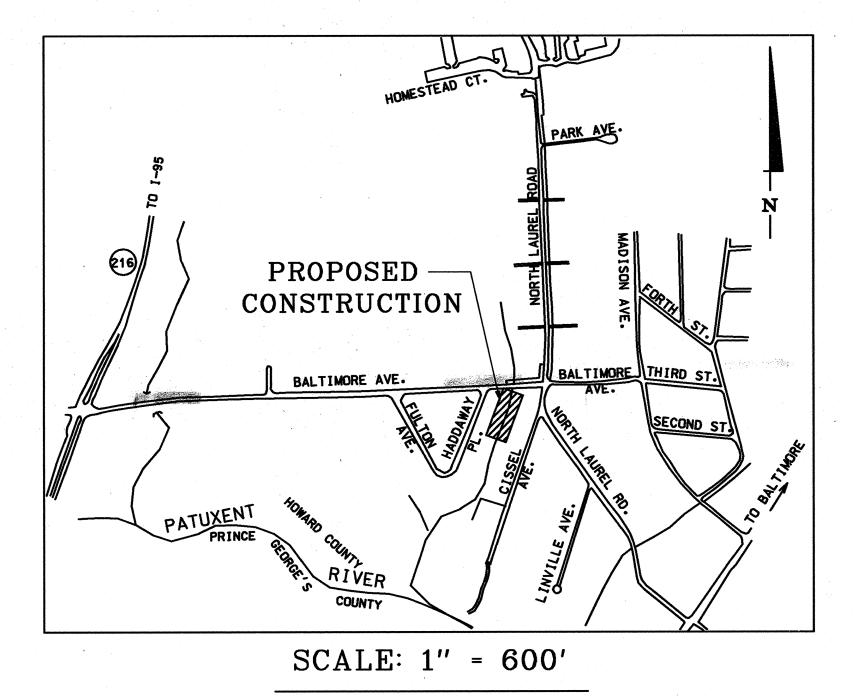
Howard E. Saltzman, Chief, Stormwater Management PRINTED NAME AND TITLE

REVIEWED FOR HOWARD COUNTY SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS.

NATURAL RESOURCES CONSERVATION SERVICE ' DATE

THIS DEVELOPMENT PLAN IS APPROVED FOR EROSION AND SEDIMENT CONTROL BY HOWARD SOIL CONSERVATION DISTRICT.

HOWARD SOIL CONSERVATION DISTRICT DATE



### SHEET INDEX

- 1. TITLE SHEET
- 2. SITE PLAN
- 3. STORM DRAIN PROFILE
- 4. SEDIMENT AND EROSION CONTROL PLAN
- 5. SEDIMENT AND EROSION CONTROL NOTES AND DETAILS
- 6. LANDSCAPE PLAN

**GENERAL NOTES:** 

- 1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS IF APPLICABLE.
- 2. THE CONTRACTOR SHALL NOTIFY"MISS UTILITY" AT 1-800-257-7777 AT LEAST FIVE (5) WORKING DAYS PRIOR TO ANY WORK BEING DONE.
- 3. THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS/BUREAU OF ENGINEERING/CONSTRUCTION INSPECTION DIVISION AT (410) 313-1880 AT LEAST FIVE (5) WORKING DAYS PRIOR TO THE START OF WORK.
- 4. SURVEY OF THE SITE WAS PERFORMED BY AB CONSULTANTS. INC -. SEPTEMBER 2002.
- 5. WETLANDS WERE DELINEATED BY CHESAPEAKE ENVIRONMENTAL MANAGEMENT, INC. - AUGUST 2002.
- 6. COORDINATES AND ELEVATIONS ARE BASED ON PREVIOUS EBA ENGINEERING, INC. TRAVERSE AND CONTROL POINTS.
- 7. THE EXISTING INFORMATION SHOWN ON THESE PLANS WAS TAKEN FROM THE BEST AVAILABLE SOURCES AND SHALL BE VERIFIED BEFORE STARTING CONSTRUCTION. THE HOWARD COUNTY DOES NOT GUARANTEE THE COMPLETENESS OR THE CORRECTNESS OF THE SHOWN INFORMATION.
- 8. HTI CONTRACTORS SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THE EXISTING UTILITIES AND MAINTAIN UNINTERRUPTED SERVICE. ANY DAMAGE INCURRED DUE TO HTI'S OPERATION SHALL BE REPAIRED IMMEDIATELY. ALL UTILITIES SHALL HAVE A CLEARANCE BY A MINIMUM OF 6 INCHES VERTICALLY AND A MINIMUM OF 5 FEET HORIZONTALLY.
- 9. SHOULD HTI DISCOVER DISCREPANCIES BETWEEN THE PLANS AND FIELD CONDITIONS, HTI SHALL NOTIFY KCI TECHNOLOGIES, INC. IMMEDIATELY TO RESOLVE THE SITUATION.
- 10. ALL PIPE ELEVATIONS SHOWN ARE INVERT ELEVATIONS.
- 11. HTI IS SOLELY RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, PROCEDURES, AND SAFETY PRECAUTIONS AND PROGRAMS.
- 12. EXISTING FENCES DISTURBED BY THE WORK SHALL BE RECONSTRUCTED OR REPLACED IN A CONDITION EQUAL TO OR BETTER THAN PRESENT CONDITIONS, UNLESS OTHERWISE NOTED IN THE EASEMENT DOCUMENTS.
- 13. TRAFFIC CONTROL DEVICES, MARKINGS AND SIGNINGS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). ALL STREET AND REGULATORY SIGNS SHALL BE IN PLACE PRIOR TO THE PLACEMENT OF ANY ASPHALT.
- 14. TRAFFIC CONTROL SHALL BE PROVIDED DURING CONSTRUCTION. HOWARD COUNTY STANDARD DETAIL TE-11 SHALL APPLY.
- 15. PRIOR TO BEGINNING ANY CONSTRUCTION ACTIVITIES, A VIDEOTAPE AND PHOTOGRAPHS OF THE CHANNEL FROM THE PROPOSED STORM DRAIN OUTFALL TO ITS DOWNSTREAM CONFLUENCE SHALL BE TAKEN.

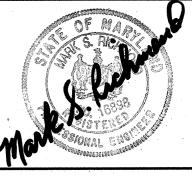
MDE PERMIT/TRACKING NUMBER- 200361475

CAPITAL PROJECT D-1146

DEPARTMENT OF PUBLIC WORKS

BUREAU OF ENVIRONMENTAL SERVICES DATE





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TITLE SHEET

BLOCK NO.

HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

NORTH LAUREL PARK DRAINAGE IMPROVEMENTS

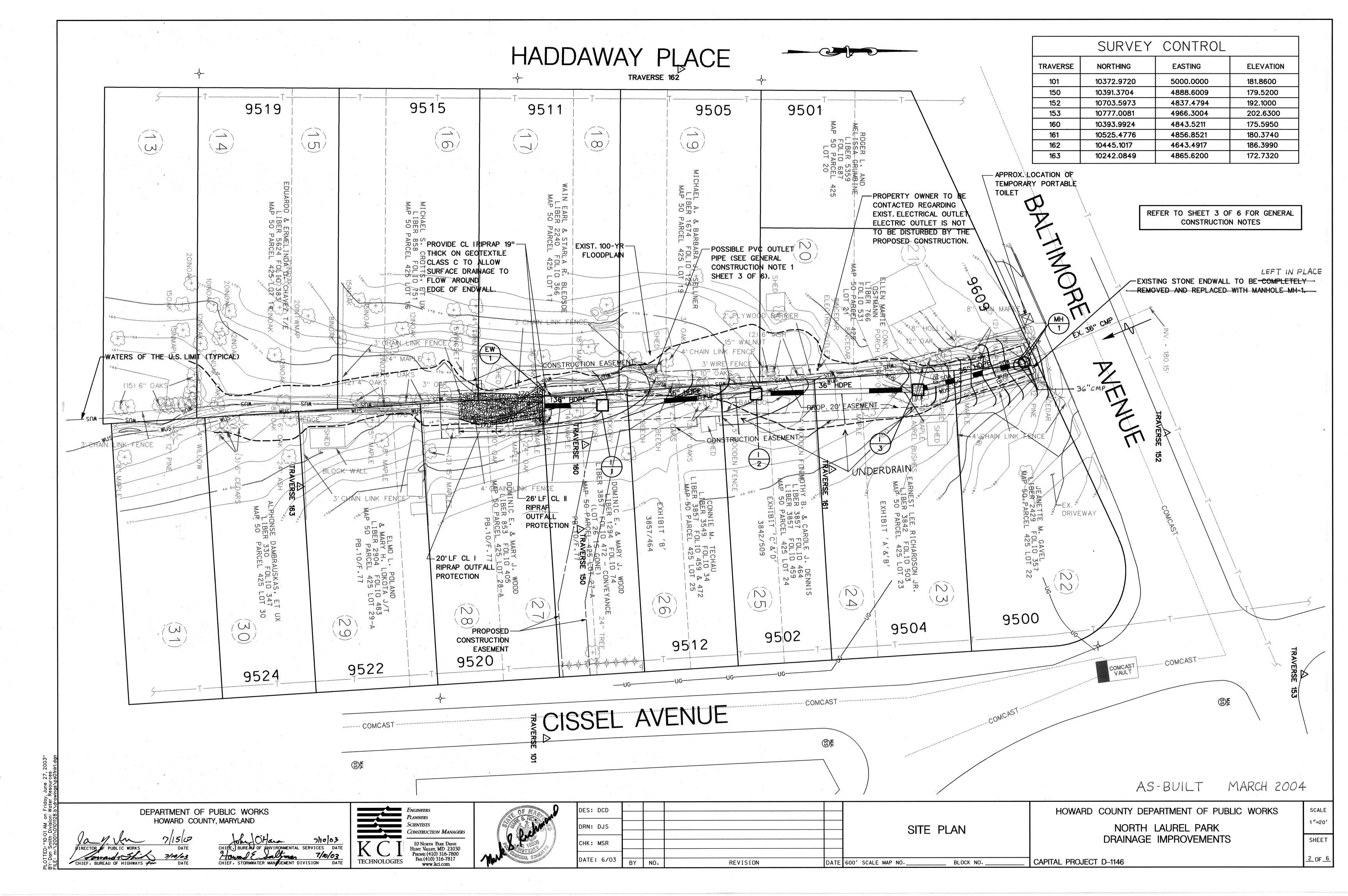
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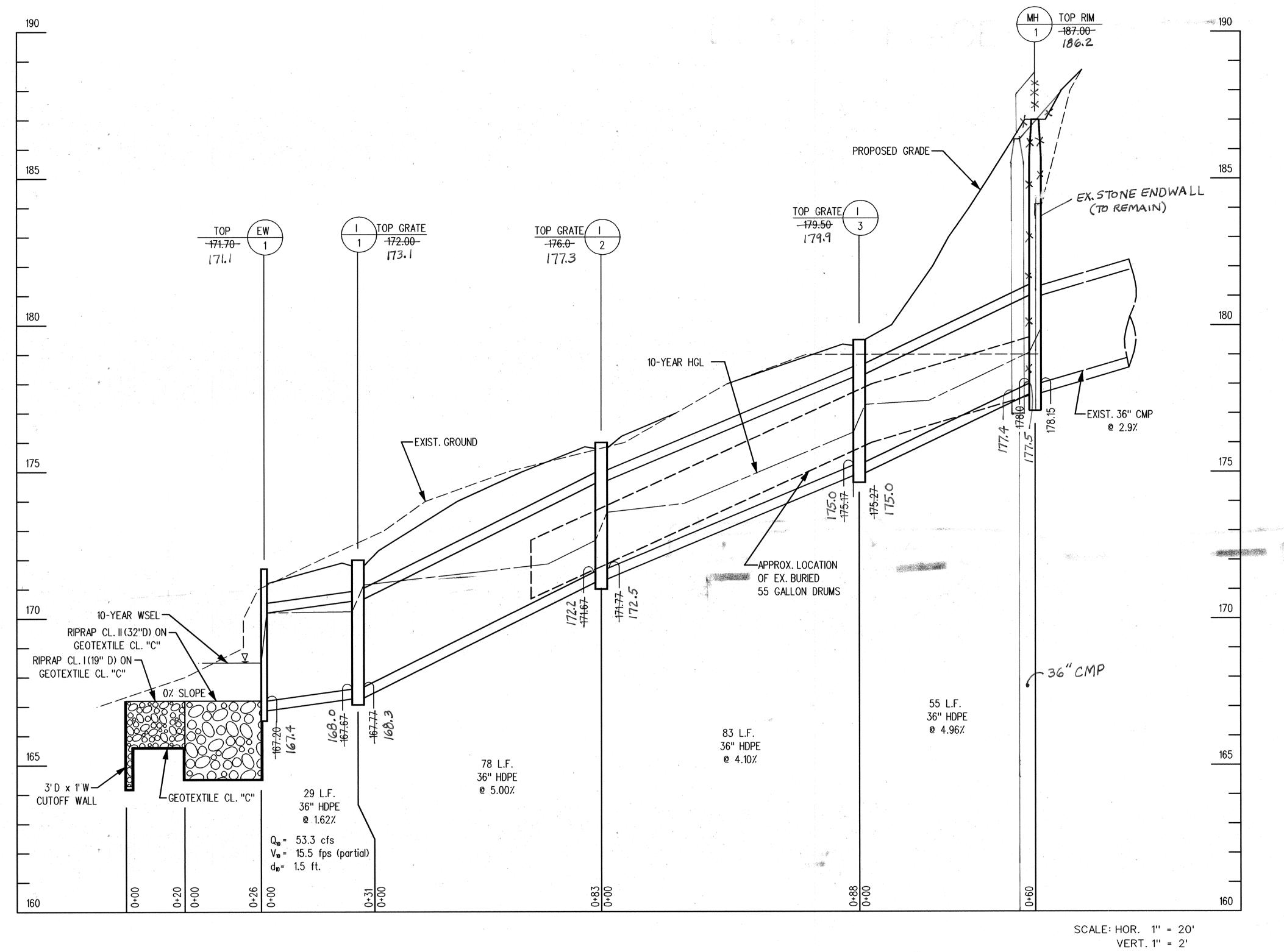
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SHEET

EP-03-08

HOWARD COUNTY, MARYLAND





# STRUCTURE SCHEDULE

				1			
	NO.	TYPE	HOWARD CO. STD. NO.	COORDINATES**	TOP ELEV.	INV. OUT	REMARKS
Γ	EW-1	TYPE "C" ENDWALL - 36-INCH	SD 5.21	N 10372.1490, E 4822.8822	<del>-171.70 -</del>	<del>-167.20-</del>	
	1-1	TYPE "D" INLET - MOD. 4' x 2.5'*	MOD. SD 4.11	N 10403.5920, E 4822.6370	<del>-172.00-</del>	-167.60-	OPENING TO BE PLACED ON ALL 4 SIDES
	I-2	TYPE "D" INLET - MOD. 4' x 2.5'*	MOD. SD 4.11	N 10485.4800, E 4816.7910	<del>-176.00-</del>	171.67	OPENING TO BE PLACED ON ALL 4 SIDES
	I-3°	TYPE "D" INLET - MOD. 4' x 2.5'*	MOD. SD 4.11	N 10571.7660, E 4814.5440	-179.50-	175.17	OPENING TO BE PLACED ON ALL 4 SIDES
	MH-1	5'-0" STD. PRECAST MANHOLE	G 5.13	N 10628.3870, E 4799.9100	187.00	-178.00-	-REPLACE EXISTING ENDWALL

\* SEE NOTE 4 THIS SHEET.

\*\* COORDINATES ARE TO CENTER OF STRUCTURE.

SEE ABOVE FOR AS - BUILT ELEVATIONS

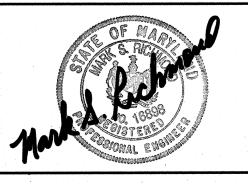
### GENERAL CONSTRUCTION NOTES

- 1. ANY SUMP PUMP OR OTHER UNDER DRAIN PIPES CURRENTLY DISCHARGING INTO THE EXISTING CHANNEL SHALL BE EXTENDED AND CONNECTED TO THE NEAREST PROPOSED INLET TO INSURE POSITIVE DRAINAGE.
- 2. PROPOSED FENCES, BUILDING STRUCTURES, AND OTHER OBSTRUCTIONS SHALL NOT BE LOCATED WITHIN THE PROPOSED DRAINAGE EASEMENT.
- 3. THE EXISTING 55 GALLON DRUM STORM DRAIN PIPE SHALL BE REMOVED AND SHALL BE INCIDENTAL TO THE COST OF CONSTRUCTING THE PROPOSED STORM DRAIN
- 4. ALL PROPOSED INLETS, MANHOLES, AND ENDWALLS SHALL BE PRECAST. ALL PROPOSED INLETS SHALL HAVE A 4'x 2.5' INSIDE DIMENSION. THE 4' DIMENSION SHALL BE ON THE SIDE OF THE INLET WITH THE 36" PIPE.
- 5. THE TRUNKS OF THE EXISTING TREES TO BE REMOVED SHALL BE CUT INTO FIREWOOD LENGTH LOGS AND LEFT ON THE SAME PROPERTY WHERE THE TREE WAS REMOVED FOR THE HOMEOWNER TO SPLIT AND USE, UNLESS OTHERWISE NOTED IN THE EASEMENT DOCUMENTS.
- 6. ALL STUMPS OF EXISTING TREES TO BE REMOVED THAT ARE WITHIN 3' OF THE PROPOSED STORM DRAIN PIPE, APPURTENANCES, AND RIPRAP OUTFALL PROTECTION SHALL BE REMOVED AND DISPOSED OF OFFSITE.
- 7. ALL INLETS SHALL HAVE 6" DIAMETER OPENINGS WITH HARDWARE CLOTH PLACED ON THE OUTSIDE OF THE OPENING. (REFER TO HOWARD CO. STD. SD-4.01, SD-4.02, AND SD-4.23. 6" DIAMETER OPENING TO BE USED IN LIEU OF 4" X 4" OPENING ON STD. DETAILS.)
- 8. THE GROUND WITHIN 6'OF EACH SIDE OF EACH YARD INLET SHALL BE FINE GRADED TO ALLOW FLOW INTO ALL FOUR SIDES OF THE INLET. SURFACE FLOW AT THE ENDWALL SHALL BE FINE GRADED TO GO AROUND THE EDGES OF THE ENDWALL ON THE RIPRAP AREAS SHOWN ON THE PLANS.
- 9. ANY EXCAVATED MATERIAL WITH BAMBOO ROOTS SHALL NOT BE USED AS BACKFILL FOR THIS PROJECT.

AS-BUILT MARCH 2004

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND

10 North Park Drive Hunt Valley, MD 21030 Phone: (410) 316-7800 Fax: (410) 316-7817 TECHNOLOGIES



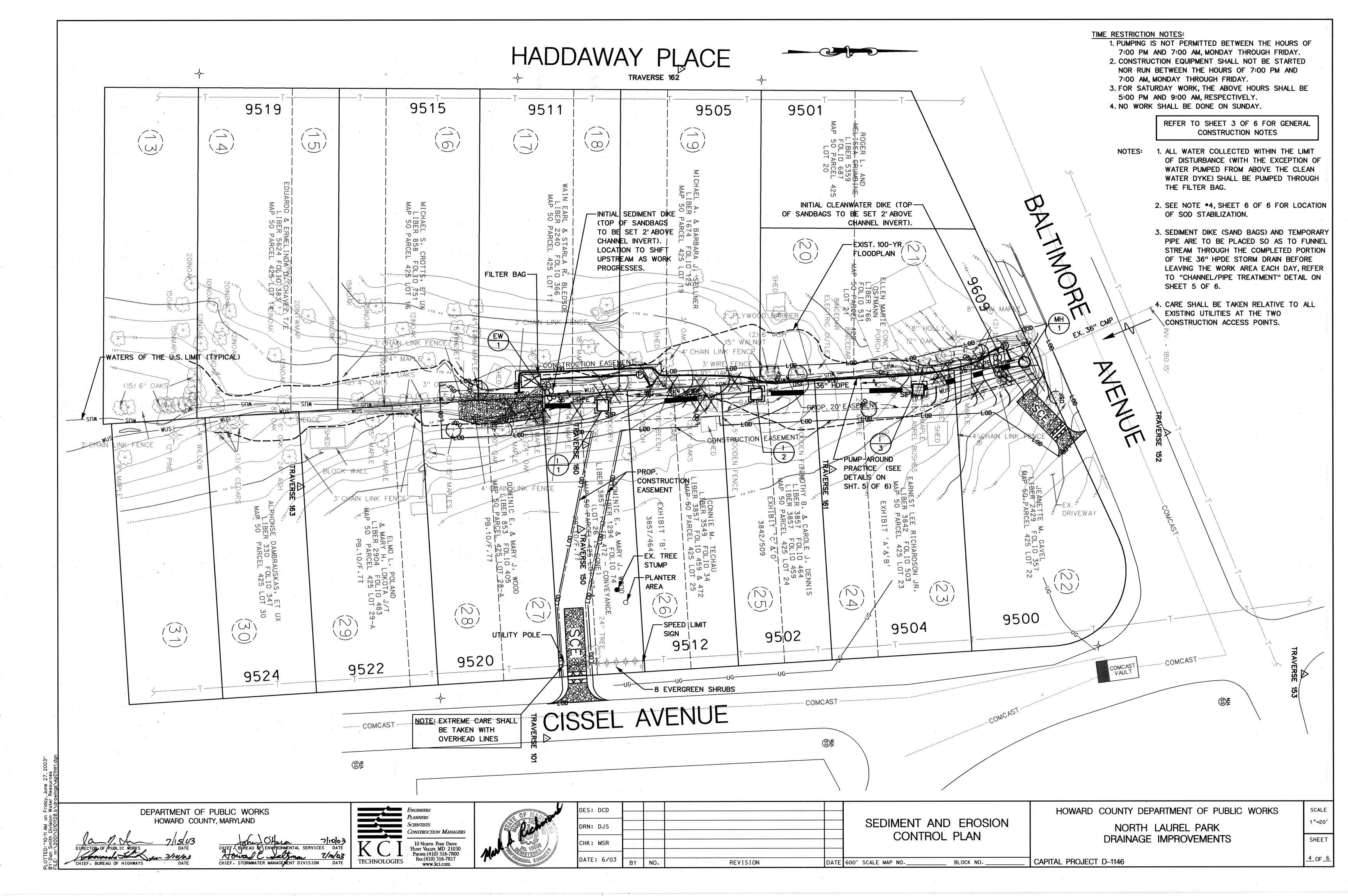
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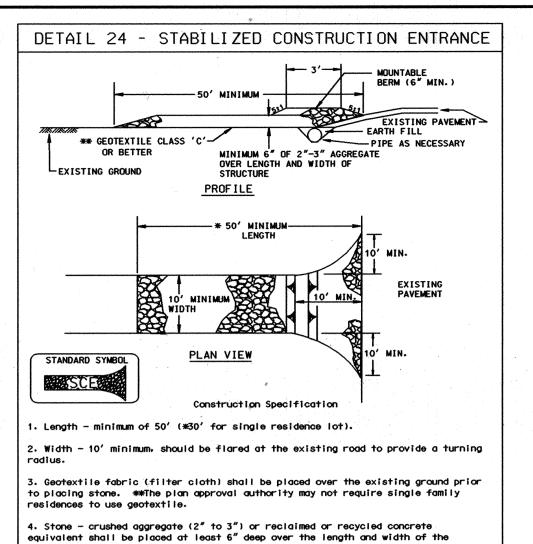
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

NORTH LAUREL PARK DRAINAGE IMPROVEMENTS

CAPITAL PROJECT D-1146

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5. Surface Water - all surface water flowing to or diverted toward construction

entrances shall be piped through the entrance, maintaining positive drainage. Pipe

mountable berm with 5:1 slopes and a minimum of 6" of stone over the pipe. Pipe ha to be sized according to the drainage. When the SCE is located at a high spot and

installed through the stabilized construction entrance shall be protected with a

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

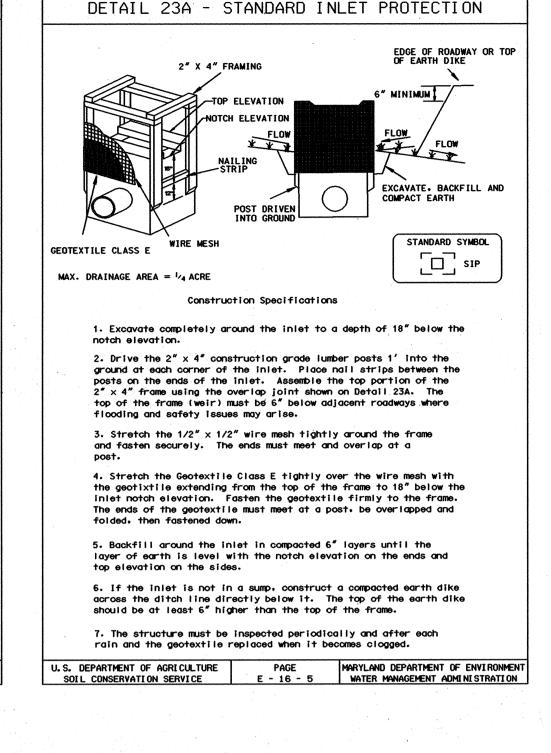
where construction traffic enters or leaves a construction site. Vehicles leaving

the site must travel over the entire length of the stabilized construction entrance

has no drainage to convey a pipe will not be necessary. Pipe should be sized

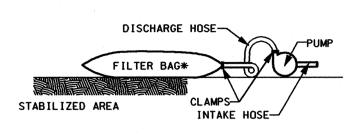
entrance.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE



DETAIL 26 - ROCK OUTLET PROTECTION II	ROCK OUTLET PROTECTION II
DISCHARGE TO CONF INED CHANNEL SECTION  PLAN VIEW	Construction Specifications  1. The subgrade for the filter, rip-rap, or gabion shall be prepared to the required lines and grades. Any fill required in the subgrade shall be compacted to a density of approximately that of the surrounding undisturbed material.  2. The rock or gravel shall conform to the specified grading limits when installed respectively in the rip-rap or filter.  3. Geotextile shall be protected from punching, cutting, or tearing. Any damage other than an occasional small hole shall be repaired by placing another piece of geotextile over the damaged part or by completely replacing the geotextile. All overlaps whether for repairs or for joining two pieces of geotextile shall be a minimum of one foot.  4. Stone for the rip-rap or gabion outlets may be placed by
TOP OF CHANNEL  DOWNSTREAM CHANNEL INVERT  O'X SLOPE  TOP OF CHANNEL  TOP OF MUST EXTEND  AT LEAST 6" FROM END OF APRON  SLOPE POSITIVE TO DRAIN  3' MINIMUM DEPTH  ELEVATION	equipment. They shall be constructed to the full course thickness in one operation and in such a manner as to avoid displacement of underlying materials. The stone for rip-rap or gabion outlets shall be delivered and placed in a manner that will ensure that it is reasonably homogeneous with the smaller stones and spalls filling the voids between the larger stones. Rip-rap shall be placed in a manner to prevent damage to the filter blanket or geotextile. Hand placement will be required to the extent necessary to prevent damage to the permanent works.  5. The stone shall be placed so that it blends in with the existing ground. If the stone is placed too high then the flow will be forced out of the channel and scour adjacent to the stone will occur.
FILTER CLOTH LINING MUST EXTEND AT LEAST 6" FROM EDGE OF RIP—RAP AND BE EMBEDDED AT LEAST 4" AT SIDES OF THE RIP—RAP  FILTER CLOTH—  FILTER CLOTH—  MINIMUM DEPTH OF RIP—RAP—MAXIMUM DEPTH OF FLOW. (DOWNSTREAM NORMAL DEPTH OR DISCHARGE DEPTH WHICHEVER IS GREATER)	
SECTION A-A  NOTE: FILTER CLOTH SHALL BE GEOTEXTILE CLASS C  U.S. DEPARTMENT OF AGRICULTURE PAGE SOIL CONSERVATION SERVICE F - 18 - 9  MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION	U.S. DEPARTMENT OF AGRICULTURE PAGE MARYLAND DEPARTMENT OF ENVIRONMENT SOIL CONSERVATION SERVICE F - 18 - 9A WATER MANAGEMENT ADMINISTRATION

STABILIZED AREA FILTER BAG\* DISCHARGE STABILIZED AREA INTAKE HOSE-



\* NON-WOVEN GEOTEXTILE FILTER BAG WHICH RETAINS ALL SEDIMENT PARTICLES LARGER THAN 150 MICRONS.

<u>SILT BAG DEWATERING DEVICE FOR PUMPED WATER</u>

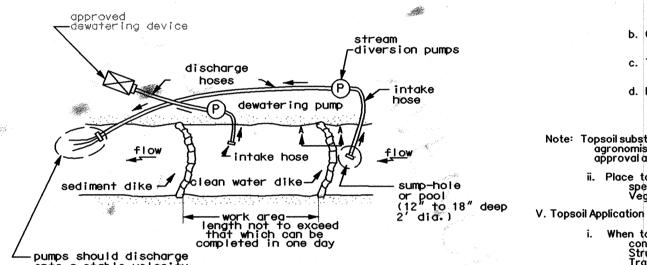
NOTES: 1. PLACE FILTER BAGS ON STABLE OR WELL VEGETATED AREAS WHICH ARE FLATTER THAN 5% AND WILL NOT ERODE WHEN SUBJECTED TO BAG DISCHARGES.

2. CLAMP PUMP DISCHARGE HOSES SECURELY INTO FILTER BAGS. 3. LIMIT PUMPING RATE TO 1/2 THE MANUFACTURER'S MAXIMUM

PUMPING RATE.

4. WHEN SEDIMENTS FILL  $\frac{1}{2}$  THE VOLUME OF A FILTER BAG, IMMEDIATELY REMOVE THAT BAG FROM SERVICE. PROPERLY DISPOSE OF SPENT BAGS WITH THEIR SEDIMENTS

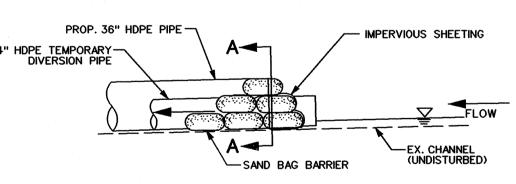
DETAIL 1.2: PUMP-AROUND PRACTICE PLAN VIEW



 pumps should discharge onto a stable velocity dissipator made of rap or sandbags SECTION A-A impervious sheeting work area (2 foot minimum) cross section of sandbag dike REVISED NOVEMBER 2006 PAGE 1.2 - 3

> FILL VOID BETWEEN PIPES WITH SANDBAGS/IMPERVIOUS -36" PERMANENT

SECTION A-A



CHANNEL/PIPE TREATMENT AT END OF WORKING DAY

### 24:0 MATERIALS AND SPECIFICATIONS TABLE 27 GEOTEXTILE FABRICS

PAGE MARYLAND DEPARTMENT OF ENVIRONMENT
F - 17 - 3 WATER MANAGEMENT ADMINISTRATION

CLASS	APPARENT OPENING SIZE MM. MAX.	GRAB TENSILE STRENGTH LB. MIN.	BURST STRENGTH PSIMIN.
A	0.30**	250	500
В	0.60	200	320
С	0.30	200	320
D	0.60	90	145
E	0.30	90	145
F (SILT FENCE)	0.40 - 0.80 ×	90	190

\* US STD. SIEVE CW-02215 \*\* .50 MM. MAX. FOR SUPER SILT FENCE THE PROPERTIES SHALL BE DETERMINED IN ACCORDANCE WITH THE FOLLOWING PROCEDURES:

-GRAB TENSILE STRENGHT ASTM D 1682 4"x8" SPECIMEN 1"x2" CLAMPS, 12"/ MIM. STRAIN RATE IN BOTH PRINCIPAL DIRECTIONS OF GEOTEXTILEFABRIC. ASTM D 3786 -BURST STRENGTH

THE FABRIC SHALL BE INERT TO COMMONLY ENCOUNTERED CHEMICALS AND HYDROCARBONS, AND WILL BE ROT AND MILDEW RESISTANT IT SHALL BE 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 PERCENT (20%) WHEN TESTED IN ACCORDANCE WITH THE GRAB TENSILE STRENGTH REQUIREMENTS LISTED

- APPARENT OPENING SIZE MSMT 323

CLASS F GEOTEXTILE FABRICS FOR ALL SILT FENCE SHALL HAVE A 50LB./IN.
MINIMUM TENSILE STRENGTH AND A 20 LB/IN MINIMUM TENSILE MODULES
WHEN TESTED IN ACCORDANCE WITH MSMT 509. MATERIAL SHALL ALSO HAVE A 0.3 GAL./FT.SQUARED/MIN. FLOW RATE ND SEVENTY-FIVE PERCENT (75%) MINIMUM FILTERING EFFICIENCY WHEN TESTED IN ACCORDANCE

GEOTEXTILE FABRICS USED IN THE CONSTRUCTION OF THE 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.

> HOWARD SOIL CONSERVATION DISTRICT PERMANANT SEEDING NOTES

Apply to graded or cleared areas not subject to immediate further disturbance where a permanent long-lived vegetative cover is needed. <u>Seedbed Preparation</u>: Loosen upper three inches of soil by raking, disking or other acceptable means before seeding, if not previously loosened. <u>Soil Amendments:</u> In lieu of soil test recommendations, use one of the following schedules:

1. Preferred -- Apply 2 tons/acre dolomitic limestone (92 lbs/1000 sq. ft.) and 600 lbs/acre 10-10-10 fertilizer (14 lbs/1000 sq. ft.) before seeding. Harrow or disk into upper three inches of soil. At time of seeding, apply 400 lbs/acre 30-0-0 ureaform fertilizer (9 lbs/1000 sq. ft.)

Acceptable -- Apply 2 tons/acre dolomitic limestone (92 lbs/1000 sq. ft.) and 1000 lbs/acre 10-10-10 fertilizer (23 lbs/1000 sq. ft.) before seeding. Harrow

or disk into upper three inches of soil. Seeding - For the periods March 1 - April 30, and August 1 - October 15, seed with 60 lbs/acre (1.4 lbs/1000 sq. ft.) of Kentucky 31 Tall Fescue. For the period May 1 - July 31, seed with 60 lbs Kentucky 31 Tall Fescue per acre and 2 lbs/acre (.05 lbs/100sq. ft.) of weeping lovegrass. During the period of October 16 - February 28, protect site by: Option 1 - Two tons per acre of well anchored straw mulch and seed as soon as possible in the spring. Option 2 - Use sod. Option 3 - Seed with 60 lbs/acre Kentucky 31 Tall Fescue and

Mulching - Apply 1-1/2 to 2 tons per acre (70 to 90 lbs/1000 sq. ft.) of unrotted small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 218 gallons per acre (5 gal/1000 sq. ft.) of emulsified asphalt on flat areas. On slope 8 feet or higher, use 348 gallons per acre (8 gal/1000 sq. ft.

Maintenance - Inspect all seeding areas and make needed repairs,

### HOWARD SOIL CONSERVATION DISTRICT TEMPORARY SEEDING NOTES

Apply to graded or cleared areas likely to be re-disturbed where a short-term vegetative cover is peeded dbed preparation: -- Loosen upper three inches of soil by raking,

disking or other acceptable means before seeding, if not previously Soil Amendments: -- Apply 600 lbs/acre 10-10-10 fertilizer (14 lbs/1000 sq. ft.).

Seeding: -- For periods March 1 - April 30 and from August 15 - October 15, seed with 2-1/2 bushelper acre of annual ye (3.2 lbs/1000 sq. ft.). For the period May 1 - August 14, seed with 3 lbs/acre of weeping lovegrass (.07 lbs/1000 ft.). For the period November 16 - February 28, protect site by applying 2 tags/acre of well applying acres of well applying and seed as soon tons/acre of well-anchored straw mulch and seed as soon as possible in the spring, or use sod.

Mulching: -- Apply 1-1/2 to 2 tons/acre (70 to 90 lbs/1000 sq. ft.) of unrotted weed-free, small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 218 gal. Per acre (5 gal/1000 sq. ft.) of emulsified asphalt on flat areas. On slope 8 ft. or higher, use 348 gal. Per acre

Refer to the 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for additional rates and method

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 shall be made available to the job foreman and

ii. Sod shall be machine cut at a uniform soil thickness of 3/4", plus or minus '/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 section.

iv. Sod shall not be harvested or transplanted when moisture content excessively dry or wet) may adversely affect its survival.

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

B. Sod Installation

i. During periods of excessively high temperature or in areas having dry subsoil, the subsoil shall be lightly irrigated immediately prior to laying the

ii. The first row of sod shall be 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 adequated 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

ii. After the first week, sod watering is required as necessary to maintain

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.

HOWARD COUNTY CONSERVATION DISTRIC STANDARD SEDIMENT CONTROL NOTES

1. A minimum of 48 hours notice must be given to the Howard County Department of Inspections, Licenses and Permits, Sediment Control Division prior to the start of any construction (313-1855). 2. All vegetative and structural practices are to be installed according to the provisions of this plan and are to be in conformance with the most current MARYLAND STANDARDS AND SPECIFICATION FOR SOIL EROSION AND SEDIMENT

3. Following initial soil disturbance or re-disturbance, permanent or temporary stabilization shall be completed within: a) 7 calendar days for all perimeter sediment control structures, dikes, perimeter slopes and all slopes greater than 3:1, b) 14 days as to all slopes greater than 3:1, b) 14 days as to all other disturbed or graded areas on the project site. Contract of the second 4. All sediment traps/basins shown must be fenced and warning signs posted around their perimeter in accordance with Vol 1, Chapter 12 of the HOWARD COUNTY DESIGN

5. All disturbed areas must be stabilized within the time period specified above in accordance with the 1994 MARYLAND STANDARDS AND SPECIFICATION FOR SOIL EROSION AND SEDIMENT CONTROL for permanent seeding (Sec. 51), sod (Sec. 54), temporary seeding (Sec. 50) and mulching (Sec. 52). Temporary stabilization with mulch alone can only be done when recommended seeding dates do not allow for

All sediment control structures are to remain in place and are to be maintained in operative condition until permission for their removal has been obtained from the Howard County Sediment Control Inspector.

Site Analysis Total Area of Site Area Disturbed Area to be roofed or paved

0.37 Acres 0.37 Acres 37 Acres

Area to be vegetatively stabilized Total Cut Offsite waste/borrow area location

Any sediment control practice which is disturbed by grading activity for placement of utilities must be repaired on the same day of disturbance. 9. Additional sediment control must be provided, if deemed necessary by the Howard County Sediment Control Inspector.

10. On all sites with disturbed areas in excess of 2 acres, approval of the inspection agency shall be requested upon completion of installation of perimeter erosion and sediment controls, but before proceeding with any other earth disturbance or grading. Other building or grading inspection approvals may not be authorized until this initial approval

11. Trenches for the construction of utilities is limited to three pipe lengths or that which shall be back-filled and stabilized by the end of each work day, whichever is shorter. \*Offsite waste/borrow site shall have an approved sediment control plan.

SEQUENCE OF CONSTRUCTION

1. THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT
1-800-257-7777 AT LEAST FIVE (5) WORKING DAYS PRIOR
TO ANY WORK BEING DONE. THE CONTRACTOR SHALL
NOTIFY THE HOWARD COUNTY DEPARTMENT OF INSPECTIONS,
LICENSES, AND PERMITS, SEDIMENT CONTROL DIVISION
(410-313-1880) A MINIMUM OF 48 HOURS PRIOR TO THE
START OF ANY CONSTRUCTION 1 WEEK START OF ANY CONSTRUCTION.
NOTE: MDE PERMIT TRACKING NUMBER FOR THIS PROJECT

2. CLEAR AND GRUB THOSE AREAS WITHIN THE LIMIT OF DISTURBANCE REQUIRED TO ESTABLISH THE PROPOSED SEDIMENT CONTROL MEASURES.

2 DAYS

3. CONSTRUCT STABILIZED CONSTRUCTION ENTRANCES, TREE PROTECTION FENCES, AND PUMP-AROUND-PRACTICE DEVICES. 2 DAYS 4. WITH THE PERMISSION OF THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR, CLEAR AND GRUB THE REMAINDER OF THE SITE.

5. CONSTRUCT THE STORM DRAIN OUTLET PIPE, ENDWALL,
AND OUTFALL STABILIZATION. CONSTRUCT THE STORM DRAIN
SYSTEM FROM DOWNSTREAM TO UPSTREAM AS SHOWN ON THE
PLANS. INSTALL INLET PROTECTION FOR EACH INLET
AFTER THE INLET HAS BEEN CONSTRUCTED. NOTE: PUMP-AROUND-PRACTICE
AND ASSOCIATED DEVICES SHALL BE ADJUSTED AS NEEDED ON A
DAILY BASIS IN ACCORDANCE WITH STANDARD DETAIL FOR PUMP-AROUND.

3 DAYS 6. FINE GRADE SITE AND PERMANENTLY STABILIZE THE DISTURBED AREAS ACCORDING TO THE PLANS, INCLUDING AREAS TO BE SODDED AS PER NOTE\*4, SHEET 6 OF 6.

2 DAYS 7. WHEN THE SITE IS STABILIZED AND WITH THE PERMISSION OF THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR, REMOVE SEDIMENT CONTROL DEVICES AND STABILIZE ANY AREAS DISTURBED BY THIS ACTIVITY.

1 WEEK 8. INSTALL PROPOSED TREES AND RE-INSTALL REPLACEMENT FENCES AS NOTED ON THE PLANS.

MGWC 1.2: PUMP-AROUND PRACTICE

Temporary measure for dewatering in

The work should consist of installing a temporary pump around and supporting measures to divert flow around in-stream construction sites.

Sediment control measures, pump-around practices, and associated channel and bank construction should be completed in the following sequence (refer to Detail 1.2):

1. Construction activities including the installation of erosion and sediment control measures should not begin until all necessary easements and/or right-of-ways have been acquired. All existing utilities should be marked in the field prior to construction. The contractor is responsible for any damage to existing utilities that may result from construction and should repair the damage at his/her own expense to the county's or utility company's satisfaction.

2. The contractor should notify the Maryland Department of the Environment or WMA sediment control inspector at least 5 days before beginning construction. Additionally, the contractor should inform the local environmental protection and resource management inspection and enforcement division and the provider of local utilities a minimum of 48 hours before starting

3. The contractor should conduct a pre-construction meeting on site with the WMA sediment control inspector, the county project manager, and the engineer to review limits of disturbance, erosion and sediment control requirements, and the sequence of construction. The contractor should stake out all limits of disturbance prior to the pre-construction meeting so they may be reviewed. The participants will also designate the contractor's staging areas and flag all trees within the limit of disturbance, which will be removed for construction access. Trees should not be removed within the limit of disturbance without approval from the WMA or local authority.

4. Construction should not begin until all sediment and erosion control measures have been installed and approved by the engineer and the sediment control inspector. The contractor should stay within the limits of the disturbance as shown on the plans and minimize disturbance within the

5. Upon installation of all sediment control measures and approval by the sediment control inspector and the local environmental protection and resource management inspection and enforcement division, the contractor should begin work at the upstream section and proceed downstream beginning with the establishment of stabilized construction entrances. In some cases, work may begin downstream if appropriate. The sequence of construction must be followed unless the contractor gets written approval for deviations from the WMA or local authority. The contractor should only begin work in an area which can be completed by the end of the day including grading adjacent to the channel. At the end of each workday, the work area must be stabilized and the pump ground removed from the channel. Work should not be conducted in the channel and the pump around removed from the channel. Work should not be conducted in the channe

6. Sandbag dikes should be situated at the upstream and downstream ends of the work area as shown on the plans, and stream flow should be pumped around the work area. The pump should discharge onto a stable velocity dissipater made of riprap or sandbags. 7. Water from the work area should be pumped to a sediment filtering measure such as a dewatering basin, sediment bag, or other approved source. The measure should be located such that the water drains back into the channel below the downstream sandbag dike.

8. Traversing a channel reach with equipment within the work area where no work is proposed should be avoided. If equipment has to traverse such a reach for access to another area, then timber mats or similar measures should be used to minimize disturbance to the channel.

Temporary stream crossings should be used only when necessary and only where noted on the plans or specified. (See Section 4, Stream Crossings, Maryland Guidelines to Waterway Construction). 9. All stream restoration measures should be installed as indicated by the plans and all banks graded in accordance with the grading plans and typical cross-sections. All grading must be stabilized at the end of each day with seed and mulch or seed and matting as specified on the

10. After an area is completed and stabilized, the clean water dike should be removed. After the first sediment flush, a new clean water dike should be established upstream from the old sediment dike. Finally, upon establishment of a new sediment dike below the old one, the old

A pump around must be installed on any tributary or storm drain outfall, which contributes baseflow to the work area. This should be accomplished by locating a sandbag dike at the downstream end of the tributary or storm drain outfall and pumping the stream flow around the work area. This water should discharge onto the same velocity dissipater used for the main stem

12. If a tributary is to be restored, construction should take place on the tributary before work on the main steam reaches the tributary confluence. Construction in the tributary, including pump around practices, should follow the same sequence as for the main stem of the river or stream. When construction on the tributary is completed, work on the main stem should resume. Water from the tributary should continue to be pumped around the work area in the main stem.

13. The contractor is responsible for providing access to and maintaining all erosion and sediment control devices until the sediment control inspector approves their removal. After construction, all disturbed areas should be regraded and revegetated as per the planting

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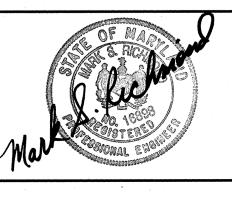
24" HDPE TEMPORARY

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DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND

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**EROSION AND SEDIMENT** CONTROL NOTES AND DETAILS

BLOCK NO.

HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS NORTH LAUREL PARK DRAINAGE IMPROVEMENTS

S SHOWN SHEET

21.0 STANDARD AND SPECIFICATIONS - TOPSOIL

Conditions Where Practice Applies

The texture of the exposed subsoil/parent material is not adequate to produce vegetative growth.

c. The original soil to be vegetated contains material toxic to

d. The soil is so acidic that treatment with limestone is not feasible.

II. For the purpose of these Standards and Specifications, areas having slopes steeper than 2:1 require special consideration and design for adequate stabilization. Areas having slopes steeper than 2:1 shall have the appropriate stabilization shown on the

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

ówing proceures.

III. For sites having disturbed areas under 5 acres:

IV. For sites having disturbed areas over 5 acres:

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.

Construction and Material Specifications

Topsoil salvaged from the existing site may be used provided that it meets the standards as set forth in these specifications.

Typically, the depth of topsoil to be salvaged for a given soil type can be found in the representative soil profile section in the Soil Survey published by USDA-SCS in cooperation with Maryland Agricultural Experimental Station.

Topsoil shall be a loam, sandy loam, clay loam, silt loam, sandy 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 mixutre of contrasting textured subsoils and shall contain less than 5% by volume of cinders, stones, slag, coarse fragments, gravel, sticks, roots, trash, or other materials larger than 11/2" in diameter.

Topsoil must be free of plants or plant parts such as bermuda grass, quackgrass, Johnsongrass, nutsedge, poison ivy, thistle, or others as specified.

Place topsoil (if required) and apply soil amendments as specified in 20.0 Vegetative Stabilization - Section - Vegetative Stabilization Methods and Materials.

On soil meeting Topsoil specifications, obtain test results dictating fertilizer and lime amendments required to bring the soil into compliance with the following:

a. pH for topsoil shall be between 6.0 and 7.5. If the tested soil demonstrates a pH of less than 6.0, sufficient 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.

Note: Topsoil substitutes or amendments, as recommended by a qualified agronomist or soil scientist and approved by the appropriate approval authority, may be used in lieu of natural topsoil.

ii. Place topsoil (if required) and apply soil amendments as specified in 20.0 Vegetative Stabilization - Section \* -Vegetative Stabilization Methods and Materials.

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

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 sodding or seeding can proceed with a minimum of additional soil preparation and tillage. Any irregularities in the surface resulting from topsoiling or other operations shall be corrected in order to prevent the formation of depressions water pockets.

iv. Topsoil shall not be placed while the topsoil or subsoil is in a frozen or muddy condition, when the subsoil is excessively wet or in a condition that my otherwise be

VI. Alternative for Permanent Seeding - Instead of applying the full amounts of lime and commercial fertilizer, composted sludge and amendments may be applied as specified below:

detrimental to proper grading and seedbed preparation.

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

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

ii. 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.

1. AT THE END OF EACH WORKING DAY PLACE TEMP. 24" HDPE AND SANDBAGS AS SHOWN TO MAINTAIN EXISTING BASEFLOW FROM EXISTING CHANNEL TO TEMP. 24" HDPE TO PERMANENT 36" HDPE.

2. THIS DETAIL SHALL BE IMPLEMENTED AT THE UPSTREAM-MOST SECTION OF 36" HDPE AT THE END OF EACH WORKING DAY.

a. Composted Sludge shall be supplied by, or originate from, a person or persons that are permitted (at the ti of acquisition of the compost) by the Maryland Department of the Environment under COMAR 26.04.06.

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

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 as elapsed (14 days min.) to permit dissipation of phyto-toxic materials.

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 disturbed uniformly over designated areas and worked into the soil in conjunction with tillage operations as described in the following proceures.

Placement of topsoil over a prepared subsoil prior to establishment of permanent vegetation. All areas receiving permanent seeding and sodding shall get 4" of topsoil.

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.

I. This practice is limited to areas having 2:1 or flatter slopes

CAPITAL PROJECT D-1146

<u>5</u> of <u>6</u>

