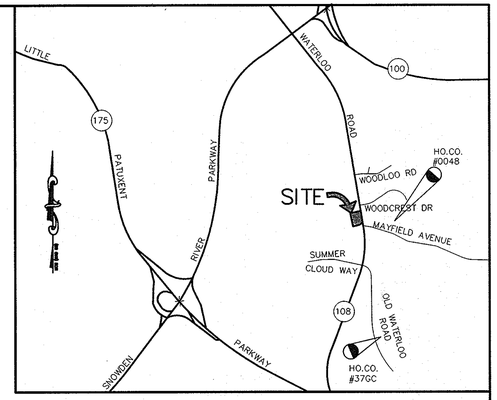
SHEET INDEX	
NO	DESCRIPTION
1	TITLE SHEET
2	PLAN AND PROFILE OF ARBOR MEADOWS LANE
3	GRADING, SEDIMENT CONTROL PLAN AND DRAINAGE AREA MAP
4	DETAIL SHEET
5	NOTES
6	SWM PROFILES AND DETAILS
7	PROFILES
8	LANDSCAPE PLAN
9	LANDSCAPE NOTES AND TABULATIONS
10	FOREST CONSERVATION PLAN

ROADWAYS, STORM DRAINS & SWM
ARBOR MEADOWS
6th ELECTION DISTRICT
HOWARD COUNTY, MARYLAND



VICINITY MAP
SCALE: 1"=2000'

GENERAL NOTES

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL, VOL. IV "STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION" PLUS MSHA STANDARDS AND SPECIFICATIONS, IF APPLICABLE.

2. THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS/BUREAU OF ENGINEERING/CONSTRUCTION INSPECTION DIVISION AT (410) 313-1880 AT LEAST FIVE (5) WORKING DAYS PRIOR TO THE START OF WORK.

3. THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AY LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.

4. TRAFFIC CONTROL DEVICES, MARKINGS, AND SIGNING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). ALL STREET AND REGULATORY SIGNS SHALL BE IN PLACE PRIOR TO THE PLACEMENT OF ANY ASPHALT.

5. STREET LIGHT PLACEMENT AND THE TYPE OF FIXTURE AND POLE SHALL BE IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL, VOLUME III (1993) AND AS MODIFIED BY "GUIDELINES FOR STREET LIGHTS IN RESIDENTIAL DEVELOPMENTS, (JANUARY 1998)." A MINIMUM SPACING OF 20' SHALL BE MAINTAINED BETWEEN ANY STREET LIGHT AND ANY TREE.

6. THE EXISTING TOPOGRAPHY IS TAKEN FROM FIELD STUDY WITH MAXIMUM TWO FOOT CONTOUR INTERVALS PREPARED BY PATTON HARRIS RUST AND ASSOCIATES IN DECEMBER, 2002.

7. THE COORDINATES SHOWN HEREON ARE BASED UPON THE HOWARD COUNTY GEODETIC CONTROL WHICH IS BASED UPON THE MARYLAND STATE PLANE COORDINATE SYSTEM. HOWARD COUNTY MONUMENT NOS. 0048 AND 37GC.

8. WATER IS PUBLIC. CONTRACT NO. 14-4191-D.

9. SEWER IS PUBLIC. SEWER DRAINAGE AREA: PATAPSCO. CONTRACT NO. 14-4191-D.

10. THE PUBLIC STORMWATER MANAGEMENT FOR THIS SITE WILL BE PROVIDED BY A POCKET POND WITH ROUTINE MAINTENANCE BY THE HOMEOWNERS ASSOCIATION AND WITH NON-ROUTINE MAINTAINANCE BY HOWARD COUNTY AND THE DISCONNECTION OF NON-ROOFTOP RUNOFF CREDIT.

11. APPROXIMATE LOCATION OF EXISTING UTILITIES ARE SHOWN. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THE EXISTING UTILITIES AND MAINTAIN UNINTERRUPTED SERVICE. ANY DAMAGE INCURRED DUE TO CONTRACTOR'S OPERATION SHALL BE REPAIRED IMMEDIATELY AT THE CONTRACTOR'S EXPENSE. EXISTING UTILITIES ARE SHOWN BASED ON THE BEST AVAILABLE INFORMATION.

12. THERE ARE NO WETLANDS ON THIS SITE.

13. THE TRAFFIC STUDY FOR THIS PROJECT WAS PREPARED BY MARS GROUP DATED JULY, 2003.

14. THE NOISE STUDY FOR THIS PROJECT WAS PREPARED BY MARS GROUP DATED JUNE, 2003.

15. THE BOUNDARY SURVEY FOR THIS PROJECT WAS PREPARED BY PATTON HARRIS RUST AND ASSOCIATES DATED MARCH 2003.

16. SUBJECT PROPERTY ZONED R-12 PER 2-02-04 COMPREHENSIVE REZONING PLAN AND REGULATIONS.

17. ALL ELEVATIONS SHOWN ARE BASED ON THE U.S.C. AND G.S. MEAN SEA LEVEL DATUM, 1929.

18. THE CONTRACTOR SHALL TEST PIT EXISTING UTILITIES AT LEAST (5) DAYS BEFORE STARTING WORK SHOWN ON THESE DRAWNGS.

19. CONTRACTOR IS SOLELY RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, PROCEDURES, AND SAFETY PRECAUTIONS AND PROGRAMS.

20. PIPE SHALL NOT BE INSTALLED BY THE CONTRACTOR UNTIL THE LENGTH CALLED FOR AT EACH STATION HAS BEEN APPROVED BY THE ENGINEER IN THE FIELD.

21. NO PIPE SHALL BE LAID UNTIL LINES OF EXCAVATION HAVE BEEN BROUGHT WITHIN 6" OF FINISHED GRADE.

22. ALL INLETS SHALL BE CONSTRUCTED IN ACCORDANCE WITH HOWARD COUNTY STANDARDS.

23. ALL PIPE ELEVATIONS SHOWN ARE INVERT ELEVATIONS.

24. STORM DRAIN TRENCHES WITHIN ROAD RIGHT OF WAY SHALL BE BACKFILLED AND COMPACTED IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL, VOLUME IV, i.e., STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION, LATEST AMENDMENTS.

25. PROFILE STATIONS SHALL BE ADJUSTED AS NECESSARY TO CONFORM TO PLAN DIMENSIONS.

26. DESIGNED TRAFFIC SPEED IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL VOL. III. ALL 40' RIGHT OF WAYS 15 M.P.H.

27. ALL FILL AREAS WITHIN ROADWAY AND UNDER STRUCTURES TO BE COMPACTED TO A MINIMUM OF 95% COMPACTION OF AASHTO T180.

28. ALL STREET CURB RETURNS SHALL HAVE 25' RADII UNLESS OTHERWISE NOTED.

29. ALL STREET LIGHTS SHALL BE LOCATED BETWEEN 2'-0" AND 4'-0" BEHIND FACE OF CURB.

30. TYPE AND NUMBER OF STREET TREES SHOWN ON THIS PLAN ARE TENTATIVE AND ARE USED FOR BOND PURPOSES ONLY. THE FINAL LOCATION AND VARIETY OF TREES MAY VARY TO ACCOMODATE FIELD CONDITIONS INCLUDING 20' CLEARANCE OF ANY STREET LIGHT AND SHALL BE IN ACCORDANCE WITH THE SUBDIVISION REGULATIONS AND THE LANDSCAPE MANUAL. BOND RELEASE IS CONTINGENT UPON SECTION 16.124 OF THE HOWARD COUNTY SUBDIVISION REGULATIONS, AS APPROVED BY THE DEPARTMENT OF PLANNING AND ZONING.

31. THERE ARE TWO EXISTING PERMANENT STRUCTURES ON-SITE AND BOTH WILL BE DEMOLISHED. THE STRUCTURE ON PARCEL 253 WAS CONSTRUCTED IN 1899 AND THE STRUCTURE ON PARCEL 426 WAS BUILT IN 1962 ACCORDING TO THE MD DEPARTMENT OF ASSESSMENTS AND TAXATION. THE DEPARTMENT OF PLANNING AND ZONING HISTORIC SITE SURVEYOR HAS DETERMINED THAT NEITHER HOUSE MERITS CONSIDERATION AS A HISTORIC STRUCTURE.

32. THE 100 YEAR FLOODPLAIN DOES NOT EXIST ON THIS SITE.

33. BASED ON AVAILABLE COUNTY MAPS AND RECORDS, THERE ARE NO HISTORIC STRUCTURES OR CEMETERIES LOCATED ON THE SUBJECT PROPERTY.

34. THIS PROJECT IS SUBJECT TO THE AMENDED 5th EDITION SUBDIVISION AND LAND DEVELOPMENT REGULATIONS, EFFECTIVE OCTOBER 7, 2003, AND THE AMENDED 2004 ZONNING REGULATIONS.

35. SEE DEPARTMENT OF PLANNING AND ZONING FILE NOS.: SP-04-006

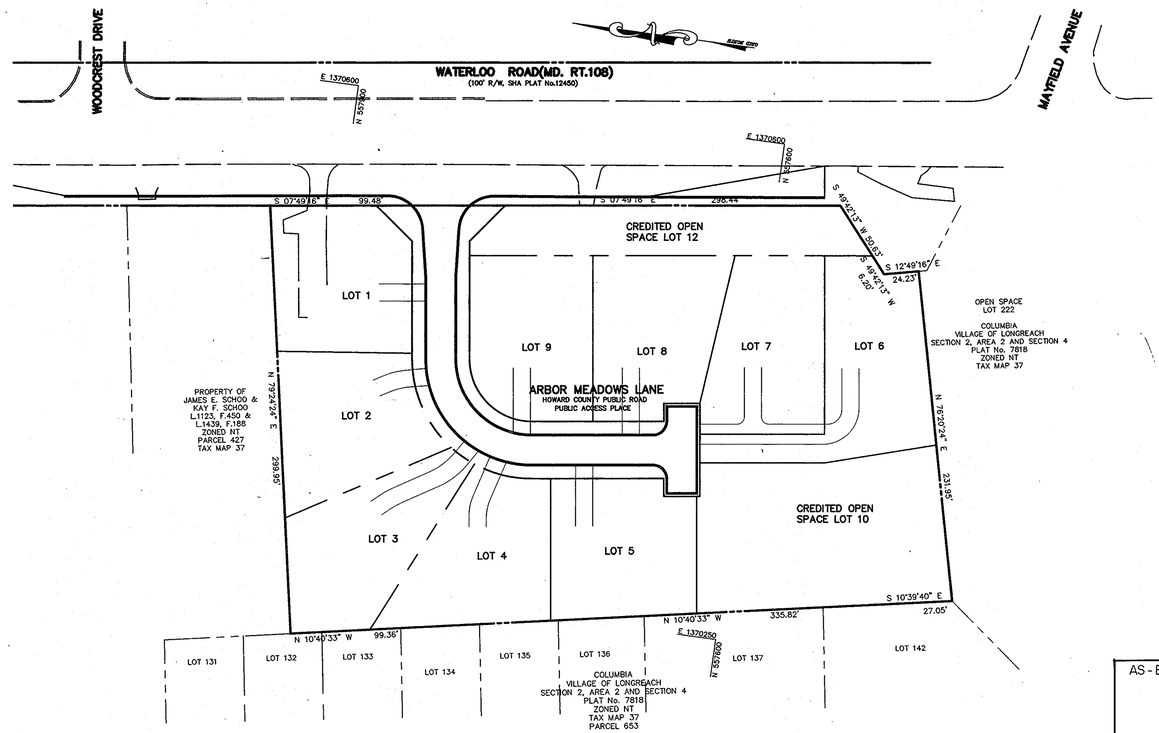
36. LANDSCAPE SURETY IN THE AMOUNT OF $13,200 WILL BE POSTED WITH THE DPW DEVELOPERS AGREEMENT.

37. FOREST CONSERVATION IS MET BY A FEE-IN-LIEU PAYMENT OF $18,077.40 FOR 0.83 ACRES.

38. ALL SIGN POSTS USED FOR TRAFFIC CONTROL SIGNS INSTALLED IN THE COUNTY RIGHT OF WAY SHALL BE MOUNTED ON A 2" GALVANIZED STEEL, PERFORATED, SQUARE TUBE POST (14 GAUGE) INSERTED INTO A 2-1/2" GALVANIZED STEEL, PERFORATED, SQUARE TUBE SLEEVE (12 GAUGE) - 3" LONG. A GALVANIZED STEEL POLE CAP SHALL BE MOUNTED ON TOP OF EACH POST.

39. HOWARD COUNTY DESIGN MANUAL VOLUME I WAIVER HAS BEEN APPROVED TO ALLOW THE REQUIRED MINIMUM BUFFER OF 25' TO LOT LINES BE REDUCED BY USING POND INTERNAL AND PERIMETER LANDSCAPING TO SCREEN THE VIEW OF THE POND.

40. THE PLANS PROVIDE THE LOCATIONS OF EXISTING WELLS AND SEPTIC TO BE ABANDONED. THESE FACILITIES WILL BE ABANDONED PRIOR TO OR CONCURRENTLY WITH THE DEMOLITION OF THE HOUSES AND WILL BE COORDINATED WITH THE HEALTH DEPARTMENT.



PLAN
SCALE: 1"=50'

BENCH MARKS

HOWARD COUNTY MONUMENT 0048
N 557,526.343 E 1,370,661.989 ELEV. 348.719
LOCATED 103'+/- NORTH OF MAYFIELD AVENUE CENTERLINE OF ROAD AND 5.3' WEST OF POLE #254657.

HOWARD COUNTY MONUMENT 37GC
N 555,250.791 E 1,370,946.348 ELEV. 331.855
LOCATED ON OLD WATERLOO ROAD, 63.91' NORTHEAST FROM 2 STORY BUILDING (#6528), 107.3' SOUTHEAST FROM WATER MANHOLE, 64.5' NORTHWEST FROM FIRE HYDRANT.

APPROVED : HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.

CHIEF, BUREAU OF HIGHWAYS — DATE 6-15-06

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 6/20/06

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 6/20/06

DATE	NO.	REVISION
05/01/06	1	REVISED CURB AND PAVEMENT TAPER

AS-BUILT CERTIFICATION

STATE OF MARYLAND — DOMENICK W. COLANGELO — NO. 27200 REGISTERED PROFESSIONAL ENGINEER

DOMENICK COLANGELO #27200 — DATE 9/20/07

NOTE:
THE PURPOSE OF THESE REVISED PLANS DATED MAY 1, 2006 IS TO ADD THE EXISTING 36" DIAMETER WATER MAIN, REVISE THE ROAD ENTRANCE, SIDEWALK, STORM DRAIN AND THE PUBLIC SURFACE DRAINAGE EASEMENT.

OWNER
ARBOR MEADOWS, LLC
c/o BRIAN D. BOY
11807 WOLLINGFORD COURT
CLARKSVILLE, MARYLAND 21029-1731

DEVELOPER
CORNERSTONE HOLDINGS, LLC
ATTN: BRIAN BOY
9691 NORFOLK AVENUE
LAUREL, MD 20723
(410) 792-2565

PROJECT
ARBOR MEADOWS

AREA
TAX MAP 37, GRID 14
PARCEL 253 AND 426 ZONING R-12
6TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE
REVISED FINAL PLAN
TITLE SHEET

Patton Harris Rust & Associates,pc
Engineers. Surveyors. Planners. Landscape Architects.
8818 Centre Park Drive
Columbia, MD 21045
T 410.997.8900
F 410.997.9282

05/08/06 — DATE

STATE OF MARYLAND — DOMENICK W. COLANGELO — NO. 27200 REGISTERED PROFESSIONAL ENGINEER

DOMENICK W. COLANGELO #27200

DESIGNED BY :	ACR
DRAWN BY:	DAM
PROJECT NO:	11906/1-0/FINALS C000COV.DWG
DATE :	OCTOBER 18, 2005
SCALE :	1" = 50'
DRAWING NO.	1 OF 10

F-05-086

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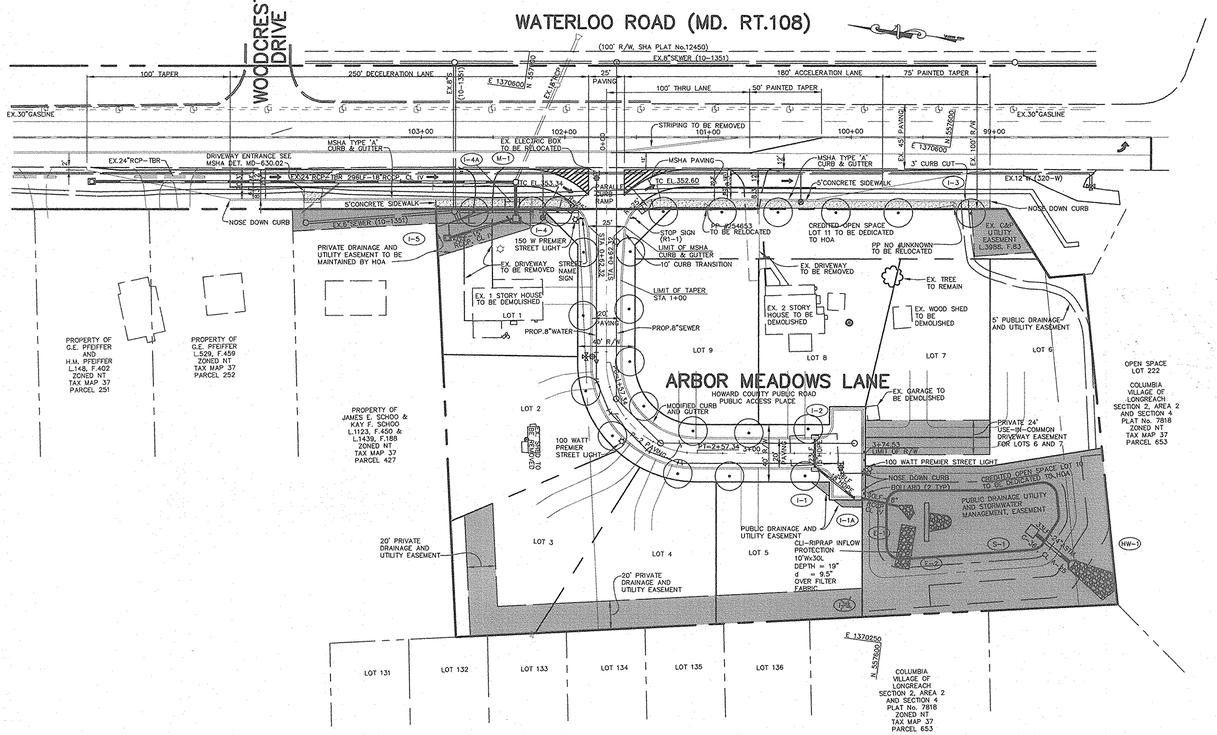
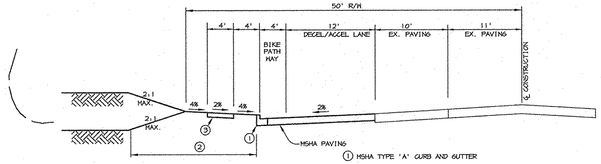


CL CURVE DATA

FROM CL STA 1+57.34 TO STA 2+57.34
RADIUS = 63.66'
LENGTH = 100.00'
TANGENT = 63.66'
DELTA = 90° 00'00"
CHORD = N 37° 10'44"E 90.03'

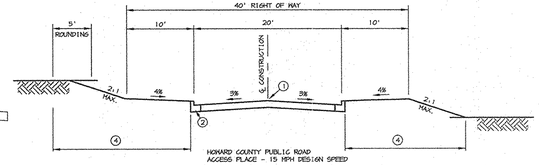
STREET TREE PLANT LIST

KEY	QTY	BOTANICAL AND COMMON NAME	SIZE	ROOT
PA	23	Platanus xacerifolia London Plane Tree	2-1/2" - 3"	B & B



TYPICAL SECTION MD ROUTE 108

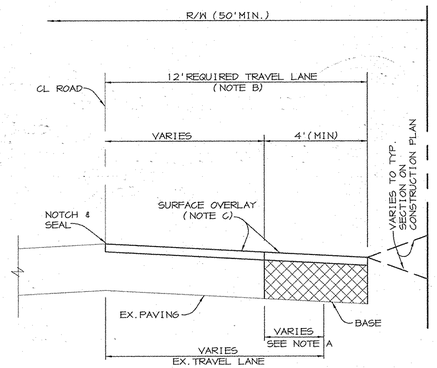
NO SCALE



CLOSED SECTION

TYPICAL SECTION ARBOR MEADOWS LANE

NO SCALE



NOTE A - WHEN EXISTING TRAVEL LANE IS LESS THAN THE REQUIRED 12' LANE, CONTRACTOR SHALL REMOVE ENOUGH OF THE EXISTING ROAD BED TO PROVIDE A MINIMUM BASE WIDENING OF 4'.

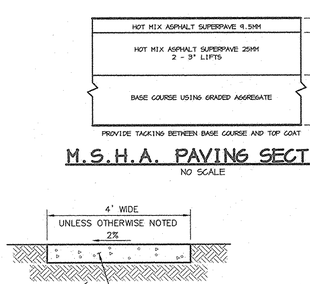
NOTE B - THE SURFACE OVERLAY SHALL BE CARRIED TO THE CL OF THE ROAD AND NOTCHED AND SEALED.

NOTE C - SURFACE OVERLAY COURSE TO BE EQUAL TO SURFACE COURSE OF TYPICAL PAVING SECTION OF SUBDIVISION.

NOTE D - CL OF ROAD TO BE MILLED AT DEPTH OF 1 1/2"x1'WIDE USING A MILLING MACHINE.

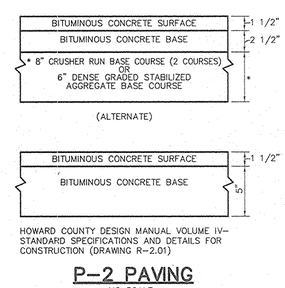
WIDENING STRIPS ALONG EXISTING ROADWAYS

NO SCALE



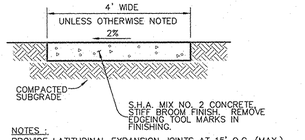
M.S.H.A. PAVING SECTION

NO SCALE



P-2 PAVING

NO SCALE



NOTES :
PROVIDE LATITUDINAL EXPANSION JOINTS AT 15' O.C. (MAX.)
PROVIDE CONTRACTION (DUMMY) JOINT AT 5' O.C. INTERVALS BETWEEN EXPANSION JOINTS. SIDEWALK TO BE SCRIBED IN 5' MAX. SQUARES.

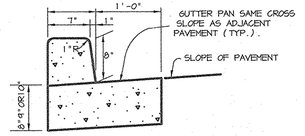
SIDEWALK DETAIL

NO SCALE

STREET LIGHT DATA

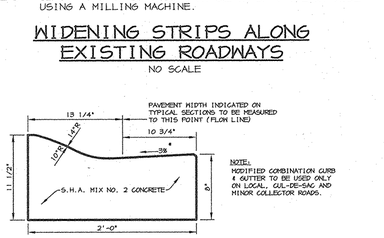
LOCATE 18' RIGHT OF CL STA 0+53 ARBOR MEADOWS LANE
POLE HEIGHT = 30' LIGHT FIXTURE = 150w HPS
POLE TYPE = BLACK FIBERGLASS

LOCATE 12' RIGHT OF CL STA 2+17 ARBOR MEADOWS LANE
LOCATE 11' RIGHT OF CL STA 3+80 ARBOR MEADOWS LANE
POLE HEIGHT = 30' LIGHT FIXTURE = 100w HPS
POLE TYPE = BLACK FIBERGLASS



M.S.H.A. TYPE 'A' CURB AND GUTTER

NO SCALE



MODIFIED COMBINATION CURB AND GUTTER

* GUTTER PAN AT THE MEDIAN EDGE OF INTERMEDIATE ARTERIALS OR THE HIGH SIDE OF SUPERELEVATED SECTIONS SHALL BE SLOPED AT THE SAME RATE AND IN THE SAME DIRECTION AS THE PAVEMENT. MATCH PAVEMENT CROSS SLOPE WHEN CURB IS LOCATED ON THE LOW SIDE OF SUPERELEVATED SECTION AND THE RATE OF SUPERELEVATION IS GREATER THAN 3% FOR MODIFIED CURB AND GUTTER.

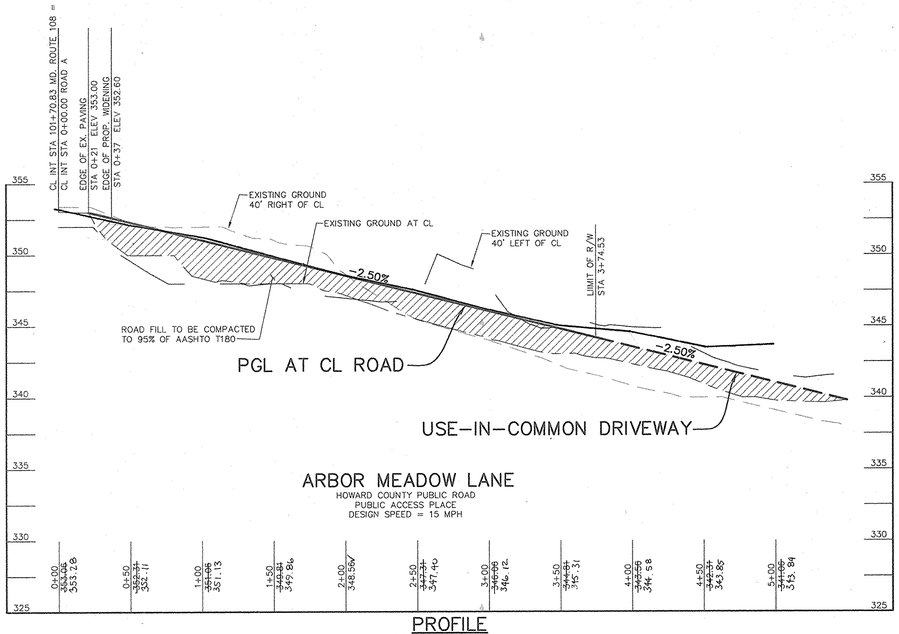
BOLLARD DETAIL

NO SCALE

AS-BUILT CERTIFICATION

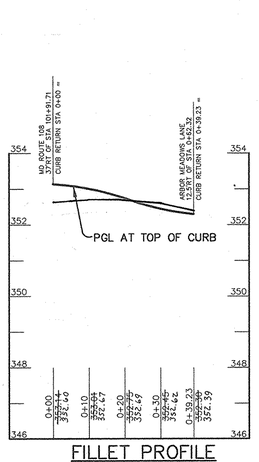
STATE OF MARYLAND DOMENICK W. COLANGELO NO. 27200 REGISTERED PROFESSIONAL ENGINEER

9/20/07
DOMENICK COLANGELO #27200 DATE



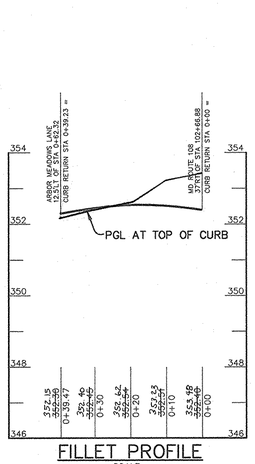
PROFILE

SCALE: HOR. 1" = 50'
VERT. 1" = 5'



FILLET PROFILE

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



FILLET PROFILE

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

APPROVED : HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.

CHIEF, BUREAU OF HIGHWAYS — 6-15-06 DATE

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

CHIEF, DIVISION OF LAND DEVELOPMENT — 6/20/06 DATE

CHIEF, DEVELOPMENT ENGINEERING DIVISION — 6/20/06 DATE

DATE	NO.	REVISION
05/01/06	1	REVISED PAVEMENT TAPER, SIDEWALK & PROFILES

OWNER
ARBOR MEADOWS, LLC
c/o BRIAN D. BOY
11807 WOLLINGFORD COURT
CLARKSVILLE, MARYLAND 21029-1731

DEVELOPER
CORNERSTONE HOLDINGS, LLC
ATTN: BRIAN BOY
9691 NORFOLK AVENUE
LAUREL, MD 20723
(410) 792-2565

PROJECT
ARBOR MEADOWS

AREA
TAX MAP 37, GRID 14
PARCEL 253 AND 426 ZONING R-12
6TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE
REVISED FINAL PLAN
PLAN AND PROFILE OF ARBOR MEADOWS LANE

Patton Harris Rust & Associates, pc
Engineers. Surveyors. Planners. Landscape Architects.
8818 Centre Park Drive
Columbia, MD 21045
T 410.997.8900
F 410.997.9282

05/08/06 DATE

STATE OF MARYLAND DOMENICK W. COLANGELO NO. 27200 REGISTERED PROFESSIONAL ENGINEER

DOMENICK W. COLANGELO #27200

DESIGNED BY :	ACR
DRAWN BY:	DAM
PROJECT NO:	11906/1-D/FINALS C400ROAD.DWG
DATE :	OCTOBER 18, 2005
SCALE :	AS SHOWN
DRAWING NO.	2 OF 10

F-05-086

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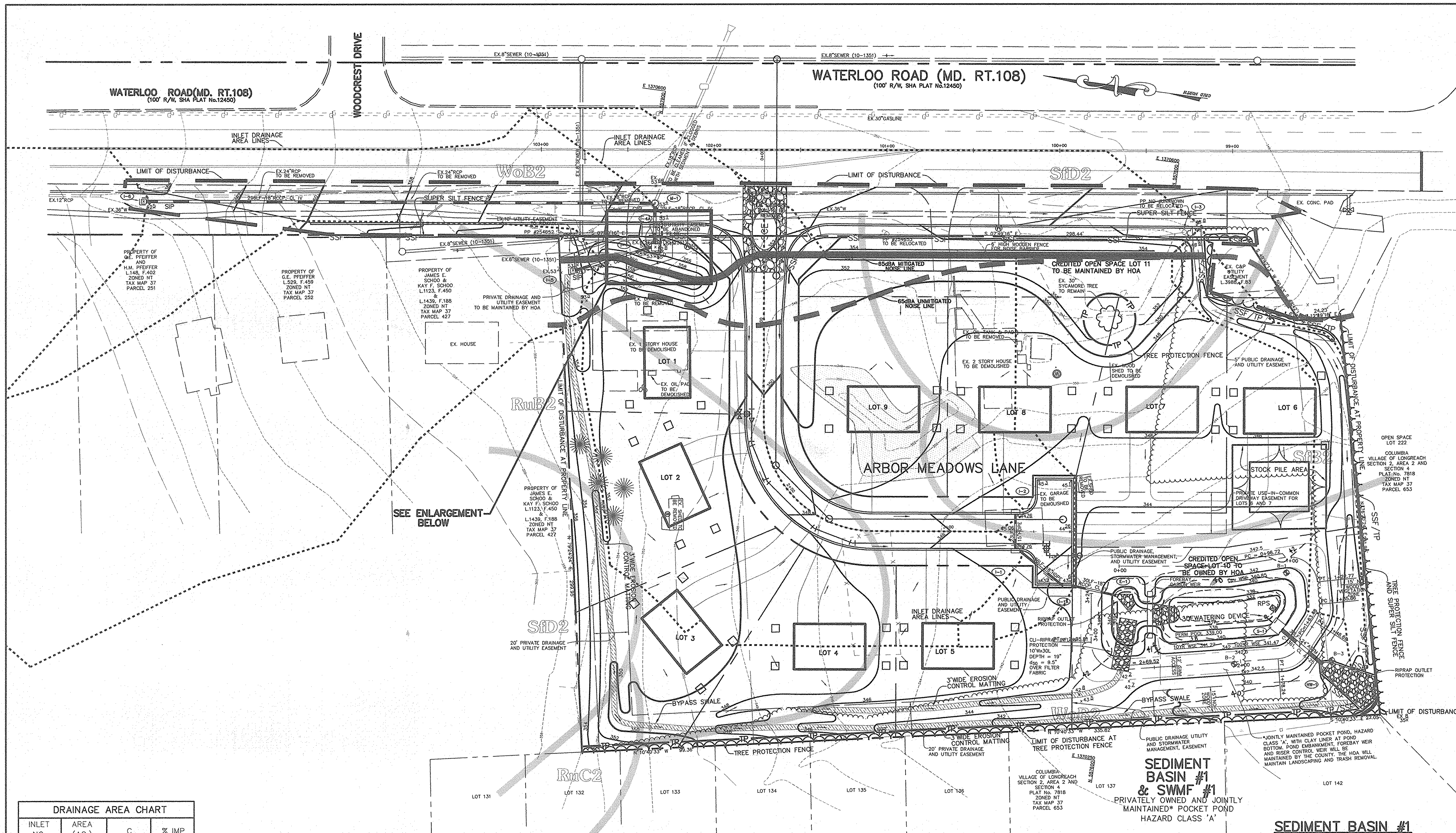
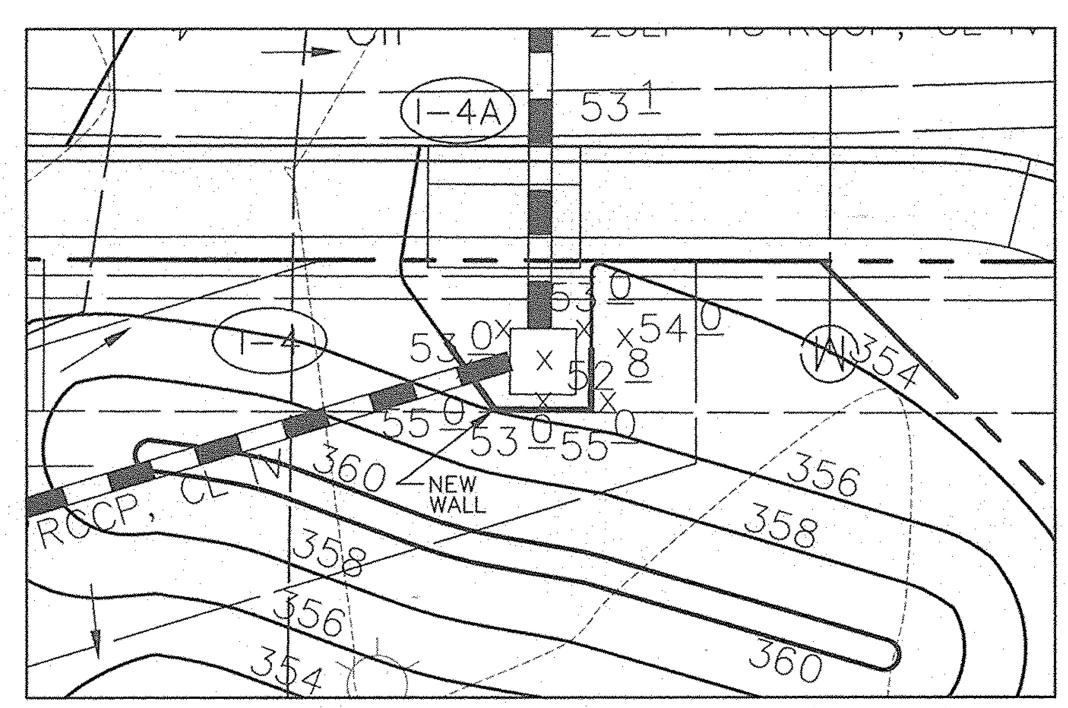
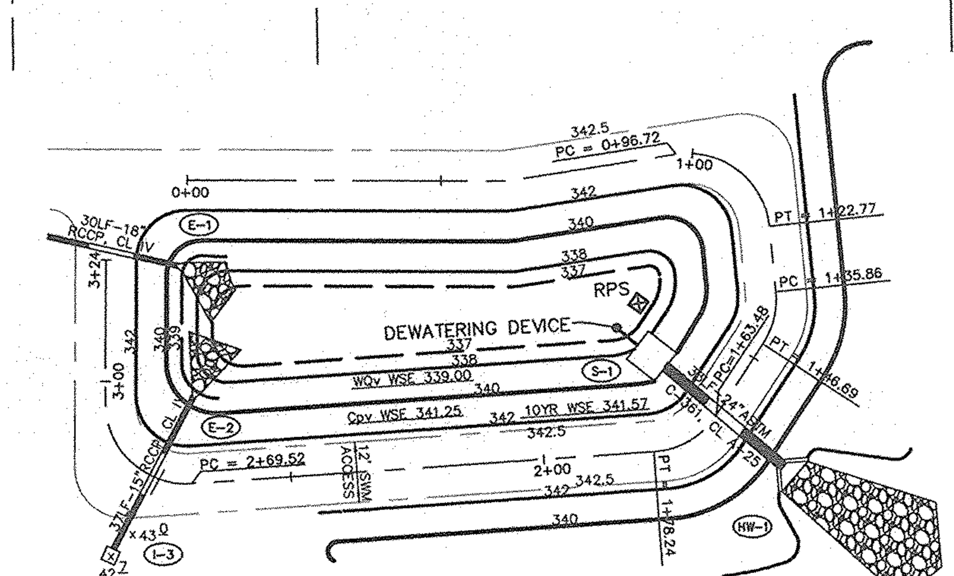


PLAN
SCALE: 1" = 30'



ENLARGEMENT
SCALE: 1"=10'



SEDIMENT BASIN
SCALE: 1" = 30'

SEDIMENT BASIN #1

DRAINAGE AREA	2.51 ACRES
STOR. REQ'D (WET STOR.)	4,518 CF
STOR. REQ'D (DRY STOR.)	4,518 CF
STOR. PROV. (WET STOR.)	4,660 @ 339.08
STOR. PROV. (DRY STOR.)	6,490 @ 340.9
RISER CREST ELEVATION	340.9
BASIN CLEANOUT ELEVATION	338.2
TOP OF DAM	342.5
BOTTOM EL.	337.0
SIDE SLOPES	3:1
Q_1 EX	2.72 CFS
Q_1 PR	1.98 CFS

DRAINAGE AREA CHART

INLET NO.	AREA (AC.)	C	% IMP
I-1	0.78	0.38	46
I-2	0.57	0.41	49
I-3	0.31	0.75	84
I-4	0.51	0.86	49
I-5	1.40	0.31	54
I-1A	0.10	0.58	50
I-6	2.87	0.46	27

STORMWATER MANAGEMENT SUMMARY TABLE

	DRAINAGE AREA (AC)	WQv* (CF)	Rev (CF)	Cpv (AC-FT)	Qp 1 (CFS)	Qp 10 (CFS)	Qp 100 (CFS)
EX. CONDITIONS AT STUDY POINT	5.76	–	–	–	2.72	13.27	23.94
PR. CONDITIONS AT STUDY POINT	5.81	–	–	–	1.50	15.75	27.34
POCKET POND	2.51	2982	806 (0.22 AC)	0.114	0.06	8.29	13.73

THE Rev WILL BE PROVIDED BY THE ROOFTOP DISCONNECT CREDIT USING DRYWELLS SINCE THE 75' DISCONNECT LENGTH CANNOT BE PROVIDED. DRYWELLS WILL BE USED FOR Rev ONLY.

WQv AND Cpv WILL BE PROVIDED IN THE PROPOSED POCKET POND.

Qp AND Qf ARE NOT REQUIRED FOR THIS SITE.

SOILS CHART

MAP SYMBOL	NAME	STRUCTURAL LIMITATIONS DWELLINGS	EROSION HAZARD	HYDRIC	SLOPE (%)
RuB2	RUMFORD LOAMY SAND	SLIGHT	MODERATE	NO	1–5%
RuC2	RUMFORD LOAMY SAND	SLIGHT	MODERATE	NO	5–10%
SfB2	SASSAFRAS GRAVELLY SANDY LOAM	SLIGHT	MODERATE	NO	1–5%
SfD2	SASSAFRAS GRAVELLY SANDY LOAM	MODERATE	––	NO	10–15%
WoB2	WOODSTOWN SANDY LOAM	MODERATE	MODERATE	NO*	1–5%

* SOIL MAY CONTAIN HYDRIC INCLUSIONS

AS-BUILT CERTIFICATION

DOMENICK COLANGELO #27200 — 9/20/07 DATE

BY THE DEVELOPER :

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

DEVELOPER — DATE

BY THE ENGINEER :

I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

ENGINEER — 5/8/06 DATE

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SOIL EROSION AND SEDIMENT CONTROL.

NATURAL RESOURCES CONSERVATION SERVICE — 5/15/06 DATE

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

HOWARD SOIL CONSERVATION DISTRICT — 5/15/06 DATE

APPROVED : HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.

CHIEF, BUREAU OF HIGHWAYS — 6-15-06 DATE

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

CHIEF, DIVISION OF LAND DEVELOPMENT — 6/20/06 DATE

CHIEF, DEVELOPMENT ENGINEERING DIVISION — 6/20/06 DATE

DATE	NO.	REVISION
05/01/06	1	REVISED DRAINAGE, GRADING & SIDEWALK

OWNER
ARBOR MEADOWS, LLC
c/o BRIAN D. BOY
11807 WOLLINGFORD COURT
CLARKSVILLE, MARYLAND 21029-1731

DEVELOPER
CORNERSTONE HOLDINGS, LLC
ATTN: BRIAN BOY
9691 NORFOLK AVENUE
LAUREL, MD 20723
(410) 792-2565

PROJECT
ARBOR MEADOWS

AREA
TAX MAP 37, GRID 14
PARCEL 253 AND 426 ZONING R-12
6TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE
REVISED FINAL PLAN
GRADING, SEDIMENT CONTROL PLAN AND DRAINAGE AREA MAP

Patton Harris Rust & Associates,pc
Engineers. Surveyors. Planners. Landscape Architects.
PHR+A
8818 Centre Park Drive
Columbia, MD 21045
T 410.997.8900
F 410.997.9282

05/08/06 DATE

DOMENICK W. COLANGELO #27200

DESIGNED BY : ACR
DRAWN BY: DAM
PROJECT NO: 11906/1-0/FINALS C600GRA.DWG
DATE : OCTOBER 18, 2005
SCALE : 1" = 30'
DRAWING NO. 3 OF 10

F-05-086

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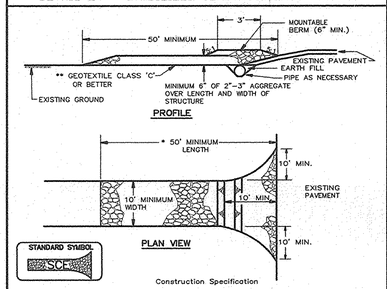
DETAIL 24 – STABILIZED CONSTRUCTION ENTRANCE



Construction Specification

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.

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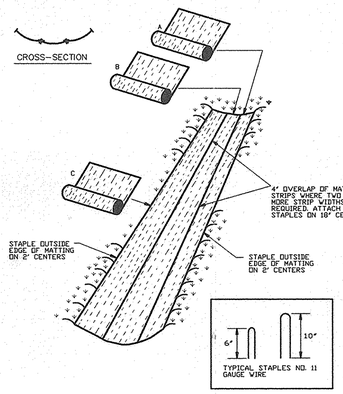
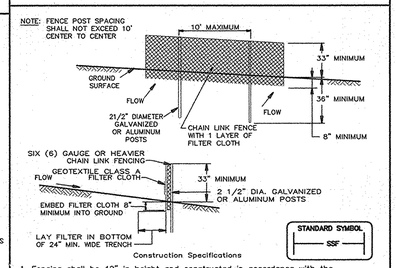
DETAIL 30 – EROSION CONTROL MATTING



U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE G – 30 – 2	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 33 – SUPER SILT FENCE



Construction Specifications

1. Fencing shall be 42" in height and constructed in accordance with the latest Maryland State Highway (SHA) Details for Chain Link Fencing. The SHA specifications for a 6 foot fence shall be used, substituting 42" fabric and 6 foot length posts.

2. The posts do not need to be set in concrete.

3. Chain link fence shall be fastened securely to the fence posts with wire ties or staples. The lower tension wire, brace and truss rods, drive anchors and post caps are not required except on the ends of the fence. The chain link fencing shall be six (6) gauge or heavier.

4. Filter cloth shall be fastened securely to the chain link fence with ties spaced every 24" at the top and mid section.

5. Filter cloth shall be embedded a minimum of 8" into the ground.

6. When two sections of geotextile fabric adjoin each other, they shall be overlapped by 6" and folded.

7. Maintenance shall be performed as needed and silt buildups removed when "bulges" develop in the silt fence, or when silt reaches 50% of fence height

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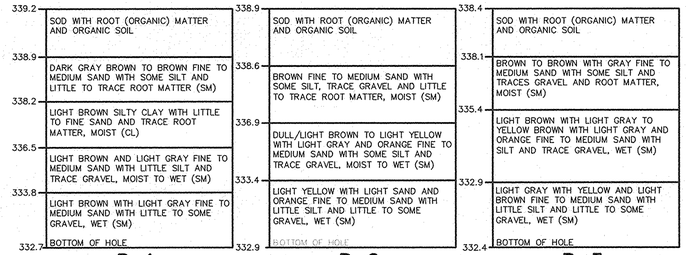

AS-BUILT CERTIFICATION

STATE OF MARYLAND · DOMENICK W. COLANGELO · NO. 27200 · REGISTERED PROFESSIONAL ENGINEER

DOMENICK COLANGELO #27200 — 9/20/07 DATE

BY THE DEVELOPER :

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

DEVELOPER — 6/7/05 DATE

BY THE ENGINEER :

I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

ENGINEER — 6.07.05 DATE

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SOIL EROSION AND SEDIMENT CONTROL.

NATURAL RESOURCES CONSERVATION SERVICE — 6/16/05 DATE

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

HOWARD SOIL CONSERVATION DISTRICT — 6/16/05 DATE

APPROVED : HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.

CHIEF, BUREAU OF HIGHWAYS — 7-6-05 DATE

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

CHIEF, DIVISION OF LAND DEVELOPMENT — 7/11/05 DATE

CHIEF, DEVELOPMENT ENGINEERING DIVISION — 7/12/05 DATE

DATE	NO.	REVISION

OWNER

ARBOR MEADOWS, LLC
c/o BRIAN D. BOY
11807 WOLLINGFORD COURT
CLARKSVILLE, MARYLAND 21029-1731

DEVELOPER

CORNERSTONE HOLDINGS, LLC
ATTN: BRIAN BOY
9691 NORFOLK AVENUE
LAUREL, MD 20723
(410) 792-2565

PROJECT

ARBOR MEADOWS

AREA — TAX MAP 37, GRID 14
PARCEL 253 AND 426 ZONING R-12
6TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE

DETAIL SHEET

Patton Harris Rust & Associates, pc
Engineers. Surveyors. Planners. Landscape Architects.
8818 Centre Park Drive
Columbia, MD 21045
T 410.997.8900
F 410.997.9282

6.07.05 DATE

STATE OF MARYLAND · AIMEE C. REMINGTON · NO. 29923 · PROFESSIONAL ENGINEER

AIMEE C. REMINGTON #29923

DESIGNED BY :	ACR
DRAWN BY:	DAM
PROJECT NO:	11906/1-0/FINALS C900DET1.DWG
DATE :	JUNE 7, 2005
SCALE :	AS SHOWN
DRAWING NO.	4 OF 10

F-05-086

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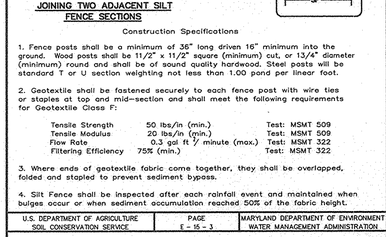
DETAIL 22 – SILT FENCE



Construction Specifications

1. Fence posts shall be a minimum of 36" long driven 16" minimum into the ground. Wood posts shall be 11/2" x 11/2" square (minimum) cut, or 13/4" diameter (minimum) round and shall be of sound quality hardwood. Steel posts will be standard T or U section weighting not less than 1.00 pond 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:

Tensile Strength	50 lbs/in (min.)	Test: MSMT 509
Tensile Modulus	20 lbs/in (min.)	Test: MSMT 509
Flow Rate	0.3 gal ft / minute (max.)	Test: MSMT 322
Filtering Efficiency	75% (min.)	Test: MSMT 322

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.

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30.0 – DUST CONTROL

DEFINITION

CONTROLLING DUST BLOWING AND MOVEMENT ON CONSTRUCTION SITES AND ROADS.

PURPOSE

TO PREVENT BLOWING AND MOVEMENT OF DUST FROM EXPOSED SOIL SURFACES, REDUCE ON AND OFF-SITE DAMAGE, HEALTH HAZARDS, AND IMPROVE TRAFFIC SAFETY.

CONDITIONS WHERE PRACTICE APPLIES

THIS PRACTICE IS APPLICABLE TO AREAS SUBJECT TO DUST BLOWING AND MOVEMENT WHERE ON OFF-SITE DAMAGE IS LIKELY WITHOUT TREATMENT.

SPECIFICATIONS

TEMPORARY METHODS

1. MULCHES – SEE STANDARDS FOR VEGETATIVE STABILIZATION WITH MULCHES ONLY. MULCH SHOULD BE CRIMPED OR TACKED TO PREVENT BLOWING.
2. VEGATATIVE COVER – SEE STANDARDS FOR TEMPORARY VEGETATIVE COVER.
3. TILLAGE – TO ROUGHEN SURFACE AND BRING CLODS TO THE SURFACE. THIS IS AN EMERGENCY MEASURE WHICH SHOULD BE USED BEFORE SOIL BLOWING STARTS. BEGIN PLOWING ON WINDWARD SIDE OF SITE CHISEL-TYPE PLOWS SPACED ABOUT 12" APART, SPRING-TOOTHED HARROWS, AND SIMILAR PLOWS ARE EXAMPLES OF EQUIPMENT WHICH MAY PRODUCE THE DESIRED EFFECT.
4. IRRIGATION – THIS IS GENERALLY DONE AS AN EMERGENCY TREATMENT. SITE IS SPRINKLED WITH WATER UNTIL THE SURFACE IS MOIST. REPEAT AS NEEDED. AT NO TIME SHOULD THE SITE BE IRRIGATED TO THE POINT THAT RUNOFF BEGINS TO FLOW.
5. BARRIERS – SOLID BOARD FENCES, SILT FENCES, SNOW FENCES, BURLAP FENCES, STRAW BALES, AND SIMILAR MATERIAL CAN BE USED TO CONTROL AIR CURRENTS AND SOIL BLOWING. BARRIERS PLACED AT RIGHT ANGLES TO PREVAILING CURRENTS AT INTERVALS OF ABOUT 10 TIMES THEIR HEIGHT ARE EFFECTIVE IN CONTROLLING SOIL BLOWING.
6. CALCIUM CHLORIDE – APPLY AT RATES THAT WILL KEEP SURFACE MOIST. MAY NEED RETREATMENT.

PERMANENT METHODS

1. PERMANENT VEGETATION – SEE STANDARDS FOR PERMANENT VEGETATIVE COVER, AND PERMANENT STABILIZATION WITH SOD, EXISTING TREES OR LARGE SHRUBS MAY AFFORD VALUABLE PROTECTION IF LEFT IN PLACE.
2. TOPSOILING – COVERING WITH LESS EROSIVE SOIL MATERIALS. SEE STANDARDS FOR TOPSOILING.
3. STONE – COVER SURFACE WITH CRUSHED STONE OR COARSE GRAVEL.

REFERENCES

1. AGRICULTURE HANDBOOK 346. WIND EROSION FORCES IN THE UNITED STATES AND THEIR USES IN PREDICTING SOIL LOSS.
2. AGRICULTURE INFORMATION BULLETIN 354. HOW TO CONTROL WIND EROSION, USDA-ARS.

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CONSTRUCTION SPECIFICATIONS

1. THE SUBGRADE FOR THE FILTER, RIP-RAP, OR GABION SHALL BE PREPARED TO THE REQUIRED LINES AND GRADES. ANY FILL REQUIRED IN THE SUBGRADE SHALL BE COMPACTED TO A DENSITY OF APPROXIMATELY THAT OF THE SURROUNDING UNDISTURBED MATERIAL.

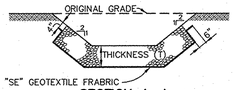
2. THE ROCK OR GRAVEL SHALL CONFORM TO THE SPECIFIED GRADING LIMITS WHEN INSTALLED RESPECTIVELY IN THE RIP-RAP OR FILTER.

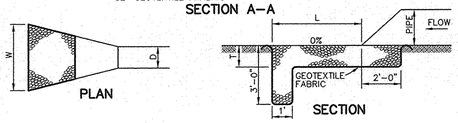
3. "SE" GEOTEXTILE OR BETTER SHALL BE PROTECTED FROM PUNCHING, CUTTING, OR TEARING. ANY DAMAGE OTHER THAN AN OCCASIONAL SMALL HOLE SHALL BE REPAIRED BY PLACING ANOTHER PIECE OF GEOTEXTILE FABRIC OVER THE DAMAGED SECTION, WHETHER FOR REPAIRS OR FOR JOINING TWO PIECES OF GEOTEXTILE FABRIC, IT SHALL BE A MINIMUM OF ONE FOOT.

4. STONE FOR THE RIP-RAP OR GABION OUTLETS MAY BE PLACED BY EQUIPMENT. THEY SHALL BE CONSTRUCTED TO THE FULL COURSE THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO AVOID DISPLACEMENT OF UNDERLYING MATERIALS. THE STONE FOR RIP-RAP OR GABION OUTLETS SHALL BE DELIVERED AND PLACED IN A MANNER THAT WILL ENSURE THAT IT IS REASONABLY HOMOGENOUS WITH THE SMALLER STONES AND SPALLS FILLING THE VOIDS BETWEEN THE LARGER STONES. RIP-RAP SHALL BE PLACED IN A MANNER TO PREVENT DAMANGE TO THE FILTER BLANKET OR GEOTEXTILE FABRIC. HAND PLACEMENT WILL BE REQUIRED TO THE EXTENT NECESSARY TO PREVENT DAMAGE TO THE PERMANENT WORKS.

5. THE STONE SHALL BE PLACED SO THAT IT BLENDS IN WITH THE EXISTING GROUND. IF THE STONE IS PLACED TOO HIGH THEN THE FLOW WILL BE FORCED OUT OF THE CHANNEL AND SCOUR ADJACENT TO THE STONE WILL OCCUR.

RIPRAP TO BE EMBEDDED IN PROPOSED TRANSITION SECTION



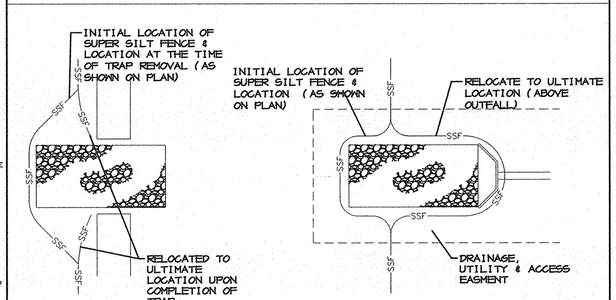


NOTE: Q_{10}, V & DEPTH CALCULATED AT END OF RIPRAP OUTLET CHANNEL.

STRUCTURE	MEDIAN STONE DIA.	LENGTH (L)	WIDTH (W)	THICKNESS (T)	Q_{10}	Vp	DEPTH
E–1	9.5" CL I	10'	12'	19"	4.88	4.48	0.9
E–2	9.5" CL I	10'	6'	19"	4.03	4.03	0.4
HW–1	9.5" CL I	34'	20'	19"	8.29	7.51	0.8

RIPRAP OUTLET PROTECTION DETAIL

NO SCALE



SUPER-SILT FENCE OUTFALL PROTECTION

SCALE: NO SCALE

DETAIL 18 – SEDIMENT BASIN BAFFLES

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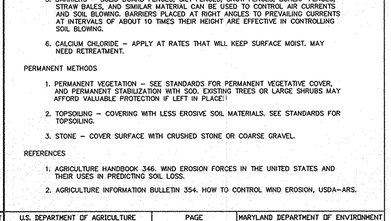
DETAIL 20A – REMOVABLE PUMPING STATIION



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 6" slits 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.

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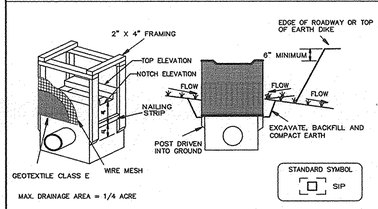
DETAIL 23A – STANDARD INLET PROTECTION



Construction Specifications

1. Excavate completely around the inlet to a depth of 18" below the notch elevation.

2. Drive the 2" x 4" construction grade lumber posts 1' into the ground at each corner of the inlet. Place nail strips between the posts on the ends of the inlet. Assemble the top portion of the 2" x 4" frame using the overlap joint shown on Detail 23A. The top of the frame (weir) must be 6" below adjacent roadways where flooding and safety issues may arise.

3. Stretch the 1/2" x 1/2" wire mesh tightly around the frame and fasten securely. The ends must meet and overlap at a post.

4. Stretch the Geotextile Class E tightly over the wire mesh with the geotxtile extending from the top of the frame to 18" below the inlet notch elevation. Fasten the geotextile firmly to the frame. The ends of the geotextile must meet at a post, be overlapped and folded, then fastened down.

5. Backfill around the inlet in compacted 6" layers until the layer of earth is level with the notch elevation on the ends and top elevation on the sides.

6. If the inlet is not in a sump, construct a compacted earth dike across the ditch line directly below it. The top of the earth dike should be at least 6" higher than the top of the frame.

7. The structure must be inspected periodically and after each rain and the geotextile replaced when it becomes clogged.

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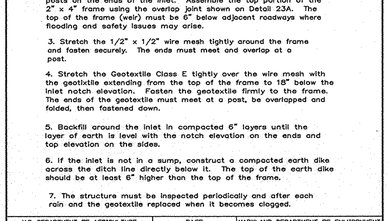
DETAIL 23C – CURB INLET PROTECTION



Construction Specifications

1. Attach a continuous piece of wire mesh (30" minimum width by throat length plus 4') to the 2" x 4" weir (measuring throat length plus 2') as shown on the standard drawing.

2. Place a continuous piece of Geotextile Class E the same dimensions as the wire mesh over the wire mesh and securely attach it to the 2" x 4" weir.

3. Securely nail the 2" X 4" weir to a 9" long vertical spacer to be located between the weir and the inlet face (max. 4' apart).

4. Place the assembly against the inlet throat and nail (minimum 2' lengths of 2" x 4" to the top of the weir at spacer locations). These 2" x 4" anchors shall extend across the inlet top and be held in place by sandbags or alternate weight.

5. The assembly shall be placed so that the end spacers are a minimum 1' beyond both ends of the throat opening.

6. Form the 1/2 " x 1/2 " wire mesh and the geotextile fabric to the concrete gutter and against the face of the curb on both sides of the inlet. Place clean 3/4 " x 1 1/2 " stone over the wire mesh and geotextile in such a manner to prevent water from entering the inlet under or around the geotextile.

7. This type of protection must be inspected frequently and the filter cloth and stone replaced when clogged with sediment.

8. Assure that storm flow does not bypass the inlet by installing a temporary earth or asphalt dike to direct the flow to the inlet.

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MD-378 STANDARDS AND SPECIFICATIONS

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. Channel 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, stone 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 GC, SC, CH, or CL and must have at least 30% passing the #200 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.

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 encroached 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 the equipment or compaction shall be achieved by a minimum of four complete passes of a sheepsfoot, rubber tire 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 lager 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).

Cutoff 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 compacted with construction equipment, rollers, or hand tampers to assure maximum density and maximum 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 fill completely all spaces under and adjacent to the pipe. At no time during the backfilling operation shall driven equipment be allowed to operate closer than four feet, measured horizontally, to any part of a structure. Under no circumstances shall 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 2000 ohm-cm. Material shall be placed such that a minimum of 6" (measured perpendicular to the pipe) of flowable fill shall be under (bedding), over and, on the sides of the pipe. It only needs to extend up to the spring line for rigid conduits. Average slump of the fill shall be 7" to assure flowability of the material. Adequate measures shall be taken (sand bags, etc.) to prevent floating the pipe. When using flowable fill, all metal pipe shall be bituminous coated. Any adjoinig soil fill shall be placed in horizontal layers not to exceed four inched 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 that 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 (10mil) 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 Specifications 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.

   Materials - (Aluminum Pipe) - This pipe and its appurtenances shall conform to to the requirements of AASHTO Specifications 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 the need 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 mat be used for connections. the pH of the surrounding soils shall be between 4 and 9.

2. Coupling bands, anti-seep collars, and sections, etc., must be composed of the same material and coted as the pipe. Metals must be insulated from dissimilar materials with use of rubber or plastic insulating materials at 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 band width. The following type connections are acceptable for pipes less than 24" in diameter; Flanges on both ends of the pipe with a circular 3/8 inch closed cell neoprene gasket, prepunched to the flange bolt circle, sandwiched between adjacent flanges; a 12 inch wide standard lap type band with 12 inch wide by 3/8 inch thick closed cell circular neoprene gasket; and a 12 inch wide 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 lugs, 2 on each connecting pipe ends. A 24 inch wide by 3/8 inch thick closed cell circular neoprene gasket will be installed with 12 inch 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 Designation C-361.

2. Bedding - All 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 side 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 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 requirements of AASHTO M252 Type S, and 12" through 24" shall meet the requirements of AASHTO M294 Type S.

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.

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

STABILIZATION

All borrow areas shall be graded to provide proper drainage and left in a sightly condition. All exposed surfaces of the embankments, 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.

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

TEMPORARY SEEDING NOTES

Apply to graded or cleared areas likely to be redisturbed where a short-term vegetative cover is needed.

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

Soil Amendments : Apply 600 lbs. per acre 10-10-10 fertilizer (14 lbs. per 1000 sq.ft.).

Seeding : For the period March 1 thru April 30 and from August 15 thru November 15, seed with 2-1/2 bushels per acre of annual rye (3.2 lbs. per 1000 sq.ft.). For the period May 1 thru August 14, seed with 25 lbs. per acre of weeping lovegrass (0.07 lbs. per 1000 sq.ft.). For the period November 16 thru February 28, protect site by applying 2 tons per acre of well anchored straw mulch and seed as soon as possible in the spring, or use sod.

Mulching : Apply 1-1/2 to 2 tons per acre (70 to 90 lbs. per 1000 sq.ft.) of unrotted small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 218 gal. per acre (5 gal. per 1000 sq.ft.) of emulsified asphalt on flat areas. On slopes, 8 ft. or higher, use 347 gal. per acre (8 gal. per 1000 sq.ft.) for anchoring.

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

PERMANENT SEEDING NOTES

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

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

Soil Amendments : In lieu of soil test recommendations, use one of the following schedules :

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

2) Acceptable - Apply 2 tons per acre dolomitic limestone (92 lbs. per 1000 sq.ft.) and 1000 lbs. per acre 10-10-10 fertilizer (23 lbs. per 1000 sq.ft.) before seeding. Harrow or disc into upper three inches of soil.

Seeding : For the period March 1 thru April 30 and from August 1 thru October 15, seed with 60 lbs. per acre (1.4 lbs. per 1000 sq.ft.) of Kentucky 31 Tall Fescue. For the period May 1 thru July 31, seed with 60 lbs. Kentucky 31 Tall Fescue per acre and 2 lbs. per acre (0.05 lbs. per 1000 sq.ft.) of weeping lovegrass. During the period October 16 thru February 28, protect site by one of the following options :

1) 2 tons per acre of well-anchored mulch straw and seed as soon as possible in the spring.

2) Use sod.

3) Seed with 60 lbs. per acre Kentucky 31 Tall Fescue and mulch with 2 tons per acre well anchored straw.

Mulching : Apply 1-1/2 to 2 tons per acre (70 to 90 lbs. per 1000 sq.ft.) of unrotted small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 218 gal. per acre (5 gal. per 1000 sq.ft.) of emulsified asphalt on flat areas. On slopes, 8 ft. or higher, use 347 gal. per acre (8 gal. per 1000 sq.ft.) for anchoring.

Maintenance : Inspect all seeded areas and make needed repairs, replacements and reseedings.

OPERATION, MAINTENANCE AND INSPECTION

INSPECTION OF THE POND SHOWN HEREON SHALL BE PERFORMED AT LEAST ONCE ANNUALLY, IN ACCORDANCE WITH THE CHECKLIST AND REQUIREMENTS CONTAINED WITHIN USDA, SCS "STANDARDS AND SPECIFICATION FOR PONDS" (MD378). THE POND OWNER AND ANY HEIRS, SUCCESSORS, OR ASSIGNS SHALL BE RESPONSIBLE FOR THE SAFETY OF THE POND AND THE CONTINUED OPERATION, SURVEILLANCE, INSPECTION, AND MAINTENANCE THEREOF. THE POND OWNER SHALL PROMPTLY NOTIFY THE SOIL CONSERVATION DISTRICT OF ANY UNUSUAL OBSERVATIONS THAT MAY BE INDICATIONS OF DISTRESS SUCH AS EXCESSIVE SEEPAGE, TURBID SEEPAGE, SLIDING OR SLUMPING.

21.0 STANDARD AND SPECIFICATIONS FOR TOPSOIL

Definition

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

Purpose

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

Conditions Where Practice Applies

I. This practice is limited to areas having 2:1 or flatter slopes where:
   a. The texture of the exposed subsoil/parent material is not adequate to produce vegetative growth.
   b. The soil material is so shallow that the rooting zone is not deep enough to support plants or furnish continuing supplies of moisture and plant nutrients.
   c. The original soil to be vegetated contains material toxic to plant growth.
   d. The soil is so acidic that treatment with limestone is not feasible.

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

Construction and Material Specifications

I. Topsoil salvaged from the existing site may be used provided that it meets the standards as set forth in these specifications. Typically, the depth of topsoil to be salvaged for a given soil type can be found in the representative soil profile section in the Soil Survey published by USDA-SCS in cooperation with Maryland Agricultural Experimentation Station.

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

   I. Topsoil shall be a loam, sandy loam, clay loam, silt loam, sandy clay loam, loamy sand. Other soils may be used if recommended by an agronomist or soil scientist and approved by the appropriate approval authority. Regardless, topsoil shall not be a mixture of contrasting textured subsoils and shall contain less than 5% by volume of cinders, stones, slag, coarse fragments, gravel, sticks, roots, trash, or other materials larger than 1½" in diameter.

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

   III. Where subsoil is either highly acidic or composed of heavy clays, ground limestone shall be spread at the rate of 4-8 tons/acre (200-400 pounds per 1,000 square feet) prior to the placement of topsoil. Lime shall be distributed uniformly over designated areas and worked into the soil in conjunction with tillage operations as described in the following procedures.

III. For sites having disturbed areas under 5 acres:
   1. Place topsoil (if required) and apply soil amendments as specified in 20.0 Vegetative Stabilization - Section I - Vegetative Stabilization Methods and Materials.

IV. For sites having disturbed areas over 5 acres:

   I. On soil meeting Topsoil specifications, obtain test results dictating fertilizer and lime amendments required to bring the soil into compliance with the following:
      a. pH for topsoil shall be between 6.0 and 7.5. If the tested soil demonstrates a pH of less than 6.0, sufficient lime shall be prescribed to raise the pH to 6.5 or higher.
      b. Organic content of topsoil shall be not less than 1.5 percent by weight.
      c. Topsoil having soluble salt content greater than 500 parts per million shall not be used.
      d. No sod or seed shall be placed on soil which has been treated with soil sterilants or chemicals used for weed control until sufficient time has elapsed (14 days min.) to permit dissipation of phyto-toxic materials.

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

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

V. Topsoil Application

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

   II. Grades on the areas to be topsoiled, which have been previously established, shall be maintained, albeit 4" - 8" higher in elevation.

   III. Topsoil shall be uniformly distributed in a 4" - 8" layer and lightly compacted to a minimum thickness of 4". Spreading shall be performed in such a manner that sodding or seeding can proceed with a minimum of additional soil preparation and tillage. Any irregularities in the surface resulting from topsoiling or other operations shall be corrected in order to prevent the formation of depressions or water pockets.

   IV. Topsoil shall not be placed while the topsoil or subsoil is in a frozen or muddy condition, when the subsoil is excessively wet or in a condition that may otherwise be detrimental to proper grading and seedbed preparation.

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

   I. Composted Sludge Material for use as a soil conditioner for sites having disturbed areas over 5 acres shall be tested to prescribe amendments and for site having disturbed areas under 5 acres shall conform to the following requirements:
      a. Composted sludge shall be supplied by, or originate from, a person or persons that are permitted (at the time of acquisition of the compost) by the Maryland Department of the Environment under COMAR 26.04.06.
      b. Composted sludge shall contain at least 1 percent nitrogen, 1.5 percent phosphorus, and 0.2 percent potassium and have a pH of 7.0 to 8.0. If compost does not meet these requirements, the appropriate constituents must be added to meet the requirements prior to use.
      c. Composted sludge shall be applied at a rate of 1 ton/1,000 square feet.
      d. Composted sludge shall be amended with a potassium fertilizer applied at the rate of 4 lb/1,000 square feet, and 1/3 the normal lime application rate.

References: Guideline Specifications, Soil Preparation and Sodding. MD-VA, Pub. #1, Cooperative Extension Service, University of Maryland and Virginia Polytechnic Institutes. Revised 1973.

STANDARD SEDIMENT CONTROL NOTES

1. A MINIMUM OF 48 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY DEPARTMENT OF INSPECTIONS, LICENSES AND PERMITS, SEDIMENT CONTROL DIVISION PRIOR TO THE START OF ANY CONSTRUCTION (313-1855).
2. ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL AND REVISIONS THERETO.
3. FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN: A) 7 CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DIKES, PERIMETER SLOPES, AND ALL SLOPES STEEPER THAN 3:1, B) 14 DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.
4. ALL SEDIMENT TRAPS/BASINS SHOWN MUST BE FENCED AND WARNING SIGNS POSTED AROUND THE PERIMETER IN ACCORDANCE WITH VOL. 1, CHAPTER 7, OF THE HOWARD COUNTY DESIGN MANUAL, STORM DRAINAGE.
5. ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR PERMANENT SEEDING, SOD, TEMPORARY SEEDING, AND MULCHING (SEC. 6.). TEMPORARY STABILIZATION WITH MULCH ALONE SHALL ONLY BE DONE WHEN RECOMMENDED SEEDING DATES DO NOT ALLOW FOR PROPER GERMINATION AND ESTABLISHED OF GRASSES.
6. ALL SEDIMENT CONTROL STRUCTURES ARE TO REMAIN IN PLACE AND ARE TO BE MAINTAINED IN OPERATIVE CONDITION UNTIL PERMISSION FOR THEIR REMOVAL HAS BEEN OBTAINED FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
7. SITE ANALYSIS:

TOTAL AREA OF SITE	2.97 ACRES
AREA DISTURBED	3.4 ACRES
AREA TO BE ROOFED OR PAVED	0.5 ACRES
AREA TO BE VEGETATIVELY STABILIZED	2.9 ACRES
TOTAL CUT	6550 CY
TOTAL FILL	4850 CY
OFFSITE WASTE AREA LOCATION TO HAVE ACTIVE GRADING PERMIT.	

*QUANTITIES ARE FOR COUNTY FEE PURPOSES ONLY. CONTRACTOR IS RESPONSIBLE FOR VERIFICATION OF ACTUAL QUANTITIES.

8. ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.
9. ADDITIONAL SEDIMENT CONTROLS MUST BE PROVIDED, IF DEEMED NECESSARY BY THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
10. ON ALL SITES WITH DISTURBED AREAS IN EXCESS OF 2 ACRES, APPROVAL OF THE INSPECTION AGENCY SHALL BE REQUESTED UPON COMPLETION OF INSTALLATION OF PERIMETER EROSION AND SEDIMENT CONTROLS, BUT BEFORE PROCEEDING WITH ANY OTHER EARTH DISTURBANCE OR GRADING. OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THIS INITIAL APPROVAL BY THE INSPECTION AGENCY IS MADE.
11. TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THREE PIPE LENGTHS OR THAT WHICH SHALL BE BACK-FILLED AND STABILIZED WITHIN ONE WORKING DAY, WHICHEVER IS SHORTER.
12. SITE GRADING WILL BEGIN ONLY AFTER ALL PERIMETER SEDIMENT CONTROL MEASURES HAVE BEEN INSTALLED AND ARE IN A FUNCTIONING CONDITION.
13. SEDIMENT WILL BE REMOVED FROM TRAPS WHEN ITS DEPTH REACHES CLEAN OUT ELEVATION SHOWN ON THE PLANS.
14. CUT AND FILL QUANTITIES PROVIDED UNDER SITE ANALYSIS DO NOT REPRESENT BID QUANTITIES. THESE QUANTITIES DO NOT DISTINGUISH BETWEEN TOPSOIL, STRUCTURAL FILL OR EMBANKMENT MATERIAL, NOR DO THEY REFLECT CONSIDERATION OF UNDERCUTTING OR REMOVAL OF UNSUITABLE MATERIAL. THE CONTRACTOR SHALL FAMILIARIZE HIMSELF WITH SITE CONDITIONS WHICH MAY AFFECT THE WORK.

OPERATION AND MAINTENANCE SCHEDULE FOR HOMEOWNERS ASSOCIATION OWNED AND JOINTLY MAINTAINED STORMWATER MANAGEMENT PONDS (P-1 THROUGH P-5)

ROUTINE MAINTENANCE BY HOA:

1. TOP AND SIDE SLOPES OF THE EMBANKMENT SHALL BE MOWED A MINIMUM OF TWO (2) TIMES PER YEAR, ONCE IN JUNE AND ONCE IN SEPTEMBER. OTHER SIDE SLOPES AND MAINTENANCE ACCESS SHALL BE MOWED AS NEEDED.
2. DEBRIS AND LITTER SHALL BE REMOVED DURING REGULAR MOWING OPERATIONS AND AS NEEDED.
3. WHEN DEEMED NECESSARY FOR AESTHETIC REASONS, AND UPON APPROVAL FROM THE DEPARTMENT OF PUBLIC WORKS, SEDIMENT SHALL BE REMOVED FROM THE POND.
4. VISIBLE SIGNS OF EROSION IN THE POND AS WELL AS RIPRAP 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 SHOULD BE INSPECTED DURING ROUTINE MAINTENANCE OPERATIONS.
2. SEDIMENT SHOULD BE REMOVED WHEN ITS ACCUMULATION SIGNIFICANTLY REDUCES THE DESIGN STORAGE, INTERFERE WITH THE FUNCTION OF THE RISER, WHEN DEEMED NECESSARY FOR AESTHETIC REASONS, OR WHEN DEEMED NECESSARY BY THE HOWARD COUNTY'S DEPARTMENT OF PUBLIC WORKS.

SEQUENCE OF CONSTRUCTION

1. OBTAIN GRADING PERMIT.
2. INSTALL STABILIZED CONSTRUCTION ENTRANCE, SILT FENCE, SUPER SILT FENCE, AND BYPASS SWALE. CONTRACTOR TO CONSTRUCT ONLY THE PORTION OF THE SWALE THAT DOES NOT DRAIN INTO THE BASIN AND IS TO STABILIZE BYPASS SWALE IMMEDIATELY.
3. INSTALL SEDIMENT BASIN. (3 WEEKS).
4. UPON ACCEPTANCE BY THE COUNTY INSPECTOR, CONTRACTOR TO PROCEED WITH ROUGH GRADING OF ENTIRE SITE. (1 WEEK) CONTRACTOR TO PROVIDE DUST CONTROL AS NECESSARY AND AS DIRECTED BY THE INSPECTOR.
5. INSTALL WATER, SEWER AND STORM DRAINS AS SUBGRADE ELEVATIONS ARE REACHED. (3 WEEKS)
6. INSTALL CURB AND GUTTER AND PAVE. (1 WEEK)
7. PERFORM FINE GRADING, SIDEWALK, LIGHTING AND LANDSCAPING. (1 WEEK)
8. APPLY TOPSOIL AND STABILIZE DISTURBED AREAS IN ACCORDANCE WITH PERMANENT SEEDING NOTES. (2 WEEKS)
9. UPON PERMISSION OF COUNTY SEDIMENT CONTROL INSPECTOR, REMOVE ALL REMAINING SEDIMENT CONTROL DEVICES AND CONVERT SEDIMENT BASINS TO PERMANENT STORM WATER MANAGEMENT FACILITIES. CONVERT FACILITY IN THE FOLLOWING STEPS:
   A. PUMP OUT STANDING WATER IN BASIN USING PUMPING STATION. (2 DAYS)
   B. REMOVE ACCUMULATED SEDIMENT. (2 DAYS)
   C. REMOVE TEMPORARY DRAW DOWN DEVICE AND PLYWOOD. (1 DAY)
   D. INSTALL POND DRAIN AND ORIFICE METAL PLATE. (3 DAYS)
   E. INSTALL FOREBAY AND CLAY LINER. (5 DAYS)
   F. STABILIZE REMAINING DISTURBED AREAS IN ACCORDANCE WITH PERMANENT SEEDING NOTES. (3 DAYS)

AS-BUILT CERTIFICATION

STATE OF MARYLAND — DOMENICK W. COLANGELO — NO. 27200 — REGISTERED PROFESSIONAL ENGINEER

9/30/07
DOMENICK COLANGELO #27200 — DATE

BY THE DEVELOPER :

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

6/7/05
DEVELOPER — DATE

BY THE ENGINEER :

I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

6.07.05
ENGINEER — DATE

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SOIL EROSION AND SEDIMENT CONTROL.

6/16/05
NATURAL RESOURCES CONSERVATION SERVICE — DATE

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

6/16/05
HOWARD SOIL CONSERVATION DISTRICT — DATE

APPROVED : HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.

7-6-05
CHIEF, BUREAU OF HIGHWAYS — DATE

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

7/7/05
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE

7/12/05
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

DATE	NO.	REVISION

OWNER
ARBOR MEADOWS, LLC
c/o BRIAN D. BOY
11807 WOLLINGFORD COURT
CLARKSVILLE, MARYLAND 21029-1731

DEVELOPER
CORNERSTONE HOLDINGS, LLC
ATTN: BRIAN BOY
9691 NORFOLK AVENUE
LAUREL, MD 20723
(410) 792-2565

PROJECT
ARBOR MEADOWS

AREA
TAX MAP 37, GRID 14
PARCEL 253 AND 426 ZONING R-12
6TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE
NOTES

Patton Harris Rust & Associates, pc
Engineers. Surveyors. Planners. Landscape Architects.
PHR+A
8818 Centre Park Drive
Columbia, MD 21045
T 410.997.8900
F 410.997.9282

6.07.05
DATE

STATE OF MARYLAND — AIMEE C. REMINGTON — NO. 29923 — REGISTERED PROFESSIONAL ENGINEER

AIMEE C. REMINGTON #29923

DESIGNED BY :	ACR
DRAWN BY:	DAM
PROJECT NO:	11906/1-0/FINALS C900DET2.DWG
DATE :	JUNE 7, 2005
SCALE :	AS SHOWN
DRAWING NO.	5 OF 10

F-05-086

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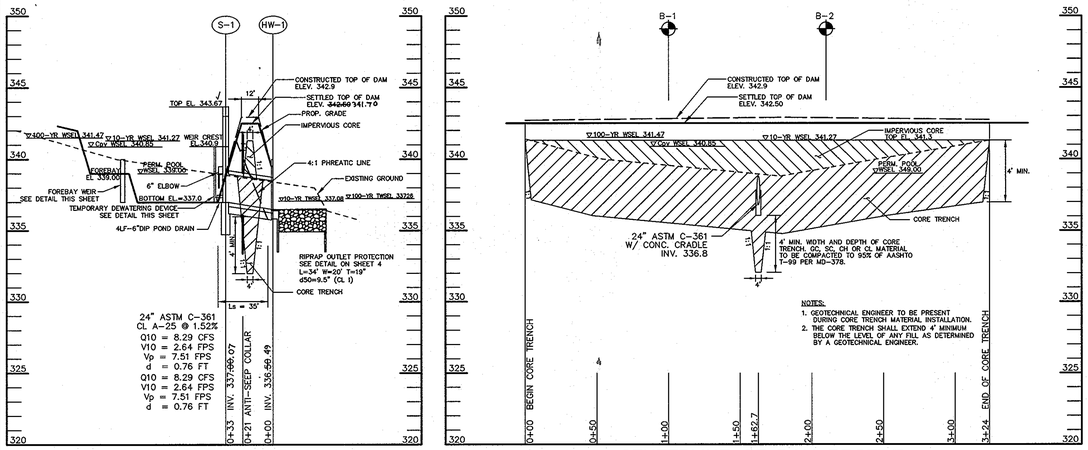
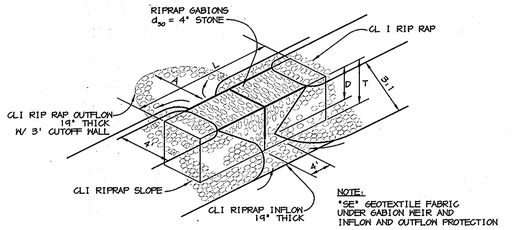


PROFILE THRU SPILLWAY

SCALE :
HOR.-1"=50'
VERT.-1"=5'

CENTERLINE OF DAM PROFILE

SCALE :
HOR.-1"=50'
VERT.-1"=5'



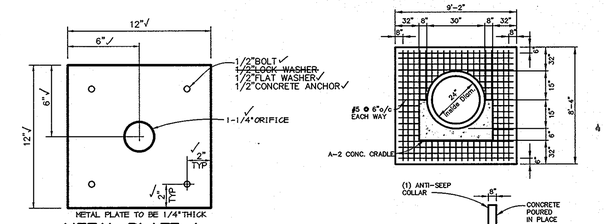
NOTE:
SE GEOTEXTILE FABRIC UNDER GABION WEIR AND INFLOW AND OUTFLOW PROTECTION

FOREBAY WEIR CHART

POND	GABIONS	TOP EL.	D	L	T	A
1	3-9'X3'X3'	340.0	1.0'	27'	3.0'	16'

FOREBAY WEIR DETAIL

NO SCALE

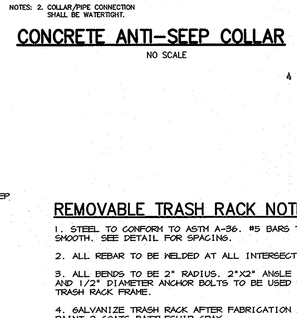


METAL PLATE TO BE 1/4"THICK

METAL PLATE A

SCALE 1"=6"

GALVANIZE METAL PLATE AFTER FABRICATION AND PAINT BATTLESHIP GRAY.

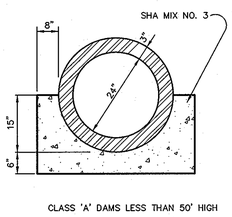


NOTES: 1. LOCATE COLLAR A MINIMUM OF TWO FEET FROM PIPE JOINT.

NOTES: 2. COLLAR/PIPE CONNECTION SHALL BE WATERTIGHT.

CONCRETE ANTI-SEEP COLLAR

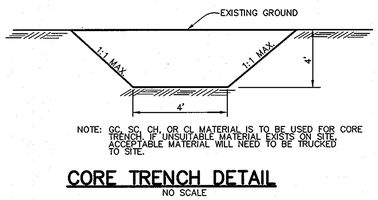
NO SCALE



CLASS 'A' DAMS LESS THAN 50' HIGH

A-2 CONCRETE CRADLE

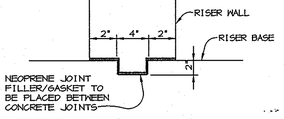
NO SCALE



NOTE: GC, SC, CH, OR CL MATERIAL IS TO BE USED FOR CORE TRENCH IF UNSUITABLE MATERIAL EXISTS ON SITE. ACCEPTABLE MATERIAL WILL NEED TO BE TRUCKED TO SITE.

CORE TRENCH DETAIL

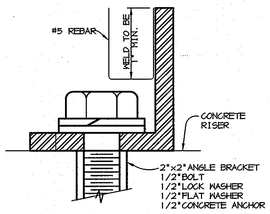
NO SCALE



NEOPRENE JOINT FILLER/GASKET TO BE PLACED BETWEEN CONCRETE JOINTS

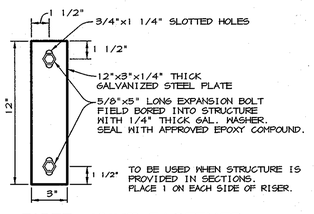
TYPICAL KEY JOINT DETAIL

NO SCALE



ENLARGEMENT A

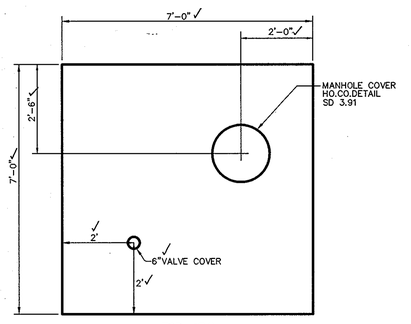
NO SCALE



TO BE USED WHEN STRUCTURE IS PROVIDED IN SECTIONS. PLACE 1 ON EACH SIDE OF RISER.

RISER JOINT FASTENER

NO SCALE



TOP VIEW

RISER STRUCTURE NOTES

1. RISER TO BE CAST-IN-PLACE. SHOP DRAWINGS FOR ALL CONCRETE STRUCTURES SHALL MEET THE MINIMUM ASTM REQUIREMENTS FOR CAST-IN-PLACE STRUCTURES. A SHOP DRAWING SHALL BE SUBMITTED TO THE ENGINEER PRIOR TO FABRICATION AND SHALL BE SIGNED AND SEALED BY A MARYLAND REGISTERED PROFESSIONAL ENGINEER.

2. CONCRETE SHALL BE MSHA MIX NO. 3 (fc=3,500 psi MINIMUM)

3. REFER TO HOWARD COUNTY STD. 6-5.21 FOR MANHOLE STEP DETAILS.

4. ALL PIPE CONNECTIONS SHALL PROVIDE RUBBER GASKET FOR WATERTIGHTNESS.

5. RISER SHALL BE PLACED ON A FIRMLY COMPACTED SUBGRADE AND SHALL BE APPROVED BY A GEOTECHNICAL ENGINEER.

6. ALL 6" BUTTERFLY VALVE SHALL BE CONNECTED TO THE RISER WALL WITH ALL-THREADED ROD AND A FLANGE JOINT.

7. PROVIDE SUPPORT OF GALV. STEEL ELBOWS TO PREVENT SAGGING. AN ACCEPTABLE METHOD IS TO STAKEOUT BOTH SIDES OF STEEL ELBOW WITH 1" STEEL ANGLE OR 1" BY 4" SQUARE OR 2" ROUND STEEL POSTS SET 3 FEET MIN. INTO GROUND THE JOINING THEM TO THE ELBOW BY WRAPPING WITH 12 GAUGE MIN. WIRE.

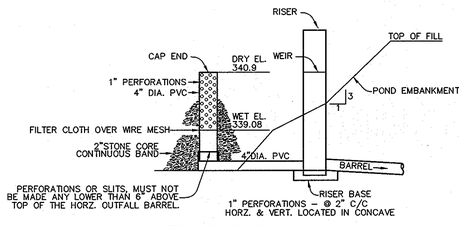
REMOVABLE TRASH RACK NOTES:

1. STEEL TO CONFORM TO ASTM A-36. #5 BARS TO BE SMOOTH. SEE DETAIL FOR SPACING.

2. ALL REBAR TO BE WELDED AT ALL INTERSECTIONS.

3. ALL BENDS TO BE 2" RADIUS. 2"X2" ANGLE IRON AND 1/2" DIAMETER ANCHOR BOLTS TO BE USED FOR TRASH RACK FRAME.

4. GALVANIZE TRASH RACK AFTER FABRICATION AND PAINT 2-COATS BATTLESHIP GRAY.



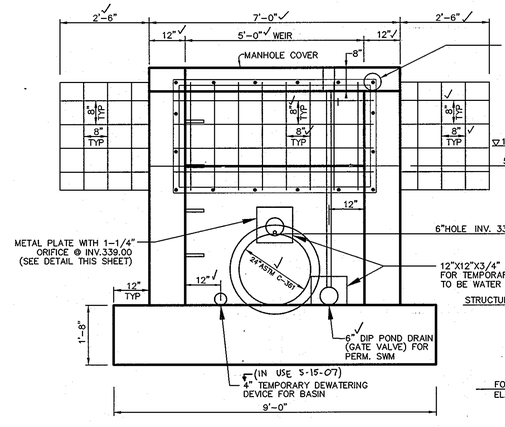
SEDIMENT BASIN - 4" TEMPORARY DEWATERING DEVICE

NO SCALE

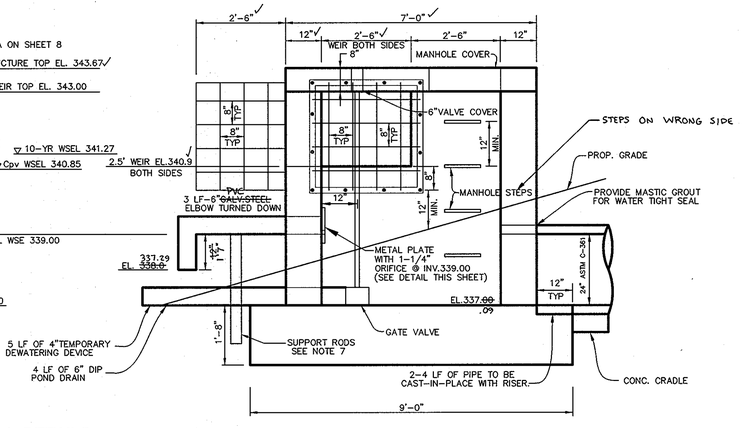
1. PERFORATIONS ON THE DRAW-DOWN DEVICE MAY NOT EXTEND INTO THE WET STORAGE.

2. THE TOTAL AREA OF THE PERFORATIONS MUST BE GREATER THAN 4 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.



FRONT VIEW



SIDE VIEW

S-1 DETAILS

SCALE 1"=2'

NOTE:

SEE HO.CO STANDARD DETAIL SD 4.41 FOR REINFORCEMENT.

AS-BUILT CERTIFICATION

STATE OF MARYLAND
DOMINICK W. COLANGELO
NO. 27200
REGISTERED
PROFESSIONAL ENGINEER

DOMENICK COLANGELO #27200 — 9/20/07 DATE

BY THE DEVELOPER :

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

DEVELOPER — 6/1/05 DATE

BY THE ENGINEER :

I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

Aimee C. Remington — 6.07.05
ENGINEER — DATE

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SOIL EROSION AND SEDIMENT CONTROL.

NATURAL RESOURCES CONSERVATION SERVICE — 6/16/05 DATE

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

HOWARD SOIL CONSERVATION DISTRICT — 6/16/05 DATE

APPROVED : HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.

CHIEF, BUREAU OF HIGHWAYS — 7-6-05 DATE

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

CHIEF, DIVISION OF LAND DEVELOPMENT — 7/14/05 DATE

CHIEF, DEVELOPMENT ENGINEERING DIVISION — 7/12/05 DATE

DATE	NO.	REVISION

OWNER

ARBOR MEADOWS, LLC
c/o BRIAN D. BOY
11807 WOLLINGFORD COURT
CLARKSVILLE, MARYLAND 21029-1731

DEVELOPER

CORNERSTONE HOLDINGS, LLC
ATTN: BRIAN BOY
9691 NORFOLK AVENUE
LAUREL, MD 20723
(410) 792-2565

PROJECT

ARBOR MEADOWS

AREA — TAX MAP 37, GRID 14
PARCEL 253 AND 426 ZONING R-12
6TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE

SWM DETAILS AND PROFILES

Patton Harris Rust & Associates, pc
Engineers. Surveyors. Planners. Landscape Architects.
8818 Centre Park Drive
Columbia, MD 21045
T 410.997.8900
F 410.997.9282

6.07.05 DATE

STATE OF MARYLAND
AIMEE C. REMINGTON
No. 29923
PROFESSIONAL ENGINEER

AIMEE C. REMINGTON #29923

DESIGNED BY :	ACR
DRAWN BY:	DAM
PROJECT NO:	11906/1-0/FINALS C900DET
DATE :	JUNE 7, 2005
SCALE :	AS SHOWN
DRAWING NO.	6 OF 10

F-05-086

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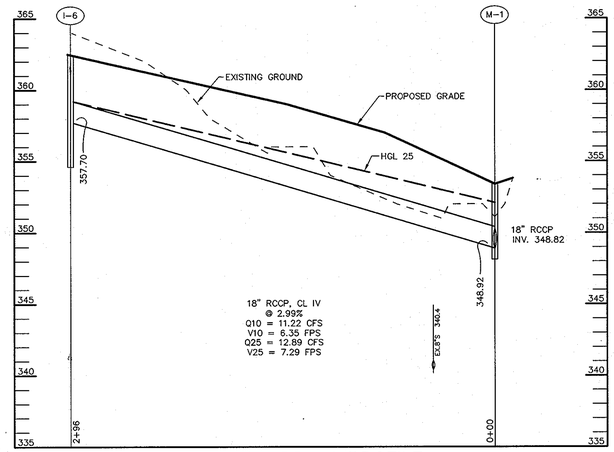
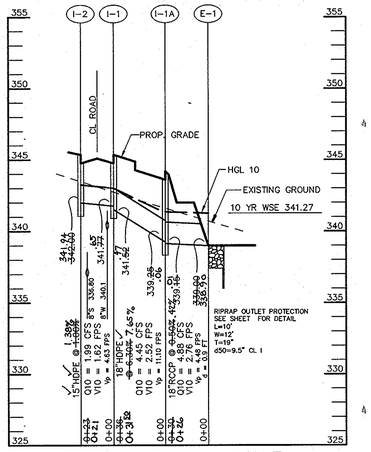


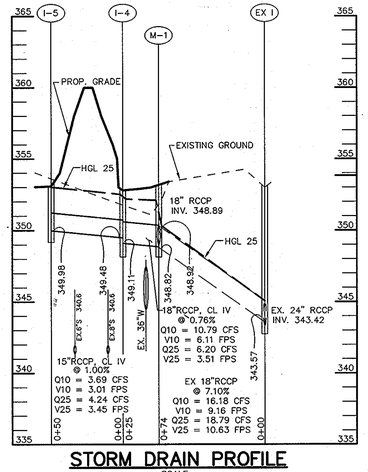
STORM DRAIN PROFILE

SCALE :
HOR.-1"=50'
VERT.-1"=5'



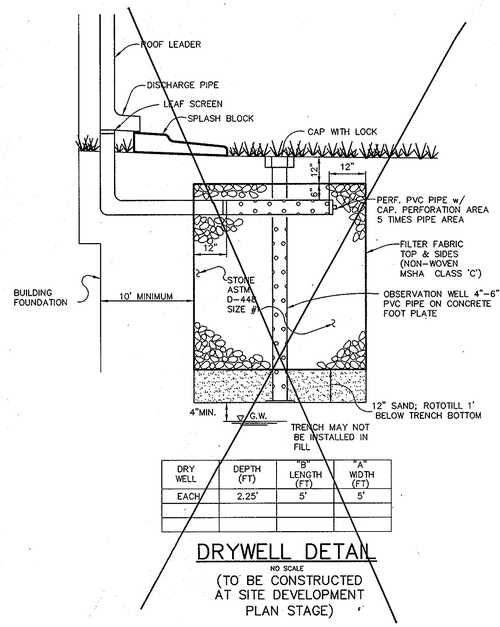
STORM DRAIN PROFILE

SCALE :
HOR.-1"=50'
VERT.-1"=5'



STORM DRAIN PROFILE

SCALE :
HOR.-1"=50'
VERT.-1"=5'



DRY WELL	DEPTH (FT)	"B" LENGTH (FT)	"A" WIDTH (FT)
EACH	2.25'	5'	5'

DRYWELL DETAIL

NO SCALE

(TO BE CONSTRUCTED AT SITE DEVELOPMENT PLAN STAGE)

PIPE SCHEDULE

PIPE LENGTH	SIZE	TYPE
23	15"	HDPE
36	18"	HDPE
345	18"	RCCP
50	15"	RCCP
33	24"	ASTM

STRUCTURE SCHEDULE

STRUCTURE	TYPE	LOCATION	INV. IN	INV. OUT	TOP	REMARKS
E-1	END SECTION	N 557600 E 1370346	-	339.00	-	HOCO. STD. DETAIL SD-5.51
HW-1	TYPE 'A' HEADWALL	N 557477 E 1370323	-	336.50 ✓	-	HOCO STD. DETAIL SD-5.11
S-1	MODIFIED STRUCTURE	N 557506 E 1370341	~~337.17 (15")~~ ~~337.00 (18")~~ 337.00	~~337.06 (24")~~ 337.06	343.67 ✓	SEE SHEET 6
I-1	A-10 INLET	10' RT OF CL STA 3+39	341.~~77~~ 52 (15")	341.52 (18")	~~345.36~~ 45.52	HOCO STD. DETAIL SD-4.40
I-1A	A-5 INLET	N 557630 E 1370349	~~339.48~~ 39.08 (18")	339.15 (18")	~~344.20~~ 43.43	HOCO STD. DETAIL SD-4.40
I-2	A-10 INLET	10' LT OF CL STA 3+39	-	~~341.77~~ 341.93 (15") ~~342.00~~ 342.06 (18")	~~345.36~~ 45.56	HOCO STD. DETAIL SD-4.40
I-3	MODIFIED COG OPENING WITH 5' TROUGH	N 557585 E 1370565	348.8	348.6	349.47	MSHA STD. DETAIL MD-374.68
I-4	K INLET	N 557893 E 1370509	349.48 (15")	349.11 (18")	352.80	MSHA STD. DETAIL MD-378.11
I-4A	MODIFIED COG OPENING WITH 10' TROUGH	N 557898 E 1370523	353.1	352.9	353.77	MSHA STD. DETAIL MD-374.68
I-5	S INLET	N 557938 E 1370489	-	350.25 (15")	353.00	HOCO STD. DETAIL SD-4.22
I-6	K INLET	N 558167 E 1370493	-	357.00 (18")	361.50	MSHA STD. DETAIL MD-378.11
M-1	4' DIA MANHOLE	N 558110 E 1370497	348.92 (18") 348.92 (18")	348.82 (18")	353.00	MSHA STD. DETAIL MD-384.01

AS-BUILT CERTIFICATION

STATE OF MARYLAND · DOMENICK W. COLANGELO · NO. 27200 · REGISTERED PROFESSIONAL ENGINEER

9/20/07
DOMENICK COLANGELO #27200 DATE

APPROVED : HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.

CHIEF, BUREAU OF HIGHWAYS 6-15-06 DATE

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

CHIEF, DIVISION OF LAND DEVELOPMENT JA 6/20/06 DATE

CHIEF, DEVELOPMENT ENGINEERING DIVISION 6/20/06 DATE

DATE	NO.	REVISION
05/01/06	1	REVISED STORM DRAIN PROFILE, STRUCTURE & PIPE SCHEDULE

OWNER

ARBOR MEADOWS, LLC
c/o BRIAN D. BOY
11807 WOLLINGFORD COURT
CLARKSVILLE, MARYLAND 21029-1731

DEVELOPER

CORNERSTONE HOLDINGS, LLC
ATTN: BRIAN BOY
9691 NORFOLK AVENUE
LAUREL, MD 20723
(410) 792-2565

PROJECT

ARBOR MEADOWS

AREA

TAX MAP 37, GRID 14
PARCEL 253 AND 426 ZONING R-12
6TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE

REVISED FINAL PLAN
PROFILES

Patton Harris Rust & Associates, pc
Engineers. Surveyors. Planners. Landscape Architects.
8818 Centre Park Drive
Columbia, MD 21045
T 410.997.8900
F 410.997.9282

05/03/06 DATE

STATE OF MARYLAND · DOMENICK W. COLANGELO · NO. 27200 · REGISTERED PROFESSIONAL ENGINEER

DOMENICK W. COLANGELO #27200

DESIGNED BY :	ACR
DRAWN BY:	DAM
PROJECT NO:	11906/1-0/FINALS C900DET3.DWG
DATE :	OCTOBER 18, 2005
SCALE :	AS SHOWN
DRAWING NO.	7 OF 10

F-05-086

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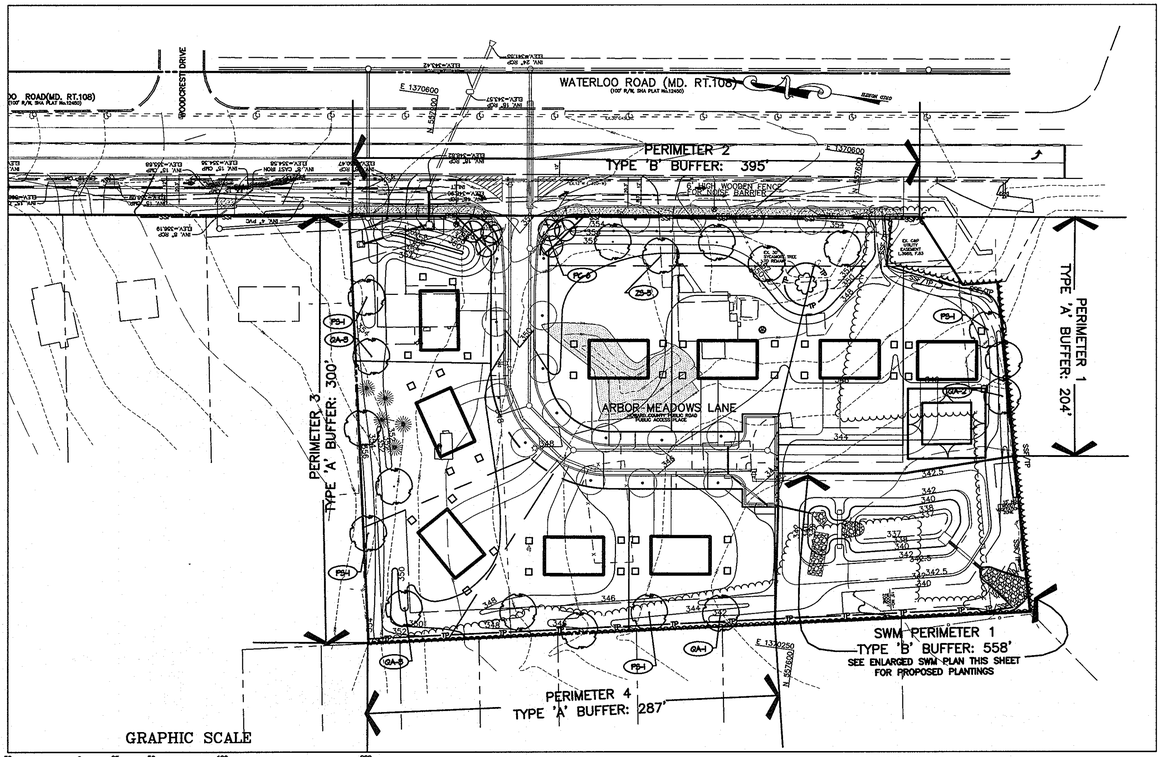
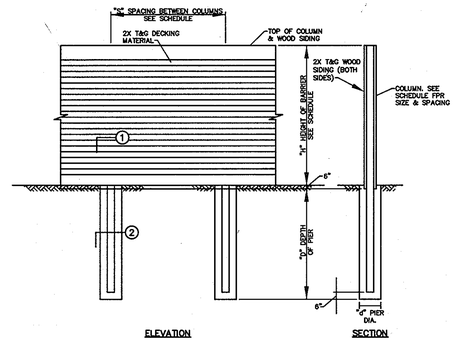


LEGEND

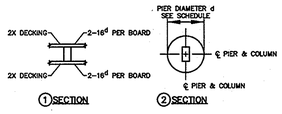
- EX. TREELINE
- PROP. TREELINE
- PROPERTY LINE
- WETLANDS AND 25' BUFFER
- 100-YEAR FLOODPLAIN
- CONTOUR LINES
- EX. BUILDING
- PROP. SHADE TREE
- PROP. EVERGREEN TREE
- PROP. ORNAMENTAL TREE
- PROP. SHRUBS
- PROP. PERENNIALS/ GROUNDCOVERS
- PERIMETER LANDSCAPE REQUIREMENT — AR-3
- SWM POND LANDSCAPE PLANTING — ZS 1
- PERIMETER LANDSCAPE EDGE LIMITS
- TREE PROTECTION FENCE
- PROPOSED STREET TREES



SCHEDULE

40 #/ft HORIZONTAL LOADING

H	S	D	d	POST SIZE
5'	8'	6'	12"	4X8
10'	8'	8'	18"	6X12
15'	8'	10'	24"	8X15
20'	6'	10'	30"	10X16



NOISE WALL DETAIL

NOT TO SCALE

NOTE: THE PROPOSED NOISE WALL IS PRIVATELY OWNED AND SHALL BE MAINTAINED BY THE HOMEOWNERS ASSOCIATION. THE NOISE WALL SHALL BE INSPECTED AND REPAIRED AS NECESSARY AT A MINIMUM OF ONCE A YEAR.

NOTES:

I. GENERAL
A. HEIGHT OF BARRIER SHALL BE BASED ON ACOUSTIC REQUIREMENTS.
B. BARRIER WALLS HAVING A HEIGHT (H) NOT INDICATED IN THE TABLES SHALL BE CONSTRUCTED AS SHOWN IN THE NEXT HIGHER HEIGHT CATEGORY.

II. SIDING
A. 2X WOOD DECKING MATERIAL SHALL BE UTILIZED TO SPAN HORIZONTALLY BETWEEN POSTS. DESIGN CRITERIA IS BASED ON AN ALLOWABLE BENDING STRESS OF 1400 LBS. PER SQ. IN. AND 33⅓% INCREASE IN STRESS FOR WIND LOADS AS CONSIDERED APPROPRIATE. DECKING SHALL BE MGS.
B. SIDING IN CONTACT WITH THE GROUND AND FOR A DISTANCE OF 6" ABOVE GRADE SHALL BE TREATED WITH WOOD PRESERVATIVE.

3. POST
A. WOOD POST SHALL BE UTILIZED OF THE SPACING INDICATED ON THE SCHEDULE. DESIGN CRITERIA IS BASED ON AN ALLOWABLE BENDING STRESS OF 1400 LBS. PER SQ. IN. AND A 33⅓% INCREASE FOR WIND LOADINGS.
B. POST EMBEDDED IN CONCRETE SHALL BE TREATED WITH A WOOD PRESERVATIVE IN THE AREA OF EMBEDMENT AND 12" ABOVE GRADE.

4. CONCRETE
A. CONCRETE IN THE PIERS SHALL HAVE A 28 DAY COMPRESSIVE STRENGTH OF 2500 LBS. PER SQ. IN.
B. CONCRETE SHALL BE PLACED IN DRILLED PIERS UTILIZING THE EARTH AS THE FORMS.

5. FOUNDATIONS
A. THE DRILLED PIERS HAVE BEEN DESIGNED UTILIZING AN ALLOWABLE PASSIVE PRESSURE OF 300 LBS. PER SQ. FT. AND THE FOLLOWING FORMULA:

$$D = \left(\frac{14.52M}{pd}\right)^{\frac{1}{3}}$$

M = MOMENT AT TOP OF DRILLED PIER (FT./LBS.)
P = ALLOWABLE PASSIVE PRESSURE (300 LBS. PER SQ. FT.)
d = DIAMETER OF PIER (FT.)
D = DEPTH OF PIER (FT.)

6. ALTERNATE #1 (PRESERVATIVE TREATMENT). ALTERNATE #1 REPRESENTS THE ADDITIONAL COST FACTOR FOR TREATING THE BASIC WOOD STRUCTURE INDICATED ON THIS REFERENCE PLAN. THE NECESSITY FOR TREATMENT AND THE TYPE OF PRESERVATIVE WILL BE SUBJECT TO LOCAL CONDITIONS. ALL TREATMENTS SHALL CONFORM TO AWPA STANDARD C-14.

7. ALTERNATE #2 (PAINTING) ALTERNATE #2 REPRESENTS THE ADDITIONAL COST FACTOR REQUIRED TO PAINT ONE SIDE OF THE BASIC WOOD STRUCTURE SHOWN ON THIS REFERENCE PLAN. PAINTING SHALL CONSIST OF 3 APPLICATIONS OF PAINT. 2 COATS OF LATEX BASE PAINT CONFORMING TO FEDERAL SPECIFICATION TT-P-00966 SHALL BE APPLIED OVER A PRIMER COAT CONFORMING TO FEDERAL SPECIFICATION TT-P-00250.

8. ALTERNATE #3 (STAINING) ALTERNATE #3 REPRESENTS THE ADDITIONAL COST FACTOR REQUIRED TO STAIN ONE SIDE OF THE BASIC WOOD STRUCTURE. STAIN SHALL CONSIST OF 2 COATS OF SEMI-TRANSPARENT SEALER STAIN APPLIED IN ACCORDANCE WITH MANUFACTURERS WRITTEN INSTRUCTIONS.

9. ALTERNATE #4 (PRESERVATIVE TREATMENT) SHALL BE UTILIZED FOR THIS PROJECT.

AS-BUILT CERTIFICATION

STATE OF MARYLAND — DOMENICK W. COLANGELO — NO. 27200 — REGISTERED PROFESSIONAL ENGINEER

DOMENICK COLANGELO #27200 — DATE 9/20/07

APPROVED : HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.

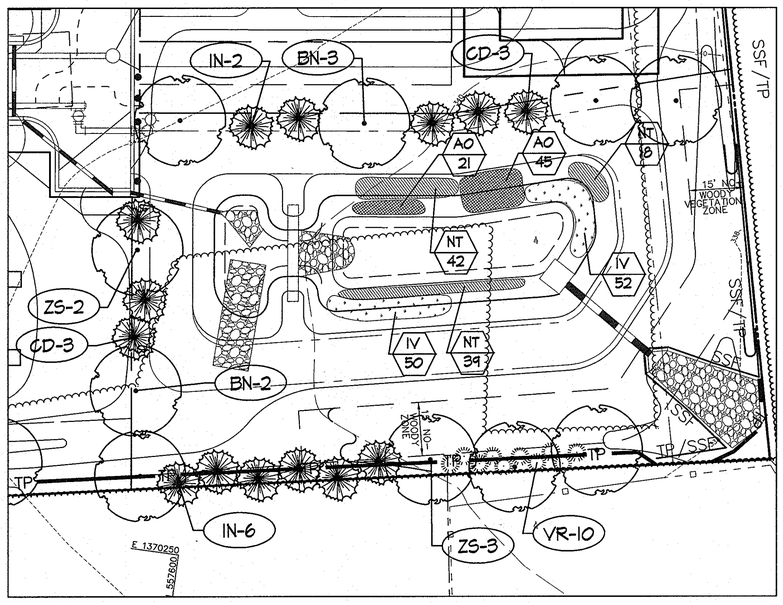
CHIEF, BUREAU OF HIGHWAYS — DATE 6-15-06

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 6/21/06

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 6/20/06

FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING MUST BE POSTED AS PART OF THE GRADING PERMIT IN THE AMOUNT OF $13,200.
32 SHADE TREES @ $300 = $9,600
0 ORNAMENTAL TREES @ $150 = $0
24 EVERGREEN TREES @ $150 = $3,600
0 SHRUBS @ $30 = $0



SCHEDULE A - PERIMETER LANDSCAPE EDGE

	ADJACENT TO ROADWAYS	ADJACENT TO PERIMETER PROPERTIES		
PERIMETER	2	1	3	4
LANDSCAPE TYPE	B	A	A	A
LINEAR FEET OF ROADWAY FRONTAGE/ PERIMETER	395'±	204±	300'±	287'±
CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	NO	NO	NO	NO
CREDIT FOR DRIVE ENTRANCES (YES, NO, LINEAR FEET)	YES 40'±	NO	NO	NO
LINEAR FEET REMAINING	355'±	204'±	300'±	287'±
CREDIT FOR WALL, FENCE, OR BERM (YES/NO/LINEAR FEET)	YES	NO	NO	NO
NUMBER OF PLANTS REQUIRED				
SHADE TREES	8	3	5	5
EVERGREEN TREES	10	0	0	0
SHRUBS	0	0	0	0
NUMBER OF PLANTS PROVIDED				
SHADE TREES	5	3	5	5
EVERGREEN TREES	0**	0	5	5
ORNAMENTAL	6**	0	0	0
SHRUBS	0	0	0	0

SUBSTITUTION NOTES:
PERIMETER 2:* COMBINATION OF FENCE AND BERM ARE TO BE SUBSTITUTED FOR EVERGREEN REQUIREMENT. SEE TYPICAL SECTION THIS SHEET.
** 6 ORNAMENTAL TREES WERE SUBSTITUTED FOR 3 SHADE TREES.

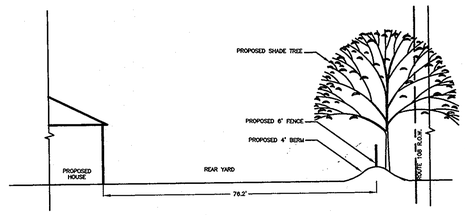
SCHEDULE D-STORMWATER MANAGEMENT PERIMETER LANDSCAPING

S.W.M. POND PERIMETER	1
LANDSCAPE TYPE	B
LINEAR FEET OF TOTAL PERIMETER	558'±
CREDIT FOR EX. VEGETATION (NO OR YES & %)	NO
CREDIT FOR OTHER PROP. LANDSCAPING (NO OR YES & %)	NO
LINEAR FEET OF REMAINING PERIMETER	558'±
NUMBER OF TREES REQUIRED:	
SHADE TREES	11
EVERGREEN TREES	14
NUMBER OF TREES PROVIDED:	
SHADE TREES	10
EVERGREEN TREES	14
SHRUBS	10*

SUBSTITUTION NOTES:
* 10 SHRUBS WERE SUBSTITUTED FOR 1 SHADE TREE.

STREET TREE CALCULATIONS

ROAD A	340'/40	9 LARGE TREES
TOTAL TREES REQUIRED		9 LARGE TREES



PERIMETER #2 TYPICAL SECTION
SCALE: 1" = 20'

PERIMETER PLANT LIST

SYMBOL	QTY.	SCIENTIFIC/ COMMON NAME	SIZE	ROOT	REMARKS
BN	5	BETULA NIGRA 'HERITAGE' HERITAGE RIVER BIRCH	2.5"-3" CAL.	B&B	PLANT AS SHOWN
PS	4	PRUNUS SARGENTII SARGENT CHERRY	2.5"-3" CAL.	B&B	PLANT AS SHOWN
QA	9	QUERCUS ACUTISSIMA SAWTOOTH OAK	2.5"-3" CAL.	B&B	PLANT AS SHOWN
ZS	10	ZELKOVA SERRATA 'VILLAGE GREEN' VILLAGE GREEN JAPANESE ZELKOVA	2.5"-3" CAL.	B&B	PLANT AS SHOWN
PC	6	PRUNUS CERASIFERA ATROPURPUREA 'THUNDERCLOUD' THUNDERCLOUD PURPLELEAF PLUM	1.5"-2" CAL.	B&B	PLANT AS SHOWN
CD	6	CEDRUS DEODORA DEODAR CEDAR	6'-8' HT.	B&B	PLANT AS SHOWN
IN	8	ILEX X 'NELLIE R. STEVENS' NELLIE R. STEVENS HOLLY	6'-8' HT.	B&B	PLANT AS SHOWN
VR	10	VIBURNUM RHYTIDOPYLLUM LEATHERLEAF VIBURNUM	2.5'-3' HT.	B&B	PLANT AS SHOWN

STORMWATER MANAGEMENT POND PLANT LIST

SYMBOL	QTY.	SCIENTIFIC/ COMMON NAME	SIZE	ROOT	REMARKS
AO	66	ALTHAEA OFFICINALIS COMMON MARSH-MALLOW	1 GAL.	CONT.	24 " O.C.
IV	102	IRIS VERSICOLOR 'BLUE FLAG' BLUE FLAG IRIS	1 GAL.	CONT.	24" O.C.
NT	99	NYMPHAEA TUBEROSA WHITE WATER LILY	1 GAL.	CONT.	24" O.C.

DATE	NO.	REVISION
05/01/06	1	REVISED TREE LOCATIONS

OWNER
ARBOR MEADOWS, LLC
c/o BRIAN D. BOY
11807 WOLLINGFORD COURT
CLARKSVILLE, MARYLAND 21029-1731

DEVELOPER
CORNERSTONE HOLDINGS, LLC
ATTN: BRIAN BOY
9691 NORFOLK AVENUE
LAUREL, MD 20723
(410) 792-2565

PROJECT
ARBOR MEADOWS

AREA
TAX MAP 37, GRID 14
PARCEL 253 AND 426 ZONING R-12
6TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE
REVISED FINAL PLAN
FINAL LANDSCAPE PLAN

Patton Harris Rust & Associates, pc
Engineers. Surveyors. Planners. Landscape Architects.
PHR+A
8818 Centre Park Drive
Columbia, MD 21045
T 410.997.8900
F 410.997.9282

STATE OF MARYLAND — SCOTT R. WOLFORD — NO. 797 — REGISTERED LANDSCAPE ARCHITECT

SCOTT R. WOLFORD # 797

DESIGNED BY :	PJS
DRAWN BY:	PJS/KLM
PROJECT NO:	11905/1-0/FINALS FINAL/L200LND.DWG
DATE :	OCTOBER 18, 2005
SCALE :	AS SHOWN
DRAWING NO.	8 OF 10

F-05-086

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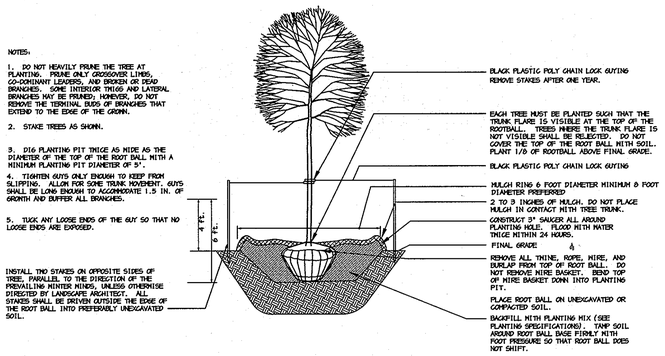
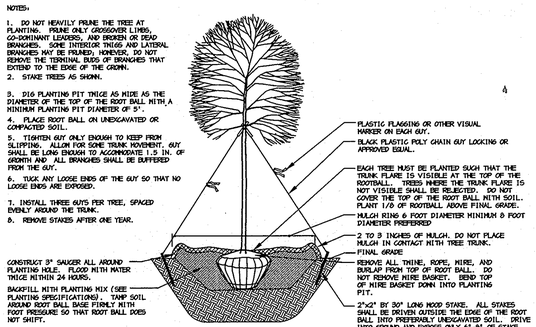


DECIDUOUS B&B TREE PLANTING DETAIL (TREES 3" CAL. OR SMALLER)
NOT TO SCALE



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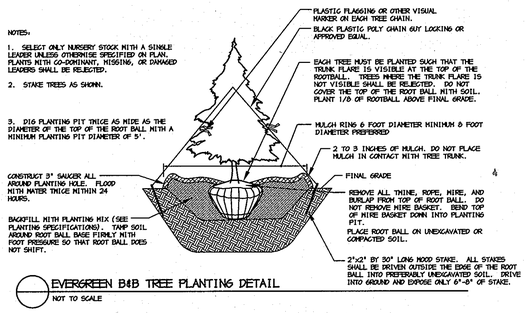
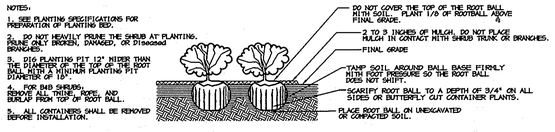
NOT TO SCALE



EVERGREEN B&B TREE PLANTING DETAIL
NOT TO SCALE



SHRUB BED PLANTING DETAIL - B&B AND CONTAINER SHRUBS
NOT TO SCALE

PLANTING SPECIFICATIONS

1. Plants, related material, and operations shall meet the detailed description, as given on the plans and as described herein. Where discrepancies exist between Standards & Guidelines referenced within these specifications and the Howard County Landscape Manual, the latter takes precedence.

2. All plant material, unless otherwise specified, that is not nursery grown, uniformly branched, does not have a vigorous root system, and does not conform to the most recent edition of the American Association of Nurserymen (AAN) Standards will be rejected. Plant material that is not healthy, vigorous, free from defects, decay, disfiguring roots, sunscald injuries, abrasions of the bark, plant disease, insect pest eggs, borers and all forms of insect infestations or objectionable disfigurements will be rejected. 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 be rejected. All B & B plants shall be freshly dug; no healed-in plants or plants from cold storage will be accepted.

3. Unless otherwise specified, all general conditions, planting operations, details and planting specifications shall conform to the most recent edition of the "Landscape Specification Guidelines by the Landscape Contractors Association of MD, DC, & VA", (hereinafter "Landscape Guidelines") approved by the Landscape Contractors Association of Metropolitan Washington and the Potomac Chapter of the American Society of Landscape Architects.

4. Contractor shall guarantee all plant material for a period of one year after date of acceptance in accordance with the appropriate section on 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.

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

6. Protection of existing vegetation to remain shall be accomplished via the temporary installation of 4 foot high snow fence at the drip line, see detail.

7. Contractor is responsible for installing all material in the proper planting season for each plant type. All planting is to be completed within growing season of completion of site construction. Do not plant Pinus strobus or XCupressocyparis leylandii between November 15 and March 15. Landscape plants are not to be installed before site is graded to final grade.

8. Contractor to regrade, fine grade, sod, hydroseed and straw mulch all areas disturbed by their work.

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

10. 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. Where discrepancies on the plan exist between the symbols and the callout leader, the number of symbols take precedence.

11. All shrubs and groundcover areas shall be planted in continuous planting beds, prepared as specified, unless otherwise indicated on plans. (See Specification 13). Beds to be mulched with minimum 2" and maximum 3" of composted, double-shredded hardwood mulch throughout.

12. Positive drainage shall be maintained on planting beds (minimum 2 percent slope).

13. Bed preparation shall be as follows: Till into a minimum depth of 6" 1 yard of Compro or Leafgro per 200 SF of planting bed, and 1 yard of topsoil per 100 SF of bed. Add 3 lbs of standard 5-10-5 fertilizer per cubic yard of planting mix and till. Ericaceous plants (Azaleas, Rhododendrons, etc.): top dress after planting with iron sulfate or comparable product according to package directions. Taxus baccata 'Repandens' (English weeping yews): Top dress after planting with 1/4 to 1/2 cup lime each.

14. Planting mix: For trees not in a prepared bed, mix 50% Compro or Leafgro with 50% soil from tree hole to use as backfill, see tree planting detail.

15. Weed & insect control: Incorporate a pre-emergent herbicide into the planting bed following recommended rates on the label. For tree planting, apply a pre-emergent on top of soil and root ball before mulching. Caution: For areas to be planted with a ground cover, be sure to carefully check the chemical used to assure its adaptability to the specific groundcover to be treated. Maintain the mulch weed-free for the extent of the warranty period. Under no circumstances is a pesticide containing chlorpyrifos to be used as a means of pest control.

16. Water: All plant material planted shall be watered thoroughly the day of planting. All plant material not yet planted shall be properly protected from drying out until planted. At a minimum, water unplanted plant material daily and as necessary to avoid dessication.

17. Pruning: Do not heavily prune trees and shrubs at planting. Prune only broken, dead, or diseased branches.

18. All areas within contract limits disturbed during or prior to construction not designated to receive plants and mulch shall be fine graded, grass seed planted, and covered with straw mulch.

1. THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL.

GENERAL NOTES:

2. FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING MUST BE POSTED AS PART OF THE DEVELOPER'S AGREEMENT IN THE AMOUNT OF $13,200.
32 SHADE TREES @ $300 = $9,600
0 ORNAMENTAL TREES @ $150 = $0
24 EVERGREEN TREES @ $150 = $3,600
0 SHRUBS @ $30 = $0

3. THIS PLAN IS FOR LANDSCAPING PURPOSES ONLY.

4. CONTRACTOR IS SOLELY RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, PROCEDURES, AND SAFETY PRECAUTIONS AND PROGRAMS.

5. ALL MATERIAL SELECTED SHALL BE EQUAL TO OR BETTER THAN THE REQUIREMENTS OF THE "USA STANDARD FOR NURSERY STOCK", LATEST EDITION, AS PUBLISHED BY THE AMERICAN ASSOCIATION OF NURSERYMEN.

6. ALL MATERIAL SHALL BE PLANTED IN ACCORDANCE WITH THE MINIMUM STANDARDS CITED IN THE LATEST EDITION OF "LANDSCAPE SPECIFICATION GUIDELINES" PUBLISHED BY THE LANDSCAPE CONTRACTORS ASSOCIATION.

7. AT THE TIME OF INSTALLATION, ALL SHRUBS AND OTHER PLANTINGS SHALL BE OF THE PROPER HEIGHT AND/OR SPREAD REQUIREMENTS IN ACCORDANCE WITH THIS PLAN AND THE HOWARD COUNTY LANDSCAPE MANUAL.

8. NO SUBSTITUTIONS OR RELOCATION OF PLANTS MAY BE MADE WITHOUT PRIOR APPROVAL FROM THE DEPARTMENT OF PLANNING AND ZONING OF HOWARD COUNTY. ANY DEVIATION FROM THIS LANDSCAPE PLAN MAY RESULT IN A REQUIREMENT FOR SUBMITTAL OF AN OFFICIAL "REDLINE REVISION" TO THE SITE DEVELOPMENT PLAN(S) AND/OR DENIAL IN THE RELEASE OF LANDSCAPE SURETY.

APPROVED : HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.

CHIEF, BUREAU OF HIGHWAYS — DATE 7-6-05

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 7/4/05

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 7/12/05

DATE	NO.	REVISION

OWNER
ARBOR MEADOWS, LLC
c/o BRIAN D. BOY
11807 WOLLINGFORD COURT
CLARKSVILLE, MARYLAND 21029-1731

DEVELOPER
CORNERSTONE HOLDINGS, LLC
ATTN: BRIAN BOY
9691 NORFOLK AVENUE
LAUREL, MD 20723
(410) 792-2565

PROJECT
ARBOR MEADOWS

AREA
TAX MAP 37, GRID 14
PARCEL 253 AND 426 ZONING R-12
6TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE
FINAL LANDSCAPE NOTES AND DETAILS

Patton Harris Rust & Associates, pc
Engineers. Surveyors. Planners. Landscape Architects.
8818 Centre Park Drive
Columbia, MD 21045
T 410.997.8900
F 410.997.9282

DATE

STATE OF MARYLAND — 797 — SCOTT R. WOLFORD — REGISTERED LANDSCAPE ARCHITECT — MEMBER AMERICAN SOCIETY OF LANDSCAPE ARCHITECTS

SCOTT R. WOLFORD # 797

DESIGNED BY :	PJS
DRAWN BY:	PJS/KLS
PROJECT NO:	11906/1-0/FINALS FINAL/L200LND.DWG
DATE :	JUNE 7, 2005
SCALE :	AS SHOWN
DRAWING NO.	9 OF 10

F-05-086

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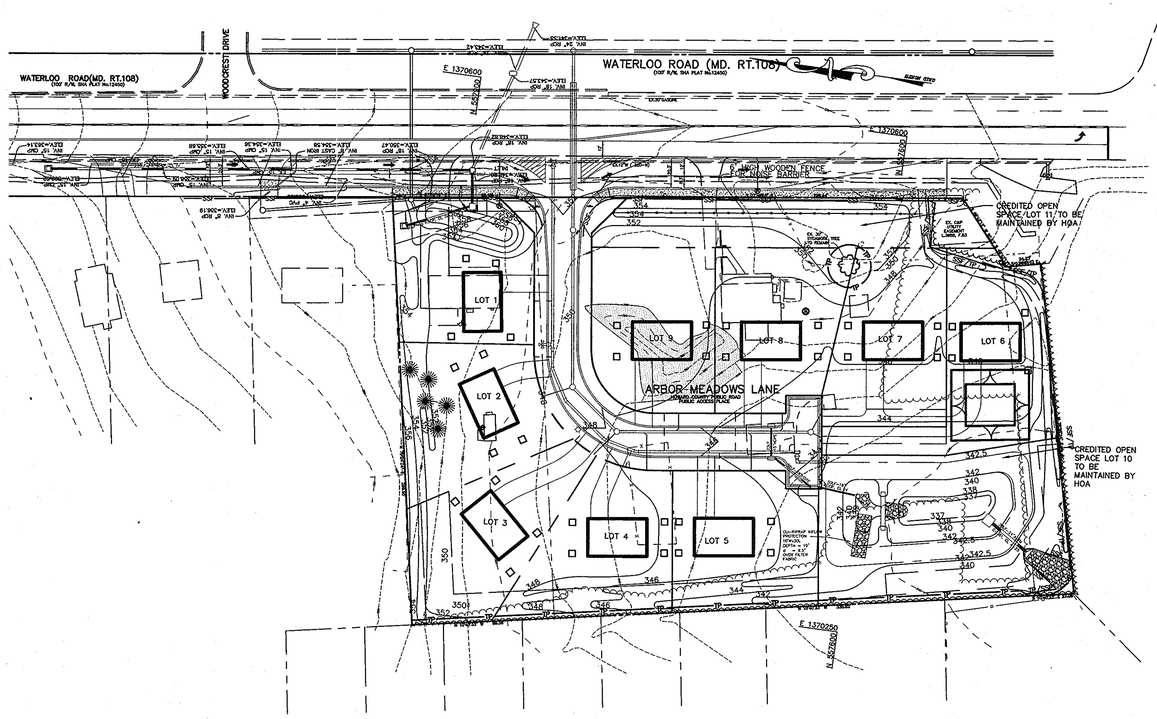
Howard County Forest Conservation Worksheet

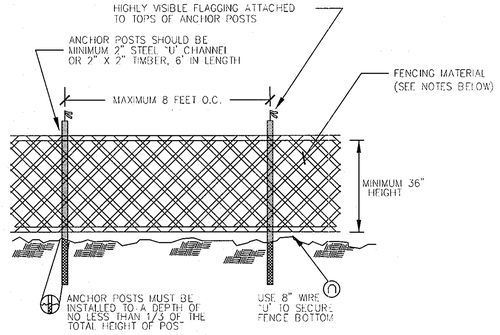
Project Name: **ARBOR MEADOWS**
County File #:
Date: **October 2, 2003**
Revised January 8, 2004

			Acres
Net Tract Area			
A.	*Total Tract Area*	A =	2.97
B.	*100 year Floodplain*	B =	0.00
C.	*Net Tract Area* Net Tract Area = (A-B-C)	C =	2.97
Land Use Category: Residential - Suburban			
D.	*Afforestation Threshold* (Net Tract Area X 15%	D =	0.45
E.	*Conservation Threshold* (Net Tract Area X 20%	E =	0.59
Existing Forest Cover			
F.	***Existing Forest Cover within the Net Tract Area***	F =	0.38
G.	*Area of Forest Above Conservation Threshold* If the Existing Forest Cover (F) is greater than Conservation Threshold (G), then G = Existing Forest Cover (F) - Conservation Threshold (E); Otherwise G = 0	G =	0.00
Break Even Point			
H.	*Break Even* (Amount of forest that must be retained so that no mitigation is required) (1) If the area of forest above the Conservation Threshold (G) is greater than zero, then H = (0.2 X the area of forest above Conservation Threshold (G)) + the Conservation Threshold (E) (2) If the area of forest above the Conservation Threshold (G) is equal to zero, then H = Existing Forest Cover (F)	H =	FALSE
I.	*Forest Clearing Permitted Without Mitigation* I = Existing Forest Cover (F) - Break Even Point (H)	I =	FALSE
Proposed Forest Clearing			
J.	***Total Area of Forest to be Cleared***	J =	0.38
K.	*Total Area of Forest to be Retained* K = Existing Forest Cover (F) - forest to be cleared (J)	K =	0.00
Planting Requirements			
If the Total Area of Forest to be Cleared (K) is at or above the Breakeven Point (H), no planting is required and no further calculations are necessary (L=0, M=0, N=0, P=0); If not, calculate the planting requirement below:			
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: or (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	L =	0.00
M.	*Reforestation for Clearing Below the Conservation Threshold* (1) if Existing Forest Cover (F) is greater than 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 (the Conservation Threshold (E) - the forest to be retained (K)) (2) If Existing Forest (F) is less than or equal to the Conservation Threshold (E), then M = 2.0 X Forest to be cleared (J).	M =	0.76
N.	*Credit for Retention Above the Conservation Threshold* If the area of forest to be retained (K) is greater than the Conservation Threshold (E), then N = K - E	N =	0.00
P.	*Total Reforestation Required* P = L + M - N	P =	0.76
Q.	*Total Afforestation Required* (1) If Existing Forest Cover (F) is less than the Afforestation Threshold (D) then Q = the Afforestation Threshold (D) - the Existing Forest Cover (F)	Q =	0.07
R.	*Total Planting Requirement* R = P + Q		
		R =	0.83

GENERAL NOTES:

1. THIS PLAN HAS BEEN PREPARED USING FIELD RUN TOPOGRAPHY. SPECIMEN TREE LOCATIONS WERE FIELD APPROXIMATED.
2. NO CRITICAL HABITATS OF RARE, THREATENED OR ENDANGERED SPECIES WERE OBSERVED.
3. NO TREES, SHRUBS, OR PLANTS IDENTIFIED AS RARE, THREATENED OR ENDANGERED SPECIES WERE OBSERVED.
4. THERE ARE NO KNOWN CEMETERIES OR BURIAL PLOTS LOCATED ON THE SITE, ACCORDING TO THE HOWARD COUNTY CEMETERIES INVENTORY.
5. TWO EXISTING HOUSES, 1 EXISTING BUILDING AND 3 EXISTING SHEDS WILL BE REMOVED.
6. THIS SITE CONTAINS NO HYDRIC SOILS AND NO SOILS WITH POSSIBLE HYDRIC INCLUSIONS. RUMFORD LOAMY SAND (RuB2), RUMFORD LOAMY SAND (RuC2), SASSAFRAS GRAVELLY SANDY LOAM (SfB2), SASSAFRAS GRAVELLY SANDY LOAM (SfD2), AND WOODSTOWN SANDY LOAM (WoB2) ARE ALSO PRESENT ON THE SITE.
7. THE FSD, DATED DECEMBER 22, 2003, HAS BEEN PREPARED BY PATTON HARRIS RUST & ASSOCIATES IN CONJUNCTION WITH THIS PROJECT.
8. JUSTIFICATION FOR FOREST REMOVAL: IN ORDER TO ACCOMODATE THE LOT SIZE AND THE HOUSE FOOTPRINT SHOWN, STORMWATER MANAGEMENT MUST BE PROVIDED AS SHOWN. THE NUMBER OF LOTS AND THE HOUSE FOOTPRINT SHOWN ARE THE MINIMUM TO MAKE THIS A VIABLE PROJECT. IT IS INAPPROPRIATE TO ATTEMPT TO RETAIN ANY OF THE EXISTING FOREST ON-SITE GIVEN THE SMALL LOT SIZE.
9. THE HOWARD COUNTY FOREST CONSERVATION MANUAL SUPERCEDES ANY DISCREPANCIES BETWEEN THE MANUAL AND THESE PLANS.
10. THIS PROJECT COMPLIES WITH THE REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY CODE FOR FOREST CONSERVATION.
11. THE FOREST CONSERVATION OBLIGATION OF .83 AC FOR THE PROPOSED SITE DEVELOPMENT WILL BE MET BY PAYMENT OF A FEE-IN-LIEU IN THE AMOUNT OF $18,077.40 ($.50 x 36,154.80 S.F.)





NOTES:
1. BLAZE ORANGE MESH OR SUPER SILT FENCE FOR TREE PROTECTION DEVICE, ONLY.
2. BOUNDARIES OF PROTECTION AREA WILL BE ESTABLISHED PRIOR TO GRADING AND SEDIMENT CONTRO..
3. AVOID DAMAGE TO CRITICAL ROOT ZONE. DO NOT DAMAGE OR SEVER LARGE ROOTS WHEN INSTALLING POSTS.
4. FENCING SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION.

TREE PROTECTION FENCING
NOT TO SCALE

LEGEND

- LIMIT OF DISTURBANCE
- EX. SPECIMEN TREE
- EX. TREELINE
- PROP. TREELINE
- TREE PROTECTION FENCE — TP

GRAPHIC SCALE

50 0 25 50 100 200
(IN FEET)
1 inch = 50 ft.

AS-BUILT CERTIFICATION

STATE OF MARYLAND — DOMENICK W. COLANGELO — NO. 27200 — REGISTERED PROFESSIONAL ENGINEER

DOMENICK COLANGELO #27200 — 9/20/07 DATE

APPROVED : HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.

CHIEF, BUREAU OF HIGHWAYS — 6-15-06 DATE

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

CHIEF, DIVISION OF LAND DEVELOPMENT — 6/21/06 DATE

CHIEF, DEVELOPMENT ENGINEERING DIVISION — 6/20/06 DATE

DATE	NO.	REVISION
05/01/06	1	REVISED DRAINAGE, GRADING & SIDEWALK

OWNER
ARBOR MEADOWS, LLC
c/o BRIAN D. BOY
11807 WOLLINGFORD COURT
CLARKSVILLE, MARYLAND 21029-1731

DEVELOPER
CORNERSTONE HOLDINGS, LLC
ATTN: BRIAN BOY
9691 NORFOLK AVENUE
LAUREL, MD 20723
(410) 792-2565

PROJECT
ARBOR MEADOWS

AREA
TAX MAP 37, GRID 14
PARCEL 253 AND 426 ZONING R-12
6TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE
REVISED FINAL PLAN
FINAL FOREST CONSERVATION PLAN

Patton Harris Rust & Associates, pc
Engineers. Surveyors. Planners. Landscape Architects.
8818 Centre Park Drive
Columbia, MD 21045
T 410.997.8900
F 410.997.9282

STATE OF MARYLAND — SCOTT R. WOLFORD — 797 — REGISTERED PROFESSIONAL ENGINEER & LANDSCAPE ARCHITECT

SCOTT R. WOLFORD # 797

DESIGNED BY :	PJS
DRAWN BY:	PJS/KLS
PROJECT NO:	11906/1-0/FINALS FINAL/L400FCP.DWG
DATE :	OCTOBER 18, 2005
SCALE :	1"=50'
DRAWING NO.	10 OF 10

F-05-086

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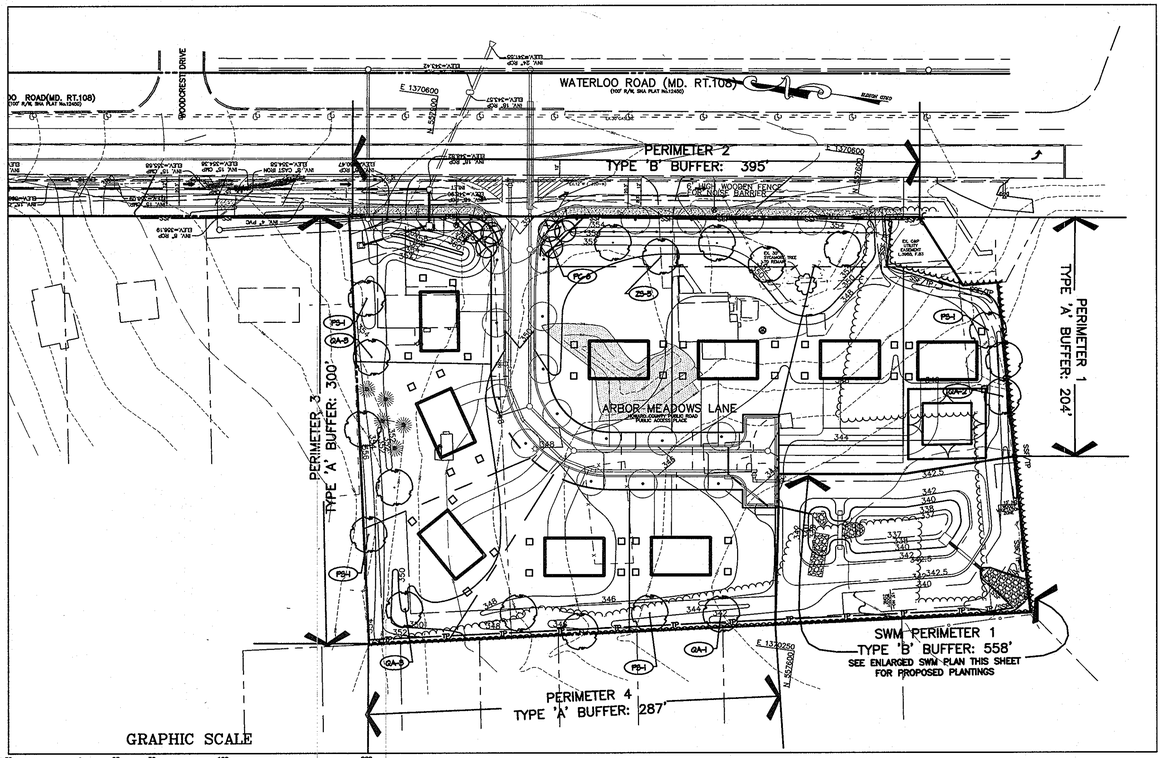
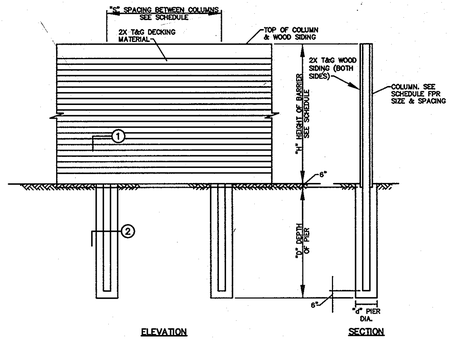


LEGEND

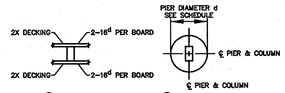
- EX. TREELINE
- PROP. TREELINE
- PROPERTY LINE
- WETLANDS AND 25' BUFFER
- 100-YEAR FLOODPLAIN
- CONTOUR LINES
- EX. BUILDING
- PROP. SHADE TREE
- PROP. EVERGREEN TREE
- PROP. ORNAMENTAL TREE
- PROP. SHRUBS
- PROP. PERENNIALS/ GROUNDCOVERS
- PERIMETER LANDSCAPE REQUIREMENT — AR-3
- SWM POND LANDSCAPE PLANTING — ZS / I
- PERIMETER LANDSCAPE EDGE LIMITS
- TREE PROTECTION FENCE — TP
- PROPOSED STREET TREES



SCHEDULE

40 #/ft HORIZONTAL LOADING

H	S	D	d	POST SIZE
5'	8'	6'	12"	4X8
10'	8'	8'	18"	6X12
15'	8'	10'	24"	8X15
20'	6'	10'	30"	10X16



NOISE WALL DETAIL

NOT TO SCALE

NOTE: THE PROPOSED NOISE WALL IS PRIVATELY OWNED AND SHALL BE MAINTAINED BY THE HOMEOWNERS ASSOCIATION. THE NOISE WALL SHALL BE INSPECTED AND REPAIRED AS NECESSARY AT A MINIMUM OF ONCE A YEAR.

NOTES:

I. GENERAL

A. HEIGHT OF BARRIER SHALL BE BASED ON ACOUSTIC REQUIREMENTS.

B. BARRIER WALLS HAVING A HEIGHT (H) NOT INDICATED IN THE TABLES SHALL BE CONSTRUCTED AS SHOWN IN THE NEXT HIGHER HEIGHT CATEGORY.

II. SIDING

A. 2X WOOD DECKING MATERIAL SHALL BE UTILIZED TO SPAN HORIZONTALLY BETWEEN POSTS. DESIGN CRITERIA IS BASED ON AN ALLOWABLE BENDING STRESS OF 1400 LBS. PER SQ. IN. AND 33⅓% INCREASE IN STRESS FOR WIND LOADS AS CONSIDERED APPROPRIATE. DECKING SHALL BE MCIS.

B. SIDING IN CONTACT WITH THE GROUND AND FOR A DISTANCE OF 6" ABOVE GRADE SHALL BE TREATED WITH WOOD PRESERVATIVE.

3. POST

A. WOOD POST SHALL BE UTILIZED OF THE SPACING INDICATED ON THE SCHEDULE. DESIGN CRITERIA IS BASED ON AN ALLOWABLE BENDING STRESS OF 1400 LBS. PER SQ. IN. AND A 33⅓% INCREASE FOR WIND LOADINGS.

B. POST EMBEDDED IN CONCRETE SHALL BE TREATED WITH A WOOD PRESERVATIVE IN THE AREA OF EMBEDMENT AND 12" ABOVE GRADE.

4. CONCRETE

A. CONCRETE IN THE PIERS SHALL HAVE A 28 DAY COMPRESSIVE STRENGTH OF 2500 LBS. PER SQ. IN.

B. CONCRETE SHALL BE PLACED IN DRILLED PIERS UTILIZING THE EARTH AS THE FORMS.

5. FOUNDATIONS

A. THE DRILLED PIERS HAVE BEEN DESIGNED UTILIZING AN ALLOWABLE PASSIVE PRESSURE OF 300 LBS. PER SQ. FT. AND THE FOLLOWING FORMULA:

$$D = \left(\frac{14.52M}{pd}\right)^{\frac{1}{3}}$$

M = MOMENT AT TOP OF DRILLED PIER (FT./LBS.)
P = ALLOWABLE PASSIVE PRESSURE (300 LBS. PER SQ. FT.)
d = DIAMETER OF PIER (FT.)
D = DEPTH OF PIER (FT.)

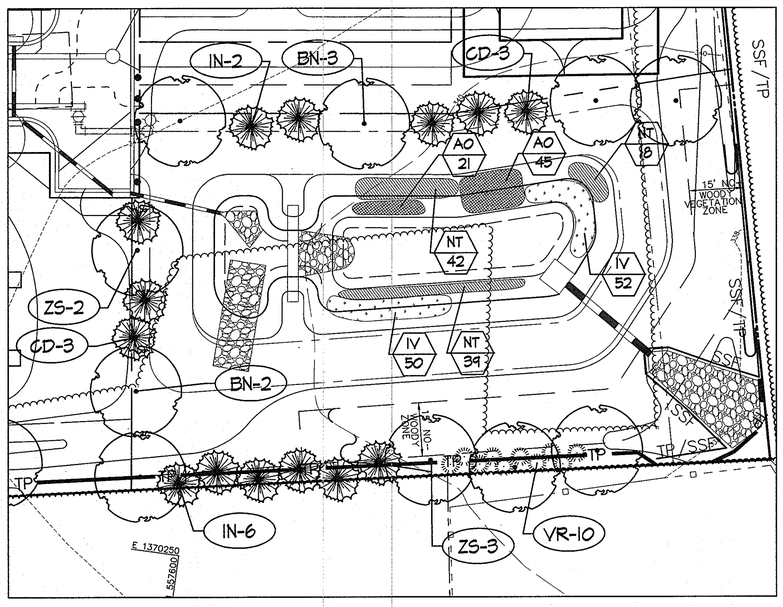
6. ALTERNATE #1 (PRESERVATIVE TREATMENT). ALTERNATE #1 REPRESENTS THE ADDITIONAL COST FACTOR FOR TREATING THE BASIC WOOD STRUCTURE INDICATED ON THIS REFERENCE PLAN. THE NECESSITY FOR TREATMENT AND THE TYPE OF PRESERVATIVE WILL BE SUBJECT TO LOCAL CONDITIONS. ALL TREATMENTS SHALL CONFORM TO AWPA STANDARD C-14.

7. ALTERNATE #2 (PAINTING) ALTERNATE #2 REPRESENTS THE ADDITIONAL COST FACTOR REQUIRED TO PAINT ONE SIDE OF THE BASIC WOOD STRUCTURE SHOWN ON THIS REFERENCE PLAN. PAINTING SHALL CONSIST OF 3 APPLICATIONS OF PAINT. 2 COATS OF LATEX BASE PAINT CONFORMING TO FEDERAL SPECIFICATION TT-P-00966 SHALL BE APPLIED OVER A PRIMER COAT CONFORMING TO FEDERAL SPECIFICATION TT-P-00250.

8. ALTERNATE #3 (STAINING) ALTERNATE #3 REPRESENTS THE ADDITIONAL COST FACTOR REQUIRED TO STAIN ONE SIDE OF THE BASIC WOOD STRUCTURE. STAIN SHALL CONSIST OF 2 COATS OF SEMI-TRANSPARENT SEALER STAIN APPLIED IN ACCORDANCE WITH MANUFACTURERS WRITTEN INSTRUCTIONS.

9. ALTERNATE #4 (PRESERVATIVE TREATMENT) SHALL BE UTILIZED FOR THIS PROJECT.

FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING MUST BE POSTED AS PART OF THE GRADING PERMIT IN THE AMOUNT OF $13,200.
32 SHADE TREES @ $300 = $9,600
0 ORNAMENTAL TREES @ $150 = $0
24 EVERGREEN TREES @ $150 = $3,600
0 SHRUBS @ $30 = $0



GRAPHIC SCALE
20 0 10 20 40 80
(IN FEET)
1 inch = 20 ft.

SCHEDULE A - PERIMETER LANDSCAPE EDGE

	ADJACENT TO ROADWAYS	ADJACENT TO PERIMETER PROPERTIES		
PERIMETER	2	1	3	4
LANDSCAPE TYPE	B	A	A	A
LINEAR FEET OF ROADWAY FRONTAGE/ PERIMETER	395'±	204±	300'±	287'±
CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	NO	NO	NO	NO
CREDIT FOR DRIVE ENTRANCES (YES, NO, LINEAR FEET)	YES 40'±	NO	NO	NO
LINEAR FEET REMAINING	355'±	204'±	300'±	287'±
CREDIT FOR WALL, FENCE, OR BERM (YES/NO/LINEAR FEET)	YES	NO	NO	NO
NUMBER OF PLANTS REQUIRED SHADE TREES EVERGREEN TREES SHRUBS	8 10 0	3 0 0	5 0 0	5 0 0
NUMBER OF PLANTS PROVIDED SHADE TREES EVERGREEN TREES ORNAMENTAL SHRUBS	5 0* 6** 0	3 0 0 0	5 5 0 0	5 5 0 0

SUBSTITUTION NOTES:
PERIMETER 2: * COMBINATION OF FENCE AND BERM ARE TO BE SUBSTITUTED FOR EVERGREEN REQUIREMENT. SEE TYPICAL SECTION THIS SHEET.
** 6 ORNAMENTAL TREES WERE SUBSTITUTED FOR 3 SHADE TREES.

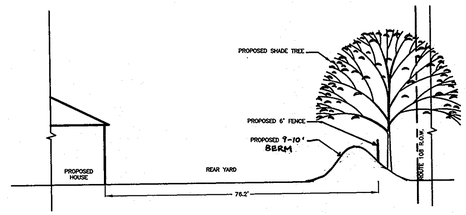
SCHEDULE D-STORMWATER MANAGEMENT PERIMETER LANDSCAPING

S.W.M. POND PERIMETER	1
LANDSCAPE TYPE	B
LINEAR FEET OF TOTAL PERIMETER	558'±
CREDIT FOR EX. VEGETATION (NO OR YES & %)	NO
CREDIT FOR OTHER PROP. LANDSCAPING (NO OR YES & %)	NO
LINEAR FEET OF REMAINING PERIMETER	558'±
NUMBER OF TREES REQUIRED: SHADE TREES EVERGREEN TREES	 11 14
NUMBER OF TREES PROVIDED: SHADE TREES EVERGREEN TREES SHRUBS	 10 14 10*

SUBSTITUTION NOTES:
* 10 SHRUBS WERE SUBSTITUTED FOR 1 SHADE TREE.

STREET TREE CALCULATIONS

ROAD A	340'/40	9 LARGE TREES
TOTAL TREES REQUIRED		9 LARGE TREES



PERIMETER #2 TYPICAL SECTION
SCALE: 1" = 20'

PERIMETER PLANT LIST

SYMBOL	QTY.	SCIENTIFIC/ COMMON NAME	SIZE	ROOT	REMARKS
BN	5	BETULA NIGRA 'HERITAGE' HERITAGE RIVER BIRCH	2.5"-3" CAL.	B&B	PLANT AS SHOWN
PS	4	PRUNUS SARGENTII SARGENT CHERRY	2.5"-3" CAL.	B&B	PLANT AS SHOWN
QA	9	QUERCUS ACUTISSIMA SAWTOOTH OAK	2.5"-3" CAL.	B&B	PLANT AS SHOWN
ZS	10	ZELKOVA SERRATA 'VILLAGE GREEN' VILLAGE GREEN JAPANESE ZELKOVA	2.5"-3" CAL.	B&B	PLANT AS SHOWN
PC	6	PRUNUS CERASIFERA ATROPURPUREA 'THUNDERCLOUD' THUNDERCLOUD PURPLELEAF PLUM	1.5"-2" CAL.	B&B	PLANT AS SHOWN
CD	6	CEDRUS DEODORA DEODAR CEDAR	6'-8' HT.	B&B	PLANT AS SHOWN
IN	8	ILEX X 'NELLIE R. STEVENS' NELLIE R. STEVENS HOLLY	6'-8' HT.	B&B	PLANT AS SHOWN
VR	10	VIBURNUM RHYTIDOPYLLUM LEATHERLEAF VIBURNUM	2.5'-3' HT.	B&B	PLANT AS SHOWN

STORMWATER MANAGEMENT POND PLANT LIST

SYMBOL	QTY.	SCIENTIFIC/ COMMON NAME	SIZE	ROOT	REMARKS
AO	66	ALTHAEA OFFICINALIS COMMON MARSH-MALLOW	1 GAL.	CONT.	24 " O.C.
IV	102	IRIS VERSICOLOR 'BLUE FLAG' BLUE FLAG IRIS	1 GAL.	CONT.	24" O.C.
NT	99	NYMPHAEA TUBEROSA WHITE WATER LILY	1 GAL.	CONT.	24" O.C.

AS-BUILT CERTIFICATION

STATE OF MARYLAND · DOMENICK W. COLANGELO · NO. 27200 · REGISTERED PROFESSIONAL ENGINEER

DOMENICK COLANGELO #27200 — 9/20/07 DATE

APPROVED : HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.

CHIEF, BUREAU OF HIGHWAYS — 6-15-06 DATE

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

CHIEF, DIVISION OF LAND DEVELOPMENT — 6/20/06 DATE

CHIEF, DEVELOPMENT ENGINEERING DIVISION — 6/22/06 DATE

DATE	NO.	REVISION
11/27/07	2	REVISE BERM, REVISE SCHEDULE.
05/01/06	1	REVISED TREE LOCATIONS

OWNER
ARBOR MEADOWS, LLC
c/o BRIAN D. BOY
11807 WOLLINGFORD COURT
CLARKSVILLE, MARYLAND 21029-1731

DEVELOPER
CORNERSTONE HOLDINGS, LLC
ATTN: BRIAN BOY
9691 NORFOLK AVENUE
LAUREL, MD 20723
(410) 792-2565

PROJECT
ARBOR MEADOWS

AREA
TAX MAP 37, GRID 14
PARCEL 253 AND 426 ZONING R-12
6TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE
REVISED FINAL PLAN
FINAL LANDSCAPE PLAN

Patton Harris Rust & Associates, pc
Engineers. Surveyors. Planners. Landscape Architects.
8818 Centre Park Drive
Columbia, MD 21045
T 410.997.8900
F 410.997.9282

STATE OF MARYLAND · SCOTT R. WOLFORD · NO. 797 · REGISTERED LANDSCAPE ARCHITECT

SCOTT R. WOLFORD # 797

DESIGNED BY : PJS
DRAWN BY: PJS/KLM
PROJECT NO: 11906/1-0/FINALS FINAL/L200LND.DWG
DATE : OCTOBER 18, 2005
SCALE : AS SHOWN
DRAWING NO. 8 OF 10

F-05-086

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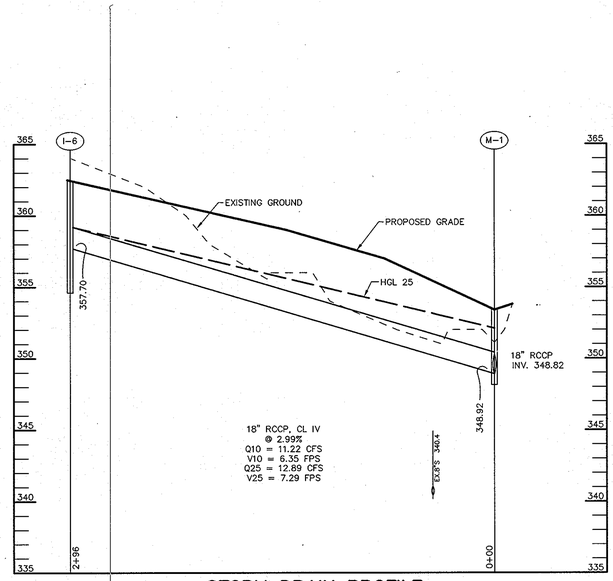
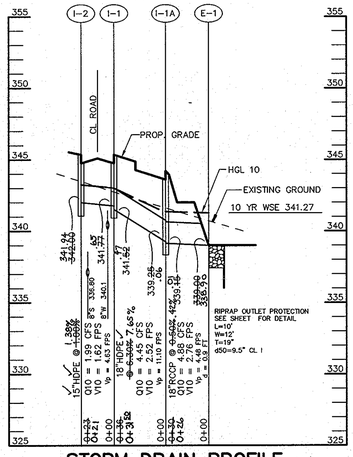


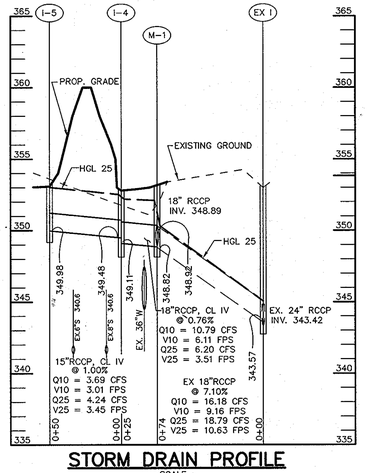
STORM DRAIN PROFILE

SCALE :
HOR.-1"=50'
VERT.-1"=5'



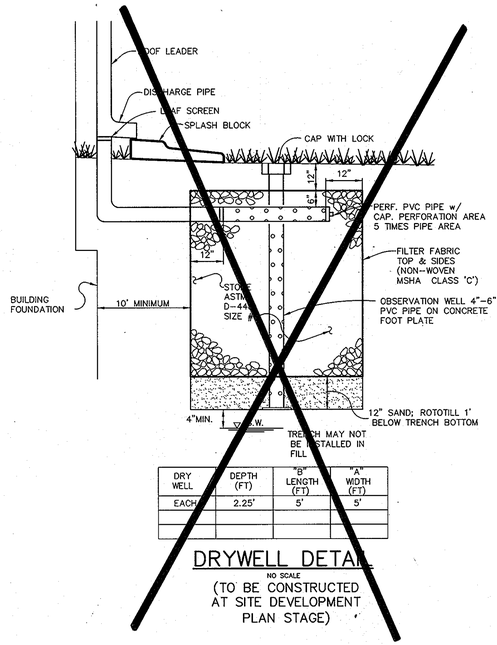
STORM DRAIN PROFILE

SCALE :
HOR.-1"=50'
VERT.-1"=5'



STORM DRAIN PROFILE

SCALE :
HOR.-1"=50'
VERT.-1"=5'



DRY WELL	DEPTH (FT)	"B" LENGTH (FT)	"A" WIDTH (FT)
EACH	2.25'	5'	5'

DRYWELL DETAIL

NO SCALE

(TO BE CONSTRUCTED AT SITE DEVELOPMENT PLAN STAGE)

PIPE SCHEDULE

PIPE LENGTH	SIZE	TYPE
23	15"	HDPE
36	18"	HDPE
345	18"	RCCP
50	15"	RCCP
33	24"	ASTM

STRUCTURE SCHEDULE

STRUCTURE	TYPE	LOCATION	INV. IN	INV. OUT	TOP	REMARKS
E-1	END SECTION	N 557600 E 1370346	–	339.00	–	HOCO. STD. DETAIL SD-5.51
HW-1	TYPE 'A' HEADWALL	N 557477 E 1370323	–	336.50 ✓	–	HOCO STD. DETAIL SD-5.11
S-1	MODIFIED STRUCTURE	N 557506 E 1370341	~~337.17 (8")~~ ~~337.00 (6")~~ 337.07	337.00 (24")	343.67 ✓	SEE SHEET 6
I-1	A-10 INLET	10' RT OF CL STA 3+39	341.~~37~~ 35 (15")	341.52 (18")	345.~~36~~ 34	HOCO STD. DETAIL SD-4.40
I-1A	A-5 INLET	N 557630 E 1370349	339.~~25~~ 05 (18")	339.15 (18")	344.~~20~~ 44	HOCO STD. DETAIL SD-4.40
I-2	A-10 INLET	10' LT OF CL STA 3+39	–	~~341.72~~ 341.77 ~~342.00~~ (15")	345.~~36~~ 55	HOCO STD. DETAIL SD-4.40
I-3	MODIFIED COG OPENING WITH 5' TROUGH	N 557585 E 1370565	348.8	348.6	349.47	MSHA STD. DETAIL MD-374.68
I-4	K INLET	N 557893 E 1370509	349.48 (15")	349.11 (18")	352.80	MSHA STD. DETAIL MD-378.11
I-4A	MODIFIED COG OPENING WITH 10' TROUGH	N 557898 E 1370523	353.1	352.9	353.77	MSHA STD. DETAIL MD-374.68
I-5	S INLET	N 557938 E 1370489	–	350.25 (15")	353.00	HOCO STD. DETAIL SD-4.22
I-6	K INLET	N 558167 E 1370493	–	357.00 (18")	361.50	MSHA STD. DETAIL MD-378.11
M-1	4' DIA MANHOLE	N 558110 E 1370497	348.92 (18") 348.92 (18")	348.82 (18")	353.00	MSHA STD. DETAIL MD-384.01

AS-BUILT CERTIFICATION

STATE OF MARYLAND · DOMENICK W. COLANGELO · NO. 27200 · REGISTERED PROFESSIONAL ENGINEER

9/20/07
DOMENICK COLANGELO #27200 DATE

APPROVED : HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.

CHIEF, BUREAU OF HIGHWAYS — DATE 6-15-06

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

CHIEF, DIVISION OF LAND DEVELOPMENT JA — 6/20/06 DATE

CHIEF, DEVELOPMENT ENGINEERING DIVISION — 6/20/06 DATE

DATE	NO.	REVISION
11/27/07	2	REMOVE DRYWELLS
05/01/06	1	REVISED STORM DRAIN PROFILE, STRUCTURE & PIPE SCHEDULE

OWNER
ARBOR MEADOWS, LLC
c/o BRIAN D. BOY
11807 WOLLINGFORD COURT
CLARKSVILLE, MARYLAND 21029-1731

DEVELOPER
CORNERSTONE HOLDINGS, LLC
ATTN: BRIAN BOY
9691 NORFOLK AVENUE
LAUREL, MD 20723
(410) 792-2565

PROJECT
ARBOR MEADOWS

AREA
TAX MAP 37, GRID 14
PARCEL 253 AND 426 ZONING R-12
6TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE
REVISED FINAL PLAN
PROFILES

Patton Harris Rust & Associates, pc
Engineers. Surveyors. Planners. Landscape Architects.
8818 Centre Park Drive
Columbia, MD 21045
T 410.997.8900
F 410.997.9282

05/03/06
DATE

STATE OF MARYLAND · DOMENICK W. COLANGELO · NO. 27200 · REGISTERED PROFESSIONAL ENGINEER

DOMENICK W. COLANGELO #27200

DESIGNED BY :	ACR
DRAWN BY:	DAM
PROJECT NO:	11906/1-0/FINALS C9000ET3.DWG
DATE :	OCTOBER 18, 2005
SCALE :	AS SHOWN
DRAWING NO.	7 OF 10

F-05-086

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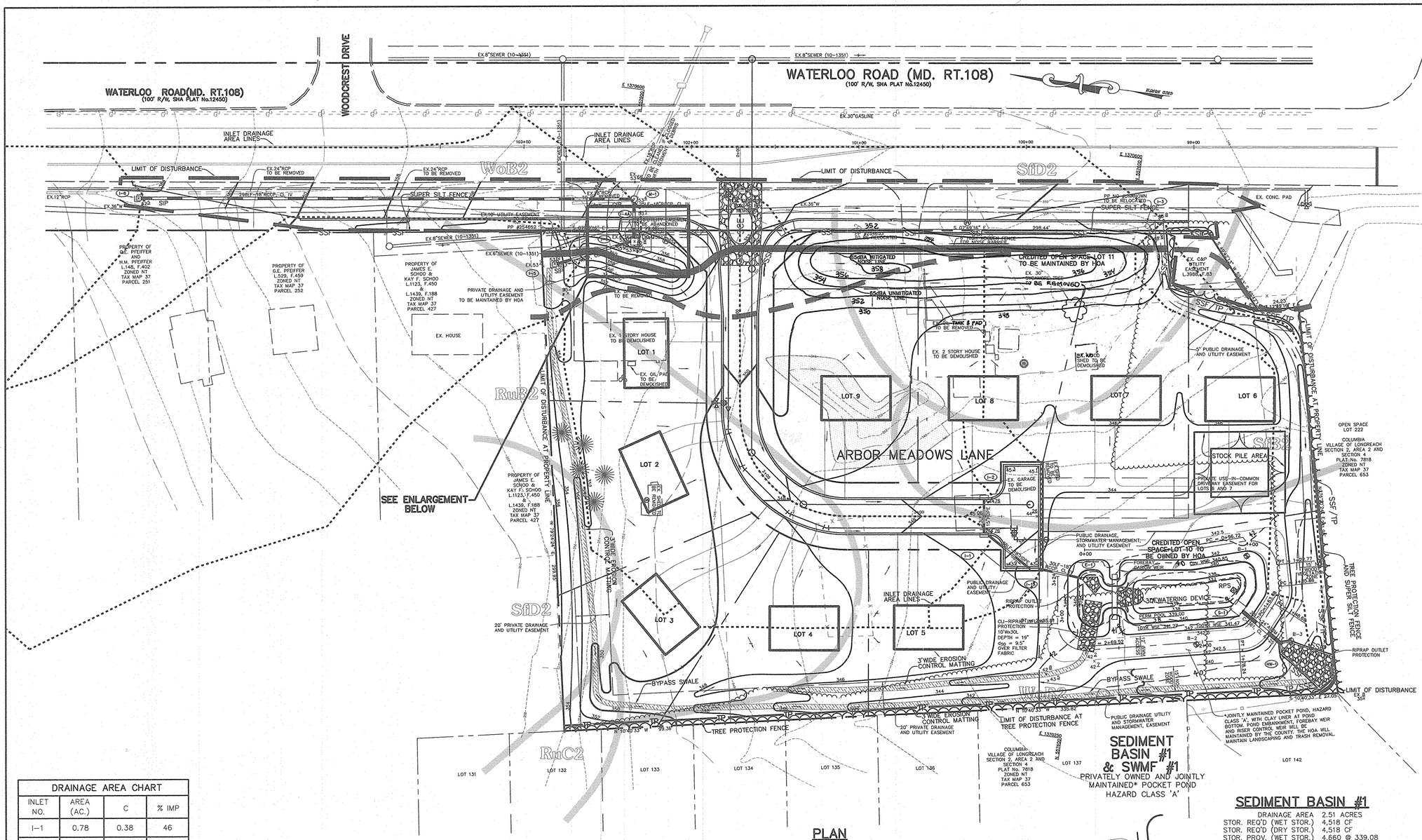
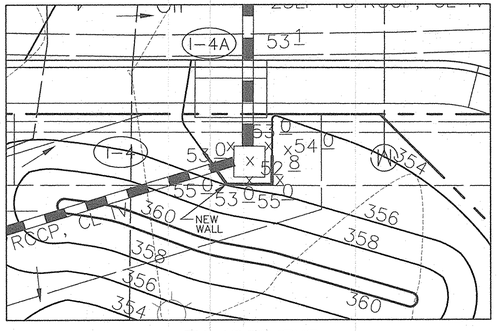
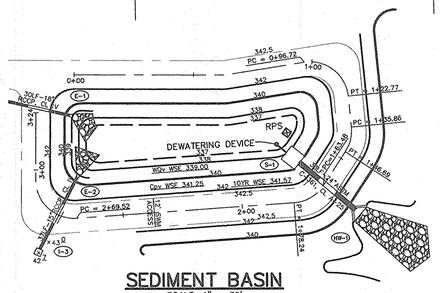


PLAN
SCALE: 1" = 30'



ENLARGEMENT
SCALE: 1"=10'



SEDIMENT BASIN
SCALE: 1" = 30'

SEDIMENT BASIN #1

DRAINAGE AREA	2.51 ACRES
STOR. REQ'D (WET STOR.)	4,518 CF
STOR. REQ'D (DRY STOR.)	4,518 CF
STOR. PROV. (WET STOR.)	4,660 @ 339.08
STOR. PROV. (DRY STOR.)	6,490 @ 340.9
RISER CREST ELEVATION	340.9
BASIN CLEANOUT ELEVATION	338.2
TOP OF DAM	342.5
BOTTOM EL.	337.0
SIDE SLOPES	3:1
Q_i EX	2.72 CFS
Q_i PR	1.98 CFS

DRAINAGE AREA CHART

INLET NO.	AREA (AC.)	C	% IMP
I-1	0.78	0.38	46
I-2	0.57	0.41	49
I-3	0.31	0.75	84
I-4	0.51	0.86	49
I-5	1.40	0.31	54
I-1A	0.10	0.58	50
I-6	2.87	0.46	27

STORMWATER MANAGEMENT SUMMARY TABLE

	DRAINAGE AREA (AC)	WQv* (CF)	Rev (CF)	Cpv (AC-FT)	Qp 1 (CFS)	Qp 10 (CFS)	Qp 100 (CFS)
EX. CONDITIONS AT STUDY POINT	5.76	–	–	–	2.72	13.27	23.94
PR. CONDITIONS AT STUDY POINT	5.81	–	–	–	1.50	15.75	27.34
POCKET POND	2.51	2982	806 (0.22 AC)	0.114	0.06	8.29	13.73

THE Rev WILL BE PROVIDED BY THE ROOFTOP DISCONNECT CREDIT USING DRYWELLS SINCE THE 75' DISCONNECT LENGTH CANNOT BE PROVIDED. DRYWELLS WILL BE USED FOR Rev ONLY.

WQv AND Cpv WILL BE PROVIDED IN THE PROPOSED POCKET POND.

Qp AND Qf ARE NOT REQUIRED FOR THIS SITE.

SOILS CHART

MAP SYMBOL	NAME	STRUCTURAL LIMITATIONS DWELLINGS	EROSION HAZARD	HYDRIC	SLOPE (%)
RuB2	RUMFORD LOAMY SAND	SLIGHT	MODERATE	NO	1-5%
RuC2	RUMFORD LOAMY SAND	SLIGHT	MODERATE	NO	5-10%
SfB2	SASSAFRAS GRAVELLY SANDY LOAM	SLIGHT	MODERATE	NO	1-5%
SfD2	SASSAFRAS GRAVELLY SANDY LOAM	MODERATE	---	NO	10-15%
WoB2	WOODSTOWN SANDY LOAM	MODERATE	MODERATE	NO*	1-5%

* SOIL MAY CONTAIN HYDRIC INCLUSIONS

AS-BUILT CERTIFICATION

STATE OF MARYLAND · DOMENICK W. COLANGELO · NO. 27200 · REGISTERED · PROFESSIONAL ENGINEER

DOMENICK COLANGELO #27200 — 9/20/07 DATE

BY THE DEVELOPER :

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

DEVELOPER — DATE

BY THE ENGINEER :

I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

ENGINEER — 3/8/06 DATE

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SOIL EROSION AND SEDIMENT CONTROL.

NATURAL RESOURCES CONSERVATION SERVICE — 5/15/06 DATE

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

HOWARD SOIL CONSERVATION DISTRICT — 5/15/06 DATE

APPROVED : HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.

CHIEF, BUREAU OF HIGHWAYS — 6-15-06 DATE

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

CHIEF, DIVISION OF LAND DEVELOPMENT — 6/20/06 DATE

CHIEF, DEVELOPMENT ENGINEERING DIVISION — 6/20/06 DATE

DATE	NO.	REVISION
11/27/07	2	REVISE BERM
05/01/06	1	REVISED DRAINAGE, GRADING & SIDEWALK

OWNER

ARBOR MEADOWS, LLC
c/o BRIAN D. BOY
11807 WOLLINGFORD COURT
CLARKSVILLE, MARYLAND 21029-1731

DEVELOPER

CORNERSTONE HOLDINGS, LLC
ATTN: BRIAN BOY
9691 NORFOLK AVENUE
LAUREL, MD 20723
(410) 792-2565

PROJECT

ARBOR MEADOWS

AREA

TAX MAP 37, GRID 14
PARCEL 253 AND 426 ZONING R-12
6TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE

REVISED FINAL PLAN

GRADING, SEDIMENT CONTROL PLAN AND DRAINAGE AREA MAP

Patton Harris Rust & Associates, pc
Engineers. Surveyors. Planners. Landscape Architects.
8818 Centre Park Drive
Columbia, MD 21045
T 410.997.8900
F 410.997.9282

05/09/06 DATE

STATE OF MARYLAND · DOMENICK W. COLANGELO · NO. 27200 · REGISTERED · PROFESSIONAL ENGINEER

DOMENICK W. COLANGELO #27200

DESIGNED BY :	ACR
DRAWN BY:	DAM
PROJECT NO:	11906/1-0/FINALS C600GRA.DWG
DATE :	OCTOBER 18, 2005
SCALE :	1" = 30'
DRAWING NO.	3 OF 10

F-05-086

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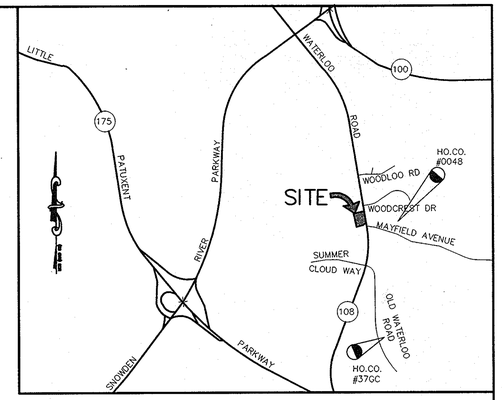
SHEET INDEX	
NO	DESCRIPTION
1	TITLE SHEET
2	PLAN AND PROFILE OF ARBOR MEADOWS LANE
3	GRADING, SEDIMENT CONTROL PLAN AND DRAINAGE AREA MAP
4	DETAIL SHEET
5	NOTES
6	SWM PROFILES AND DETAILS
7	PROFILES
8	LANDSCAPE PLAN
9	LANDSCAPE NOTES AND TABULATIONS
10	FOREST CONSERVATION PLAN

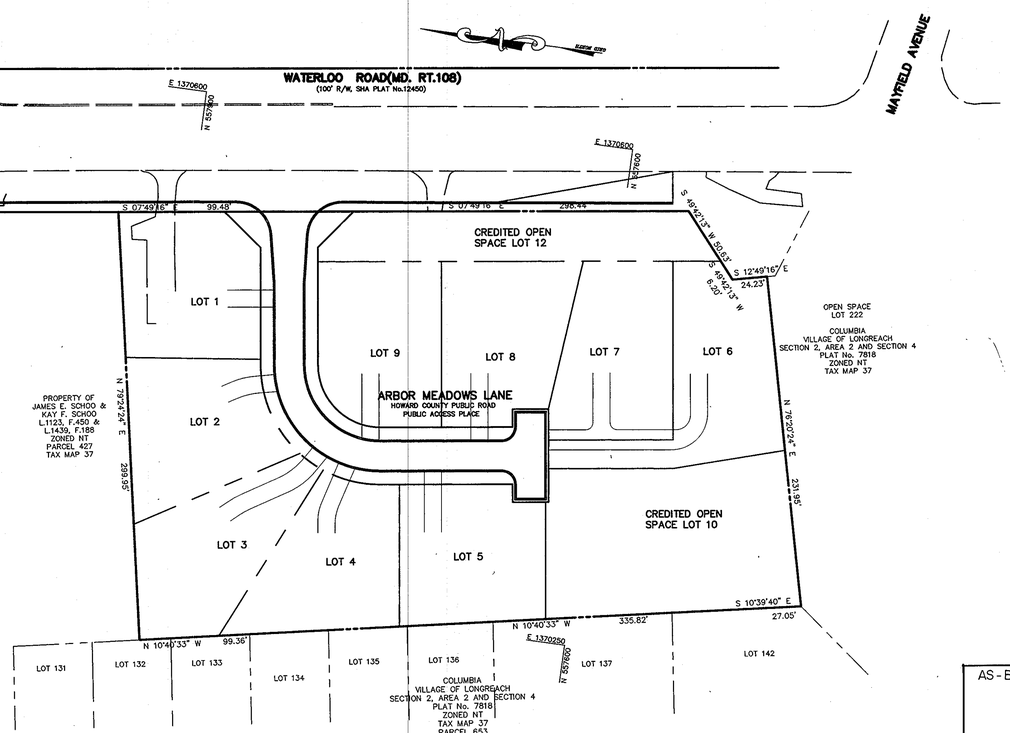
ROADWAYS, STORM DRAINS & SWM
ARBOR MEADOWS
6th ELECTION DISTRICT
HOWARD COUNTY, MARYLAND



VICINITY MAP
SCALE: 1"=2000'

GENERAL NOTES

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL, VOL. IV "STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION" PLUS MSHA STANDARDS AND SPECIFICATIONS, IF APPLICABLE.
2. THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS/BUREAU OF ENGINEERING/CONSTRUCTION INSPECTION DIVISION AT (410) 313-1880 AT LEAST FIVE (5) WORKING DAYS PRIOR TO THE START OF WORK.
3. THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AY LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.
4. TRAFFIC CONTROL DEVICES, MARKINGS, AND SIGNING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). ALL STREET AND REGULATORY SIGNS SHALL BE IN PLACE PRIOR TO THE PLACEMENT OF ANY ASPHALT.
5. STREET LIGHT PLACEMENT AND THE TYPE OF FIXTURE AND POLE SHALL BE IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL, VOLUME III (1993) AND AS MODIFIED BY "GUIDELINES FOR STREET LIGHTS IN RESIDENTIAL DEVELOPMENTS, (JANUARY 1998)." A MINIMUM SPACING OF 20' SHALL BE MAINTAINED BETWEEN ANY STREET LIGHT AND ANY TREE.
6. THE EXISTING TOPOGRAPHY IS TAKEN FROM FIELD STUDY WITH MAXIMUM TWO FOOT CONTOUR INTERVALS PREPARED BY PATTON HARRIS RUST AND ASSOCIATES IN DECEMBER, 2002.
7. THE COORDINATES SHOWN HEREON ARE BASED UPON THE HOWARD COUNTY GEODETIC CONTROL WHICH IS BASED UPON THE MARYLAND STATE PLANE COORDINATE SYSTEM. HOWARD COUNTY MONUMENT NOS. 0048 AND 37GC.
8. WATER IS PUBLIC. CONTRACT NO. 14-4191-D.
9. SEWER IS PUBLIC. SEWER DRAINAGE AREA: PATAPSCO. CONTRACT NO. 14-4191-D.
10. THE PUBLIC STORMWATER MANAGEMENT FOR THIS SITE WILL BE PROVIDED BY A POCKET POND WITH ROUTINE MAINTENANCE BY THE HOMEOWNERS ASSOCIATION AND WITH NON-ROUTINE MAINTAINANCE BY HOWARD COUNTY AND THE DISCONNECTION OF NON-ROOFTOP RUNOFF CREDIT.
11. APPROXIMATE LOCATION OF EXISTING UTILITIES ARE SHOWN. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THE EXISTING UTILITIES AND MAINTAIN UNINTERRUPTED SERVICE. ANY DAMAGE INCURRED DUE TO CONTRACTOR'S OPERATION SHALL BE REPAIRED IMMEDIATELY AT THE CONTRACTOR'S EXPENSE. EXISTING UTILITIES ARE SHOWN BASED ON THE BEST AVAILABLE INFORMATION.
12. THERE ARE NO WETLANDS ON THIS SITE.
13. THE TRAFFIC STUDY FOR THIS PROJECT WAS PREPARED BY MARS GROUP DATED JULY, 2003.
14. THE NOISE STUDY FOR THIS PROJECT WAS PREPARED BY MARS GROUP DATED JUNE, 2003.
15. THE BOUNDARY SURVEY FOR THIS PROJECT WAS PREPARED BY PATTON HARRIS RUST AND ASSOCIATES DATED MARCH 2003.
16. SUBJECT PROPERTY ZONED R-12 PER 2-02-04 COMPREHENSIVE REZONING PLAN AND REGULATIONS.
17. ALL ELEVATIONS SHOWN ARE BASED ON THE U.S.C. AND G.S. MEAN SEA LEVEL DATUM, 1929.
18. THE CONTRACTOR SHALL TEST PIT EXISTING UTILITIES AT LEAST (5) DAYS BEFORE STARTING WORK SHOWN ON THESE DRAWINGS.
19. CONTRACTOR IS SOLELY RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, PROCEDURES, AND SAFETY PRECAUTIONS AND PROGRAMS.
20. PIPE SHALL NOT BE INSTALLED BY THE CONTRACTOR UNTIL THE LENGTH CALLED FOR AT EACH STATION HAS BEEN APPROVED BY THE ENGINEER IN THE FIELD.
21. NO PIPE SHALL BE LAID UNTIL LINES OF EXCAVATION HAVE BEEN BROUGHT WITHIN 6" OF FINISHED GRADE.
22. ALL INLETS SHALL BE CONSTRUCTED IN ACCORDANCE WITH HOWARD COUNTY STANDARDS.
23. ALL PIPE ELEVATIONS SHOWN ARE INVERT ELEVATIONS.
24. STORM DRAIN TRENCHES WITHIN ROAD RIGHT OF WAY SHALL BE BACKFILLED AND COMPACTED IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL, VOLUME IV, i.e., STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION, LATEST AMENDMENTS.
25. PROFILE STATIONS SHALL BE ADJUSTED AS NECESSARY TO CONFORM TO PLAN DIMENSIONS.
26. DESIGNED TRAFFIC SPEED IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL VOL. III. ALL 40' RIGHT OF WAYS 15 M.P.H.
27. ALL FILL AREAS WITHIN ROADWAY AND UNDER STRUCTURES TO BE COMPACTED TO A MINIMUM OF 95% COMPACTION OF AASHTO T180.
28. ALL STREET CURB RETURNS SHALL HAVE 25' RADII UNLESS OTHERWISE NOTED.
29. ALL STREET LIGHTS SHALL BE LOCATED BETWEEN 2'-0" AND 4'-0" BEHIND FACE OF CURB.
30. TYPE AND NUMBER OF STREET TREES SHOWN ON THIS PLAN ARE TENTATIVE AND ARE USED FOR BOND PURPOSES ONLY. THE FINAL LOCATION AND VARIETY OF LOCATION AND VARIETY OF TREES MAY VARY TO ACCOMODATE FIELD CONDITIONS INCLUDING 20' CLEARANCE OF ANY STREET LIGHT AND SHALL BE IN ACCORDANCE WITH THE SUBDIVISION REGULATIONS AND THE LANDSCAPE MANUAL. BOND RELEASE IS CONTINGENT UPON SECTION 16.124 OF THE HOWARD COUNTY SUBDIVISION REGULATIONS, AS APPROVED BY THE DEPARTMENT OF PLANNING AND ZONING.
31. THERE ARE TWO EXISTING PERMANENT STRUCTURES ON-SITE AND BOTH WILL BE DEMOLISHED. THE STRUCTURE ON PARCEL 253 WAS CONSTRUCTED IN 1899 AND THE STRUCTURE ON PARCEL 426 WAS BUILT IN 1962 ACCORDING TO THE MD DEPARTMENT OF ASSESSMENTS AND TAXATION. THE DEPARTMENT OF PLANNING AND ZONING HISTORIC SITE SURVEYOR HAS DETERMINED THAT NEITHER HOUSE MERITS CONSIDERATION AS A HISTORIC STRUCTURE.
32. THE 100 YEAR FLOODPLAIN DOES NOT EXIST ON THIS SITE.
33. BASED ON AVAILABLE COUNTY MAPS AND RECORDS, THERE ARE NO HISTORIC STRUCTURES OR CEMETERIES LOCATED ON THE SUBJECT PROPERTY.
34. THIS PROJECT IS SUBJECT TO THE AMENDED 5th EDITION SUBDIVISION AND LAND DEVELOPMENT REGULATIONS, EFFECTIVE OCTOBER 7, 2003, AND THE AMENDED 2004 ZONNING REGULATIONS.
35. SEE DEPARTMENT OF PLANNING AND ZONING FILE NOS.: SP-04-006
36. LANDSCAPE SURETY IN THE AMOUNT OF $13,200 WILL BE POSTED WITH THE DPW DEVELOPERS AGREEMENT.
37. FOREST CONSERVATION IS MET BY A FEE-IN-LIEU PAYMENT OF $18,077.40 FOR 0.83 ACRES.
38. ALL SIGN POSTS USED FOR TRAFFIC CONTROL SIGNS INSTALLED IN THE COUNTY RIGHT OF WAY SHALL BE MOUNTED ON A 2" GALVANIZED STEEL, PERFORATED, SQUARE TUBE POST (14 GAUGE) INSERTED INTO A 2-1/2" GALVANIZED STEEL, PERFORATED, SQUARE TUBE SLEEVE (12 GAUGE) – 3" LONG. A GALVANIZED STEEL POLE CAP SHALL BE MOUNTED ON TOP OF EACH POST.
39. HOWARD COUNTY DESIGN MANUAL VOLUME I WAIVER HAS BEEN APPROVED TO ALLOW THE REQUIRED MINIMUM BUFFER OF 25' TO LOT LINES BE REDUCED BY USING POND INTERNAL AND PERIMETER LANDSCAPING TO SCREEN THE VIEW OF THE POND.
40. THE PLANS PROVIDE THE LOCATIONS OF EXISTING WELLS AND SEPTIC TO BE ABANDONED. THESE FACILITIES WILL BE ABANDONED PRIOR TO OR CONCURRENTLY WITH THE DEMOLITION OF THE HOUSES AND WILL BE COORDINATED WITH THE HEALTH DEPARTMENT.



PLAN
SCALE: 1"=50'

BENCH MARKS

HOWARD COUNTY MONUMENT 0048
N 557,526.343 E 1,370,661.989 ELEV. 348.719
LOCATED 103'+/- NORTH OF MAYFIELD AVENUE CENTERLINE OF ROAD AND 5.3' WEST OF POLE #254657.

HOWARD COUNTY MONUMENT 37GC
N 555,250.791 E 1,370,946.348 ELEV. 331.855
LOCATED ON OLD WATERLOO ROAD, 63.91' NORTHEAST FROM 2 STORY BUILDING (#6528), 107.3' SOUTHEAST FROM WATER MANHOLE, 64.5' NORTHWEST FROM FIRE HYDRANT.

APPROVED : HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.

CHIEF, BUREAU OF HIGHWAYS — DATE 6-15-06

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

CHIEF, DIVISION OF LAND DEVELOPMENT JA — DATE 6/20/06

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 6/20/06

DATE	NO.	REVISION
11/27/07	2	REMOVE DRYWELLS, REVISE BERM
05/01/06	1	REVISED CURB AND PAVEMENT TAPER

OWNER
ARBOR MEADOWS, LLC
c/o BRIAN D. BOY
11807 WOLLINGFORD COURT
CLARKSVILLE, MARYLAND 21029-1731

DEVELOPER
CORNERSTONE HOLDINGS, LLC
ATTN: BRIAN BOY
9691 NORFOLK AVENUE
LAUREL, MD 20723
(410) 792-2565

PROJECT
ARBOR MEADOWS

AREA
TAX MAP 37, GRID 14
PARCEL 253 AND 426 ZONING R-12
6TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE
REVISED FINAL PLAN
TITLE SHEET

AS-BUILT CERTIFICATION

STATE OF MARYLAND · DOMENICK W. COLANGELO · NO. 27200 · REGISTERED PROFESSIONAL ENGINEER

DOMENICK COLANGELO #27200 — DATE 9/20/07

NOTE:
THE PURPOSE OF THESE REVISED PLANS DATED MAY 1, 2006 IS TO ADD THE EXISTING 36" DIAMETER WATER MAIN, REVISE THE ROAD ENTRANCE, SIDEWALK, STORM DRAIN AND THE PUBLIC SURFACE DRAINAGE EASEMENT.

Patton Harris Rust & Associates, pc
Engineers. Surveyors. Planners. Landscape Architects.
8818 Centre Park Drive
Columbia, MD 21045
T 410.997.8900
F 410.997.9282

05/08/06 — DATE

STATE OF MARYLAND · DOMENICK W. COLANGELO · NO. 27200 · REGISTERED PROFESSIONAL ENGINEER

DOMENICK W. COLANGELO #27200

DESIGNED BY :	ACR
DRAWN BY:	DAM
PROJECT NO:	11906/1-0/FINALS C000COV.DWG
DATE :	OCTOBER 18, 2005
SCALE :	1" = 50'
DRAWING NO.	1 OF 10

F-05-086

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