

**NOTES:**

- All sediment controls must be constructed prior to any grading.
- No temporary sediment control structure may be removed or destroyed without approval of the Howard Soil Conservation District.
- Area to be seeded within road R/W's shall use a seed mixture as follows: annual ryegrass (20%), Kentucky bluegrass (20%) and Kentucky 31 fescue (60%) at the rate of 200#/A. Sow with mechanical spreader rate, minimum of two (2) passes with "York Rake", cover and compact with cultipacker. Surface preparation to include ground limestone over topsoil surface area at the rate of 1 1/2 T/A (60%/1000#) commercial fertilizer (5-10-10) at the rate of 3/4 T/A (35%/1000#) and superphosphate at the rate of 600#/A (15%/1000#).

**APPROVAL SIGNATURE BLOCK FOR SITE DEVELOPMENT PLANS**

APPROVED: FOR PUBLIC WATER AND PUBLIC SEWERAGE SYSTEMS, HOWARD COUNTY HEALTH DEPARTMENT.  
*Signature* DATE: 8/11/71

APPROVED: HOWARD COUNTY OFFICE OF PLANNING & ZONING  
*Signature* DATE: 9-15-71

APPROVED: FOR PUBLIC WATER, PUBLIC SEWERAGE & STORAGE, HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*Signature* DATE: 9/14/71

APPROVED: BY THE BOARD OF HIGHWAYS  
*Signature* DATE: 8/30/71

**CERTIFICATION BY THE PROFESSIONAL ENGINEER:**  
 "I certify that the plan of development and the plan for control of silt and erosion meets the requirements, standards, and specifications of the Howard Soil Conservation District."  
*Signature* DATE: 8/11/71

**CERTIFICATION BY THE DEVELOPER:**  
 "I certify that all development and/or construction will be done according to this plan of development and plan of silt and sediment control."  
*Signature* DATE: 8/11/71

"This development plan is approved for soil erosion and sediment control by the Howard Soil Conservation District."  
*Signature* DATE: 9-13-71

**SITE ANALYSIS**

- TOTAL AREA OF SITE 10,000 AC
- TOTAL PARKING PROVIDED AT 200' MIN. 150 (10' X 18' WITH 2' OVERHANG)
- TOTAL COVERAGE ALLOWED 10%
- TOTAL COVERAGE PROVIDED 58,400 SF
- EXISTING ZONING N.T. P20-90
- OPEN SPACE CR. 2,000
- NON CR. 1,000
- TITLE REF: PD 12, 17, 19, 20 TAX MAP NO. 50 G<sup>1</sup> ELECT. DIST.

**AREA & VOLUME OF CONSTRUCTION**

TOTAL AREA OF CONSTRUCTION 38,490 SQ. FT.  
 TOTAL VOLUME OF CONSTRUCTION 66,300 CU. FT.

**SITE PLAN SYMBOLS**

- NEW BUILDING
- BITUMINOUS ASPHALT CONC. PAVING
- CONCRETE WALKS & PAVING
- NEW FINISH GRADES
- EXISTING GRADES

**MATERIAL SYMBOLS**

- BRICK
- EARTH
- CONCRETE BLOCK
- GRAVEL
- POURED CONCRETE
- PERIMETER INSUL.
- PLASTER
- WOOD BLOCKING
- ACOUSTICAL TILE
- FINISH WOOD
- STEEL

**TEST BORING PROFILE & DATA**  
 VERT. SCALE: 1/2" = 5'-0"

| BORING NO. | DEPTH (FT.) | SOIL DESCRIPTION             | REMARKS |
|------------|-------------|------------------------------|---------|
| B-1        | 0-1         | ORGANIC SILT LOAM (TOP SOIL) |         |
|            | 1-2         | ...                          |         |
|            | 2-3         | ...                          |         |
|            | 3-4         | ...                          |         |
|            | 4-5         | ...                          |         |
|            | 5-6         | ...                          |         |
|            | 6-7         | ...                          |         |
|            | 7-8         | ...                          |         |
|            | 8-9         | ...                          |         |
|            | 9-10        | ...                          |         |
| B-2        | 0-1         | ...                          |         |
|            | 1-2         | ...                          |         |
|            | 2-3         | ...                          |         |
|            | 3-4         | ...                          |         |
|            | 4-5         | ...                          |         |
|            | 5-6         | ...                          |         |
|            | 6-7         | ...                          |         |
|            | 7-8         | ...                          |         |
|            | 8-9         | ...                          |         |
|            | 9-10        | ...                          |         |
| B-3        | 0-1         | ...                          |         |
|            | 1-2         | ...                          |         |
|            | 2-3         | ...                          |         |
|            | 3-4         | ...                          |         |
|            | 4-5         | ...                          |         |
|            | 5-6         | ...                          |         |
|            | 6-7         | ...                          |         |
|            | 7-8         | ...                          |         |
|            | 8-9         | ...                          |         |
|            | 9-10        | ...                          |         |

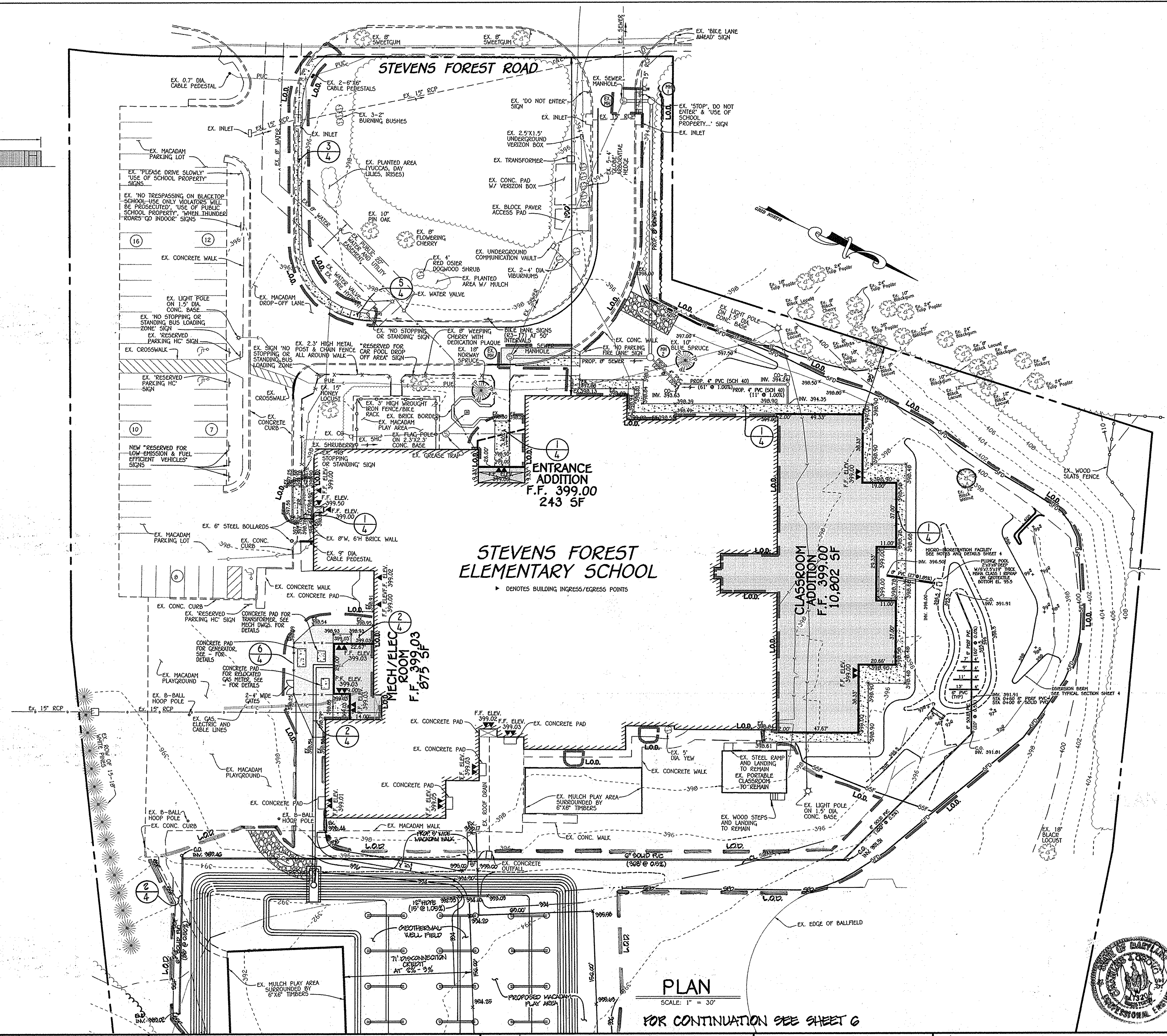
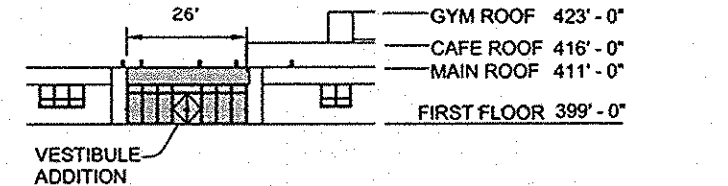
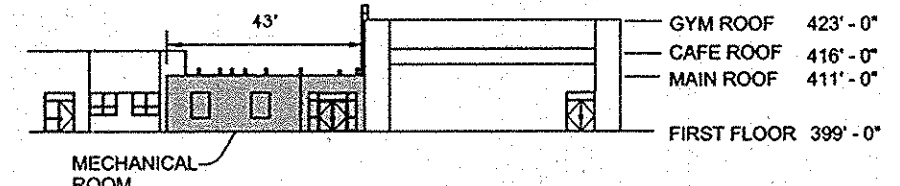
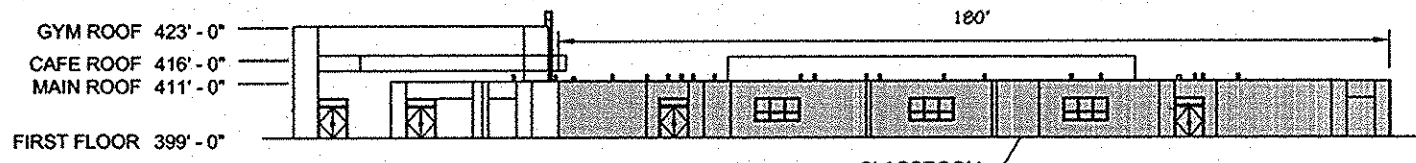
STEVENS FOREST ELEMENTARY SCHOOL  
 COLUMBIA MARYLAND  
 FOR THE BOARD OF EDUCATION OF HOWARD COUNTY CLARKSVILLE, MARYLAND

**SMEALLIE, ORRICK AND JANKA, LTD.**  
 ARCHITECTS PLANNERS  
 8820 YORK ROAD BALTIMORE, MD. 21212

**AIA**  
 OF 14

S.D.P. 71-28C





| LEGEND                       |                               |
|------------------------------|-------------------------------|
| SYMBOL                       | DESCRIPTION                   |
| --- 402 ---                  | EXISTING CONTOUR 2' INTERVAL  |
| --- 400 ---                  | EXISTING CONTOUR 10' INTERVAL |
| S                            | EXISTING SAN. SEWER LINE      |
| o                            | EXISTING STORM DRAIN LINE     |
| w                            | EXISTING WATER LINE           |
| g                            | EXISTING GAS LINE             |
| c                            | EXISTING CABLE LINE           |
| t                            | EXISTING TELEPHONE LINE       |
| e                            | EXISTING ELECTRIC LINE        |
| x                            | EXISTING FENCE                |
| 6" PVC                       | PROPOSED STORM DRAIN LINE     |
| CONC                         | PROPOSED CONCRETE WALK        |
| PAV                          | PROPOSED PAVING               |
| +399.90                      | SPOT ELEVATION                |
| Tree Symbol                  | EXISTING TREES                |
| L.O.D.                       | LIMIT OF DISTURBANCE          |
| SF                           | SUPER SILT FENCE              |
| SFD                          | SUPER FENCE DIVERSION         |
| Tree Protection Fence Symbol | TREE PROTECTION FENCE         |

NOTE: THE HOWARD COUNTY PLANNING BOARD ON JUNE 16, 2011 APPROVED THE REQUEST FOR A RED-LINE REVISION OF THE SITE DEVELOPMENT PLAN TO CONSTRUCT THREE ADDITIONS TO THE EXISTING STEVENS FOREST ELEMENTARY SCHOOL. THE THREE ADDITIONS RESULTED IN LOT COVERAGE OF 13% EXCEEDING THE MAXIMUM COVERAGE OF 10% ALLOWED BY THE APPLICABLE FINAL DEVELOPMENT PLAN.



NOTE: THE PURPOSE OF THIS PLAN IS TO SHOW THE BUILDING ADDITIONS AND STORMWATER MANAGEMENT GRADING.

PLAN  
SCALE: 1" = 30'  
FOR CONTINUATION SEE SHEET 6

**ENGINEER'S CERTIFICATE**  
"I certify that this plan for sediment and erosion control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District."  
Signature of Engineer: *[Signature]*  
Date: 7/11/11

**DEVELOPER'S CERTIFICATE**  
"I/We certify that all development and construction will be done according to this plan for sediment and erosion control, and that all responsible personnel involved in the construction project will have a Certificate of Attendance at a Department of the Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I also authorize periodic on-site inspection by the Howard Soil Conservation District."  
Signature of Developer: *[Signature]*  
Date: 7/11/11

This development plan is approved for soil erosion and sediment control by the HOWARD SOIL CONSERVATION DISTRICT.  
Signature of Howard SCD: *[Signature]*  
Date: 7/21/11

REVISION PER REVISION  
9/15/11 REVISED LOT, STORM DRAIN LINE AND PAVED AREA, ADDED GEOTHERMAL WELL FIELD, MACADAM WALK AND PLAY AREA  
3-15-11 BLDG. ADDITIONS AS APP'D. BY PB AND ADD NEW SHEETS 2 TO 6.  
DATE DESCRIPTION REVISION BLOCK  
APPROVED: DEPARTMENT OF PLANNING AND ZONING  
Director - Department of Planning and Zoning: *[Signature]* 8/2/11 Date  
Chief, Division of Land Development: *[Signature]* 8/2/11 Date  
Chief, Development Engineering Division: *[Signature]* 7/25/11 Date

PREPARED FOR  
HOWARD COUNTY PUBLIC SCHOOL SYSTEM  
10910 Maryland Route 100  
Ellicott City, Maryland 21042  
Attention Bruce Gist  
410-313-6805  
**PENZA+BAILEY**  
ARCHITECTS  
401 WOODBOURNE AVENUE  
BALTIMORE, MARYLAND 21212  
TEL 410.435.6677/FAX 410.435.6868  
www.PenzaBailey.com

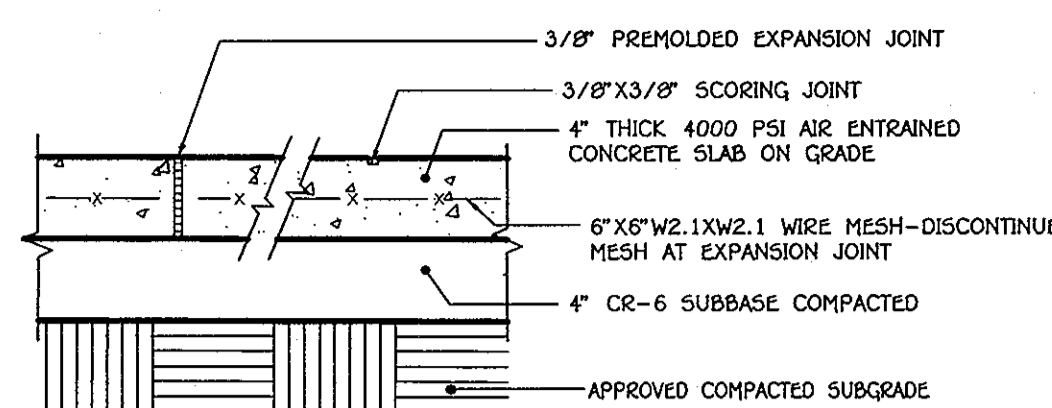
| Address Chart |                                 |
|---------------|---------------------------------|
| Parcel Number | Street Address                  |
| P. 324        | 6045 STEVENS FOREST ROAD        |
|               | COLUMBIA, MD. 21045             |
| PROJECT       | VOM/STEVENS FOREST ELEM. SCHOOL |
| SECTION/AREA  | 5 / 5                           |
| LOT/PARCEL    | LOT 1                           |
| PLAT REF.     | P.B.18, F.72                    |
| BLOCK NO.     | 9                               |
| ZONE          | NT                              |
| TAX MAP       | 36                              |
| ELEC. DIST.   | SIXTH                           |
| CENSUS TR.    | 6066.03                         |
| WATER CODE    | E09                             |
| SEWER CODE    | 5631200                         |

**SITE IMPROVEMENT PLAN AND EROSION CONTROL PLAN**  
"REVISED SITE DEVELOPMENT PLAN"  
**STEVENS FOREST ELEMENTARY SCHOOL**  
CLASSROOM ADDITIONS AND IMPROVEMENTS  
VILLAGE OF OAKLAND MILLS, SECTION 5, AREA 5, LOT 1  
PARCEL No.: 324  
TAX MAP No.: 36 GRID No.: 9  
SIXTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND  
SCALE: 1"=30' DATE: APRIL 26, 2011  
SHEET 3 OF 14

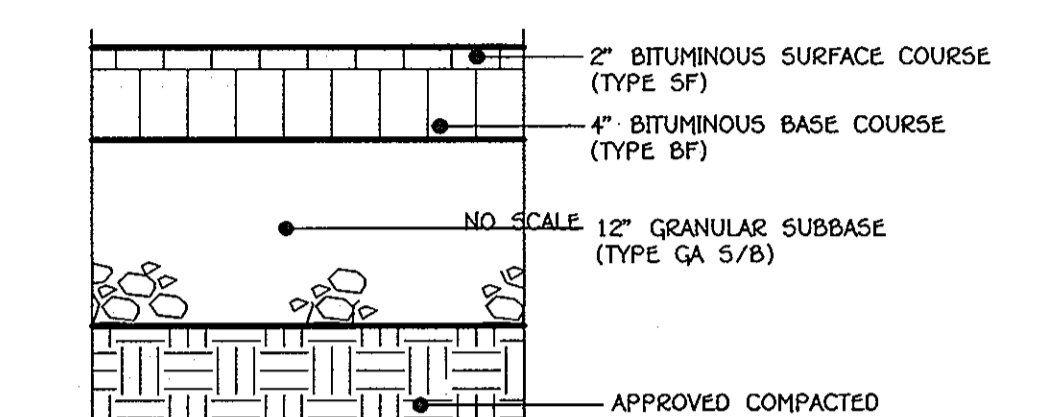
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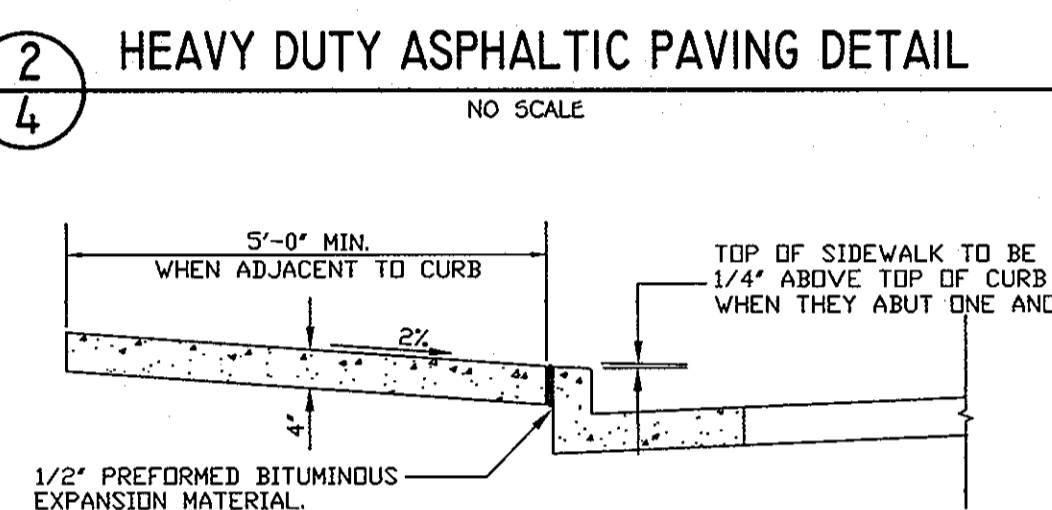
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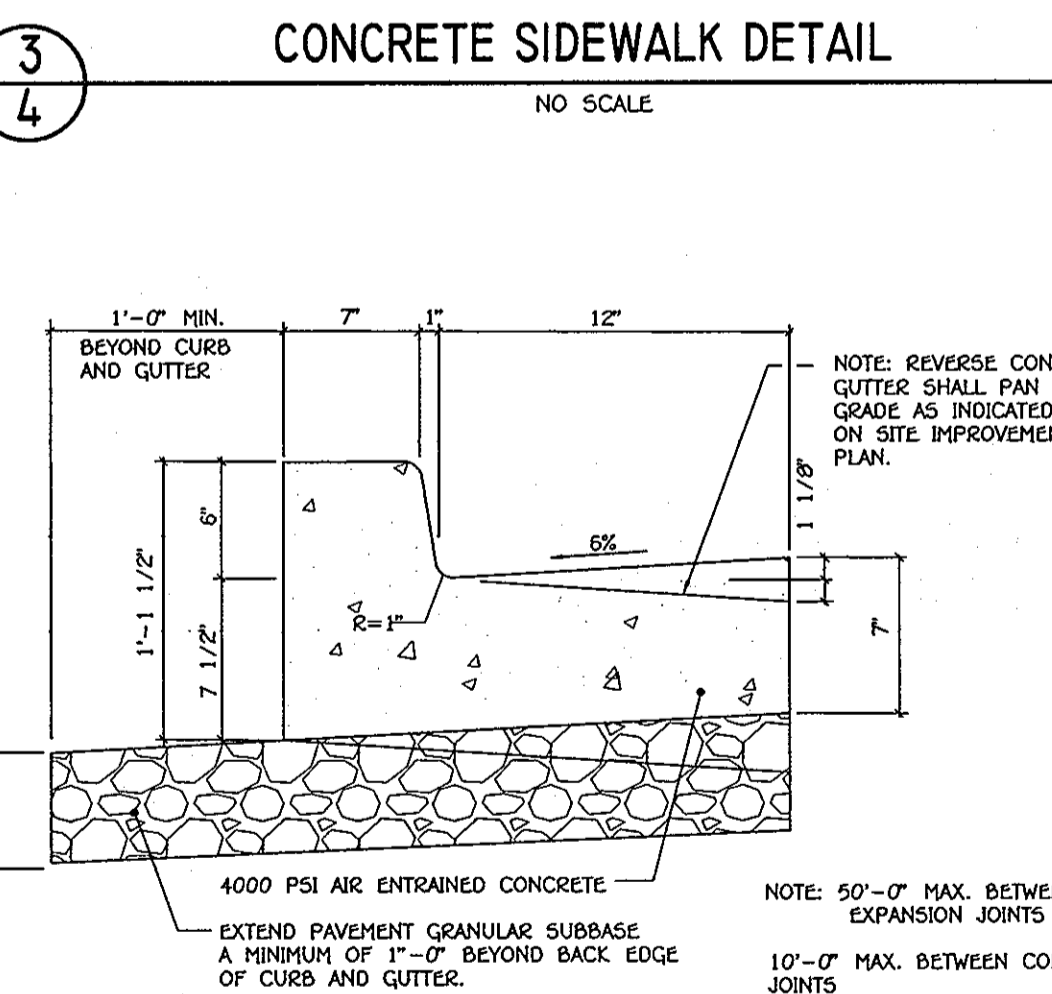
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NO SCALE



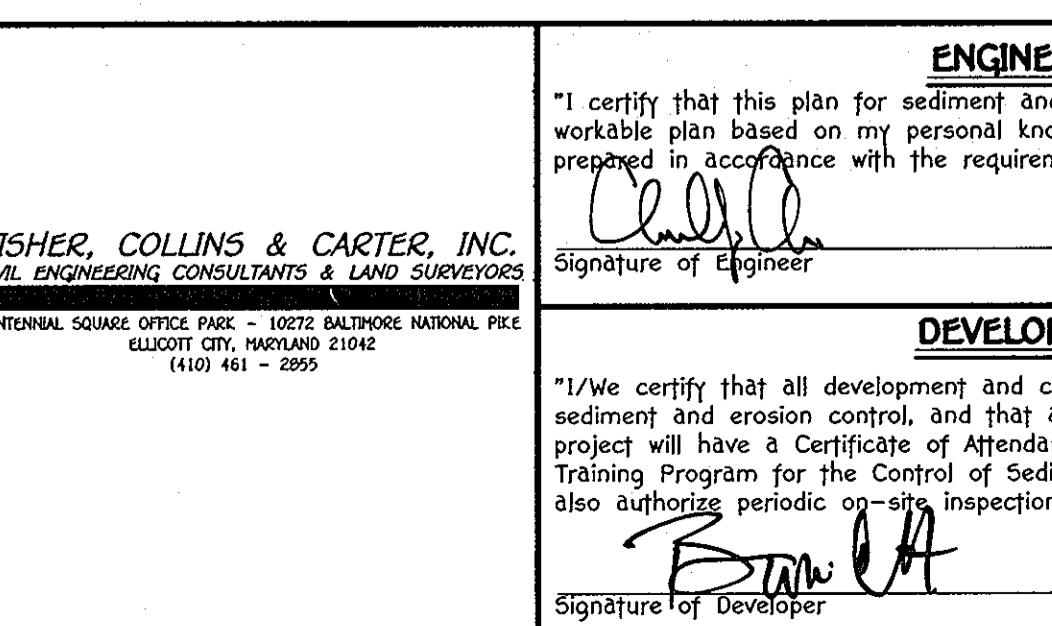
**HANDICAP CURB RAMP DETAIL**  
NO SCALE



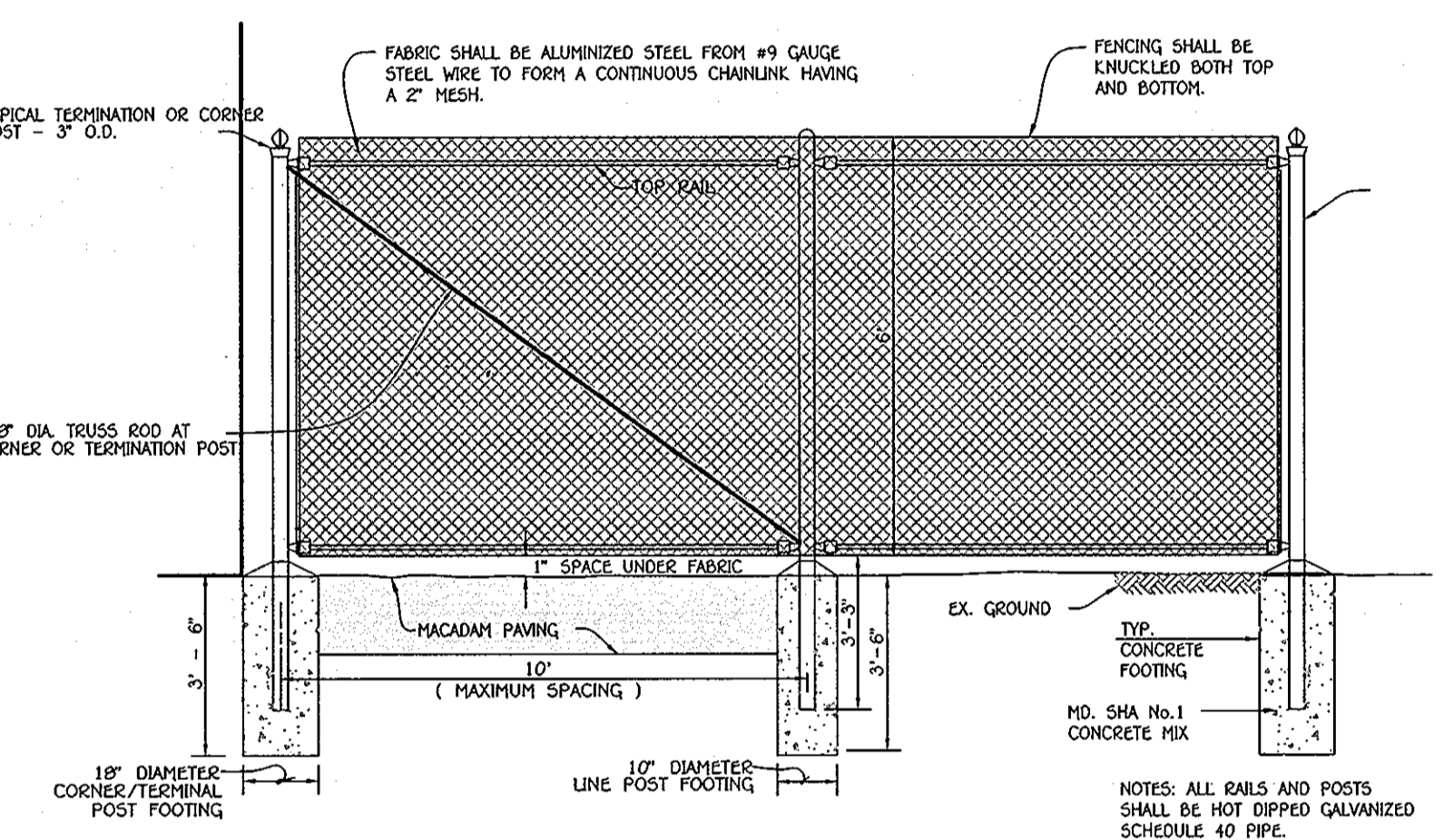
**HEAVY DUTY ASPHALTIC PAVING DETAIL**  
NO SCALE



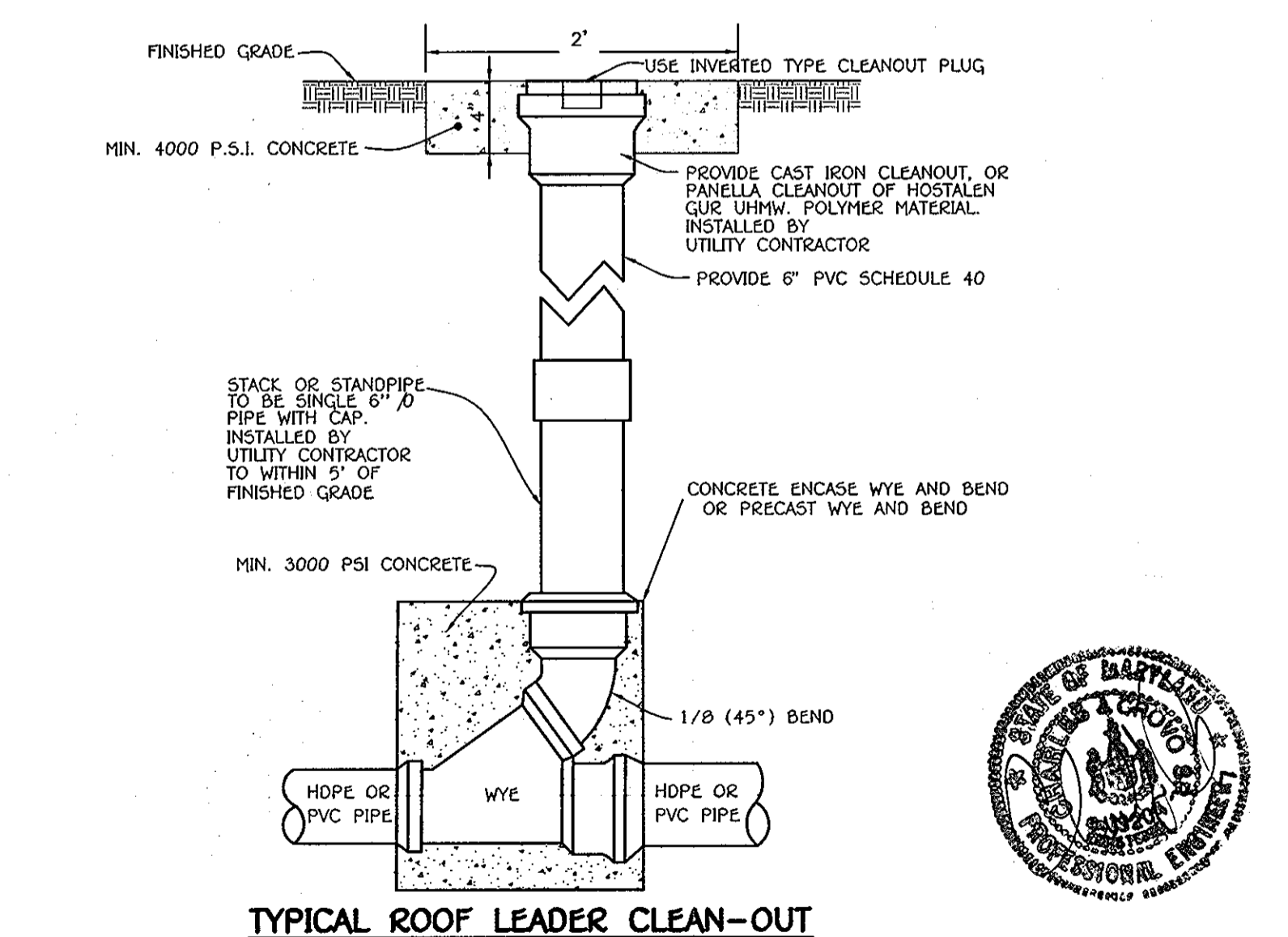
**CONCRETE SIDEWALK DETAIL**  
NO SCALE



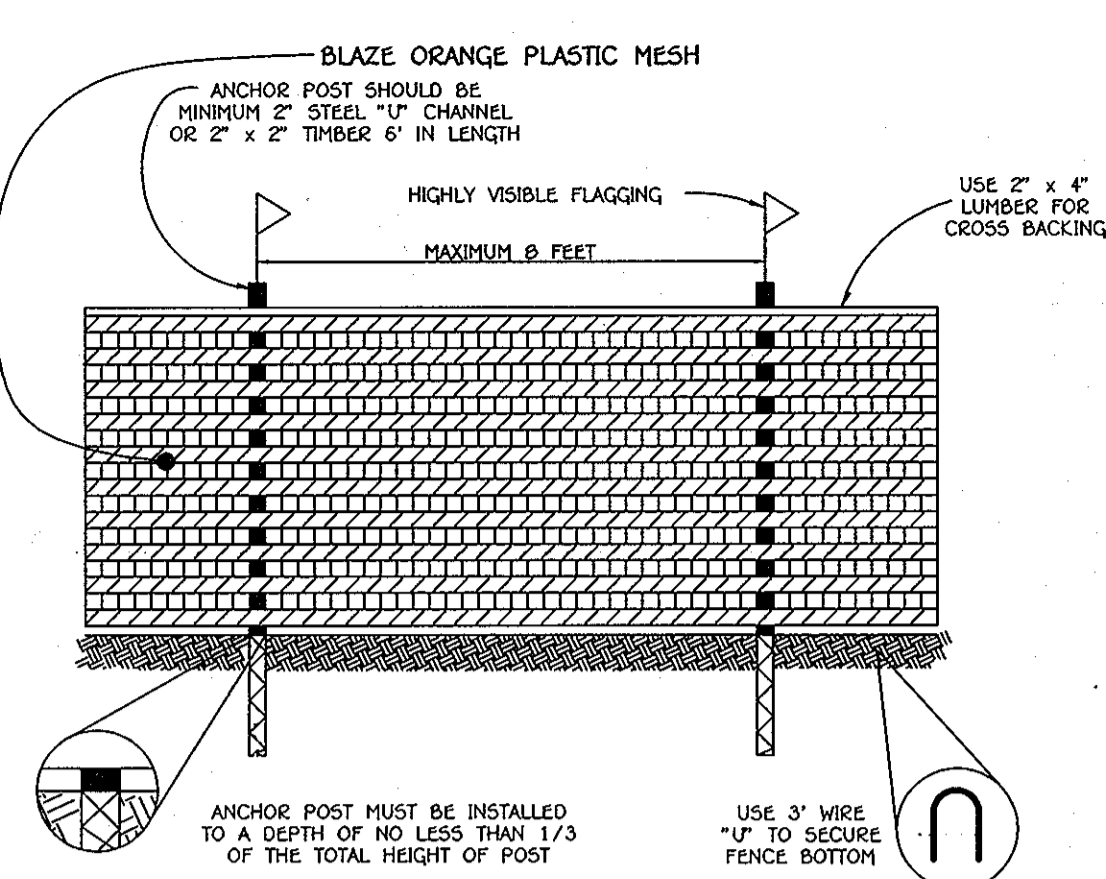
**STANDARD 6" COMB. CONC. CURB AND GUTTER**  
NO SCALE



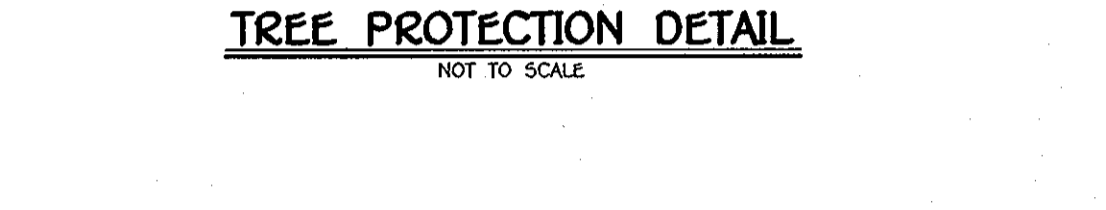
**CHAIN LINK FENCE DETAIL**  
NO SCALE



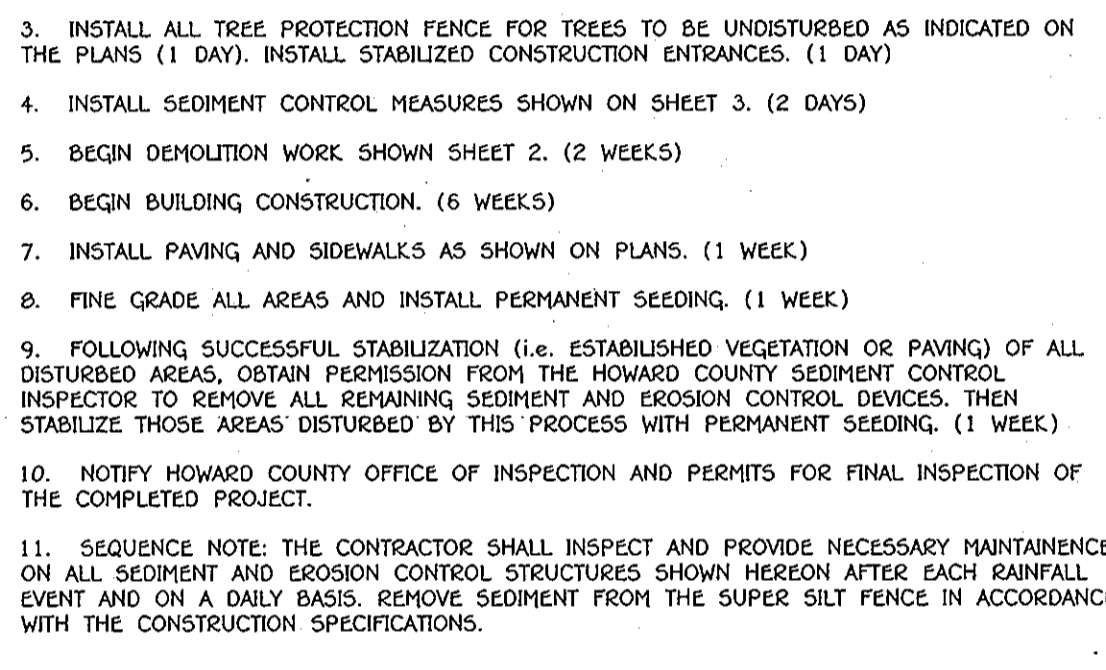
**TYPICAL ROOF LEADER CLEAN-OUT**  
NO SCALE



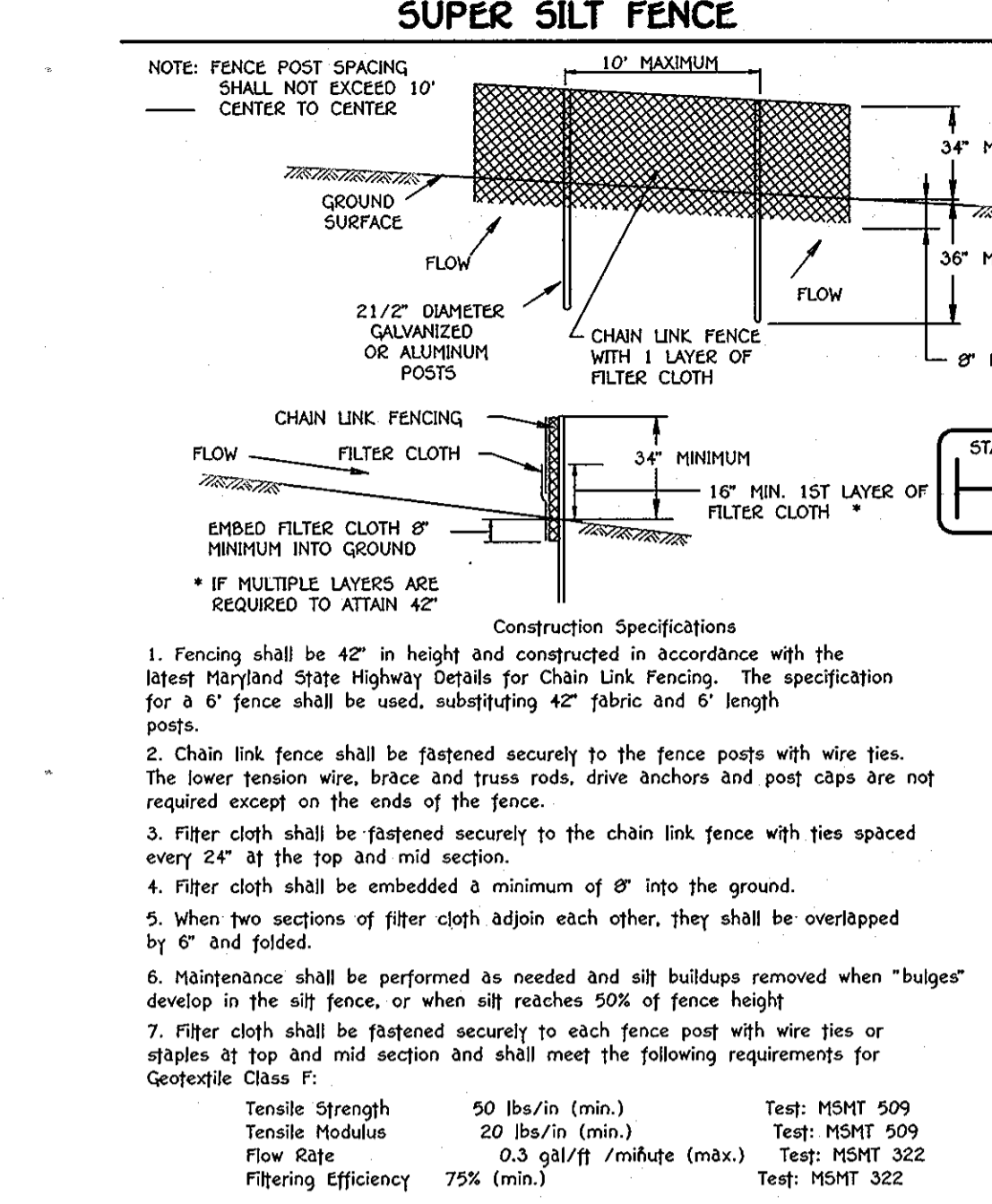
**SUPER SILT FENCE**  
NO SCALE



**TREE PROTECTION DETAIL**  
NO SCALE



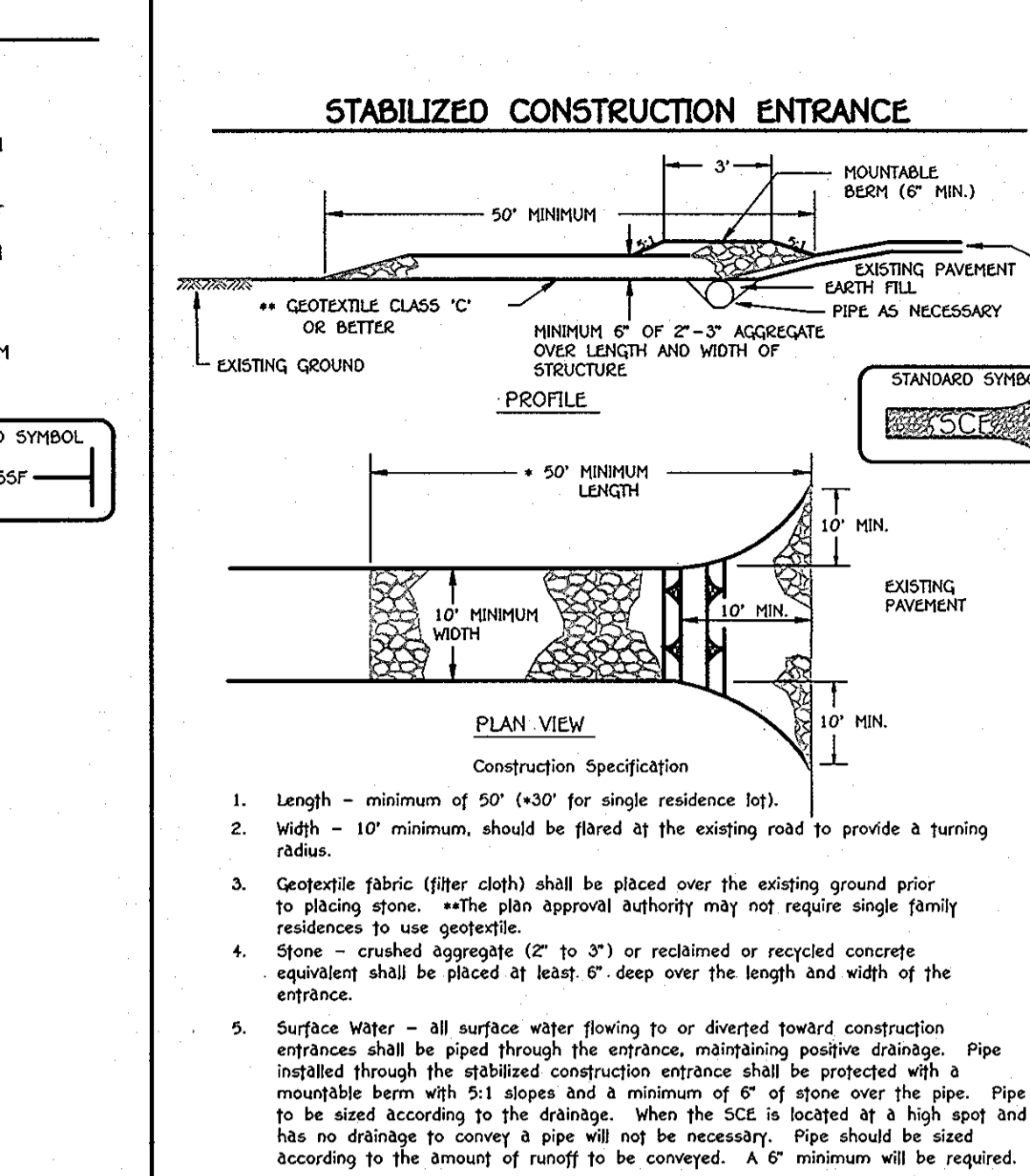
| DEPTH (FT) | LOG NO. | LOG DATE | LOG TIME | LOG OPERATOR    | LOG COMMENTS | LOG SIGNATURE |
|------------|---------|----------|----------|-----------------|--------------|---------------|
| 0          | 1       | 03/02/11 | 08:00    | DAVID D. BAILEY | TOP OF GRADE |               |
| 1          | 1       | 03/02/11 | 08:05    | DAVID D. BAILEY | TOP OF GRADE |               |
| 2          | 1       | 03/02/11 | 08:10    | DAVID D. BAILEY | TOP OF GRADE |               |
| 3          | 1       | 03/02/11 | 08:15    | DAVID D. BAILEY | TOP OF GRADE |               |
| 4          | 1       | 03/02/11 | 08:20    | DAVID D. BAILEY | TOP OF GRADE |               |
| 5          | 1       | 03/02/11 | 08:25    | DAVID D. BAILEY | TOP OF GRADE |               |
| 6          | 1       | 03/02/11 | 08:30    | DAVID D. BAILEY | TOP OF GRADE |               |
| 7          | 1       | 03/02/11 | 08:35    | DAVID D. BAILEY | TOP OF GRADE |               |
| 8          | 1       | 03/02/11 | 08:40    | DAVID D. BAILEY | TOP OF GRADE |               |
| 9          | 1       | 03/02/11 | 08:45    | DAVID D. BAILEY | TOP OF GRADE |               |
| 10         | 1       | 03/02/11 | 08:50    | DAVID D. BAILEY | TOP OF GRADE |               |
| 11         | 1       | 03/02/11 | 08:55    | DAVID D. BAILEY | TOP OF GRADE |               |
| 12         | 1       | 03/02/11 | 09:00    | DAVID D. BAILEY | TOP OF GRADE |               |
| 13         | 1       | 03/02/11 | 09:05    | DAVID D. BAILEY | TOP OF GRADE |               |
| 14         | 1       | 03/02/11 | 09:10    | DAVID D. BAILEY | TOP OF GRADE |               |
| 15         | 1       | 03/02/11 | 09:15    | DAVID D. BAILEY | TOP OF GRADE |               |
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| 20         | 1       | 03/02/11 | 09:40    | DAVID D. BAILEY | TOP OF GRADE |               |
| 21         | 1       | 03/02/11 | 09:45    | DAVID D. BAILEY | TOP OF GRADE |               |
| 22         | 1       | 03/02/11 | 09:50    | DAVID D. BAILEY | TOP OF GRADE |               |
| 23         | 1       | 03/02/11 | 09:55    | DAVID D. BAILEY | TOP OF GRADE |               |
| 24         | 1       | 03/02/11 | 10:00    | DAVID D. BAILEY | TOP OF GRADE |               |
| 25         | 1       | 03/02/11 | 10:05    | DAVID D. BAILEY | TOP OF GRADE |               |
| 26         | 1       | 03/02/11 | 10:10    | DAVID D. BAILEY | TOP OF GRADE |               |
| 27         | 1       | 03/02/11 | 10:15    | DAVID D. BAILEY | TOP OF GRADE |               |
| 28         | 1       | 03/02/11 | 10:20    | DAVID D. BAILEY | TOP OF GRADE |               |
| 29         | 1       | 03/02/11 | 10:25    | DAVID D. BAILEY | TOP OF GRADE |               |
| 30         | 1       | 03/02/11 | 10:30    | DAVID D. BAILEY | TOP OF GRADE |               |



**STABILIZED CONSTRUCTION ENTRANCE**  
NO SCALE

| Slope    | Slope Steepness | Slope Length (maximum) | Silt Fence Length (maximum) |
|----------|-----------------|------------------------|-----------------------------|
| 0 - 10%  | 0 - 10:1        | Unlimited              | Unlimited                   |
| 10 - 20% | 10:1 - 5:1      | 200 feet               | 1,500 feet                  |
| 20 - 33% | 5:1 - 3:1       | 100 feet               | 1,000 feet                  |
| 33 - 50% | 3:1 - 2:1       | 100 feet               | 500 feet                    |
| 50% +    | 2:1 +           | 50 feet                | 250 feet                    |

| DEPTH (FT) | LOG NO. | LOG DATE | LOG TIME | LOG OPERATOR    | LOG COMMENTS | LOG SIGNATURE |
|------------|---------|----------|----------|-----------------|--------------|---------------|
| 0          | 1       | 03/02/11 | 08:00    | DAVID D. BAILEY | TOP OF GRADE |               |
| 1          | 1       | 03/02/11 | 08:05    | DAVID D. BAILEY | TOP OF GRADE |               |
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| 6          | 1       | 03/02/11 | 08:30    | DAVID D. BAILEY | TOP OF GRADE |               |
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| 22         | 1       | 03/02/11 | 09:50    | DAVID D. BAILEY | TOP OF GRADE |               |
| 23         | 1       | 03/02/11 | 09:55    | DAVID D. BAILEY | TOP OF GRADE |               |
| 24         | 1       | 03/02/11 | 10:00    | DAVID D. BAILEY | TOP OF GRADE |               |
| 25         | 1       | 03/02/11 | 10:05    | DAVID D. BAILEY | TOP OF GRADE |               |
| 26         | 1       | 03/02/11 | 10:10    | DAVID D. BAILEY | TOP OF GRADE |               |
| 27         | 1       | 03/02/11 | 10:15    | DAVID D. BAILEY | TOP OF GRADE |               |
| 28         | 1       | 03/02/11 | 10:20    | DAVID D. BAILEY | TOP OF GRADE |               |
| 29         | 1       | 03/02/11 | 10:25    | DAVID D. BAILEY | TOP OF GRADE |               |
| 30         | 1       | 03/02/11 | 10:30    | DAVID D. BAILEY | TOP OF GRADE |               |

**ENGINEER'S CERTIFICATE**  
"I certify that this plan for sediment and erosion control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District."  
Signature of Engineer: *David D. Bailey* Date: 7/11/11

**DEVELOPER'S CERTIFICATE**  
"I/We certify that all development and construction will be done according to this plan for sediment and erosion control, and that all responsible personnel involved in the construction project will have a Certificate of Attendance at a Department of the Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I also authorize periodic on-site inspection by the Howard Soil Conservation District."  
Signature of Developer: *John L. Blanton* Date: 7/12/11

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
Director: *Mona E. Butler* Date: 8/11/11  
Chief, Division of Land Development: *Vicki S. ...* Date: 8/12/11  
Chief, Development Engineering Division: *...* Date: 7/26/11

PREPARED FOR:  
HOWARD COUNTY PUBLIC SCHOOL SYSTEM  
10910 Maryland Route 109  
Ellicott City, Maryland 21042  
Attention: Bruce Gist  
410-313-6805

Address Chart  
Parcel Number: P. 324  
Street Address: 6045 STEVENS FOREST ROAD  
COLUMBIA, MD. 21045

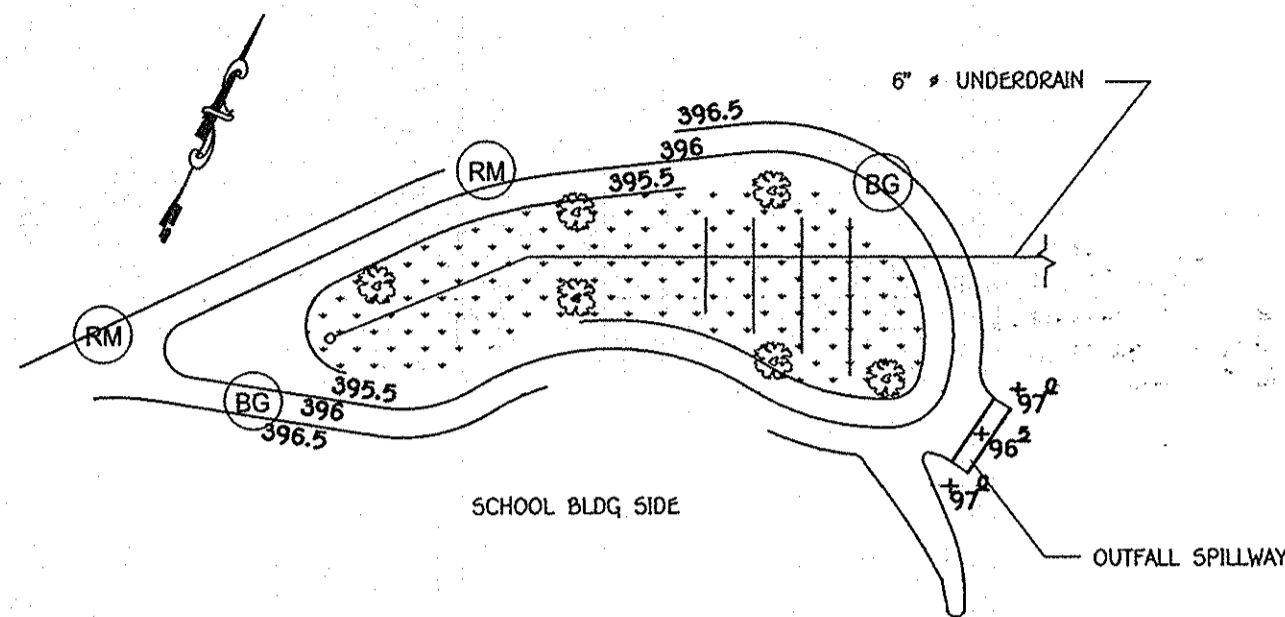
**PENZA + BAILEY**  
ARCHITECTS  
401 WOODBURN AVENUE  
BALTIMORE, MARYLAND 21212  
TEL 410.435.6677/FAX 410.435.6868  
www.PenzaBailey.com

**"REVISED SITE DEVELOPMENT PLAN"**  
STEVENS FOREST  
ELEMENTARY SCHOOL  
CLASSROOM ADDITIONS AND IMPROVEMENTS  
VILLAGE OF OAKLAND MILLS, SECTION 5, AREA 5, LOT 1  
PARCEL NO.: 324  
TAX MAP NO.: 36 GRID NO.: 9  
SIXTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND  
SCALE: AS SHOWN DATE: APRIL 26, 2011  
SHEET 4 OF 6

NOTE: THE PURPOSE OF THIS PLAN IS TO SHOW DETAILS FOR BUILDING ADDITIONS.

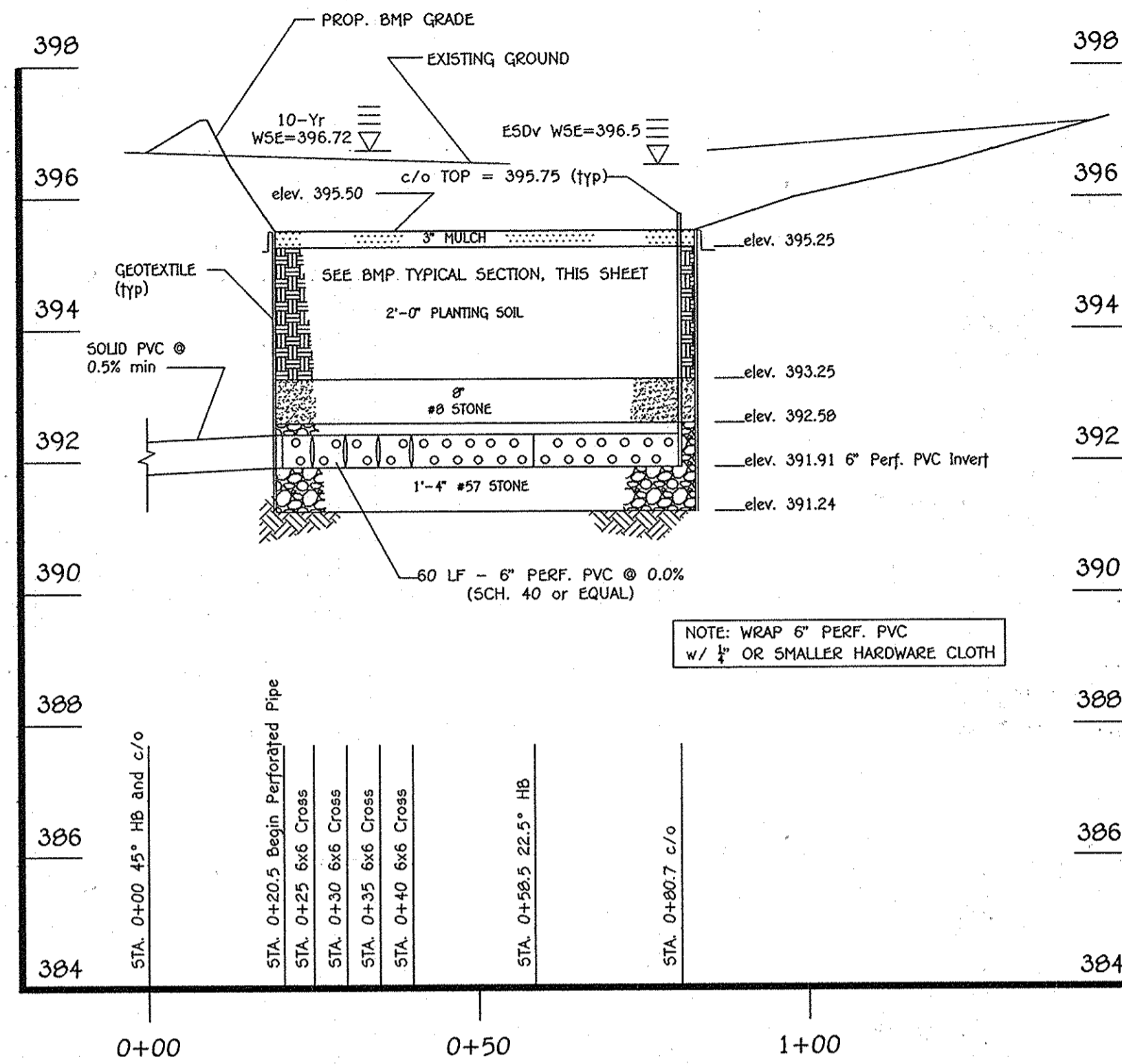
| BMP MICRO-BIORETENTION PLANTING SCHEDULE    |                      |                      |        |
|---|----------------------|----------------------|--------|
| PLANT NAME                                  | FORM                 | QUANTITY             | SYMBOL |
| SWITCH GRASS ( <i>panicum virgatum</i> )    | Grass                | 100 Qts <sup>a</sup> |        |
| FOX SEDGE ( <i>carex vulpinoidea</i> )      | Grass                | 100 Qts <sup>a</sup> |        |
| RED MAPLE ( <i>acer rubrum</i> )            | Tree (4-6', 1" cal.) | 2                    |        |
| BLACKGUM ( <i>nyssa sylvatica</i> )         | Tree (5-8', 1" cal.) | 2                    |        |
| RED OSIER DOGWOOD ( <i>cornus sericea</i> ) | Shrub                | 6                    |        |

<sup>a</sup> Plant BMP level surface only (i.e., at elev. 395.5). Distribute evenly. Stabilize side slopes w/ permanent grass seed per NRCS specs.



**BMP PLANTING PLAN**

SCALE:  
HORIZ. 1" = 20'



**BMP UNDERDRAIN PROFILE**

SCALE:  
HORIZ. 1" = 20'  
VERT. 1" = 2'

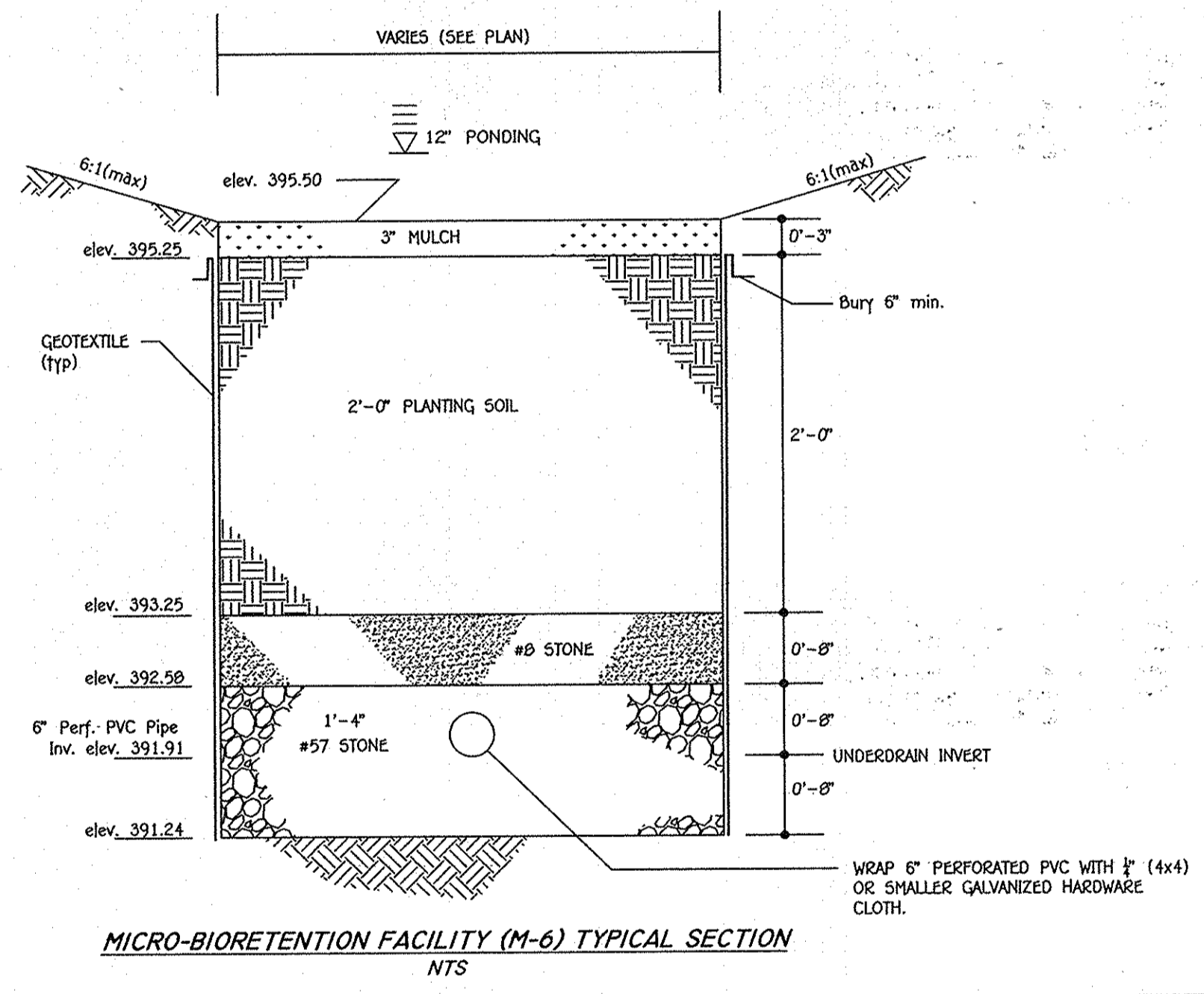
**OPERATION AND MAINTENANCE SCHEDULE FOR BIO-RETENTION BMP (M-6)**  
THE MICRO-BIORETENTION FACILITY SHALL BE INSPECTED AT LEAST TWICE PER YEAR (ONCE EACH IN THE SPRING AND FALL) AND AFTER HEAVY STORMS. THE OWNER IS RESPONSIBLE FOR MAINTAINING A DETAILED LOG OF THE MAINTENANCE INSPECTION FINDINGS AND A HISTORY OF THE COMPLETED WORK. THE LOG SHALL BE MADE AVAILABLE TO HOWARD COUNTY DPZ AND/OR THE MARYLAND DEPARTMENT OF THE ENVIRONMENT UPON REQUEST.

MICRO-BIORETENTION FACILITY COMPONENTS TO BE INSPECTED AND MAINTAINED INCLUDE THE ITEMS AS FOLLOWS:

1. PLANT MATERIAL: PLANTS SHALL BE CHECKED FOR DISEASE AND INSECT INFESTATION. REMOVE AND REPLACE DEAD OR DYING VEGETATION CONSIDERED BEYOND TREATMENT (SEE NOTE #1 BELOW). MAINTENANCE INCLUDES PRUNING, AND REPLACEMENT OF DEFICIENT STAKES AND WIRE.
  2. MULCH LAYER: SHALL BE REPLACED ONCE EVERY SPRING DUE TO THE HEAVY METALS GENERATED FROM THE PARKING LOT. THE OWNER SHALL PROPERLY DISPOSE OF THE OLD MULCH SO AS NOT TO CAUSE STORMWATER CONTAMINATION ELSEWHERE. WASHED OUT AREAS SHALL BE REPAIRED AS NECESSARY.
  3. SOIL LAYER: SHOULD STORMWATER POND FOR MORE THE 48 HOURS, THE TOP 6 INCHES (MINIMUM) OF THE SOIL LAYER SHALL BE REPLACED. THE OLD SOILS SHALL BE PROPERLY DISPOSED.
  4. SPILLWAY OUTFALL INTERIOR SLOPES: ERODED AREAS SHALL BE REPAIRED (FILLED IN AND SEEDED) AS NEEDED. BARE AREAS SHALL BE TREATED AND RE-SEEDED.
  5. INLET: REPAIR CRACKS, DAMAGED CONCRETE, ETC. AS NECESSARY.
  6. REMOVE AND PROPERLY DISPOSE ACCUMULATED SEDIMENT GREATER THAN ONE (1) INCH.
- NOTES:
1. IF SPECIFIC PLANTS ARE NOT SURVIVING, THE PLANT TYPE SHALL BE CHANGED TO BETTER SUITED SPECIES.
  2. PLANT WATERING MAY BE NEEDED DURING PROLONGED DRY PERIODS.

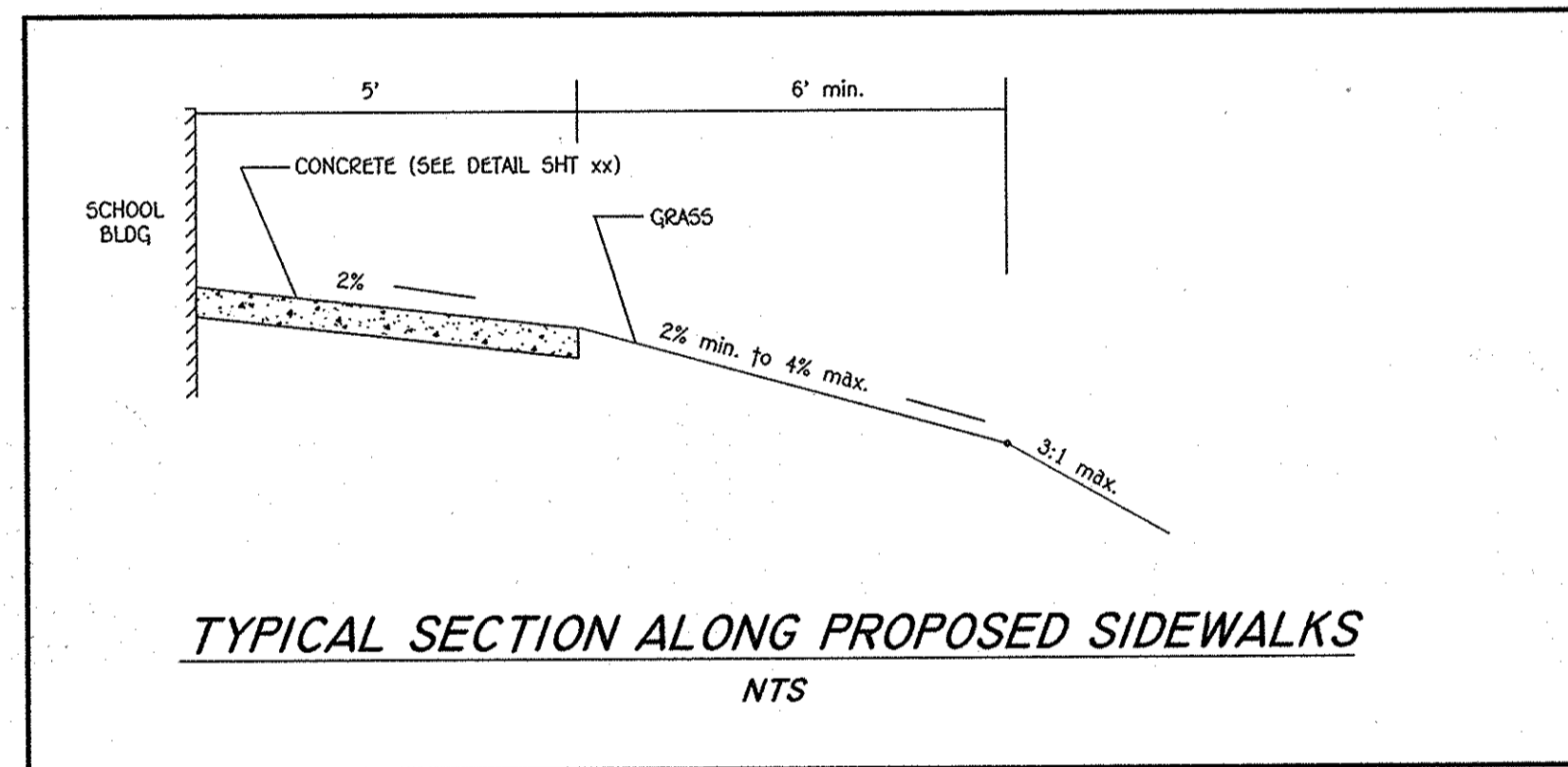
**GENERAL STORMWATER MANAGEMENT NOTES**

1. STORMWATER MANAGEMENT HAS BEEN PROVIDED WITH A MICRO-BIORETENTION (M-6) FACILITY. PLEASE REFER TO THE SWM REPORT PREPARED BY FISHER, COLLINS, & CARTER, INC. DATED MARCH 4, 2011.
2. ALL CONSTRUCTION SHALL MEET THE LATEST EDITION OF THE HOWARD COUNTY STANDARDS AND SPECIFICATIONS, SMALL EARTHEN DAM SPECIFICATION MD-378, AND THE MARYLAND DEPARTMENT OF THE ENVIRONMENT'S CURRENT STORMWATER DESIGN MANUAL, OR AS SHOWN ON THESE PLANS. THE CONTRACTOR SHALL CONSULT THE ENGINEER SHOULD THERE BE ANY DISCREPANCIES.
3. THE UTILITY LOCATIONS ARE APPROXIMATE. CONTRACTOR SHALL TEST PIT ALL KNOWN EXISTING UTILITIES TO VERIFY, SIZE, SHAPE, LOCATION, AND TYPE PRIOR TO PERFORMING CONSTRUCTION. UTILITY RELOCATIONS, WHETHER SHOWN OR NOT, ARE THE RESPONSIBILITY OF THE OWNER. ANY UTILITY DAMAGED DUE TO CONSTRUCTION MUST BE REPAIRED IMMEDIATELY.
4. SHOULD THE CONTRACTOR DISCOVER DISCREPANCIES BETWEEN THE PLANS AND FIELD CONDITIONS, THE ENGINEER IS TO BE NOTIFIED IMMEDIATELY TO RESOLVE THE SITUATION. IF THE CONTRACTOR MAKES FIELD CORRECTIONS OR ADJUSTMENTS WITHOUT NOTIFYING THE ENGINEER, THEN THE CONTRACTOR ASSUMES ALL RESPONSIBILITY FOR THOSE CHANGES.
5. CONTRACTOR SHALL NOTIFY MISS UTILITY 1-800-257-7777 AND THE HOWARD COUNTY DEPARTMENT OF INSPECTION LICENSES & PERMITS THREE (3) WORKING DAYS BEFORE BEGINNING CONSTRUCTION.
6. FISHER, COLLINS & CARTER, INC. IS NOT RESPONSIBLE FOR THE CONTRACTOR'S UTILIZATION OF MEN, MATERIALS, EQUIPMENT, OR SAFETY MEASURES IN THE PERFORMANCE OF ANY WORK FOR THIS PROJECT. THE CONTRACTOR ASSUMES ALL RESPONSIBILITY FOR PERFORMING THE WORK CORRECTLY AND IN CONFORMANCE WITH CODE/SPECIFICATION REQUIREMENTS.
7. THE BMP MAY BE GRADED, HOWEVER, THE PLANTING SOIL IN THE BMP SHALL NOT BE INSTALLED UNTIL ALL UPSTREAM AREAS HAVE BEEN STABILIZED (I.E., THICK GRASS COVER, OR PAVED).
8. THE STORMWATER MANAGEMENT MICRO-BIORETENTION BMP SHOWN ON THIS SHEET WILL BE PRIVATELY OWNED AND MAINTAINED.



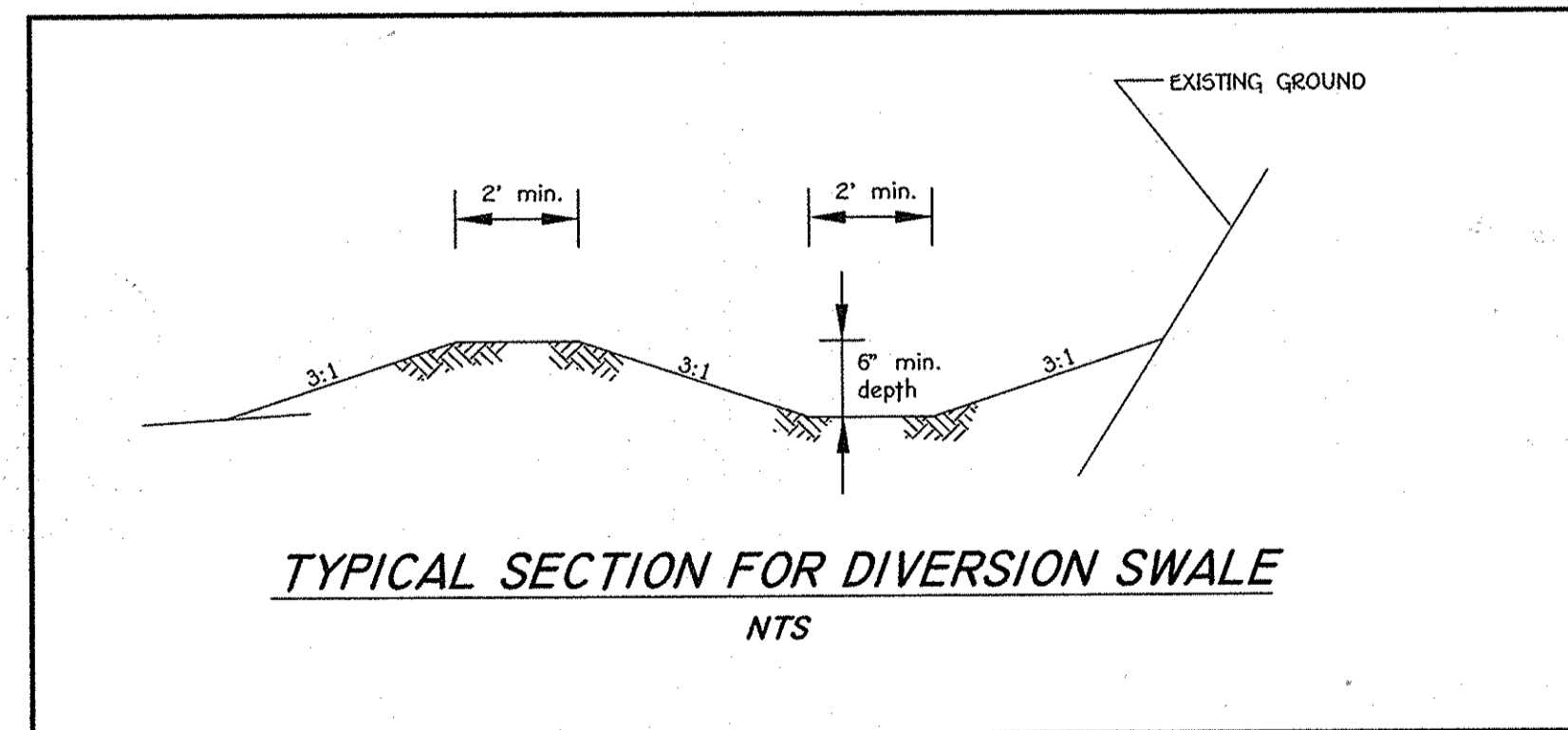
**MICRO-BIORETENTION FACILITY (M-6) TYPICAL SECTION**

NTS



**TYPICAL SECTION ALONG PROPOSED SIDEWALKS**

NTS



**TYPICAL SECTION FOR DIVERSION SWALE**

NTS

**BIORETENTION BMP NOTES AND SPECIFICATIONS**

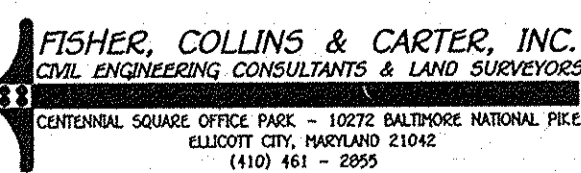
1. REFER TO THE 2000 MARYLAND SWM DESIGN MANUAL FOR BIORETENTION SPECIFICATIONS (PG. B.3.7) NOT LISTED HEREIN AND FOR ADDITIONAL INFORMATION.
2. THE BIORETENTION BMP MATERIALS ARE AS FOLLOWS:  
- PLANTING SOIL: SHALL MEET PLANTING SOIL SPECIFICATIONS OUTLINED IN MDE'S 2000 SWM MANUAL. SEE PLANTING SCHEDULE THIS SHEET FOR VEGETATION STABILIZATION. - SAND: ASTM C33 "CONCRETE SAND" VERY CLEAN; FREE OF ALL DIRT AND DEBRIS.  
- PVC PIPE: SCHEDULE 40. PERFORATED PORTION TO BE HAVE NO SLOPE (0.0%).  
- STONE AGGREGATE: MSHA SPECIFICATIONS AS SPECIFIED ON TYPICAL SECTION; AGGREGATE MUST BE FREE OF FINES, DIRT AND DEBRIS.  
- GEOTEXTILE: PER MDE SWM MANUAL OR MIRAFT 140N.  
- MULCH: SHREDDED, WELL-AGED (6-12 MONTHS) HARDWOOD MULCH; NO WOOD CHIPS OR PINE MULCH.
3. THE CONTRACTOR SHALL UNDER NO CIRCUMSTANCES ALLOW SURFACE DRAINAGE INTO THE MICRO-BIORETENTION BMPs UNTIL ALL UPSTREAM AREAS HAVE BEEN STABILIZED (I.E., PAVED OR HAVE WELL-ESTABLISHED VEGETATION).
4. BOARDS SHALL NOT BE LEFT IN PLACE DURING THE CONSTRUCTION OF THE BIORETENTION BMP.
5. GEOTEXTILE (FILTER FABRIC) SHALL BE PLACED AGAINST EXCAVATED SURFACES. SCARIFY EARTH PRIOR TO GEOTEXTILE PLACEMENT. INSTALL GEOTEXTILE PER MANUFACTURER'S SPECIFICATIONS/RECOMMENDATIONS AND USE A 2 FT MINIMUM OVERLAP AND NOTCH ENDS WITH A 6" MINIMUM BURY OR EQUIVALENT ANCHORING METHOD.
6. THE CONTRACTOR SHALL OBTAIN INDEPENDENT CERTIFICATION THAT THE SOILS AND OTHER MATERIALS MEET THE SPECIFICATIONS DURING THE AS-BUILT STAGE.
7. THE BIORETENTION FACILITIES SHALL BE VEGETATED (TOP LEVEL SURFACE ONLY) IN ACCORDANCE WITH THE PLANTING SCHEDULE.
8. USE PERFORATED PVC PIPE UNDER THE BMP AND USE SOLID PVC PIPE (SCHEDULE 40) OUTSIDE OF THE BMP (IN NATURAL SOIL) TO OUTLET/DAYLIGHT. BEGIN PERFORATED PVC PIPE 1' INSIDE BMP AGGREGATE. WRAP PVC PIPE WITH HARDWARE CLOTH TO PREVENT AGGREGATE FROM ENTERING THE PERFORATIONS.
9. INSTALL CLEANOUT (SOLID PVC PIPE) AS SHOWN. THE CLEANOUT TOP SHALL EXTEND 3" ABOVE TOP OF MULCH.
10. USE CURLEX MATTING/STAKES TO STABILIZE ALL DISTURBED AREAS BELOW THE MICRO-BIORETENTION (BMP) OUTFALL.
11. ROOF LEADER(S) SHALL DISCHARGE INTO THE BMP WITH A RIPRAP LEVEL SPREADER OR SMALL PLUNGE POOL. THIS IS NEEDED TO PRECLUDE MULCH DISTURBANCE DURING A STORM.
12. GRADE AREA SURROUNDING MICRO-BIORETENTION FACILITY SUCH THAT POSITIVE FLOW IS MAINTAINED INTO THE FACILITY.
13. REMOVE TOPSOIL WHEN PLACING FILL AROUND THE MICRO-BIORETENTION FACILITY. ALL SOIL WITHIN 5 FT OF THE 396.5 CONTOUR (I.E., TOP OF BMP (M-6)) SHALL MEET MD-378 FILL REQUIREMENTS FOR SOIL TYPES (GC, SC, CH, CL) AND 95% COMPACTION.

NOTE: THE HOWARD COUNTY PLANNING BOARD ON JUNE 16, 2011 APPROVED THE REQUEST FOR A RED-LINE REVISION OF THE SITE DEVELOPMENT PLAN TO CONSTRUCT THREE ADDITIONS TO THE EXISTING STEVENS FOREST ELEMENTARY SCHOOL. THE THREE ADDITIONS RESULTED IN LOT COVERAGE OF 13% EXCEEDING THE MAXIMUM COVERAGE OF 10% ALLOWED BY THE APPLICABLE FINAL DEVELOPMENT PLAN.

NOTE: THE PURPOSE OF THIS PLAN IS TO SHOW DETAILS FOR SWM CONSTRUCTION.



PLANNING BOARD APPROVED BUILDING ADDITIONS (REVISION NO. 1)  
ON \_\_\_\_\_ (date) TO EXCEED 10% LOT COVERAGE.



|   |   |
|---|---|
| PREPARED FOR<br>HOWARD COUNTY PUBLIC SCHOOL SYSTEM<br>10910 Maryland Route 109<br>Ellicott City, Maryland 21042<br>Attention Bruce Gist<br>410-313-6605 |   |
| Parcel Number   | Street Address                                  |
| P. 324  | 6045 STEVENS FOREST ROAD<br>COLUMBIA, MD. 21045 |
| PROJECT   | SECTION/AREA                                    |
| VONI/STEVENS FOREST ELEM. SCHOOL  | 5 / 5   |
| LOT/PARCEL  | LOT 1   |
| PLAT REF.   | BLOCK NO.                                       |
| P.B.18, F.72  | 9   |
| ZONE  | TAX MAP   |
| NT  | 36  |
| ELEC. DIST.   | CENSUS TR.                                      |
| SIXTH   | 6066.03   |
| WATER CODE  | SEWER CODE                                      |
| E09   | 5631200   |

**PENZA+BAILEY**

ARCHITECTS  
401 WOODBOURNE AVENUE  
BALTIMORE, MARYLAND 21212  
TEL 410.435.6677/FAX 410.435.6868  
www.PenzaBailey.com

**MICRO-BIORETENTION (M-6) FACILITY NOTES & DETAILS**

**"REVISED SITE DEVELOPMENT PLAN" STEVENS FOREST ELEMENTARY SCHOOL CLASSROOM ADDITIONS AND IMPROVEMENTS**

VILLAGE OF OAKLAND MILLS, SECTION 5, AREA 5, LOT 1  
PARCEL No.: 324  
TAX MAP No.: 36 GRID No.: 9  
SIXTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND  
SCALE: AS SHOWN DATE: APRIL 26, 2011

SHEET 5 OF 14

SDP 71-020C

20.0 STANDARDS AND SPECIFICATIONS FOR VEGETATIVE STABILIZATION

**DEFINITION**  
Using vegetation as cover for barren soil to protect it from forces that cause erosion.

**PURPOSE**  
Vegetative stabilization specifications are used to promote the establishment of vegetation on exposed soil. When soil is stabilized with vegetation, the soil is less likely to erode and more likely to allow infiltration of rainfall, thereby reducing sediment loads and run-off to downstream areas, and improving wildlife habitat and riparian values.

**CONDITIONS WHERE PRACTICE APPLIES**  
This practice shall be used on denuded areas as specified on the plans and may be used on highly erodible or critically eroding areas. This specification applies to vegetative cover for short duration (less than one year), and permanent seeding for long term vegetative cover. Examples of applicable areas for Temporary Seeding are Temporary Soil Stabilization, Temporary Erosion Control, Temporary Erosion Control, Temporary Erosion Control, Temporary Erosion Control, and Temporary Erosion Control. Examples of applicable areas for Permanent Seeding are Farms, Dams, and fill slopes and other areas of final grade, former stockpile and staging areas, etc.

**EFFECTS ON WATER QUALITY AND QUANTITY**  
Planting vegetation in disturbed areas will have an effect on the water budget, especially on volumes and rates of runoff, infiltration, evaporation, transpiration, precipitation, and groundwater recharge. Vegetation, over time, will increase organic matter content and improve the water holding capacity of the soil and subsequent plant growth. Vegetation will help reduce the movement of sediment, nutrients, and other chemicals carried by runoff to receiving waters. Plants will also help protect groundwater supplies by absorbing those substances present within the root zone. Sediment control devices must remain in place during grading, seeded preparation, seeding, mulching and vegetative establishment to prevent large quantities of sediment and associated chemicals and materials from washing into surface waters.

**SECTION 2 - TEMPORARY SEEDING**

Vegetation - Annual grass or grain used to provide cover on disturbed areas for up to 12 months. For longer duration of vegetative cover, Permanent Seeding is required.

A. Seed mixtures - Temporary Seeding

- Select one or more of the species or mixtures listed in Table 26 for the appropriate Plant Hardness Zone (from Figure 5) and enter them in the Temporary Seeding summary below, along with application rates, seeding dates and seeding depths. If this summary is not put on the plans and completed, then Table 26 must be put on the plans.
- For sites having soil tests performed, the rates shown on this table shall be deleted and the rates recommended by the testing agency shall be written in. Soil tests are not required for Temporary Seeding.

| Seed Mixture (Hardness Zone _____) From Table 26 | Species               | Application Rate (lb/ac) | Seeding Dates              | Seeding Depth                 | Fertilizer Rate (10-10-10)  | Lime Rate                    |
|--|-----------------------|--------------------------|----------------------------|-------------------------------|-----------------------------|------------------------------|
| 1  | BARLEY<br>OATS<br>RYE | 122<br>96<br>140         | 3/1 - 5/15<br>8/15 - 10/15 | 1" - 2"<br>1" - 2"<br>1" - 2" | 600 lb/ac<br>(19 lb/1000sq) | 2 tons/ac<br>(100 lb/1000sq) |

**SECTION 3 - PERMANENT SEEDING**

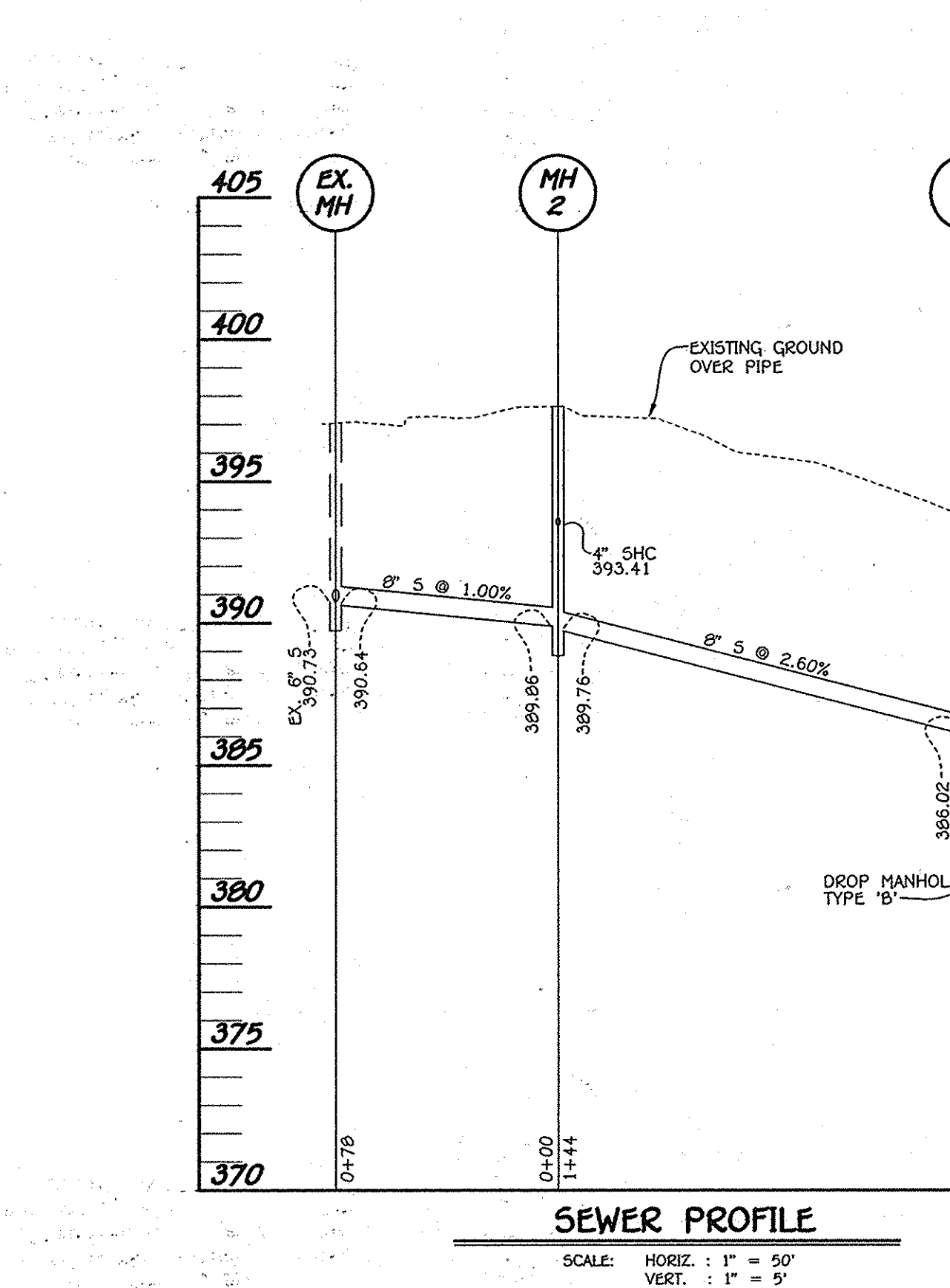
Seeding grass and legumes to establish ground cover for a minimum of one year on disturbed areas generally receiving low maintenance.

A. Seed mixtures - Permanent Seeding

- Select one or more of the species or mixtures listed in Table 25 for the appropriate Plant Hardness Zone (from Figure 5) and enter them in the Permanent Seeding Summary below, along with application rates and seeding dates. Seeding depths can be estimated using Table 26. If this summary is not put on the construction plans and completed, then Table 25 must be put on the plans. Additional planting specifications for exceptional sites such as shorelines, streambanks, or dunes or for special purposes such as wildlife or aesthetic treatment may be found in USDA-CES Technical Field Office, Section 342 - Critical Area Planting. For special lawn maintenance areas, see Sections IV and V of this document.
- For sites having disturbed area over 5 acres, the rates shown on this table shall be deleted and the rates recommended by the soil testing agency shall be written in.
- For areas receiving low maintenance, apply urea fertilizer (46-0-0) at 3 1/2 lb/1000 sq. ft. (150 lb/ac), in addition to the above soil amendments shown in the table below, to be performed at the time of seeding.

| Seed Mixture (Hardness Zone _____) From Table 25 | Species                                | Application Rate (lb/ac) | Seeding Dates              | Seeding Depth | N                           | P205                       | K20                        | Lime Rate                    |
|--|--|--------------------------|----------------------------|---------------|-----------------------------|----------------------------|----------------------------|------------------------------|
| 1  | TALL FESCUE (95%)                      | 125                      | 3/1 - 5/15                 | 1" - 2"       | 90 lb/ac                    | 175 lb/ac                  | 175 lb/ac                  | 2 tons/ac                    |
| 3  | PASTURE PERENNIAL GRASS (100%)         | 15                       | 8/15 - 10/15               | 1" - 2"       | 10 lb/ac                    | 10 lb/ac                   | 10 lb/ac                   | 2 tons/ac                    |
| 10   | TALL FESCUE (50%)<br>HARD FESCUE (50%) | 10<br>30                 | 3/1 - 5/15<br>8/15 - 10/15 | 1" - 2"       | 90 lb/ac<br>(2.0 lb/1000sq) | 175 lb/ac<br>(4 lb/1000sq) | 175 lb/ac<br>(4 lb/1000sq) | 2 tons/ac<br>(100 lb/1000sq) |

NOTE: THESE SEEDING SPECIFICATIONS ARE THE MINIMUM REQUIRED FOR SEDIMENT CONTROL. REFER TO PROJECT SPECIFICATIONS FOR SEEDING REQUIREMENTS FOR OTHER AREAS OF THE SITE.



**STRUCTURE SCHEDULE**

| STRUCTURE NO. | TOP ELEVATION | INV. IN     | INV. OUT    | COORDINATES           | WIDTH | TYPE            | REMARKS  |
|---------------|---------------|-------------|-------------|-----------------------|-------|-----------------|----------|
| MH-1          | 393.65        | 389.02 (8') | 385.92 (8') | N 50094.84 E 50264.16 | 4'    | 4' STD. MANHOLE | G - 5.12 |
| MH-2          | 397.64        | 389.06 (8') | 389.76 (8') | N 49955.16 E 50228.51 | 4'    | 4' STD. MANHOLE | G - 5.12 |

STANDARDS AND SPECIFICATIONS FOR TOPSOIL

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

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

**Conditions Where Practice Applies**  
This practice is limited to areas having 2:1 or flatter slopes where:

- The texture of the exposed subsoil/parent material is not adequate to produce vegetative growth.
- 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.
- The original soil to be vegetated contains material toxic to plant growth.
- The soil is so acidic that treatment with limestone is not feasible.

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

**Construction and Material Specifications**

- 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 Specifications - Soil to be used as topsoil must meet the following:
  - 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. Soils with a high percentage of sand, silt, or clay are not permitted. Textured subsoils and shall contain less than 5% by volume of cinders, stones, slag, coarse fragments, gravel, shells, roots, trash, or other materials larger than 1 1/2" in diameter.
  - Topsoil must be free of roots or plant parts such as bermuda grass, quackgrass, Johnson grass, nutgrass, poison ivy, thistle, or others as specified.
  - 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. The subsoil shall be discolored uniformly over designated areas and worked into the soil in conjunction with tillage operations as described in the following paragraphs.

III. For sites having disturbed areas over 5 acres:

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

IV. For sites having disturbed areas over 5 acres:

- On soil meeting Topsoil specifications, obtain test results dictating fertilizer and lime amendments required to bring the soil into compliance with the following:
  - 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 6.0 or higher.
  - Organic content of topsoil shall be not less than 1.5 percent by weight.
  - Topsoil having soluble salt content greater than 900 parts per million shall not be used.
  - 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 phytotoxic materials.

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

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

V. Topsoil Application

- When topsoiling, maintain needed erosion and sediment control practices such as diversions, Grade Stabilization Structures, Earth Dikes, Slope Silt Fence and Sediment Traps and Basins.
- Grades on the areas to be topsoiled, which have been previously established, shall be maintained, albeit 2" - 8" higher in elevation.
- 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 or water pockets.
- 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 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, composted sludge and amendments may be applied as specified below:

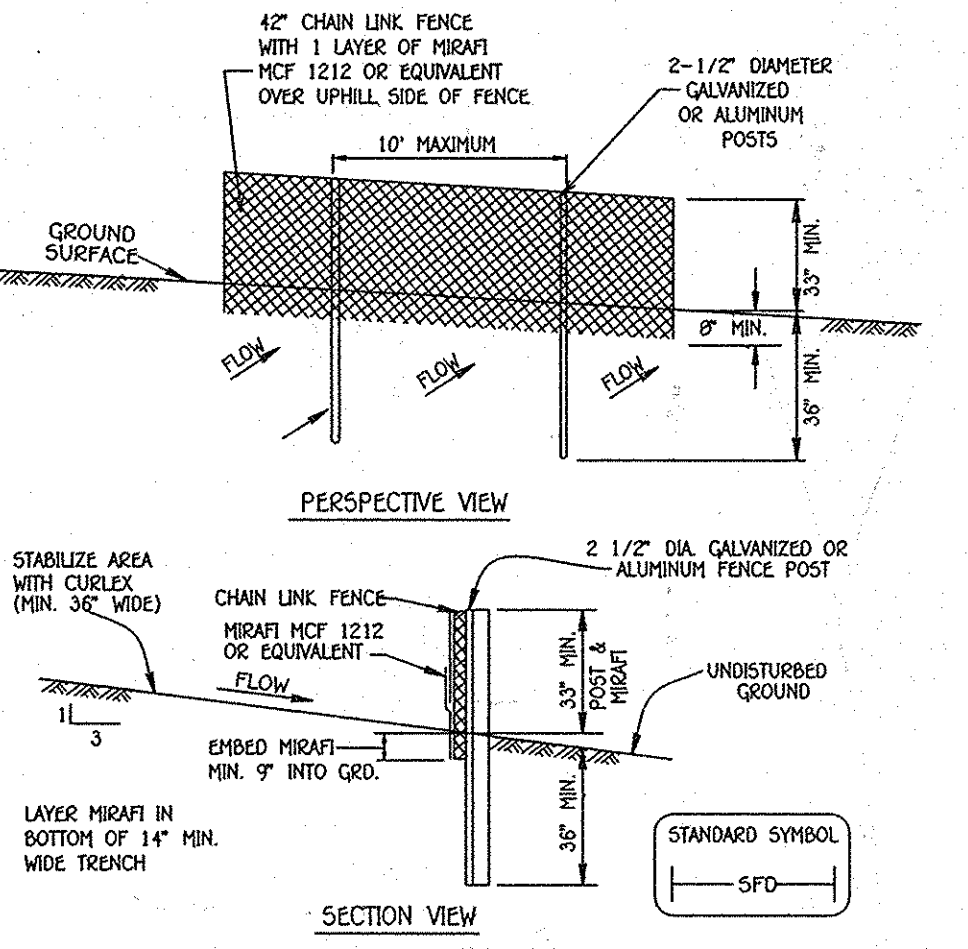
- Composted Sludge Material for use as a soil conditioner for sites having disturbed areas over 5 acres shall be tested to prescribe amendments and for sites having disturbed areas under 5 acres shall conform to the following requirements:
  - Composted sludge shall be supplied by or originate from a 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.
  - 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 9.0. If compost does not meet these requirements, the appropriate constituents must be added to meet the requirements prior to use.
  - Composted sludge shall be applied at a rate of 1 ton/1,000 square feet.
- 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 Institute, Reprint 1972.

SEDIMENT CONTROL NOTES

- 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 (313-1955).
- ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE MOST CURRENT MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL AND REVISIONS THERETO.
- FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN:
  - CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DIKES, PERIMETER SLOPES AND ALL SLOPES STEEPER THAN 3:1, b) 14 DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.
- 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 MANUAL, STORM DRAINAGE.
- ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR PERMANENT SEEDING (SEC. 51), SOO (SEC. 54), TEMPORARY SEEDING (SEC. 50), AND MULCHING (SEC. 52). TEMPORARY STABILIZATION WITH MULCH ALONE CAN ONLY BE DONE WHEN RECOMMENDED SEEDING DATES DO NOT ALLOW FOR PROPER GERMINATION AND ESTABLISHMENT OF GRASSES.
- 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                 | 10.00 ACRES |
| AREA DISTURBED                     | 2.42 ACRES  |
| AREA TO BE ROOFED OR PAVED         | 0.80 ACRES  |
| AREA TO BE VEGETATIVELY STABILIZED | 2.18 ACRES  |
| TOTAL CUT                          | 400 CU.YDS. |
| TOTAL FILL                         | 450 CU.YDS. |
- OFFSITE WASTE/BORROW AREA LOCATION: N/A
- ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.
- ADDITIONAL SEDIMENT CONTROLS MUST BE PROVIDED, IF DEEMED NECESSARY BY THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
- ON ALL SITES WITH DISTURBED AREAS IN EXCESS OF 2 ACRES, APPROVAL OF THE INSPECTION AGENCY SHALL BE REQUESTED UPON COMPLETION OF INSTALLATION OF PERIMETER EROSION AND SEDIMENT CONTROLS, BUT BEFORE PROCEEDING WITH ANY OTHER EARTH DISTURBANCE OR GRADING, OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THIS INITIAL APPROVAL BY THE INSPECTION AGENCY IS MADE.
- TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THREE PIPE LENGTHS OR THAT WHICH SHALL BE BACK-FILLED AND STABILIZED WITHIN ONE WORKING DAY, WHICHEVER IS SHORTER.



**CONSTRUCTION SPECIFICATIONS**

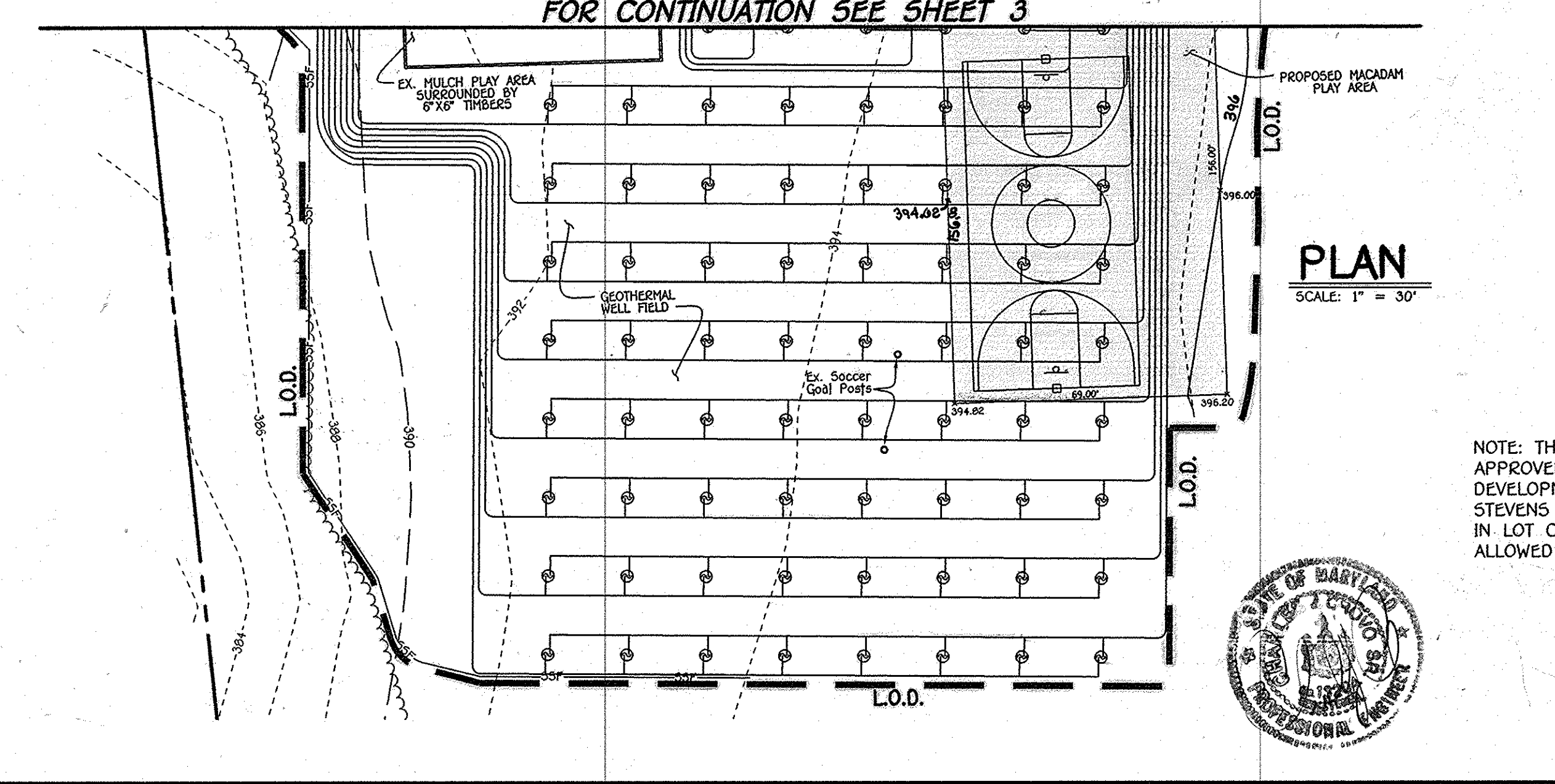
- FENCING SHALL BE 42" HIGH CHAIN LINK CONSTRUCTED IN ACCORDANCE WITH THE LATEST MARYLAND STATE HIGHWAY ADMINISTRATION STANDARD DETAILS 690.01 AND 690.02. FOR CHAIN U FENCING, THE SPECIFICATIONS FOR A 6"-0" FENCE SHALL BE USED, SUBSTITUTING 42" FABRIC AND 8" POSTS. POSTS SHALL BE PLACED WITHOUT CONCRETE EMBEDEDMENT.
- CHAIN LINK FENCE SHALL BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES. THE LOWER TENSION WIRE, BRACE AND TRUSS RODS, ANCHORS AND POST CAPS ARE NOT REQUIRED EXCEPT ON THE ENDS OF THE FENCE.
- FILTER CLOTH TO BE FASTENED SECURELY TO CHAIN LINK FENCE WITH TIES SPACED EVERY 2' AT TOP AND MID SECTION.
- FILTER CLOTH SHALL BE IMBEDDED A MINIMUM OF 9" INTO THE GROUND.
- WHEN TWO SECTIONS OF OVERLAP CLOTH ADJOIN EACH OTHER THEY SHALL BE OVERLAPPED BY SIX INCHES AND FOLDED.
- MAINTENANCE SHALL BE PERFORMED AS NEEDED.

| Fabric Properties                   | Value | Test Method           |
|-------------------------------------|-------|-----------------------|
| Grab Tensile Strength (lbs.)        | 90    | ASTM D1682            |
| Elongation at Failure (%)           | 50    | ASTM D1682            |
| Mullen Burst Strength (PSI)         | 190   | ASTM D3786            |
| Puncture Strength (lbs.)            | 40    | ASTM D751             |
| Slurry Flow Rate (gal/min/ft)       | 0.3   | Virginia DOT VTH-51   |
| Equivalent Opening Size             | 40-80 | US Std Sieve No-20/25 |
| Ultraviolet Radiation Stability (%) | 90    | ASTM G-26             |

**Design Criteria**

| Slope    | Slope Steepness | Design Length (maximum) | Silt Fence Length (maximum) |
|----------|-----------------|-------------------------|-----------------------------|
| 0 - 10%  | 0 - 10:1        | Unlimited               | Unlimited                   |
| 10 - 20% | 10:1 - 5:1      | 400 feet                | 1,500 feet                  |
| 20 - 33% | 5:1 - 3:1       | 300 feet                | 1,000 feet                  |
| 33 - 50% | 3:1 - 2:1       | 200 feet                | 500 feet                    |
| 50% +    | 2:1             | 100 feet                | 250 feet                    |

SUPER FENCE DIVERSION



NOTE: THE HOWARD COUNTY PLANNING BOARD ON JUNE 16, 2011 APPROVED THE REQUEST FOR A RED-LINE REVISION OF THE SITE DEVELOPMENT PLAN TO CONSTRUCT THREE ADDITIONS TO THE EXISTING STEVENS FOREST ELEMENTARY SCHOOL. THE THREE ADDITIONS RESULTED IN LOT COVERAGE OF 13% EXCEEDING THE MAXIMUM COVERAGE OF 10% ALLOWED BY THE APPLICABLE FINAL DEVELOPMENT PLAN.

NOTE: THE PURPOSE OF THIS PLAN IS TO SHOW NOTES AND DETAILS FOR SEDIMENT CONTROL.

**ENGINEER'S CERTIFICATE**

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

*[Signature]*  
Signature of Engineer

**DEVELOPER'S CERTIFICATE**

"I/We certify that all development and construction will be done according to this plan for sediment and erosion control, and that all responsible personnel involved in the construction project will have a Certificate of Attendance at a Department of the Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I also authorize periodic on-site inspection by the Howard Soil Conservation District."

*[Signature]*  
Signature of Developer

FISHER, COLLINS & CARTER, INC.  
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
CENTRAL SQUARE OFFICE PARK - 10725 BALDWIN NATIONAL PIKE  
CLINTON CT, MARYLAND 21114  
(410) 461-2095

**APPROVED: DEPARTMENT OF PLANNING AND ZONING**

*[Signature]*  
Director - Department of Planning and Zoning

*[Signature]*  
Chief, Division of Land Development

*[Signature]*  
Chief, Development Engineering Division

7/21/11  
Date

**PREPARED FOR**  
HOWARD COUNTY PUBLIC SCHOOL SYSTEM  
10910 Maryland Route 108  
Ellicott City, Maryland 21042  
Attention: Bruce Gist  
410-313-6805

**Address Chart**

| Parcel Number | Street Address                                  |
|---------------|---|
| P. 324        | 6045 STEVENS FOREST ROAD<br>COLUMBIA, MD. 21045 |

**PROJECT**  
VOM/STEVENS FOREST ELEM. SCHOOL

| SECTION/AREA | LOT/PARCEL |
|--------------|------------|
| 5 / 5        | LOT 1      |

**PLAT REF.**  
P.B.18, F.72

| BLOCK NO. | ZONE | TAX MAP | ELEC. DIST. | CENSUS TR. |
|-----------|------|---------|-------------|------------|
| 9         | NT   | 36      | SIXTH       | 6066.03    |

**WATER CODE**  
E09

**SEWER CODE**  
5631200

**PENZA+BAILEY**

**ARCHITECTS**

401 WOODBOURNE AVENUE  
BALTIMORE, MARYLAND 21212  
TEL 410.435.6677/FAX 410.435.6868  
www.PenzaBailey.com

3-15-11 BLDG. ADDITIONS AS APP'D. BY PB and ADD NEW SHEETS 2 TO 6.

DATE

DESCRIPTION

REVISION BLOCK

8/2/11  
Date

8/2/11  
Date

7/25/11  
Date

**SEWER PROFILE, STRUCTURE SCHEDULE, NOTES AND DETAIL SHEET**

**"REVISED SITE DEVELOPMENT PLAN"**

**STEVENS FOREST**

**ELEMENTARY SCHOOL**

**CLASSROOM ADDITIONS AND IMPROVEMENTS**

VILLAGE OF OAKLAND HILLS, SECTION 5, AREA 5, LOT 1  
PARCEL NO.: 324

TAX MAP NO.: 36 GRID NO.: 9  
SIXTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND  
SCALE: AS SHOWN DATE: APRIL 26, 2011

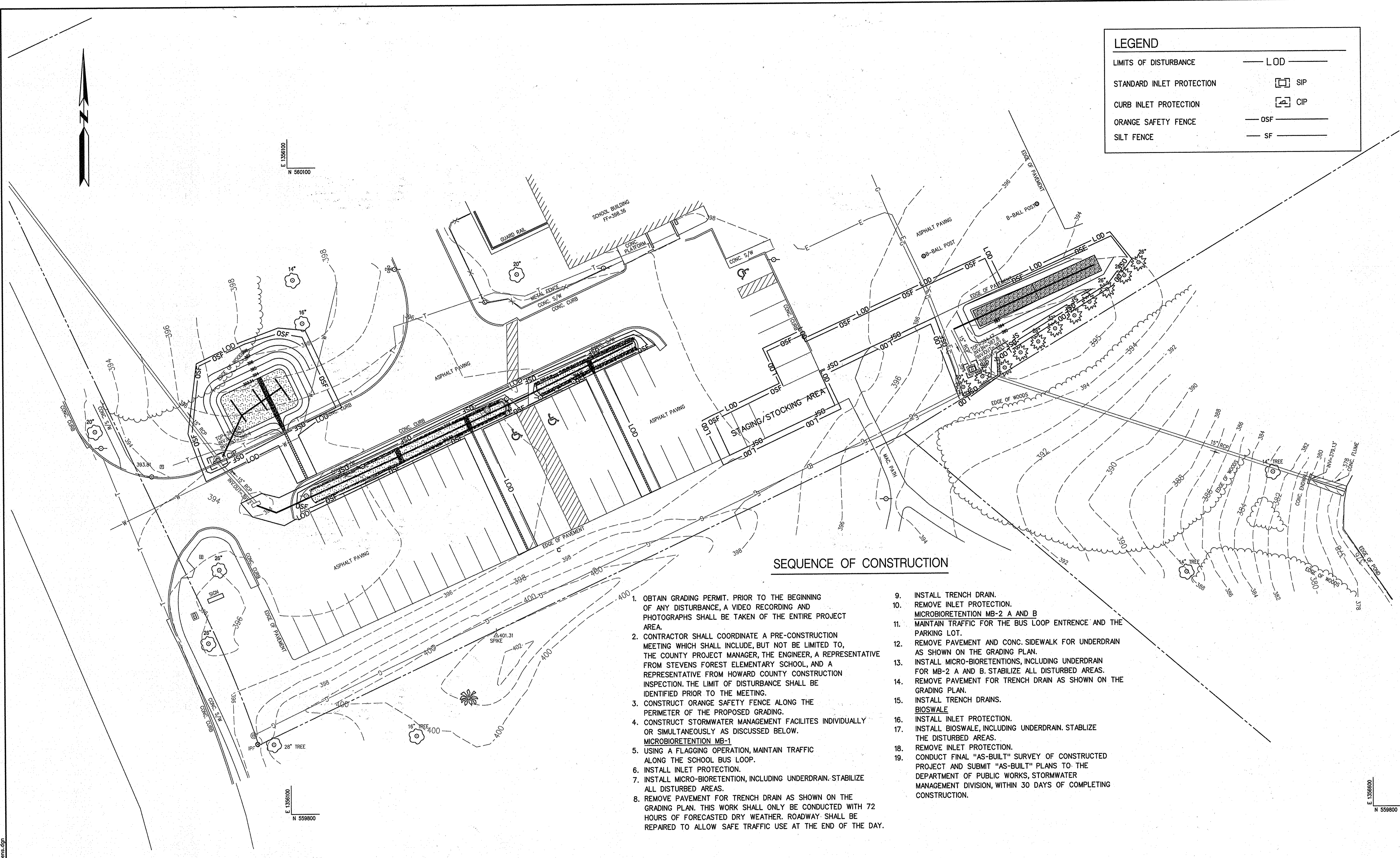
SHEET 6 OF 14









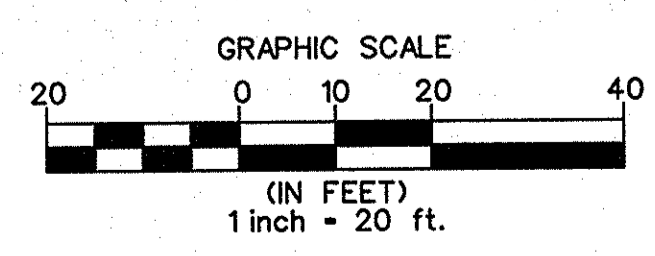


**LEGEND**

|                           |         |
|---------------------------|---------|
| LIMITS OF DISTURBANCE     | — LOD — |
| STANDARD INLET PROTECTION | □ SIP   |
| CURB INLET PROTECTION     | □ CIP   |
| ORANGE SAFETY FENCE       | — OSF — |
| SILT FENCE                | — SF —  |

**SEQUENCE OF CONSTRUCTION**

1. OBTAIN GRADING PERMIT. PRIOR TO THE BEGINNING OF ANY DISTURBANCE, A VIDEO RECORDING AND PHOTOGRAPHS SHALL BE TAKEN OF THE ENTIRE PROJECT AREA.
2. CONTRACTOR SHALL COORDINATE A PRE-CONSTRUCTION MEETING WHICH SHALL INCLUDE, BUT NOT BE LIMITED TO, THE COUNTY PROJECT MANAGER, THE ENGINEER, A REPRESENTATIVE FROM STEVENS FOREST ELEMENTARY SCHOOL, AND A REPRESENTATIVE FROM HOWARD COUNTY CONSTRUCTION INSPECTION. THE LIMIT OF DISTURBANCE SHALL BE IDENTIFIED PRIOR TO THE MEETING.
3. CONSTRUCT ORANGE SAFETY FENCE ALONG THE PERIMETER OF THE PROPOSED GRADING.
4. CONSTRUCT STORMWATER MANAGEMENT FACILITIES INDIVIDUALLY OR SIMULTANEOUSLY AS DISCUSSED BELOW.  
**MICROBIORETENTION MB-1**
5. USING A FLAGGING OPERATION, MAINTAIN TRAFFIC ALONG THE SCHOOL BUS LOOP.
6. INSTALL INLET PROTECTION.
7. INSTALL MICRO-BIORETENTION, INCLUDING UNDERDRAIN. STABILIZE ALL DISTURBED AREAS.
8. REMOVE PAVEMENT FOR TRENCH DRAIN AS SHOWN ON THE GRADING PLAN. THIS WORK SHALL ONLY BE CONDUCTED WITH 72 HOURS OF FORECASTED DRY WEATHER. ROADWAY SHALL BE REPAIRED TO ALLOW SAFE TRAFFIC USE AT THE END OF THE DAY.
9. INSTALL TRENCH DRAIN.
10. REMOVE INLET PROTECTION.  
**MICROBIORETENTION MB-2 A AND B**
11. MAINTAIN TRAFFIC FOR THE BUS LOOP ENTRANCE AND THE PARKING LOT.
12. REMOVE PAVEMENT AND CONC. SIDEWALK FOR UNDERDRAIN AS SHOWN ON THE GRADING PLAN.
13. INSTALL MICRO-BIORETENTIONS, INCLUDING UNDERDRAIN FOR MB-2 A AND B. STABILIZE ALL DISTURBED AREAS.
14. REMOVE PAVEMENT FOR TRENCH DRAIN AS SHOWN ON THE GRADING PLAN.
15. INSTALL TRENCH DRAINS.  
**BIOSWALE**
16. INSTALL INLET PROTECTION.
17. INSTALL BIOSWALE, INCLUDING UNDERDRAIN. STABILIZE THE DISTURBED AREAS.
18. REMOVE INLET PROTECTION.
19. CONDUCT FINAL "AS-BUILT" SURVEY OF CONSTRUCTED PROJECT AND SUBMIT "AS-BUILT" PLANS TO THE DEPARTMENT OF PUBLIC WORKS, STORMWATER MANAGEMENT DIVISION, WITHIN 30 DAYS OF COMPLETING CONSTRUCTION.



PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 31201, EXPIRATION DATE: JANUARY 24, 2015.

STATE OF MARYLAND  
UNIVERSITY & TECHNOLOGY CENTER  
Professional Engineer  
5/15/2014

HOWARD COUNTY PUBLIC SCHOOL SYSTEM, MD  
 Chief Facilities Officer  
 DATE: 5/16/14

DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD  
 Chief, Bureau of Environmental Services  
 DATE: 5/16/14

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

Chief, Development Engineering Division  
 DATE: 6-30-14

Chief, Division of Land Development  
 DATE: 7-03-14

Director - Department of Planning and Zoning  
 DATE: 7/8/14

|  |   |
|--|---|
| DATE   | DESCRIPTION   |
| 10/15/13   | TWO MICRO-BIORETENTIONS AND ONE BIO-SWALE ADDITIONS AND ADD NEW SHEETS 2 TO 9 |
| REVISION BLOCK   |   |
| Parcel Number  | Street Address  |
| P-324  | 6045 STEVENS FOREST ROAD  |
| COLUMBIA, MD. 21045  |   |
| PROJECT  | SECTION/AREA  |
| STEVENS FOREST ELEM. SCHOOL                                | LOT 1   |
| PLAT REF. BLOCK NO. ZONING TAX MAP/ELECT. DIST. CENSUS TR. | SIXTH E 6086.03   |
| WATER CODE   | SEWER CODE  |
| FD9  | 5631200   |

SCALE: 1" = 20'  
 DATE: JUNE 2013  
 KCI JOB NO.: 17133314.06  
 CAPITAL PROJECT NO.: D-1160  
 PERMIT ISSUE:  
 CONSTRUCTION ISSUE:  
**ES-01**  
 SHEET NO.: 10 OF 14

|     |                       |         |
|-----|-----------------------|---------|
| NO. | REVISIONS DESCRIPTION | DATE    |
| 1   | SILT FENCE ADDED      | 4/29/14 |

936 RIDGEBROOK ROAD  
 SPARKS, MARYLAND 21152  
 TELEPHONE: (410) 316-7800  
 FAX: (410) 316-7818  
 WWW.KCI.COM

**KCI**  
 TECHNOLOGIES

STEVENS FOREST  
 ELEMENTARY SCHOOL  
 RETROFIT DESIGN

CAPITAL PROJECT D-1160  
 HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
 STORMWATER MANAGEMENT DIVISION  
 6795 COLUMBIA GATEWAY DRIVE  
 COLUMBIA, MD 21046

EROSION &  
 SEDIMENT  
 CONTROL  
 PLAN

21.0 STANDARD AND SPECIFICATIONS FOR TOPSOIL

Definition

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

Purpose

To provide a suitable soil medium for vegetative growth. Soils of concern have low moisture content, low nutrient levels, low 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 materials not adequate to produce vegetative growth.
b. The soil materials so shallow that the rooting zone is not deep enough to support plants or furnish continuing supplies of moisture and plant nutrients.
c. The original soil to be vegetated contains material toxic to plant growth.
d. The soil is so acidic that treatment with limestone is not feasible.
II. For the purpose of these Standards and Specifications, areas having slopes steeper than 2:1 require special consideration and design for adequate stabilization.

Construction and Material Specifications

- I. 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.
II. Topsoil Specifications - Soil to be used as topsoil must meet the following:
i. Topsoil shall be a loam, sandy loam, clay loam, silt loam, sandy clay loam, loamy sand. Other soils may be used if recommended by an agronomist or soil scientist and approved by the appropriate approval authority.
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.
IV. For sites having disturbed areas over 5 acres:
i. On soil meeting Topsoil specifications, obtain test results dictating fertilizer and lime amendments required to bring the soil into compliance with the following:
a. pH for topsoil shall be between 6.0 and 7.5. If the tested soil demonstrates a pH of less than 6.0, sufficient 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 phytotoxic materials.

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

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

- i. When topsoiling, 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 sodding or seeding can proceed with a minimum of additional soil preparation and tillage.
iv. Topsoil shall not be placed while the topsoil or subsoil is in a frozen or muddy condition, when the subsoils are excessively wet or in a condition that may otherwise be detrimental to proper grading and seeded preparation.

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 needed.

Seedbed preparation: - Loosen upper three inches of soil by raking, disking or other acceptable means before seeding, if not previously loosened.

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 2-12 bushel per acre of annual ryegrass (3.2 lbs/1000 sq. ft.). For the period May 1 - August 14, seed with 3 lbs/acre of weeping lovegrass (.07 lbs/1000 sq. ft.).

Mulching: - Apply 1-12 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.

Refer to the 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for additional rates and methods not covered.

\*\* Contractor shall perform a soil test at the site as a first order of business. The results shall be reviewed by Department of Recreation and Parks to determine appropriate soil amendments and fertilization needs...

HOWARD SOIL CONSERVATION DISTRICT

PERMANENT SEEDING NOTES

(For areas within the LOD with no designated planting area symbol) use permanent seed below. For all areas denoted by symbol, see sheet 9 of 9 for permanent seeding.

Apply to graded or cleared areas not subject to immediate further disturbance where a permanent long-lived vegetative cover is needed.

Seedbed Preparation: Loosen upper three inches of soil by raking, disking or other acceptable means before seeding, if not previously loosened.

Soil Amendments: 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.
2. 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.

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 (0.5 lbs/1000sq. ft.) of weeping lovegrass.

Mulching - Apply 1-12 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.

Maintenance - Inspect all seeding areas and make needed repairs, replacements and reseeds.

Appendix B.4. Construction Specifications for Environmental Site Design Practices

excavated using a loader, the contractor should use wide track or marsh track equipment, or light equipment with turf type tires. Use of equipment with narrow tracks or narrow tires, rubber tires with large lugs, or high-pressure tires will cause excessive compaction resulting in reduced infiltration rates and is not acceptable.

Compaction can be alleviated at the base of the bioretention facility by using a primary tilling operation such as a chisel plow, ripper, or subsoiler. These tilling operations are to restructure the soil profile through the 12 inch compaction zone.

Rototill 2 to 3 inches of sand into the base of the bioretention facility before backfilling the optional sand layer.

When backfilling the topsoil over the sand layer, first place 3 to 4 inches of topsoil over the sand, then rototill the sand/topsoil to create a gradation zone.

When backfilling the bioretention facility, place soil in lifts 12" to 18". Do not use heavy equipment within the bioretention basin. Heavy equipment can be used around the perimeter of the basin to supply soils and sand.

4. Plant Material

Recommended plant material for micro-bioretention practices can be found in Appendix A, Section A.2.3.

5. Plant Installation

Compost is a better organic material source, is less likely to float, and should be placed in the invert and other low areas. Mulch should be placed in surrounding to a uniform thickness of 2" to 3". Shredded or chipped hardwood mulch is the only accepted mulch.

Rootstock of the plant material shall be kept moist during transport and on-site storage. The plant root ball should be planted so 1/8" of the ball is above final grade surface.

B.4.5 Supp. 1

Appendix B.4. Construction Specifications for Environmental Site Design Practices

Trees shall be braced using 2" by 2" stakes only as necessary and for the first growing season only. Stakes are to be equally spaced on the outside of the tree ball.

Grasses and legume seed should be drilled into the soil to a depth of at least one inch. Grass and legume plugs shall be planted following the non-grass ground cover planting specifications.

The topsoil specifications provide enough organic material to adequately supply nutrients from natural cycling. The primary function of the bioretention structure is to improve water quality.

6. Underdrains

Underdrains should meet the following criteria:

- Pipe - Should be 4" to 6" diameter, slotted or perforated rigid plastic pipe (ASTM F 758, Type PS 28, or AASHTO-M-278) in a gravel layer.
• Perforations - If perforated pipe is used, perforations should be 3/4" diameter located 6" on center with a minimum of four holes per row.
• Gravel - The gravel layer (No. 57 stone preferred) shall be at least 3" thick above and below the underdrain.
• The main collector pipe shall be at a minimum 0.5% slope.
• A rigid, non-perforated observation well must be provided (one per every 1,000 square feet) to provide a clean-out port and monitor performance of the filter.
• A 4" layer of pea gravel (3/4" to 3/8" stone) shall be located between the filter media and underdrain to prevent migration of fines into the underdrain.

The main collector pipe for underdrain systems shall be constructed at a minimum slope of 0.5%. Observation wells and/or clean-out pipes must be provided (one minimum per every 1000 square feet of surface area).

7. Miscellaneous

These practices may not be constructed until all contributing drainage area has been stabilized

Supp. 1 B.4.6

Appendix B.4. Construction Specifications for Environmental Site Design Practices

Table B.4.1 Materials Specifications for Micro-Bioretention, Rain Gardens & Landscape Infiltration. Columns: Material, Specification, Size, Notes.

B.4.7 Supp. 1

HOWARD COUNTY CONSERVATION DISTRICT

STANDARD SEDIMENT CONTROL NOTES

- 1. A minimum of 48 hours notice must be given to the Howard County Department of Public Works, Construction Inspection Division prior to the start of any construction (410 319-1855).
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 SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL and revisions thereto.
3. Following initial soil disturbance or re-disturbance, permanent or temporary stabilization shall be completed within: a) 7 calendar days for all perimeter sediment control structures, dikes, perimeter slopes and all slopes greater than 3:1, b) 14 days as to all other disturbed or graded areas on the project site.
4. All sediment traps/basins shown must be fenced and warning signs posted around their perimeter in accordance with Vol 1, Chapter 12 of the HOWARD COUNTY DESIGN MANUAL, Storm Drainage.
5. All disturbed areas must be stabilized within the time period specified above in accordance with the 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for permanent seeding (Sec. 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 proper germination and establishment of grasses.
6. All sediment control structures are to remain in place and are to be maintained in operative condition until permission for their removal has been obtained from the Howard County Sediment Control Inspector.
7. Site Analysis: Total Area of Site 0.75 Acres, Area Disturbed 0.25 Acres, Area to be roofed or paved 0.00 Acres, Area to be vegetatively stabilized 0.00 Acres, Total Cut 483.5 Cu. Yds., Total Fill 227.6 Cu. Yds., Offsite Sedimentation Area location UNKNOWN.
8. Any sediment control practice which is disturbed by grading activity for placement of utilities must be repaired on the same day of disturbance.
9. Additional sediment control must be provided, if deemed necessary by the Howard County Sediment Control Inspector.
10. On all sites with disturbed areas in excess of 2 acres, approval of the inspection agency shall be requested upon completion of installation of perimeter erosion and sediment controls, but before proceeding with any other earth disturbance or grading.
11. Trenches for the construction 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 AREA, IF NEEDED, SHALL HAVE AN APPROVED EROSION AND SEDIMENT CONTROL PLAN AND ACTIVE PERMIT.

OPERATION AND MAINTENANCE SCHEDULE FOR LANDSCAPE INFILTRATION (M-3), MICRO-BIORETENTION (M-6), RAIN GARDENS (M-7), BIORETENTION SWALE (M-8), ENHANCED FILTERS (M-9)

- 1. ANNUAL MAINTENANCE OF PLANT MATERIAL, MULCH LAYER AND SOIL LAYER IS REQUIRED. MAINTENANCE OF MULCH AND SOIL IS LIMITED TO CORRECTING AREAS OF EROSION OR WASH OUT. ANY MULCH REPLACEMENT SHALL BE DONE IN THE SPRING. PLANT MATERIAL SHALL BE CHECKED FOR DISEASE AND INSECT INFESTATION AND MAINTENANCE WILL ADDRESS DEAD MATERIAL AND PRUNING ACCEPTABLE REPLACEMENT PLANT MATERIAL IS LIMITED TO THE FOLLOWING: 2000 MARYLAND STORMWATER DESIGN MANUAL VOLUME II, TABLE A.4.1 AND 2.
2. SCHEDULE OF YEAR IN SPRING AND FALL THIS INSPECTION WILL INCLUDE REMOVAL OF DEAD AND DISEASED VEGETATION CONSIDERED BEYOND TREATMENT, TREATMENT OF ALL DISEASED TREES AND SHRUBS AND REPLACEMENT OF ALL DEFICIENT STAKES AND WIRES.
3. MULCH SHALL BE INSPECTED EACH SPRING REMOVE PREVIOUS MULCH LAYER BEFORE APPLYING NEW LAYER ONCE EVERY 2 TO 3 YEARS.
4. SOIL EROSION TO BE ADDRESSED ON AN AS NEEDED BASIS, WITH A MINIMUM OF ONCE PER MONTH AND AFTER HEAVY STORM EVENT.

OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED OPEN CHANNEL SYSTEMS, GRASS SWALES AND WET SWALES (M-8)

- 1. THE OPEN CHANNEL SYSTEM SHALL BE INSPECTED ANNUALLY AND AFTER MAJORS STORMS. INSPECTIONS SHALL BE PERFORMED DURING WET WEATHER TO DETERMINE IF THE FACILITY IS FUNCTIONING PROPERLY.
2. THE OPEN CHANNEL SHALL BE MOWED A MINIMUM OF AS NEEDED DURING THE GROWING SEASON TO MAINTAIN A MAXIMUM GRASS HEIGHT OF LESS THAN 6 INCHES.
3. DEBRIS AND LITTER SHALL BE REMOVED DURING REGULAR MOWING OPERATIONS AND AS NEEDED.
4. VISIBLE SIGNS OF EROSION IN THE OPEN CHANNEL SYSTEM SHALL BE REPAIRED AS SOON AS IT IS NOTICED.
5. REMOVE SILT IN THE OPEN CHANNEL SYSTEM WHEN IT EXCEEDS 25% OF THE ORIGINAL W/O.
6. INSPECT CHECK DAMS TWICE A YEAR FOR STRUCTURAL INTEGRITY, RESTORE CHECK DAMS TO ORIGINAL CONDITION AS APPLICABLE.

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING. Includes signatures and dates for Chief, Development Engineering Division and Chief, Division of Land Development.

Form with fields for DATE, REVISION BLOCK, Address Chart, Parcel Number, Street Address, PROJECT, SECTION/AREA, LOT/PARCEL, PLAT REF, BLOCK, NO./ZONING/TAX MAP/ELECT. DIST./CENSUS TR., WATER CODE, SEWER CODE.

Form with fields for SCALE, DATE, KCI JOB NO., CAPITAL PROJECT NO., PERMIT ISSUE, CONSTRUCTION ISSUE, ES-02, SHEET NO. 11 OF 14.

Table with columns: NO., REVISIONS DESCRIPTION, DATE, CONSTRUCTION SPECIFICATIONS FOR ESD, OPERATION AND MAINTENANCE SCHEDULE.

936 RIDGEBROOK ROAD, SPARKS, MARYLAND 21152, TELEPHONE: (410) 316-7800, FAX: (410) 316-7818, www.kci.com



STEVENS FOREST ELEMENTARY SCHOOL RETROFIT DESIGN, CAPITAL PROJECT D-1160, HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS, STORMWATER MANAGEMENT DIVISION, 879 COLUMBIA GATEWAY DRIVE, COLUMBIA, MD 21046

EROSION & SEDIMENT CONTROL NOTES

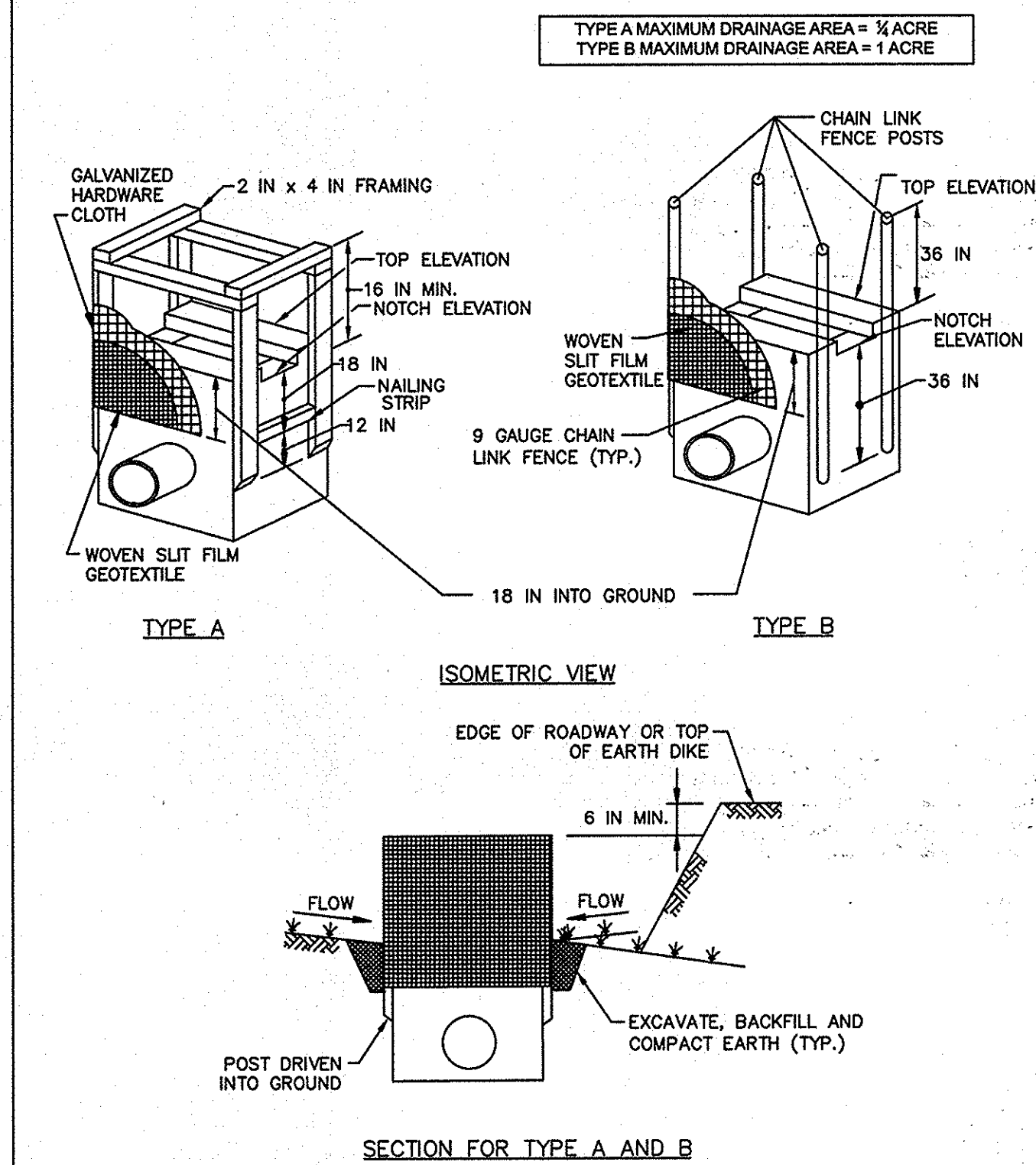
PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND LICENSE NO. 31201, EXPIRATION DATE: JANUARY 24, 2015.

HOWARD COUNTY PUBLIC SCHOOL SYSTEM, MD. CHIEF FACILITIES OFFICER, DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD, CHIEF, BUREAU OF ENVIRONMENTAL SERVICES.

PLOTTED: 11:07 AM on Thursday, May 15, 2014. BY: KIRBY POTTER, DIVISION PDS, Water Res. OIA, Emp. No. 20103121233334. 05-15-2014 09:55:03 AM

DETAIL E-9-1 STANDARD INLET PROTECTION

STANDARD SYMBOL  
SIP



MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL  
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE 2011 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL E-9-1 STANDARD INLET PROTECTION

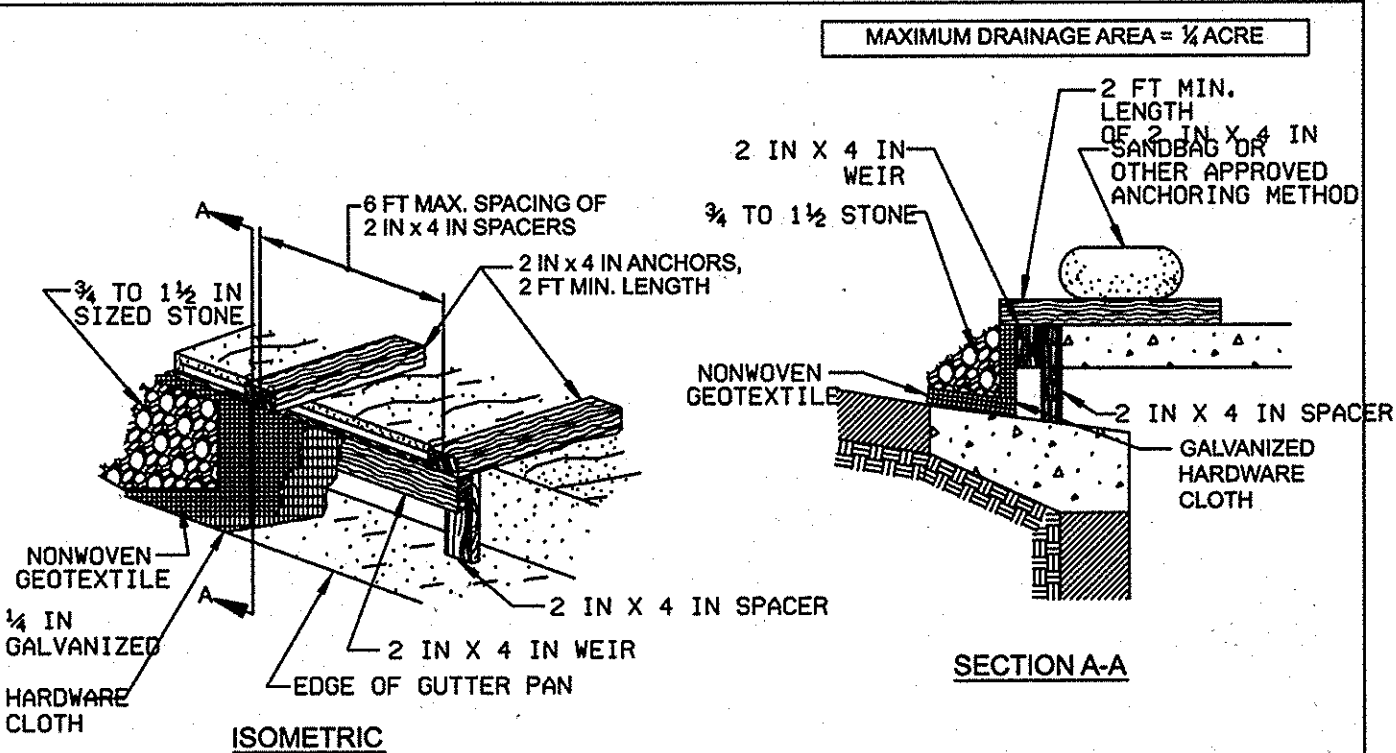
STANDARD SYMBOL  
SIP

- CONSTRUCTION SPECIFICATIONS**
- USE WOVEN SLIT FILM GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS.
  - EXCAVATE COMPLETELY AROUND THE INLET TO A DEPTH OF 18 INCHES BELOW THE NOTCH ELEVATION.
  - FOR TYPE A, USE NOMINAL 2 INCH X 4 INCH CONSTRUCTION GRADE LUMBER POSTS, DRIVEN 1 FOOT INTO THE GROUND AT EACH CORNER OF THE INLET. PLACE NAIL STRIPS BETWEEN THE POSTS ON THE ENDS OF THE INLET. ASSEMBLE THE TOP PORTION OF THE 2X4 FRAME AS SHOWN. STRETCH 1/2 INCH GALVANIZED HARDWARE CLOTH TIGHTLY AROUND THE FRAME AND FASTEN SECURELY. FASTEN GEOTEXTILE TO THE HARDWARE CLOTH WITH TIES SPACED EVERY 24 INCHES AT THE TOP AND MID SECTION. EMBED GEOTEXTILE AND HARDWARE CLOTH A MINIMUM OF 18 INCHES BELOW THE WEIR CREST. THE ENDS OF THE GEOTEXTILE MUST MEET AT A POST, BE OVERLAPPED AND FOLDED, THEN FASTENED TO THE POST.  
FOR TYPE B, USE 2 3/8 INCH DIAMETER GALVANIZED STEEL POSTS OF 0.085 INCH WALL THICKNESS AND 6 FOOT LENGTH, DRIVEN A MINIMUM OF 36 INCHES BELOW THE WEIR CREST AT EACH CORNER OF THE STRUCTURE. FASTEN 9 GAUGE OR HEAVIER CHAIN LINK FENCE, 42 INCHES IN HEIGHT, SECURELY TO THE FENCE POSTS WITH WIRE TIES. FASTEN GEOTEXTILE SECURELY TO THE CHAIN LINK FENCE WITH TIES SPACED EVERY 24 INCHES AT THE TOP AND MID SECTION. EMBED GEOTEXTILE AND CHAIN LINK FENCE A MINIMUM OF 18 INCHES BELOW THE WEIR CREST.
  - BACKFILL AROUND THE INLET IN LOOSE 4 INCH LIFTS AND COMPACT UNTIL SOIL IS LEVEL WITH THE NOTCH ELEVATION ON THE ENDS AND TOP ELEVATION ON THE SIDES.
  - STORM DRAIN INLET PROTECTION REQUIRES FREQUENT MAINTENANCE. REMOVE ACCUMULATED SEDIMENT AFTER EACH RAIN EVENT TO MAINTAIN FUNCTION AND AVOID PREMATURE CLOGGING. IF INLET PROTECTION DOES NOT COMPLETELY DRAIN WITHIN 24 HOURS AFTER A STORM EVENT, IT IS CLOGGED. WHEN THIS OCCURS, REMOVE ACCUMULATED SEDIMENT AND CLEAN, OR REPLACE GEOTEXTILE AND STONE.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL  
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE 2011 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

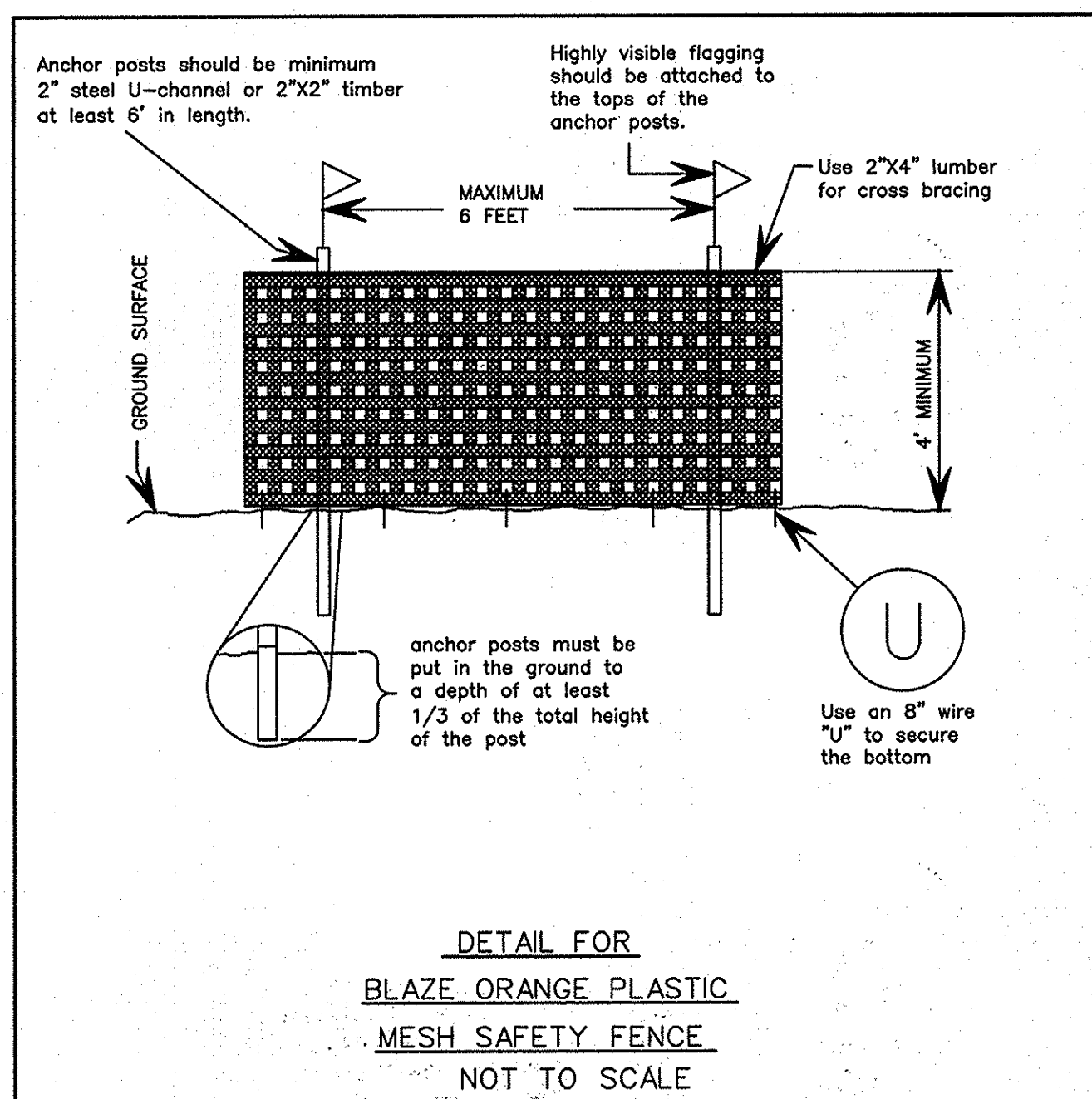
DETAIL E-9-3 CURB INLET PROTECTION

STANDARD SYMBOL  
CIP



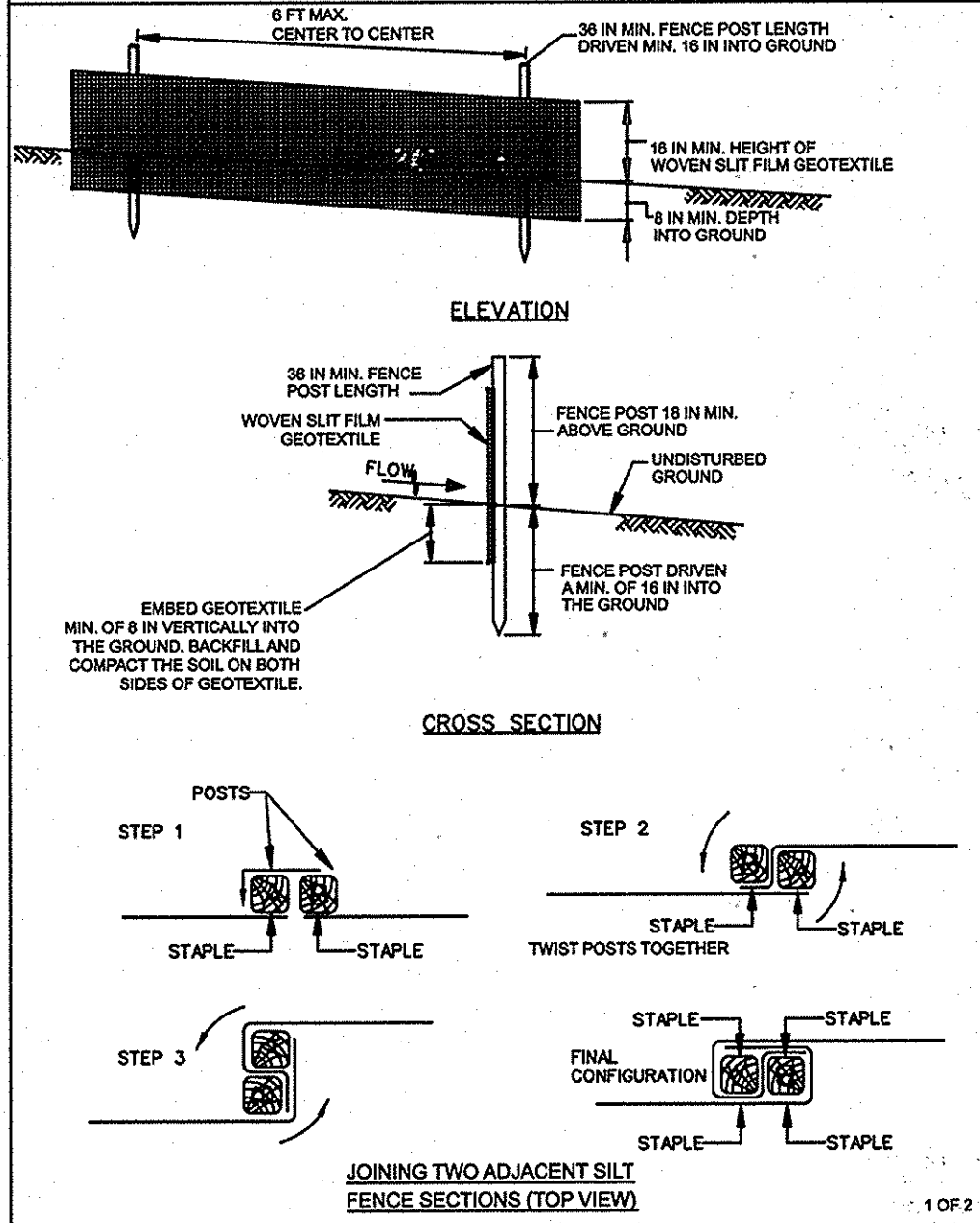
- CONSTRUCTION SPECIFICATIONS**
- USE NOMINAL 2 INCH X 4 INCH LUMBER
  - USE NONWOVEN GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS.
  - NAIL THE 2X4 WEIR TO 9 INCH LONG VERTICAL SPACERS (MAXIMUM 6 FEET APART).
  - ATTACH A CONTINUOUS PIECE OF 1/4 INCH GALVANIZED HARDWARE CLOTH, WITH A MINIMUM WIDTH OF 30 INCHES AND A MINIMUM LENGTH OF 4 FEET LONGER THAN THE THROAT OPENING, TO THE 2X4 WEIR, EXTENDING IT 2 FEET BEYOND THROAT ON EACH SIDE.
  - PLACE A CONTINUOUS PIECE OF NONWOVEN GEOTEXTILE OF THE SAME DIMENSIONS AS THE HARDWARE CLOTH OVER THE HARDWARE CLOTH AND SECURELY ATTACH TO THE 2X4 WEIR.
  - PLACE THE ASSEMBLY AGAINST THE INLET THROAT AND NAIL TO 2X4 ANCHORS (MINIMUM 2 FEET LENGTH), EXTEND THE ANCHORS ACROSS THE INLET TOP AND HOLD IN PLACE BY SANDBAGS OR OTHER APPROVED ANCHORING METHOD.
  - INSTALL END SPACERS A MINIMUM OF 1 FOOT BEYOND THE ENDS OF THE THROAT OPENING.
  - FORM THE HARDWARE CLOTH AND THE GEOTEXTILE TO THE CONCRETE GUTTER AND FACE OF CURB TO SPAN THE INLET OPENING. COVER THE HARDWARE CLOTH AND GEOTEXTILE WITH CLEAN 3/4 TO 1 1/2 INCH STONE OR EQUIVALENT RECYCLED CONCRETE.
  - AT NON-SUMP LOCATIONS, INSTALL A TEMPORARY SANDBAG OR ASPHALT BERM TO PREVENT INLET BYPASS.
  - STORM DRAIN INLET PROTECTION REQUIRES FREQUENT MAINTENANCE. REMOVE ACCUMULATED SEDIMENT AFTER EACH RAIN EVENT TO MAINTAIN FUNCTION AND AVOID PREMATURE CLOGGING. IF INLET PROTECTION DOES NOT COMPLETELY DRAIN WITHIN 24 HOURS AFTER A STORM EVENT, IT IS CLOGGED. WHEN THIS OCCURS, REMOVE ACCUMULATED SEDIMENT AND CLEAN, OR REPLACE GEOTEXTILE AND STONE.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL  
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE 2011 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION



DETAIL E-1 SILT FENCE

STANDARD SYMBOL  
SF



DETAIL E-1 SILT FENCE

STANDARD SYMBOL  
SF

- CONSTRUCTION SPECIFICATIONS**
- USE WOOD POSTS 1 1/2 X 1 1/2 INCH (MINIMUM SQUARE CUT OF SOUND QUALITY HARDWOOD, AS AN ALTERNATIVE TO WOODEN POST USE STANDARD "T" OR "U" SECTION STEEL POSTS WEIGHING NOT LESS THAN 1 POUND PER LINEAR FOOT.
  - USE 36 INCH MINIMUM POSTS DRIVEN 16 INCH MINIMUM INTO GROUND NO MORE THAN 6 FEET APART.
  - USE WOVEN SLIT FILM GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS AND FASTEN GEOTEXTILE SECURELY TO UPSLOPE SIDE OF FENCE POSTS WITH WIRE TIES OR STAPLES AT TOP AND MID SECTION.
  - PROVIDE MANUFACTURER CERTIFICATION TO THE AUTHORIZED REPRESENTATIVE OF THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT THE GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION H-1 MATERIALS.
  - EMBED GEOTEXTILE A MINIMUM OF 8 INCHES VERTICALLY INTO THE GROUND. BACKFILL AND COMPACT THE SOIL ON BOTH SIDES OF FABRIC.
  - WHERE TWO SECTIONS OF GEOTEXTILE ADJOIN OVERLAP, TWIST, AND STAPLE TO POST IN ACCORDANCE WITH THIS DETAIL.
  - EXTEND BOTH ENDS OF THE SILT FENCE A MINIMUM OF FIVE HORIZONTAL FEET UPSLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT TO PREVENT RUNOFF FROM GOING AROUND THE ENDS OF THE SILT FENCE.
  - REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BULGES DEVELOP IN SILT FENCE OR WHEN SEDIMENT REACHES 25% OF FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN, IF UNDERMINING OCCURS, REINSTALL FENCE.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL  
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE 2011 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

*[Signature]* 6/30/14  
CHIEF, DEVELOPMENT ENGINEERING DIVISION

*[Signature]* 7-03-14  
CHIEF, DIVISION OF LAND DEVELOPMENT AND ZONING

*[Signature]* 7/6/14  
DIRECTOR - DEPARTMENT OF PLANNING AND ZONING

|   |   |
|---|---|
| TWO MICRO-BIOTRETATIONS AND ONE BIO-SWALE ADDITIONS AND ADD NEW SHEETS 2 TO 9 |   |
| DATE  | DESCRIPTION                                     |
|   | REVISION BLOCK                                  |
| Parcel Number   | Street Address                                  |
| P.324   | 6045 STEVENS FOREST ROAD<br>COLUMBIA, MD. 21045 |
| PROJECT   | SECTION/AREA LOT/PARCEL                         |
| STEVENS FOREST ELEM. SCHOOL   | LOT 1   |
| PLAY REF. BLOCK NORTHWAY MARKET DISTRICTS TR.                                 | P.B.18, F.72 9 NT 36 SIXTH 8066.03              |
| WATER CODE  | SEWER CODE                                      |
| F02   | 5631200   |

SCALE: N/A

DATE: JUNE 2013

KCI JOB NO.: 17133314.06

CAPITAL PROJECT NO.: D-1160

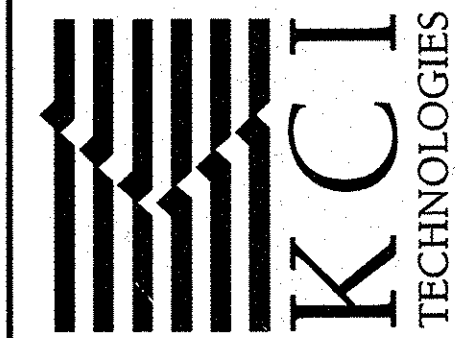
PERMIT ISSUE:

CONSTRUCTION ISSUE:

ES-03

SHEET NO.: 12 OF 14

936 RIDGEBROOK ROAD  
SPARKS, MARYLAND 21152  
TELEPHONE: (410) 316-7800  
FAX: (410) 316-7818  
www.kci.com



STEVENS FOREST  
ELEMENTARY SCHOOL  
RETROFIT DESIGN

CAPITAL PROJECT D-1160

HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
STORMWATER MANAGEMENT DIVISION  
6917 COLUMBIA GATEWAY DRIVE  
COLUMBIA, MD. 21046

EROSION & SEDIMENT CONTROL DETAILS

PROFESSIONAL CERTIFICATION, I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 31201, EXPIRATION DATE: JANUARY 24, 2015

5/13/2014

HOWARD COUNTY PUBLIC SCHOOL SYSTEM, MD

*[Signature]*  
CHIEF FACILITIES OFFICER

DATE: 6/26/14

DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD

*[Signature]*  
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES

DATE: 5/16/14



GENERAL LANDSCAPE NOTES

- THIS PLAN IS FOR LANDSCAPE PURPOSES ONLY.
- IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY THE ENGINEER OR LANDSCAPE ARCHITECT OF ANY DEVIATION FROM THE PLANS PRIOR TO ANY CHANGE BEING MADE. ANY DEVIATION OF THIS PLAN WITHOUT WRITTEN AUTHORIZATION FROM THE ENGINEER OR LANDSCAPE ARCHITECT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR.
- SHOULD THE CONTRACTOR DISCOVER DISCREPANCIES BETWEEN THE PLANS AND FIELD CONDITIONS, THE ENGINEER OR LANDSCAPE ARCHITECT IS TO BE NOTIFIED IMMEDIATELY TO RESOLVE THE SITUATION. SHOULD THE CONTRACTOR MAKE FIELD CORRECTIONS OR ADJUSTMENTS WITHOUT WRITTEN PERMISSION OF THE ENGINEER OR LANDSCAPE ARCHITECT, THE CONTRACTOR ASSUMES ALL RESPONSIBILITY FOR THOSE CHANGES.
- IF A CONFLICT EXISTS BETWEEN DRAWINGS (AND/OR SPECIFICATIONS), THE MORE STRINGENT AND MORE COSTLY REQUIREMENT SHALL APPLY. ITEMS SHOWN ON THE DRAWINGS BUT NOT SPECIFIED SHALL APPLY AND BE FURNISHED AND INSTALLED BY THE CONTRACTOR. IF ANY ITEM IS SHOWN ON THE DRAWINGS BUT NOT INCLUDED IN THE SPECIFICATIONS, PROVIDE ITEM OF QUALITY LEVEL CONSISTENT WITH THE GENERAL QUALITY LEVEL OF THE CONTRACT REQUIREMENTS. BRING CONFLICTS BETWEEN THE DRAWINGS AND SPECIFICATIONS TO THE ATTENTION OF THE ENGINEER OR LANDSCAPE ARCHITECT IMMEDIATELY.
- THE CONTRACTOR SHALL INSURE THAT HIS WORK DOES NOT INTERRUPT EXISTING OR PROPOSED DRAINAGE PATTERNS.
- DURING PLANTING OPERATIONS, EXCESS WASTE MATERIALS SHALL BE REMOVED DAILY FROM THE SITE. THE CONTRACTOR SHALL DISPOSE OF STUMPS AND MAJOR ROOTS OF ALL PLANTS TO BE REMOVED. DEPRESSIONS CAUSED BY REMOVAL OPERATIONS SHALL BE REFILLED WITH FERTILE, FRIABLE SOIL, REPLACED AND COMPACTED SO AS TO REESTABLISH PROPER GRADE FOR NEW PLANTING.
- THE CONTRACTOR SHALL CONTACT "MISS UTILITY" FOR UNDERGROUND UTILITY LOCATIONS AT LEAST 72 HOURS PRIOR TO THE LANDSCAPE INSTALLATION.
- THE CONTRACTOR SHALL NOTIFY THE FACILITY MANAGER, OR OWNER, A MINIMUM OF THREE WORKING DAYS PRIOR TO PLANTING AND CONSTRUCTION FOR AS-BUILT DRAWINGS FOR UNDERGROUND UTILITIES AND IRRIGATION SYSTEM LINES, VALVES, LATERALS AND DRIP TUBING.
- THE CONTRACTOR IS ADVISED OF THE EXISTENCE OF UNDERGROUND UTILITIES ON THE SITE. THEIR EXACT LOCATION SHALL BE VERIFIED IN THE FIELD WITH THE OWNER OR GENERAL CONTRACTOR PRIOR TO THE COMMENCEMENT OF ANY DIGGING OPERATIONS. IN THE EVENT THEY ARE UNCOVERED, THE LANDSCAPE CONTRACTOR SHALL BE HELD RESPONSIBLE FOR ALL DAMAGE TO UTILITIES AND SUCH DAMAGE SHALL NOT RESULT IN ANY ADDITIONAL EXPENSES TO THE OWNER. HAND EXCAVATE TO FULL DEPTH OF INSTALLATION OR UNTIL UTILITY IS FOUND.
- IF UTILITY LINES ARE ENCOUNTERED IN THE EXCAVATION OF TREE PITS, OTHER LOCATIONS FOR TREES SHALL BE MADE BY THE CONTRACTOR WITHOUT ADDITIONAL COMPENSATION. NO CHANGES OF LOCATION SHALL BE MADE WITHOUT APPROVAL OF THE LANDSCAPE ARCHITECT.
- EVERY POSSIBLE SAFEGUARD SHALL BE TAKEN TO PROTECT BUILDING SURFACES, LIGHTING, TRELLISES, EQUIPMENT, AND FURNISHING. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE OR INJURY TO PERSONNEL OR PROPERTY WHICH MAY OCCUR AS A CONSEQUENCE OF THE EXECUTION OF THE WORK.
- THE CONTRACTOR SHALL STAKE ALL INDIVIDUAL SPECIMEN MATERIAL LOCATED ON THE SITE FOR REVIEW AND/OR ADJUSTMENT BY THE LANDSCAPE ARCHITECT PRIOR TO PLANTING. SHRUBS AND TREES SHALL BE STAKED WITH COLOR CODED WIRE SURVEY FLAGS. SURVEYOR GROUND PAINT SHALL BE USED TO MARK OUT GROUNDCOVER BEDS. ALL LOCATIONS ARE TO BE APPROVED BY THE LANDSCAPE ARCHITECT BEFORE PLANTING.
- PLANTS SHALL CONFORM TO CURRENT "AMERICAN STANDARDS FOR NURSERY STOCK", PARTICULARLY WITH REGARD TO SIZE, GROWTH, SIZE OF BALL, AND DENSITY OF BRANCH STRUCTURE. PLANT MATERIAL SHALL BE TAGGED AT THE SOURCES BY THE LANDSCAPE ARCHITECT UNLESS THIS REQUIREMENT IS SPECIFICALLY WAIVED. REFERENCE "ANSI Z60.1-2004" (OR MOST CURRENT DOCUMENT AVAILABLE AT WWW.ANSI.ORG).

| TYPE I TREE SPECIFICATIONS, MAJOR TREES              |   |              |             |                                       |
|--|---|--------------|-------------|---------------------------------------|
| SPECIES EXCEPTIONS OR MODIFICATIONS MUST BE APPROVED |   |              |             |                                       |
| GALIPER  | MINIMUM NUMBER OF BRANCHES OFF OF MAIN STEM         | HEIGHT RANGE | WIDTH       | CLEARANCE FROM GROUND TO FIRST BRANCH |
| 1 IN.  | 8   | 8-10 FT.     | 3 TO 4 FT.  | 3 FT.                                 |
| 2 IN.  | 16  | 12-14 FT.    | 5 TO 6 FT.  | 4 FT.                                 |
| 2.5 IN.  | 18  | 12-14 FT.    | 6 TO 8 FT.  | 5 FT.                                 |
| 3 IN.  | 36  | 14 - 16 FT.  | 6 TO 8 FT.  | 5 FT.                                 |
| 4 IN.  | 45  | 16-18 FT.    | 8 TO 10 FT. | 5 FT.                                 |
| 5 IN.  | SUBJECT TO REVIEW AT PLACE OF GROWTH, OR PHOTOGRAPH |              |             |                                       |

- ALL PLANTS (BIB OR CONTAINER) SHALL BE PROPERLY IDENTIFIED BY WEATHER-PROOF LABELS, SECURELY ATTACHED BEFORE DELIVERY TO PROJECT. LABELS SHALL IDENTIFY PLANTS BY NAME, SPECIES, AND SIZE LABELS SHALL NOT BE REMOVED UNTIL THE FINAL INSPECTION BY THE LANDSCAPE ARCHITECT OR AGENT IN CHARGE. CONTAINERIZED GROUND COVER SHALL BE PROVIDED IN SPECIFIED SIZE CONTAINERS, FULL GROWTH TO AT LEAST CONTAINER SIZE WITH FULLY DEVELOPED, BUT NOT POT BOUND ROOT SYSTEMS AND FREE OF INSECT OR FUNGUS INFESTATIONS.
- ANY MATERIAL AND/OR WORK MAY BE REJECTED BY THE LANDSCAPE ARCHITECT OR OWNER IF IT DOES NOT MEET THE REQUIREMENTS OF THESE NOTES AND THE PROJECT SCOPE AND SEQUENCE. ALL REJECTED MATERIALS SHALL BE REMOVED FROM THE SITE BY THE CONTRACTOR.
- NO SUBSTITUTIONS SHALL BE MADE WITHOUT WRITTEN CONSENT OF THE LANDSCAPE ARCHITECT.
- ALL SHRUB AND GROUNDCOVER BEDS SHALL BE PLANTED IN CONTINUOUS PREPARED PLANTING BEDS.
- ALL SHRUB BEDS AND PERENNIALS SHALL BE MULCHED WITH SHREDDED AND FULLY COMPOSTED HARDWOOD MULCH FREE OF COLOR DYE AS DETAILED AND SPECIFIED EXCEPT WHERE NOTED ON PLANS.
- INSTALLATION CONTRACTOR MAINTENANCE SHALL BEGIN AFTER EACH PLANT HAS BEEN INSTALLED AND SHALL CONTINUE UNTIL 90 DAYS AFTER FINAL ACCEPTANCE BY THE ARCHITECT OR OWNER REPRESENTATIVE. MAINTENANCE SHALL INCLUDE WATERING, PRUNING, WEEDING, FERTILIZING, REPLACEMENT OF SICK OR DEAD PLANTS, AND ANY OTHER CARE NECESSARY FOR THE PROPER GROWTH OF THE PLANT MATERIAL. THE CONTRACTOR MUST BE ABLE TO PROVIDE CONTINUOUS MAINTENANCE FOR AN ADDITIONAL COST FOR A PERIOD OF ONE YEAR AFTER THE DATE OF "CERTIFICATE OF SUBSTANTIAL COMPLETION". THE CONTRACTOR WILL BE RESPONSIBLE FOR ITEMS LOST BY THEFT, "ACTS OF GOD", VANDALISM OR ANY CONDITION AFFECTING THE LANDSCAPE PRODUCT NOT SPECIFICALLY RELATED TO THE OWNER OR OTHER SITE CONTRACTOR DAMAGE UP TO DATE OF THE ISSUANCE OF A "CERTIFICATE OF SUBSTANTIAL COMPLETION".
- UPON COMPLETION OF ALL LANDSCAPING FOR EACH PHASE OF WORK, AN INSPECTION OF THE WORK SHALL BE HELD. THE CONTRACTOR SHALL NOTIFY THE LANDSCAPE ARCHITECT OR OWNER FOR SCHEDULING THE INSPECTION AT LEAST SEVEN (7) DAYS PRIOR TO THE ANTICIPATED INSPECTION DATE.
- THE CONTRACTOR IS RESPONSIBLE FOR TESTING PROJECT SOILS. THE CONTRACTOR IS TO PROVIDE A CERTIFIED SOILS REPORT TO THE OWNER. THE CONTRACTOR SHALL NOT KNOWINGLY INSTALL PLANTS IN SOIL OR DRAINAGE CONDITIONS THAT ARE NOT CONDUCTIVE TO PLANT SURVIVAL. THE CONTRACTOR SHALL VERIFY THAT THE SOILS ON SITE ARE ACCEPTABLE FOR THE PROPER GROWTH OF THE PROPOSED PLANT MATERIAL. THE CONTRACTOR SHALL SUBMIT RECOMMENDATIONS FOR SOIL TEXTURE MODIFICATIONS, SOIL PH MODIFIERS OR ADDITION OF MACRO AND MICRO NUTRIENTS WHICH MAY REQUIRE MODIFICATION OF THE SPECIFIED PLANTING MIX, SPECIFIED HEREIN.
- QUICK SOIL TESTING AND PLANTING MIX DESIGN CAN BE PROVIDED BY A & L LABORATORIES (800-264-4522), 2740 WHITTEN ROAD, MEMPHIS, TN 38133. PROVIDE SOIL PLANTING MIX FROM SPECS AND ASK FOR COMMENTS FOR ALTERING MIX, IF APPROPRIATE. MULTIPLE SAMPLES MIGHT BE REQUIRED FOR LARGE JOBS WITH VARYING SOIL CONDITIONS. PROVIDE ONE REPORT FOR EACH 10,000 SF OF LANDSCAPE. MINIMUM SOIL SAMPLES SHALL BE TAKEN AT 1 INCH AND 6 INCH DEPTHS FROM AT LEAST 4 LOCATIONS. THESE SAMPLES SHOULD THEN BE MIXED AND SUBMITTED TO THE LAB AS A SINGLE SAMPLE.

- PLANTING MIX (OUTSIDE OF BIORETENTION MIX LIMITS) - ADJUST AS RECOMMENDED BY THE SOIL LABORATORY.
  - PLANTING MIX SHALL BE PREPARED AT APPROVED ON-SITE STAGING AREA USING APPROVED ON-SITE EXISTING SOIL. CUBIC YARDS OR SUFFICIENT MIX FOR ENTIRE JOB IF LESS THEN 20 CUBIC YARDS IS REQUIRED.
  - THOROUGHLY MIXED IN THE FOLLOWING PROPORTIONS FOR TREE AND SHRUB PLANTING MIX:
    - 0.5 CY EXISTING SOIL
    - 0.2 CY SHARP SAND
    - 0.3 CY WOOD RESIDUALS (MUST BE BROKEN DOWN BY AT LEAST TWO YEARS DECOMPOSITION)
    - 4.5 LBS TREBLE SUPERPHOSPHATE (0-46-0)
    - 5.0 LBS DOLOMITIC LIMESTONE (ELIMINATE FOR ACID LOVING PLANTS)
  - FOR PLANTING BEDS, SHRUB AND GROUNDCOVER INCORPORATE THE FOLLOWING INGREDIENTS PER 20 SF AND INCORPORATE SOILS BY ROTOTILLING OR SIMILAR METHOD OF INCORPORATION.
    - 0.1 CY SHARP SAND
    - 0.2 CY ORGANIC MATERIAL
    - 4.5 LBS TREBLE SUPERPHOSPHATE (0-46-0)
    - 5.0 LBS DOLOMITIC LIMESTONE (ELIMINATE FOR ACID LOVING PLANTS)
  - IF SOIL TESTS RESULTS AND TESTING LAB RECOMMENDATIONS CONFLICT WITH THE SPECIFIED SOIL MIX THE CONTRACTOR ATTENTION OF THE LANDSCAPE ARCHITECT FOR REVIEW, ALTERATION APPROVAL.
  - THE LANDSCAPE CONTRACTOR SHALL PROVIDE THE LANDSCAPE ARCHITECT / OWNER A 1 CF SAMPLE OF SPECIFIED

- SODDING
  - THIS WORK SHALL CONSIST OF FURNISHING, INSTALLING, AND MAINTAINING SOD AS SPECIFIED. ALL SOD SHALL BE MARYLAND CERTIFIED (LABELED), INSPECTED AND APPROVED BY THE MARYLAND DEPARTMENT OF AGRICULTURE.
  - SPECIFICATIONS FOR SOD MATERIALS
    - THICKNESS OF CUT: THE THICKNESS OF THE ROOTS AND SOIL SHOULD BE 7" TO 7 1/2".
    - PAD SIZE: INDIVIDUAL PIECES OF SOD SHALL BE CUT TO THE SUPPLIER'S STANDARD WIDTH AND LENGTH. MAXIMUM ALLOWABLE DEVIATION FROM STANDARD WIDTHS AND LENGTHS SHALL BE 5%. BROKEN PADS AND TORN OR UNEVEN ENDS WILL NOT BE ACCEPTABLE.
    - STRENGTH OF SOD SECTIONS: UNDER IDEAL CONDITIONS, STANDARD SIZE SECTIONS OF SOD SHALL BE STRONG ENOUGH TO SUPPORT THEIR OWN WEIGHT AND RETAIN THEIR SIZE AND SHAPE WHEN SUSPENDED VERTICALLY FROM A FIRM GRASP ON THE UPPER 10% OF THE SECTION WITHOUT THE USE OF NETTING. NOTE: YOUNGER TALL FESCUE WILL NOT BE STRONG ENOUGH TO PASS THIS TEST BUT IS STILL OKAY TO USE.
    - SOD VIABILITY: SOD SHALL NOT BE HARVESTED OR TRANSPLANTED UNDER DROUGHT CONDITIONS.
    - SOD STAPLES: ON SLOPES GREATER THAN 5:1 OR STEEPER SOD SHALL BE STAPLED AT A MINIMUM OF 4 STAPLES PER SQUARE YARD OF SOD.
    - TIME LIMITATIONS: UNDER OPTIMAL CONDITIONS, SOD SHALL BE HARVESTED, DELIVERED AND INSTALLED WITHIN A PERIOD OF 36 HOURS. HOWEVER, BECAUSE SOD IS A PERISHABLE COMMODITY, IF HIGH TEMPERATURES AND LOW MOISTURE EXTREMES OCCUR, ITS VIABILITY DECLINES AND INSTALLATION SHOULD OCCUR WITHIN 24 HOURS FROM HARVEST. SOD NOT TRANSPLANTED WITHIN THIS PERIOD SHALL BE INSPECTED AND APPROVED OR REJECTED BY THE CONSTRUCTION MANAGER PRIOR TO INSTALLATION.

- SOD INSTALLATION AND MAINTENANCE
  - SOD 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.
    - THE FIRST ROW OF SOD SHALL BE LAID IN A STRAIGHT LINE WITH SUBSEQUENT ROWS PLACES 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.
    - 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.
    - 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.
  - SOD MAINTENANCE
    - 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 MILTING.
    - AFTER THE FIRST WEEK, SOD WATERING IS REQUIRED AS NECESSARY TO MAINTAIN ADEQUATE MOISTURE CONTENT.
    - THE FIRST MOWING OF 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 1/2" AND 3", AND NO HIGHER THAN 4", UNLESS OTHERWISE SPECIFIED.

25. SEEDING

- ALL DISTURBED AREAS WITHIN THE LIMIT OF CONTRACT WHICH ARE NOT PAVED, SODDED OR OTHERWISE PLANTED SHALL BE SEEDED. THE FOLLOWING SEED MIXTURE AND RATE OF APPLICATION WILL BE USED:
  - 80% TALL FESCUE
  - 10% PERENNIAL RYEGRASS
  - 10% KENTUCKY BLUEGRASS

THIS MIXTURE SHALL BE APPLIED AT THE RATE OF EIGHT (8) TO NINE (9) LBS/1000 S.F. SOWN IN TWO (2) DIRECTIONS AT RIGHT ANGLES.

  - IMPROVED VARIETIES OF EACH SPECIES ARE REQUIRED.
  - TALL FESCUE MIX IS TO CONTAIN ANY TWO (2) CERTIFIED VARIETIES FROM THE LATEST ISSUE OF THE UNIVERSITY OF MARYLAND MEMORANDUM NO. 71.
  - KENTUCKY BLUEGRASS SHALL CONTAIN 3 CERTIFIED VARIETIES SELECTED FROM THE FOLLOWING LIST:
    - BARON
    - CHERI
    - COLUMBIA
    - MONOPOLY
    - RAM I
    - VICTA
  - ACCEPTABLE VARIETIES OF CERTIFIED PERENNIAL RYEGRASS INCLUDE:
    - CITATION II
    - MANHATTAN II
    - PALMER
    - PENNANT
    - PERNINE
    - PRELUDE
    - REPELL
  - ALL SEED MUST BE FREE OF ALL PROHIBITED AND RESTRICTED NOXIOUS WEEDS IN ACCORDANCE WITH MARYLAND LAW.
  - SEED LOTS MUST BE BLENDED AND CERTIFIED AS PER THE GENERAL CERTIFICATION SPECIFICATIONS OF THE MARYLAND DEPARTMENT OF AGRICULTURE.
  - SEED FILLING MUST COMPLY WITH THE MARYLAND SEED AND REGULATIONS LAW.
  - ALL SEED MUST BE CERTIFIED WITH COMPLETE AND ACCURATE ANALYSIS TAGS ATTACHED TO EACH CONTAINER.
  - TAGS SHALL BE REMOVED BY AN AUTHORIZED REPRESENTATIVE OF THE COUNTY.

- WARRANTY: ALL PLANT MATERIAL SHALL BE GUARANTEED FOR TWELVE MONTHS FROM THE DATE OF ACCEPTANCE IN WRITING IN AIA STANDARD FORM "CERTIFICATE OF SUBSTANTIAL COMPLETION". THIS CERTIFICATE WILL BE ISSUED AFTER FINAL INSPECTION BY THE LANDSCAPE ARCHITECT. IF THE LANDSCAPE ARCHITECT IS SATISFIED THAT THE PROJECT IS SUBSTANTIALLY COMPLETE, THE CERTIFICATE WILL BE PREPARED WITH AN INSPECTION DATE AND CONDITIONS WHICH MUST BE SATISFIED IN A SPECIFIC PERIOD OF TIME (GENERALLY 30 DAYS). IF THESE CONDITIONS ARE NOT MET, THE CERTIFICATE MAY BE REVOKED AND A NEW INSPECTION WILL BE REQUIRED AND THE WARRANTY PERIOD SHALL BE EXTENDED ACCORDINGLY. OTHER INSPECTIONS MAY BE APPROPRIATE TO VERIFY COMPLIANCE WITH THE PUNCH LIST. THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR A ONE-TIME REPLACEMENT ONLY. REPLACEMENTS SHALL BE OF THE SAME TYPE, SIZE AND QUALITY AS THE ORIGINAL SPECIES UNLESS OTHERWISE NEGOTIATED BY THE OWNER OR BY ISSUANCE OF MIXES AND LAB REPORTS PRIOR TO USE.

| PLANTING SCHEDULE |                         |                              |
|-------------------|-------------------------|------------------------------|
| KEY QTY.          | BOTANICAL / COMMON NAME | COMMENTS                     |
| SOD               |                         |                              |
| SOD - 197         | SOD, TYPICAL (SY)       | INSTALLED PER SPECIFICATIONS |

NOTE: SEED ALL DISTURBED AREAS BEYOND SOD PLANTING ZONES UNLESS OTHERWISE NOTED.

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND AND LICENSE NO. 31201. EXPIRATION DATE: JANUARY 24, 2015



HOWARD COUNTY PUBLIC SCHOOL SYSTEM, MD  
 Chief Facilities Officer  
 DATE: 6/16/14

DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD  
 Chief, Bureau of Environmental Services  
 DATE: 5/16/14

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING  
 Chief, Development Engineering Division  
 DATE: 6/30/14

Chief, Division of Land Development  
 DATE: 7-02-14

Director - Department of Planning and Zoning  
 DATE: 7/2/14

TWO MICRO-BIORETENTIONS AND ONE BIO-SWALE ADDITIONS  
 10/15/13 AND ADD NEW SHEETS 2 TO 9

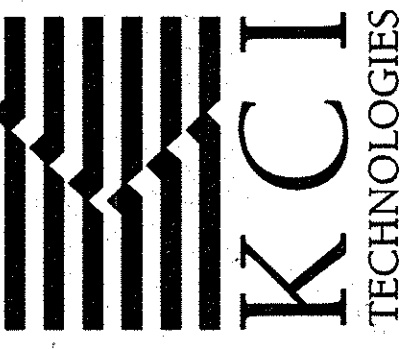
DATE: NOVEMBER 2013  
 REVISION BLOCK

Parcel Number: P-324  
 Street Address: 6045 STEVENS FOREST ROAD  
 COLUMBIA, MD 21045

PROJECT: STEVENS FOREST ELEM. SCHOOL  
 SECTION/AREA: S/5 LOT 1  
 PLAT REF: BLOCK NO ZONING TAX MAP EJECT. DIST. CENSUS TR. P.B. 18, F. 72, 9 | NT | 36 | SIXTH | 6066.03  
 WATER CODE: E08 SEWER CODE: 563200

| NO. | REVISIONS DESCRIPTION | DATE      |
|-----|-----------------------|-----------|
| 1   | ENTIRE SHEET          | SEPT 2010 |

936 RIDGEBROOK ROAD  
 SPARKS, MARYLAND 21152  
 TELEPHONE: (410) 316-7800  
 FAX: (410) 316-7818  
 www.kci.com



STEVENS FOREST ELEMENTARY SCHOOL RETROFIT DESIGN  
 CAPITAL PROJECT D-1160  
 HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
 STORMWATER MANAGEMENT DIVISION  
 6751 COLUMBIA GATEWAY DRIVE  
 COLUMBIA, MD 21045

LANDSCAPE NOTES & DETAILS

SCALE:  
 DATE: NOVEMBER 2013  
 JOB NO.: 17133314.06  
 PERMIT ISSUE: D-1160  
 CONSTRUCTION ISSUE:

LD-01  
 SHEET NO.: 14 OF 14