REVISED FINAL ROAD CONSTRUCTION, GRADING AND STORMWATER MANAGEMENT PLANS

GABRIEL'S COURTYARD

LOTS 1 THRU 39, 42 THRU 44 (PER F-11-051), OPEN SPACE LOTS 40 & 41

ZONING: R-SC

TAX MAP No. 43 GRID No. 14

PARCEL Nos. 570 & 272

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE 4-13-2011

APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 4-18-11
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 4/15/11

SHEET INDEX

ROADWAY INFORMATION CHART

ROAD NAME	CLASSIFICATION	DESIGN SPEED	R/W WIDTH
GABRIELS COURT	PUBLIC ACCESS STREET	25 M.P.H.	50'

TRAFFIC CONTROL SIGNS

ROAD NAME	CENTERLINE STA.	OFFSET	POSTED SIGN	SIGN CODE
GABRIELS COURT	0+50	18' L	STOP	R1-1
GABRIELS COURT	2+00	17' R	SPEED LIMIT 25	R2-1
GABRIELS COURT	2+50	17' L	STOP AHEAD	W3-1a
MISSION ROAD	7+62	23' R	"TURN" w/ "25 M.P.H." SPEED PLATE	W1-1R w/ W13-1

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

STREET LIGHT CHART

DWG. No.	STREET NAME	STATION	OFF-SET	FIXTURE/POLE TYPE
2	GABRIELS COURT	0+68	16' RIGHT	150 WATT "PREMIER" H.P.S. VAPOR FIXTURE POST TOP FIXTURE MOUNTED ON A 14 FOOT BLACK FIBERGLASS POLE.
2	GABRIELS COURT	2+85	16' RIGHT	150 WATT "PREMIER" H.P.S. VAPOR FIXTURE POST TOP FIXTURE MOUNTED ON A 14 FOOT BLACK FIBERGLASS POLE.
2	GABRIELS COURT	5+72	16' LEFT	100 WATT "PREMIER" H.P.S. VAPOR FIXTURE POST TOP FIXTURE MOUNTED ON A 14 FOOT BLACK FIBERGLASS POLE.
3	GABRIELS COURT	7+75	16' LEFT	100 WATT "PREMIER" H.P.S. VAPOR FIXTURE POST TOP FIXTURE MOUNTED ON A 14 FOOT BLACK FIBERGLASS POLE.
3	GABRIELS COURT	9+68	16' LEFT	100 WATT "PREMIER" H.P.S. VAPOR FIXTURE POST TOP FIXTURE MOUNTED ON A 14 FOOT BLACK FIBERGLASS POLE.
3	GABRIELS COURT	1+57 L.P.	3' OFFSET	150 WATT "PREMIER" H.P.S. VAPOR FIXTURE POST TOP FIXTURE MOUNTED ON A 14 FOOT BLACK FIBERGLASS POLE.
2	MISSION ROAD	5+99	22' RIGHT	150 WATT H.P.S. MAPLE LAWN ACORN FIXTURE POST TOP FIXTURE MOUNTED ON A 12 FOOT BLACK FIBERGLASS POLE.
2	MISSION ROAD	7+00	26' RIGHT	150 WATT H.P.S. MAPLE LAWN ACORN FIXTURE POST TOP FIXTURE MOUNTED ON A 12 FOOT BLACK FIBERGLASS POLE.

LEGEND

SYMBOL	DESCRIPTION
--258---	EXISTING CONTOUR 2' INTERVAL
—260—	EXISTING CONTOUR 10' INTERVAL
—258—	PROPOSED CONTOUR 2' INTERVAL
—260—	PROPOSED CONTOUR 10' INTERVAL
+261.50	SPOT ELEVATION
-SF— SF	SILT FENCE
-SSF— SSF	SUPER SILT FENCE
FF	FIRST FLOOR ELEVATION
BE	BASEMENT ELEVATION
L.O.D.	LIMIT OF DISTURBANCE
	PROPOSED STREET TREE
	RECREATIONAL OPEN SPACE
	SLOPES (15% TO 24.9%)
	EXISTING TREELINE
	PROPOSED TREELINE
	EXISTING STREET LIGHT
	100 WATT 'PREMIER' POST TOP STREET LIGHT
	150 WATT 'PREMIER' POST TOP STREET LIGHT
	150 WATT 'MAPLE LAWN ACORN' POST TOP STREET LIGHT

ADC MAP REFERENCE: MAP 20

VICINITY MAP
SCALE: 1" = 2000'

DENSITY TABULATION

1. BASE DENSITY 10.545 AC. x 4.0 DWELLING UNITS PER NET ACRE = 42.18 OR 42 UNITS
TOTAL NUMBER OF BUILDABLE LOTS ALLOWED: 42 UNITS
PROPOSED NUMBER OF BUILDABLE LOTS: 40 SINGLE FAMILY ATTACHED UNITS, 2 SINGLE FAMILY DETACHED UNITS

SIXTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

GENERAL NOTES

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS IF APPLICABLE.

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

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

4. TRAFFIC CONTROL DEVICES, MARKINGS AND SIGNING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE "MARYLAND MANUAL TRAFFIC CONTROL DEVICES" (MdMUTCD).

5. 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. 43EB & 43G6 WERE USED FOR THIS PROJECT. HORIZONTAL AND VERTICAL CONTROL DATUM IS BASED ON HOWARD COUNTY GEODETIC CONTROL STATIONS:
HOWARD COUNTY MONUMENT NO. 43EB N 545,963.6476 E 1,371,573.8400 ELEV. = 216.327
HOWARD COUNTY MONUMENT NO. 43G6 N 544,117.5286 E 1,370,550.8447 ELEV. = 219.482

6. THIS SUBDIVISION PLAN IS SUBJECT TO THE AMENDED FIFTH EDITION OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS AND THE 2004 ZONING REGULATIONS PER COUNCIL BILL NO. 45-2003 AND THE ZONING REGULATIONS AS AMENDED BY COUNCIL BILL NO. 75-2003. DEVELOPMENT OR CONSTRUCTION OH THESE PARCELS MUST COMPLY WITH SETBACK AND BUFFER REGULATIONS IN EFFECT AT THE TIME OF SUBMISSION OF A BUILDING OR GRADING PERMIT APPLICATION

7. THE SUBJECT PROPERTY IS ZONED R-SC PER THE 2/2/04 COMPREHENSIVE ZONING PLAN AND THE 'COMP LITE' ZONING AMENDMENTS EFFECTIVE 7/28/06.

8. THIS PROJECT IS IN CONFORMANCE WITH THE LATEST HOWARD COUNTY SUBDIVISION UNLESS WAIVERS HAVE BEEN APPROVED.

9. SITE DATA:
CURRENT ZONING : R-SC
LOCATION : MISSION ROAD 650' NORTHWEST FROM THE INTERSECTION OF U.S. ROUTE 1 AND MISSION ROAD.
ELECTION DISTRICT : 6TH
TAX MAP : 43
GRID : 14
PARCEL : 570 & 272

10. AREA TABULATION :
a. GROSS AREA OF TRACT : 10.545 AC.±
b. AREA OF FLOODPLAIN : N/A (THERE IS NO FLOODPLAIN ON THIS SITE.)
c. AREA OF 25% OR GREATER SLOPES = 0.00 AC. (SEE GENERAL NOTE NO. 11). AREAS OF STEEP SLOPES (15% - 24.9% AND 25% OR GREATER) LOCATED ON THIS PROPERTY AS DEFINED BY THE HOWARD COUNTY SUBDIVISION AND LAND DEVELOPMENT REGULATIONS, SECTION 16.116.b. HAVE BEEN SHOWN ON SHEETS 7 & 8.
d. NET AREA OF TRACT = 10.545 AC.± DENSITY = 4 DWELLING UNITS x NET ACRE = 4 x 10.545 = 42.18 OR 42 UNITS
e. AREA OF PROPOSED ROAD RIGHT OF WAY = 1.46 AC.±
f. AREA OF PROPOSED BUILDABLE LOTS = 2.97 AC.±
g. AREA OF PROPOSED OPEN SPACE LOT = 5.804 AC.±
h. LOT COVERAGE = 54%
i. PREVIOUS FILE NUMBERS: SP08-004, F-11-051

11. THE EXISTING 25% OR GREATER SLOPES ON THIS SITE WERE DETERMINED BY THE DEPARTMENT OF PLANNING AND ZONING, PER DPZ PROJECT MANAGEMENT COMMUNICATION DATED JULY 29, 2010 TO BE EXEMPT FROM DENSITY CALCULATIONS DUE TO FACTORS OUTLINED IN JUSTIFICATION ITEMS 1 THRU 3, CONTAINED THEREIN AND ARE AS FOLLOWS;
(1) VERY LIMITED SIZE, TOTAL AREA AND THE SPORADIC, NON-CONTIGUOUS NATURE OF THESE STEEP SLOPES; (2) STEEP SLOPES ARE ISOLATED SMALL POCKETS LOCATED WITHIN A PREVIOUS QUARRIED AREA AND NOT ADJACENT TO ANY OTHER INVIRONMENTAL FEATURES AND EACH POCKET WAS LESS THAN 20,000 SQUARE FEET OF CONTIGUOUS AREA; AND (3) THE APPLICANT HAD A VALID SURFACE MINING PERMIT TO EXTRACT MINERALS FROM THIS PROPERTY AND HAD PRIOR APPROVAL TO REMOVE EXISTING STEEP SLOPES.

12. PUBLIC WATER AND PUBLIC SEWER SHALL BE UTILIZED WITHIN THIS DEVELOPMENT. CONTRACT NO. 24-4500-D.
THE WATER AND SEWER IS IN THE LITTLE PATUXENT DRAINAGE AREA.

13. THE SUBJECT PROPERTY IS LOCATED WITHIN THE METROPOLITAN DISTRICT.

14. EXISTING UTILITY LOCATIONS SHOWN ARE BASED ON FIELD RUN TOPOGRAPHY AND APPROVED UTILITY CONSTRUCTION DRAWINGS.

15. DENOTES SLOPES 15% TO 24.99% AS SHOWN ON SHEETS 7 & 8.

16. STORMWATER MANAGEMENT WILL BE PROVIDED IN ACCORDANCE WITH THE CRITERIA CONTAINED IN THE 2000 MARYLAND STORMWATER DESIGN MANUAL, VOLUMES I & II, CHAPTER 5 "STORMWATER CREDITS FOR INNOVATIVE SITE PLANNING". SOME OF THE Wqv, Cpv AND Rev WILL BE PROVIDED AND MAINTAINED BY UTILIZING NON-STRUCTURAL BEST MANAGEMENT PRACTICE IN ACCORDANCE WITH CHAPTER 5 OF THE DESIGN MANUAL. THE REMAINING REQUIREMENTS WILL BE ADDRESSED WITH ONE INFILTRATION BASIN FACILITY. Cpv IS REQUIRED BECAUSE THE 1 YEAR STORM IS GREATER THAN THE 2.0cfs MANDATED BY THE AFOREMENTIONED MANUAL. THE OWNERSHIP AND THE MAINTENANCE RESPONSIBILITY OF THE INFILTRATION BASIN SHOWN ON OPEN SPACE LOT 40 WILL BE PRIVATELY OWNED AND JOINTLY MAINTAINED BY THE HOMEOWNER'S ASSOCIATION AND HOWARD COUNTY.

17. THE FOREST STAND DELINEATION AND WETLAND DELINEATION FOR THIS PROJECT WAS PREPARED BY ECO-SCIENCE PROFESSIONALS, INC., DATED DECEMBER 29, 2007.

18. THERE ARE NO WETLANDS OR STREAMS WITHIN THIS PROPERTY BASED ON A REPORT FROM ECO-SCIENCE PROFESSIONALS, INC.

19. THE TRAFFIC STUDY FOR THIS PROJECT WAS PREPARED BY MARS GROUP, DATED JUNE 2007.

20. BOUNDARY OUTLINE BASED ON FIELD RUN SURVEY PERFORMED BY FISHER, COLLINS & CARTER, INC. DATED JANUARY 28, 2007.

21. TOPOGRAPHIC CONTOURS BASED ON FIELD RUN SURVEY BY FISHER COLLINS AND CARTER INC DATED FEBRUARY 5, 2007.

22. THE FOREST CONSERVATION REQUIREMENTS PER SECTION 16.1200 OF THE HOWARD COUNTY CODE AND 21. THE FOREST CONSERVATION MANUAL FOR THIS PROJECT WILL BE FULFILLED THROUGH THE RETENTION OF 2.2 ACRES OF NET TRACT AREA FOREST WITHIN THE LIMITS OF A FOREST CONSERVATION EASEMENT AND THE ONSITE REFORESTATION OF 1.1 ACRES. THE PLANTING LOCATION IS PROVIDED ON FCP. DETAILS AND SPECIFICATIONS FOR THE REFORESTATION ARE PROVIDED ON SHEET 21.
A SURETY FOR ON-SITE RETENTION @ \$0.20/sf. FOR 95,832 sf. = \$19,167.00 AND ON-SITE REFORESTATION @ \$0.50/sf. FOR 47,916 sf. = \$23,958.00 IS REQUIRED. TOTAL SURETY AMOUNT FOR THE SUBDIVISION = \$43,125.00.

23. NO CEMETERIES EXIST WITHIN THIS SUBDIVISION. SOILS INFORMATION TAKEN FROM SOIL MAP No. 16, SOIL SURVEY, HOWARD COUNTY, MARYLAND, JULY, 1968 ISSUE.

24. THE GEOTECHNICAL REPORT FOR THIS PROJECT WAS PREPARED BY PENNIMAN & BROWNE, INC. DATED JUNE 2007 AND APPROVED ON AUGUST 23, 2007.

25. ALL FILL AREAS WITHIN ROADWAYS AND UNDER STRUCTURES SHALL BE COMPACTED TO A MINIMUM OF 95% COMPACTION OF AASHTO T-180.

26. THE LANDSCAPE SURETY BONDED FOR UNDER THE ORIGINAL F-09-047 IS CONSIDERED SUFFICIENT TO COVER THE NEWLY PROPOSED LANDSCAPING/LANDSCAPING CHANGES ASSOCIATED WITH THE RED-LINE TO F-09-47, IN ADDITION, A SURETY FOR 59 STREET TREES IN THE AMOUNT OF \$17,700.00 SHALL ALSO BE PROVIDED.

27. STREET LIGHT PLACEMENT AND THE TYPE OF FIXTURES AND POLES SHALL BE IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL, VOLUME III (2006), SECTION 5.5.A. A MINIMUM OF 20' SHALL BE MAINTAINED BETWEEN ANY STREET LIGHT AND ANY TREE.

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

29. DRIVEWAYS SHALL BE PROVIDED PRIOR TO RESIDENTIAL OCCUPANCY TO ENSURE SAFE ACCESS FOR FIRE AND EMERGENCY VEHICLES PER THE FOLLOWING (MINIMUM) REQUIREMENTS:
a. WIDTH - 12 FEET (16 FEET SERVING MORE THAN ONE RESIDENCE)
b. SURFACE - SIX (6") INCHES OF COMPACTED CRUSHER RUN BASE WITH TAR AND CHIP COATING.
c. GEOMETRY - MAXIMUM 14% GRADE, MAXIMUM 10% GRADE CHANGE AND MINIMUM OF 45 TURNING RADIUS.
d. STRUCTURES (CULVERTS/BRIDGES) CAPABLE OF SUPPORTING 25 GROSS TONS (H 25 LOADING).
e. DRAINAGE ELEMENTS - CAPABLE OF SAFELY PASSING 100 YEAR FLOOD WITH NO MORE THAN 1 FOOT DEPTH OVER DRIVEWAY SURFACE.
f. STRUCTURE CLEARANCES - MINIMUM 12 FEET.
g. MAINTENANCE - SUFFIFIENT TO INSURE ALL WEATHER USE.

30. DRIVEWAYS SHALL BE PROVIDED IN ACCORDANCE WITH HOWARD COUNTY STANDARD DETAIL R-6.06 IN THE VOLUME IV DESIGN MANUAL.

31. FOR FLAG OR PIPESTEM LOTS, REFUSE COLLECTION, SNOW REMOVAL AND ROAD MAINTENANCE IS TO BE PROVIDED AT THE JUNCTION OF THE FLAG OR PIPESTEM AND THE ROAD RIGHT-OF-WAY AND NOT ONTO THE FLAG OR PIPESTEM DRIVEWAY.

32. THE EXISTING WELL ON PARCEL 272 WILL BE ABANDONED BY A LICENSED WELL DRILLER AND STATE FORMS SUBMITTED FOR DOCUMENTATION PRIOR TO FINAL RECORD PLAT SIGNATURE.

33. PARKING REQUIREMENTS

	NO. OF SPACES REQUIRED	NO. OF SPACES PROVIDED
SINGLE FAMILY ATTACHED:	2 PER UNIT (2 x 40) = 80 NO. OF OVERFLOW SPACES REQUIRED 0.3 PER UNIT (0.3 x 40) = 12	DOUBLE CAR GARAGE UNITS = 40 UNITS x 2 = 80 TWO DRIVEWAY SPACES = 40 x 2 = 80 154 PARKING SPACES PROVIDED
SINGLE FAMILY DETACHED:	2 PER UNIT (2 x 2) = 4 NO. OF OVERFLOW SPACES REQUIRED 0.5 PER UNIT (0.5 x 2) = 1	DOUBLE CAR GARAGE UNITS = 2 UNITS x 2 = 4 TWO DRIVEWAY SPACES = 2 x 2 = 4 8 PARKING SPACES PROVIDED

NOTE: SEE SHEET 7 FOR TYPICAL PARKING DETAIL FOR THE OVERFLOW PARKING.

34. NO NOISE STUDY IS REQUIRED FOR THIS PROJECT PER HOWARD COUNTY DESIGN MANUAL, VOLUME III, SECTION 5.29.

35. THE PLANNING DIRECTOR IN ACCORDANCE WITH SECTION 110.D.1e OF THE HOWARD COUNTY ZONING REGULATIONS HAS GRANTED APPROVAL TO THE GROUPING OF UNITS TO EXCEED 120 FEET IN LENGTH WITH A MAXIMUM LENGTH OF 200 FEET. THESE FINAL PLANS SHOW THE UNIT GROUPING ALONG WITH MAXIMIZING GREEN SPACE AREA.

NOTE: THE PURPOSE OF THIS PLAN IS TO REVISE THE ROAD GRADE ALONG WITH GRADING AND STORM DRAIN FROFILES ASSOCIATED WITH THE REVISED ROAD GRADE.

DATE	REVISIONS
12/20/10	ADDED NON-BUILDABLE BULK PARCEL "A"; CHANGED LOT LINES FOR LOTS 1 THRU 39; CHANGED SUBDIVISION AND ROAD NAMES.
01/31/11	REVISED LEGEND AND GENERAL NOTES NO. 10 TO 15.
6/9/11	REVISED NOTES AND TITLE BLOCK

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042
(410) 461 - 2855

"Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 13204, Expiration Date: November 3, 2012."

CHARLES J. CROVO, SR., P.E. — DATE 3/18/11

OWNERS

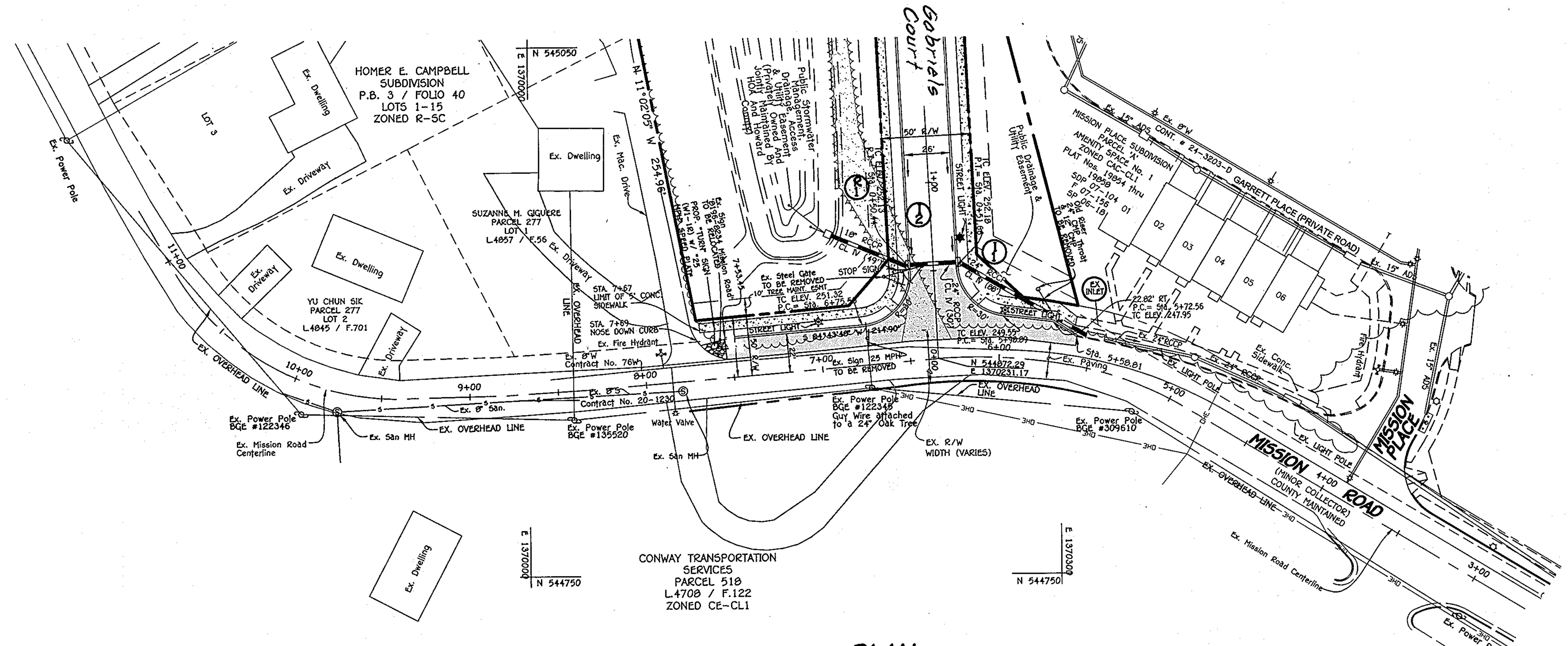
PARCEL 570
MR. GEORGE A. PARROTT
6421 LOUDON AVENUE
ELKRIDGE, MARYLAND 21075
(410) 796-2480

PARCEL 272
MICHAEL L. & MARY T. PFAU
3675 PARK AVENUE SUITE 301
ELLICOTT CITY, MARYLAND 21043-4511
(410) 480-0023

DEVELOPER

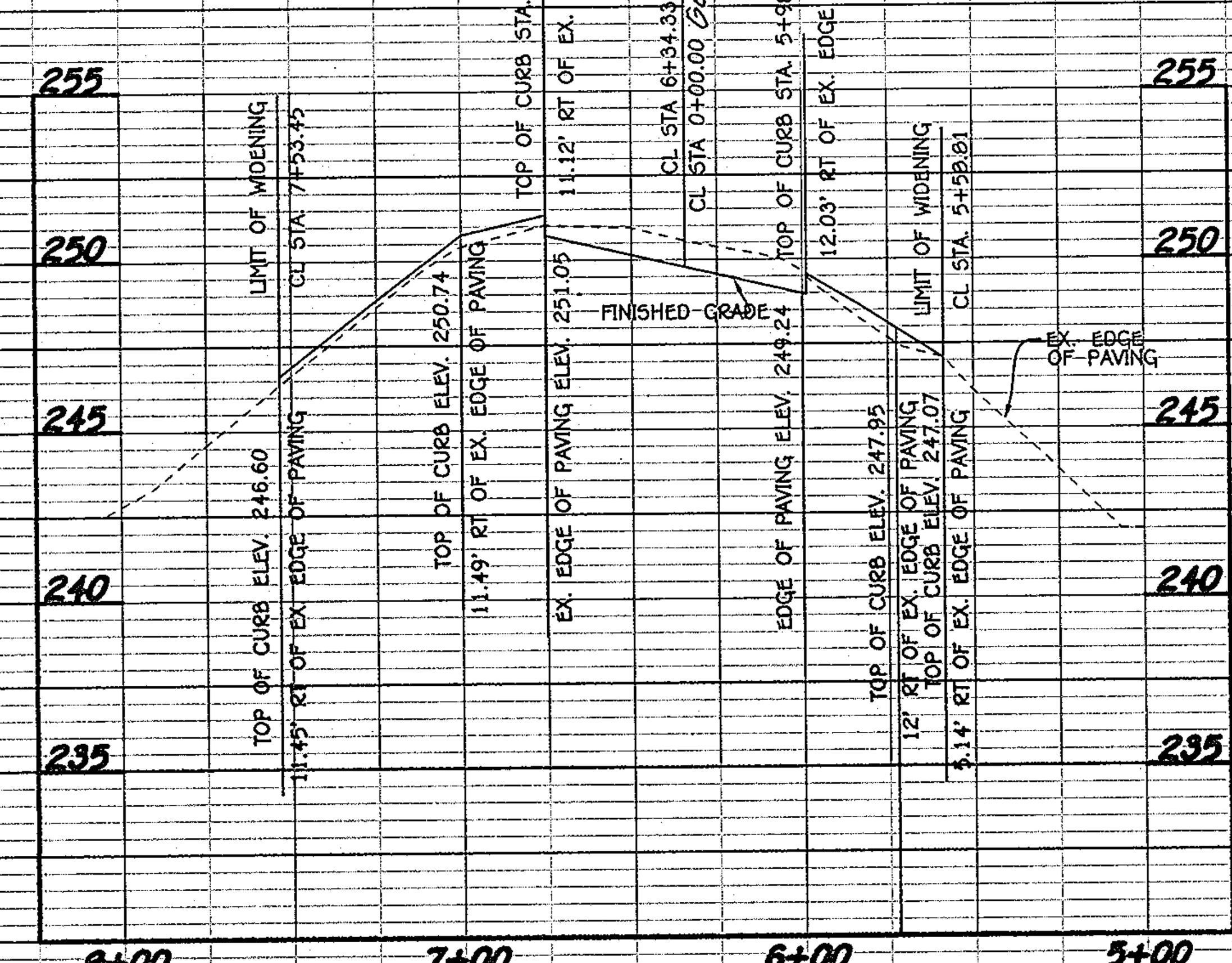
MR. GEORGE A. PARROTT
6421 LOUDON AVENUE
ELKRIDGE, MARYLAND 21075
(410) 796-2480

REVISED FINAL ROAD CONSTRUCTION PLAN
TITLE SHEET
GABRIEL'S COURTYARD
LOTS 1-39, 42 THRU 44 (PER F-11-051), OPEN SPACE LOTS 40 AND 41
2 SINGLE FAMILY DETACHED LOTS, 40 SINGLE FAMILY ATTACHED LOTS & 2 OPEN SPACE LOTS
ZONED: R-SC
TAX MAP No. 43 GRID No. 14 PARCEL Nos. 570 & 272
SIXTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
SCALE: AS SHOWN DATE: MARCH 17, 2011
SHEET 1 OF 24
F 09-047

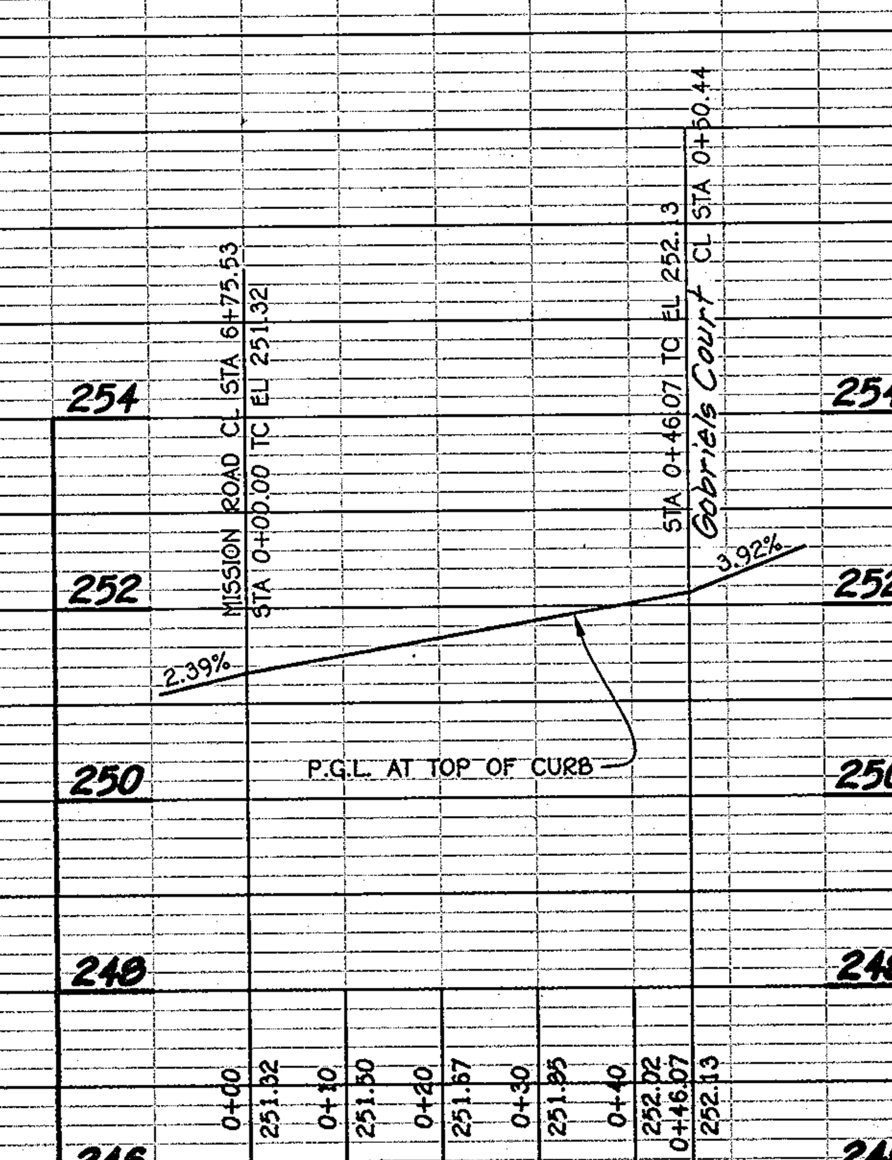


PLAN
SCALE: 1" = 50'

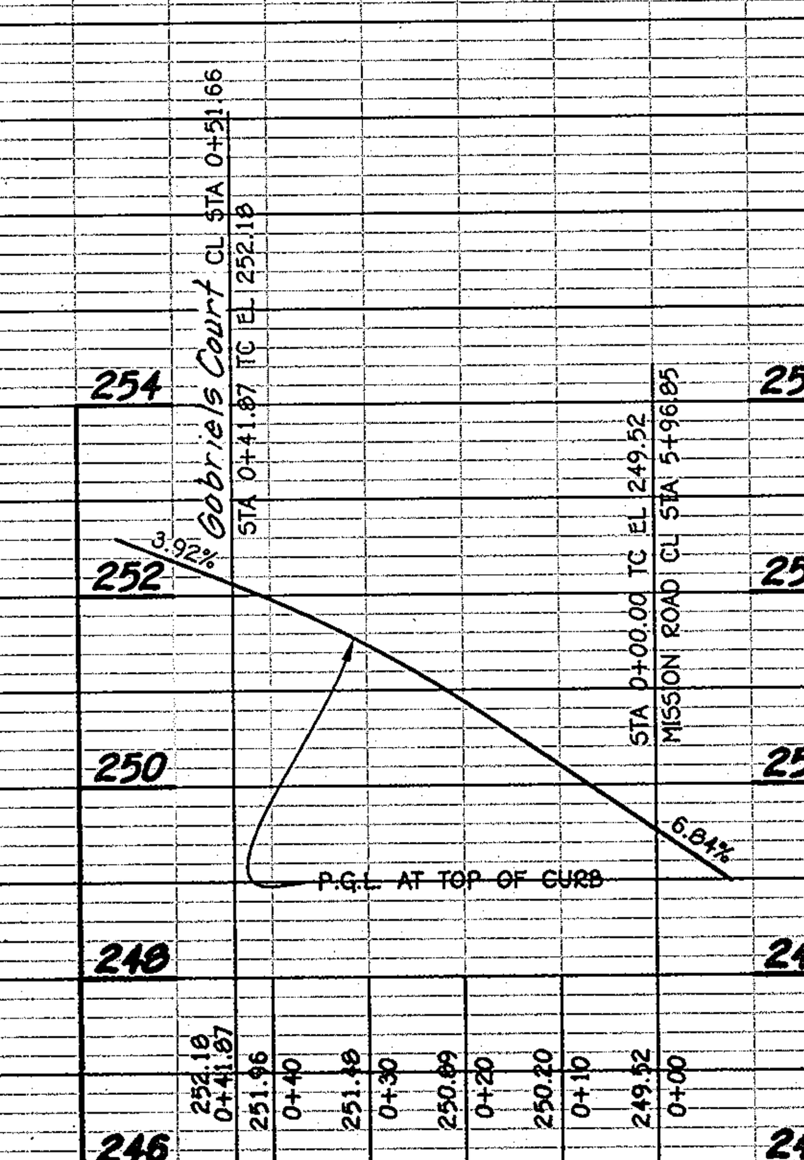
NOTE:
SIDEWALK RAMPS TO HAVE DETECTABLE WARNING SURFACES
(S.H.A. STD. DETAIL MD-655.40)



PROFILE
SCALE: 1" = 5' Ver.
1" = 50' Hor.



LEFT SIDE FILLET PROFILE
SCALE: 1" = 2' Ver.
1" = 20' Hor.



RIGHT SIDE FILLET PROFILE
SCALE: 1" = 2' Ver.
1" = 20' Hor.

REVISIONS	
DATE	DESCRIPTION
12-20-10	Changed Subdivision & road name.
6/9/11	REVISED TITLE BLOCK

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 12-14-09

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 12/22/09

CHIEF, DEVELOPMENT ENGINEERING DIVISION JR. — DATE 12/18/09

MISSION ROAD PLAN AND ROAD PROFILE
GABRIEL'S COURTYARD
LOTS 1-39, 42 THRU 44 (PER F-11-051), OPEN SPACE LOTS 40 AND 41

2 SINGLE FAMILY DETACHED LOTS,
40 SINGLE FAMILY ATTACHED LOTS & 2 OPEN SPACE LOTS
ZONED: R-SC
TAX MAP No. 43 GRID No. 14 PARCEL Nos. 570 & 272
SIXTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

OWNER/DEVELOPER
PARCEL 570
MR. GEORGE A. PARROTT
6421 LOUDON AVENUE
ELKRIDGE, MARYLAND 21075
(410) 796-2480

OWNER
PARCEL 272
MICHAEL L. & MARY T. PFAU
3675 PARK AVENUE SUITE 301
ELLICOTT CITY, MARYLAND 21043-4511
(410) 480-0023

SCALE: AS SHOWN	DATE: NOV. 18, 2009	SHEET 2 OF 24
DES. C.J.C. SR.	DRN. D.T.A.	CHK. C.J.C. SR.

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042
(410) 461 - 2855

"Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 13204, Expiration Date: November 3, 2010."

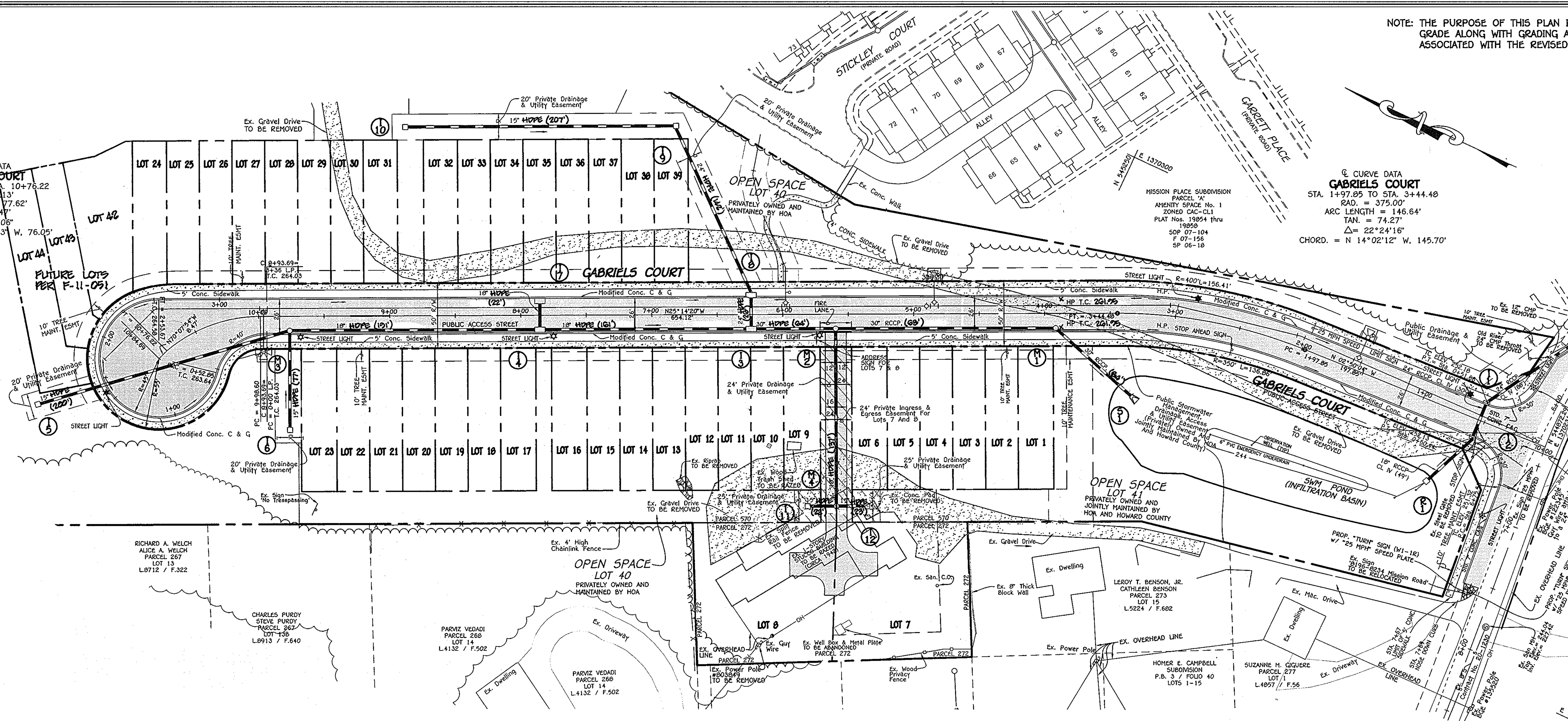
STATE OF MARYLAND CHARLES J. CROVO SR. No. 13204 REGISTERED PROFESSIONAL ENGINEER

CHARLES J. CROVO, SR., P.E. — DATE 12/3/09

F 09-047

I:\2006\06096\dwg\FINAL\06096-3001 SHEET 2 MISSION ROAD.dwg, 1:1

NOTE: THE PURPOSE OF THIS PLAN IS TO REVISE THE ROAD GRADE ALONG WITH GRADING AND STORM DRAIN PROFILES ASSOCIATED WITH THE REVISED ROAD GRADE.



PLAN
SCALE: 1" = 50'

NOTE: THE CONTRACTOR SHALL TRANSITION THE CURB IN ACCORDANCE WITH DETAIL R-3.02 NORTH SIDE OF INLETS I-1 AND I-2 AND BOTH SIDES OF INLET I-8.

REVISIONS	
DATE	DESCRIPTION
12/20/10	RAISED PROPOSED ROAD; REVISED LOT LINES; CHANGED SUBDIVISION AND ROAD NAMES.
01/31/11	REVISED ROAD PROFILE.
6/9/11	REVISED STORM DRAINS AND TITLE BLOCK

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — 4-13-2011 DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — 4-18-11 DATE

CHIEF, DEVELOPMENT ENGINEERING DIVISION — 4/15/11 DATE

REVISED FINAL ROAD CONSTRUCTION PLAN
GABRIELS COURT
PLAN AND ROAD PROFILE

GABRIEL'S COURTYARD
LOTS 1-39, 42 THRU 44 (PER F-11-051), OPEN SPACE LOTS 40 AND 41

2 SINGLE FAMILY DETACHED LOTS,
40 SINGLE FAMILY ATTACHED LOTS & 2 OPEN SPACE LOTS
ZONED: R-SC
TAX MAP No. 43 GRID No. 14 PARCEL Nos. 570 & 272
SIXTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

OWNER/DEVELOPER	OWNER
PARCEL 570 MR. GEORGE A. PARROTT 6421 LOUDON AVENUE ELKRIDGE, MARYLAND 21075 (410) 796-2480	PARCEL 272 MICHAEL L. & MARY T. PFAU 3675 PARK AVENUE SUITE 301 ELLICOTT CITY, MARYLAND 21043-4511 (410) 480-0023

SCALE: AS SHOWN	DATE: MAR. 17, 2011	SHEET 3 OF 24
DES. C.J.C. SR.	DRN. D.T.A.	CHK. C.J.C. SR.

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042
(410) 461 - 2855

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STATE OF MARYLAND — CHARLES J. CROVO, SR. — No. 13204 — REGISTERED PROFESSIONAL ENGINEER

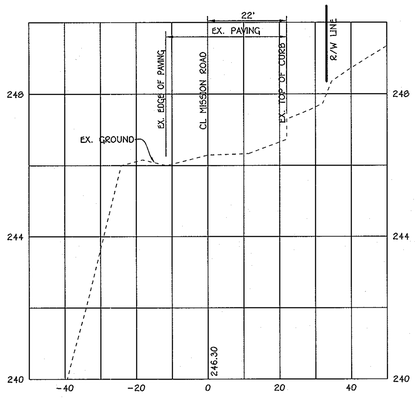
CHARLES J. CROVO, SR., P.E. — 3/18/11 DATE

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

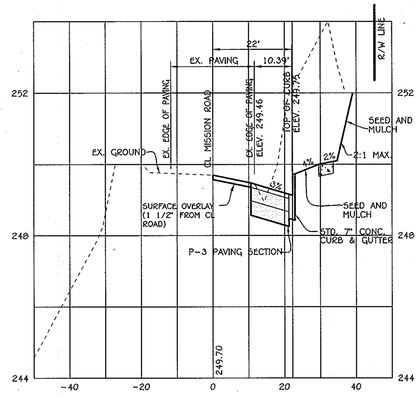
PROFILE
SCALE: HORIZ. : 1" = 50' VERT. : 1" = 5'

F 09-047

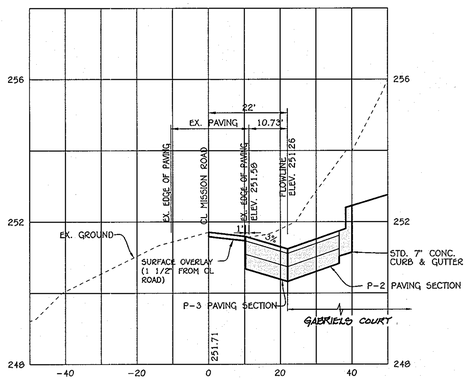
I:\2006\06096\dwg\REDLINE FINAL\06096-3001 SHEET 3 VILLA COURT.dwg, VILLA HEIGHTS CT PLAN AND PROFILE, 1:1



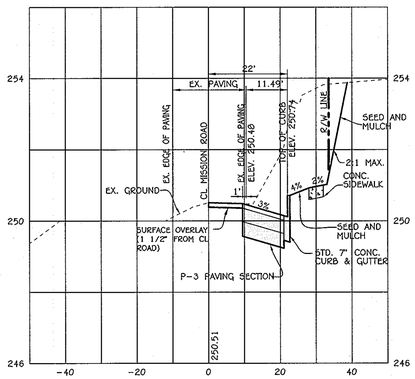
5+54.61



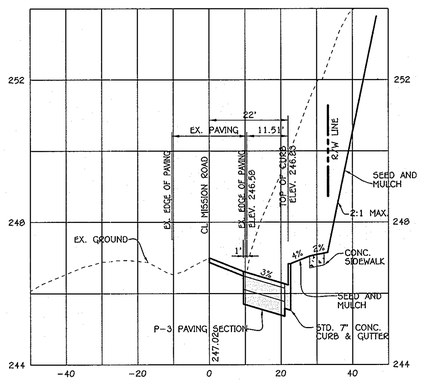
6+00



6+50



7+00



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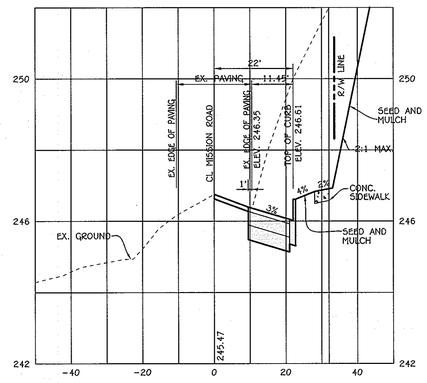
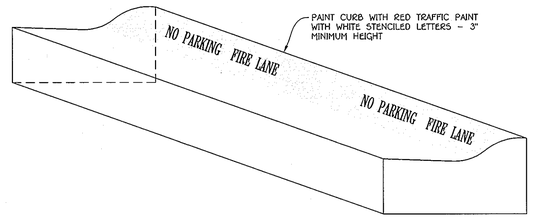


7+53.45

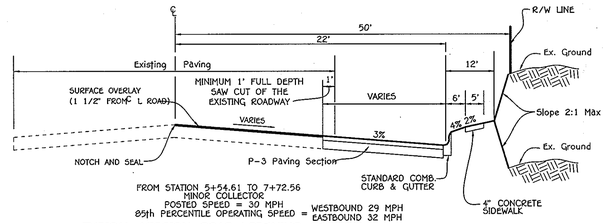
MISSION ROAD IMPROVEMENTS
CROSS-SECTIONS

SCALE: HOR. : 1" = 20'
VER. : 1" = 2'



CURB MARKINGS FOR LOTS 7 & 8

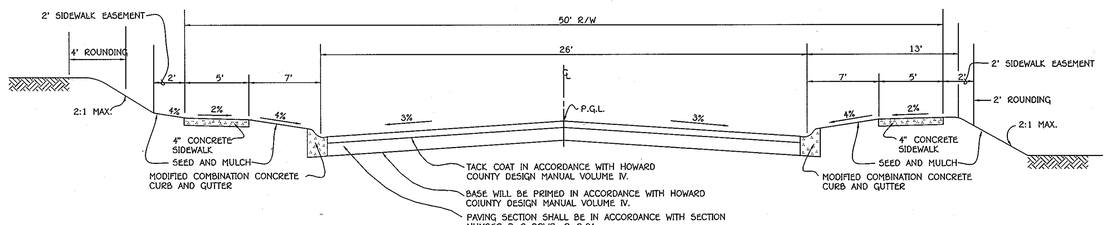
NOT TO SCALE



FROM STATION 5+54.61 TO 7+72.56
MINOR COLLECTOR
POSTED SPEED = 30 MPH
85th PERCENTILE OPERATING SPEED = WESTBOUND 29 MPH
EASTBOUND 32 MPH

TYPICAL MISSION ROAD WIDENING SECTION

NO SCALE



NOTE:
ALL MATERIALS AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH HOWARD COUNTY DESIGN MANUAL VOLUME IV, STANDARD SPECIFICATION AND DETAILS FOR CONSTRUCTION.

TYPICAL ROADWAY SECTION

NO SCALE

ROADWAY INFORMATION CHART

ROAD NAME	CLASSIFICATION	DESIGN SPEED	ZONING	℄ STATION LIMITS	PAVING SECTION
GABRIELS COURT	PUBLIC ACCESS STREET	25 M.P.H.	RSC	0+00 TO 9+93.69	P-2

SECTION NUMBER	ROAD AND STREET CLASSIFICATION	CALIFORNIA BEARING RATIO (CBR)	3 TO <5	5 TO <7	>7	3 TO <5	5 TO <7	>7
		PAVEMENT MATERIAL (INCHES)	MIN HMA WITH GAB			HMA WITH CONSTANT GAB		
P-2	PUBLIC ACCESS STREET	HMA SUPERPAVE FINAL SURFACE 9.5 MM, PG 64-22, LEVEL 1 (ESAL)	1.5	1.5	1.5	1.5	1.5	1.5
		HMA SUPERPAVE INTERMEDIATE SURFACE 9.5 MM, PG 64-22, LEVEL 1 (ESAL)	1.0	1.0	1.0	1.0	1.0	1.0
		HMA SUPERPAVE BASE 19.0 MM, PG 64-22, LEVEL 1 (ESAL)	2.0	2.0	2.0	3.5	2.0	2.0
		GRADED AGGREGATE BASE (GAB)	8.0	4.0	3.0	4.0	4.0	4.0
P-3	MINOR COLLECTORS: RESIDENTIAL	HMA SUPERPAVE FINAL SURFACE 9.5 MM, PG 64-22, LEVEL 1 (ESAL)	1.5	1.5	1.5	1.5	1.5	1.5
		HMA SUPERPAVE INTERMEDIATE SURFACE 9.5 MM, PG 64-22, LEVEL 1 (ESAL)	1.0	1.0	1.0	1.0	1.0	1.0
		HMA SUPERPAVE BASE 19.0 MM, PG 64-22, LEVEL 1 (ESAL)	3.0	3.0	3.0	4.5	3.0	2.0
		GRADED AGGREGATE BASE (GAB)	10.0	6.0	3.0	6.0	6.0	6.0

NO.	REVISIONS	DATE
2	REVISED TITLE BLOCK	6/9/11
1	CHANGED SUBDIVISION NAME AND ROAD NAME	9/2/10

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE 12-14-09

APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 12/23/09
CHIEF, DEVELOPMENT ENGINEERING DIVISION J.P. — DATE 12/8/09

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042
(410) 461 - 2855

"Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 13204, Expiration Date: November 3, 2010."

STATE OF MARYLAND — CHARLES J. CROVO, SR. — No. 13204 — PROFESSIONAL ENGINEER

CHARLES J. CROVO, SR., P.E. — DATE 12/3/09

OWNERS

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(410) 796-2480

PARCEL 272
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3675 PARK AVENUE SUITE 301
ELLICOTT CITY, MARYLAND 21043-4511
(410) 480-0023

DEVELOPER

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(410) 796-2480

MISSION ROAD IMPROVEMENTS
CROSS-SECTIONS

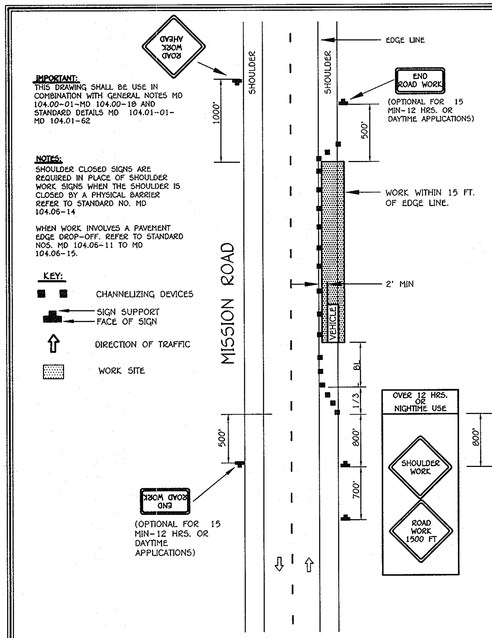
GABRIEL'S COURTYARD

LOTS 1-39, 42 THRU 44 (PER F-11-051), OPEN SPACE LOTS 40 AND 41

2 SINGLE FAMILY DETACHED LOTS, 40 SINGLE FAMILY ATTACHED LOTS & 2 OPEN SPACE LOTS
ZONED: R-SC
TAX MAP No. 43 GRID No. 14 PARCEL Nos. 570 & 272
SIXTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
SCALE: AS SHOWN DATE: NOVEMBER 18, 2009
SHEET 4 OF 24

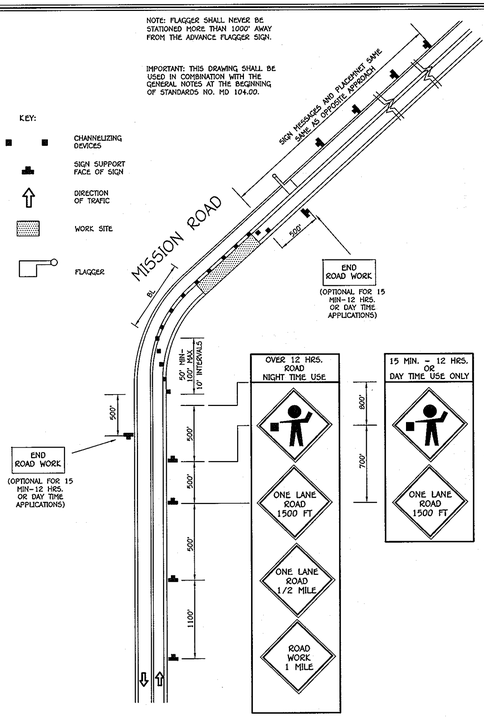
F 09-047

I:\2006\06096\dwg\FINAL\06096-3001 SHEET 4 CROSS SECTIONS.dwg, 1:1



SHOULDER WORK/2-LANE, 2-WAY
EQL/LESS THAN 40 MPH

NO SCALE



FLAGGING OPERATION /-LANE, 2-WAY
EQUAL/LESS THAN 40 MPH

NO SCALE

GENERAL MAINTENANCE OF TRAFFIC SPECIAL PROVISIONS

1. THE PURPOSE OF THIS PORTION OF THE SPECIAL PROVISION IS TO SET FOR THE TRAFFIC CONTROL REQUIREMENTS NECESSARY FOR THE SAFE AND EFFICIENT MAINTENANCE TO TRAFFIC WITHIN WORK AREAS, AND TO MINIMIZE ANY INCONVENIENCES TO THE TRAVELING PUBLIC AND THE CONTRACTOR AND/OR PERMITTEE.
2. PROPERTY TRAFFIC CONTROL THROUGH WORK AREAS IS ESSENTIAL FOR INSURING THE SAFETY AND THAT OF HIGHWAY WORKERS HAS THE HIGHEST PRIORITY OF ALL TASKS WITHIN THIS PROJECT. THE PROPERTY APPLICATION OF THE APPROVED TRAFFIC CONTROL PLAN (TCP) WILL PROVIDE THE DESIRED LEVEL OF SAFETY.
3. THROUGHOUT THESE SPECIAL PROVISIONS, ANY MENTION OF THE TCP SHALL BE IMPLIED TO INCLUDE ANY COMBINATION OF TYPICAL TRAFFIC CONTROL STANDARDS WHICH FORM THE OVERALL TCP FOR THIS PROJECT WHICH HAS BEEN APPROVED BY THE APPROPRIATE SHA TRAFFIC ENGINEER.
4. THE CONTRACTOR AND/OR PERMITTEE SHALL BE REQUIRED TO ADHERE TO THE PROVISIONS OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), 1988 EDITION, ESPECIALLY PART VI, AND TO SECTION 814 OF THE MARYLAND DOT STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS (JANUARY, 1982; INCLUDING ALL REVISIONS AND SUPPLEMENTS TO EACH.
5. THE CONTRACTOR AND/OR PERMITTEE SHALL BE REQUIRED TO ADHERE TO THE REQUIREMENTS SET FOR IN THE TCP AND THESE SPECIAL PROVISIONS, UNLESS OTHERWISE DIRECTED BY THE ENGINEER. ANY REQUESTS TO MAKE MINOR CHANGES TO THE TCP OR THE SPECIAL PROVISIONS WITH REGARD TO THE TRAFFIC CONTROL ITEMS SHALL BE MADE IN WRITING TO THE ENGINEER A MINIMUM OF THREE (3) WORKING DAYS PRIOR TO THE PROPOSED SCHEDULING CHANGE. THE CONTRACTOR AND/OR PERMITTEE SHALL HAVE WRITTEN APPROVAL OF THE ENGINEER PRIOR TO THE IMPLEMENTATION OF ANY CHANGE.
6. NO WORK SHALL BEGIN ON ANY WORK ACTIVITY OR WORK PHASE UNTIL ALL REQUIRED TRAFFIC CONTROL PATTERNS AND DEVICES INDICATED ON THE TCP FOR THAT ACTIVITY OR PHASE ARE COMPLETELY AND CORRECTLY IN PLACE TO HAVE BEEN CHECKED FOR APPROVED USAGE.
7. GENERAL AND SPECIFIC WARNING SIGNS SHALL ONLY BE IN PLACE WHEN SPECIFIC WORK TASKS AND ACTIVITIES ARE ACTUALLY UNDERWAY OR CONDITIONS EXIST THAT POSE A POTENTIAL HAZARD TO THE PUBLIC, AND ANY ADDITIONAL SIGNING HAS BEEN APPROVED BY THE APPROPRIATE SHA TRAFFIC ENGINEER. NOTE: THE PRACTICE OF PLACING SIGNING AND OTHER TRAFFIC CONTROL DEVICES IN ADDITION TO THOSE INDICATED ON THE APPROVED TCP IS NOT PERMITTED.
8. THE CONTRACTOR AND/OR PERMITTEE SHALL PROVIDE, MAINTAIN IN NEW CONDITION, AND MOVE WHEN NECESSARY, OR AS DIRECTED BY THE ENGINEER, ALL TRAFFIC CONTROL DEVICES USED FOR THE GUIDANCE AND PROTECTION OF MOTORISTS, PEDESTRIANS, AND WORKERS.
9. ALL TRAFFIC CONTROL DEVICES REQUIRED BY THE TCP SHALL BE KEPT IN GOOD CONDITION, FULLY PERFORMING AS SET FORTH IN THE TCP, THE MUTCD, AND/OR SECTION 814 OF THE SPECIFICATIONS, FOR REFLECTIVE DEVICES A PARTICULAR DEVICE IS ASSUMED TO HAVE FAILED TO MEET MINIMUM OPERATIONAL STANDARDS WHEN THE DEVICE NO LONGER HAS RETRO-REFLECTANCE CAPABILITY OF AT LEAST 60% OF THE SPECIFIED MINIMUM VALUE OVER AT LEAST 90% OF THE VISIBLE REFLECTIVE SURFACE.
10. ALL TRAFFIC CONTROL DEVICES NOT REQUIRED FOR THE SAFE CONDUCT OF TRAFFIC SHALL BE PROMPTLY REMOVED, COMPLETELY COVERED, TURNED AWAY FROM TRAFFIC, OR OTHERWISE TAKEN OUT OF SERVICE. IT IS INTENDED THAT NO TRAFFIC CONTROL DEVICE IS TO BE IN SERVICE WHEN THERE IS NO CLEAR CUT REASON FOR THE DEVICE.
11. THROUGHOUT THE PERIOD(S) OF WORK ACTIVITIES, TRAFFIC SHALL BE MAINTAINED BY IMPLEMENTING THE APPROVED TCP. IN LIEU OF THE TCP PREPARED FOR THIS PROJECT, AND/OR INDIVIDUAL TYPICAL TRAFFIC CONTROL STANDARDS, THE CONTRACTOR AND/OR PERMITTEE HAS THE OPTION OF PREPARING AND SUBMITTING A TCP, WHOLLY OR IN PART, OF HIS OWN DESIGN, FOLLOWING GUIDELINES SET FORTH IN THE MUTCD AND PRESCRIBED BY THE ADMINISTRATION. A TCP DEVELOPED BY THE CONTRACTOR AND/OR PERMITTEE SHALL NOT BE IMPLEMENTED UNTIL ADVANCE WRITTEN APPROVAL IS OBTAINED FROM THE ENGINEER. TCP'S MAY BE IMPLEMENTED WITHIN A SINGLE PROJECT OR JOINTLY BETWEEN TWO OR MORE PROJECTS. IN SITUATIONS WHERE TCP'S JOINTLY IMPLEMENTED, CARE SHALL BE EXERCISED TO PRESENT CORRECT AND NON-CONFLICTING GUIDANCE TO THE TRAVELING PUBLIC.
12. THROUGHOUT THESE SPECIAL PROVISIONS, WHERE SPEED OF TRAFFIC IS NOTED, THIS MEANS THE POSTED SPEED OR PREVAILING TRAVEL SPEED, WHICHEVER IS HIGHER, UNLESS OTHERWISE NOTED.
13. TRAFFIC SHALL BE MAINTAINED AT ALL TIMES THROUGHOUT THE ENTIRE LENGTH OF THE PROJECT, UNLESS OTHERWISE NOTED. NO TRAVEL LANE(S) OTHER THAN THOSE DESIGNATED FOR POSSIBLE CLOSURE IN THE TCP SHALL BE CLOSED WITHOUT OBTAINING PRIOR APPROVAL FORM THE ENGINEER. ALL INGRESS AND EGRESS TO THE WORK AREA BY THE CONTRACTOR AND/OR PERMITTEE SHALL BE PERFORMED WITH THE FLOW OF TRAFFIC.

NOTE:
THE FLAGGING OPERATION LAYOUT SHOWN IS A REPRESENTATION – THE CONTRACTOR IS RESPONSIBLE FOR THE ACTUAL FIELD PLACEMENT OF SIGNS AND LOCATION OF THE 'FLAGGERS' ACCORDING TO THE SHA STANDARDS SHOWN ON THIS SHEET.

APPROVED: DEPARTMENT OF PUBLIC WORKS	
CHIEF, BUREAU OF HIGHWAYS	12-14-09 DATE
APPROVED: DEPARTMENT OF PLANNING AND ZONING	
CHIEF, DIVISION OF LAND DEVELOPMENT	12/24/09 DATE
CHIEF, DEVELOPMENT ENGINEERING DIVISION J.P.	12/18/09 DATE

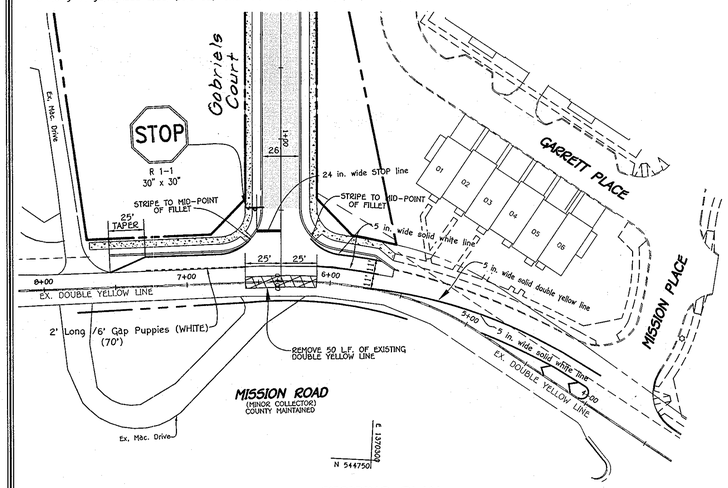
PAVEMENT MARKING NOTES

1. ALL PAVEMENT MARKING LINES SHALL BE REFLECTIVE THERMOPLASTIC AS SPECIFIED IN THE SHA "STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS".

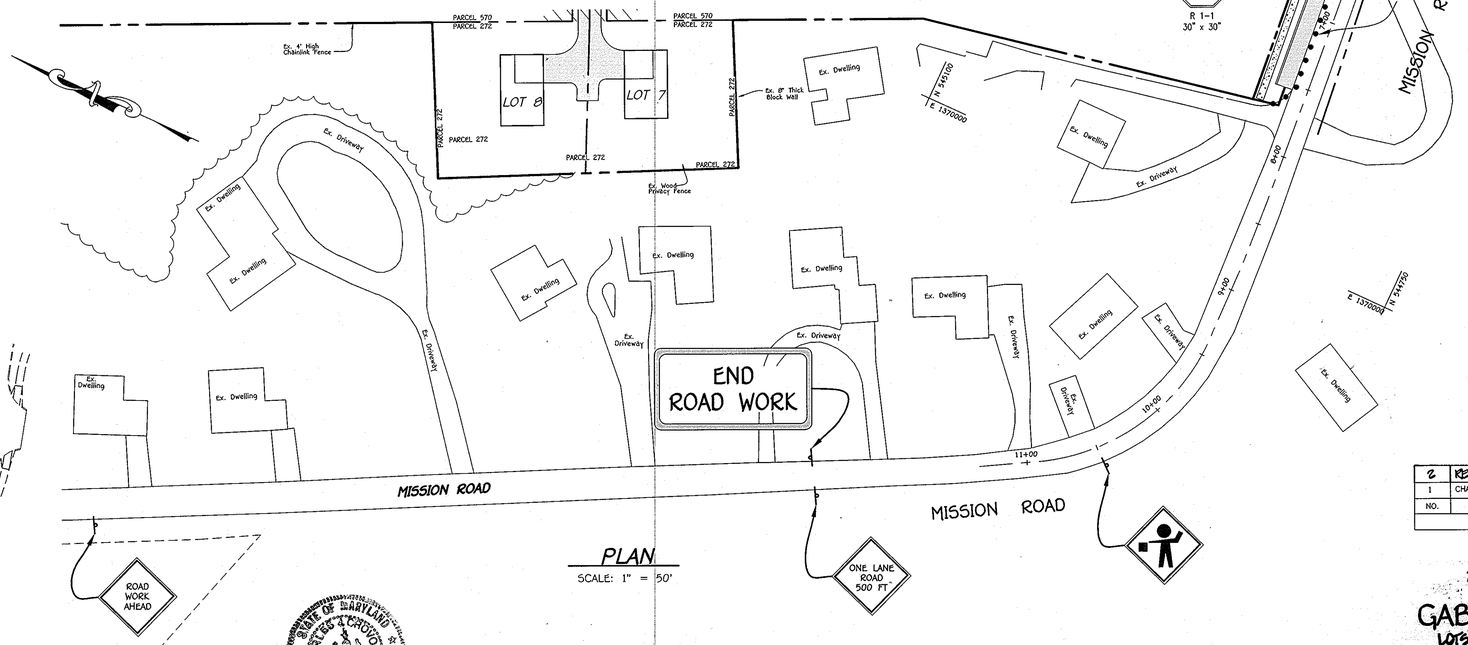
2. THE STOP LINE SHALL BE HEAT APPLIED PERMANENT PREFORMED THERMOPLASTIC PAVEMENT MARKINGS.

NOTES:

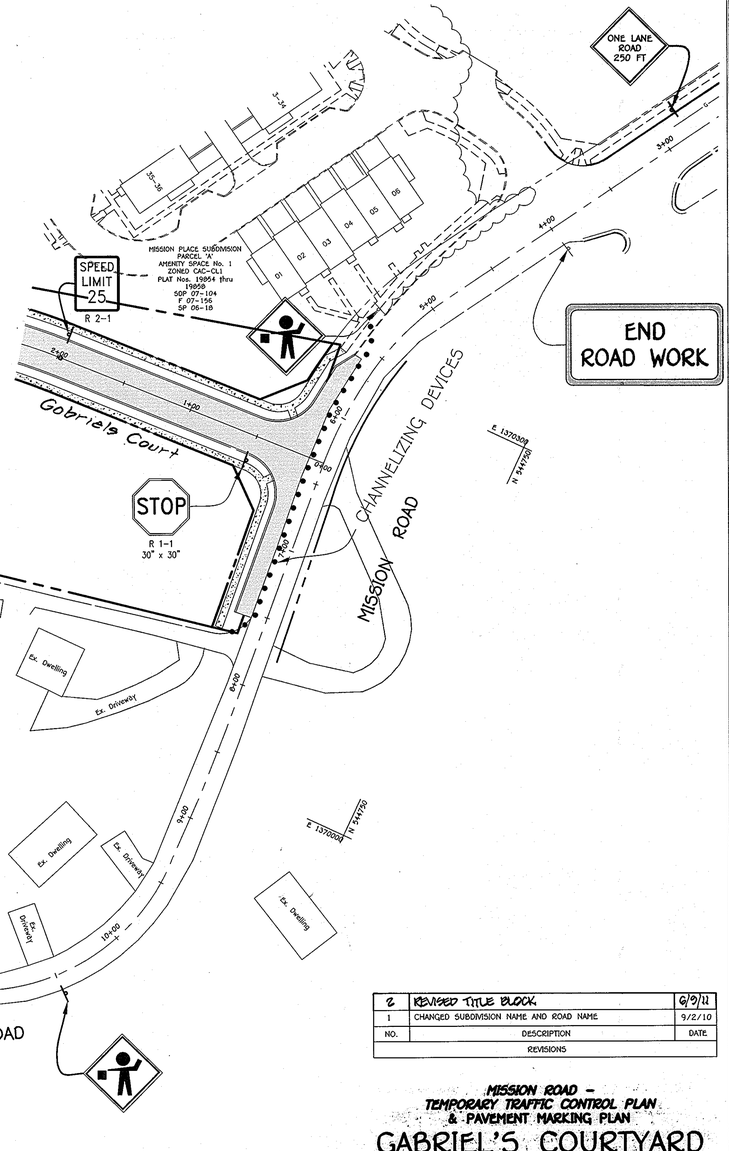
1) Existing pavement marking to be removed by milling and overlaying.
2) All sign posts used for traffic control signs installed in the County right-of-way shall be mounted on a 2" galvanized steel perforated, square tube post (14 gauge) inserted into a 2-1/2" galvanized steel, perforated square tube sleeve (12 gauge) 3' long. A galvanized steel pole cap shall be mounted on top of each post.



STRIPING PLAN
SCALE: 1" = 50'



PLAN
SCALE: 1" = 50'



NO.	DESCRIPTION	DATE
2	REVISED TITLE BLOCK.	6/9/11
1	CHANGED SUBDIVISION NAME AND ROAD NAME	9/2/10
	REVISIONS	

MISSION ROAD – TEMPORARY TRAFFIC CONTROL PLAN & PAVEMENT MARKING PLAN

GABRIEL'S COURTYARD

LOTS 1-39, 42 THRU 44 (PER F-11-051), OPEN SPACE LOTS 40 AND 41

2 SINGLE FAMILY DETACHED LOTS, 40 SINGLE FAMILY ATTACHED LOTS & 2 OPEN SPACE LOTS
ZONED: R-SC
TAX MAP No. 43 GRID No. 14 PARCEL Nos. 570 & 272
SIXTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
SCALE:1" = 50' DATE: NOVEMBER 18, 2009
SHEET 5 OF 24

F 09-047

OWNERS

PARCEL 570
MR. GEORGE A. PARROTT
6421 LOUDON AVENUE
ELKRIDGE, MARYLAND 21075
(410) 796-2480

PARCEL 272
MICHAEL L. & MARY T. PFAU
3675 PAGE AVENUE SUITE 301
ELLICOTT CITY, MARYLAND 21043-4511
(410) 480-0023

DEVELOPER

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ELKRIDGE, MARYLAND 21075
(410) 796-2480

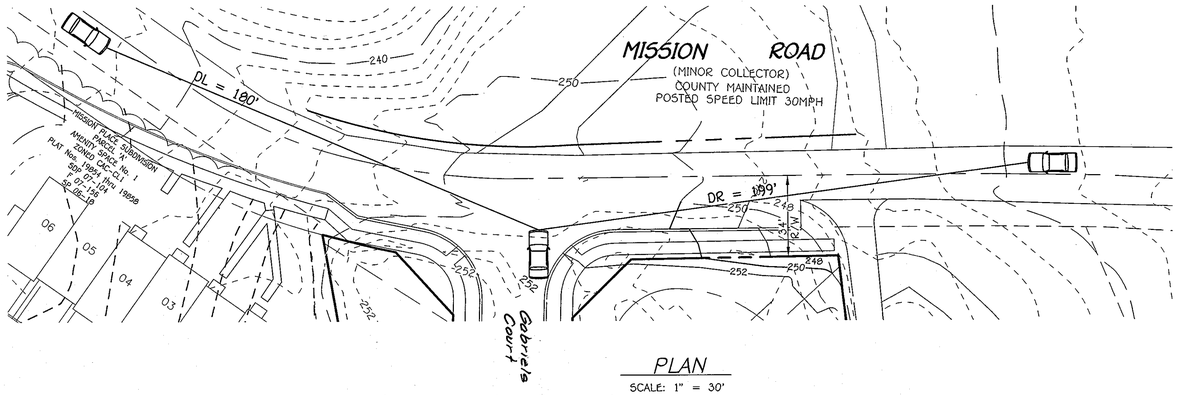
FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042
(410) 461 - 2855

"Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 13204, Expiration Date: November 3, 2010."

STATE OF MARYLAND — CHARLES J. CROVO SR. — 13204 — REGISTERED PROFESSIONAL ENGINEER

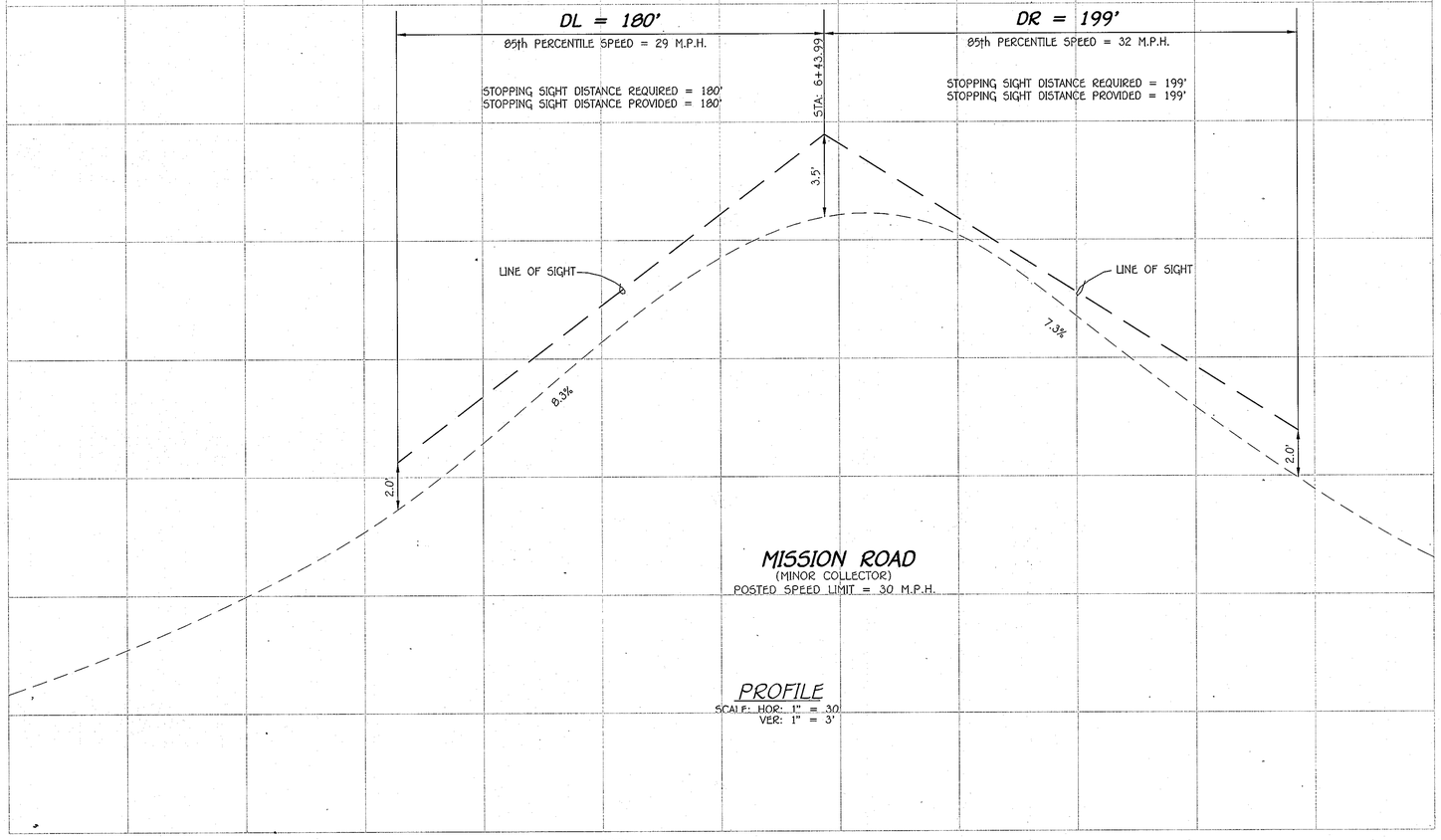
CHARLES J. CROVO, SR., P.E. — 12/3/09 DATE

I:\2006\06096\dwg\FINAL\06096-3001 SHEET 5 TRAFFIC CONTROL.dwg, 1:1



PLAN

SCALE: 1" = 30'



MISSION ROAD
(MINOR COLLECTOR)
POSTED SPEED LIMIT = 30 M.P.H.

PROFILE

SCALE: HOR: 1" = 30
VER: 1" = 3'

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 12-14-09

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 12/22/09

CHIEF, DEVELOPMENT ENGINEERING DIVISION J.P. — DATE 12/18/09

NOTE: The Topography Shown Hereon Is Based On A Field Run Survey by Fisher, Collins & Carter, Inc. With 2 Foot Contour Intervals Performed On Or About April, 2007 And Supplemented With Howard County Aerial Topography At 2 Foot Intervals Dated 2004.

NO.	DESCRIPTION	DATE
2	REVISED TITLE BLOCK	6/9/11
1	CHANGED SUBDIVISION NAME AND ROAD NAME	9/2/10
	REVISIONS	

STOPPING SIGHT DISTANCE PLAN AND PROFILE

GABRIEL'S COURTYARD

LOTS 1-39, 42 THRU 44 (PER F-11-051), OPEN SPACE LOTS 40 AND 41

2 SINGLE FAMILY DETACHED LOTS, 40 SINGLE FAMILY ATTACHED LOTS & 2 OPEN SPACE LOTS
ZONED: R-SC
TAX MAP No. 43 GRID No. 14 PARCEL Nos. 570 & 272
SIXTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
SCALE: AS SHOWN DATE: NOVEMBER 18, 2009
SHEET 6 OF 24

F 09-047

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042
(410) 461 - 2855

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STATE OF MARYLAND — CHARLES J. CROVO, SR. — No. 13204 — PROFESSIONAL ENGINEER

CHARLES J. CROVO, SR., P.E. — DATE 12/3/09

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PARCEL 272
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3675 PARK AVENUE SUITE 301
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DEVELOPER

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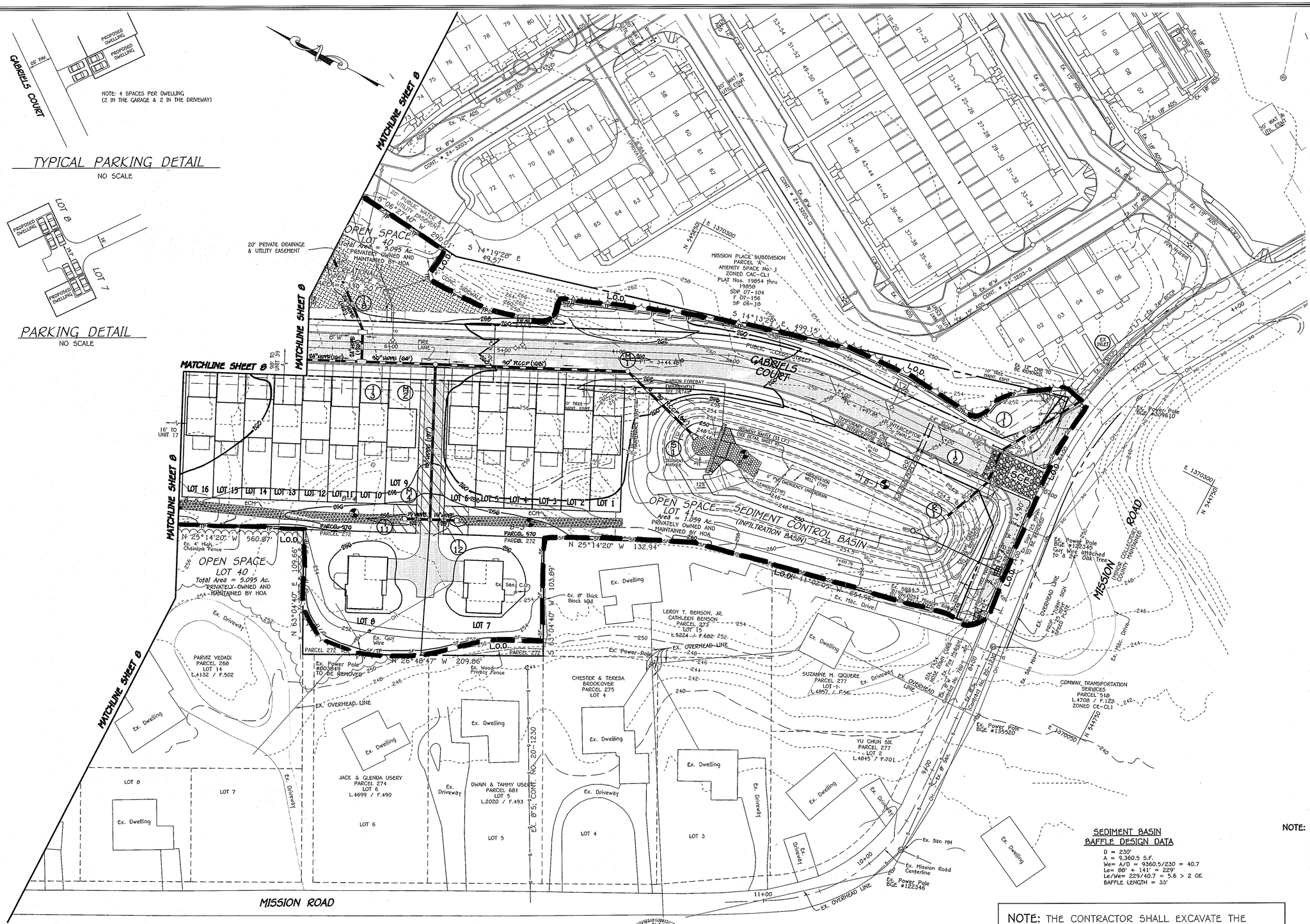
(410) 796-2480

I:\2006\06096\dwg\FINAL\06096-3001 SHEET 6 SIGHT DISTANCE PLAN.dwg, 1:1



PLAN
SCALE: 1" = 40'

SEE SHEETS 9 & 19 FOR SEQUENCE OF CONSTRUCTION FOR PROVIDING FOREST PROTECTION MEASURES AND ADEQUATE SEDIMENT CONTROL MEASURES TO PREVENT OFF-SITE DAMAGE

NOTE: THE CONTRACTOR SHALL EXCAVATE THE BOTTOM OF THE SEDIMENT CONTROL BASIN TO ELEVATION 246.0

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 4-13-2011

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 4-12-11

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 4/15/11

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."

Signature Of Developer — Date 3/18/11

MICHAEL PFAU
Printed Name Of Developer

By The Engineer:

"I Certify That This Plan For Pond Construction, Erosion And Sediment Control Represents A Practical And Workable Plan Based On My Personal Knowledge Of The Site Conditions. This Plan Was Prepared In Accordance With The Requirements Of The Howard Soil Conservation District. I Have Notified The Developer That He/She Must Engage A Registered Professional Engineer To Supervise Pond Construction And Provide The Howard Soil Conservation District With An "As-Built" Plan Of The Pond Within 30 Days Of Completion."

Signature Of Engineer — Date 3/18/11

CHARLES J. CROVO SR.
Printed Name Of Engineer

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 3/31/11

AS-BUILT CERTIFICATION

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

Signature — P.E. No. — Date:

Certify Means To State Or Declare A Professional Opinion Based Upon Onsite Inspections And Material Tests Which Are Conducted During Construction. The Onsite Inspections And Material Tests Are Those Inspections And Tests Deemed Sufficient And Appropriate Commonly Accepted Engineering Standards. Certify Does Not mean Or Imply A Guarantee By The Engineer Nor Does An Engineer's Certification Relieve Any Other Party From Meeting Requirements Imposed By Contract, Employment, Or Other Means, Including Meeting Commonly Accepted Industry Practices.

NOTE: THE PURPOSE OF THIS PLAN IS TO REVISE THE ROAD GRADE ALONG WITH GRADING AND STORM DRAIN PROFILES ASSOCIATED WITH THE REVISED ROAD GRADE.

LEGEND

SYMBOL	DESCRIPTION
--250---	EXISTING CONTOUR 2' INTERVAL
—260—	EXISTING CONTOUR 10' INTERVAL
—258—	PROPOSED CONTOUR 2' INTERVAL
—260—	PROPOSED CONTOUR 10' INTERVAL
+261.50	SPOT ELEVATION
-SF- SF	SILT FENCE
-SSF- SSF	SUPER SILT FENCE
FF	FIRST FLOOR ELEVATION
BE	BASEMENT ELEVATION
L.O.D.	LIMIT OF DISTURBANCE
	EROSION CONTROL MATTING
	RECREATIONAL OPEN SPACE
	SLOPES (15% TO 24.9%)
	EXISTING TREELINE
	PROPOSED TREELINE
☼	EXISTING STREET LIGHT
✡	100 WATT 'PREMIER' STREET LIGHT
✸	150 WATT 'PREMIER' STREET LIGHT
❄	150 WATT 'MAPLE LAWN ACORN' STREET LIGHT

NOTE: 1. THE CONTRACTOR SHALL INSPECT THE ENTIRE OPEN SPACE AREA OUTSIDE THE L.O.D. AND STABILIZE ALL EXISTING BARE-EARTH AREAS WITH TOPSOIL, SEED AND MULCH.

2. THE CONTRACTOR SHALL REMOVE ANY JUNK, TRASH, DEBRIS STRUCTURES, FENCING FROM ALL EASEMENTS AND OPEN SPACE LOTS.

3. THE DEVELOPER IS RESPONSIBLE TO KEEP THESE AREAS CLEAN OF DEBRIS AND ENCROACHMENT FOR THE ENTIRE 2 YEAR MANTENANCE PERIOD.

REVISED FINAL ROAD CONSTRUCTION PLAN
GRADING AND SEDIMENT & EROSION CONTROL PLAN
GABRIEL'S COURTYARD
LOTS 1-39, 42 THRU 44 (PER F-11-051), OPEN SPACE LOTS 40 AND 41

2 SINGLE FAMILY DETACHED LOTS, 40 SINGLE FAMILY ATTACHED LOTS & 2 OPEN SPACE LOTS
ZONED: R-SC
TAX MAP No. 43 GRID No. 14 PARCEL Nos. 570 & 272
SIXTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
SCALE:1" = 40' DATE: MARCH 17, 2011
SHEET 7 OF 24

F 09-047

OWNERS

PARCEL 570
MR. GEORGE A. PARROTT
6421 LOUDON AVENUE
ELKRIDGE, MARYLAND 21075
(410) 796-2480

PARCEL 272
MICHAEL L. & MARY T. PFAU
3675 PARK AVENUE SUITE 301
ELLICOTT CITY, MARYLAND 21043-4511
(410) 480-0023

DEVELOPER

MR. GEORGE A. PARROTT
6421 LOUDON AVENUE
ELKRIDGE, MARYLAND 21075
(410) 796-2480

DATE	REVISIONS
12/20/10	RAISED PROPOSED ROAD; REVISED LOT LINES;
	CHANGED SUBDIVISION AND ROAD NAMES.
01/31/11	REVISED GRADING AND ACCESS ROAD TO SWM.
6/7/11	REVISED STORM DRAINS AND TITLE BLOCK

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042
(410) 461 - 2855

"Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 13204, Expiration Date: November 3, 2012."

STATE OF MARYLAND — CHARLES J. CROVO SR. — 13204 — PROFESSIONAL ENGINEER

CHARLES J. CROVO, SR., P.E. — DATE 3/18/11

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APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 4-13-2011

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 4-18-11

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 4/15/11

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."

Signature Of Developer — Date 3/18/11

MICHAEL PFAU
Printed Name Of Developer

By The Engineer:

"I Certify That This Plan For Pond Construction, Erosion And Sediment Control Represents A Practical And Workable Plan Based On My Personal Knowledge Of The Site Conditions. This Plan Was Prepared In Accordance With The Requirements Of The Howard Soil Conservation District. I Have Notified The Developer That He/She Must Engage A Registered Professional Engineer To Supervise Pond Construction And Provide The Howard Soil Conservation District With An "As-Built" Plan Of The Pond Within 30 Days Of Completion."

Signature Of Engineer — Date 3/18/11

CHARLES J. CROVO SR.
Printed Name Of Engineer

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 3/31/11

AS-BUILT CERTIFICATION

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

Signature — P.E. No.

Date:

Certify Means To State Or Declare A Professional Opinion Based Upon Onsite Inspections And Material Tests Which Are Conducted During Construction. The Onsite Inspections And Material Tests Are Those Inspections And Tests Deemed Sufficient And Appropriate Commonly Accepted Engineering Standards. Certify Does Not mean Or Imply A Guarantee By The Engineer Nor Does An Engineer's Certification Relieve Any Other Party From Meeting Requirements Imposed By Contract, Employment, Or Other Means, Including Meeting Commonly Accepted Industry Practices.

NOTE: THE PURPOSE OF THIS PLAN IS TO REVISE THE ROAD GRADE ALONG WITH GRADING AND STORM DRAIN PROFILES ASSOCIATED WITH THE REVISED ROAD GRADE.

LEGEND

SYMBOL	DESCRIPTION
--258---	EXISTING CONTOUR 2' INTERVAL
—260—	EXISTING CONTOUR 10' INTERVAL
—258—	PROPOSED CONTOUR 2' INTERVAL
—260—	PROPOSED CONTOUR 10' INTERVAL
+261.50	SPOT ELEVATION
-SF- SF-	SILT FENCE
-SSF- SSF-	SUPER SILT FENCE
FF	FIRST FLOOR ELEVATION
BE	BASEMENT ELEVATION
L.O.D.	LIMIT OF DISTURBANCE
	EROSION CONTROL MATTING
	RECREATIONAL OPEN SPACE
	SLOPES (15% TO 24.9%)
	EXISTING TREELINE
	PROPOSED TREELINE
☼	EXISTING STREET LIGHT
✡	100 WATT 'PREMIER' STREET LIGHT
✱	150 WATT 'PREMIER' STREET LIGHT
❊	150 WATT 'MAPLE LAWN ACORN' STREET LIGHT

NOTE:
1. THE CONTRACTOR SHALL INSPECT THE ENTIRE OPEN SPACE AREA OUTSIDE THE L.O.D. AND STABILIZE ALL EXISTING BARE-EARTH AREAS WITH TOPSOIL, SEED AND MULCH.
2. THE CONTRACTOR SHALL REMOVE ANY JUNK, TRASH, DEBRIS STRUCTURES, FENCING FROM ALL EASEMENTS AND OPEN SPACE LOTS.
3. THE DEVELOPER IS RESPONSIBLE TO KEEP THESE AREAS CLEAN OF DEBRIS AND ENCROACHMENT FOR THE ENTIRE 2 YEAR MANTENANCE PERIOD.

SEE SHEETS 9 & 19 FOR SEQUENCE OF CONSTRUCTION FOR PROVIDING FOREST PROTECTION MEASURES AND ADEQUATE SEDIMENT CONTROL MEASURES TO PREVENT OFF-SITE DAMAGE

DATE	REVISIONS
12/20/10	RAISED PROPOSED ROAD; REVISED LOT LINES;
	CHANGED SUBDIVISION AND ROAD NAMES.
01/31/11	REVISED GRADING.
6/7/11	REVISED STORM DRAINS AND TITLE BLOCK.

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042
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STATE OF MARYLAND — CHARLES J. CROVO, SR. — No. 13204 — REGISTERED PROFESSIONAL ENGINEER

CHARLES J. CROVO, SR., P.E. — DATE 3/18/11

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REVISED FINAL ROAD CONSTRUCTION PLAN
GRADING AND SEDIMENT & EROSION CONTROL PLAN
GABRIEL'S COURTYARD
LOTS 1-39, 42 THRU 44 (PER F-11-051), OPEN SPACE LOTS 40 AND 41

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SIXTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
SCALE: 1" = 40' DATE: MARCH 17, 2011
SHEET 8 OF 24

F 09-047

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STANDARDS AND SPECIFICATIONS FOR TOPSOIL

Definition

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

Purpose

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

Conditions Where Practice Applies

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

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

Construction and Material Specifications

I. Topsoil salvaged from the existing site may be used provided that it meets the standards as set forth in these specifications. Typically, the depth of topsoil to be salvaged for a given soil type can be found in the representative soil profile section in the Soil Survey published by USDA-SCS in cooperation with Maryland Agricultural 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 textured subsoils and shall contain less than 5% by volume of cinders, stones, slag, coarse fragments, gravel, sticks, roots, trash, or other materials larger than 11/2" in diameter.
   ii. Topsoil must be free of plants or plant parts such as bermuda grass, quackgrass, 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.

II. 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.

III For sites having disturbed areas over 5 acres:
   i. On soil meeting Topsoil specifications, obtain test results dictating fertilizer and lime amendments required to bring the soil into compliance with the following:
      a. pH for topsoil shall be between 6.0 and 7.5. If the tested soil demonstrates a pH of less than 6.0, sufficient lime shall be prescribed to raise the pH to 6.5 or higher.
      b. Organic content of topsoil shall be not less than 1.5 percent by weight.
      c. Topsoil having soluble salt content greater than 500 parts per million shall not be used.
      d. No sod or seed shall be placed on soil which has been treated with soil sterilants or chemicals used for weed control until sufficient time has elapsed (14 days min.) to permit dissipation of phyto-toxic materials.

   Note: Topsoil substitutes 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 top soiling, 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 top soiled, 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 top soiling 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 shall be used as a soil conditioner for sites having disturbed areas over 5 acres shall be tested to prescribe amendments and for sites having disturbed areas under 5 acres shall conform to the following requirements:
      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: Guideline Specifications, Soil Preparation and Sodding,. MD-VA, Pub. #, Cooperative Extension Service, University of Maryland and Virginia Polytechnic Institutes. Revised 1973.

SEQUENCE OF CONSTRUCTION

1. OBTAIN A GRADING PERMIT. (1 DAY)
2. NOTIFY "MISS UTILITY" AT LEAST 48 HOURS BEFORE BEGINNING ANY WORK AT 1-800-257-7777. NOTIFY THE HOWARD COUNTY OFFICE OF CONSTRUCTION/INSPECTION AT 410-313-1330 24 HOURS BEFORE STARTING WORK.
3. CLEAR AND GRUB FOR SEDIMENT CONTROL MEASURES ONLY. INSTALL STABILIZED CONSTRUCTION ENTRANCE AND TREE PROTECTION FENCES. (2 WEEKS)
4. INSTALL REMAINING SEDIMENT CONTROL MEASURES, BASIN/POND*, EARTH DIKE, AND SILT FENCE AS INDICATED ON THE PLANS. NO BLASTING WILL BE PERMITTED FOR THE EXCAVATION OF THE PROPOSED POND. WHERE NECESSARY, RIPPING AND JACK HAMMERING SHOULD BE UTILIZED IN THE EXCAVATION OF EACH FACILITY. (2 WEEKS)
5. OBTAIN PERMISSION OF THE SEDIMENT CONTROL INSPECTOR PRIOR TO PROCEED. (1 DAY)
6. CLEAR AND GRUB FOR THE REMAINDER OF SITE. (1 WEEK)
7. GRADE SITE TO PROPOSED SUBGRADE AND INSTALL REMAINING STORM SYSTEM. STABILIZE ALL ROADWAY SLOPES IMMEDIATELY UPON COMPLETION OF GRADING AS SHOWN ON THESE PLANS. (4 WEEKS)
8. INSTALL BASE COURSE FOR THE PROPOSED ROADS. (1 WEEK)
9. STABILIZE ALL DISTURBED AREAS AND OBTAIN PERMISSION FROM THE SEDIMENT CONTROL INSPECTORS TO PROCEED.
   (a) THE CONTRACTOR SHALL INSPECT THE ENTIRE OPEN SPACE AREA OUTSIDE THE L.O.D. AND STABILIZE ALL EXISTING BARE-EARTH AREAS WITH TOPSOIL, SEED AND MULCH.
   (b) THE CONTRACTOR SHALL REMOVE ANY JUNK, TRASH, DEBRIS, STRUCTURES, FENCING FROM ALL EASEMENTS AND OPEN SPACE LOTS.
10. APPLY TACK COAT TO SUB-BASE AND LAY SURFACE COURSE. (1 WEEK)
11. INSTALL SIDEWALKS AND DRIVEWAY APRONS. (2 WEEKS)
12. INSTALL LANDSCAPING. (1 WEEK)
13. UPON COMPLETION, CONTRACTOR SHALL CONVERT SEDIMENT BASIN TO PERMANENT STORMWATER MANAGEMENT FACILITY WITH PERMISSION FROM INSPECTOR:
   (a) FLUSH STORM DRAIN SYSTEM. (2 DAYS)
   (b) REMOVE TEMPORARY STORM DRAIN DIVERSION AND COMPLETE STORM CONNECTION; (2 DAYS)
   (c) REMOVE SEDIMENT TO AN APPROVED FILTER DEVICE; (2 DAYS)
   (d) INSTALL FOREBAY AND SAND FILTER. (1 WEEK)
   (e) CONVERT CONTROL STRUCTURE TO PERMANENT: DEWATERING DEVICE, ORIFICE PLATE, ETC. (1 WEEK)
   (f) STABILIZE ALL REMAINING AREAS IN ACCORDANCE WITH PERMANENT SEEDING NOTES. (2 WEEKS)
14. NOTIFY HOWARD COUNTY OFFICE OF INSPECTIONS AND PERMITS FOR A FINAL INSPECTION OF THE COMPLETED PROJECT. (1 DAY)
15. PREPARE FINAL POND "AS-BUILTS" FOR APPROVAL BY SOIL CONSERVATION DISTRICT. (3 DAYS)

NOTE: THE CONTRACTOR SHALL INSPECT AND PROVIDE NECESSARY MAINTENANCE ON ALL SEDIMENT AND EROSION CONTROL STRUCTURES SHOWN HEREON AFTER EACH RAINFALL AND ON A DAILY BASIS. REMOVE SEDIMENTS FROM ALL TRAPS WHEN CLEAN OUT ELEVATIONS ARE REACHED. ALL SEDIMENTS MUST BE PLACED UPSTREAM OF AN APPROVED TRAP

***NOTE: THE CONTRACTOR SHALL EXCAVATE THE BOTTOM OF THE SEDIMENT CONTROL BASIN TO ELEVATION 246.0.**

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20.0 STANDARDS AND SPECIFICATIONS FOR VEGETATIVE STABILIZATION

DEFINITION

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

PURPOSE

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

CONDITIONS WHERE PRACTICE APPLIES

This practice shall be used on denuded areas as specified on the plans and may be used on highly erodible or critically eroding areas. This specification is divided into Temporary Seeding, to quickly establish vegetative cover for short duration (1 up to one year), and Permanent Seeding, for long term vegetative cover. Examples of applicable areas for Temporary Seeding are temporary Soil Stockpiles, cleared areas being left idle between construction phases, earth dikes, etc. and for Permanent Seeding are lawns, dams, cut and fill slopes and other areas at final grade, former stockpile and staging areas, etc.

EFFECTS ON WATER QUALITY AND QUANTITY

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

SECTION 1 – VEGETATIVE STABILIZATION METHODS AND MATERIALS

A. Site Preparation
   i. Install erosion and sediment control structures (either temporary of permanent) such as diversions, grade stabilization structures, berms, waterways, or sediment control basins.
   ii. Perform all grading operations at right angles to the slope. Final grading and shaping is not usually necessary for temporary seeding.
   iii. Schedule required soil tests to determine soil amendment composition and application rates for sites having disturbed area over 5 acres.

B. Soil Amendments (Fertilizer and Lime Specifications)
   i. Soil tests must be performed to determine the exact ratios and application rates for both lime and fertilizer on sites having disturbed areas over 5 acres. Soil analysis may be performed by the University of Maryland or a recognized commercial laboratory. Soil samples taken for engineering purposes may also be used for chemical analyses.
   ii. Fertilizers shall be uniform in composition, free flowing and suitable for accurate application by approved equipment. Manure may be substituted for fertilizer with prior approval from the appropriate approval authority. Fertilizers shall all be delivered to the site fully labeled according to the applicable state fertilizer laws and shall bear the name, trade name or trademark and warrantee of the producer.
   iii. Lime materials shall be ground limestone (hydrated or burnt lime may be substituted) which contains at least 50% total oxides (calcium oxide plus magnesium oxide). Limestone shall be ground to such fineness that at least 50% will pass through a #100 mesh sieve and 90–100% will pass through a #20 mesh sieve.
   iv. Incorporate lime and fertilizer into the top 3–5" of soil by disking or other suitable means.

C. Seedbed Preparation
   i. Temporary Seeding
      a. Seedbed preparation shall consist of loosening soil to a depth of 3" to 5" by means of suitable agricultural or construction equipment, such as disc harrows or chisel plows or rippers mounted on construction equipment. After the soil is loosened it should not be rolled or dragged smooth, but left in the roughened condition. Sloped areas (greater than 3:1) should be tracked leaving the surface in an irregular condition with ridges running parallel to the contour of the slope.
      b. Apply fertilizer and lime as prescribed on the plans.
      c. Incorporate lime and fertilizer into the top 3–5" of soil by disking or other suitable means.
   ii. Permanent Seeding
      a. Minimum soil conditions required for permanent vegetative establishment:
         1. Soil pH shall be between 6.0 and 7.0.
         2. Soluble salts shall be less than 500 parts per million (ppm).
         3. The soil shall contain less than 40% clay, but enough fine grained material (>30% silt plus clay) to provide the capacity to hold a moderate amount of moisture. An exception is if lovegrass or sericeà lespedezas is to be planted, then a sandy soil (<30% silt plus clay) would be acceptable.
         4. Soil shall contain 1.5% minimum organic matter by weight.
         5. Soil must contain sufficient pore space to permit adequate root penetration.
         6. If these conditions cannot be met by soils on site, adding topsoil is required in accordance with Section 21 Standard and Specification for Topsoil.
      b. Areas to be vegetatively established in conformance with the drawings shall be maintained in a true and even grade, then scarified or otherwise loosened to a depth of 3–5" to permit bonding of the topsoil to the surface area and to create horizontal erosion check slots to prevent topsoil from sliding down a slope.
   c. Apply soil amendments as per soil test or as included on the plans.
   d. Mix soil amendments into the top 3–5" of topsoil by disking or other suitable means. Lawn areas should be raked to smooth the surface, remove large objects like stones and branches, and ready the area for seed and application. Where site conditions will not permit normal seedbed preparation, loosen surface soil by dragging with a heavy chain or other equipment to roughen the surface. Steep slopes (steeper than 3:1) should be tracked by a dozer leaving the soil in an irregular condition with ridges running parallel to the contour of the slope. The top 1–3" of soil should be loose and friable. Seedbed loosening may not be necessary on newly disturbed areas.

D. Seed Specifications
   i. All seed must meet the requirements of the Maryland State Seed Law. All seed shall be subject to re-testing by a recognized seed laboratory, if such seed shall have been tested within the 6 months immediately preceding the date of sowing such material on this job.
   Note: Seed tags shall be made available to the inspector to verify type and rate of seed used.
   ii. Inoculant – The inoculant for treating legume seed in the seed mixtures shall be a pure culture of nitrogen-fixing bacteria prepared specifically for the species. Inoculants shall not be used later than the date indicated on the container. Add fresh inoculant as directed on package. Use four times the recommended rate when hydroseeding. Note: It is very important to keep inoculant as cool as possible until used. Temperatures above 75°–80° F. can weaken bacteria and make the inoculant less effective.

E. Methods of Seeding
   i. Hydroseeding: Apply seed uniformly with hydroseeder (slurry includes seed and fertilizer), broadcast or drop seeded, or a cultipacker seeder.
      a. If fertilizer is being applied at the time of seeding, the application rates amounts will not exceed the following: nitrogen: maximum of 100 lbs. per acre total of soluble nitrogen; P205 (phosphorous): 200 lbs/ac. K20 (potassium): 200 lbs/ac.
      b. Lime – use only ground agricultural limestone, (Up to 3 tons per acre may be applied by hydroseeding). Normally, not more than 2 tons are applied by hydroseeding at any one time. Do not use burnt or hydrated lime when hydroseeding.
      c. Seed and fertilizer shall be mixed on site and seeding shall be done immediately and without interruption.
   ii. Dry Seeding: This includes use of conventional drop or broadcast spreaders.
      a. Seed spread dry shall be incorporated into the subsoil at the rates prescribed on the temporary or permanent Seeding Summaries or Tables 26S or 27S. The seeded area shall then be rolled with a weighted roller to provide good seed to soil contact.
      b. Where practical, seed should be applied in two directions perpendicular to each other. Apply half the seeding rate in each direction.
   iii. Drill or Cultipacker Seeding: Mechanized seeders that apply and cover seed with soil.
      a. Cultipacking seeders are required to bury the seed in such a fashion as to provide at least 1/4 inch of soil covering. Seedbed must be firm after planting.
      b. Where practical, seed should be applied in two directions perpendicular to each other. Apply half the seeding rate in each direction.

F. Mulch Specifications (In order of preference)
   i. Straw shall consist of thoroughly threshed wheat, rye or oat straw, reasonable bright in color, and shall be mostly, molds, caked, decayed, or excessively dusty and shall be free of noxious weed seeds as specified in the Maryland Seed Law.
   ii. Wood Cellulose Fiber Mulch (WCFM)
      a. WCFM shall consist of specially prepared wood cellulose processed into a uniform fibrous physical state.
      b. WCFM shall be dyed green or contain a green dye in the package that will provide an appropriate color to facilitate visual inspection of the uniformly spread slurry.
      c. WCFM including dye, shall contain no germination or growth inhibiting factors.
      d. WCFM materials shall be manufactured and processed in such a manner that the wood cellulose fiber mulch will remain in uniform suspension in water under agitation and will blend with seed, fertilizer and other additives to form a homogeneous slurry. The mulch material shall form a blotter-like ground cover, on application, having moisture absorption and percolation properties and shall cover and hold grass seed in contact with the soil without inhibiting the growth of the grass seedlings.
      e. WCFM material shall contain no elements or compounds at concentrations levels that will be phytol-toxic.
      f. WCFM must conform to the following physical requirements: fiber length to approximately 10 mm. , diameter approximately 1 mm., pH range of 4.0 to 8.5, ash content of 1.6% maximum and water holding capacity of 90% minimum.

   Note: Only sterile straw mulch should be used in areas where one species of grass is desired.

G. Mulching Seeded Areas – Mulch shall be applied to all seeded areas immediately after seeding.
   i. If grading is completed outside of the seeding season, mulch along shall be applied as prescribed in this section and maintained until the seeding season returns and seeding can be performed in accordance with these specifications.
   ii. When straw mulch is used, it shall be spread over all seeded areas at the rate of 2 tons/acre. Mulch shall be applied to a uniform loose depth of between 1" and 2". Mulch applied shall achieve a uniform distribution and depth so that the soil surface is not exposed. If a mulch anchoring tool is to be used, the rate should be increased to 2.5 tons/acre.
   iii. Wood cellulose fiber used as a mulch shall be applied at a net dry weight of 1,500 lbs. per acre. The wood cellulose fiber shall be mixed with water and the mixture shall contain a maximum of 50 lbs. of wood cellulose fiber per 100 gallons of water.

H. Securing Straw Mulch (Mulch Anchoring): Mulch anchoring shall be performed immediately following mulch application to minimize loss by wind or water. This may be done by one of the following methods (listed by preference), depending upon size of area and erosion hazard:
   i. A mulch anchoring tool is a tractor drawn implement designed to punch and anchor mulch into the soil surface a minimum of two (2) inches. This practice is most effective on large areas, but is limited to flatter slopes where equipment can operate safely. If used on sloping land, this practice should be used on the contour if possible.
   ii. Wood cellulose fiber may be used for anchoring straw. The fiber binder shall be applied at a net dry weight of 750 pounds/acre. The wood cellulose fiber shall be mixed with water and the mixture shall contain a maximum of 50 pounds of wood cellulose fiber per 100 gallons of water.
   iii. Application of liquid binders should be heavier at the edges where wind catches mulch, such as in valleys and crest of banks. The remainder of area should be appear uniform after binder application. Synthetic binders – such as Acrylic DLR (Agro-Tack), DCA-70 Petroset, Terra Tax II, Terra Tack AR or other approved equal may be used at rates recommended by the manufacturer to anchor mulch.
   iv. Lightweight plastic netting may be stapled over the mulch according to manufacturer's recommendations. Netting is usually available in rolls 4' to 15' feet wide and 300 to 3,000 feet long.

I Incremental Stabilization – Cut Slopes
   i. All cuts slopes shall be dressed, prepared, seeded and mulched as the work progresses. Slopes shall be excavated and stabilized in equal increments not to exceed 15'.
   ii. Construction sequence (Refer to Figure 3 below):
      a. Excavate and stabilize all temporary swales, side ditches, or berms that will be used to convey runoff from the excavation.
      b. Perform Phase 1 excavation, dress, and stabilize.
      c. Perform Phase 2 excavation, dress and stabilize. Overseed Phase 1 areas as necessary.
      d. Perform final phase excavation, dress and stabilize. Overseed previously seeded areas as necessary.

Note: Once excavation has begun the operation should be continuous from grubbing through the completion of grading and placement of topsoil (if required) and permanent seed and mulch. Any interruptions in the operation of completing the operation out of the seeding season will necessitate the application of temporary stabilization.

J. Incremental Stabilization of Embankments – Fill Slopes
   i. Embankments shall be constructed in lifts as prescribed on the plans.
   ii. Slopes shall be stabilized immediately when the vertical height of the multiple lifts reaches 10', or when the grading operation ceases as prescribed in the plans.
   iii. At the end of each day, temporary berms and pipe slope drains should be constructed along the top edge of the embankment to intercept surface runoff and convey it down the slope in a non-erosive manner to a sediment trapping device.
   iv. Construction sequence: Refer to Figure 4 (below).
      a. Excavate and stabilize all temporary swales, side ditches, or berms that will be used to divert runoff around the fill. Construct slope silt fence on low side of fill as shown in Figure 5, unless other methods shown on the plans address this area.
      b. Place Phase 1 embankment, dress and stabilize.
      c. Place Phase 2 embankment, dress and stabilize.
      d. Place final phase embankment, dress and stabilize. Overseed previously seeded areas as necessary.

Note: Once the placement of fill has begun the operation should be continuous from grubbing through the completion of grading and placement of topsoil (if required) and permanent seed and mulch. Any interruptions in the operation or completing the operation out of the seeding season will necessitate the application of temporary stabilization.

SECTION 2 – TEMPORARY SEEDING

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

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

Seed Mixture (Hardiness Zone 6b From Table 26)					Fertilizer Rate (10-10-10)	Lime Rate
No.	Species	Application Rate (lb/ac)	Seeding Dates	Seeding Depths		
1	BARLEY	122	3/1 – 5/15, 8/15 – 10/15	1" – 2"	600 lb/ac (15 lb/1000sf)	2 tons/ac (100 lb/1000sf)
	OATS	96		1" – 2"		
	RYE	140		1" – 2"		

SECTION 3 – PERMANENT SEEDING

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

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

Seed Mixture (Hardiness Zone 6b From Table 25					Fertilizer Rate (10-20-20)			Lime Rate
No.	Species	Application Rate (lb/ac)	Seeding Dates	Seeding Depths	N	P205	K20	
3	TALL FESCUE (95%)	125	3/1 – 5/15, 8/15 – 10/15	1" – 2"	90 lb/ac (2.0 lb/ 1000sf)	175 lb/ac (4 lb/ 1000sf)	175 lb/ac (4 lb/ 1000sf)	2 tons/ac (100 lb/ 1000sf)
	PERENNIAL RYE GRASS (10%)	15						
	KENTUCKY BLUEGRASS (5%)	10						
10	TALL FESCUE (80%)	120	3/1 – 5/15, 8/15 – 10/15	1" – 2"				
	HARD FESCUE (20%)	30						

SEDIMENT CONTROL NOTES

1) A MINIMUM OF 48 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY DEPARTMENT OF INSPECTIONS, LICENSES AND PERMITS, SEDIMENT CONTROL DIVISION PRIOR TO THE START OF ANY CONSTRUCTION (313–1855).
2) ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE MOST CURRENT MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL AND REVISIONS THERETO.
3) FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN: a) 7 CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DIKES, PERIMETER SLOPES AND ALL SLOPES STEEPER THAN 3:1, b) 14 DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.
4) ALL SEDIMENT TRAPS/BASINS SHOWN MUST BE FENCED AND WARNING SIGNS POSTED AROUND THEIR PERIMETER.IN ACCORDANCE WITH VOL. 1, CHAPTER 12, OF THE HOWARD COUNTY DESIGN MANUAL, STORM DRAINAGE.
5) ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR PERMANENT SEEDING, (SEC. 51), SOD (SEC. 54), TEMPORARY SEEDING (SEC. 50), AND MULCHING (SEC. 52). TEMPORARY STABILIZATION WITH MULCH ALONE CAN ONLY BE DONE WHEN RECOMMENDED SEEDING DATES DO NOT ALLOW FOR PROPER GERMINATION AND ESTABLISHMENT OF GRASSES.
6) ALL SEDIMENT CONTROL STRUCTURES ARE TO REMAIN IN PLACE AND ARE TO BE MAINTAINED IN OPERATIVE CONDITION UNTIL PERMISSION FOR THEIR REMOVAL HAS BEEN OBTAINED FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
7) SITE ANALYSIS:

TOTAL AREA OF SITE	13.504 ACRES
AREA DISTURBED	11.23 ACRES
AREA TO BE ROOFED OR PAVED	1.08 ACRES
AREA TO BE VEGETATIVELY STABILIZED	10.15 ACRES
TOTAL CUT	10,000 CU.YDS.
TOTAL FILL	10,000 CU.YDS.
OFFSITE WASTE/BORROW AREA LOCATION	N/A

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

OWNERS

PARCEL 570
MR. GEORGE A. PARROTT
6421 LOUDON AVENUE
ELKRIDGE, MARYLAND 21075
(410) 796-2480

PARCEL 272
MICHAEL L. & MARY T. PFAU
3675 PARK AVENUE SUITE 301
ELLICOTT CITY, MARYLAND 21043-4511
(410) 480-0023

DEVELOPER

MR. GEORGE A. PARROTT
6421 LOUDON AVENUE
ELKRIDGE, MARYLAND 21075
(410) 796-2480

"Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 13204, Expiration Date: November 3, 2010."

STATE OF MARYLAND — CHARLES JOSEPH CERVO — No. 13204 — REGISTERED PROFESSIONAL ENGINEER

CHARLES J. CERVO, SR., P.E. — 12/3/09 DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — 12-14-09 DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — 12/22/09 DATE

CHIEF, DEVELOPMENT ENGINEERING DIVISION — 12/18/09 DATE

ENGINEER'S CERTIFICATE

I Hereby Certify That This Plan For Erosion And Sediment Control Represents A Practical And Workable Plan Based On My Personal Knowledge Of The Site Condition And That It Was Prepared In Accordance With The Requirements Of The Howard Soil Conservation District.

Signature Of Engineer — 12/3/09 Date

DEVELOPER'S CERTIFICATE

"I/We Certify That All Development And Construction Will Be Done According To This Plan Of Development And Plan For Erosion And Sediment Control And That All Responsible Personnel Involved In The Construction Project Will Have A Certificate Of Attendance At A Department Of Natural Resources Approved Training Program For The Control Of Sediment And Erosion Before Beginning The Project. I Also Authorize Periodic On-Site Inspection By The Howard Soil Conservation District Or Their Authorized Agents As Are Deemed Necessary."

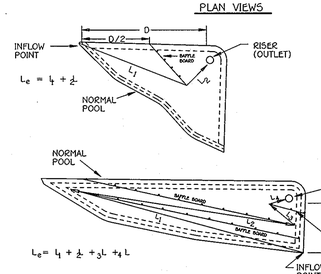
Signature Of Developer — 12/3/09 Date

Approved: This Development Is Approved For Erosion And Sediment Control By The Howard Soil Conservation District.

District Howard Soil Conservation Dist. — 12/9/09 Date

SEDIMENT BASIN BAFFLES

PLAN VIEWS



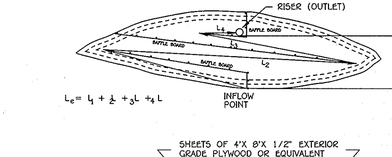
D = DISTANCE BETWEEN INFLOW AND OUTFLOW

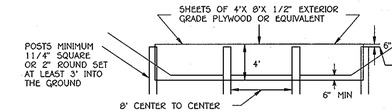
A = AREA OF NORMAL POOL

W_e = EFFECTIVE WIDTH = A/D

L_e = TOTAL DISTANCE FROM THE INFLOW POINT AROUND THE BAFFLES TO THE RISER

FORMULA: $\frac{L_e}{W_e} \geq 2$





BAFFLE DETAIL

Sequence of Construction for Forest Conservation

The following timetable represents the proposed timetable for development. The items outlined in the Forest Conservation Plan will be enacted within two (2) years of subdivision approval.

1. Install all signage and sediment control devices.
2. Hold pre-construction meeting between developer, contractor and County inspector.
3. Begin multiflora rose removal. Install permanent protective signage for Easements and initiate plantings in accordance with Forest Conservation Plan. Plantings will be completed within two (2) years of subdivision approval.
4. Remove sediment control measures.
5. Hold post-construction meeting with County inspector to assure compliance with FCP. Submit Certification of Installation.
6. Monitor and maintain plantings for 2 years.

2	REVISED TITLE BLOCK	6/7/11
1	CHANGED SUBDIVISION NAME AND ROAD NAME	9/2/10
NO.	DESCRIPTION	DATE
REVISIONS		

SEDIMENT AND EROSION CONTROL NOTES AND DETAIL

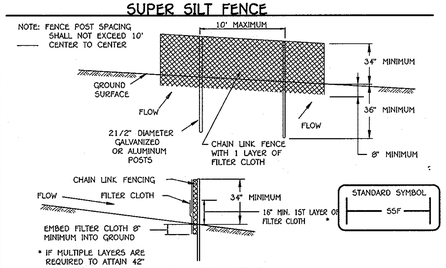
GABRIEL'S COURTYARD

LOTS 1-39, A2 THRU A4 (PER F-11-051), OPEN SPACE LOTS 40 AND 41

2 SINGLE FAMILY DETACHED LOTS, 40 SINGLE FAMILY ATTACHED LOTS & 2 OPEN SPACE LOTS
ZONED: R-SC
TAX MAP No. 43 GRID No. 14 PARCEL Nos. 570 & 272
SIXTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
SCALE: AS SHOWN DATE: NOVEMBER 18, 2009
SHEET 9 OF 24

F 09-047

SUPER SILT FENCE

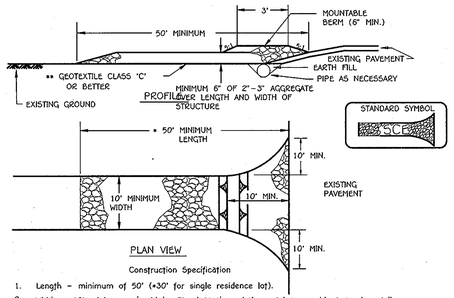


Construction Specifications

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:

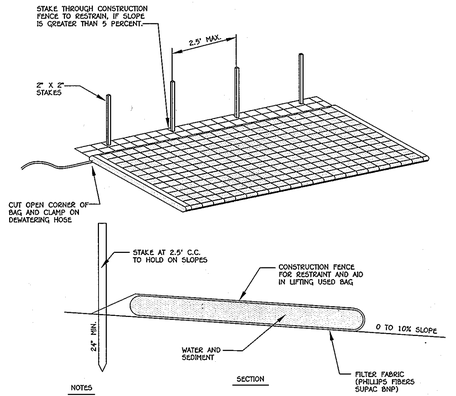
Tensile Strength	50 lbs/in (min.)	Test: MSMT 509
Tensile Modulus	20 lbs/in (min.)	Test: MSMT 509
Flow Rate	0.3 gal/ft /minute (max.)	Test: MSMT 322
Filtering Efficiency	75% (min.)	Test: MSMT 322

STABILIZED CONSTRUCTION ENTRANCE



Construction Specification

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



NOTES

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

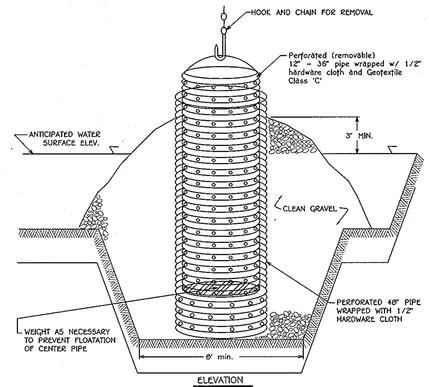
AVAILABLE FROM:

INDIAN VALLEY INDUSTRIES, INC. P.O. BOX 810 JOHNSON CITY, NEW YORK 13790 (800) 659-5111	OR	A.C.F. ENVIRONMENTAL 1801-A WILLIS ROAD RICHMOND, VIRGINIA 23237 TOLL FREE 1-800-448-3636	OR	PRICE AND COMPANY, INC. 425 36TH STREET WYOMING, MI. 49548 (616) 530-8830

FILTER BAG DETAIL

NOT TO SCALE

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.

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 12-14-09

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 12/22/09

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 12/18/09

ENGINEER'S CERTIFICATE

I Hereby Certify That This Plan For Erosion And Sediment Control Represents A Practical And Workable Plan Based On My Personal Knowledge Of The Site Condition And That It Was Prepared In Accordance With The Requirements Of The Howard Soil Conservation District.

Signature Of Engineer — Date 12/2/09

DEVELOPER'S CERTIFICATE

"I/We Certify That All Development And Construction Will Be Done According To This Plan Of Development And Plan For Erosion And Sediment Control And That All Responsible Personnel Involved In The Construction Project Will Have A Certificate Of Attendance At A Department Of Natural Resources Approved Training Program For The Control Of Sediment And Erosion Before Beginning The Project. I Also Authorize Periodic On-Site Inspection By The Howard Soil Conservation District Or Their Authorized Agents As Are Deemed Necessary."

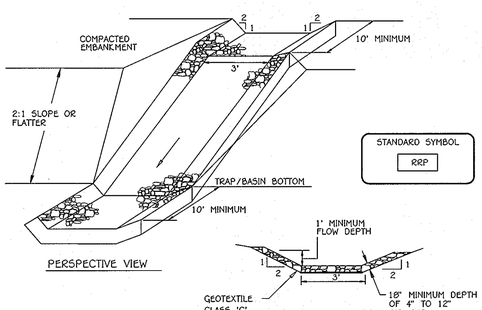
Signature Of Developer — Date 12/3/09

Approved: This Development Is Approved For Erosion And Sediment Control By The Howard Soil Conservation District.

District Howard Soil Conservation Dist. — Date 12/9/09

RIP-RAP INFLOW PROTECTION

NOT TO SCALE

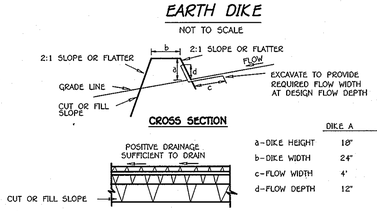


Construction Specifications

1. Rip-rap lined inflow channels shall be 1' in depth, have a trapezoidal cross section with 2:1 or flatter side slopes and 3' (min.) bottom width. The channel shall be lined with 4" to 12" rip- rap to a depth of 18".
2. Filter cloth shall be installed under all rip-rap. Filter cloth shall be Geotextile Class C.
3. Entrance and exit sections shall be installed as shown on the detail section.
4. Rip-rap used for the lining may be recycled for permanent outlet protection if the basin is to be converted to a stormwater management facility.
5. Gabion Inflow Protection may be used in lieu of Rip-rap Inflow Protection.
6. Rip-rap should blend into existing ground.
7. Rip-rap Inflow Protection shall be used where the slope is between 4:1 and 10:1, for slopes flatter than 10:1 use Earth Dike or Temporary Swale lining criteria.

EARTH DIKE

NOT TO SCALE



	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.

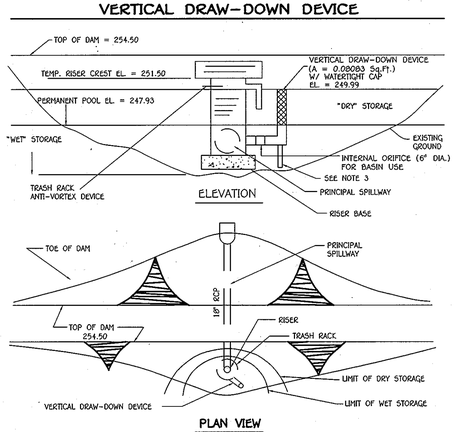
STANDARD SYMBOL A-2 B-3

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

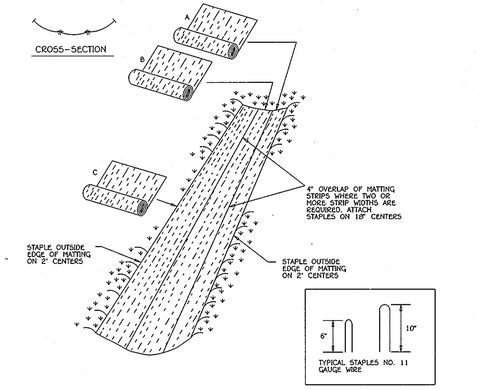
1. All temporary earth dikes shall have uninterrupted positive grade to an outlet. Spot elevations may be necessary for grades less than 1%
2. Runoff diverted from a disturbed area shall be conveyed to a sediment trapping device.
3. Runoff diverted from an undisturbed area shall outlet directly into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

VERTICAL DRAW-DOWN DEVICE



CONSTRUCTION SPECIFICATIONS

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



Construction Specifications

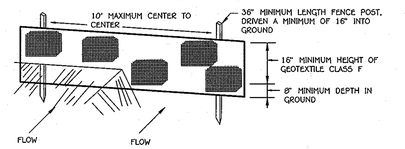
1. Key-in the matting by placing the top ends of the matting in a narrow trench, 6" in depth. Backfill the trench and tamp firmly to conform to the channel cross-section. Secure with a row of staples about 4" down slope from the trench. Spacing between staples is 6".
2. Staple the 4" overlap in the channel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

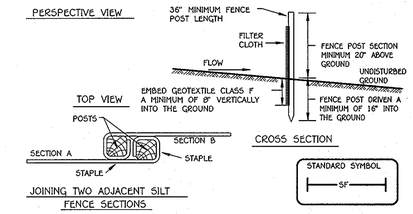
Note: If flow will enter from the edge of the matting then the area effected by the flow must be keyed-in.

EROSION CONTROL MATTING

NOT TO SCALE

SILT FENCE





Construction Specifications

1. Fence posts shall be a minimum of 36" long driven 16" minimum into the ground. Wood posts shall be 11/2" x 11/2" square (minimum) cut, or 13/4" diameter (minimum) round and shall be of sound quality hardwood. Steel posts will be standard T or U section weighting not less than 1.00 pond per linear foot.
2. Geotextile shall be fastened securely to each fence post with wire ties or staples at top and mid-section and shall meet the following requirements for Geotextile Class F:

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

3. Where ends of geotextile fabric come together, they shall be overlapped, folded and stapled to prevent sediment bypass.
4. Silt Fence shall be inspected after each rainfall event and maintained when bulges occur or when sediment accumulation reached 50% of the fabric height.

NO.	DESCRIPTION	DATE
	REVISIONS	
2	REVISED TITLE BLOCK	6/2/11
1	CHANGED SUBDIVISION NAME AND ROAD NAME	9/2/10

SEDIMENT AND EROSION CONTROL DETAILS

GABRIEL'S COURTYARD

LOTS 1-39, A2 THRU A4 (PER F-11-051), OPEN SPACE LOTS 40 AND 41

2 SINGLE FAMILY DETACHED LOTS, 40 SINGLE FAMILY ATTACHED LOTS & 2 OPEN SPACE LOTS
ZONED: R-SC
TAX MAP No. 43 GRID No. 14 PARCEL Nos. 570 & 272
SIXTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
SCALE: AS SHOWN DATE: NOVEMBER 18, 2009
SHEET 10 OF 24

F 09-047

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042
(410) 461 - 2855

"Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 13204, Expiration Date: November 3, 2010."

STATE OF MARYLAND — CHARLES J. CROVO, SR. — NO. 13204 — REGISTERED PROFESSIONAL ENGINEER

CHARLES J. CROVO, SR., P.E. — 12/3/09 DATE

OWNERS

PARCEL 570
MR. GEORGE A. PARROTT
6421 LOUDON AVENUE
ELKRIDGE, MARYLAND 21075
(410) 796-2480

PARCEL 272
MICHAEL L. & MARY T. PFAU
3675 PARK AVENUE SUITE 301
ELLICOTT CITY, MARYLAND 21043-4511
(410) 480-0023

DEVELOPER

MR. GEORGE A. PARROTT
6421 LOUDON AVENUE
ELKRIDGE, MARYLAND 21075
(410) 796-2480

I:\2006\06096\dwg\FINAL\06096-3001 SHEET 9-10 SED CONT DETAILS.dwg, 1:1

SOILS LEGEND		
SOIL		CLASS
**BeC2	Beltsville silt loam, 5 to 10 percent slopes, moderately eroded	C
* Gp	Gravel pits and quarries	A
Md	Made land	Md
SfC2	Sassafras gravelly sandy loam, 5 to 10 percent slopes, moderately eroded	B
SfD2	Sassafras gravelly sandy loam, 10 to 15 percent slopes, moderately eroded	B
SlC2	Sassafras loam, 5 to 10 percent slopes, moderately eroded	B
SlD2	Sassafras loam, 10 to 15 percent slopes, moderately eroded	B
SsE	Sassafras soils, 15 to 40 percent slopes	B

NOTES:

* Hydric soils and/or contains hydric inclusions

** May contain hydric inclusions

† Generally only within 100-year floodplain areas

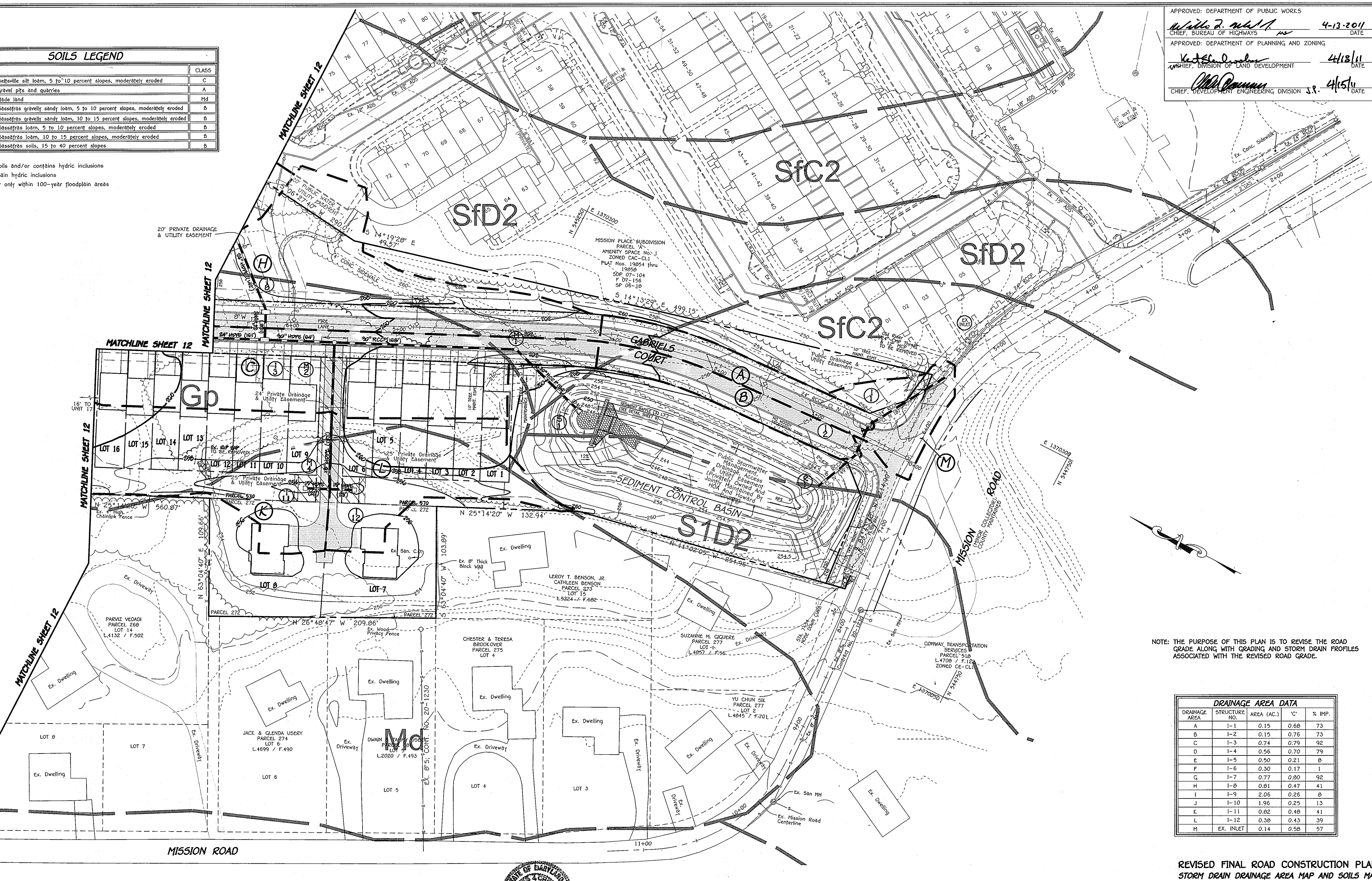
APPROVED: DEPARTMENT OF PUBLIC WORKS

[illegible] 4-13-2011
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

[illegible] 4/18/11
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

[illegible] J.P. 4/15/11
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE



PLAN

SCALE: 1" = 40'

NOTE: THE PURPOSE OF THIS PLAN IS TO REVISE THE ROAD GRADE ALONG WITH GRADING AND STORM DRAIN FROFILES ASSOCIATED WITH THE REVISED ROAD GRADE.

DRAINAGE AREA DATA				
DRAINAGE AREA	STRUCTURE NO.	AREA (AC.)	'C'	% IMP.
A	I-1	0.15	0.68	73
B	I-2	0.15	0.76	73
C	I-3	0.74	0.79	92
D	I-4	0.56	0.70	79
E	I-5	0.50	0.21	8
F	I-6	0.30	0.17	1
G	I-7	0.77	0.80	92
H	I-8	0.81	0.47	41
I	I-9	2.06	0.26	8
J	I-10	1.96	0.25	13
K	I-11	0.82	0.48	41
L	I-12	0.38	0.43	39
M	EX. INLET	0.14	0.58	57

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
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ELLICOTT CITY, MARYLAND 21042
(410) 461 - 2855

DATE	REVISIONS
12/20/10	RAISED PROPOSED ROAD; REVISED LOT LINES;
	CHANGED SUBDIVISION AND ROAD NAMES.
01/31/11	REVISED GRADING AND ACCESS ROAD TO SWM.
6/9/11	REVISED STORM DRAINS AND TITLE BLOCK

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STATE OF MARYLAND
CHARLES J. CROVO SR.
No. 13204
PROFESSIONAL ENGINEER

[illegible] 3/8/11
CHARLES J. CROVO, SR., P.E. DATE

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REVISED FINAL ROAD CONSTRUCTION PLAN

STORM DRAIN DRAINAGE AREA MAP AND SOILS MAP

GABRIEL'S COURTYARD

LOTS 1-39, 42 THRU 44 (PER F-11-051), OPEN SPACE LOTS 40 AND 41

2 SINGLE FAMILY DETACHED LOTS, 40 SINGLE FAMILY ATTACHED LOTS & 2 OPEN SPACE LOTS
ZONED: R-SC
TAX MAP No. 43 GRID No. 14 PARCEL Nos. 570 & 272
SIXTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
SCALE: 1" = 40' DATE: MARCH 17, 2011
SHEET 11 OF 24

F 09-047

I:\2006\06096\dwg\REDLINE FINAL\06096-3001 SHEET 11-12 DA MAP.dwg, DA MAP1, 1:1

DRAINAGE AREA DATA				
DRAINAGE AREA	STRUCTURE NO.	AREA (AC.)	'C'	% IMP.
A	I-1	0.15	0.68	73
B	I-2	0.15	0.76	73
C	I-3	0.74	0.79	92
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E	I-5	0.50	0.21	8
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J	I-10	1.96	0.25	13
K	I-11	0.82	0.48	41
L	I-12	0.38	0.43	39
M	EX. INLET	0.14	0.58	57

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — 4-13-2011 DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — 4-18-11 DATE

CHIEF, DEVELOPMENT ENGINEERING DIVISION J.P. — 4/15/11 DATE

PLAN
SCALE: 1" = 40'

SOILS LEGEND

SOIL		CLASS
** BeC2	Beltsville silt loam, 5 to 10 percent slopes, moderately eroded	C
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- † Generally only within 100-year floodplain areas

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CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042
(410) 461 - 2855

DATE	REVISIONS
12/20/10	RAISED PROPOSED ROAD; REVISED LOT LINES;
	CHANGED SUBDIVISION AND ROAD NAMES.
01/31/11	REVISED GRADING.
6/9/11	REVISED STORM DRAINS AND TITLE BLOCK

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STATE OF MARYLAND — CHARLES J. CROVO SR. — 13204 — PROFESSIONAL ENGINEER

CHARLES J. CROVO, SR., P.E. — 3/18/11 DATE

NOTE: THE PURPOSE OF THIS PLAN IS TO REVISE THE ROAD GRADE ALONG WITH GRADING AND STORM DRAIN PROFILES ASSOCIATED WITH THE REVISED ROAD GRADE.

OWNERS

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DEVELOPER

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REVISED FINAL ROAD CONSTRUCTION PLAN
STORM DRAIN DRAINAGE AREA MAP AND SOILS MAP
GABRIEL'S COURTYARD
LOTS 1-39, 42 THRU 44 (PER F-11-051), OPEN SPACE LOTS 40 AND 41

2 SINGLE FAMILY DETACHED LOTS, 40 SINGLE FAMILY ATTACHED LOTS & 2 OPEN SPACE LOTS
ZONED: R-5C
TAX MAP No. 43 GRID No. 14 PARCEL Nos. 570 & 272
SIXTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
SCALE: 1" = 40' DATE: MARCH 17, 2011

F 09-047

STRUCTURE SCHEDULE

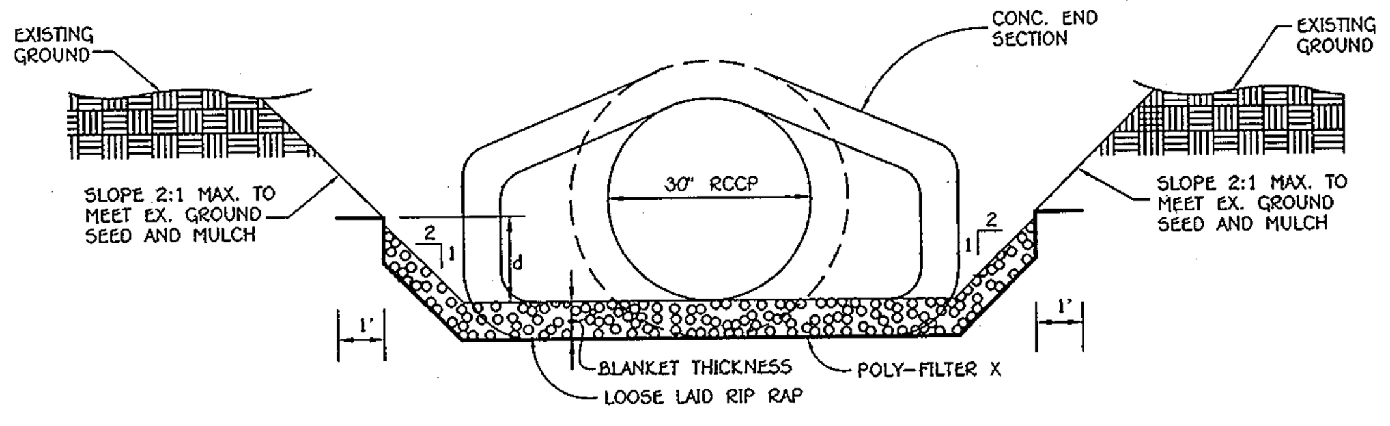
STRUCTURE NO.	TOP ELEVATION	INV.IN	INV.OUT	LOCATION	WIDTH	TYPE	REMARKS
I-1	252.27	241.51 (24")	241.41 (24")	13.00' RT OF CL STA 0+53.98	2.5'	A-5	D. - 4.01
I-2	252.27	242.31 (18")	241.81 (24")	13.00' LT OF CL STA 0+53.98	2.5'	A-5	D. - 4.01
I-3	258.32**	252.63(18") 249.82 (24")	249.32 (30")	13.00' LT OF CL STA 6+24.16	2.63'	DBL S INLET	D. - 4.23
I-4	260.42**	256.70(18") 256.69(18")	256.59(18")	13.00' LT OF CL STA 7+85.40	2.63'	DBL S INLET	D. - 4.23
I-5	267.00 *	-	263.75 (15")	N 545928.19 E 1369773.94	2.50'	D INLET	D. - 4.10
I-6	263.00 *	-	259.75 (15")	N 545745.46 E 1369837.42	2.50'	D INLET	D. - 4.10
I-7	260.42**	-	256.92(18")	13.00' RT OF CL STA 7+85.40	2.63'	DBL S INLET	D. - 4.23
I-8	258.32	250.05 (24")	249.95 (24")	13.00' RT OF CL STA 6+24.16	2.5'	A-5	D. - 4.01
I-9	254.75 *	251.51 (15")	250.76 (24")	N 545577.27 E 1370173.81	2.50'	"D" INLET	D. - 4.10
I-10	259.86 *	-	256.60 (15")	N 545764.31 E 1370085.64	2.50'	"D" INLET	D. - 4.10
I-11	253.50*	-	250.25(15")	N 545362.84 E 1369951.52	2.50'	"D" INLET	D. - 4.10
I-12	253.50*	-	250.25(15")	N 545321.80 E 1369970.86	2.50'	"D" INLET	D. - 4.10
M-1	261.76	247.24 (30")	247.14(30")	11.14' LT OF CL STA 3+91.69	-	5' STD. MANHOLE	G - 5.13
M-2	259.01	249.08(18") 248.18 (30")	248.08(30")	11.00' LT OF CL STA 5+59.66	-	5' STD. MANHOLE	G - 5.13
M-3	264.45	259.35(15") 260.63(15")	259.10 (18")	11.00' LT OF CL STA 9+76.36	-	4' STD. MANHOLE	G - 5.12
M-4	254.00	250.03(15") 250.02(15")	249.77 (18")	N 545342.99 E 1369960.87	-	4' STD. MANHOLE	G - 5.12
S-1	248.50	-	246.00 (30")	N 545175.22 E 1370132.79	-	30" CONC. END SECT	D. - 5.51
R-1	253.50	248.30 (6") 243.00 (6")	242.80 (18")	N 544943.34 E 1370169.07	-	CONCRETE RISER	SEE SHEET

* - DENOTES THROAT OPENING ELEVATION
** - DENOTES TOP OF GRATE ELEVATION

NOTE: ALL "D" INLETS SHALL HAVE THROAT OPENINGS ON ALL 4 SIDES.

PIPE SCHEDULE

SIZE	CLASS	LENGTH
15"	HDPE	529 L.F.
18"	HDPE	511 L.F.
24"	RCCP, CLASS IV	168 L.F.
30"	HDPE	64 L.F.
18"	RCCP, B-25, C-361	48.5 L.F.
24"	HDPE	118 L.F.
30"	RCCP, CLASS IV	252 L.F.



RIP RAP CHANNEL DETAIL
NO SCALE

CONSTRUCTION SPECIFICATIONS FOR RIP-RAP OUTFALLS

1. The subgrade for the filter, riprap 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 riprap or filter.
3. Filter cloth shall be protected from punching, cutting or tearing. Any damage other than an occasional shall hole shall be repaired by placing another piece of cloth over the damaged part or by completely replacing the cloth. All overlaps whether for repairs or for joining two pieces of cloth shall be a minimum of one foot.
4. Stone for the riprap or gabion outlets may be placed by equipment. Both shall each be constructed to the full course thickness in one operation and in such a manner as to avoid displacement of underlying materials. The stone for riprap or gabion outlets shall be delivered and placed in a manner that will insure that it is reasonably homogenous with the smaller stones and spalls filling the voids between the larger stones. Riprap shall be placed in a manner to prevent damage to the filter blanket or filter cloth. Hand placement will be required to the extent necessary to prevent damage to the permanent works.

RIP-RAP CHANNEL DESIGN DATA

STRUCTURE	AREA	WETTED PERIMETER	R	R 2/3	S	S 1/2	W ✻	d	n	V (f.p.s.)	Q (c.f.s.)	RIP-RAP SIZE D_{50}	RIP-RAP SIZE D_{MAX}	BLANKET THICKNESS
S-1	10.96	20.50'	6.40	3.41	0.0050	0.0707	12'	0.3'	0.04	1.73	18.92	9.5"	15"	19"

✻ - DENOTES WIDTH AT END OF 10' RIPRAP CHANNEL.

APPROVED: DEPARTMENT OF PUBLIC WORKS

[illegible] 4-13-2011
CHIEF, BUREAU OF HIGHWAYS [illegible] DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

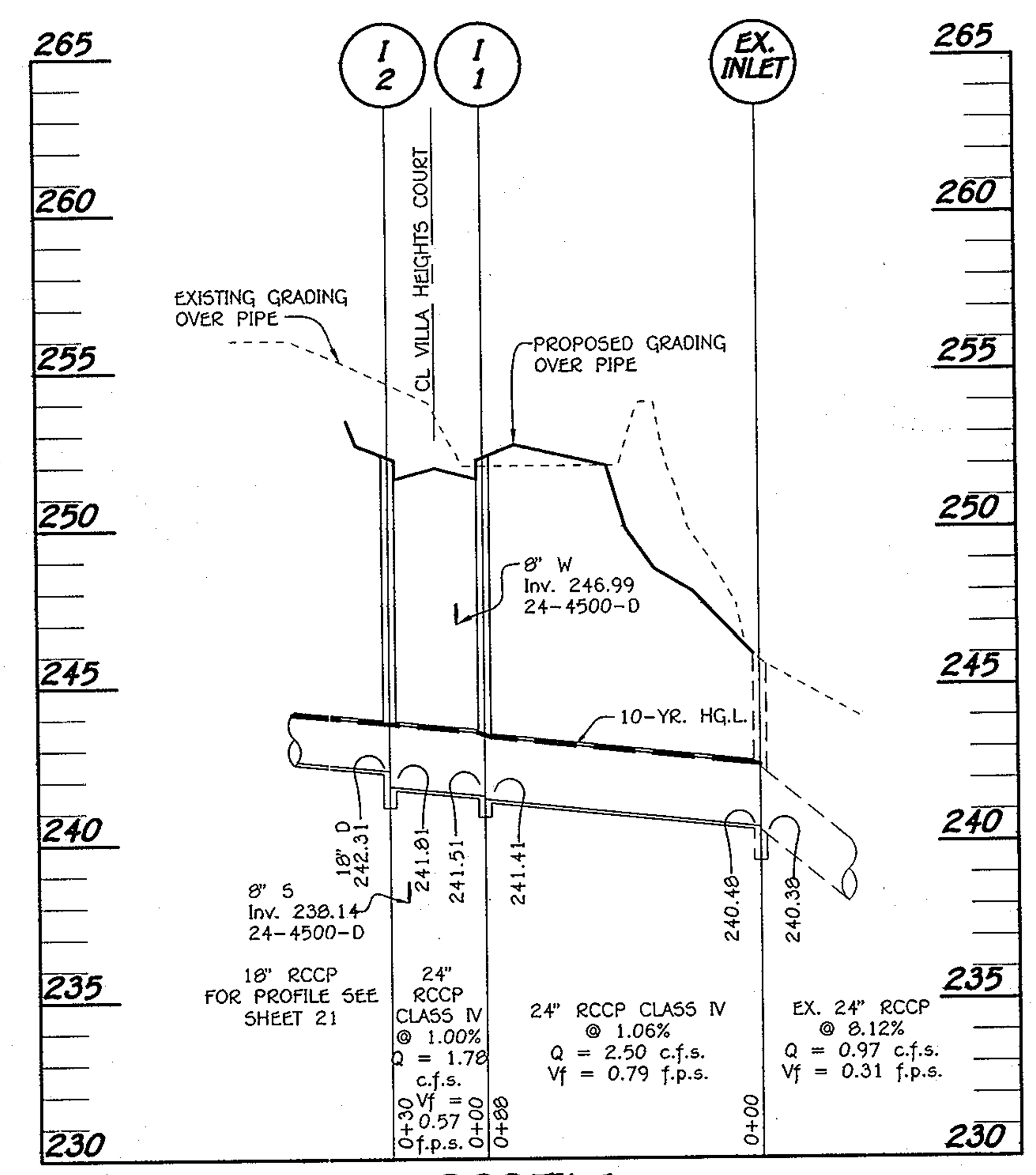
[illegible] 4-18-11
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

[illegible] 4/15/11
CHIEF, DEVELOPMENT ENGINEERING DIVISION J.P. DATE

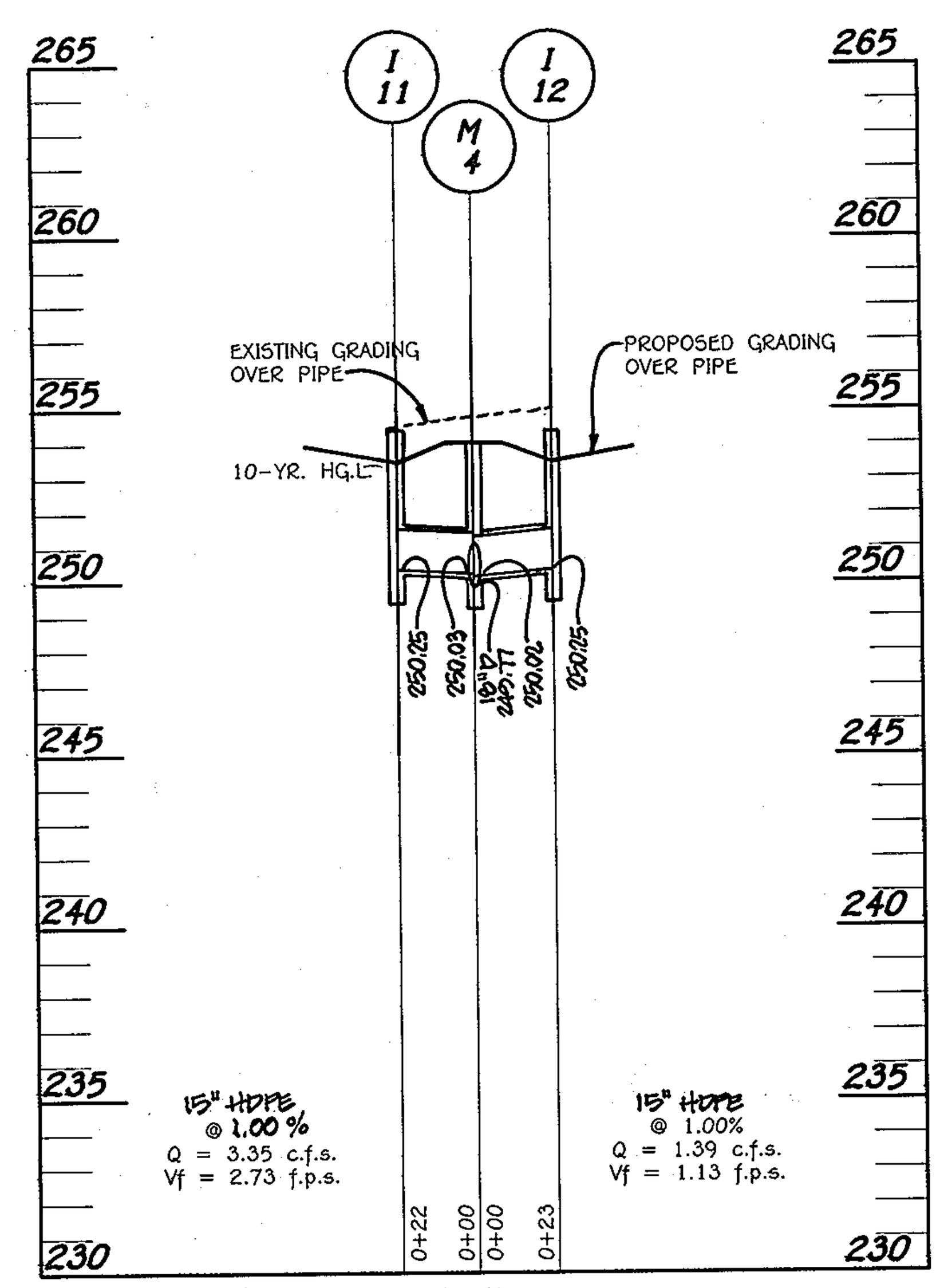
NO.	DESCRIPTION	DATE
3	REVISED STORM DRAINS AND TITLE BLOCK	6/9/11
2	REVISED STRUCTURE SCHEDULE AND PROFILES.	1/31/11
1	REVISED RIM ELEVATIONS, CHANGED SUBDIVISION NAME AND ROAD NAME	9/2/10

REVISIONS

NOTE: THE PURPOSE OF THIS PLAN IS TO REVISE THE ROAD GRADE ALONG WITH GRADING AND STORM DRAIN FROFILES ASSOCIATED WITH THE REVISED ROAD GRADE.



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



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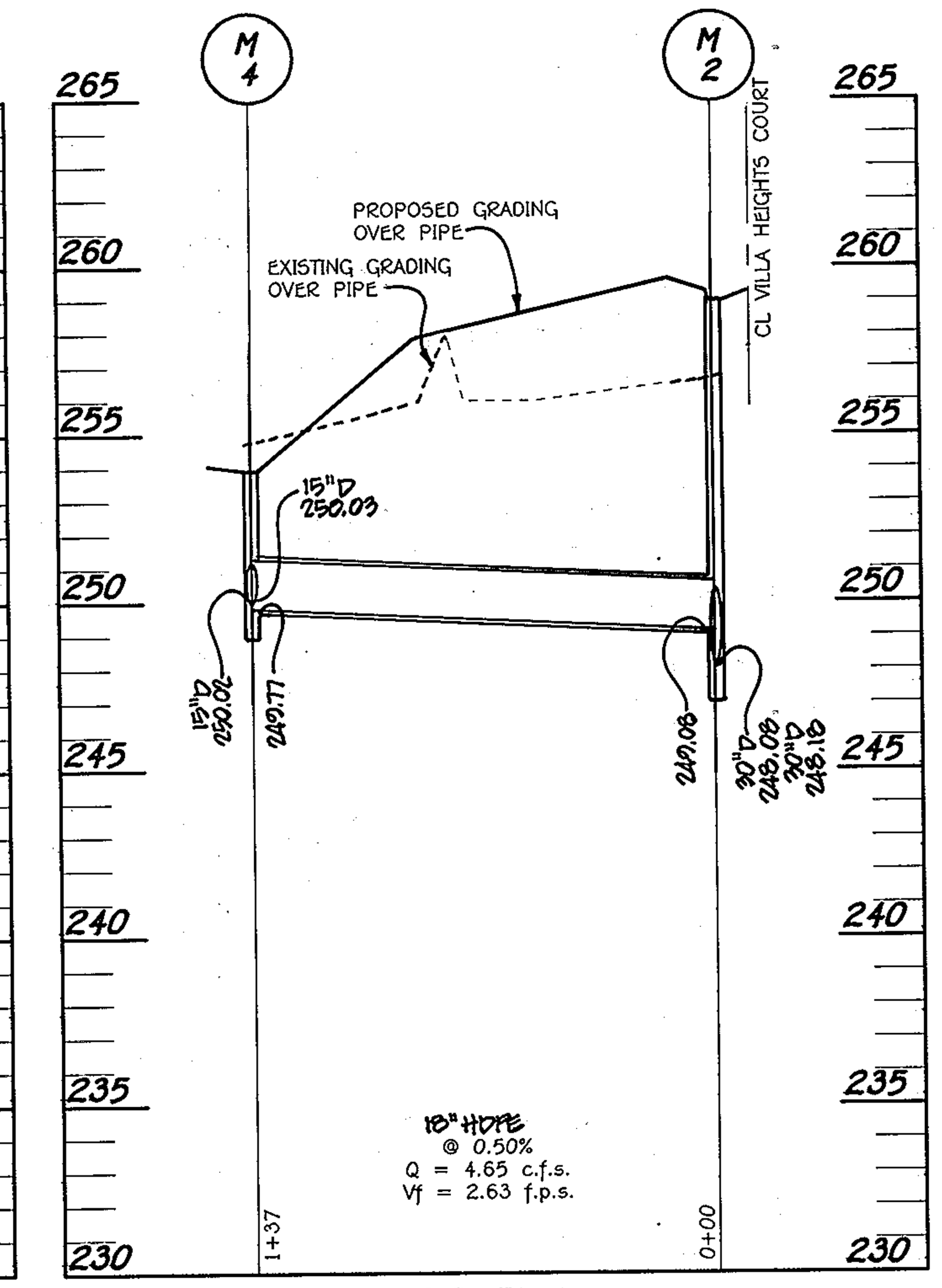

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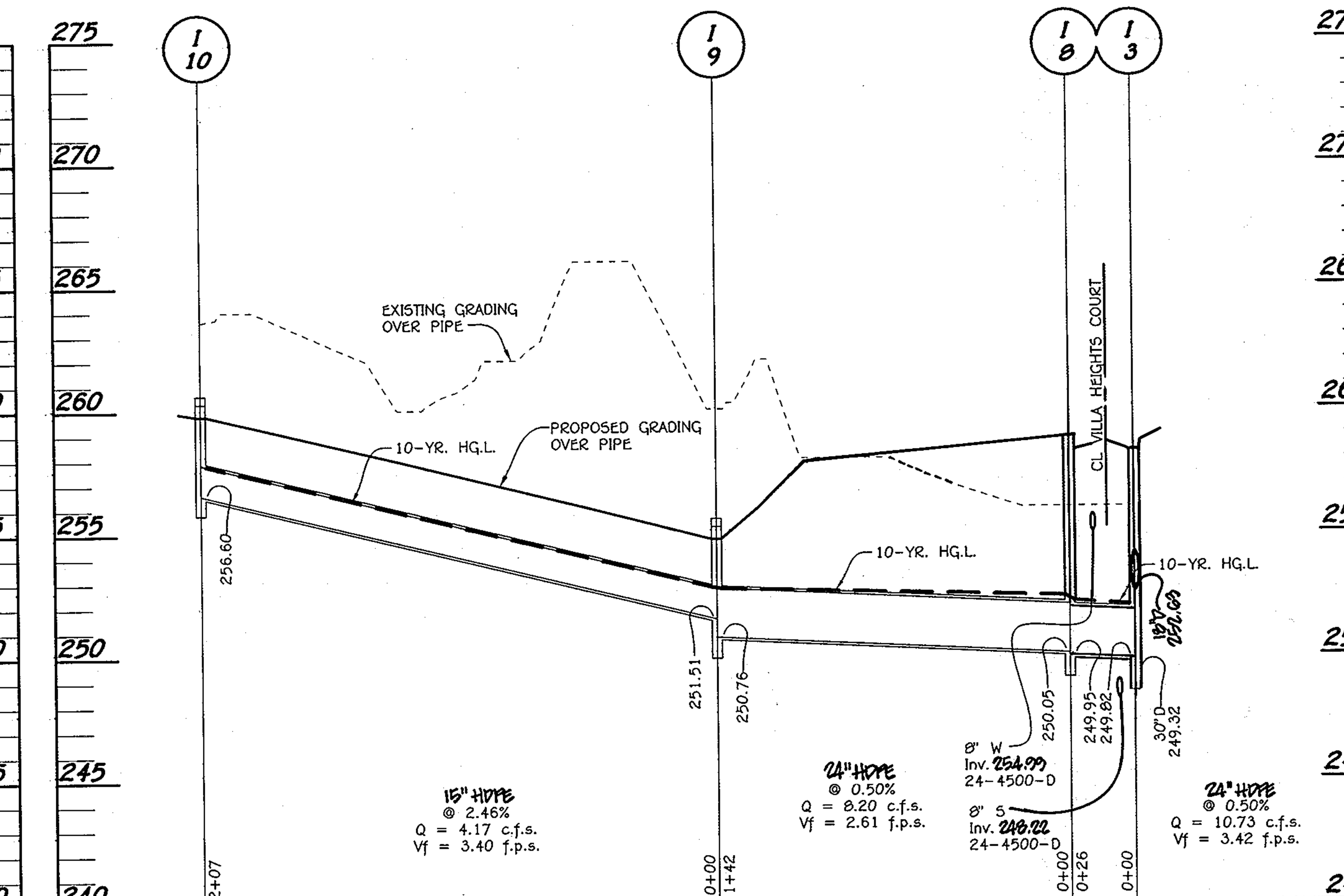

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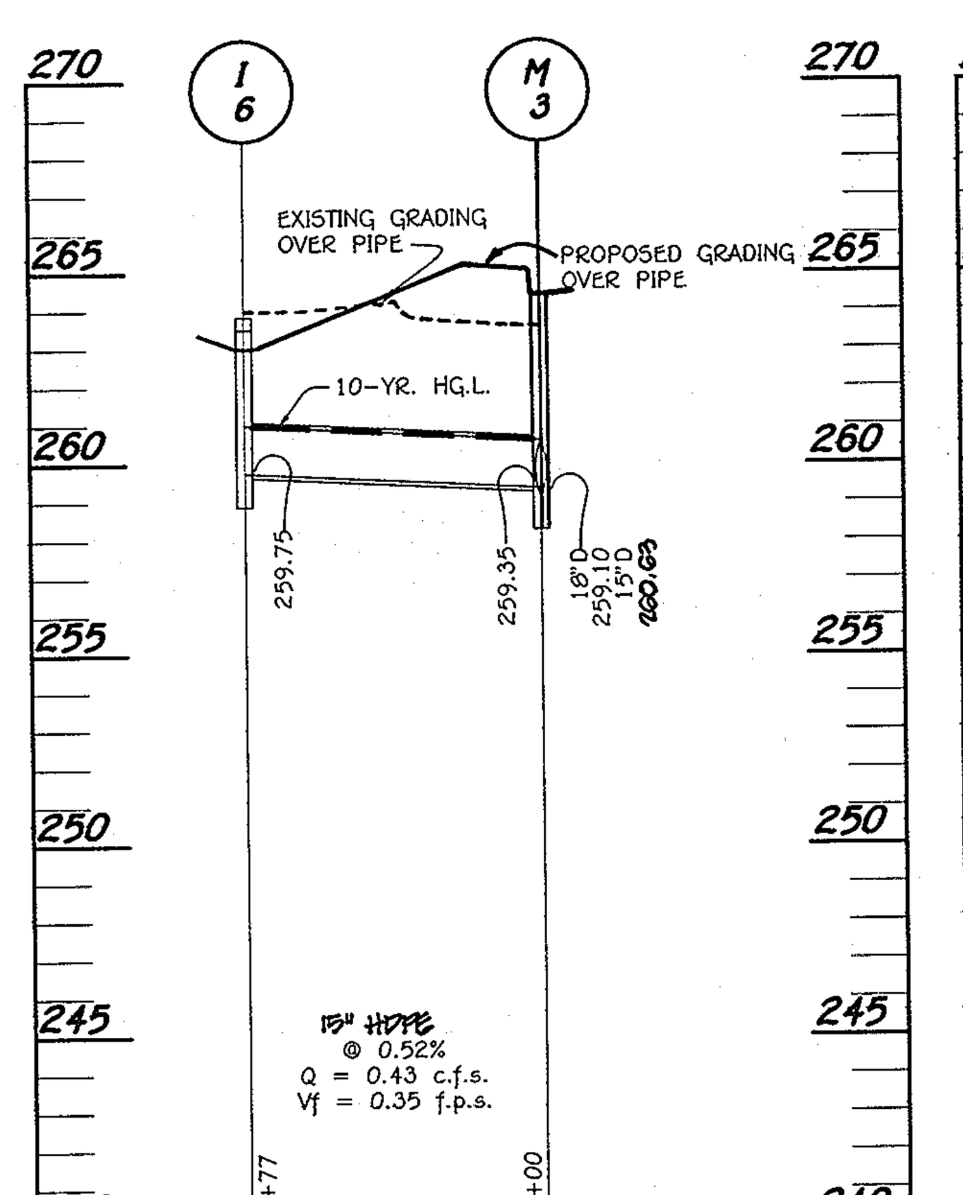

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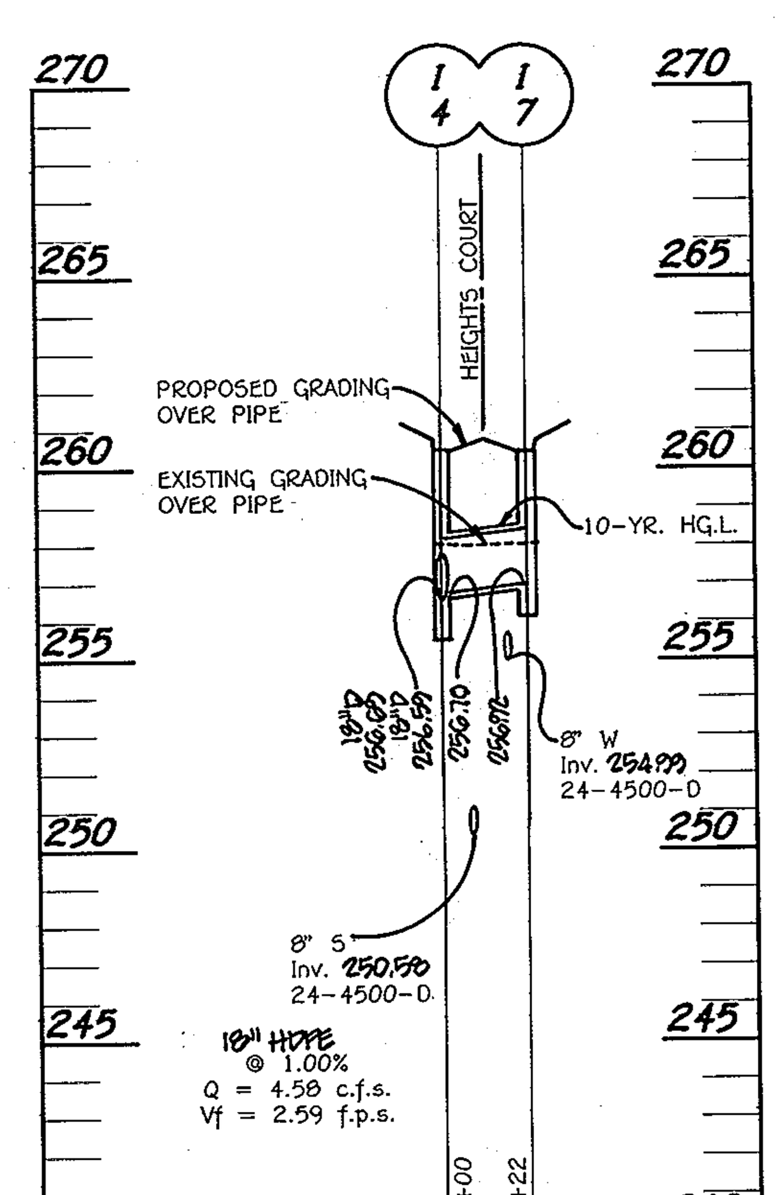

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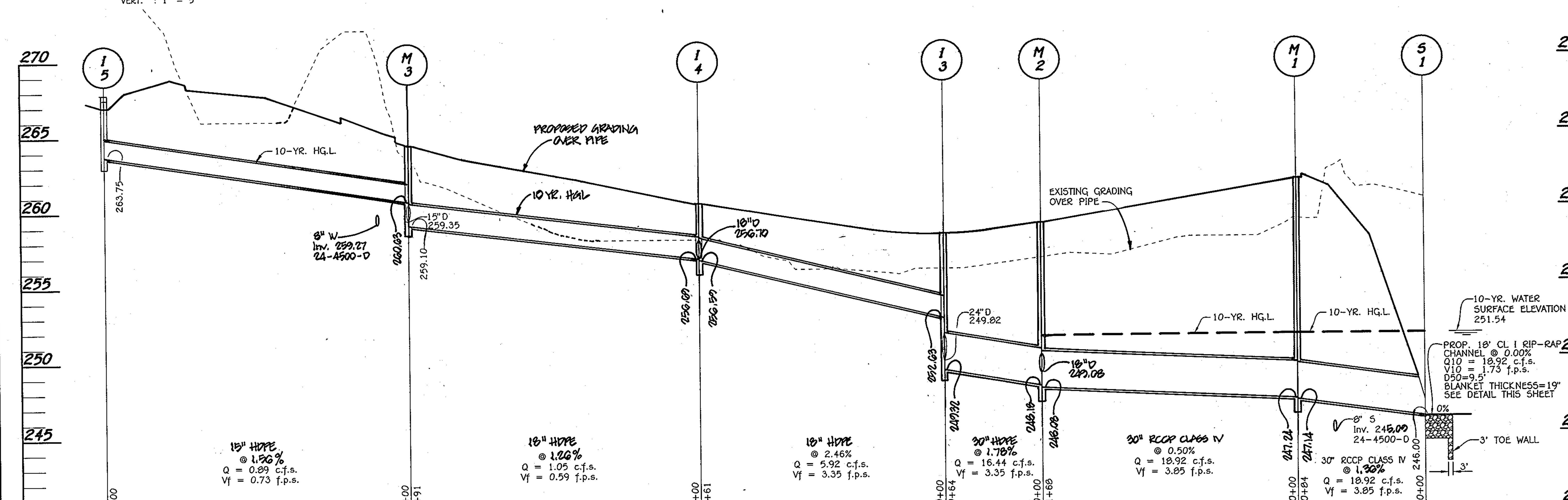

PROFILE
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STATE OF MARYLAND
CHARLES J. CROVO SR.
No. 13204
REGISTERED
PROFESSIONAL ENGINEER

[illegible]
CHARLES J. CROVO, SR., P.E.

3/18/11
DATE

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REVISED FINAL ROAD CONSTRUCTION PLAN
STORM DRAIN PROFILES AND DETAILS
GABRIEL'S COURTYARD
LOTS 1-39, 42 THRU 44 (PER F-11-051), OPEN SPACE LOTS 40 AND 41

2 SINGLE FAMILY DETACHED LOTS, 40 SINGLE FAMILY ATTACHED LOTS & 2 OPEN SPACE LOTS
ZONED: R-SC
TAX MAP No. 43 GRID No. 14 PARCEL Nos. 570 & 272
SIXTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
SCALE: AS SHOWN DATE: MARCH 17, 2011
SHEET 13 OF 24

F 09-047

I:\2006\06096\dwg\REDLINE FINAL\06096-3001 SHEET 13 STORM DRAIN PROFILES.dwg, PROFILES, 1:1

SCHEDULE D STORMWATER MANAGEMENT AREA LANDSCAPING

LINEAR FEET OF PERIMETER	D-1 : 894'
NUMBER OF TREES REQUIRED: SHADE TREES (1:50) EVERGREEN TREES (1:40)	 18 22
CREDIT FOR EXISTING VEGETATION (NO, YES AND %)	NO
CREDIT FOR OTHER LANDSCAPING (NO, YES AND %)	NO

STREET TREE SCHEDULE

QTY.	SYMBOL	BOTANICAL AND COMMON NAME	SIZE	COMMENTS
1085' x 2 /40 = 54 TREES REQ'D.		QUERCUS RUBRA NORTHERN RED OAK	2 1/2-3" CAL.	40' APART ON PUBLIC R/W (VILLA HEIGHTS COURT)
215' /40 = 5 TREES REQ'D.		PLATANUS OCCIDENTALIS 'BLOODGOOD' LONDON PLANETREE	2 1/2-3" CAL.	40' APART ON PUBLIC R/W (MISSION ROAD)

NOTE: THE REQUIRED SURETY FOR THE 59 STREET TREES WILL BE POSTED AS A PART OF THE DEVELOPER'S AGREEMENT IN THE AMOUNT OF $17,700.00.

SCHEDULE C RESIDENTIAL DEVELOPMENT INTERNAL LANDSCAPING

NUMBER OF DWELLING UNITS (SFA)	37
NUMBER OF TREES REQUIRED: (1:DU SFA)	37

NOTE: THE REQUIRED INTERNAL LANDSCAPING WILL BE PROVIDED AS PART OF THE SITE DEVELOPMENT PLAN PHASE FOR THIS SUBDIVISION.

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 4-13-2011

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 4-13-11

CHIEF, DEVELOPMENT ENGINEERING DIVISION J.P. — DATE 4/15/11

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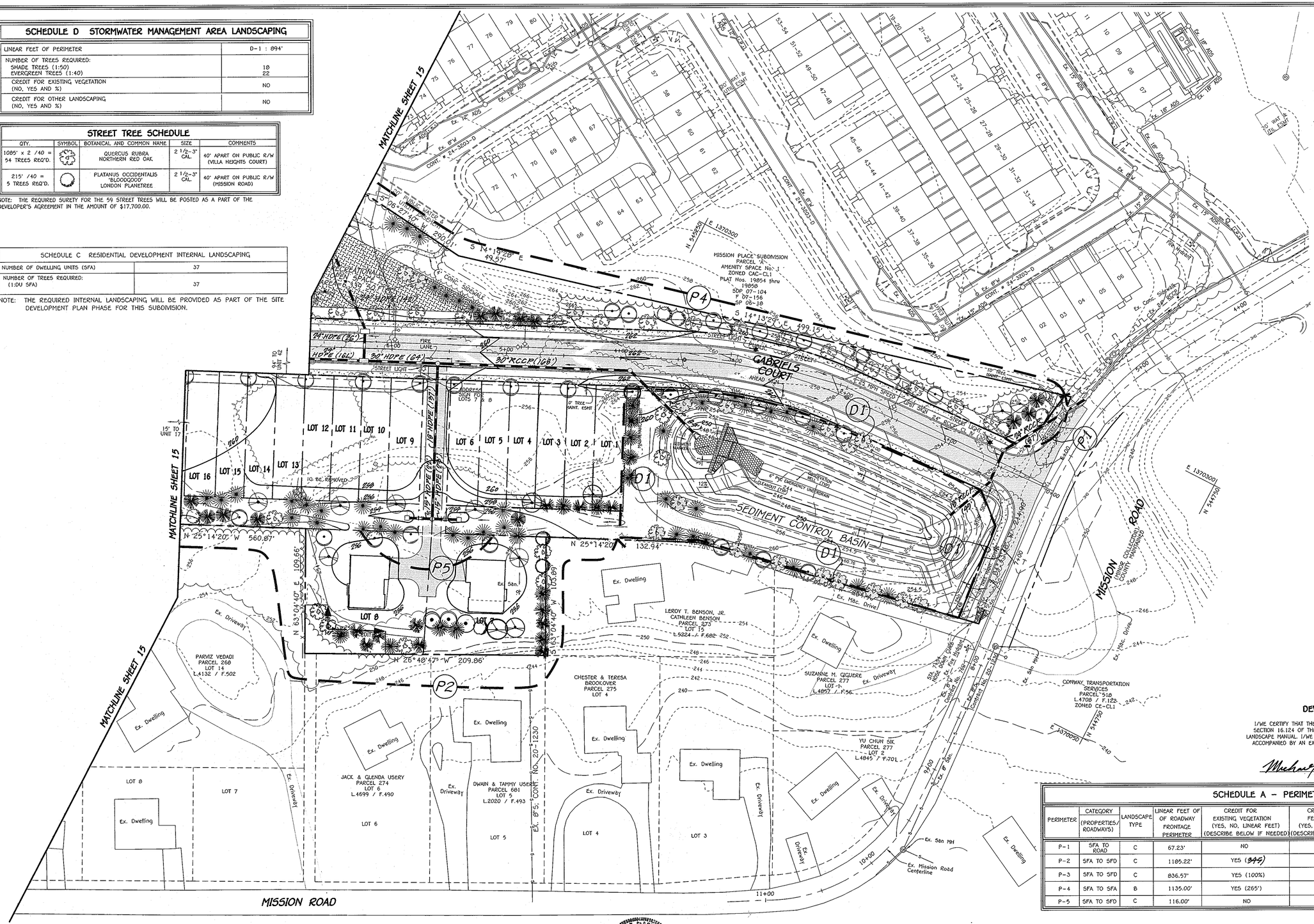

PLAN

SCALE: 1" = 40'

SWM LANDSCAPING

SCALE: 1" = 40'

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 SUBDIVISION AND LAND DEVELOPMENT REGULATIONS AND THE 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.

Michael V. Faw — DATE 3/21/11

SCHEDULE A - PERIMETER LANDSCAPING

PERIMETER	CATEGORY (PROPERTIES/ ROADWAYS)	LANDSCAPE TYPE	LINEAR FEET OF OF ROADWAY FRONTAGE PERIMETER	CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	CREDIT FOR WALL, FENCE OR BERM (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	NUMBER OF PLANTS REQUIRED: SHADE TREES	NUMBER OF PLANTS REQUIRED: EVERGREEN TREES	NUMBER OF PLANTS REQUIRED: SHRUBS	NUMBER OF PLANTS PROVIDED: SHADE TREES	NUMBER OF PLANTS PROVIDED: EVERGREEN TREES	NUMBER OF PLANTS PROVIDED: SHRUBS
P-1	SFA TO ROAD	C	67.23'	NO	NO	2	3	-	2	3	-
P-2	SFA TO SFD	C	1185.22'	YES (345)	NO	21	42	-	21	42	-
P-3	SFA TO SFD	C	836.57'	YES (100%)	NO	0	0	-	0	0	-
P-4	SFA TO SFA	B	1135.00'	YES (265')	NO	17	22	-	17	22	-
P-5	SFA TO SFD	C	116.00'	NO	NO	3	6	-	3	6	-

DATE	REVISIONS
12/20/10	RAISED PROPOSED ROAD; REVISED LOT LINES;
	CHANGED SUBDIVISION AND ROAD NAMES.
01/31/11	REVISED GRADING, ACCESS ROAD AND SWM LANDSCAPING.
6/9/11	REVISED LANDSCAPING, STORM DRAINS AND TITLE BLOCK

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042
(410) 461 - 2855

"Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 13204, Expiration Date: November 3, 2012."

STATE OF MARYLAND — CHARLES J. CROVO, SR. — No. 13204 — PROFESSIONAL ENGINEER

CHARLES J. CROVO, SR., P.E. — DATE 3/18/11

OWNERS

PARCEL 570
MR. GEORGE A. PARROTT
6421 LOUDON AVENUE
ELKRIDGE, MARYLAND 21075
(410) 796-2480

PARCEL 272
MICHAEL L. & MARY T. PFAU
3675 PARK AVENUE SUITE 301
ELLICOTT CITY, MARYLAND 21043-4511
(410) 480-0023

DEVELOPER

MR. GEORGE A. PARROTT
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(410) 796-2480

REVISED FINAL ROAD CONSTRUCTION PLAN
STREET TREES AND LANDSCAPE PLAN
GABRIEL'S COURTYARD
LOTS 1-39, 42 THRU 44 (PER F-11-051), OPEN SPACE LOTS 40 AND 41

2 SINGLE FAMILY DETACHED LOTS, 42 SINGLE FAMILY ATTACHED LOTS & 2 OPEN SPACE LOTS
ZONED: R-SC
TAX MAP No. 43 GRID No. 14 PARCEL Nos. 570 & 272
SIXTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
SCALE: 1" = 40' DATE: MARCH 17, 2011
SHEET 14 OF 24 F 09-047

I:\2005\06096\dwg\REDLINE FINAL\06096-3001 SHEET 14-15 LANDSCAPE PLAN.dwg, LANDSCAPE1-SHEET, 1:1

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 4-13-2011

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 4-18-11

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 4/15/11

SYMBOL	QTY.	BOTANICAL AND COMMON NAME	SIZE	COMMENTS
	23	QUERCUS PHELLOS WILLOW OAK	2 1/2-3" CAL.	SHADE
	21	TILIA CORDATA 'GREENSPIRE' GREENSPIRE LITTLELEAF LINDEN	2 1/2-3" CAL.	SHADE
	17	ACER RUBRUM 'OCTOBER GLORY' OCTOBER GLORY RED MAPLE	2 1/2-3" CAL.	SHADE
	06	PINUS STROBUS EASTERN WHITE PINE	6' - 8' HEIGHT	EVERGREEN
	07	PICEA ABIES NORWAY SPRUCE	6' - 8' HEIGHT	EVERGREEN

NOTE: TREE TYPES ARE ONLY AN RECOMMENDATION, THESE MAY BE REVISED TO A COUNTY APPROVED EQUIVALENT FROM THE HOWARD COUNTY LANDSCAPE MANUAL. "THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL" REQUIRED LANDSCAPE SURETY FOR THE 58 SHADE AND 90 EVERGREEN TREES HAS BEEN POSTED AS A PART OF THE DEVELOPER'S AGREEMENT IN THE AMOUNT OF $30,900.00. THE LANDSCAPE SURETY BONDED FOR UNDER THE ORIGINAL F-09-047 IS CONSIDERED SUFFICIENT TO COVER THE NEWLY PROPOSED LANDSCAPING/LANDSCAPING CHANGES ASSOCIATED WITH THE RED-LINED TO F-09-047.

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.

3/21/11
DATE

NOTE: THE PURPOSE OF THIS PLAN IS TO REVISE THE ROAD GRADE ALONG WITH GRADING AND STORM DRAIN PROFILES ASSOCIATED WITH THE REVISED ROAD GRADE.

NOTES:

1. THE BUILDER WILL BE RESPONSIBLE FOR THE LANDSCAPING, INSTALLATION AND SURETY REQUIREMENT.

2. THE OWNER, TENANT AND/OR THEIR AGENTS SHALL BE RESPONSIBLE FOR MAINTENANCE OF THE REQUIRED LANDSCAPING, INCLUDING BOTH PLANT MATERIALS AND BERMS, FENCES AND WALLS. ALL PLANT MATERIALS SHALL BE MAINTAINED IN GOOD GROWING CONDITION, AND WHEN NECESSARY, REPLACED WITH NEW MATERIALS TO ENSURE CONTINUED COMPLIANCE WITH APPLICABLE REGULATIONS. ALL OTHER REQUIRED LANDSCAPING SHALL BE PERMANENTLY MAINTAINED IN GOOD CONDITION AND WHEN NECESSARY, REPAIRED OR REPLACED.

3. AT THE TIME OF INSTALLMENT, ALL SHRUBS AND OTHER PLANTINGS HEREWITH LISTED AND APPROVED FOR THIS SITE, SHALL BE OF THE PROPER HEIGHT REQUIREMENTS IN ACCORDANCE WITH THE HOWARD COUNTY LANDSCAPING MANUAL. IN ADDITION, NO SUBSTITUTIONS OR RELOCATIONS OF REQUIRED PLANTINGS MAY BE MADE WITHOUT PRIOR REVIEW AND APPROVAL FROM THE DEPARTMENT OF PLANNING AND ZONING. ANY DEVIATION FROM THIS APPROVED LANDSCAPE PLAN MAY RESULT IN DENIAL OR DELAY IN THE RELEASE OF LANDSCAPE SURETY UNTIL SUCH TIME AS ALL REQUIRED MATERIALS ARE PLANTED AND/OR REVISIONS ARE MADE TO APPLICABLE PLANS AND CERTIFICATES.

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042
(410) 461 - 2855

DATE	REVISIONS
12/20/10	RAISED PROPOSED ROAD; REVISED LOT LINES;
	CHANGED SUBDIVISION AND ROAD NAMES.
01/31/11	REVISED GRADING.
4/5/11	REVISED STORM DRAINS AND TITLE BLOCK

PLAN

SCALE: 1" = 40'

"Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 13204, Expiration Date: November 3, 2012."

STATE OF MARYLAND — CHARLES J. CROVO — No. 13204 — PROFESSIONAL ENGINEER

CHARLES J. CROVO, SR., P.E. — 3/3/11 DATE

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MICHAEL L. & MARY T. PFAU
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ELLICOTT CITY, MARYLAND 21043-4511
(410) 480-0023

DEVELOPER

MR. GEORGE A. PARROTT
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REVISED FINAL ROAD CONSTRUCTION PLAN
STREET TREES AND LANDSCAPE PLAN

GABRIEL'S COURTYARD

LOTS 1-39, 42 THRU 44 (PER F-11-051), OPEN SPACE LOTS 40 AND 41

2 SINGLE FAMILY DETACHED LOTS, 42 SINGLE FAMILY ATTACHED LOTS & 2 OPEN SPACE LOTS
ZONED: R-SC
TAX MAP No. 43 GRID No. 14 PARCEL Nos. 570 & 272
SIXTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
SCALE: 1" = 40' DATE: MARCH 17, 2011
SHEET 15 OF 24

F 09-047

I:\2009\09095\dwg\REDLINE FINAL\09096-3001 SHEET 14-15 LANDSCAPE PLAN.dwg, LANDSCAPE2 SHEET, 1:1

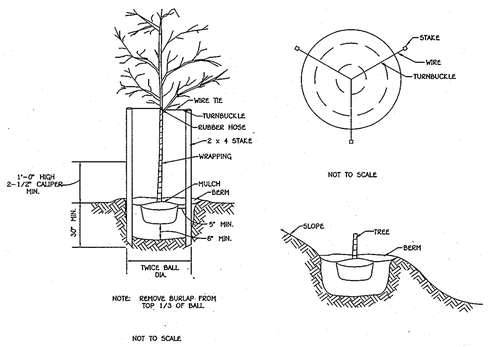
APPROVED: DEPARTMENT OF PUBLIC WORKS

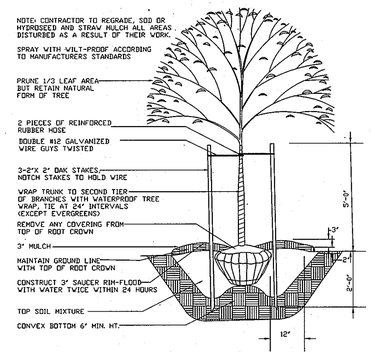
CHIEF, BUREAU OF HIGHWAYS — DATE 12-14-09

APPROVED: DEPARTMENT OF PLANNING AND ZONING

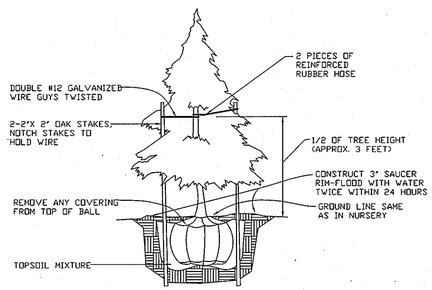
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 12-22-09

CHIEF, DEVELOPMENT ENGINEERING DIVISION J.P. — DATE 12/16/09





TREE PLANTING DETAIL



EVERGREEN PLANTING DETAIL

PLANTING SPECIFICATIONS

Plants, related material, and operations shall meet the detailed description as given on the plans and as described herein.

All plant material, unless otherwise specified, shall be nursery grown, uniformly branched, have a vigorous root system, and shall conform to the species, size, root and shape shown on the plant list and the American Association of Nurserymen (AAN) Standards. Plant material shall be healthy, vigorous, free from defects, decay, disfiguring roots, sun scald injuries, abrasions of the bark, plant disease, insect pest eggs, borers and all forms of insect infestations or objectionable disfigurements. Plant material that is weak or which has been cut back from larger grades to meet specified requirements will be rejected. Trees with forked leaders will not be accepted. All plants shall be freshly dug; no healed-in plants from cold storage will be accepted.

Unless otherwise specified, all general conditions, planting operations, details and planting specification shall conform to 'Landscape Specification Guidelines for Baltimore-Washington Metropolitan Areas', (hereinafter 'Landscape Guidelines') approved by the Landscape Contractors Association of Metropolitan Washington and the Potomac Chapter of the American Society of Landscape Architect, latest edition, including all agenda.

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

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

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

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

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

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

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

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

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

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

All areas within contract limits disturbed during or prior to construction not designated to receive plants and mulch shall be fine graded and seeded.

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.

GEORGE A. PARROTT — DATE 12/3/09

"SHOULD ANY TREE DESIGNATED FOR PRESERVATION FOR WHICH LANDSCAPING CREDIT IS GIVEN, DIE PRIOR TO RELEASE OF BONDS, THE OWNER WILL BE REQUIRED TO REPLACE THE TREE WITH THE EQUIVALENT SPECIES OR WITH A TREE WHICH WILL OBTAIN THE SAME HEIGHT, SPREAD AND GROWTH CHARACTERISTICS. THE REPLACEMENT TREE MUST BE A MINIMUM OF 3 INCHES IN CALIPER AND INSTALLED AS REQUIRED IN THE HOWARD COUNTY LANDSCAPE MANUAL."

"AT THE TIME OF PLANT INSTALLATION, ALL TREES LISTED AND APPROVED ON THE LANDSCAPE PLAN, SHALL COMPLY WITH THE PROPER HEIGHT REQUIREMENT IN ACCORDANCE WITH THE HOWARD COUNTY LANDSCAPE MANUAL. IN ADDITION, NO SUBSTITUTIONS OR RELOCATIONS OF THE REQUIRED PLANTINGS MAY BE MADE WITHOUT PRIOR REVIEW AND APPROVAL FROM THE DEPARTMENT OF PLANNING AND ZONING. ANY DEVIATIONS FROM THE APPROVED LANDSCAPE PLAN MAY RESULT IN DENIAL OR DELAY IN THE RELEASE OF LANDSCAPE SURETY UNTIL SUCH TIME AS ALL REQUIRED MATERIALS ARE PLANTED AND/OR REVISIONS ARE MADE TO THE ROAD DRAWING PLANS".

"THE OWNER, TENANTS AND/OR THEIR AGENTS SHALL BE RESPONSIBLE FOR MAINTENANCE OF THE REQUIRED PERIMETER LANDSCAPING. ALL PLANT MATERIALS SHALL BE MAINTAINED IN GOOD GROWING CONDITION, AND WHEN NECESSARY, REPLACED WITH NEW MATERIALS TO ENSURE CONTINUED COMPLIANCE WITH APPLICABLE REGULATIONS. ALL THE OTHER REQUIRED LANDSCAPING SHALL BE PERMANENTLY MAINTAINED IN GOOD CONDITION, AND WHEN NECESSARY, REPAIRED OR REPLACED".

STATE OF MARYLAND — CHARLES J. CRAIG, SR. — No. 13204 — PROFESSIONAL ENGINEER

"Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 13204, Expiration Date: November 3, 2010."

CHARLES J. CRAIG, SR., P.E. — DATE 12/3/09

OWNERS

PARCEL 570
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(410) 796-2400

PARCEL 272
MICHAEL L. & MARY T. PFAU
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ELLICOIT CITY, MARYLAND 21043-4511
(410) 480-0023

DEVELOPER

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ELKRIDGE, MARYLAND 21075
(410) 796-2400

NO.	DESCRIPTION	DATE
2	REVISED TITLE BLOCK	6/9/11
1	CHANGED SUBDIVISION NAME AND ROAD NAME	9/2/10
	REVISIONS	

LANDSCAPING NOTES AND DETAILS

GABRIEL'S COURTYARD

LOTS 1-39, AE THRU AA (PER F-11-051), OPEN SPACE LOTS 40 AND 41

2 SINGLE FAMILY DETACHED LOTS, 40 SINGLE FAMILY ATTACHED LOTS & 2 OPEN SPACE LOTS
ZONED: R-SC
TAX MAP No. 43 GRID No. 14 PARCEL Nos. 570 & 272
SIXTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
SCALE: AS SHOWN DATE: NOVEMBER 18, 2009
SHEET 16 OF 24

F 09-047

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042
(410) 461 - 2855

I:\2009\09096\dwg\FINAL\09096-3001 SHEET 16 LANDSCAPE DETAILS.dwg, 1:1

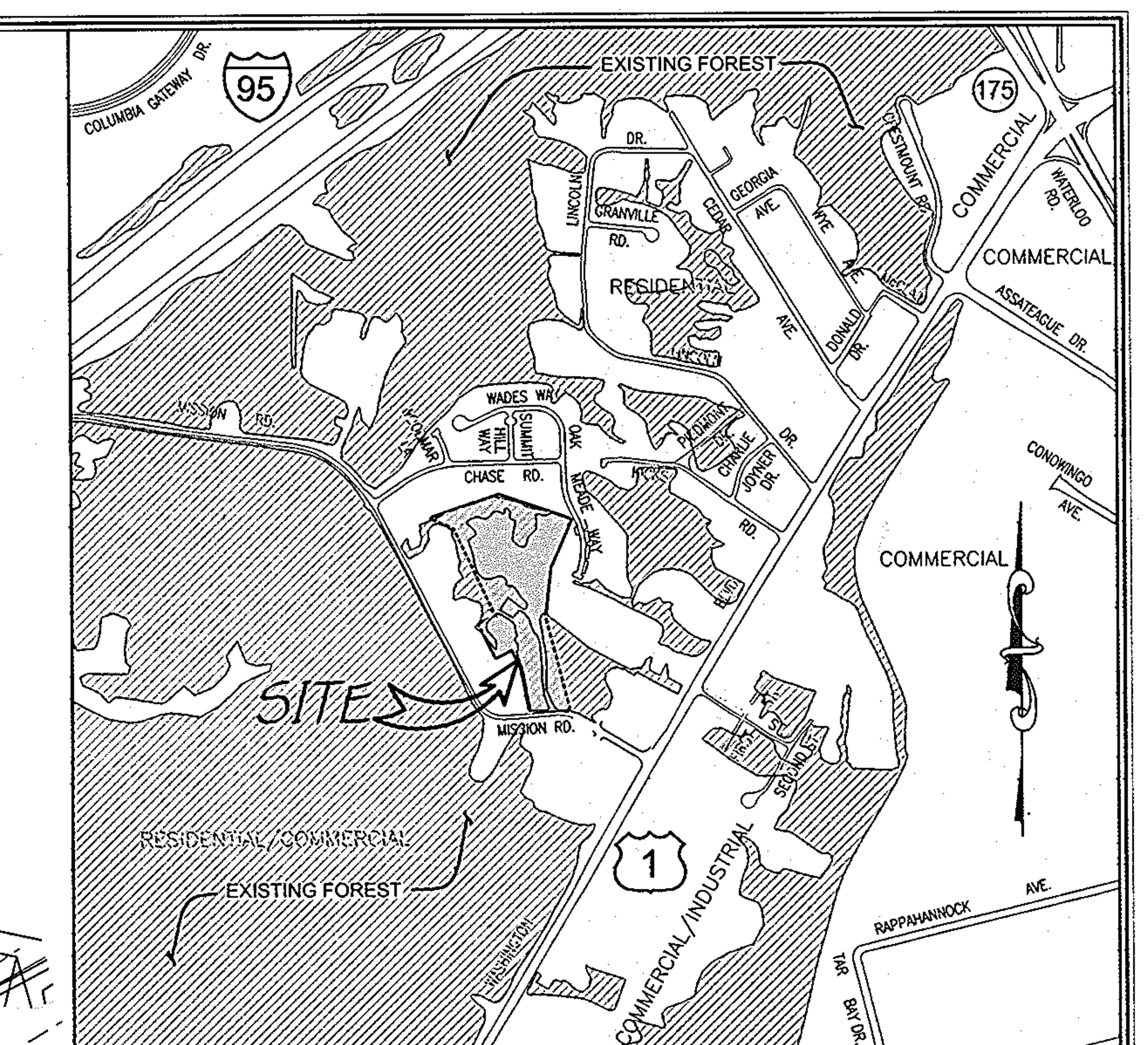
APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 4-18-11

CHIEF, DEVELOPMENT ENGINEERING DIVISION J.P. — DATE 4/15/11

FCP LEGEND

SYMBOL	DESCRIPTION
--258---	EXISTING CONTOUR 2' INTERVAL
—260—	EXISTING CONTOUR 10' INTERVAL
—258—	PROPOSED CONTOUR 2' INTERVAL
—260—	PROPOSED CONTOUR 10' INTERVAL
	EXISTING TREE LINES
	EXISTING FOREST LIMITS
	PROPOSED FOREST RETENTION LIMITS
	FOREST CLEARING LIMITS
	STEEP SLOPES (25% OR GREATER)
	SLOPES (15% TO 24.9%)
	PROPOSED REFORESTATION AREA
—FC—	PROPOSED FCE
	RECREATIONAL OPEN SPACE
L.O.D.	LIMIT OF DISTURBANCE
—TP—	TREE PROTECTION
	ONE INCH CALIPER TREE



VICINITY MAP

SCALE: 1" = 1000'

DATE	REVISIONS
12/20/10	RAISED PROPOSED ROAD; REVISED LOT LINES;
	CHANGED SUBDIVISION AND ROAD NAMES.
01/31/11	REVISED GRADING AND ACCESS ROAD TO SWM.
6/7/11	REVISED STORM DRAINS AND TITLE BLOCK

NOTE: THE PURPOSE OF THIS PLAN IS TO REVISE THE ROAD GRADE ALONG WITH GRADING AND STORM DRAIN FROFILES ASSOCIATED WITH THE REVISED ROAD GRADE.

SOILS LEGEND

SOIL		CLASS
** BeC2	Beltsville silt loam, 5 to 10 percent slopes, moderately eroded	C
* Gp	Gravel pits and quarries	A
Md	Made land	Md
SfC2	Sassafras gravelly sandy loam, 5 to 10 percent slopes, moderately eroded	B
SfD2	Sassafras gravelly sandy loam, 10 to 15 percent slopes, moderately eroded	B
SlC2	Sassafras loam, 5 to 10 percent slopes, moderately eroded	B
SlD2	Sassafras loam, 10 to 15 percent slopes, moderately eroded	B
SsE	Sassafras soils, 15 to 40 percent slopes	B

NOTES:

- * Hydric soils and/or contains hydric inclusions
- ** May contain hydric inclusions
- † Generally only within 100-year floodplain areas

NOTE: SEE SHEET 19 FOR PLANTING NOTES AND CHARTS.

NOTE:
A SURETY FOR ON-SITE RETENTION @ $0.20/sf. FOR 95,832 sf. = $19,167.00 AND ON-SITE REFORESTATION @ $0.50/sf. FOR 47,916 sf. = $23,958.00 IS REQUIRED.
TOTAL SURETY AMOUNT FOR THE SUBDIVISION = $43,125.00.

MD DNR Qualified Professional
USACOE Wetland Delineator
Certification # WDCP93MD0610044B2

JOHN P. CANOLES 3/22/11

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042
(410) 461 - 2855

Eco-Science Professionals, Inc.
Consulting Ecologist
P.O. Box 5006 Glen Arm, Maryland 21057 Telephone (410) 592-6752 Fax (410) 832-2488

"Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 13204, Expiration Date: November 3, 2012."

STATE OF MARYLAND — CHARLES J. CROVO — 13204 — PROFESSIONAL ENGINEER

CHARLES J. CROVO, SR., P.E. — 3/18/11 DATE

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REVISED FINAL ROAD CONSTRUCTION PLAN
SOILS MAP AND
FOREST CONSERVATION PLAN

GABRIEL'S COURTYARD

LOTS 1-39, 42 THRU 44 (PER F-11-051), OPEN SPACE LOTS 40 AND 41

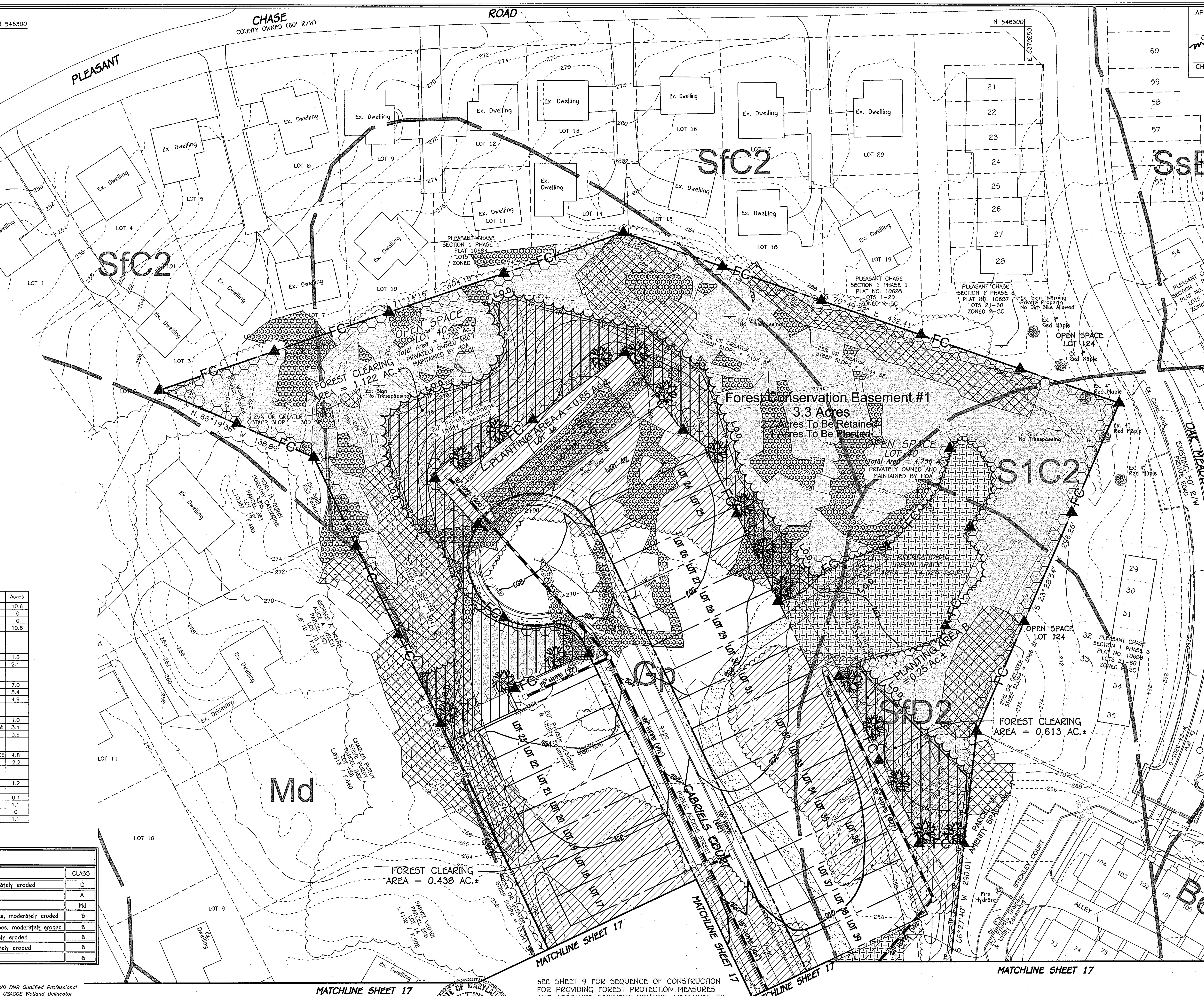
2 SINGLE FAMILY DETACHED LOTS, 40 SINGLE FAMILY ATTACHED LOTS & 2 OPEN SPACE LOTS
ZONED: R-SC
TAX MAP No. 43 GRID No. 14 PARCEL Nos. 570 & 272
SIXTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
SCALE: 1" = 40' DATE: MARCH 17, 2011

APPROVED: DEPARTMENT OF PLANNING AND ZONING

[illegible] 4-18-11
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE

[illegible] J.S. 4/05/11
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

DATE	REVISIONS
12/20/10	RAISED PROPOSED ROAD; REVISED LOT LINES;
	CHANGED SUBDIVISION AND ROAD NAMES.
01/31/11	REVISED GRADING.
6/9/11	REVISED STORM DRAINS AND TITLE BLOCK



FCP LEGEND

SYMBOL	DESCRIPTION
- -258- - -	EXISTING CONTOUR 2' INTERVAL
—260—	EXISTING CONTOUR 10' INTERVAL
—258—	PROPOSED CONTOUR 2' INTERVAL
—260—	PROPOSED CONTOUR 10' INTERVAL
⌒⌒⌒	EXISTING TREE LINES
⌒⌒⌒	EXISTING FOREST LIMITS
⌒⌒⌒	PROPOSED FOREST RETENTION LIMITS
▨	FOREST CLEARING LIMITS
▩	STEEP SLOPES (25% OR GREATER)
▦	SLOPES (15% TO 24.9%)
▥	PROPOSED REFORESTATION AREA
—FC—	PROPOSED FCE
▦	RECREATIONAL OPEN SPACE
L.O.D.	LIMIT OF DISTURBANCE
—— TP ——	TREE PROTECTION
✱	ONE INCH CALIPER TREE

FOREST CONSERVATION WORKSHEET
Version 1.0

NET TRACT AREA			Acres
A. Total tract area			10.6
B. Area within 100 Year Floodplain			0
C. Area to remain in agricultural production			0
D. Net Tract Area			10.6
LAND USE CATEGORY: (from table 3.2.1, page 40, Manual) ARA MDR IDA HDR MPD CIA — X (HDR)			
E. Afforestation Threshold	(percentage)	15%	1.6
F. Conservation Threshold	(percentage)	20%	2.1
EXISTING FOREST COVER:			
G. Existing forest cover (excluding floodplain)			7.0
H. Area of forest above afforestation threshold			5.4
I. Area of forest above conservation threshold			4.9
BREAK EVEN POINT:			
J. Forest retention above threshold with no mitigation			1.0
Break-Even Point			3.1
K. Clearing permitted without mitigation			3.9
PROPOSED FOREST CLEARING			
L. Total area of forest to be Cleared or Retained Outside FCE			4.8
M. Total area of forest to be Retained in FCE			2.2
PLANTING REQUIREMENTS			
N. Reforestation for clearing above Conservation Threshold			1.2
P. Reforestation for clearing below Conservation Threshold			
Q. Credit for retention above conservation threshold			0.1
R. Total reforestation required			1.1
S. Total afforestation required			0
T. Total reforestation and afforestation required			1.1

SOILS LEGEND

SOIL		CLASS
** BeC2	Beltsville silt loam, 5 to 10 percent slopes, moderately eroded	C
* Gp	Gravel pits and quarries	A
Md	Made land	Md
SfC2	Sassafras gravelly sandy loam, 5 to 10 percent slopes, moderately eroded	B
SfD2	Sassafras gravelly sandy loam, 10 to 15 percent slopes, moderately eroded	B
SlC2	Sassafras loam, 5 to 10 percent slopes, moderately eroded	B
SlD2	Sassafras loam, 10 to 15 percent slopes, moderately eroded	B
SsE	Sassafras soils, 15 to 40 percent slopes	B

NOTES:
- * Hydric soils and/or contains hydric inclusions
- ** May contain hydric inclusions
- † Generally only within 100-year floodplain areas

MD DNR Qualified Professional
USACOE Wetland Delineator
Certification # WDCP93MD0610044B2
[illegible] 3/22/11
JOHN P. CANOLES

SEE SHEET 9 FOR SEQUENCE OF CONSTRUCTION FOR PROVIDING FOREST PROTECTION MEASURES AND ADEQUATE SEDIMENT CONTROL MEASURES TO PREVENT OFF-SITE DAMAGE

NOTE: THE PURPOSE OF THIS PLAN IS TO REVISE THE ROAD GRADE ALONG WITH GRADING AND STORM DRAIN FROFILES ASSOCIATED WITH THE REVISED ROAD GRADE.

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042
(410) 461 - 2855

Eco-Science Professionals, Inc.
Consulting Ecologist
P.O. Box 5006 Glen Arm, Maryland 21057 Telephone (410) 592-6752 Fax (410) 832-2488

"Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 13204, Expiration Date: November 3, 2012."

STATE OF MARYLAND
CHARLES J. CROVO SR.
13204
PROFESSIONAL ENGINEER

[illegible] 3/18/11
CHARLES J. CROVO, SR., P.E. — DATE

OWNERS

PARCEL 570
MR. GEORGE A. PARROTT
6421 LOUDON AVENUE
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PARCEL 272
MICHAEL L. & MARY T. PFAU
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DEVELOPER

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REVISED FINAL ROAD CONSTRUCTION PLAN
SOILS MAP AND
FOREST CONSERVATION PLAN

GABRIEL'S COURTYARD

LOTS 1-39, 42 THRU 44 (PER F-11-051), OPEN SPACE LOTS 40 AND 41

2 SINGLE FAMILY DETACHED LOTS, 40 SINGLE FAMILY ATTACHED LOTS & 2 OPEN SPACE LOTS
ZONED: R-SC
TAX MAP No. 43 GRID No. 14 PARCEL Nos. 570 & 272
SIXTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
SCALE: 1" = 40' DATE: MARCH 17, 2011
SHEET 18 OF 24

F 09-047

I:\2008\08096\dwg\REDLINE FINAL\08096-3001 SHEET 17-19 FOREST CONSERVATION.dwg, FOR-CON2, 1:1

REFORESTATION PLAN

The reforestation area will be placed into a Forest Conservation Easement.

A. Planting Plan and Methods

Plant species selection was based on our knowledge regarding plant communities in Maryland's Piedmont Plateau and information provided in the soil survey on typical vegetation for the soil type on the planting site. Species selection was also based on our knowledge of plant availability in the nursery industry.

Reforestation will be accomplished through a mixed planting of whips and branched transplants. Container grown stock is recommended but bareroot stock may be used to help control afforestation costs. If barcroot stock is used the root systems of all plants will be dipped in an anti-desiccant gel prior to planting to improve moisture retention in the root systems.

Prior to planting the proposed Forest Conservation Easements all multiflora rose in the planting area shall be removed. Removal of the rose may be performed with mowing and herbicide treatments. Physical removal of all top growth following by a periodic herbicide treatment of stump sprouts is recommended. Native tree and shrub species occurring within the rose thickets should be retained wherever possible. Herbicides 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.

B. Planting and Soil Specifications

Plant material will be installed in accordance with the Planting Detail and Planting Specifications shown on the Forest Conservation Plan.

Amendments to existing soil will be in accordance with the Planting Specifications shown on the Forest Conservation Plan. Soil disturbance will be limited to individual planting locations.

C. Maintenance of Plantings

1. Watering - All plant material shall be watered twice a month during the 1st growing season, more or less frequently depending on weather conditions. During the second growing season, once a month during May-September, if needed.

2. Removal of invasive exotics and noxious weeds. Old field successional species will be retained.

3. Identification of serious plant pests and diseases, treament with appropriate agent.

4. Pruning of dead branches.

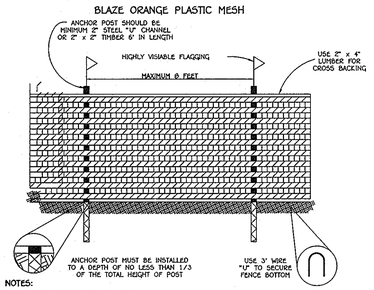
5. After 12 and 24 months, replacement of plants, if required, in accordance with the Guarantee Requirement shown on the FCP.

D. Guarantee Requirements

A 90 percent survival rate of the reforestation plantings will be required after one growing season. All plant material below the 90 percent survival threshold will be placed at the beginning of the second growing season. At the end of the second growing season, a 75 percent survival rate will be required. All plant material below the 75 percent survival threshold will be replaced by the beginning of the next growing season.

E. Security for Reforestation

Section 16-1209 of the Howard County Forest Conservation Act requires that a developer shall post a security (bond, letter of credit, etc.) with the County to insure that all work is done in accordance with the FCP.



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 DEVICE.
4. ROOT DAMAGE SHOULD BE AVOIDED.
5. PROTECTIVE SIGNAGE MAY ALSO BE USED.
6. DEVICE SHOULD BE MAINTAINED THROUGHOUT CONSTRUCTION.

TREE PROTECTION DETAIL
NOT TO SCALE

CONSTRUCTION PERIOD PROTECTION PROGRAM

A. Forest Protection Techniques

1. Soil Protection Area (Critical Root Zone)

The soil protection area, or critical root zone, of a tree is that portion of the soil column where most of its roots may be found. The majority of roots responsible for water and nutrient uptake are located just below the soil surface. Temporary fencing shall be placed around the critical root zone of the forest in areas where the forest limits occur within 25 feet of the limit of disturbance.

2. Fencing and Signage

Existing forest limits occuring within 25 feet of the limits of disturbance shall be protected using temporary protective fencing. Permanent signage shall be place around the afforestation area prior to plant installation, as shown on the plan.

B. Pre-Construction Meeting

Upon staking of limits of disturbance, a pre-construction meeting will be held between the developer, contractor and appropriate County inspector. The purpose of the meeting will be to verify that all sediment control is in order, and to notify the contractor of possible penalties for non-compliance with the FCP.

C. Storage Facilities/Equipment Cleaning

All equipment storage, parking, sanitary facilities, material stockpiling, etc. associated with construction of the project will be restricted to those areas outside of the proposed Forest Conservation Easement. Cleaning of equipment will be limited to area within the LOD of the proposed homesites. Wastewater resulting from equipment cleaning will be controlled to prevent runoff into invironmentally sensitive areas.

D. Sequence of Construction

The following timetable represents the proposed timetable for development. The items outlined in the Forest Conservation Plan will be enacted within two (2) years of subdivision approval.

1. Install all signage and sediment control devices.
2. Hold pre-construction meeting between developer, contractor and County inspector.
3. Begin multiflora rose removal. Install permanent protective signage for Easements and initiate plantings in accordance with Forest Conservation Plan. Plantings will be completed within two (2) years of subdivision approval.
4. Remove sediment control measures.
5. Hold post-construction meeting with County inspector to assure compliance with FCP. Submit Certification of Installation.
6. Monitor and maintain plantings for 2 years.

E. Construction Monitoring

Eco- Science Professionals, or another qualified professional designated by the developer, will monitor construction of the project to ensure that all activities are in compliance with the Forest Conservation Plan.

F. Post-Construction Meeting

Upon completion of construction, Eco-Science Professionals, or another qualified professional designated by the developer, will notify the County that construction has been completed and arrange for a post-construction meeting to review the project site. The meeting will allow the County inspector to verify that afforestation plantings have been installed.

POST-CONSTRUCTION MANAGEMENT PLAN

Howard County requires a two year post-construction management plan be prepared as part of the forest conservation plan. The plan goes into effect upon acceptance of the construction certification of completion by the County. Eco-Science Professionals, or another qualified professional designated by the developer, will be responsible for implementation of the post-construction management plan.

The following items will be incorporated into the plan:

A. Fencing and Signage

Permanent signage indicating the limits of the retention/reforestation area shall be maintained.

B. General Site Inspections/Maintenance of Plantings

Site inspections will be performed a minimum of three times during the growing season. The purpose of the inspections will be to assess the health of the plantings. Appropriate measures will be taken to rectify any problems which may arise.

In addition, maintenance of the afforestation plantings will involve the following steps:

1. Watering - All plant material shall be watered twice a month during the 1st growing season, more or less frequently depending on weather conditions. During the second growing season, once a month during May-September, if needed.

2. Removal of invasive exotics and noxious weeds. Old field successional species will be retained.

3. Identification of serious plant pests and diseases, treatment with appropriate agent.

4. Pruning of dead branches.

5. After 12 and 24 months, replacement of plants, if required, in accordance with the Guarantee Requirements shown on the FCP.

C. Education

The developer will provide appropriate materials to property owners informing them of the location and purpose of the afforestation area. Materials may include site plans and information explaining the intent of the forest conservation law.

D. Final Inspection

At the end of the two year post-construction management period, Eco-Science Professionals, or another qualifed professional, will submit to the administrator of the Howard County Forest Conservation Program certification that all retention/afforestation requirements have been met. Upon acceptance of this certification, the County will release the developer from all future obligations and release the developer's bond.

Forest Stand Data

Key	Community Type	Acreage	Dominant Vegetation	General Condition	Size Range Dominant Trees	Priority Acreage
F1	Successional	7.0	Pinus virginiana, Robinia pseudo- acacia, Acer rubrum, Prunus serotina, Liriodendron tulipifera	Good	4-8 inch dbh	0.0

FSD NOTES:

1. There are no rare, threatened or endangered species on site nor their habitats.
2. Surrounding land use is high density residential.
3. All forest on the site is in stand F-1.
4. No wetlands, streams, 100 year floodplain or buffers are present on the subject property. There are 15%-24.9% slopes and slopes 25% and greater on the subject property. See FSD legend for designation.
5. There are no specimen trees or state champion trees on the subject property.
6. There are no historic structures or cemeteries on the subject property.

NOTE - Hedge areas are too narrow to be considered regulated forest.

2	REVISED TITLE BLOCK	6/7/11
1	CHANGED SUBDIVISION NAME AND ROAD NAME	9/2/10
NO.	DESCRIPTION	DATE
	REVISIONS	

MD DNR Qualified Professional
USACOE Wetland Delineator
Certification # WDCP93MD0610044B2
JOHN P. CANOLES

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Consulting Ecologist
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"Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 13204, Expiration Date: November 3, 2010."

STATE OF MARYLAND — CHARLES J. CROVO — 13204 — REGISTERED PROFESSIONAL ENGINEER

CHARLES J. CROVO, SR., P.E. — 12/3/09 DATE

Planting/Soil Specifications

1. Installation of bareroot/plug plant stock shall take place between March 15 - April 20; b&b/container stock March 15 -May 30 or September 15 - November 15. Fall planting of B&B stock is not recommended.
2. Disturbed areas shall be seeded and stabilized as per general construction plan for project. Planting areas not impacted by site grading shall have no additional topsoil installed.
3. Bareroot plants shall be installed so that the top of root mass is level with the top of existing grade. Roots shall be dipped in an anti-desiccant gel prior to planting. Backfill in the planting pits shall consist of 3 parts existing soil to 1 part pine fines or equivalent.
4. Fertilizer shall consist of Agriform 22-8-2, or equivalent, applied as per manufacturer's specifications, for woody plants. Herbaceous plant shall be fertilized with Osmocote 8-6-12.
5. Plant material shall be transported to the site in a tarped or covered truck. Plants shall be kept moist prior to planting.
6. The contractor shall remove all non-organic debris associated with the planting operation from the site.

Sequence of Construction

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

Maintenance of Plantings

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

Guarantee Requirements

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

Education of New Occupants

1. The developer shall provide educational information to all property owners within the new development/home about the proper use of forest conservation areas.

Final Inspection and Release of Obligations

1. At the end of the post-construction management and protection period the developer shall submit a certification to the County that all forest conservation areas have remained intact or have been restored to appropriate condition, that the stipulated survival rates have been achieved, and that any permanent protection measures required by the plan are in place. Upon review and acceptance, the County will inform the developer of their release the development of future obligations related to the Forest Conservation Act.

Typical Planting Layout

LtPsLtAr

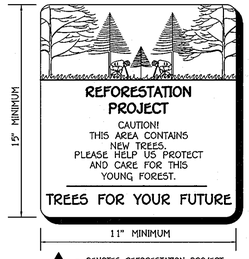
Ar RpLt

QaVpArRp

LtPsRp

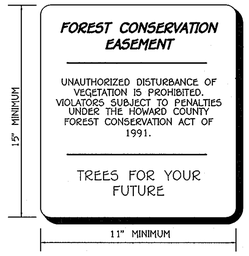
ArRpLtLt

THIS DIAGRAM SHOWS A TYPICAL DISPERSAL OF SPECIES WITH A PLANTING AREA. THE SPACING SHALL BE IN ACCORDANCE WITH THE APPROVED PLANTING SCHEDULE. WHERE THE SIZE OF THE PLANTING STOCK VARIES, THE PLANTING UNITS SHALL BE INSTALLED AT AVERAGED SPACING TO PROVIDE APPROXIMATELY UNIFORM COVERAGE.



▲ - DENOTES REFORESTATION PROJECT SIGN TO BE INSTALLED
- PROTECTIVE SIGNAGE SHALL BE IN PLACE FOR PERPETUITY.

ON-SITE SIGNAGE



▲ - DENOTES FOREST CONSERVATION EASEMENT SIGN TO BE INSTALLED.
- PROTECTIVE SIGNAGE SHALL BE IN PLACE FOR PERPETUITY.

PLANTING SCHEDULE

FCE#1 - Planting Area A - 0.9 acre
Planting units Required: 630
Planting units Provided: 630

Qty.	Species	Size	Spacing	Total FCA Units
25	Acer rubrum - Red maple	1"cal.	15' o.c.	
25	Cornus florida - Flowering dogwood	1"cal.	15' o.c.	
30	Liriodendron tulipifera - Tulip poplar	1"cal.	15' o.c.	
35	Prunos serotina - Black cherry	1"cal.	15' o.c.	
20	Quercus alba - White oak	1"cal.	15' o.c.	
30	Robinia pseudo-acacia - Black locust	1"cal.	15' o.c.	
15	Viburnum prunifolium - Blackhaw	1"cal.	15' o.c.	
180	Total 1" caliper trees x 3.5 units/tree = FCE unit credit			630
	Total Unit Credit			630

FCE#1 - Planting Area B - 0.2 acre
Planting units Required: 140
Planting units Provided: 140

Qty.	Species	Size	Spacing	Total FCA Units
5	Acer rubrum - Red maple	1"cal.	15' o.c.	
5	Cornus florida - Flowering dogwood	1"cal.	15' o.c.	
5	Liriodendron tulipifera - Tulip poplar	1"cal.	15' o.c.	
5	Prunos serotina - Black cherry	1"cal.	15' o.c.	
5	Quercus alba - White oak	1"cal.	15' o.c.	
10	Robinia pseudo-acacia - Black locust	1"cal.	15' o.c.	
5	Viburnum prunifolium - Blackhaw	1"cal.	15' o.c.	
40	Total 1" caliper trees x 3.5 units/tree = FCE unit credit			140
	Total Unit Credit			140

Planting Notes:

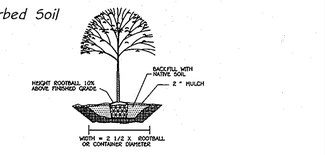
Planting density based spacing requirements: 1" caliper trees @ 15' on center.

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

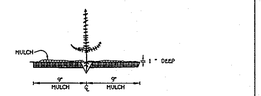
Multiflora rose/heavy brush removal/control may be required prior to installation of planting.

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

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



CONTAINER GROWN AND B & B PLANTING TECHNIQUES



Seeding and Whip Planting Specification

FCE NOTES

1. Any Forest Conservation Easement (FCE) area shown hereon is subject to protective covenants which may be found in the Land Records of Howard County which restrict the disturbance and use of these areas.

2. Forested areas occurring outside of the FCE shall not be considered part of the FCE and shall not be subject to protective land covenants.

3. Limit 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. Fencing shall be installed along limits of disturbance occurring within 50 feet of the proposed FCE limits.

7. Permanent signage will be posted at 50-100 foot intervals along all FCE limits.

8. The Forest Conservation Act requirements for this project will be met through the retention of 2.2 areas of net tract forest within the limits of a Forest Conservation Easement and the onsite reforestation of 1.1 areas.

OWNERS

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(410) 796-2480

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 12/22/09

CHIEF, DEVELOPMENT ENGINEERING DIVISION J.P. — DATE 12/18/09

FOREST CONSERVATION NOTES AND DETAILS

GABRIEL'S COURTYARD

LOTS 1-39, A2 THRU A4 (PER F-11-051), OPEN SPACE LOTS 40 AND 41

2 SINGLE FAMILY DETACHED LOTS, 40 SINGLE FAMILY ATTACHED LOTS & 2 OPEN SPACE LOTS
ZONED: R-SC
TAX MAP No. 43 GRID No. 14 PARCEL Nos. 570 & 272
SIXTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
SCALE: 1" = 40' DATE: NOVEMBER 18, 2009
SHEET 19 OF 24

F 09-047

I:\2006\06096\dwg\FINAL\06096-3001 SHEET 17-19 FOREST CONSERVATION.dwg, 1:1

APPROVED: DEPARTMENT OF PUBLIC WORKS

[signature] 12-14-09
CHIEF, BUREAU OF HIGHWAYS — DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

[signature] 12/22/09
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE

[signature] 12/18/09
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

LOG OF BORING No. B1

PROJECT: VILLA HEIGHTS SWM — PROJECT NO.: 70001942
CLIENT: FISHER, COLLINS AND CARTER
PROJECT LOCATION: MISSION ROAD, JESSUP, MARYLAND
LOCATION: BIORETENTION POND FOREBAY — ELEVATION: 257.82
DRILLER: PGS — LOGGED BY: TCS
DRILLING METHOD: SPT — DATE: 6/16/07
DEPTH TO - WATER> INITIAL: DRY — AFTER 24 HOURS: DRY — CAVING> 15.8

Depth (ft)	Description	Sample No.	Blow Counts
0–2 in.	Topsoil - 2 inches		
–2	Orangish brown moist cf SAND, and silt & clay / SM / Sandy loam	1	13 12 22
2–6	Brown and gray moist GRAVEL, and cf sand, trace silt / GP / Loamy sand	2	18 14 12
6–17	Orangish brown moist cf SAND, and to some silt, occasional trace gravel / SM / Sandy loam	3	8 13 12
		4	6 16 10
	Field infiltration test @ 12 feet - 3.88 In/hr	5	10 13 8
17–20	Tan very moist to wet mf SAND, and silt / SM / Sandy loam	6	3 5 5
	Boring terminated at 20 ft.		

TEST RESULTS: Plastic Limit — Liquid Limit; Water Content - ●; Penetration - (10 20 30 40 50)

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

PENNIMAN & BROWNE, INC.
6252 FALLS RD.
BALTIMORE, MD. 21209

Figure — PAGE 1 of 1

LOG OF BORING No. B2

PROJECT: VILLA HEIGHTS SWM — PROJECT NO.: 70001942
CLIENT: FISHER, COLLINS AND CARTER
PROJECT LOCATION: MISSION ROAD, JESSUP, MARYLAND
LOCATION: BIORETENTION POND — ELEVATION: 259.36
DRILLER: PGS — LOGGED BY: TCS
DRILLING METHOD: SPT — DATE: 6/16/07
DEPTH TO - WATER> INITIAL: DRY — AFTER 24 HOURS: DRY — CAVING> 15.7

Depth (ft)	Description	Sample No.	Blow Counts
0–4 in.	Topsoil - 4 inches		
–3	Brown damp to moist cf SAND, and silt & clay, little gravel / SM / Sandy loam	1	10 16 17
3–8	Brown and gray moist GRAVEL, and cf sand, trace silt / GP / Loamy sand	2	12 17 16
		3	17 23 21
8–12	Brown, orangish brown and gray moist cf SAND, some gravel, some clayey silt / SM / Sandy loam	4	12 24 29
12–17	Field infiltration test @ 12 feet - 2.06 In/hr. Tan moist mf SAND, and silt / SM / Sandy loam	5	4 9 4
17–20	Orangish brown wet cf SAND, little silt / SP-SM / Sand	6	[illegible]
	Boring terminated at 20 ft.		

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

PENNIMAN & BROWNE, INC.
6252 FALLS RD.
BALTIMORE, MD. 21209

Figure — PAGE 1 of 1

LOG OF BORING No. B3

PROJECT: VILLA HEIGHTS SWM — PROJECT NO.: 70001942
CLIENT: FISHER, COLLINS AND CARTER
PROJECT LOCATION: MISSION ROAD, JESSUP, MARYLAND
LOCATION: RECHARGE SOUTH OF UNIT 1-6 — ELEVATION: 255.22
DRILLER: PGS — LOGGED BY: TCS
DRILLING METHOD: SPT — DATE: 6/16/07
DEPTH TO - WATER> INITIAL: 13.1 — AFTER 24 HOURS: 7.5 — CAVING> 7.5

Depth (ft)	Description	Sample No.	Blow Counts
0–4 in.	Topsoil - 4 inches		
–6	Orangish brown and gray moist cf SAND, and gravel, trace silt / SP / SAND	1	4 6 5
		2	5 7 7
6–8	Orangish brown and gray moist GRAVEL, and cf sand, little silt & clay / GM / Loamy sand	3	12 10 10
8–12	Orangish brown and tan very moist clayey SILT, and mf sand / ML / Loam	4	3 5 5
12–15	Brown, orangish brown and gray very moist SILT & CLAY, and cf sand, trace gravel / ML / Loam	5	6 8 7
	Boring terminated at 15 ft.		

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

PENNIMAN & BROWNE, INC.
6252 FALLS RD.
BALTIMORE, MD. 21209

Figure — PAGE 1 of 1

LOG OF BORING No. B4

PROJECT: VILLA HEIGHTS SWM — PROJECT NO.: 70001942
CLIENT: FISHER, COLLINS AND CARTER
PROJECT LOCATION: MISSION ROAD, JESSUP, MARYLAND
LOCATION: RECHARGE SOUTH OF UNIT 9-19 — ELEVATION: 253.63
DRILLER: PGS — LOGGED BY: TCS
DRILLING METHOD: SPT — DATE: 6/16/07
DEPTH TO - WATER> INITIAL: 5.2 — AFTER 24 HOURS: 3.6 — CAVING> 3.9

Depth (ft)	Description	Sample No.	Blow Counts
0–4 in.	Crushed stone - 4 inches		
–8	Brown and gray moist to wet GRAVEL, and cf sand, little clayey silt / GP / Sandy loam	1	12 10 8
		2	4 6 7
		3	6 5 7
8–12	Orangish brown wet cf SAND, little silt / SP / Loamy sand	4	[illegible]
12–15	Brown, tan and gray very moist CLAY & SILT, little cf sand / CL / Clay loam	5	6 4 4
	Boring terminated at 15 ft.		

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

PENNIMAN & BROWNE, INC.
6252 FALLS RD.
BALTIMORE, MD. 21209

Figure — PAGE 1 of 1

LOG OF BORING No. B5

PROJECT: VILLA HEIGHTS SWM — PROJECT NO.: 70001942
CLIENT: FISHER, COLLINS AND CARTER
PROJECT LOCATION: MISSION ROAD, JESSUP, MARYLAND
LOCATION: RECHARGE SOUTH OF UNIT 9-19 — ELEVATION: 261.6
DRILLER: PGS — LOGGED BY: TCS
DRILLING METHOD: SPT — DATE: 6/15/07
DEPTH TO - WATER> INITIAL: DRY — AFTER 24 HOURS: DRY — CAVING> 11.9

Depth (ft)	Description	Sample No.	Blow Counts
0–1	Topsoil/organics - 12 inches		
1–3	Brown and tan damp to moist cf SAND, and silt / SM / Sandy loam	1	4 6 9
3–8	Orangish brown, tan and gray moist GRAVEL, some cf sand, some silt & clay / GM / Sandy loam	2	7 13 13
		3	10 14 17
8–15	Tan and gray moist to very moist mf SAND, and silt, with occasional silt & clay seams / SM / Sandy loam	4	5 12 14
		5	6 13 20
	Boring terminated at 15 ft.		

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

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6252 FALLS RD.
BALTIMORE, MD. 21209

Figure — PAGE 1 of 1

LOG OF BORING No. B6

PROJECT: VILLA HEIGHTS SWM — PROJECT NO.: 70001942
CLIENT: FISHER, COLLINS AND CARTER
PROJECT LOCATION: MISSION ROAD, JESSUP, MARYLAND
LOCATION: RECHARGE NORTH OF UNIT 34-42 — ELEVATION: 264
DRILLER: PGS — LOGGED BY: TCS
DRILLING METHOD: SPT — DATE: 6/16/07
DEPTH TO - WATER> INITIAL: DRY — AFTER 24 HOURS: 10.9 — CAVING> 11.5

Depth (ft)	Description	Sample No.	Blow Counts
0–3	**FILL** Brown and gray moist GRAVEL, and cf sand, some silt & clay / GM / Loamy sand	1	13 18 10
3–8	Orangish brown moist cf-cm SAND, little silt, trace gravel / SM / Sandy loam	2	17 22 23
		3	6 5 7
8–12	Orangish brown and gray moist to very moist cf SAND, and gravel, some clay & silt / SC / Silt loam	4	6 7 7
12–15	Orangish brown very moist cf SAND, some silt, trace gravel / SM / Sandy loam	5	4 7 7
	Boring terminated at 15 ft.		

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

PENNIMAN & BROWNE, INC.
6252 FALLS RD.
BALTIMORE, MD. 21209

Figure — PAGE 1 of 1

LOG OF BORING No. B7

PROJECT: VILLA HEIGHTS SWM — PROJECT NO.: 70001942
CLIENT: FISHER, COLLINS AND CARTER
PROJECT LOCATION: MISSION ROAD, JESSUP, MARYLAND
LOCATION: RECHARGE NORTH OF UNIT 34-42 — ELEVATION: 264.02
DRILLER: PGS — LOGGED BY: TCS
DRILLING METHOD: SPT — DATE: 6/15/07
DEPTH TO - WATER> INITIAL: DRY — AFTER 24 HOURS: DRY — CAVING> 10.3

Depth (ft)	Description	Sample No.	Blow Counts
0–2 in.	Topsoil - 2 inches		
–6	**FILL** Brown gray damp to moist cf SAND, and gravel, some silt & clay / SM / Sandy loam	1	5 13 16
		2	46 50/3
6–8	Brown and gray moist cf SAND, some gravel, trace silt / SP / Sand	3	12 10 17
8–12	Brown and gray moist cf SAND, and gravel, little clay & silt / SP / Loamy sand	4	4 11 8
12–15	Gray moist SILT & CLAY, and mf sand / ML / Loam	5	6 9 13
	Boring terminated at 15 ft.		

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

PENNIMAN & BROWNE, INC.
6252 FALLS RD.
BALTIMORE, MD. 21209

Figure — PAGE 1 of 1

LOG OF BORING No. B8

PROJECT: VILLA HEIGHTS SWM — PROJECT NO.: 70001942
CLIENT: FISHER, COLLINS AND CARTER
PROJECT LOCATION: MISSION ROAD, JESSUP, MARYLAND
LOCATION: RECHARGE NORTH OF UNIT 28 — ELEVATION: 264.98
DRILLER: PGS — LOGGED BY: TCS
DRILLING METHOD: SPT — DATE: 6/15/07
DEPTH TO - WATER> INITIAL: 8 — AFTER 24 HOURS: 7.4 — CAVING> 8.7

Depth (ft)	Description	Sample No.	Blow Counts
0–2 in.	Topsoil - 2 inches		
–3	Orangish brown moist cf SAND, some silt, trace gravel / SM / Sandy loam	1	24 33 23
3–6	Brown and tan moist mf SAND, and silt / SM / Sandy loam	2	[illegible]
6–8	Orangish brown moist cf SAND, little silt / SM / Sandy loam	3	8 14 14
8–15	Brown and tan very moist to wet cf SAND, some silt / SM / Sandy loam	4	6 6 9
		5	4 2 3
	Boring terminated at 15 ft.		

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

PENNIMAN & BROWNE, INC.
6252 FALLS RD.
BALTIMORE, MD. 21209

Figure — PAGE 1 of 1

NO.	DESCRIPTION	DATE
2	REVISED TITLE BLOCK	6/9/11
1	CHANGED SUBDIVISION NAME AND ROAD NAME	9/2/10

REVISIONS

STATE OF MARYLAND — CHARLES J. CROVO SR. — No. 13204 — REGISTERED PROFESSIONAL ENGINEER

"Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 13204, Expiration Date: November 3, 2010."

[signature]
CHARLES J. CROVO, SR., P.E. — 12/3/09 DATE

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042
(410) 461 - 2855

OWNERS

PARCEL 570
MR. GEORGE A. PARROTT
6421 LOUDON AVENUE
ELKRIDGE, MARYLAND 21075
(410) 796-2480

PARCEL 272
MICHAEL L. & MARY T. PFAU
3675 PARK AVENUE SUITE 301
ELLICOTT CITY, MARYLAND 21043-4511
(410) 480-0023

DEVELOPER

MR. GEORGE A. PARROTT
6421 LOUDON AVENUE
ELKRIDGE, MARYLAND 21075
(410) 796-2480

SOIL BORINGS

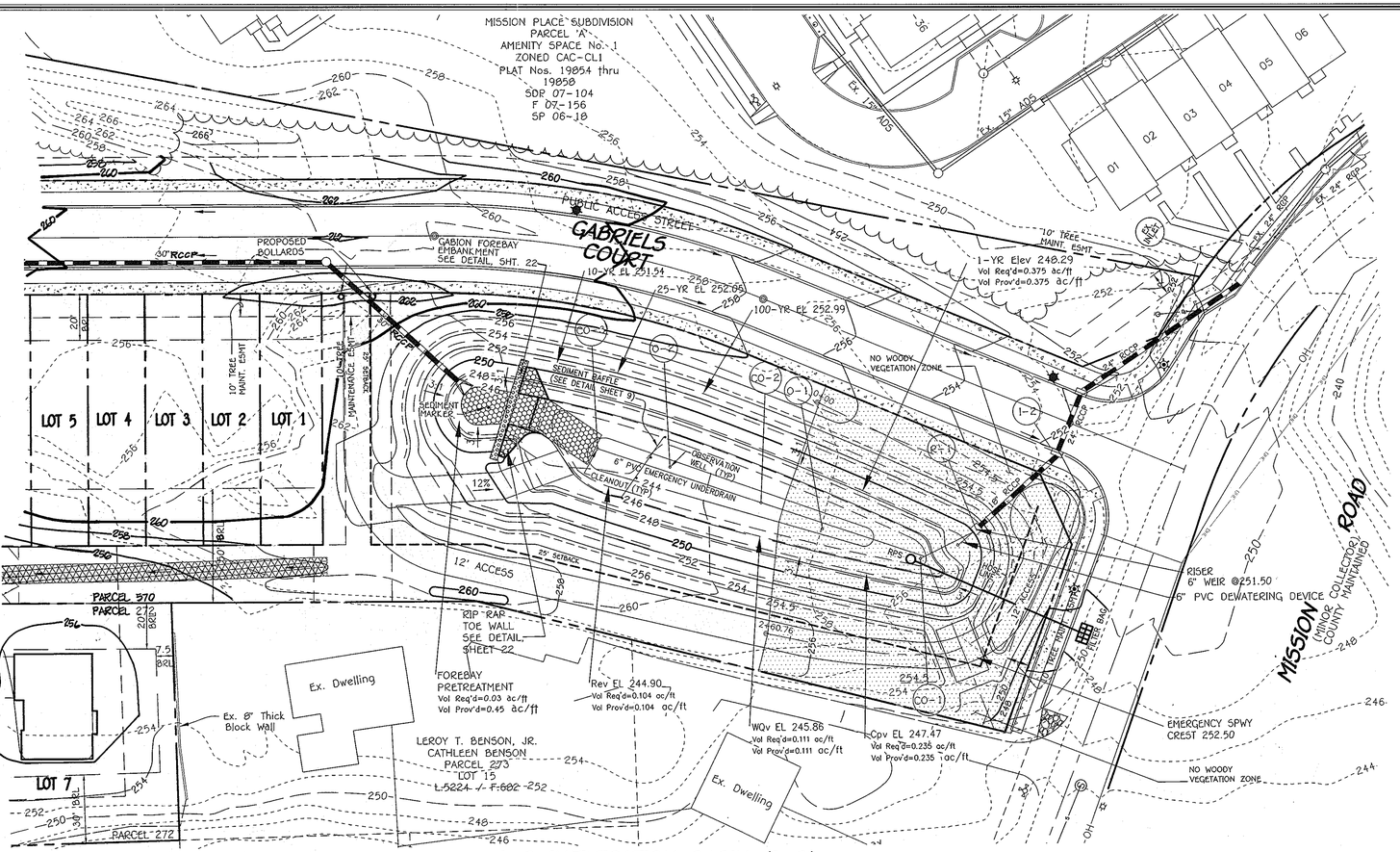
GABRIEL'S COURTYARD

LOTS 1-39, 42 THRU 44 (PER F-11-051), OPEN SPACE LOTS 40 AND 41

2 SINGLE FAMILY DETACHED LOTS, 40 SINGLE FAMILY ATTACHED LOTS & 2 OPEN SPACE LOTS
ZONED: R-SC
TAX MAP No. 43 GRID No. 14 PARCEL Nos. 570 & 272
SIXTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
SCALE: NO SCALE DATE: NOVEMBER 18, 2009
SHEET 20 OF 24

F 09-047

I:\2006\06096\dwg\FINAL\06096-3001 SHEET 20 SOIL BORINGS.dwg, 1:1



I-2 INFILTRATION BASIN (I-2)

SCALE: 1" = 30'

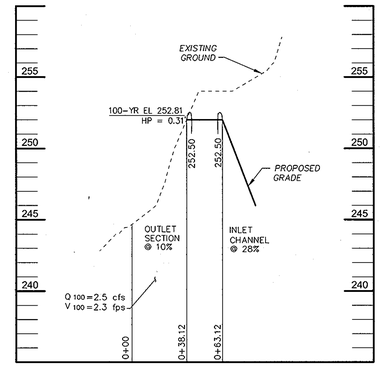
FACILITY SUMMARY DATA

DESIGN STORM	100 YEAR
Watershed	Little Patuxent
Structure Type	INFILTRATION BASIN (I-2)
Structure Classification	LOW HAZARD A - EXCAVATED
Structure Location	Urban
Storage Height Product	N/A
Watershed Area to Facility	10.46 Ac.
Minimum Top Width Provided	18.0 feet
Maximum Height of Fill	EXCAVATED
Freeboard Required Above 100 Year	1.00 feet
Freeboard Provided Above 100 Year	1.69 feet

	INFLOW (cfs)	OUTFLOW (cfs)	ELEVATION	VOLUME PROV'd (ac/ft)
Rev	0.0	0.0	244.90	0.104
WQv	0.0	0.0	245.86	0.111
Cpv	4.0	0.0	247.47	0.235
1-YEAR	4.4	0.0	248.29	0.375
10-YEAR	25.0	1.7	251.54	0.878*
25-YEAR	29.9	2.4	252.05	1.037*
100-YEAR	46.5	9.8	252.99	1.415*
100-YR SAFETY	46.5	40.7	253.33	0.707*

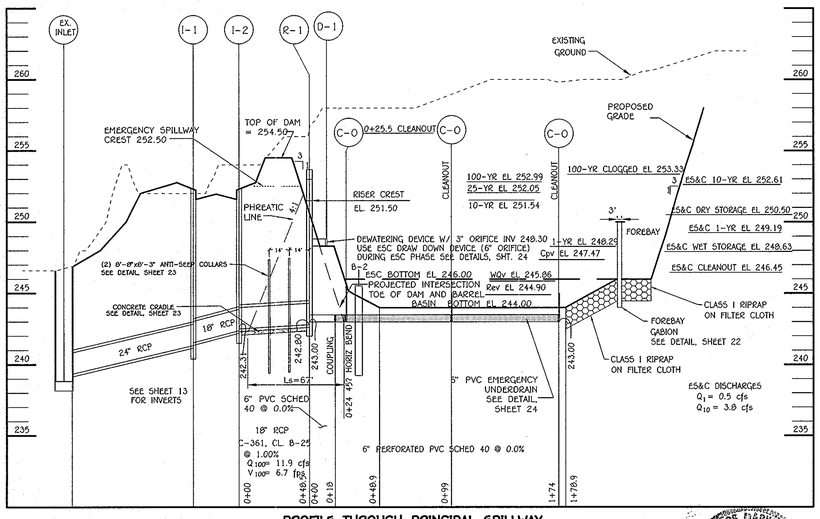
* EXCLUDES VOLUME BELOW ELEVATION 248.30

FACILITY WILL BE OWNED BY THE HOA AND JOINTLY MAINTAINED BY THE HOA AND HOWARD COUNTY.



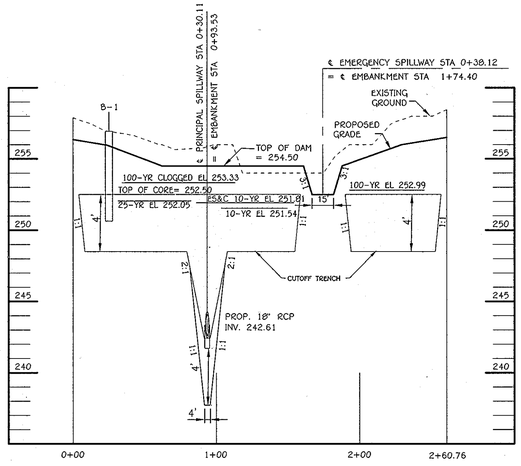
PROFILE THROUGH ℄ EMERGENCY SPILLWAY

1"=50' HORZ.
1"=5' VERT.



PROFILE THROUGH PRINCIPAL SPILLWAY AND INFILTRATION BASIN

1"=50' HORZ.
1"=5' VERT.



CROSS SECTION ALONG ℄ DAM

1"=50' HORZ.
1"=5' VERT.

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 4-13-2011

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 4-18-11

CHIEF, DEVELOPMENT ENGINEERING DIVISION J.P. — DATE 4/15/11

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."

Signature Of Developer — Date 3/21/11

MICHAEL PFAU
Printed Name Of Developer

By The Engineer:

"I Certify That This Plan For Pond Construction, Erosion And Sediment Control Represents A Practical And Workable Plan Based On My Personal Knowledge Of The Site Conditions. This Plan Was Prepared In Accordance With The Requirements Of The Howard Soil Conservation District. I Have Notified The Developer That He/She Must Engage A Registered Professional Engineer To Supervise Pond Construction And Provide The Howard Soil Conservation District With An "As-Built" Plan Of The Pond Within 30 Days Of Completion."

Signature Of Engineer — Date 3/18/11

CHARLES J. CROVO, SR.
Printed Name Of Engineer

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 3/31/11

AS-BUILT CERTIFICATION

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

Signature — P.E. No. — Date:

Certify Means To State Or Declare A Professional Opinion Based Upon Onsite Inspections And Material Tests Which Are Conducted During Construction. The Onsite Inspections And Material Tests Are Those Inspections And Tests Deemed Sufficient And Appropriate Commonly Accepted Engineering Standards. Certify Does Not mean Or Imply A Guarantee By The Engineer Nor Does An Engineer's Certification Relieve Any Other Party From Meeting Requirements Imposed By Contract, Employment, Or Other Means, Including Meeting Commonly Accepted Industry Practices.

SEDIMENT BASIN SCHEDULE
EX DRAINAGE AREA: 1.37 AC
PROP DRAINAGE AREA: 10.46 AC
STORAGE REQUIRED: 37656 CF
STORAGE PROVIDED: 38028 CF
WET STORAGE REQUIRED: 18828 CF
WET STORAGE PROVIDED: 18828 CF
DRY STORAGE REQUIRED: 18828 CF
DRY STORAGE PROVIDED: 19200 CF
4'x4' CONC RISER/18" RC BARREL
RISER CREST ELEV: 251.50
OUTLET ELEV: 242.80
EMBANKMENT ELEV: 254.50
DRY ELEV: 248.63-250.50
WET ELEV: 246.00-248.63
CLEANOUT ELEV: 247.45
BOTTOM DIMENSIONS: IRREGULAR

NOTE: THE PURPOSE OF THIS PLAN IS TO REVISE THE ROAD GRADE ALONG WITH GRADING AND STORM DRAIN PROFILES ASSOCIATED WITH THE REVISED ROAD GRADE.

NO.	DESCRIPTION	DATE
3	REVISED PROF. GRADING AND TITLE BLOCK.	6/10/11
2	REVISED GRADING AND ACCESS ROAD TO SWM.	01/31/11
1	RAISED PROPOSED ROAD; REVISED LOT LINES; CHANGED SUBDIVISION AND ROAD NAMES.	09/02/10
	REVISIONS	

REVISED FINAL ROAD CONSTRUCTION PLAN
SWM INFILTRATION BASIN, PROFILES AND DETAILS

GABRIEL'S COURTYARD

LOTS 1-39, 42 THRU 44 (PER F-11-051), OPEN SPACE LOTS 40 AND 41

2 SINGLE FAMILY DETACHED LOTS, 42 SINGLE FAMILY ATTACHED LOTS & 2 OPEN SPACE LOTS
ZONED: R-SC
TAX MAP No. 43 GRID No. 14 PARCEL Nos. 570 & 272
SIXTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
SCALE: AS NOTED DATE: MARCH 17, 2011
SHEET 21 OF 24

F 09-047

OWNERS

PARCEL 570
MR. GEORGE A. PARROTT
6421 LOUDON AVENUE
ELKRIDGE, MARYLAND 21075
(410) 796-2480

PARCEL 272
MICHAEL L. & MARY T. PFAU
3575 PARK AVENUE SUITE 301
ELLICOTT CITY, MARYLAND 21043-4511
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CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042
(410) 461 - 2855

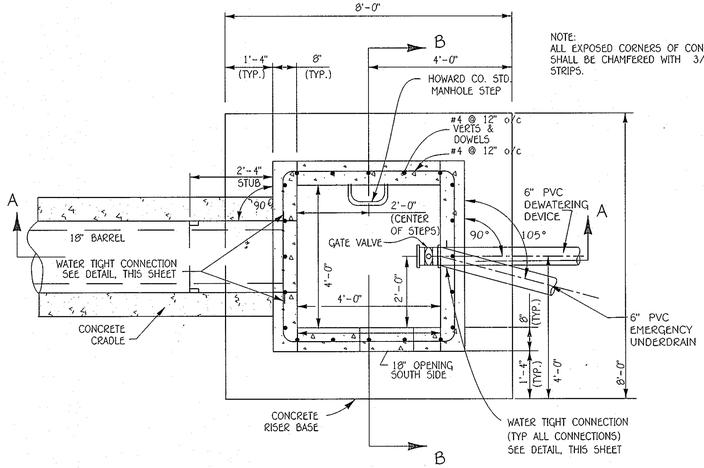
APPLIEDSTORMWATER
DESIGN. MAINTENANCE. CONSTRUCTION
dba T.E. Scott & Associates, Inc.
129 Cockeysville Road phone: 410.458.2651
Hunt Valley, MD 21030 fax: 443.269.0216
tes@mdswm.com www.mdswm.com

"Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 13204, Expiration Date: November 3, 2012."

STATE OF MARYLAND — CHARLES J. CROVO — No. 13204 — PROFESSIONAL ENGINEER

CHARLES J. CROVO, SR., P.E. — DATE 3/18/11

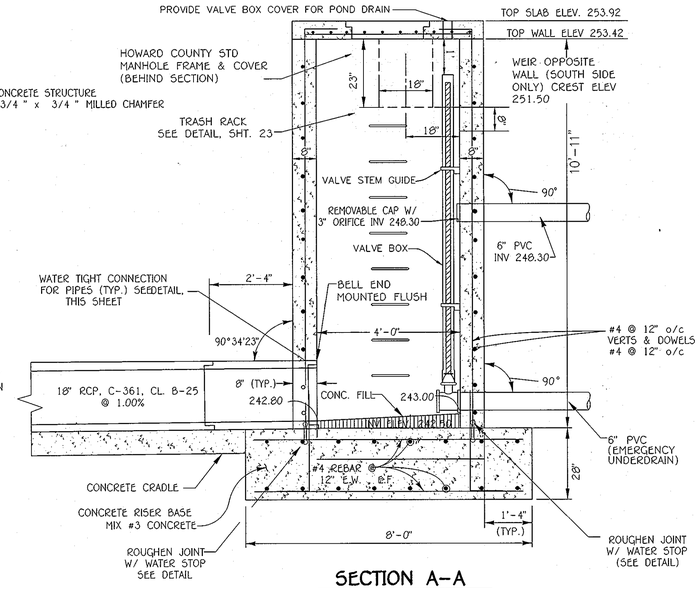
I:\2006\06090\dwg\REDLINE FINAL\06090 SHEET 21 SWM.dwg, Sheet 21 Infiltration Basin, 1:1



PLAN VIEW (SLAB REMOVED)

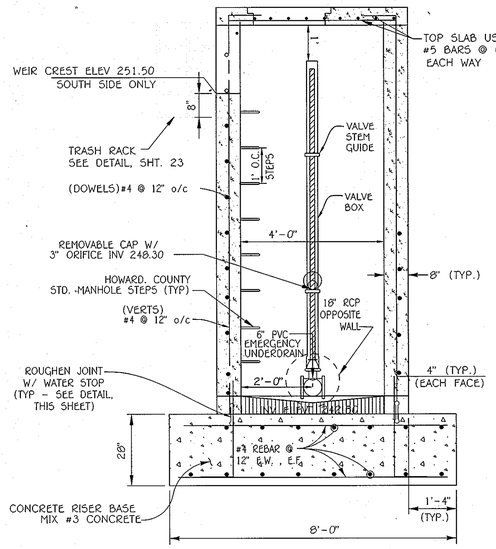
SCALE: 1" = 2'

NOTE:
ALL EXPOSED CORNERS OF CONCRETE STRUCTURE SHALL BE CHAMFERED WITH 3/4 " x 3/4 " MILLED CHAMFER STRIPS.



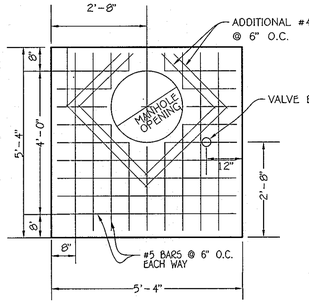
SECTION A-A

SCALE: 1" = 2'



SECTION B-B

SCALE: 1" = 2'



TOP SLAB DETAIL

SCALE: 1" = 2'

CAST-IN-PLACE CONCRETE SPECIFICATIONS

1. Specifications: Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, latest edition.

   AASHTO Standard Specifications for Highway Bridges, latest edition, for design. Concrete design by the "Service Load Design Method".

2. Concrete: shall meet the requirements of the Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 414 and 902, Mix No. 3.

3. Contractor may add color mix at plant in accordance with manufactures recommendation "C-12 mesa beige" as manufactured by L. M. Scofield Company, (213) 723-5285.

   Contractor shall supply mix design for approval prior to application. Load and mix tickets shall be supplied for each truck delivery. No partial field mixes shall be allowed.

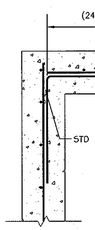
   All concrete shall attain a minimum compressive strength of 3,500 psi at 28 days. Design fc=1,200 psi.

   All exposed edges shall be chamfered 3/4 " x 3/4 ". All construction keys are shown nominal size.

4. Reinforcing Steel: Reinforcing steel shall conform to ASTM A-615, Grade 60. Where not indicated, bar lap splices shall be in accordance with AASHTO specifications. The minimum concrete cover shall be 2 inches unless otherwise noted. Design fs = 24,000 psi.

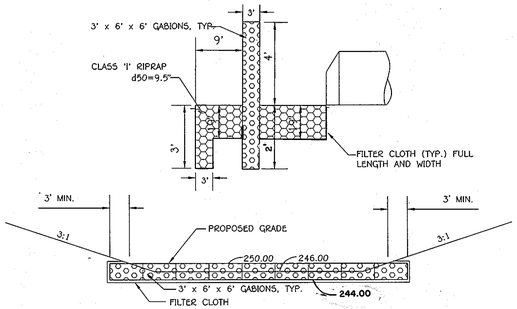
5. Foundation: Presumed soil bearing capacity = 2,500 psf. The engineer must approve all foundations prior to concrete placement. If unsuitable material is encountered, the material shall be undercut and backfilled with structural backfill.

6. Structural Backfill: Cast-in-place concrete structures and pipe shall be backfilled with select granular backfill meeting the requirements of SHA graded aggregate-subbase. Structural fill shall be placed in loose lifts of approximately 6 inches, and compacted to 95% of the standard proctor maximum dry density in accordance with AASHTO T-180. The static weight of equipment used adjacent to walls shall not exceed 3,000 pounds. No backfill shall be placed against the cast-in-place walls until the concrete has attained the specified 28 day strength.



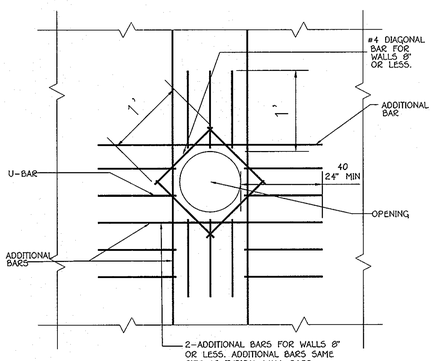
CONCRETE WALL CORNER REINFORCING

NOT TO SCALE



SECTION GABION FOREBAY DETAIL

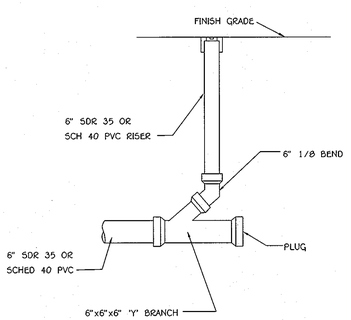
NOT TO SCALE



NOTE:
SEE TYP CONCRETE WALL CORNER REINF DETAIL FOR U-BARS.

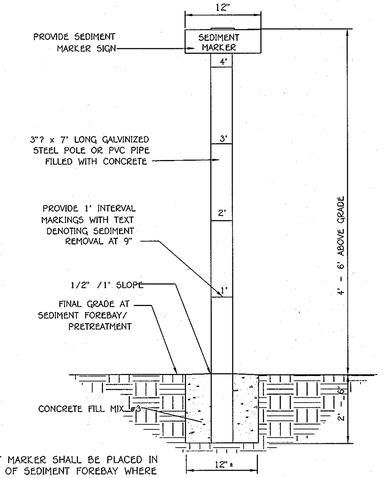
ADDITIONAL BARS AROUND OPENING IN CONCRETE WALL

NOT TO SCALE



CLEANOUT DETAIL

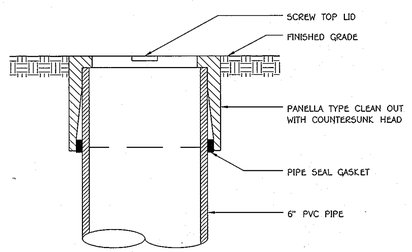
NOT TO SCALE



NOTE: SEDIMENT MARKER SHALL BE PLACED IN BOTTOM OF SEDIMENT FOREBAY WHERE MINIMAL DISTURBANCE IS ANTICIPATED DURING SEDIMENT REMOVAL.

SEDIMENT MARKER DETAIL

NOT TO SCALE



EACH OBSERVATION WELL / CLEANOUT SHALL INCLUDE THE FOLLOWING:

1. FOR AN UNDERGROUND FLUSH MOUNTED OBSERVATION WELL / CLEANOUT, PROVIDE A TUBE MADE OF NON-CORROSIVE MATERIAL, SCHEDULE 40 OR EQUAL, AT LEAST THREE FEET LONG WITH AN INSIDE DIAMETER OF AT LEAST 6 INCHES.

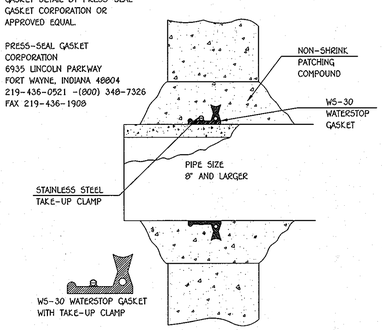
2. THE TUBE SHALL HAVE A FACTORY ATTACHED CAST IRON OR HIGH IMPACT PLASTIC COLLAR WITH RIBS TO PREVENT ROTATION WHEN REMOVING SCREW TOP LID. THE SCREW TOP LID SHALL BE CAST IRON OR HIGH IMPACT PLASTIC THAT WILL WITHSTAND ULTRAVIOLET RAYS.

CLEANOUT/OBSERVATION WELL CAP DETAIL

NOT TO SCALE

PROVIDE WS-30 WATERSTOP GASKET DETAIL BY PRESS-SEAL GASKET CORPORATION OR APPROVED EQUAL.

PRESS-SEAL GASKET CORPORATION
6935 LINCOLN PARKWAY
FORT WAYNE, INDIANA 46804
219-436-0521 -(800) 348-7326
FAX 219-436-1908



WATERTIGHT CONNECTION DETAIL

NOT TO SCALE

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 12-14-09

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 12/22/09

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 12/18/09

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."

Signature Of Developer — Date 12/3/09

GEORGE A PARROTT
Printed Name Of Developer

By The Engineer:

"I Certify That This Plan For Pond Construction, Erosion And Sediment Control Represents A Practical And Workable Plan Based On My Personal Knowledge Of The Site Conditions. This Plan Was Prepared In Accordance With The Requirements Of The Howard Soil Conservation District. I Have Notified The Developer That He/She Must Engage A Registered Professional Engineer To Supervise Pond Construction And Provide The Howard Soil Conservation District With An "As-Built" Plan Of The Pond Within 30 Days Of Completion."

Signature Of Engineer — Date 12/3/09

CHARLES J. CRAVOS
Printed Name Of Engineer

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 12/9/09

AS-BUILT CERTIFICATION

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

Signature — P.E. No. — Date:

Certify Means To State Or Declare A Professional Opinion Based Upon Onsite Inspections And Material Tests Which Are Conducted During Construction. The Onsite Inspections And Material Tests Are Those Inspections And Tests Deemed Sufficient And Appropriate Commonly Accepted Engineering Standards. Certify Does Not mean Or Imply A Guarantee By The Engineer Nor Does An Engineer's Certification Relieve Any Other Party From Meeting Requirements Imposed By Contract, Employment, Or Other Means, Including Meeting Commonly Accepted Industry Practices.

NO.	DESCRIPTION	DATE
2	REVISED TITLE BLOCK	6/9/11
1	CHANGED SUBDIVISION NAME AND ROAD NAME	9/2/10
REVISIONS		

SWM INFILTRATION BASIN DETAILS

GABRIEL'S COURTYARD

LOTS 1-39, 42 THRU 44 (PER F-11-051), OPEN SPACE LOTS 40 AND 41

2 SINGLE FAMILY DETACHED LOTS, 40 SINGLE FAMILY ATTACHED LOTS & 2 OPEN SPACE LOTS
ZONED: R-SC
TAX MAP No. 43 GRID No. 14 PARCEL Nos. 570 & 272
SIXTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
SCALE: AS NOTED DATE: NOVEMBER 18, 2009
SHEET 22 OF 24

F 09-047

OWNERS

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MR. GEORGE A PARROTT
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PARCEL 272
MICHAEL L & MARY T. PFAU
3675 PARK AVENUE SUITE 301
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(410) 480-0023

DEVELOPER

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FISHER, COLLINS & CARTER, INC.
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(410) 461 - 2855

APPLIEDSTORMWATER
DESIGN MAINTENANCE CONSTRUCTION
dba T.E. Scott & Associates, Inc.
129 Cockeysville Road phone: 410.458.2651
Hunt Valley, MD 21030 fax: 443.269.0216
tes@mdswm.com www.mdswm.com

"Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 13204, Expiration Date: November 3, 2010."

STATE OF MARYLAND — CHARLES J. CRAVOS, SR. — No. 13204 — PROFESSIONAL ENGINEER

CHARLES J. CRAVOS, SR., P.E. — DATE 12/3/09

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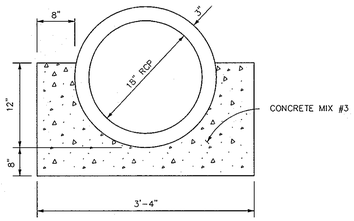
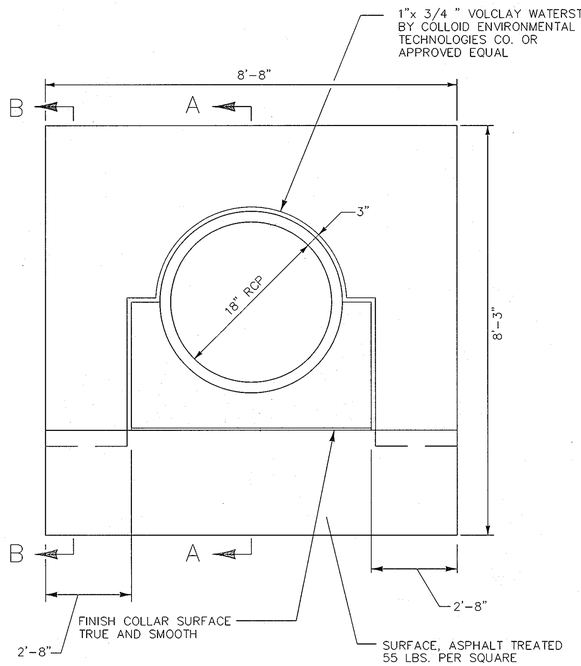
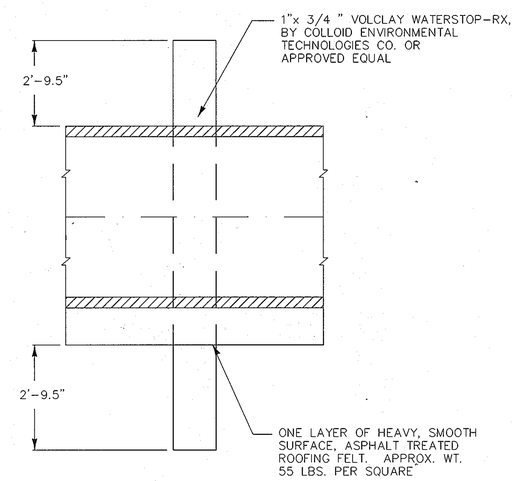


CONCRETE CRADLE

NOT TO SCALE



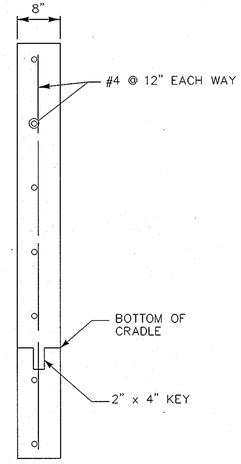
DETAIL SHOWN FOR EARTH FOUNDATION. FOR ROCK FOUNDATION, FOUND BOTTOM OF CRADLE ON ROCK LINE AND KEY COLLAR 6" INTO ROCK.



SECTION A–A

NOTE: ANTI-SEEP COLLAR TO BE FIELD ADJUSTED TO BE A MIN. 2' FROM ANY PIPE JOINT.

NOTE: PROVIDE ASPHALT JOINT FILLER MATERIAL BETWEEN ALL CONCRETE SURFACES EXCEPT BETWEEN THE PIPE AND CONC. CRADLE.



SECTION B–B

(SHOWING STEEL)

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — 12-14-09 DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — 12/22/09 DATE

CHIEF, DEVELOPMENT ENGINEERING DIVISION — 12/18/09 DATE

By The Developer:

"I/We Certify That All Development And/Or Construction Will Be Done According To These Plans, And That Any Responsible Personnel Involved In The Construction Project Will Have A Certificate Of Attendance At A Department Of The Environment Approved Training Program For The Control Of Sediment And Erosion Before Beginning The Project. I Shall Engage A Registered Professional Engineer To Supervise Pond Construction And Provide The Howard Soil Conservation District With An "As-Built" Plan Of The Pond Within 30 Days Of Completion. I Also Authorize Periodic On-Site Inspections By The Howard Soil Conservation District."

Signature Of Developer — 12/3/09 Date

GEORGE A. PARROTT
Printed Name Of Developer

By The Engineer:

"I Certify That This Plan For Pond Construction, Erosion And Sediment Control Represents A Practical And Workable Plan Based On My Personal Knowledge Of The Site Conditions. This Plan Was Prepared In Accordance With The Requirements Of The Howard Soil Conservation District. I Have Notified The Developer That He/She Must Engage A Registered Professional Engineer To Supervise Pond Construction And Provide The Howard Soil Conservation District With An "As-Built" Plan Of The Pond Within 30 Days Of Completion."

Signature Of Engineer — 12/3/09 Date

CHARLES J. CROVO SR.
Printed Name Of Engineer

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

Howard Soil Conservation District — 12/9/09 Date

AS-BUILT CERTIFICATION

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

Signature — P.E. No. — Date:

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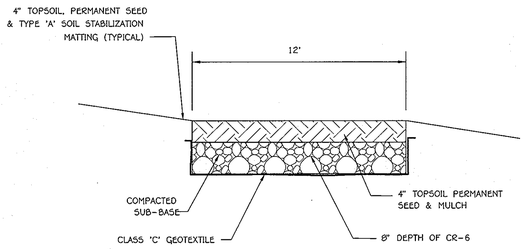
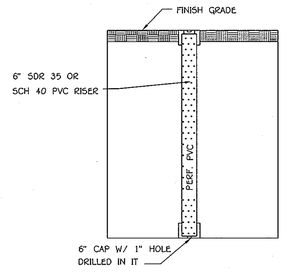
ANTI SEEP COLLAR

NOT TO SCALE



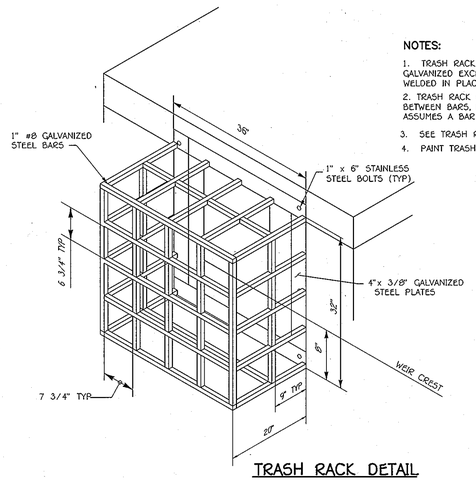
MAINTENANCE ACCESS ROAD

NOT TO SCALE



OBSERVATION WELL DETAIL

NOT TO SCALE

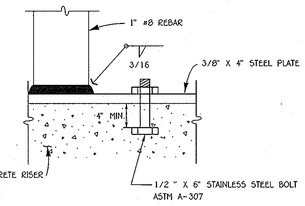


TRASH RACK DETAIL

NOT TO SCALE

NOTES:

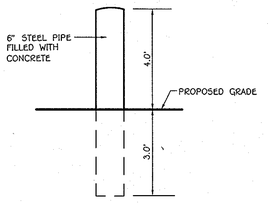
1. TRASH RACK TO BE PREFABRICATED AND HOT DIP GALVANIZED EXCEPT AS NOTED. TRASH RACK TO BE CUT AND WELDED IN PLACE.
2. TRASH RACK OPENINGS INDICATED REPRESENT CLEAR SPACE BETWEEN BARS, NOT CENTER TO CENTER. THIS DETAIL ASSUMES A BAR DIAMETER OF 1".
3. SEE TRASH RACK WELDING DETAILS THIS SHEET
4. PAINT TRASH RACK BATTLESHIP GREY.



*ALL STEEL SHALL BE ASTM A-36 (OR A-500 FOR TUBING) FULLY HOT DIPPED GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A-123."

TRASH RACK WELDING DETAIL

NOT TO SCALE



BOLLARD DETAIL

NOT TO SCALE

FISHER, COLLINS & CARTER, INC.
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STATE OF MARYLAND — CHARLES J. CROVO SR. — No. 13204 — REGISTERED PROFESSIONAL ENGINEER

CHARLES J. CROVO, SR., P.E. — 12/3/09 DATE

OWNERS

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SWM INFILTRATION BASIN DETAILS

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SCALE: AS NOTED DATE: NOVEMBER 18, 2009
SHEET 23 OF 24

F 09-047

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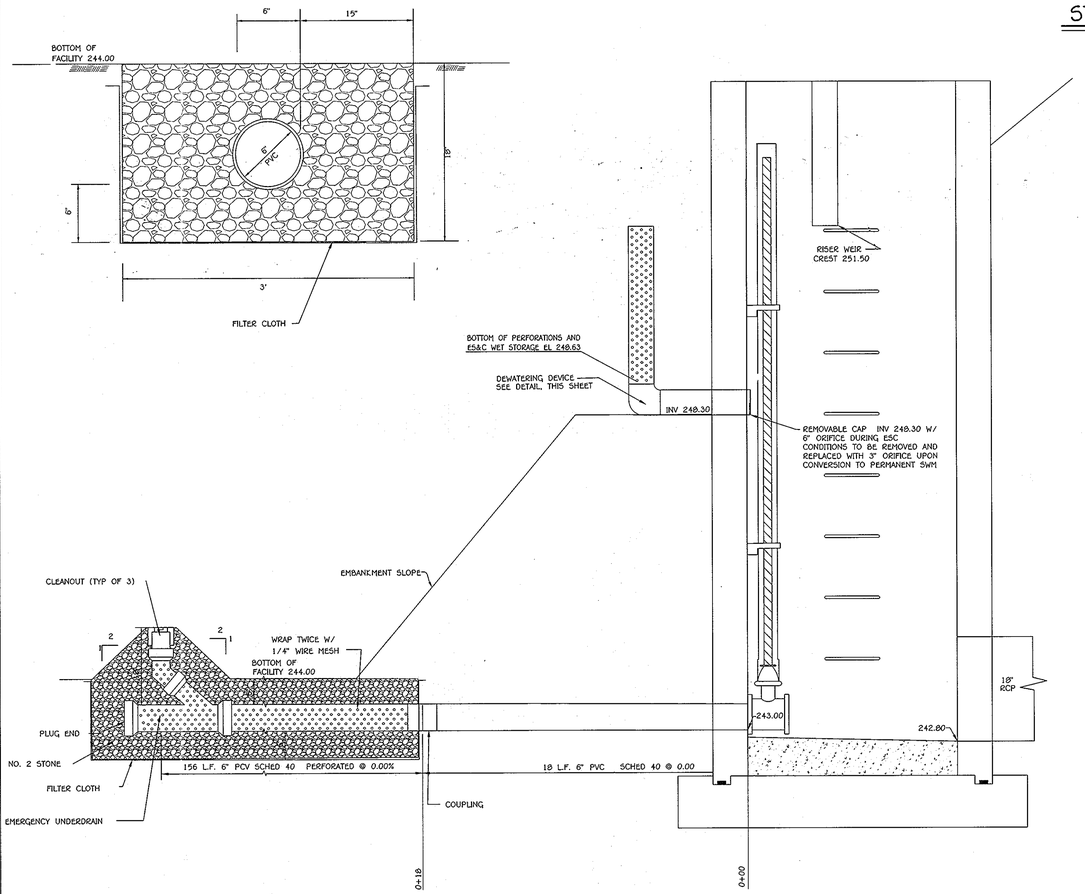
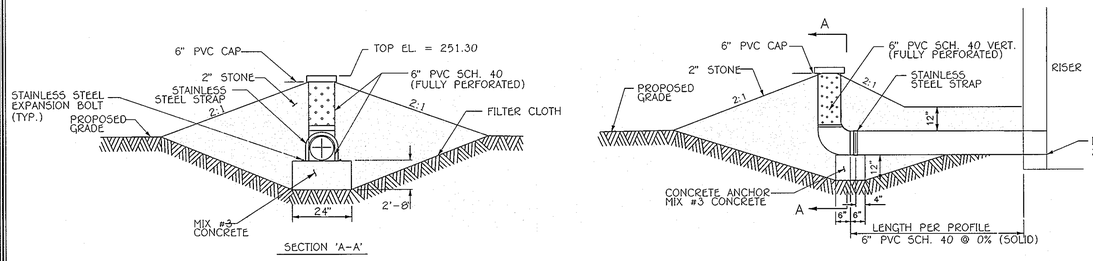


DEWATERING DEVICE & EMERGENCY UNDERDRAIN DETAIL

NOT TO SCALE



NOTE:
PERFORATED PVC SHALL BE "FULLY PERFORATED". HAVING A MINIMUM OF 32, 1" DIAMETER HOLES PER LINEAR FOOT. PERFORATIONS SHALL BE EVENLY DISTRIBUTED AROUND THE FULL PERIPHERY OF THE PIPE.

DEWATERING DEVICE

NOT TO SCALE

STORMWATER MANAGEMENT POND CONSTRUCTION SPECIFICATIONS

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

Site Preparation

Areas designated for borrow areas, embankment, and structural works shall be cleared, grubbed and stripped of topsoil. All trees, vegetation, roots and other objectionable material shall be removed. Channel banks and sharp breaks shall be sloped to no steeper than 1:1. All trees shall be cleared and grubbed within 15 feet of the toe of the embankment. Areas to be covered by the reservoir will be cleared of all trees, brush, logs, fences, rubbish and other objectionable material unless otherwise designated on the plans. Trees, brush, and stumps shall be cut approximately level with the ground surface.

For dry stormwater management ponds, a minimum of a 25-foot radius around the inlet structure shall be cleared. All cleared and grubbed material shall be disposed of outside and below the limits of the dam and reservoir as directed by the owner or his representative. When specified, a sufficient quantity of topsoil will be stockpiled in a suitable location for use on the embankment and other designated areas.

EARTH FILL

Material – The fill material shall be taken from approved designated borrow areas. It shall be free of rocks, stumps, wood, rubbish, stones greater than 6", frozen or other objectionable materials. Fill material for the center of the embankment, and cut off trench shall conform to Unified Soil Classification 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 the equipment used. The fill material shall contain sufficient moisture so that if formed into a ball it will not crumble, yet not be so wet that water can be squeezed out. When required by the reviewing agency the minimum required density shall not be % of the less than 95 % of maximum dry density with a moisture content within +2 optimum. Each layer of fill shall be compacted as necessary to obtain that density, and is to be certified by the Engineer at the time of construction. All compaction is to be determined by AASHTO Method T-99 (Standard Proctor).

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

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

Structure Backfill

Backfill adjacent to pipes or structures shall be of the type and quality conforming to that specified for the adjoining fill material. The fill shall be placed in horizontal layers not to exceed four inches in thickness and compacted by hand tampers or other mechanically directed compaction equipment. The material needs to fill completely all spaces under and adjacent to the pipe. At no time during the backfilling operation shall driven equipment be allowed to operate closer than four feet, measured horizontally, to any part of a structure. Under no circumstances shall equipment be driven over any part of a concrete structure or pipe, unless there is a compacted fill of 24" or greater over the structure or pipe.

Structure backfill may be flowable fill meeting the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 313 as modified. The mixture shall have a 100-200 psi 28-day unconfined compressive strength. The flowable fill shall have a minimum pH of 4.0 and a minimum resistivity of 2,000 ohm-cm. Material shall be placed such that a minimum of 6" (measured perpendicular to the outside of the pipe) of flowable fill shall be under (bedding), over and, on the sides of the pipe. It only needs to extend up to the spring line for rigid conduits. Average dump 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 mechanically directed compaction equipment. The material shall completely fill all voids adjacent to the flowable fill zone. At no time during the backfilling operation shall driven equipment be allowed to operate closer than four feet, measured horizontally, to any part of a structure. Under no circumstances shall equipment be driven over any part of a structure or pipe unless there is a compacted fill of 24" or greater over the structure or pipe. Backfill material outside the structural backfill (flowable fill) zone shall be of the type and quality conforming to the specified for the core of the embankment or other embankment materials.

Pipe Conduits

All pipes shall be circular in cross section.

Corrugated Metal Pipe – All of the following criteria shall apply for corrugated metal pipe:

1. Materials – (Polymer Coated steel pipe) – Steel pipes with polymeric coatings shall have a minimum coating thickness of 0.01 inch (10 mil) on both sides of the pipe. This pipe and its appurtenances shall conform to the requirements of AASHTO Specifications M-245 & M-246 with watertight coupling bands or flanges.

Materials – (Aluminum Coated Steel Pipe) – This pipe and its appurtenances shall conform to the requirements of AASHTO Specification M-274 with watertight coupling bands or flanges. Aluminum Coated Stel 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 banks or flanges. Aluminum Pipe, when used with flowable fill or when soil and/or water conditions warrant for increased durability, shall be fully bituminous coated per requirements of AASHTO Specification M-190 Type A. Aluminum surfaces that are to be in contact with concrete shall be painted with one coat of zinc chromate primer or two coats of asphalt. Hot dip galvanized bolts may be used for connections. The pH of the surrounding soils shall be between 4 and 9.

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

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

All connections shall use a rubber or neoprene gasket when joining pipe sections. The end of each pipe shall be re-rolled an adequate number of corrugations to accommodate the bandwidth. The following type connections are acceptable for pipes less than 24-inches in diameter: flanges on both ends of the pipe with a circular 3/8-inch closed cell neoprene gasket, 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 % of slump concrete placed under the pipe and up the sides of the pipe at least 50 its outside diameter with a minimum thickness of 6 inches. Where a concrete cradle is not needed for structural reasons, flowable fill may be used as described in the "Structure Backfill" section of this standard. Gravel bedding is not permitted.

3. Laying pipe – Bell and spigot pipe shall be placed with the bell end upstream. Joints shall be made in accordance with recommendations of the manufacturer of the material. After the joints are sealed for the entire line, the bedding shall be placed so that all spaces under the pipe are filled. Care shall be exercised to prevent any deviation from the original line and grade of the pipe. The first joint must be located within 4 feet from the riser.

4. Backfilling shall conform to "Structure Backfill".

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

Plastic Pipe

The following criteria shall apply for plastic pipe:

1. Materials – PVC pipe shall be PVC-1120 or PVC-1220 conforming to ASTM D-1785 or ASTM D-2241. Corrugated High Density Polyethylene (HDPE) pipe, couplings and fittings shall conform to the following: 4" – 10" inch pipe shall meet the requirement of AASHTO M252 Type S, and 12" through 24" inch shall meet the requirement 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 excavations, foundation, and other parts of the work free from water as required or directed by the engineer for constructing each part of the work. After having served their purpose, all temporary protective works shall be removed or leveled and graded to the extent required to prevent obstruction in any degree whatsoever of the flow of water to the spillway or outlet works and so as not to interfere in any way with the operation or maintenance of the structure. Stream diversions shall be maintained until the full flow can be passed through the permanent works. The removal of water from the required excavation and the foundation shall be accomplished in a manner and to the extent that will maintain stability of the excavated slopes and bottom required excavations and will allow satisfactory performance of all construction operations. During the placing and compacting of material in required excavations, the water level at the locations being refilled shall be maintained below the bottom of the excavation at such locations which may require draining the water sumps from which the water shall be pumped.

Stabilization

All borrow areas shall be graded to provide proper drainage and left in a 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.

OPERATION AND MAINTENANCE

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

GEOTECHNICAL RECOMMENDATIONS

Site Preparations

Prior to the placement of fill in any SWM embankment or slope areas, all vegetation, organic matter and/or excessively organic material, and any existing surficial soils which are excessively soft, wet or frozen should be removed and wasted. Organic materials may be stockpiled and used exclusively as the final fill layer in landscaping and recreational field areas. Otherwise, any excess organic materials should be wasted. The stripping operations should be monitored by an P & P soils technicians or Geotechnical Engineer to verify the depths of stripping.

After stripping has been completed, the exposed subgrade in areas to be filled should be examined by P&P soil technicians or Geotechnical Engineer. The technician should require the exposed **materials be proofrolled utilizing a heavily-loaded dump truck or other pneumatic-tired vehicle of similar size and weight to detect any excessively soft or yielding soils conditions. Relatively soft surficial materials may be improved for the adequate support newly placed structural fill by deeply discing or scarifying, aerating, and recompacting to the project specifications; alternately, excessively soft soils may be undercut and replaced with controlled fill.**

Depending upon weather condition, surficial undercutting of wet, excessively soft, or yielding materials may be required. If the on-site soils exhibit high moisture contents during construction, traffic of heavy equipment, including heavy compaction equipment, will create pumping and a general deterioration of these materials. A further significant increase in moisture content and/or deterioration of these moisture-sensitive soils during construction will likely require their removal and replacement with suitable (less moisture-sensitive) material. If possible, the grading operations should be conducted during dry and warm weather (preferably late spring through early fall). This should minimize potential subgrade problems, although they may not be eliminated.

If such problems arise, the P&B Geotechnical Engineer should be consulted for an evaluation of the site conditions.

B. Embankment Fill Placement

The boring and laboratory data indicate that the on-site soils are generally suitable for use as controlled, compacted fill. Any regions exhibiting poor drainage characteristics, and low lying areas, must be expected to display moisture contents excessively high for fill placement without drying.

It should be noted that the moisture descriptions shown on the boring logs are visual only, and such descriptions (moist, very moist) are related to wet-dry conditions and do not reflect moistures relative to optimum moisture contents. The use of the on-site soils for controlled, compacted fill will depend on the time of year the construction is accomplished and whether the construction schedule and space permit manipulation and/or aeration of the soils to ensure adequate compaction. As previously discussed above, it would be prudent to accomplish the earthwork operations during the warmer and drier seasons, i.e. late spring through early fall.

Controlled fill should be placed in relatively level lifts, eight inches in loose thickness, and compacted to 95 percent of the Standard Proctor maximum dry density as established by ASTM D-698 specifications.

A sufficient number of in-place density tests should be performed by an P&B engineering technician to verify that the proper degree of compaction is being obtained on all fill soils. As a minimum, each lift shall be tested and one test per 2500 square feet shall be performed.

C. Slope Recommendations

The subsoils encountered by the borings generally appear acceptable to support new sloped embankment fill depending upon location and depth. Accordingly a slope flatter than 2H:1V gradient, constructed of properly classified and compacted engineered fills will typically be stable. An in-depth slope stability analysis is not typically performed in this situation unless elevated ground water, unsuitable materials or excess loadings have been identified. Slopes designed steeper than 2H:1V and loaded that will be effected by the near surface ground water should have slope stability analysis performed.

Where fills are placed on hillsides or slopes, the slopes of the original ground upon which the fill is to be placed shall be plowed or scarified deeply, and where the slope of the existing ground is steeper than 5 horizontal to 1 vertical, the bank shall be stepped or benched in order to prevent the formation of any slip surfaces and to facilitate the placement of fill in horizontal layers. Additionally, a keyway should be installed at the base of the slope prior to any benched fill installation. Cut slopes below the ground water table are susceptible to sloughing or sliding due to excess hydrostatic pressures. Slope stabilization may be required.

It is recommended that any fill required to achieve required slope subgrade be constructed as controlled embankment placed in accordance with the previously provided requirements for fill placement. The compaction should be a minimum 95% of the ASTM D698 maximum dry density performed under the direction of a Geotechnical Engineer.

D. Embankment Seepage

Ponds that are designed as retention ponds will require an impervious core constructed of materials classified as CL, CH, SC or GL compacted to 95% of the Standard Proctor at or above optimum moisture content. It is not anticipated that sufficient qualities of CL material will be available in the soils excavated from the SWM area. It should be anticipated that import clays will be required for any planned impervious cores.

OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND JOINTLY MAINTAINED INFILTRATION BASIN FACILITIES

ROUTINE MAINTENANCE BY THE H.O.A.

1. THE FACILITY SHALL BE INSPECTED TWICE ANNUALLY – SPRING AND FALL. (INSPECTION TO BE PERFORMED BY THE H.O.A.) VISUAL INSPECTION OF ALL COMPONENTS. PHYSICAL INSPECTION OF ANY MOVABLE PARTS, DRAIN, VALVES, ETC.

2. THIS STABILIZATION IN THE DRAINAGE AREA SHALL BE CAREFULLY MAINTAINED TO REDUCE THE SEDIMENT LOAD TO THE INFILTRATION BASIN.

3. VEGETATED COVER SHALL BE MAINTAINED BY MOWING 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 SIDESLOPES AND MAINTENANCE ACCESS SHALL BE MOWED AS NEEDED. DEBRIS AND LITTER SHALL BE REMOVED DURING REGULAR MOWING OPERATIONS AND AS NEEDED. LIMING AND FERTILIZING, AS A MINIMUM REQUIREMENT THE LIME AND FERTILIZER SHALL BE APPLIED ONE (1) TIME EVERY TWO (2) YEARS. NOTE: SPECIAL CARE SHALL BE TAKEN IN THE VICINITY OF STRUCTURES SO AS TO NOT DAMAGE THESE COMPONENTS WITH HEAVY EQUIPMENT.

4. RILLS ON THE SLOPES OF THE BASIN AND WASHES IN THE EARTH SPILLWAY SHALL BE FILLED WITH SUITABLE MATERIAL AND THOROUGHLY COMPACTED. THESE AREAS SHALL BE RESEEDED OR RESODDED, LIMED AND FERTILIZED AS NEEDED.

5. ALL APPURTENANCES SHALL BE KEPT FREE OF TRASH.

NON-ROUTINE MAINTENANCE BY HOWARD COUNTY

1. SEDIMENT REMOVAL IN THE FOREBAY SHALL OCCUR WHEN 50% OF THE TOTAL CAPACITY HAS BEEN LOST. CORRECTIVE MAINTENANCE IS REQUIRED ANYTIME THE SEDIMENT CHAMBER DOES NOT DRAIN WITHIN THIRTY-SIX (36) HOURS.

2. CORRECTIVE MAINTENANCE IS REQUIRED ANYTIME A FACILITY DOES NOT DRAIN WITHIN SEVENTY-TWO (72) HOURS. THE TOP FEW INCHES OF DISCOLORED MATERIAL SHALL BE REMOVED AND SHALL BE REPLACED WITH FRESH MATERIAL. SILT/SEDIMENT SHOULD BE REMOVED WHEN THE ACCUMULATION EXCEEDS ONE INCH.

3. SEDIMENT REMOVED FROM THE FACILITY SHALL BE DISPOSED OF BASED ON CURRENT EROSION AND SEDIMENT CONTROL REGULATIONS.

4. 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.

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 12-14-09

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 12/22/09

CHIEF, DEVELOPMENT ENGINEERING DIVISION J.R. — DATE 12/18/09

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."

Signature Of Developer — Date 12/3/09

GEORGE A. PARROTT
Printed Name Of Developer

By The Engineer:

"I Certify That This Plan For Pond Construction, Erosion And Sediment Control Represents A Practical And Workable Plan Based On My Personal Knowledge Of The Site Conditions. This Plan Was Prepared In Accordance With The Requirements Of The Howard Soil Conservation District. I Have Notified The Developer That He/She Must Engage A Registered Professional Engineer To Supervise Pond Construction And Provide The Howard Soil Conservation District With An "As-Built" Plan Of The Pond Within 30 Days Of Completion."

Signature Of Engineer — Date 12/3/09

CHARLES J. CROVO SR.
Printed Name Of Engineer

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 12/9/09

AS-BUILT CERTIFICATION

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

Signature — P.E. No. — Date:

Certify Means To State Or Declare A Professional Opinion Based Upon Onsite Inspections And Material Tests Which Are Conducted During Construction. The Onsite Inspections And Material Tests Are Those Inspections And Tests Deemed Sufficient And Appropriate Commonly Accepted Engineering Standards. Certify Does Not Mean Or Imply A Guarantee By The Engineer Nor Does An Engineer's Certification Relieve Any Other Party From Meeting Requirements Imposed By Contract, Employment, Or Other Means, Including Meeting Commonly Accepted Industry Practices.

NO.	DESCRIPTION	DATE
2	REVISED TITLE BLOCK.	6/7/11
1	CHANGED SUBDIVISION NAME AND ROAD NAME	9/2/10
	REVISIONS	

SWM INFILTRATION BASIN NOTES, SPECIFICATIONS AND DETAILS

GABRIEL'S COURTYARD

LOTS 1-39, 42 THRU 44 (PER F-11-051), OPEN SPACE LOTS 40 AND 41

2 SINGLE FAMILY DETACHED LOTS, 40 SINGLE FAMILY ATTACHED LOTS & 2 OPEN SPACE LOTS
ZONED: R-SC
TAX MAP No. 43 GRID No. 14 PARCEL Nos. 570 & 272
SIXTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
SCALE: AS NOTED DATE: NOVEMBER 18, 2009
SHEET 24 OF 24

F 09-047

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTENNIAL SQUARE OFFICE PARK – 10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042
(410) 461 – 2855

APPLIEDSTORMWATER
DESIGN MAINTENANCE CONSTRUCTION
dba T.E. Scott & Associates, Inc.
129 Cockeysville Road phone: 410.458.2651
Hunt Valley, MD 21030 fax: 443.269.0216
tes@mdswm.com www.mdswm.com

"Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 13204, Expiration Date: November 3, 2010."

STATE OF MARYLAND — CHARLES J. CROVO, SR. — 13204 — PROFESSIONAL ENGINEER

CHARLES J. CROVO, SR., P.E. — DATE 12/3/09

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DEVELOPER

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