TRIADELPHIA CROSSING

LOTS 1 - 22 AND NON-BUILDABLE PRESERVATION PARCELS 'A' - 'H' AND NON-BUILDABLE BULK PARCEL 'I'

ROADS, STORMWATER MANAGEMENT AND STORM DRAIN CONSTRUCTION PLANS

GENERAL NOTES

1.) THE PROJECT IS IN CONFORMANCE WITH THE LATEST HOWARD COUNTY STANDARDS UNLESS WAIVERS HAVE BEEN APPROVED.

2.) THE EXISTING TOPOGRAPHY IS TAKEN FROM AERIAL SURVEY WITH 2-FOOT CONTOUR INTERVALS PREPARED BY AIR SURVEY, INC. DATED MARCH, 2001.

3.) 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. 21IA AND 27CA WERE USED FOR THIS PROJECT.

4.) WATER IS PRIVATE.

5.) SEWER IS PRIVATE.

6.) STORMWATER MANAGEMENT SHALL BE PROVIDED BY AN EXTENDED DETENTION POND WITH MICRO-POOL, BIO-RETENTION FACILITY AND RAINGARDENS/DRYWELLS. SWM FACILITIES ARE TO BE PRIVATELY OWNED AND MAINTAINED.

7.) EXISTING UTILITIES ARE BASED UPON FIELD SURVEY LOCATIONS.

8.) THE FLOODPLAIN STUDY FOR THIS PROJECT WAS PREPARED BY BENCHMARK ENGINEERING, INC., DATED AUGUST, 2003.

9.) THE WETLANDS DELINEATION FOR THIS PROJECT WAS PREPARED BY JEFFREY A. WOLINSKI, CONSULTING ECOLOGIST IN FEBRUARY, 2001 AND WAS APPROVED UNDER THE SKETCH PLAN FOR THIS PROJECT (S-01-23).

10.) THE TRAFFIC STUDY FOR THIS PROJECT WAS PREPARED BY INTEGRATED TRANSPORTATION SOLUTIONS, INC. IN FEBRUARY, 2001 AND WAS APPROVED UNDER THE SKETCH PLAN FOR THIS PROJECT (S-01-23).

11.) A NOISE STUDY IS NOT REQUIRED FOR THIS PROJECT.

12.) THE GEOTECHNICAL REPORT FOR THIS PROJECT WAS PREPARED BY HILLIS CARNES ENGINEERING ASSOCIATES, INC. IN MAY, 2001 FOR BORINGS 1, 2 AND 3. THE GEOTECHNICAL REPORT FOR BORINGS 4, 5, 6 AND 7 AND THE ADDITIONAL IN-SITU TESTING OF BORINGS 1, 2 AND 3 WAS PREPARED BY HILLIS CARNES ENGINEERING ASSOCIATES, INC. IN OCTOBER, 2003.

13.) THE SUBJECT PROPERTY IS ZONED RC-DEO PER THE 2-2-04 COMPREHENSIVE ZONING PLAN. ALL ADJACENT PROPERTIES ARE ZONED RC-DEO PER THE 2-2-04 COMPREHENSIVE ZONING PLAN.

14.) TO THE BEST OF OUR KNOWLEDGE, THERE ARE NO BURIAL GROUNDS OR CEMETERIES LOCATED ON THIS SITE.

15.) THERE SHALL BE NO DISTURBANCE WITHIN THE 100-YR FLOODPLAIN, WETLANDS, STREAMS, THEIR BUFFERS OR STEEP SLOPES THAT ARE AT LEAST 20,000 S.F. UNLESS APPROVED BY THE DEPARTMENT OF PLANNING AND ZONING.

16.) BOUNDARY IS BASED ON A FIELD RUN MONUMENTED BOUNDARY SURVEY PERFORMED DURING SEPTEMBER, 2000 BY CLARK, FINEFROCK & SACKETT, INC.

17.) THIS PROJECT IS NOT LOCATED WITHIN THE METROPOLITAN DISTRICT.

18.) THIS PLAN IS SUBJECT TO COMPLIANCE WITH THE FOURTH EDITION OF THE SUBDIVISION REGULATIONS AS A CONSEQUENCE FOR ITS SUBMISSION PRIOR TO 11-15-2001. THIS PROJECT IS SUBJECT TO COMPLIANCE WITH COUNTY COUNCIL BILL 50-2001 WHICH AMENDS PORTIONS OF THE ZONING REGULATIONS AS A CONSEQUENCE FOR NOT HAVING PRELIMINARY PLAN APPROVAL PRIOR TO 11-1-2001.

19.) [hatched symbol] THIS AREA DESIGNATES A PRIVATE SEWERAGE EASEMENT OF 10,000 SQUARE FEET AS REQUIRED BY THE STATE DEPARTMENT OF THE ENVIRONMENT FOR INDIVIDUAL SEWERAGE DISPOSAL. IMPROVEMENTS OF ANY NATURE IN THIS AREA IS RESTRICTED UNTIL PUBLIC SEWER IS AVAILABLE. THIS EASEMENT SHALL BECOME NULL AND VOID UPON CONNECTION TO A PUBLIC SEWERAGE SYSTEM. THE COUNTY HEALTH OFFICER SHALL HAVE THE AUTHORITY TO GRANT VARIANCES FOR ENCROACHMENT INTO THE PRIVATE SEWERAGE EASEMENT. RECORDATION OF A MODIFIED SEWERAGE EASEMENT PLAT SHALL NOT BE NECESSARY.

20.) THE PURPOSE OF THE PRESERVATION PARCELS AND THE JUSTIFICATION FOR THE DESIGN OF THE CLUSTER SUBDIVISION IS AS FOLLOWS:

PRESERVATION PARCEL 'A' IS PROPOSED AS NON-BUILDABLE PARCEL TO PRESERVE ENVIRONMENTALLY SENSITIVE AREAS INCLUDING STEEP SLOPES, STREAM BUFFERS, WETLANDS, FLOODPLAIN AND EXISTING FOREST. IT WILL BE DEDICATED TO THE HOWARD COUNTY DEPARTMENT OF RECREATION AND PARKS. IT IS ENCUMBERED BY AN EASEMENT AGREEMENT WITH THE HOMEOWNERS ASSOCIATION. THIS AGREEMENT PROHIBITS FURTHER SUBDIVISION OF THE PARCEL, OUTLINES THE MAINTENANCE RESPONSIBILITIES OF ITS OWNER AND ENUMERATES THE USES PERMITTED ON THE PROPERTY.

PRESERVATION PARCELS 'B', 'C', 'D' AND 'E' ARE PROPOSED AS NON-BUILDABLE PARCELS TO PRESERVE ENVIRONMENTALLY SENSITIVE AREAS INCLUDING STEEP SLOPES, STREAM BUFFERS, WETLANDS, FLOODPLAIN AND EXISTING FOREST. THEY WILL BE PRIVATELY OWNED. THEY ARE ENCUMBERED BY AN EASEMENT AGREEMENT WITH HOWARD COUNTY AND THE HOMEOWNERS ASSOCIATION. THIS AGREEMENT PROHIBITS FURTHER SUBDIVISION OF THE PARCEL, OUTLINES THE MAINTENANCE RESPONSIBILITIES OF ITS OWNER AND ENUMERATES THE USES PERMITTED ON THE PROPERTY.

PRESERVATION PARCELS 'F' AND 'G' ARE PROPOSED AS NON-BUILDABLE PARCELS FOR STORMWATER MANAGEMENT FACILITIES AS A REQUIREMENT TO CONTROL STORMWATER RUNOFF. THEY WILL BE OWNED BY THE HOMEOWNERS ASSOCIATION. THEY ARE ENCUMBERED BY AN EASEMENT AGREEMENT WITH HOWARD COUNTY. THIS AGREEMENT PROHIBITS FURTHER SUBDIVISION OF THE PARCEL, OUTLINES THE MAINTENANCE RESPONSIBILITIES OF ITS OWNER AND ENUMERATES THE USES PERMITTED ON THE PROPERTY.

PRESERVATION PARCEL 'H' IS PROPOSED AS NON-BUILDABLE PARCEL FOR A SHARED SEPTIC FIELD IN ORDER TO PROVIDE SEWAGE DISPOSAL FOR LOTS 9-12 AND 19-22. IT WILL BE DEDICATED TO THE HOMEOWNERS ASSOCIATION. IT IS ENCUMBERED BY AN EASEMENT AGREEMENT WITH HOWARD COUNTY. THIS AGREEMENT PROHIBITS FURTHER SUBDIVISION OF THE PARCEL, OUTLINES THE MAINTENANCE RESPONSIBILITIES OF ITS OWNER AND ENUMERATES THE USES PERMITTED ON THE PROPERTY.

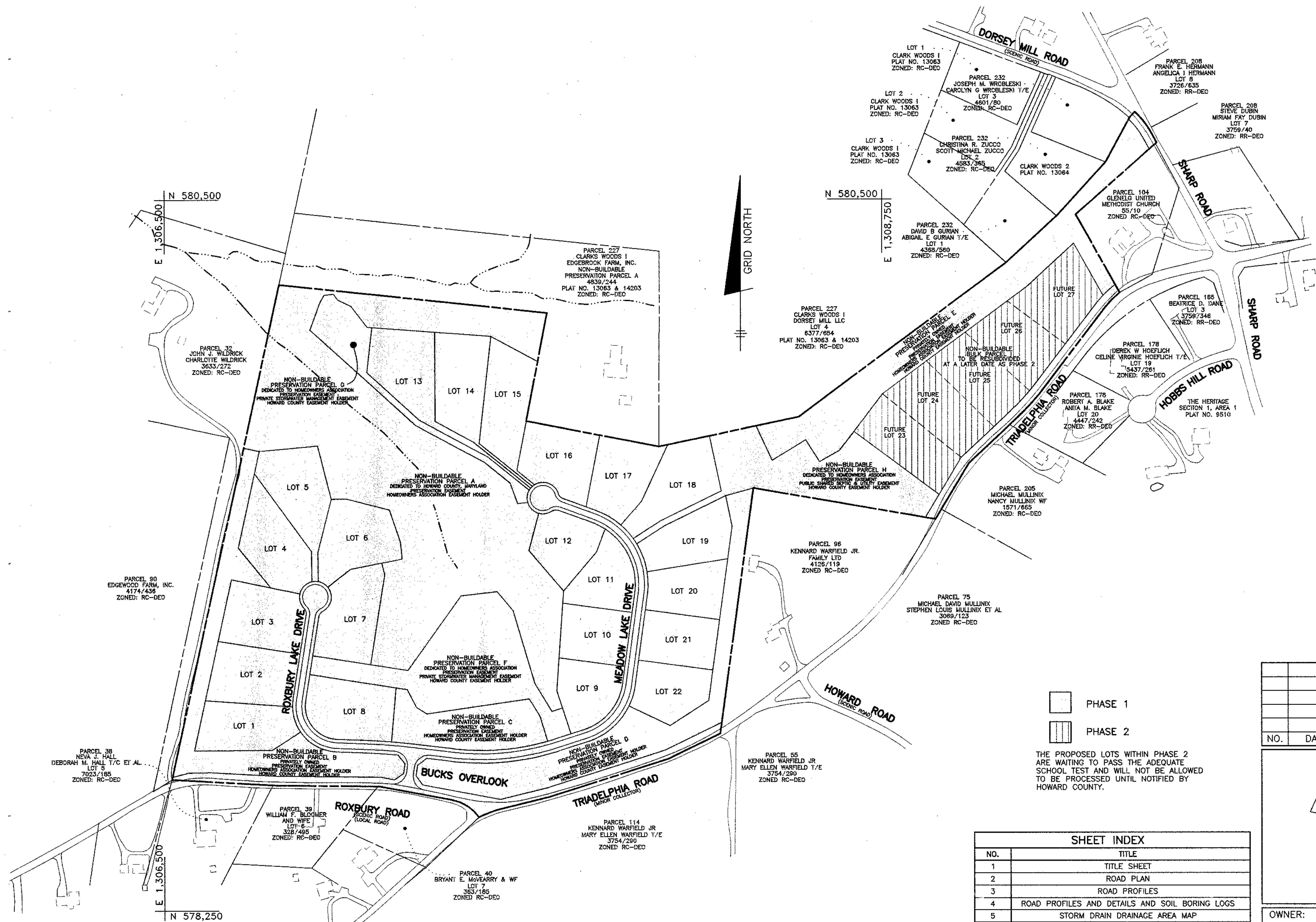
BULK PARCEL 'I' IS PROPOSED AS A BULK PARCEL FOR A FUTURE RESUBDIVISION UNDER PHASE 2 THERE IS POTENTIAL FOR 5 ADDITIONAL CLUSTER LOTS.

21.) THE TOTAL FOREST CONSERVATION OBLIGATION AMOUNT OF 25.7 ACRES HAS BEEN MET BY THE ON-SITE RETENTION OF 6.6 AC. WITHIN A FOREST CONSERVATION EASEMENT AND THE ON-SITE REFORESTATION OF 15.4 AC. WITHIN A FOREST CONSERVATION EASEMENT AND BY THE OFFSITE REFORESTATION OF 3.7 ACRES WITHIN A FOREST CONSERVATION EASEMENT LOCATED ON PRESERVATION PARCEL 'A' OF THE CLARKS WOODS 1 (F-04-119) SUBDIVISION WITH A DPW, DEVELOPER'S AGREEMENT WITH SURETY IN THE AMOUNT OF $473,497.00 ($392,911.00 ON-SITE AND $80,586.00 OFF-SITE).

22.) THE CREATION OF CLARKS WOODS II, LOTS 1-3 NECESSITATED THE FUTURE CREATION OF A 9.38 ACRE PRESERVATION PARCEL (3 x 4.25 = 12.75 - 3.37 = 9.38) PER SECTION 104.E.1.a OF THE ZONING ORDINANCE UPON THE RESUBDIVISION OF THE RESIDUE OF PARCEL 97. THAT 9.38 ACRES IS INCLUDED ON THIS SITE.

23.) ALL DRIVEWAY CULVERTS ARE TO BE 15" HDPEP. DESIGN CALCULATIONS ARE PROVIDED IN THE APPROVED STORM DRAIN REPORT.

24.) THE DOWNSPOUTS FOR THE HOMES LOCATED ON LOTS 17 & 18 AND FUTURE LOTS 23 - 27 SHALL BE CONSTRUCTED AS SHOWN ON SHEET 15 OF THESE CONSTRUCTION PLANS. THE ROOFTOP DISCONNECTION DESIGN IS BASED ON A TOTAL ROOFTOP SQUARE FOOTAGE OF 3,960 S.F. ANY ADDITIONAL SQUARE FOOTAGE OF ROOFTOP (BASED ON WHAT TYPE OF HOUSE IS SOLD ON EACH LOT) OTHER THAN WHAT IS SHOWN ON SHEET 15 SHALL REQUIRE ADDITIONAL DOWNSPOUTS (1 FOR EVERY 500 S.F.).

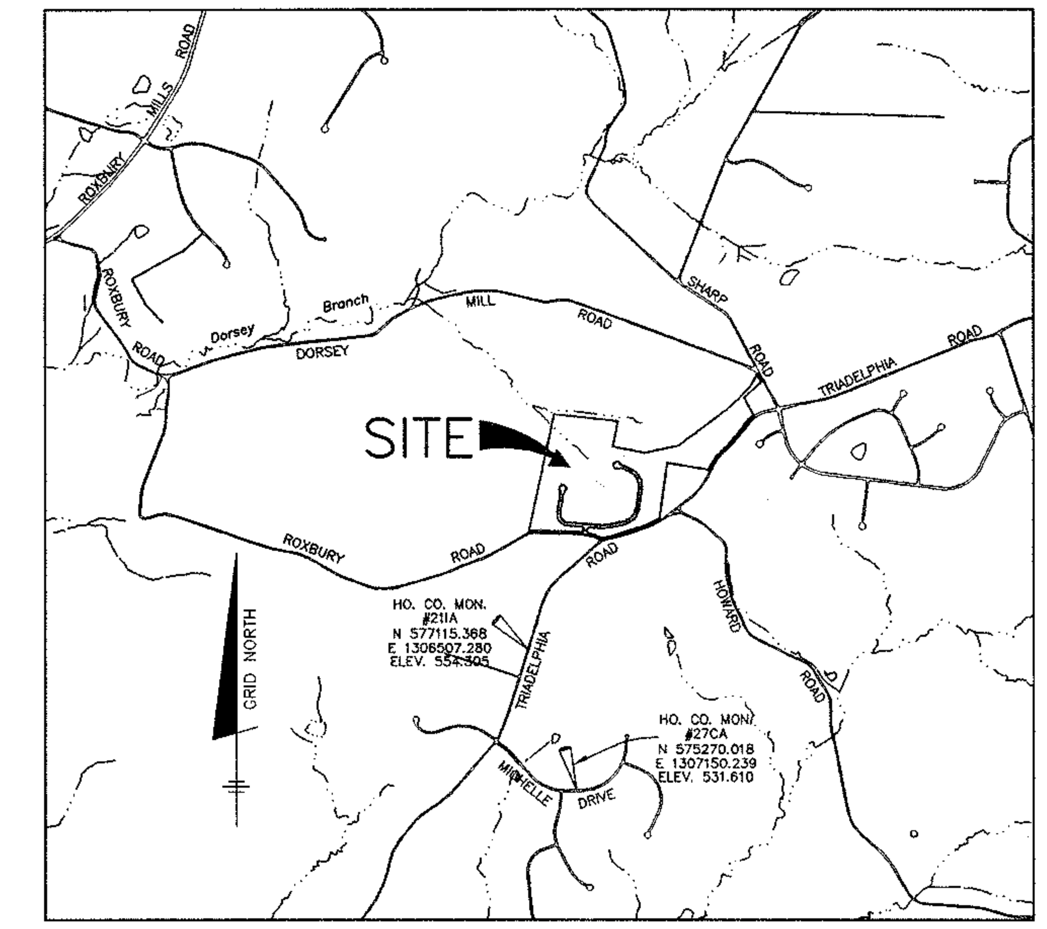


PLAN VIEW
SCALE: 1" = 200'

[box] PHASE 1

[hatched box] PHASE 2

THE PROPOSED LOTS WITHIN PHASE 2 ARE WAITING TO PASS THE ADEQUATE SCHOOL TEST AND WILL NOT BE ALLOWED TO BE PROCESSED UNTIL NOTIFIED BY HOWARD COUNTY.



21IA - STAMPED BRASS DISC SET 1"-2" BELOW SURFACE ON A CONCRETE COLUMN (3' DEEP). LOCATED 4' FROM WEST EDGE OF TRIADELPHIA ROAD 99' FROM BGE POLE #134679.

27CA - STAMPED BRASS DISC SET 1"-2" BELOW SURFACE ON A CONCRETE COLUMN (3' DEEP). LOCATED 2.8' FROM PK NAIL IN MACADAM CURB ON NORTH SIDE OF MICHELLE DRIVE. (APPROX. 158' FROM SAPLING DRIVE).

VICINITY MAP
SCALE: 1" = 2000'

SITE ANALYSIS DATA CHART
(DOES NOT INCLUDE AREA FOR CLARKS WOODS 2)

GENERAL SITE DATA

1.) PRESENT ZONING: ____ RC-DEO
2.) APPLICABLE DPZ FILE REFERENCES: ____ S-01-23, F-98-29, P-04-005
3.) PROPOSED USE OF SITE: ____ RESIDENTIAL (SFD)
4.) PROPOSED WATER AND SEWER SYSTEMS: ____ PRIVATE

AREA TABULATION

1.) GROSS TRACT AREA ____ 62.31±
2.) AREA WITHIN 100-YEAR FLOODPLAIN ____ 1.81 AC.±
3.) TOTAL AREA OF 25% OR GREATER STEEP SLOPES ____ 0.00 AC.±
AREA NOT IN FLOODPLAIN (FOR NTA CALC) ____ 0.00 AC.±
4.) NET TRACT AREA ____ 60.50 AC.±
5.) TOTAL NUMBER OF LOTS ALLOWED PER ZONING
1 UNIT PER 4.25 GROSS ACRES ____ 14
1 UNIT PER 2 NET ACRES (MAX) ____ 30
6.) TOTAL NUMBER OF RESIDENTIAL UNITS/LOTS PROPOSED ON THIS SUBMISSION ____ 22
(POTENTIAL 5 ADDITIONAL LOTS IN PHASE 2)
7.) AREA OF CLUSTER LOTS ____ 22.57 AC.±
8.) AREA OF NON-BUILDABLE PRESERVATION PARCELS ____ 30.02 AC.±
(PARCELS A - H)
9.) AREA OF BUILDABLE PRESERVATION PARCELS ____ N/A
10.) AREA OF NON-BUILDABLE BULK PARCELS ____ 5.23 AC.±
(PARCEL I)
11.) AREA OF BUILDABLE BULK PARCELS ____ N/A
12.) AREA OF ROAD RIGHT-OF-WAY ____ 4.49 AC.±
13.) OPEN SPACE ON-TOTAL SITE* ____ N/A
14.) AREA OF RECREATIONAL OPEN SPACE REQUIRED ____ N/A

* 5% OF GROSS REQUIRED (3.12 AC.±) OR NONE IF THE PRES. PARCEL IS DEDICATED TO THE HOA OR HOWARD COUNTY.

SHEET INDEX

NO.	TITLE
1	TITLE SHEET
2	ROAD PLAN
3	ROAD PROFILES
4	ROAD PROFILES AND DETAILS AND SOIL BORING LOGS
5	STORM DRAIN DRAINAGE AREA MAP
6	STORM DRAIN PROFILES AND DETAILS
7	STORM DRAIN PROFILES
8	GRADING, SEDIMENT AND EROSION CONTROL PLAN
9	GRADING, SEDIMENT AND EROSION CONTROL PLAN
10	GRADING, SEDIMENT AND EROSION CONTROL PLAN
11	SWM NOTES AND SEDIMENT & EROSION CONTROL NOTES & DETAILS
12	LANDSCAPE PLAN
13	SWM DETAILS – EXTENDED DETENTION FACILITY
14	SWM DETAILS – BIO-RETENTION/RAINGARDENS AND SWM LANDSCAPING
15	SWM DETAILS – DISCONNECTION CREDIT PLAN
16	FOREST CONSERVATION PLAN
17	FOREST CONSERVATION PLAN

NO.	DATE	REVISION

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

[signature] HS — 8-2-04
CHIEF, BUREAU OF HIGHWAYS — DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

[signature] — 8/10/04
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE Ko

[signature] — 8/6/04
CHIEF, DEVELOPMENT ENGINEERING DIVISION MAJ — DATE

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 418
ELLICOTT CITY, MARYLAND 21043
phone: 410-465-6105 ▲ fax: 410-465-6644
email: Benchmrk@cais.com

[seal: STATE OF MARYLAND ... PROFESSIONAL ENGINEER] [signature] 6/17/04

OWNER:
EDGEWOOD FARM, INC.
14919 ROXBURY ROAD
GLENELG, MARYLAND 21737

DEVELOPER:
TOLL BROTHERS, INC.
7164 COLUMBIA GATEWAY DRIVE
SUITE 230
COLUMBIA, MARYLAND 21046
410-872-9105

PROJECT: TRIADELPHIA CROSSING
PHASE 1
LOTS 1-22 AND NON-BUILDABLE PRESERVATION PARCELS 'A' THRU 'H' AND NON-BUILDABLE BULK PARCEL 'I'

LOCATION: TAX MAP: 21 GRID: 17 & 23 PARCEL: 97 ZONED: RC-DEO
FOURTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: TITLE SHEET

DESIGN: DBT	DRAFT: DBT	CHECK: DAM	DATE: JUNE, 2004	PROJECT NO. 1634
			SCALE: AS SHOWN	SHEET 1 OF 17

F-04-118

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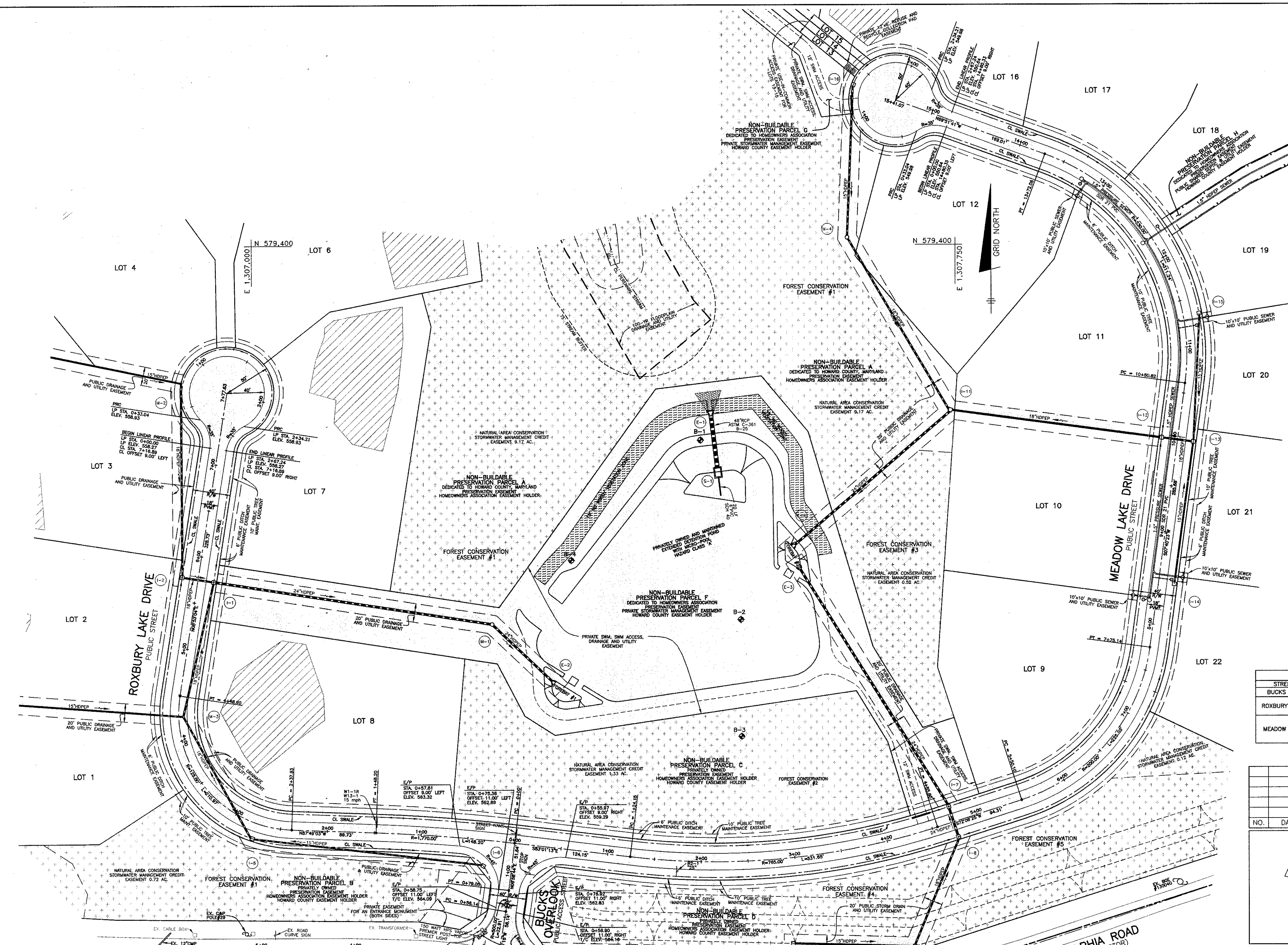


APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 8-2-04

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 8/10/04

CHIEF, DEVELOPMENT ENGINEERING DIVISION MAJ — DATE 8/6/04

CENTERLINE CONTROL DATA			
STREET NAME	STATION	NORTH	EAST
BUCKS OVERLOOK	START=0+00.00	578629.05	1307260.21
	PC=0+56.14	578684.40	1307269.57
	PT=0+79.05	578707.07	1307272.88
	END=1+30.69	578758.33	1307279.15
ROXBURY LAKE DRIVE	START=0+00.00	578758.33	1307279.15
	PT=1+48.20	578770.16	1307131.50
	PC=2+37.93	578773.57	1307041.83
	PT=4+48.90	578917.79	1306923.09
	END=7+77.63	579242.57	1306973.86
MEADOW LAKE DRIVE	START=0+00.00	578758.33	1307279.15
	PC=1+25.15	578743.24	1307402.41
	PT=4+55.80	578774.43	1307729.98
	PC=5+50.10	578803.36	1307819.74
	PT=7+75.14	578967.01	1307956.62
	PC=10+60.82	579250.14	1307994.76
	PT=13+72.06	579496.79	1307846.01
	END=15+41.07	579554.97	1307687.33

CENTER LINE CURVE DATA							
STREET NAME	STATION	RADIUS	ARC	DELTA	TANGENT	CHORD	
BUCKS OVERLOOK	0+56.14 TO 0+79.05	500.00'	22.91'	02°37'32"	11.46'	N08°17'30"E	22.91'
ROXBURY LAKE DRIVE	0+00.00 TO 1+48.20	1,770.00'	148.20'	04°47'50"	74.14'	N85°25'08"W	148.15'
	2+37.93 TO 4+48.90	125.00'	210.97'	96°42'07"	140.55'	N39°27'59"W	186.81'
MEADOW LAKE DRIVE	1+25.15 TO 4+55.80	765.00'	331.65'	24°50'22"	168.47'	N84°33'36"E	329.06'
	5+50.10 TO 7+75.14	200.00'	225.03'	64°28'02"	126.11'	N39°54'24"E	213.35'
	10+60.82 TO 13+72.06	230.00'	311.24'	77°32'04"	184.71'	N31°05'39"W	288.03'

NO.	DATE	REVISION

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 418
ELLICOTT CITY, MARYLAND 21043
phone: 410-465-6105 ▲ fax: 410-465-6644
email: Benchmrk@cais.com

6/17/04

OWNER:
EDGEWOOD FARM, INC.
14919 ROXBURY ROAD
GLENELG, MARYLAND 21737

DEVELOPER:
TOLL BROTHERS, INC.
7164 COLUMBIA GATEWAY DRIVE
SUITE 230
COLUMBIA, MARYLAND 21046
410-872-9105

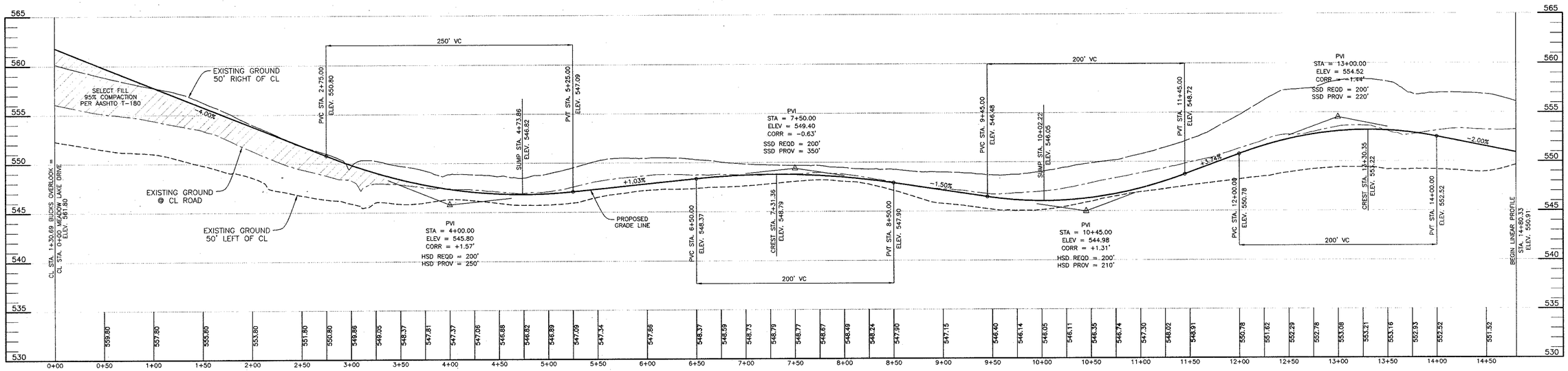
PROJECT: TRIADELPHIA CROSSING
PHASE 1
LOTS 1-22 AND NON-BUILDABLE PRESERVATION PARCELS 'A' THRU 'H' AND NON-BUILDABLE BULK PARCEL 'I'

LOCATION: TAX MAP: 21 PARCEL: 97
GRID: 17 & 23 ZONED: RC-DEO
FOURTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

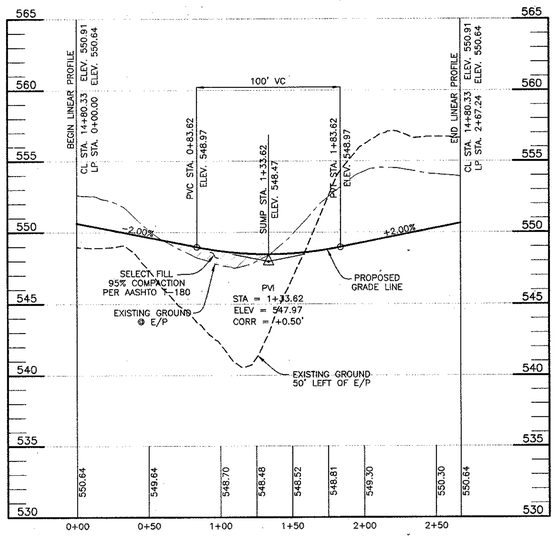
TITLE: ROAD PLAN

DESIGN: DBT	DRAFT: DBT	CHECK: CAM	DATE: JUNE, 2004	PROJECT NO. 1634
			SCALE: 1" = 50'	SHEET 2 OF 17

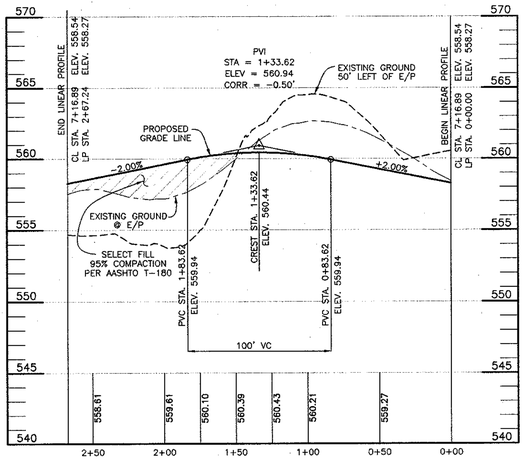
F-04-118



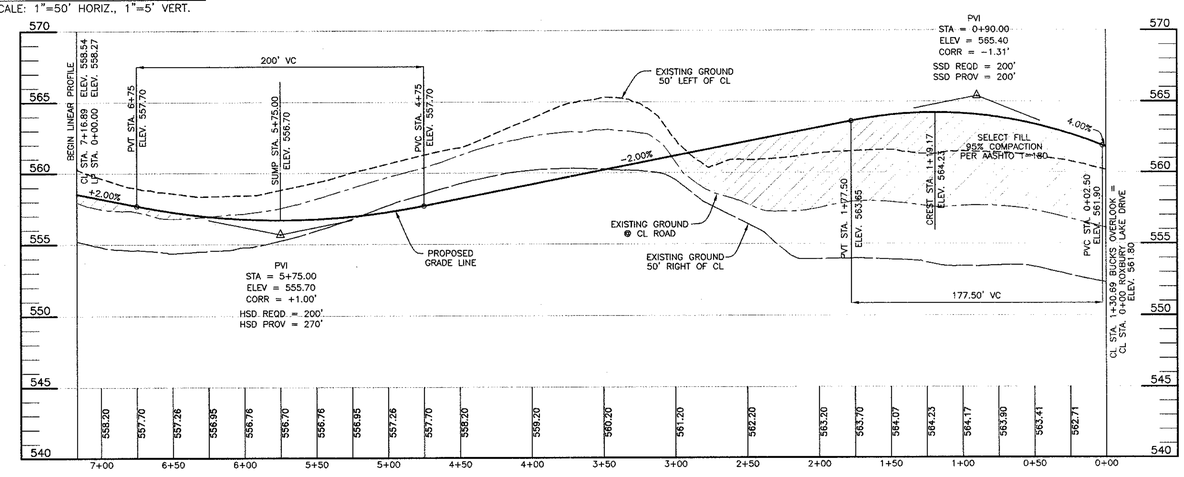
MEADOW LAKE DRIVE
SCALE: 1"=50' HORIZ., 1"=5' VERT.



MEADOW LAKE DRIVE LINEAR PROFILE
SCALE: 1"=50' HORIZ., 1"=5' VERT.



ROXBURY LAKE DRIVE LINEAR PROFILE
SCALE: 1"=50' HORIZ., 1"=5' VERT.



ROXBURY LAKE DRIVE
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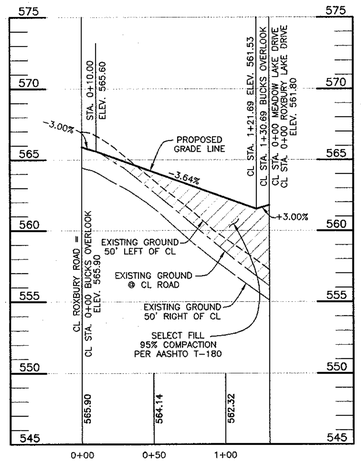

BUCKS OVERLOOK
SCALE: 1"=50' HORIZ., 1"=5' VERT.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 8-2-04

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 7/16/04

CHIEF, DEVELOPMENT ENGINEERING DIVISION MAJ — DATE 8/6/04

NO.	DATE	REVISION

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 418
ELLICOTT CITY, MARYLAND 21043
phone: 410-465-6105 ▲ fax: 410-465-6844
email: Benchmrk@cais.com

STATE OF MARYLAND — DONALD MOON — No. 21468 — REGISTERED PROFESSIONAL ENGINEER
6/17/04

OWNER:
EDGEWOOD FARM, INC.
14919 ROXBURY ROAD
GLENELG, MARYLAND 21737

DEVELOPER:
TOLL BROTHERS, INC.
7164 COLUMBIA GATEWAY DRIVE
SUITE 230
COLUMBIA, MARYLAND 21046
410-872-9105

PROJECT: TRIADELPHIA CROSSING PHASE 1
LOTS 1-22 AND NON-BUILDABLE PRESERVATION PARCELS 'A' THRU 'H' AND NON-BUILDABLE BULK PARCEL 'I'

LOCATION: TAX MAP: 21 PARCEL: 87 GRID: 17 & 23 ZONED: RC-DEO FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

TITLE: ROAD PROFILES

DESIGN: DBT	DRAFT: DBT	CHECK: CAM

DATE: JUNE, 2004 — PROJECT NO. 1634

SCALE: AS SHOWN — SHEET 3 OF 17

F-04-118

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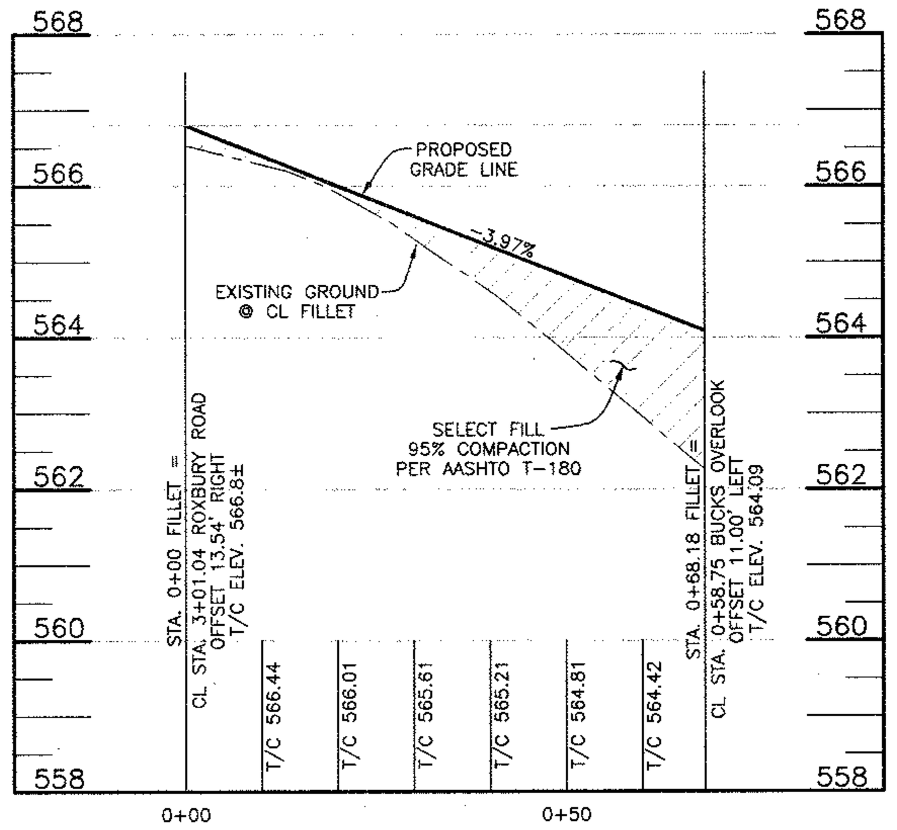
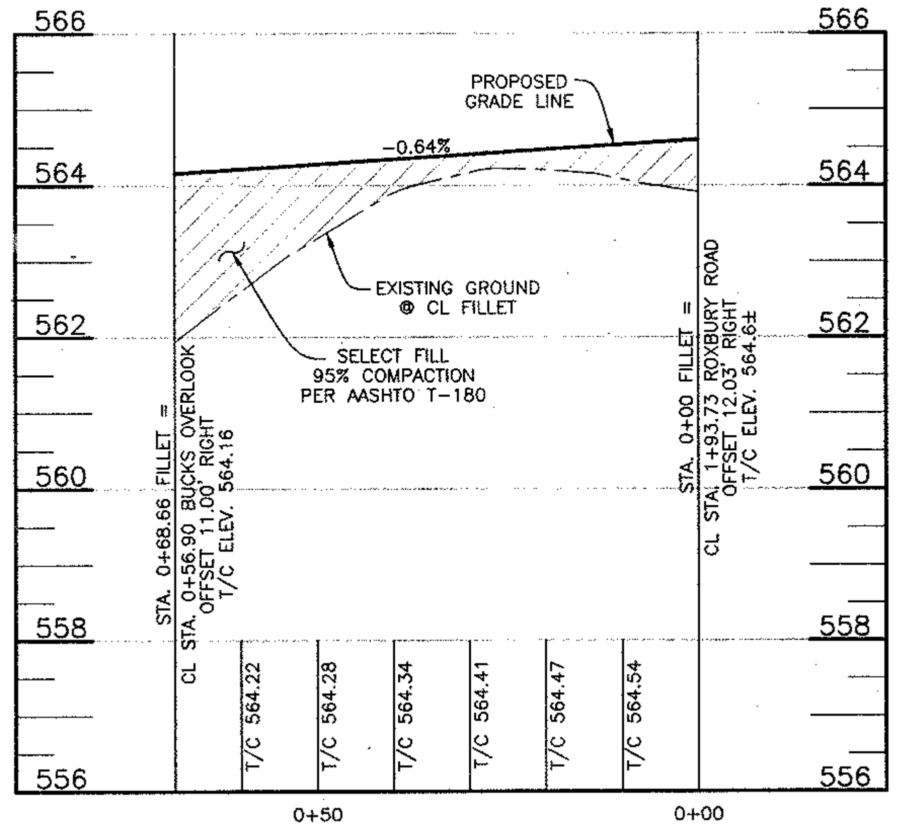


FILLET PROFILE WEST CORNER ROXBURY ROAD/BUCKS OVERLOOK

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



FILLET PROFILE EAST CORNER ROXBURY ROAD/BUCKS OVERLOOK

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

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.

RECORD OF SOIL EXPLORATION

Page 1 of 1

Project Name: Triadelphia Meadows SWM — Location: Howard County, Maryland — Boring Number: B-1 — Job #: 02103A

SAMPLER: Hammer Wt. 140 Lbs. — Hammer Drop 30 Inches — Pipe Size 2.0 Inches OD — Hole Diameter — Rock Core Dia. — Boring Method HSA

Datum — Surf. Elev. 534.5 — Date Started 02-25-02 — Foreman Tim Celmer — Inspector — Completed 02-25-02

ELEV.	SOIL DESCRIPTION (Color, Moisture, Density, Size, Proportion)	STRA. DEPTH	DEPTH SCALE	CON	SAMPLE BLOWS 6"	NO.	REC.	BORING & SAMPLING NOTES
	SURFACE		0.0					
	Brown, moist, soft, sandy silt, trace roots (Fill) (ML)	2.0		D	2-2-3	1	10"	
	Brown, moist, loose, silty fine sand (SM)	5.5	5.0	D	4-4-5	2	12"	
	Brown, moist, medium stiff silt, trace to little fine sand (ML)			D	3-3-3	3	18"	Caved in at 7.7' at Completion
		11.0	10.0	D	3-3-5	4	10"	Caved in at 8.0' after 24 hrs.
	Brown, moist, hard silt, trace fine sand trace decomposed rock fragments (ML)	15.0	15.0	D	10-15-16	5	18"	
	Bottom of Hole at 15.0'		20.0					

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE NOTED. PT-PRESSED SHELBY TUBE, CA-CONTINUOUS FLIGHT AUGER, RC-ROCK CORE

SAMPLE CONDITIONS: D-DISINTEGRATED, I-INTACT, U-UNDISTURBED, L-LOST

GROUND WATER DEPTH: AT COMPLETION Dry FT. AFTER 24 hrs Dry FT. AFTER ___ FT.

BORING METHOD: HSA-HOLLOW STEM AUGERS, CFA-CONT. FLIGHT AUGERS, DC-DRIVING CASING, MD-MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" OD SAMPLER 1' WITH 140# HAMMER FALLING 30";COUNT MADE AT 6" INTERVALS

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.

RECORD OF SOIL EXPLORATION

Page 1 of 1

Project Name: Triadelphia Meadows SWM — Location: Howard County, Maryland — Boring Number: B-2 — Job #: 02103A

SAMPLER: Hammer Wt. 140 Lbs. — Hammer Drop 30 Inches — Pipe Size 2.0 Inches OD — Hole Diameter — Rock Core Dia. — Boring Method HSA

Datum — Surf. Elev. 539.3 — Date Started 02-25-02 — Foreman Tim Celmer — Inspector — Completed 02-25-02

ELEV.	SOIL DESCRIPTION (Color, Moisture, Density, Size, Proportion)	STRA. DEPTH	DEPTH SCALE	CON	SAMPLE BLOWS 6"	NO.	REC.	BORING & SAMPLING NOTES
	SURFACE		0.0					2" Topsoil
	Brown and gray, moist, medium stiff, silt, trace fine sand, trace clay, trace roots (Fill) (ML)	2.0		D	2-3-4	1	14"	
	Brown, moist, loose, silty sand trace mica, (SM)	5.5	5.0	D	3-4-5	2	16"	
	Brown, moist, medium dense to dense, silty fine sand, trace mica trace rock fragments (SM)			D	7-8-9	3	14"	Caved in at 7.0' at Completion
			10.0	D	18-17-13	4	18"	Caved in at 4.0' after 24 hrs.
		15.0	15.0	D	10-10-15	5	10"	
	Bottom of Hole at 15.0'		20.0					

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE NOTED. PT-PRESSED SHELBY TUBE, CA-CONTINUOUS FLIGHT AUGER, RC-ROCK CORE
SAMPLE CONDITIONS: D-DISINTEGRATED, I-INTACT, U-UNDISTURBED, L-LOST

GROUND WATER DEPTH: AT COMPLETION 6.7' FT. AFTER 24 hrs 3.5' FT. AFTER ___ FT.

BORING METHOD: HSA-HOLLOW STEM AUGERS, CFA-CONT. FLIGHT AUGERS, DC-DRIVING CASING, MD-MUD DRILLING
STANDARD PENETRATION TEST-DRIVING 2" OD SAMPLER 1' WITH 140# HAMMER FALLING 30";COUNT MADE AT 6" INTERVALS

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.

RECORD OF SOIL EXPLORATION

Page 1 of 1

Project Name: Triadelphia Meadows SWM — Location: Howard County, Maryland — Boring Number: B-3 — Job #: 02103A

SAMPLER: Hammer Wt. 140 Lbs. — Hammer Drop 30 Inches — Pipe Size 2.0 Inches OD — Hole Diameter — Rock Core Dia. — Boring Method HSA

Datum — Surf. Elev. 543.0 — Date Started 02-25-02 — Foreman Tim Celmer — Inspector — Completed 02-25-02

ELEV.	SOIL DESCRIPTION (Color, Moisture, Density, Size, Proportion)	STRA. DEPTH	DEPTH SCALE	CON	SAMPLE BLOWS 6"	NO.	REC.	BORING & SAMPLING NOTES
	SURFACE		0.0					3" Topsoil
	Brown, moist, medium stiff sandy silt, trace roots (Fill) (ML)	2.0		D	3-3-3	1	5"	
	Grey, moist, medium dense silty fine sand (SM)		5.0	D	6-6-7	2	14"	
		8.0		D	9-7-8	3	18"	Caved in at 7.8' at Completion
	Brown, moist, medium stiff, silt, trace to little fine sand (ML)		10.0	D	2-2-4	4	12"	Caved in at 4.5' after 24 hrs.
		15.0	15.0	D	3-4-5	5	16"	
	Bottom of Hole at 15.0'		20.0					

GROUND WATER DEPTH: AT COMPLETION Dry FT. AFTER 24 hrs Dry FT. AFTER ___ FT.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.

RECORD OF SOIL EXPLORATION

Page 1 of 1

Project Name: Triadelphia Meadows SWM — Location: Howard County, Maryland — Boring Number: B-4 — Job #: 02103A

SAMPLER: Hammer Wt. 140 Lbs. — Hammer Drop 30 Inches — Pipe Size 2.0 Inches OD — Hole Diameter 6" — Rock Core Dia. - — Boring Method HSA

Datum — Surf. Elev. 536.4 — Date Started 10-28-03 — Foreman Lamont Smith — Inspector — Completed 10-28-03

ELEV.	SOIL DESCRIPTION (Color, Moisture, Density, Size, Proportion)	STRA. DEPTH	DEPTH SCALE	CON	SAMPLE BLOWS 6"	NO.	REC.	BORING & SAMPLING NOTES
	SURFACE		0.0					6" Topsoil
	Light brown, moist, soft, clay, trace silt, trace fine sand (CL)	2.0		D	2-2-3	1	16"	
	Light brown, moist, stiff silty clay, trace gravel (ML/CL)	4.5		D	4-5-6	2	18"	
	Light brown, moist, medium stiff to stiff clayey silt, trace mica, trace fine sand, trace gravel (CL/ML)		5.0	D	4-4-8	3	18"	Caved in at 4.8' at Completion
		8.5		D	2-3-4-9	4	17"	Groundwater encountered at 7.5' while drilling
	Bottom of Test Hole at 8.5'		10.0 / 15.0 / 20.0					

GROUND WATER DEPTH: AT COMPLETION Dry FT. AFTER 24 hrs ___ FT. AFTER ___ FT.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.

RECORD OF SOIL EXPLORATION

Page 1 of 1

Project Name: Triadelphia Meadows SWM — Location: Howard County, Maryland — Boring Number: B-5 — Job #: 02103A

SAMPLER: Hammer Wt. 140 Lbs. — Hammer Drop 30 Inches — Pipe Size 2.0 Inches OD — Hole Diameter 6" — Rock Core Dia. - — Boring Method HSA

Datum — Surf. Elev. 509.1 — Date Started 10-28-03 — Foreman Lamont Smith — Inspector — Completed 10-28-03

ELEV.	SOIL DESCRIPTION (Color, Moisture, Density, Size, Proportion)	STRA. DEPTH	DEPTH SCALE	CON	SAMPLE BLOWS 6"	NO.	REC.	BORING & SAMPLING NOTES
	SURFACE		0.0					7" Topsoil
	Light brown, moist, very soft, silty clay, trace organics, trace fine sand (CL/ML)	2.0		D	1-1-2	1	17"	
	Light brown, moist, very soft to soft, silty clay, some mica, trace fine sand (CL/ML)			D	2-2-2	2	18"	
		7.0	5.0	I	2-1-2	3	18"	Caved in at 5.5' at Completion
	Dark brown, moist, medium stiff, micaceous clayey silt, trace gravel-consisting of decomposed phyllite and schist fragments (CL/ML)	9.0		I	2-2-6	4		
	Bottom of Test Hole at 9.0'		10.0 / 15.0 / 20.0					

GROUND WATER DEPTH: AT COMPLETION Dry. AFTER ___ FT. AFTER ___ FT.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.

RECORD OF SOIL EXPLORATION

Page 1 of 1

Project Name: Triadelphia Meadows SWM — Location: Howard County, Maryland — Boring Number: B-6 — Job #: 02103A

SAMPLER: Hammer Wt. 140 Lbs. — Hammer Drop 30 Inches — Pipe Size 2.0 Inches OD — Hole Diameter 6" — Rock Core Dia. - — Boring Method HSA

Datum — Surf. Elev. 512.5 — Date Started 10-28-03 — Foreman Lamont Smith — Inspector — Completed 10-28-03

ELEV.	SOIL DESCRIPTION (Color, Moisture, Density, Size, Proportion)	STRA. DEPTH	DEPTH SCALE	CON	SAMPLE BLOWS 6"	NO.	REC.	BORING & SAMPLING NOTES
	SURFACE		0.0					7" Topsoil
	Dark brown, moist, very soft clayey silt, trace fine sand, trace gravel and decomposed rock fragments (CL/ML)	2.0		D	2-1-1	1	12"	No groundwater encountered while drilling
	Light brown, moist, soft to medium stiff, silty clay/clayey silt, trace mica, trace fine sand (CL/ML)			D	2-2-3	2	18"	
			5.0	D	2-3-3	3	16"	
				I	3-3-3	4	18"	Caved in at 8.0' at Completion
		12.5	10.0	I/D	2-3-4-5	5	13"	
	Bottom of Test Hole at 12.5'		15.0 / 20.0					

GROUND WATER DEPTH: AT COMPLETION Dry. AFTER ___ FT. AFTER ___ FT.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.

RECORD OF SOIL EXPLORATION

Page 1 of 1

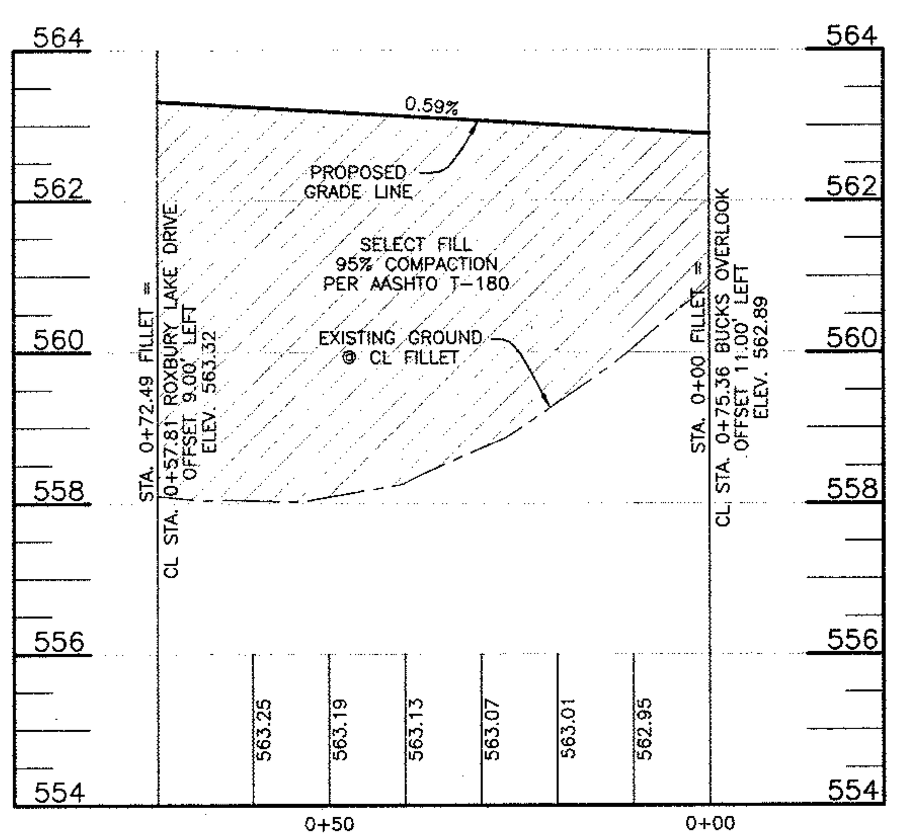
Project Name: Triadelphia Meadows SWM — Location: Howard County, Maryland — Boring Number: B-7 — Job #: 02103A

SAMPLER: Hammer Wt. 140 Lbs. — Hammer Drop 30 Inches — Pipe Size 2.0 Inches OD — Hole Diameter 6" — Rock Core Dia. - — Boring Method HSA

Datum — Surf. Elev. 513.9 — Date Started 10-28-03 — Foreman Lamont Smith — Inspector — Completed 10-28-03

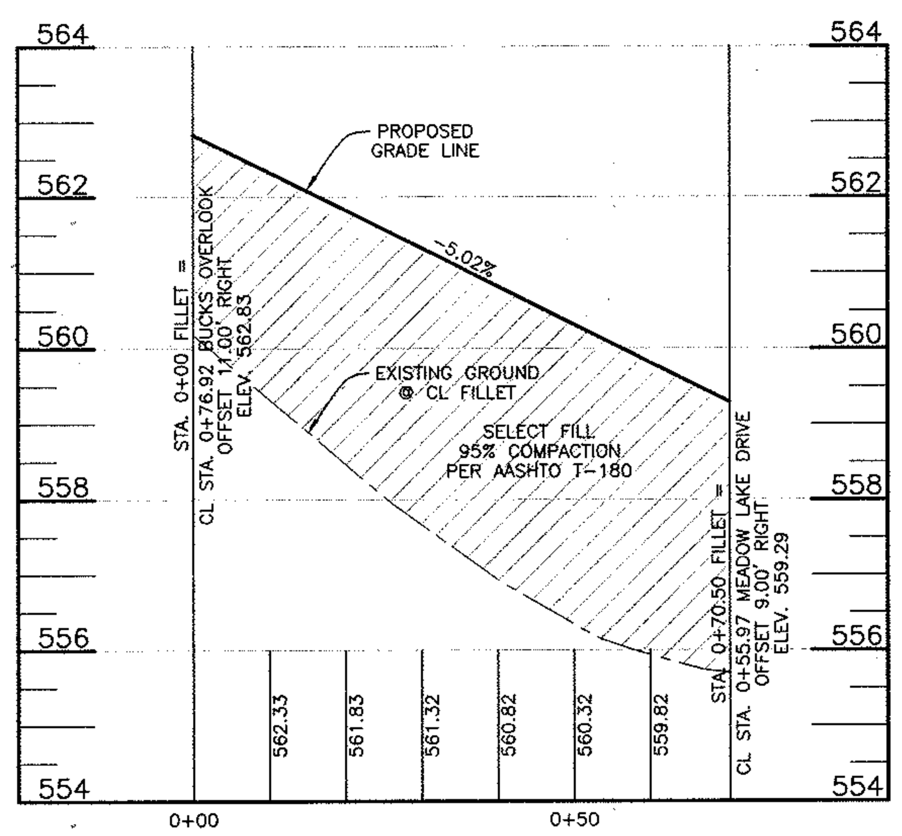
ELEV.	SOIL DESCRIPTION (Color, Moisture, Density, Size, Proportion)	STRA. DEPTH	DEPTH SCALE	CON	SAMPLE BLOWS 6"	NO.	REC.	BORING & SAMPLING NOTES
	SURFACE		0.0					7" Topsoil
	Dark brown, moist, very soft, silty clay, trace gravel trace fine sand (CL)	2.0		D	1-1-1	1	14"	No groundwater encountered while drilling
	Dark brown to tan, moist, very soft to soft, clayey silt, trace mica, trace fine sand, trace organics, possibly weatherrock (ML)			D	2-2-2	2	15"	
			5.0	D	2-1-2	3	18"	
				D	2-2-2	4	16"	Caved in at 8.7' at Completion
			10.0	D	2-2-3	5	15"	
		14.0		D	2-2-3-3	6	17"	
	Bottom of Test Hole at 14.0'		15.0 / 20.0					

GROUND WATER DEPTH: AT COMPLETION Dry. AFTER ___ FT. AFTER ___ FT.



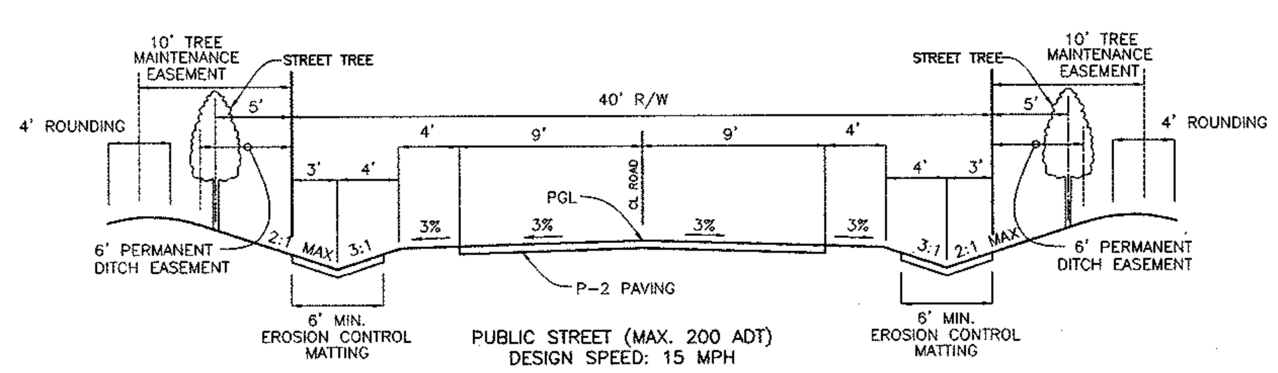
FILLET PROFILE BUCKS OVERLOOK/ ROXBURY LAKE DRIVE

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



FILLET PROFILE BUCKS OVERLOOK/ MEADOW LAKE DRIVE

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



PUBLIC STREET (MAX. 200 ADT)
DESIGN SPEED: 15 MPH

TYPICAL ROADWAY SECTION

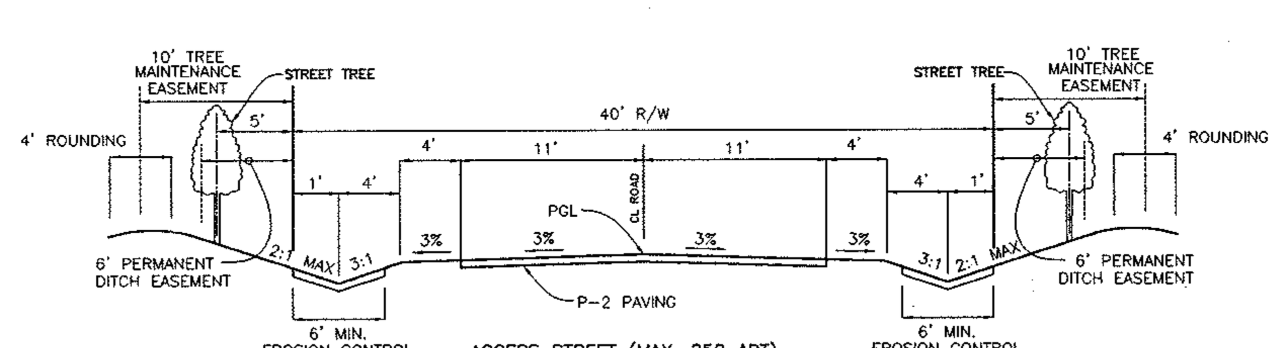
ROXBURY LAKE DRIVE

STA. 0+47 TO 3+30.00

MEADOW LAKE DRIVE

STA. 0+47 TO 3+30.00

NOT TO SCALE



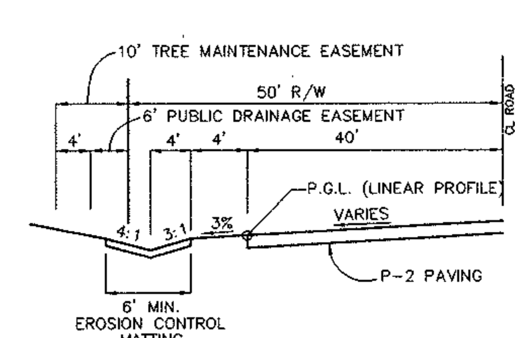
ACCESS STREET (MAX. 250 ADT)
DESIGN SPEED: 25 MPH

TYPICAL ROADWAY SECTION

BUCKS OVERLOOK

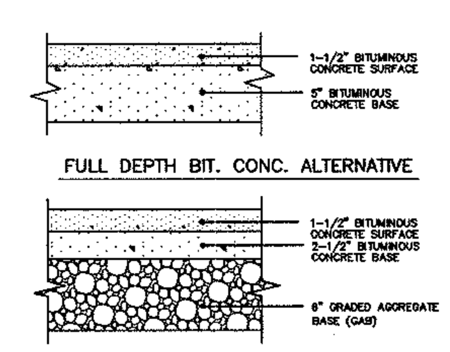
STA. 0+47 TO 3+30.00

NOT TO SCALE



TYPICAL ROADWAY SECTION AT CUL-DE-SAC

LINEAR PROFILE
NOT TO SCALE



P-2 PAVING DETAIL

NOT TO SCALE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS	
CHIEF, BUREAU OF HIGHWAYS (signature)	8-2-04 DATE
APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING	
CHIEF, DIVISION OF LAND DEVELOPMENT (signature)	8/10/04 DATE
CHIEF, DEVELOPMENT ENGINEERING DIVISION (signature) MAJ	8/6/04 DATE

NO.	DATE	REVISION

BENCHMARK ENGINEERING, INC.
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 418
ELLICOTT CITY, MARYLAND 21043
phone: 410-465-6105 ▲ fax: 410-465-6644
email: Benchmrk@cais.com

(Seal: STATE OF MARYLAND PROFESSIONAL ENGINEER — signature) 6/17/04

OWNER: EDGEWOOD FARM, INC. 14919 ROXBURY ROAD GLENELG, MARYLAND 21737

DEVELOPER: TOLL BROTHERS, INC. 7164 COLUMBIA GATEWAY DRIVE SUITE 230 COLUMBIA, MARYLAND 21046 410-872-9105

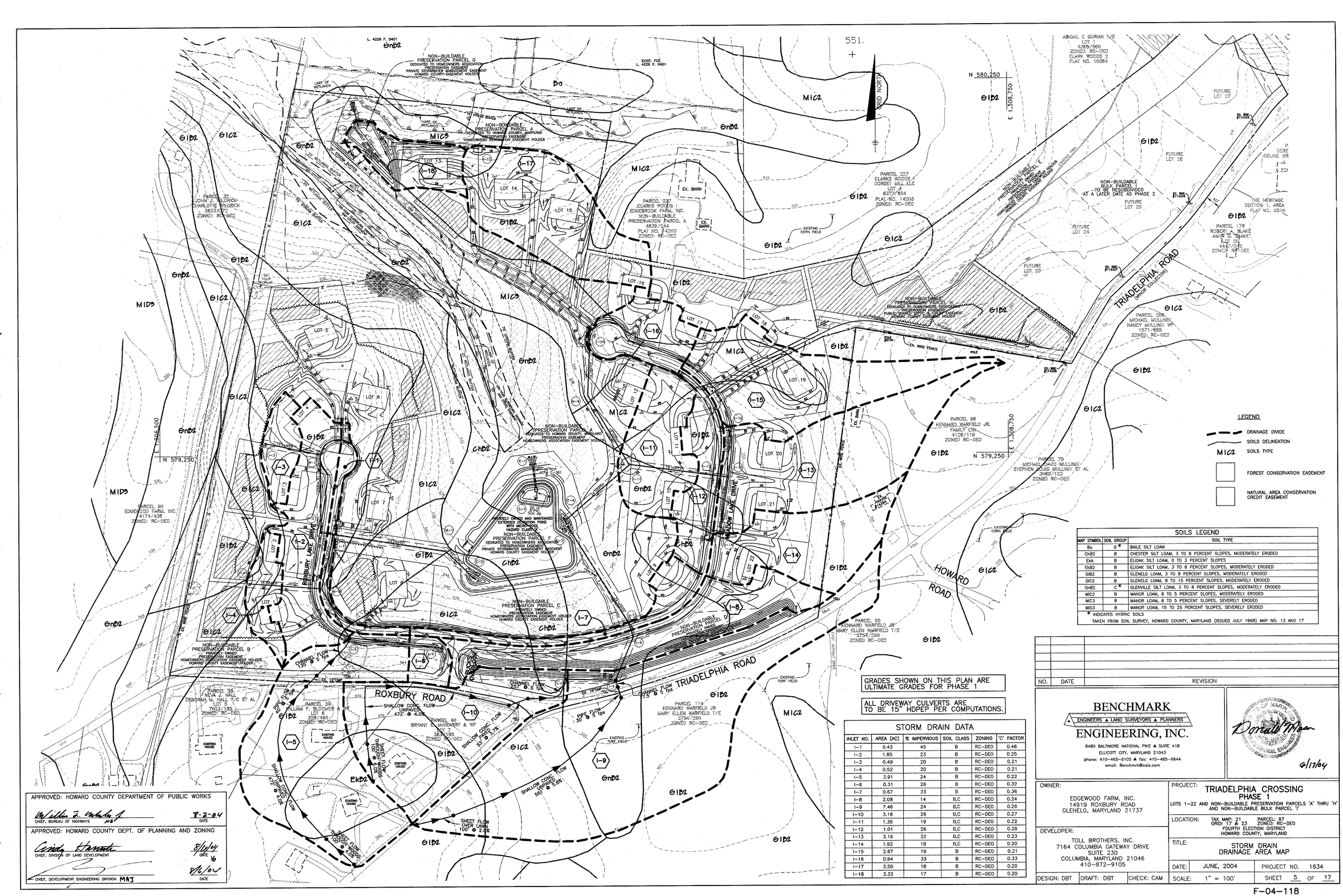
PROJECT: TRIADELPHIA CROSSING PHASE 1
LOTS 1-22 AND NON-BUILDABLE PRESERVATION PARCELS 'A' THRU 'H' AND NON-BUILDABLE BULK PARCEL 'I'

LOCATION: TAX MAP: 21 PARCEL: 97 GRID: 17 & 23 ZONED: RC-DEO FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

TITLE: ROAD PROFILES AND DETAILS AND SOIL BORINGS

DESIGN: DBT	DRAFT: DBT	CHECK: CAM	DATE: JUNE, 2004	PROJECT NO. 1634
			SCALE: AS SHOWN	SHEET 4 OF 17

F-04-118



SOILS LEGEND		
MAP SYMBOL	SOIL GROUP	SOIL TYPE
Bo	D *	BAILE SILT LOAM
ChB2	B	CHESTER SILT LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY ERODED
EkA	B	ELIOAK SILT LOAM, 0 TO 3 PERCENT SLOPES
EkB2	B	ELIOAK SILT LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY ERODED
GIB2	B	GLENELG LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY ERODED
GIC2	B	GLENELG LOAM, 8 TO 15 PERCENT SLOPES, MODERATELY ERODED
GnB2	C *	GLENVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY ERODED
MIC2	B	MANOR LOAM, 8 TO 5 PERCENT SLOPES, MODERATELY ERODED
MIC3	B	MANOR LOAM, 8 TO 5 PERCENT SLOPES, SEVERELY ERODED
MID3	B	MANOR LOAM, 15 TO 25 PERCENT SLOPES, SEVERELY ERODED

* INDICATES HYDRIC SOILS

TAKEN FROM SOIL SURVEY, HOWARD COUNTY, MARYLAND (ISSUED JULY 1968) MAP NO. 13 AND 17

GRADES SHOWN ON THIS PLAN ARE ULTIMATE GRADES FOR PHASE 1

ALL DRIVEWAY CULVERTS ARE TO BE 15" HDPEP PER COMPUTATIONS.

STORM DRAIN DATA					
INLET NO.	AREA (AC)	% IMPERVIOUS	SOIL CLASS	ZONING	'C' FACTOR
I-1	0.43	45	B	RC-DEO	0.46
I-2	1.85	23	B	RC-DEO	0.25
I-3	0.49	20	B	RC-DEO	0.21
I-4	0.52	20	B	RC-DEO	0.21
I-5	3.91	24	B	RC-DEO	0.22
I-6	0.31	26	B	RC-DEO	0.32
I-7	0.67	33	B	RC-DEO	0.36
I-8	2.08	14	B,C	RC-DEO	0.24
I-9	7.46	24	B,C	RC-DEO	0.26
I-10	3.16	26	B,C	RC-DEO	0.27
I-11	1.36	19	B,C	RC-DEO	0.22
I-12	1.01	26	B,C	RC-DEO	0.29
I-13	3.16	22	B,C	RC-DEO	0.23
I-14	1.92	18	B,C	RC-DEO	0.20
I-15	2.67	19	B	RC-DEO	0.21
I-16	0.94	33	B	RC-DEO	0.33
I-17	2.50	18	B	RC-DEO	0.20
I-18	3.33	17	B	RC-DEO	0.20

NO.	DATE	REVISION

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 8-2-04

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 8/16/04

CHIEF, DEVELOPMENT ENGINEERING DIVISION MAJ — DATE 8/16/04

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 418
ELLICOTT CITY, MARYLAND 21043
phone: 410-465-6105 ▲ fax: 410-465-6644
email: Benchmrk@cais.com

Donald Mear — PROFESSIONAL ENGINEER — 6/17/04

OWNER:
EDGEWOOD FARM, INC.
14919 ROXBURY ROAD
GLENELG, MARYLAND 21737

DEVELOPER:
TOLL BROTHERS, INC.
7164 COLUMBIA GATEWAY DRIVE
SUITE 230
COLUMBIA, MARYLAND 21046
410-872-9105

PROJECT: TRIADELPHIA CROSSING PHASE 1
LOTS 1-22 AND NON-BUILDABLE PRESERVATION PARCELS 'A' THRU 'H' AND NON-BUILDABLE BULK PARCEL 'I'

LOCATION: TAX MAP: 21 PARCEL: 97 GRID: 17 & 23 ZONED: RC-DEO FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

TITLE: STORM DRAIN DRAINAGE AREA MAP

DESIGN: DBT | DRAFT: DBT | CHECK: CAM

DATE: JUNE, 2004 | SCALE: 1" = 100' | PROJECT NO. 1634 | SHEET 5 OF 17

F-04-118

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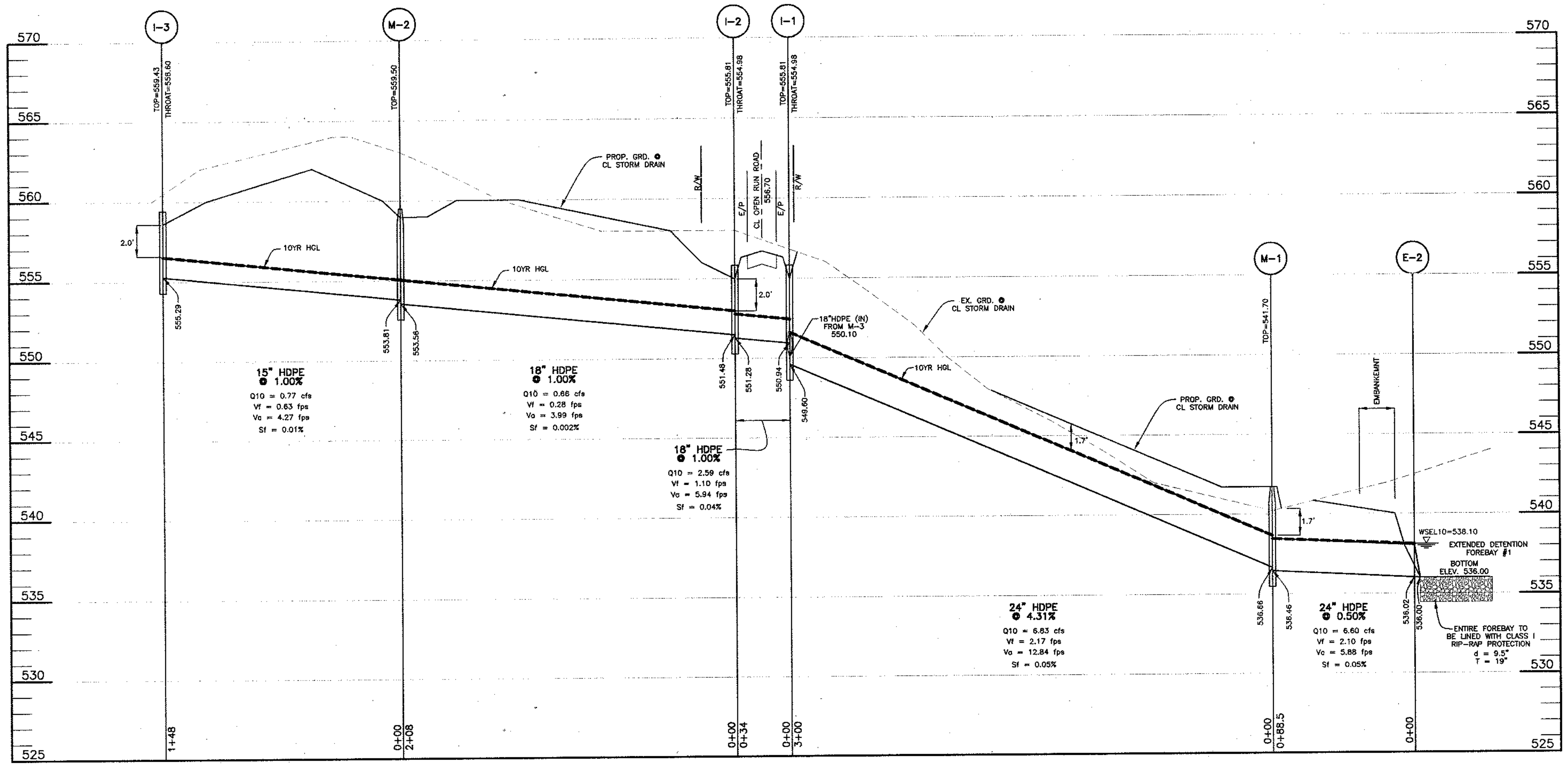
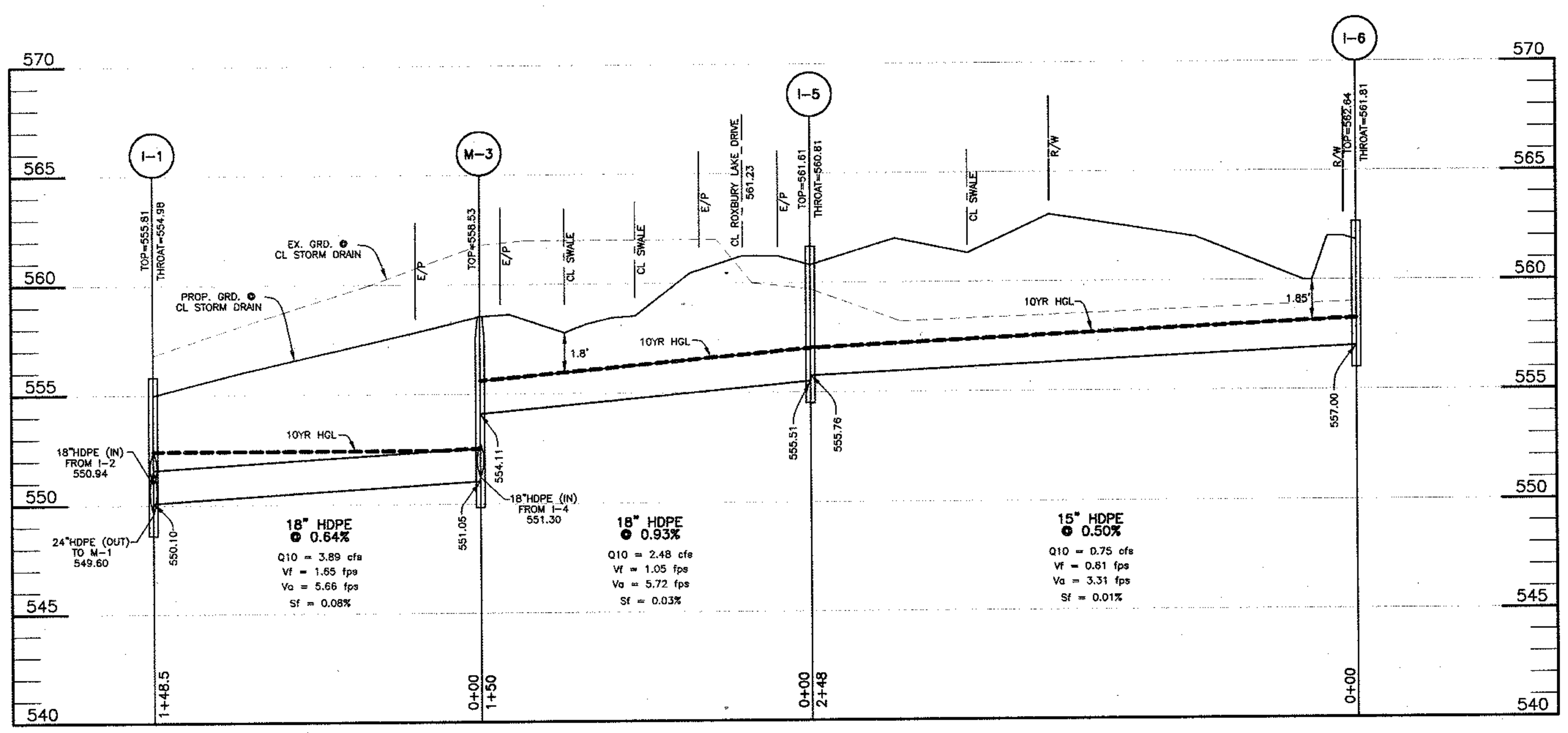
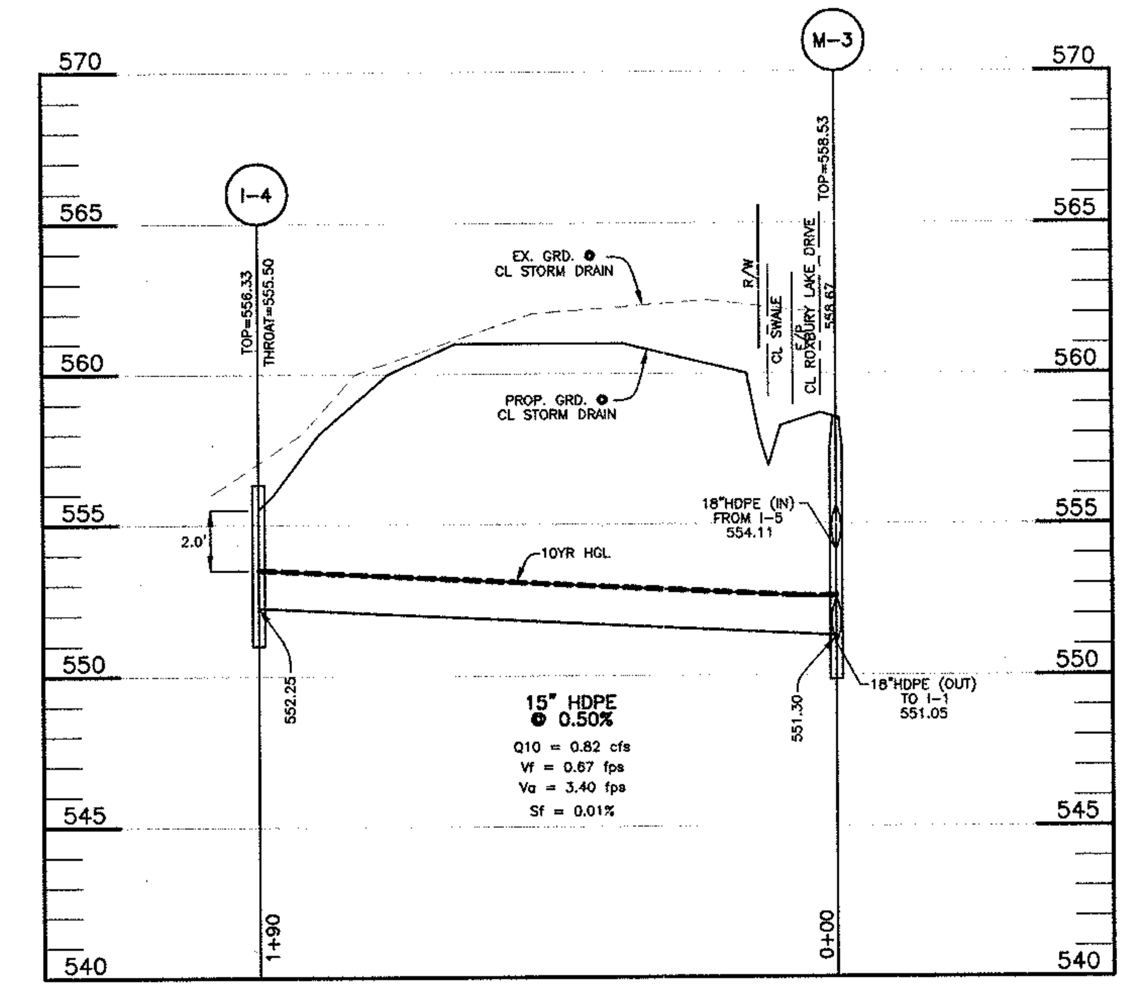




* ALL STORM DRAIN PIPE SHALL HAVE A MINIMUM OF 1.5 FEET OF COVER.



CONSTRUCTION SPECIFICATIONS

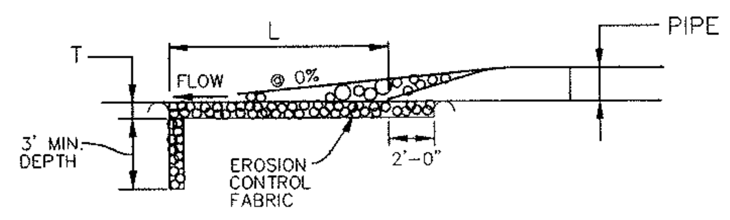
1. THE SUBGRADE FOR THE FILTER, RIP-RAP, OR GABION SHALL BE PREPARED TO THE REQUIRED LINES AND GRADES. ANY FILL REQUIRED IN THE SUBGRADE SHALL BE COMPACTED TO A DENSITY OF APPROXIMATELY THAT OF THE SURROUNDING UNDISTURBED MATERIAL.

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

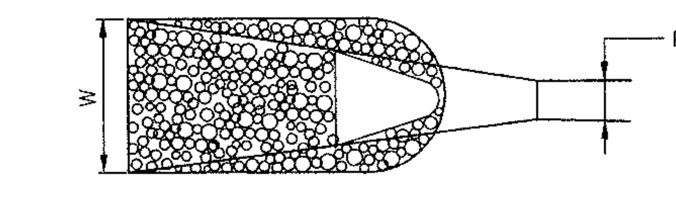
3. GEOTEXTILE CLASS C'~~~28'' OR BETTER SHALL BE PROTECTED FROM PUNCHING, CUTTING, OR TEARING. ANY DAMAGE OTHER THAN AN OCCASIONAL SMALL HOLE SHALL BE PREPARED BY PLACING ANOTHER PIECE OF GEOTEXTILE FABRIC OVER THE DAMAGED PART OR BY COMPLETELY REPLACING THE GEOTEXTILE FABRIC. ALL OVERLAPS WHETHER FOR REPAIRS OR FOR JOINING TWO PIECES OF GEOTEXTILE FABRIC 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 HE 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 DAMAGE 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.



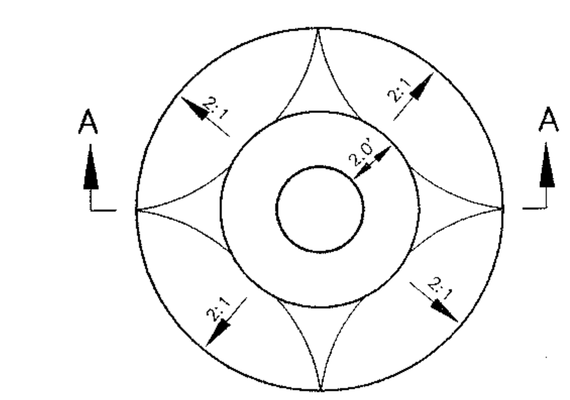
SECTION



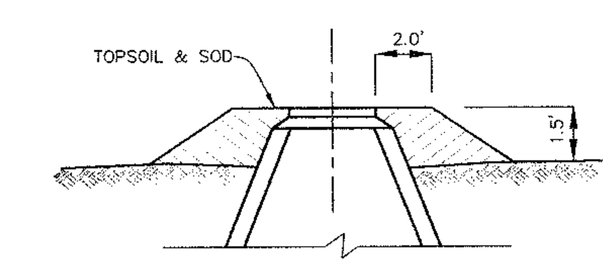
PLAN

STRUCTURE	D-50	LENGTH (L)	WIDTH (W)	THICKNESS (T)	SHA CLASS
E-1	9.5"	20'	28'	19"	I
E-2	9.5"	FOREBAY	FOREBAY	19"	I
E-3	9.5"	FOREBAY	FOREBAY	19"	I
E-4	9.5"	FOREBAY	FOREBAY	19"	I
E-5	9.5"	FOREBAY	FOREBAY	19"	I
E-6	9.5"	20'	21.25'	19"	I

OUTLET PROTECTION DETAIL
NOT TO SCALE



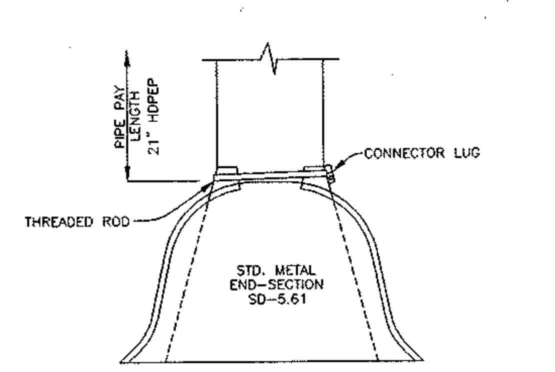
PLAN VIEW



SECTION A-A

NOTES:
1.) ALL MANHOLE FRAME AND COVERS SHALL BE FLUSH WITH GRADE EXCEPT WHEN SHOWN ON PROFILE TO BE SET HIGHER THAN GRADE.
2.) MANHOLE FRAME AND COVERS TO BE SET HIGHER THAN GRADE SHALL BE SET IN ACCORDANCE WITH THIS DETAIL.

FILL AROUND MANHOLE
NOT TO SCALE



CONNECTION FOR
HDPEP TO METAL END-SECTION
NOT TO SCALE

PIPE SCHEDULE

PIPE SIZE	LENGTH	TYPE
15"	1751.0'	HDPEP
18"	1147.5'	HDPEP
24"	1069.5'	HDPEP
48"	54.0'	RCP

STRUCTURE SCHEDULE

NO.	TYPE	LOCATION	INV. IN	INV. OUT	TOP ELEV.	HO. CO. STD.
E-1	48" CONC. END SECT.	N 579214.31 E 1307489.87	533.00	532.92	--	SD - 5.52
E-2	24" METAL END SECT.	N 578932.14 E 1307319.60	536.02	536.00	--	SD - 5.61
E-3	24" METAL END SECT.	N 579051.46 E 1307584.54	536.04	536.00	--	SD - 5.61
E-4	24" METAL END SECT.	N 579077.94 E 1307578.84	536.02	536.00	--	SD - 5.61
E-5	15" METAL END SECT.	N 580086.65 E 1307120.69	508.04	508.00	--	SD - 5.61
E-6	15" HDPE END SECT.	N 580170.56 E 1307019.61	504.54	504.51	--	HANCOR (SEE MAN. SPECS.)
I-1	'D' INLET - 6"	CL STA. 5+75.00 OFFS. 17.00' RIGHT (ROXBURY LAKE)	550.94 550.10	549.60	555.81	SD - 4.11 OR 4.39
I-2	'D' INLET - 6"	CL STA. 5+75.00 OFFS. 17.00' LEFT (ROXBURY LAKE)	551.48	551.28	555.81	SD - 4.11 OR 4.39
I-3	'D' INLET - 6"	LP STA. 0+72.86 OFFS. 158.00' LEFT (ROXBURY LAKE)	---	555.29	559.43	SD - 4.11 OR 4.39
I-4	'D' INLET - 6"	CL STA. 4+33.84 OFFS. 184.61' LEFT (ROXBURY LAKE)	---	555.25	556.33	SD - 4.11 OR 4.39
I-5	'D' INLET - 6"	CL STA. 2+75.00 OFFS. 17.00' LEFT (ROXBURY LAKE)	555.76	555.51	561.61	SD - 4.11 OR 4.39
I-6	'D' INLET - 6"	CL STA. 0+30.70 OFFS. 28.16' LEFT (ROXBURY LAKE)	---	557.00	562.64	SD - 4.11 OR 4.39
I-7	'D' INLET - 6"	CL STA. 4+73.86 OFFS. 17.00' LEFT (MEADOW LAKE)	539.99	539.79	545.93	SD - 4.11 OR 4.39
I-8	'D' INLET - 6"	CL STA. 4+73.86 OFFS. 17.00' RIGHT (MEADOW LAKE)	541.30	541.10	545.93	SD - 4.11 OR 4.39
I-9	'D' INLET - 8"	CL STA. 4+01.84 OFFS. 117.19' RIGHT (MEADOW LAKE)	546.80	546.30	551.30	SD - 4.11 OR 4.39
I-10	'D' INLET - 6"	CL STA. 2+89.52 OFFS. 92.11' RIGHT (MEADOW LAKE)	---	548.70	553.53	SD - 4.11 OR 4.39
I-11	'D' INLET - 6"	CL STA. 9+99.90 OFFS. 244.00' LEFT (MEADOW LAKE)	537.62	537.12	541.95	SD - 4.11 OR 4.39
I-12	'D' INLET - 6"	CL STA. 9+99.90 OFFS. 17.00' LEFT (MEADOW LAKE)	540.29	540.09	545.16	SD - 4.11 OR 4.39
I-13	'D' INLET - 6"	CL STA. 9+99.90 OFFS. 17.00' RIGHT (MEADOW LAKE)	540.83 540.83	540.63	545.16	SD - 4.11 OR 4.39
I-14	'D' INLET - 6"	CL STA. 8+45.90 OFFS. 17.00' RIGHT (MEADOW LAKE)	---	542.99	547.07	SD - 4.11 OR 4.39
I-15	'D' INLET - 6"	CL STA. 11+33.46 OFFS. 17.00' RIGHT (MEADOW LAKE)	---	543.33	547.41	SD - 4.11 OR 4.39
I-16	'D' INLET - 6"	LP STA. 1+33.62 OFFS. 8.00' LEFT (MEADOW LAKE)	---	543.77	547.85	SD - 4.11 OR 4.39
I-17	'D' INLET - 6"	N 580069.38 E 1307348.03	---	512.25	516.33	SD - 4.11 OR 4.39
I-18	'D' INLET - 6"	N 580127.80 E 1307029.95	505.08	504.98	510.01	SD - 4.11 OR 4.39
M-1	4'-0" MANHOLE	N 578993.42 E 1307255.76	536.66	536.46	541.70	G - 5.12
M-2	4'-0" MANHOLE	LP STA. 0+72.86 OFFS. 10.00' LEFT (ROXBURY LAKE)	553.81	553.56	559.50	G - 5.12
M-3	4'-0" MANHOLE	CL STA. 4+26.00 OFFS. 5.00' RIGHT (MEADOW LAKE)	554.11 551.30	551.05	558.53	G - 5.12
M-4	4'-0" MANHOLE	N 579407.80 E 1307635.02	538.95	538.70	543.70	G - 5.12
S-1	SEE DETAIL	N 579155.96 E 1307496.92	533.50	533.50	539.67	--

1) STRUCTURE ELEVATION AND LOCATION FOR MANHOLES IS AT THE TOP AND CENTER OF RIM.
2) STRUCTURE ELEVATION AND LOCATION FOR INLETS IS AT THE TOP OF CURB AT MIDPOINT OF THE INLET OR AT THE CENTER OF SLAB FOR "D" INLETS.
3) STRUCTURE ELEVATION AND LOCATION FOR ENDSECTIONS IS AT THE CONNECTION OF PIPE AND END SECTION.
4) PRECAST STRUCTURES MEETING HS-20 LOADING MAY BE USED.
5) ALL STORM DRAINS SHALL BE SMOOTH CORE HIGH DENSITY POLYETHYLENE PIPE.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

[signature] 8-2-04
CHIEF, BUREAU OF HIGHWAYS — DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

Cindy Hamilton 8/10/04
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE

[signature] 8/6/04
CHIEF, DEVELOPMENT ENGINEERING DIVISION MAJ — DATE

NO.	DATE	REVISION

BENCHMARK
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email: Benchmrk@cais.com

[seal: STATE OF MARYLAND REGISTERED PROFESSIONAL ENGINEER] Donald Mason 6/17/04

OWNER:
EDGEWOOD FARM, INC.
14919 ROXBURY ROAD
GLENELG, MARYLAND 21737

DEVELOPER:
TOLL BROTHERS, INC.
7164 COLUMBIA GATEWAY DRIVE
SUITE 230
COLUMBIA, MARYLAND 21046
410-872-9105

PROJECT: TRIADELPHIA CROSSING
PHASE 1
LOTS 1-22 AND NON-BUILDABLE PRESERVATION PARCELS 'A' THRU 'H' AND NON-BUILDABLE BULK PARCEL 'I'

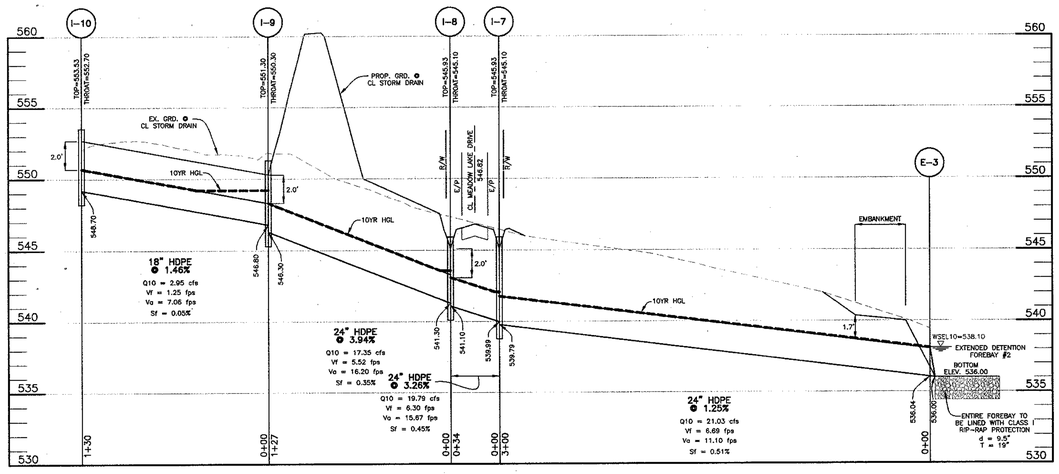
LOCATION: TAX MAP: 21 PARCEL: 97
GRID: 17 & 23 ZONED: RC-DEO
FOURTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

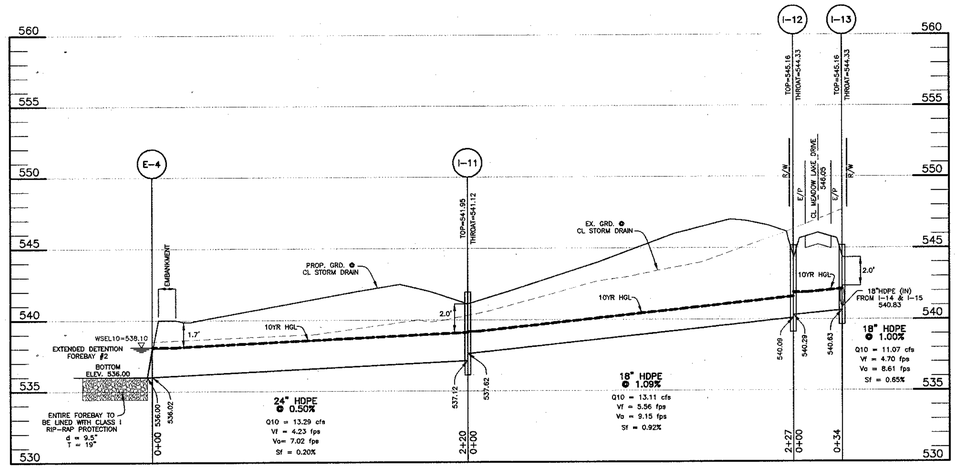
TITLE: STORM DRAIN PROFILES AND DETAILS

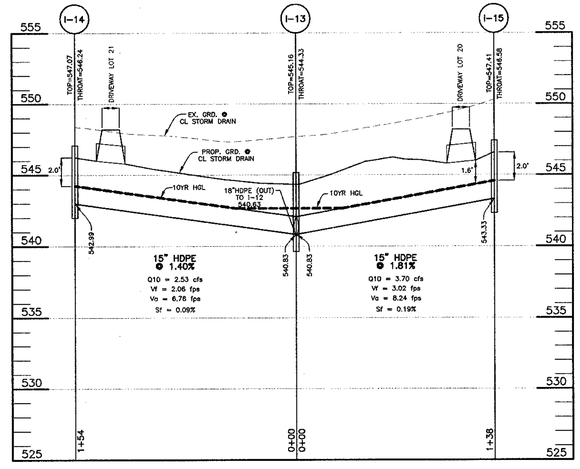
DATE:	JUNE, 2004	PROJECT NO. 1634
SCALE:	1"=50' HORIZ. 1"=5' VERT.	SHEET 6 OF 17

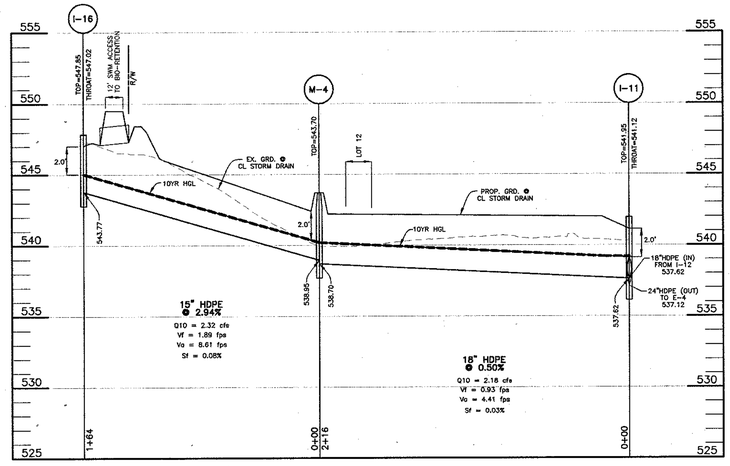
DESIGN: DBT | DRAFT: DBT | CHECK: CAM

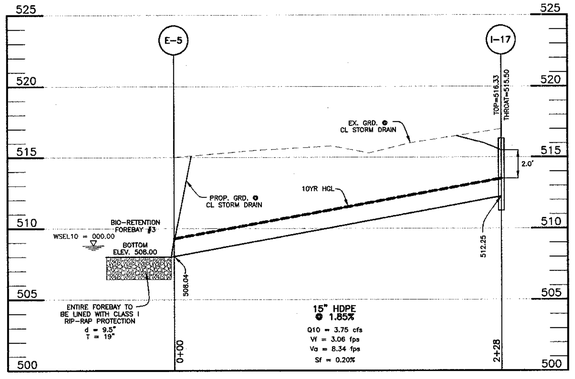
F-04-118











* ALL STORM DRAIN PIPE SHALL HAVE A MINIMUM OF 1.5 FEET OF COVER.

NO.	DATE	REVISION

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 8-2-04

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 7/1/04

CHIEF, DEVELOPMENT ENGINEERING DIVISION MAJ — DATE 8/6/04

BENCHMARK
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STATE OF MARYLAND — DONALD MASON — 21182 — REGISTERED PROFESSIONAL ENGINEER

6/17/04

OWNER:
EDGEWOOD FARM, INC.
14919 ROXBURY ROAD
GLENELG, MARYLAND 21737

DEVELOPER:
TOLL BROTHERS, INC.
7164 COLUMBIA GATEWAY DRIVE
SUITE 230
COLUMBIA, MARYLAND 21046
410-872-9105

PROJECT: TRIADELPHIA CROSSING PHASE 1
LOTS 1-22 AND NON-BUILDABLE PRESERVATION PARCELS 'A' THRU 'H' AND NON-BUILDABLE BULK PARCEL 'I'

LOCATION: TAX MAP: 21 PARCEL: 97
GRID: 17 & 23 ZONED: RC-DEO
FOURTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: STORM DRAIN PROFILES

DESIGN: DBT | DRAFT: DBT | CHECK: CAM

DATE: JUNE, 2004 | PROJECT NO. 1634

SCALE: 1"=50' HORIZ. 1"=5' VERT. | SHEET 7 OF 17

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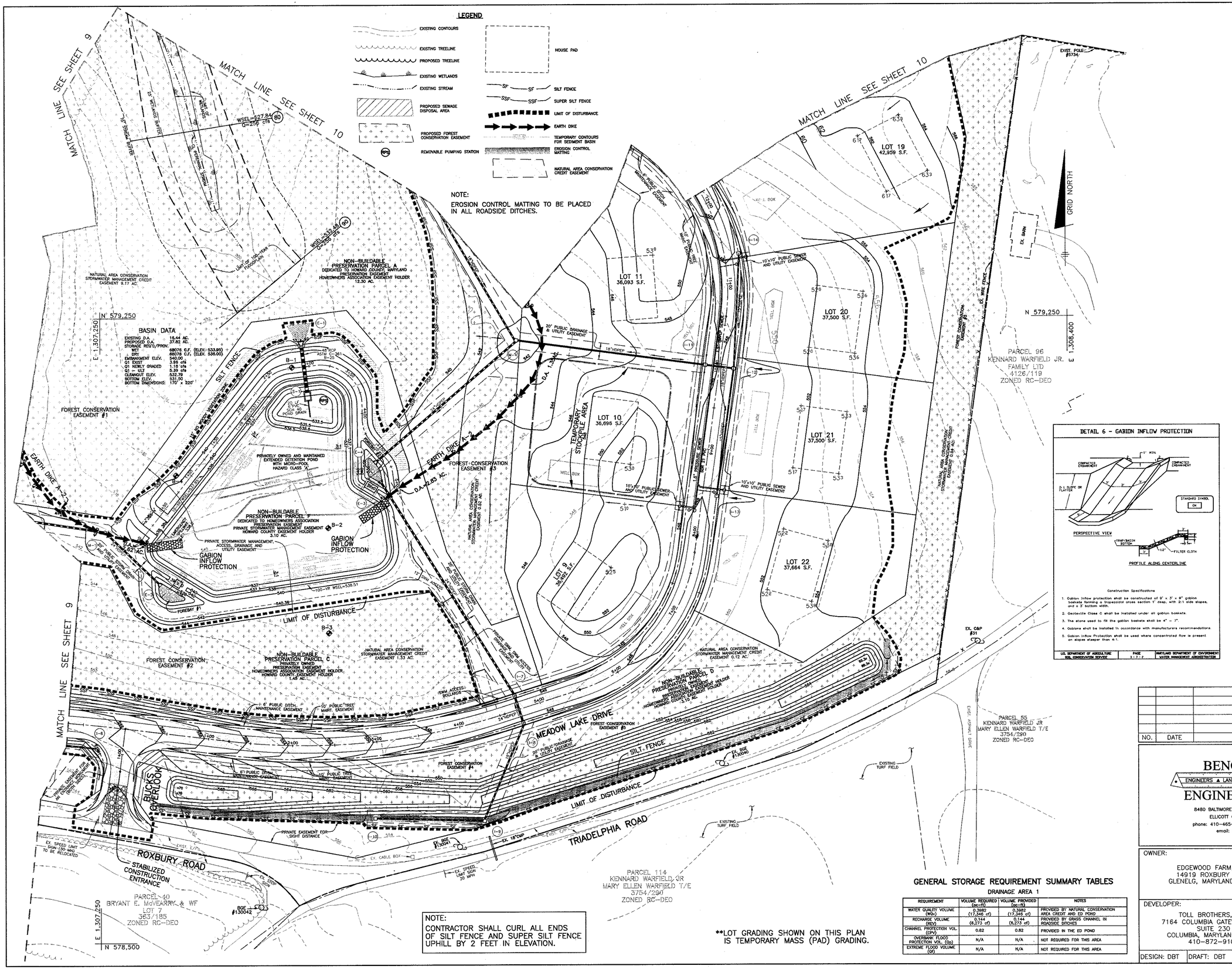

OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED EXTENDED DETENTION POND

ROUTINE MAINTENANCE:

1. FACILITY SHALL BE INSPECTED ANNUALLY AND AFTER MAJOR STORMS. INSPECTIONS SHALL BE PERFORMED DURING WET WEATHER TO DETERMINE IF THE POND IS FUNCTIONING PROPERLY.
2. TOP AND SIDE SLOPES OF THE EMBANKMENT SHALL BE MOWED A MINIMUM OF TWO (2) TIMES PER YEAR, ONCE IN JUNE AND ONCE IN SEPTEMBER. OTHER SIDE SLOPES AND MAINTENANCE ACCESS SHALL BE MOWED AS NEEDED.
3. DEBRIS AND LITTER SHALL BE REMOVED DURING REGULAR MOWING OPERATIONS AND AS NEEDED.
4. VISIBLE SIGNS OF EROSION IN THE POND AS WELL AS THE RIP-RAP OR GABION OUTLET AREA SHALL BE REPAIRED AS SOON AS IT IS NOTICED.

NON-ROUTINE MAINTENANCE:

1. STRUCTURAL COMPONENTS OF THE POND SUCH AS THE DAM, THE RISER, AND THE PIPES SHALL BE REPAIRED UPON THE DETECTION OF ANY DAMAGE. THE COMPONENTS SHALL BE INSPECTED DURING ROUTINE MAINTENANCE OPERATIONS.
2. SEDIMENTS SHALL BE REMOVED FROM THE POND, AND FOREBAY, NO LATER THAN WHEN THE CAPACITY OF THE POND, OR FOREBAY, IS HALF FULL OF SEDIMENT, OR, WHEN DEEMED NECESSARY FOR AESTHETIC REASONS, UPON APPROVAL FROM THE DEPARTMENT OF PUBLIC WORKS.

DETAIL 6 - GABION INFLOW PROTECTION

Construction Specifications

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

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE 3 - 7 - 2	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

AS-BUILT CERTIFICATION

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

PE NO. 21443

DONALD A. MASON

DATE

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

BY THE DEVELOPER:

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

DEVELOPER — DATE 6/23/04

BY THE ENGINEER:

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

ENGINEER – DONALD A. MASON, P.E. # 21443 — DATE 6/17/04

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

USDA – NATURAL RESOURCES CONSERVATION SERVICE — DATE 7/26/04

THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION, AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

HOWARD SOIL CONSERVATION DISTRICT — DATE 7/26/04

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS MS — DATE 8-2-04

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 8/1/04

CHIEF, DEVELOPMENT ENGINEERING DIVISION MRJ — DATE 8/2/04

NO.	DATE	REVISION

GENERAL STORAGE REQUIREMENT SUMMARY TABLES

DRAINAGE AREA 1

REQUIREMENT	VOLUME REQUIRED (ac-ft)	VOLUME PROVIDED (ac-ft)	NOTES
WATER QUALITY VOLUME (WQv)	0.3982 (17,346 cf)	0.3982 (17,349 cf)	PROVIDED BY NATURAL CONSERVATION AREA CREDIT AND ED POND
RECHARGE VOLUME (REV)	0.144 (6,272 cf)	0.144 (6,272 cf)	PROVIDED BY GRASS CHANNEL IN RDA/SIDE DITCHES
CHANNEL PROTECTION VOL. (CPV)	0.82	0.82	PROVIDED IN THE ED POND
OVERBANK FLOOD PROTECTION VOL. (Qp)	N/A	N/A	NOT REQUIRED FOR THIS AREA
EXTREME FLOOD VOLUME (Qf)	N/A	N/A	NOT REQUIRED FOR THIS AREA

BENCHMARK
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ENGINEERING, INC.
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phone: 410-465-6105 ▲ fax: 410-465-6644
email: Benchmrk@cais.com

6/17/04

OWNER:
EDGEWOOD FARM, INC.
14919 ROXBURY ROAD
GLENELG, MARYLAND 21737

DEVELOPER:
TOLL BROTHERS, INC.
7164 COLUMBIA GATEWAY DRIVE
SUITE 230
COLUMBIA, MARYLAND 21046
410-872-9105

PROJECT: TRIADELPHIA CROSSING PHASE 1
LOTS 1-22 AND NON-BUILDABLE PRESERVATION PARCELS 'A' THRU 'H' AND NON-BUILDABLE BULK PARCEL 'I'

LOCATION: TAX MAP: 21 PARCEL: 97 GRID: 17 & 23 ZONED: RC-DEO FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

TITLE: GRADING, SEDIMENT AND EROSION CONTOL PLAN

DESIGN: DBT | DRAFT: DBT | CHECK: CAM | DATE: JUNE, 2004 | SCALE: 1" = 50' | PROJECT NO. 1634 | SHEET 8 OF 17

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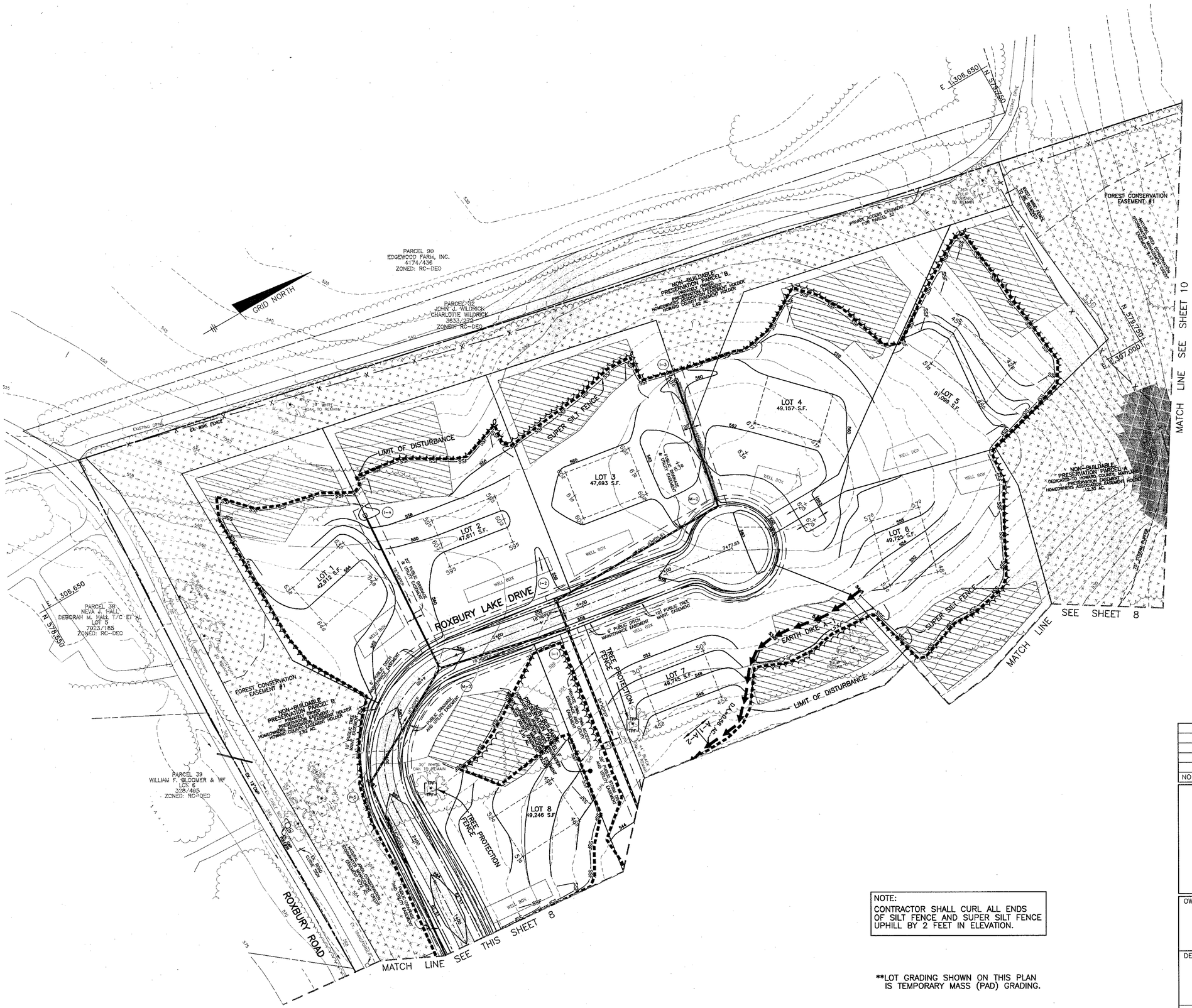

LEGEND

- EXISTING CONTOURS
- EXISTING TREELINE
- PROPOSED TREELINE
- EXISTING WETLANDS
- EXISTING STREAM
- PROPOSED SEWAGE DISPOSAL AREA
- PROPOSED FOREST CONSERVATION EASEMENT
- HOUSE PAD
- SF — SF — SILT FENCE
- SSF — SSF — SUPER SILT FENCE
- LIMIT OF DISTURBANCE
- EARTH DIKE
- EROSION CONTROL MATTING
- NATURAL AREA CONSERVATION CREDIT EASEMENT

NOTE:
EROSION CONTROL MATTING TO BE PLACED IN ALL ROADSIDE DITCHES.

NOTE:
CONTRACTOR SHALL CURL ALL ENDS OF SILT FENCE AND SUPER SILT FENCE UPHILL BY 2 FEET IN ELEVATION.

**LOT GRADING SHOWN ON THIS PLAN IS TEMPORARY MASS (PAD) GRADING.

ENGINEER'S CERTIFICATE

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

Donald Mason — 6/17/04
ENGINEER – DONALD A. MASON, P.E. # 21443 — DATE

DEVELOPER'S CERTIFICATE

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

Ben R. O'Malley — 6/23/04
DEVELOPER — DATE

REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS

USDA – NATURAL RESOURCES CONSERVATION SERVICE — 7/26/04 DATE

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

HOWARD SCD — 7/26/04 DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — 8-2-04 DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — 8/10/04 DATE

CHIEF, DEVELOPMENT ENGINEERING DIVISION — 8/11/04 DATE

NO.	DATE	REVISION

BENCHMARK
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email: Benchmrk@cals.com

STATE OF MARYLAND — DONALD A. MASON — REG. NO. 21443 — PROFESSIONAL ENGINEER — 6/17/04

OWNER:
EDGEWOOD FARM, INC.
14919 ROXBURY ROAD
GLENELG, MARYLAND 21737

DEVELOPER:
TOLL BROTHERS, INC.
7164 COLUMBIA GATEWAY DRIVE
SUITE 230
COLUMBIA, MARYLAND 21046
410-872-9105

PROJECT: TRIADELPHIA CROSSING
PHASE 1
LOTS 1-22 AND NON-BUILDABLE PRESERVATION PARCELS 'A' THRU 'H' AND NON-BUILDABLE BULK PARCEL 'I'

LOCATION: TAX MAP: 21 PARCEL: 97
GRID: 17 & 23 ZONED: RC-DEO
FOURTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: GRADING, SEDIMENT AND EROSION CONTOL PLAN

DATE: JUNE, 2004 PROJECT NO. 1634

DESIGN: DBT DRAFT: DBT CHECK: CAM

SCALE: 1" = 50' SHEET 9 OF 17

F-04-118

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ENGINEER'S CERTIFICATE

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

Donald Mason 6/17/04

ENGINEER – DONALD A. MASON, P.E. # 21443 DATE

DEVELOPER'S CERTIFICATE

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

Bruce R. O'Ney 6/23/04

DEVELOPER DATE

REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS

USDA – NATURAL RESOURCES CONSERVATION SERVICE 7/26/04 DATE

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

HOWARD SCD 7/26/04 DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS MJ 8-2-04 DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT 8/10/04 DATE kr

CHIEF, DEVELOPMENT ENGINEERING DIVISION MAJ 8/4/04 DATE

NO.	DATE	REVISION

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
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ELLICOTT CITY, MARYLAND 21043
phone: 410-465-6105 ▲ fax: 410-465-6644
email: Benchmrk@cols.com

STATE OF MARYLAND — DONALD ALEXANDER MASON — No. 21443 — PROFESSIONAL ENGINEER

Donald Mason 6/17/04

OWNER: EDGEWOOD FARM, INC. 14919 ROXBURY ROAD GLENELG, MARYLAND 21737	PROJECT: TRIADELPHIA CROSSING PHASE 1 LOTS 1-22 AND NON-BUILDABLE PRESERVATION PARCELS 'A' THRU 'H' AND NON-BUILDABLE BULK PARCEL 'I'
DEVELOPER: TOLL BROTHERS, INC. 7164 COLUMBIA GATEWAY DRIVE SUITE 230 COLUMBIA, MARYLAND 21046 410-872-9105	LOCATION: TAX MAP: 21 PARCEL: 97 GRID: 17 & 23 ZONED: RC-DEO FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
	TITLE: GRADING, SEDIMENT AND EROSION CONTOL PLAN
DESIGN: DBT DRAFT: DBT CHECK: CAM	DATE: JUNE, 2004 PROJECT NO. 1634
	SCALE: 1" = 50' SHEET 10 OF 17

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NOTE:
CONTRACTOR SHALL CURL ALL ENDS OF SILT FENCE AND SUPER SILT FENCE UPHILL BY 2 FEET IN ELEVATION.

NOTE:
EROSION CONTROL MATTING TO BE PLACED IN ALL ROADSIDE DITCHES.

**LOT GRADING SHOWN ON THIS PLAN IS TEMPORARY MASS (PAD) GRADING.

LEGEND
- EXISTING CONTOURS
- EXISTING TREELINE
- PROPOSED TREELINE
- EXISTING WETLANDS
- EXISTING STREAM
- PROPOSED SEWAGE DISPOSAL AREA
- PROPOSED FOREST CONSERVATION EASEMENT
- RPS REMOVABLE PUMPING STATION

LEGEND
- HOUSE PAD
- SF SILT FENCE
- SSF SUPER SILT FENCE
- LIMIT OF DISTURBANCE
- EARTH DIKE
- EROSION CONTROL MATTING
- NATURAL AREA CONSERVATION CREDIT EASEMENT

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CONSTRUCTION SPECIFICATIONS

These specifications are appropriate to all ponds within the scope of the Standard for practice MD-378. All references to ASTM and AASHTO specifications apply to the most recent version.

Site Preparation

Areas designated for borrow areas, embankment, and structural works shall be cleared, grubbed and stripped to 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. If shall be free of roots, stumps, wood, rubbish, stones greater than 6", frozen or other objectionable material. Fill material for the center of the embankment, and cut off trench shall conform to Unified Soil Classification 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.

Materials used in the outer shell of the embankment must have the capability to support vegetation of the quality required to prevent erosion of the embankment.

Placement – Areas on which fill is to be placed shall be scarified prior to placement of fill. Fill materials shall be placed in maximum 8 inch thick (before compaction) layers which are to be continuous over the entire length of the fill. The most permeable borrow material shall be placed in the downstream portions of the embankment. The principal spillway must be installed concurrently with fill placement and not excavated into the embankment.

Compaction – the movement of the hauling and spreading equipment over the fill shall be controlled so that the entire surface of each lift shall be traversed by not less than one tread track of heavy equipment or compaction shall be achieved by a minimum of four complete passes of a sheepsfoot, rubber tired or vibratory roller. Fill material shall contain sufficient moisture such that the required degree of compaction will be obtained with teh equipment used. The fill material shall contain sufficient moisture so that if formed into a ball it will not crumble, yet not be so wet that water can be squeezed out.

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

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

Embankment Core – The core shall be parallel to the centerline of the embankment as shown on the plans. The top width of the cores 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 resistively of 2,000 ohm-cm. Material shall be placed such that a minimum of 6" (measured perpendicular to the outside of the pipe) of flowable fill shall be under (bedding), over and, on the sided 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 adjoining soil fill shall be placed in horizontal layers not to exceed four inches in thickness and compacted by hand tampers or other manually directed compaction equipment. The material shall completely fill all voids adjacent to the flowable fill zone. At no time during the backfilling operation shall driven equipment be allowed to operate closer than four feet, measured horizontally, to any part of a structure. Under no circumstances shall equipment be driven over any part of a structure or pipe unless there is a compacted fill of 24' or greater over the structure or pipe. Backfill material outside the structural backfill (flowable fill) zone shall be of the type and quality conforming to 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 bave a minimum coating thickness of 0.01 inch (10 mil) on both sides of the pipe. This pipe and its appurtenances shall conform to the requirements of AASHTO Specifications M-245 & M-246 with watertight coupling bands or flanges.

Maerials – (Aluminum Coated Steel Pipe) – This pipe and its appurtenances shall conform to the requirements of AASHTO Specification M-274 with watertight coupling bands or flanges. Aluminum Coated Steel Pipe, when used with flowable fill or when soil and/or water conditions warrant the need for increased durability, shall be fully bituminous coated per requirements of AASHTO Specification M-190 Type A. Any aluminum coating damaged or otherwise removed shall be replaced with cold applied bituminous coating compound. Aluminum surfaces that are to be in contact with concrete shall be painted with one coat of zinc chromate primer or two coats of asphalt.

Materials – (Aluminum Pipe) – This pipe and its appurtenances shall conform to the requirements of AASHTO Specification M-196 or M-211 with watertight coupling bands or flanges. Aluminum Pipe, when used with flowable fill or when soil and/or water conditions warrant for increased durability, shall be fully bituminous coated per requirements of AASHTO Specification M-190 Type A. Aluminum surfaces that are to be contact with concrete shall be painted with one coat of zinc chromate primer or two coats of asphalt. Hot dip galvanized bolts may be used for connections. The pH of the surrounding soils shall be between 4 and 9.

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

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

All connection shall use a rubber or neoprene gasket when joining pipe sections. The end of each pipe shall be re-rolled an adequate number of corrugations to accommodate the bandwidth. The following type connections are acceptable for pipes less than 24 inches in diameter: flanges on both ends of the pipe with a circular 3/8 inch closed cell neoprene gasket, 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 end. A 24-inch wide by 3/8-inch thick closed cell circular neoprene gasket will be installed with 12 inches on the end of each pipe. Flanged joints with 3/8 inch closed cell gaskets the full width of the flange is also acceptable.

Helically corrugated pipe shall have either continuously welded seams or have lock seams with internal caulking or a neoprene bead.

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

5. Backfilling shall conform to "Structure Backfill".

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

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

1. Materials – Reinforced concrete pipe shall have bell and spigot joints with rubber gaskets and shall equal or exceed ASTM C-361.

2. Bedding – Reinforced concrete pipe conduits shall be laid in a concrete bedding/cradle for their entire length. This bedding/cradle shall consist of high slump concrete placed under the pipe and up the sides of the pipe at least 50% of its outside diameter with a minimum thickness of 6 inches. Where a concrete cradle is not needed for structural reasons, flowable fill may be used a described in the "Structure Backfill" section of this standard. Gravel bedding is not permitted.

3. Laying pipe – Bell and spigot pipe shall be places 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 form 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 shown on the drawings.

Plastic Pipe – The following criteria shall apply for plastic pipe:

1. Materials – PVC pipe shall be PVC-1120 or PVC-1220 conforming to ASTM D-1785 or ASTM D-2241. Corrugated High Density Polyethylene (HDPE) pipe, couplings and fittings shall conform to the following: 4' – 10" inch pipe shall meet the requirements of AASHTO M252 Type S, and 12" through 24" inch 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.

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

Concrete

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

Rock Riprap

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

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

Care of Water during Construction

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

Stabilization

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

Erosion and Sediment Control

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

SEDIMENT CONTROL NOTES

1. A MINIMUM OF 24 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY DEPARTMENT OF INSPECTION, LICENSES AND PERMITS, SEDIMENT CONTROL DIVISION PRIOR TO THE START OF ANY CONSTRUCTION, (313-1850).
2. ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE MOST CURRENT "MARYLAND STANDARDS AND SPECIFICATION FOR SOIL EROSION AND SEDIMENT CONTROL", REVISIONS THERETO.
3. FOLLOWING INITIAL SOIL DISTURBANCE OR REDISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN: A) 7 CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DIKES, PERIMETER SLOPES AND ALL SLOPES GREATER THAN 3:1, B) 14 DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.
4. ALL SEDIMENT TRAPS/BASINS SHOWN MUST BE FENCED AND WARNING SIGNS POSTED AROUND THEIR PERIMETER IN ACCORDANCE WITH VOL. 1, CHAPTER 12, OF THE HOWARD COUNTY DESIGN MANUAL, STORM DRAINAGE.
5. ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR PERMANENT SEEDINGS (SEC. 51) SOD (SEC. 54), TEMPORARY SEEDING (SEC. 50) AND MULCHING (SEC. 52). TEMPORARY STABILIZATION WITH MULCH ALONE CAN ONLY BE DONE WHEN RECOMMENDED SEEDING DATES DO NOT ALLOW FOR PROPER GERMINATION AND ESTABLISHMENT OF GRASSES.
6. ALL SEDIMENT CONTROL STRUCTURES ARE TO REMAIN IN PLACE AND ARE TO BE MAINTAINED IN OPERATIVE CONDITION UNTIL PERMISSION FOR THEIR REMOVAL HAS BEEN OBTAINED FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
7. SITE ANALYSIS:

TOTAL AREA OF SITE	62.3	ACRES
AREA DISTURBED	30.6	ACRES
AREA TO BE ROOFED OR PAVED	1.3	ACRES
AREA TO BE VEGETATIVELY STABILIZED	29.3	ACRES
TOTAL CUT	33,915	CY
TOTAL FILL	36,308	CY
OFFSITE WASTE AREA LOCATION	SITE WITH APPROVED SED. CONTROL PLAN	

8. ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.
9. ADDITIONAL SEDIMENT CONTROL MUST BE PROVIDED, IF DEEMED NECESSARY BY THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
10. ON ALL SITES WITH DISTURBED AREAS IN EXCESS OF 2 ACRES, APPROVAL OF THE INSPECTION AGENCY SHALL BE REQUESTED UPON COMPLETION OF INSTALLATION OF PERIMETER EROSION AND SEDIMENT CONTROLS, BUT BEFORE PROCEEDING WITH ANY OTHER EARTH DISTURBANCE OR GRADING. OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THIS INITIAL APPROVAL BY THE INSPECTION AGENCY IS MADE.
11. TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THREE PIPE LENGTHS OR THAT WHICH CAN BE BACK FILLED AND STABILIZED WITHIN ONE WORKING DAY, WHICHEVER IS SHORTER.

TEMPORARY SEEDBED PREPARATIONS

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/1000 SQ FT).

SEEDING: FOR PERIOD MARCH 1 THROUGH APRIL 30 AND FROM AUGUST 15 THROUGH NOVEMBER 15, SEED WITH 2-1/2 BUSHELS PER ACRE OF ANNUAL RYE (3.2 LBS/1000 SQ FT). FOR THE PERIOD MAY 1 THROUGH AUGUST 14, SEED WITH 3 LBS PER ACRE OF WEEPING LOVEGRASS (.07 LBS/1000 SQ FT). FOR THE PERIOD NOVEMBER 16 THROUGH 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/1000 SQ FT) OF UNROTTED SMALL GRAIN STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING MULCH ANCHORING TOOL OR 218 GALLONS PER ACRE (5 GAL/1000 SQ FT) OF EMULSIFIED ASPHALT ON FLAT AREAS. ON SLOPES, 8 FT. OR HIGHER, USE 348 GALLONS PER ACRE (8 GAL/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 SEEDBED PREPARATIONS

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 ON OF THE FOLLOWING SCHEDULES:

1. PREFERRED – APPLY 2 TONS PER ACRE DOLOMITIC LIMESTONE (92 LBS/1000 SQ FT) AND 600 LBS PER ACRE 10-10-10 FERTILIZER (14 LBS/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- UREAFORM FERTILIZER (9 LBS/1000 SQ FT).
2. ACCEPTABLE – APPLY 2 TONS PER ACRE DOLOMITIC LIMESTONE (92 LBS/1000 SQ FT) AND 1000 LBS PER ACRE 10-10-10 FERTILIZER (23 LBS/1000 SQ FT) BEFORE SEEDING. HARROW OR DISC INTO UPPER THREE INCHES OF SOIL.

SEEDING: FOR THE PERIODS MARCH 1 THROUGH APRIL 30 AND AUGUST 1 THROUGH OCTOBER 15, SEED WITH 60 LBS PER ACRE (1.4 LBS/1000 SQ FT) OF KENTUCKY 31 TALL FESCUE PER ACRE AND 2 LBS PER ACRE (.05 LBS/1000 SQ FT) OF WEEPING LOVEGRASS. DURING THE PERIOD OF OCTOBER 16 THROUGH FEBRUARY 28, PROTECT SITE BY: OPTION (1) 2 TONS PER ACRE OF WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING. OPTION (2) USE SOD. OPTION (3) SEED WITH 60 LBS PER ACRE OF KENTUCKY 31 TALL FESCUE AND MULCH WITH 2 TONS PER ACRE OF WELL ANCHORED STRAW.

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

MAINTENANCE: INSPECT ALL SEEDED AREAS AND MAKE NEEDED REPAIRS, REPLACEMENTS AND RESEEDINGS.

TOPSOIL SPECIFICATIONS

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

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

i. Topsoil shall be a loam, sandy loam, clay loam, silt loam, sandy clay loam, loamy sand. Other soils may be used if recommended by an agronomist or soil scientist and approved by the appropriate approval authority. Regardless, topsoil shall not be a mixture of contrasting texture subsoils and shall contain less than 5% by volume of cinders, stones, slag, coarse fragments, gravel, sticks, roots, trash, or other materials larger than 1-1/2" in diameter.

ii. Topsoil must be free of plants or plant parts such as Bermuda grass, quack grass, Johnson grass, nutsedge, poison ivy, thistle, or others as specified.

iii. Where the subsoil is either highly acidic or composed of heavy clays, ground limestone shall be spread at the rate of 4-8 tons/acre (200-400 pounds per 1,000 square feet) prior to the placement of topsoil. Lime shall be 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:

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

ii. Place topsoil (if required) and apply soil amendments as specified in 20.0 Vegetative Stabilization – Section 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 distributed areas over 5 acres shall be tested to prescribe amendments and for sites having disturbed areas under 5 acres shall conform to the following requirements:

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.

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

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 and 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 tracked to prevent blowing.
2. Vegetative 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 similiar 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 similiar 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

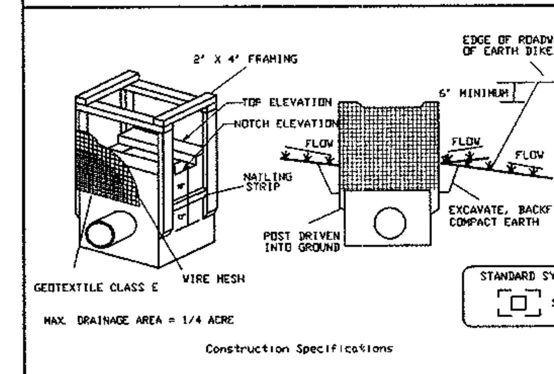
1. Agriculture Handbook 346. Wind Erosion Forces in the United States and Their Use in Predicting Soil Loss.
2. Agriculture Information Bulletin 354. How to Control Wind Erosion, USDA-ARS.

SEQUENCE OF CONSTRUCTION

NOTIFY SEDIMENT CONTROL DIVISION 48 HOURS PRIOR TO START OF CONSTRUCTION

1. OBTAIN GRADING PERMIT. (DAY 1)
2. INSTALL STABILIZED CONSTRUCTION ENTRANCE, TREE PROTECTION FENCES, SUPER SILT FENCES, SILT FENCES AND TEMPORARY CLEANWATER DIVERSION DIKES. (DAY 2-12)
3. INSTALL SEDIMENT BASIN. (DAY 13-45)
4. INSTALL ANY REMAINING SEDIMENT CONTROL DEVICES. (DAY 46-50)
5. UPON APPROVAL OF THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR, BRING ROAD BEDS TO SUBGRADE AND STABILIZE SLOPES IN ACCORDANCE WITH TEMPORARY SEEDBED NOTES. UTILIZE DUST CONTROL METHODS. (DAY 51-81)
6. UPON APPROVAL OF THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR, INSTALL STORM DRAINS. I-18 SHALL BE PROTECTED DURING CONSTRUCTION. THE STORM DRAIN SYSTEMS FROM E-5 TO I-17 AND THE SWALE THAT DRAINS TO I-17 MUST NOT BE INSTALLED AT THIS TIME. (DAY 82-112)
7. PAVE ROADWAYS. (DAY 113-128)
8. COMPLETE GRADING OF SITE AND STABLIZE DISTURBED AREAS IN ACCORDANCE WITH THE PERMANENT SEEDBED NOTES. (DAY 129-144)
9. UPON APPROVAL OF THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR, INSTALL THE STORM DRAINS FROM E-5 TO I-17. (DAY 145-147)
10. UPON APPROVAL OF THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR, CONVERT SEDIMENT BASINS TO STORMWATER MANAGEMENT FACILITIES. SHAPE FACILITIES PER FINAL GRADES SHOWN ON THE PLANS AND STABILIZE DISTURBED AREAS IN ACCORDANCE WITH THE PERMANENT SEEDBED NOTES. CONTRACTOR SHALL REMOVE ALL OLD AND NEW TRASH, JUNK AND DEBRIS FROM ENTIRE SITE. (DAY 148-153)
11. UPON APPROVAL OF THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR, REMOVE REMAINING SEDIMENT CONTROL DEVICES, AND STABILIZED DISTURBED AREAS IN ACCORDANCE WITH THE PERMANENT SEEDBED NOTES(DAY 154-161)

DETAIL 23A – STANDARD INLET PROTECTION



MAX. DRAINAGE AREA = 1/4 ACRE

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 geotextile 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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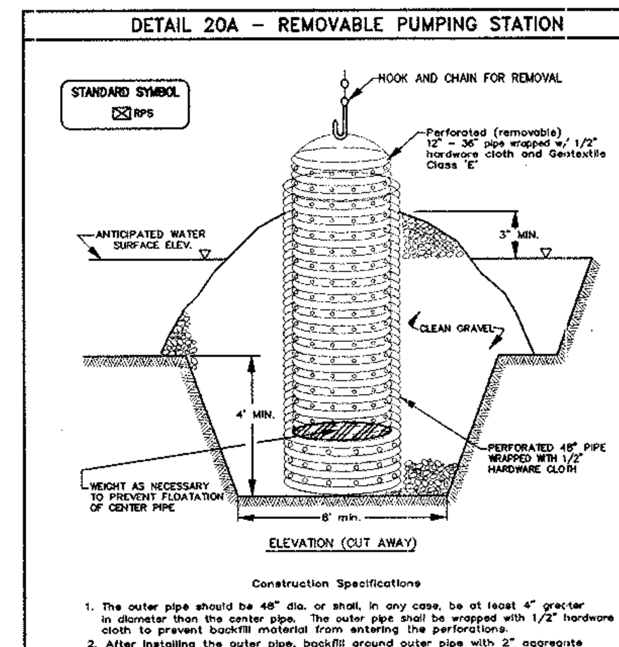
DETAIL 20A – REMOVABLE PUMPING STATION

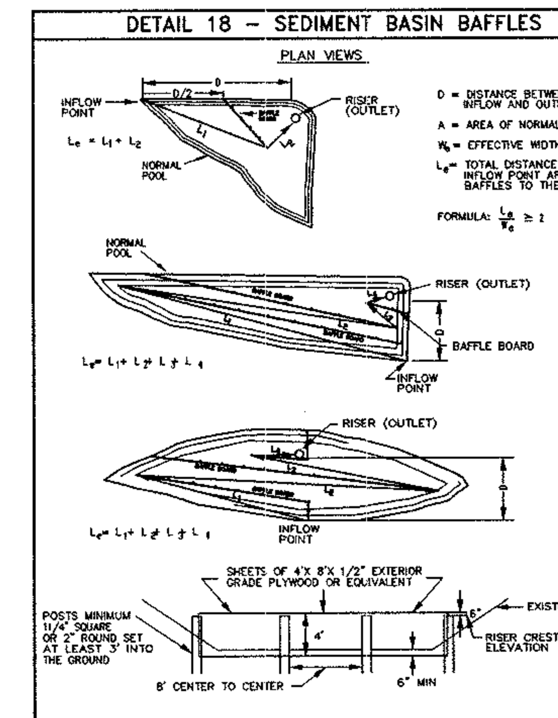


Construction Specifications

1. The outer pipe should be 48" dia. or shall, in any case, be at least 4" greater in diameter than the center pipe. The outer pipe shall be wrapped with 1/2" hardware cloth to prevent backfill material from entering the perforations.
2. After installing the outer pipe, backfill around outer pipe with 2" aggregate or clean gravel.
3. The inside stand pipe (center pipe) should be constructed by perforating a corrugated or PVC pipe between 12" and 36" in diameter. The perforations shall be 1/2" X 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.

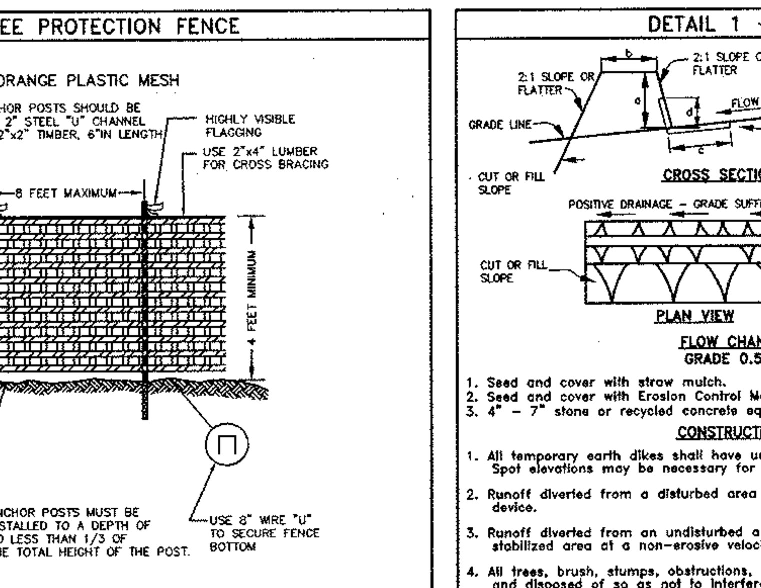
U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE D - 12 - 5	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 18 – SEDIMENT BASIN BAFFLES



U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE C - 10 - 28	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

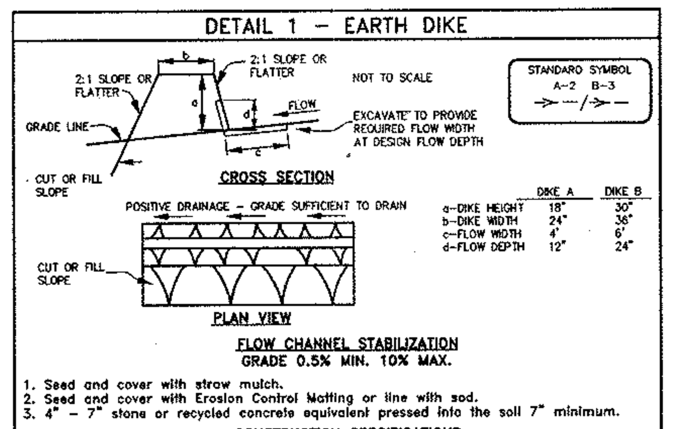
TREE PROTECTION FENCE



NOTES:

1. FOREST PROTECTION DEVICE ONLY.
2. RETENTION AREA WILL BE SET AS PART OF THE REVIEW PROCESS.
3. BOUNDARIES OF RETENTION AREA SHOULD BE STAKED AND FLAGGED PRIOR TO INSTALLING DEVICES.
4. AVOID ROOT DAMAGE WHEN PLACING ANCHOR POSTS.
5. DEVICE SHOULD BE PROPERLY MAINTAINED DURING CONSTRUCTION
6. PROTECTIVE SIGNAGE IS ALSO REQUIRED.

DETAIL 1 – EARTH DIKE



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

FLOW CHANNEL STABILIZATION

GRADE 0.5% MIN. 10% MAX.

1. Seed and cover with straw mulch.
2. Seed and cover with Erosion Control Matting or line with sod.
3. 4" – 7" stone or recycled concrete equivalent pressed into the soil 7" minimum.

CONSTRUCTION SPECIFICATIONS

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

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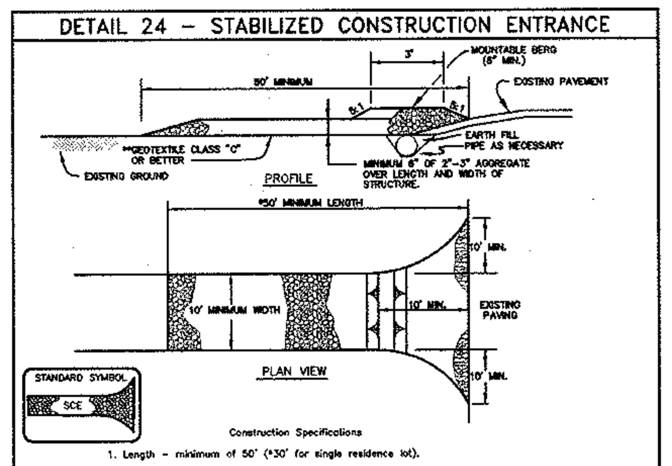
DETAIL 24 – STABILIZED CONSTRUCTION ENTRANCE

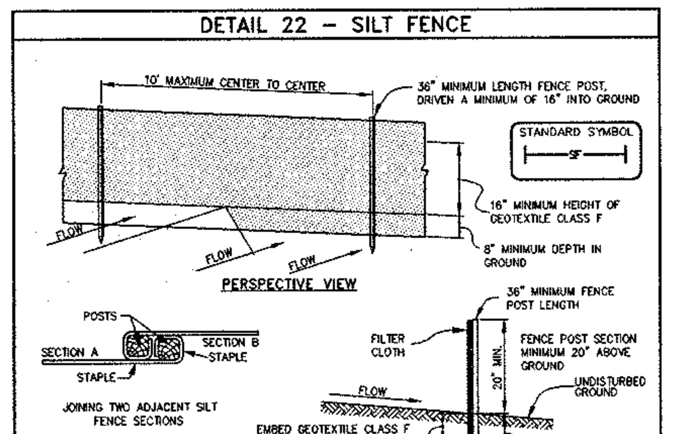


Construction Specifications

1. Length – minimum of 50' (*30' for single residence lot).
2. Width– 10' minimum, should be flared at the existing road to provide a turning radius.
3. Geotextile fabric (filter cloth) shall be placed over the existing ground prior to placing stone. **The plan approval authority may not require single family residence 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 mounted berg 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.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE F - 17 - 3	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 22 – SILT FENCE



CONSTRUCTION NOTES FOR FABRICATED SILT FENCE

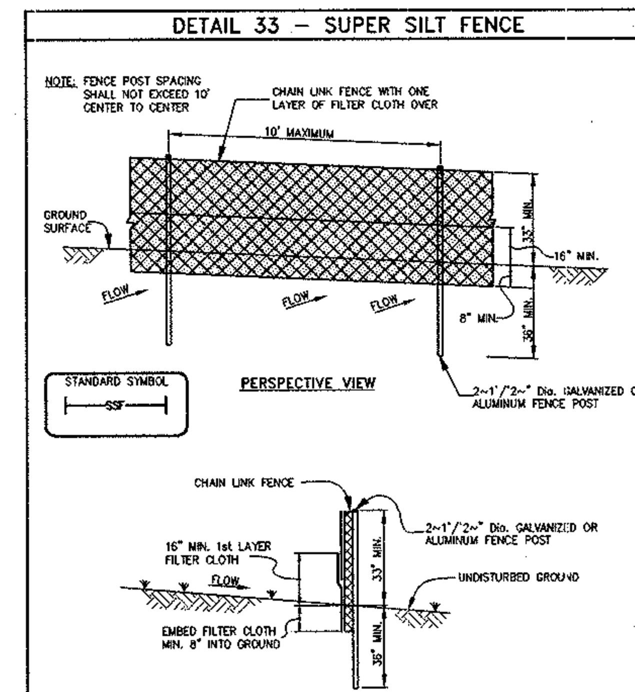
1. Fence posts shall be a minimum of 36" long driven 16" minimum into the ground. Wood posts shall be 1 1/2" x 1 1/2" square (minimum) cut, or 1 3/4" diameter (minimum) round and shall be of sound quality hardwood. Steel posts will be standard T or U section weighing not less than 1.00 pond per linear 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.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE E - 15 - 3	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 33 – SUPER SILT FENCE



U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE H - 26 - 3	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

SUPER SILT FENCE

CONSTRUCTION SPECIFICATIONS

1. Fencing shall be 42" in height and constructed in accordance with the latest Maryland State Highway Details for Chain Link Fencing. The specification for a 6' fence shall be used, substituting 42" fabric and 6' length posts.
2. Chain link fence shall be fastened securely to the fence posts with wire ties. The lower tension wire, brace and truss rods, drive anchors and post caps are not required except on the ends of the fence.
3. Filter cloth shall be fastened securely to the chain link fence with ties spaced every 24" at the top and mid section.
4. Filter cloth shall be embedded a minimum of 8" into the ground.
5. When two sections of filter cloth adjoin each other, they shall be overlapped by 6" and folded.
6. 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
7. Filter cloth 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

SUPER SILT FENCE DESIGN CRITERIA

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

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE E - 26 - 3A	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

ENGINEER'S CERTIFICATE

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

Donald Mason 6/17/04

ENGINEER – DONALD A. MASON, P.E. # 21443 DATE

DEVELOPER'S CERTIFICATE

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

Burt R. Ogley 4/23/04

DEVELOPER DATE

REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS

Jim Myers/03 7/26/04

USDA – NATURAL RESOURCES CONSERVATION SERVICE DATE

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

7/26/04

HOWARD SCD DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS

William R. [illegible] 8-2-04

CHIEF, BUREAU OF HIGHWAYS MS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Cindy Hamilton 8/16/04

CHIEF, DIVISION OF LAND DEVELOPMENT DATE

8/4/04

CHIEF, DEVELOPMENT ENGINEERING DIVISION MHJ DATE

NO.	DATE	REVISION

BENCHMARK ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS ENGINEERING, INC.

8480 BALTIMORE NATIONAL PIKE ▲ SUITE 418
ELLICOTT CITY, MARYLAND 21043
phone: 410-465-6105 ▲ fax: 410-465-6644
email: Benchmrk@cais.com

STATE OF MARYLAND REGISTERED PROFESSIONAL ENGINEER — Donald Mason 6/17/04

OWNER:
EDGEWOOD FARM, INC.
14919 ROXBURY ROAD
GLENELG, MARYLAND 21737

DEVELOPER:
TOLL BROTHERS, INC.
7164 COLUMBIA GATEWAY DRIVE
SUITE 230
COLUMBIA, MARYLAND 21046
410-872-9105

PROJECT: TRIADELPHIA CROSSING PHASE 1
LOTS 1-22 AND NON-BUILDABLE PRESERVATION PARCELS 'A' THRU 'H' AND NON-BUILDABLE BULK PARCEL 'I'

LOCATION: TAX MAP: 21 PARCEL: 97 GRID: 17 & 23 ZONED: RC-DEO
FOURTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: SWM NOTES AND SEDIMENT & EROSION CONTROL NOTES AND DETAILS

DESIGN: DBT	DRAFT: DBT	CHECK: CAM	DATE: JUNE, 2004	PROJECT NO. 1634
			SCALE: NOT TO SCALE	SHEET 11 OF 17

F-04-118

P:\PROJECTS\1634\dwg\7023s11.dwg, 6/17/2004 11:19:53 AM

LANDSCAPE NOTES:

1. TREES SHOULD BE PLANTED A MINIMUM OF 6 FEET FROM THE EDGE OF PAVING AND MUST BE A MINIMUM OF 5 FEET FROM ANY STORM DRAIN.
2. TREES MUST BE PLANTED A MINIMUM OF 5 FEET FROM AN OPEN SPACE ACCESS STRIP AND 10 FEET FROM A DRIVEWAY.
3. SEE TREE PLANTING DETAIL – THIS SHEET.
4. THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE HOWARD COUNTY LANDSCAPE MANUAL.
5. FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING HAS BEEN POSTED AS PART OF THE DPW DEVELOPER'S AGREEMENT IN THE AMOUNT OF $45,300.00. ($39,000.00 FOR 130 SHADE TREES, $5,700.00 FOR 38 EVERGREENS, $600.00 FOR 20 SHRUBS)

STREET TREE SCHEDULE		
ROAD NAME	PERIMETER	TREES REQ.
MEADOW LAKE DRIVE	3214'	81
ROXBURY LAKE DRIVE	1687'	43
BUCKS OVERLOOK	65'	2

SCHEDULE A
PERIMETER LANDSCAPE EDGE

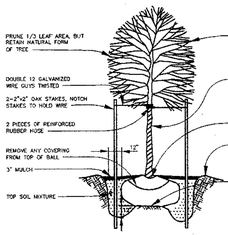
CATEGORY	ADJ. TO PERIMETER PROP. ①	ADJ. TO PERIMETER PROP. ②	ADJ. TO PERIMETER PROP. ③	ADJ. TO PERIMETER PROP. ④	ADJ. TO ROADS (LOT 8) ⑤	ADJ. TO TRASH PAD
LANDSCAPE TYPE	A	A	A	A	B	B
LINEAR FEET OF ROADWAY FRONTAGE/PERIMETER	2923'	749'	3737'	1437'	259'	28'
CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	YES* 1919'	NO	NO	YES* 1104'	NO	NO
CREDIT FOR WALL, FENCE OR BERM (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	NO	NO	NO	NO	NO	NO
NUMBER OF PLANTS REQUIRED	1004'	749'	3737'	333'	259'	28'
SHADE TREES	17	13	63	6	6	–
EVERGREEN TREES	–	–	–	–	7	–
OTHER TREES (2:1 SUBSTITUTE)	–	–	–	–	–	–
SHRUBS (10:1 SUBSTITUTE)	–	–	–	–	–	20
NUMBER OF PLANTS REQUIRED	1004'	749'	3737'	333'	259'	28'
SHADE TREES	17	13	63	6	6	–
EVERGREEN TREES	–	–	–	–	7	–
OTHER TREES (2:1 SUBSTITUTE)	–	–	–	–	–	–
SHRUBS (10:1 SUBSTITUTE)	–	–	–	–	–	20

*EXISTING WOODS 20' OR GREATER IN WIDTH.

SCHEDULE D
SWM PERIMETER LANDSCAPING

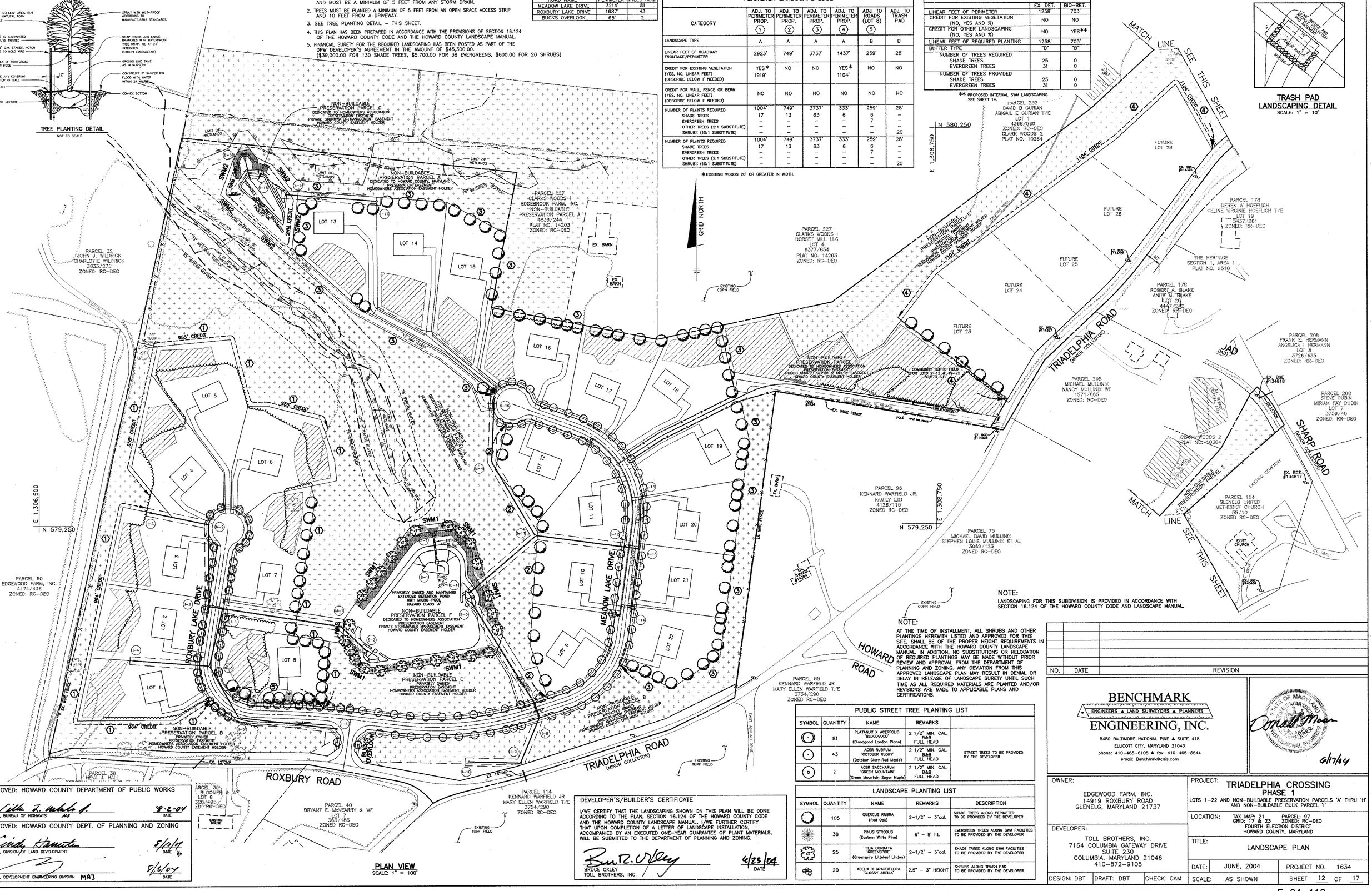
	EX. DET.	BIO-RET.
LINEAR FEET OF PERIMETER	1258'	703'
CREDIT FOR EXISTING VEGETATION (NO, YES AND %)	NO	NO
CREDIT FOR OTHER LANDSCAPING (NO, YES AND %)	NO	YES**
LINEAR FEET OF REQUIRED PLANTING	1258'	703'
BUFFER TYPE	"B"	"B"
NUMBER OF TREES REQUIRED		
SHADE TREES	25	0
EVERGREEN TREES	31	0
NUMBER OF TREES PROVIDED		
SHADE TREES	25	0
EVERGREEN TREES	31	0

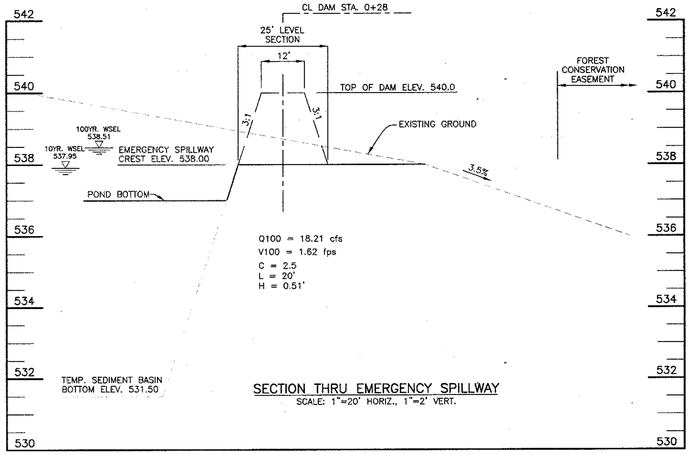
** PROPOSED INTERNAL SWM LANDSCAPING SEE SHEET 14.



TREE PLANTING DETAIL
NOT TO SCALE

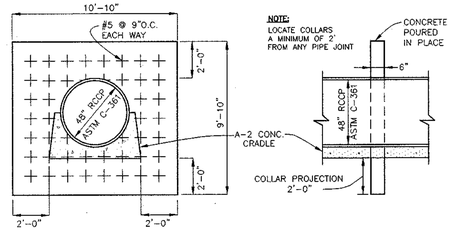
TRASH PAD LANDSCAPING DETAIL
SCALE: 1" = 10'


NON-BUILDABLE PRESERVATION PARCEL G
DEDICATED TO HOMEOWNERS ASSOCIATION
PRESERVATION EASEMENT
PRIVATE STORMWATER MANAGEMENT EASEMENT
HOWARD COUNTY EASEMENT HOLDER
NON-BUILDABLE PRESERVATION PARCEL A
DEDICATED TO HOWARD COUNTY, MARYLAND
PRESERVATION EASEMENT
HOMEOWNERS ASSOCIATION EASEMENT HOLDER
PARCEL 227
CLARKS WOODS I
RIDGEBROOK FARMS, INC.
NON-BUILDABLE PRESERVATION PARCEL A
9838/244
PLAT NO. 14203
ZONED: RC-DEO
PARCEL 227
CLARKS WOODS I
DORSET MILL LLC
LOT 4
6377/654
PLAT NO. 14203
ZONED: RC-DEO
PARCEL 32
JOHN J. WILDRICK
CHARLOTTE WILDRICK
3633/272
ZONED: RC-DEO
PARCEL 90
EDGEWOOD FARM, INC.
4174/436
ZONED: RC-DEO
PARCEL 38
NEVA J. HALL
LOT 6
328/495
ZONED: RC-DEO
PARCEL 39
BLOOMER & WF
LOT 5
328/495
ZONED: RC-DEO
PARCEL 40
BRYANT E. McVEARRY & WF
LOT 7
363/185
ZONED RC-DEO
PARCEL 114
KENNARD WARFIELD JR
MARY ELLEN WARFIELD T/E
3754/200
ZONED RC-DEO
PARCEL 96
KENNARD WARFIELD JR.
FAMILY LTD
4126/119
ZONED RC-DEO
PARCEL 75
MICHAEL DAVID MULLINIX
STEPHEN LOUIS MULLINIX ET AL
3069/123
ZONED RC-DEO
PARCEL 55
KENNARD WARFIELD JR
MARY ELLEN WARFIELD T/E
3754/200
ZONED RC-DEO
PARCEL 232
DAVID B GURIAN
ABIGAIL E GURIAN T/E
LOT 1
4368/360
ZONED: RC-DEO
CLARK WOODS 2
PLAT NO. 10364
PARCEL 205
MICHAEL MULLINIX
NANCY MULLINIX WF
1571/665
ZONED: RC-DEO
PARCEL 178
DEREK W HOEFLICH
CELINE VIRGINIE HOEFLICH T/E
LOT 19
24377/261
ZONED: RR-DEO
THE HERITAGE
SECTION 1, AREA 1
PLAT NO. 9510
PARCEL 178
ROBERT A. BLAKE
ANNE M. BLAKE
LOT 20
4477/242
ZONED: RR-DEO
PARCEL 208
FRANK E. HERMANN
ANGELICA I. HERMANN
LOT 8
3726/635
ZONED: RR-DEO
PARCEL 208
STEVE DUBIN
MIRIAM FAY DUBIN
LOT 7
3739/40
ZONED: RR-DEO
PARCEL 104
GLENELG UNITED METHODIST CHURCH
55/10
ZONED RC-DEO
EXIST. CHURCH
EXISTING CEMETERY
NON-BUILDABLE PRESERVATION PARCEL E
NON-BUILDABLE PRESERVATION PARCEL F
DEDICATED TO HOMEOWNERS ASSOCIATION
PRESERVATION EASEMENT
PRIVATE STORMWATER MANAGEMENT EASEMENT
HOWARD COUNTY EASEMENT HOLDER
PRIVATELY OWNED AND MAINTAINED EXTENDED DETENTION POND WITH MICRO-POOL HAZARD CLASS 'A'
NON-BUILDABLE PRESERVATION PARCEL C
PRIVATELY OWNED
PRESERVATION EASEMENT
HOMEOWNERS ASSOCIATION EASEMENT HOLDER
HOWARD COUNTY EASEMENT HOLDER
NON-BUILDABLE PRESERVATION PARCEL B
PRIVATELY OWNED
PRESERVATION EASEMENT
HOMEOWNERS ASSOCIATION EASEMENT HOLDER
HOWARD COUNTY EASEMENT HOLDER
NON-BUILDABLE PRESERVATION PARCEL D
PRIVATELY OWNED
PRESERVATION EASEMENT
HOMEOWNERS ASSOCIATION EASEMENT HOLDER
HOWARD COUNTY EASEMENT HOLDER
NON-BUILDABLE PRESERVATION PARCEL H
DEDICATED TO HOMEOWNERS ASSOCIATION
PRESERVATION EASEMENT
PUBLIC SEWER, WATER & UTILITY EASEMENT
HOWARD COUNTY EASEMENT HOLDER
COMMUNITY SEPTIC FIELD FOR LOTS 8-12 & 19-22 80,613 S.F.
NON-BUILDABLE PRESERVATION PARCEL I
PRESERVATION EASEMENT
HOWARD COUNTY EASEMENT HOLDER
LOT 1
LOT 2
LOT 2C
LOT 3
LOT 4
LOT 5
LOT 6
LOT 7
LOT 8
LOT 9
LOT 10
LOT 11
LOT 12
LOT 13
LOT 14
LOT 15
LOT 16
LOT 17
LOT 18
LOT 19
LOT 21
LOT 22
FUTURE LOT 28
FUTURE LOT 26
FUTURE LOT 25
FUTURE LOT 24
FUTURE LOT 23
EX. BARN
EX. BARN
EXISTING CORN FIELD
EXISTING CORN FIELD
EXISTING TURF FIELD
EXISTING TURF FIELD
EXISTING HOUSE
EXISTING HOUSE
SWM1
SWM2
TRIADELPHIA ROAD
(MINOR COLLECTOR)
ROXBURY ROAD
ROXBURY LAKE DRIVE
MEADOW LAKE DRIVE
BUCKS OVERLOOK
SHARP ROAD
(MINOR COLLECTOR)
HOWARD ROAD
MATCH LINE SEE THIS SHEET
MATCH LINE SEE THIS SHEET
N 580,250
E 1,308,750
E 1,306,500
N 579,250
E 1,308,750
N 579,250
GRID NORTH
1104' CREDIT
955' CREDIT
964' CREDIT
25' WETLANDS BUFFER
50' STREAM BUFFER
LIMIT OF WETLANDS
EX. WIRE FENCE
EX. 12"CMP
EX. 18"CMP
EX. 24"CMP
EX. 30"CMP
EX. 36"CMP
EX. 48"CMP
EX. 54"CMP
EX. 60"CMP
EX. 72"CMP
EX. 8" WATER
EX. 12" WATER
EX. 8" SEWER
EX. 12" SEWER
EX. 24" SEWER
EX. 30" SEWER
EX. 36" SEWER
EX. 48" SEWER
EX. 54" SEWER
EX. 60" SEWER
EX. 72" SEWER
EX. BGE #134818
EX. BGE #134817
EX. BGE #134486
EX. BGE #11435
EX. BGE #11436
EX. BGE #11437
EX. BGE #9754
EX. BGE #11438
EX. BGE #11439
EX. BGE #11440
EX. BGE #11441
EX. BGE #11442
EX. BGE #11443
EX. BGE #11444
EX. BGE #11445
EX. BGE #11446
EX. BGE #11447
EX. BGE #11448
EX. BGE #11449
EX. BGE #11450
EX. BGE



SECTION THRU EMERGENCY SPILLWAY

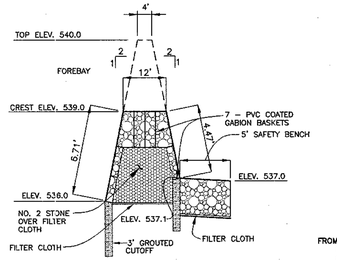
SCALE: 1"=20' HORIZ., 1"=2' VERT.



COLLAR SIZE: 10'-10" X 9'-10"

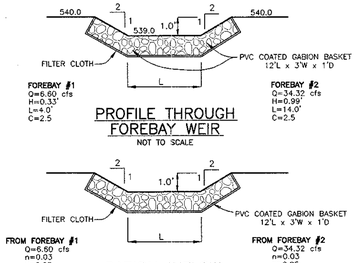
ANTI-SEEP COLLAR

NOT TO SCALE



TYPICAL SECTION OF GABION WEIR AT FOREBAY

NOT TO SCALE



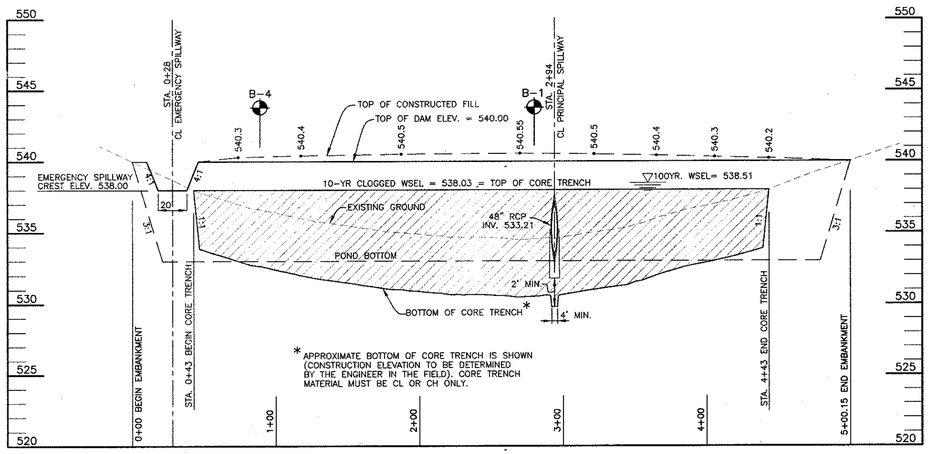
GEOTECHNICAL ENGINEER RECOMMENDATIONS:

EMBANKMENT AND CUT-OFF TRENCH CONSTRUCTION

THE AREAS OF THE PROPOSED SWM FACILITIES SHOULD BE STRIPPED OF TOPSOIL AND ANY OTHER UNSUITABLE MATERIALS FROM THE EMBANKMENT OR STRUCTURE AREAS IN ACCORDANCE WITH SOIL CONSERVATION GUIDELINES. AFTER STRIPPING OPERATIONS HAVE BEEN COMPLETED, THE EXPOSED SUBGRADE MATERIALS SHOULD BE PROOFROLLED WITH A LOADED DUMP TRUCK OR SIMILAR EQUIPMENT IN THE PRESENCE OF A GEOTECHNICAL ENGINEER OR HIS REPRESENTATIVE. FOR AREAS THAT ARE NOT ACCESSIBLE TO A DUMP TRUCK, THE EXPOSED MATERIALS SHOULD BE OBSERVED AND TESTED BY A GEOTECHNICAL ENGINEER OR HIS REPRESENTATIVE UTILIZING A DYNAMIC CONE PENETROMETER. ANY EXCESSIVELY SOFT OR LOOSE MATERIALS IDENTIFIED BY PROOFROLLING OR PENETROMETER TESTING SHOULD BE EXCAVATED TO SUITABLE FIRM SOIL, AND THEN GRADES RE-ESTABLISHED BY BACKFILLING WITH SUITABLE SOIL.

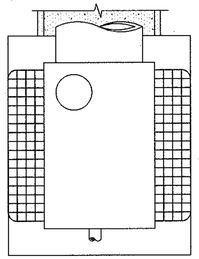
A REPRESENTATIVE OF THE GEOTECHNICAL ENGINEER SHOULD BE PRESENT TO MONITOR PLACEMENT AND COMPACTION OF FILL FOR THE EMBANKMENT AND CUT-OFF TRENCH. IN ACCORDANCE WITH NRCS-MD CODE NO. 378 POND STANDARDS/SPECIFICATIONS, SOILS CONSIDERED SUITABLE FOR THE CENTER OF EMBANKMENT AND CUTOFF TRENCH SHALL CONFORM TO UNIFIED SOIL CLASSIFICATION GC, SC, CH, OR CL AND MUST HAVE AT LEAST 30% PASSING THE #200 SIEVE.

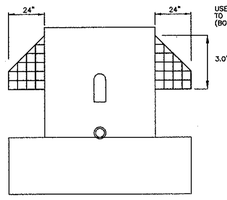
IT IS OUR PROFESSIONAL OPINION THAT IN ADDITION TO THE SOIL MATERIALS DESCRIBED ABOVE, A FINE-GRAINED SOIL, INCLUDING SILT(ML) WITH A PLASTICITY INDEX OF 10 OR MORE CAN BE UTILIZED FOR THE CENTER OF THE EMBANKMENT AND CORE TRENCH. ALL FILL MATERIALS MUST BE PLACED AND COMPACTED IN ACCORDANCE WITH NRCS-MD CODE NO. 378 SPECIFICATIONS.

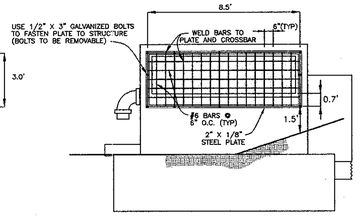


PROFILE ALONG CL OF EMBANKMENT

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

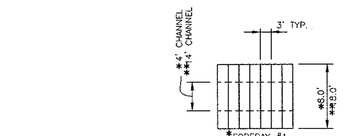






TRASH RACK DETAIL

SCALE: 1" = 4'

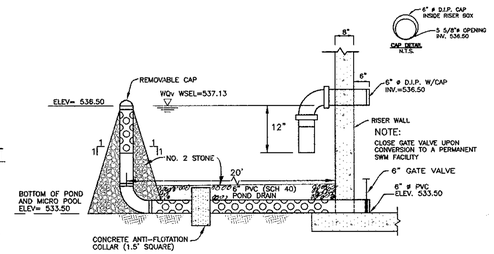


NOTES:

1. TRASH RACK SHALL BE GALVANIZED AFTER FABRICATION
2. TRASH RACK SHALL BE PAINTED BATTLESHIP GRAY.
2. TRASH RACK TO BE INSTALLED UPON CONVERSION TO SWM POND.

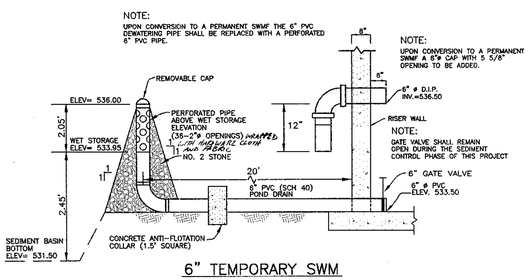
GABION BASKET LAYOUT

NOT TO SCALE



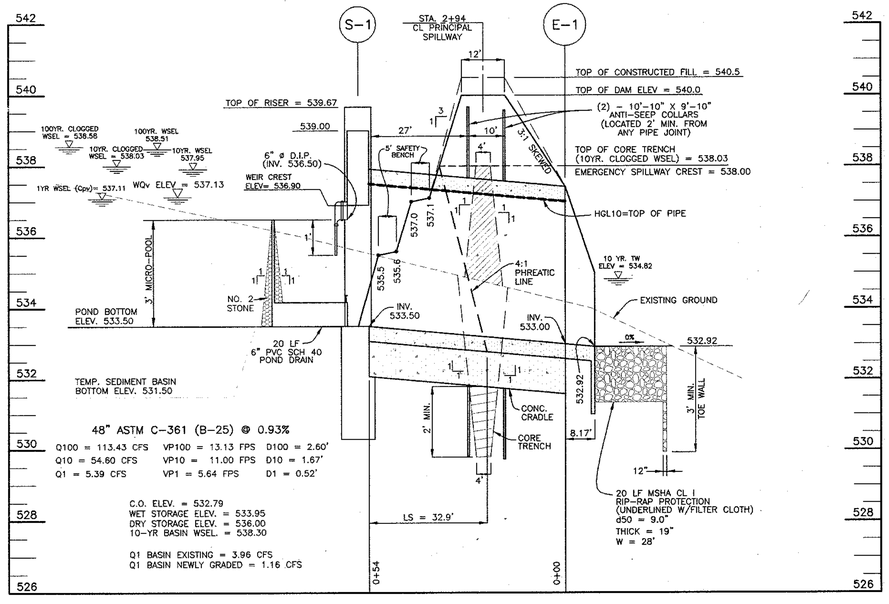
6" DEWATERING PIPE DETAIL AND PERMANENT EXTENDED DETENTION CONTROL ORIFICE

NOT TO SCALE



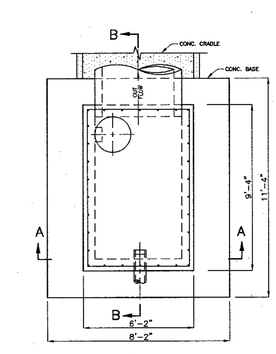
6" TEMPORARY SWM VERTICAL DRAW-DOWN DEVICE

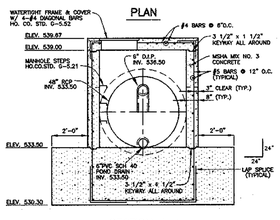
NOT TO SCALE



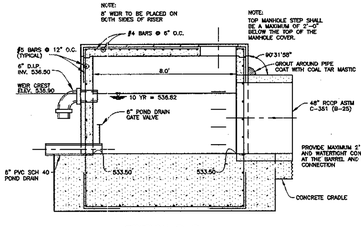
SECTION THRU PRINCIPAL SPILLWAY

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





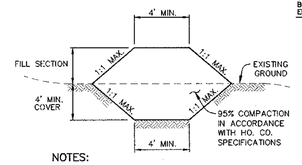
SECTION A-A FRONT VIEW



SECTION B-B SIDE VIEW

CONTROL STRUCTURE

SCALE: 1" = 4'

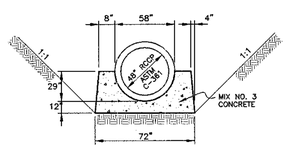


NOTES:

1. IF WATER IS ENCOUNTERED DURING THE CONSTRUCTION OF THE CORE TRENCH, IT IS TO BE REMOVED BY PUMPING.
2. CORE TRENCH SHALL CONSIST OF IMPERVIOUS MATERIAL (GC, SC, CL, OR CH) AS DIRECTED BY A GEOTECHNICAL ENGINEER ONSITE AND MAY REQUIRE TO BE HAULED FROM AN OFFSITE LOCATION.

CORE TRENCH SECTION

NOT TO SCALE



TYPE A-2 CONCRETE CRADLE

NOT TO SCALE

OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED EXTENDED DETENTION POND

ROUTINE MAINTENANCE:

1. FACILITY SHALL BE INSPECTED ANNUALLY AND AFTER MAJOR STORMS. INSPECTIONS SHALL BE PERFORMED DURING WET WEATHER TO DETERMINE IF THE POND IS FUNCTIONING PROPERLY.
2. TOP AND SIDE SLOPES OF THE EMBANKMENT SHALL BE MOWED A MINIMUM OF TWO (2) TIMES PER YEAR, ONCE IN JUNE AND ONCE IN SEPTEMBER. OTHER SIDE SLOPES AND MAINTENANCE ACCESS SHALL BE MOWED AS NEEDED.
3. DEBRIS AND LITTER SHALL BE REMOVED DURING REGULAR MOWING OPERATIONS AND AS NEEDED.
4. VISIBLE SIGNS OF EROSION IN THE POND AS WELL AS THE RIP-RAP OR GABION OUTLET AREA SHALL BE REPAIRED AS SOON AS IT IS NOTICED.

NON-ROUTINE MAINTENANCE:

1. STRUCTURAL COMPONENTS OF THE POND SUCH AS THE DAM, THE RISER, AND THE PIPES SHALL BE REPAIRED UPON THE DETECTION OF ANY DAMAGE. THE COMPONENTS SHALL BE INSPECTED DURING ROUTINE MAINTENANCE OPERATIONS.
2. SEDIMENTS SHALL BE REMOVED FROM THE POND, AND FOREBAY, NO LATER THAN WHEN THE CAPACITY OF THE POND, OR FOREBAY, IS HALF FULL OF SEDIMENT, OR, WHEN DEEMED NECESSARY FOR AESTHETIC REASONS, UPON APPROVAL FROM THE DEPARTMENT OF PUBLIC WORKS.

AS-BUILT CERTIFICATION

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

PE NO. 21443

DONALD A. MASON — DATE

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

BY THE DEVELOPER:

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

DEVELOPER — 6/23/04 DATE

BY THE ENGINEER:

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

ENGINEER - DONALD A. MASON, P.E. # 21443 — 6/17/04 DATE

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

USDA - NATURAL RESOURCES CONSERVATION SERVICE — 7/26/04 DATE

THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION, AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

HOWARD SOIL CONSERVATION DISTRICT — 7/26/04 DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — 8-2-04 DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — 8/9/04 DATE

CHIEF, DEVELOPMENT ENGINEERING DIVISION MRJ — 8/4/04 DATE

NO.	DATE	REVISION

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 418
ELLICOTT CITY, MARYLAND 21043
phone: 410-465-6105 ▲ fax: 410-465-6644
email: Benchmrk@cols.com

STATE OF MARYLAND — DONALD A. MASON — 21443 — PROFESSIONAL ENGINEER — 6/17/04

OWNER:
EDGEWOOD FARM, INC.
14919 ROXBURY ROAD
GLENELG, MARYLAND 21737

DEVELOPER:
TOLL BROTHERS, INC.
7164 COLUMBIA GATEWAY DRIVE
SUITE 230
COLUMBIA, MARYLAND 21046
410-872-9105

PROJECT: TRIADELPHIA CROSSING PHASE 1
LOTS 1-22 AND NON-BUILDABLE PRESERVATION PARCELS 'A' THRU 'H' AND NON-BUILDABLE BULK PARCEL 'I'

LOCATION: TAX MAP: 21 PARCEL: 97 GRID: 17 & 23 ZONED: RC-DEO
FOURTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: SWM DETAILS EXTENDED DETENTION FACILITY

DESIGN: MLV | DRAFT: DBT | CHECK: CAM

DATE: JUNE, 2004 | PROJECT NO. 1634

SCALE: AS SHOWN | SHEET 13 OF 17

F-04-118

P:\PROJECTS\1634\dwg\7024s13-14.dwg, 6/17/2004 11:27:46 AM

SWMF LANDSCAPE DATA

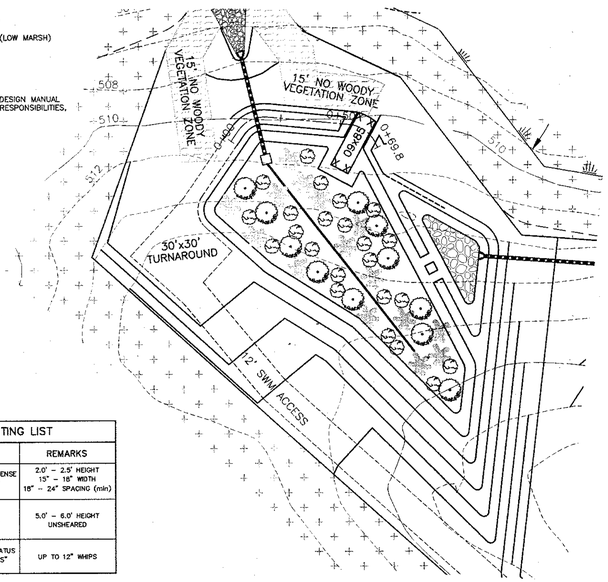
HYDROLOGIC ZONE 2 – SHALLOW WATER BENCH (LOW MARSH)

HYDROLOGIC CONDITION – 6" TO 12" DEEP

HARDINESS – TEMPERATE ZONE 6b (-5° TO 0°)

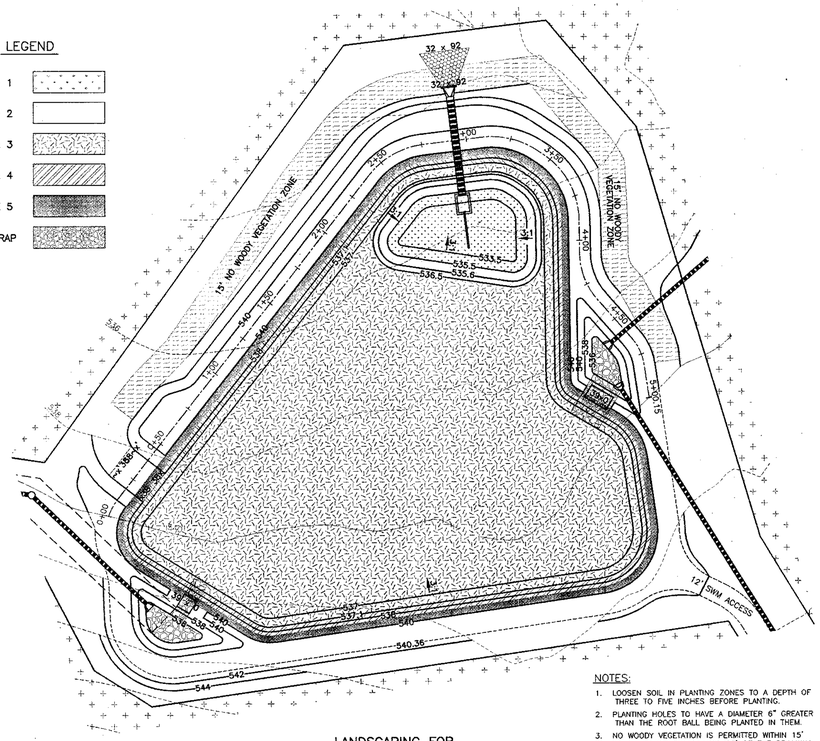
NOTE:

REFER TO MDE 2000 STORMWATER MANAGEMENT DESIGN MANUAL VOLUMES I AND II FOR LANDSCAPE CONTRACTOR RESPONSIBILITIES, PRACTICES AND MAINTENANCE DUTIES.



LANDSCAPING FOR
BIO-RETENTION FACILITY
SCALE: 1" = 30'

BIO-RETENTION PLANTING LIST			
SYMBOL	QUANTITY	NAME	REMARKS
	15	RHODODENDRON CANADENSE "RHODODENDRON"	2.0' – 2.5' HEIGHT 15" – 18" WIDTH 18" – 24" SPACING (min)
	11	ILEX VOMITORIA "YAUPON HOLLY"	5.0' – 6.0' HEIGHT UNSHEARED
	23	ANDROPOGAN GLOMERATUS "BUSHY BEARDGRASS"	UP TO 12" WHIPS



LANDSCAPING FOR
EXTENDED DETENTION FACILITY
SCALE: 1" = 40'

NOTES:

1. LOOSEN SOIL IN PLANTING ZONES TO A DEPTH OF THREE TO FIVE INCHES BEFORE PLANTING.
2. PLANTING HOLES TO HAVE A DIAMETER 6" GREATER THAN THE ROOT BALL BEING PLANTED IN THEM.
3. NO WOODY VEGETATION IS PERMITTED WITHIN 15' OF THE TOE OF SLOPE OR 25' OF THE SPILLWAY.

PLANTING SCHEDULE FOR EXTENDED DETENTION FACILITY			
ZONE	AREA	PLANT MIX	ELEVATION RANGE
1	2,797	100% WATER LILLY	533.5–535.5
2	1,883	50% BROAD WATER WEED 25% DUCK POTATO 25% ARROW ARUM	535.5–536.5
3	40,983	50% CUTGRASS, RICE 50% SWITCHGRASS	536.5–537.1
4	8,349	50% LOVEGRASS–MEADOW 25% VIOLETS, COMMON BLUE 25% CONEFLOWER,CUT–LEAF	537.1–538.48
5	4,122	75% WITCHGRASS, NEEDLE–LEAF 25% CONEFLOWER, SWEET	538.48–540.0
6	0 SF	N/A	N/A

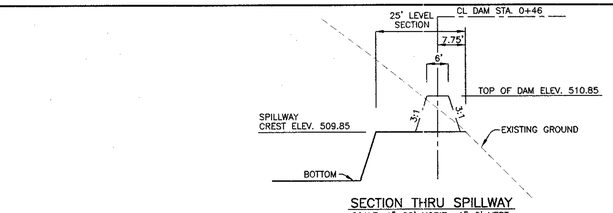
DEVELOPER'S/BUILDER'S CERTIFICATE

I/WE CERTIFY THAT THE LANDSCAPING SHOWN ON THIS PLAN WILL BE DONE ACCORDING TO THE PLAN, SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE HOWARD COUNTY LANDSCAPE MANUAL. I/WE FURTHER CERTIFY THAT UPON COMPLETION, A LETTER OF LANDSCAPE INSTALLATION, ACCOMPANIED BY AN EXECUTED ONE-YEAR GUARANTEE OF PLANT MATERIALS, WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING.

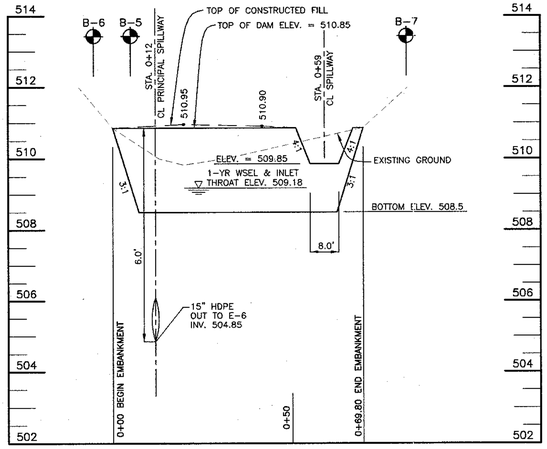
Bruce R. Oxley — 6/23/04

BRUCE OXLEY
TOLL BROTHERS, INC.

DATE

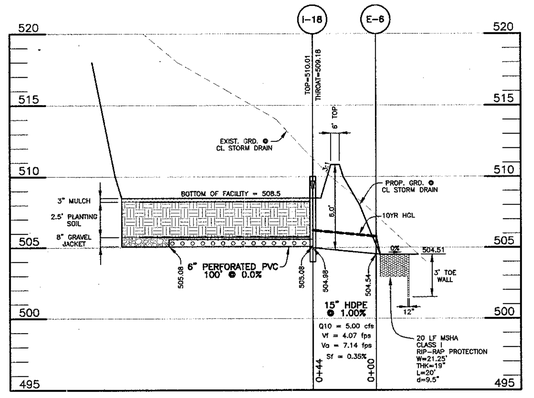


SECTION THRU SPILLWAY
SCALE: 1"=20' HORIZ., 1"=2' VERT.



PROFILE ALONG CL EMBANKMENT
BIO-RETENTION FACILITY
SCALE: 1"=20' HORIZ., 1"=2' VERT.

TABLE B.3.2 MATERIALS AND SPECIFICATIONS FOR BIO-RETENTION			
MATERIAL	SPECIFICATION	SIZE	NOTES:
PLANTINGS (IF REQUIRED)	SEE APPENDIX A, TABLE A.4	N/A	PLANTINGS ARE SITE SPECIFIC
PLANTING SOIL (2.5" TO 4.0" DEEP)	SAND: 35–60% SILT: 30–55% CLAY: 10–25%	N/A	USDA SOIL TYPES: LOAMY SAND, SANDY LOAM OR LOAM
MULCH	SHREDDED HARDWOOD	N/A	AGED 6 MONTHS, MINIMUM
PEA GRAVEL DIAPHRAGM AND CURTAIN DRAIN	PEA GRAVEL: ASTM D-448 ORNAMENTAL STONE: WASHED COBBLES	PEA GRAVEL: NO.6 STONE: 2" TO 5"	
GEOTEXTILE (CLASS 'C')	APPARENT OPENING SIZE: (ASTM D-4751) GRAB TENSILE STRENGTH: (ASTM D-4632) PUNCTURE RESISTANCE: (ASTM D-4833)	N/A	FOR USE AS NECESSARY BENEATH UNDERDRAINS ONLY
UNDERDRAIN GRAVEL	AASHTO M-43	0.375" TO 0.750"	
UNDERDRAIN PIPING	F758, TYPE PS28 OR AASHTO M-278	4" TO 6" RIGID SCH.40 PVC OR SDR35	3/8" PERF. @ 6" O/C, 4 HOLES PER ROW. MINIMUM OF 3" OF GRAVEL OVER PIPES, NOT NECESSARY UNDERNEATH PIPES
POURED-IN-PLACE CONC. (IF REQUIRED)	MSHA MIX NO.3; f'c=3500psi @ 28 DAYS, NORMAL WEIGHT, AIR ENTRAINED; REINFORCING TO MEET ASTM 615-60	N/A	ON-SITE TESTING OF POURED-IN-PLACE CONC. REQUIRED; 28 DAY STRENGTH TEST AND SLUMP TEST. ALL CONC. DESIGN (CAST -IN-PLACE or PRE-CAST) NOT USING PREVIOUSLY APPROVED STATE OR LOCAL STANDARDS REQUIRES DESIGN DRAWINGS SEALED AND APPROVED BY A PROFESSIONAL STRUCTURAL ENGINEER LICENSED IN THE STATE OF MARYLAND. - DESIGN TO INCLUDE MEETING ACI CODE 350.R/89: VERTICAL LOADING (H=10 or H=20) ALLOWABLE HORIZONTAL LOADING (BASED ON SOIL PRESSURES); AND ANALYSIS OF POTENTIAL CRACKING

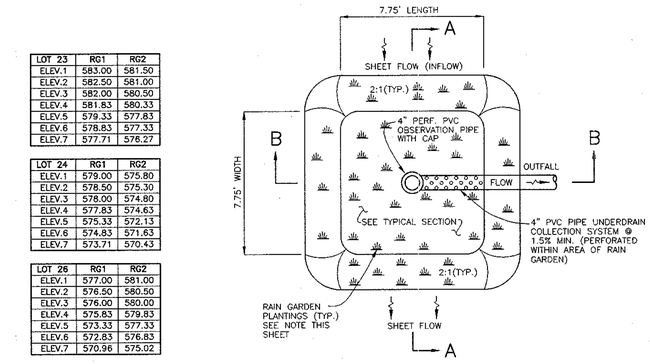


STORM DRAIN PROFILE
BIO-RETENTION FACILITY
SCALE: 1"=50' HORIZ., 1"=5' VERT.

LOT 23	RG1	RG2
ELEV.1	583.00	581.50
ELEV.2	582.50	581.00
ELEV.3	582.00	580.50
ELEV.4	581.83	580.33
ELEV.5	579.33	577.83
ELEV.6	578.83	577.33
ELEV.7	577.71	576.27

LOT 24	RG1	RG2
ELEV.1	579.00	575.80
ELEV.2	578.50	575.30
ELEV.3	578.00	574.80
ELEV.4	577.83	574.63
ELEV.5	575.33	572.13
ELEV.6	574.83	571.63
ELEV.7	573.71	570.43

LOT 26	RG1	RG2
ELEV.1	577.00	581.00
ELEV.2	576.50	580.50
ELEV.3	576.00	580.00
ELEV.4	575.83	579.83
ELEV.5	573.33	577.33
ELEV.6	572.83	576.83
ELEV.7	570.96	575.02

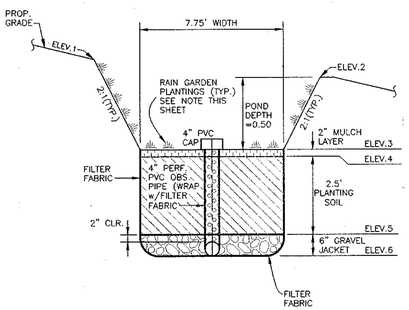


PLAN

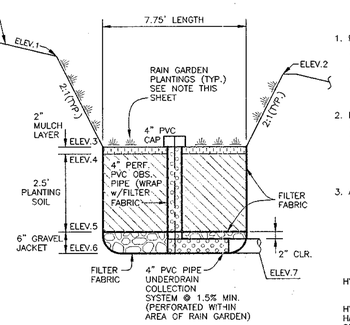
MATERIALS AND SPECIFICATIONS FOR RAIN GARDEN			
MATERIAL	SPECIFICATION	SIZE	NOTES:
PLANTINGS	SEE APPENDIX A, TABLE A.4	N/A	PLANTINGS ARE SITE SPECIFIC
PLANTING SOIL (2.5" TO 4.0" DEEP)	SAND: 30–60% SILT: 30–55% CLAY: 0–25%	N/A	USDA SOIL TYPES: LOAMY SAND, SANDY LOAM OR LOAM
MULCH	SHREDDED HARDWOOD	N/A	AGED 6 MONTHS, MINIMUM
GEOTEXTILE (CLASS 'C')	APPARENT OPENING SIZE: (ASTM D-4751) GRAB TENSILE STRENGTH: (ASTM D-4632) PUNCTURE RESISTANCE: (ASTM D-4833)	N/A	FOR USE AS NECESSARY BENEATH UNDERDRAINS ONLY
UNDERDRAIN GRAVEL	AASHTO M-43	0.375" TO 0.750"	
UNDERDRAIN PIPING	F758, TYPE PS28 OR AASHTO M-278	4" TO 6" RIGID SCH.40 PVC, SDR35 OR HDPE	3/8" PERF. @ 6" O/C, 4 HOLES PER ROW. MINIMUM OF 3" OF GRAVEL OVER PIPES, NOT NECESSARY UNDERNEATH PIPES

OPERATION & MAINTENANCE SCHEDULE FOR RAIN GARDENS

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



SECTION A–A



SECTION B–B

RAIN GARDEN DETAILS
NOT TO SCALE

PLANTING DATA

1. PLANTINGS WITHIN THE PONDING AREA OF THE RAIN GARDEN ARE TO BE OF A MEDIUM TO HIGH WATER TOLERANCE
   SUGGESTED SPECIES:
   CREEPING BUGLEWEED (AJUGA REPTANS)
   COMMON PERIWINKLE (VINCA MINOR)
   LILY-TURF (LIRIOPE, SP.)
2. PLANTINGS ALONG THE PERIMETER (BERM) AREA OF THE RAIN GARDEN ARE TO BE OF A LOW TO MEDIUM WATER TOLERANCE
   SUGGESTED SPECIES:(PERENNIALS/ANNUALS)
   IRIS (IRIS VERSICOLOR)
   DAYLILY (HEMEROCALIS SP.)
   WHITE GLORY (ASTIBLE SP.)
3. AVOID PLANTINGS WITH EXCESSIVE ROOT MASS IN POND AREA OF THE RAIN GARDEN NEAR OBSERVATION PIPE AND UNDERDRAIN.

LANDSCAPE DATA

HYDROLOGIC ZONE 3 – REGULARLY INUNDATED SHORELINE FRINGE (HIGH MARSH)

HYDROLOGIC CONDITION – 0" TO 1'-0" DEEP

HARDINESS – TEMPERATE ZONE 6b (-5° TO 0°)

SEE SHEET 2 FOR SEQUENCE OF CONSTRUCTION

NOTE: REFER TO MDE 2000 MD STORMWATER DESIGN MANUAL VOLUMES I & 2 FOR LANDSCAPE CONTRACTOR RESPONSIBILITIES, PRACTICES AND MAINTENANCE DUTIES

GENERAL STORAGE REQUIREMENT
BIO-RETENTION FACILITY

REQUIREMENT	VOLUME REQUIRED (ac-ft)	VOLUME PROVIDED (ac-ft)	NOTES
WATER QUALITY VOLUME (WQv)	0.0852 (3884 cf)	0.0892 (3884 cf)	PROVIDED IN BIO-RETENTION FACILITY
RECHARGE VOLUME (REv)	0.021 (932 cf)	0.021 (932 cf)	PROVIDED BY GRASS CHANNEL IN ROADSIDE DITCHES IN DA #1
CHANNEL PROTECTION VOL. (CPv)	N/A	N/A	NOT REQUIRED FOR THIS AREA CPv RELEASE RATE < 2cfs (1.78)
OVERBANK FLOOD PROTECTION VOL. (Qp)	N/A	N/A	NOT REQUIRED FOR THIS AREA
EXTREME FLOOD VOLUME (Qf)	N/A	N/A	NOT REQUIRED FOR THIS AREA

OPERATION AND MAINTENANCE SCHEDULE FOR BIO-RETENTION FACILITY

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

AS-BUILT CERTIFICATION

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

PE NO. 21443

DONALD A. MASON — DATE

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

BY THE DEVELOPER:

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

Bruce R. Oxley — 6/23/04

DEVELOPER — DATE

BY THE ENGINEER:

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

Donald Mason — 6/17/04

ENGINEER – DONALD A. MASON, P.E. # 21443 — DATE

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

Jim Myers — 7/26/04

USDA – NATURAL RESOURCES CONSERVATION SERVICE — DATE

THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION, AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

7/26/04

HOWARD SOIL CONSERVATION DISTRICT — DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS

8-2-04

CHIEF, BUREAU OF HIGHWAYS — DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

8/10/04

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE

8/6/04

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

NO.	DATE	

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 418
ELLICOTT CITY, MARYLAND 21043
phone: 410-465-6105 ▲ fax: 410-465-6644
email: Benchmrk@cola.com

STATE OF MARYLAND — DONALD A. MASON — No. 21443 — REGISTERED PROFESSIONAL ENGINEER — 6/17/04

OWNER:
EDGEWOOD FARM, INC.
14919 ROXBURY ROAD
GLENELG, MARYLAND 21737

DEVELOPER:
TOLL BROTHERS, INC.
7164 COLUMBIA GATEWAY DRIVE
SUITE 230
COLUMBIA, MARYLAND 21046
410-872-9105

PROJECT: TRIADELPHIA CROSSING
PHASE 1
LOTS 1-22 AND NON-BUILDABLE PRESERVATION PARCELS 'A' THRU 'H' AND NON-BUILDABLE BULK PARCEL 'I'

LOCATION: TAX MAP: 21 PARCEL: 87
GRID: 17 & 23 ZONED: RC-DEO
FOURTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: SWM DETAILS
BIO-RETENTION FACILITY/RAINGARDENS AND SWM LANDSCAPING

DESIGN: MLV	DRAFT: DBT	CHECK: CAM

DATE: JUNE, 2004 — PROJECT NO. 1634

SCALE: AS SHOWN — SHEET 14 OF 17

F-04-118

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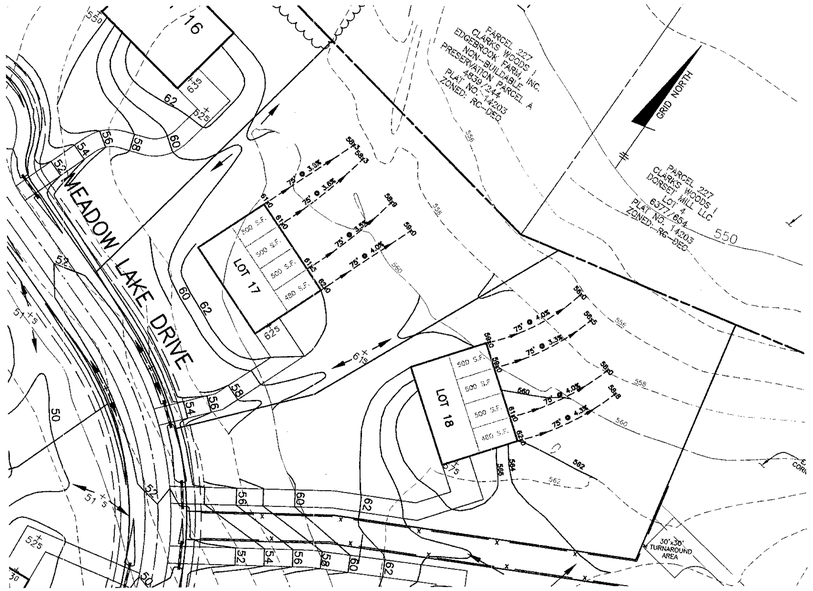

THIS PLAN SHOWS THE ROOFTOP DISONNECTION CREDIT AND NON-ROOFTOP DISCONNECTION CREDIT DESIGN FOR LOTS 17, 18 AND 23 – 27.

THIS PLAN REFLECTS ULTIMATE GRADING CONDITIONS FOR LOTS 17, 18 AND 23 – 27.

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 8-2-04

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 8/10/04

CHIEF, DEVELOPMENT ENGINEERING DIVISION MAJ — DATE 8/6/04

NO.	DATE	REVISION

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 418
ELLICOTT CITY, MARYLAND 21043
phone: 410-465-6105 ▲ fax: 410-465-6644
email: Benchmrk@cais.com

STATE OF MARYLAND — 6/17/04

OWNER:
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GLENELG, MARYLAND 21737

DEVELOPER:
TOLL BROTHERS, INC.
7164 COLUMBIA GATEWAY DRIVE
SUITE 230
COLUMBIA, MARYLAND 21046
410-872-9105

PROJECT: TRIADELPHIA CROSSING
PHASE 1
LOTS 1–22 AND NON-BUILDABLE PRESERVATION PARCELS 'A' THRU 'H' AND NON-BUILDABLE BULK PARCEL 'I'

LOCATION: TAX MAP: 21 PARCEL: 97
GRID: 17 & 23 ZONED: RC-DEO
FOURTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: SWM DETAILS
DISCONNECTION CREDIT PLAN

DATE:	JUNE, 2004	PROJECT NO. 1634
SCALE:	1" = 50'	SHEET 15 OF 17

DESIGN: MLV | DRAFT: DBT | CHECK: DAM

F-04-118

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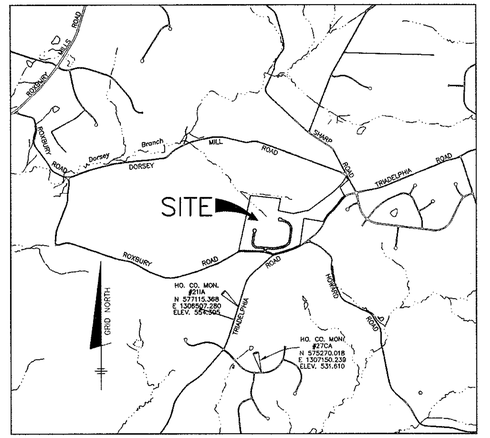
PLAN VIEW
SCALE: 1" = 100'



VICINITY MAP
SCALE: 1" = 2000'

LEGEND

- EXISTING CONTOURS
- EXISTING TREELINE
- PROPOSED TREELINE
- EXISTING WETLANDS
- EXISTING STREAM
- EXISTING SLOPES 25% OR GREATER
- EXISTING SLOPES 15% – 24.99%
- 100-YR FLOODPLAIN LIMIT
- SOILS DELINEATION LINE
- ChB2 SOILS TYPE
- PROPOSED HOUSE AND DRIVEWAY LOCATION
- FCE FCE FOREST CONSERVATION SIGNAGE
- FOREST CONSERVATION EASEMENT

SITE DATA

GROSS AREA:	62.3
100 YEAR FLOODPLAIN	1.8
NET TRACT AREA	60.5
EXISTING FOREST	23.4
AFFORESTATION THRESHOLD	12.1
REFORESTATION THRESHOLD	15.1
CLEARING PROPOSED	16.8
PROPOSED FOREST RETENTION	6.6
REFORESTATION REQUIRED	19.1
ONSITE REFORESTATION PROPOSED	15.4
OFFSITE REFORESTATION PROVIDED ON ADJACENT PRES. PARCEL 'A' CLARKS WOODS 1	3.7

FCE ACREAGE CHART

EASEMENT	RETENTION	REFORESTATION
1	3.8 AC.	10.1 AC.
2	–	1.3 AC.
3	–	0.5 AC.
4	–	0.6 AC.
5	–	2.0 AC.
6	2.8 AC.	0.9 AC.
TOTALS	6.6 AC.	15.4 AC.

SOILS LEGEND

MAP SYMBOL	SOIL GROUP	SOIL TYPE
Ba	D*	BAILE SILT LOAM
ChB2	B	CHESTER SILT LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY ERODED
ChC3	B	CHESTER SILT LOAM, 8 TO 15 PERCENT SLOPES, SEVERELY ERODED
EkA	B	ELIOAK SILT LOAM, 0 TO 3 PERCENT SLOPES
EkB2	B	ELIOAK SILT LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY ERODED
GlB2	B	GLENELG LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY ERODED
GlC2	B	GLENELG LOAM, 8 TO 15 PERCENT SLOPES, MODERATELY ERODED
GnB2	C*	GLENVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY ERODED
MlC2	B	MANOR LOAM, 8 TO 5 PERCENT SLOPES, MODERATELY ERODED
MlC3	B	MANOR LOAM, 8 TO 5 PERCENT SLOPES, SEVERELY ERODED
MlD3	B	MANOR LOAM, 15 TO 25 PERCENT SLOPES, SEVERELY ERODED

* INDICATES HYDRIC SOILS
TAKEN FROM SOIL SURVEY, HOWARD COUNTY, MARYLAND (ISSUED JULY 1968) MAP NO. 13 AND 17

NO.	DATE	REVISION

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 8-2-04

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 7/14/04

CHIEF, DEVELOPMENT ENGINEERING DIVISION MAJ — DATE 8/6/04

* FOREST CONSERVATION EASEMENT BEARING AND DISTANCE DESCRIPTIONS ARE PROVIDED ON THE FINAL PLAT.

Eco-Science Professionals, Inc.
CONSULTING ECOLOGISTS
P.O. Box 5006 Glen Arm, MD 21057 (410) 592-6752

MD DNR Qualified Professional
USACOE Wetland Delineator
Certification # WDC2003MD0610044B2
John P. Canoles 6/17/04

BENCHMARK
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STATE OF MARYLAND — DONALD MANN — 21443 — REGISTERED PROFESSIONAL ENGINEER
6/17/04

OWNER:
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GLENELG, MARYLAND 21737

DEVELOPER:
TOLL BROTHERS, INC.
7164 COLUMBIA GATEWAY DRIVE
SUITE 230
COLUMBIA, MARYLAND 21046
410-872-9105

PROJECT: TRIADELPHIA CROSSING
PHASE 1
LOTS 1-22 AND NON-BUILDABLE PRESERVATION PARCELS 'A' THRU 'H' AND NON-BUILDABLE BULK PARCEL 'I'

LOCATION: TAX MAP: 21 PARCEL: 97
GRID: 17 & 23 ZONED: RC-DEO
FOURTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: FOREST CONSERVATION PLAN

DESIGN: DBT	DRAFT: DBT	CHECK: CAM	DATE: JUNE, 2004	PROJECT NO. 1634
			SCALE: AS SHOWN	SHEET 16 OF 17

F-04-118

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PLANTING SCHEDULE

FOREST CONSERVATION EASEMENT #1 (10.1 ACRES±)

3535 REQUIRED/3535 PROVIDED

QTY.	SPECIES	SIZE	SPACING
345	Acer rubrum – Red Maple	2-3' WHIP	**
290	Cornus florida – Flowering dogwood	2-3' WHIP	**
425	Juglans nigra – Black Walnut	2-3' WHIP	**
350	Juniperus virginiana – Red Cedar	2-3' WHIP	**
425	Liriodendron tulipifera – Poplar	2-3' WHIP	**
250	Nyssa sylvatica – Black gum	2-3' WHIP	**
450	Prunus serotina – Black Cherry	2-3' WHIP	**
350	Quercus alba – White Oak	2-3' WHIP	**
250	Quercus rubra – Red Oak	2-3' WHIP	**
200	Sassafras albidum – Sassafras	2-3' WHIP	**
200	Viburnum prunifolium – Blackhaw	2-3' WHIP	**

FOREST CONSERVATION EASEMENT #2 (1.3 ACRES±)

455 REQUIRED/455 PROVIDED

QTY.	SPECIES	SIZE	SPACING
40	Acer rubrum – Red Maple	2-3' WHIP	**
20	Cornus florida – Flowering dogwood	2-3' WHIP	**
65	Juglans nigra – Black Walnut	2-3' WHIP	**
15	Juniperus virginiana – Red Cedar	2-3' WHIP	**
65	Liriodendron tulipifera – Poplar	2-3' WHIP	**
40	Nyssa sylvatica – Black gum	2-3' WHIP	**
35	Prunus serotina – Black Cherry	2-3' WHIP	**
65	Quercus alba – White Oak	2-3' WHIP	**
65	Quercus rubra – Red Oak	2-3' WHIP	**
20	Sassafras albidum – Sassafras	2-3' WHIP	**
25	Viburnum prunifolium – Blackhaw	2-3' WHIP	**

FOREST CONSERVATION EASEMENT #3 (0.5 ACRES±)

175 REQUIRED/175 PROVIDED

QTY.	SPECIES	SIZE	SPACING
20	Acer rubrum – Red Maple	2-3' WHIP	**
40	Juglans nigra – Black Walnut	2-3' WHIP	**
10	Juniperus virginiana – Red Cedar	2-3' WHIP	**
40	Liriodendron tulipifera – Poplar	2-3' WHIP	**
20	Prunus serotina – Black Cherry	2-3' WHIP	**
15	Quercus alba – White Oak	2-3' WHIP	**
15	Quercus rubra – Red Oak	2-3' WHIP	**
15	Viburnum prunifolium – Blackhaw	2-3' WHIP	**

FOREST CONSERVATION EASEMENT #4 (0.6 ACRES±)

210 REQUIRED/210 PROVIDED

QTY.	SPECIES	SIZE	SPACING
20	Acer rubrum – Red Maple	2-3' WHIP	**
10	Cornus florida – Flowering dogwood	2-3' WHIP	**
35	Juglans nigra – Black Walnut	2-3' WHIP	**
10	Juniperus virginiana – Red Cedar	2-3' WHIP	**
35	Liriodendron tulipifera – Poplar	2-3' WHIP	**
10	Nyssa sylvatica – Black gum	2-3' WHIP	**
30	Prunus serotina – Black Cherry	2-3' WHIP	**
20	Quercus alba – White Oak	2-3' WHIP	**
20	Quercus rubra – Red Oak	2-3' WHIP	**
20	Viburnum prunifolium – Blackhaw	2-3' WHIP	**

FOREST CONSERVATION EASEMENT #5 (2.0 ACRES±)

700 REQUIRED/700 PROVIDED

QTY.	SPECIES	SIZE	SPACING
70	Acer rubrum – Red Maple	2-3' WHIP	**
30	Cornus florida – Flowering dogwood	2-3' WHIP	**
105	Juglans nigra – Black Walnut	2-3' WHIP	**
50	Juniperus virginiana – Red Cedar	2-3' WHIP	**
105	Liriodendron tulipifera – Poplar	2-3' WHIP	**
40	Nyssa sylvatica – Black gum	2-3' WHIP	**
90	Prunus serotina – Black Cherry	2-3' WHIP	**
75	Quercus alba – White Oak	2-3' WHIP	**
75	Quercus rubra – Red Oak	2-3' WHIP	**
30	Sassafras albidum – Sassafras	2-3' WHIP	**
30	Viburnum prunifolium – Blackhaw	2-3' WHIP	**

FOREST CONSERVATION EASEMENT #6 (0.9 ACRES±)

315 REQUIRED/315 PROVIDED

QTY.	SPECIES	SIZE	SPACING
30	Acer rubrum – Red Maple	2-3' WHIP	**
15	Cornus florida – Flowering dogwood	2-3' WHIP	**
55	Juglans nigra – Black Walnuts	2-3' WHIP	**
15	Juniperus virginiana – Red Cedar	2-3' WHIP	**
55	Liriodendron tulipifera – Poplar	2-3' WHIP	**
15	Nyssa sylvatica – Black gum	2-3' WHIP	**
40	Prunus serotina – Black Cherry	2-3' WHIP	**
30	Quercus alba – White Oak	2-3' WHIP	**
30	Quercus rubra – Red Oak	2-3' WHIP	**
30	Viburnum prunifolium – Blackhaw	2-3' WHIP	**

OFFSITE FOREST CONSERVATION EASEMENT (3.7 ACRES±)

1295 REQUIRED/1295 PROVIDED

QTY.	SPECIES	SIZE	SPACING
135	Acer rubrum – Red Maple	2-3' WHIP	**
70	Cornus florida – Flowering dogwood	2-3' WHIP	**
235	Juglans nigra – Black Walnut	2-3' WHIP	**
50	Juniperus virginiana – Red Cedar	2-3' WHIP	**
235	Liriodendron tulipifera – Poplar	2-3' WHIP	**
120	Nyssa sylvatica – Black gum	2-3' WHIP	**
120	Prunus serotina – Black Cherry	2-3' WHIP	**
90	Quercus alba – White Oak	2-3' WHIP	**
90	Quercus rubra – Red Oak	2-3' WHIP	**
75	Sassafras albidum – Sassafras	2-3' WHIP	**
75	Viburnum prunifolium – Blackhaw	2-3' WHIP	**

KEY:
** PLANTINGS TO BE SPACED 11 FOOT CENTERS – PLANTINGS SHOULD BE INSTALLED IN ROWS TO FACILITATE FUTURE MAINTENANCE. WHERE POSSIBLE ROWS SHOULD BE MADE ALONG CONTOUR.

PER COUNTY REQUIREMENTS, TREE SHELTERS SHOULD BE USED.

PLANTING/SOIL SPECIFICATIONS

1. PLANTING OF NURSERY STOCK SHALL TAKE PLACE BETWEEN MARCH 15TH AND APRIL 30TH. CONTAINER STOCK MAY BE PLANTED BETWEEN SEPTEMBER 1ST AND OCTOBER 30TH.
2. A TWELVE (12) INCH LAYER OF TOPSOIL SHALL BE SPREAD OVER ALL REFORESTATION AREAS IMPACTED BY SITE GRADING TO ASSURE A SUITABLE PLANTING AREA. DISTURBED AREAS SHALL BE SEEDED IMMEDIATELY AFTER PLANTING. ESTABLISHED VEGETATED AREAS OR EXISTING PLANTING AREAS NOT IMPACTED BY SITE GRADING SHALL HAVE NO ADDITIONAL TOPSOIL INSTALLED.
3. ALL BAREROOT PLANTING STOCK SHALL HAVE THEIR ROOT SYSTEMS DIPPED INTO AN ANTI-DESICCANT GEL PRIOR TO PLANTING.
4. PLANTS SHALL BE INSTALLED SO THAT THE TOP OF ROOT MASS IS LEVEL WITH THE TOP OF EXISTING GRADE. BACKFILL IN THE PLANTING PITS SHALL CONSIST OF 3 PARTS EXISTING SOIL TO 1 PART PINE FINES OR EQUIVALENT.
5. FERTILIZER SHALL CONSIST OF AGRIFORM 22-8-2, OR EQUIVALENT, APPLIED AS PER MANUFACTURER'S SPECIFICATIONS.
6. A THREE (3) INCH LAYER OF HARDWOOD MULCH SHALL BE PLACED OVER THE ROOT AREA OF ALL PLANTINGS.
7. PLANT MATERIAL SHALL BE TRANSPORTED TO THE SITE IN A COVERED OR COVERED TRUCK. PLANTS SHALL BE KEPT MOIST PRIOR TO PLANTING.
8. ALL NON-ORGANIC DEBRIS ASSOCIATED WITH THE PLANTING OPERATION SHALL BE REMOVED FROM THE SITE BY THE CONTRACTOR.

SEQUENCE OF CONSTRUCTION

1. PLANTS SHALL BE INSTALLED AS PER PLANT SCHEDULE AND PLANTING/SOIL SPECIFICATIONS FOR THE PROJECT.
2. UPON COMPLETION OF THE PLANTING, SIGNAGE SHALL BE INSTALLED AS PER THE FOREST RETENTION AREA PROTECTION DEVICES SHOWN ON THE FOREST CONSERVATION PLAN.
3. PLANTINGS SHALL BE MAINTAINED AND GUARANTEED IN ACCORDANCE WITH THE MAINTENANCE AND GUARANTEE REQUIREMENTS FOR PROJECT.

MAINTENANCE OF PLANTINGS

1. MAINTENANCE OF ALL PLANTINGS SHALL LAST FOR A PERIOD OF 24 MONTHS.
2. ALL PLANT MATERIAL SHALL BE WATERED TWICE A MONTH DURING THE 1ST GROWING SEASON. WATERING MAY BE MORE OR LESS FREQUENT DEPENDING ON WEATHER CONDITIONS. DURING SECOND GROWING SEASON, CIVIL A MONTH DURING MAY-SEPTEMBER, IF NEEDED.
3. ALL INVASIVE, EXOTIC OR UNDESIRABLE PLANTS SHALL BE REMOVED FROM REFORESTATION AREAS. OLD FIELD SUCCESSIONAL SPECIES SHALL BE RETAINED.
4. PLANTS WILL BE EXAMINED A MINIMUM OF TWO TIMES DURING THE GROWING SEASON FOR SERIOUS PLANT PESTS AND DISEASES. SERIOUS PROBLEMS WILL BE TREATED WITH THE APPROPRIATE AGENT.
5. DEAD BRANCHES WILL BE PRUNED FROM PLANTINGS.

GUARANTEE REQUIREMENTS

1. AFTER ONE GROWING SEASON, PLANT MATERIAL SHALL BE MAINTAINED AT 90% SURVIVAL THRESHOLD. A 75% SURVIVAL RATE OF FORESTATION PLANTINGS WILL BE REQUIRED AT THE END OF THE 24 MONTH MAINTENANCE PERIOD. ALL PLANT MATERIAL BELOW THE 75% THRESHOLD WILL BE REPLACED AT THE BEGINNING OF THE NEXT GROWING SEASON.
2. THE CONTRACTOR WILL NOT BE LIABLE FOR PLANT LOSS DUE TO THEFT OR VANDALISM.

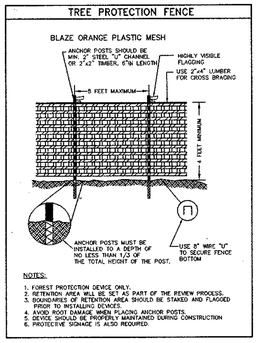
SURETY FOR REFORESTATION

1. THE DEVELOPER SHALL POST A SURETY (BOND, LETTER OF CREDIT) TO ENSURE THAT REFORESTATION PLANTINGS ARE COMPLETED. UPON ACCEPTANCE OF THE PLANTINGS BY THE COUNTY, THE BOND SHALL BE RELEASED.

MULTIFLORA ROSE CONTROL NOTE

MULTIFLORA ROSE IS PREVALENT IN CERTAIN AREAS TO BE AFFORESTED. PRIOR TO PLANTING ALL MULTIFLORA ROSE SHOULD BE REMOVED. REMOVAL OF THE ROSE MAY BE PERFORMED WITH MOWING AND HERBICIDE TREATMENTS. PHYSICAL REMOVAL OF ALL TOP GROWTH FOLLOWED BY A PERIODIC HERBICIDE TREATMENT OF STUMP SPROUTS IS RECOMMENDED. NATIVE TREE AND SHRUB SPECIES OCCURRING WITHIN THE ROSE THICKETS SHOULD GE RETAINED WHEREVER POSSIBLE. HERBICIDE TREATMENTS SHALL OCCUR ON 2 MONTH INTERVALS DURING THE FIRST GROWING SEASON AND ONCE EACH IN THE SPRING AND FALL FOR SUBSEQUENT YEARS. HERBICIDE USED SHALL BE MADE SPECIFICALLY TO ADDRESS WOODY PLANT MATERIAL AND SHALL BE APPLIED AS PER MANUFACTURERS SPECIFICATIONS. CARE SHOULD BE TAKEN NOT TO SPRAY PLANTED TREES OR NATURALLY OCCURRING NATIVE TREE/SHRUB SEEDLINGS. IT IS RECOMMENDED THAT INITIATION OF ROSE REMOVAL BEGIN AT LEAST SIX MONTHS PRIOR TO PLANTING.

TREE PROTECTION FENCE



NOTES:
1. FOREST PROTECTION DEVICE ONLY.
2. RETENTION AREA WILL BE SET AS PART OF THE REVIEW PROCESS.
3. BOUNDARIES OF RETENTION AREA SHOULD BE STAKED AND FLAGGED PRIOR TO INSTALLING DEVICES.
4. AVOID ROOT DAMAGE WHEN PLACING ANCHOR POSTS.
5. DEVICE SHOULD BE PROPERLY MAINTAINED DURING CONSTRUCTION
6. PROTECTIVE SIGNAGE IS ALSO REQUIRED.

PLANTING NOTES:

1. MULTIFLORA ROSE CONTROL MAY BE REQUIRED AS PART OF THIS PLANTING PLAN.

2. BAREROOT PLANT MATERIAL MAY BE USED TO OFFSET THE COST OF MULTIFLORA ROSE REMOVAL AND MAINTENANCE. IF BAREROOT MATERIAL IS USED IT MUST BE PLANTED IN MARCH – APRIL AND AN ANTI-DESICCANT GEL SHOULD BE UTILIZED TO PROTECT ROOT SYSTEMS. CONTAINER GROWN STOCK IS RECOMMENDED.

3. PLANTS SHOULD BE FLAGGED TO AID ON LOCATION DURING MAINTENANCE. PLANTINGS SHOULD ALSO BE PLANTED IN A GRID PATTERN TO FACILITATE MAINTENANCE AND REMOVAL OF INVASIVE AND EXOTIC SPECIES.

FCP NOTES:

1. ANY FOREST CONSERVATION EASEMENT (FCE) AREA SHOWN HEREON IS SUBJECT TO PROTECTIVE COVENANTS WHICH MAY BE FOUND IN THE LAND RECORDS OF HOWARD COUNTY WHICH RESTRICT THE DISTURBANCE AND USE OF THESE AREAS.

2. THE FOREST CONSERVATION EASEMENTS HAVE BEEN ESTABLISHED TO FULFILL THE REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY CODE FOREST CONSERVATION ACT. NO CLEARING, GRADING, OR CONSTRUCTION IS PERMITTED WITHIN THE FOREST CONSERVATION EASEMENTS; HOWEVER, FOREST MANAGEMENT PRACTICES AS DEFINED IN THE DEED OF FOREST CONSERVATION EASEMENT ARE ALLOWED

3. LIMITS OF DISTURBANCE SHALL BE RESTRICTED TO AREAS OUTSIDE THE LIMIT OF TEMPORARY FENCING OR THE FCE BOUNDARY, WHICHEVER IS GREATER.

4. THERE SHALL BE NO CLEARING, GRADING, CONSTRUCTION OR DISTURBANCE OF VEGETATION IN THE FOREST CONSERVATION EASEMENT, EXCEPT AS PERMITTED BY HOWARD COUNTY DPZ.

5. NO STOCKPILES, PARKING AREAS, EQUIPMENT CLEANING AREAS, ETC. SHALL OCCUR WITHIN AREAS DESIGNATED AS FOREST CONSERVATION EASEMENTS.

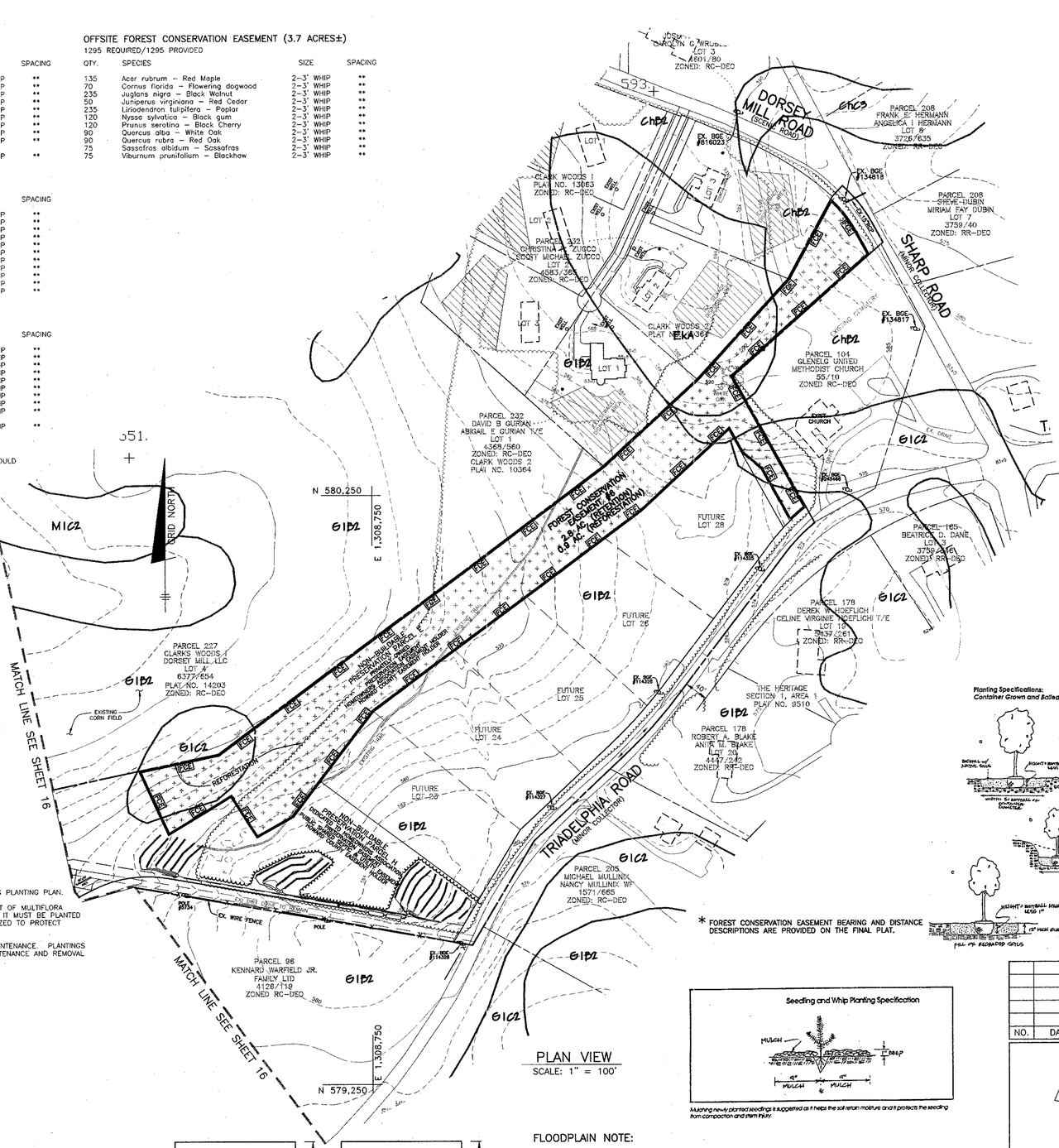
6. TEMPORARY FENCING SHALL BE USED TO PROTECT FOREST RESOURCES DURING CONSTRUCTION. THE FENCING SHALL BE PLACED ALONG ALL FCE BOUNDARIES WHICH OCCUR WITHIN 15 FEET OF THE PROPOSED LIMITS OF DISTURBANCE.

7. PERMANENT SIGNAGE SHALL BE PLACED 50–100' APART ALONG THE BOUNDARIES OF ALL AREAS INCLUDED IN FOREST CONSERVATION EASEMENTS.

8. THE TOTAL FOREST CONSERVATION OBLIGATION AMOUNT OF 25.7 SHALL BE MET BY THE ON-SITE RETENTION OF 6.6 AC. WITHIN A FOREST CONSERVATION EASEMENT, THE ON-SITE REFORESTATION OF 15.4 AC. WITHIN A FOREST CONSERVATION EASEMENT AND BY THE OFF-SITE REFORESTATION OF 3.7 AC. WITHIN A FOREST CONSERVATION EASEMENT LOCATED ON PRESERVATION PARCEL 'A' OF THE CLARKS WOODS 1 (F-04-119) SUBDIVISION WITH A DPW, DEVELOPER'S AGREEMENT WITH SURETY IN THE TOTAL AMOUNT OF $473,497.00 ($392,911.00 ON-SITE AND $80,586.00 OFF-SITE).

LEGEND

- EXISTING CONTOURS
- EXISTING TREELINE
- PROPOSED TREELINE
- EXISTING WETLANDS
- EXISTING STREAM
- EXISTING SLOPES 25% OR GREATER
- EXISTING SLOPES 15% – 24.99%
- 100-YR FLOODPLAIN LIMIT
- SOILS DELINEATION LINE
- ChD2 SOILS TYPE
- PROPOSED HOUSE AND DRIVEWAY LOCATION
- FCE FCE FOREST CONSERVATION SIGNAGE
- FOREST CONSERVATION EASEMENT


N 580,250
E 1,308,750
N 579,250
E 1,308,750
MATCH LINE SEE SHEET 16
MATCH LINE SEE SHEET 16
GRID NORTH
593±
DORSEY MILL ROAD (SCENIC ROAD)
SHARP ROAD (MINOR COLLECTOR)
TRIADELPHIA ROAD (MINOR COLLECTOR)
CLARK WOODS 1 PLAN NO. 13063 ZONED: RC-DEO
CLARK WOODS 2 PLAN NO. 10364
PARCEL 227 CLARKS WOODS 1 DORSEY MILL, LLC LOT A 6377/654 PLAT NO. 14203 ZONED: RC-DEO
PARCEL 232 DAVID B GURIAN ABIGAIL E GURIAN T/E LOT 1 4368/560 ZONED: RC-DEO
PARCEL 332 CHRISTINA M. ZUCCO SCOTT MICHAEL ZUCCO LOT 2 4583/365 ZONED: RC-DEO
PARCEL 208 FRANK E. HERMANN ANGELICA I. HERMANN LOT B 3726/635 ZONED: RC-DEO
PARCEL 208 STEVE-DUBIN MIRIAM FAY DUBIN LOT 7 3759/40 ZONED: RC-DEO
PARCEL 104 GLENELG UNITED METHODIST CHURCH 55/10 ZONED RC-DEO
PARCEL 165 BEATRICE D. DANE LOT 3 3759/436 ZONED: RC-DEO
PARCEL 178 DEREK W. HOEFLICH CELINE VIRGINIE HOEFLICH T/E LOT 1A 5637/261 ZONED: RC-DEO
PARCEL 178 ROBERT A. BLAKE ANITA M. BLAKE LOT 2A 4447/242 ZONED: RC-DEO
THE HERITAGE SECTION 1, AREA 1 PLAT NO. 9510
PARCEL 205 MICHAEL MULLINIX NANCY MULLINIX WF 1577/665 ZONED: RC-DEO
PARCEL 96 KENNARD WARFIELD JR. FAMILY LTD 4126/718 ZONED RC-DEO
FUTURE LOT 28
FUTURE LOT 26
FUTURE LOT 25
FUTURE LOT 24
FUTURE LOT 23
EXISTING CORN FIELD
EX. WIRE FENCE
POLE
EX. DRIVE
EX. BGE #134818
EX. BGE #134817
EX. BGE #134816
EX. BGE #134815
EX. BGE #134814
EX. BGE #134813
EX. BGE #134812
EX. BGE #134811
EX. BGE #134810
EX. BGE #134809
EX. BGE #134808
EX. BGE #134807
EX. BGE #134806
EX. BGE

ENGINEER'S CERTIFICATE

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

ENGINEER – DONALD A. MASON, P.E. # 21443 — 5/9/05 DATE

DEVELOPER'S CERTIFICATE

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

DEVELOPER — 5/11/05 DATE

REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS

USDA – NATURAL RESOURCES CONSERVATION SERVICE — 4/28/05 DATE

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

HOWARD SCD — 4/28/05 DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS

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

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — 7/12/05 DATE

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

NOTE:
CONTRACTOR SHALL CURL ALL ENDS OF SILT FENCE AND SUPER SILT FENCE UPHILL BY 2 FEET IN ELEVATION.

NOTE:
EROSION CONTROL MATTING TO BE PLACED IN ALL ROADSIDE DITCHES.

**LOT GRADING SHOWN ON THIS PLAN IS TEMPORARY MASS (PAD) GRADING.

LEGEND

- EXISTING CONTOURS
- EXISTING TREELINE
- PROPOSED TREELINE
- EXISTING WETLANDS
- EXISTING STREAM
- PROPOSED SEWAGE DISPOSAL AREA
- PROPOSED FOREST CONSERVATION EASEMENT
- RPS — REMOVABLE PUMPING STATION

LEGEND

- HOUSE PAD
- SF — SILT FENCE
- SSF — SUPER SILT FENCE
- LIMIT OF DISTURBANCE
- EARTH DIKE
- EROSION CONTROL MATTING
- NATURAL AREA CONSERVATION CREDIT EASEMENT

NO.	DATE	REVISION
1	5-9-05	LOWER ROADS AND RELATED STORM DRAINS 1 FOOT.

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 418
ELLICOTT CITY, MARYLAND 21043
phone: 410-465-6105 ▲ fax: 410-465-6644
email: Benchmrk@cais.com

5/9/05

OWNER:
EDGEWOOD FARM, INC.
14919 ROXBURY ROAD
GLENELG, MARYLAND 21737

DEVELOPER:
TOLL BROTHERS, INC.
7164 COLUMBIA GATEWAY DRIVE
SUITE 230
COLUMBIA, MARYLAND 21046
410-872-9105

PROJECT: TRIADELPHIA CROSSING
PHASE 1
LOTS 1-22 AND NON-BUILDABLE PRESERVATION PARCELS 'A' THRU 'H' AND NON-BUILDABLE BULK PARCEL 'I'

LOCATION: TAX MAP: 21 PARCEL: 97
GRID: 17 & 23 ZONED: RC-DEO
FOURTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: REVISED GRADING SEDIMENT AND EROSION CONTOL PLAN

DESIGN: DBT | DRAFT: DBT | CHECK: CAM

DATE: JUNE, 2004 | PROJECT NO. 1634

SCALE: 1" = 50' | SHEET 10 OF 17

F-04-118

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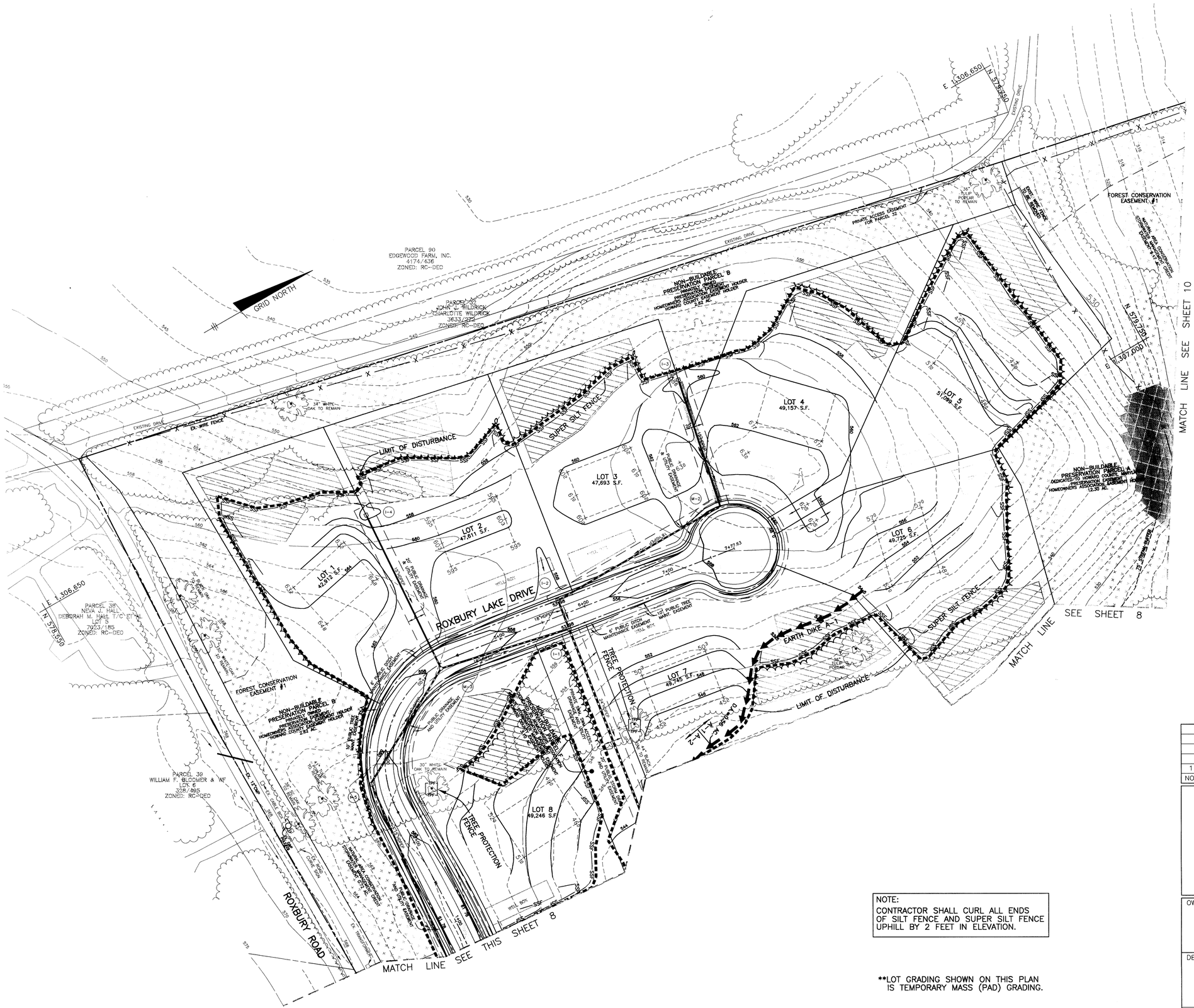

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- PROPOSED TREELINE
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- EXISTING STREAM
- PROPOSED SEWAGE DISPOSAL AREA
- PROPOSED FOREST CONSERVATION EASEMENT
- HOUSE PAD
- SF — SF SILT FENCE
- SSF — SSF SUPER SILT FENCE
- LIMIT OF DISTURBANCE
- EARTH DIKE
- EROSION CONTROL MATTING
- NATURAL AREA CONSERVATION CREDIT EASEMENT

NOTE:
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ENGINEER'S CERTIFICATE

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

Donald Mason — 5/9/05
ENGINEER – DONALD A. MASON, P.E. # 21443 — DATE

DEVELOPER'S CERTIFICATE

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

Barr R. O'Malley — 5/11/05
DEVELOPER — DATE

REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS

Jim Moyer/MS — 6/20/05
USDA – NATURAL RESOURCES CONSERVATION SERVICE — DATE

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

HOWARD SCD — DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS

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

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 6/3/05

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

NO.	DATE	REVISION
1	5-9-05	LOWER ROADS AND RELATED STORM DRAINS 1 FOOT.

BENCHMARK
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Donald Mason 5/9/05

OWNER:
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DEVELOPER:
TOLL BROTHERS, INC.
7164 COLUMBIA GATEWAY DRIVE
SUITE 230
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PROJECT: TRIADELPHIA CROSSING
PHASE 1
LOTS 1-22 AND NON-BUILDABLE PRESERVATION PARCELS 'A' THRU 'H' AND NON-BUILDABLE BULK PARCEL 'I'

LOCATION: TAX MAP: 21 PARCEL: 97
GRID: 17 & 23 ZONED: RC-DEO
FOURTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: REVISED GRADING SEDIMENT AND EROSION CONTOL PLAN

DATE: JUNE, 2004 — PROJECT NO. 1634

DESIGN: DBT — DRAFT: DBT — CHECK: CAM

SCALE: 1" = 50' — SHEET 9 OF 17

F-04-118

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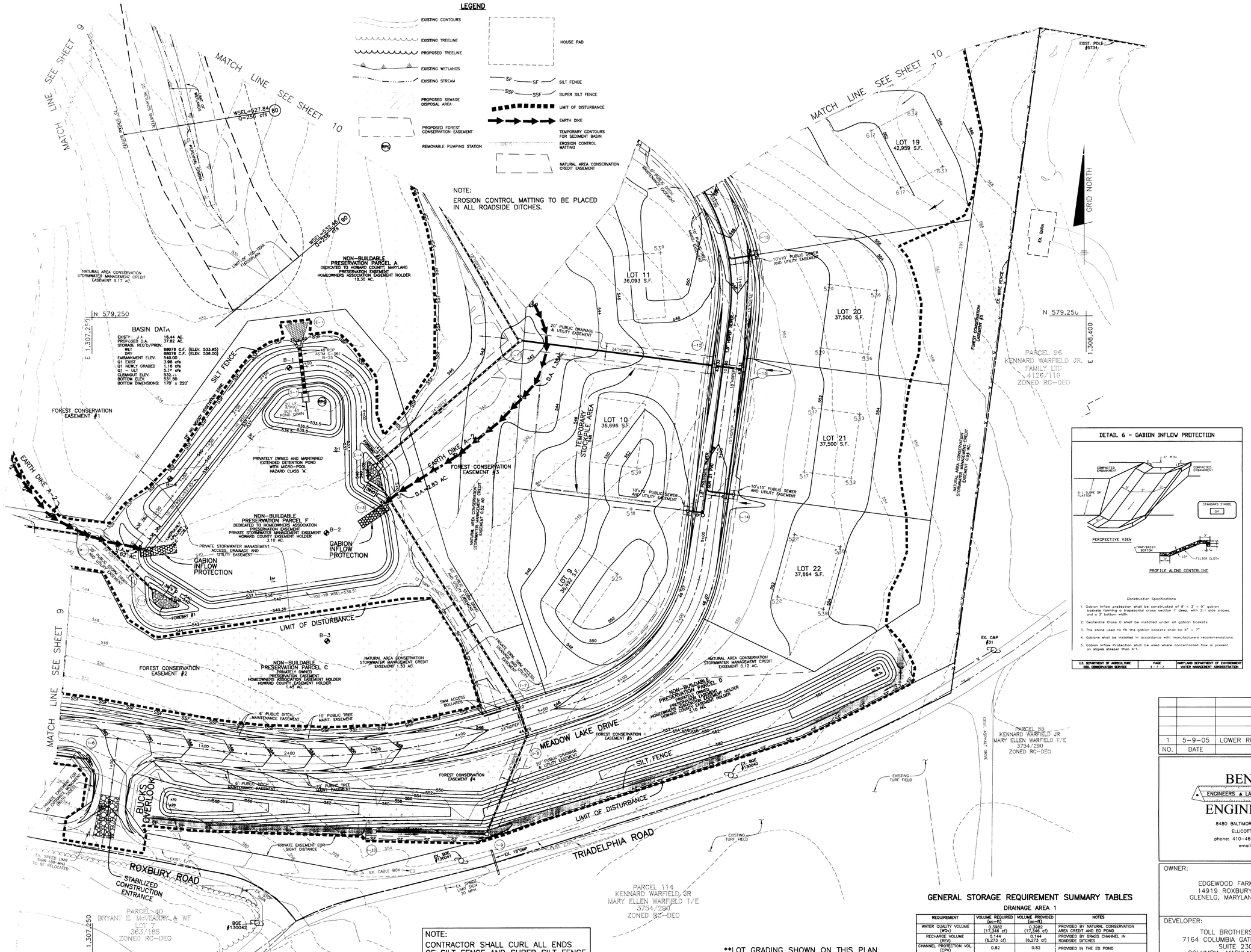

OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED EXTENDED DETENTION POND

ROUTINE MAINTENANCE:

1. FACILITY SHALL BE INSPECTED ANNUALLY AND AFTER MAJOR STORMS. INSPECTIONS SHALL BE PERFORMED DURING WET WEATHER TO DETERMINE IF THE POND IS FUNCTIONING PROPERLY.
2. TOP AND SIDE SLOPES OF THE EMBANKMENT SHALL BE MOWED A MINIMUM OF TWO (2) TIMES PER YEAR, ONCE IN JUNE AND ONCE IN SEPTEMBER. OTHER SIDE SLOPES AND MAINTENANCE ACCESS SHALL BE MOWED AS NEEDED.
3. DEBRIS AND LITTER SHALL BE REMOVED DURING REGULAR MOWING OPERATIONS AND AS NEEDED.
4. VISIBLE SIGNS OF EROSION IN THE POND AS WELL AS THE RIP-RAP OR GABION OUTLET AREA SHALL BE REPAIRED AS SOON AS IT IS NOTICED.

NON-ROUTINE MAINTENANCE:

1. STRUCTURAL COMPONENTS OF THE POND SUCH AS THE DAM, THE RISER, AND THE PIPES SHALL BE REPAIRED UPON THE DETECTION OF ANY DAMAGE. THE COMPONENTS SHALL BE INSPECTED DURING ROUTINE MAINTENANCE OPERATIONS.
2. SEDIMENTS SHALL BE REMOVED FROM THE POND, AND FOREBAY, NO LATER THAN WHEN THE CAPACITY OF THE POND, OR FOREBAY, IS HALF FULL OF SEDIMENT, OR, WHEN DEEMED NECESSARY FOR AESTHETIC REASONS, UPON APPROVAL FROM THE DEPARTMENT OF PUBLIC WORKS.

AS-BUILT CERTIFICATION

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

PE NO. 21443

DONALD A. MASON

DATE

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

BY THE DEVELOPER:

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

DEVELOPER — 5/11/05 DATE

BY THE ENGINEER:

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

ENGINEER – DONALD A. MASON, P.E. # 21443 — 5/9/05 DATE

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

USDA – NATURAL RESOURCES CONSERVATION SERVICE — 6/28/05 DATE

THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION, AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

HOWARD SOIL CONSERVATION DISTRICT — 6/28/05 DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS

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

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — 7/3/05 DATE

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

DETAIL 6 - GABION INFLOW PROTECTION

Construction Specifications

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

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE: 8 - 7 - 2	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

GENERAL STORAGE REQUIREMENT SUMMARY TABLES

DRAINAGE AREA 1

REQUIREMENT	VOLUME REQUIRED (ac-ft)	VOLUME PROVIDED (ac-ft)	NOTES
WATER QUALITY VOLUME (WQv)	0.3982 (17,346 cf)	0.3982 (17,346 cf)	PROVIDED BY NATURAL CONSERVATION AREA CREDIT AND ED POND
RECHARGE VOLUME (REV)	0.144 (6,273 cf)	0.144 (6,273 cf)	PROVIDED BY GRASS CHANNEL IN ROADSIDE DITCHES
CHANNEL PROTECTION VOL. (CPv)	0.82	0.82	PROVIDED IN THE ED POND
OVERBANK FLOOD PROTECTION VOL. (Qp)	N/A	N/A	NOT REQUIRED FOR THIS AREA
EXTREME FLOOD VOLUME (Qf)	N/A	N/A	NOT REQUIRED FOR THIS AREA

NO.	DATE	REVISION
1	5-9-05	LOWER ROADS AND RELATED STORM DRAIN 1 FOOT.

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Donald Mason 5/9/05

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PROJECT: TRIADELPHIA CROSSING
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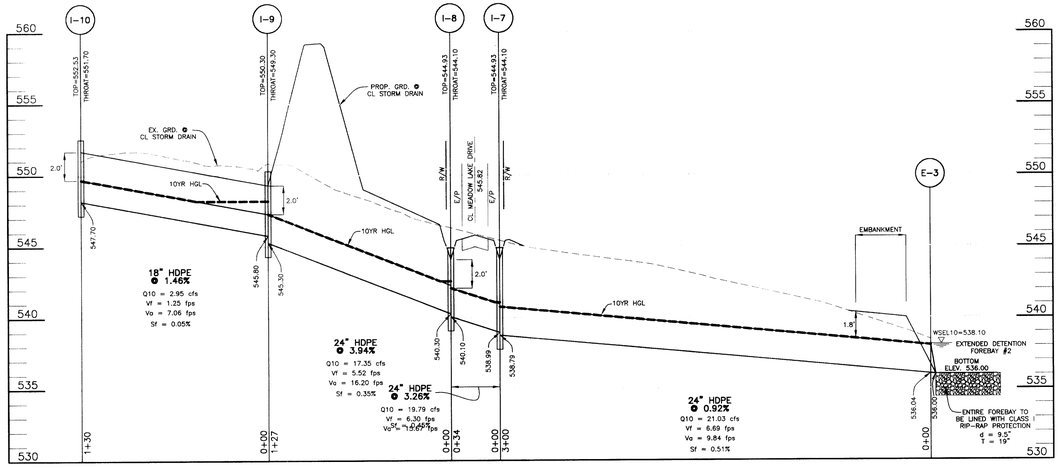

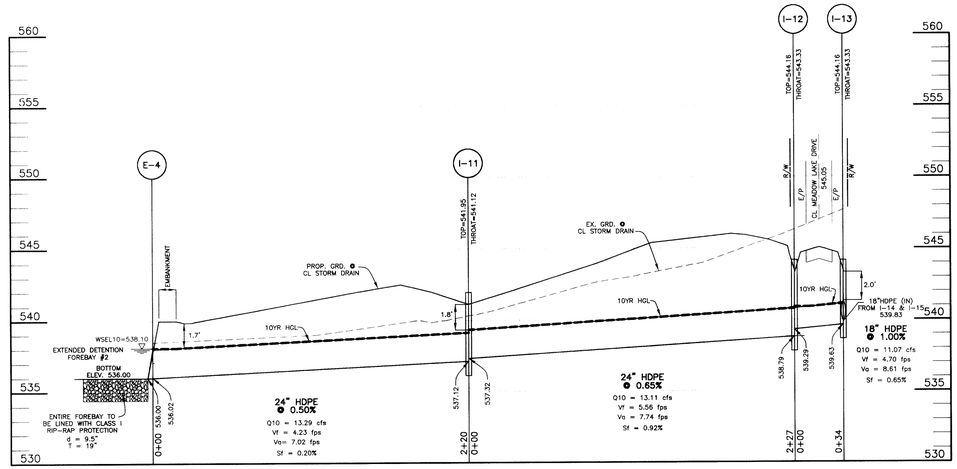

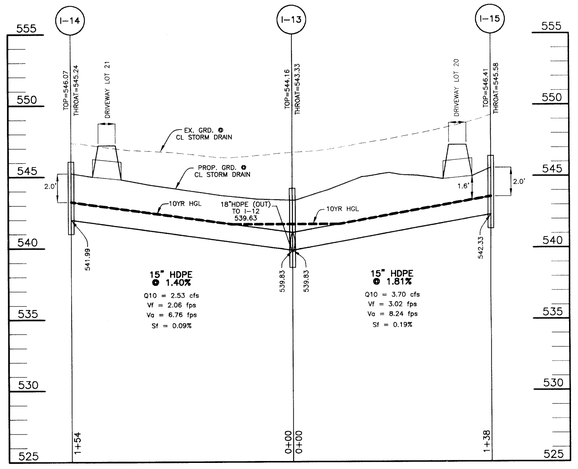

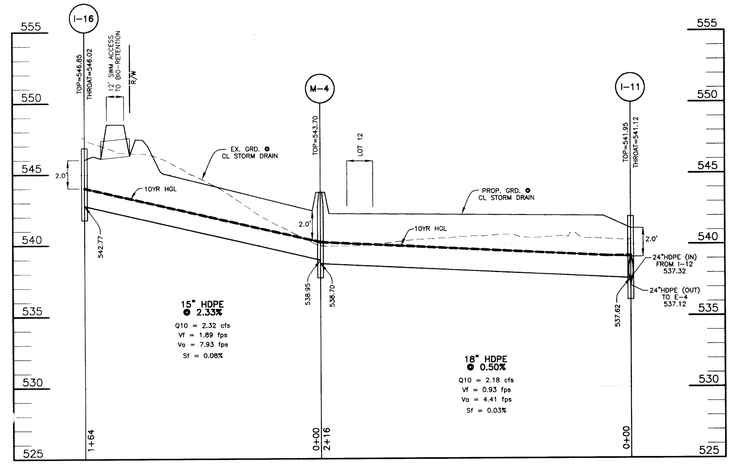

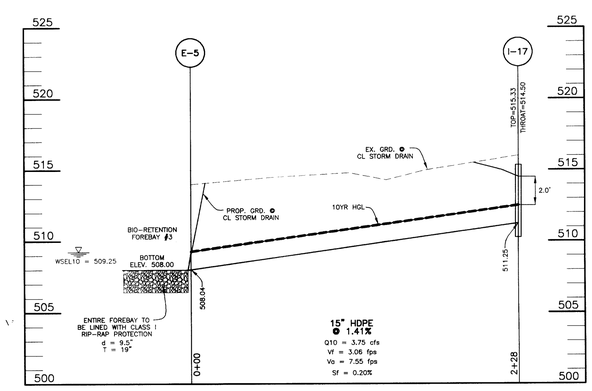

* ALL STORM DRAIN PIPE SHALL HAVE A MINIMUM OF 1.5 FEET OF COVER.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

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

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 7/12/05

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

NO.	DATE	REVISION
1	5-9-05	LOWER ROADS AND RELATED STORM DRAIN 1 FOOT.

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 418
ELLICOTT CITY, MARYLAND 21043
phone: 410-465-6105 ▲ fax: 410-465-6644
email: Benchmrk@cais.com

Donald Mason 6/9/05

OWNER:
EDGEWOOD FARM, INC.
14919 ROXBURY ROAD
GLENELG, MARYLAND 21737

DEVELOPER:
TOLL BROTHERS, INC.
7164 COLUMBIA GATEWAY DRIVE
SUITE 230
COLUMBIA, MARYLAND 21046
410-872-9105

PROJECT: TRIADELPHIA CROSSING PHASE 1
LOTS 1-22 AND NON-BUILDABLE PRESERVATION PARCELS 'A' THRU 'H' AND NON-BUILDABLE BULK PARCEL 'I'

LOCATION: TAX MAP: 21 PARCEL: 97
GRID: 17 & 23 ZONED: RC-DEO
FOURTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: REVISED STORM DRAIN PROFILES

DATE: JUNE, 2004 PROJECT NO. 1634

DESIGN: DBT DRAFT: DBT CHECK: CAM

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

SHEET 7 OF 17

F-04-118

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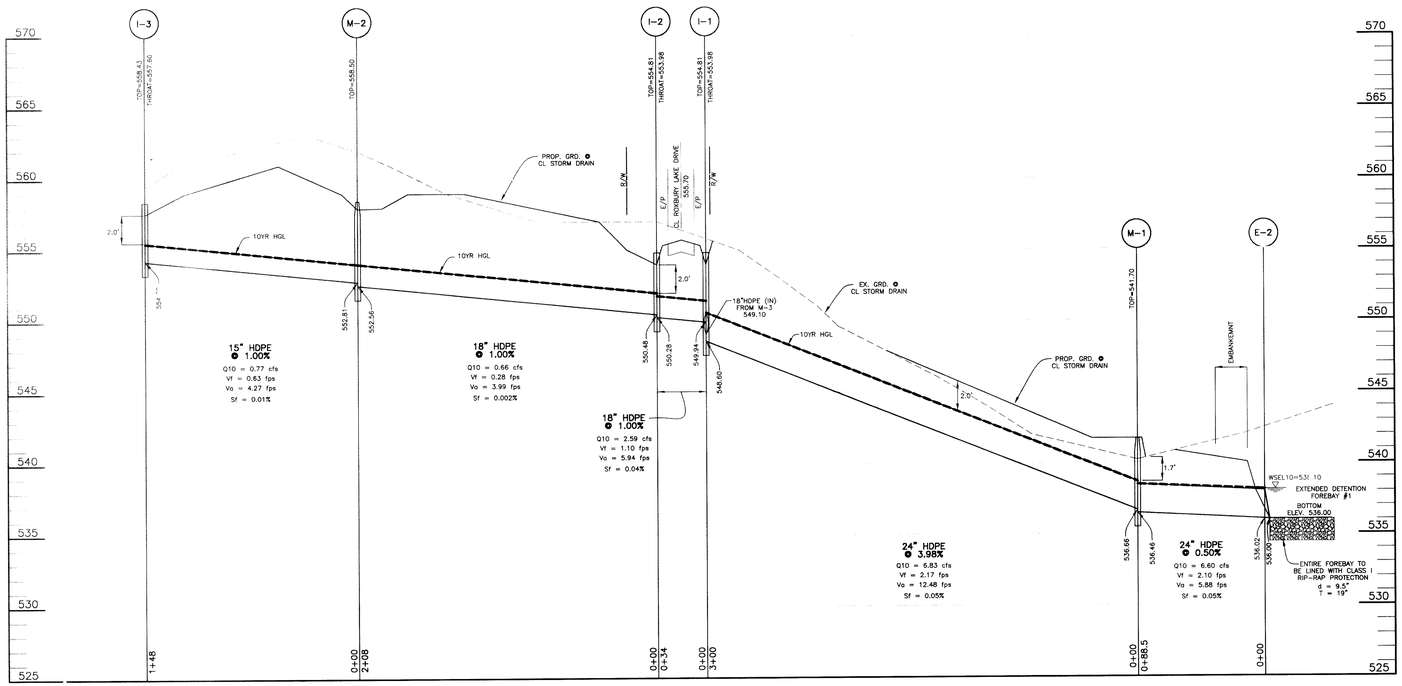
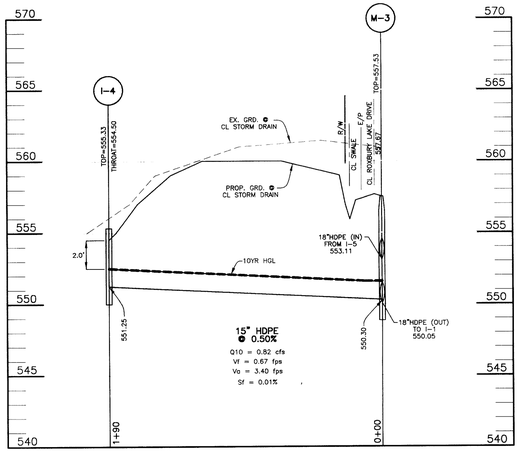
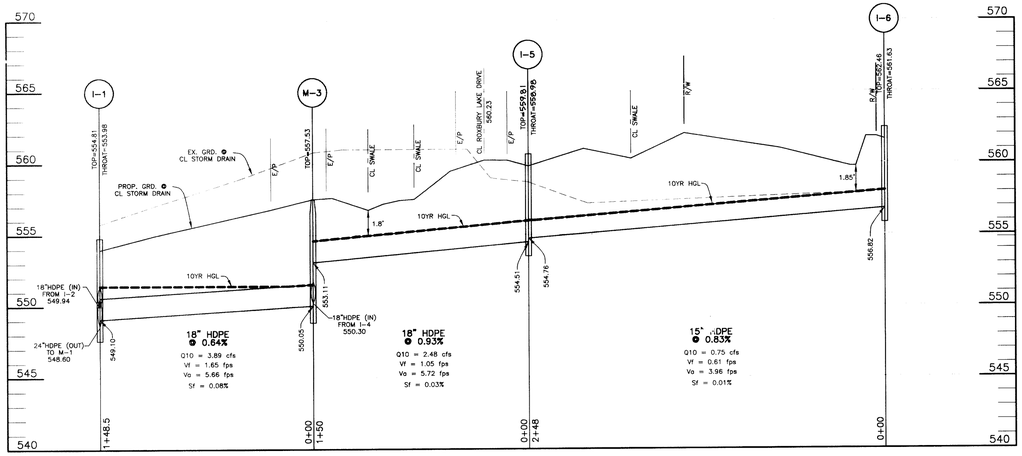
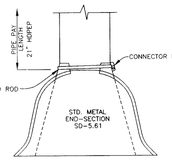






* ALL STORM DRAIN PIPE SHALL HAVE A MINIMUM OF 1.5 FEET OF COVER.



CONNECTION FOR
HDPEP TO METAL END-SECTION
NOT TO SCALE

PIPE SCHEDULE		
PIPE SIZE	LENGTH	TYPE
15"	1751.0'	HDPEP
18"	920.5'	HDPEP
24"	1296.5'	HDPEP
48"	54.0'	RCP

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

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

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 7/15/05

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

CONSTRUCTION SPECIFICATIONS

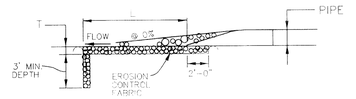
1. THE SUBGRADE FOR THE FILTER, RIP-RAP, OR GABION SHALL BE PREPARED TO THE REQUIRED LINES AND GRADES. ANY FILL REQUIRED IN THE SUBGRADE SHALL BE COMPACTED TO A DENSITY OF APPROXIMATELY THAT OF THE SURROUNDING UNDISTURBED MATERIAL.

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

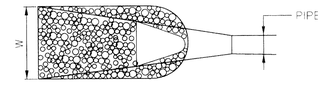
3. GEOTEXTILE CLASS C2B OR BETTER SHALL BE PROTECTED FROM PUNCHING, CUTTING, OR TEARING. ANY DAMAGE OTHER THAN AN OCCASIONAL SMALL HOLE SHALL BE PREPARED BY PLACING ANOTHER PIECE OF GEOTEXTILE FABRIC OVER THE DAMAGED PART OR BY COMPLETELY REPLACING THE GEOTEXTILE FABRIC. ALL OVERLAPS WHETHER FOR REPAIRS OR FOR JOINING TWO PIECES OF GEOTEXTILE FABRIC 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 HE 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 DAMAGE 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.



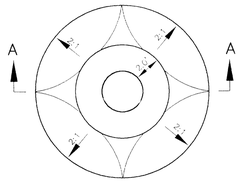
SECTION



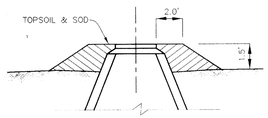
PLAN

STRUCTURE	D-50	LENGTH (L)	WIDTH (W)	THICKNESS (T)	SHA CLASS
E-1	9.5"	20'	28'	19"	I
E-2	9.5"	FOREBAY	FOREBAY	19"	I
E-3	9.5"	FOREBAY	FOREBAY	19"	I
E-4	9.5"	FOREBAY	FOREBAY	19"	I
E-5	9.5"	FOREBAY	FOREBAY	19"	I
E-6	9.5"	20'	21.25'	19"	I

OUTLET PROTECTION DETAIL
NOT TO SCALE



PLAN VIEW



SECTION A-A

NOTES:
1.) ALL MANHOLE FRAME AND COVERS SHALL BE FLUSH WITH GRADE EXCEPT WHEN SHOWN ON PROFILE TO BE SET HIGHER THAN GRADE.
2.) MANHOLE FRAME AND COVERS TO BE SET HIGHER THAN GRADE SHALL BE SET IN ACCORDANCE WITH THIS DETAIL.

FILL AROUND MANHOLE
NOT TO SCALE

STRUCTURE SCHEDULE

NO.	TYPE	LOCATION	INV. IN	INV. OUT	TOP ELEV.	HO. CO. STD.
E-1	48" CONC. END SECT.	N 579214.31 E 1307489.87	533.00	532.92	---	SD - 5.52
E-2	24" METAL END SECT.	N 578932.14 E 1307319.60	536.02	536.00	---	SD - 5.61
E-3	24" METAL END SECT.	N 579051.46 E 1307584.54	536.04	536.00	---	SD - 5.61
E-4	24" METAL END SECT.	N 579077.94 E 1307578.84	536.02	536.00	---	SD - 5.61
E-5	15" METAL END SECT.	N 580086.65 E 1307120.69	508.04	508.00	---	SD - 5.61
E-6	15" HDPE END SECT.	N 580170.56 E 1307019.61	504.54	504.51	---	HANCOR (SEE MAN. SPECS.)
I-1	"D" INLET - 6"	CL STA. 5+75.00 OFFS. 17.00' RIGHT (ROXBURY LAKE)	549.94 18" 549.10 18"	548.60	554.81	SD - 4.11 OR 4.39
I-2	"D" INLET - 6"	CL STA. 5+75.00 OFFS. 17.00' LEFT (ROXBURY LAKE)	550.48	550.28	554.81	SD - 4.11 OR 4.39
I-3	"D" INLET - 6"	LP STA. 0+72.86 OFFS. 158.00' LEFT (ROXBURY LAKE)	---	554.29	558.43	SD - 4.11 OR 4.39
I-4	"D" INLET - 6"	CL STA. 4+33.84 OFFS. 184.61' LEFT (ROXBURY LAKE)	---	554.25	555.33	SD - 4.11 OR 4.39
I-5	"D" INLET - 6"	CL STA. 2+75.00 OFFS. 17.00' LEFT (ROXBURY LAKE)	554.76	554.51	559.81	SD - 4.11 OR 4.39
I-6	"D" INLET - 6"	CL STA. 0+30.70 OFFS. 28.16' LEFT (ROXBURY LAKE)	---	556.82	562.46	SD - 4.11 OR 4.39
I-7	"D" INLET - 6"	CL STA. 4+73.86 OFFS. 17.00' LEFT (MEADOW LAKE)	538.99	538.79	544.93	SD - 4.11 OR 4.39
I-8	"D" INLET - 6"	CL STA. 4+73.86 OFFS. 17.00' RIGHT (MEADOW LAKE)	540.30	540.10	544.93	SD - 4.11 OR 4.39
I-9	"D" INLET - 8"	CL STA. 4+01.84 OFFS. 117.19' RIGHT (MEADOW LAKE)	545.80	545.30	550.30	SD - 4.11 OR 4.39
I-10	"D" INLET - 6"	CL STA. 2+89.52 OFFS. 92.11' RIGHT (MEADOW LAKE)	---	547.70	552.53	SD - 4.11 OR 4.39
I-11	"D" INLET - 6"	CL STA. 9+99.90 OFFS. 244.00' LEFT (MEADOW LAKE)	537.32 24" 537.62 18"	537.12	541.95	SD - 4.11 OR 4.39
I-12	"D" INLET - 6"	CL STA. 9+99.90 OFFS. 17.00' LEFT (MEADOW LAKE)	539.29	538.79	544.16	SD - 4.11 OR 4.39
I-13	"D" INLET - 6"	CL STA. 9+99.90 OFFS. 17.00' RIGHT (MEADOW LAKE)	539.83 15" 539.83 15"	539.63	544.16	SD - 4.11 OR 4.39
I-14	"D" INLET - 6"	CL STA. 8+45.90 OFFS. 17.00' RIGHT (MEADOW LAKE)	---	541.99	546.07	SD - 4.11 OR 4.39
I-15	"D" INLET - 6"	CL STA. 11+33.46 OFFS. 17.00' RIGHT (MEADOW LAKE)	---	542.33	546.41	SD - 4.11 OR 4.39
I-16	"D" IN ET - 6"	LP STA. 1+33.62 OFFS. 8.00' LEFT (MEADOW LAKE)	---	542.77	546.85	SD - 4.11 OR 4.39
I-17	"D" INLET - 6"	N 580069.38 E 1307348.03	---	512.25	516.33	SD - 4.11 OR 4.39
I-18	"D" INLET - 6"	N 580127.80 E 1307029.95	505.08	504.98	510.01	SD - 4.11 OR 4.39
M-1	4'-0" MANHOLE	N 578993.42 E 1307255.76	536.66	536.46	541.70	G - 5.12
M-2	4'-0" MANHOLE	LP STA. 0+72.86 OFFS. 10.00' LEFT (ROXBURY LAKE)	552.81	552.56	558.50	G - 5.12
M-3	4'-0" MANHOLE	CL STA. 4+26.00 OFFS. 5.00' RIGHT (MEADOW LAKE)	553.11 18" 550.30 18"	550.05	557.53	G - 5.12
M-4	4'-0" MANHOLE	N 579407.80 E 1307635.02	538.95	538.70	543.70	G - 5.12
S-1	SEE DETAIL	N 579155.96 E 1307496.92	533.50	533.50	539.67	--

1) STRUCTURE ELEVATION AND LOCATION FOR MANHOLES IS AT THE TOP AND CENTER OF RIM.
2) STRUCTURE ELEVATION AND LOCATION FOR INLETS IS AT THE TOP OF CURB AT MIDPOINT OF THE INLET OR AT THE CENTER OF SLAB FOR "D" INLETS.
3) STRUCTURE ELEVATION AND LOCATION FOR ENDSECTIONS IS AT THE CONNECTION OF PIPE AND END SECTION.
4) PRECAST STRUCTURES MEETING HS-20 LOADING MAY BE USED.
5) ALL STORM DRAINS SHALL BE SMOOTH CORE HIGH DENSITY POLYETHYLENE PIPE.

NO.	DATE	REVISION
1	5-9-05	LOWER ROADS AND RELATED STORM DRAINS 1 FOOT.

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
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ELLICOTT CITY, MARYLAND 21043
phone: 410-465-6105 ▲ fax: 410-465-6644
email: Benchmrk@cais.com

Donald Moan 5/9/05

OWNER:
EDGEWOOD FARM, INC.
14919 ROXBURY ROAD
GLENELG, MARYLAND 21737

DEVELOPER:
TOLL BROTHERS, INC.
7164 COLUMBIA GATEWAY DRIVE
SUITE 230
COLUMBIA, MARYLAND 21046
410-872-9105

PROJECT: TRIADELPHIA CROSSING
PHASE 1
LOTS 1-22 AND NON-BUILDABLE PRESERVATION PARCELS 'A' THRU 'H' AND NON-BUILDABLE BULK PARCEL 'I'

LOCATION: TAX MAP: 21 PARCEL: 17
GRID: 17 & 23 ZONED: RC-DEO
FOURTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: REVISED
STORM DRAIN PROFILES AND DETAILS

DESIGN: DBT	DRAFT: DBT	CHECK: CAM

DATE: JUNE, 2004 PROJECT NO. 1634
SCALE: 1"=50' HORIZ. 1"=5' VERT. SHEET 6 OF 17

F-04-118

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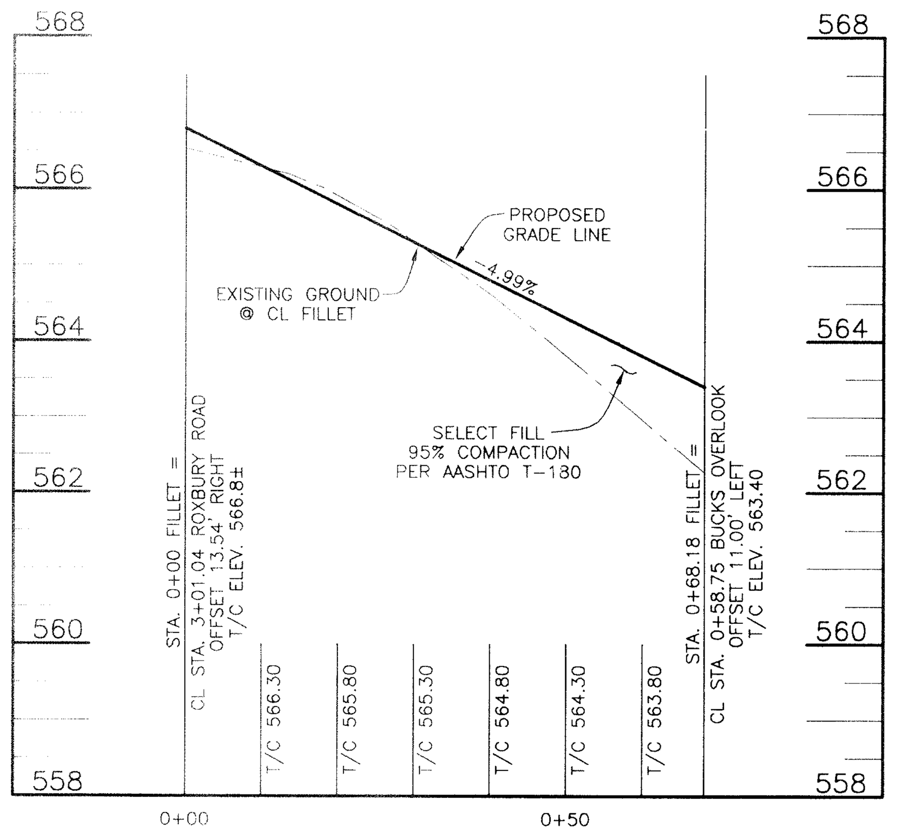
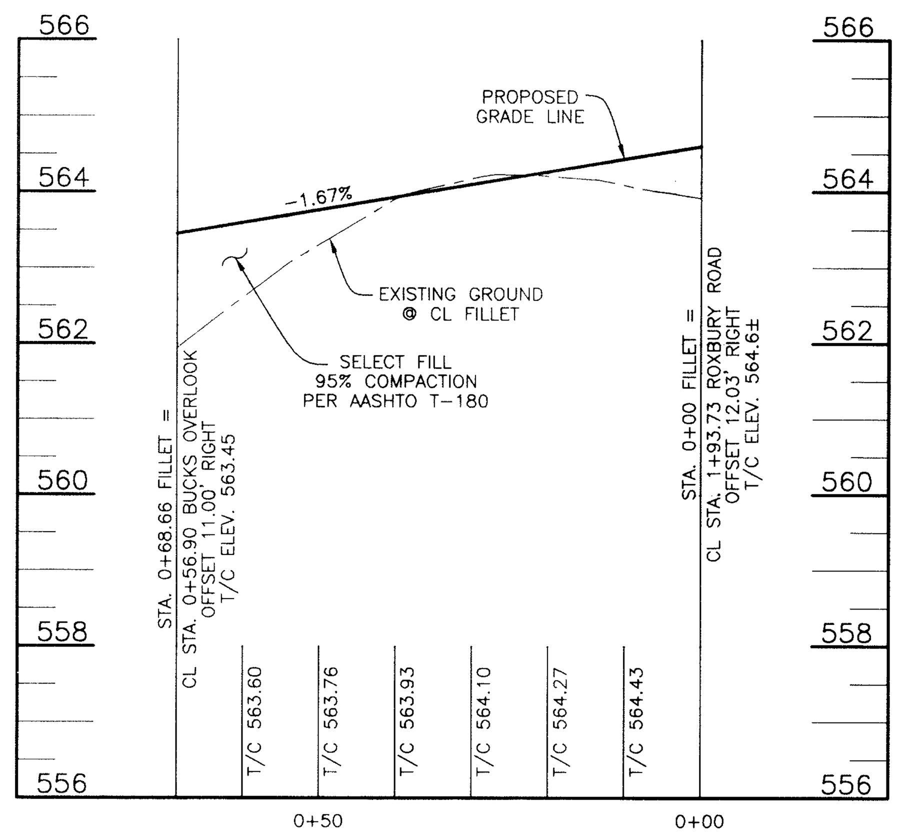


FILLET PROFILE
WEST CORNER
ROXBURY ROAD/BUCKS OVERLOOK
SCALE: 1"=20' HORIZ., 1"=2' VERT.



FILLET PROFILE
EAST CORNER
ROXBURY ROAD/BUCKS OVERLOOK
SCALE: 1"=20' HORIZ., 1"=2' VERT.

HILLIS - CARNES
ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Page 1 of 1

Project Name: Triadelphia Meadows SWM
Location: Howard County, Maryland
Boring Number: B-1
Job #: 02103A

SAMPLER
Datum
Surf. Elev. 534.5
Date Started 02-25-02
Hammer Wt. 140 Lbs.
Hammer Drop 30 Inches
Pipe Size 2.0 Inches OD
Hole Diameter
Rock Core Dia
Boring Method HSA
Foreman Tim Celmer
Inspector
Completed 02-25-02

ELEV.	SOIL DESCRIPTION (Color, Moisture, Density, Size, Proportion)	STRA DEPTH	DEPTH SCALE	CON	SAMPLE BLOWS 6"	NO.	REC.	BORING & SAMPLING NOTES
	SURFACE		0.0					
	Brown, moist, soft, sandy silt, trace roots (Fill) (ML)	2.0		D	2-2-3	1	10"	
	Brown, moist, loose, silty fine sand (SM)	5.5	5.0	D	4-4-5	2	12"	
	Brown, moist, medium stiff silt, trace to little fine sand (ML)			D	3-3-3	3	16"	Caved In at 7.7' at Completion
		11.0	10.0	D	3-3-5	4	10"	Caved in at 8.0' after 24 hrs.
	Brown, moist, hard silt, trace fine sand trace decomposed rock fragments (ML)	15.0	15.0	D	10-15-18	5	18"	
	Bottom of Hole at 15.0'		20.0					

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE NOTED. PT-PRESSED SHELBY TUBE; CA-CONTINUOUS FLIGHT AUGER; RC-ROCK CORE
SAMPLE CONDITIONS: D-DISINTEGRATED; I-INTACT; U-UNDISTURBED; L-LOST
GROUND WATER DEPTH: AT COMPLETION Dry FT.; AFTER 24 hrs Dry FT.; AFTER FT.
BORING METHOD: HSA-HOLLOW STEM AUGERS; CFA-CONT. FLIGHT AUGERS; DC-DRIVING CASING; MD-MUD DRILLING
STANDARD PENETRATION TEST-DRIVING 2" OD SAMPLER 1' WITH 140# HAMMER FALLING 30":COUNT MADE AT 6" INTERVALS

HILLIS - CARNES
ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Page 1 of 1

Project Name: Triadelphia Meadows SWM
Location: Howard County, Maryland
Boring Number: B-2
Job #: 02103A

SAMPLER
Datum
Surf. Elev. 539.3
Date Started 02-25-02
Hammer Wt. 140 Lbs.
Hammer Drop 30 Inches
Pipe Size 2.0 Inches OD
Hole Diameter
Rock Core Dia.
Boring Method HSA
Foreman Tim Celmer
Inspector
Completed 02-25-02

ELEV	SOIL DESCRIPTION (Color, Moisture, Density, Size, Proportion)	STRA DEPTH	DEPTH SCALE	CON	SAMPLE BLOWS 6"	NO.	REC.	BORING & SAMPLING NOTES
	SURFACE		0.0					2" Topsoil
	Brown and gray, moist, medium stiff, silt, trace fine sand, trace clay, trace roots (Fill) (ML)	2.0		D	2-3-4	1	14"	
	Brown, moist, loose, silty sand trace mica, (SM)	5.5	5.0	D	3-4-5	2	16"	
	Brown, moist, medium dense to dense, silty fine sand, trace mica trace rock fragments (SM)			D	7-8-9	3	14"	Caved In at 7.0' at Completion
			10.0	D	18-17-13	4	18"	Caved In at 4.0' after 24 hrs.
		15.0	15.0	D	10-10-15	5	10"	
	Bottom of Hole at 15.0'		20.0					

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE NOTED. PT-PRESSED SHELBY TUBE; CA-CONTINUOUS FLIGHT AUGER; RC-ROCK CORE
SAMPLE CONDITIONS: D-DISINTEGRATED; I-INTACT; U-UNDISTURBED; L-LOST
GROUND WATER DEPTH: AT COMPLETION 6.7 FT.; AFTER 24 hrs 3.5' FT.; AFTER FT.
BORING METHOD: HSA-HOLLOW STEM AUGERS; CFA-CONT. FLIGHT AUGERS; DC-DRIVING CASING; MD-MUD DRILLING
STANDARD PENETRATION TEST-DRIVING 2" OD SAMPLER 1' WITH 140# HAMMER FALLING 30":COUNT MADE AT 6" INTERVALS

HILLIS - CARNES
ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Page 1 of 1

Project Name: Triadelphia Meadows SWM
Location: Howard County, Maryland
Boring Number: B-3
Job #: 02103A

SAMPLER
Datum
Surf. Elev. 543.0
Date Started 02-25-02
Hammer Wt. 140 Lbs.
Hammer Drop 30 Inches
Pipe Size 2.0 Inches OD
Hole Diameter
Rock Core Dia
Boring Method HSA
Foreman Tim Celmer
Inspector
Completed 02-25-02

ELEV.	SOIL DESCRIPTION (Color, Moisture, Density, Size, Proportion)	STRA DEPTH	DEPTH SCALE	CON	SAMPLE BLOWS 6"	NO.	REC.	BORING & SAMPLING NOTES
	SURFACE		0.0					3" Topsoil
	Brown, moist, medium stiff sandy silt, trace roots (Fill) (ML)	2.0		D	3-3-3	1	5"	
	Gray, moist, medium dense silty fine sand (SM)		5.0	D	6-6-7	2	14"	
		8.0		D	9-7-8	3	18"	Caved in at 7.6' at Completion
	Brown, moist, medium stiff, silt, trace to little fine sand (ML)		10.0	D	2-2-4	4	12"	Caved in at 4.5' after 24 hrs.
		15.0	15.0	D	3-4-5	5	16"	
	Bottom of Hole at 15.0'		20.0					

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE NOTED. PT-PRESSED SHELBY TUBE; CA-CONTINUOUS FLIGHT AUGER; RC-ROCK CORE
SAMPLE CONDITIONS: D-DISINTEGRATED; I-INTACT; U-UNDISTURBED; L-LOST
GROUND WATER DEPTH: AT COMPLETION Dry FT.; AFTER 24 hrs Dry FT.; AFTER FT.
BORING METHOD: HSA-HOLLOW STEM AUGERS; CFA-CONT. FLIGHT AUGERS; DC-DRIVING CASING; MD-MUD DRILLING
STANDARD PENETRATION TEST-DRIVING 2" OD SAMPLER 1' WITH 140# HAMMER FALLING 30":COUNT MADE AT 6" INTERVALS

HILLIS - CARNES
ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Page 1 of 1

Project Name: Triadelphia Meadows SWM
Location: Howard County, Maryland
Boring Number: B-4
Job #: 02103A

SAMPLER
Datum
Surf. Elev. 536.4
Date Started 10-28-03
Hammer Wt. 140 Lbs.
Hammer Drop 30 Inches
Pipe Size 2.0 Inches OD
Hole Diameter 6"
Rock Core Dia -
Boring Method HSA
Foreman Lamont Smith
Inspector
Completed 10-28-03

ELEV.	SOIL DESCRIPTION (Color, Moisture, Density, Size, Proportion)	STRA DEPTH	DEPTH SCALE	CON	SAMPLE BLOWS 6"	NO.	REC.	BORING & SAMPLING NOTES
	SURFACE		0.0					6" Topsoil
	Light brown, moist, soft, clay, trace silt, trace fine sand (CL)	2.0		D	2-2-3	1	16"	
	Light brown, moist, stiff silty clay, trace gravel (ML/CL)	4.5		D	4-5-6	2	15"	
	Light brown, moist, medium stiff to stiff clayey silt, trace mica, trace fine sand, trace gravel (CL/ML)		5.0	D	4-4-8	3	16"	Caved in at 4.8' at Completion
		8.5		D	2-3-4-9	4	17"	Groundwater encountered at 7.5' while drilling
	Bottom of Test Hole at 8.5'		10.0					
			15.0					
			20.0					

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE NOTED. PT-PRESSED SHELBY TUBE; CA-CONTINUOUS FLIGHT AUGER; RC-ROCK CORE
SAMPLE CONDITIONS: D-DISINTEGRATED; I-INTACT; U-UNDISTURBED; L-LOST
GROUND WATER DEPTH: AT COMPLETION Dry; AFTER 24 hrs FT.; AFTER FT.
BORING METHOD: HSA-HOLLOW STEM AUGERS; CFA-CONT. FLIGHT AUGERS; DC-DRIVING CASING; MD-MUD DRILLING
STANDARD PENETRATION TEST-DRIVING 2" OD SAMPLER 1' WITH 140# HAMMER FALLING 30" COUNT MADE AT 6" INTERVALS

HILLIS - CARNES
ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Page 1 of 1

Project Name: Triadelphia Meadows SWM
Location: Howard County, Maryland
Boring Number: B-5
Job #: 02103A

SAMPLER
Datum
Surf. Elev. 509.1
Date Started 10-28-03
Hammer Wt. 140 Lbs
Hammer Drop 30 Inches
Pipe Size 2.0 Inches OD
Hole Diameter 6"
Rock Core Dia. -
Boring Method HSA
Foreman Lamont Smith
Inspector
Completed 10-28-03

ELEV.	SOIL DESCRIPTION (Color, Moisture, Density, Size, Proportion)	STRA DEPTH	DEPTH SCALE	CON	SAMPLE BLOWS 6"	NO.	REC.	BORING & SAMPLING NOTES
	SURFACE		0.0					7" Topsoil
	Light brown, moist, very soft, silty clay, trace organics, trace fine sand (CL/ML)	2.0		D	1-1-2	1	17"	
	Light brown, moist, very soft to soft, silty clay, some mica, trace fine sand (CL/ML)			D	2-2-2	2	18"	
		7.0	5.0	I	2-1-2	3	18"	Caved in at 5.5' at Completion
	Dark brown, moist, medium stiff, micaceous clayey silt, trace gravel-consisting of decomposed phyllite and schist fragments (CL/ML)	9.0		I	2-2-6	4		
	Bottom of Test Hole at 9.0'		10.0					
			15.0					
			20.0					

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE NOTED. PT-PRESSED SHELBY TUBE; CA-CONTINUOUS FLIGHT AUGER; RC-ROCK CORE
SAMPLE CONDITIONS: D-DISINTEGRATED; I-INTACT; U-UNDISTURBED; L-LOST
GROUND WATER DEPTH: AT COMPLETION Dry; AFTER FT.; AFTER FT.
BORING METHOD: HSA-HOLLOW STEM AUGERS; CFA-CONT. FLIGHT AUGERS; DC-DRIVING CASING; MD-MUD DRILLING
STANDARD PENETRATION TEST-DRIVING 2" OD SAMPLER 1' WITH 140# HAMMER FALLING 30":COUNT MADE AT 6" INTERVALS

HILLIS - CARNES
ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Page 1 of 1

Project Name: Triadelphia Meadows SWM
Location: Howard County, Maryland
Boring Number: B-6
Job #: 02103A

SAMPLER
Datum
Surf. Elev. 512.5
Date Started 10-28-03
Hammer Wt. 140 Lbs.
Hammer Drop 30 Inches
Pipe Size 2.0 Inches OD
Hole Diameter 6"
Rock Core Dia. -
Boring Method HSA
Foreman Lamont Smith
Inspector
Completed 10-28-03

ELEV.	SOIL DESCRIPTION (Color, Moisture, Density, Size, Proportion)	STRA DEPTH	DEPTH SCALE	CON	SAMPLE BLOWS 6"	NO.	REC.	BORING & SAMPLING NOTES
	SURFACE		0.0					7" Topsoil
	Dark brown, moist, very soft clayey silt, trace fine sand, trace gravel and decomposed rock fragments (CL/ML)	2.0		D	2-1-1	1	12"	No groundwater encountered while drilling
	Light brown, moist, soft to medium stiff, silty clay/clayey silt, trace mica, trace fine sand (CL/ML)			D	2-2-3	2	18"	
			5.0	D	2-3-3	3	18"	
				I	3-3-3	4	18"	Caved in at 8.0' at Completion
		12.5	10.0	I/D	2-3-4-5	5	13"	
	Bottom of Test Hole at 12.5'		15.0					
			20.0					

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE NOTED. PT-PRESSED SHELBY TUBE; CA-CONTINUOUS FLIGHT AUGER; RC-ROCK CORE
SAMPLE CONDITIONS: D-DISINTEGRATED; I-INTACT; U-UNDISTURBED; L-LOST
GROUND WATER DEPTH: AT COMPLETION Dry; AFTER FT.; AFTER FT.
BORING METHOD: HSA-HOLLOW STEM AUGERS; CFA-CONT. FLIGHT AUGERS; DC-DRIVING CASING; MD-MUD DRILLING
STANDARD PENETRATION TEST-DRIVING 2" OD SAMPLER 1' WITH 140# HAMMER FALLING 30":COUNT MADE AT 6" INTERVALS

HILLIS - CARNES
ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

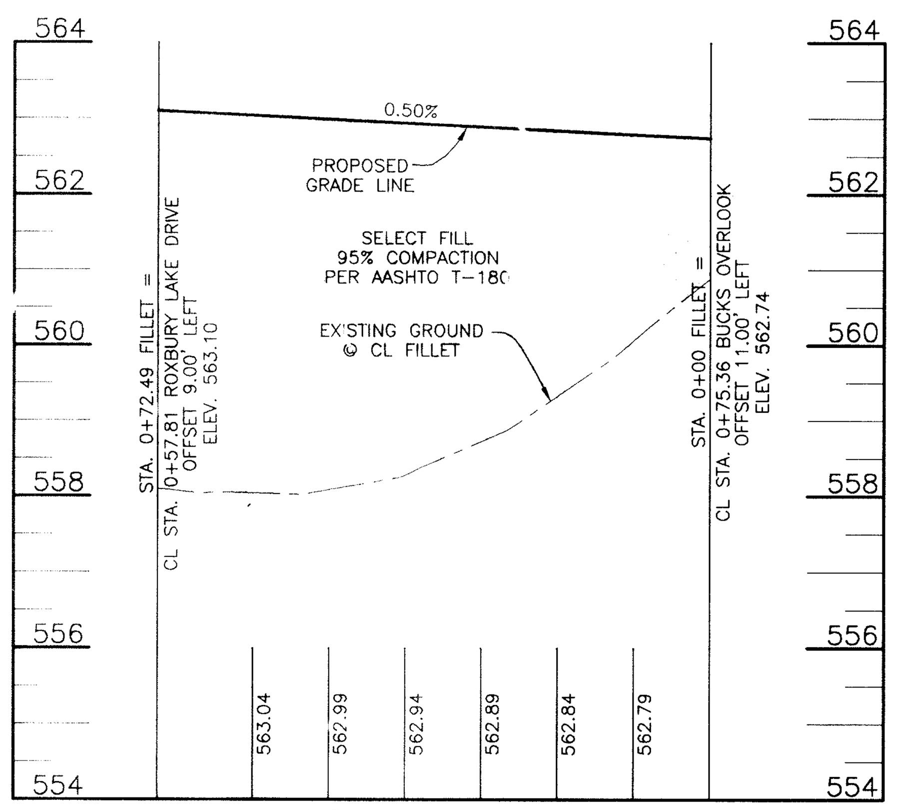
Page 1 of 1

Project Name: Triadelphia Meadows SWM
Location: Howard County, Maryland
Boring Number: B-7
Job #: 02103A

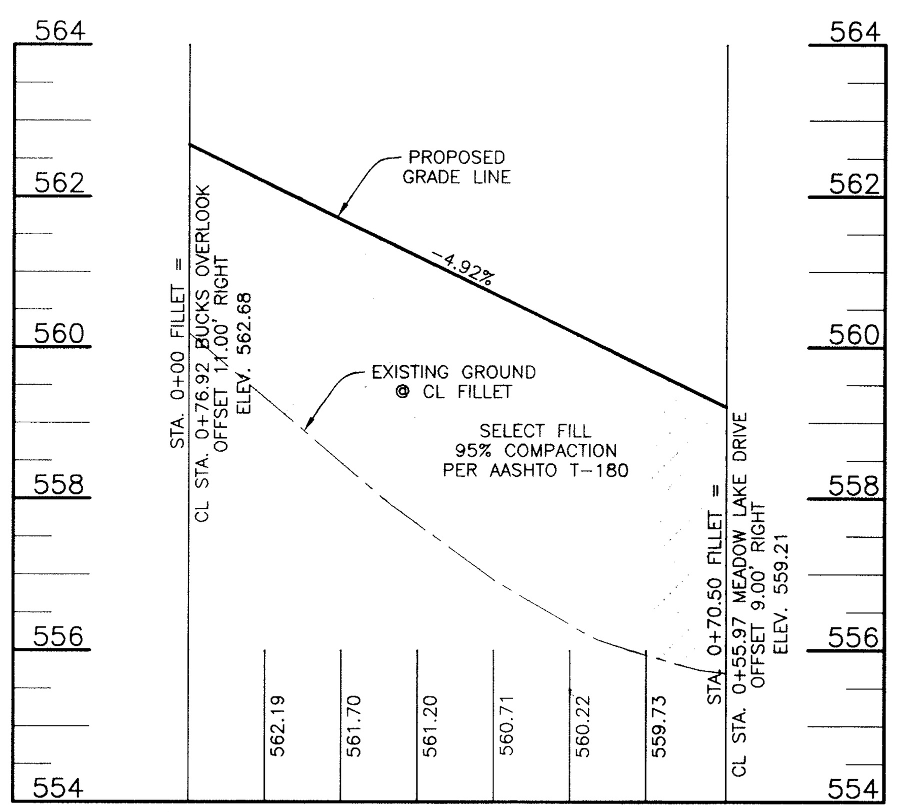
SAMPLER
Datum
Surf. Elev. 513.9
Date Started 10-28-03
Hammer Wt. 140 Lbs.
Hammer Drop 30 Inches
Pipe Size 2.0 Inches OD
Hole Diameter 6"
Rock Core Dia -
Boring Method HSA
Foreman Lamont Smith
Inspector
Completed 10-28-03

ELEV.	SOIL DESCRIPTION (Color, Moisture, Density, Size, Proportion)	STRA DEPTH	DEPTH SCALE	CON	SAMPLE BLOWS 6"	NO.	REC.	BORING & SAMPLING NOTES
	SURFACE		0.0					7" Topsoil
	Dark brown, moist, very soft, silty clay, trace gravel trace fine sand (CL)	2.0		D	1-1-1	1	14"	No groundwater encountered while drilling
	Dark brown to tan, moist, very soft to soft, clayey silt, trace mica, trace fine sand, trace organics, possibly weathered rock (ML)			D	2-2-2	2	15"	
			5.0	D	2-1-2	3	18"	
				D	2-2-2	4	16"	Caved in at 8.7' at Completion
			10.0	D	2-2-3	5	15"	
		14.0		D	2-2-3-3	6	17"	
	Bottom of Test Hole at 14.0'		15.0					
			20.0					

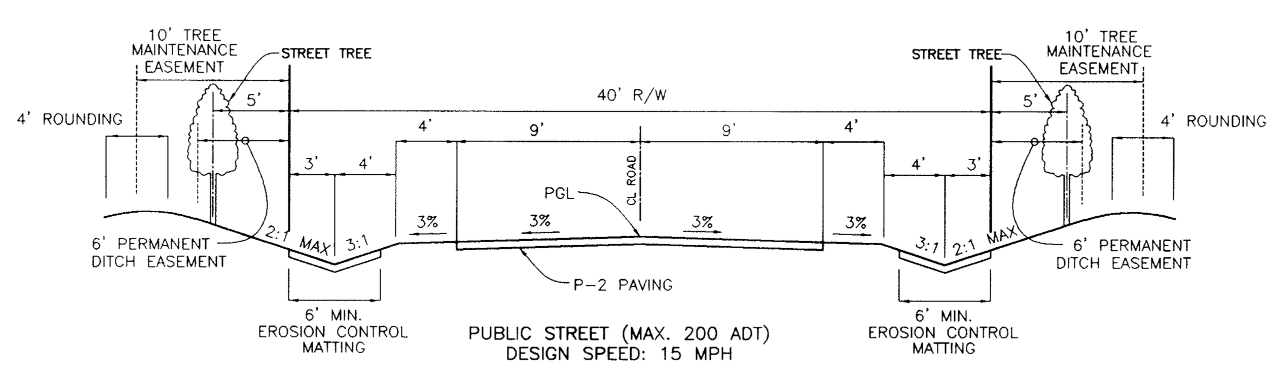
SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE NOTED. PT-PRESSED SHELBY TUBE; CA-CONTINUOUS FLIGHT AUGER; RC-ROCK CORE
SAMPLE CONDITIONS: D-DISINTEGRATED; I-INTACT; U-UNDISTURBED; L-LOST
GROUND WATER DEPTH: AT COMPLETION Dry; AFTER FT.; AFTER FT.
BORING METHOD: HSA-HOLLOW STEM AUGERS; CFA-CONT. FLIGHT AUGERS; DC-DRIVING CASING; MD-MUD DRILLING
STANDARD PENETRATION TEST-DRIVING 2" OD SAMPLER 1' WITH 140# HAMMER FALLING 30":COUNT MADE AT 6" INTERVALS



FILLET PROFILE
BUCKS OVERLOOK/
ROXBURY LAKE DRIVE
SCALE: 1"=20' HORIZ., 1"=2' VERT.

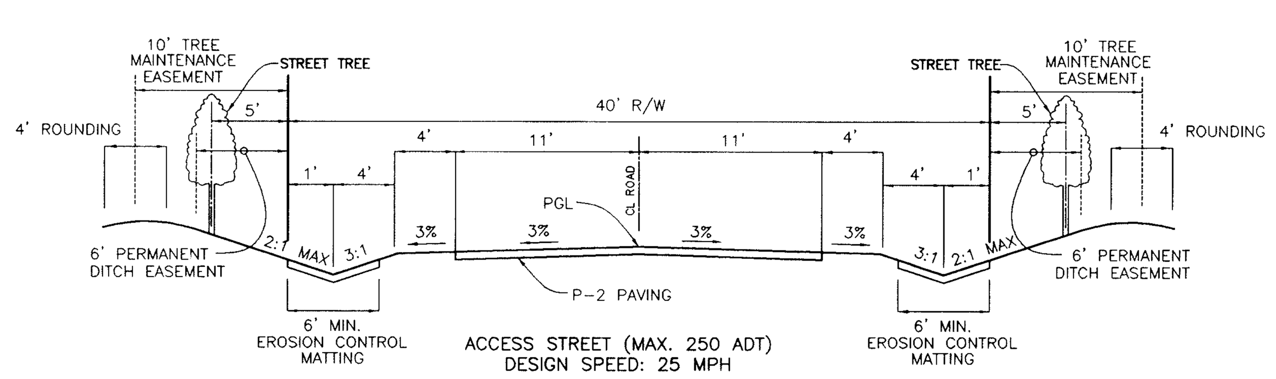


FILLET PROFILE
BUCKS OVERLOOK/
MEADOW LAKE DRIVE
SCALE: 1"=20' HORIZ., 2' VERT.



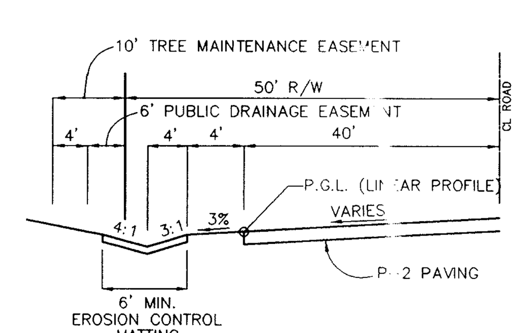
PUBLIC STREET (MAX. 200 ADT)
DESIGN SPEED: 15 MPH

TYPICAL ROADWAY SECTION
ROXBURY LAKE DRIVE
STA. 0+57.81 TO 7+16.89
MEADOW LAKE DRIVE
STA. 0+55.97 TO 14+80.33
NOT TO SCALE

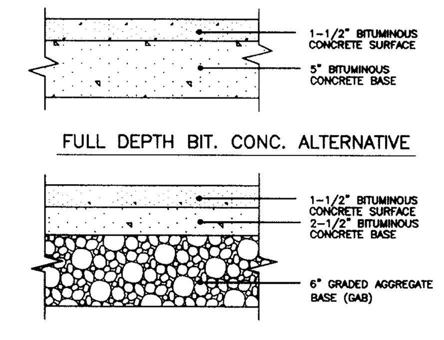


ACCESS STREET (MAX. 250 ADT)
DESIGN SPEED: 25 MPH

TYPICAL ROADWAY SECTION
BUCKS OVERLOOK
STA. 0+58.75 TO 0+75.36
NOT TO SCALE



TYPICAL ROADWAY SECTION
AT CUL-DE-SAC
LINEAR PROFILE
NOT TO SCALE



P-2 PAVING DETAIL
NOT TO SCALE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
[signature] 7-6-05
CHIEF, BUREAU OF HIGHWAYS HS — DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING
[signature] 7/13/05
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE
[signature] 7/12/05
CHIEF, DEVELOPMENT ENGINEERING DIVISION MAJ — DATE

NO.	DATE	REVISION
1	5-9-05	LOWER ROADS AND RELATED STORM DRAINS 1 FOOT.

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 418
ELLICOTT CITY, MARYLAND 21043
phone: 410-465-6105 ▲ fax: 410-465-6644
email: Benchmrk@cais.com

Donald Mason 5/9/05

OWNER:
EDGEWOOD FARM, INC.
14919 ROXBURY ROAD
GLENELG, MARYLAND 21737

DEVELOPER:
TOLL BROTHERS, INC.
7164 COLUMBIA GATEWAY DRIVE
SUITE 230
COLUMBIA, MARYLAND 21046
410-872-9105

PROJECT: TRIADELPHIA CROSSING
PHASE 1
LOTS 1-22 AND NON-BUILDABLE PRESERVATION PARCELS 'A' THRU 'H' AND NON-BUILDABLE BULK PARCEL 'I'

LOCATION: TAX MAP: 21 PARCEL: 97
GRID: 17 & 23 ZONED: RC-DEO
FOURTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: REVISED ROAD PROFILES AND DETAILS AND SOIL BORINGS

DATE: JUNE, 2004 — PROJECT NO. 1634
DESIGN: DBT — DRAFT: DBT — CHECK: CAM — SCALE: AS SHOWN — SHEET 4 OF 17

F-04-118

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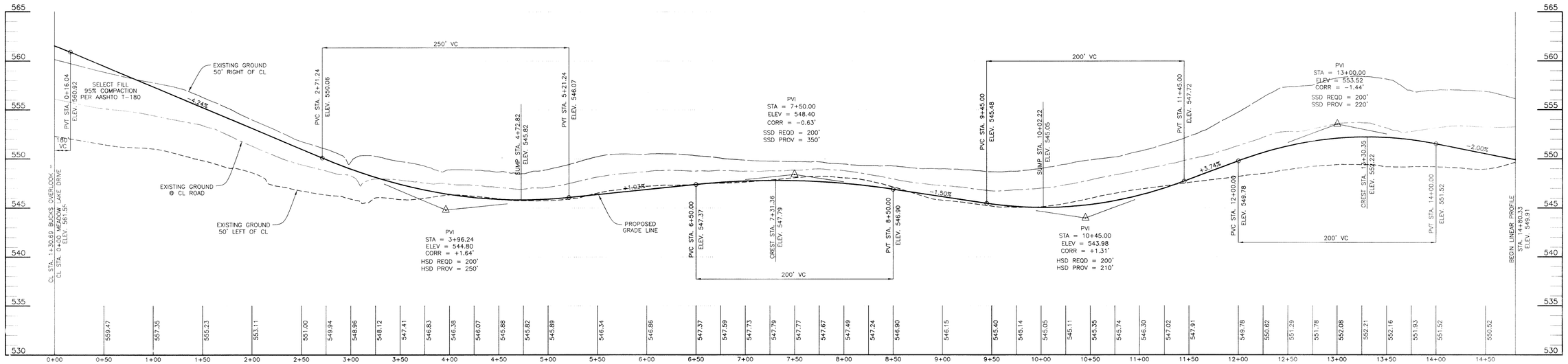
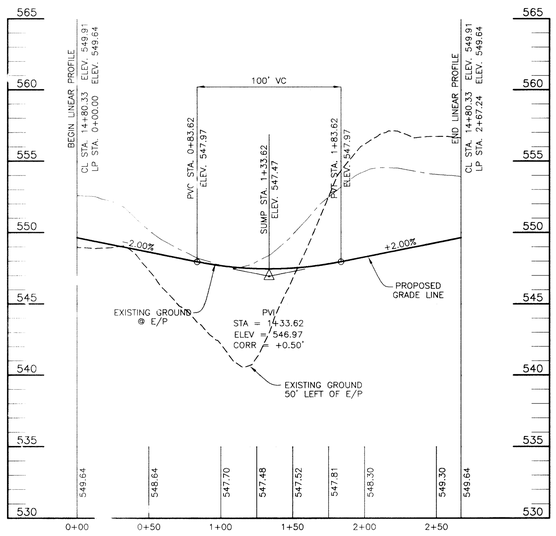
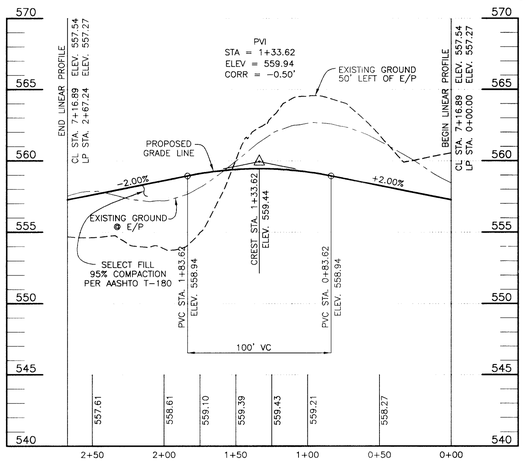


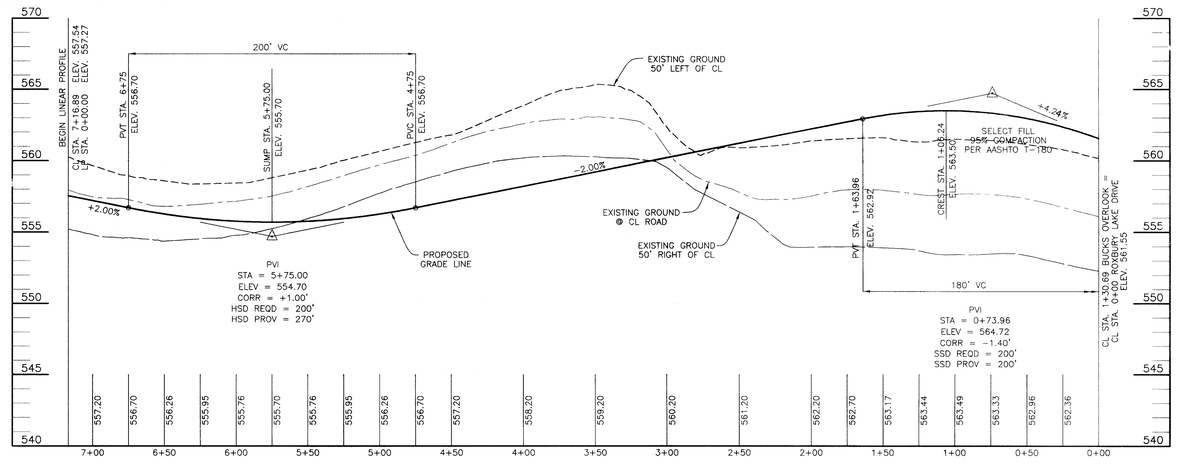
MEADOW LAKE DRIVE
SCALE: 1"=50' HORIZ., 1"=5' VERT.



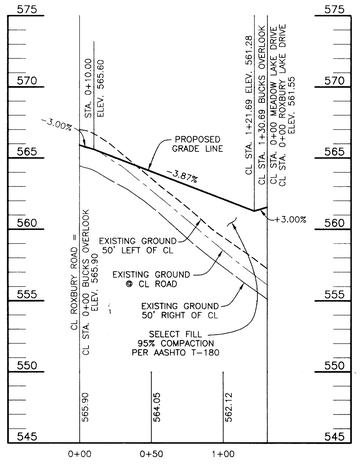
MEADOW LAKE DRIVE
LINEAR PROFILE
SCALE: 1"=50' HORIZ., 1"=5' VERT.



ROXBURY LAKE DRIVE
LINEAR PROFILE
SCALE: 1"=50' HORIZ., 1"=5' VERT.



ROXBURY LAKE DRIVE
SCALE: 1"=50' HORIZ., 1"=5' VERT.



BUCKS OVERLOOK
SCALE: 1"=50' HORIZ., 1"=5' VERT.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 7-5-05

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 7/18/05

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

NO.	DATE	REVISION
1	5-9-05	LOWER ROADS AND RELATED STORM DRAINS 1 FOOT

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 418
ELLICOTT CITY, MARYLAND 21043
phone: 410-465-6105 ▲ fax: 410-465-6644
email: Benchmrk@cais.com

Donald Moon 5/9/05

OWNER:
EDGEWOOD FARM, INC.
14919 ROXBURY ROAD
GLENELG, MARYLAND 21737

DEVELOPER:
TOLL BROTHERS, INC.
7164 COLUMBIA GATEWAY DRIVE
SUITE 230
COLUMBIA, MARYLAND 21046
410-872-9105

PROJECT: TRIADELPHIA CROSSING PHASE 1
LOTS 1-22 AND NON-BUILDABLE PRESERVATION PARCELS 'A' THRU 'H' AND NON-BUILDABLE BULK PARCEL 'I'

LOCATION: TAX MAP: 21 PARCEL: 97 GRID: 17 & 23 ZONED: RC-DEO FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

TITLE: REVISED ROAD PROFILES

DESIGN: DBT | DRAFT: DBT | CHECK: CAM

DATE: JUNE, 2004 | PROJECT NO. 1634

SCALE: AS SHOWN | SHEET 3 OF 17

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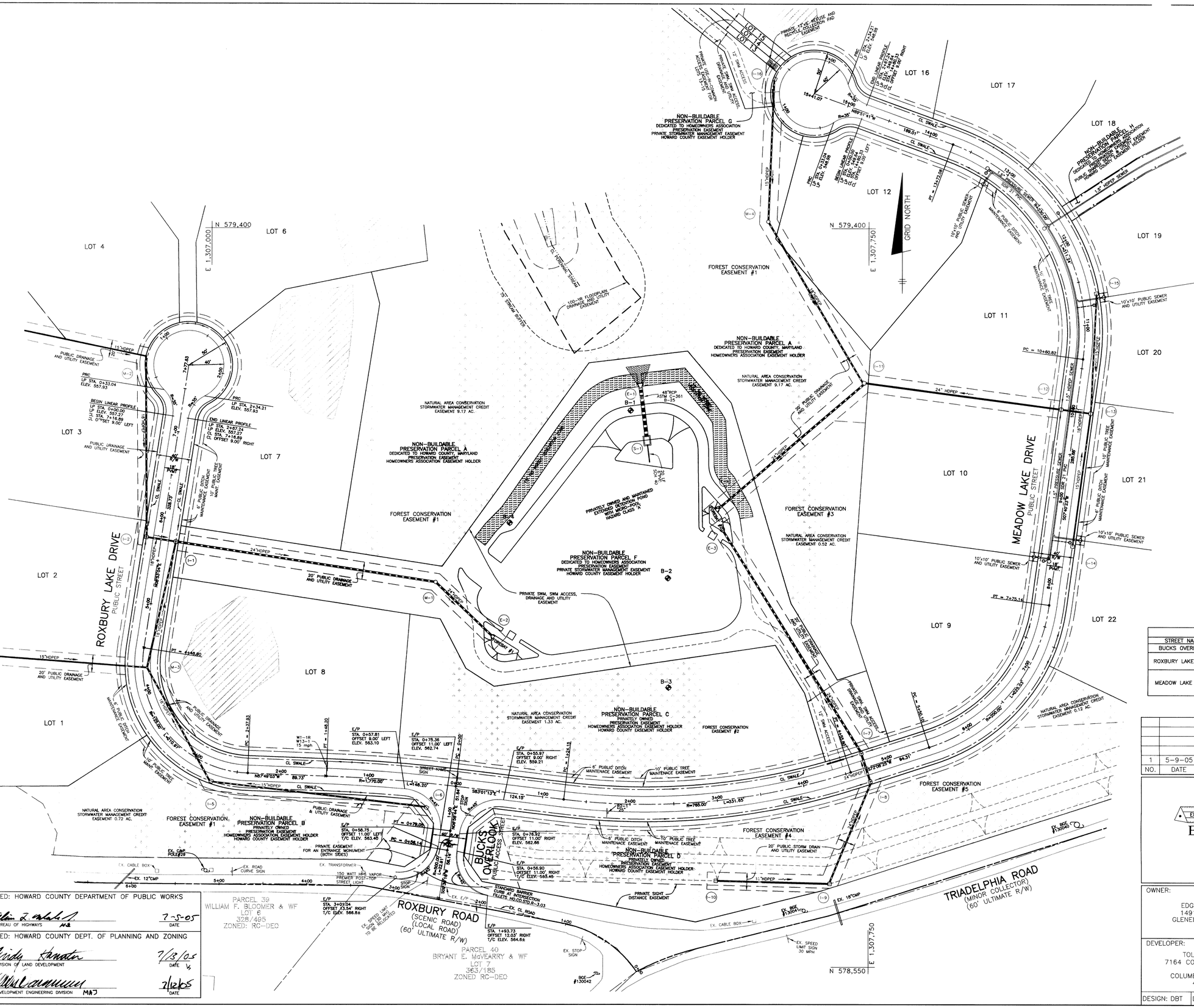

CENTERLINE CONTROL DATA			
STREET NAME	STATION	NORTH	EAST
BUCKS OVERLOOK	START=0+00.00	578629.05	1307260.21
	PC=0+56.14	578684.40	1307269.57
	PT=0+79.05	578707.07	1307272.88
	END=1+30.69	578758.33	1307279.15
ROXBURY LAKE DRIVE	START=0+00.00	578758.33	1307279.15
	PT=1+48.20	578770.16	1307131.50
	PC=2+37.93	578773.57	1307041.83
	PT=4+48.90	578917.79	1306923.09
	END=7+77.63	579242.57	1306973.86
MEADOW LAKE DRIVE	START=0+00.00	578758.33	1307279.15
	PC=1+25.15	578743.24	1307402.41
	PT=4+55.80	578774.43	1307729.98
	PC=5+50.10	578803.36	1307819.74
	PT=7+75.14	578967.01	1307956.62
	PC=10+60.82	579250.14	1307994.76
	PT=13+72.06	579496.79	1307846.01
	END=15+41.07	579554.97	1307687.33

CENTER LINE CURVE DATA							
STREET NAME	STATION	RADIUS	ARC	DELTA	TANGENT	CHORD	
BUCKS OVERLOOK	0+56.14 TO 0+79.05	500.00'	22.91'	02°37'32"	11.46'	N08°17'30"E	22.91'
ROXBURY LAKE DRIVE	0+00.00 TO 1+48.20	1,770.00'	148.20'	04°47'50"	74.14'	N85°25'08"W	148.15'
	2+37.93 TO 4+48.90	125.00'	210.97'	96°42'07"	140.55'	N39°27'59"W	186.81'
MEADOW LAKE DRIVE	1+25.15 TO 4+55.80	765.00'	331.65'	24°50'22"	168.47'	N84°33'36"E	329.06'
	5+50.10 TO 7+75.14	200.00'	225.03'	64°28'02"	126.11'	N39°54'24"E	213.35'
	10+60.82 TO 13+72.06	230.00'	311.24'	77°32'04"	184.71'	N31°05'39"W	288.03'

NO.	DATE	REVISION
1	5-9-05	LOWER ROADS AND RELATED STORM DRAIN 1 FOOT

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 7-5-05

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 7/13/05

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

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
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Donald Mason 5/4/05

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7164 COLUMBIA GATEWAY DRIVE
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COLUMBIA, MARYLAND 21046
410-872-9105

DESIGN: DBT | DRAFT: DBT | CHECK: CAM

PROJECT: **TRIADELPHIA CROSSING PHASE 1**
LOTS 1-22 AND NON-BUILDABLE PRESERVATION PARCELS 'A' THRU 'H' AND NON-BUILDABLE BULK PARCEL 'I'

LOCATION: TAX MAP: 21 PARCEL: 97
GRID: 17 & 23 ZONED: RC-DEO
FOURTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: REVISED ROAD PLAN

DATE: JUNE, 2004 | PROJECT NO. 1634

SCALE: 1" = 50' | SHEET 2 OF 17

F-04-118

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