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4	MITCHELLS WAY - PLAN AND PROFILE
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21	OFF-SITE FOREST CONSERVATION PLAN, NOTES AND DETAILS

FINAL ROAD CONSTRUCTION, GRADING AND STORMWATER MANAGEMENT PLAN

CLOVERFIELD

BUILDABLE LOTS 1 - 21, BUILDABLE PRESERVATION PARCEL 'A', NON-BUILDABLE PRESERVATION PARCELS 'B' THRU 'E' & NON-BUILDABLE BULK PARCEL 'F'

ZONING: RC-DEO

TAX MAP NO. 15 GRID No. 8 PARCEL No. 4

APPROVED: DEPARTMENT OF PUBLIC WORKS
William J. Mahan 10-3-06
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
Sandy Hamer 10/13/06
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

John P. ... 10/13/06
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

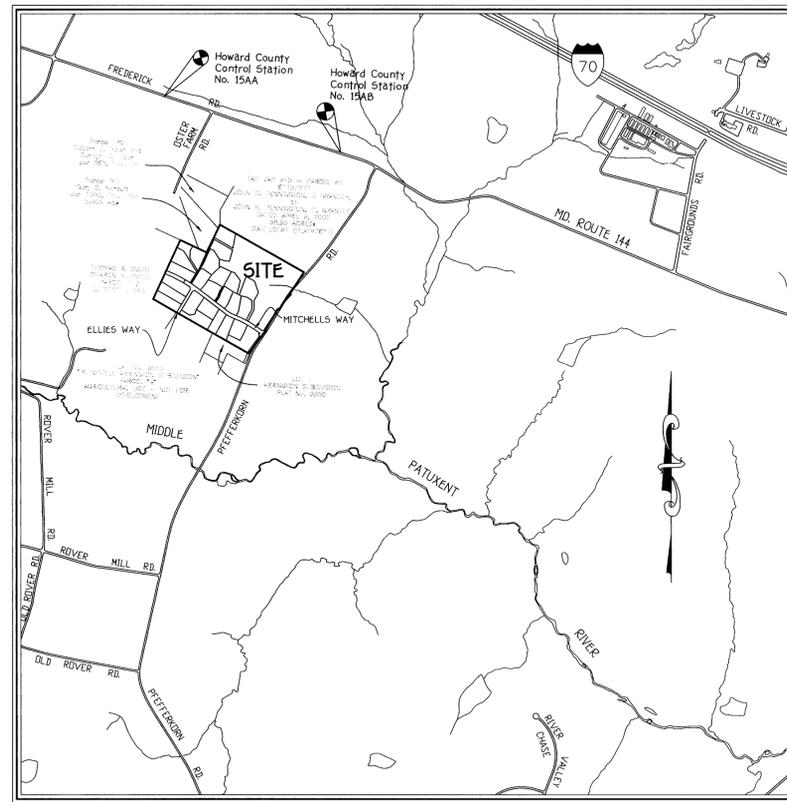
- GENERAL NOTES**
- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS IF APPLICABLE.
 - THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS, BUREAU OF ENGINEERING, CONSTRUCTION INSPECTION DIVISION AT (410) 313-9800 AT LEAST 150 WORKING DAYS PRIOR TO THE START OF WORK.
 - THE CONTRACTOR SHALL NOTIFY "M&S UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.
 - TRAFFIC CONTROL DEVICES, MARKINGS AND SIGNING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). ALL STREET AND REGULATORY SIGNS SHALL BE IN PLACE PRIOR TO THE PLACEMENT OF ANY ASPHALT.
 - COORDINATES BASED ON NAD83 MARYLAND COORDINATE SYSTEM AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS NO. 15 AA AND NO. 15 AB.
 51A 15AA N 599,605,293, E 1,314,773,416
 51B 15AB N 599,899,934, E 1,316,925,177
 - THE TRAFFIC STUDY FOR THIS PROJECT WAS PREPARED BY M&S GROUP, DATED AUGUST, 2004. THE DEVELOPER'S SHARE OF THE CAPITAL PROJECT FOR MD. ROUTE 30/BURNWOODS ROAD INTERSECTION MITIGATION COST HAS BEEN DETERMINED TO BE \$25,000.00. THE TRAFFIC STUDY WAS APPROVED ON MAY 5, 2005.
 - BACKGROUND INFORMATION:
 A. SUBDIVISION NAME: CLOVERFIELD
 B. TAX MAP NO. 15
 C. PARCEL NO. 4
 D. ZONING: RC-DEO
 E. ELECTION DISTRICT: THIRD
 F. TOTAL TRACT AREA: 48.51 AC.
 G. NO. OF BUILDABLE LOTS: 21
 H. NO. OF OPEN SPACE LOTS: 0
 I. NO. OF NON-BUILDABLE PRESERVATION PARCELS: 4
 J. NO. OF NON-BUILDABLE BULK PARCELS: 1
 K. NO. OF BUILDABLE PRESERVATION PARCELS: 1
 L. AREA OF BUILDABLE LOTS: 24,592 AC.
 M. AREA OF OPEN SPACE LOTS: 0.00 AC.
 N. AREA OF NON-BUILDABLE PRESERVATION PARCELS: 5,462 AC.
 O. AREA OF NON-BUILDABLE BULK PARCELS: 0.339 AC.
 P. AREA OF BUILDABLE PRESERVATION PARCELS: 15,834 AC.
 Q. TOTAL AREA OF ROADWAY TO BE DEDICATED: 2,282 AC.
 R. PREVIOUS FILE NOS.: SP 05-02 AS CLOVERFIELD. APPROVAL DATE: 5/05/05
 - NO CEMETERIES EXIST WITHIN THIS SUBDIVISION.
 - ALL FILL AREAS WITHIN ROADWAYS AND UNDER STRUCTURES SHALL BE COMPACTED TO A MINIMUM OF 95% COMPACTION OF AASHTO T-180.
 - STREET LIGHTS WILL BE REQUIRED IN THE 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 (LANS & CARTER, INC. DATED APRIL 2002) WHICH INCLUDES GUIDELINES FOR LATERAL AND LONGITUDINAL PLACEMENT. A MINIMUM OF 20' SHALL BE MAINTAINED BETWEEN ANY STREET LIGHT AND ANY TREE.
 - STORMWATER MANAGEMENT FACILITY:
 BMP No. 1 - TYPE - MICRO-POOL DESIGN (EXTENDED DETENTION)
 OWNER - HOMEOWNERS ASSOCIATION
 BMP No. 2 - TYPE - POCKET POND DESIGN
 OWNER - HOMEOWNERS ASSOCIATION
 - STORMWATER MANAGEMENT WILL BE PROVIDED IN ACCORDANCE WITH HOWARD COUNTY AND MARYLAND 37B SPECIFICATIONS. RECHARGE VOLUMES WILL BE PROVIDED THROUGH THE USE OF GRASS CHANNELS NEXT TO THE ROADWAY. CHANNEL PROTECTION VOLUMES WILL BE PROVIDED BY A MICRO-POOL EXTENDED DETENTION POND AND A POCKET POND. WATER QUALITY VOLUMES WILL BE PROVIDED BY THE MICRO-POOL EXTENDED DETENTION POND. THE POCKET POND AND INFILTRABLE DRY WELLS, 25 YR. STORMWATER MANAGEMENT VOLUME HAS BEEN PROVIDED WITHIN BMP No. 1. EXTREME FLOOD VOLUME IS NOT REQUIRED FOR THIS SITE. THE STORMWATER MANAGEMENT FACILITY WILL BE OWNED BY THE CLOVERFIELD HOMEOWNERS ASSOCIATION AND MAINTAINED JOINTLY THROUGH THE CLOVERFIELD HOA, AND HOWARD COUNTY.
 - THE PROPOSED WATER AND SEWER SYSTEMS SHALL BE PRIVATE.
 - THE SUBJECT PROPERTY IS LOCATED OUTSIDE OF THE METROPOLITAN DISTRICT.
 - TOPOGRAPHIC INFORMATION ESTABLISHED AT TWO FOOT INTERVALS BASED ON AERIAL TOPOGRAPHY PREPARED BY FISHER, COLLINS & CARTER, INC. DATED APRIL 2002.
 - FOR FLAG OR PIPESTEM LOTS, REFUSE COLLECTION, SNOW REMOVAL AND ROAD MAINTENANCE IS TO BE PROVIDED AT THE JUNCTION OF THE FLAG OR PIPESTEM AND THE ROAD RIGHT-OF-WAY AND NOT ONTO THE FLAG OR PIPESTEM DRIVEWAY.
 - WETLAND AND FOREST STAND DELINEATION INFORMATION SHOWN WAS TAKEN FROM REPORTS PREPARED BY ECO-SCIENCE PROFESSIONALS, INC. DATED AUG. 2004 AND APPROVED ON MAY 5, 2005 UNDER SP 05-02.
 - SOILS INFORMATION TAKEN FROM SOIL MAP NOS. 7 & 13. SOIL SURVEY, HOWARD COUNTY, MARYLAND, JULY 1969 ISSUE.
 - SUBJECT PROPERTY ZONED RC-DEO PER 4/13/04 COMPREHENSIVE ZONING PLAN.
 - THIS PLOT IS IN COMPLIANCE WITH THE AMENDED FIFTH EDITION OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS PER COUNCIL BILL 45-2003 AND THE ZONING REGULATIONS AS AMENDED BY COUNCIL BILL 75-2003. DEVELOPMENT OR CONSTRUCTION ON THESE LOTS MUST COMPLY WITH SETBACK AND BUFFER REGULATIONS IN EFFECT AT THE TIME OF SUBMISSION OF THE SITE DEVELOPMENT PLAN, WAIVER PETITION APPLICATION, OR BUILDING/GRADING PERMIT.
 - THESE ARE NO AREAS OF STEEP SLOPES (25% OR GREATER) LOCATED ON THIS PROPERTY AS DEFINED BY THE HOWARD COUNTY SUBDIVISION AND LAND DEVELOPMENT REGULATIONS, SECTION 1618(B).
 - AS PER SECTION 104(F) OF THE ZONING REGULATIONS, ONLY ONE EASEMENT HOLDER IS REQUIRED FOR PRESERVATION PARCELS DESIGNED SOLELY FOR SWM FACILITIES OR COMMUNITY SEWERAGE DISPOSAL SYSTEMS.
 a. NON-BUILDABLE PRESERVATION PARCEL 'B'
 OWNED PRIVATELY OWNED
 EASEMENT HOLDERS: HOWARD COUNTY & H.O.A.
 USE: FOREST CONSERVATION
 b. NON-BUILDABLE PRESERVATION PARCEL 'C'
 OWNED HOMEOWNERS ASSOCIATION
 EASEMENT HOLDER: HOWARD COUNTY
 USE: SWM
 c. NON-BUILDABLE PRESERVATION PARCEL 'D'
 OWNED PRIVATELY OWNED
 EASEMENT HOLDERS: HOWARD COUNTY & H.O.A.
 USE: FOREST CONSERVATION
 d. BUILDABLE PRESERVATION PARCEL 'A'
 OWNED PRIVATELY OWNED
 EASEMENT HOLDERS: HOWARD COUNTY & H.O.A.
 USE: FOREST CONSERVATION
 e. NON-BUILDABLE PRESERVATION PARCEL 'E'
 OWNED HOMEOWNERS ASSOCIATION
 EASEMENT HOLDER: HOWARD COUNTY
 USE: SWM
 - NO CLEARING, GRADING OR CONSTRUCTION IS PERMITTED WITHIN THE WETLANDS, STREAM OR THEIR REQUIRED BUFFERS.
 - THE FOREST CONSERVATION REQUIREMENTS PER SECTION 161200 OF THE HOWARD COUNTY CODE AND THE FOREST CONSERVATION MANUAL FOR THIS SUBDIVISION WILL BE FULFILLED BY:
 The reforestation obligation of 15.8 acres for this project shall be met through a combination of onsite planting of 13.3 acres with the remaining 2.5 acres of reforestation obligation to be met in an off-site location ("FEAGA II PROPERTY", TAX MAP No. 6, GRID No. 21, PARCEL No. 56, 4th ELECTION DISTRICT, DEED REF. L. 0674, P. 284).
 The surety amount for the on-site reforestation obligation is 13.3 ac. planting @ \$0.50/sq.ft. = \$6,650.00 and retention of 2.1 ac. @ \$0.20/sq.ft. = \$420.00. The total reforestation surety amount is \$7,070.00.
 The total landscape surety amount is \$43,550.00. The total landscape surety amount is \$43,550.00.
 - THE LANDSCAPE SURETY IN THE AMOUNT OF \$43,550.00 FOR PERMETER LANDSCAPE REQUIREMENTS (89 SHADE TREES AND 47 EVERGREEN TREES) OF SECTION 16124 OF THE HOWARD COUNTY CODE AND LANDSCAPE MANUAL IS POSTED WITH THE DEVELOPER'S AGREEMENT FOR THIS SUBDIVISION.
 - THE NON-CRITICAL FLOODPLAIN STUDY FOR THIS PROJECT WAS PREPARED BY FISHER, COLLINS & CARTER, INC. DATED AUGUST, 2004 AND WAS APPROVED UNDER THE SP-05-02 PLAN ON MAY 5, 2005.
 - THE GEOTECHNICAL REPORT FOR THIS PROJECT WAS PREPARED BY HERBST/BENSON & ASSOCIATES, DATED MAY, 2004.
 - BUILDABLE PRESERVATION PARCEL 'A' DOES NOT RETAIN THE RIGHT TO BE FURTHER SUBDIVIDED IN ACCORDANCE WITH THE DEO CLUSTER REGULATIONS IN SECTION 106 OF THE HOWARD COUNTY ZONING REGULATIONS.
 - THE EXISTING HOUSE ON BUILDABLE PARCEL 'A' WAS BUILT IN 1963 AND PER THE MEETING ON NOVEMBER 16, 2004 WITH THE SUBDIVISION REVIEW COMMITTEE, THIS HOUSE CAN BE REMOVED PER THIS PLAN.
 - THE EXISTING WELL & SEPTIC AREA LOCATED ON PRESERVATION PARCEL 'A' WILL BE ABANDONED PRIOR TO RECORDED OF THE FINAL RECORD PLAN.
 - THE PURPOSE OF NON-BUILDABLE BULK PARCEL 'F' IS TO PROVIDE A RIGHT-OF-WAY TO THE ADJACENT PROPERTY FOR A FUTURE ROAD EXTENSION OF ROAD 'A'.
 - BASED ON THE INTERACTIVE REVIEW MEETING HELD ON NOVEMBER 16, 2004, THE DESIGN OF THE PRESERVATION PARCELS IS ACCEPTABLE, PER ZONING SECTION 104.2, AND THE SCENIC ROAD IMPACT EVALUATION WAS APPROVED FOR THIS PLAN ON MAY 5, 2005.
 - BOUNDARY OUTLINE BASED ON FIELD RUN SURVEY PERFORMED BY FISHER, COLLINS & CARTER, INC. DATED APRIL, 2002.
 - "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 (4" GAUGE) INSERTED INTO A 2-1/2" GALVANIZED STEEL, PERFORATED, SQUARE TUBE SLEEVE (1/2" GAUGE) - 3' LONG. A GALVANIZED STEEL POLE CAP SHALL BE MOUNTED ON TOP OF EACH POST.
 - ALL WELLS MUST BE DRILLED PRIOR TO FINAL PLAT SIGNATURE.

ROADWAY INFORMATION CHART				
ROAD NAME	CLASSIFICATION	DESIGN SPEED	R/W WIDTH	
MITCHELLS WAY	PUBLIC ACCESS STREET	30 M.P.H.	50'	
ELLIES WAY	PUBLIC ACCESS STREET	25 M.P.H.	40'	

TRAFFIC CONTROL SIGNS				
ROAD NAME	CENTERLINE STA.	OFFSET	POSTED SIGN	SIGN CODE
MITCHELLS WAY	0+40	14' L	STOP	R1-1
MITCHELLS WAY	2+00	14' R	SPEED LIMIT 25	R2-1
ELLIES WAY	0+40	13' L	STOP	R1-1
MITCHELLS WAY	2+50	14' L	STOP AHEAD	W3-1a

"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 (4" GAUGE) INSERTED INTO A 2-1/2" GALVANIZED STEEL, PERFORATED, SQUARE TUBE SLEEVE (1/2" GAUGE) - 3' LONG. A GALVANIZED STEEL POLE CAP SHALL BE MOUNTED ON TOP OF EACH POST.

STREET LIGHT CHART				
DWG. No.	STREET NAME	STATION	OFF-SET	FIXTURE/POLE TYPE
2	MITCHELLS WAY	0+40	25' LEFT	150 WATT "PREMIER HP-S VAPOR FIXTURE POST TOP FIXTURE MOUNTED ON A 4 FOOT BLACK FIBERGLASS POLE.



VICINITY MAP
SCALE: 1" = 1200'

GENERAL NOTES CONTINUED:

- DRIVEWAY (S) SHALL BE PROVIDED PRIOR TO RESIDENTIAL OCCUPANCY TO INSURE SAFE ACCESS FOR FIRE AND EMERGENCY VEHICLES PER THE FOLLOWING MINIMUM REQUIREMENTS:
 A) WIDTH - 12 FEET (8 FEET SERVING MORE THAN ONE RESIDENCE)
 B) SURFACE - SIX (6) INCHES OF COMPACTED CRUSHER RUN BASE WITH T&B AND CHIP COATING
 C) GEOMETRY - MAXIMUM 15% GRADE, MAXIMUM 10% GRADE CHANGE AND MINIMUM OF 45 FOOT TURNING RADII
 D) STRUCTURES (CULVERTS/BRIDGES) CAPABLE OF SUPPORTING 25 GROSS TONS (425 LOADS)
 E) DRAINAGE ELEMENTS - CAPABLE OF SAFELY PASSING 100 YEAR FLOOD WITH NO MORE THAN 1 FOOT DEPTH OVER DRIVEWAY SURFACE
 F) STRUCTURE CLEARANCES - MINIMUM 12 FEET
 G) MAINTENANCE - SUFFICIENT TO INSURE ALL WEATHER USE
- THIS PROPERTY IS SUBJECT TO GROUNDWATER APPROPRIATIONS PERMIT NUMBER H02060056 001.
- THE REFORESTATION OBLIGATION OF 15.8 ACRES FOR THIS PROJECT SHALL BE MET THROUGH A COMBINATION OF ON-SITE PLANTING OF 13.3 ACRES WITH THE REMAINING 2.5 ACRES OF REFORESTATION OBLIGATION TO BE MET IN AN OFF-SITE LOCATION ("FEAGA II PROPERTY", TAX MAP No. 6, GRID No. 21, PARCEL No. 56, 4th ELECTION DISTRICT, DEED REF. L. 0674, P. 284).
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- ALL WELLS MUST BE DRILLED PRIOR TO FINAL PLAT SIGNATURE.

THIRD ELECTION DISTRICT HOWARD COUNTY, MARYLAND

OWNER

ROBERT T. MATTHEWS REVOCABLE TRUST
 c/o MR. TOM LYONS
 7 MOSSVIEW COURT
 BALTIMORE, MARYLAND 21228

DEVELOPER

HERITAGE LAND DEVELOPMENT
 15950 NORTH AVENUE
 P.O. BOX 482
 LISBON, MARYLAND 21765
 ATTN: MR. TIM FEAGA
 PHONE: (410) 469-7900



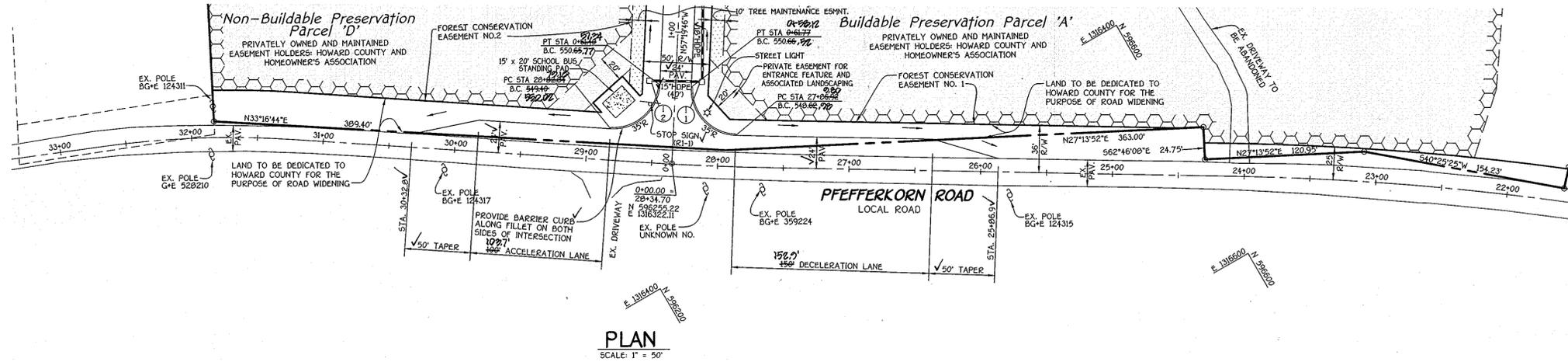
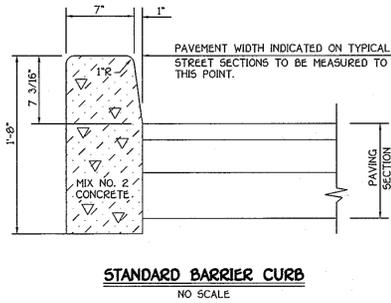
9-22-06
DATE

TITLE SHEET
CLOVERFIELD
 BUILDABLE LOTS 1 - 21, BUILDABLE
 PRESERVATION PARCEL 'A',
 NON-BUILDABLE PRESERVATION PARCELS 'B' THRU 'E'
 & NON-BUILDABLE BULK PARCEL 'F'
 ZONING: RC-DEO
 TAX MAP NO. 15 GRID No. 8 PARCEL No. 4
 THIRD ELECTION DISTRICT HOWARD COUNTY, MARYLAND
 DATE: SEPTEMBER, 2006
 SHEET 1 OF 21

FOR CONTINUATION SEE SHEET 3

MITCHELLS WAY
PUBLIC ACCESS STREET

NOTE:
THE 15' x 20' SCHOOL BUS STANDING PAD SHALL BE PRIVATELY OWNED AND MAINTAINED BY THE H.O.A.



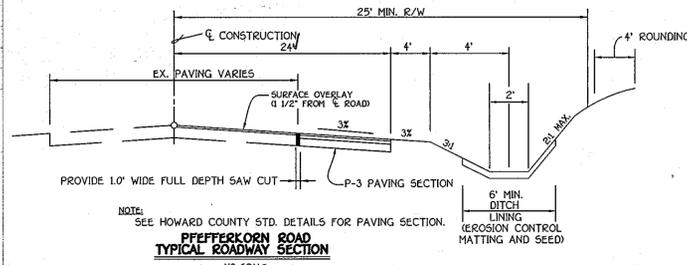
PLAN
SCALE: 1" = 50'



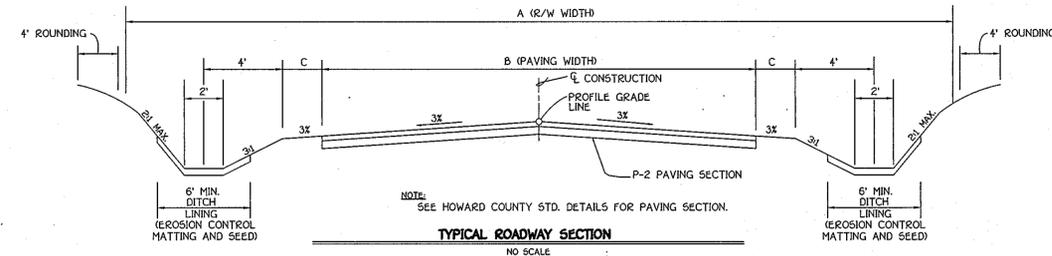
NO.	REVISIONS	DESCRIPTION	DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS
Walter J. White 10-3-06
 CHIEF, BUREAU OF HIGHWAYS

APPROVED: DEPARTMENT OF PLANNING AND ZONING
Cindy Hamer 10/13/06
 CHIEF, DEVELOPMENT ENGINEERING DIVISION



PFEFFERKORN ROAD TYPICAL ROADWAY SECTION
NO SCALE



TYPICAL ROADWAY SECTION
NO SCALE

ROAD NAME	CLASSIFICATION	DESIGN SPEED	ZONING	A	B	C	STATION LIMITS	PAVING SECTION
MITCHELLS WAY	PUBLIC ACCESS STREET	30 MPH	RC-DEO	50'	24'	4'	0+00 TO 13+32.7	P-2
ELLIES WAY	PUBLIC ACCESS STREET	25 MPH	RC-DEO	47'	22'	3'	0+00 TO 4+18.7	P-2

CLOVERFIELD
BUILDABLE LOTS 1 - 21, BUILDABLE PRESERVATION PARCEL 'A', NON-BUILDABLE PRESERVATION PARCELS 'B' THRU 'E' & NON-BUILDABLE BULK PARCEL 'F'

ZONING: RC-DEO
 TAX MAP NO. 15 GRID NO. 8 PARCEL NO. 4
 THIRD ELECTION DISTRICT HOWARD COUNTY, MARYLAND

PFEFFERKORN ROAD WIDENING
PLAN AND PROFILE

OWNER: ROBERT T. MATTHEWS REVOCABLE TRUST
 676 MC TON LYONS
 7 RODDEN COURT
 BALTIMORE, MARYLAND 21220

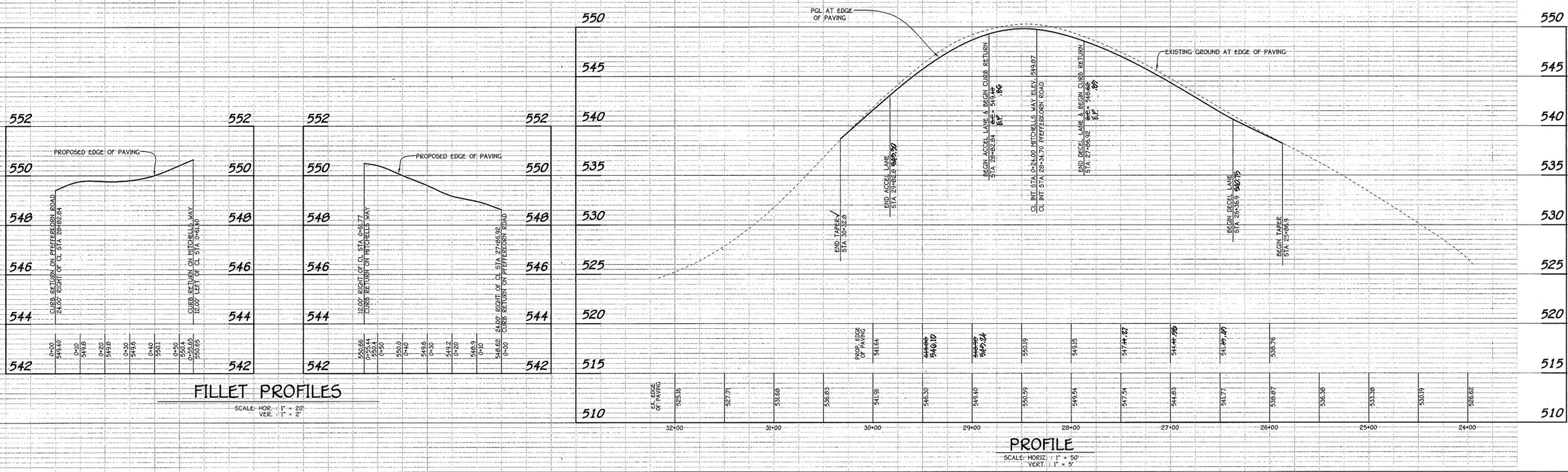
DEVELOPER: HERITAGE LAND DEVELOPMENT
 19950 NORTH AVENUE
 P.O. BOX 482
 LISBON, MARYLAND 21765
 ATTN: PRC, TR, FEAGA
 PHONE: (410) 499-7900

SCALE: AS SHOWN DATE: SEPT. 2006 D.W.C. NO. 2 OF 21
 DES: D.A.M. DEN: D.A.M./J.C.L. CHK: A.M.V.

FISHER, COLLINS & CARTER, INC.
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
 CENTENNIAL SQUARE OFFICE PARK • 12217 BALTIMORE NATIONAL PARK
 ELKTON, MD 21921 • BALTIMORE, MD 21204
 TEL: 410-391-2345

PFEFFERKORN ROAD

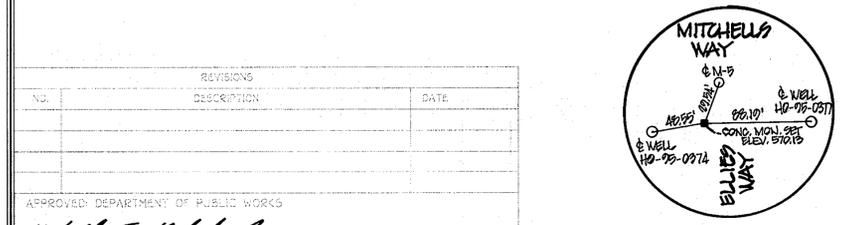
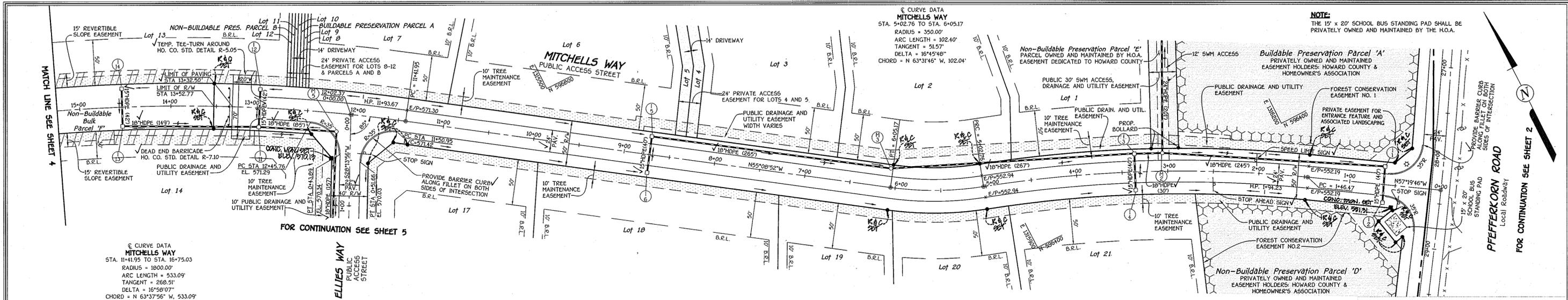
LOCAL ROAD
 POSTED SPEED = 30 MPH
 85th PERCENTILE SPEED = 50 MPH



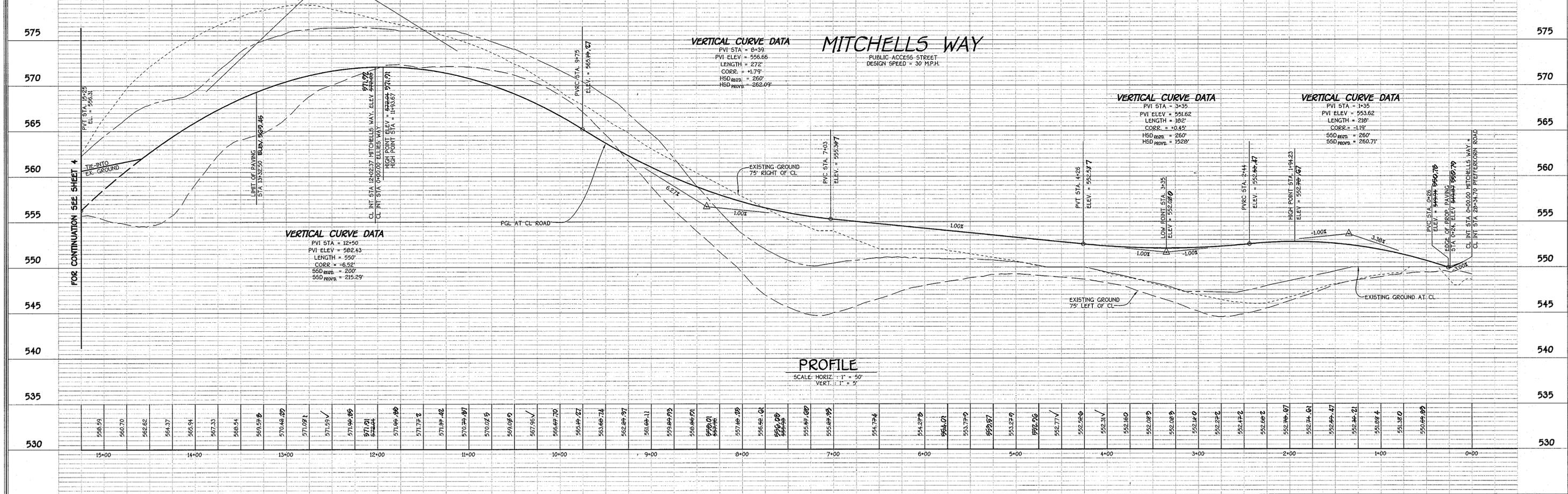
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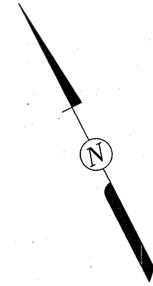
SCALE: HOR: 1" = 20'
 VERT: 1" = 2'

PROFILE
 SCALE: HORIZ: 1" = 50'
 VERT: 1" = 5'



NO.	REVISIONS	DATE
1	APPROVED DEPARTMENT OF PUBLIC WORKS	10-3-06
2	APPROVED DEPARTMENT OF PLANNING AND ZONING	10/13/06
3	CHIEF DEVELOPMENT ENGINEERING DIVISION	10/13/06





BULK PARCEL 'F' TO BE DEDICATED TO ADJACENT PARCEL 119 FOR THE PURPOSE OF A PUBLIC ROAD. THE DENSITY FOR BULK PARCEL 'F' IS UTILIZED WITHIN THIS SUBDIVISION AND WILL NOT BE TRANSFERRED TO PARCEL 119.

THOMAS R. SMITH
SHARON R. SMITH
PARCEL 119
L. 2032 F. 524

FUTURE MITCHELLS WAY
PUBLIC ACCESS STREET

THE NOXLEY FARM
HOWARD COUNTY AGRICULTURAL LAND
PRESERVATION PROGRAM
EASEMENT *HO-90-24-E

Lot 13

Lot 14

MATCH LINE SEE SHEET 3

PLAN
SCALE: 1" = 50'

© CURVE DATA
MITCHELLS WAY
STA. 11+41.95 TO STA. 16+75.03
RADIUS = 1800.00'
ARC LENGTH = 533.09'
TANGENT = 268.51'
DELTA = 16°58'07"
CHORD = N 63°37'56" W, 533.09'



CLOVERFIELD
BUILDABLE LOTS 1 - 21, BUILDABLE
PRESERVATION PARCEL 'A',
NON-BUILDABLE PRESERVATION PARCELS 'B' THRU 'E'
& NON-BUILDABLE BULK PARCEL 'F'
ZONING: RC-DEO
TAX MAP NO. 15 GRID NO. 8 PARCEL NO. 4
THIRD ELECTION DISTRICT HOWARD COUNTY, MARYLAND

MITCHELLS WAY
PLAN AND PROFILE FROM STA 15+25 TO END

OWNER
ROBERT T. MATTHEWS REVOCABLE TRUST
6/6 THE TONI LYONS
7 ROOSEVELT COURT
BALTIMORE, MARYLAND 21220

DEVELOPER
HERITAGE LAND DEVELOPMENT
15950 NORTH AVENUE
P.O. BOX 402
LISBON, MARYLAND 21765
ATTN: MR. TIM FEAGA
PHONE: (410) 469-7900

SCALE: AS SHOWN DATE: SEPT. 2006 DWG. NO. 4 OF 21
DES. D.A.M. DRN. D.A.M./J.C.L. CHK. A.M.V.

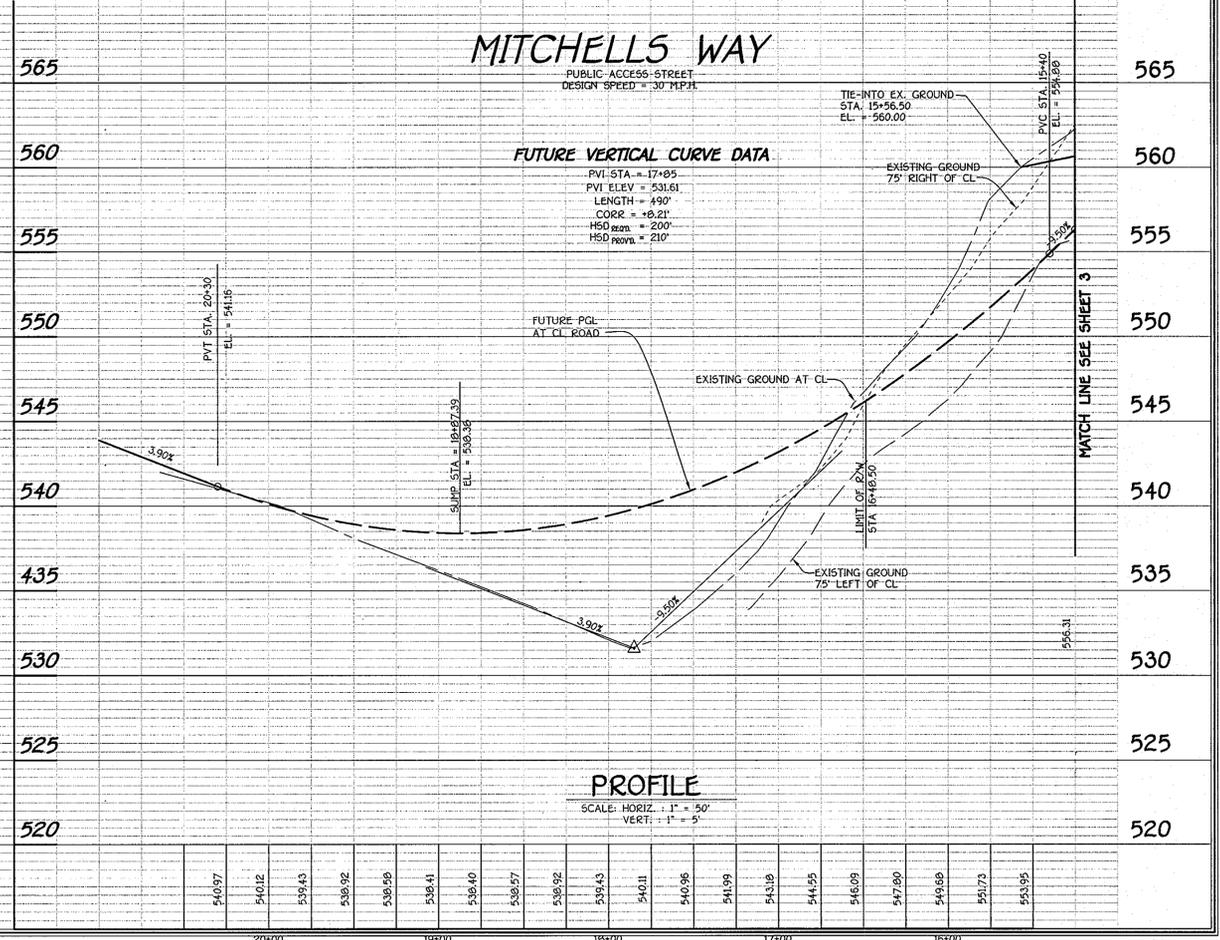
FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTENNIAL SQUARE OFFICE PARK • 10278 BALTIMORE NATIONAL PIKE
ELLSWORTH CITY, MARYLAND 21117
(410) 461-8865

NO.	REVISIONS DESCRIPTION	DATE

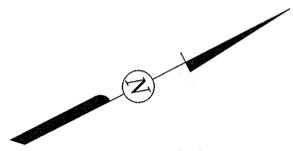
APPROVED: DEPARTMENT OF PUBLIC WORKS
William F. Winkler 10-3-06
CHIEF, BUREAU OF HIGHWAYS

APPROVED: DEPARTMENT OF PLANNING AND ZONING
Judy Hamer 10/13/06
CHIEF, DIVISION OF LAND DEVELOPMENT

Chris Dammann 10/19/06
CHIEF, DEVELOPMENT, SUBDIVISION DIVISION



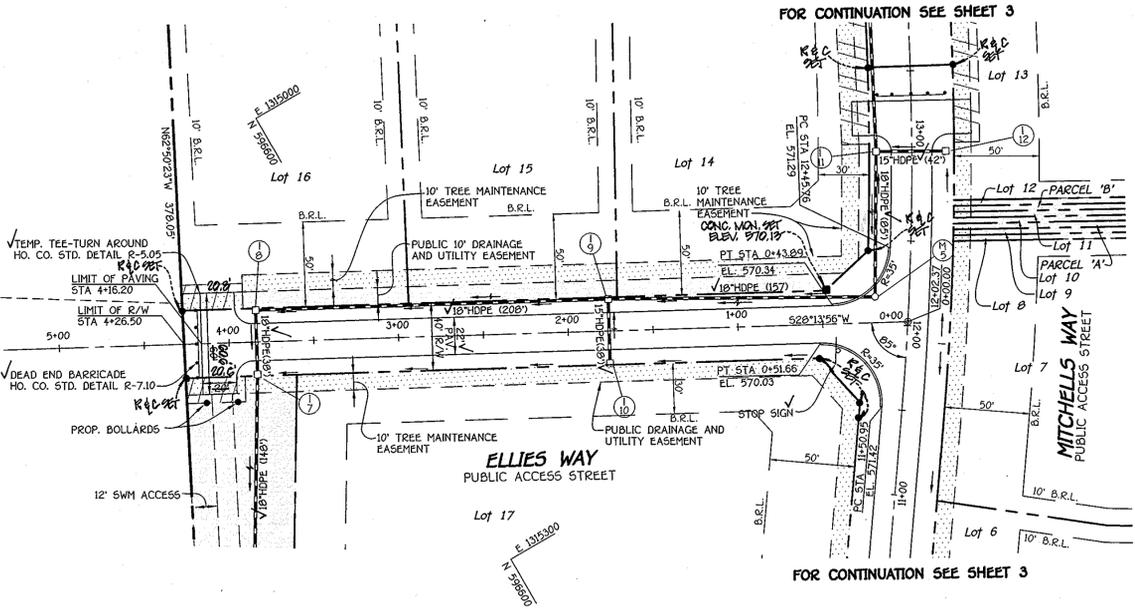
F 06-110
AS BUILT



THOMAS P. SMITH
SHARON R. SMITH
PARCEL 119
L. 2032 F. 824
THE MOXLEY FARM
HOWARD COUNTY AGRICULTURAL LAND
PRESERVATION PROGRAM
EASEMENT *HO-90-24-E

PLAT NO. 9555
"R. NEVILLE ARRINGTON SUBDIVISION"
PARCEL "A"
L. 6483 F. 331

N 1316200
E 1316200



PLAN
SCALE: 1" = 50'

NO.	REVISIONS DESCRIPTION	DATE

APPROVED DEPARTMENT OF PUBLIC WORKS
William T. Mahala 10-3-06
CHIEF, BUREAU OF HIGHWAYS

APPROVED DEPARTMENT OF PLANNING AND ZONING
Cindy Hammit 10/13/06
CHIEF, DIVISION OF LAND DEVELOPMENT

Chad Dummer 10/13/06
CHIEF, DEVELOPMENT ENGINEERING DIVISION

CLOVERFIELD
BUILDABLE LOTS 1 - 21, BUILDABLE
PRESERVATION PARCEL 'A',
NON-BUILDABLE PRESERVATION PARCELS 'B' THRU 'E'
& NON-BUILDABLE BULK PARCEL 'F'
ZONING RC-DEO
TAX MAP NO. 15 GRID NO. 8 PARCEL NO. 4
THIRD ELECTION DISTRICT HOWARD COUNTY, MARYLAND

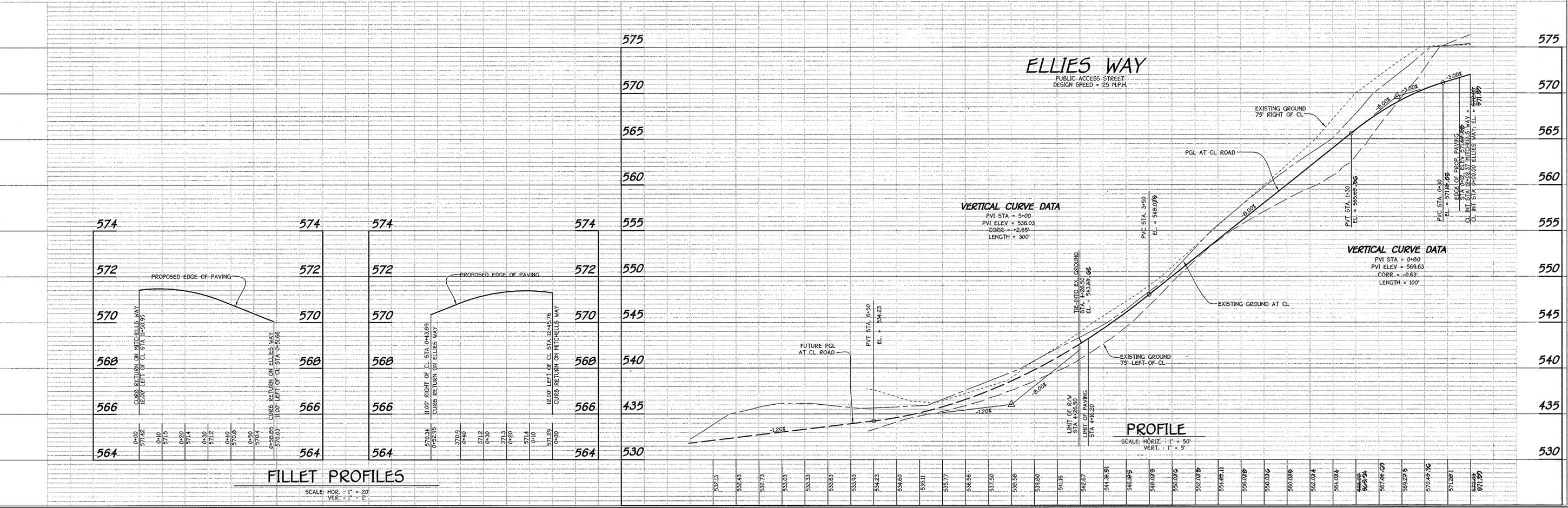
ELLIES WAY
PLAN AND PROFILE FROM STA 0+00 TO END

OWNER
ROBERT T. MATTHEWS REVOCABLE TRUST
626 MS. TORI LYONS
7 PROSPECT COURT
BALTIMORE, MARYLAND 21220

DEVELOPER
HERITAGE LAND DEVELOPMENT
8955 NORTH AVENUE
P.O. BOX 483
LISBON, MARYLAND 21765
ATTN: MR. TIM FEAGA
PHONE: (410) 489-7900

SCALE: AS SHOWN DATE: SEPT. 2006 DWG. NO. 5 OF 21
D.A.M. D.A.M./J.C.L. D.M.C. A.M.V.

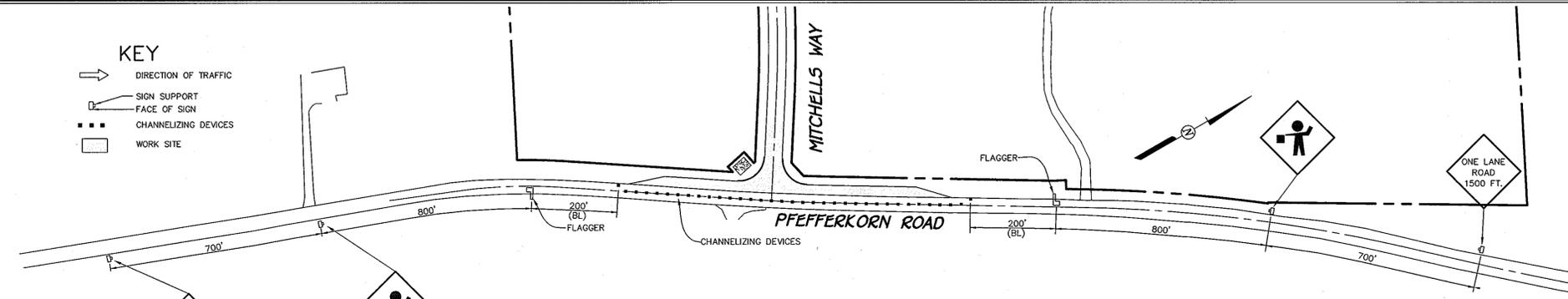
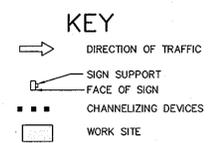
FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
10 NATIONAL SQUARE, STE. 2000 BALTIMORE, MD 21202
TEL: (410) 528-1100 FAX: (410) 528-1101
WWW.FCSURV.COM



FILLET PROFILES
SCALE: HOR. 1" = 20'
VERT. 1" = 2'

PROFILE
SCALE: HORIZ. 1" = 50'
VERT. 1" = 5'

APPROVED: DEPARTMENT OF PUBLIC WORKS
Walter J. White 10-3-06
 CHIEF, BUREAU OF HIGHWAYS AS DATE
 APPROVED: DEPARTMENT OF PLANNING AND ZONING
Cathy Harter 10/13/06
 CHIEF, DIVISION OF LAND DEVELOPMENT JA DATE
Chris Deussen 10/13/06
 CHIEF, DEVELOPMENT ENGINEERING DIVISION ya DATE

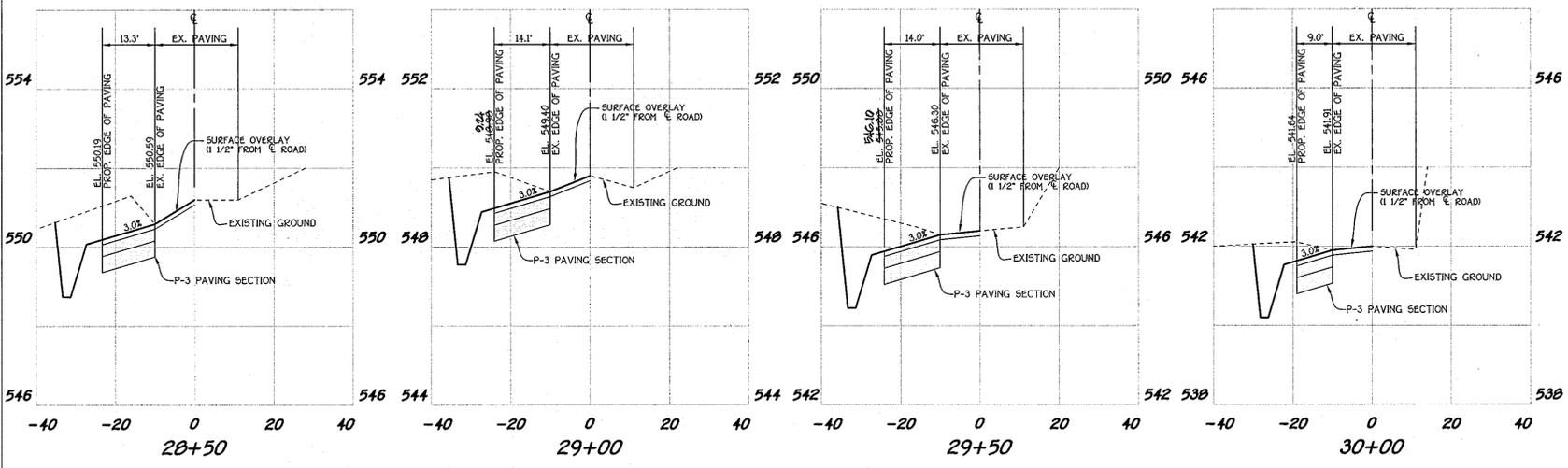
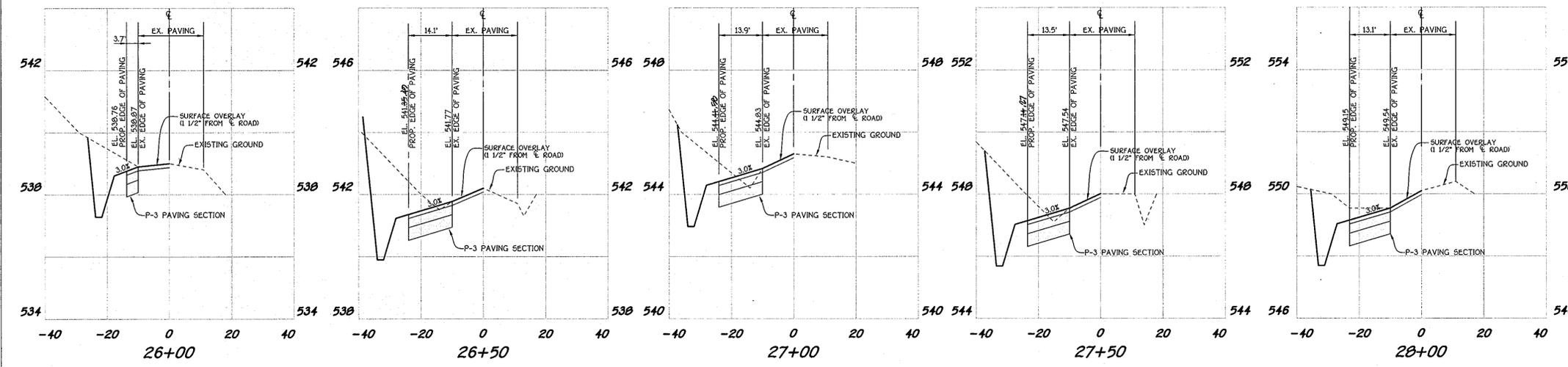


IMPORTANT: THIS DRAWING SHALL BE USED IN COMBINATION WITH THE GENERAL NOTES AT THE BEGINNING OF STANDARDS NO. MD 104.00.

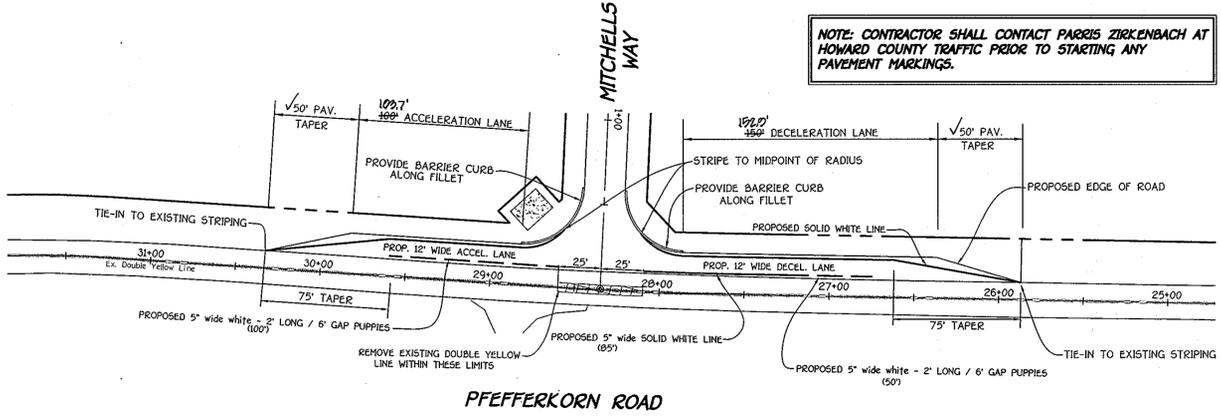
(STANDARD NO. MD 104.02.10)
TEMPORARY TRAFFIC CONTROL PLAN - daytime use
 NO SCALE

MAINTENANCE OF TRAFFIC SPECIAL PROVISIONS

1. THE PURPOSE OF THIS PORTION OF THE SPECIAL PROVISION IS TO SET FOR THE TRAFFIC CONTROL REQUIREMENTS NECESSARY FOR THE SAFE AND EFFICIENT MAINTENANCE TO TRAFFIC WITHIN WORK AREAS, AND TO MINIMIZE ANY INCONVENIENCES TO THE TRAVELING PUBLIC AND THE CONTRACTOR AND/OR PERMITTEE.
2. PROPERTY TRAFFIC CONTROL THROUGH WORK AREAS IS ESSENTIAL FOR INSURING THE SAFETY AND THAT OF HIGHWAY WORKERS HAS THE HIGHEST PRIORITY OF ALL TASKS WITHIN THIS PROJECT. THE PROPERTY APPLICATION OF THE APPROVED TRAFFIC CONTROL PLAN (TCP) WILL PROVIDE THE DESIRED LEVEL OF SAFETY.
3. THROUGHOUT THESE SPECIAL PROVISIONS, ANY MENTION OF THE TCP SHALL BE IMPLIED TO INCLUDE ANY COMBINATION OF TYPICAL TRAFFIC CONTROL STANDARDS WHICH FORM THE OVERALL TCP FOR THIS PROJECT WHICH HAS BEEN APPROVED BY THE APPROPRIATE SHA TRAFFIC ENGINEER.
4. THE CONTRACTOR AND/OR PERMITTEE SHALL BE REQUIRED TO ADHERE TO THE PROVISIONS OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), 1980 EDITION, ESPECIALLY PART VI, AND TO SECTION 814 OF THE MARYLAND DOT STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS (JANUARY, 1982) INCLUDING ALL REVISIONS AND SUPPLEMENTS TO EACH.
5. THE CONTRACTOR AND/OR PERMITTEE SHALL BE REQUIRED TO ADHERE TO THE REQUIREMENTS SET FORTH IN THE TCP AND THESE SPECIAL PROVISIONS, UNLESS OTHERWISE DIRECTED BY THE ENGINEER. ANY REQUESTS TO MAKE MINOR CHANGES TO THE TCP OR THE SPECIAL PROVISIONS WITH REGARD TO THE TRAFFIC CONTROL ITEMS SHALL BE MADE IN WRITING TO THE ENGINEER A MINIMUM OF THREE(3) WORKING DAYS PRIOR TO THE PROPOSED SCHEDULING CHANGE. THE CONTRACTOR AND/OR PERMITTEE SHALL HAVE WRITTEN APPROVAL OF THE ENGINEER PRIOR TO THE IMPLEMENTATION OF ANY CHANGE.
6. NO WORK SHALL BEGIN ON ANY WORK ACTIVITY OR WORK PHASE UNTIL ALL REQUIRED TRAFFIC CONTROL PATTERNS AND DEVICES INDICATED ON THE TCP FOR THAT ACTIVITY OR PHASE ARE COMPLETELY AND CORRECTLY IN PLACE TO HAVE BEEN CHECKED FOR APPROVED USAGE.
7. GENERAL AND SPECIFIC WARNING SIGNS SHALL ONLY BE IN PLACE WHEN SPECIFIC WORK TASKS AND ACTIVITIES ARE ACTUALLY UNDERWAY OR CONDITIONS EXIST THAT POSE A POTENTIAL HAZARD TO THE PUBLIC, AND ANY ADDITIONAL SIGNING HAS BEEN APPROVED BY THE APPROPRIATE SHA TRAFFIC ENGINEER.
 NOTE: THE PRACTICE OF PLACING SIGNING AND OTHER TRAFFIC CONTROL DEVICES IN ADDITION TO THOSE INDICATED ON THE APPROVED TCP IS NOT PERMITTED.
8. THE CONTRACTOR AND/OR PERMITTEE SHALL PROVIDE, MAINTAIN IN GOOD CONDITION, AND MOVE WHEN NECESSARY, OR AS DIRECTED BY THE ENGINEER, ALL TRAFFIC CONTROL DEVICES USED FOR THE GUIDANCE AND PROTECTION OF MOTORISTS, PEDESTRIANS, AND WORKERS.
9. ALL TRAFFIC CONTROL DEVICES REQUIRED BY THE TCP SHALL BE KEPT IN GOOD CONDITION, FULLY PERFORMING AS SET FORTH IN THE TCP, THE MUTCD, AND/OR SECTION 814 OF THE SPECIFICATIONS. FOR REFLECTIVE DEVICES, A PARTICULAR DEVICE IS ASSUMED TO HAVE FAILED TO MEET MINIMUM OPERATIONAL STANDARDS WHEN THE DEVICE NO LONGER HAS RETRO-REFLECTANCE CAPABILITY OF AT LEAST 60% OF THE SPECIFIED MINIMUM VALUE OVER AT LEAST 90% OF THE VISIBLE REFLECTIVE SURFACE.
10. ALL TRAFFIC CONTROL DEVICES NOT REQUIRED FOR THE SAFE CONDUCT OF TRAFFIC SHALL BE PROMPTLY REMOVED, COMPLETELY COVERED, TURNED AWAY FROM TRAFFIC, OR OTHERWISE TAKEN OUT OF SERVICE. IT IS INTENDED THAT NO TRAFFIC CONTROL DEVICE IS TO BE IN SERVICE WHEN THERE IS NO CLEAR CUT REASON FOR THE DEVICE.
11. THROUGHOUT THE PERIODS OF WORK ACTIVITIES, TRAFFIC SHALL BE MAINTAINED BY IMPLEMENTING THE APPROVED TCP IN LIEU OF THE TCP PREPARED FOR THIS PROJECT, AND/OR INDIVIDUAL TYPICAL TRAFFIC CONTROL STANDARDS. THE CONTRACTOR AND/OR PERMITTEE HAS THE OPTION OF PREPARING AND SUBMITTING A TCP, WHOLLY OR IN PART, OF HIS OWN DESIGN, FOLLOWING GUIDELINES SET FORTH IN THE MUTCD AND PRESCRIBED BY THE ADMINISTRATION. A TCP DEVELOPED BY THE CONTRACTOR AND/OR PERMITTEE SHALL NOT BE IMPLEMENTED UNTIL ADVANCE WRITTEN APPROVAL IS OBTAINED FROM THE ENGINEER. TCP'S MAY BE IMPLEMENTED WITHIN A SINGLE PROJECT OR JOINTLY BETWEEN TWO OR MORE PROJECTS. IN SITUATIONS WHERE TCP'S JOINTLY IMPLEMENTED, CARE SHALL BE EXERCISED TO PRESENT CORRECT AND NON-CONFLICTING GUIDANCE TO THE TRAVELING PUBLIC.
12. THROUGHOUT THESE SPECIAL PROVISIONS, WHERE SPEED OF TRAFFIC IS NOTED, THIS MEANS THE POSTED SPEED OR PREVAILING TRAVEL SPEED, WHICHEVER IS HIGHER, UNLESS OTHERWISE NOTED.
13. TRAFFIC SHALL BE MAINTAINED AT ALL TIMES THROUGHOUT THE ENTIRE LENGTH OF THE PROJECT, UNLESS OTHERWISE NOTED. NO TRAVEL LANE(S) OTHER THAN THOSE DESIGNATED FOR POSSIBLE CLOSURE IN THE TCP SHALL BE CLOSED WITHOUT OBTAINING PRIOR APPROVAL FROM THE ENGINEER. ALL INGRESS AND EGRESS TO THE WORK AREA BY THE CONTRACTOR AND/OR PERMITTEE SHALL BE PERFORMED WITH THE FLOW OF TRAFFIC.



CROSS-SECTIONS
 SCALE: HOR. : 1" = 20'
 VER. : 1" = 2'



STRIPING PLAN
 SCALE: 1" = 50'

NOTE: CONTRACTOR SHALL CONTACT PARRIS ZIRKENBACH AT HOWARD COUNTY TRAFFIC PRIOR TO STARTING ANY PAVEMENT MARKINGS.

PFEFFERKORN ROAD CROSS SECTIONS STRIPING AND TRAFFIC CONTROL PLAN CLOVERFIELD
 BUILDABLE LOTS 1 - 21, BUILDABLE PRESERVATION PARCEL 'A', NON-BUILDABLE PRESERVATION PARCELS 'B' THRU 'E' & NON-BUILDABLE BULK PARCEL 'F'
 ZONING: RC-DEO
 TAX MAP NO. 15 GRID NO. 8 PARCEL NO. 4
 THIRD ELECTION DISTRICT HOWARD COUNTY, MARYLAND
 DATE: SEPTEMBER, 2006
 SHEET 6 OF 21

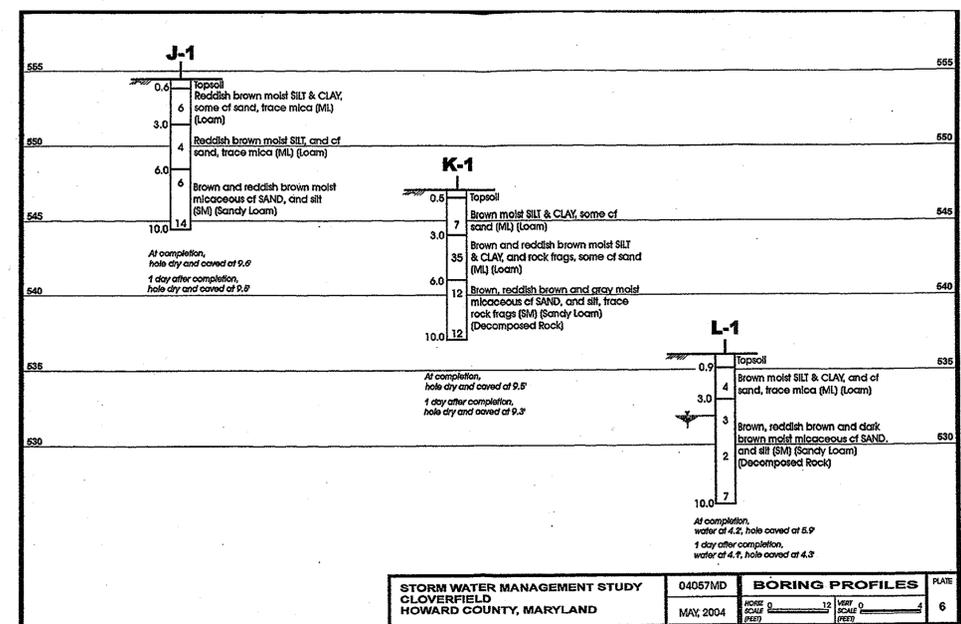
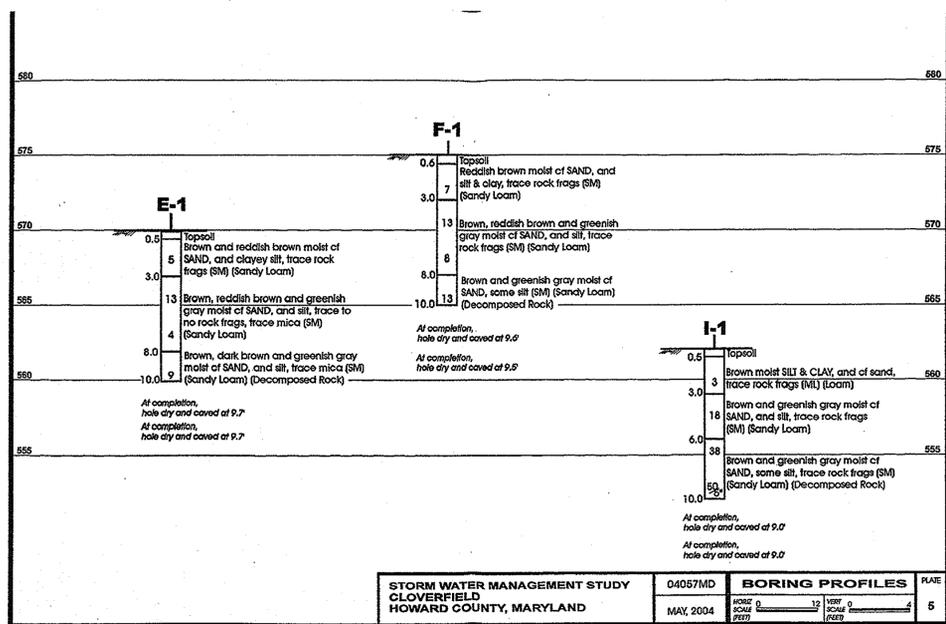
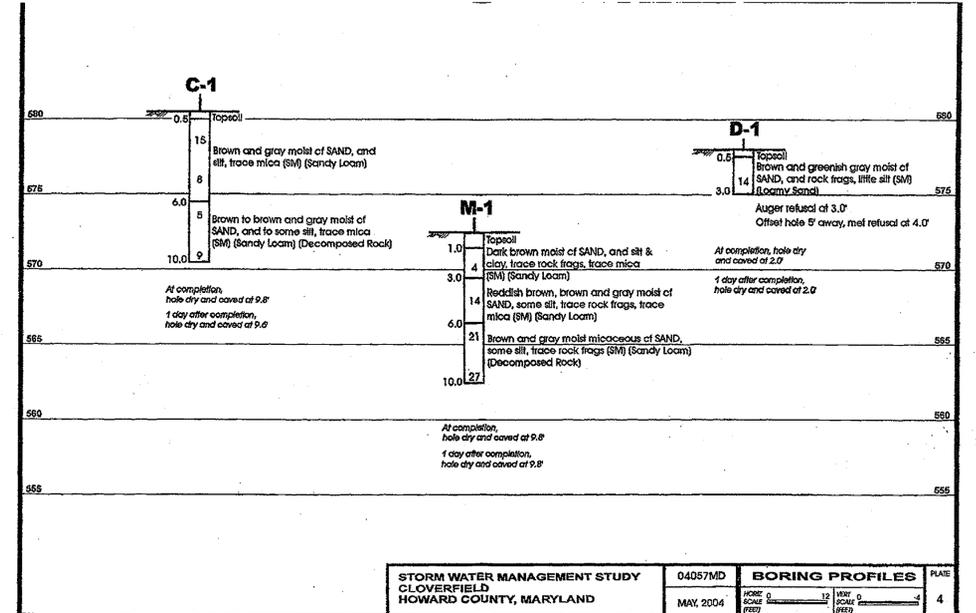
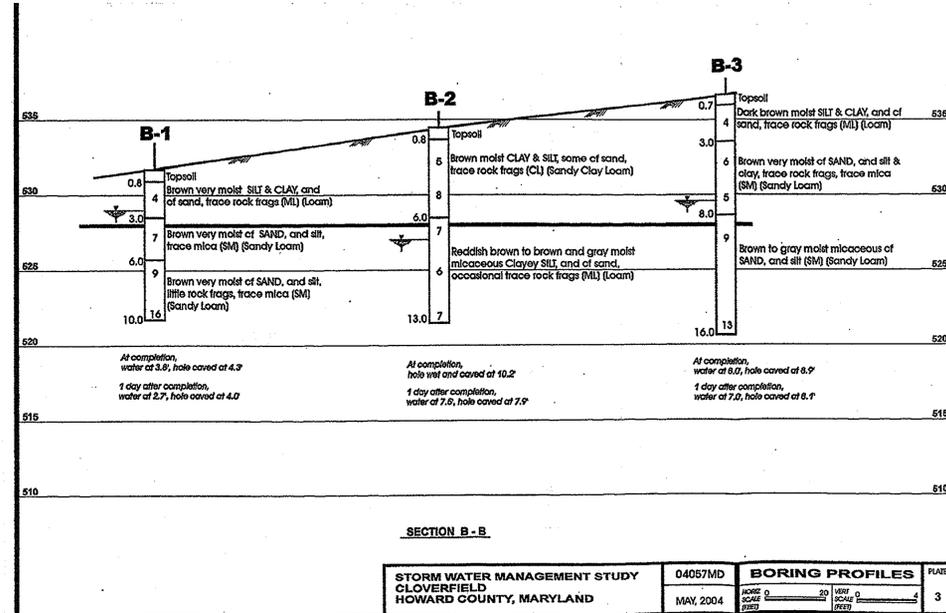
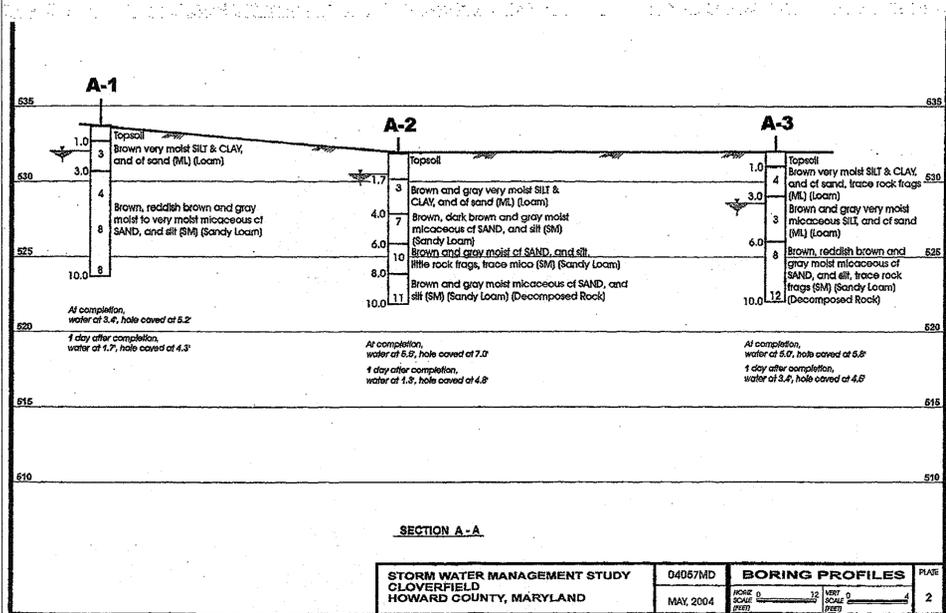
OWNER
 ROBERT T. MATTHEWS REVOCABLE TRUST
 c/o MR. TOM LYONS
 7 ROSSVIEW COURT
 BALTIMORE, MARYLAND 21228

DEVELOPER
 HERITAGE LAND DEVELOPMENT
 15950 NORTH AVENUE
 P.O. BOX 482
 LISBON, MARYLAND 21765
 ATTN: MR. TIM FEAGA
 PHONE: (410) 489-7900



FISHER, COLLINS & CARTER, INC.
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
 CENTENNIAL SQUARE OFFICE PARK - 10722 BALTIMORE NATIONAL PIKE
 ELICOTT CITY, MARYLAND 21042
 (410) 488-2955

APPROVED: DEPARTMENT OF PUBLIC WORKS
 10-3-06
 CHIEF, BUREAU OF HIGHWAYS DATE
 APPROVED: DEPARTMENT OF PLANNING AND ZONING
 10/13/06
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE
 10/13/06
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE



SOIL BORINGS
 NOT TO SCALE

FISHER, COLLINS & CARTER, INC.
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
 CENTRAL SQUARE OFFICE PARK - 10722 BALTIMORE NATIONAL PIKE
 ELKTON CITY, MARYLAND 21842
 (410) 461-2955

OWNER
 ROBERT T. MATTHEWS REVOCABLE TRUST
 c/o MR. TOM LYONS
 7 HOSKINS COURT
 BALTIMORE, MARYLAND 21228

DEVELOPER
 HERITAGE LAND DEVELOPMENT
 15950 NORTH AVENUE
 P.O. BOX 482
 LISBON, MARYLAND 21765
 ATTN: MR. TIM FEAGA
 PHONE: (410) 489-7900



SOIL BORING PROFILES
CLOVERFIELD
 BUILDABLE LOTS 1 - 21, BUILDABLE
 PRESERVATION PARCEL 'A',
 NON-BUILDABLE PRESERVATION PARCELS 'B' THRU 'E'
 & NON-BUILDABLE BULK PARCEL 'F'
 ZONING RC-DEO
 TAX MAP NO. 15 GRID No. 8 PARCEL No. 4
 THIRD ELECTION DISTRICT HOWARD COUNTY, MARYLAND
 DATE: SEPTEMBER, 2006
 SHEET 7 OF 21

F-06-110
AS BUILT

K:\Drawings\303757\Matthews Property\FINAL\CLOVERFIELD\0757-SHEET 7 SOIL BORINGS.dwg, 9/21/2006 1:56:51 PM, 1:1

APPROVED: DEPARTMENT OF PUBLIC WORKS
 Chief, Bureau of Highways *Michelle J. Pugh* 10-3-06 DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 Chief, Division of Land Development *Cindy Hamilton* 10/13/06 DATE

Chief, Development Engineering Division *Chris Deussen* 10/13/06 DATE

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 On-Site Inspections By The Howard Soil Conservation District."

M. Jeremy Ritter 9-22-06
 Signature Of Developer Date
 M. JEREMY RITTER
 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."

Alon N... 9-22-06
 Signature Date
 ALON N...
 Printed Name Of Engineer

These Plans Have Been Reviewed For The Howard Soil Conservation District And Meet The Technical Requirements For Small Pond Construction, Soil Erosion And Sediment Control.

Jim... 9/20/06
 USDA-Natural Resources Conservation Service Date

These Plans For Small Pond Construction, Soil Erosion And Sediment Control Meet The Requirements Of The Howard Soil Conservation District.

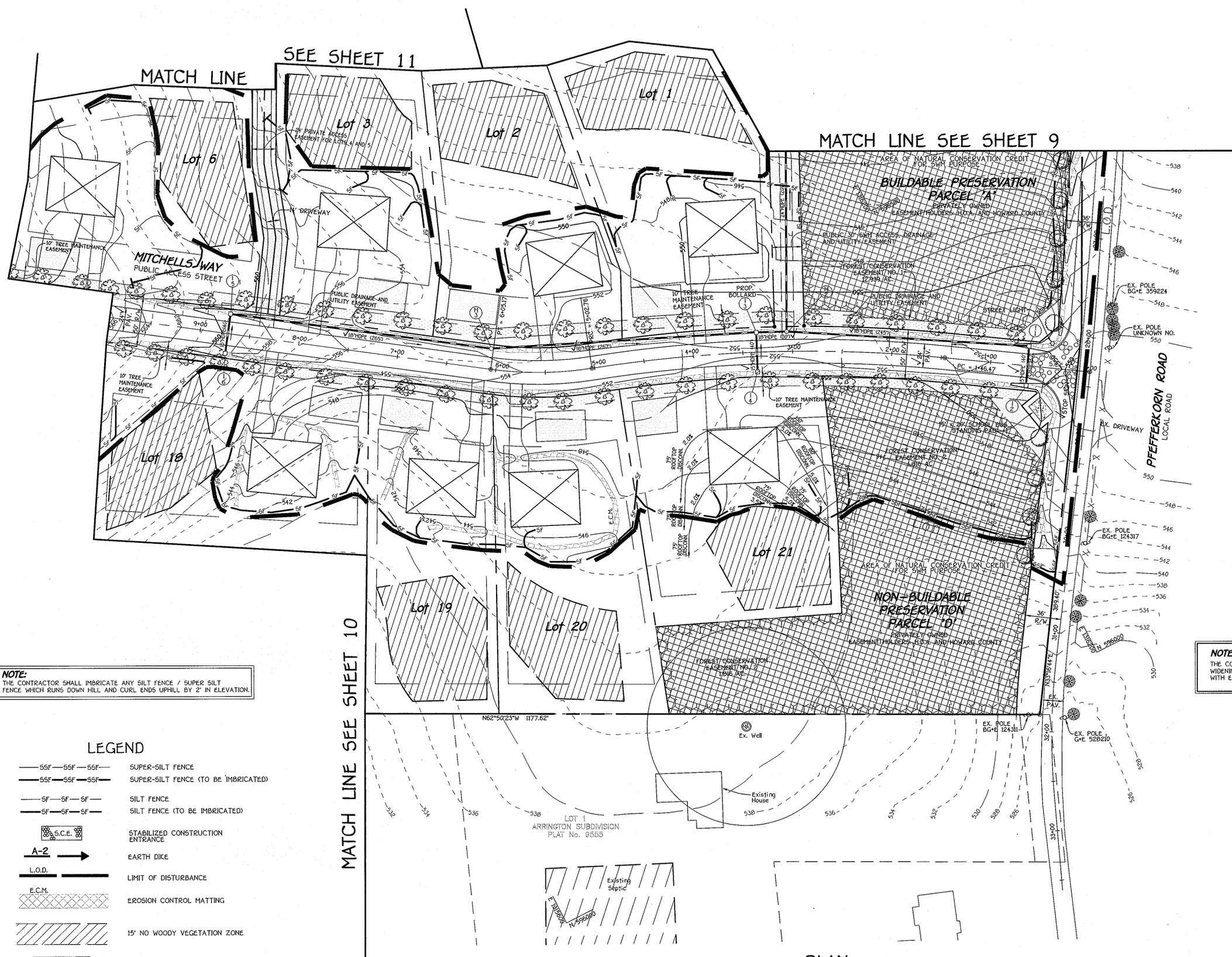
John... 9/20/06
 Howard Soil Conservation District Date

AS-BUILT CERTIFICATION

I Herby 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 Onsite Inspections And Material Tests Which Are Conducted During Construction. The Onsite 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 An Engineer's Certification Relieve Any Other Party From Meeting Requirements Imposed By Contract, Employment, Or Other Means, Including Meeting Commonly Accepted Industry Practices.



NOTE:
 THE CONTRACTOR SHALL IMBRICATE ANY SILT FENCE / SUPER SILT FENCE WHICH RUNS DOWN HILL AND CURL ENDS UPHILL BY 2" IN ELEVATION.

NOTE:
 THE CONTRACTOR SHALL DISTURB NO MORE OF PFEFFERKORN ROAD WIDENING THAN THAT WHICH CAN AND SHALL BE PERMANENTLY STABILIZED WITH E.C.M. BY THE END OF EACH DAY.

- LEGEND
- SF—SF—SF— SUPER-SILT FENCE
 - SF—SF—SF— SUPER-SILT FENCE (TO BE IMBRICATED)
 - SF—SF—SF— SILT FENCE
 - SF—SF—SF— SILT FENCE (TO BE IMBRICATED)
 - S.C.E. STABILIZED CONSTRUCTION ENTRANCE
 - A-2 EARTH DIKE
 - L.O.D. LIMIT OF DISTURBANCE
 - E.C.M. EROSION CONTROL MATTING
 - 15' NO WOODY VEGETATION ZONE
 - AREA OF NATURAL CONSERVATION CREDIT

STREET TREE SCHEDULE

SYMBOL	QTY.	BOTANICAL AND COMMON NAME	SIZE	COMMENTS
	2664 L.F. / 40 = 67 TREES	ACER RUBRUM "OCTOBER GLODY" RED MAPLE	2 1/2"-3" CAL.	40' APART ON PUBLIC R/W (MITCHELLS WAY)
	832 L.F. / 40 = 21 TREES	PLATANUS OCCIDENTALIS "BLOODGOOD" BLOODGOOD LONDON PLANE	2 1/2"-3" CAL.	40' APART ON PUBLIC R/W (ELLIES WAY)
	445 L.F. / 40 = 11 TREES	PLATANUS OCCIDENTALIS "BLOODGOOD" BLOODGOOD LONDON PLANE	2 1/2"-3" CAL.	40' APART ON PUBLIC R/W (PFEFFERKORN ROAD)

NOTE: STREET TREE TYPES ARE ONLY A RECOMMENDATION AND MAY BE SUBSTITUTED WITH A COUNTY ACCEPTED EQUIVALENT FROM THE HOWARD COUNTY LANDSCAPE MANUAL. FINANCIAL SURETY FOR THE 99 REQUIRED STREET TREES HAS BEEN POSTED AS PART OF THE DEVELOPER'S AGREEMENT IN THE AMOUNT OF \$ 29,700.00.

FISHER, COLLINS & CARTER, INC.
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
 CENTRAL SQUARE OFFICE BUILDING - 15272 BALTIMORE NATIONAL PIKE
 ELICOTT CITY, MARYLAND 21042
 (410) 461-2955

OWNER
 ROBERT T. MATTHEWS REVOCABLE TRUST
 c/o MR. TOM LYONS
 7 HOSSVIEW COURT
 BALTIMORE, MARYLAND 21228

DEVELOPER
 HERITAGE LAND DEVELOPMENT
 15950 NORTH AVENUE
 P.O. BOX 482
 LISBON, MARYLAND 21765
 ATTN: MR. TIM FEAGA
 PHONE: (410) 489-7900



STREET TREE, GRADING & SEDIMENT CONTROL PLAN
CLOVERFIELD
 BUILDABLE LOTS 1 - 21, BUILDABLE PRESERVATION PARCEL 'A', NON-BUILDABLE PRESERVATION PARCELS 'B' THRU 'E' & NON-BUILDABLE BULK PARCEL 'F'

ZONING: RC-DEO
 TAX MAP NO. 15 GRID NO. 8 PARCEL NO. 4
 THIRD ELECTION DISTRICT HOWARD COUNTY, MARYLAND
 DATE: SEPTEMBER, 2006
 SHEET 9 OF 21

F-06-110
AS BUILT

APPROVED: DEPARTMENT OF PUBLIC WORKS
 10-3-06
 DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 10/13/06
 DATE

10/13/06
 DATE

10/13/06
 DATE

NOTE:
 THE CONTRACTOR SHALL IMBRICATE ANY SILT FENCE / SUPER SILT FENCE WHICH RUNS DOWN HILL AND CURL ENDS UPHILL BY 2" IN ELEVATION.

TAX MAP #15 PARCEL #1
 6115/277
 JOHN W. PENNINGTON, III GRANTOR,
 to
 JOHN W. PENNINGTON, III, GRANTEE
 DATED: APRIL 9, 2002
 58.95 ACRES
 S&E LOT#1 (PLAT#7621)

THE SWARTZ FARM
 HOWARD COUNTY AGRICULTURAL LAND
 PRESERVATION PROGRAM
 EASEMENT #10-90-23-E

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 On-Site Inspections By The Howard Soil Conservation District.

M. Jeremy Rutter
 Signature of Developer
 M. Jeremy Rutter
 Printed Name Of Developer
 9-22-06
 Date

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, And 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.

Academy
 Signature Of
 Academy
 Printed Name Of Engineer
 9-22-06
 Date

These Plans Have Been Reviewed For The Howard Soil Conservation District And Meet The Technical Requirements For Small Pond Construction, Soil Erosion And Sediment Control.

USA-Natural Resources Conservation Service
 Date
 9/20/06

These Plans For Small Pond Construction, Soil Erosion And Sediment Control Meet The Requirements The Howard Soil Conservation District.

Howard Soil Conservation District
 Date
 9/20/06

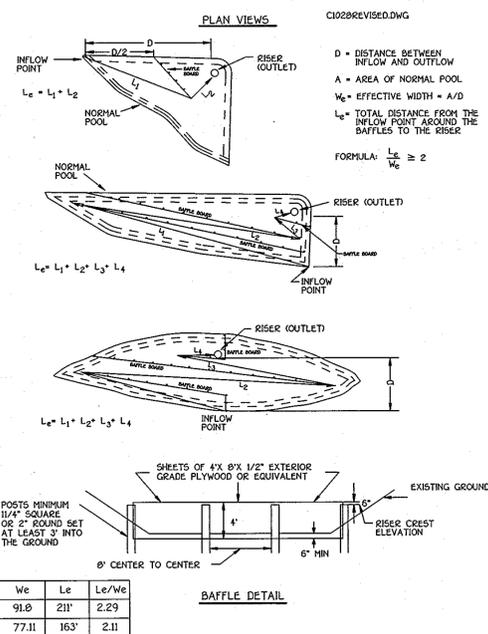
AS-BUILT CERTIFICATION

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
 13204
 P.S. No.
 118113
 Date

Certify Means To State Or Declare A Professional Opinion Based Upon Onsite Inspections And Material Tests Which Are Conducted During Construction The Onsite 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 An Engineer's Certification Relieve Any Other Party From Meeting Requirements Imposed By Contract, Employment, Or Other Means, Including Meeting Commonly Accepted Industry Practices.

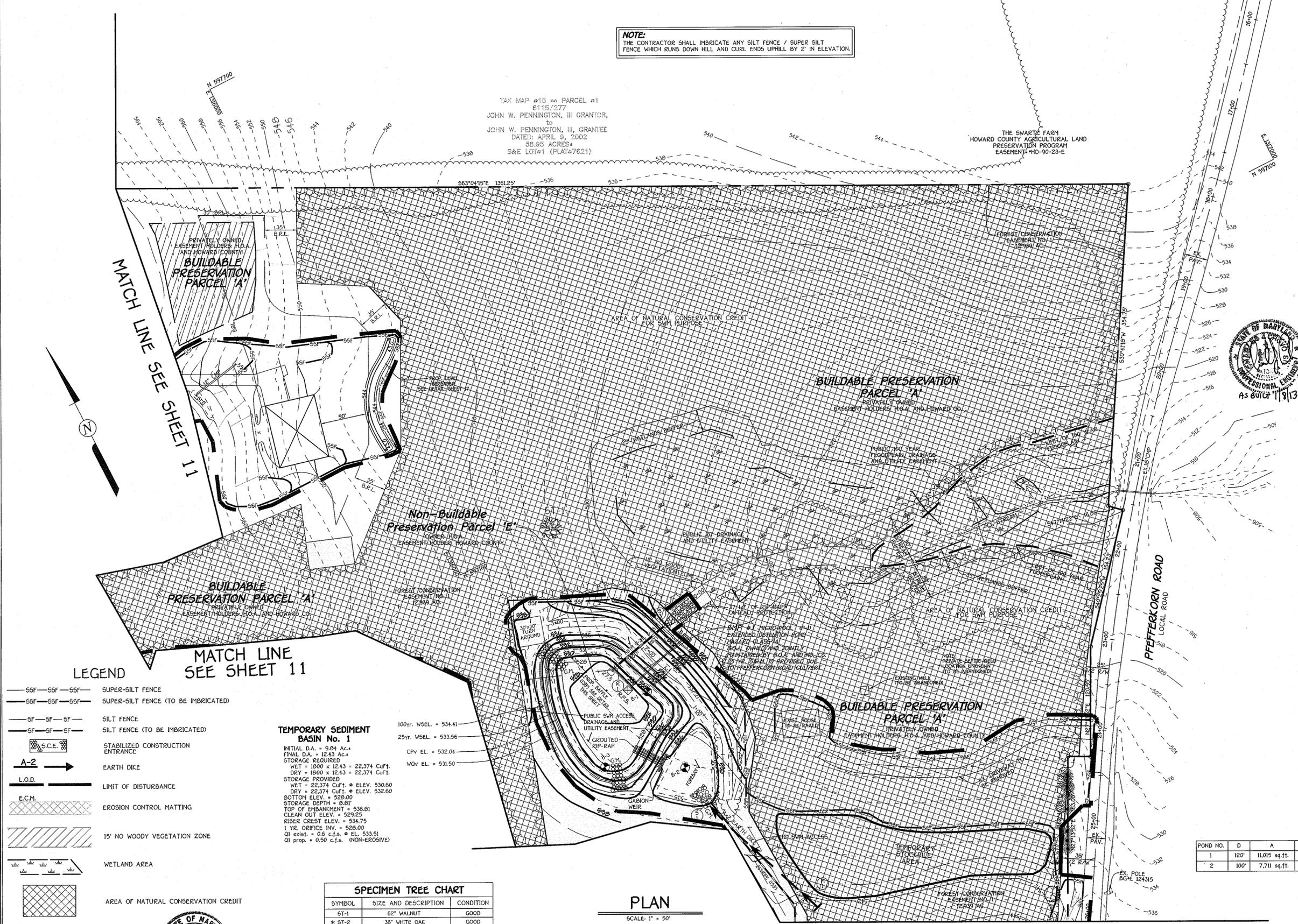
SEDIMENT BASIN BAFFLES



POND NO.	D	A	W _e	L _e	L _e /W _e
1	120'	11,015 sq.ft.	91.8	211'	2.29
2	100'	7,711 sq.ft.	77.11	163'	2.11

STREET TREE, GRADING & SEDIMENT CONTROL PLAN
CLOVERFIELD
 BUILDABLE LOTS 1 - 21, BUILDABLE PRESERVATION PARCEL 'A', NON-BUILDABLE PRESERVATION PARCELS 'B' THRU 'F' & NON-BUILDABLE BULK PARCEL 'F'

ZONING RC-DEO
 TAX MAP NO. 15 GRID NO. 8 PARCEL NO. 4
 THIRD ELECTION DISTRICT HOWARD COUNTY, MARYLAND
 DATE: SEPTEMBER, 2005
 SHEET 9 OF 21



SPECIMEN TREE CHART

SYMBOL	SIZE AND DESCRIPTION	CONDITION
ST-1	62" WALNUT	GOOD
* ST-2	36" WHITE OAK	GOOD
* ST-3	42" WHITE OAK	GOOD
ST-4	36" HICKORY	GOOD
ST-5	34" BLACK OAK	GOOD
ST-6	34" WHITE OAK	GOOD

* - DENOTES TREES TO BE REMOVED

OWNER
 ROBERT T. MATTHEWS REVOCABLE TRUST
 c/o MR. TIM LYONS
 7 MOSSVIEW COURT
 BALTIMORE, MARYLAND 21228

DEVELOPER
 HERITAGE LAND DEVELOPMENT
 19950 NORTH AVENUE
 P.O. BOX 492
 LISBON, MARYLAND 21765
 ATTN: MR. TIM FEAGA
 PHONE: (410) 489-7900

FISHER, COLLINS & CARTER, INC.
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
 CENTRAL SQUARE OFFICE PARK - 8022 BALTIMORE NATIONAL FREE
 ELKLOFT CITY, MARYLAND 21042
 410 461 - 2855



F-06-110
AS BUILT

APPROVED: DEPARTMENT OF PUBLIC WORKS
W. J. ... 10-3-06
 CHIEF, BUREAU OF HIGHWAYS MS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
Cecily ... 10/10/06
 CHIEF, DIVISION OF LAND DEVELOPMENT JH DATE

... 10/15/06
 CHIEF, DEVELOPMENT ENGINEERING DIVISION ya DATE

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 On-Site Inspections By The Howard Soil Conservation District."

M. Jeremy Rutter 9-22-06
 Signature Of Developer Date
 M. JEREMY RUTTER
 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."

... 9-22-06
 Signature Of Engineer Date
 A.C. ...
 Printed Name Of Engineer

These Plans Have Been Reviewed For The Howard Soil Conservation District And Meet The Technical Requirements For Small Pond Construction, Soil Erosion And Sediment Control.

... 9/28/06
 Signature Date
 USDA-Natural Resources Conservation Service

These Plans For Small Pond Construction, Soil Erosion And Sediment Control Meet The Requirements Of The Howard Soil Conservation District.

... 9/28/06
 Signature Date
 Howard Soil Conservation District

AS-BUILT CERTIFICATION
 I Herby Certify That The Facility Shown On This Plan Was Constructed As Shown On The "As-Built" Plans And Meets The Approved Plans And Specifications.

... 13204
 Signature P.E. No.
 1/8/13
 Date

AS-BUILT 1/8/13

Certify Means To State Or Declare A Professional Opinion Based Upon Onsite Inspections And Material Tests Which Are Conducted During Construction. The Onsite 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 An Engineer's Certification Relieve Any Other Party From Meeting Requirements Imposed By Contract, Employment, Or Other Means, Including Meeting Commonly Accepted Industry Practices.

LEGEND

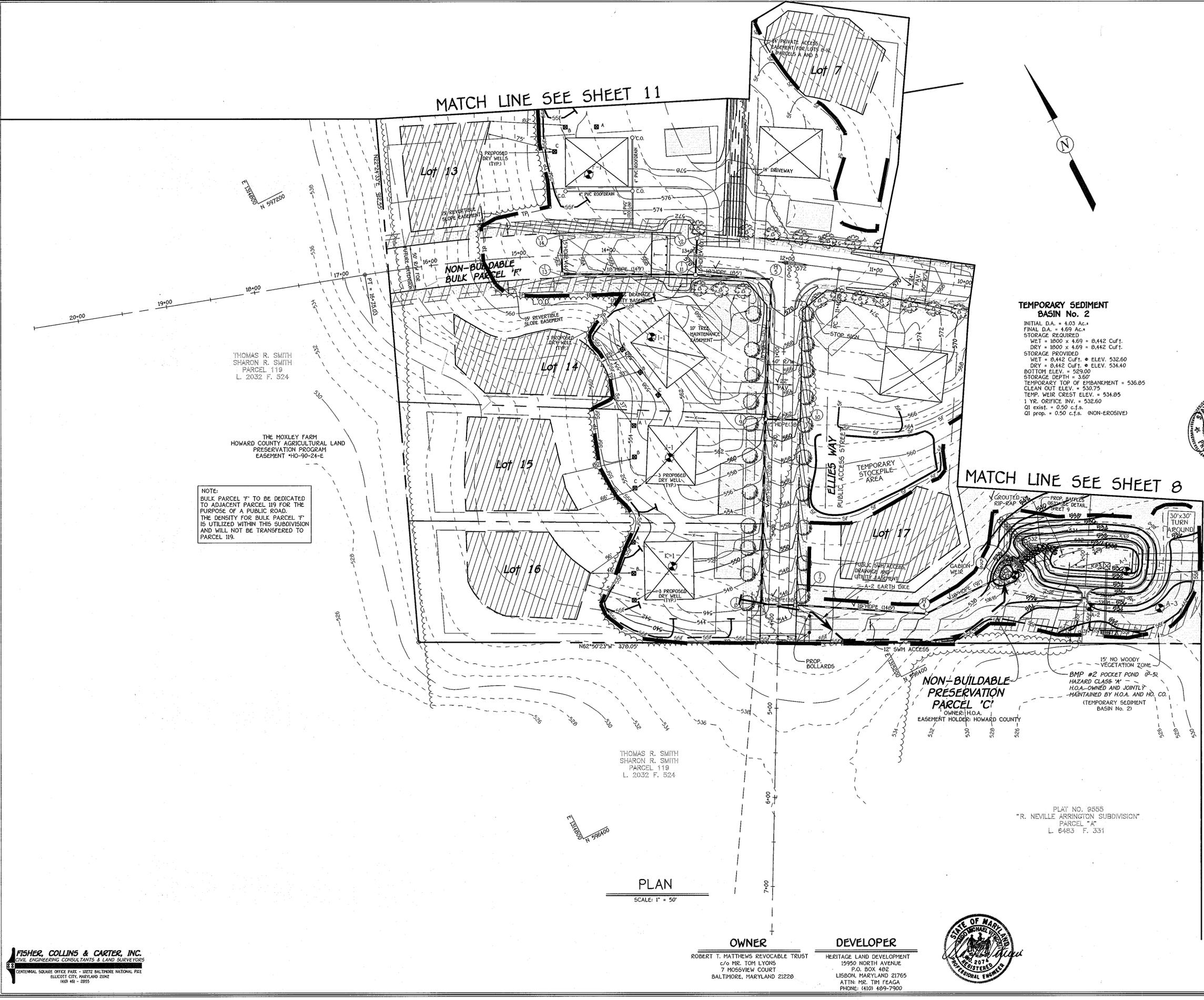
—SFF—SFF—SFF—	SUPER-SILT FENCE
—SFF—SFF—SFF—	SUPER-SILT FENCE (TO BE IMBRICATED)
—SF—SF—SF—	SILT FENCE
—SF—SF—SF—	SILT FENCE (TO BE IMBRICATED)
	STABILIZED CONSTRUCTION ENTRANCE
A-2 →	EARTH DIKE
L.O.D.	LIMIT OF DISTURBANCE
E.C.M.	EROSION CONTROL MATTING
	PROPOSED DRYWELL
	15' NO WOODY VEGETATION ZONE

NOTE: LEVEL SPREADERS & DRYWELLS TO BE A MINIMUM OF 25' FROM SEPTIC EASEMENTS.

NOTE:
 THE CONTRACTOR SHALL IMBRICATE ANY SILT FENCE / SUPER SILT FENCE WHICH RUNS DOWN HILL AND CURL ENDS UPHILL BY 2" IN ELEVATION.

STREET TREE, GRADING & SEDIMENT CONTROL PLAN
CLOVERFIELD
 BUILDABLE LOTS 1 - 21, BUILDABLE PRESERVATION PARCEL 'A', NON-BUILDABLE PRESERVATION PARCELS 'B' THRU 'E' & NON-BUILDABLE BULK PARCEL 'F'
 ZONING: RC-DEO
 TAX MAP NO. 15 GRID NO. 8 PARCEL NO. 4
 THIRD ELECTION DISTRICT HOWARD COUNTY, MARYLAND
 DATE: SEPTEMBER, 2006
 SHEET 10 OF 21

TEMPORARY SEDIMENT BASIN No. 2
 INITIAL D.A. = 4.03 AC+
 FINAL D.A. = 4.69 AC+
 STORAGE REQUIRED
 WET = 1000 X 4.69 = 8,442 CUF.
 DRY = 1000 X 4.69 = 8,442 CUF.
 STORAGE PROVIDED
 WET = 8,442 CUF. @ ELEV. 532.60
 DRY = 8,442 CUF. @ ELEV. 534.40
 BOTTOM ELEV. = 529.00
 STORAGE DEPTH = 3.60'
 TEMPORARY TOP OF EMBANKMENT = 536.85
 CLEAN OUT ELEV. = 530.75
 TEMP. WEIR CREST ELEV. = 534.85
 1 YR. ORIFICE INV. = 532.60
 Q1 exist. = 0.50 c.f.s.
 Q1 prop. = 0.50 c.f.s. (NON-EROSIVE)



K:\Drawings\330757 Matthews Property\FINAL PLANS CLOVERFIELD\0757-SHEET 8-11 STREET TREE AND GRADING PLAN.dwg, 9/21/2006 2:15:00 PM, 11

FISHER, COLLINS & CARTER, INC.
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
 CENTRAL SQUARE OFFICE PARK • 2077 BALDORNE NATIONAL PIKE
 ELKROTT CITY, MARYLAND 21042
 (410) 461 - 2955



F-06-110
AS BUILT

BIO-RETENTION PLANT MATERIAL CELL No. 1		
QUANTITY	NAME	MAXIMUM SPACING (FT.)
TREE SPECIES		
1	RED MAPLE	12'
1	BLOODGOOD LONDON PLANE	12'
1	SYCAMORE	12'
SHRUB SPECIES		
5	WITCH HAZEL	12'
5	RED OSLER DOGWOOD	12'
MIXED PERENNIALS AND GRASSES		
N/A	BLUEJOINT	N/A

NOTE: THE PLANTING SCHEDULE AND SPECIES FOR CELL 1 IS FOR DESIGN PURPOSES. PLANT DISTRIBUTION AND TYPES MAY BE SUBSTITUTED WITH SPECIES LISTED IN THE "DESIGN MANUAL FOR BIO-RETENTION IN STORM WATER MANAGEMENT" PRINCE GEORGE'S COUNTY GOVERNMENT.

- SYCAMORE
- MAPLE
- LONDON PLANE
- RED OSLER DOGWOOD
- WINTER BERRY
- WITCH HAZEL
- MIXED GRASSES (E.G., BROOMSEDGE SWITCH GRASS)

Bio-Retention Facility Planting Detail
NO SCALE

Parcel 185
William D. Piper and
Carolyn D. Piper
Liber 888, Folio 75
TOGETHER WITH AND SUBJECT TO: an
instructed easement for a common
roadway sixty feet wide

Parcel 207
Gary S. Noreutt
Liber 4403, Folio 453
8,000 A.C.

LEGEND

- SUPER-SILT FENCE
- SUPER-SILT FENCE (TO BE IMBRICATED)
- SILT FENCE
- SILT FENCE (TO BE IMBRICATED)
- STABILIZED CONSTRUCTION ENTRANCE
- EARTH DIKE
- LIMIT OF DISTURBANCE
- EROSION CONTROL MATTING
- AREA OF NATURAL CONSERVATION CREDIT
- DRYWELL

NOTE: DRYWELLS & LEVEL SPREADERS TO BE A MINIMUM OF 25' FROM SEPTIC EASEMENTS.

APPROVED: DEPARTMENT OF PUBLIC WORKS
William F. White Jr. 10-3-06
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
Joseph Hamstra 10/18/06
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

Chris Domonius 10/18/06
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

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 On-Site Inspections By The Howard Soil Conservation District.

M. Jeremy Rutter 9-22-06
Signature Of Developer DATE
M. JEREMY RUTTER
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.

A. J. N... 9-22-06
Signature DATE
A. J. N...
Printed Name Of Engineer

These Plans Have Been Reviewed For The Howard Soil Conservation District And Meet The Technical Requirements For Small Pond Construction, Soil Erosion And Sediment Control.

Jim Magnuson 9/28/06
USDA-Natural Resources Conservation Service DATE

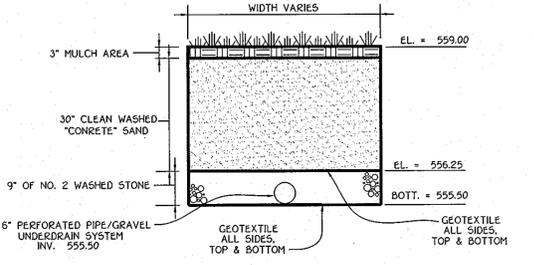
These Plans For Small Pond Construction, Soil Erosion And Sediment Control Meet The Requirements Of The Howard Soil Conservation District.

Shelley... 9/28/06
Howard Soil Conservation District DATE

AS-BUILT CERTIFICATION
I Herby Certify That The Facility Shown On This Plan Was Constructed As Shown On The "As-Built" Plans And Meets The Approved Plans And Specifications.

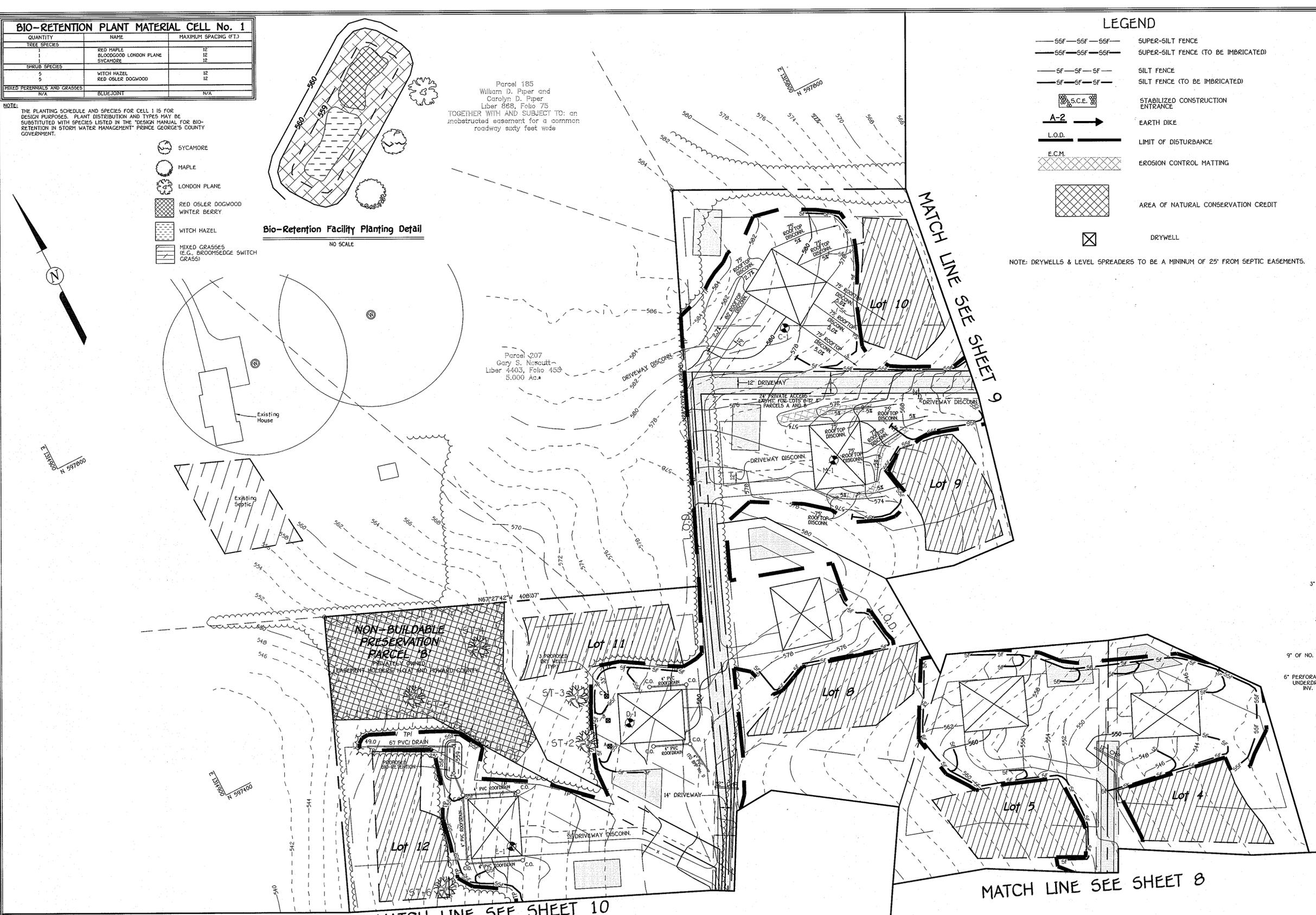
Signature P.E. No.
Date:

Certify Means To State Or Declare A Professional Opinion Based Upon Onsite Inspections And Material Tests Which Are Conducted During Construction. The Onsite 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 An Engineer's Certification Relieve Any Other Party From Meeting Requirements Imposed By Contract, Employment, Or Other Means, Including Meeting Commonly Accepted Industry Practices.



PRIVATE BIO-RETENTION FILTER FOR LOT 12
NO SCALE

- OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATE BIO-RETENTION AREA
- 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.
 - SCHEDULE OF PLANT INSPECTION WILL BE TWICE A 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.
 - MULCH SHALL BE INSPECTED EACH SPRING. REMOVE PREVIOUS MULCH LAYER BEFORE APPLYING NEW LAYER ONCE EVERY 2 TO 3 YEARS.
 - SOIL EROSION TO BE ADDRESSED ON AN AS NEEDED BASIS, WITH A MINIMUM OF ONCE PER MONTH AND AFTER HEAVY STORM EVENTS.



MATCH LINE SEE SHEET 10

MATCH LINE SEE SHEET 8

MATCH LINE SEE SHEET 9

PLAN

SCALE: 1" = 50'

OWNER
ROBERT T. MATTHEWS REVOCABLE TRUST
c/o MR. TOM LYONS
7 MOSSVIEW COURT
BALTIMORE, MARYLAND 21228

DEVELOPER
HERITAGE LAND DEVELOPMENT
1950 NORTH AVENUE
P.O. BOX 492
LISBON, MARYLAND 21765
ATTN: MR. TIM FEAGA
PHONE: (410) 489-7500

NOTE:
THE CONTRACTOR SHALL IMBRICATE ANY SILT FENCE / SUPER SILT FENCE WHICH RUNS DOWN HILL AND CURL ENDS UP HILL BY 2' IN ELEVATION.

STREET TREE, GRADING & SEDIMENT CONTROL PLAN
CLOVERFIELD
BUILDABLE LOTS 1 - 21, BUILDABLE
PRESERVATION PARCEL 'A',
NON-BUILDABLE PRESERVATION PARCELS 'B' THRU 'E'
& NON-BUILDABLE BULK PARCEL 'F'

ZONING: RC-DEO
TAX MAP NO. 15, GRID NO. 9, PARCEL NO. 4
THIRD ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: SEPTEMBER, 2006
SHEET 11 OF 21

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTRAL SQUARE OFFICE PARK - 8172 BALTIMORE NATIONAL PIKE
ELICOTT CITY, MARYLAND 21042
4100 461 - 2855



LANDSCAPE DEVELOPER'S CERTIFICATE
I/We certify that the landscaping shown on this plan will be done according to the plan, Section 16.124 of the Howard County Code and the Howard County Landscape Manual. I/We further certify that upon completion a certification of landscape installation accompanied by an executed one year guarantee of plant materials will be submitted to the Department of Planning and Zoning.

Jimmy Ruttie
Name Date
9/22/06

This plan has been prepared in accordance with the provision of Section 16.124 of the Howard County Code and Landscape Manual. Financial surety for the required landscaping will be posted as part of the grading permit.

LANDSCAPING PLANT LIST			
QTY.	KEY	NAME	SIZE
51		FAGUS GRANDIFOLIA AMERICAN BEECH	2 1/2" - 3" CALIPER FULL CROWN, B&B
36		QUERCUS RUBRA RED OAK	2 1/2" - 3" CALIPER FULL CROWN, B&B
47		PINUS STROBUS EASTERN WHITE PINE	6' - 8' HT.

*THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE "LANDSCAPE MANUAL". FINANCIAL SURETY FOR THE 136 REQUIRED LANDSCAPE TREES HAS BEEN POSTED AS PART OF THE DEVELOPER'S AGREEMENT IN THE AMOUNT OF \$33,750.00.

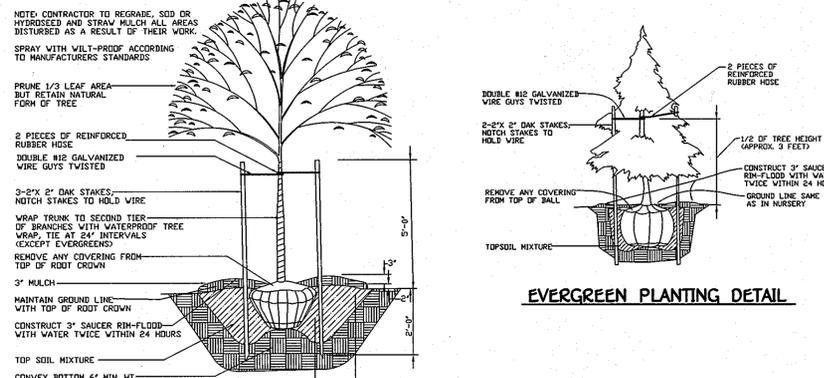
SCHEDULE D STORMWATER MANAGEMENT AREA LANDSCAPING			
LINEAR FEET OF PERIMETER	D-1 : 92'	D-2 : 96'	
NUMBER OF TREES REQUIRED:			
SHADE TREES	19	19	
EVERGREEN TREES	23	24	
CREDIT FOR EXISTING VEGETATION (NO, YES AND %)	NO	NO	
CREDIT FOR OTHER LANDSCAPING (NO, YES AND %)	NO	NO	

APPROVED: DEPARTMENT OF PUBLIC WORKS
W. J. ... 10-3-06
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
Candy ... 10/13/06
CHIEF, DIVISION OF LAND DEVELOPMENT SA DATE

Chris ... 10/13/06
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

SCHEDULE A - PERIMETER LANDSCAPING						
PERIMETER	CATEGORY (PROPERTIES/ROADWAYS)	LANDSCAPE TYPE	LINEAR FEET OF ROADWAY FRONTAGE PERIMETER	CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	CREDIT FOR WALL, FENCE OR BERM (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	NUMBER OF PLANTS REQUIRED & PROVIDED (SHADE TREES, EVERGREEN TREES, SHRUBS)
P-1	ADJACENT TO PERIMETER	A	294.1'	NO	NO	5 - - -
P-2	ADJACENT TO PERIMETER	A	1064.9'	NO	NO	10 - - -
P-3	ADJACENT TO PERIMETER	A	253.6'	YES (45')	NO	3 - - -
P-4	ADJACENT TO PERIMETER	A	841.3'	YES - (500')	NO	6 - - -
P-5	ADJACENT TO PERIMETER	A	912.6'	YES (1000')	NO	0 - - -
P-6	ADJACENT TO PERIMETER	A	591.1'	YES - (215')	NO	5 - - -
P-7	ADJACENT TO PERIMETER	A	982.8'	NO	NO	10 - - -
P-8	ADJACENT TO PERIMETER	A	240.6'	NO	NO	4 - - -



**TREE PLANTING DETAIL
PLANTING SPECIFICATIONS**

Plants, related material, and operations shall meet the detailed description as given on the plans and as described herein. All plant material, unless otherwise specified, shall be nursery grown, uniformly branched, have a vigorous root system, and shall conform to the species, size, root and shape shown on the plant list and the American Association of Nurserymen (A.A.N.) Standards. Plant material shall be healthy, vigorous, free from defects, decay, disfiguring roots, sun scald injuries, abrasions of the bark, plant disease, insect pest eggs, borers and all forms of insect infestations or objectionable infestations. Plant material that is weak or which has been cut back from larger grades to meet specified requirements will be rejected. Trees with forked leaders will not be accepted. All plants shall be freshly dug, no heeled-in plants from cold storage will be accepted. Unless otherwise specified, all general conditions, planting operations, details and planting specification shall conform to "Landscape Specification Guidelines for Baltimore-Washington Metropolitan Areas" (hereinafter "Landscape Guidelines") approved by the Landscape Contractors Association of Metropolitan Washington and the Potomac Chapter of the American Society of Landscape Architects, latest edition, including all addenda.

Contractor shall be required to guarantee all plant material for a period of one year after date of acceptance in accordance with the appropriate section of the Landscape Guidelines. Contractor's attention is directed to the maintenance requirements found within the one year specifications including watering and replacement of specified plant material.

Contractor shall be responsible for notifying utility companies, utility contractors and "Miss Utility" a minimum of 48 hours prior to beginning any work. Contractor may make minor adjustments in spacing and location of plant material to avoid conflicts with utilities. Damage to existing structure and utilities shall be repaired at the expense of the Contractor.

Protection of existing vegetation to remain shall be accomplished by the temporary installation of 4 foot high snow fence or blaze orange safety fence at the drip line.

Contractor is responsible for installing all material in the proper planting season for each plant type. All planting is to be completed within the growing season of completion of site construction.

Bid shall be based on actual site conditions. No extra payment shall be made for work arising from site conditions differing from those indicated on drawings and specifications.

Plant quantities are provided for the convenience of the contractor only. If discrepancies exist between quantities shown on plan and those shown on the plant list, the quantities on the plan take precedence.

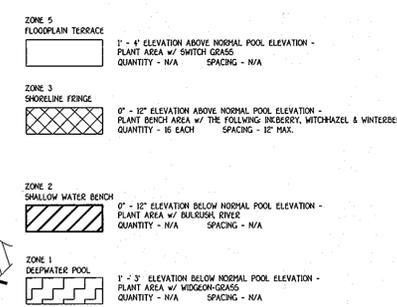
All shrubs shall be planted in continuous trenches or prepared planting beds and mulched with composted hardwood mulch as details and specified except where noted on plans.

Positive drainage shall be maintained in planting beds 2 percent slope.

Planting mix shall be as follows: Deciduous Plants - Two parts topsoil, one part well-rotted cow or horse manure. Add 3 lbs. of standard fertilizer per cubic yard of planting mix. Evergreen Plants - Two parts topsoil, one part humus or other approved organic material. Add 3 lbs. of evergreen (acidic) fertilizer per cubic yard of planting mix. Topsoil shall conform to the Landscape Guidelines.

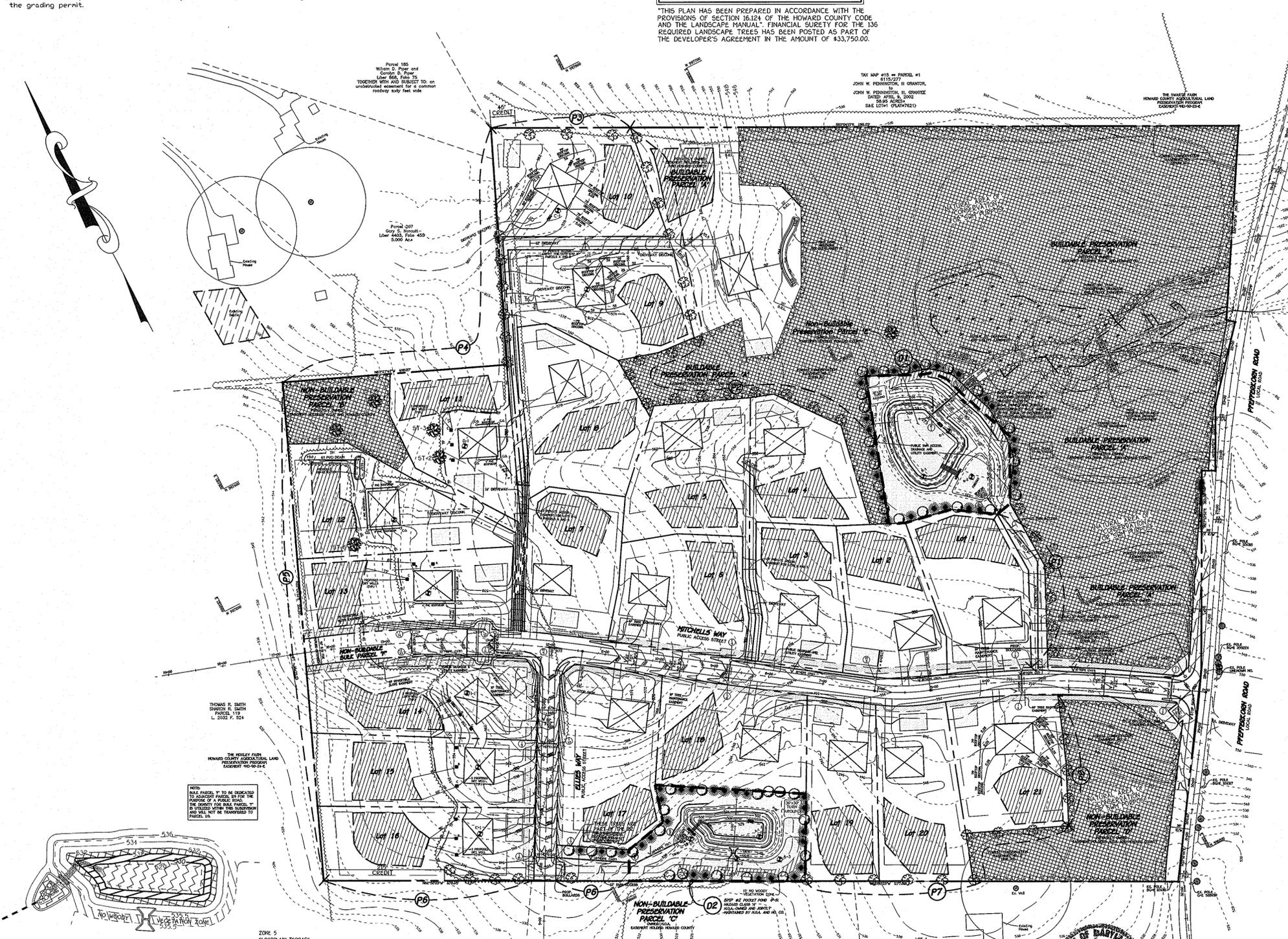
Seed Control: Incorporate a pre-emergent herbicide into the planting bed following recommended rates on the label. Caution: Be sure to carefully check the chemical used to assure its suitability for the specific ground cover to be treated.

All areas within contract limits disturbed during or prior to construction not designated to receive plants and mulch shall be fine graded and seeded. This plan is intended for landscape use only. See other plan sheets for more information on grading, sediment control, layout, etc.

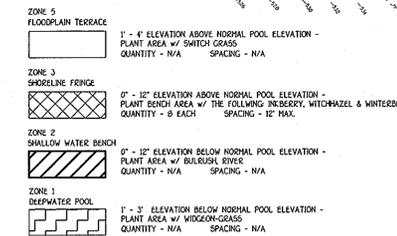


**LANDSCAPE PLAN
CLOVERFIELD**
MICRO POOL EXTENDED DETENTION POND INTERNAL LANDSCAPING SWM POND NO. 1
SCALE: 1" = 50'

**LANDSCAPE PLAN
CLOVERFIELD**
BUILDABLE LOTS 1 - 21, BUILDABLE PRESERVATION PARCEL 'A', NON-BUILDABLE PRESERVATION PARCELS 'B' THRU 'E' & NON-BUILDABLE BULK PARCEL 'F'
ZONING: RC-DEO
TAX MAP NO. 15 GRID NO. 8 PARCEL NO. 4
THIRD ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: SEPTEMBER, 2006
SHEET 12 OF 21



**POCKET POND w/MICRO POOL
INTERNAL LANDSCAPING
SWM POND NO. 2**
SCALE: 1" = 50'



FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTRAL SQUARE OFFICE BLDG. 10272 BALDWIN NATIONAL PKE
ELICOTT CITY, MARYLAND 21042
410 481-2955

STATE OF MARYLAND
PROFESSIONAL ENGINEER
STATE OF MARYLAND
PROFESSIONAL ENGINEER

Planting/Soil Specifications

1. Installation of bareroot plant stock shall take place between March 15 - April 20; b&b/container stock March 15 - May 30 or September 15 - November 15. Fall planting of B&B stock is not recommended.
2. Disturbed areas shall be seeded and established as per general construction plan for project. Planting areas not impacted by site grading shall have no additional topsoil installed.
3. Bareroot plants shall be installed so that the top of root mass is level with the top of existing grade. Roots shall be dipped in an anti-desiccant gel prior to planting. Backfill in the planting pits shall consist of 3 parts existing soil to 1 part pine fines or equivalent.
4. Fertilizer shall consist of Agriform 22-22-2, or equivalent, applied as per manufacturer's specifications, for woody plants. Herbaceous plants shall be fertilized with Osmocote 0-6-12.
5. Plant material shall be transported to the site in a tarp or covered truck. Plants shall be kept moist prior to planting.
6. All non-organic debris associated with the planting operation shall be removed from the site by the contractor.

Sequence of Construction

1. Sediment control shall be installed in accordance with general construction plan for site.
2. Plants shall be installed as per Plant Schedule and the Planting/Soil Specifications for the project.
3. Upon completion of the planting, signage shall be installed as shown.
4. Plantings shall be maintained and guaranteed in accordance with the Maintenance and Guarantee requirements for project.

Maintenance of Plantings

1. Maintenance of plantings shall last for a period of 2 years.
2. Plantings must receive 2 gallons of water, either through precipitation or watering, weekly during the first growing season, as needed. During second growing season, once a month during May-September, if needed.
3. Invasive exotics and noxious weeds will be removed, as required, from planting areas mechanically and/or with limited herbicide application (see groundcover note where appropriate). Old field successional species will be unrestrained to return to a common nearby site.
4. Plants will be examined a minimum two times during the growing season for serious plant pests and diseases. Serious problems will be treated with the appropriate agent.
5. Dead branches will be pruned from plantings.

Guarantee Requirements

1. A 75 percent survival rate of forestation plantings will be required at the end of 2 growing seasons. All plant material below the 75 percent threshold will be replaced at the beginning of the next growing season. Wild trees arising from natural regeneration may be counted up to 50 percent towards the total survival number if they are healthy, native species at least 12 inches tall.

Surety for Forestation

1. The developer shall post a surety bond, letter of credit to ensure that forestation plantings are completed.

Planting Notes

When possible, plants shall be installed within 24 hours of delivery. If installation cannot be performed within this time frame, plant stock shall be watered and protected from desiccation.

Application of herbicide, Round-up or equivalent, may be used to reduce plant competition from old field successional growth at the time of installation. Mowing, re-application of herbicide, or a combination thereof, may be used to control unwanted competing vegetation.

Planting shall be installed within one year or two growing seasons of subdivision approval. Plantings shall be installed in accordance with the time schedule included in Note 1 of the planting/seeding specifications.

DRAINAGE AREA DATA					
STRUCTURE NO.	DRAINAGE AREA	AREA (AC.)	C'	ZONED	± IMP.
I-1	A	0.10	0.44	RC-DEO	25
I-2	B	0.05	0.63	RC-DEO	56
I-3	C	0.92	0.43	RC-DEO	27
I-4	D	0.28	0.61	RC-DEO	57
I-5	E	0.72	0.41	RC-DEO	28
I-6	F	0.43	0.49	RC-DEO	37
I-7	G	0.11	0.54	RC-DEO	45
I-8	H	0.29	0.49	RC-DEO	39
I-9	I	0.34	0.44	RC-DEO	29
I-10	J	0.28	0.39	RC-DEO	21
I-11	K	0.08	0.49	RC-DEO	38
I-12	L	0.28	0.54	RC-DEO	46
I-13	M	0.11	0.54	RC-DEO	45
I-14	N	0.36	0.41	RC-DEO	25

Forest Conservation Easement #1
11.5 acres to be reforested
1.5 acres to be retained
13.0 ACRES TOTAL

APPROVED: DEPARTMENT OF PUBLIC WORKS
Walter J. White 10-3-06
CHIEF, BUREAU OF HIGHWAYS, JR. DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
Andy Harman 10/13/06
CHIEF, DIVISION OF LAND DEVELOPMENT, JA DATE

John P. Canoles 10/13/06
CHIEF, DEVELOPMENT ENGINEERING DIVISION, YA DATE

FOREST CONSERVATION WORKSHEET

NET TRACT AREA	ACRES
A. TOTAL TRACT AREA	48.51
B. DEDUCTIONS (CRITICAL AREA, AREA RESTRICTED BY LOCAL OR PROGRAM)	0.50
C. NET TRACT AREA (NET TRACT AREA - TOTAL TRACT (A) - DEDUCTIONS (B))	48.01
LAND USE CATEGORY: MEDIUM DENSITY RESIDENTIAL	
D. AFFORESTATION THRESHOLD (NET TRACT AREA (C) x 20%)	9.60
E. CONSERVATION THRESHOLD (NET TRACT AREA (C) x 25%)	12.00
EXISTING FOREST COVER	
F. EXISTING FOREST COVER WITHIN THE NET TRACT AREA	10.00
G. AREA OF FOREST ABOVE CONSERVATION THRESHOLD	0.4
IF THE AREA OF FOREST COVER (F) IS GREATER THAN THE CONSERVATION THRESHOLD (E), THEN G = F - E; OTHERWISE G = 0.	
BREAK-POINT	
H. BREAK-POINT (AMOUNT OF FOREST THAT MUST BE RETAINED SO THAT NO MITIGATION IS REQUIRED)	12.80
(1) IF THE AREA OF FOREST ABOVE CONSERVATION THRESHOLD (G) IS GREATER THAN 0, THEN H = 0.2 x THE AREA OF FOREST ABOVE CONSERVATION THRESHOLD (G) + THE CONSERVATION THRESHOLD (E).	
(2) IF THE AREA OF FOREST ABOVE CONSERVATION THRESHOLD (G) IS EQUAL TO 0, THEN H = EXISTING FOREST COVER (F)	
I. FOREST CLEARING PERMITTED WITHOUT MITIGATION	0
I = EXISTING FOREST COVER (F) - BREAK-POINT (H)	
PROPOSED FOREST CLEARING	
J. TOTAL AREA OF FOREST TO BE CLEARED	7.9
K. TOTAL AREA OF FOREST TO BE RETAINED	2.1
K = EXISTING FOREST COVER (F) - FOREST TO BE CLEARED (J)	
PLANTING REQUIREMENTS	
IF THE TOTAL AREA OF FOREST TO BE RETAINED (K) IS AT OR ABOVE THE BREAK-POINT (H), NO PLANTING IS REQUIRED, AND NO FURTHER CALCULATIONS ARE NECESSARY (L=0, M=0, N=0, P=0, Q=0, R=0).	
OTHERWISE, CALCULATE THE PLANTING REQUIREMENTS AS FOLLOWS:	
L. REFORESTATION FOR CLEARING ABOVE THE CONSERVATION THRESHOLD	
(1) IF THE TOTAL AREA OF FOREST TO BE RETAINED (K) IS GREATER THAN THE CONSERVATION THRESHOLD (E), THEN L = THE AREA OF FOREST TO BE CLEARED (J) x 0.25.	
(2) IF THE FOREST TO BE RETAINED (K) IS LESS THAN OR EQUAL TO THE CONSERVATION THRESHOLD (E), THEN L = AREA OF FOREST ABOVE CONSERVATION THRESHOLD (G) x 0.25.	
M. REFORESTATION FOR CLEARING BELOW THE CONSERVATION THRESHOLD	15.8
(1) IF EXISTING FOREST COVER (F) IS GREATER THAN THE CONSERVATION THRESHOLD (E) AND THE FOREST TO BE RETAINED (K) IS LESS THAN OR EQUAL TO THE CONSERVATION THRESHOLD (E), THEN M = 2.0 x (CONSERVATION THRESHOLD (E) - FOREST TO BE RETAINED (K)).	
(2) IF EXISTING FOREST COVER (F) IS LESS THAN OR EQUAL TO THE CONSERVATION THRESHOLD (E), THEN M = 2.0 x FOREST TO BE CLEARED (J).	
N. CREDIT FOR RETENTION ABOVE THE CONSERVATION THRESHOLD	0
IF THE AREA OF FOREST TO BE RETAINED (K) IS GREATER THAN THE CONSERVATION THRESHOLD (E), THEN N = K - E; OTHERWISE N = 0.	
P. TOTAL REFORESTATION REQUIRED P = L + M - N	15.8
Q. TOTAL AFFORESTATION REQUIRED	0
IF EXISTING FOREST COVER (F) IS LESS THAN THE AFFORESTATION THRESHOLD (D), THEN Q = AFFORESTATION THRESHOLD (D) - EXISTING FOREST COVER (F)	
R. TOTAL PLANTING REQUIREMENT R = P + Q	15.8

Forest Conservation Easement #3
0.6 acres to be retained

FCE Planting Area # 1 - 11.5 acres

Planting units required: 8050 (4250 whips)
Planting units provided: 8050 (3710 whips and 180 trees)

Qty	Species	Size	Spacing	Total FCA Units
100	Acer rubrum - Red maple	1" cal.	15' o.c.	
80	Quercus alba - White oak	1" cal.	15' o.c.	
180 Total 1" caliper trees (3.5 planting units per tree) = 150 TOTAL FCA UNIT CREDIT				
400	Acer rubrum - Red maple	2-3" whip	11' o.c.	
400	Cercis canadensis - Red bud	2-3" whip	11' o.c.	
450	Cornus florida - Flowering dogwood	2-3" whip	11' o.c.	
550	Liriodendron tulipifera - Tulip poplar	2-3" whip	11' o.c.	
500	Prunus serotina - Black cherry	2-3" whip	11' o.c.	
500	Robinia pseudo-acacia - Black locust	2-3" whip	11' o.c.	
453	Quercus alba - White oak	2-3" whip	11' o.c.	
457	Viburnum prunifolium - Blackhaw	2-3" whip	11' o.c.	
3710 Total whip plantings (2 planting units per whip) = 7420 Total FCA UNIT CREDIT				
Total Unit Credit: 6300 = 7420 - 8050				

1" CAL. TREES = 200/ACRE (180 TREES/200 = 0.9 AC.) 2 Planting units = 1 Whip
WHIPS w/shelters = 350/ACRE = 350 x 10.6 AC. = 3710 WHIPS 3.5 Planting units = 1 - 1" Cal. Tree

FCE Planting Area # 2 - 1.8 acres

Planting units required: 1263 (630 whips)
Planting units provided: 1263 (599 whips and 18 trees)

Qty	Species	Size	Spacing	Total FCA Units
6	Acer rubrum - Red maple	1" cal.	15' o.c.	
12	Quercus alba - White oak	1" cal.	15' o.c.	
18 Total 1" caliper trees (3.5 planting units per tree) = 63 TOTAL FCA UNIT CREDIT				
50	Acer rubrum - Red maple	2-3" whip	11' o.c.	
40	Cercis canadensis - Red bud	2-3" whip	11' o.c.	
95	Cornus florida - Flowering dogwood	2-3" whip	11' o.c.	
95	Liriodendron tulipifera - Tulip poplar	2-3" whip	11' o.c.	
95	Prunus serotina - Black cherry	2-3" whip	11' o.c.	
95	Robinia pseudo-acacia - Black locust	2-3" whip	11' o.c.	
92	Quercus alba - White oak	2-3" whip	11' o.c.	
92	Viburnum prunifolium - Blackhaw	2-3" whip	11' o.c.	
599 Total whip plantings (2 planting units per whip) = 1198 Total FCA UNIT CREDIT				
Total Unit Credit: 63 + 1198 = 1261				

1" CAL. TREES = 200/ACRE (18 TREES/200 = 0.09 AC.) 3.5 Planting units = 1 - 1" Cal. Tree
WHIPS w/shelters = 350/ACRE = 350 x 1.71 AC. = 599.5 WHIPS 2 Planting units = 1 Whip

ON-SITE SIGNAGE

FOREST CONSERVATION EASEMENT

UNAUTHORIZED DISTURBANCE OF VEGETATION IS PROHIBITED. VIOLATORS SUBJECT TO PENALTIES UNDER THE HOWARD COUNTY FOREST CONSERVATION ACT OF 1991.

TREES FOR YOUR FUTURE

Planting Notes:

Planting units defined by the spacing requirements established in the FCA Manual. One plant unit is defined as 1 seeding or whip without shelter. The Manual states that 700 seedlings/whips without shelters are required per acre, or 350 whips w/shelters, or 200 1" caliper trees, or 100 2" caliper trees. By conversion it has been determined that a seeding or whip without shelter = 1 unit, whip with shelter = 2 units, 1" caliper tree = 3.5 units and 2" caliper tree = 7 units. The use of plant units simplifies the plant density calculations when mixing stock size.

** - These species should not be planted within the wetland limits.

1" caliper trees should be staggered along the outer perimeter of the planting area to serve as demarcation of the boundary. The trees should be no closer than 15 foot spacing. Whip spacing to be placed on 11 foot centers, shelters will be required per Howard County policy.

Planting shall be made in a curvilinear fashion along contour. The planting should avoid a grid appearance but should be spaced to facilitate maintenance.

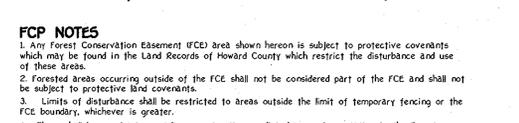
Multiflora rose/heavy brush removal/control may be required prior to installation of planting.

All whips are required to be installed with tree shelters per Howard County FCA requirements.

PLAN
SCALE: 1" = 100'

Forest Conservation Easement #2
1.8 acres to be reforested

SEEDING AND WHIP PLANTING SPECIFICATION



- FCP NOTES**
1. Any Forest Conservation Easement (FCE) area shown hereon is subject to protective covenants which may be found in the Land Records of Howard County which restrict the disturbance and use of these areas.
 2. Forested areas occurring outside of the FCE shall not be considered part of the FCE and shall not be subject to protective land coverages.
 3. Limits of disturbance shall be restricted to areas outside the limits of temporary fencing or the FCE boundary, whichever is greater.
 4. There shall be no clearing, grading, construction or disturbance of vegetation in the Forest Conservation Easement, except as permitted by Howard County DEE.
 5. No stockpiles, parking areas, equipment clearing areas, etc. shall occur within areas designated as Forest Conservation Easements.
 6. Temporary fencing shall be used to protect forest resources during construction. The fencing shall be placed along all FCE boundaries which occur within 15 feet of the proposed limits of disturbance.
 7. Permanent signage shall be placed 50-100' apart along the boundaries of all areas included in Forest Conservation Easements.
 8. The reforestation obligation of 15.8 acres for this project shall be met through a combination of onsite planting of 13.3 acres with the remaining 2.5 acres of reforestation obligation to be met in an offsite location (FEAGA II PROPERTY, TAX MAP No. 6, GRID No. 21, PARCEL No. 56, 4th ELECTION DISTRICT, DEED REF. L 9274, P. 224).
 9. The surety amount for the on-site reforestation obligation is 133 ac. planting @ \$0.50/sq.ft. = \$66,150.00 and retention of 2.1 ac. @ \$0.20/sq.ft. = \$42,250.00. The surety amount for the off-site retention of 5.0 ac. @ \$0.20/sq.ft. = \$1,000.00. The total reforestation surety amount is \$109,400.00.

SPECIMEN TREE CHART

SYMBOL	SIZE AND DESCRIPTION	CONDITION
ST-1	82" WALNUT	GOOD
*ST-2	36" WHITE OAK	GOOD
*ST-3	42" WHITE OAK	GOOD
ST-4	36" HICKORY	GOOD
ST-5	34" BLACK OAK	GOOD
ST-6	34" WHITE OAK	GOOD

* - DENOTES TREES TO BE REMOVED

STORM DRAIN DRAINAGE AREA MAP & FOREST CONSERVATION PLAN CLOVERFIELD

BUILDABLE LOTS 1 - 21, BUILDABLE PRESERVATION PARCEL 'A', NON-BUILDABLE PRESERVATION PARCELS 'B' THRU 'F' & NON-BUILDABLE BULK PARCEL 'F'

ZONING: RC-DEO
TAX MAP NO. 15 GRID NO. 8 PARCEL NO. 4
THIRD ELECTION DISTRICT - HOWARD COUNTY, MARYLAND
DATE: SEPTEMBER, 2006
SHEET 13 OF 21

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTRAL SQUARE OFFICE PARK - 10726 DORCHESTER NATIONAL PARK
ELKLOTT CITY, MARYLAND 21042
410-461-2955

Eco-Science Professionals, Inc.
CONSULTING ECOLOGISTS

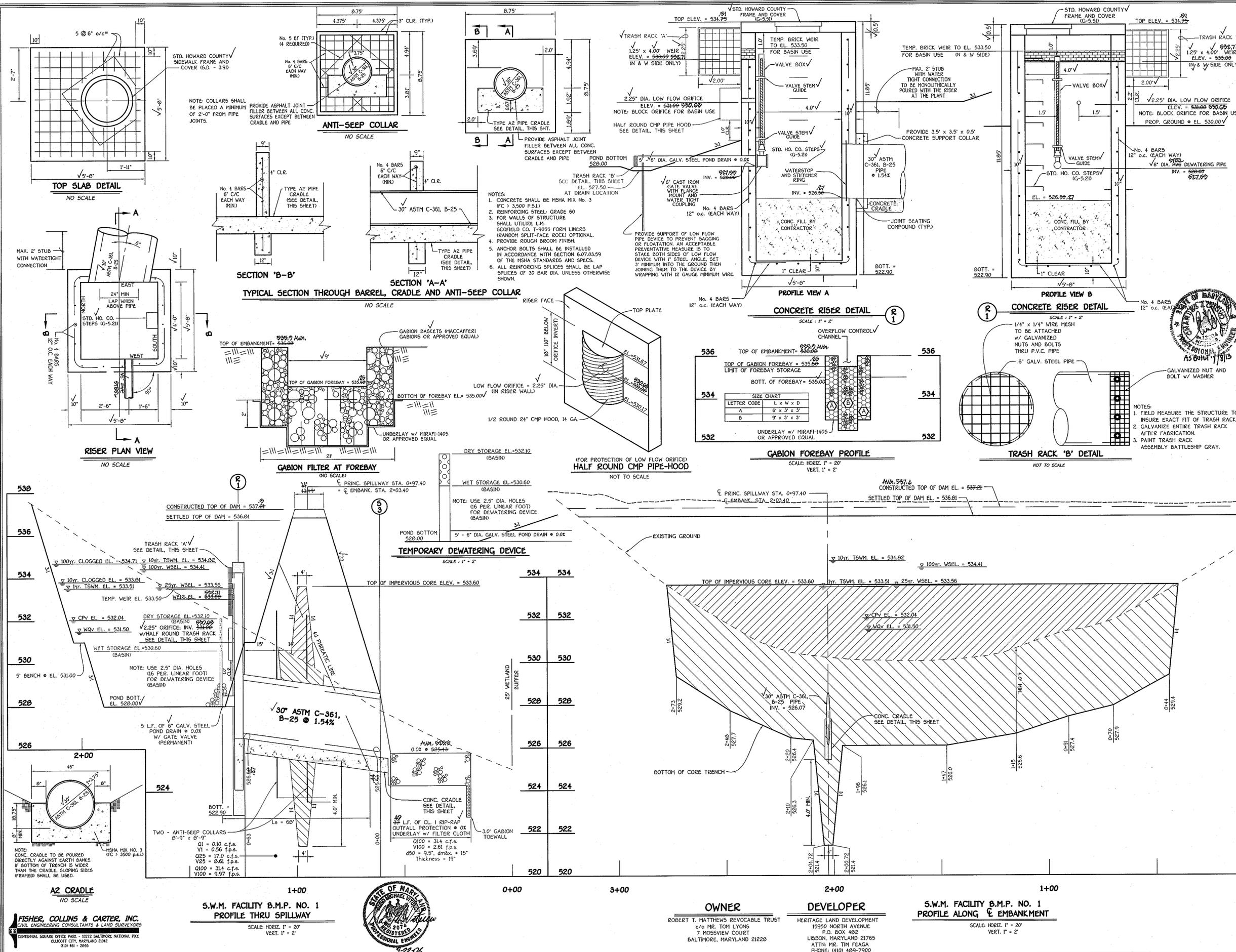
NO DNR Qualified Professional
USACE Wetland Designer
Certification # WDCPSND0001044
J.P.C.
JOHN P. CANOLES



OWNER
ROBERT T. MATTHEWS REVOCABLE TRUST
c/o MR. TOM LYONS
7 HOSVIEW COURT
BALTIMORE, MARYLAND 21228

DEVELOPER
HERITAGE LAND DEVELOPMENT
15950 NORTH AVENUE
P.O. BOX 482
LISBON, MARYLAND 21765
ATTN: MR. TIM FEAGA
PHONE: (410) 489-7900





APPROVED: DEPARTMENT OF PUBLIC WORKS
 W. J. ... 10-3-06
 CHIEF, BUREAU OF HIGHWAYS
 APPROVED: DEPARTMENT OF PLANNING AND ZONING
 ... 10/13/06
 CHIEF, DIVISION OF LAND DEVELOPMENT
 ... 10/13/06
 CHIEF, DEPARTMENT OF ENGINEERING DIVISION

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 On-Site Inspections By The Howard Soil Conservation District.

M. Jeremy Rutter
 Signature Of Developer
 M. JEREMY RUTTER
 Printed Name Of Developer
 9-22-06
 Date

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
 Printed Name Of Engineer
 These Plans Have Been Reviewed For The Howard Soil Conservation District And Meet The Technical Requirements For Small Pond Construction, Soil Erosion And Sediment Control.

USDA-Natural Resources Conservation Service
 These Plans For Small Pond Construction, Soil Erosion And Sediment Control Meet The Requirements Of The Howard Soil Conservation District.

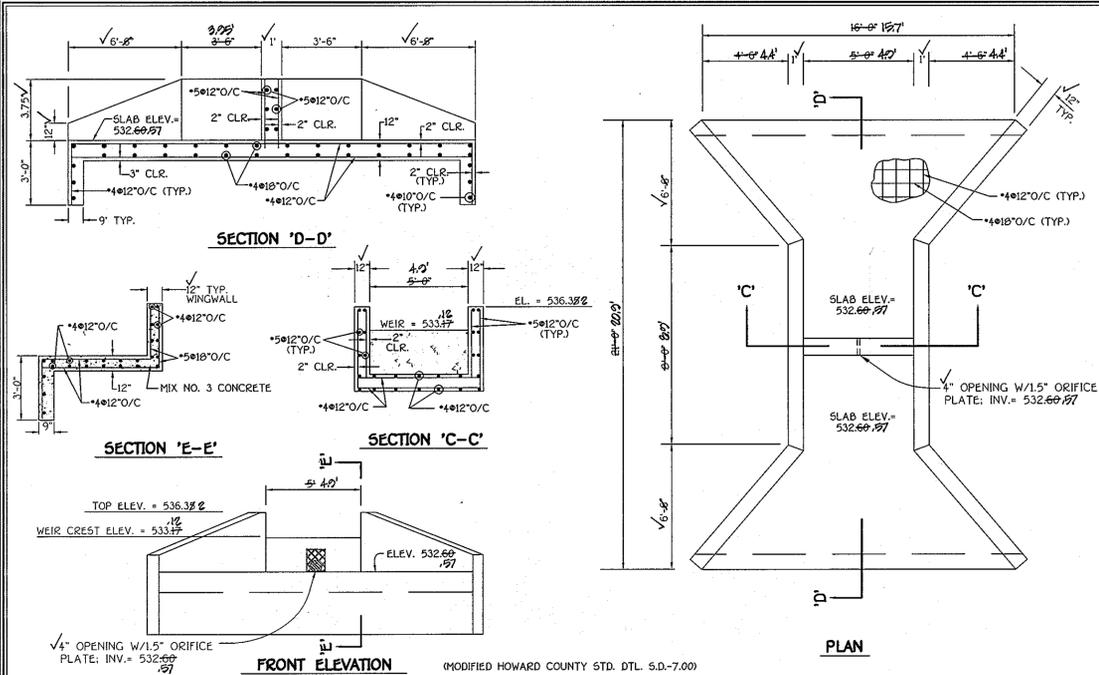
AS-BUILT CERTIFICATION
 I Herewith Certify That The Facility Shown On This Plan Was Constructed As Shown On The "As-Built" Plans And Meets The Approved Plans And Specifications.

Signature
 P.E. No.
 Date

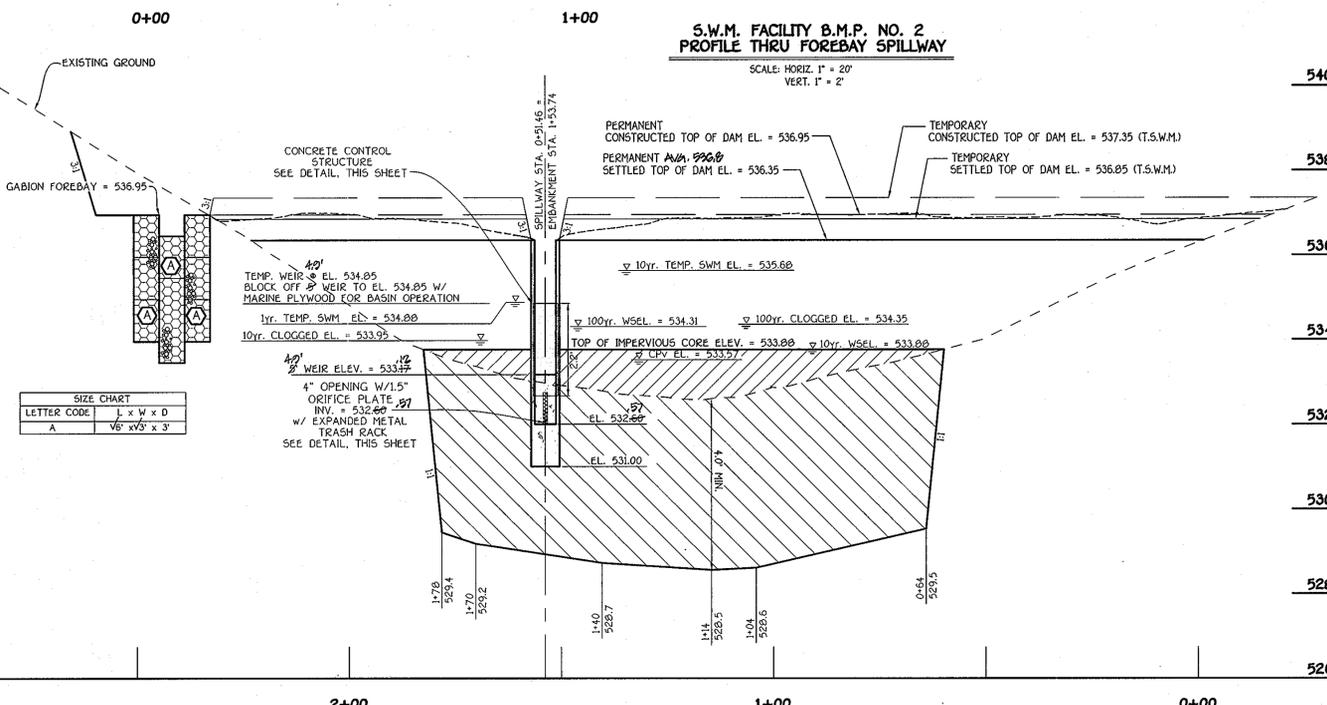
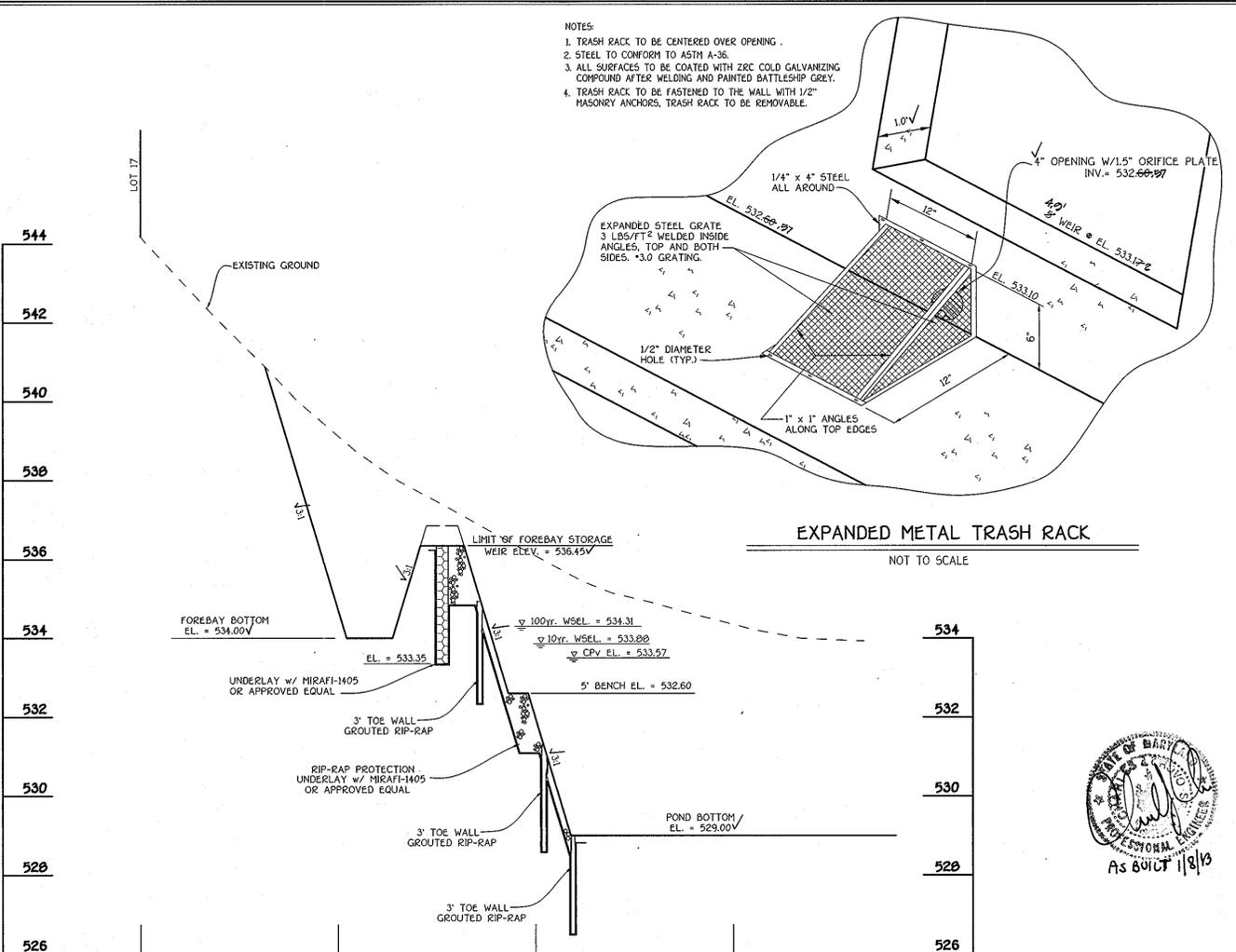
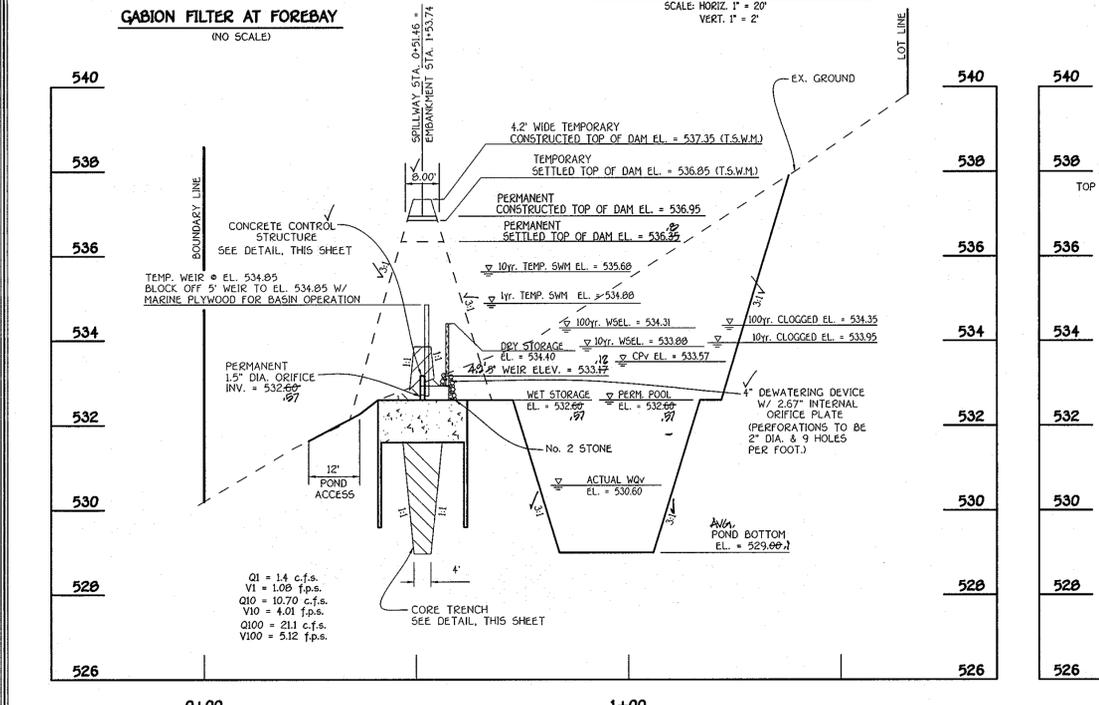
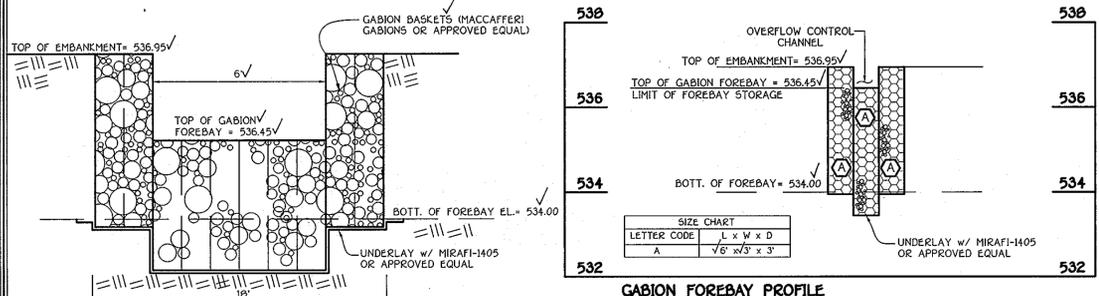
13804
 11/13

10/28/06
 10/28/06

AS-BUILT
 I Certify Means To State Or Declare A Professional Opinion Based Upon Onsite Inspections And Material Tests And Which Are Conducted During Construction. The Onsite 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 An Engineer's Certification Release Any Other Party From Meeting Requirements Imposed By Contract, Employment, Or Other Means, Including Meeting Commonly Accepted Industry Practices.



CONCRETE WEIR STRUCTURE DETAIL
 NOT TO SCALE



APPROVED: DEPARTMENT OF PUBLIC WORKS
Willa T. Mahan 10-3-06
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
Cynthia Harman 10/12/06
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

John Dammann 10/12/06
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

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 On-Site Inspections By The Howard Soil Conservation District.

M. Jeremy Rutter 9-22-06
 Signature Of Developer Date
 M. JEREMY RUTTER
 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.

Jim Mays 9/28/06
 Signature Of Engineer Date
 JIM MAYS
 Printed Name Of Engineer

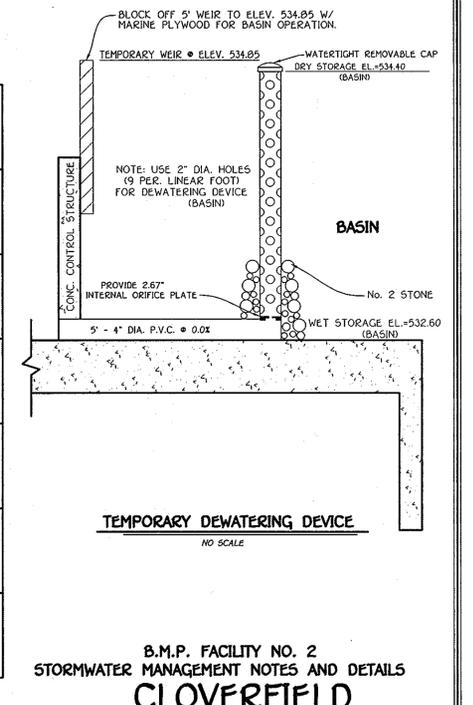
These Plans Have Been Reviewed For The Howard Soil Conservation District And Meet The Technical Requirements For Small Pond Construction, Soil Erosion And Sediment Control.

USDA-Natural Resources Conservation Service
 These Plans For Small Pond Construction, Soil Erosion And Sediment Control Meet The Requirements Of The Howard Soil Conservation District.

Howard Soil Conservation District
 AS-BUILT CERTIFICATION
 I Herby Certify That The Facility Shown On This Plan Was Constructed As Shown On The "As-Built" Plans And Meets The Approved Plans And Specifications.

Chad 13004
 Signature P.E. No. 1813
 Date

Certify Means To State Or Declare A Professional Opinion Based Upon Onsite Inspections And Material Tests Which Are Conducted During Construction. The Onsite 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 An Engineer's Certification Relieve Any Other Party From Meeting Requirements Imposed By Contract, Employment, Or Other Means, Including Meeting Commonly Accepted Industry Practices.



B.M.P. FACILITY NO. 2
 STORMWATER MANAGEMENT NOTES AND DETAILS
CLOVERFIELD
 BUILDABLE LOTS 1 - 21, BUILDABLE PRESERVATION PARCEL 'A', NON-BUILDABLE PRESERVATION PARCELS 'B' THRU 'E' & NON-BUILDABLE BULK PARCEL 'F'

ZONING RC-DEO
 TAX MAP NO. 15 GRID NO. 8 PARCEL NO. 4
 THIRD ELECTION DISTRICT HOWARD COUNTY, MARYLAND
 DATE: SEPTEMBER, 2005
 SHEET 15 OF 21

FISHER, COLLINS & CARTER, INC.
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
 CENTRAL SQUARE OFFICE PARK • 10272 BALTIMORE NATIONAL PIKE
 ELKLOTT CITY, MARYLAND 21114
 (410) 661-2855



OWNER
 ROBERT T. MATTHEWS REVOCABLE TRUST
 c/o MR. TOM LYONS
 7 HOSGROVE COURT
 BALTIMORE, MARYLAND 21228

DEVELOPER
 HERITAGE LAND DEVELOPMENT
 15950 NORTH AVENUE
 P.O. BOX 482
 LISBON, MARYLAND 21765
 ATTN: MR. TIM FEAGA
 PHONE: (410) 489-7900

S.W.M. FACILITY B.M.P. NO. 2
 PROFILE ALONG EMBANKMENT & GABION FOREBAY
 SCALE: HORIZ. 1" = 20'
 VERT. 1" = 2'

F-06-110
AS BUILT

STRUCTURE SCHEDULE

STRUCTURE NO.	TOP ELEVATION	INV. IN	INV. OUT	ROAD NAME OR PARCEL	ROAD STATION OR NORTH EAST	W	TYPE	REMARKS
I-1	* 549.57	544.75 (15')	544.07 (18')	MITCHELLS WAY	√ 20' RIGHT OF CL STA 0+62+7.70	-	✓	S.D. 4.22 W/ S.D. 4.93
I-2	* 549.57	541.80 (15')	541.07 (18')	MITCHELLS WAY	100' LEFT OF CL STA 0+62+7.70	-	✓	S.D. 4.22 W/ S.D. 4.93
I-3	* 550.59	544.25 (15')	543.52 (18')	MITCHELLS WAY	100' RIGHT OF CL STA 3+35+0.45	-	✓	S.D. 4.22 W/ S.D. 4.93
I-4	* 550.59	544.00 (15')	543.27 (18')	MITCHELLS WAY	100' LEFT OF CL STA 3+35+0.45	-	✓	S.D. 4.22 W/ S.D. 4.93
I-5	* 550.28	553.55 (15')	553.82 (18')	MITCHELLS WAY	203' RIGHT OF CL STA 0+72' ✓	-	✓	S.D. 4.22 W/ S.D. 4.93
I-6	* 550.28	540.28 (18')	540.55 (15')	MITCHELLS WAY	100' LEFT OF CL STA 0+72' ✓	-	✓	S.D. 4.22 W/ S.D. 4.93
I-7	* 543.69	540.28 (18')	540.55 (15')	ELLIES WAY	108' LEFT OF CL STA 3+84' ✓	-	✓	S.D. 4.22 W/ S.D. 4.93
I-8	* 543.69	540.55 (15')	540.28 (18')	ELLIES WAY	√ 19' RIGHT OF CL STA 3+84' ✓	-	✓	S.D. 4.22 W/ S.D. 4.93
I-9	* 560.26	556.82 (15')	556.55 (18')	ELLIES WAY	108' RIGHT OF CL STA 1+76' ✓	-	✓	S.D. 4.22 W/ S.D. 4.93
I-10	* 560.26	557.55 (15')	557.28 (18')	ELLIES WAY	108' LEFT OF CL STA 1+76' ✓	-	✓	S.D. 4.22 W/ S.D. 4.93
I-11	* 568.54	565.35 (15')	565.08 (18')	MITCHELLS WAY	100' LEFT OF CL STA 13+02+50.00	-	✓	S.D. 4.22 W/ S.D. 4.93
I-12	* 568.54	565.08 (15')	565.35 (18')	MITCHELLS WAY	100' RIGHT OF CL STA 13+02+50.00	-	✓	S.D. 4.22 W/ S.D. 4.93
I-13	* 560.58	557.28 (15')	557.55 (18')	MITCHELLS WAY	√ 20' LEFT OF CL STA 14+53+40.00	-	✓	S.D. 4.22 W/ S.D. 4.93
I-14	* 560.58	557.55 (15')	557.28 (18')	MITCHELLS WAY	√ 20' RIGHT OF CL STA 14+53+40.00	-	✓	S.D. 4.22 W/ S.D. 4.93
M-1	542.45	540.40 (18')	536.65 (24')	PARCEL E	N 596.610.19 E 1.316.159.00	4'	PRECAST MANHOLE	G. - 5.12
M-2	550.64	541.00 (18')	539.25 (24')	MITCHELLS WAY	100' RIGHT OF CL STA 3+05+30.30	4'	PRECAST MANHOLE	G. - 5.12
M-3	552.06	541.07 (18')	547.80 (18')	MITCHELLS WAY	100' RIGHT OF CL STA 6+02+50.00	4'	PRECAST MANHOLE	G. - 5.12
M-4	540.40	536.65 (18')	536.65 (18')	PARCEL C	N 596.460.93 E 1.315.257.15	4'	PRECAST MANHOLE	G. - 5.12
M-5	571.91	555.66 (18')	555.66 (18')	ELLIES WAY	N 596.861.25 E 1.315.271.20	4'	PRECAST MANHOLE	G. - 5.12
S-1	-	535.00 (24')	-	PARCEL E	N 596.764.40 E 1.316.137.07	N/A	24" HDPE END SECTION	**SEE ADS INFO BELOW
S-2	-	539.70 (18')	-	PARCEL C	N 596.440.03 E 1.315.347.80	N/A	18" HDPE END SECTION	**SEE ADS INFO BELOW
S-3	-	525.44 (30')	-	PARCEL E	N 596.940.73 E 1.316.172.04	N/A	30" CONC. END SECTION	S.D. 5.51

* - DENOTES TOP OF GRATE

** - CONTACT ADS DRAINAGE SYSTEMS LONDON, OHIO 1-800-733-9554

PIPE SCHEDULE

SIZE	CLASS	LENGTH
15"	HDPE	230 L.F.
18"	HDPE	1603 L.F.
24"	HDPE	354 L.F.
30"	ASTM C-361 B-25	63 L.F.

DRY WELL CHART

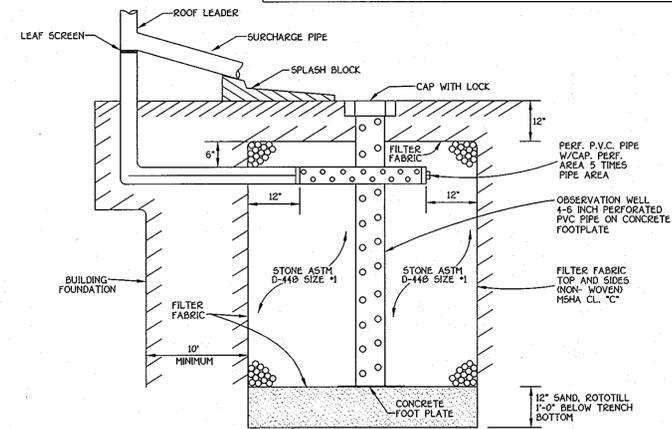
Lot No.	Dry Well	DISCONNECTION LENGTH	1 W/ BY DISCONNECTION	1 W/ BY TREATED BY STORAGE	REQD. STORAGE VOLUME (cu ft)	SIZE OF DRYWELL	VOLUME PROVIDED (cu ft)
11	A	0	0x	100x	40	2.5'x4'x4'	40
11	B	0	0x	100x	40	2.5'x4'x4'	40
11	C	0	0x	100x	40	2.5'x4'x4'	40
13	A	0	0x	100x	40	2.5'x4'x4'	40
13	B	0	0x	100x	40	2.5'x4'x4'	40
13	C	0	0x	100x	40	2.5'x4'x4'	40
14	A	0	0x	100x	40	2.5'x4'x4'	40
14	B	0	0x	100x	40	2.5'x4'x4'	40
14	C	0	0x	100x	40	2.5'x4'x4'	40
15	A	0	0x	100x	40	2.5'x4'x4'	40
15	B	0	0x	100x	40	2.5'x4'x4'	40
15	C	0	0x	100x	40	2.5'x4'x4'	40
16	A	0	0x	100x	40	2.5'x4'x4'	40
16	B	0	0x	100x	40	2.5'x4'x4'	40
16	C	0	0x	100x	40	2.5'x4'x4'	40

STORMWATER MANAGEMENT NOTES

- STORMWATER MANAGEMENT IS PROVIDED IN ACCORDANCE WITH THE 2000 MARYLAND STORMWATER DESIGN MANUAL.
- CREDITS ARE GIVEN FOR DISCONNECTION OF IMPERVIOUS COVERS.
- MAXIMUM CONTRIBUTING ROOF TOP AREA TO EACH DOWNSPOUT SHALL BE LESS THAN 500 SQ. FT.
- DRYWELLS SHALL BE PROVIDED AT LOCATIONS WHERE THE LENGTH OF DISCONNECTION IS LESS THAN 75' AT 5% THE SIZE AND CONSTRUCTION OF THE DRYWELL SHALL BE IN ACCORDANCE WITH THE FIGURE 5.2 OF THE MANUAL AND THE DETAIL SHOWN ON THIS SHEET.
- FINAL GRADING IS SHOWN ON THIS SITE DEVELOPMENT PLAN.

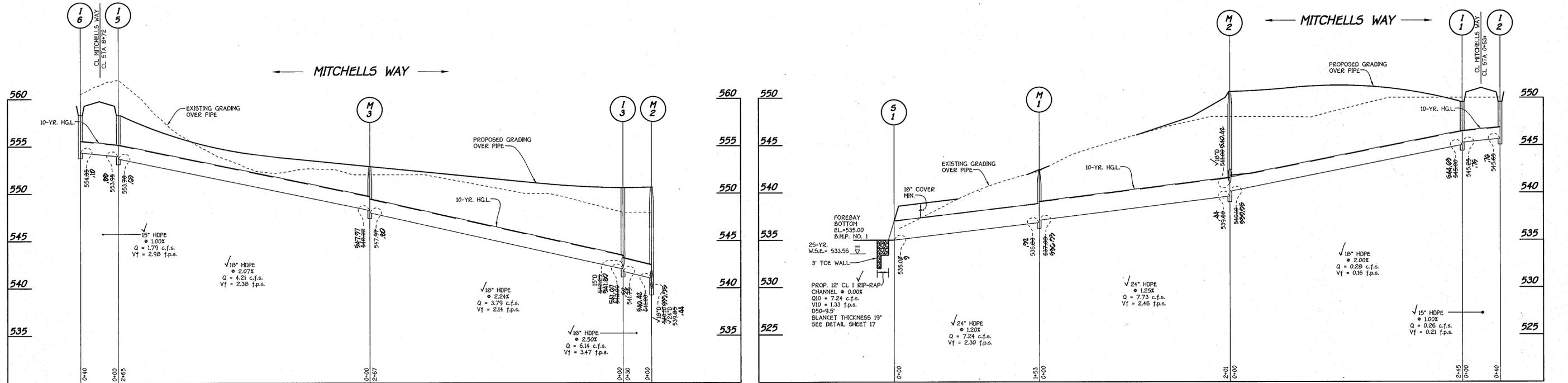
APPROVED: DEPARTMENT OF PUBLIC WORKS

W. J. ... 10-3-00 DATE
 CHIEF, BUREAU OF HIGHWAYS
 APPROVED: DEPARTMENT OF PLANNING AND ZONING
 C. ... 10/13/06 DATE
 CHIEF, DIVISION OF LAND DEVELOPMENT
 APPROVED: DEPARTMENT OF PLANNING AND ZONING
 D. ... 10/13/06 DATE
 CHIEF, DEVELOPMENT ENGINEERING DIVISION



OPERATION AND MAINTENANCE SCHEDULE FOR DRY WELLS

- The monitoring wells and structures shall be inspected on a quarterly basis as well as every storm exceeding 1" of rainfall.
- Water levels and sediment build up in the monitoring wells shall be recorded over a period of several days to insure trench drainage.
- A logbook shall be maintained to determine the rate at which the facility drains.
- When the facility becomes clogged so that it does not drain down within the 72 hour time period, corrective action shall be taken.
- The maintenance logbook shall be available to Howard County for inspection to insure compliance with operation and maintenance criteria.
- Once the performance characteristics of the infiltration facility 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.



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 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
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 ELLICOTT CITY, MARYLAND 21042
 MD 06 - 2999

OWNER
 ROBERT T. MATTHEWS REVOCABLE TRUST
 c/o MR. TOM LYONS
 7 MOSSVIEW COURT
 BALTIMORE, MARYLAND 21228

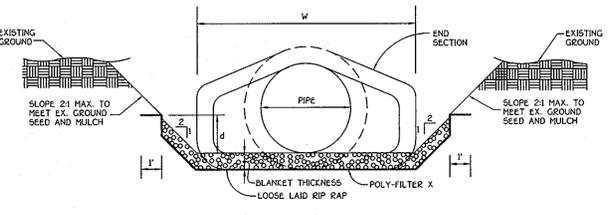
DEVELOPER
 HERITAGE LAND DEVELOPMENT
 15950 NORTH AVENUE
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 LISBON, MARYLAND 21765
 ATTN: MR. TIM FEAGA
 PHONE: (410) 489-7900



STORM DRAIN PROFILES & STRUCTURE SCHEDULE
CLOVERFIELD
 BUILDABLE LOTS 1 - 21, BUILDABLE PRESERVATION PARCEL 'A', NON-BUILDABLE PRESERVATION PARCELS 'B' THRU 'F' & NON-BUILDABLE BULK PARCEL 'F'
 ZONING RC-50
 TAX MAP NO. 15 GRID NO. B PARCEL NO. 4
 THIRD ELECTION DISTRICT HOWARD COUNTY, MARYLAND
 DATE: SEPTEMBER, 2006
 SHEET 16 OF 21

F-06-110
AS BUILT

APPROVED: DEPARTMENT OF PUBLIC WORKS
William J. White 10-3-06
 CHIEF, BUREAU OF HIGHWAYS
 APPROVED: DEPARTMENT OF PLANNING AND ZONING
Cindy Hamstra 10/13/06
 CHIEF, DIVISION OF LAND DEVELOPMENT
William J. White 10/13/06
 CHIEF, DEVELOPMENT ENGINEERING DIVISION



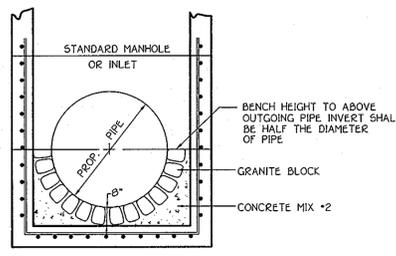
RIP-RAP CHANNEL DETAIL
 NO SCALE

RIP-RAP CHANNEL DESIGN DATA													
STRUCTURE	AREA	WETTED PERIMETER	R	R ^{2/3}	S	S ^{1/2}	W	d	N	V	Q	BLANKET THICKNESS	
S-1	5.76	15.74	0.366	0.510	0.0050	0.0707	14"	0.39	0.04	1.34	7.24	9.5"	19"
S-2	1.02	12.37	0.082	0.188	0.0050	0.0707	12"	1.00	0.04	4.97	5.07	9.5"	19"
S-3	12.09	12.17	0.9934	0.9956	0.0050	0.0707	6'	1.38	0.04	2.61	*31.40	9.5"	19"

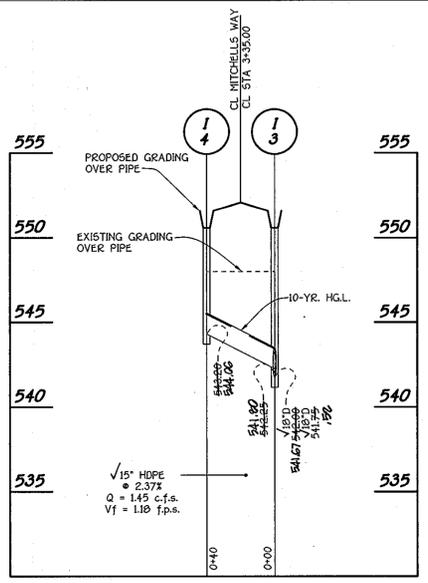
* DENOTES 100 YEAR Q OUT OF POND

CONSTRUCTION SPECIFICATIONS FOR RIP-RAP OUTFALLS

- The substrate for the filter, riprap or gabion shall be prepared to the required lines and grades. Any fill required in the substrate shall be compacted to a density of approximately that of the surrounding undisturbed material.
- The rock or gravel shall conform to the specified grading limits when installed respectively in the riprap or filter.
- Filter cloth shall be protected from punching, cutting or tearing. Any damage other than an occasional hole shall be repaired by placing another piece of cloth over the damaged part or by completely replacing the cloth. All overlaps whether for repairs or for joining two pieces of cloth shall be a minimum of one foot.
- Stones for the riprap or gabion outlets may be placed by equipment. Both shall each be constructed to the full course thickness in one operation and in such a manner as to avoid displacement of underlying materials. The stone for riprap or gabion outlets shall be delivered and placed in a manner that will insure that it is reasonably homogenous with the smaller stones and spalls filling the voids between the larger stones. Riprap shall be placed in a manner to prevent damage to the filter blanket or filter cloth. Hand placement will be required to the extent necessary to prevent damage to the permanent works.



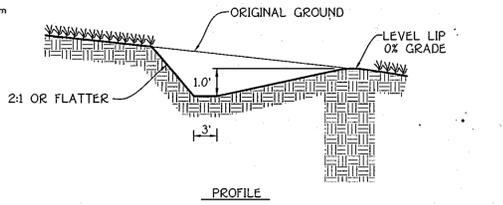
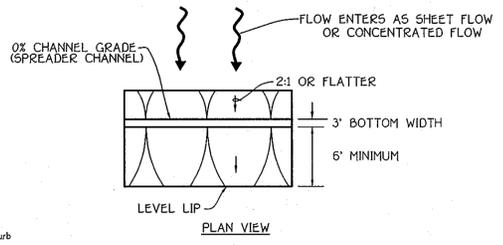
GRANITE BLOCK DETAIL
 NOT TO SCALE



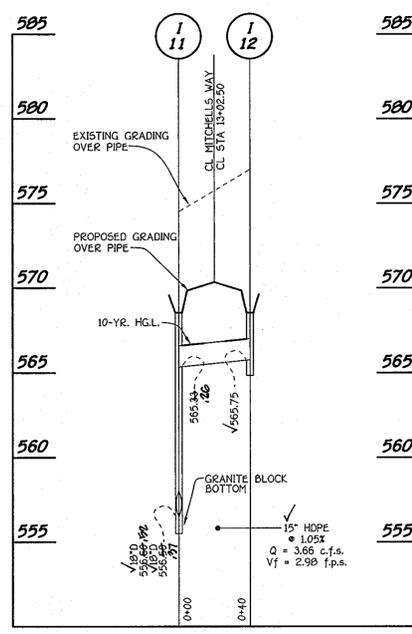
PROFILE
 SCALE: HORIZ. 1" = 50'
 VERT. 1" = 5'

LEVEL SPREADER CRITERIA

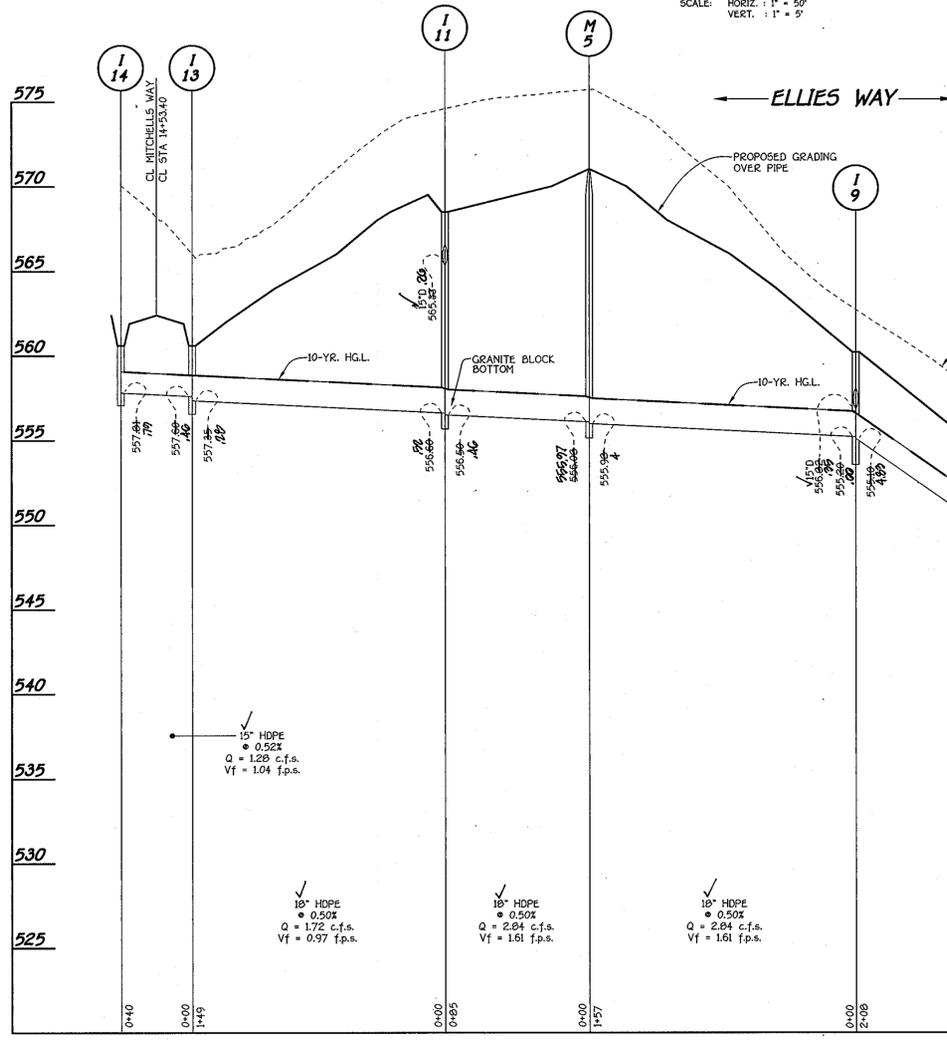
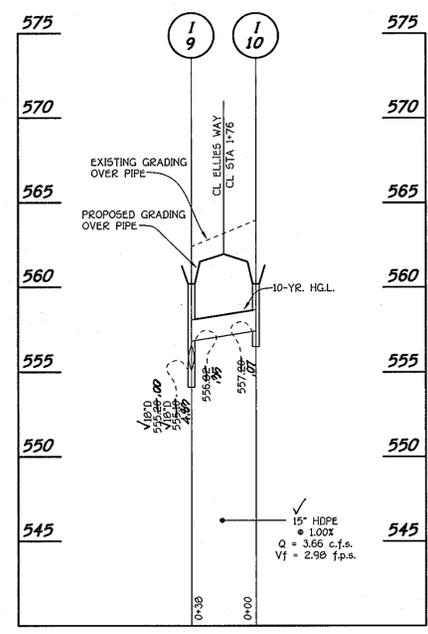
For impervious surface runoff applications:
 The capacity for the level spreader is determined in the design of the filter strip to which it discharges. In most cases, the spreader will be the same width as the contributing impervious surface. The ends of the spreader shall be tied into higher ground to prevent flow around the spreader.
 The minimum depth shall be 6 inches and the minimum width shall be 6 feet for the lower side slope. Side slopes shall be 2:1 horizontal to vertical or flatter.
 The grade of the spreader shall be 0%.
 The outlet discharge area must be generally smooth and well vegetated with a maximum slope of 10%.
 For all applications:
 The spreader lip shall be constructed to a uniform height and zero grade over the length of the spreader. For design flows of 4 cfs or greater, a rigid lip of non-erodible material such as pressure-treated timbers or concrete curbing, shall be used. For flows less than 4 cfs, a vegetated lip may be used. The spreader lip shall be constructed on undisturbed soil.
 When using a vegetated lip it shall be protected with an erosion control blanket to prevent erosion and allow the vegetation to become established. The blanket shall be a minimum of 4 feet wide extending a minimum of 1 foot downstream over the level lip. The blanket shall be secured with heavy-duty staples and the downstream and upstream edges shall be buried at least 6 inches deep in a vertical trench.
 When using a rigid lip it shall be entrenched at least 4 inches below existing ground and securely anchored to prevent displacement. An apron of Class 1 rip-rap shall be placed to the top of the rigid lip and extend downlope at least 3 feet. A filter fabric shall be placed under the coarse aggregate.
 Immediately after level spreader construction, seed and mulch the entire disturbed area of the spreader in accordance with the Standards and Specifications for Vegetative Stabilization.
 CONSIDERATIONS
 The level spreader is a relatively low-cost structure to:
 1. Disperse impervious surface runoff uniformly to a filter strip or
 2. Release small volumes of concentrated flow from diversions when conditions are suitable.
 To accomplish these purposes, particular care must be taken to construct the spreader lip completely level. Any depressions in the lip will concentrate the flow, resulting in a loss of pollutant filtering effectiveness and/or erosion. Evaluate the outlet system to be sure that flow does not concentrate below the outlet.
 For filter strip applications, the determination of whether a level spreader is needed should be based on how the runoff is entering the filter strip. If the runoff is concentrated by curb cuts, and particularly if a large area of impervious surface drains to one point, a level spreader is essential to achieve effective pollutant removal in the filter strip. A level spreader also is important if the filter strip is relatively steep in order to avoid erosion from concentrated runoff discharge. If the runoff is evenly distributed over the width of the impervious surface (e.g., a curbside, even-skipped road or parking lot), a level spreader may not be necessary.
 When the level spreader is used as an outlet for temporary or permanent diversions and diversion dikes, runoff containing high sediment loads must be treated in an approved sediment trapping device.
 OPERATION AND MAINTENANCE
 Inspect level spreaders after every rainfall until vegetation is established, and promptly make needed repairs. After the area has been stabilized, make periodic inspections and maintain vegetation in a healthy, vigorous condition.
 Verify that the level spreader is distributing flow evenly. If problems are noted, make appropriate modifications to ensure even flow distribution.



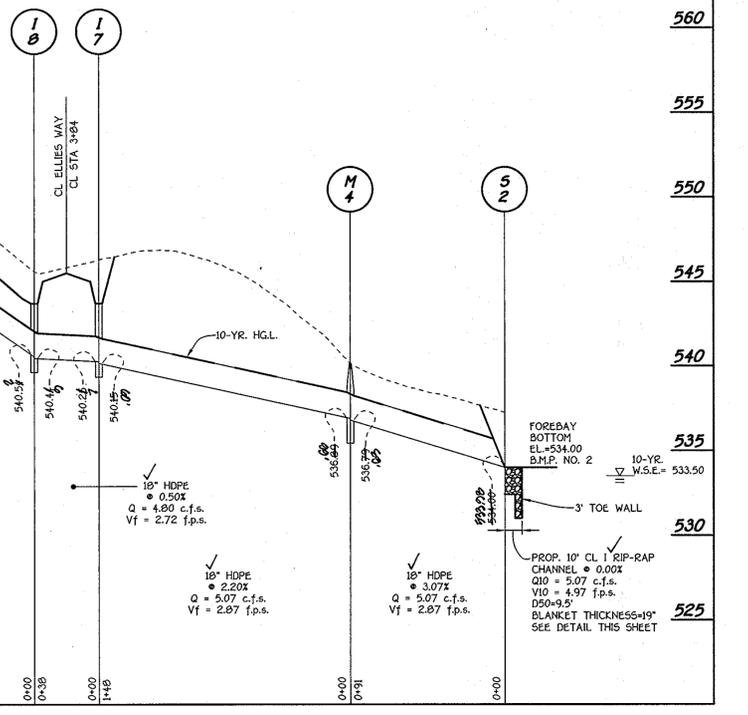
LEVEL SPREADER
 NOT TO SCALE



PROFILES
 SCALE: HORIZ. 1" = 50'
 VERT. 1" = 5'



PROFILE
 SCALE: HORIZ. 1" = 50'
 VERT. 1" = 5'



STORM DRAIN PROFILES & DETAILS
CLOVERFIELD
 BUILDABLE LOTS 1 - 21, BUILDABLE PRESERVATION PARCEL 'A', NON-BUILDABLE PRESERVATION PARCELS 'B' THRU 'E' & NON-BUILDABLE BULK PARCEL 'F'
 TAX MAP NO. 15 GRID NO. B PARCEL NO. 4
 THIRD ELECTION DISTRICT HOWARD COUNTY, MARYLAND
 DATE: SEPTEMBER, 2006
 SHEET 17 OF 21



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OWNER
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 15950 NORTH AVENUE
 P.O. BOX 482
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 ATTN: MR. TIM FEAGA
 PHONE: (410) 499-7900



F-06-110
AS BUILT

APPROVED: DEPARTMENT OF PUBLIC WORKS
William J. ... 10-3-06
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
Andy ... 10/13/06
 CHIEF, DIVISION OF LAND DEVELOPMENT JA DATE

W. ... 10/13/06
 CHIEF, DEVELOPMENT ENGINEERING DIVISION ya DATE

ENGINEER'S CERTIFICATE
 I hereby certify that this Plan For Erosion And Sediment Control Represents A Feasible And Workable Plan Based On My Personal Knowledge Of The Site And That It Was Prepared In Accordance With The Requirements Of The Howard Soil Conservation District.

Signature of *M. ...* 9-22-06
 Date

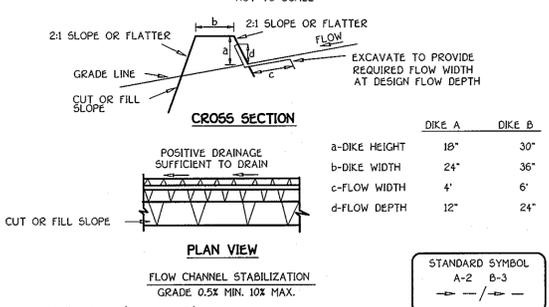
DEVELOPER'S CERTIFICATE
 I/We certify that All Development And Construction Will Be Done According To This Plan Of Development And Plans For Erosion And Sediment Control And That All Responsible Personnel Involved In The Construction Project Will Have A Certificate Of Attendance At A Department Of Natural Resources 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 Or Their Authorized Agents, As Are Deemed Necessary.

Signature of *M. ...* 9-22-06
 Date

Reviewed For Howard County Soil Conservation District And Meets Technical Requirements
Jim ... 9/28/06
 U.S.D.A. - Natural Resources Conservation Service DATE

Approved: This Development Is Approved For Erosion And Sediment Control By The Howard Soil Conservation District.
John ... 9/28/06
 District Soil Conservation Dist. DATE

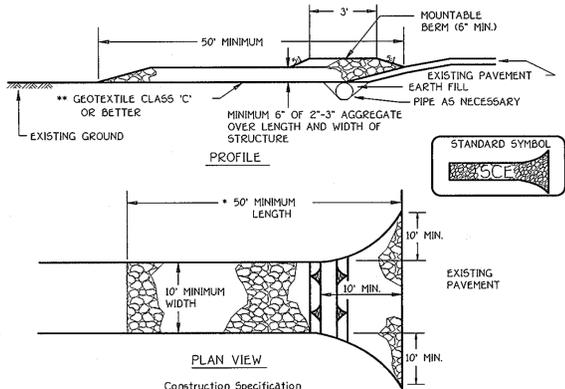
EARTH DIKE



	DIKE A	DIKE B
a-DIKE HEIGHT	18"	30"
b-DIKE WIDTH	24"	36"
c-FLOW WIDTH	4"	6"
d-FLOW DEPTH	12"	24"

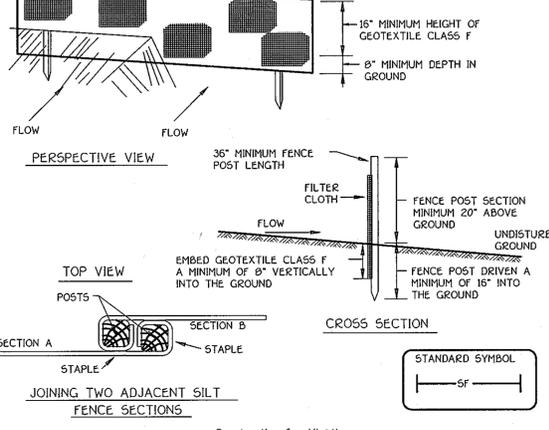
- Construction Specifications
1. Seed and cover with straw mulch.
 2. Seed and cover with Erosion Control Matting or line with sod.
 3. 4" - 7" stone or recycled concrete equivalent pressed into the soil 7" minimum.
1. All temporary earth dikes shall have uninterrupted positive grade to an outlet. Spot elevations may be necessary for grades less than 1%.
 2. Runoff diverted from a disturbed area shall be conveyed to a sediment trapping device.
 3. Runoff diverted from an undisturbed area shall outlet directly into an undisturbed, stabilized area at a non-erosive velocity.
 4. All trees, brush, stumps, obstructions, and other objectionable material shall be removed and disposed of so as not to interfere with the proper functioning of the dike.
 5. The dike shall be excavated or shaped to line, grade and cross section as required to meet the criteria specified herein and be free of bank projections or other irregularities which will impede normal flow.
 6. Fill shall be compacted by earth moving equipment.
 7. All earth removed and not needed for construction shall be placed so that it will not interfere with the functioning of the dike.
 8. Inspection and maintenance must be provided periodically and after each rain event.

STABILIZED CONSTRUCTION ENTRANCE

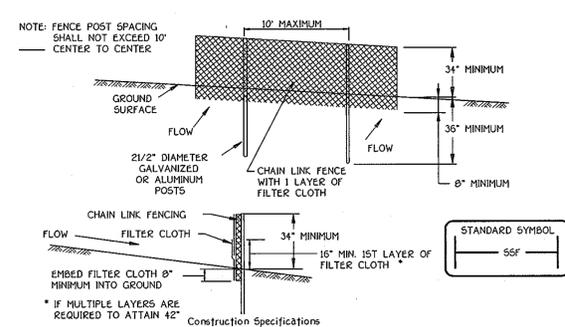


- Construction Specifications
1. Length - minimum of 50' (*30' for single residence lot).
 2. Width - 10' minimum, should be flared at the existing road to provide a turning radius.
 3. Geotextile fabric (filter cloth) shall be placed over the existing ground prior to placing stone. **The plan approval authority may not require single family residences to use geotextile.
 4. Stone - crushed aggregate (2" to 3") or reclaimed or recycled concrete equivalent shall be placed at least 6" deep over the length and width of the entrance.
 5. Surface Water - all surface water flowing to or diverted toward construction entrances shall be piped through the entrance, maintaining positive drainage. Pipe installed through the stabilized construction entrance shall be protected with a mountable berm with 5:1 slopes and a minimum of 6" of stone over the pipe. Pipe has to be sized according to the drainage. When the SCE is located at a high spot and has no drainage to convey a pipe will not be necessary. Pipe should be sized according to the amount of runoff to be conveyed. A 6" minimum will be required.
 6. Location - A stabilized construction entrance shall be located at every point where construction traffic enters or leaves a construction site. Vehicles leaving the site must travel over the entire length of the stabilized construction entrance.

SUPER SILT FENCE

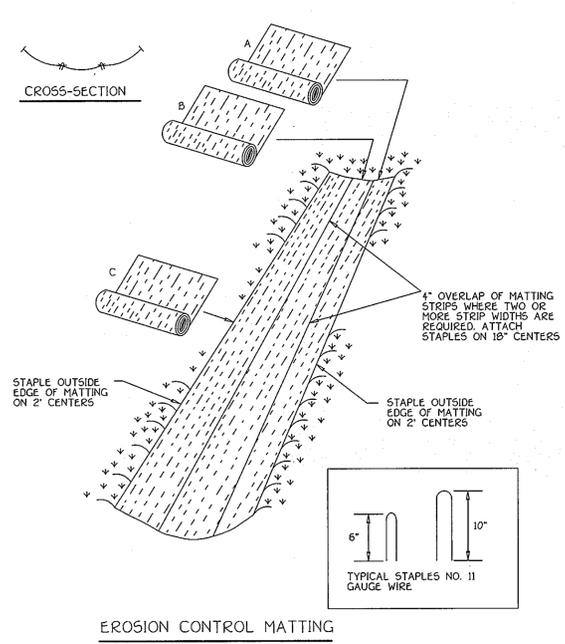


- Construction Specifications
1. Fence posts shall be a minimum of 36" long driven 18" minimum into the ground. Wood posts shall be 1 1/2" x 1 1/2" square (minimum) cut, or 1 3/4" diameter (minimum) round and shall be of sound quality hardwood. Steel posts will be standard T or U section weighing not less than 100 pound per linear foot.
 2. Geotextile shall be fastened securely to each fence post with wire ties or staples at top and mid-section and shall meet the following requirements for Geotextile Class F:
- | | 50 lbs/in (min) | Test: MSMT 509 |
|----------------------|---------------------------|----------------|
| Tensile Strength | 20 lbs/in (min) | Test: MSMT 509 |
| Tensile Modulus | 0.3 gal/ft / minute (max) | Test: MSMT 322 |
| Flow Rate | 75% (min) | Test: MSMT 322 |
| Filtering Efficiency | | |
3. Where ends of geotextile fabric come together, they shall be overlapped, folded and stapled to prevent sediment bypass.
 4. Silt Fence shall be inspected after each rainfall event and maintained when bulges occur or when sediment accumulation reached 50% of the fabric height.

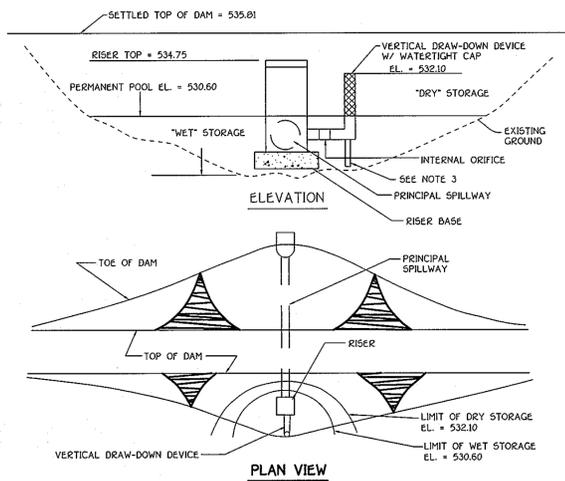


Slope Steepness	Silt Fence Length (Maximum)
0 - 10%	Unlimited
10 - 20%	200 feet
20 - 33%	100 feet
33 - 50%	100 feet
50% +	50 feet

EROSION CONTROL MATTING



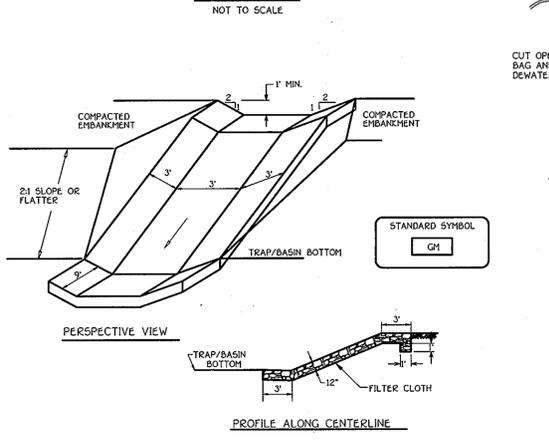
- Construction Specifications
1. Key-in the matting by placing the top ends of the matting in a narrow trench, 6" in depth. Backfill the trench and tamp firmly to conform to the channel cross-section. Secure with a row of staples about 4" down slope from the trench. Spacing between staples is 6".
 2. Staple the 4" overlap in the channel center using an 18" spacing between staples.
 3. Before stapling the outer edges of the matting, make sure the matting is smooth and in firm contact with the soil.
 4. Staples shall be placed 2" apart with 4 rows for each strip, 2 outer rows, and 2 alternating rows down the center.
 5. Where one roll of matting ends and another begins, the end of the top strip shall overlap the upper end of the lower strip by 4", shingle fashion. Reinforce the overlap with a double row of staples spaced 6" apart in a staggered pattern on either side.
 6. The discharge end of the matting liner should be similarly secured with 2 double rows of staples.
- Note: If flow will enter from the edge of the matting then the area affected by the flow must be keyed-in.



- Construction Specifications
1. PERFORATIONS IN THE DRAW-DOWN DEVICE MAY NOT EXTEND INTO THE WET STORAGE.
 2. THE TOTAL AREA OF THE PERFORATIONS MUST BE GREATER THAN 2 TIMES THE AREA OF THE INTERNAL ORIFICE.
 3. THE PERFORATED PORTION OF THE DRAW-DOWN DEVICE SHALL BE WRAPPED WITH 1/2" HARDWARE CLOTH AND GEOTEXTILE FABRIC. THE GEOTEXTILE FABRIC SHALL MEET THE SPECIFICATIONS FOR GEOTEXTILE CLASS E.
 4. PROVIDE SUPPORT OF DRAW-DOWN DEVICE TO PREVENT SAGGING AND FLOATATION. AN ACCEPTABLE PREVENTATIVE MEASURE IS TO STAKE BOTH SIDES OF DRAW-DOWN DEVICE WITH 1" STEEL ANGLE, OR 1" BY 4" SQUARE OR 2" ROUND WOODEN POSTS SET 3' MINIMUM INTO THE GROUND THEN JOINING THEM TO THE DEVICE BY WRAPPING WITH 12 GAUGE MINIMUM WIRE.

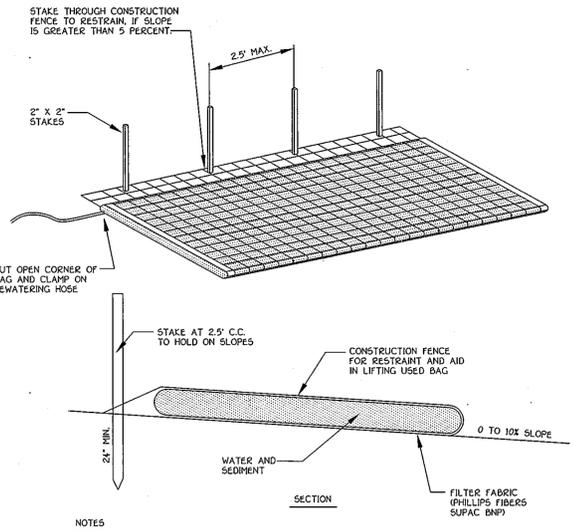
VERTICAL DRAW-DOWN DEVICE

SILT FENCE



- Construction Specifications
1. Gabion inflow protection shall be constructed of 9" x 3" x 9" gabion baskets forming a trapezoidal cross section 1' deep, with 2:1 side slopes, and a 3' bottom width.
 2. Geotextile Class C shall be installed under all gabion baskets.
 3. The stone used to fill the gabion baskets shall be 4" - 7".
 4. Gabions shall be installed in accordance with manufacturers recommendations.
 5. Gabion Inflow Protection shall be used where concentrated flow is present on slopes steeper than 4:1.

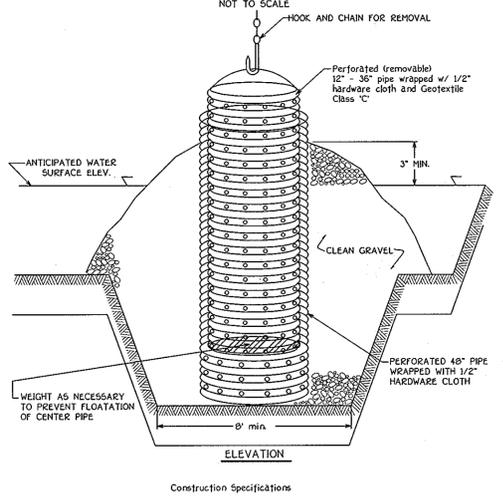
GABION INFLOW PROTECTION



- Construction Specifications
1. FILTER BAG SHALL BE PLACED ON A SLOPING OR LEVEL, WELL GRADED VEGETATED SITE SUCH THAT WATER WILL FLOW AWAY FROM DEVICE AND ANY WORK AREAS.
 2. WIDTH AND LENGTH SHALL BE AS SHOWN IN THE TABLE.
 3. THE FILTER BAG MUST BE STAKED IN PLACE AND SECURED TO THE PUMP DISCHARGE LINE.
 4. FILTER BAG SHALL NOT BE USED FOR DISCHARGE FLOWS GREATER THAN 300 GPM.
 5. DEVICE SHALL BE REMOVED AND DISPOSED OF AFTER BAG IS FILLED WITH SEDIMENT. SEDIMENT FROM BAG SHALL BE SPREAD IN AN UPLAND AREA.

FILTER BAG DETAIL

REMOVABLE PUMPING STATION



- Construction Specifications
1. The outer pipe should be 48" dia. or shall, in any case, be at least 4" greater in diameter than the center pipe. The outer pipe shall be wrapped with 1/2" hardware cloth to prevent backfill material from entering the perforations.
 2. After installing the outer pipe, backfill around outer pipe with 2" aggregate or clean gravel.
 3. The inside stand pipe (center pipe) should be constructed by perforating a corrugated or PVC pipe between 12" and 36" in diameter. The perforations shall be 1/2" x 3/8" slots or 1" diameter holes 6" on center. The center pipe shall be wrapped with 1/2" hardware cloth first, then wrapped again with Geotextile Class C.
 4. The center pipe should extend 12" to 18" above the anticipated water surface elevation or riser crest elevation when dewatering a basin.

SEDIMENT CONTROL DETAILS
CLOVERFIELD
 BUILDABLE LOTS 1 - 21, BUILDABLE PRESERVATION PARCEL 'A', NON-BUILDABLE PRESERVATION PARCELS 'B' THRU 'E' & NON-BUILDABLE BULK PARCEL 'F'

ZONING: RC-DEO
 TAX MAP NO. 15 GRID NO. 8 PARCEL NO. 4
 THIRD ELECTION DISTRICT HOWARD COUNTY, MARYLAND
 DATE: SEPTEMBER, 2006
 SHEET 19 OF 21

OWNER
 ROBERT T. MATTHEWS REVOCABLE TRUST
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 (410) 481 - 2955



STORM WATER MANAGEMENT POND 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. Chained banks and sharp breaks 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, rubbish and other objectionable material unless otherwise designated on the plans. Trees, brush, and stumps shall be cut approximately level with the ground surface. For dry stormwater management ponds, a minimum of a 25-foot radius around the inlet structure shall be cleared.

All cleared and grubbed material shall be disposed of outside and below the limits of the dam 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, rubbish, stones greater than 6", frozen or other objectionable materials. Fill material for the center of the embankment, and cut off trench shall conform to Unified Soil Classification Cc, Cc, Ck, or Cl and must have at least 30% passing the #20 sieve. Consideration 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 spillway 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 tread track of heavy equipment or compaction shall be achieved by a minimum of four complete passes of a sheepsfoot, rubber tired or vibratory roller. Fill material shall contain sufficient moisture such that the required degree of compaction will be obtained with the equipment used. The fill material shall contain sufficient moisture so that if formed into a ball it will not crumble, yet not be so wet that water can be squeezed out.

When required by the reviewing agency the minimum required density shall not be less than 95% of maximum dry density with a moisture content within ±2% of the optimum. Each layer of fill shall be compacted as necessary to obtain that density, and is to be certified by the Engineer at the time of construction. All compaction is to be determined by AASHTO Method T-99 (Standard Proctor).

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

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

Structure 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 four inches in thickness and compacted by hand tampers or other manually directed compaction equipment. The material needs to completely fill spaces under and adjacent to the pipe. At no time during the backfilling operation shall driven equipment be allowed to operate closer than four feet, measured horizontally, to any part of a structure. Under no circumstances shall equipment be driven over any part of a concrete structure or pipe, unless there is a compacted fill of 24" or greater over the structure or pipe.

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

Pipe Conduits

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 polymeric 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 watertight coupling bands or flanges.

Materials - (Aluminum Coated Steel Pipe) - This pipe and its appurtenances shall conform to the requirements of AASHTO Specification M-274 with watertight coupling bands 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. Any aluminum coating damaged or otherwise removed shall be replaced with cold applied bituminous coating compound. Aluminum surfaces that are to be in contact with concrete shall be painted with one coat of zinc chromate primer or two coats of asphalt. Hot dip galvanized bolts 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-196 or M-211 with watertight coupling bands 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 bolts may be used for connections. The pH of the surrounding soils shall be between 4 and 9.

2. Coupling bands, anti-seep collars, end sections, etc., must be composed of the same material and coatings as the pipe. Metals must be insulated from dissimilar materials with use of rubber or plastic insulating materials at least 24 mils in thickness.

3. Connections - All connections with pipes must be completely watertight. The drain pipe or barrel connection to the riser shall be welded all around when the pipe and riser are metal. Anti-seep collars shall be connected to the pipe in such a manner as to be completely watertight. Dimple bands are not considered to be watertight.

All connections shall use a rubber or neoprene gasket when joining pipe sections. The end of each pipe shall be re-rolled an adequate number of corrugations to accommodate the bandwidth. The following type 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, pre-punched to the flange bolt circle, sandwiched between adjacent flanges; a 12-inch wide standard Rip type band with 15-inch wide by 3/8-inch thick closed cell circular neoprene gasket and a 12-inch wide hugger type band with o-ring gaskets having a minimum diameter of 1/2-inch greater than the corrugation depth. Pipes 24-inches in diameter and larger shall be connected by a 24-inch long annular corrugated band using a minimum of 4 (four) rods and nuts, 2 on each connecting 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 caulking 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 unstable soil is encountered, all such material shall be removed and replaced with suitable earth compacted to provide adequate support.

5. Backfilling shall conform to "Structure Backfill".

6. Other details (anti-seep collars, valves, etc.) shall be as shown on the drawings.

Reinforced Concrete Pipe - All of the following criteria shall apply for reinforced concrete pipe:

1. Materials - Reinforced concrete pipe shall have bell and spigot joints with rubber gaskets and shall equal or exceed ASTM C-351.

2. Bedding - Reinforced concrete pipe conduits shall be laid in a concrete bedding/cradle for their entire length. This bedding/cradle shall consist of high slump 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 cradle is not needed for structural reasons, flowable fill 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 recommendations of the manufacturer of the material. After the joints are sealed for the entire line, the bedding shall be placed so that all spaces under the pipe are filled. Care shall be exercised to prevent any deviation from the original line and grade of the pipe. The first joint must be located within 4 feet from the riser.

4. Backfilling shall conform to "Structure Backfill".

5. Other details (anti-seep collars, valves, etc.) shall be as shown on the drawings.

Plastic Pipe

The following criteria shall apply for plastic pipe:

1. Materials - PVC pipe shall be PVC-1120 or PVC-1220 conforming to ASTM D-1785 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 requirement of AASHTO M252 Type 5, and 12" through 24" inch shall meet the requirement of AASHTO M294 Type 5.

2. Joints and connections to anti-seep collars shall be completely watertight.

3. Bedding - The pipe shall be firmly and uniformly bedded throughout its entire length. Where rock or soft, spongy or other unstable soil is encountered, all such material shall be removed and replaced with suitable earth compacted to provide adequate support.

4. Backfilling shall conform to "Structure Backfill".

5. Other details (anti-seep collars, valves, etc.) shall be as shown on the drawings.

Drainage Diaphragms - When a drainage diaphragm is used, a registered professional engineer will supervise the design and construction inspection.

Concrete

Concrete shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 414, Mix No. 3.

Rock Riprap

Rock riprap shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 311.

Geotextile shall be placed under all riprap and shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 921.09, Class C.

Care of Water during Construction

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

Stabilization

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

Erosion and Sediment Control

Construction operations will be carried out in such a manner that erosion will be controlled and water and air pollution minimized. State and local laws concerning pollution abatement will be followed. Construction plans shall detail erosion and sediment control measures.

OPERATION AND MAINTENANCE

An operation and maintenance plan in accordance with Local or State Regulations will be prepared for all ponds. As a minimum, the dam inspection checklist located in Appendix A shall be included as part of the operation and maintenance plan and performed at least annually. Written records of maintenance and major repairs needs to be retained in a file. The issuance of a Maintenance and Repair Permit for any repairs or maintenance that involves the modification of the dam or spillway from its original design and specifications is required. A permit is also required for any repairs or reconstruction that involve a substantial portion of the structure. All indicated repairs are to be made as soon as practical.

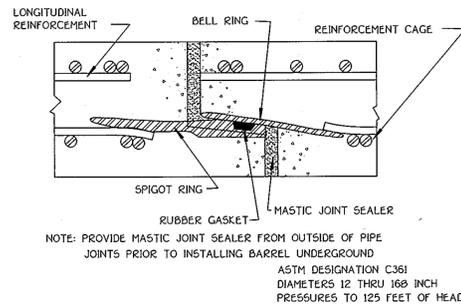
OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND JOINTLY MAINTAINED STORMWATER MANAGEMENT FACILITIES

ROUTINE MAINTENANCE

1. Facility shall be inspected annually and after major storms. Inspections shall be performed during wet weather to determine if the pond is functioning properly.
2. Top and side slopes of the embankment shall be mowed a minimum of two (2) times a year, once in June and once in September. Other side slopes and maintenance access shall be mowed as needed.
3. Debris and litter shall be removed during regular mowing operations and as needed.
4. Visible signs of erosion in the pond as well as the rip-rap or gabion outlet area shall be repaired as soon as it is noticed.

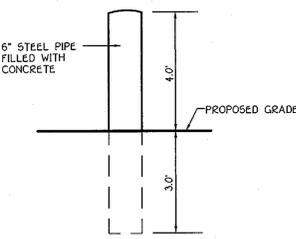
NON-ROUTINE MAINTENANCE

1. Structural components of the pond such as the dam, the riser, and the pipes shall be repaired upon the detection of any damage. The components shall be inspected during routine maintenance operations.
2. Sediment shall be removed from the pond and forebay, no later than when the capacity of the pond or forebay, is half full of sediment, or, when deemed necessary for aesthetic reasons, upon approval from the Department of Public Works.



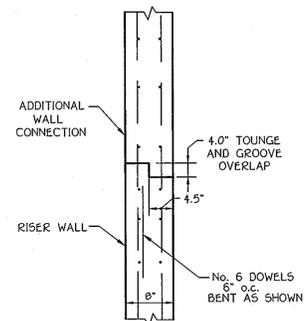
CONCRETE PIPE JOINT DETAIL

(NO SCALE)



TYPICAL BOLLARD DETAIL

NOT TO SCALE



KEYED JOINT DETAIL WALL SECTION TO WALL SECTION

(NO SCALE)

APPROVED: DEPARTMENT OF PUBLIC WORKS

M. J. Rutter 10-3-06
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Andy Hamilton 10/13/06
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

M. J. Rutter 10/13/06
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

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 On-Site Inspections By The Howard Soil Conservation District.

M. Jeremy Rutter 9-22-06
Signature Of Developer DATE

M. JEREMY RUTTER
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, Plans 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.

Alvin... 9-22-06
Signature Of Engineer DATE

Alvin...
Printed Name Of Engineer

These Plans Have Been Reviewed For The Howard Soil Conservation District And Meet The Technical Requirements For Small Pond Construction, Soil Erosion And Sediment Control.

Jim... 9/28/06
USDA-Natural Resources Conservation Service DATE

These Plans For Small Pond Construction, Soil Erosion And Sediment Control Meet The Requirements Of The Howard Soil Conservation District.

... 9/28/06
Howard Soil Conservation District DATE

AS-BUILT CERTIFICATION
I Herby 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 Onsite Inspections And Material Tests Which Are Conducted During Construction. The Onsite 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 An Engineer's Certification Release Any Other Party From Meeting Requirements Imposed By Contract, Employment, Or Other Means, Including Meeting Commonly Accepted Industry Practices.

Signature P.E. No. DATE

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ELLSWORTH CITY, MARYLAND 21042
(410) 461-2855



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BALTIMORE, MARYLAND 21220

DEVELOPER
HERITAGE LAND DEVELOPMENT
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PHONE: (410) 489-7900

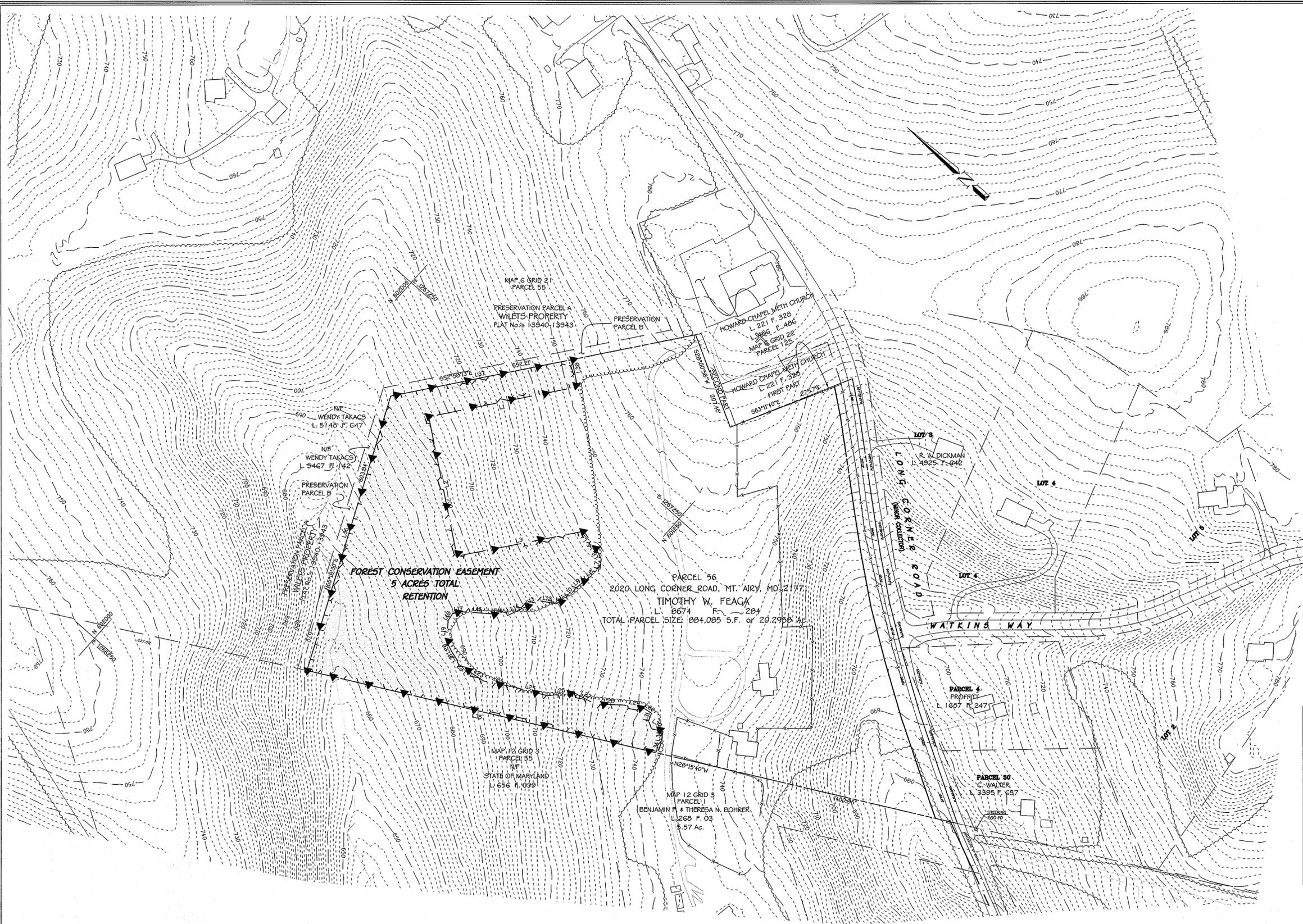
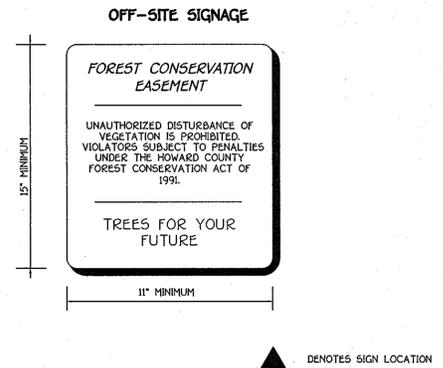
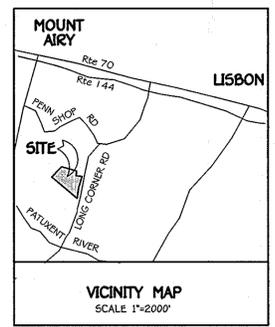
STORMWATER MANAGEMENT NOTES AND DETAILS
CLOVERFIELD
BUILDABLE LOTS 1 - 21, BUILDABLE PRESERVATION PARCEL 'A', NON-BUILDABLE PRESERVATION PARCELS 'B' THRU 'E' & NON-BUILDABLE BULK PARCEL 'F'
ZONING: RC-DEO
TAX MAP NO. 15 GRID NO. 8 PARCEL NO. 4
THIRD ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: SEPTEMBER, 2006
SHEET 20 OF 21

F-06-110
AS BUILT

APPROVED: DEPARTMENT OF PUBLIC WORKS
 W. J. ... 10-3-06
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 ... 10/13/06
 CHIEF, DIVISION OF LAND DEVELOPMENT SA DATE

... 10/13/06
 CHIEF, DEVELOPMENT ENGINEERING DIVISION 70 DATE



PLAN
 SCALE: 1" = 100'

FOREST CONSERVATION EASEMENT LINE TABLE

LINE TABLE		LINE TABLE	
LINE	LENGTH	LINE	LENGTH
L1	318.29	L20	24.74
L2	299.28	L21	18.86
L3	270.68	L22	39.65
L4	22.81	L23	33.56
L5	19.05	L24	60.84
L6	27.82	L25	75.92
L7	23.69	L26	56.28
L8	39.94	L27	50.36
L9	23.82	L28	59.67
L10	26.41	L29	45.11
L11	27.46	L30	16.82
L12	37.71	L31	18.69
L13	28.21	L32	37.74
L14	43.53	L33	20.12
L15	38.09	L34	26.33
L16	49.10	L35	756.82
L17	28.00	L36	603.84
L18	18.07	L37	387.77
L19	44.33	L38	58.46

OFF-SITE FOREST CONSERVATION PLAN, NOTES & DETAILS
CLOVERFIELD
 BUILDABLE LOTS 1 - 21, BUILDABLE PRESERVATION PARCEL 'A', NON-BUILDABLE PRESERVATION PARCELS 'B' THRU 'E' & NON-BUILDABLE BULK PARCEL 'F'

TAX MAP NO. 15 GRID NO. 8 PARCEL NO. 4
 THIRD ELECTION DISTRICT HOWARD COUNTY, MARYLAND
 DATE: SEPTEMBER, 2006
 SHEET 21 OF 21



FISHER, COLLINS & CARTER, INC.
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
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 410.461.2000

Eco-Science Professionals, Inc.
 CONSULTING ECOLOGISTS

MD DNR Qualified Professional
 USACE Youth Ambassador
 Certification # 20060000448
 JOHN P. CANOLES 9/11/06

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