

GENERAL NOTES

- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS IF APPLICABLE.
- THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS/CONSTRUCTION INSPECTIONS DIVISION AT (410) 313-1880 AT LEAST FIVE (5) WORKING DAYS PRIOR TO THE START OF WORK.
- THE CONTRACTOR SHALL NOTIFY THE FOLLOWING UTILITIES OR AGENCIES AT LEAST FIVE (5) DAYS PRIOR TO ANY EXCAVATION WORK:
 - MISS UTILITY 1-800-257-7777
 - VERIZON 1-800-858-2273
 - HOWARD COUNTY BUREAU OF UTILITIES (410) 725-9976
 - AT&T CABLE LOCATION DIVISION (410) 313-4900
 - BALTIMORE GAS & ELECTRIC (410) 393-3533
 - STATE HIGHWAY ADMINISTRATION (410) 685-0123
 - HOWARD COUNTY DEPT. OF PUBLIC WORKS/CONSTRUCTION INSPECTIONS DIVISION (410) 313-1880

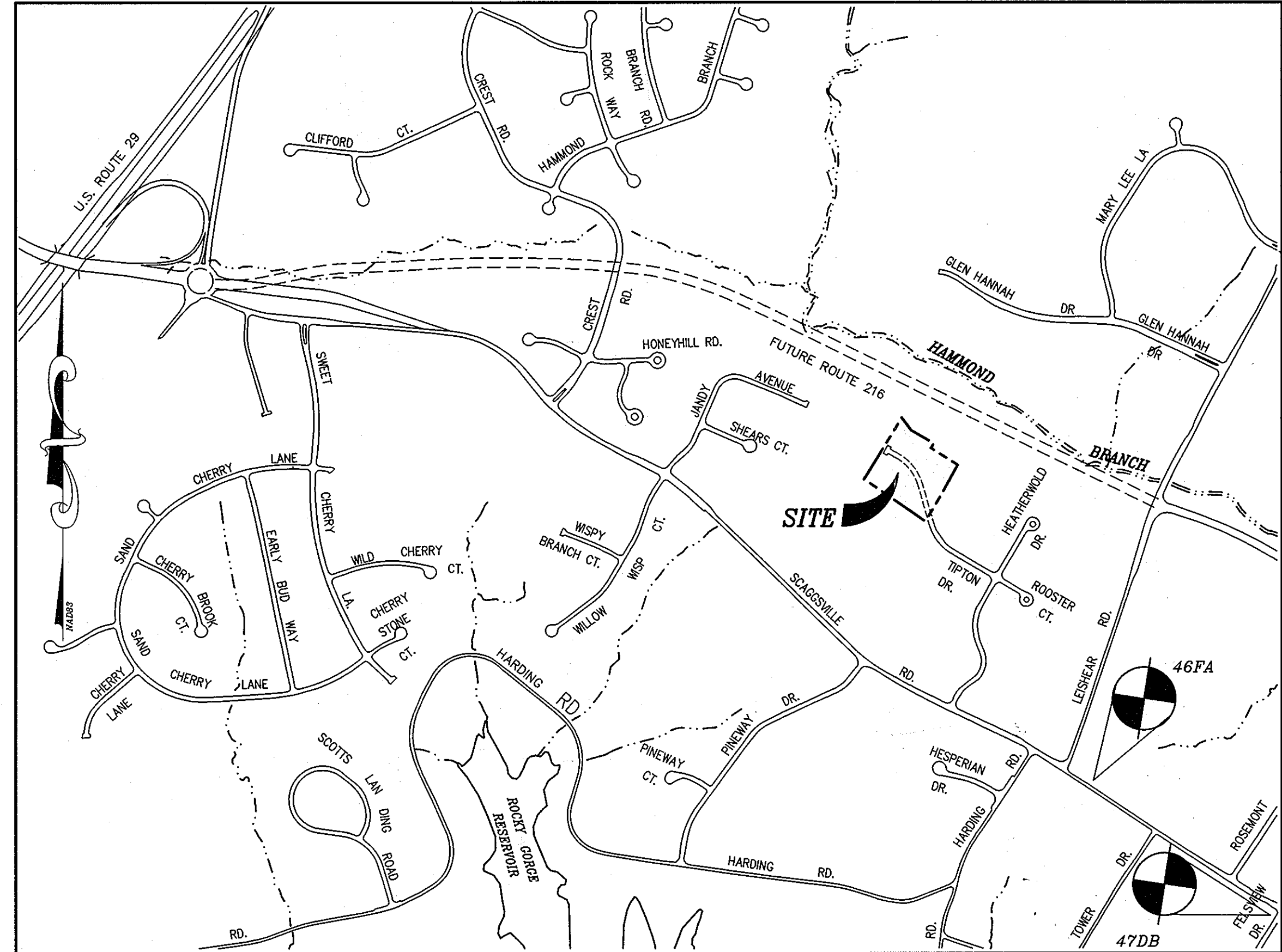
4. SITE DATA:
 TAX MAP: 46, PARCEL: B, BLOCK: 12
 DEED REFERENCE: L 5280, F. 270
 AREA OF SITE: 4.44 ACRES±
 ZONING: S1-20
 MINIMUM LOT SIZE: 14,000 SQ. FT.
 NUMBER OF PROPOSED BUILDABLE LOTS: 7
 AREA OF PROPOSED BUILDABLE LOTS: 2.41 AC±
 AREA OF REQUIRED OPEN SPACE: 3034.44 AC OR 1.33 AC (57,935 SQ.FT.)
 AREA OF PROPOSED OPEN SPACE: 1.34 AC± (58,539 SQ.FT.)
 AREA OF CREDITED OPEN SPACE: 1.33 AC± (57,935 SQ.FT.)
 AREA IN PROPOSED ROAD DEDICATION: 0.69 AC±
 DPZ REFERENCE: S-01-03, WP-03-136, P-04-07

- TOPOGRAPHIC DATA SHOWN HEREON IS BASED ON A FIELD RUN TOPOGRAPHIC SURVEY CONDUCTED IN AUGUST 2003 BY MILDENBERG, BOENDER & ASSOCIATES, INC.
- BOUNDARY SHOWN HEREON BASED ON FIELD RUN MONUMENTED BOUNDARY SURVEY PERFORMED ON OR ABOUT AUGUST 2003 BY MILDENBERG, BOENDER & ASSOCIATES, INC.
- THIS PLAN IS GRANDFATHERED TO THE FOURTH EDITION OF THE SUBDIVISION REGULATIONS (2nd AMENDMENT) AND THE ZONING REGULATIONS, AS AMENDED BY COUNCIL BILL 50-2003.
- DRIVEWAYS SHALL BE PROVIDED PRIOR TO ISSUANCE OF A USE AND OCCUPANCY PERMIT FOR ANY NEW DWELLINGS TO INSURE SAFE ACCESS FOR FIRE AND EMERGENCY VEHICLES PER THE FOLLOWING MINIMUM REQUIREMENTS:
 - WIDTH - 12 FEET (14 FEET SERVING MORE THAN ONE RESIDENT).
 - SURFACE - 6 INCHES OF COMPACTED CRUSHER RUN BASE WITH TAR AND CHIP COATING (1-1/2" MIN).
 - GEOMETRY - MAXIMUM 15% GRADE, MAXIMUM 10% GRADE CHANGE AND MINIMUM OF 45' TURNING RADIUS.
 - STRUCTURES (CULVERTS/BRIDGES) - CAPABLE OF SUPPORTING 25 GROSS TONS (H25 LOADING).
 - DRAINAGE ELEMENTS - CAPABLE OF SAFELY PASSING 100-YEAR FLOOD WITH NO MORE THAN 1 FOOT DEPTH OVER DRIVEWAY SURFACE.
 - STRUCTURE CLEARANCES - MINIMUM 12 FEET.
 - MAINTENANCE - SUFFICIENT TO ENSURE ALL WEATHER USE.
- WAIVER (WP-03-136) TO HOWARD COUNTY SUBDIVISION REGULATIONS SECTION 16.116.a.2.(ii), WHICH PROHIBITS GRADING WITH 75-FT OF A PERENNIAL STREAM, APPROVED UNDER S-01-03, ON JUNE 24, 2003. THE APPROVAL IS SUBJECT TO THE FOLLOWING CONDITIONS: (1) THE SUBDIVISION REVIEW COMMITTEE WILL MAKE A FINAL DETERMINATION ON THE EXTENT OF ALLOWED DISTURBANCE (FOR CONSTRUCTION OF THE STORMWATER MANAGEMENT FACILITY), IF ANY, AS PART OF THE REVIEW OF [THIS] PRELIMINARY PLAN. THE DEVELOPER/PETITIONER IS ADVISED THAT DISTURBANCE TO THE RELOCATED STREAM BUFFER WILL ONLY BE ALLOWED AS A LAST RESORT, AND WILL BE MINIMIZED TO THE EXTENT POSSIBLE BY SHIFTING THE SWM FACILITY AWAY FROM THE STREAM BUFFER AND/OR RECONFIGURING IT. THE SRC WILL NOT REQUIRE RECONFIGURATION OR DELETION OF RESIDENTIAL LOTS SHOWN ON THE APPROVED SKETCH PLAN (S-01-03). (2) THE DEVELOPER'S ENGINEER SHALL SHOW THE CONCEPTUAL MSHA STREAM RESTORATION IMPROVEMENTS ON THE PRELIMINARY PLAN. STORMWATER MANAGEMENT RELEASE RATES FOR THIS SUBDIVISION SHALL BE COORDINATED WITH THE STREAM DESIGN BANK FULL FLOWS SO NOT TO EXCEED. THE PRELIMINARY PLAN (P-04-07) WAS APPROVED SHOWING NO DISTURBANCE TO THE STREAM BUFFER FOR THE CONSTRUCTION OF THE STORMWATER MANAGEMENT FACILITY.
- HORIZONTAL AND VERTICAL DATUMS ARE RELATED TO THE MARYLAND NAD83 (HORZ) AND NAVD83 (VERT) AS PROJECTED FROM HOWARD COUNTY GEODETIC CONTROL STATION NOS. 46FA & 47DB (ALL UNITS IN FEET).

STA. No. 46FA	N 535,140.866	ELEV. 403.650
	E 1,346,962.69	
STA. No. 47DB	N 534,316.917	ELEV. 398.560
	E 1,348,131.25	
- EXISTING HOUSE LOCATED ON LOT 4 AND ALL ACCESSORY STRUCTURES SHOWN ON-SITE ARE TO BE REMOVED.
- NO GRADING, REMOVAL OF VEGETATIVE COVER OR TREES, OR PLACEMENT OF NEW STRUCTURES IS PERMITTED WITHIN THE LIMITS OF WETLANDS, STREAMS, OR THEIR BUFFERS AND FOREST CONSERVATION EASEMENT AREAS UNLESS APPROVED UNDER WP-03-136 (SEE NOTE #9).
- WATER AND SEWER SERVICE TO THESE LOTS WILL BE GRANTED UNDER THE PROVISIONS OF SECTION 18.122.B OF THE HOWARD COUNTY CODE.
- PUBLIC WATER AND SEWAGE ALLOCATION WILL BE GRANTED PRIOR TO RECORDATION OF THE PLAT, IF CAPACITY IS AVAILABLE AT THAT TIME.
- PUBLIC WATER WILL BE UTILIZED VIA AN EXTENSION OF EXISTING PUBLIC WATER CONTRACT # 24-3396-D.
- PUBLIC #2 SEWER WILL BE CONSTRUCTED BY THE DEVELOPER AS PART OF THIS SUBDIVISION AND WILL CONNECT TO EXISTING 12" SEWER CONTRACT # 529-S.

ROAD CONSTRUCTION PLANS TIPTON OVERLOOK LOTS 2 THRU 8 AND OPEN SPACES 1 AND 9

SIXTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND



VICINITY MAP
 SCALE: 1" = 500'

- NO NEW BUILDINGS, EXTENSIONS OR ADDITIONS TO THE EXISTING DWELLING(S) ARE TO BE CONSTRUCTED AT A DISTANCE LESS THAN THE ZONING REGULATIONS REQUIRE.
- THE FOREST CONSERVATION REQUIREMENTS PER SECTION 16.1200 OF THE HOWARD COUNTY CODE FOR FOREST CONSERVATION BY RETENTION OF 0.50 ACRES OF FOREST, REFORESTATION OF 0.26 ACRES, AND PAYMENT OF A FEE-IN-LIEU OF REFORESTATION FOR 0.57 ACRES (24,829.2 SQ. FT.) IN THE AMOUNT OF \$12,414.60. FINANCIAL SURETY FOR THE ON-SITE RETENTION (0.50 ACRES OR 21,780 SQ. FT. IN THE AMOUNT OF \$4,356.00) AND REFORESTATION (0.26 ACRES OR 11,325.6 SQ. FT. IN THE AMOUNT OF \$5,662.80) HAS BEEN POSTED AS PART OF THE DEVELOPER'S AGREEMENT IN THE AMOUNT OF \$10,018.80.
- THIS SUBDIVISION IS IN THE METROPOLITAN DISTRICT.
- RESERVATION OF PUBLIC UTILITY AND FOREST CONSERVATION EASEMENTS
 DEVELOPER RESERVES UNTO ITSELF, ITS SUCCESSORS AND ASSIGNS, ALL EASEMENTS SHOWN ON THIS PLAN FOR WATER, SEWER, STORM DRAINAGE, OTHER PUBLIC UTILITIES AND FOREST CONSERVATION (DESIGNATED AS "FOREST CONSERVATION AREA"), LOCATED IN, ON, OVER AND THROUGH LOTS/PARCELS, ANY CONVEYANCES OF THE AFORESAID LOTS/PARCELS SHALL BE SUBJECT TO THE EASEMENTS HEREIN RESERVED, WHETHER OR NOT EXPRESSLY STATED IN THE DEED(S) CONVEYING SAID LOTS/PARCELS. DEVELOPER SHALL EXECUTE AND DELIVER DEEDS FOR THE EASEMENTS HEREIN RESERVED TO HOWARD COUNTY WITH A METES AND BOUNDS DESCRIPTION OF THE FOREST CONSERVATION AREA, UPON COMPLETION OF THE PUBLIC UTILITIES AND THEIR ACCEPTANCE BY HOWARD COUNTY, AND IN THE CASE OF THE FOREST CONSERVATION EASEMENT(S), UPON COMPLETION OF THE DEVELOPER'S OBLIGATIONS UNDER THE FOREST CONSERVATION INSTALLATION AND MAINTENANCE AGREEMENT EXECUTED BY THE DEVELOPER AND THE COUNTY, AND THE RELEASE OF DEVELOPER'S SURETY POSTED WITH SAID AGREEMENT. THE COUNTY SHALL ACCEPT THE EASEMENTS AND RECORD THE DEED(S) OF EASEMENT IN THE LAND RECORDS OF HOWARD COUNTY.
- LANDSCAPING FOR LOTS 2 THROUGH 8 IS PROVIDED IN ACCORDANCE WITH A CERTIFIED LANDSCAPE PLAN INCLUDED WITH THE ROAD CONSTRUCTION PLAN SET IN ACCORDANCE WITH SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL. FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING (17 SHADE TREES, 15 EVERGREENS), HAS BEEN POSTED AS PART OF THE DPW DEVELOPER'S AGREEMENT IN THE AMOUNT OF \$7,350.00.
- THE 654BA NOISE CONTOUR LINE DRAWN ON THIS SUBDIVISION PLAN IS ADVISORY AS REQUIRED BY THE HOWARD COUNTY DESIGN MANUAL, CHAPTER 5, REVISED FEBRUARY, 1992 AND CANNOT BE CONSIDERED TO EXACTLY LOCATE THE 654BA NOISE EXPOSURE. THE 654BA NOISE LINE WAS ESTABLISHED BY HOWARD COUNTY TO ALERT DEVELOPERS, BUILDERS AND FUTURE RESIDENTS THAT AREAS BEYOND THIS THRESHOLD MAY EXCEED GENERALLY ACCEPTED NOISE LEVELS ESTABLISHED BY THE U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT.
- NO HISTORIC STRUCTURES OR BURIAL GROUNDS EXIST ON-SITE PER THE HOWARD COUNTY HISTORIC SITES LIST DATED DECEMBER 1994 AND THE HOWARD COUNTY CEMETERIES AND GRAVESITES INVENTORY, RESOLUTION # 47-1994.
- APPO TRAFFIC TEST EVALUATION PERFORMED BY THE TRAFFIC GROUP ON OR ABOUT JULY 2000 AND APPROVED UNDER S-01-03.
- NOISE STUDY PREPARED BY WILDMAN ENVIRONMENTAL ASSOCIATES AND APPROVED UNDER S-01-03. ADDITIONAL NOISE STUDY OF MSHA NOISE WALL PROVIDED BY MARS GROUP ON OR ABOUT DECEMBER 2003.
- NOISE WALL TO BE PROVIDED BY MARYLAND STATE HIGHWAY ADMINISTRATION AS PART OF THE MARYLAND ROUTE 216 RELOCATION ANALYSIS. MARS GROUP IN DECEMBER 2003 SHOWS THAT ADEQUATE NOISE MITIGATION FOR TIPTON OVERLOOK IS PROVIDED BY THE MSHA NOISE WALL. THEREFORE, THE NOISE MITIGATION BERM PROPOSED UNDER S-01-03 IS NOT REQUIRED.
- STORMWATER MANAGEMENT REQUIREMENTS WILL BE MET ON-SITE VIA A SAND FILTER. SAND FILTER IS 1.525 FT. PROVIDED IN A GRAVEL STORAGE RESERVOIR BENEATH THE SAND FILTER. Q₁₀ TREATMENT IS NOT REQUIRED AS DISCHARGE FROM SITE IS 1.3 cfs (<2 cfs). CREDIT FOR THE USE OF SURFACE SAND FILTER WILL BE PRIVATELY OWNED AND MAINTAINED. CREDIT FOR THE USE OF NATURAL CONSERVATION AREA (A=0.7 AC) HAS BEEN USED TO REDUCE THE SIZE OF THE SAND FILTER.
- WETLAND DELINEATION PERFORMED BY ECO-SCIENCE PROFESSIONALS ON OR ABOUT AUGUST 2000 AND PREVIOUSLY APPROVED UNDER S-01-03.
- THE STREET LIGHT LOCATIONS AND TYPES OF LIGHTS SHOWN ON THESE PLANS ARE AS FOLLOWS:
 - 100-WATT PREMIER STREET LIGHTS AT STATION 2+24, 18-FT LEFT, AND STATION 6+02, 18-FT RIGHT.
- FOREST STAND DELINEATION APPROVED UNDER S-01-03.
- THE OWNER, TENANT, AND/OR THEIR AGENTS SHALL BE RESPONSIBLE FOR MAINTENANCE OF THE REQUIRED LANDSCAPING, PLANT MATERIALS, BERMS, FENCES, AND WALLS. ALL PLANT MATERIALS SHALL BE MAINTAINED IN GOOD GROWING CONDITION, AND WHEN NECESSARY, REPLACED WITH NEW MATERIALS TO ENSURE CONTINUED COMPLIANCE WITH APPLICABLE REGULATIONS. ALL OTHER REQUIRED LANDSCAPING SHALL BE PERMANENTLY MAINTAINED IN GOOD CONDITION, AND WHEN NECESSARY, REPAIRED OR REPLACED.
- AT THE TIME OF INSTALLMENT, ALL SHRUBS AND OTHER PLANTINGS HEREWITH LISTED AND APPROVED FOR THIS SITE, SHALL BE OF THE PROPER HEIGHT REQUIREMENTS IN ACCORDANCE WITH THE HOWARD COUNTY LANDSCAPE MANUAL. IN ADDITION, NO SUBSTITUTIONS OR RELOCATION OR REQUIRED PLANTINGS MAY BE MADE WITHOUT PRIOR REVIEW AND APPROVAL FROM THE DEPARTMENT OF PLANNING AND ZONING. ANY DEVIATION FROM THIS APPROVED LANDSCAPE PLAN MAY RESULT IN DENIAL OR DELAY IN THE RELEASE OF LANDSCAPE SURETY UNTIL SUCH TIME AS ALL REQUIRED MATERIALS ARE PLANTED AND/OR REVISIONS ARE MADE TO APPLICABLE PLANS AND CERTIFICATES.
- SIGN POSTS: ALL SIGN POST USED FOR TRAFFIC CONTROL SIGNS INSTALLED IN THE COUNTY RIGHT-OF-WAY SHALL BE MOUNTED ON A 2" GALVANIZED STEEL, PERFORATED, SQUARE TUBE POST (14 GAUGE) INSERTED INTO A 2-1/2" GALVANIZED STEEL, PERFORATED, SQUARE TUBE SLEEVE (12 GAUGE)-3' LONG. A GALVANIZED STEEL POLE CAP SHALL BE MOUNTED ON TOP OF EACH POST.
- STREET LIGHTS WILL BE REQUIRED IN THIS DEVELOPMENT IN ACCORDANCE WITH THE DESIGN MANUAL STREET LIGHT PLACEMENT AND THE TYPE OF FIXTURE AND POLE SELECTED SHALL BE IN ACCORDANCE WITH THE LATEST HOWARD COUNTY DESIGN MANUAL, VOLUME III (1993) AND AS MODIFIED BY "GUIDELINES FOR STREET LIGHTS IN RESIDENTIAL DEVELOPMENTS (JUNE 1993)," THE JUNE 1993 POLICY INCLUDES GUIDELINES FOR LATERAL AND LONGITUDINAL PLACEMENT. A MINIMUM SPACING OF 20' SHALL BE MAINTAINED BETWEEN ANY STREET LIGHT AND ANY TREE.

COVER SHEET	1
TIPTON DRIVE ROAD PLAN AND PROFILES	2
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BY THE DEVELOPER:
 I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS AND THAT ANY 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 SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERSONNEL ON SITE TO OBTAIN INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT."

Don Reuer 4/12/05
 SIGNATURE OF DEVELOPER DATE
 PRINTED NAME OF DEVELOPER

BY THE ENGINEER:
 I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL, REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE ADVISED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

Jim Meyer 4/12/05
 SIGNATURE OF ENGINEER DATE
 PRINTED NAME OF ENGINEER

APPROVED: DEPARTMENT OF PUBLIC WORKS
William J. White 4-21-05
 CHIEF BUREAU OF HIGHWAYS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
Conrad Hancock 4/21/05
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

William J. White 4/21/05
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

date APRIL 05
 project 09-051
 illustration engineering
 SAA SAA
 scale 1"=50'
 approval RH

description
 revisions

n.c.

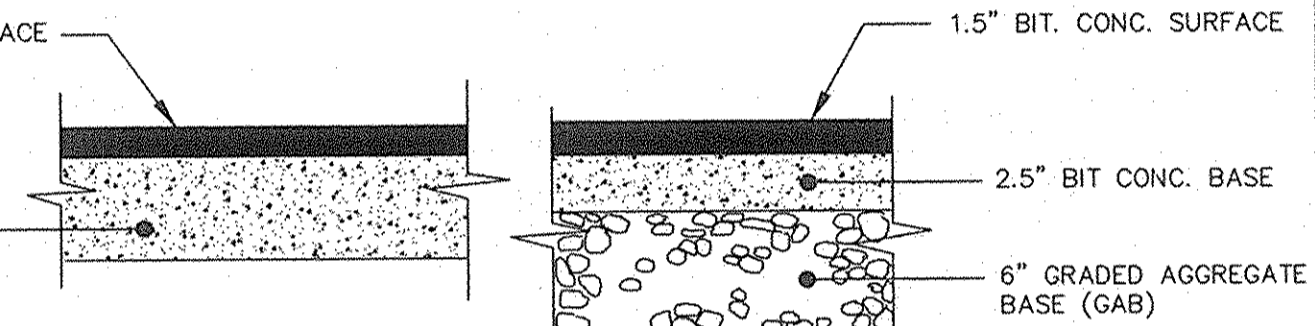
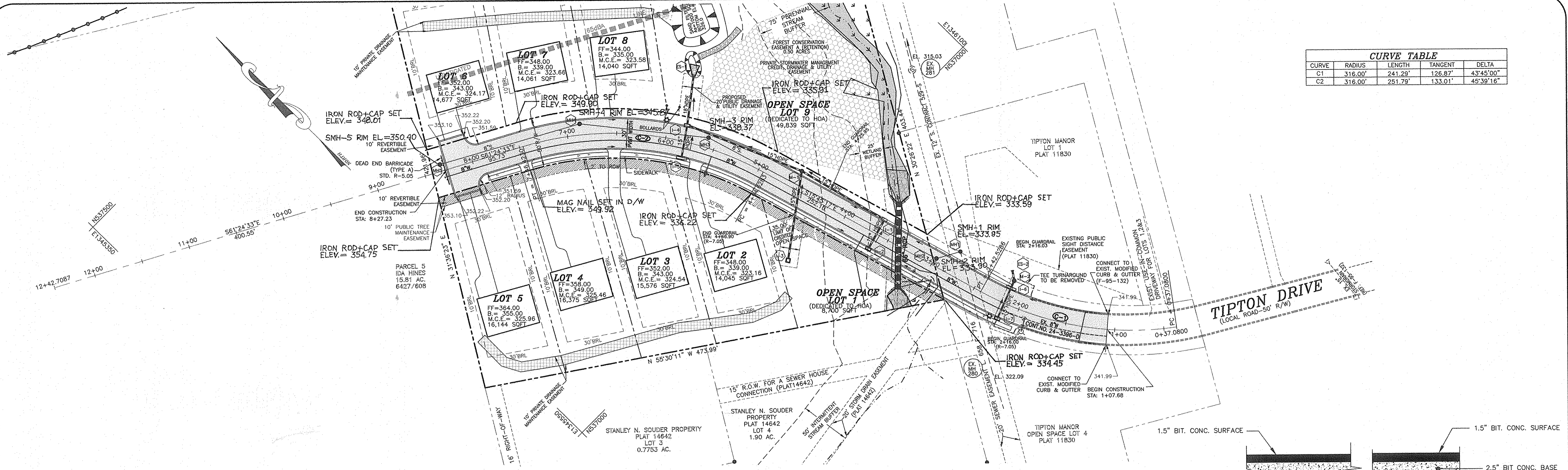
TIPTON OVERLOOK
 LOTS 2 THRU 8, OPEN SPACES 1 AND 9
 TAX MAP 46 - PARCEL 8 - GRID 12
 SIXTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
 COVER SHEET

MILDENBERG, BOENDER & ASSOC., INC.
 Engineers Planners Surveyors
 5072 Dorsey Hall Drive, Suite 202, Ellicott City, Maryland 21042
 (410) 997-0286 Fax: (301) 621-5521 Wash.

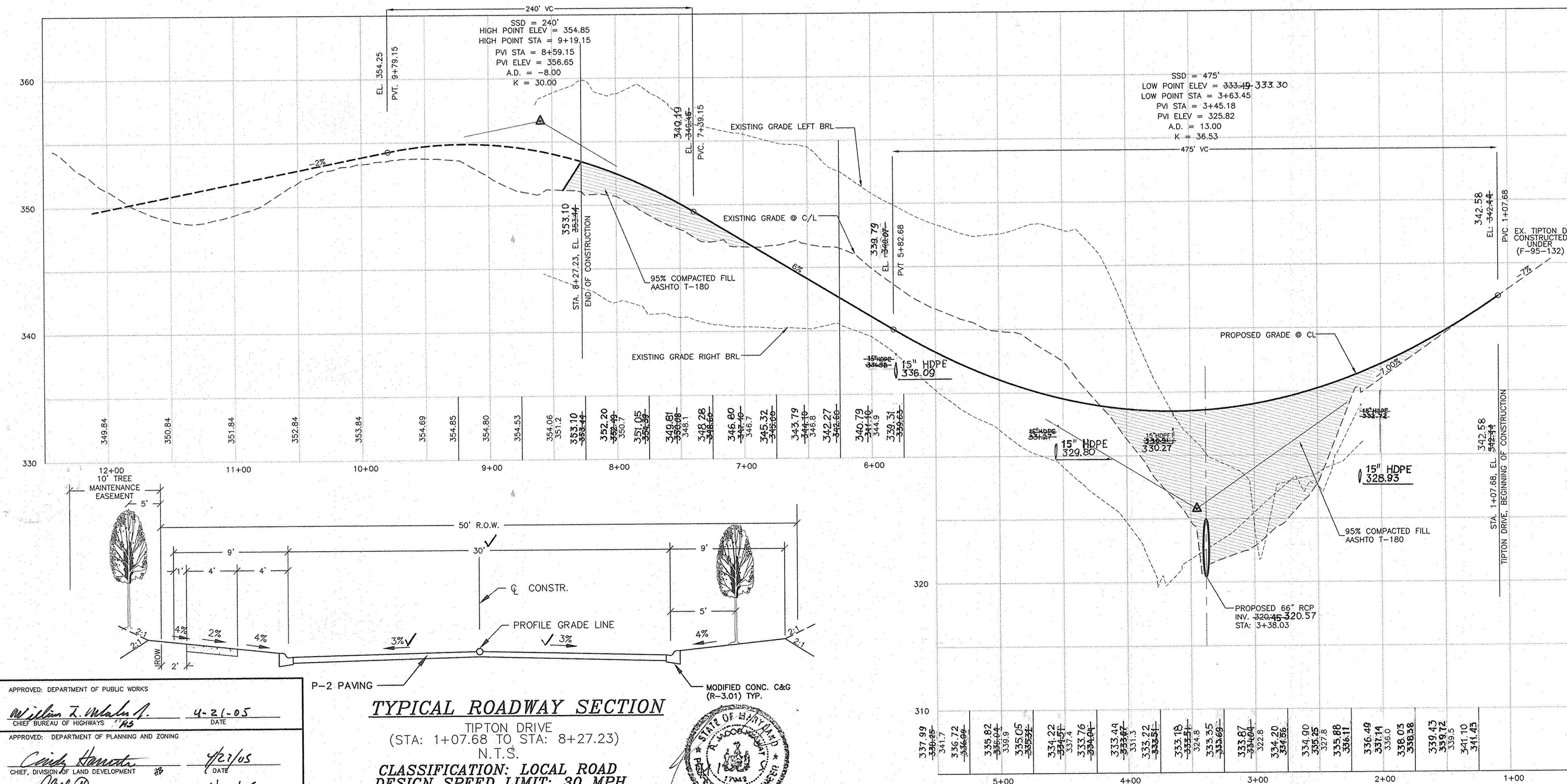
1 OF 10
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CURVE TABLE				
CURVE	RADIUS	LENGTH	TANGENT	DELTA
C1	316.00'	241.28'	126.87'	43°45'00"
C2	316.00'	251.79'	133.01'	45°39'16"

project	date	approval
03-051	APRIL-05	SA
illustration	scale	SA
SA	1"=50'	SA
SA	scale	SA
SA	approval	SA
SA	approval	SA



ALTERNATE "A" ALTERNATE "B"
PAVING SECTION P-2
N.T.S.



APPROVED: DEPARTMENT OF PUBLIC WORKS
William J. M... 4-21-05
CHIEF BUREAU OF HIGHWAYS

APPROVED: DEPARTMENT OF PLANNING AND ZONING
Chris... 4/21/05
CHIEF, DIVISION OF LAND DEVELOPMENT

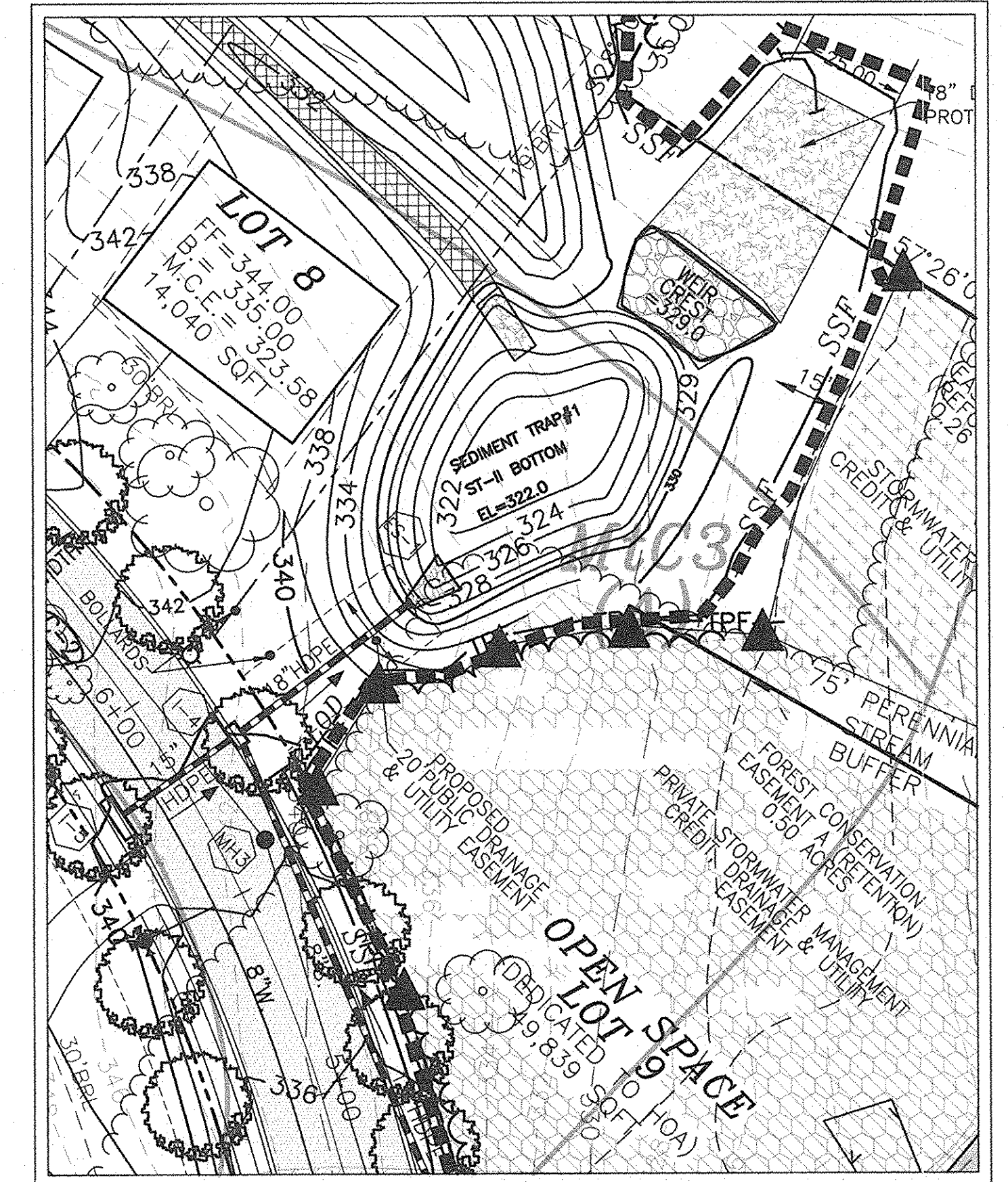
... 4/21/05
CHIEF, DEVELOPMENT ENGINEERING DIVISION



DEVELOPER
ELLCOTT CITY LAND HOLDING, INC.
C/O DON RUEWER
5300 DORSEY HALL DRIVE
ELLCOTT CITY, MD 21042
443 367 0422

TIPTON OVERLOOK
LOTS 2 THRU 8, OPEN SPACES 1 AND 9
TAX MAP 46 - PARCEL 8 - GRID 12
HOWARD COUNTY, MARYLAND
SIXTH ELECTION DISTRICT

MILDENBERG, BOENDER & ASSOC., INC.
Engineers Planners Surveyors
5072 Dorsey Hall Drive, Suite 202, Ellicott City, Maryland, 21042
(410) 997-0296, Fax: (301) 621-5321, Wash. (410) 997-0298, Fax.

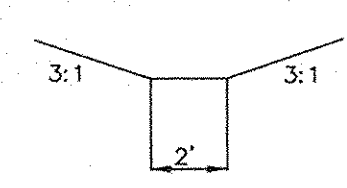


SEDIMENT TRAP PLAN
SCALE: 1"=30'

SEDIMENT TRAP #1
 TYPE OF TRAP: ST-II
 DRAINAGE AREA: 4.03 AC ±
 WET STORAGE REQ'D: 7,254 CFT
 WET STORAGE PROVIDED: 7,254 CFT
 MAX. WET STORAGE EL: 326.25
 DRY STORAGE REQ'D: 7,254 CFT
 DRY STORAGE PROVIDED: 7,254 CFT
 MAX. DRY STORAGE EL: 329.00
 WEIR LENGTH: 30-FT
 STORAGE DEPTH BELOW WEIR CREST: 7-FT
 MAX. EMBANKMENT HEIGHT: 3-FT
 TRAP BOTTOM ELEV: 322.0

SOILS CLASSIFICATION:

- Ba (D)** BAILE SILT LOAM, 10% TO 30% SLOPES, SEVERLY ERODED
- GIB2 (B)** GLENELGLOAM, 3% TO 8% SLOPES, MODERATLY ERODED
- MIB2 (A)** MT. AIRY CHANNERY LOAM, 3% TO 8% SLOPES, MODERATLY ERODED
- MTC3 (A)** SASSAPRAS LOAM, 8% TO 15% SLOPES, MODERATLY ERODED



CHANNEL DETAIL
N.T.S.

FLOODPLAIN CHART

STATION	WATER SURFACE ELEVATION (FT.)
6+45	326.82
6+25	326.83
5+12	321.85
4+91	321.04
3+00	318.18
1+95	316.15

LEGEND

- FOREST CONSERVATION EASEMENT (REFORESTATION)
- FOREST CONSERVATION EASEMENT (RETENTION)
- STORM WATER MANAGEMENT CREDIT & UTILITY EASEMENT.
- 15% TO 24% SLOPES
- STEEP SLOPES, 25% AND GREATER
- DENOTES FLOODPLAIN
- DENOTES WETLANDS
- EXISTING TREE LINE
- PROPOSED TREE LINE
- EXISTING SPECIMEN TREES
- LIMIT OF DISTURBANCE
- DENOTES EARTH DIKE WITH EROSION CONTROL MATTING
- DENOTES SUPER SILT FENCE
- DENOTES SILT FENCE
- DENOTES STABILIZED CONSTRUCTION ENTRANCE
- GRASS CHANNEL WITH EROSION CONTROL MATTING



"I hereby certify that the facility shown on this plan was constructed as shown on the 'As-Built' plans and meets with the approved plans and specifications."

BY THE DEVELOPER:
 I, WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY 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 SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

Don R. Reuer 4/12/05
 SIGNATURE OF DEVELOPER DATE
 DON R. REUER
 PRINTED NAME OF DEVELOPER

BY THE ENGINEER:
 I HEREBY CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE ADVISED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION.

William J. Wadsworth 4/12/05
 SIGNATURE OF ENGINEER DATE
 WILLIAM J. WADSWORTH
 PRINTED NAME OF ENGINEER

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS.
Jim M... 4/12/05
 NARA - NATURAL RESOURCE CONSERVATION
 DATE

John K. ... 4/12/05
 DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS
William J. Wadsworth 4-21-05
 CHIEF BUREAU OF HIGHWAYS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
Cynthia Hanitz 4/21/05
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

William J. Wadsworth 4/21/05
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

DEVELOPER
 ELLICOTT CITY LAND HOLDING, INC.
 C/O DON REUER
 5300 DORSEY HALL DRIVE
 ELLICOTT CITY, MD 21042
 443 367 0422

Project	date
05-051	APRIL 05
Illustration	engineering
SAA	SAA
Scale	approval
1"=50'	RJH

no.	description	date

TIPTON OVERLOOK
 LOTS 2 THRU 8, OPEN SPACES 1 AND 9
 TAX MAP 46 - PARCEL 8 - GRID 12
 HOWARD COUNTY, MARYLAND
 SIXTH ELECTION DISTRICT
FINAL GRADING AND EROSION & SEDIMENT CONTROL PLAN

MILDENBERG, BOENDER & ASSOC., INC.
 Engineers Planners Surveyors
 5072 Dorsey Hall Drive, Suite 202, Ellicott City, Maryland 21042
 (410) 997-0286 Bldg. (301) 681-5521 Wash. (410) 997-0288 Fax

HOWARD SOIL CONSERVATION DISTRICT

PERMANENT SEEDING NOTES

APPLY TO GRADED OR CLEARED AREAS NOT SUBJECT TO IMMEDIATE FURTHER DISTURBANCE WHERE A PERMANENT LONG-LIVED VEGETATIVE COVER IS NEEDED.

SEEDING 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 PER ACRE DOLOMITIC LIMESTONE (92 LBS./1000 SQ.FT.) BEFORE SEEDING. AND 600 LBS. PER ACRE 10-10-10 FERTILIZER (14 LBS./1000 SQ.FT.) BEFORE SEEDING. HARROW OR DISK INTO UPPER THREE INCHES OF SOIL. AT TIME OF SEEDING, APPLY 10-0-0 LIME-FERTILIZER (9 LBS./1000 SQ.FT.)

SEEDING - FOR PERIODS MARCH 1 THRU APRIL 30, AND AUGUST 1 THRU OCTOBER 15, SEED WITH 60 LBS. PER ACRE OF ANNUAL RYE (32 LBS./1000 SQ.FT.) FOR THE PERIOD MAY 1 THRU JULY 31, SEED WITH 60 LBS. KENTUCKY 31 TALL FESCUE PER ACRE AND 2 LBS. PER ACRE (05 LBS./1000 SQ.FT.) OF WEEPING LOVEGRASS. DURING THE PERIOD OF OCTOBER 16 THRU FEBRUARY 28, PROTECT SITE BY: OPTION (1) - 2 TONS PER ACRE OF WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING. OPTION (2) - USE SOO, OPTION (3) - SEED WITH 60 LBS./ACRE KENTUCKY 31 TALL FESCUE AND MULCH WITH 2 TONS/ACRE WELL ANCHORED STRAW.

MULCHING - APPLY 1-1/2 TO 2 TONS PER ACRE (70 TO 90 LBS./1000 SQ.FT.) OF UNROTTED SMALL GRAIN STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING MULCH ANCHORING TOOL OR 218 GALLONS PER ACRE (5 GAL/1000 SQ.FT.) OF EMULSIFIED ASPHALT ON FLAT AREAS. ON SLOPES 8 FEET OR HIGHER, USE 348 GALLONS PER ACRE (8 GAL/1000 SQ.FT.) FOR ANCHORING.

MAINTENANCE - INSPECT ALL SEEDING AREAS AND MAKE NEEDED REPAIRS, REPLACEMENTS AND RESEEDINGS.

TEMPORARY SEEDING NOTES

APPLY TO GRADED OR CLEARED AREAS LIKELY TO BE REDISTURBED WHERE A SHORT-TERM VEGETATIVE COVER IS NEEDED.

SEEDING 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. PER ACRE 10-10-10 FERTILIZER (14 LBS./1000 SQ.FT.)

SEEDING: FOR PERIODS MARCH 1 THRU APRIL 30 AND FROM AUGUST 15 THRU OCTOBER 15, SEED WITH 2-1/2 BUSHEL PER ACRE OF ANNUAL RYE (32 LBS./1000 SQ.FT.) FOR THE PERIOD MAY 1 THRU AUGUST 14, SEED WITH 3 LBS. PER ACRE OF WEEPING LOVEGRASS (07 LBS./1000 SQ.FT.). FOR THE PERIOD NOVEMBER 16 THRU NOVEMBER 28, PROTECT SITE BY APPLYING 2 TONS PER ACRE OF WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING, OR USE SOO.

MULCHING: APPLY 1-1/2 TO 2 TONS PER ACRE (70 TO 90 LBS./1000 SQ.FT.) OF UNROTTED WEED FREE SMALL GRAIN STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING MULCH ANCHORING TOOL OR 218 GAL PER ACRE (5 GAL/1000 SQ.FT.) OF EMULSIFIED ASPHALT ON FLAT AREAS. ON SLOPES 8 FEET OR HIGHER, USE 348 GAL PER ACRE (8 GAL/1000 SQ.FT.) FOR ANCHORING.

REFER TO THE 1983 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR ADDITIONAL RATES AND METHODS NOT COVERED.

STANDARD SEDIMENT CONTROL NOTES

- 1. A MINIMUM OF 48 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY DEPARTMENT OF INSPECTIONS, LICENSES AND PERMITS, SEDIMENT CONTROL DIVISION PRIOR TO THE START OF ANY CONSTRUCTION, (313-1855).
- 2. ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE MOST CURRENT MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, AND REVISIONS THERETO.
- 3. FOLLOWING INITIAL SOIL DISTURBANCE OR REDISTURBANCE, 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.

- 7. SITE ANALYSIS: TOTAL AREA OF SITE: 4.44 ACRES. AREA DISTURBED: 3.52 ACRES. AREA TO BE ROOFED OR PAVED: 0.60 ACRES. AREA TO BE VEGETATIVELY STABILIZED: 2.32 ACRES. TOTAL CUT: 14,000 CU. YDS. TOTAL FILL: 14,000 CU. YDS. TOTAL WASTE/BORROW AREA LOCATION: N/A.

THESE QUANTITIES ARE FOR PERMIT PURPOSES ONLY. CONTRACTOR IS REQUIRED TO PROVIDE HIS OWN QUANTITIES MEASUREMENTS.

- 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, OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THIS INITIAL APPROVAL BY THE INSPECTION AGENCY IS MADE.
- 11. TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THREE PIPE LENGTHS OR THAT WHICH CAN BE BACK FILLED AND STABILIZED WITHIN ONE WORKING DAY, WHICHEVER IS SHORTER.

STANDARD AND SPECIFICATIONS FOR TOPSOIL

DEFINITION

PLACEMENT OF TOPSOIL OVER A PREPARED SUBSOIL PRIOR TO ESTABLISHMENT OF PERMANENT VEGETATION.

BY THE DEVELOPER: I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROTECT THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE REGISTERED INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

SIGNATURE OF DEVELOPER: [Signature] DATE: 4/14/05

BY THE ENGINEER: I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTICED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROTECT THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION.

SIGNATURE OF REGISTERED PROFESSIONAL ENGINEER: [Signature] DATE: 4/14/05

USDA NATURAL RESOURCE CONSERVATION SERVICE: [Signature] DATE: 4/14/05

APPROVED: DEPARTMENT OF PUBLIC WORKS: [Signature] DATE: 4-21-05

APPROVED: DEPARTMENT OF PLANNING AND ZONING: [Signature] DATE: 4/27/05

APPROVED: CHEF, DEVELOPMENT ENGINEERING DIVISION: [Signature] DATE: 4/26/05

PURPOSE

TO PROVIDE A SUITABLE SOIL MEDIUM FOR VEGETATIVE GROWTH. SOILS OF CONCERN HAVE LOW HUMUS 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: a. THE TEXTURE OF THE EXPOSED SUBSOIL/PARENT MATERIAL IS NOT ADEQUATE TO PRODUCE VEGETATIVE GROWTH. b. THE SOIL MATERIAL IS SO SHALLOW THAT THE ROOTING ZONE IS NOT DEEP ENOUGH TO SUPPORT PLANTS OR FURNISH CONTINUING SUPPLIES OF MOISTURE AND PLANT NUTRIENTS. c. THE ORIGINAL SOIL TO BE VEGETATED CONTAINS MATERIAL TOXIC TO PLANT GROWTH. d. THE SOIL IS SO ACIDIC THAT TREATMENT WITH LIMESTONE IS NOT FEASIBLE.

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: 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 AUTHORITY. REGARDLESS, TOPSOIL SHALL NOT BE A Mixture OF CONTRASTING TEXTURED SUBSOILS AND SHALL CONTAIN LESS THAN 5% BY VOLUME OF CINDERS, STONES, SLAG, COARSE FRAGMENTS, GRAVEL, STICKS, ROOTS, TRASH, OR OTHER MATERIALS LARGER THAN 1 1/2" IN DIAMETER.

TOPSOIL MUST BE FREE OF PLANTS OR PLANT PARTS SUCH AS BERNARDIA GRASS, QUACKGRASS, JOHNSONSON GRASS, NUTSEDGE, POISON IVY, THISTLE, OR OTHERS AS SPECIFIED.

WHERE THE SUBSOIL IS EITHER HIGHLY ACIDIC OR COMPOSED OF HEAVY CLAYS, QUACK GRASS 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 LIME SHALL BE DISTRIBUTED UNIFORMLY OVER DESIGNATED AREAS AND WORKED INTO THE SOIL IN CONJUNCTION WITH TILLAGE OPERATIONS AS DESCRIBED IN THE FOLLOWING PROCEDURES.

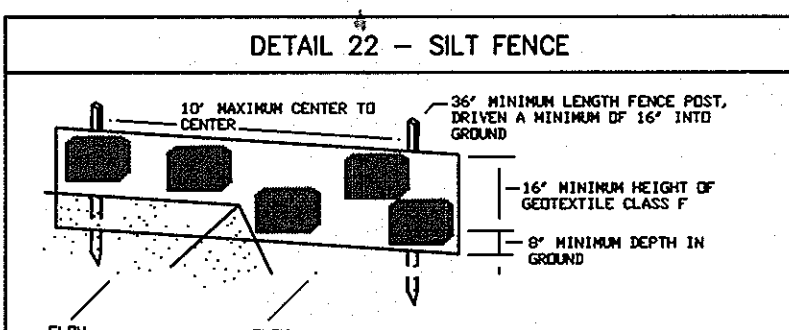
- FOR SITES HAVING DISTURBED AREAS UNDER 5 ACRES: I. PLACE TOPSOIL (IF REQUIRED) AND APPLY SOIL AMENDMENTS AS SPECIFIED IN 20.0 VEGETATIVE STABILIZATION - SECTION I - VEGETATIVE STABILIZATION METHODS AND MATERIALS. o. pH FOR TOPSOILS SHALL BE BETWEEN 6.0 AND 7.5. IF THE TESTED SOIL DEMONSTRATES A pH OF LESS THAN 6.0, SUFFICIENT LIME SHALL BE DESCRIBED 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 SOO OR SEED SHALL BE PLACED ON SOIL WHICH HAS BEEN TREATED WITH SOIL STERILANTS OR CHEMICALS USED FOR WEED CONTROL UNTIL SUFFICIENT TIME HAS ELAPSED (14 DAYS MIN.) TO PERMIT DISSIPATION OF PHYTO-TOXIC MATERIALS.

NOTE: TOPSOIL SUBSTITUTES OR AMENDMENTS, AS RECOMMENDED BY A QUALIFIED AGRONOMIST OR SOIL SCIENTIST AND APPROVED BY THE APPROPRIATE AUTHORITY, MAY BE USED IN LIEU OF NATURAL TOPSOIL.

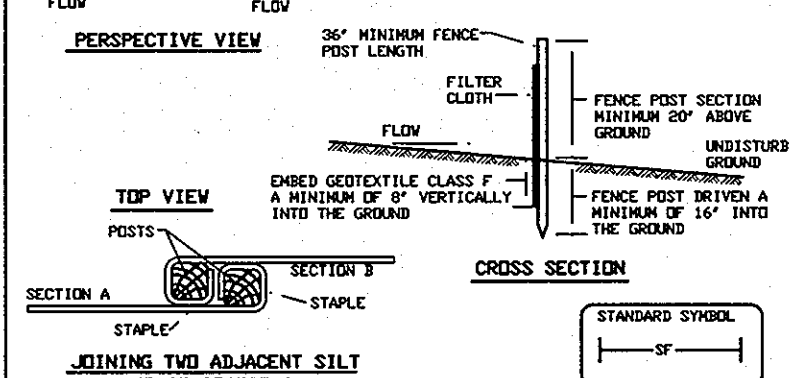
II. PLACE TOPSOIL (IF REQUIRED) AND APPLY SOIL AMENDMENTS AS SPECIFIED IN 20.0 VEGETATIVE STABILIZATION - SECTION I - VEGETATIVE STABILIZATION METHODS AND MATERIALS.

III. 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.

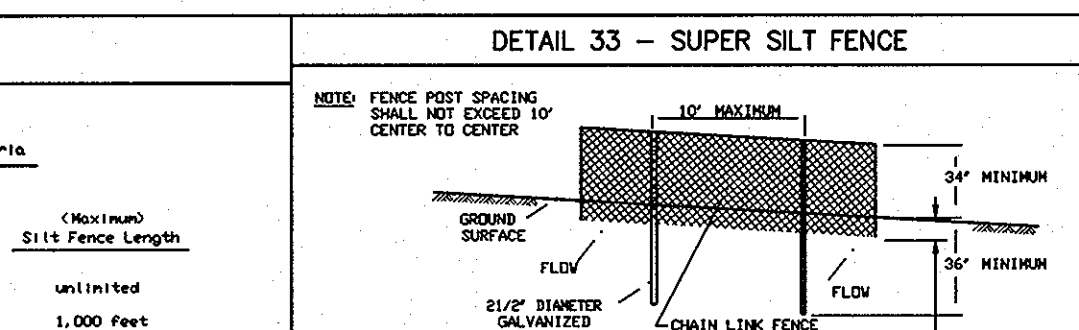
II. GRADES ON THE AREAS TO BE TOPSOILED, WHICH HAVE BEEN PREVIOUSLY ESTABLISHED, SHALL BE MAINTAINED, ALTHOUGH 4" - 8" HIGHER IN ELEVATION. III. TOPSOIL SHALL BE UNIFORMLY DISTRIBUTED IN A 4" TO 8" LAYER AND LIGHTLY COMPACTED TO A MINIMUM THICKNESS OF 4". SPREADING SHALL BE PERFORMED IN SUCH A MANNER THAT SOODING 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.



SILT FENCE Silt Fence Design Criteria. Table with columns: Slope Steepness, Chainlink Slope Length, Geotextile Class, Silt Fence Length.

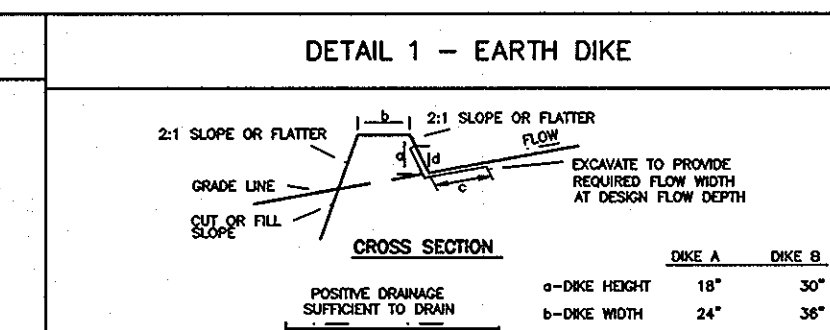


DETAIL 23 - SUPER SILT FENCE Construction Specifications. 1. Fencing shall be 42" in height and constructed in accordance with the latest Maryland State Highway Details for Chain Link Fencing. The specification for a 6" fence shall be used, substituting 42" fabric and 6" length posts.

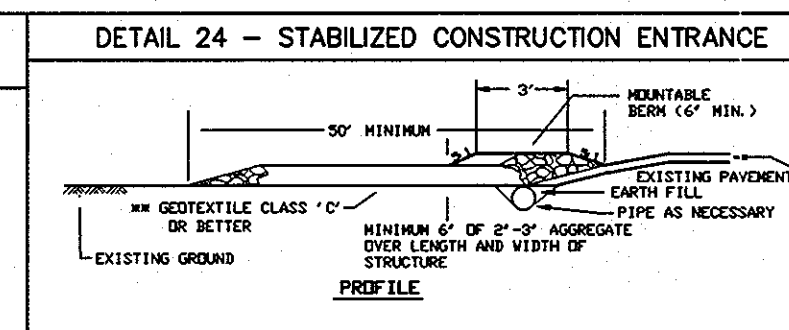


DETAIL 33 - SUPER SILT FENCE Construction Specifications. 1. Fencing shall be 42" in height and constructed in accordance with the latest Maryland State Highway Details for Chain Link Fencing. The specification for a 6" fence shall be used, substituting 42" fabric and 6" length posts.

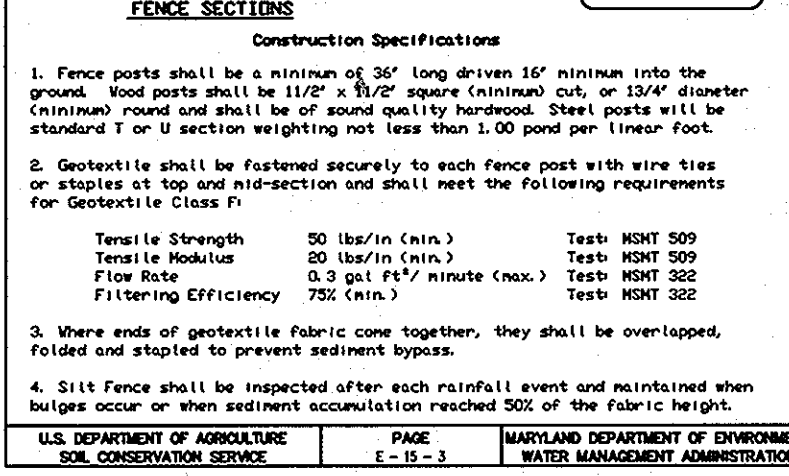
SUPER SILT FENCE Design Criteria. Table with columns: Slope, Slope Steepness, Slope Length, Silt Fence Length.



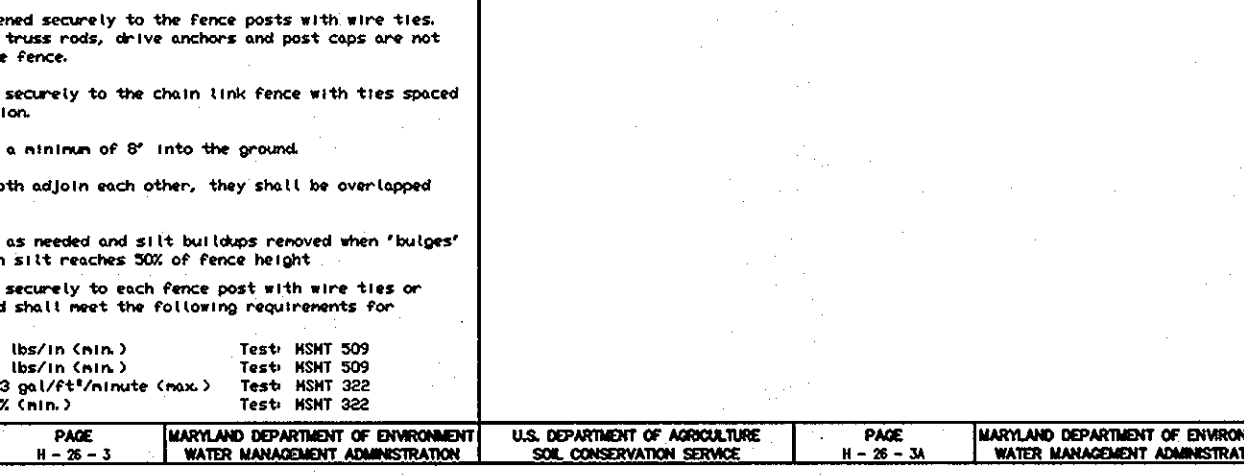
DETAIL 1 - EARTH DIKE Construction Specifications. 1. All temporary earth dikes shall have uninterrupted paths from toe to toe. Spot elevations may be necessary for grades less than 1%.



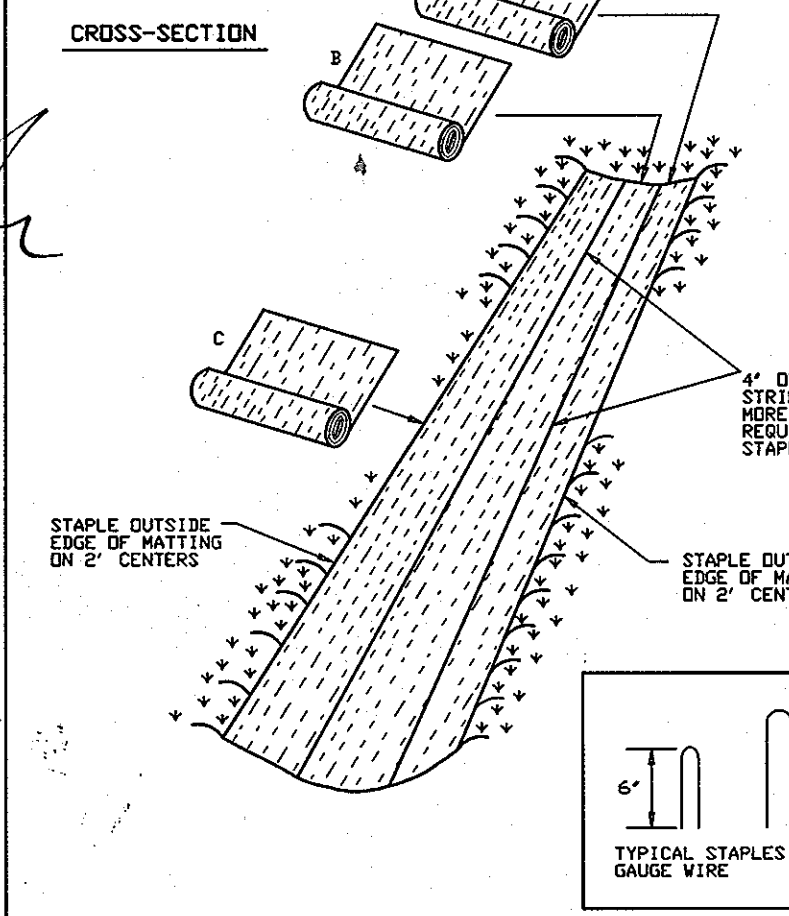
DETAIL 24 - STABILIZED CONSTRUCTION ENTRANCE Construction Specifications. 1. Length - minimum of 50' (400' for single entrance sets). 2. Width - 10' minimum, should be flared at the existing road to provide a turning radius.



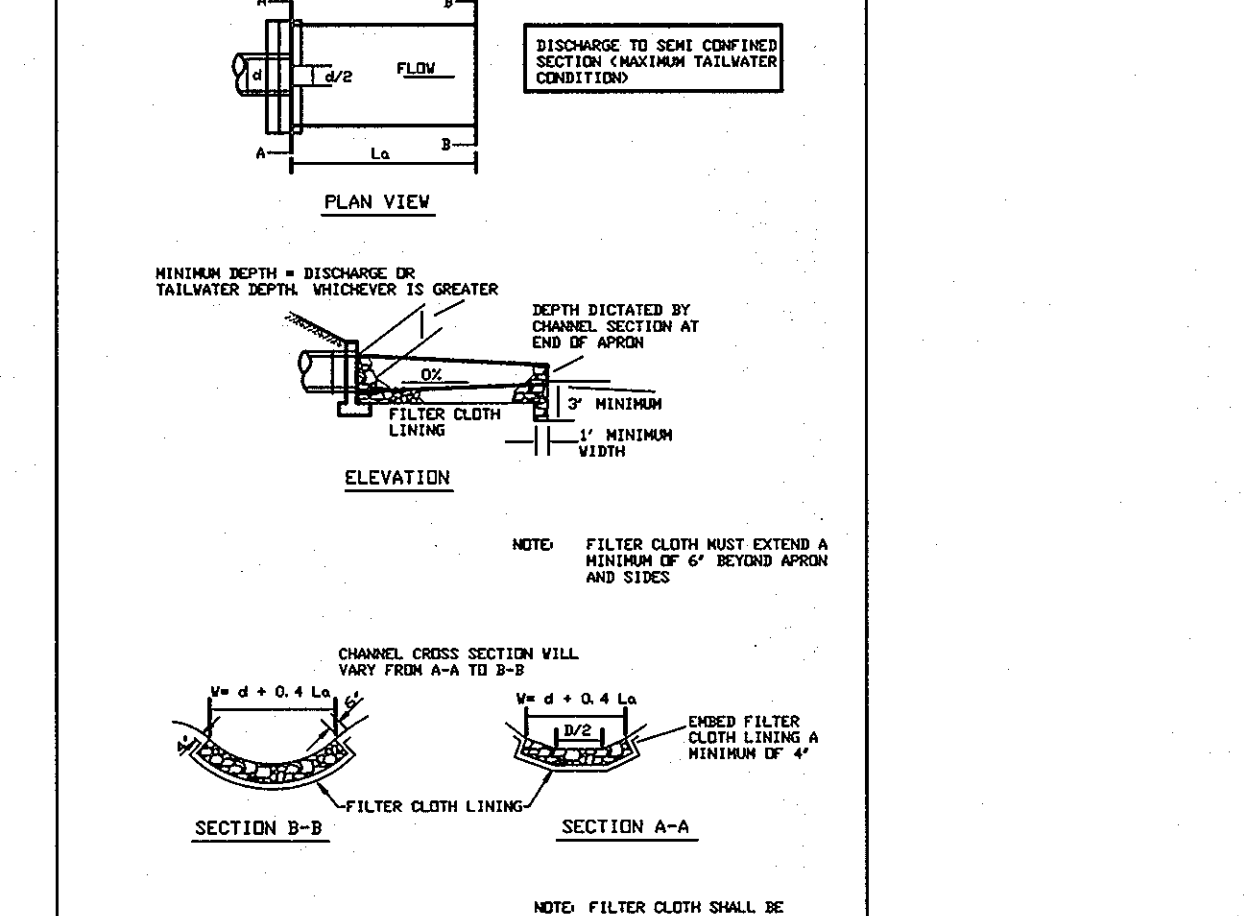
EROSION CONTROL MATTING Construction Specifications. 1. Key-in the matting by placing the top ends of the matting in a narrow trench, 6" in depth. Backfill the trench and tamp firmly to conform to the channel cross-section. Secure with a row of staples about 4' down slope from the trench. Spacing between staples is 6'.



DETAIL 25 - ROCK OUTLET PROTECTION I Construction Specifications. 1. Key-in the matting by placing the top ends of the matting in a narrow trench, 6" in depth. Backfill the trench and tamp firmly to conform to the channel cross-section. Secure with a row of staples about 4' down slope from the trench. Spacing between staples is 6'.



EROSION CONTROL MATTING Construction Specifications. 1. Key-in the matting by placing the top ends of the matting in a narrow trench, 6" in depth. Backfill the trench and tamp firmly to conform to the channel cross-section. Secure with a row of staples about 4' down slope from the trench. Spacing between staples is 6'.



DETAIL 25 - ROCK OUTLET PROTECTION I Construction Specifications. 1. Key-in the matting by placing the top ends of the matting in a narrow trench, 6" in depth. Backfill the trench and tamp firmly to conform to the channel cross-section. Secure with a row of staples about 4' down slope from the trench. Spacing between staples is 6'.

EROSION AND SEDIMENT CONTROL NOTES

- 1. ALL SEDIMENT CONTROL OPERATIONS ARE TO BE DONE IN ACCORDANCE WITH SECTION 219 OF THE HOWARD COUNTY VOLUME IV DESIGN MANUAL AND THE STANDARDS AND SPECIFICATIONS FOR SEDIMENT CONTROL IN DEVELOPING AREAS.
- 2. ALL EROSION AND SEDIMENT CONTROL DEVICES SHALL BE INSTALLED AS THE FIRST ORDER OF BUSINESS INCLUDING THE LIVE FASCINES FOR THE BANK STABILIZATION, PROVIDE EROSION CONTROL MATTING(ECM) FOR ALL DISTURBED AREAS WITHIN THE STREAM BUFFER.
- 3. ALL EXCAVATED MATERIALS SHALL BE STOCKPILED ON THE UPGRADE SIDE OF THE MAIN TRENCH. EXCAVATION AND BACKFILL SHALL BE LIMITED TO THAT WHICH CAN BE STABILIZED WITHIN ONE WORKING DAY.
- 4. IMMEDIATELY FOLLOWING BACKFILL OF THE SEWER TRENCH, ALL DISTURBED AREAS ARE TO BE STABILIZED IN ACCORDANCE WITH THE PERMANENT STABILIZATION AND SEEDING NOTES SHOWN ON THIS SHEET.
- 5. THROUGHOUT THE PROJECT, THE CONTRACTOR SHALL REGULARLY INSPECT ALL SEDIMENT CONTROL DEVICES AND PROVIDE ALL NECESSARY MAINTENANCE TO INSURE THAT ALL DEVICES ARE IN OPERATIVE CONDITION.
- 6. ALL SEDIMENT CONTROL FACILITIES SHALL REMAIN IN PLACE UNTIL PERMSSION FOR THEIR REMOVAL HAS BEEN OBTAINED FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.

SEQUENCE OF CONSTRUCTION

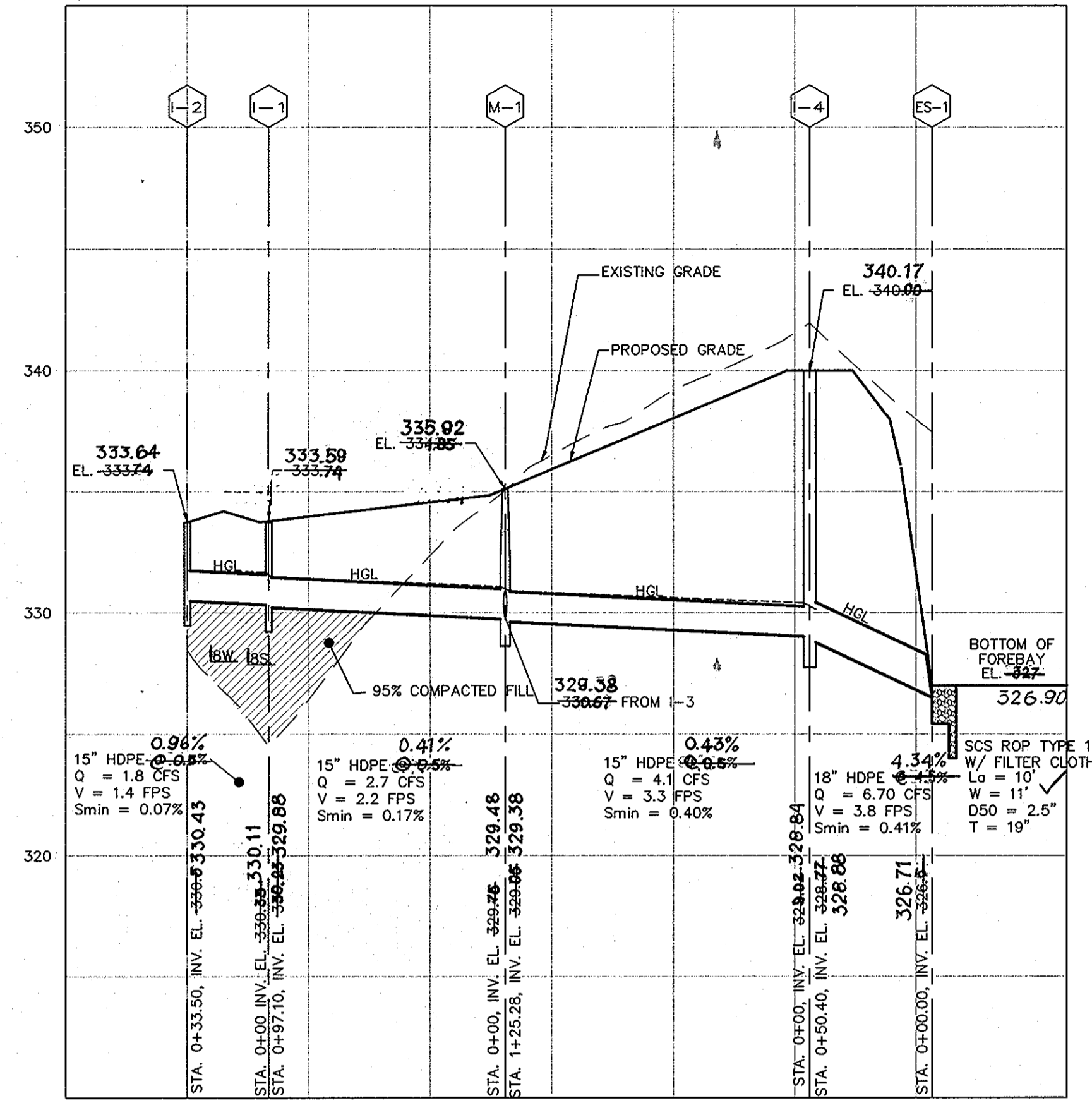
- 1. OBTAIN GRADING PERMIT (1 DAY)
- 2. CONSTRUCT STABILIZED CONSTRUCTION ENTRANCE (1 DAY)
- 3. CONSTRUCT TEMPORARY BRIDGE CROSSING PER SHEET 6 OF 10. (1 DAY)
- 4. CONSTRUCT SILT FENCES AND SUPER SILT FENCES, PERIMETER DIKE/SWALE AND EARTH DIKES (2 DAYS)
- 5. CONSTRUCT STREAM DIVERSION PER DETAIL ON SHEET 6 OF 10. (1 DAY) A. SANDBAG STREAM AT UPSTREAM AND DOWNSTREAM LIMITS OF CULVERT CONSTRUCTION. B. PROVIDE PORTABLE PUMP TO DIVERT STREAM AROUND CULVERT CONSTRUCTION AREA. C. CONSTRUCT CULVERT AS SHOWN ON PLANS. D. STABILIZE DISTURBED AREAS PER PLAN. E. REMOVE DOWNSTREAM SANDBAGS. F. REMOVE UPSTREAM SANDBAGS.
- 6. CONSTRUCT SEDIMENT TRAP TO TEMPORARY GRADES SHOWN (3 DAYS)
- 7. WITH PERMISSION OF SEDIMENT CONTROL INSPECTOR, CONSTRUCT STORM DRAIN SYSTEM. (14 DAYS)
- 8. CONSTRUCT SITE TO GRADES INDICATED. (20 DAYS) NOTE THAT STREAM MAY BE CLOSED ONLY BETWEEN MARCH 1 AND JUNE 15
- 9. WHEN ALL CONTRIBUTING DRAINAGE AREAS TO SEDIMENT CONTROL DEVICES HAVE BEEN STABILIZED, AND WITH PERMISSION OF SEDIMENT CONTROL INSPECTOR, REMOVE SEDIMENT CONTROL DEVICES AND STABILIZE REMAINING DISTURBED AREAS.
- 10. CONVERT SEDIMENT BASIN TO PERMANENT SAND FILTER. (2 DAYS) A. REMOVE ACCUMULATED SEDIMENTS B. STABILIZE DISTURBED AREAS.

REFERENCES: GUIDELINE SPECIFICATIONS, SOIL PREPARATION AND SOODING, MD-VA, PUB. #1, COOPERATIVE EXTENSION SERVICE, UNIVERSITY OF MARYLAND AND VIRGINIA POLYTECHNIC INSTITUTES. REVISED 1973.

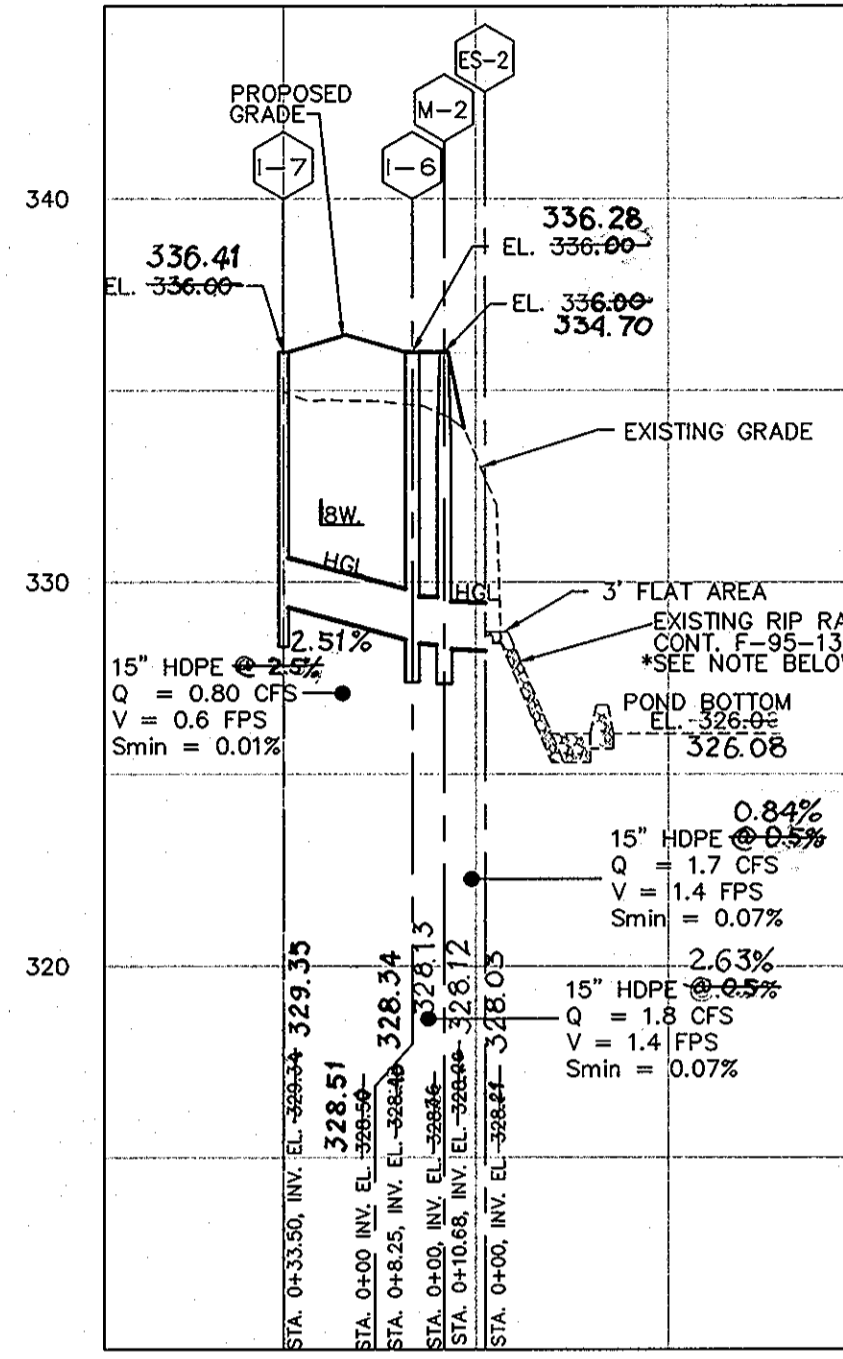
Project information table with columns: date, project, illustration, scale, description, no., date, revision.

TIPTON OVERLOOK LOTS 2 THRU 8, OPEN SPACES 1 AND 9 TAX MAP 46 - PARCEL 8 - GRID 12 HOWARD COUNTY, MARYLAND SIXTH ELECTION DISTRICT EROSION AND SEDIMENT CONTROL NOTES & DETAILS

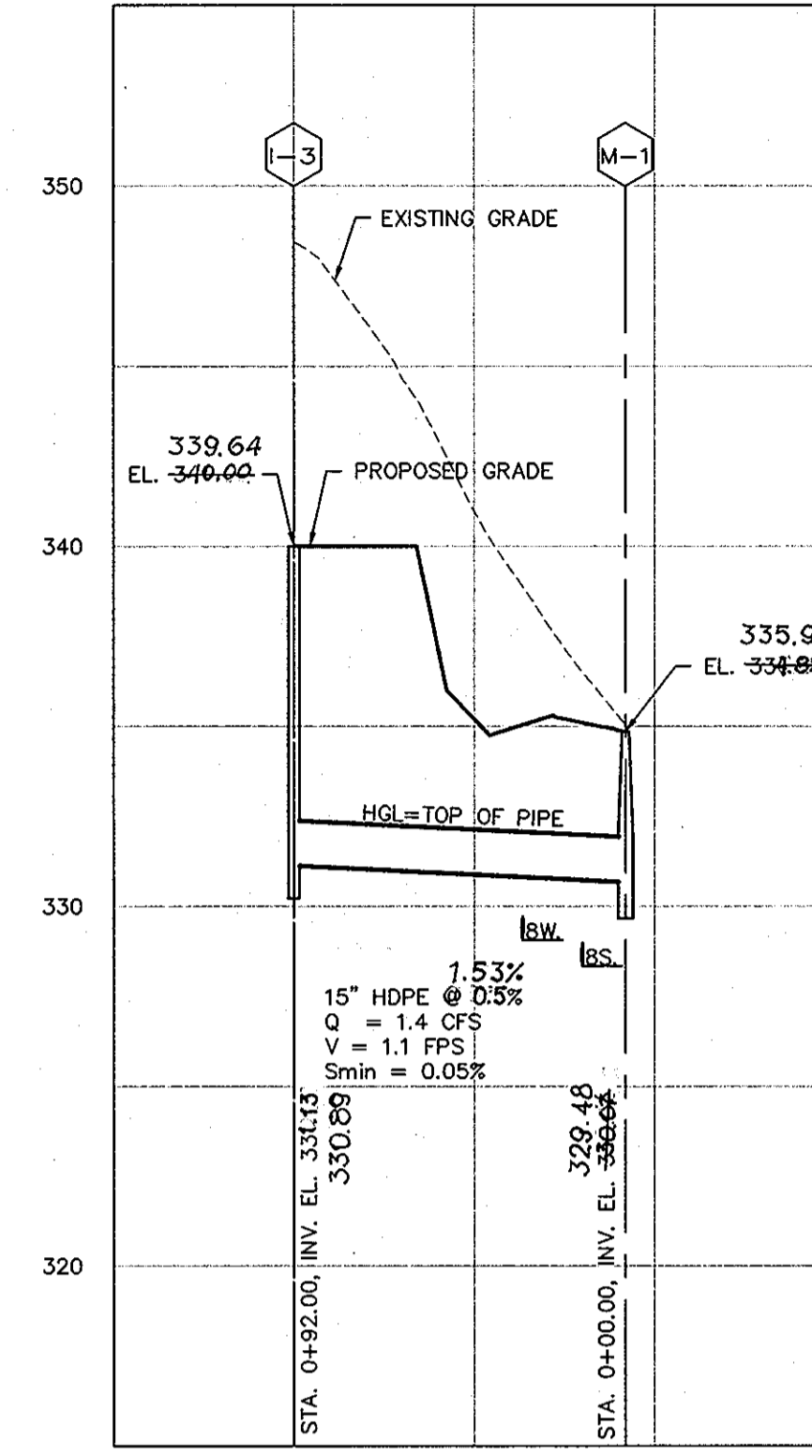
MILDENBERG, BOENDER & ASSOC., INC. Engineers Planners Surveyors 5072 Dorsey Hall Drive, Suite 202, Elkton City, Maryland 21042 (410) 997-0286 Baat. (301) 621-5521 Wash. (410) 997-0288 Fax.



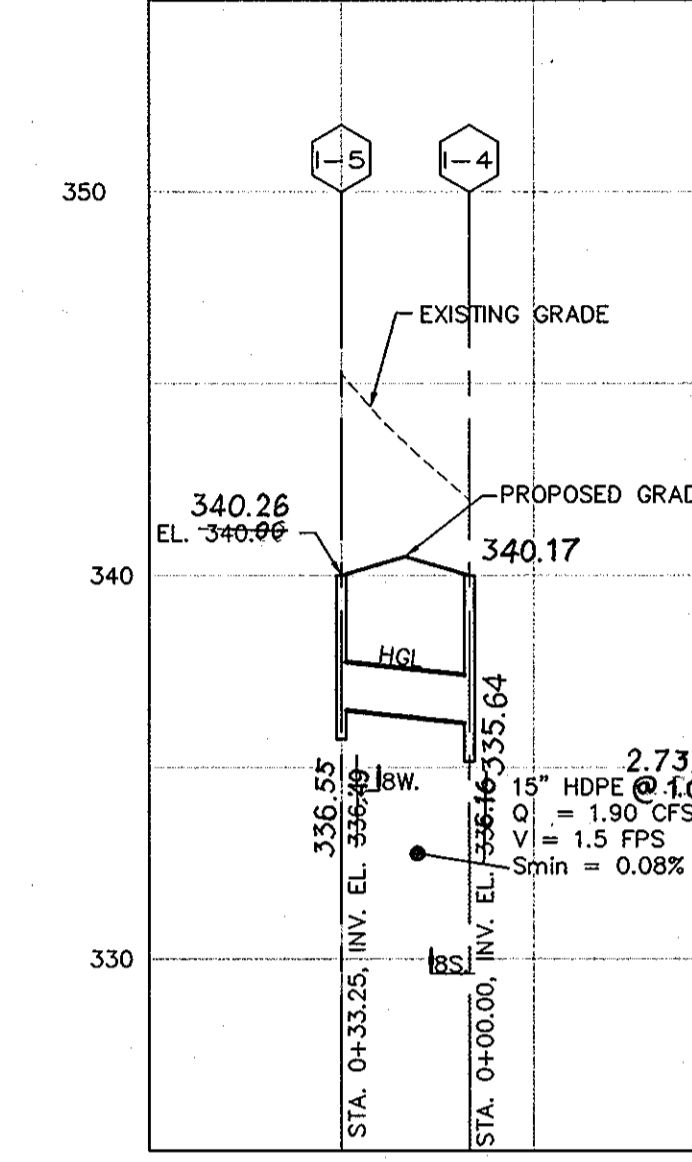
STORM DRAIN PROFILE FROM I-2 TO ES-1
 HORIZONTAL SCALE: 1" = 50'
 VERTICAL SCALE: 1" = 5'



STORM DRAIN PROFILE FROM I-7 TO ES-2
 HORIZONTAL SCALE: 1" = 50'
 VERTICAL SCALE: 1" = 5'



STORM DRAIN PROFILE FROM I-3 TO MH-1
 HORIZONTAL SCALE: 1" = 50'
 VERTICAL SCALE: 1" = 5'



STORM DRAIN PROFILE FROM I-5 TO I-4
 HORIZONTAL SCALE: 1" = 50'
 VERTICAL SCALE: 1" = 5'

***NOTE:**
 CONTRACTOR SHOULD MAINTAIN EXISTING APRON TO MEET (SCD F-18) STANDARDS FOR CLASS 1 RIP RAP OF 19" THICKNESS AS NECESSARY.

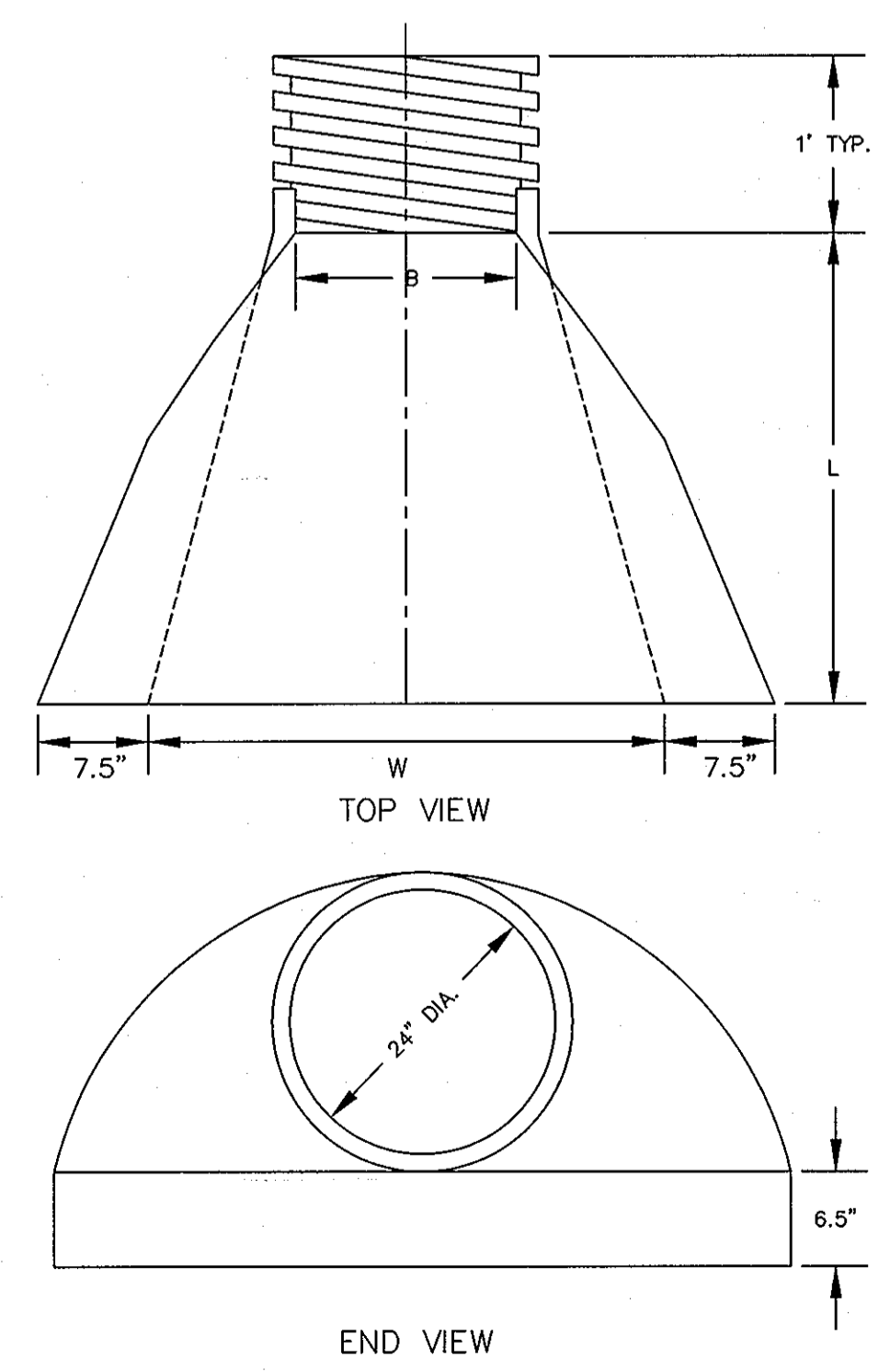
PIPE SCHEDULE

QUANTITY	PIPE SIZE
437 FT.	15" HDPE
51 FT.	18" HDPE

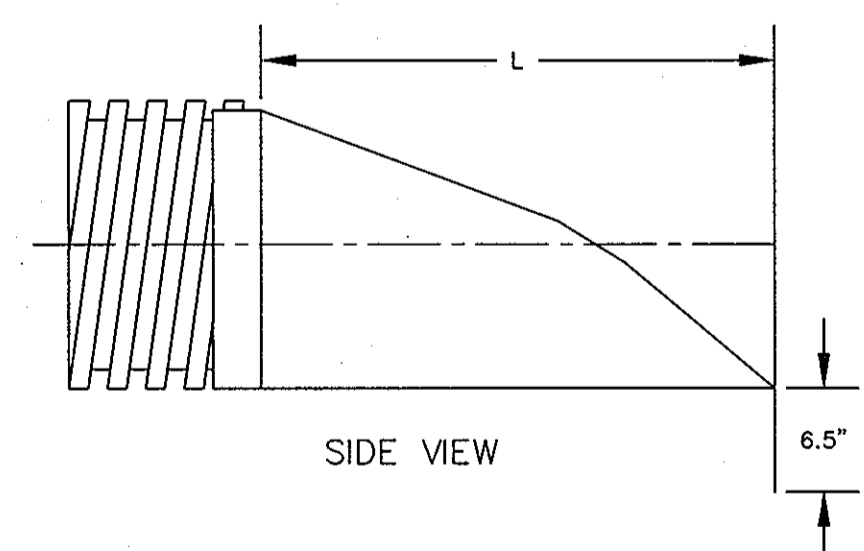
STRUCTURE SCHEDULE

NO.	LOCATION*	TOP**	INV. IN	INV. OUT	COMMENTS
ES-1	TIPTON DRIVE, STA. 5+85.76 66.62' RT.	326.89	---	---	18" HDPE END SECTION
ES-2	TIPTON DRIVE, STA. 2+24.27 35.88' RT.	327.32	---	---	15" HDPE END SECTION
I-1	TIPTON DRIVE, STA. 3+63.45 15.43' RT.	333.59	330.33	330.23	INLET TYPE A-5 (HO. CO. STD SD 4.40)
I-2	TIPTON DRIVE, STA. 3+63.45 15.43' LT.	333.74	330.33	330.23	INLET TYPE A-5 (HO. CO. STD SD 4.40)
I-3	TIPTON DRIVE, STA. 4+29.12 66.60' LT.	333.74	329.84	329.84	INLET TYPE K WITH GRATE (HO. CO. STD SD-4.12 & SD-4.13) - SUMP
I-4	TIPTON DRIVE, STA. 5+81.68 15.43' RT.	339.64	336.38	336.28	INLET TYPE A-5 (HO. CO. STD SD 4.40)
I-5	TIPTON DRIVE, STA. 5+79.81 15.43' LT.	340.26	336.99	336.89	INLET TYPE A-10 (HO. CO. STD SD 4.41)
I-6	TIPTON DRIVE, STA. 2+16.02 15.43' RT.	336.00	328.51	328.41	INLET TYPE A-10 (HO. CO. STD SD 4.41)
I-7	TIPTON DRIVE, STA. 2+15.99 15.43' LT.	336.00	328.51	328.41	INLET TYPE A-5 (HO. CO. STD SD 4.40)
M-1	TIPTON DRIVE, STA. 4+60.78 19.77' RT.	334.70	328.12	328.03	MH (HO. CO. STD G 5.12)
M-2	TIPTON DRIVE, STA. 2+16.02 25.00' RT.	336.00	328.50	328.40	MH (HO. CO. STD G 5.12)

* STATIONS GIVEN TO CENTERLINE FACE OF INLET AT TOP OF CURB FOR INLETS LOCATED WITHIN THE ROAD RIGHT-OF-WAY. STATIONS FOR "K" INLETS TO CL OF INLET. LOCATION OF MANHOLES IS TO CL OF MANHOLE COVER. END SECTION GIVEN TO THE CENTERLINE OF PIPE AT THE CONNECTION OF THE STORM DRAIN PIPE TO THE END SECTION.
 ** ELEVATIONS MEASURED TO CENTER OF ALL INLETS.



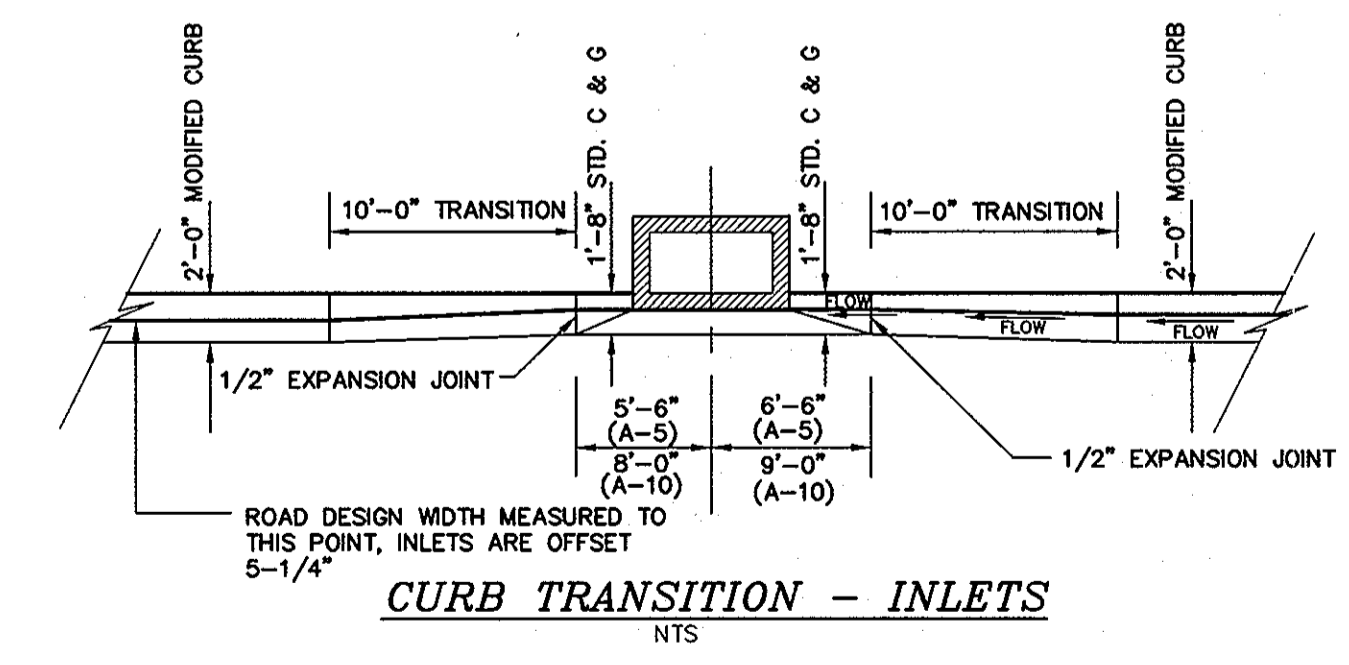
HDPE END SECTIONS
 (PART NO. 2410 NP)
 NOT TO SCALE



PIPE DIAMETER	PART NO.	B MAX	L, ±1/2	W, ±2
15" HDPE	2410 NP	10"	25"	29"
18" HDPE	2410 NP	15"	32"	35"

INSTALLATION INSTRUCTIONS

- SPREAD THE END SECTION COLLAR AND PLACE IT OVER THE LAST PIPE CORRUGATION. MAKE SURE THE COLLAR SEATS PROPERLY IN THE CORRUGATION VALLEY.
- INSERT THREADED ROD THROUGH THE PRE-DRILLED HOLES IN THE END SECTION COLLAR. TIGHTEN WING NUTS.
- PLACE BACKFILL AROUND THE END SECTION AND OVER THE TOE PLATE. USE CARE DURING COMPACTION ALONG THE SIDES TO PREVENT DISTORTION.



CURB TRANSITION - INLETS
 NTS

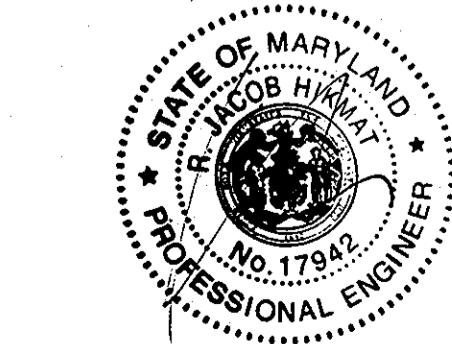
DEVELOPER
 ELLICOTT CITY LAND HOLDING, INC.
 C/O DON REUER
 5300 DORSEY HALL DRIVE
 ELLICOTT CITY, MD 21042
 443 367 0422

H:\03-051\Temp\Draw\03051-STORMDRAIN.dwg

APPROVED: DEPARTMENT OF PUBLIC WORKS
William J. White 4-21-05
 CHIEF BUREAU OF HIGHWAYS

APPROVED: DEPARTMENT OF PLANNING AND ZONING
Cindy Krawetz 4/27/05
 CHIEF, DIVISION OF LAND DEVELOPMENT

Chris P... .. 4/28/05
 CHIEF, DEVELOPMENT ENGINEERING DIVISION



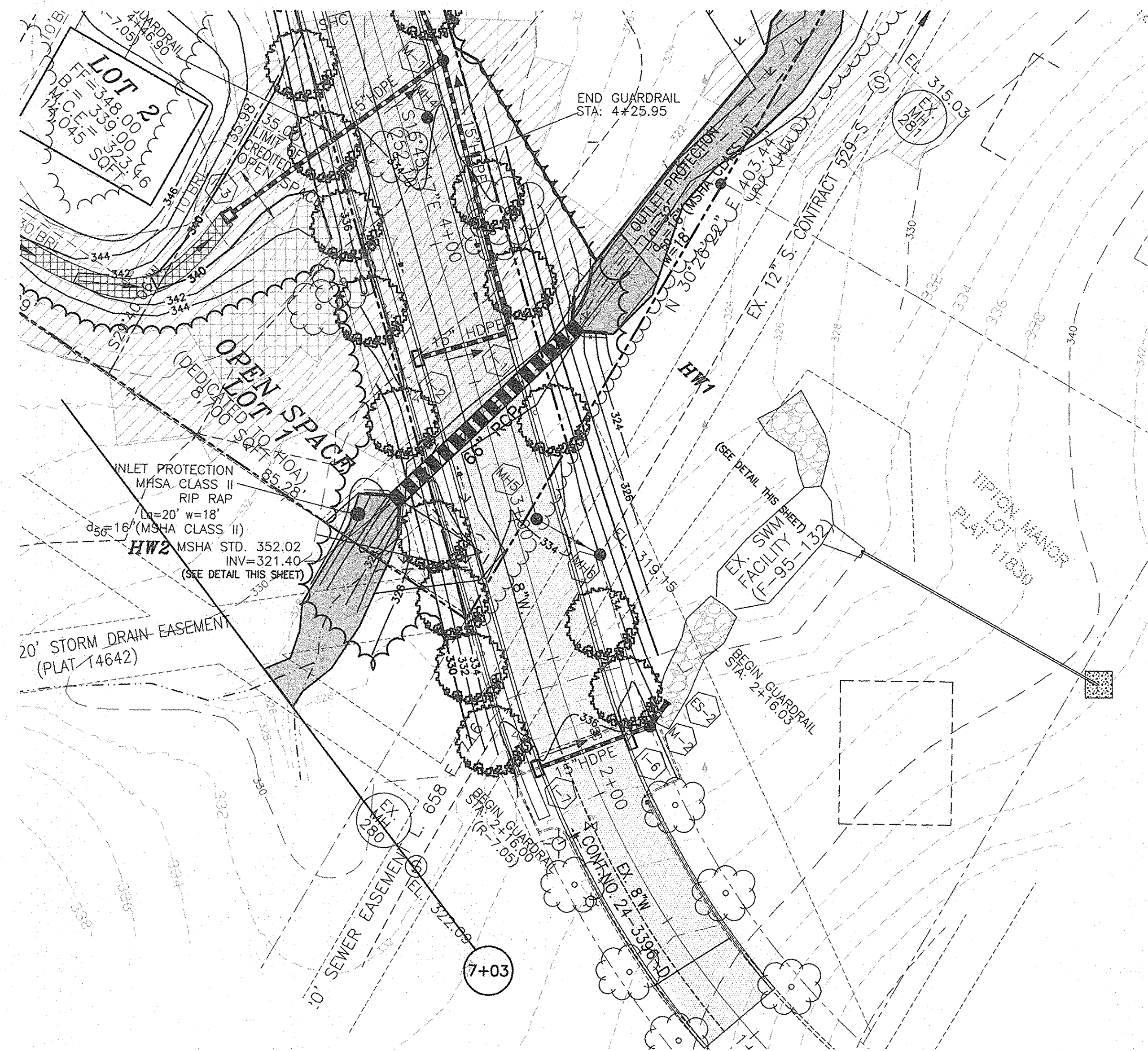
"I hereby certify that the facilities shown on this plan were constructed as shown on the 'As-Built' plans and made with the approved plans and specifications."

date	APRIL 05
project	03-051
illustration	SA
scale	1" = 50'
approval	RIH

no.	description	date

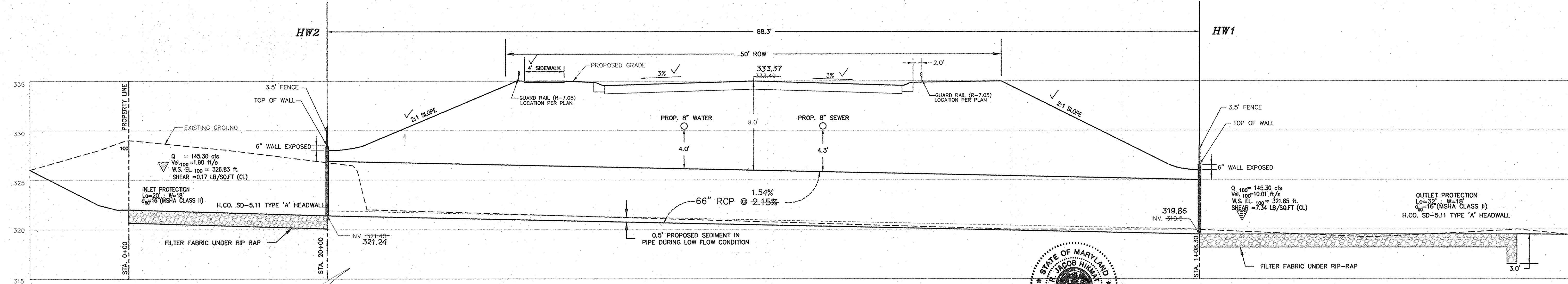
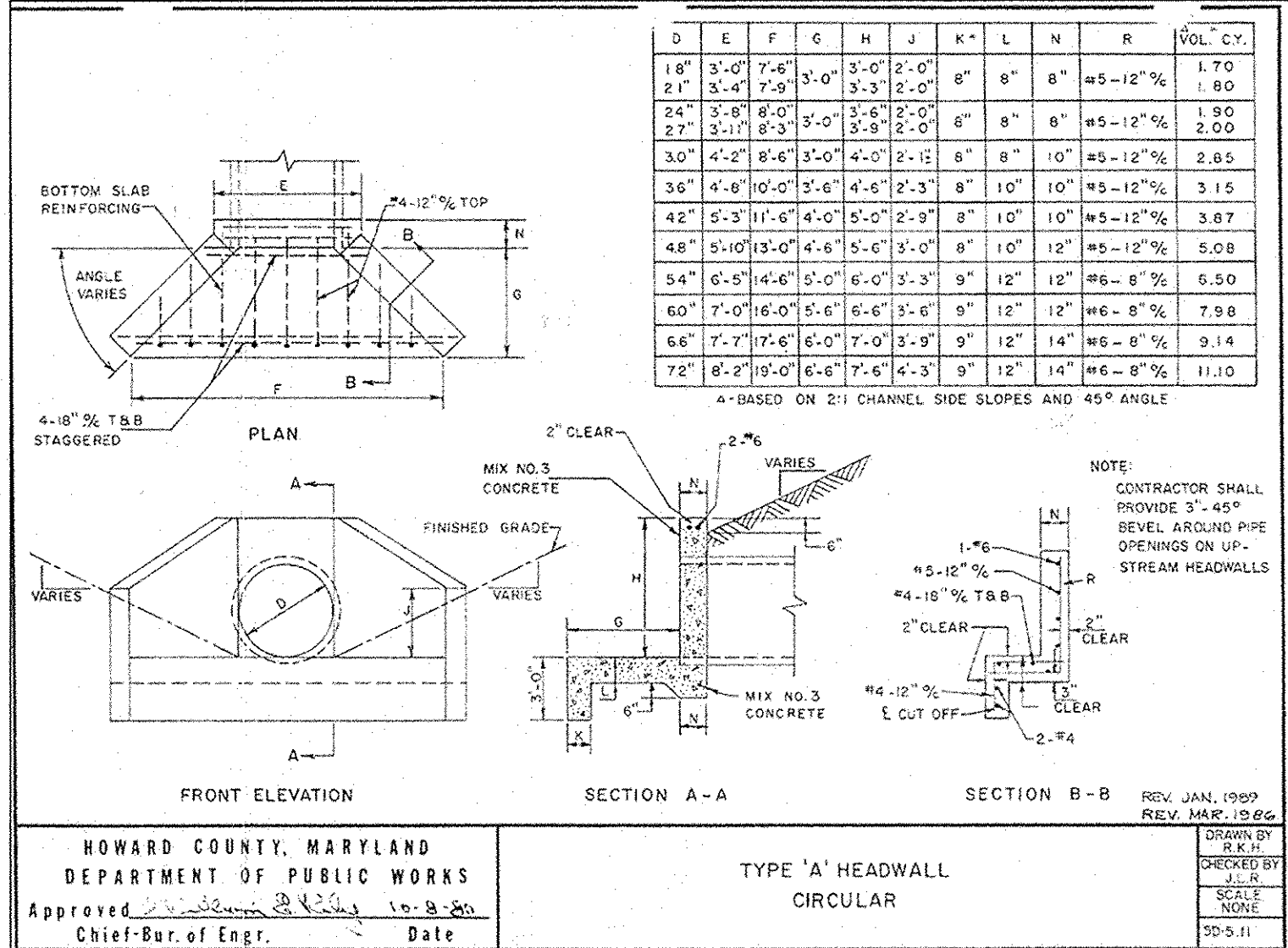
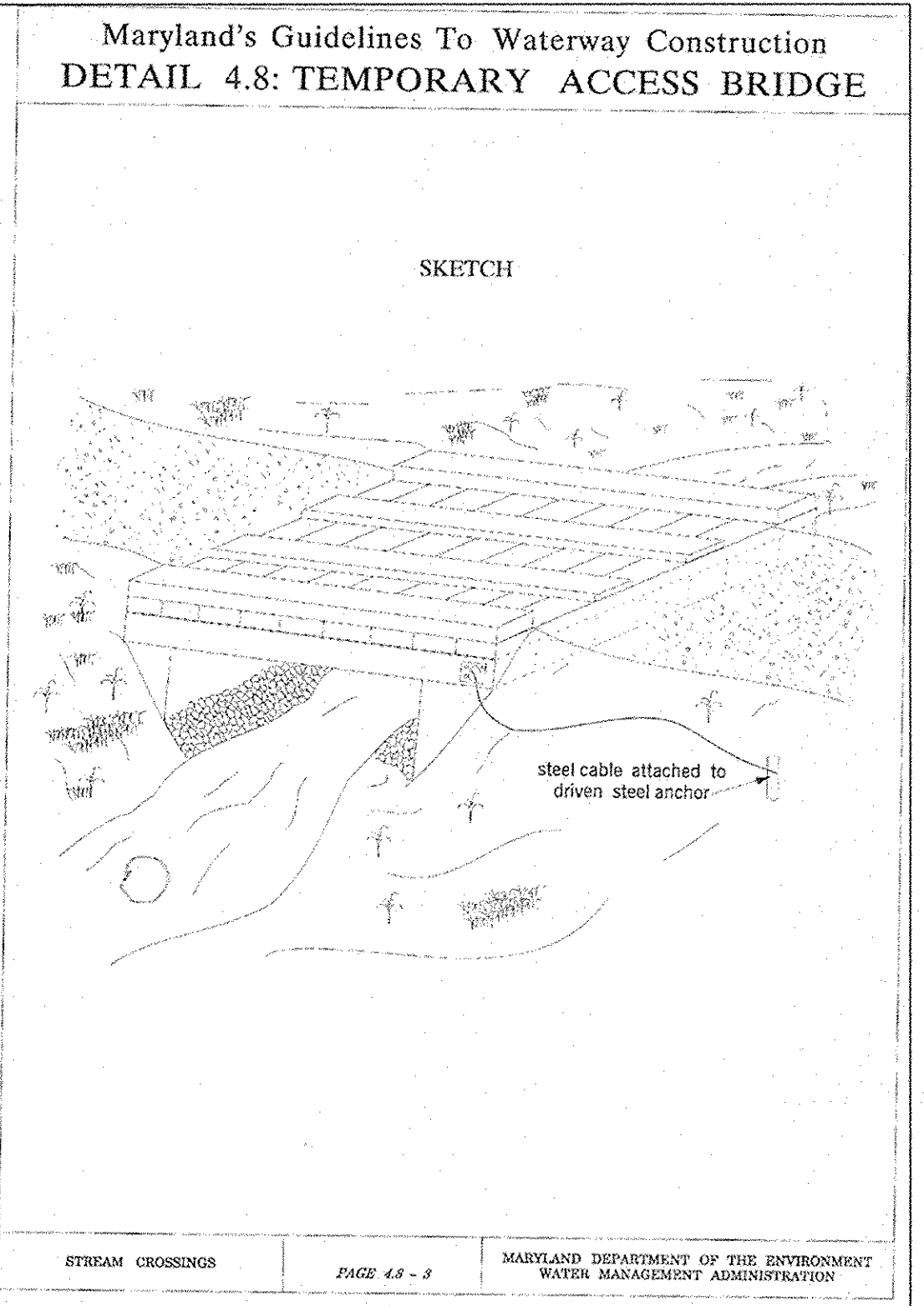
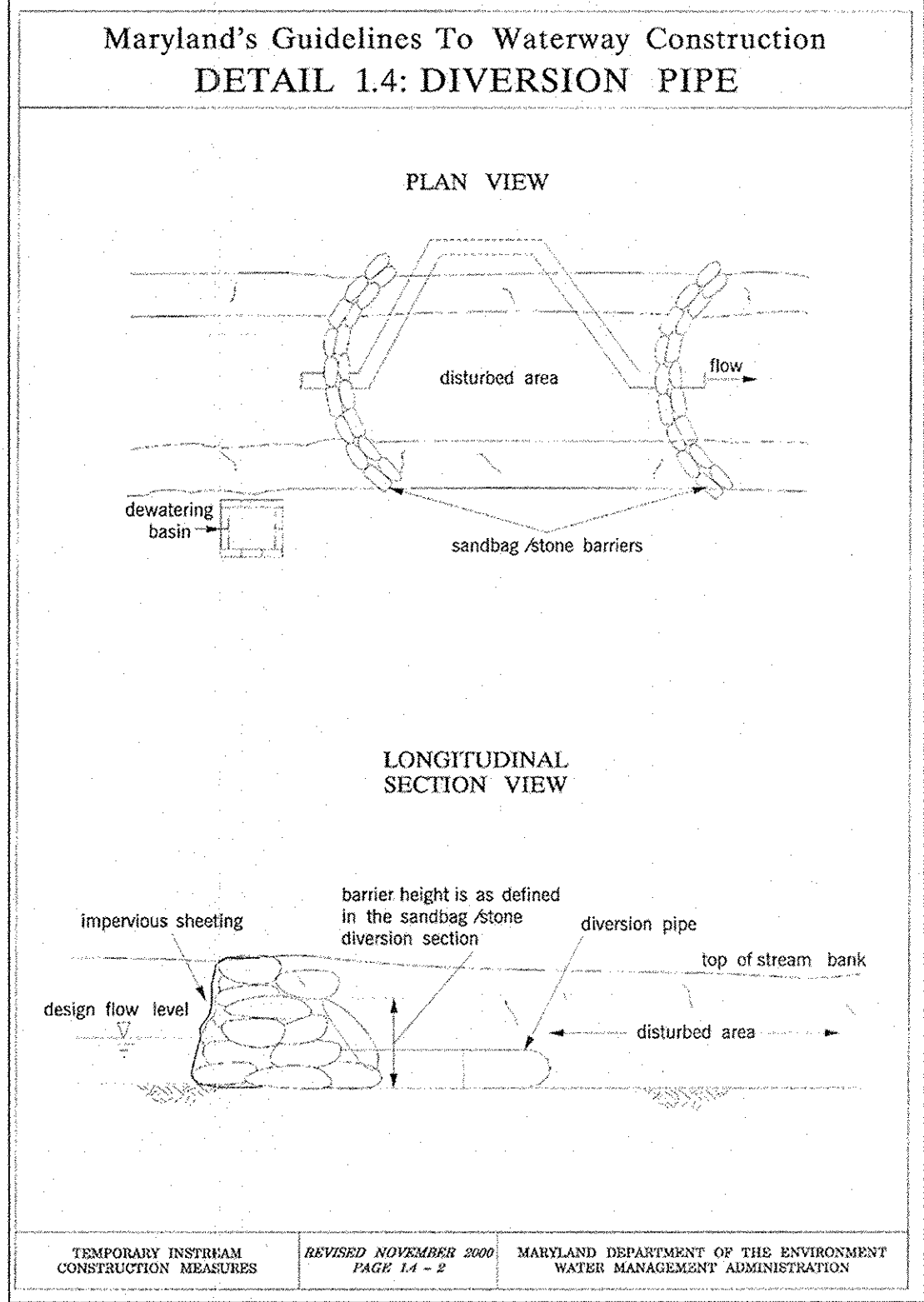
TIPTON OVERLOOK
 LOTS 2 THRU 8, PARCEL 8 - GRID 12
 TAX MAP 46 - PARCEL 8 - GRID 12
 HOWARD COUNTY, MARYLAND
 SIXTH ELECTION DISTRICT
FINAL PLAN AND PROFILE

MILDENBERG, BOENDER & ASSOC., INC.
 Engineers Planners Surveyors
 5072 Dorsey Hall Drive, Suite 202, Ellicott City, Maryland 21042
 (410) 997-0296 Baltimore (301) 621-5521 Wash. (410) 997-0298 Fax



PLAN
SCALE: 1" = 30'

NOTE:
CONTRACTOR TO VERIFY BEARING CAPACITY OF 3500 PSF. BY GEOTECHNICAL ENGINEER PRIOR TO CONSTRUCTION OF 66" CULVERT/ HEADWALL SYSTEM.



PROFILE THROUGH CULVERT PIPE - 66" RCP
SCALE: 1" = 5'

APPROVED: DEPARTMENT OF PUBLIC WORKS
William J. Malachuk 4-21-05
 CHIEF BUREAU OF HIGHWAYS
 APPROVED: DEPARTMENT OF PLANNING AND ZONING
Chris Horvat 4/27/05
 CHIEF, DIVISION OF LAND DEVELOPMENT
Chris Horvat 4/27/05
 CHIEF, DEVELOPMENT ENGINEERING DIVISION



"I hereby certify that the facility shown on this plan was constructed as shown on the 'As-Built' plans and meets with the approved plans and specifications."

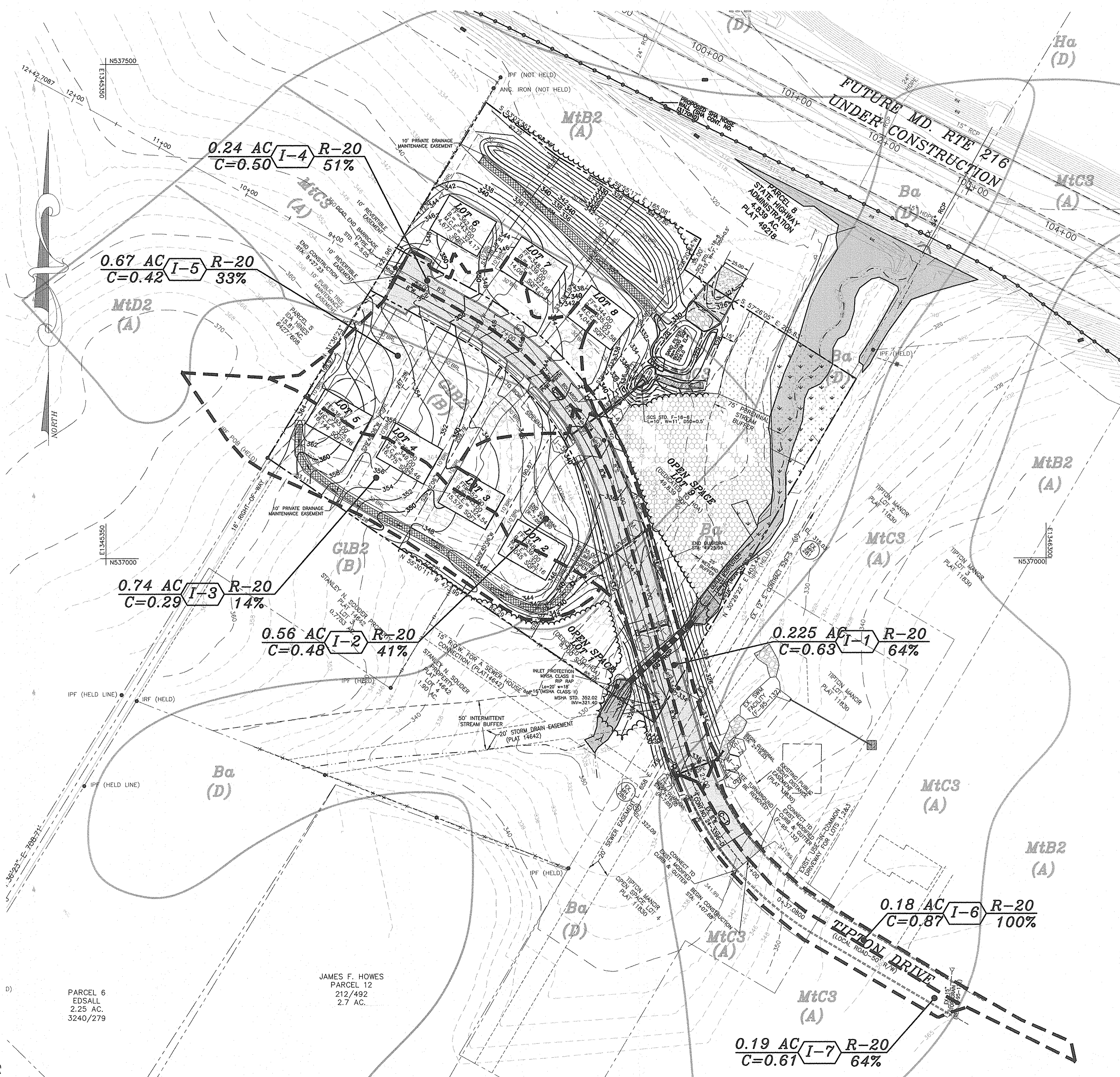
DEVELOPER
 ELLICOTT CITY LAND HOLDING, INC.
 C/O DON REUWER
 5300 DORSEY HALL DRIVE
 ELLICOTT CITY, MD 21042
 443 367 0422

project: 03-051
 date: APRIL 05
 illustration: SJD/SA
 engineering: approval
 scale: 1" = 30'

description: TIPTON OVERLOOK
 revisions: n.c.

TIPTON OVERLOOK
 LOTS 2 THRU 8, OPEN SPACES 1 AND 9
 TAX MAP 46 - PARCEL 8 - GRID 12
 HOWARD COUNTY, MARYLAND
 CULVERT PROFILES AND DETAILS

MILDENBERG, BOENDER & ASSOC., INC.
 Engineers Planners Surveyors
 5072 Dorsey Hall Drive, Suite 202, Ellicott City, Maryland 21042
 (410) 987-0296 Fax (410) 997-0298 Fax



SOILS CLASSIFICATION:

- Ba (D) BAILE SILT LOAM, 10% TO 30% SLOPES, SEVERLY ERODED
- GIB2 (B) GLENELGLOAM, 3% TO 8% SLOPES, MODERATLY ERODED
- MtB2 (A) MT. ARIY CHANNERY LOAM, 3% TO 8% SLOPES, MODERATLY ERODED
- MtC3 (A) SASSAFRAS LOAM, 8% TO 15% SLOPES, MODERATLY ERODED

DEVELOPER

ELLCOTT CITY LAND HOLDING, INC.
 C/O DON REUWER
 5300 DORSEY HALL DRIVE
 ELLCOTT CITY, MD 21042
 443 367 0422

BY THE DEVELOPER:

I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY 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 SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZED PERFORMANCE SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

[Signature] 4/11/05
 SIGNATURE OF DEVELOPER DATE
 DON REUWER
 PRINTED NAME OF DEVELOPER

BY THE ENGINEER:

I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE ADVISED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION.

[Signature] 4/11/05
 SIGNATURE OF ENGINEER DATE
 DON REUWER
 PRINTED NAME OF ENGINEER

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS.

[Signature] 4/11/05
 USFWS - NATURAL RESOURCE CONSERVATION SERVICE
 DATE

[Signature] 4/11/05
 HOWARD SOIL CONSERVATION DISTRICT
 DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS

[Signature] 4-21-05
 WILSON Z. WILSON, JR.
 CHIEF BUREAU OF HIGHWAYS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

[Signature] 4/21/05
 ANITA HANST
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

[Signature] 4/26/05
 DEVELOPMENT ENGINEERING DIVISION DATE

"I hereby certify that the facility shown on this plan was constructed as shown on the 'as-built' plans and conforms with the approved plans and specifications."

PARCEL 6
 EDSALL
 2.25 AC.
 3240/279

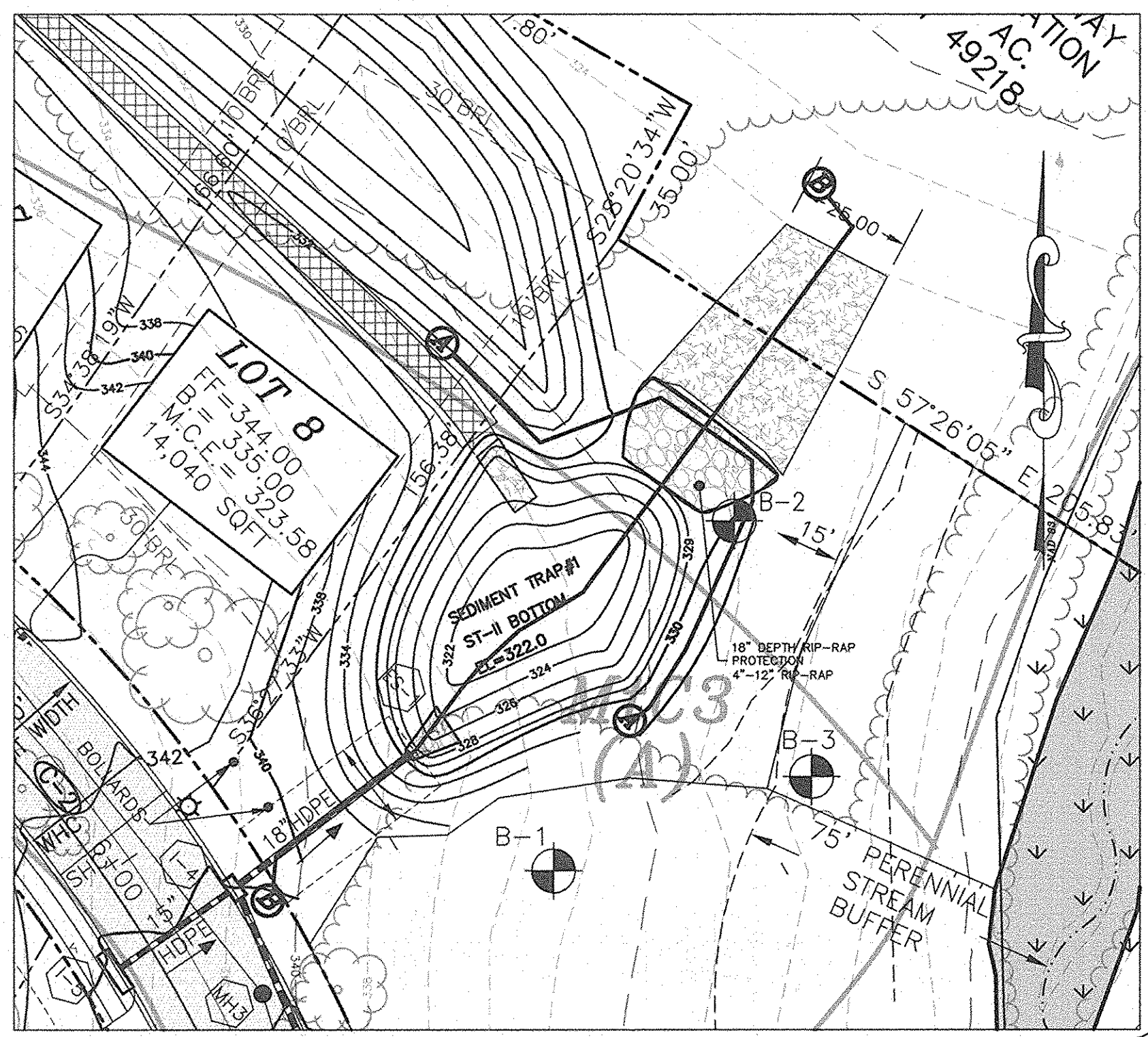
JAMES F. HOWES
 PARCEL 12
 212/492
 2.7 AC.

project	03-051	date	APRIL 05
illustration	SA	engineering	SA
scale	1"=60'	approval	RJH

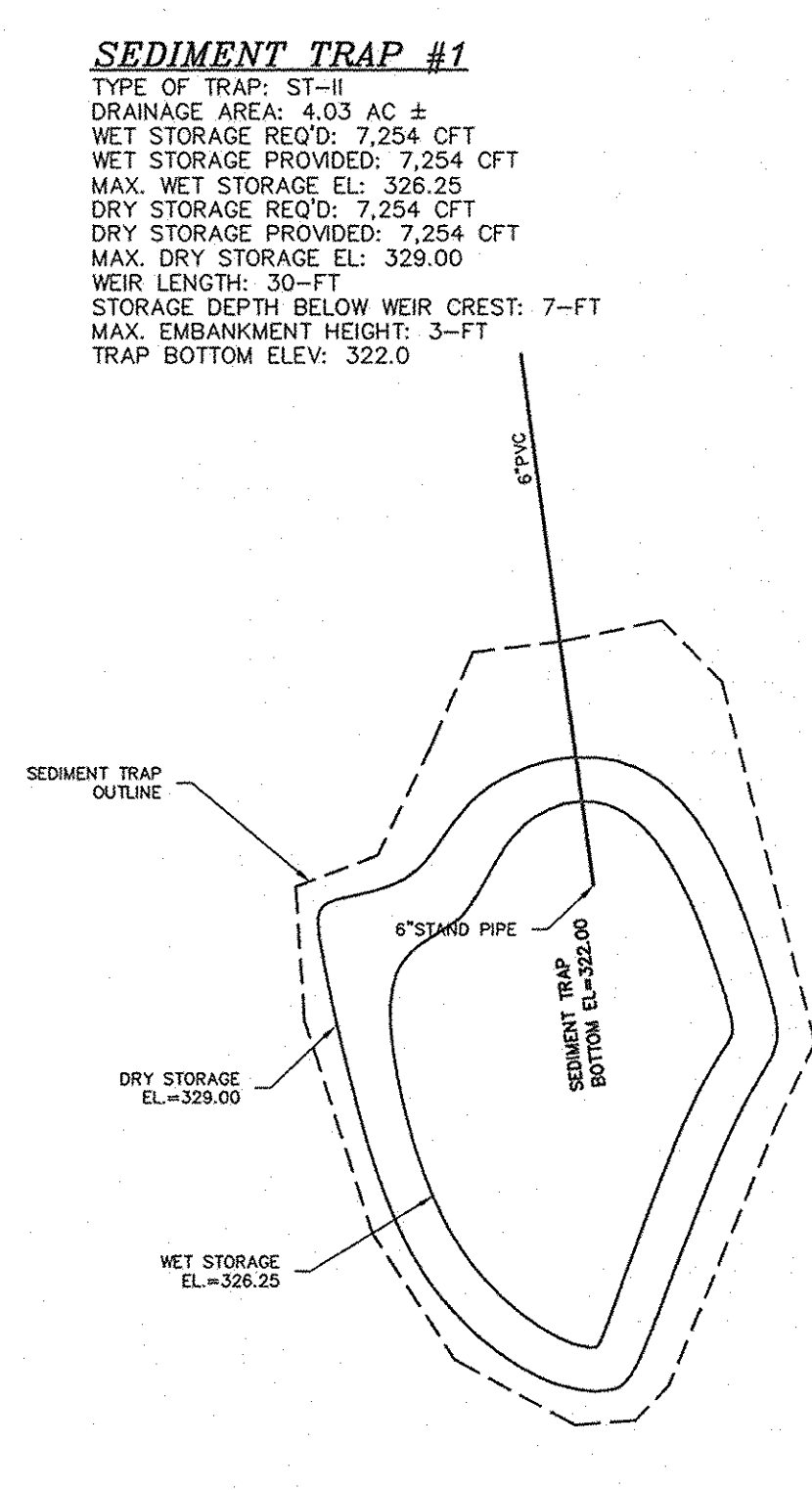
no.	description	date

TIPTON OVERLOOK
 LOTS 2 THRU 8, OPEN SPACES 1 AND 9
 TAX MAP 46 - PARCEL 8 - GRID 12
 SIXTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
 DRAINAGE AREA MAP

MILDENBERG, BOENDER & ASSOC., INC.
 Engineers Planners Surveyors
 5072 Dorsey Hall Drive, Suite 202, Ellicott City, Maryland 21042
 (410) 997-0296 Fax (301) 621-5521 Wash. (410) 997-0298 Fax



SEDIMENT TRAP PLAN
SCALE: 1"=30'

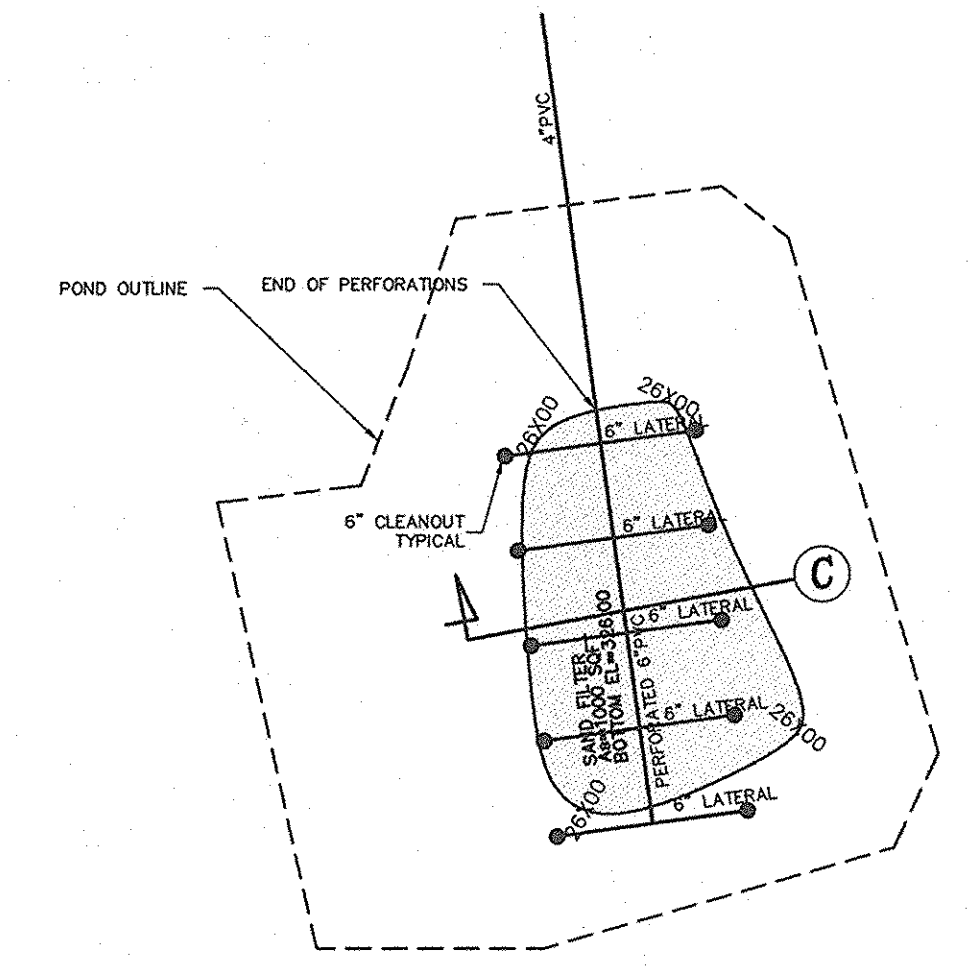


PLAN - SEDIMENT TRAP
SCALE: 1"=20'

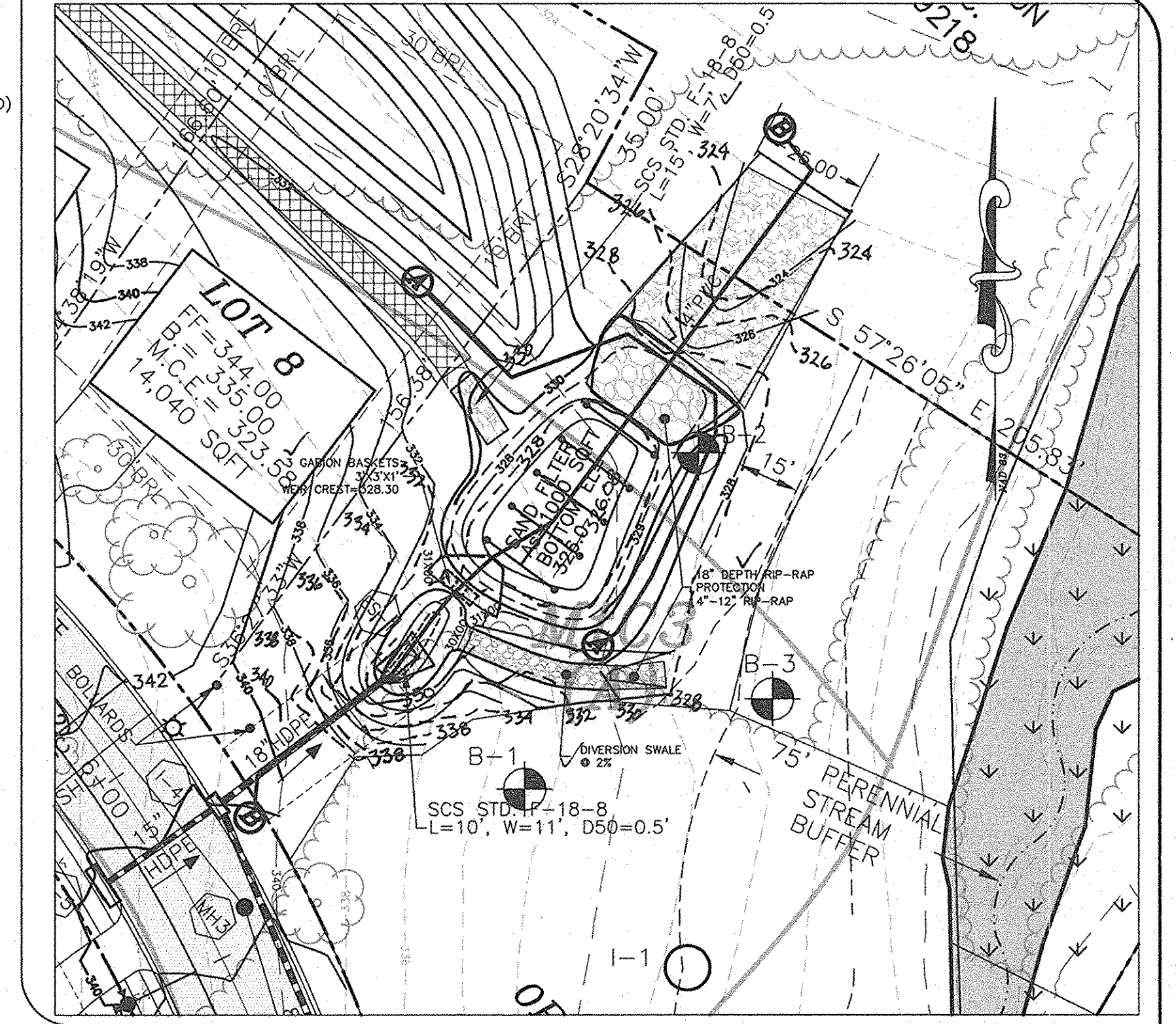
NOTE:
SEE SHEET 9 OF 10 FOR SAND FILTER SPECIFICATIONS

SWM POND DATA:

NON MD-378 POND	= 4.03 AC
DRAINAGE AREA:	= 67 (ULTIMATE DEVELOPMENT OF WATERSHED)
PROPOSED TO:	= 0.29 HRS.
SAND FILTER AREA (Wq):	= 1,000 SQ. FT.
10 YR. WSEL:	= 329.30
Wq REQUIRED:	= 5,445 Cu. Ft.
Wq PROVIDED:	= 5,445 Cu. Ft.
Wq EL:	= 328.88
REV REQUIRED:	= 1,525 Cu. Ft.
REV PROVIDED:	= 1,525 Cu. Ft.
1 YR. Q (OUT OF SWMF):	= 0.1 CFS @ EL = 329.00
10 YR. Q (OUT OF SWMF):	= 12.4 CFS @ EL = 329.30
OWNERSHIP:	PRIVATE
MAINTENANCE:	PRIVATE

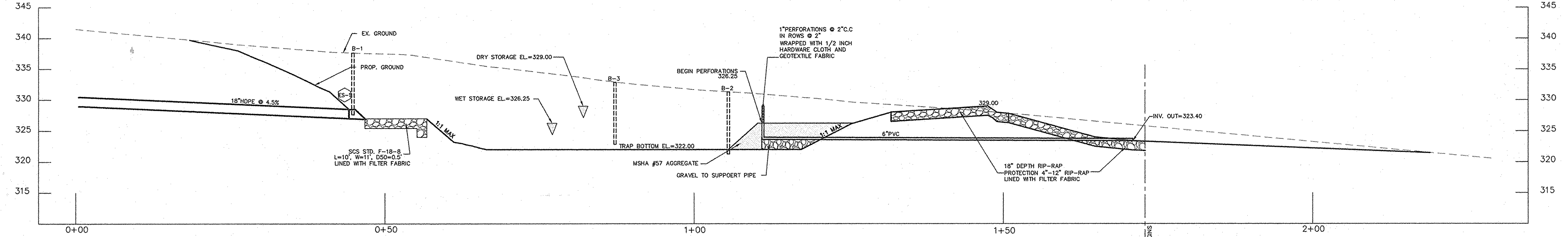


PLAN - SAND FILTER
SCALE: 1"=20'

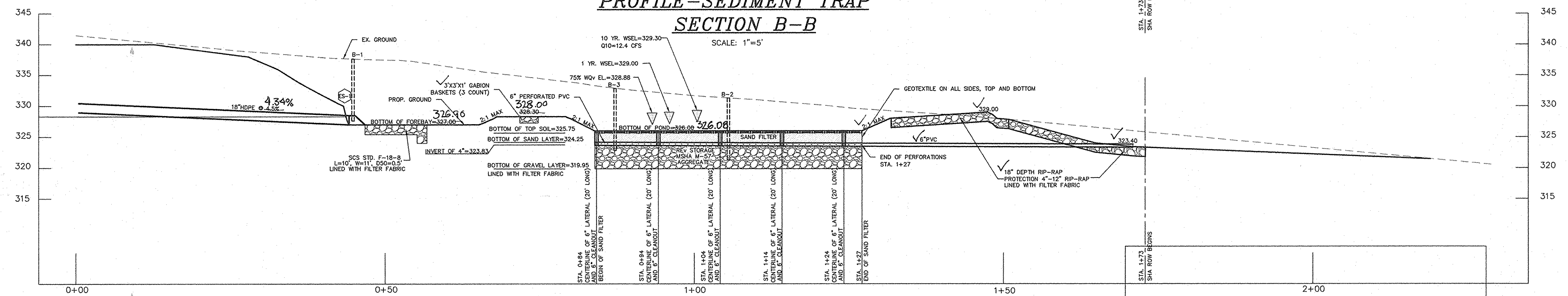


SWM POND PLAN
SCALE: 1"=30'

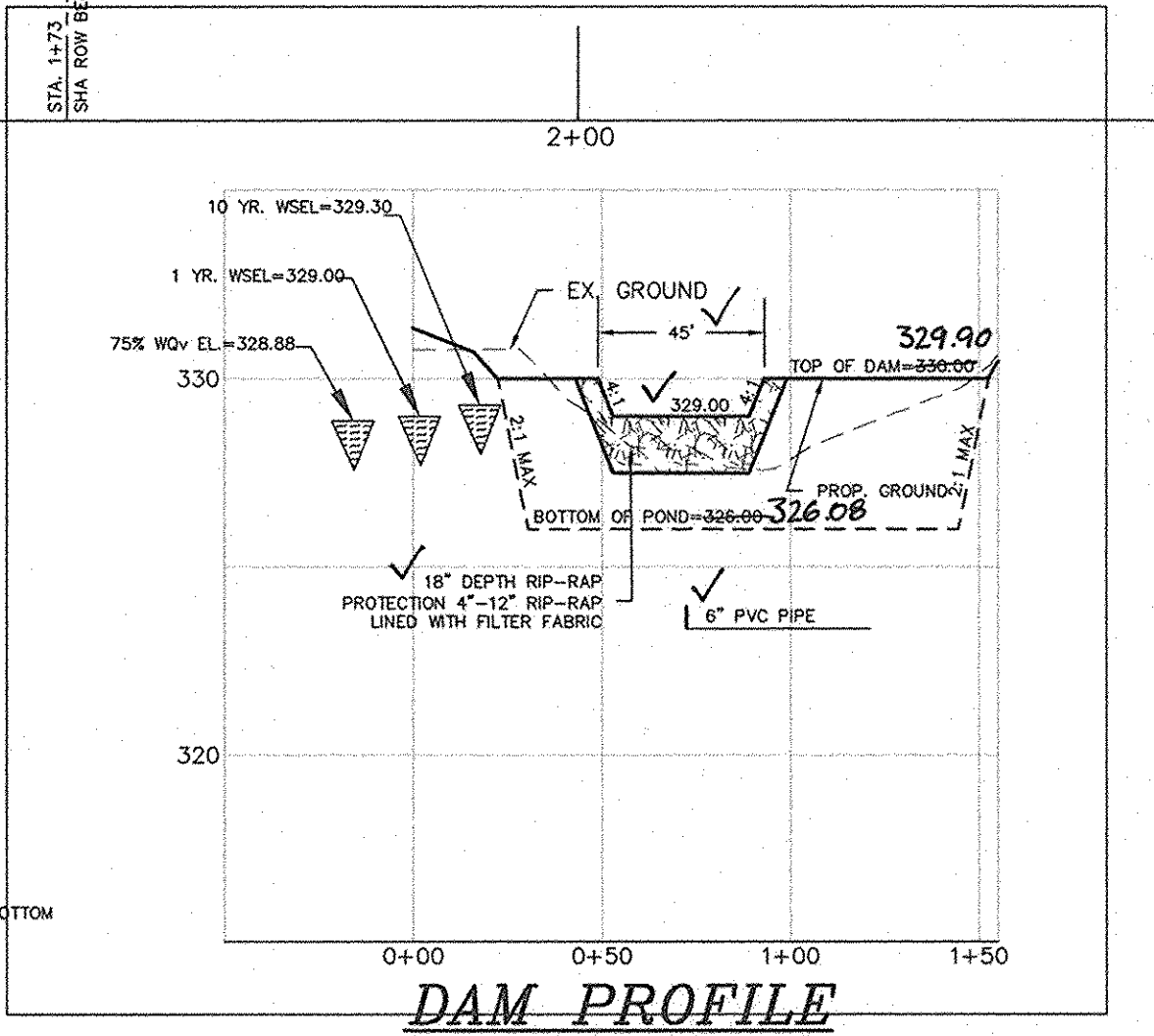
DEVELOPER
ELLCOTT CITY LAND HOLDING, INC.
C/O DON REUWER
8000 MAIN STREET
ELLCOTT CITY, MD 21043
(410) 480-9105



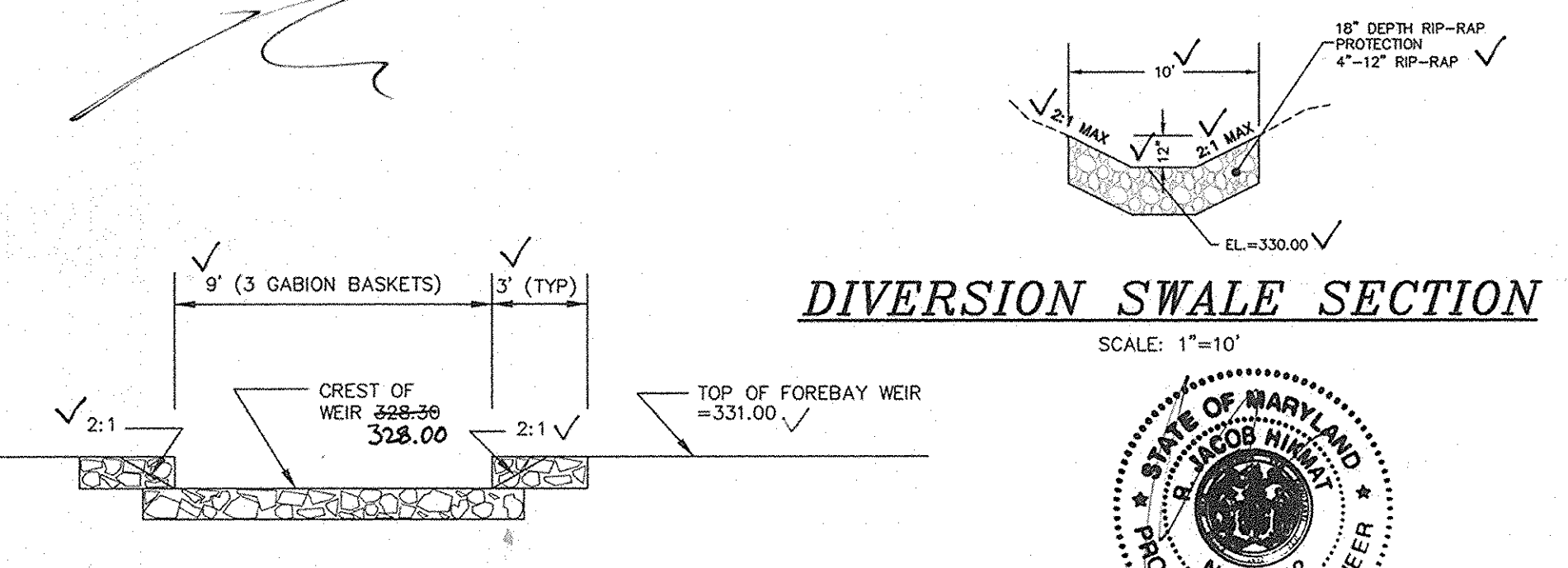
PROFILE - SEDIMENT TRAP SECTION B-B
SCALE: 1"=5'



PROFILE - PRINCIPLE SPILLWAY SECTION B-B
SCALE: 1"=5'



DAM PROFILE SECTION A-A
SCALE: HOR. 1"=50'
VER. 1"=5'



DIVERSION SWALE SECTION
SCALE: 1"=10'



FOREBAY WEIR SECTION
N.T.S.



"I hereby certify that the facility shown on this plan was constructed as shown on the 'As-Built' plans and meets with the approval of plans and specifications."

AS-BUILT CERTIFICATION
I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND MEETS THE APPROVED PLANS AND SPECIFICATIONS.

SIGNATURE: _____ P.E. NO.: _____
DATE: _____

CERTIFY MEANS TO STATE OR DECLARE A PROFESSIONAL OPINION BASED UPON ON-SITE INSPECTIONS AND MATERIAL TESTS WHICH ARE CONDUCTED DURING CONSTRUCTION. THE ON-SITE INSPECTIONS AND MATERIAL TESTS ARE THOSE INSPECTIONS AND TESTS DEEMED SUFFICIENT AND APPROPRIATE COMMONLY ACCEPTED ENGINEERING STANDARDS. CERTIFY DOES NOT MEAN OR IMPLY A GUARANTEE BY THE ENGINEER NOR DOES THE ENGINEER'S CERTIFICATION RELIEVE ANY OTHER PARTY FROM MEETING REQUIREMENTS IMPOSED BY CONTRACT, EMPLOYMENT, OR OTHER MEANS, INCLUDING MEETING COMMONLY ACCEPTED INDUSTRY PRACTICES.

BY THE DEVELOPER:
I, _____, CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY 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 SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

SIGNATURE OF DEVELOPER: _____ DATE: 4/12/05
PRINTED NAME OF DEVELOPER: _____

BY THE ENGINEER:
I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION.

SIGNATURE OF ENGINEER: _____ DATE: 4/12/05
PRINTED NAME OF ENGINEER: _____

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS.

APPROVED: DEPARTMENT OF PUBLIC WORKS
Walter T. White, Jr. 4-21-05
CHIEF BUREAU OF HIGHWAYS

APPROVED: DEPARTMENT OF PLANNING AND ZONING
Cecilia Hurst 4/29/05
CHIEF, DIVISION OF LAND DEVELOPMENT

APPROVED: DEPARTMENT OF ENGINEERING DIVISION
4/26/05

date	APRIL 05
project	03-051
illustration	SAIA
scale	1"=50'
description	SAIA
revisions	SAIA
date	
description	
revisions	
date	
description	
revisions	

date	
description	
revisions	
date	
description	
revisions	

TIPTON OVERLOOK
LOTS 2 THRU 8, OPEN SPACES 1 AND 9
TAX MAP 46 - PARCEL 8 - GRID 12
SIXTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
STORMWATER MANAGEMENT DETAILS

MILDENBERG, BOENDER & ASSOC., INC.
Engineers Planners Surveyors
5072 Dorsey Hall Drive, Suite 202, Tipton City, Maryland 21042
(410) 997-0296 Balt. (301) 621-5521 Wash. (410) 997-0298 Fax.

MD-378 POND SPECIFICATIONS (JANUARY 2000)

CONSTRUCTION SPECIFICATIONS
 THESE SPECIFICATIONS ARE APPROPRIATE TO ALL PONDS WITHIN THE SCOPE OF THE STANDARD FOR PRACTICE MD-378. ALL REFERENCES TO ASTM AND AASHTO SPECIFICATIONS APPLY TO THE MOST RECENT VERSION.

SITE PREPARATION
 AREAS DESIGNATED FOR BORROW AREAS, EMBANKMENT, AND STRUCTURAL WORKS SHALL BE CLEARED, GRUBBED AND STRIPPED OF TOPSOIL. ALL TREES, VEGETATION, ROOTS AND OTHER OBJECTIONABLE MATERIAL SHALL BE REMOVED. SHOULDER BANKS AND SWAMP DRAINS SHALL BE SLOPED TO NO STEEPER THAN 1:1. ALL TREES SHALL BE CLEARED AND GRUBBED WITHIN 15 FEET OF THE TOE OF THE EMBANKMENT.
 AREAS TO BE COVERED BY THE RESERVOIR WILL BE CLEARED OF ALL TREES, BRUSH, LOGS, FENCES, RUBBER AND OTHER OBJECTIONABLE MATERIAL, UNLESS OTHERWISE DESIGNATED ON THE PLANS. TREES, BRUSH, AND STUMPS SHALL BE CUT APPROXIMATELY LEVEL WITH THE GROUND SURFACE. FOR DRY STORM WATER MANAGEMENT PONDS, A MINIMUM OF A 25-FOOT RADIUS AROUND THE INLET STRUCTURE SHALL BE CLEARED.

ALL CLEARED AND GRUBBED MATERIAL SHALL BE DISPOSED OF OUTSIDE AND BELOW THE LIMITS OF THE DRAIN AND RESERVOIR AS DIRECTED BY THE OWNER OR HIS REPRESENTATIVE. WHEN SPECIFIED, A SUFFICIENT QUANTITY OF TOPSOIL WILL BE STOCKPILED IN A SUITABLE LOCATION FOR USE ON THE EMBANKMENT AND OTHER DESIGNATED AREAS.

EARTH FILL
 MATERIAL - THE FILL MATERIAL SHALL BE TAKEN FROM APPROVED DESIGNATED BORROW AREAS. IT SHALL BE FREE OF ROOTS, STUMPS, WOOD, RUBBER, STONES GREATER THAN 6" FROZEN OR OTHER OBJECTIONABLE MATERIAL. FILL MATERIAL FOR THE CENTER OF THE EMBANKMENT AND CUT OFF TRENCH SHALL CONFORM TO UNIFIED SOIL CLASSIFICATION CC, SC, CH, OR CL AND MUST HAVE AT LEAST 30% PASSING THE #200 SIEVE. CONSTRUCTION MAY BE GIVEN TO THE USE OF OTHER MATERIALS IN THE EMBANKMENT IF DESIGNED BY A GEOTECHNICAL ENGINEER. SUCH SPECIAL DESIGNS MUST HAVE CONSTRUCTION SUPERVISED BY A GEOTECHNICAL ENGINEER. MATERIALS USED IN THE OUTER SHELL OF THE EMBANKMENT MUST HAVE THE CAPABILITY TO SUPPORT VEGETATION OF THE QUALITY REQUIRED TO PREVENT EROSION OF THE EMBANKMENT.

PLACEMENT - AREAS ON WHICH FILL IS TO BE PLACED SHALL BE SCARIFIED PRIOR TO PLACEMENT OF FILL. FILL MATERIALS SHALL BE PLACED IN MAXIMUM 8 INCH THICK (BEFORE COMPACTION) LAYERS WHICH ARE TO BE CONTINUOUS OVER THE ENTIRE LENGTH OF THE FILL. THE MOST PERMEABLE BORROW MATERIAL SHALL BE PLACED IN THE DOWNSTREAM PORTIONS OF THE EMBANKMENT. THE PRINCIPAL SPILLWAYS MUST BE INSTALLED CONCURRENTLY WITH FILL PLACEMENT AND NOT EXCAVATED INTO THE EMBANKMENT.

COMPACTION - THE MOVEMENT OF THE HAULING AND SPREADING EQUIPMENT OVER THE FILL SHALL BE CONTROLLED SO THAT THE ENTIRE SURFACE OF EACH LIFT SHALL BE TRAVERSED BY NOT LESS THAN ONE TRUCK TRAIL OF HEAVY EQUIPMENT OR COMPACTION SHALL BE ACHIEVED BY A MINIMUM OF FOUR COMPLETE PASSES OF A SHEEPSFOOT, RUBBER TRED OR VIBRATORY ROLLER. FILL MATERIAL SHALL CONTAIN SUFFICIENT MOISTURE TO PERMIT THE DEGREE OF COMPACTION WILL BE OBTAINED WITH THE EQUIPMENT USED. THE FILL MATERIAL SHALL CONTAIN SUFFICIENT MOISTURE SO THAT IF FURROWED INTO A BALL IT WILL NOT CRUMBLE, BUT NOT SO WET THAT WATER CAN BE SQUEEZED OUT. WHEN REQUIRED BY THE REVENING AGENCY THE MINIMUM REQUIRED DENSITY SHALL NOT BE LESS THAN 95% OF MAXIMUM DRY DENSITY WITH A MOISTURE CONTENT WITHIN 2% OF THE OPTIMUM. EACH LAYER OF FILL SHALL BE COMPACTED AS NECESSARY TO OBTAIN THAT DENSITY, AND IS TO BE CERTIFIED BY THE ENGINEER AT THE TIME OF CONSTRUCTION. ALL COMPACTION IS TO BE DETERMINED BY AASHTO METHOD D-155 (STANDARD PROCTOR).

CUT OFF TRENCH - THE CUTOFF TRENCH SHALL BE LOCATED AND EXTENDED TO PARALLEL TO THE CENTERLINE OF THE EMBANKMENT AS SHOWN ON THE PLANS. THE BOTTOM WIDTH OF THE TRENCH SHALL BE COVERED BY THE EMBANKMENT FOR EXCAVATION, WITH THE MINIMUM WIDTH BEING FOUR FEET. THE DEPTH SHALL BE AT LEAST FOUR FEET BELOW EXISTING GRADE OR AS SHOWN ON THE PLANS. THE SIDE SLOPES OF THE TRENCH SHALL BE 1 TO 1 OR FLATTER. THE BACKFILL SHALL BE COMPACTED WITH CONSTRUCTION EQUIPMENT, ROLLERS, OR HAND TAMPERS TO ASSURE MAXIMUM DENSITY AND MINIMUM PERMEABILITY.

EMBANKMENT CORE - THE CORE SHALL BE PARALLEL TO THE CENTERLINE OF THE EMBANKMENT AS SHOWN ON THE PLANS. THE TOP WIDTH OF THE CORE SHALL BE A MINIMUM OF FOUR FEET. THE HEIGHT SHALL EXTEND UP TO AT LEAST THE 10 YEAR WATER ELEVATION. THE CORE SHALL BE PARALLEL TO THE CENTERLINE OF THE TRENCH. THE DEPTH SHALL BE AT LEAST FOUR FEET BELOW EXISTING GRADE OR AS SHOWN ON THE PLANS. THE SIDE SLOPES OF THE TRENCH SHALL BE 1 TO 1 OR FLATTER. THE BACKFILL SHALL BE COMPACTED WITH CONSTRUCTION EQUIPMENT, ROLLERS, OR HAND TAMPERS TO ASSURE MAXIMUM DENSITY AND MINIMUM PERMEABILITY. IN ADDITION, THE CORE SHALL BE PLACED CONCURRENTLY WITH THE OUTER SHELL OF THE EMBANKMENT.

STRUCTURAL BACKFILL
 BACKFILL ADJACENT TO PIPES OR STRUCTURES SHALL BE OF THE TYPE AND QUALITY CONFORMING TO THAT SPECIFIED FOR THE ADJOINING FILL MATERIAL. THE FILL SHALL BE PLACED IN HORIZONTAL LAYERS NOT TO EXCEED 12 INCH THICK. THE BACKFILL OPERATION SHALL BE ALLOWED TO OPERATE CLEARER THAN FOUR FEET. MEASURED HORIZONTALLY TO ANY PART OF A STRUCTURE. UNDER NO CIRCUMSTANCES SHALL EQUIPMENT BE DRIVEN OVER ANY PART OF A STRUCTURE OR PIPE UNLESS THERE IS A COMPACTED FILL OF 24" OR GREATER OVER THE STRUCTURE OR PIPE UNLESS THERE IS A COMPACTED FILL MEETING THE REQUIREMENTS OF MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, SECTION 921.09, CLASS C.
 1. MATERIALS - REINFORCED CONCRETE PIPE SHALL HAVE BELL AND SPIGOT JOINTS WITH RUBBER GASKETS AND SHALL EQUAL OR EXCEED ASTM C-361.
 2. BEDDING - REINFORCED CONCRETE PIPE CONDUITS SHALL BE LAID IN A CONCRETE BEDDING/GRADE FOR THEIR ENTIRE LENGTH. THIS BEDDING/GRADE SHALL CONSIST OF HIGH STRENGTH CONCRETE PLACED UNDER THE PIPE AND UP THE SIDES OF THE PIPE AT LEAST 50% OF ITS OUTSIDE DIAMETER WITH A MINIMUM THICKNESS OF 6 INCHES. WHERE A CONCRETE GRADE IS NOT NEEDED FOR STRUCTURAL REASONS, FLOWABLE BEDDING MAY BE USED AS DESCRIBED IN THE "STRUCTURE BACKFILL" SECTION OF THIS STANDARD. GRAVEL BEDDING IS NOT PERMITTED.
 3. LAYING PIPE - BELL AND SPIGOT PIPE SHALL BE PLACED WITH THE BELL END UPSTREAM. JOINTS SHALL BE MADE IN ACCORDANCE WITH THE REQUIREMENTS OF THE MANUFACTURER. AFTER THE JOINTS ARE SEALED FOR THE ENTIRE LINE, THE BEDDING SHALL BE PLACED SO THAT ALL SPACES UNDER THE PIPE ARE FILLED. CARE SHALL BE EXERCISED TO PREVENT ANY DEVIATION FROM THE ORIGINAL LINE AND GRADE OF THE PIPE. THE FIRST JOINT MUST BE LOCATED WITHIN 4 FEET FROM THE RISER.
 4. BACKFILL SHALL CONFORM TO "STRUCTURE BACKFILL".
 5. OTHER DETAILS (ANTI-SEEP COLLARS, VALVES, ETC.) SHALL BE AS SHOWN ON THE DRAWINGS.
 6. REINFORCED CONCRETE PIPE - ALL OF THE FOLLOWING CRITERIA SHALL APPLY FOR REINFORCED CONCRETE PIPE:
 1. MATERIALS - REINFORCED CONCRETE PIPE SHALL HAVE BELL AND SPIGOT JOINTS WITH RUBBER GASKETS AND SHALL EQUAL OR EXCEED ASTM C-361.
 2. BEDDING - REINFORCED CONCRETE PIPE CONDUITS SHALL BE LAID IN A CONCRETE BEDDING/GRADE FOR THEIR ENTIRE LENGTH. THIS BEDDING/GRADE SHALL CONSIST OF HIGH STRENGTH CONCRETE PLACED UNDER THE PIPE AND UP THE SIDES OF THE PIPE AT LEAST 50% OF ITS OUTSIDE DIAMETER WITH A MINIMUM THICKNESS OF 6 INCHES. WHERE A CONCRETE GRADE IS NOT NEEDED FOR STRUCTURAL REASONS, FLOWABLE BEDDING MAY BE USED AS DESCRIBED IN THE "STRUCTURE BACKFILL" SECTION OF THIS STANDARD. GRAVEL BEDDING IS NOT PERMITTED.
 3. LAYING PIPE - BELL AND SPIGOT PIPE SHALL BE PLACED WITH THE BELL END UPSTREAM. JOINTS SHALL BE MADE IN ACCORDANCE WITH THE REQUIREMENTS OF THE MANUFACTURER. AFTER THE JOINTS ARE SEALED FOR THE ENTIRE LINE, THE BEDDING SHALL BE PLACED SO THAT ALL SPACES UNDER THE PIPE ARE FILLED. CARE SHALL BE EXERCISED TO PREVENT ANY DEVIATION FROM THE ORIGINAL LINE AND GRADE OF THE PIPE. THE FIRST JOINT MUST BE LOCATED WITHIN 4 FEET FROM THE RISER.
 4. BACKFILL SHALL CONFORM TO "STRUCTURE BACKFILL".
 5. OTHER DETAILS (ANTI-SEEP COLLARS, VALVES, ETC.) SHALL BE AS SHOWN ON THE DRAWINGS.
 6. REINFORCED CONCRETE PIPE - ALL OF THE FOLLOWING CRITERIA SHALL APPLY FOR REINFORCED CONCRETE PIPE:
 1. MATERIALS - REINFORCED CONCRETE PIPE SHALL BE PVC-1120 OR PVC-1220 CONFORMING TO ASTM D1785 OR ASTM D-2241 CORRUGATED HIGH DENSITY POLYETHYLENE (HDPE) PIPE, COUPLINGS AND FITTINGS SHALL CONFORM TO THE FOLLOWING: 4" - 10" INCH PIPE SHALL MEET THE REQUIREMENTS OF AASHTO M252 TYPE S, AND 12" THROUGH 24" INCH SHALL MEET THE REQUIREMENTS OF AASHTO M254 TYPE S.
 2. JOINTS AND CONNECTIONS TO ANTI-SEEP COLLARS SHALL BE COMPLETELY WATER TIGHT.
 3. BEDDING - THE PIPE SHALL BE FIRMLY AND UNIFORMLY BEDDED THROUGHOUT ITS ENTIRE LENGTH. WHERE ROCK OR SOFT, SPONGY OR OTHER UNDESIRABLE SOIL IS ENCOUNTERED, ALL SUCH MATERIAL SHALL BE REMOVED AND REPLACED WITH SUITABLE EARTH COMPACTED TO PROVIDE ADEQUATE SUPPORT.
 4. BACKFILL SHALL CONFORM TO "STRUCTURE BACKFILL".
 5. OTHER DETAILS (ANTI-SEEP COLLARS, VALVES, ETC.) SHALL BE AS SHOWN ON THE DRAWINGS.
 6. DRAINAGE DIAPHRAGMS - WHEN A DRAINAGE DIAPHRAGM IS USED, A REGISTERED PROFESSIONAL ENGINEER WILL SUPERVISE THE DESIGN AND CONSTRUCTION INSPECTION.

PIPE CONDUIT
 ALL PIPES SHALL BE CIRCULAR IN CROSS SECTION.
 CORRUGATED METAL PIPE - ALL OF THE FOLLOWING CRITERIA SHALL APPLY FOR CORRUGATED METAL PIPE:
 1. MATERIALS - (POLYMER COATED STEEL PIPE) - STEEL PIPES WITH POLYMER COATINGS SHALL HAVE A MINIMUM COATING THICKNESS OF 0.01 INCH (10 MIL) ON BOTH SIDES OF THE PIPE. THIS PIPE AND ITS APPURTENANCES SHALL CONFORM TO THE REQUIREMENTS OF AASHTO SPECIFICATIONS M-245 & M-246 WITH WATER TIGHT COUPLING BANGS OR FLANGES.
 MATERIALS - (ALUMINUM COATED STEEL PIPE) - THIS PIPE AND ITS APPURTENANCES SHALL CONFORM TO THE REQUIREMENTS OF AASHTO SPECIFICATION M-274 WITH WATER TIGHT COUPLING BANGS OR FLANGES. ALUMINUM COATED STEEL PIPE, WHEN USED WITH FLOWABLE FILL OR WHEN SOIL AND/OR WATER CONDITIONS WARRANT THE NEED FOR INCREASED DURABILITY, SHALL BE FULLY BITUMINOUS COATED PER REQUIREMENTS OF AASHTO SPECIFICATION M-190 TYPE A. AN ALUMINUM COATING DAMAGED OR OTHERWISE REMOVED SHALL BE REPLACED WITH COATED BITUMINOUS COATING COMPANED. DAMAGED SURFACES THAT ARE TO BE IN CONTACT WITH CONCRETE SHALL BE PAINTED WITH ONE COAT OF ZINC CHROMATE PRIMER OR TWO COATS OF ASPHALT. HOT DIP GALVANIZED STEEL MAY BE USED FOR CONNECTIONS. THE PH OF THE SURROUNDING SOILS SHALL BE BETWEEN 4 AND 9.
 MATERIALS - (ALUMINUM PIPE) - THIS PIPE AND ITS APPURTENANCES SHALL CONFORM TO THE REQUIREMENTS OF AASHTO SPECIFICATION M-190 OR M-21 WITH WATER TIGHT COUPLING BANGS OR FLANGES. ALUMINUM PIPE, WHEN USED WITH FLOWABLE FILL OR WHEN SOIL AND/OR WATER CONDITIONS WARRANT FOR INCREASED DURABILITY, SHALL BE FULLY BITUMINOUS COATED PER REQUIREMENTS OF AASHTO SPECIFICATION M-190 TYPE A. ALUMINUM SURFACES THAT ARE TO BE IN CONTACT WITH CONCRETE SHALL BE PAINTED WITH ONE COAT OF ZINC CHROMATE PRIMER OR TWO COATS OF ASPHALT. HOT DIP GALVANIZED STEEL MAY BE USED FOR CONNECTIONS. THE PH OF THE SURROUNDING SOILS SHALL BE BETWEEN 4 AND 9.
 2. COUPLING BANGS, ANTI-SEEP COLLARS, END SECTIONS, ETC. MUST BE COMPOSED OF THE SAME MATERIAL AND COATINGS AS THE PIPE. METALS MUST BE INSTALLED FROM DISJUNCT MATERIALS WITH USE OF RUBBER OR PLASTIC INSULATING MATERIALS AT LEAST 24 MILS IN THICKNESS.
 3. CONNECTIONS - ALL CONNECTIONS WITH PIPES MUST BE COMPLETELY WATER TIGHT. THE DRAIN PIPE OR BARREL CONNECTION TO THE RISER SHALL BE WELDED ALL AROUND WHEN THE PIPE AND RISER ARE METAL. ANTI-SEEP COLLARS SHALL BE CONSTRUCTED TO THE PIPE IN SUCH A MANNER AS TO BE COMPLETELY WATER TIGHT. DUMPLE BANGS ARE NOT CONSIDERED TO BE WATER TIGHT.
 ALL CONNECTIONS SHALL USE A RUBBER OR NEOPRENE GASKET WHEN JOINING PIPE SECTIONS. THE END OF EACH PIPE SHALL BE RE-ROLLED AN ADEQUATE NUMBER OF CORRUGATIONS TO ACCOMMODATE THE BANDWIDTH. THE FOLLOWING TYPICAL CONNECTIONS ARE ACCEPTABLE FOR PIPES LESS THAN 24 INCHES IN DIAMETER: FLANGES ON BOTH ENDS OF THE PIPE WITH A CIRCULAR 3/8 INCH CLOSED CELL NEOPRENE GASKET, PIPE-FINISHED TO THE FLANGE BOLT CIRCLE, SANDWICHED BETWEEN ADJACENT FLANGES; A 12-INCH WIDE STANDARD LAP TYPE BAND WITH 12-INCH WIDE BY 3/8-INCH THICK CLOSED CELL CIRCULAR NEOPRENE GASKET; AND A 12-INCH WIDE RUBBER TYPE BAND WITH 3/8-INCH THICK GASKETS HAVING A MINIMUM DIAMETER OF 3/8 INCH GREATER THAN THE CORRUPTION DEPTH. PIPES 24 INCHES IN DIAMETER AND LARGER SHALL BE CONNECTED BY A 24 INCH LONG ANNUAL CORRUGATED BAND USING A MINIMUM OF 4 (FOUR) RINGS AND JOBS, 2 ON EACH LONGING PIPE END. A 24-INCH WIDE BY 3/8-INCH THICK CLOSED CELL CIRCULAR NEOPRENE GASKET WILL BE INSTALLED WITH 12 INCHES ON THE END OF EACH PIPE. FLANGED JOINTS WITH 3/8 INCH CLOSED CELL GASKETS THE FULL WIDTH OF THE FLANGE IS ALSO ACCEPTABLE.
 HELICALLY CORRUGATED PIPE SHALL HAVE EITHER CONTINUOUSLY WELDED SEAMS OR HAVE LOCK SEAMS WITH INTERNAL COUPLING OR A NEOPRENE BEAD.
 4. BEDDING - THE PIPE SHALL BE FIRMLY AND UNIFORMLY BEDDED THROUGHOUT ITS ENTIRE LENGTH. WHERE ROCK OR SOFT, SPONGY OR OTHER UNDESIRABLE SOIL IS ENCOUNTERED, ALL SUCH MATERIAL SHALL BE REMOVED AND REPLACED WITH SUITABLE EARTH COMPACTED TO PROVIDE ADEQUATE SUPPORT.
 5. BACKFILL SHALL CONFORM TO "STRUCTURE BACKFILL".
 6. OTHER DETAILS (ANTI-SEEP COLLARS, VALVES, ETC.) SHALL BE AS SHOWN ON THE DRAWINGS.

OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED SURFACE STORMWATER FILTRATION SYSTEM

1. THE STORMWATER WETLAND FACILITY SHALL BE INSPECTED ANNUALLY AND AFTER MAJOR STORMS. INSPECTIONS SHALL BE PERFORMED DURING WET WEATHER TO DETERMINE IF THE FACILITY IS FUNCTIONING PROPERLY.
2. THE TOP AND SIDE SLOPES OF THE EMBANKMENT SHALL BE MOWED A MINIMUM OF ONCE PER YEAR, WHEN VEGETATION REACHES 18" IN HEIGHT OR AS NEEDED.
3. FILTERS THAT HAVE A GRASS COVER SHALL BE MOWED A MINIMUM OF THREE (3) TIMES PER GROWING SEASON TO MAINTAIN A MAXIMUM GRASS HEIGHT OF LESS THAN 12 INCHES.
4. DEBRIS AND LITTER SHALL BE REMOVED DURING REGULAR MOWING OPERATION AND AS NEEDED.
5. VISIBLE SIGNS OF EROSION IN THE FACILITY SHALL BE REPAIRED AS SOON AS IT IS NOTICED.
6. REMOVE SILT WHEN IT EXCEEDS FOUR (4) INCHES DEEP IN THE FOREBAY.
7. WHEN WATER POND ON THE SURFACE OF THE FILTER BED FOR MORE THAN 72 HOURS, THE TOP FEW INCHES OF DISCOLORED MATERIAL SHALL BE REPLACED WITH FRESH MATERIAL. PROPER CLEANING AND DISPOSAL OF THE REMOVED MATERIAL AND LIQUID MUST BE FOLLOWED BY THE OWNER.
8. A LOG BOOK SHALL BE MAINTAINED TO DETERMINE THE RATE AT WHICH THE FACILITY DRAINS.
9. THE MAINTENANCE LOG BOOK SHALL BE AVAILABLE TO HOWARD COUNTY FOR INSPECTION TO INSURE COMPLIANCE WITH OPERATION AND MAINTENANCE CRITERIA.
10. ONCE THE PERFORMANCE CHARACTERISTICS OF THE INFILTRATION SYSTEM HAVE BEEN VERIFIED, THE MONITORING SCHEDULE CAN BE REDUCED TO AN ANNUAL BASIS UNLESS THE PERFORMANCE DATA INDICATES THAT A MORE FREQUENT SCHEDULE IS REQUIRED.

4. SPECIFICATIONS PERTAINING TO UNDERGROUND SAND FILTERS (F-2)

PROVIDE MANHOLE AND/OR GRATES TO ALL UNDERGROUND AND BELOW GRADE STRUCTURES. MANHOLES SHALL BE IN COMPLIANCE WITH STANDARD SPECIFICATIONS FOR EACH COUNTY BUT DIAMETERS SHOULD BE 30" MINIMUM (TO COMPLY WITH OSHA CONFINED SPACE REQUIREMENTS). ALUMINUM AND STEEL COVERED DOORS ARE ALSO ACCEPTABLE. TEN INCH WIDE (MINIMUM) MANHOLE STEPS (12 O.C.) SHALL BE CAST IN PLACE OR DRILLED AND MORTARED INTO THE WALL BELOW EACH MANHOLE. A 2" MINIMUM HEIGHT CLEARANCE (FROM THE TOP OF THE SAND LAYER TO THE BOTTOM OF THE UPPER SURFACE SLAB) IS REQUIRED FOR ALL PERMANENT UNDERGROUND STRUCTURES. LEFT RISERS ARE TO BE SUPPLIED TO REMOVE/REPLACE TOP SLABS ON PRE-FABRICATED STRUCTURES. MANHOLE COVERS SHOULD ALLOW FOR PROPER VENTILATION.
 UNDERGROUND SAND FILTERS SHOULD BE CONSTRUCTED WITH A GATE VALVE LOCATED JUST ABOVE THE TOP OF THE FILTER BED FOR DRAINING IN THE EVENT THAT CLOGGING OCCURS.
 UNDERGROUND SAND BEDS SHALL BE PROTECTED FROM TRUCK ACCUMULATION BY A WIDE MESH GEOTEXTILE SCREEN TO BE PLACED ON THE SURFACE OF THE SAND BED. SCREEN TO BE ROLLED UP, REMOVED, CLEANED AND RE-INSTALLED DURING MAINTENANCE OPERATIONS.

GEOTECHNICAL RECOMMENDATIONS:

THE AREA OF THE PROPOSED SWM FACILITY SHOULD BE STRIPPED OF TOPSOIL, AND ANY OTHER UNSUITABLE MATERIALS FROM THE EMBANKMENT OR STRUCTURE AREA IN ACCORDANCE WITH SOIL CONSERVATION GUIDELINES. AFTER STRIPPING OPERATIONS HAVE BEEN COMPLETED, THE EXPOSED SURFACE MATERIALS SHOULD BE PROTECTED WITH A LOADED DUMP TRUCK OR SIMILAR EQUIPMENT IN THE PRESENCE OF A GEOTECHNICAL ENGINEER OR HIS REPRESENTATIVE.

FOR AREAS THAT ARE NOT ACCESSIBLE TO A DUMP TRUCK, THE EXPOSED MATERIALS SHOULD BE OBSERVED AND TESTED BY A GEOTECHNICAL ENGINEER OR HIS REPRESENTATIVE UTILIZING A DYNAMIC CONE PENETROMETER. ANY EXCESSIVELY SOFT OR LOOSE MATERIALS IDENTIFIED BY PROFILING OR PENETROMETER TESTING SHOULD BE EXCAVATED TO SUITABLE FIRM SOIL, AND THEN GRASSES RE-ESTABLISHED BY BACKFILLING WITH SUITABLE SOIL.

A REPRESENTATIVE OF THE GEOTECHNICAL ENGINEER SHOULD BE PRESENT TO MONITOR PLACEMENT AND COMPACTION OF FILL FOR THE EMBANKMENT AND CUT-OFF TRENCH. IN ACCORDANCE WITH HAZARDOUS SOIL CONSERVATION SPECIFICATIONS, 308 SOILS CONSIDERED SUITABLE FOR CENTER OF EMBANKMENT AND CUT-OFF TRENCH SHALL CONFORM TO UNIFIED SOIL CLASSIFICATION CC, SC, CH OR CL.

IT IS OUR PROFESSIONAL OPINION THAT IN ADDITION TO THE SOIL MATERIALS DESCRIBED ABOVE A FINE-GRAINED SOIL, INCLUDING SILT (ML) WITH A PLASTICITY INDEX OF 10 OR MORE CAN BE UTILIZED FOR THE CENTER OF THE EMBANKMENT AND CORE TRENCH. ALL FILL MATERIALS MUST BE PLACED AND COMPACTED IN ACCORDANCE WITH MD SCS 178 SPECIFICATIONS.

BEST MANAGEMENT PRACTICES FOR WORKING IN NONTIDAL WETLANDS, WETLAND BUFFERS, WATERWAYS, AND 100-YEAR FLOODPLAINS

1. NO EXCESS FILL, CONSTRUCTION MATERIAL, OR DEBRIS SHALL BE STOCKPILED OR STORED IN NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, WATERWAYS, OR THE 100-YEAR FLOODPLAIN.
2. PLACE MATERIALS IN A LOCATION AND MANNER THAT DOES NOT ADVERSELY IMPACT SURFACE OR SUBSURFACE WATER FLOW INTO OR OUT OF NON-TIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, WATERWAYS, OR THE 100-YEAR FLOODPLAIN.
3. DO NOT USE THE EXCAVATED MATERIAL AS BACKFILL IF IT CONTAINS WASTE METAL PRODUCTS, UNSIGHTLY DEBRIS, TOXIC MATERIAL, OR ANY OTHER DELETERIOUS SUBSTANCE. IF ADDITIONAL BACKFILL IS REQUIRED, USE CLEAN MATERIAL FREE OF WASTE METAL PRODUCTS, UNSIGHTLY DEBRIS, TOXIC MATERIAL, OR ANY OTHER DELETERIOUS SUBSTANCE.
4. PLACE HEAVY EQUIPMENT ON MATS OR SUITABLY OPERATE THE EQUIPMENT TO PREVENT DAMAGE TO NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, WATERWAYS, OR THE 100-YEAR FLOODPLAIN.
5. REPAIR AND MAINTAIN ANY SERVICEABLE STRUCTURE OR FILL SO THERE IS NO PERMANENT LOSS OF NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, OR WATERWAYS, OR PERMANENT MODIFICATION OF THE 100-YEAR FLOODPLAIN IN EXCESS OF THAT LOST UNDER THE ORIGINALLY AUTHORIZED STRUCTURE OR FILL.
6. RECTIFY ANY NONTIDAL WETLANDS, WETLAND BUFFERS, WATERWAYS, OR 100-YEAR FLOODPLAIN TEMPORARILY IMPACTED BY ANY CONSTRUCTION.
7. ALL STABILIZATION IN THE NONTIDAL WETLAND AND NONTIDAL WETLAND BUFFER SHALL CONSIST OF THE FOLLOWING SPECIES: ANNUAL RIVERGRASS (COSSM MULTIFLORUM), MILLET (SETARIA ITALICA), BARLEY (HORDEUM SP.), OATS (Avena SP.), AND/OR RYE (SECALE CEREALE). THESE SPECIES WILL ALLOW FOR THE STABILIZATION OF THE SITE WHILE ALSO ALLOWING FOR THE VOLUNTARY REVEGETATION OF NATURAL WETLAND SPECIES. OTHER NON-PERSISTENT VEGETATION MAY BE ACCEPTABLE BUT MUST BE APPROVED BY THE NONTIDAL WETLANDS & WATERWAYS DIVISION, KENTUCKY 31 FESCUE SHALL NOT BE UTILIZED IN WETLAND OR BUFFER AREAS. THE AREA SHOULD BE SEEDED AND MOWED TO REDUCE EROSION AFTER CONSTRUCTION ACTIVITIES HAVE BEEN COMPLETED.
8. AFTER INSTALLATION HAS BEEN COMPLETED, MAKE POST-CONSTRUCTION GRADES AND ELEVATIONS THE SAME AS THE ORIGINAL GRADES AND ELEVATIONS IN TEMPORARILY IMPACTED AREAS.
9. TO PROTECT ANAEROBIC SPECIES, IN-STREAM WORK IS PROHIBITED AS DETERMINED BY THE CLASSIFICATION OF THE STREAM:
 USE 1: WATERS - IN-STREAM WORK SHALL NOT BE CONDUCTED DURING THE PERIOD MARCH 1 THROUGH JUNE 15, INCLUSIVE, DURING ANY YEAR.
10. STORMWATER MANAGEMENT RUNOFF FROM IMPERVIOUS SURFACES SHALL BE CONTROLLED TO PREVENT THE WASHING OF DEBRIS INTO THE WATERWAY.
11. COLLECTERS SHALL BE CONSTRUCTED AND ANY RIPRAP PLACED SO AS NOT TO OBSTRUCT THE MOVEMENT OF AQUATIC SPECIES, UNLESS THE PURPOSE OF THE ACTIVITY IS TO INFLOW WATER.

SAND FILTER SPECIFICATIONS:

1. MATERIAL SPECIFICATIONS FOR SAND FILTERS
 THE ALLOWABLE MATERIALS FOR SAND FILTER CONSTRUCTION ARE DETAILED IN TABLE B.3.1.
2. SAND FILTER TESTING SPECIFICATIONS
 UNDERGROUND SAND FILTERS, FACILITIES WITH SENSITIVE GROUNDWATER ADJACENTS, AND FILTERS DESIGNED TO SERVE URBAN HOT SPOTS ARE TO BE TESTED FOR WATER TIGHTNESS PRIOR TO PLACEMENT OF FILTER MEDIA. ENTRANCES AND EXITS SHOULD BE FLUGHED AND THE SYSTEM COMPLETELY FILLED WITH WATER TO DISKIMINATE WATER TIGHTNESS. WATER TIGHTNESS MEANS NO LEAKAGE FOR A PERIOD OF 8 HOURS.
 ALL OVERFLOW WEIRS, MULTIPLE ORIFICES AND FLOW DISTRIBUTION SLOTS ARE TO BE FIELD-TESTED TO VERIFY ADEQUATE DISTRIBUTION OF FLOWS.
3. SAND FILTER CONSTRUCTION SPECIFICATIONS
 PROVIDE SUFFICIENT MAINTENANCE ACCESS (i.e., 12-FOOT-WIDE ROAD WITH LEGALLY RECORDED EASEMENT). VEGETATED ACCESS SLOPES ARE TO BE A MAXIMUM OF 10% GRAVEL SLOPES TO 15% GRAVEL SLOPES TO 25%.
 ABSOLUTELY NO RUNOFF IS TO ENTER THE FILTER UNTIL ALL CONTRIBUTING DRAINAGE AREAS HAVE BEEN STABILIZED.
 SURFACE OF FILTER BED IS TO BE LEVEL.
 ALL UNDERGROUND SAND FILTERS SHOULD BE CLEARLY DELINEATED WITH SIGNS SO THAT THEY MAY BE LOCATED WHEN MAINTENANCE IS NEEDED.
 SURFACE SAND FILTERS MAY BE PLACED WITH APPROPRIATE GRASSES; SEE APPENDIX A.
 "PROTECT" SAND FILTERS (AND RESIDENTIAL BIODIVERSITY FACILITIES TREATING AREAS LARGER THAN AN ACRE) SHALL BE SITED THAT COVERS APPROXIMATELY 10% OF THE FILTER AREA. THIS "PROTECT" SHALL BE FILLED PER GRAVEL (3/4 INCH STONE).

DEVELOPER

ELLCOTT CITY LAND HOLDING, INC.
 C/O DON REUWER
 5300 DORSEY HALL DRIVE
 ELLCOTT CITY, MD 21042
 443 367 0422

BY THE DEVELOPER:
 I, THE DEVELOPER, CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL OBTAIN AND MAINTAIN ALL NECESSARY PERMITS AND APPROVALS FROM THE DEPARTMENT OF THE ENVIRONMENT AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERSONS ON-SITE IN ACCORDANCE WITH THE HOWARD SOIL CONSERVATION DISTRICT'S POLICY.
 Signature of Developer: *Don Reuwer* Date: *4/12/05*
 Signature of Engineer: *William J. Boender* Date: *4/12/05*

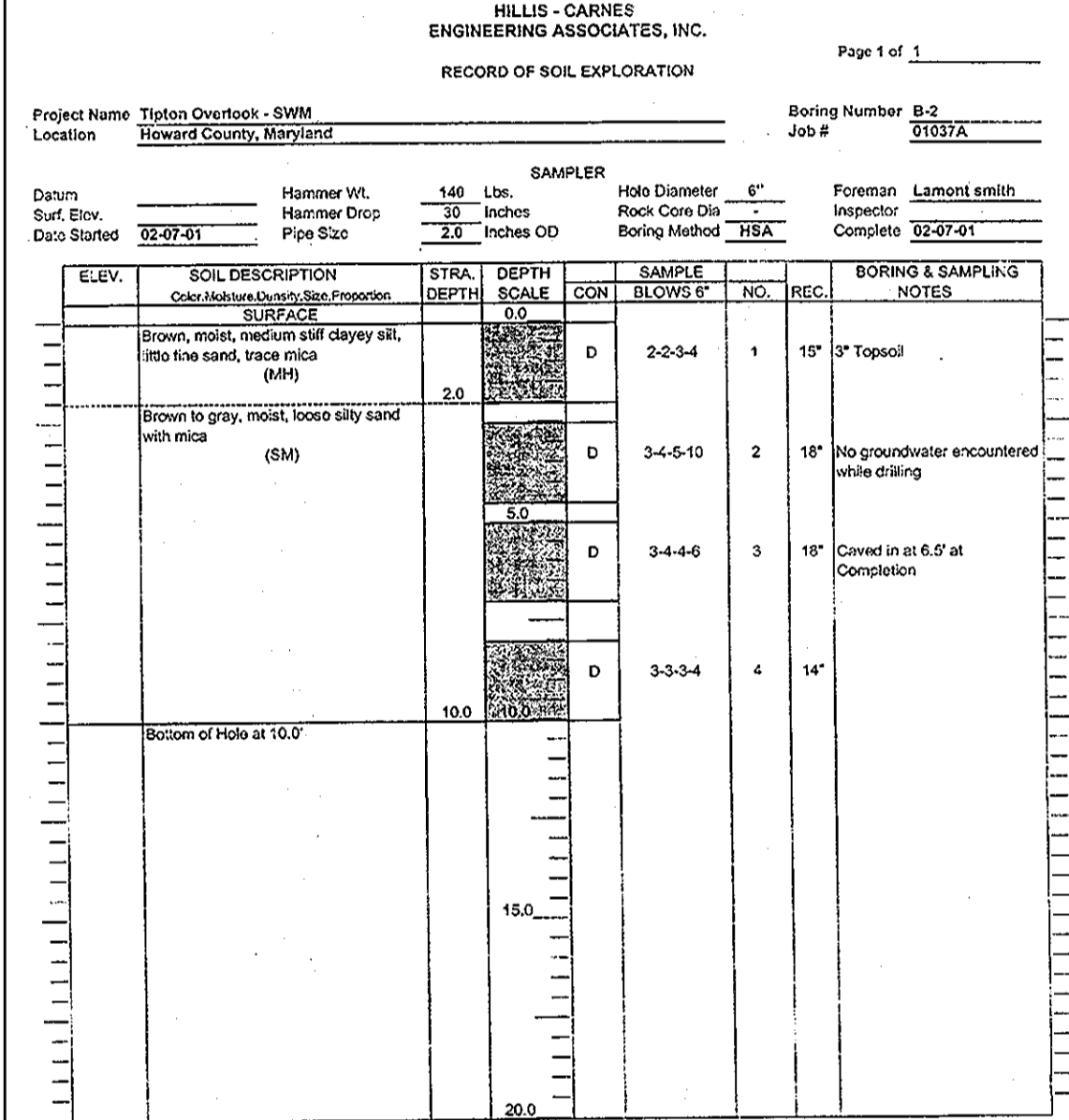
BY THE ENGINEER:
 I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE ADVISED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION.
 Signature of Engineer: *William J. Boender* Date: *4/12/05*

APPROVED: DEPARTMENT OF PUBLIC WORKS
 Signature: *William J. Boender* Date: *4-21-05*
 CHIEF, BUREAU OF HIGHWAYS

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 Signature: *Andy Harvath* Date: *4/20/05*
 CHIEF, DIVISION OF LAND DEVELOPMENT

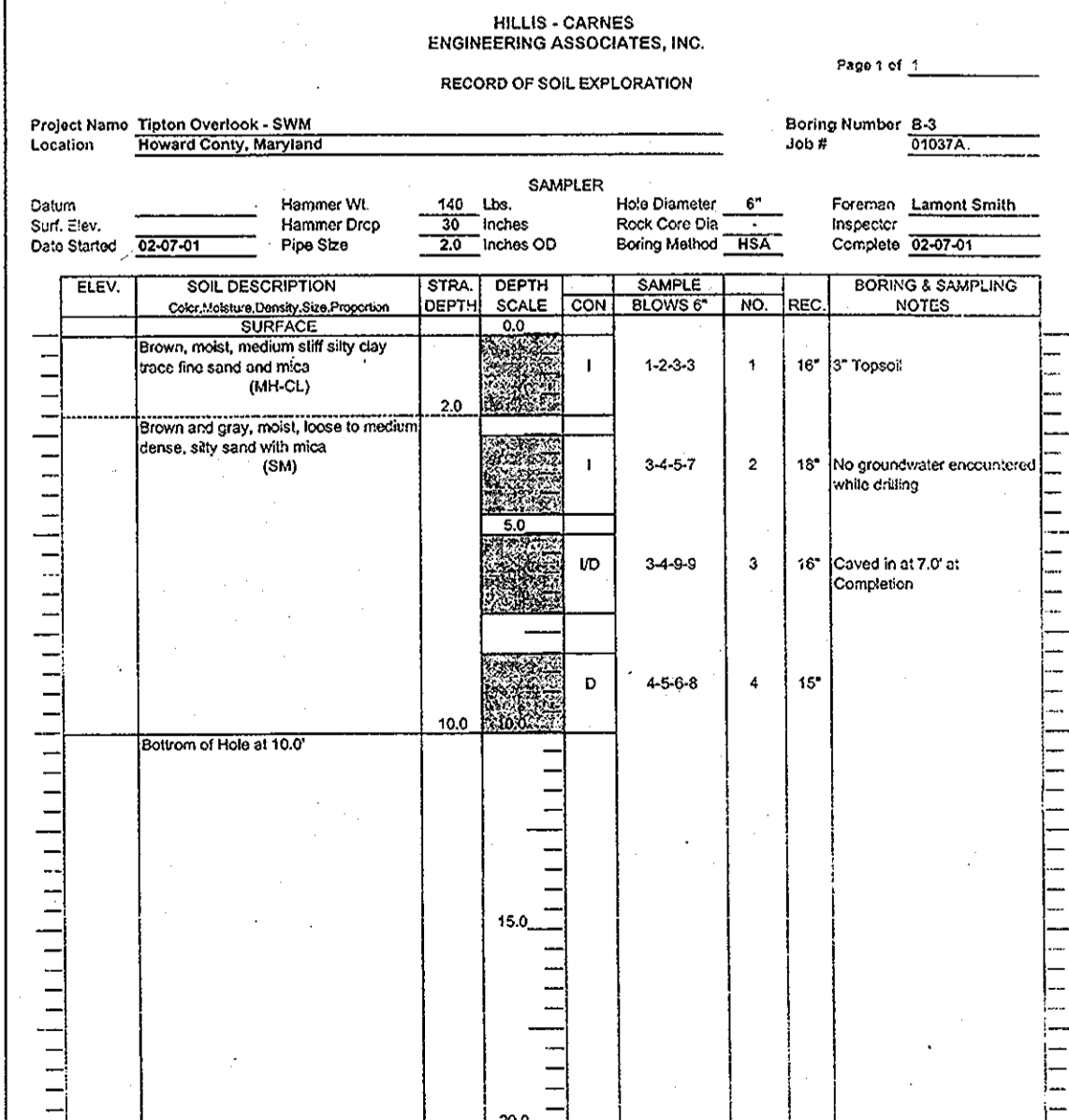
APPROVED: DEPARTMENT OF ENVIRONMENTAL AND NATURAL RESOURCES
 Signature: *Jim Mays* Date: *4/18/05*
 CHIEF, DIVISION OF ENVIRONMENTAL AND NATURAL RESOURCES

APPROVED: HOWARD SOIL CONSERVATION DISTRICT
 Signature: *John L. Harlan* Date: *4/18/05*
 CHIEF, DEVELOPMENT/ENGINEERING DIVISION

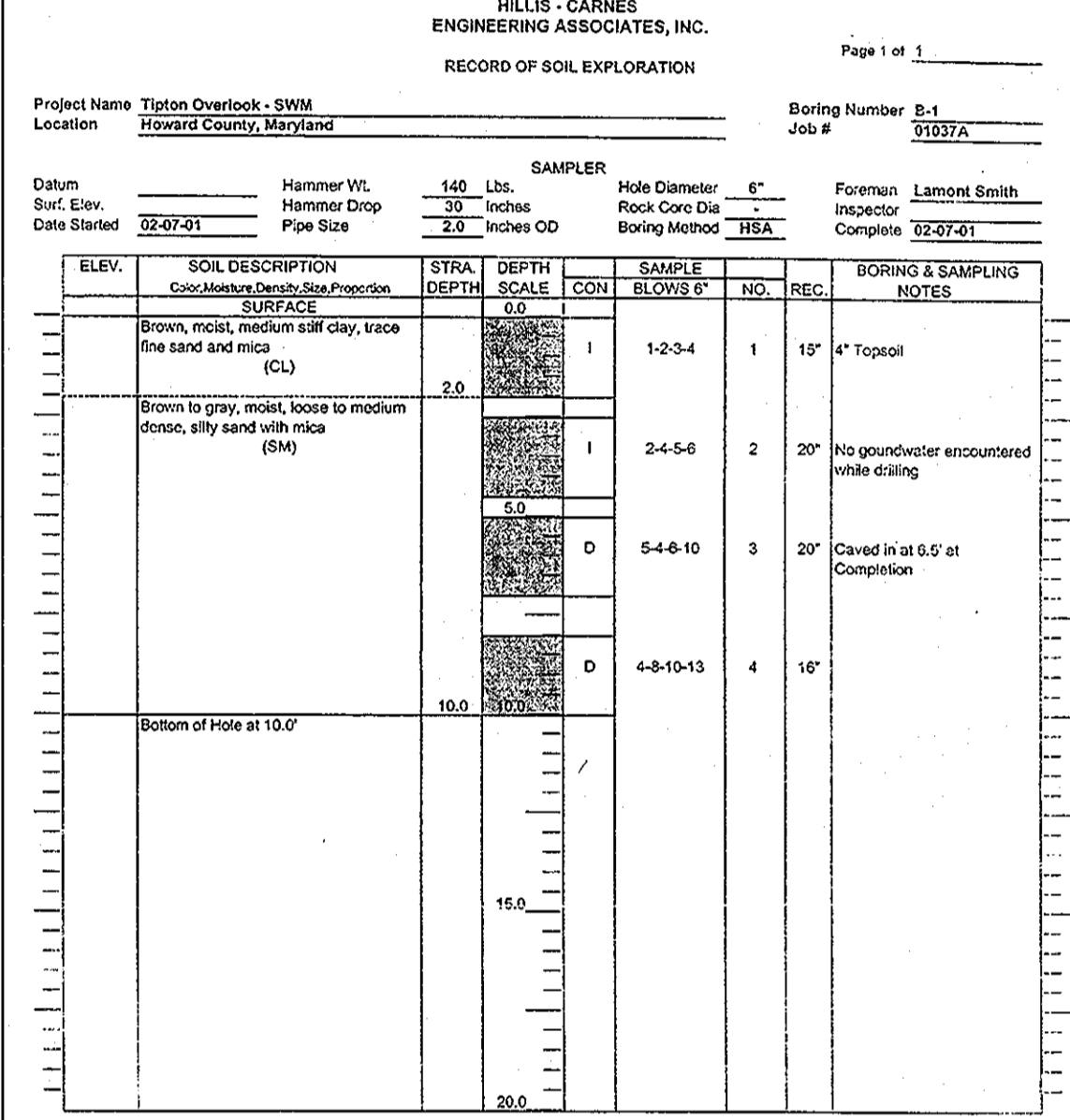


STANDARD PENETRATION TEST RESULTS: 2" 60 SAMPLER, 1" WITH 140# HAMMER FALLING 30" DISTANCE MADE AT 4" INTERVALS

Project Name: Tipton Overlook - SWM
 Location: Howard County, Maryland
 Boring Number: B-2
 Job #: 01037A

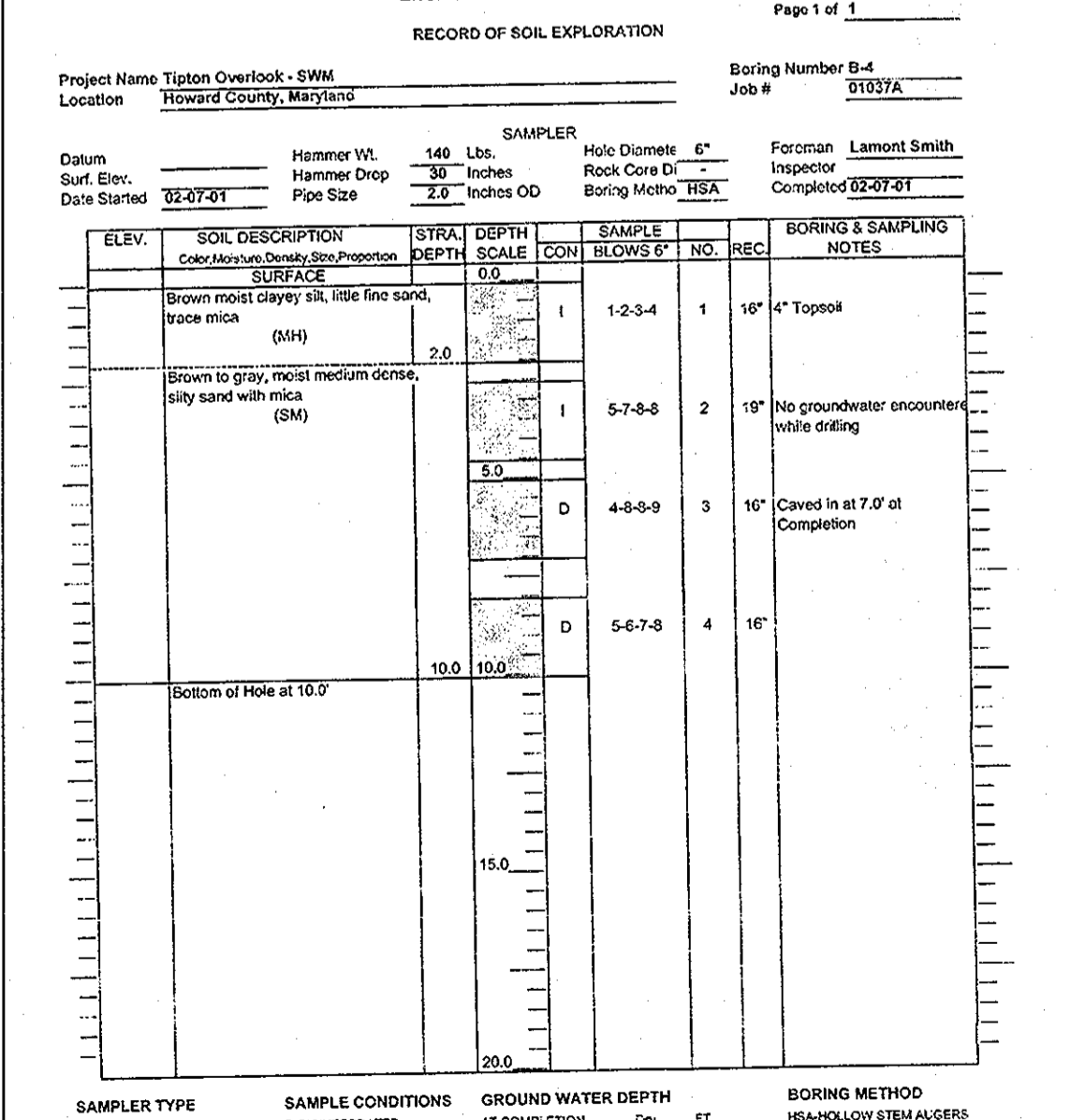


STANDARD PENETRATION TEST RESULTS: 2" 60 SAMPLER, 1" WITH 140# HAMMER FALLING 30" DISTANCE MADE AT 4" INTERVALS



STANDARD PENETRATION TEST RESULTS: 2" 60 SAMPLER, 1" WITH 140# HAMMER FALLING 30" DISTANCE MADE AT 4" INTERVALS

Project Name: Tipton Overlook - SWM
 Location: Howard County, Maryland
 Boring Number: B-1
 Job #: 01037A



STANDARD PENETRATION TEST RESULTS: 2" 60 SAMPLER, 1" WITH 140# HAMMER FALLING 30" DISTANCE MADE AT 4" INTERVALS

Project: 03-051
 Date: APRIL 05
 Scale: 1" = 50'
 Description: engineering
 Approval: SAA
 Revision: R/H

TIPTON OVERLOOK
 LOTS 2 THRU 8, OPEN SPACES 1 AND 9
 TAX MAP 46 - PARCEL 8 - GRID 12
 HOWARD COUNTY, MARYLAND
 SIXTH ELECTION DISTRICT
 STORMWATER MANAGEMENT SPECIFICATIONS & SOIL BORINGS

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