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SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	OLD ANNAPOLIS ROAD - WIDENING PLAN AND PROFILE
3	OLD ANNAPOLIS ROAD - CROSS-SECTIONS
4	STREET TREE, GRADING & SEDIMENT CONTROL PLAN
5 & 6	SEDIMENT CONTROL NOTES & DETAILS
7	SUPPLEMENTAL PLAN
8	EXISTING CONDITIONS DRAINAGE AREA MAP
9	PROPOSED CONDITIONS DRAINAGE AREA MAP
10	STORMWATER MANAGEMENT PLANS & PROFILES
11	STORMWATER MANAGEMENT SPECIFICATIONS & DETAILS

FINAL ROAD, GRADING & SEDIMENT CONTROL PLAN AND SUPPLEMENTAL PLANS

CENTENNIAL MEADOWS

LOTS 1 THRU 5

**A Resubdivision Of Lot 6 And Part Of Lot 5,
As Shown On A Plat Entitled "Gwynn Development, Section One" And
Recorded Among The Land Records Of Howard County, Maryland In
Plat Book 4, Folio 77.**

ZONING: R-20

TAX MAP NO. 30 GRID No. 3 PARCEL No. 112

APPROVED: DEPARTMENT OF PUBLIC WORKS
Walter J. Marshall 5-5-09
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
Cindy Hamant 5/12/09
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

Chris Dammann 5/12/09
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

STREET LIGHT CHART			
STREET NAME	STATION	OFFSET	FIXTURE/POLE TYPE
OLD ANNAPOLIS ROAD	29+60	28' RT	150-WATT H.P.S. VAPOR PREMIER POST-TOP MOUNTED ON A 14-FOOT BLACK FIBERGLASS POLE.

TRAFFIC CONTROL SIGNS				
STREET NAME	% STATION	OFFSET	POSTED SIGN	SIGN CODE
U.I.C. DRIVEWAY	0+40	15'	STOP	R1-1

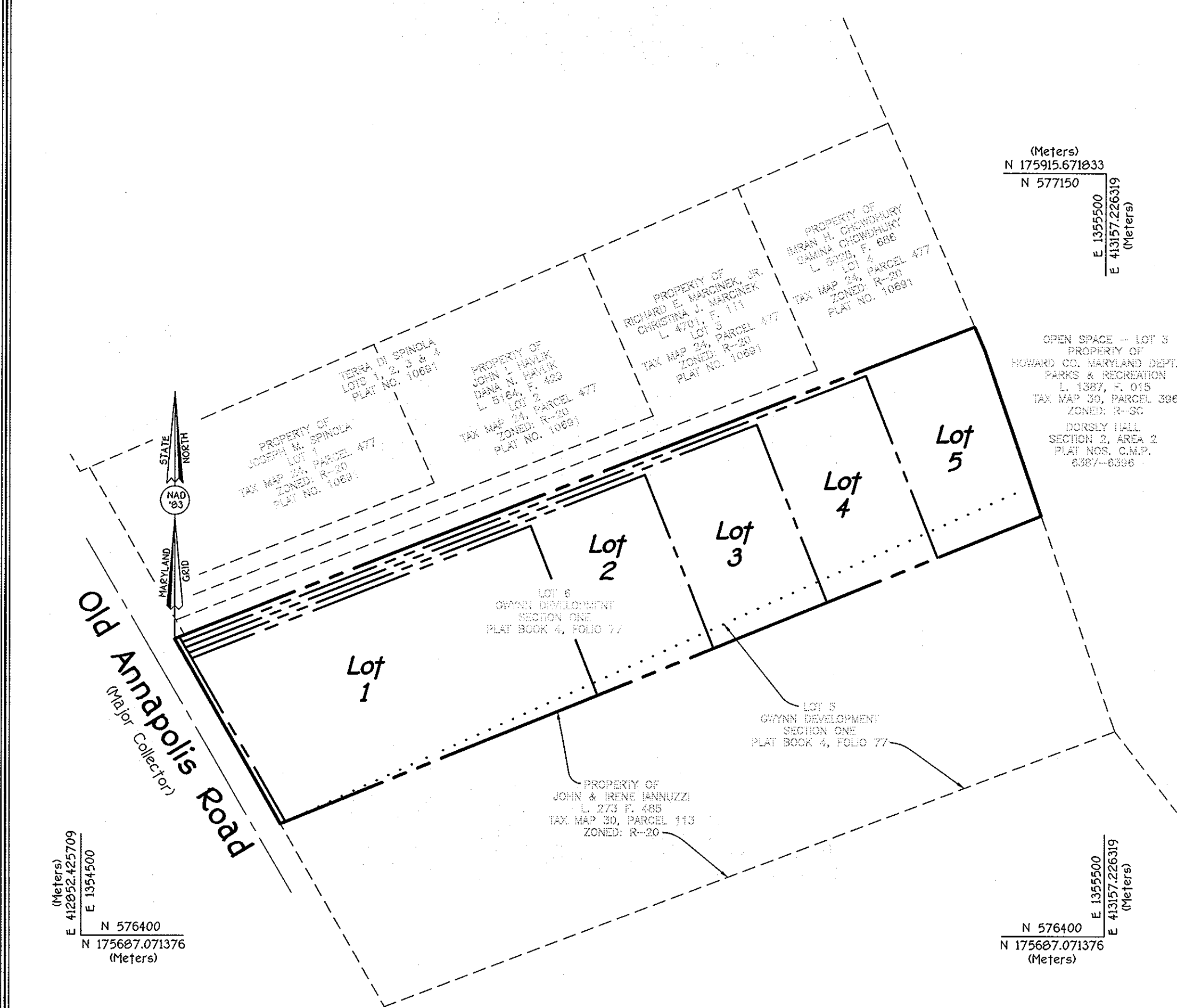


VICINITY MAP
SCALE: 1" = 2000'

SECOND ELECTION DISTRICT HOWARD COUNTY, MARYLAND

- GENERAL NOTES**
- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS IF APPLICABLE.
 - THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS / BUREAU OF ENGINEERING / CONSTRUCTION INSPECTION DIVISION AT 410-313-1800 AT LEAST (5) WORKING DAYS PRIOR TO THE START OF WORK.
 - THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.
 - TRAFFIC CONTROL DEVICES, MARKINGS AND SIGNING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
 - 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. 45-2004 AND THE ZONING REGULATIONS AS AMENDED BY COUNCIL BILL NO. 75-2003 HAD THE COMP LITE ZONING REGULATION AMENDMENTS EFFECTIVE 7/28/06. DEVELOPMENT OR CONSTRUCTION OF THESE LOTS OR PARCELS MUST COMPLY WITH SETBACKS AND BUFFER REGULATIONS IN EFFECT AT THE TIME OF SUBMISSION OF A BUILDING OR GRADING PERMIT APPLICATION.
 - SUBJECT PROPERTY ZONED R-20 PER THE 2004 ZONING REGULATIONS.
 - BACKGROUND INFORMATION:
 - SUBDIVISION NAME: CENTENNIAL MEADOWS (FORMERLY RAU PROPERTY)
 - TAX MAP NO. 30
 - PARCELS NO. 112
 - ZONING: R-20
 - ELECTION DISTRICT: SECOND
 - GROSS AREA OF TRACT = 3.807 ACRES
 - AREA OF FLOODPLAIN = 0.00 ACRES
 - AREA OF 25% OR GREATER SLOPES = 0.00 ACRES
 - NET AREA OF TRACT = 3.807 AC.
 - NUMBER OF BUILDABLE LOTS: 5
 - NUMBER OF OPEN SPACE LOTS: 0
 - AREA OF BUILDABLE LOTS: 3.763 ACRES
 - AREA OF OPEN SPACE LOTS: 0.044 ACRES
 - AREA OF ROADWAY TO BE DEDICATED: 0.024 ACRES
 - PREVIOUS FILE NUMBERS: SP-07-006 & PLAT ENTITLED "GWYNN DEVELOPMENT, SECTION ONE, PLAT BOOK 4, FOLIO 77"
 - 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 246C & 246E. THESE WERE USED FOR THIS PROJECT. HORIZONTAL AND VERTICAL CONTROL DATUM IS BASED ON HOWARD COUNTY GEODETIC CONTROL STATIONS.

HOWARD COUNTY MONUMENT NO. 246C	N 578,066.583	ELEV. = 439.58
	E 1,352,120.690	
HOWARD COUNTY MONUMENT NO. 246E	N 578,066.460	ELEV. = 446.44
	E 1,352,099.690	
 - PUBLIC WATER AND SEWER SHALL BE UTILIZED WITHIN THIS DEVELOPMENT. EXISTING UTILITIES ARE BASED ON CONTRACT NO. 801 - W & S, CONTRACT NO. 24-3225-D & CONTRACT NO. 24-4377-D.
 - SOILS INFORMATION TAKEN FROM SOIL MAP NO. 16, SOIL SURVEY, HOWARD COUNTY, MARYLAND, JULY, 1988 ISSUE.
 - BOUNDARY OUTLINE BASED ON FIELD RUN SURVEY PERFORMED BY SHIMMERSBERG & LANE DATED APRIL 2005.
 - TOPOGRAPHIC CONTOURS BASED ON FIELD RUN SURVEY BY FISHER COLLINS AND CARTER INC DATED JULY 2006.
 - 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". WQV AND REV WILL BE PROVIDED AND MAINTAINED BY UTILIZING THE CREDITS FOUND IN SECTION 5.2 "DISCONNECTION OF ROOFTOP RUNOFF CREDIT", SECTION 5.3 "DISCONNECTION OF NON ROOFTOP RUNOFF CREDIT" ALONG WITH THE CRITERIA FOUND IN APPENDIX C.2 SECTION C.2.1 "ROOF DRAINAGE SYSTEM". CVP WAS NOT REQUIRED BECAUSE THE 1 YEAR STORM IS LESS THAN THE 2.04% MANDATED BY THE STORMWATER DESIGN MANUAL. ANY FURTHER SURVEYING INCLUDING WHERE LOTS 15 LESS THAN 5000 S.F.) SHALL REQUIRE ADDITIONAL SWM AND RE-EVALUATION OF CVP CRITERIA FOR THE ENTIRE LOT (LOTS 1-5)
 - THE TRAFFIC STUDY FOR THIS PROJECT WAS PREPARED BY MARKS GROUP, DATED NOVEMBER 2005.
 - THE FOREST STAKE DELINEATION AND WETLAND DELINEATION FOR THIS PROJECT WAS PREPARED BY ECO-SCIENCE PROFESSIONALS, INC., DATED NOVEMBER, 2006 AND APPROVED UNDER SP-07-006 DATED 4/14/08. NO WETLANDS EXIST ON-SITE.
 - THIS PROPERTY IS LOCATED WITHIN THE METROPOLITAN DISTRICT.
 - 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.
 - THE EXISTING DWELLING LOCATED ON LOT 1 IS TO REMAIN. DWELLING IS A TWO STORY FRAME.
 - NO CEMETERIES EXIST WITHIN THIS SUBDIVISION.
 - THE PROJECT IS IN CONFORMANCE WITH THE LATEST HOWARD COUNTY STANDARDS UNLESS WAIVERS HAVE BEEN APPROVED.
 - THERE IS NO FLOODPLAIN OR WETLANDS ON THIS SITE.
 - NO NOISE STUDY IS REQUIRED FOR THIS PROJECT PER HOWARD COUNTY DESIGN MANUAL, VOL. III, SECTION 5.2.
 - SOIL REMEDIATION SHALL BE PROVIDED PRIOR TO RESIDENTIAL OCCUPANCY TO ENSURE SAFE ACCESS FOR FIRE AND EMERGENCY VEHICLES PER THE FOLLOWING MINIMUM REQUIREMENTS:
 - WIDTH - 12 FEET (5 FEET SERVING MORE THAN ONE RESIDENCE)
 - SURFACE - SIX (6) INCHES OF COMPACTED CRUSHER RUN BASE WITH TAR AND CHIP COATING
 - GEOMETRY - MAXIMUM 15% GRADE, MAXIMUM 10% GRADE CHANGE AND MINIMUM OF 45 FOOT TURNING RADIUS
 - STRUCTURES (CULVERTS/BRIDGES) CAPABLE OF SUPPORTING 25 GROSS TONS (455 LBS) LOADING
 - DRAINAGE ELEMENTS - CAPABLE OF SAFELY PASSING 100 YEAR FLOOD WITH NO MORE THAN 1 FOOT DEPTH OVER DRIVEWAY SURFACE
 - STRUCTURE CLEARANCES - MINIMUM 12 FEET
 - MAINTENANCE - SUFFICIENT TO ENSURE ALL WEATHER USE
 - THE GEOTECHNICAL REPORT FOR THIS PROJECT WAS PREPARED BY GEOTECHNICAL LABORATORIES, INC., DATED JANUARY, 2007 APPROVED UNDER SP-07-006 DATED 4/14/08.
 - APFO REQUIREMENTS FOR TRAFFIC HAVE BEEN MET VIA PAYMENT OF A FEE-IN-LIEU IN THE AMOUNT OF \$23,572.00 FOR ROAD IMPROVEMENTS AND WILL BE CONTRIBUTED TO CAPITAL PROJECT N-399. THIS WILL BE PART OF THE DEVELOPER'S AGREEMENT FOR ROAD IMPROVEMENTS.
 - THE LANDSCAPE SURETY IN THE AMOUNT OF \$5,000.00 PER PERIMETER LANDSCAPE REQUIREMENTS (7 SHADE TREES & 10 SHRUBS) OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND LANDSCAPE MANUAL SHALL BE POSTED WITH THE DEVELOPER'S AGREEMENT FOR THIS SUBDIVISION.
 - FINANCIAL SURETY FOR THE 6 REQUIRED STREET TREES SHALL BE POSTED AS PART OF THE DEVELOPER'S AGREEMENT IN THE AMOUNT OF \$1,800.00.
 - THE FOREST CONSERVATION REQUIREMENTS PER SECTION 16.1200 OF THE HOWARD COUNTY CODE AND THE FOREST CONSERVATION MANUAL AND THE FOREST CONSERVATION OBLIGATION OF 0.57 AC. OF AFFORESTATION FOR THIS SUBDIVISION WILL BE MET BY PROVIDING A FEE-IN-LIEU PAYMENT OF \$19,622.00 TO THE HOWARD COUNTY FOREST CONSERVATION FUND. SEE THE FOREST CONSERVATION MANUAL WDS-SHEET ON PLAN SHEET 4.
 - 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 SPACING OF 20' SHALL BE MAINTAINED BETWEEN ANY STREET LIGHT AND ANY TREE.
 - SIGN POSTS: ALL SIGN POST USED FOR TRAFFIC CONTROL SIGNS INSTALLED IN THE COUNTY RIGHT-OF-WAY SHALL BE MOUNTED ON A 2" GALVANIZED STEEL PERFORATED SQUARE TUBE POST (4 GAUGE) INSERTED INTO A 2-1/2" GALVANIZED STEEL, PERFORATED, SQUARE TUBE SLEEVE (2 GAUGE) - 3" DIA. A GALVANIZED STEEL POLE CAP SHALL BE MOUNTED ON TOP OF EACH POST.
 - A PRIVATE RANGE OF ADDRESS SHALL BE FABRICATED AND INSTALLED BY HOWARD COUNTY BUREAU OF HIGHWAYS AT THE DEVELOPER'S/OWNER'S EXPENSE. CONTACT HOWARD COUNTY TRAFFIC DIVISION AT 410-313-9752 FOR DETAILS AND COST ESTIMATES.



FISHER COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042-5292
(410) 461-2855

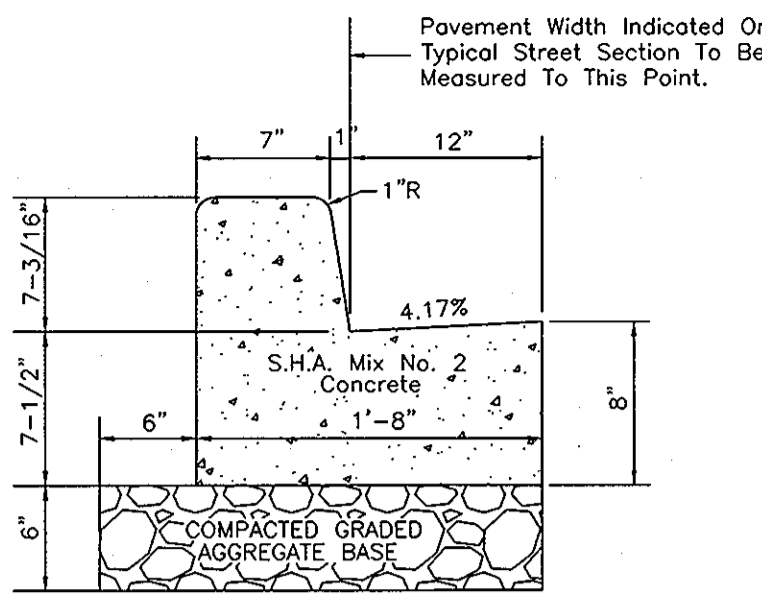
OWNER
LOWELL D. RAU
9780 OLD ANNAPOLIS ROAD
ELLICOTT CITY, MARYLAND 21042-6327
(410) 792-8954

DEVELOPER
CORNESTONE HOLDINGS, LLC
8699 NORFOLK AVENUE
LAUREL, MARYLAND 20723
(410) 792-2565

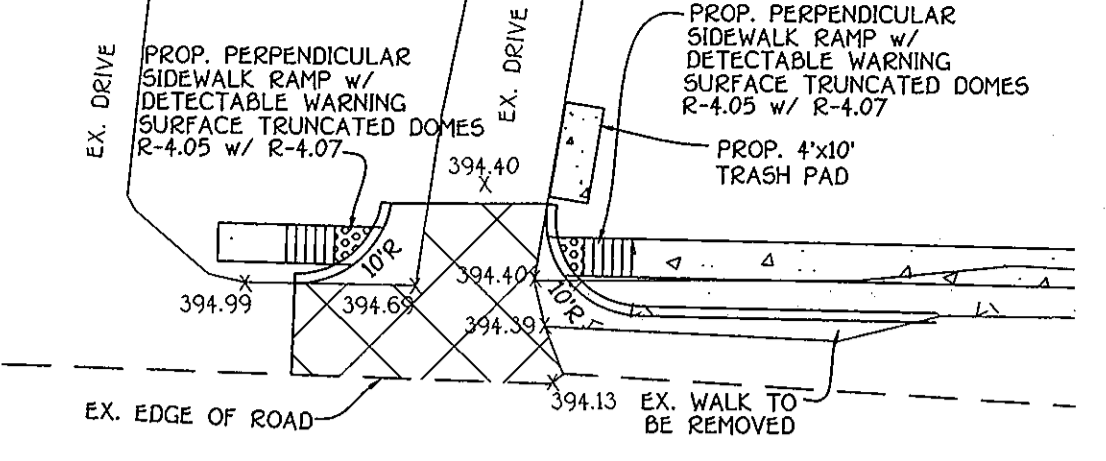
STATE OF MARYLAND
Professional Engineer
I hereby certify that these documents were prepared by me, and that I am a duly Licensed Professional Engineer under the laws of the State of Maryland, License No. 20748, Expiration Date 2-22-11.

4-15-09
DATE

CENTENNIAL MEADOWS
LOTS 1 THRU 5
A Resubdivision Of Lot 6 And Part Of Lot 5,
As Shown On A Plat Entitled "Gwynn Development, Section One" And Recorded Among The Land
Records Of Howard County, Maryland In Plat Book 4, Folio 77.
ZONED: R-20
TAX MAP NO. 30 GRID NO. 3 PARCEL NO. 112
SECOND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
SCALE: AS SHOWN DATE: APRIL 7, 2009
SHEET 1 OF 11

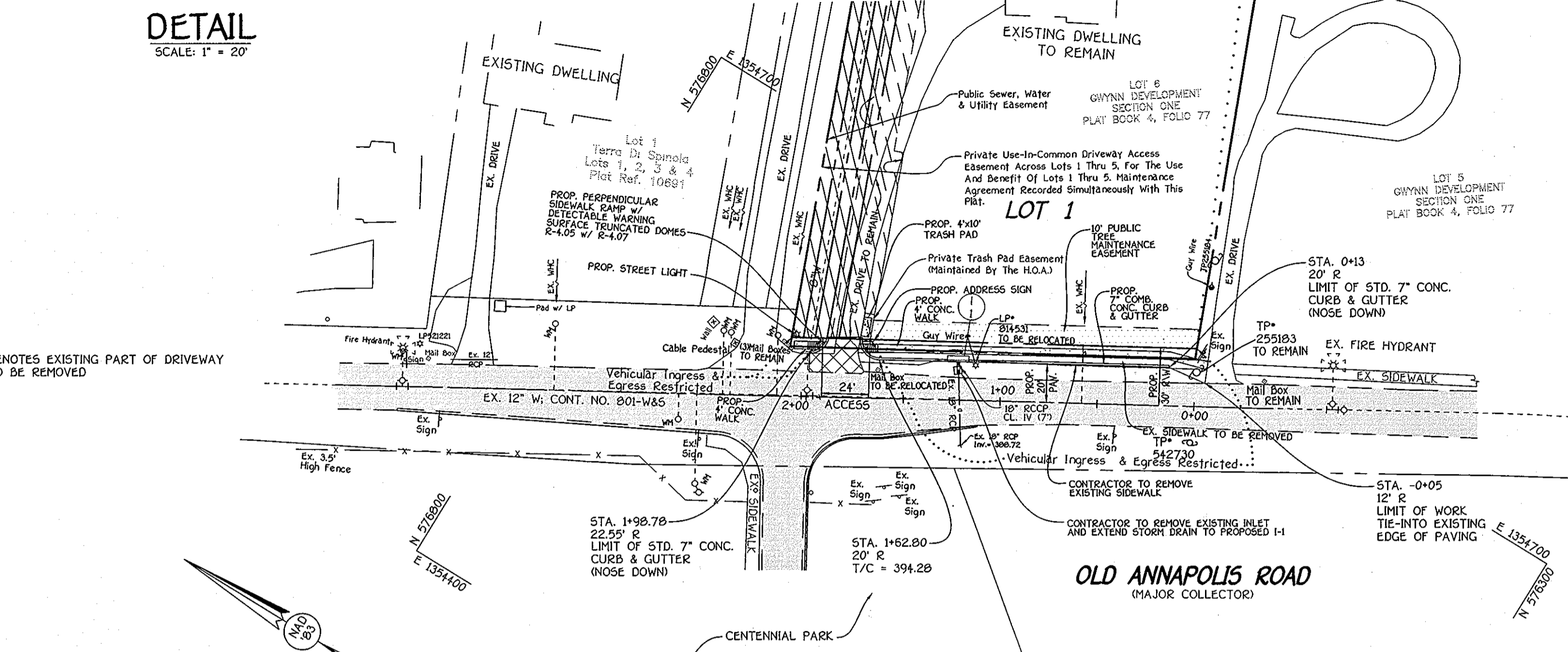


STANDARD 7" COMB. CONC. CURB AND GUTTER
NO SCALE



DETAIL
SCALE: 1" = 20'

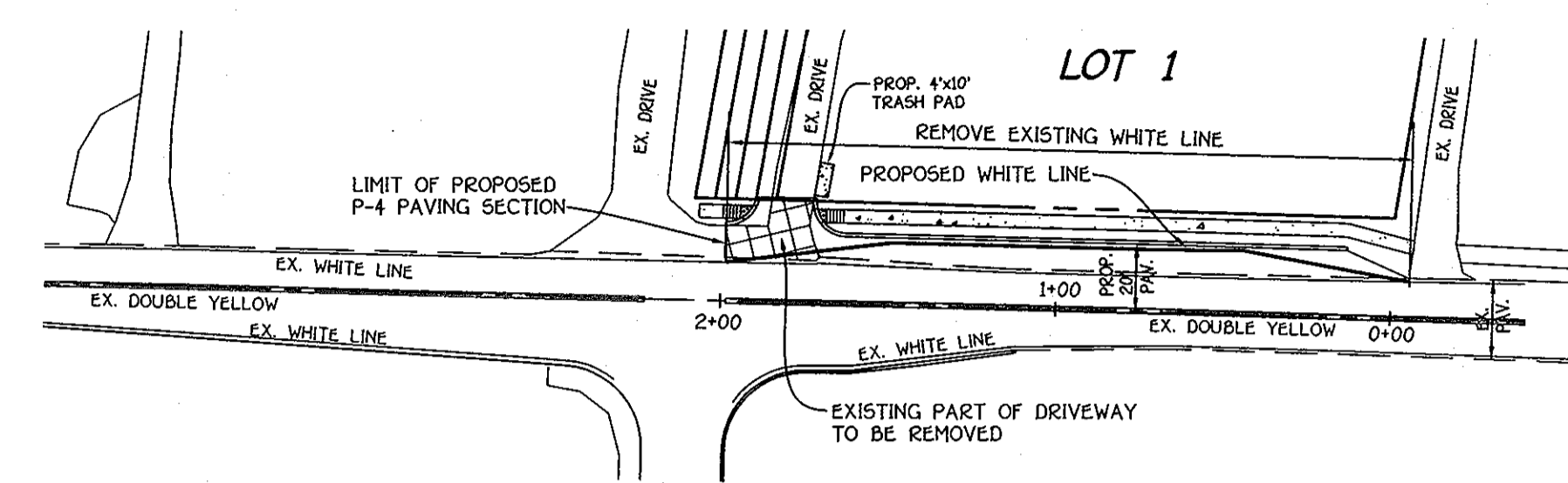
NO.	DESCRIPTION	DATE
REVISIONS		
APPROVED: DEPARTMENT OF PLANNING AND ZONING		
	<i>Cindy Hanna</i>	5/12/09
	<i>Chris Deussen</i>	5/12/09
APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS		
	<i>William R. McNeil</i>	5-5-09



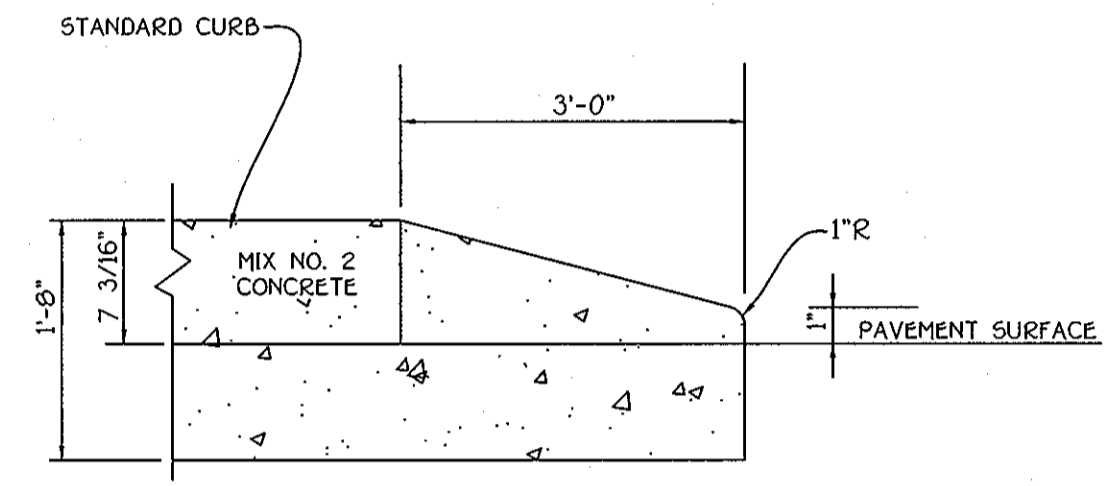
OLD ANNAPOLIS ROAD
(MAJOR COLLECTOR)

NOTE:
CONTRACTOR SHALL ENSURE THAT THE PROPOSED SIDEWALK IS CONSISTENT WITH ADA SPECIFICATIONS ALONG THE ENTIRE ROAD FRONTAGE OF THIS SUBDIVISION.

SECTION NUMBER	ROAD AND STREET CLASSIFICATION	CALIFORNIA BEARING RATIO (CBR)					
		3 TO 4.5	5 TO 7	.27	3 TO 4.5	5 TO 7	.27
P-4	MINOR COLLECTORS: NON-RESIDENTIAL MAJOR COLLECTORS:	PAVEMENT MATERIAL (INCHES)					
		MIN HMA WITH GAB					
		HMA WITH CONSTANT GAB					
		HMA SUPERPAVE FINAL SURFACE 12.5 MM PG 64-22, LEVEL 2 (LOW ESAL)					
		HMA SUPERPAVE INTERMEDIATE SURFACE 12.5 MM PG 64-22, LEVEL 2 (LOW ESAL)					
HMA SUPERPAVE BASE 19.0 MM PG 64-22, LEVEL 2 (LOW ESAL)							
GRADED AGGREGATE BASE (GAB)							
		13.0	7.0	4.0	6.0	6.0	6.0



PAVEMENT MARKING PLAN
SCALE: 1" = 50'



NOSE DOWN CURB
NO SCALE

CENTENNIAL MEADOWS
LOTS 1 THRU 5

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ZONED: R-20
TAX MAP No. 30 GRID No. 3 PARCEL No. 112
SECOND ELECTION DISTRICT HOWARD COUNTY, MARYLAND

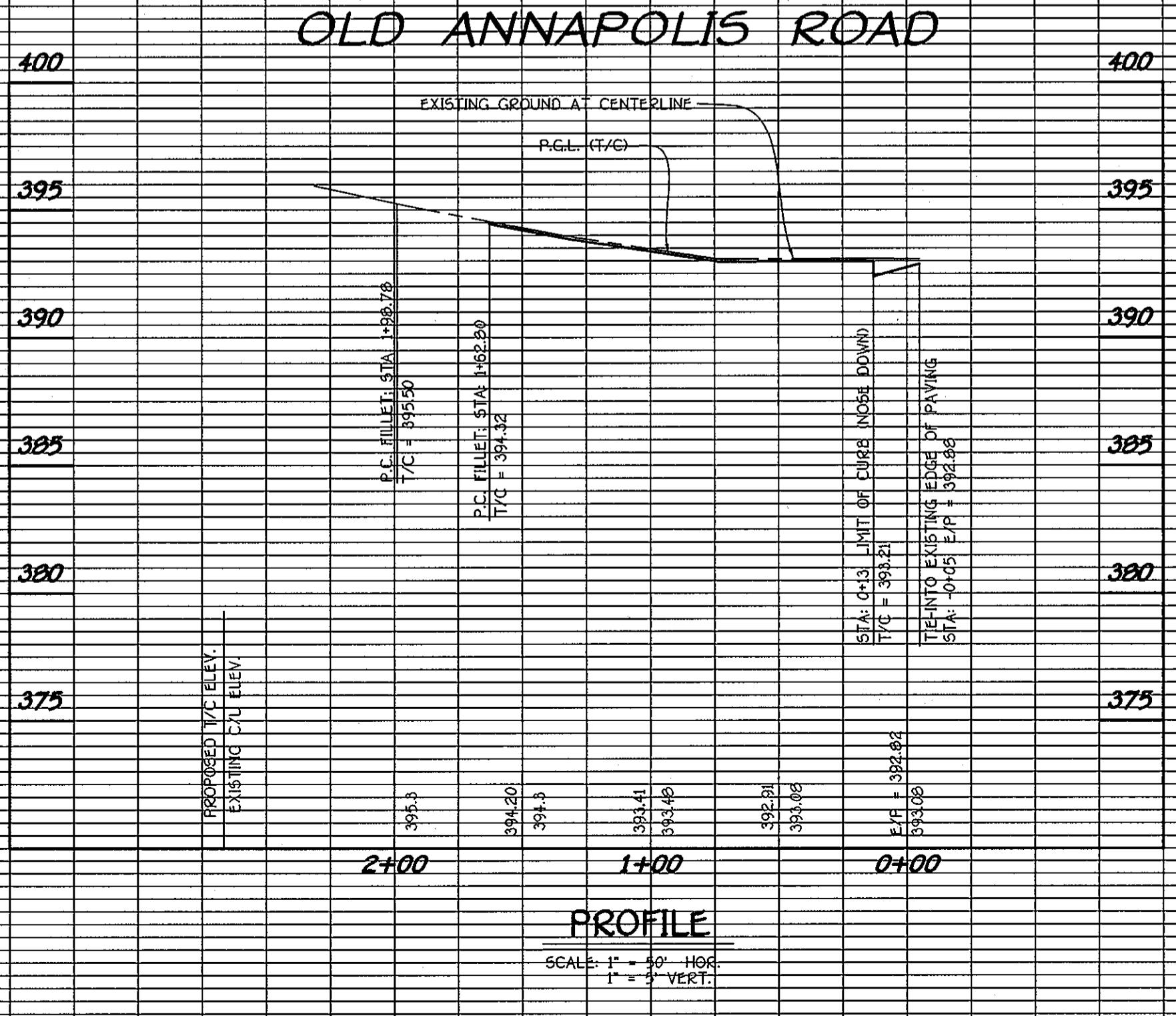
OLD ANNAPOLIS ROAD
ROAD WIDENING

OWNER
LOWELL D. RAU
9780 OLD ANNAPOLIS ROAD
ELLICOTT CITY, MARYLAND 21042-6327
(410) 730-8954

DEVELOPER
CORNERSTONE HOLDINGS, LLC
9095 NORTOLLE AVENUE
LAUREL, MARYLAND 20723
(410) 792-2565

SCALE: AS SHOWN DATE: APRIL 7, 2009 DWG. NO. 2 OF 11
DES. A.M.V. DRN. J.C.L. CHK. A.M.V.

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21038
(410) 461 - 2255

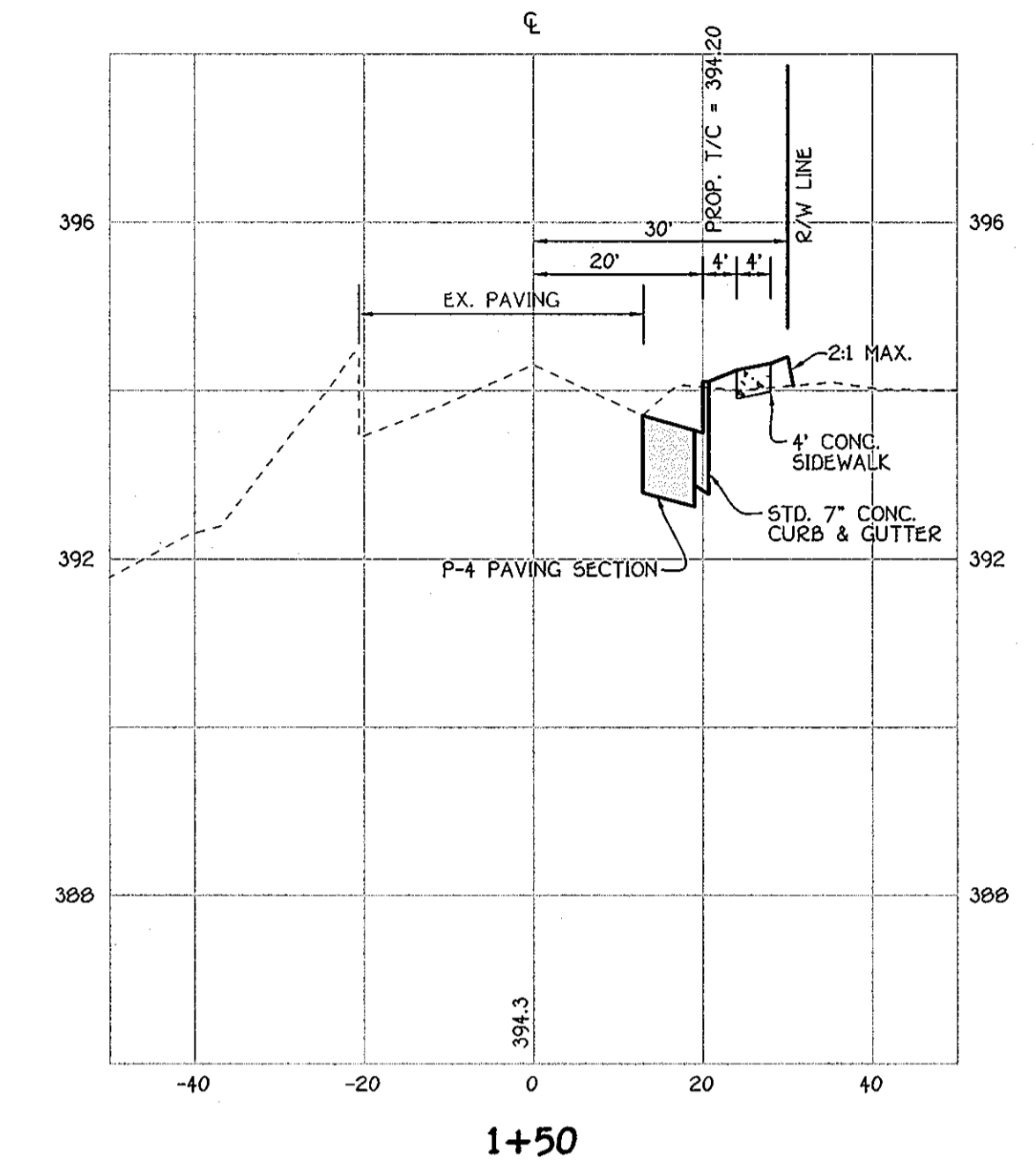
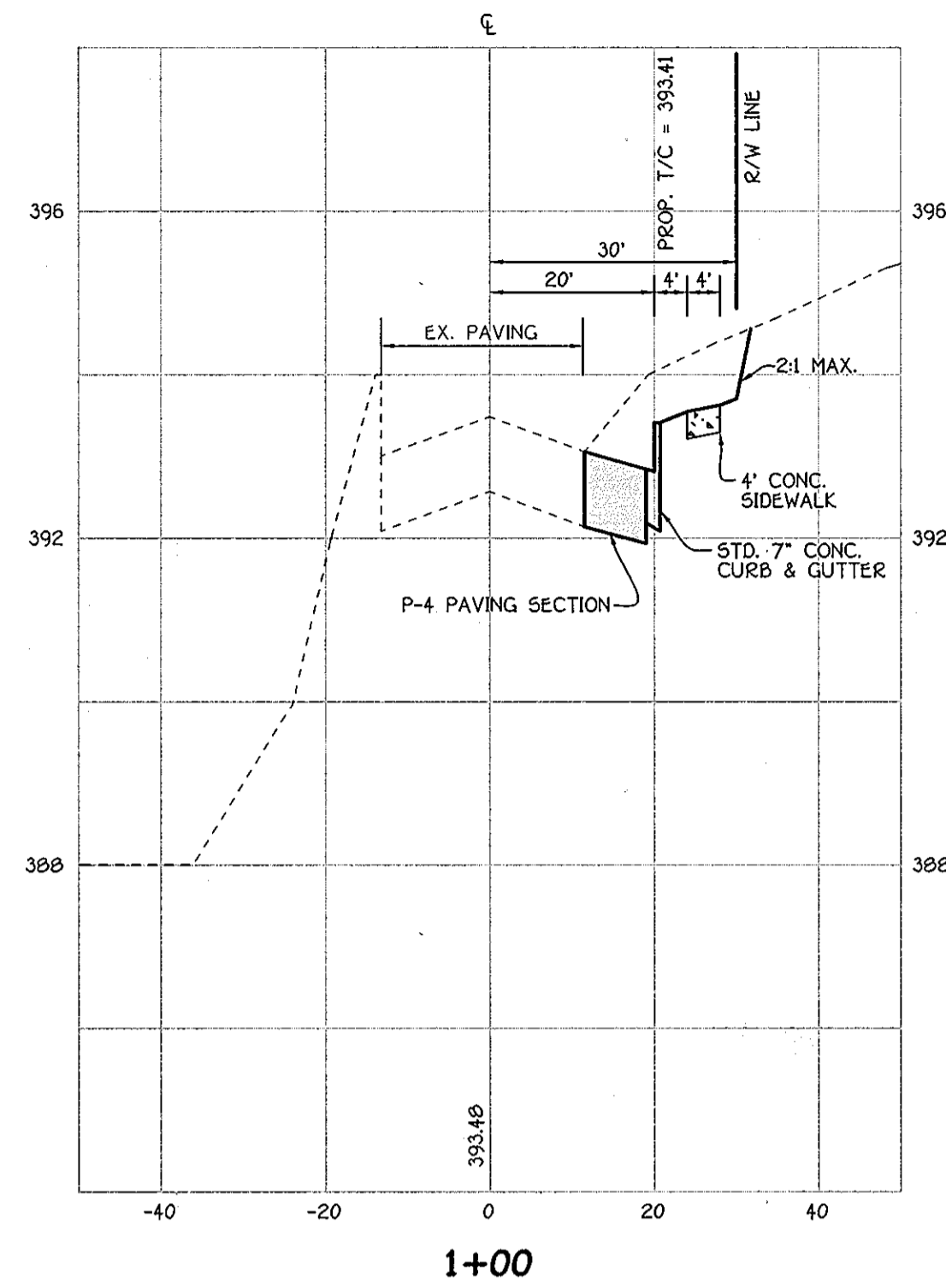
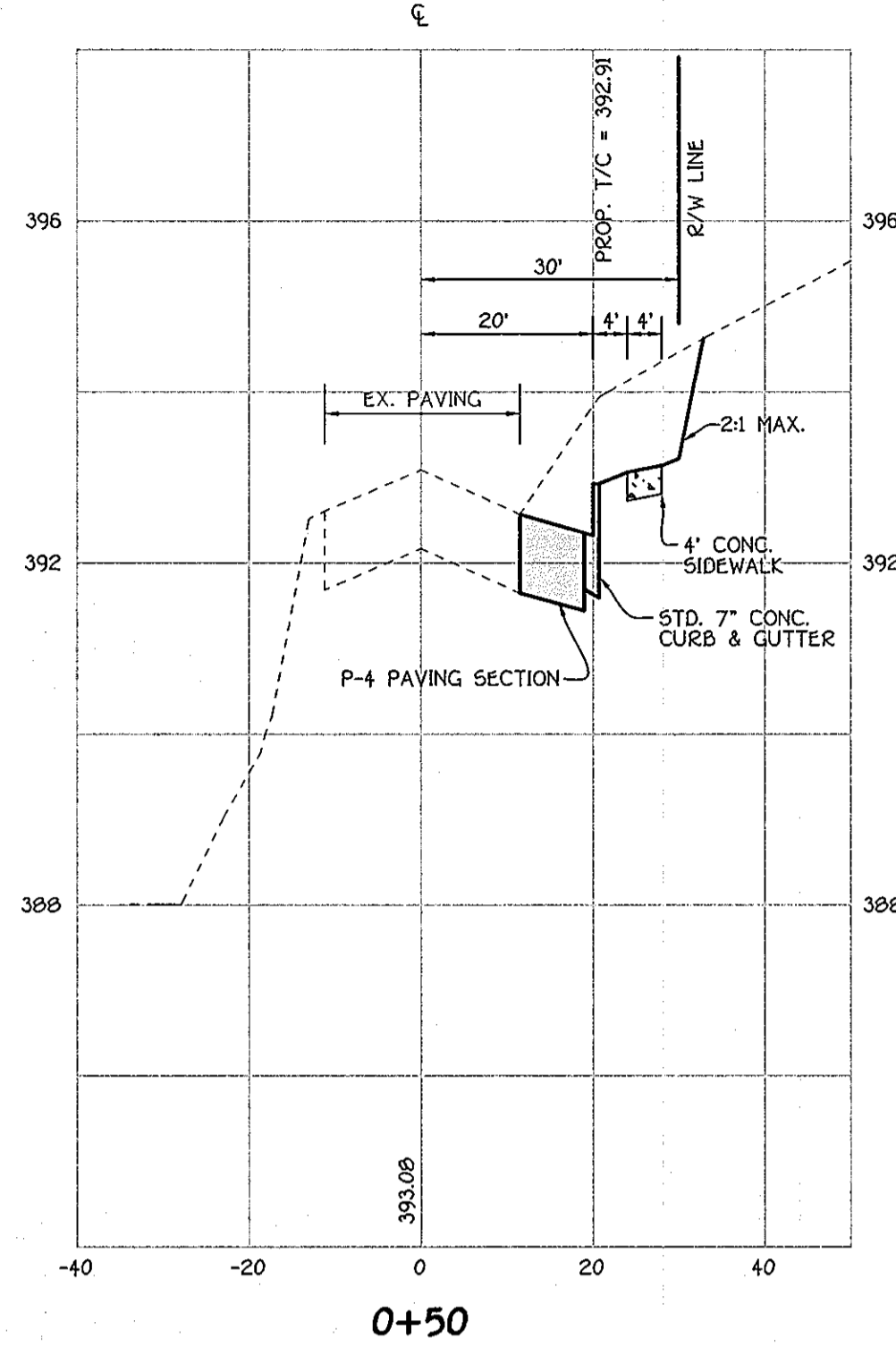
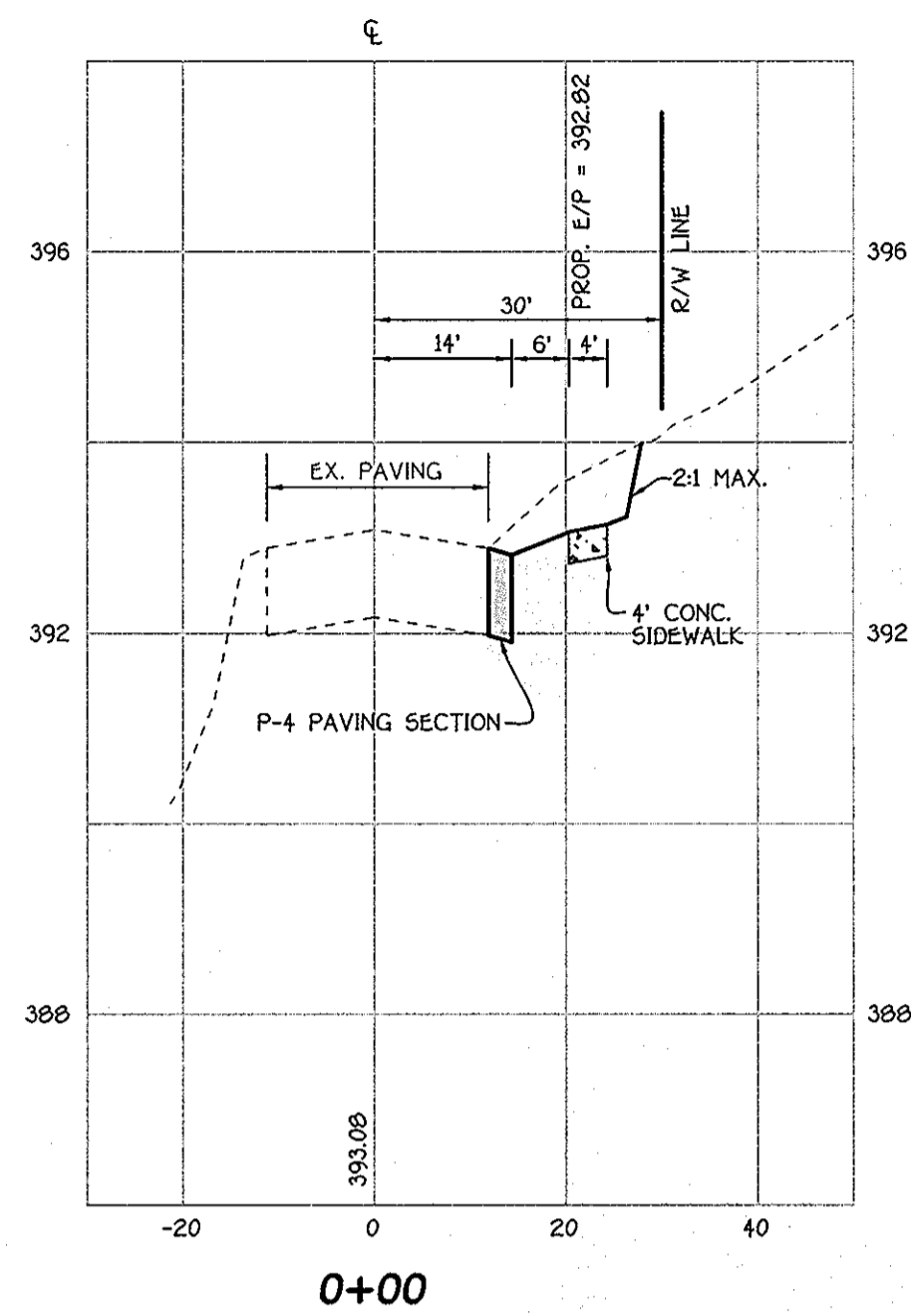


PROFILE
SCALE: 1" = 40' HOR.
1" = 3' VERT.

APPROVED: DEPARTMENT OF PUBLIC WORKS
Walter J. ... 5-5-09
 CHIEF, BUREAU OF HIGHWAYS DATE

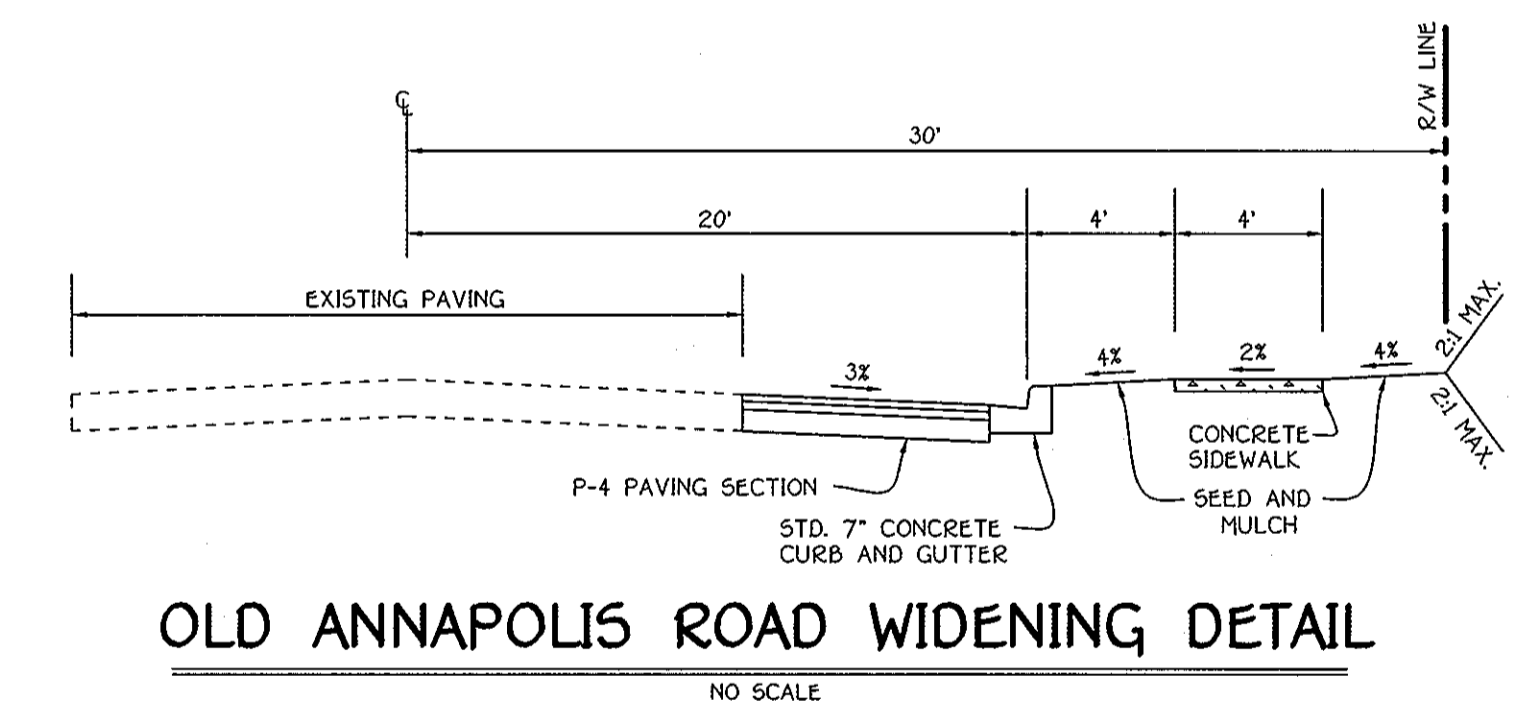
APPROVED: DEPARTMENT OF PLANNING AND ZONING
Judy ... 5/12/09
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

Alvin ... 5/12/09
 CHIEF, DEVELOPMENT ENGINEERING DIVISION NJ DATE

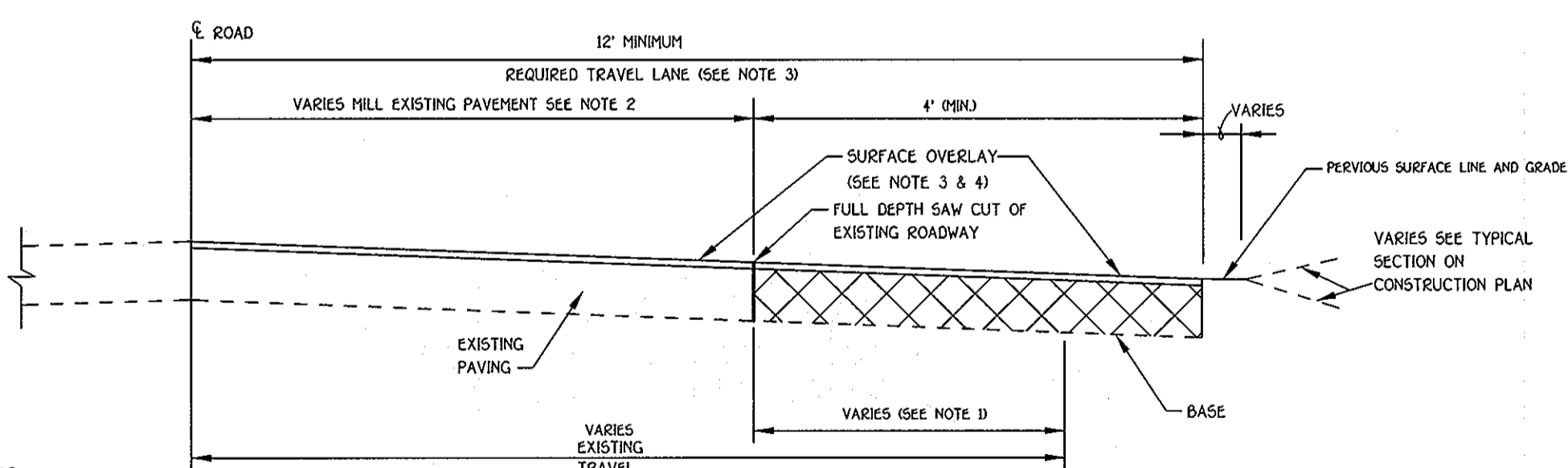


**OLD ANNAPOLIS ROAD IMPROVEMENT
 CROSS-SECTIONS**

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



OLD ANNAPOLIS ROAD WIDENING DETAIL
 NO SCALE



EXISTING ROADWAY WIDENING STRIP (R-1.00)
 NO SCALE

- NOTES:
1. WHEN EXISTING TRAVEL LANE IS LESS THAN THE REQUIRED 12' LANE CONTRACTOR SHALL REMOVE A MINIMUM OF 1" FULL DEPTH OF THE EXISTING ROADWAY. IF CURB AND GUTTER IS INSTALLED, PROVIDE A MINIMUM OF 4" OF WIDENING FROM FACE OF GUTTER PAN.
 2. THE EXISTING PAVEMENT TO BE RESURFACED SHALL BE MILLED AT DEPTH OF 1 1/2" (MINIMUM).
 3. THE RESURFACING SHALL BE PLACED TO THE CENTERLINE OF THE ROADWAY.
 4. RESURFACING COURSE TO BE EQUAL TO THE SURFACE COURSE OF THE TYPICAL PAVEMENT SECTION.

FISHER, COLLINS & CARTER, INC.
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
 CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
 ELICOTT CITY, MARYLAND 21042
 (410) 461-2555

OWNER
 LOWELL D. PAU
 9780 OLD ANNAPOLIS ROAD
 ELICOTT CITY, MARYLAND 21042-6327
 (410) 730-8954

DEVELOPER
 CORNERSTONE HOLDINGS, LLC
 3659 NORFOLK AVENUE
 LAUREL, MARYLAND 20723
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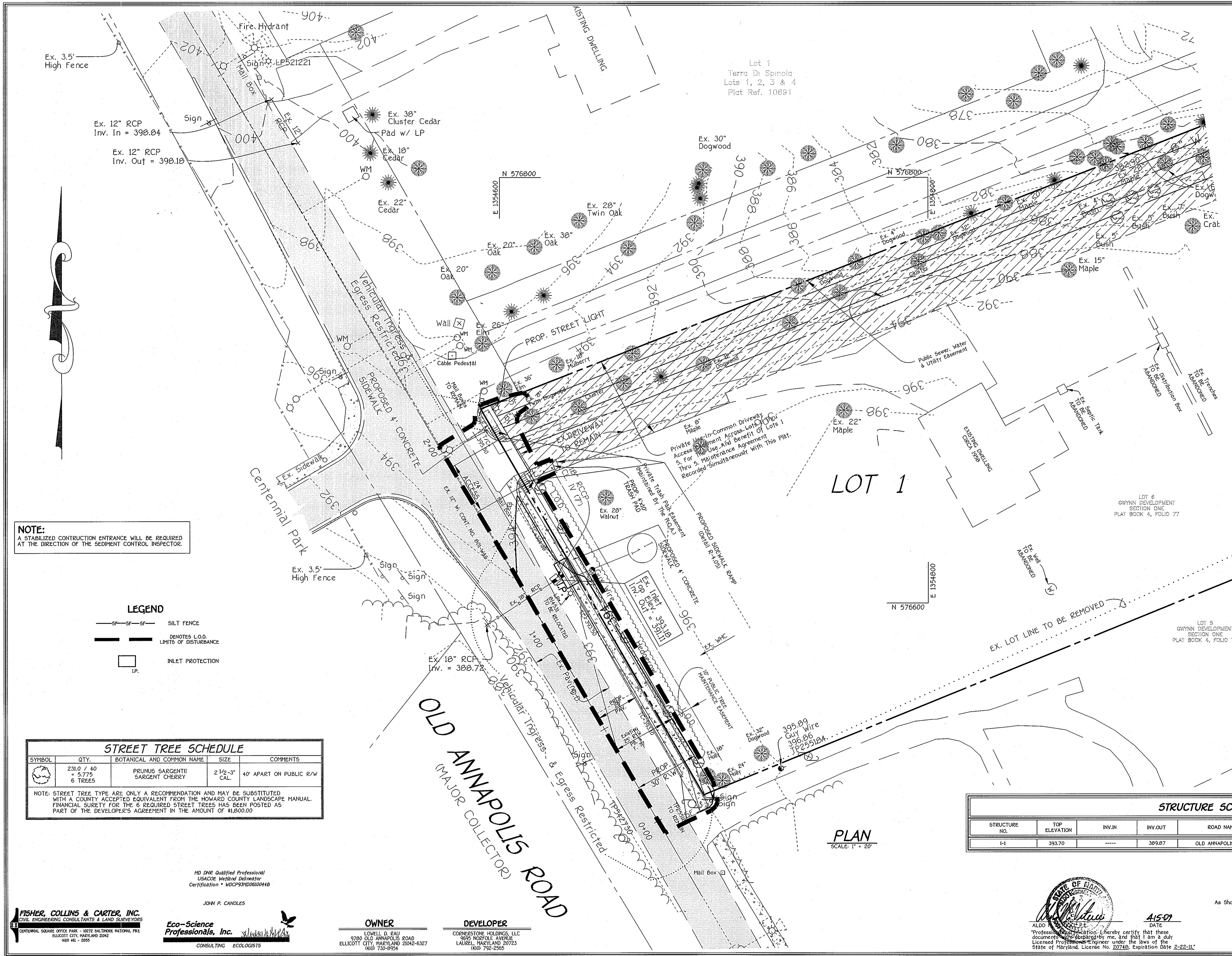
ALDO H. VITTORE
 PROFESSIONAL ENGINEER
 STATE OF MARYLAND
 LICENSE NO. 20748, EXPIRATION DATE 2-22-11

DATE: 4/5/09

**OLD ANNAPOLIS ROAD CROSS-SECTIONS
 CENTENNIAL MEADOWS
 LOTS 1 THRU 5**

A Resubdivision Of Lot 6 And Part Of Lot 5,
 As Shown On A Plat Entitled "Gwynn Development, Section One" And Recorded Among The Land
 Records Of Howard County, Maryland In Plat Book 4, Folio 77.

ZONED: R-20
 TAX MAP No. 30 GRID No. 3 PARCEL No. 112
 SECOND ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND
 SCALE: AS SHOWN DATE: APRIL 7, 2009
 SHEET 3 OF 11



ENGINEER'S CERTIFICATE
 I, the undersigned, have prepared this Plan For Erosion And Sediment Control Representing a Feasible and Workable Plan Based On My Personal Knowledge of the Site Condition And That It Was Prepared In Accordance With the Regulations of The Howard Soil Conservation District.
 Signature: *[Signature]* Date: 4/15/09

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: *[Signature]* Date: 4/15/09

Approved: This Development Is Approved For Erosion And Sediment Control By The Howard Soil Conservation District.
 Signature: *[Signature]* Date: 4/23/09
 District Howard Soil Conservation Dist.

Approved: Department Of Planning And Zoning
 Signature: *[Signature]* Date: 5/18/09
 Chief, Division Of Land Development

Signature: *[Signature]* Date: 5/12/09
 Chief, Development Engineering Division

Approved: Howard County Department Of Public Works
 Signature: *[Signature]* Date: 5-5-09
 Chief, Bureau Of Highways

FOREST CONSERVATION WORKSHEET
 Version 1.0

NET TRACT AREA	Acres
A. Total tract area	3.8
B. Area within 100 Year floodplain	0
C. Area to remain in agricultural production	0
D. Net Tract Area	3.8

LAND USE CATEGORY: (from table 3.2.1, page 40, Manual)
 AREA: HDB, HDA, HDE, HDP, CIA

E. Afforestation Threshold (percentage)	0.15	0.57
F. Conservation Threshold (percentage)	0.2	0.76

EXISTING FOREST COVER:

G. Existing forest cover (including floodplain)	0
H. Area of forest above afforestation threshold	
I. Area of forest above conservation threshold	

BREAK EVEN POINT:

J. Forest retention above threshold with no mitigation	Break-Even Point
K. Clearing permitted without mitigation	0.0

PROPOSED FOREST CLEARING:

L. Total area of forest to be cleared or retained outside FCE	
M. Total area of forest to be retained in FCE	0.0

PLANTING REQUIREMENTS:

N. Reforestation for clearing above Conservation Threshold	
O. Reforestation for clearing below Conservation Threshold	
P. Credit for retention above conservation threshold	
R. Total reforestation required	
S. Total afforestation required	0.57
T. Total reforestation and afforestation required	0.57

NOTE: THE FOREST CONSERVATION REQUIREMENTS FOR SECTION 18.030 OF THE HOWARD COUNTY CODE AND THE FOREST CONSERVATION MANUAL AND THE FOREST CONSERVATION OBLIGATION OF 0.57 AC. OF AFFORESTATION FOR THIS SUBDIVISION WILL BE MET BY PROVIDING A PER-ACRE PAYMENT OF \$18,822.00 TO THE HOWARD COUNTY FOREST CONSERVATION FUND.

NOTE:
 A STABILIZED CONSTRUCTION ENTRANCE WILL BE REQUIRED AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR.

LEGEND

	SILT FENCE
	REPRESENTS L.O.D. LIMITS OF DISTURBANCE
	INLET PROTECTION

STREET TREE SCHEDULE

SYMBOL	QTY.	BOTANICAL AND COMMON NAME	SIZE	COMMENTS
	231.0 / 40 = 5,775 6 TREES	PRUNUS SARGENTII SARGENT CHERRY	2 1/2"-3" CAL.	40' APART ON PUBLIC R/W

NOTE: STREET TREE TYPE ARE ONLY A RECOMMENDATION AND MAY BE SUBSTITUTED WITH A COUNTY ACCEPTED EQUIVALENT FROM THE HOWARD COUNTY LANDSCAPE MANUAL. FINANCIAL SURETY FOR THE 6 REQUIRED STREET TREES HAS BEEN POSTED AS PART OF THE DEVELOPER'S AGREEMENT IN THE AMOUNT OF \$1,800.00

PIPE SCHEDULE

SIZE	CLASS	LENGTH
18"	RCCP, CL. IV	7 L.F.

STRUCTURE SCHEDULE

STRUCTURE NO.	TOP ELEVATION	INV. IN	INV. OUT	ROAD NAME	ROAD STA.	OFFSET	TYPE & NO. OF OPEN SIDES	REMARKS
I-1	393.70	----	389.87	OLD ANNAPOLIS ROAD	I-22	20' R	A-10	D - 4.03

STREET TREE, GRADING & SEDIMENT CONTROL PLAN
CENTENNIAL MEADOWS
 LOTS 1 THRU 5
 A Resubdivision Of Lot 6 And Part Of Lot 5,
 As Shown On A Plat Entitled "Gwynn Development, Section One" And Recorded Among The Land Records Of Howard County, Maryland In Plat Book 4, Folio 77.
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 SCALE: AS SHOWN DATE: APRIL 7, 2009
 SHEET 4 OF 11

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 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
 CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
 ELKICOTT CITY, MARYLAND 21042
 (410) 401-2955

Eco-Science Professionals, Inc.
 CONSULTING ECOLOGISTS
 1400 W. 10TH ST.
 SUITE 100
 DENVER, CO 80202

OWNER
 LOWELL D. BAI
 9780 OLD ANNAPOLIS ROAD
 ELKICOTT CITY, MARYLAND 21042-6327
 (410) 730-8954

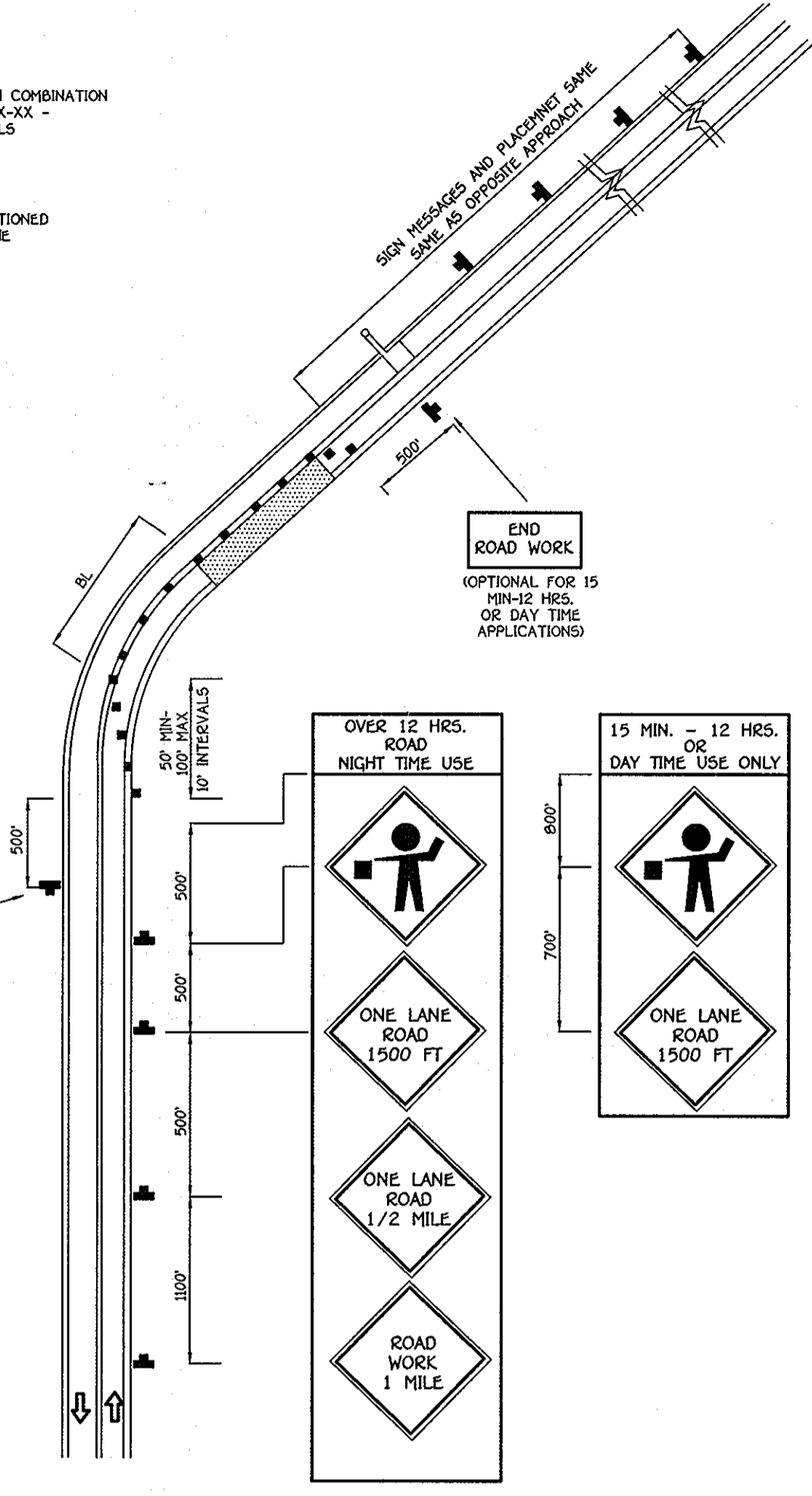
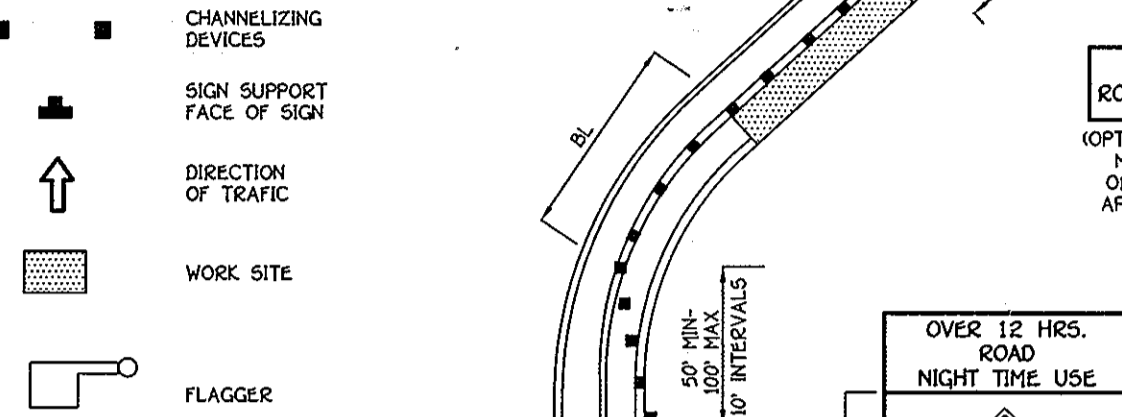
DEVELOPER
 CORNWELL HOLDINGS, LLC
 8995 NORFOLK AVENUE
 LAUREL, MARYLAND 20723
 (410) 752-2965

STATE OF MARYLAND
 PROFESSIONAL ENGINEER
 Signature: *[Signature]*
 Date: 4/15/09
 License No. 207245, Expiration Date 2-22-11

IMPORTANT:
THIS DRAWING SHALL BE USED IN COMBINATION WITH THE GENERAL NOTES 004.XX-XX - 004.XX-XX AND STANDARD DETAILS 004.XX-XX-004.XX-XX.

NOTE:
FLAGGERS SHALL NEVER BE STATIONED MORE THAN 100' AWAY FROM THE ADVANCE FLAGGER SIGN.

KEY:

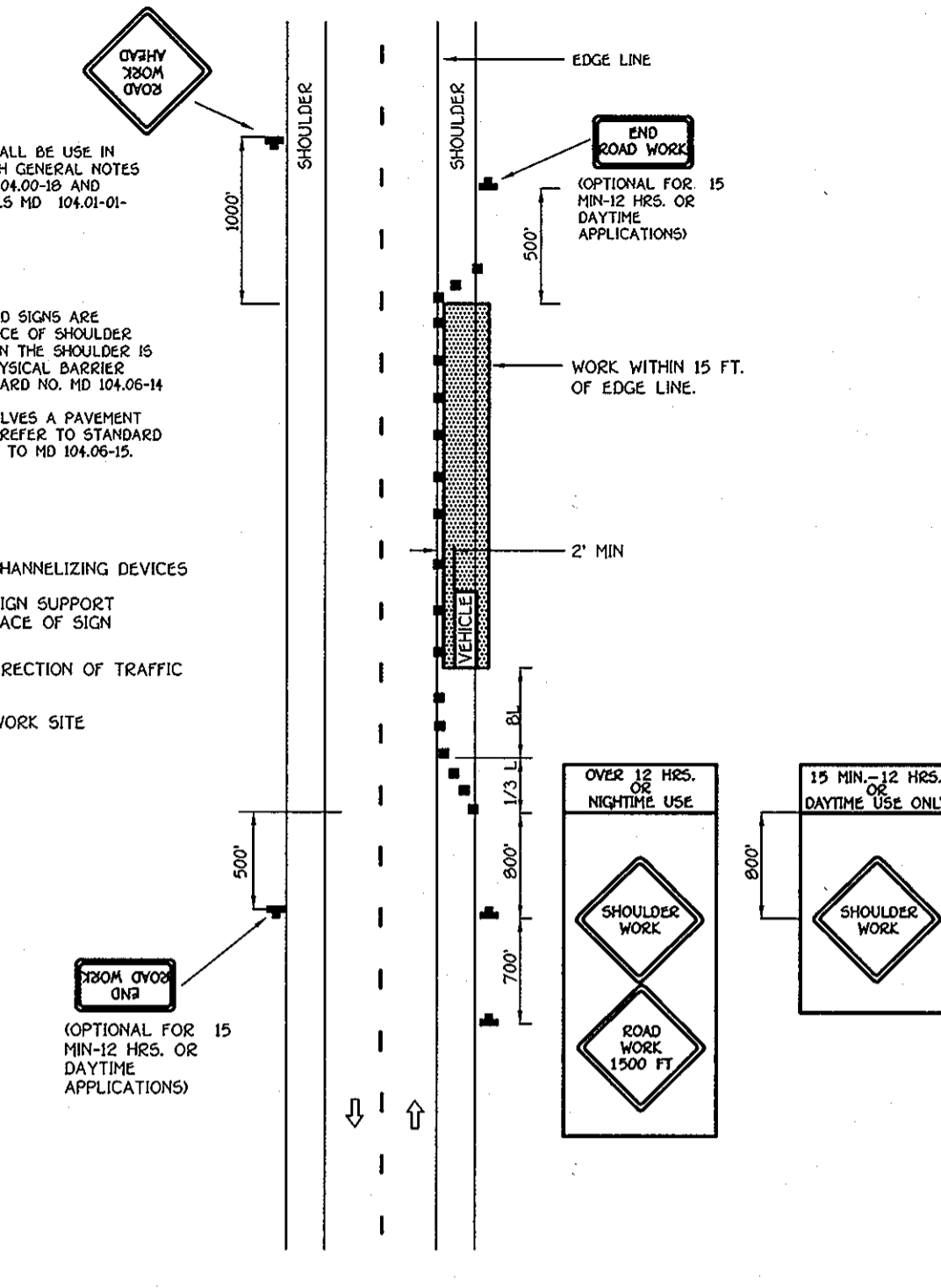
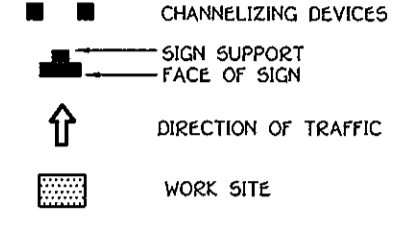


FLAGGING OPERATION 1/2-LANE, 2-WAY EQUAL/LESS THAN 40 MPH
NO SCALE

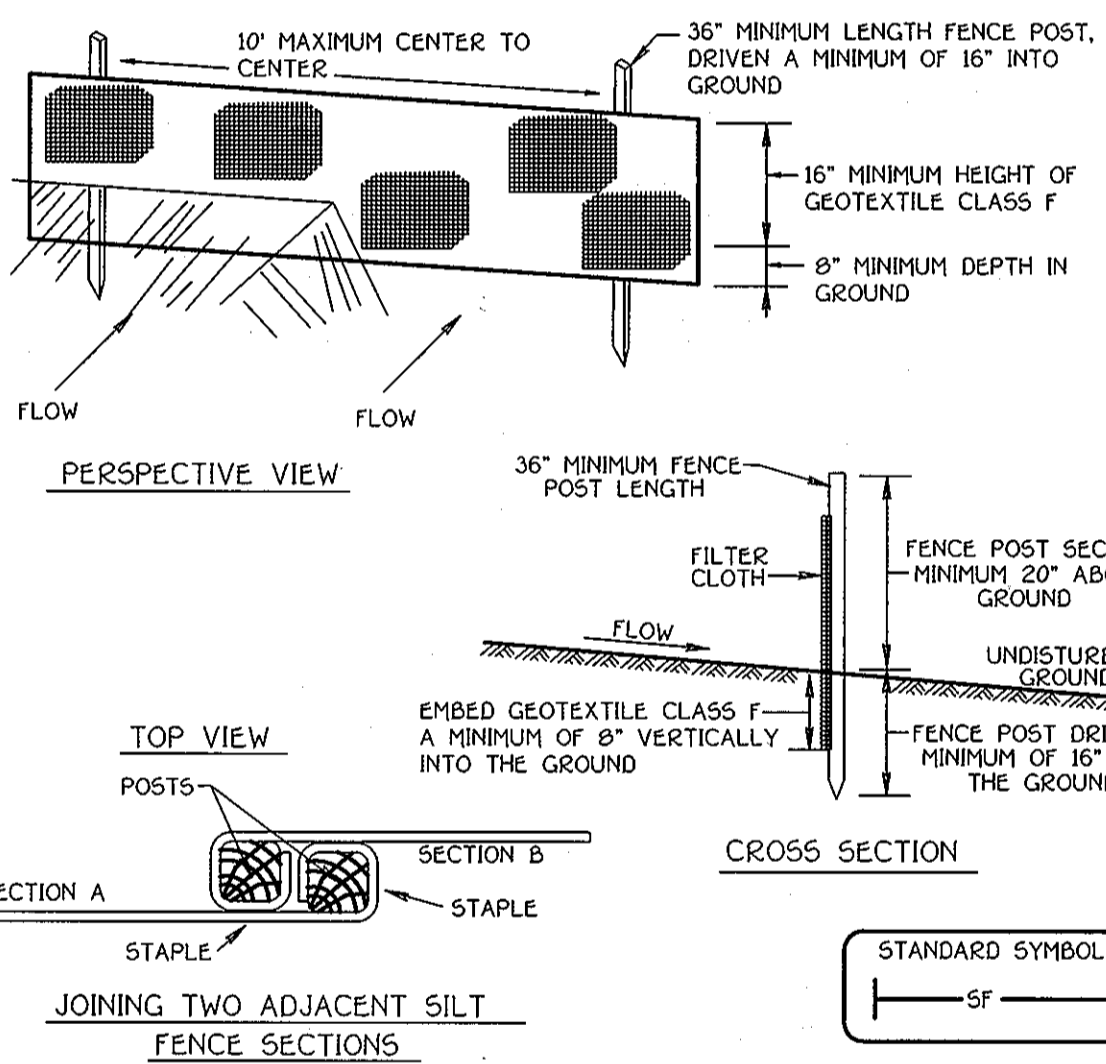
IMPORTANT:
THIS DRAWING SHALL BE USED IN COMBINATION WITH GENERAL NOTES HD 104.00-00 TO HD 104.00-10 AND STANDARD DETAILS HD 104.00-00 TO HD 104.00-02.

NOTES:
SHOULDER CLOSED SIGNS ARE REQUIRED IN PLACE OF SHOULDER WORK SIGNS WHEN THE SHOULDER IS CLOSED BY A PHYSICAL BARRIER. REFER TO STANDARD NO. HD 104.06-H WHEN WORK INVOLVES A PAVEMENT EDGE 100'-0" OR REFER TO STANDARD NOS. HD 104.06-11 TO HD 104.06-15.

KEY:



SHOULDER WORK 1/2-LANE, 2-WAY EQUAL/LESS THAN 40 MPH
NO SCALE



JOINING TWO ADJACENT SILT FENCE SECTIONS

Construction Specifications

- Fence posts shall be a minimum of 36" long driven 16" minimum into the ground. Wood posts shall be 1 1/2" x 1 1/2" square (minimum) cut, or 1 3/4" diameter (minimum) round and shall be of sound quality hardwood. Steel posts will be standard T or U section weighing not less than 1.00 pound per linear foot.
- 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
- Where ends of geotextile fabric come together, they shall be overlapped, folded and stapled to prevent sediment bypass.
- Silt fence shall be inspected after each rainfall event and maintained when bulges occur or when sediment accumulation reached 50% of the fabric height.

Silt Fence Design Criteria

Slope Steepness	Slope Length (Maximum)	Silt Fence Length (Maximum)
Flatter than 50:1	unlimited	unlimited
50:1 to 10:1	125 feet	1,000 feet
10:1 to 5:1	100 feet	750 feet
5:1 to 3:1	60 feet	500 feet
3:1 to 2:1	40 feet	250 feet
2:1 and steeper	20 feet	125 feet

Note: In areas of less than 2X slope and sandy soils (USDA general classification system, soil Class A) maximum slope length and silt fence length will be unlimited. In these areas a silt fence may be the only perimeter control required.

SILT FENCE
NOT TO SCALE

MAINTENANCE OF TRAFFIC SPECIAL PROVISIONS

GENERAL

- 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.
- 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 PROPER APPLICATION OF THE APPROVED TRAFFIC CONTROL PLAN (TCP) WILL PROVIDE THE DESIRED LEVEL OF SAFETY.
- 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.
- 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, 1988), INCLUDING ALL REVISIONS AND SUPPLEMENTS TO EACH.
- THE CONTRACTOR AND/OR PERMITTEE SHALL BE REQUIRED TO ADHERE TO THE REQUIREMENTS SET FORTH IN THE TCP AND THESE SPECIAL PROVISIONS, UNLESS OTHERWISE DIRECTED BY THE ENGINEER. ANY REQUESTS TO MAKE MINOR CHANGES TO THE TCP OR THE SPECIAL PROVISIONS WITH REGARD TO THE TRAFFIC CONTROL ITEMS SHALL BE MADE IN WRITING TO THE ENGINEER A MINIMUM OF THREE (3) WORKING DAYS PRIOR TO THE PROPOSED SCHEDULING CHANGE. THE CONTRACTOR AND/OR PERMITTEE SHALL HAVE WRITTEN APPROVAL OF THE ENGINEER PRIOR TO THE IMPLEMENTATION OF ANY CHANGE.
- 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.
- 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.
- 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.
- 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 90% OF THE SPECIFIED MINIMUM VALUE OVER AT LEAST 90% OF THE VISIBLE REFLECTIVE SURFACE.
- 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.
- THROUGHOUT THE PERIODS OF WORK ACTIVITIES, TRAFFIC SHALL BE MAINTAINED BY IMPLEMENTING THE APPROVED TCP. IN LIEU OF THE TCP PREPARED FOR THIS PROJECT, AND/OR INDIVIDUAL TYPICAL TRAFFIC CONTROL STANDARDS, THE CONTRACTOR AND/OR PERMITTEE HAS THE OPTION OF PREPARING AND SUBMITTING A TCP, WHOLLY OR IN PART, OF HIS OWN DESIGN, FOLLOWING GUIDELINES SET FORTH IN THE MUTCD AND PRESCRIBED BY THE ADMINISTRATION. A TCP DEVELOPED BY THE CONTRACTOR AND/OR PERMITTEE SHALL NOT BE IMPLEMENTED UNTIL ADVANCE WRITTEN APPROVAL IS OBTAINED FROM THE ENGINEER. TCP'S MAY BE IMPLEMENTED WITHIN A SINGLE PROJECT OR JOINTLY BETWEEN TWO OR MORE PROJECTS. IN SITUATIONS WHERE TCP'S JOINTLY IMPLEMENTED, CARE SHALL BE EXERCISED TO PRESENT CORRECT AND NON-CONFLICTING GUIDANCE TO THE TRAVELING PUBLIC.
- 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.
- TRAFFIC SHALL BE MAINTAINED AT ALL TIMES THROUGHOUT THE ENTIRE LENGTH OF THE PROJECT, UNLESS OTHERWISE NOTED. NO TRAVEL LANE(S) OTHER THAN THOSE DESIGNATED FOR POSSIBLE CLOSURE IN THE TCP SHALL BE CLOSED WITHOUT OBTAINING PRIOR APPROVAL FROM THE ENGINEER. ALL INGRESS AND EGRESS TO THE WORK AREA BY THE CONTRACTOR AND/OR PERMITTEE SHALL BE PERFORMED WITH THE FLOW OF TRAFFIC.

ENGINEER'S CERTIFICATE

I hereby certify that this plan for erosion and sediment control is a practical and workable plan based on my personal knowledge of the site condition and that it was prepared in accordance with the provisions of the Howard Soil Conservation District.

Signature of Engineer: *[Signature]* Date: 4/23/09

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: *[Signature]* Date: 4/23/09

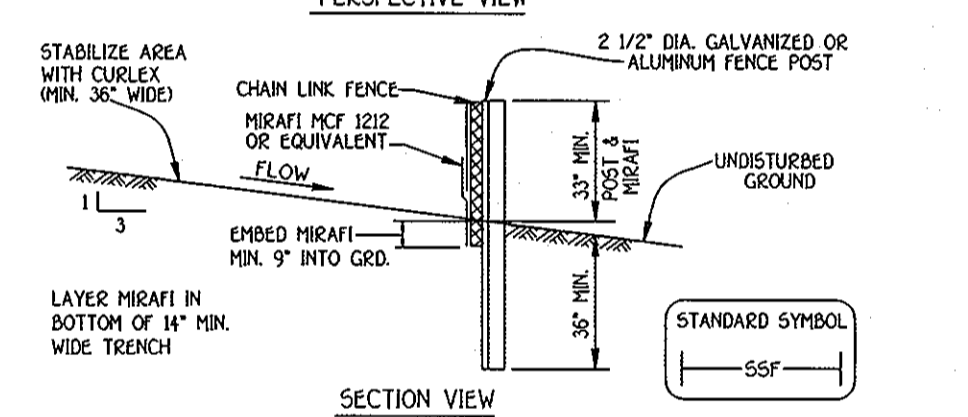
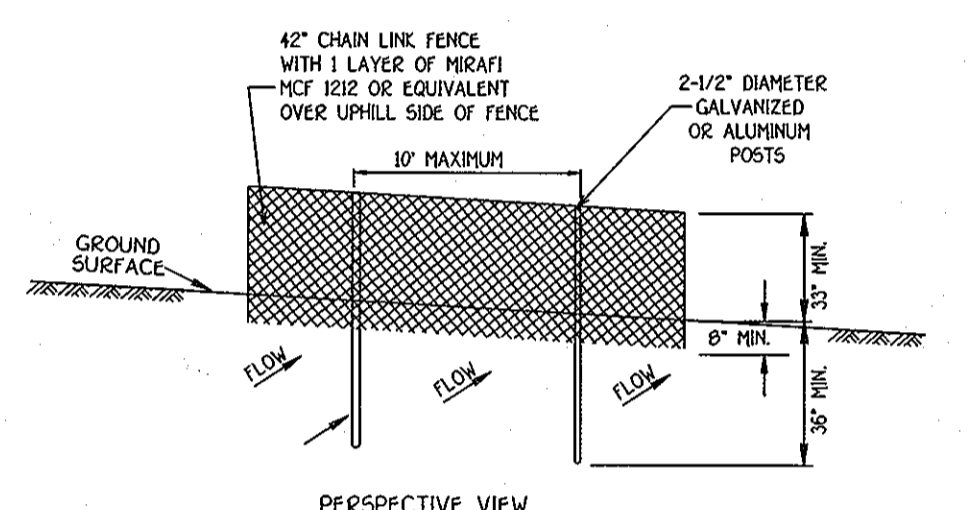
Approved: This Development is Approved For Erosion And Sediment Control By The Howard Soil Conservation District.

Signature of Planning and Zoning: *[Signature]* Date: 4/23/09

Signature of Land Development: *[Signature]* Date: 5/19/09

Signature of Engineering Division: *[Signature]* Date: 5/12/09

Signature of Bureau of Highways: *[Signature]* Date: 5-5-09



CONSTRUCTION SPECIFICATIONS

- FENCING SHALL BE 42" HIGH CHAIN LINK CONSTRUCTED IN ACCORDANCE WITH THE LATEST MARYLAND STATE HIGHWAY ADMINISTRATION STANDARD DETAILS 690.01 AND 690.02. FOR CHAIN U FENCING, THE SPECIFICATIONS FOR A 6'-0" FENCE SHALL BE USED, SUBSTITUTING 42" FABRIC AND 8" POSTS. POSTS SHALL BE PLACED WITHOUT CONCRETE EMBEDMENT.
- CHAIN LINK FENCE SHALL BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES. THE LOWER TENSION WIRE, SPACE AND TRUSS RODS, ANCHORS AND POST CAPS ARE NOT REQUIRED EXCEPT ON THE ENDS OF THE FENCE.
- FILTER CLOTH TO BE FASTENED SECURELY TO CHAIN LINK FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION.
- FILTER CLOTH SHALL BE IMBEDDED A MINIMUM OF 9" INTO THE GROUND.
- WHEN TWO SECTIONS OF DIVERSION CLOTH ADJOIN EACH OTHER THEY SHALL BE OVERLAPPED BY SIX INCHES AND FOLDED.
- MAINTENANCE SHALL BE PERFORMED AS NEEDED.

Fabric Properties	Value	Test Method
Grab Tensile Strength (lbs)	90	ASTM D1682
Elongation at Failure (%)	50	ASTM D1682
Mullen Burst Strength (PSI)	150	ASTM D3786
Puncture Strength (lbs)	40	ASTM D751
Slurry Flow Rate (gal/min/ft)	0.3	Virginia DOT W-91
Equivalent Opening Size	40-80	US Std Sieve CW-02215
Ultraviolet Radiation Stability (h)	90	ASTM G-26

Slope	Slope Steepness	Slope Length (Maximum)	Silt Fence Length (Maximum)
0 - 10%	0 - 10%	Unlimited	Unlimited
10 - 20%	10:1 - 5:1	400 feet	1,500 feet
20 - 33%	5:1 - 3:1	300 feet	1,000 feet
33 - 50%	3:1 - 2:1	200 feet	500 feet
50% +	2:1 +	100 feet	250 feet

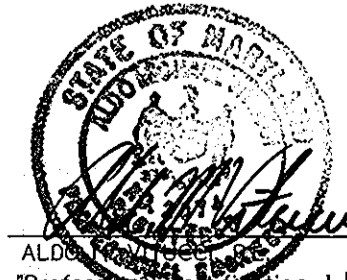
SUPER FENCE DIVERSION
NOT TO SCALE

SEDIMENT CONTROL NOTES & DETAILS
CENTENNIAL MEADOWS
LOTS 1 THRU 5

A Resubdivision Of Lot 6 And Part Of Lot 5, As Shown On A Plat Entitled "Gwynn Development, Section One" And Recorded Among The Land Records Of Howard County, Maryland In Plat Book 4, Folio 77.

DATE: 4/23/09

TAX MAP NO. 30 GRID NO. 3 PARCEL NO. 112
SECOND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
SCALE: AS SHOWN DATE: APRIL 7, 2009
SHEET 5 OF 11



FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CONTINENTAL SQUARE OFFICE PARK - 10772 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042
410 481 - 2999

OWNER
LAWRENCE D. BAU
9780 OLD ANNAPOLIS ROAD
ELLICOTT CITY, MARYLAND 21042-6327
(410) 730-9554

DEVELOPER
CORNERSTONE HOLDINGS, LLC
9695 NORFOLK AVENUE
LAUREL, MARYLAND 20723
(410) 792-2565

1:\2009\05128\DWG\FINALS\06128 SHEET 556 DETAILS.dwg, 4/23/2009 1:26:53 PM, jamesl

20.0 STANDARDS AND SPECIFICATIONS FOR VEGETATIVE STABILIZATION

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

DEFINITION

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 runoff to downstream areas, and improving watershed 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 (up to one year), and Permanent Seeding, for long term vegetative cover. Examples of applicable areas for Temporary Seeding are: bare areas, denuded areas, and other areas of soil erosion. Examples of applicable areas for Permanent Seeding are: bare areas, denuded areas, and other areas of soil erosion.

EFFECTS ON WATER QUALITY AND QUANTITY

Planting vegetation in disturbed areas will have beneficial effects 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. Runoff to receiving waters. Plants will also help protect groundwater supplies by assimilating those substances present within the root zone. Runoff to receiving waters. Plants will also help protect groundwater supplies by assimilating those substances present within the root zone. Runoff to receiving waters. Plants will also help protect groundwater supplies by assimilating those substances present within the root zone.

SECTION 1 - VEGETATIVE STABILIZATION METHODS AND MATERIALS

- Site Preparation
 - Install erosion and sediment control structures (either temporary or permanent) such as diversions, grade stabilization structures, silt fences, waterways or sediment basins as specified on the plans.
 - Perform all grading operations at right angles to the slope. Final grading and shaping is not usually necessary for long term vegetative cover.
 - Schedule required soil tests to determine soil amendment composition and application rates for sites having disturbed areas over 5 acres.
- Soil Amendment (Fertilizer and Lime Specifications)
 - 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 analysis.
 - Fertilizers shall be uniform in composition, free flowing and suitable for accurate application by standard equipment. Fertilizer must be substituted for fertilizer with similar analysis and approved by the appropriate approval authority. Fertilizers shall be delivered to the site fully labeled according to the applicable state fertilizer laws and shall bear the name of the manufacturer, the name and address of the producer.
- Lime materials shall be ground limestone hydrated or burnt lime may be substituted which contains at least 90% total calcium oxide plus magnesium oxide. Limestone shall be ground to such fineness that at least 50% will pass through a #100 mesh sieve and 98-100% will pass through a #20 mesh sieve.

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.

- Seed mixtures - Temporary Seeding
 - Select one or more of the species or mixtures listed in Table 25 for the appropriate Plant Hardness Zone (from Figure 3) 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 25 must be put on the plans.
 - 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 Hardness Zone ... (See Table 25)		Fertilizer Rate (0-10-10)		Lime Rate
No.	Species	Application Rate (lb/ac)	Seeding Dates	Seeding Depths
1	BARLEY	122	3/1 - 5/15	1" - 2"
	OATS	96	8/15 - 10/15	1" - 2"
	RYE	140		

SECTION 3 - PERMANENT SEEDING

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

- Seed mixtures - Permanent Seeding
 - Select one or more of the species or mixtures listed in Table 25 for the appropriate Plant Hardness Zone (from Figure 3) 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 542 - Critical Area Planting, for special low maintenance areas, see Sections IV and V Turfgrass.
 - For sites having disturbed areas 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.
 - For areas receiving low maintenance, apply ureiform fertilizer (46-0-0) at 1 1/2 lbs/1000 sq. ft. (150 lb/ac), in addition to the above soil amendments shown in the table below, to be performed at the time of seeding.

Construction and Material Specifications

- Topsail salvaged from the existing site may be used provided that it meets the standards as set forth in these specifications. Typically, the depth of topsail 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.
- Topsail Specifications - Soil to be used as topsail must meet the following:
 - Topsail shall be a loam, sandy loam, clay loam, silt loam, sandy clay loam, loamy sand. Other soils may be used if approved by an agronomist or soil scientist and approved by the appropriate approval authority. Regardless, topsail shall not be a mixture of contrasting textured subsoils and shall contain less than 5% by volume of cinders, stones, slag, coarse fragments, gravel, sticks, roots, trash, or other materials larger than 1 1/2" in diameter.
 - Topsail must be free of plants or plant parts such as bermuda grass, quackgrass, Johnson grass, nutgrass, poison ivy, thistle, or others as specified.
 - 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 topsail. Lime shall be distributed uniformly over designated areas and worked into the soil in conjunction with tillage operations as described in the following procedures.

Table 25

Seed Mixture Hardness Zone ... (See Table 25)		Fertilizer Rate (0-20-20)		Lime Rate
No.	Species	Application Rate (lb/ac)	Seeding Dates	Seeding Depths
3	FALL FESCUE (90%) PERENNIAL RYE GRASS (10%) KENTUCKY BLUEGRASS (0%)	125	3/1 - 5/15	1" - 2"
10	FALL FESCUE (20%) PERENNIAL RYE GRASS (80%)	120	3/1 - 5/15	1" - 2"
10	FALL FESCUE (20%) PERENNIAL RYE GRASS (80%)	120	3/1 - 5/15	1" - 2"

Table 26

Seed Mixture Hardness Zone ... (See Table 25)		Fertilizer Rate (0-20-20)		Lime Rate
No.	Species	Application Rate (lb/ac)	Seeding Dates	Seeding Depths
3	FALL FESCUE (90%) PERENNIAL RYE GRASS (10%) KENTUCKY BLUEGRASS (0%)	125	3/1 - 5/15	1" - 2"
10	FALL FESCUE (20%) PERENNIAL RYE GRASS (80%)	120	3/1 - 5/15	1" - 2"
10	FALL FESCUE (20%) PERENNIAL RYE GRASS (80%)	120	3/1 - 5/15	1" - 2"

- Soil amendments shall be applied to the top 3-5" of soil by disking or other suitable means.
 - Minimum soil conditions required for permanent vegetative establishment:
 - Soil pH shall be between 6.0 and 7.0.
 - Soluble salts shall be less than 500 parts per million (ppm).
 - 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 legumes or cereals (especially clover) are to be planted, then a sandy soil (50% silt plus clay) would be acceptable.
 - Soil shall contain 1.5% minimum organic matter by weight.
 - Soil must contain sufficient space to permit adequate root penetration.
 - If these conditions cannot be met by soils on site, adding topsoil is required.
 - In accordance with Section 2.0 Standards and Specifications for Topsoil.
 - Areas previously graded in conformance with the drawings shall be maintained in a true and even grade, then subsoiled or otherwise loosened to a depth of 3-5" to permit bonding of the topsail to the surface area and to create horizontal erosion check slots to prevent topsail from sliding a slope.
 - Apply soil amendments as per soil test or as included on the plans.
 - Soil amendments into the top 3-5" of topsail by disking or other suitable means. Lawn areas should be raked to smooth the surface, remove large objects like stones and branches, and rake the area for soil preparation. Areas to be seeded with permanent vegetation should be prepared, loosen surface soil by dragging with a heavy chain or other equipment to roughen the surface. Slope slopes steeper than 3:1 should be treated by disking leaving the soil in an irregular condition with ridges running parallel to the contour of the slope. The top 1-2" of soil should be loose and friable. Seeding loosening may not be necessary on newly disturbed areas.

Table 27

Seed Mixture Hardness Zone ... (See Table 25)		Fertilizer Rate (0-20-20)		Lime Rate
No.	Species	Application Rate (lb/ac)	Seeding Dates	Seeding Depths
3	FALL FESCUE (90%) PERENNIAL RYE GRASS (10%) KENTUCKY BLUEGRASS (0%)	125	3/1 - 5/15	1" - 2"
10	FALL FESCUE (20%) PERENNIAL RYE GRASS (80%)	120	3/1 - 5/15	1" - 2"
10	FALL FESCUE (20%) PERENNIAL RYE GRASS (80%)	120	3/1 - 5/15	1" - 2"

Table 28

Seed Mixture Hardness Zone ... (See Table 25)		Fertilizer Rate (0-20-20)		Lime Rate
No.	Species	Application Rate (lb/ac)	Seeding Dates	Seeding Depths
3	FALL FESCUE (90%) PERENNIAL RYE GRASS (10%) KENTUCKY BLUEGRASS (0%)	125	3/1 - 5/15	1" - 2"
10	FALL FESCUE (20%) PERENNIAL RYE GRASS (80%)	120	3/1 - 5/15	1" - 2"
10	FALL FESCUE (20%) PERENNIAL RYE GRASS (80%)	120	3/1 - 5/15	1" - 2"

Table 29

Seed Mixture Hardness Zone ... (See Table 25)		Fertilizer Rate (0-20-20)		Lime Rate
No.	Species	Application Rate (lb/ac)	Seeding Dates	Seeding Depths
3	FALL FESCUE (90%) PERENNIAL RYE GRASS (10%) KENTUCKY BLUEGRASS (0%)	125	3/1 - 5/15	1" - 2"
10	FALL FESCUE (20%) PERENNIAL RYE GRASS (80%)	120	3/1 - 5/15	1" - 2"
10	FALL FESCUE (20%) PERENNIAL RYE GRASS (80%)	120	3/1 - 5/15	1" - 2"

Table 30

Seed Mixture Hardness Zone ... (See Table 25)		Fertilizer Rate (0-20-20)		Lime Rate
No.	Species	Application Rate (lb/ac)	Seeding Dates	Seeding Depths
3	FALL FESCUE (90%) PERENNIAL RYE GRASS (10%) KENTUCKY BLUEGRASS (0%)	125	3/1 - 5/15	1" - 2"
10	FALL FESCUE (20%) PERENNIAL RYE GRASS (80%)	120	3/1 - 5/15	1" - 2"
10	FALL FESCUE (20%) PERENNIAL RYE GRASS (80%)	120	3/1 - 5/15	1" - 2"

Table 31

Seed Mixture Hardness Zone ... (See Table 25)		Fertilizer Rate (0-20-20)		Lime Rate
No.	Species	Application Rate (lb/ac)	Seeding Dates	Seeding Depths
3	FALL FESCUE (90%) PERENNIAL RYE GRASS (10%) KENTUCKY BLUEGRASS (0%)	125	3/1 - 5/15	1" - 2"
10	FALL FESCUE (20%) PERENNIAL RYE GRASS (80%)	120	3/1 - 5/15	1" - 2"
10	FALL FESCUE (20%) PERENNIAL RYE GRASS (80%)	120	3/1 - 5/15	1" - 2"

Table 32

Seed Mixture Hardness Zone ... (See Table 25)		Fertilizer Rate (0-20-20)		Lime Rate
No.	Species	Application Rate (lb/ac)	Seeding Dates	Seeding Depths
3	FALL FESCUE (90%) PERENNIAL RYE GRASS (10%) KENTUCKY BLUEGRASS (0%)	125	3/1 - 5/15	1" - 2"
10	FALL FESCUE (20%) PERENNIAL RYE GRASS (80%)	120	3/1 - 5/15	1" - 2"
10	FALL FESCUE (20%) PERENNIAL RYE GRASS (80%)	120	3/1 - 5/15	1" - 2"

Table 33

Seed Mixture Hardness Zone ... (See Table 25)		Fertilizer Rate (0-20-20)		Lime Rate
No.	Species	Application Rate (lb/ac)	Seeding Dates	Seeding Depths
3	FALL FESCUE (90%) PERENNIAL RYE GRASS (10%) KENTUCKY BLUEGRASS (0%)	125	3/1 - 5/15	1" - 2"
10	FALL FESCUE (20%) PERENNIAL RYE GRASS (80%)	120	3/1 - 5/15	1" - 2"
10	FALL FESCUE (20%) PERENNIAL RYE GRASS (80%)	120	3/1 - 5/15	1" - 2"

Table 34

Seed Mixture Hardness Zone ... (See Table 25)		Fertilizer Rate (0-20-20)		Lime Rate
No.	Species	Application Rate (lb/ac)	Seeding Dates	Seeding Depths
3	FALL FESCUE (90%) PERENNIAL RYE GRASS (10%) KENTUCKY BLUEGRASS (0%)	125	3/1 - 5/15	1" - 2"
10	FALL FESCUE (20%) PERENNIAL RYE GRASS (80%)	120	3/1 - 5/15	1" - 2"
10	FALL FESCUE (20%) PERENNIAL RYE GRASS (80%)	120	3/1 - 5/15	1" - 2"

Table 35

Seed Mixture Hardness Zone ... (See Table 25)		Fertilizer Rate (0-20-20)		Lime Rate
No.	Species	Application Rate (lb/ac)	Seeding Dates	Seeding Depths
3	FALL FESCUE (90%) PERENNIAL RYE GRASS (10%) KENTUCKY BLUEGRASS (0%)	125	3/1 - 5/15	1" - 2"
10	FALL FESCUE (20%) PERENNIAL RYE GRASS (80%)	120	3/1 - 5/15	1" - 2"
10	FALL FESCUE (20%) PERENNIAL RYE GRASS (80%)	120	3/1 - 5/15	1" - 2"

Table 36

Seed Mixture Hardness Zone ... (See Table 25)		Fertilizer Rate (0-20-20)		Lime Rate
No.	Species	Application Rate (lb/ac)	Seeding Dates	Seeding Depths
3	FALL FESCUE (90%) PERENNIAL RYE GRASS (10%) KENTUCKY BLUEGRASS (0%)	125	3/1 - 5/15	1" - 2"
10	FALL FESCUE (20%) PERENNIAL RYE GRASS (80%)	120	3/1 - 5/15	1" - 2"
10	FALL FESCUE (20%) PERENNIAL RYE GRASS (80%)	120	3/1 - 5/15	1" - 2"

Table 37

Seed Mixture Hardness Zone ... (See Table 25)		Fertilizer Rate (0-20-20)		Lime Rate
No.	Species	Application Rate (lb/ac)	Seeding Dates	Seeding Depths
3	FALL FESCUE (90%) PERENNIAL RYE GRASS (10%) KENTUCKY BLUEGRASS (0%)	125	3/1 - 5/15	1" - 2"
10	FALL FESCUE (20%) PERENNIAL RYE GRASS (80%)	120	3/1 - 5/15	1" - 2"
10	FALL FESCUE (20%) PERENNIAL RYE GRASS (80%)	120	3/1 - 5/15	1" - 2"

Table 38

Seed Mixture Hardness Zone ... (See Table 25)		Fertilizer Rate (0-20-20)		Lime Rate
No.	Species	Application Rate (lb/ac)	Seeding Dates	Seeding Depths
3	FALL FESCUE (90%) PERENNIAL RYE GRASS (10%) KENTUCKY BLUEGRASS (0%)	125	3/1 - 5/15	1" - 2"
10	FALL FESCUE (20%) PERENNIAL RYE GRASS (80%)	120	3/1 - 5/15	1" - 2"
10	FALL FESCUE (20%) PERENNIAL RYE GRASS (80%)	120	3/1 - 5/15	1" - 2"

Table 39

Seed Mixture Hardness Zone ... (See Table 25)		Fertilizer Rate (0-20-20)		Lime Rate
No.	Species	Application Rate (lb/ac)	Seeding Dates	Seeding Depths
3	FALL FESCUE (90%) PERENNIAL RYE GRASS (10%) KENTUCKY BLUEGRASS (0%)	125	3/1 - 5/15	1" - 2"
10	FALL FESCUE (20%) PERENNIAL RYE GRASS (80%)	120	3/1 - 5/15	1" - 2"
10	FALL FESCUE (20%) PERENNIAL RYE GRASS (80%)	120	3/1 - 5/15	1" - 2"

STANDARDS AND SPECIFICATIONS FOR TOPSOIL

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

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: This practice is limited to areas having 2:1 or flatter slopes where:

- The texture of the exposed subsoil/parent material is not adequate to produce vegetative growth.
 - 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.
 - The original soil to be vegetated contains material toxic to plant growth.
 - The soil is so acidic that treatment with limestone is not feasible.
- For the purpose of these Standards and Specifications, areas having slopes steeper than 2:1 require special consideration and design for adequate stabilization. Areas having slopes steeper than 2:1 shall have the appropriate stabilization shown on the plans.

Construction and Material Specifications

- Topsail salvaged from the existing site may be used provided that it meets the standards as set forth in these specifications. Typically, the depth of topsail 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.
- Topsail Specifications - Soil to be used as topsail must meet the following:
 - Topsail shall be a loam, sandy loam, clay loam, silt loam, sandy clay loam, loamy sand. Other soils may be used if approved by an agronomist or soil scientist and approved by the appropriate approval authority. Regardless, topsail shall not be a mixture of contrasting textured subsoils and shall contain less than 5% by volume of cinders, stones, slag, coarse fragments, gravel, sticks, roots, trash, or other materials larger than 1 1/2" in diameter.
 - Topsail must be free of plants or plant parts such as bermuda grass, quackgrass, Johnson grass, nutgrass, poison ivy, thistle, or others as specified.
 - 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 topsail. Lime shall be distributed uniformly over designated areas and worked into the soil in conjunction with tillage operations as described in the following procedures.

Table 25

Seed Mixture Hardness Zone ... (See Table 25)		Fertilizer Rate (0-20-20)		Lime Rate
No.	Species	Application Rate (lb/ac)	Seeding Dates	Seeding Depths
3	FALL FESCUE (90%) PERENNIAL RYE GRASS (10%) KENTUCKY BLUEGRASS (0%)	125	3/1 - 5/15	1" - 2"
10	FALL FESCUE (20%) PERENNIAL RYE GRASS (80%)	120	3/1 - 5/15	1" - 2"
10	FALL FESCUE (20%) PERENNIAL RYE GRASS (80%)	120	3/1 - 5/15	1" - 2"

Table 26

Seed Mixture Hardness Zone ... (See Table 25)		Fertilizer Rate (0-20-20)		Lime Rate
No.	Species	Application Rate (lb/ac)	Seeding Dates	Seeding Depths
3	FALL FESCUE (90%) PERENNIAL RYE GRASS (10%) KENTUCKY BLUEGRASS (0%)	125	3/1 - 5/15	1" - 2"
10	FALL FESCUE (20%) PERENNIAL RYE GRASS (80%)	120	3/1 - 5/15	1" - 2"
10	FALL FESCUE (20%) PERENNIAL RYE GRASS (80%)	120	3/1 - 5/15	1" - 2"

Table 27

Seed Mixture Hardness Zone ... (See Table 25)		Fertilizer Rate (0-20-20)		Lime Rate
No.	Species	Application Rate (lb/ac)	Seeding Dates	Seeding Depths
3	FALL FESCUE (90%) PERENNIAL RYE GRASS (10%) KENTUCKY BLUEGRASS (0%)	125	3/1 - 5/15	1" - 2"
10	FALL FESCUE (20%) PERENNIAL RYE GRASS (80%)	120	3/1 - 5/15	1" - 2"
10	FALL FESCUE (20%) PERENNIAL RYE GRASS (80%)	120	3/1 - 5/15	1" - 2"

Table 28

Seed Mixture Hardness Zone ... (See Table 25)		Fertilizer Rate (0-20-20)		Lime Rate
No.	Species	Application Rate (

ENGINEER'S CERTIFICATE

I hereby certify that this Plan for Erosion and Sediment Control represents a Feasible and Workable Plan Based On My Personal Knowledge of Site Conditions And That It Was Prepared In Accordance With the Regulations of the Howard Soil Conservation District.

Signature: *[Signature]* Date: 4/23/09

APPROVED: *[Signature]* DATE: 5/12/09
 CHIEF, DIVISION OF LAND DEVELOPMENT

[Signature] DATE: 5/12/09
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

SCHEDULE A - PERIMETER LANDSCAPE EDGE

PERIMETER	P-1	P-2	P-3	P-4	P-5
FRONT TO ROADWAY	ADJACENT TO PERIMETER PROPERTIES	ADJACENT TO PERIMETER PROPERTIES	ADJACENT TO PERIMETER PROPERTIES	ADJACENT TO PERIMETER PROPERTIES	TRASH PAD
LANDSCAPE TYPE	N/A	A	A	A	N/A
LINEAR FEET OF PERIMETER	209.02 L.F.	834.54 L.F.	197.02 L.F.	796.56 L.F.	24 L.F.
CREDIT FOR EXISTING VEGETATION SHADE TREES	N/A	11 TREES (36", 36", 32", 28", 32", 26", 36", 26", 28", 36" & 16")	1 TREE (20")	1 TREE (32")	N/A
SMALL/MEDIUM DECIDUOUS TREES (21 SUBSTITUTION)	N/A	0	0	0	-
NUMBER OF PLANTS REQUIRED	N/A	3	2	12	10
SHADE TREES	N/A	-	-	-	-
EVERGREEN	-	-	-	-	-
SHRUBS	-	-	-	-	10

LANDSCAPING PLANT LIST

QTY.	KEY	NAME	SIZE
17	(Symbol)	ACER RUBRUM 'OCTOBER GLODY' (OCTOBER RED MAPLE)	2 1/2" - 3" CALIPER FULL CROWN, B&B
10	(Symbol)	LLEY X MESQUITE BLUE PRINCE HOLLY	3" - 4" HT.

NOTE: THE PROPOSED TRASH PAD LANDSCAPING SHALL BE PLANTING WITHIN THE PRIVATE ACCESS EASEMENT.

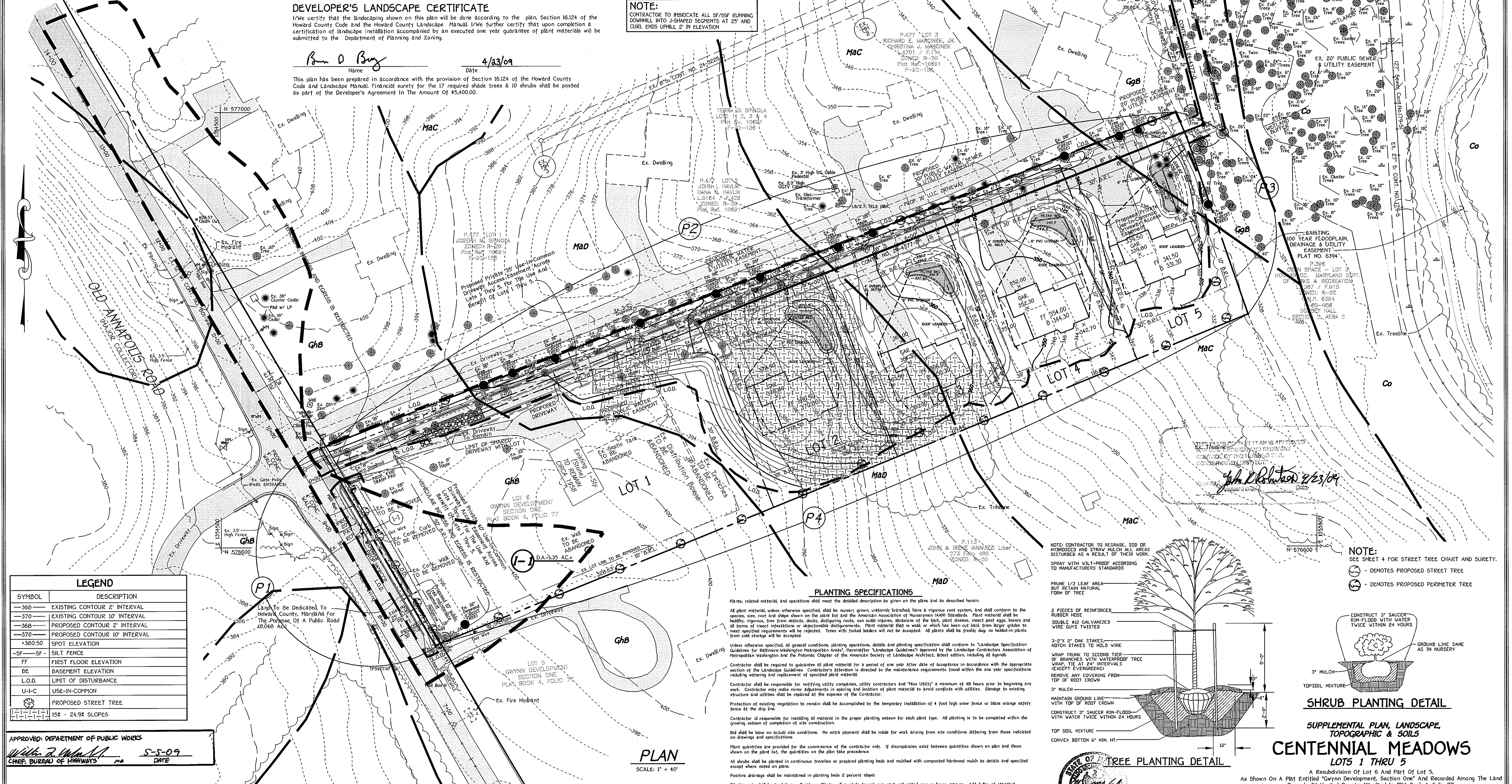
DEVELOPER'S LANDSCAPE CERTIFICATE

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

Name: *Bon D. Berg* Date: 4/23/09

This plan has been prepared in accordance with the provision of Section 16.124 of the Howard County Code and Landscape Manual. Financial surety for the 17 required shade trees & 10 shrubs shall be posted as part of the Developer's Agreement in the Amount of \$5,400.00.

NOTE:
 CONTRACTOR TO IMBRICATE ALL SF/50F RUNNING DOWNHILL INTO J-SHAPED SEGMENTS AT 25' AND CURB ENDS UPHILL 2' IN ELEVATION



LEGEND

SYMBOL	DESCRIPTION
(Symbol)	EXISTING CONTOUR 2' INTERVAL
(Symbol)	EXISTING CONTOUR 10' INTERVAL
(Symbol)	PROPOSED CONTOUR 2' INTERVAL
(Symbol)	PROPOSED CONTOUR 10' INTERVAL
(Symbol)	SPOT ELEVATION
(Symbol)	SILT FENCE
(Symbol)	FIRST FLOOR ELEVATION
(Symbol)	BASEMENT ELEVATION
(Symbol)	L.O.D. LIMIT OF DISTURBANCE
(Symbol)	USE-IN-COMMON
(Symbol)	PROPOSED STREET TREE
(Symbol)	15% - 24.9% SLOPES

APPROVED: DEPARTMENT OF PUBLIC WORKS
[Signature] DATE: 5-5-09
 CHIEF, BUREAU OF HIGHWAYS

PLAN
 SCALE: 1" = 40'

FISHER, COLLINS & CARTER, INC.
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
 CENTENNIAL SQUARE OFFICE PARK - 18725 BALTIMORE NATIONAL PIKE
 ELICOTT CITY, MARYLAND 21042
 (410) 461-2855

OWNER
 LOWELL D. RAU
 9780 OLD ANNAPOLES ROAD
 ELLICOTT CITY, MARYLAND 21042
 (410) 730-8954

DEVELOPER
 CORNERSTONE HOLDINGS, LLC
 9859 NORFOLK AVENUE
 LAUREL, MARYLAND 21042
 (410) 732-2955

PLANTING SPECIFICATIONS

Plants, related material, and operations shall meet the detailed description as given on the plan 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 out back from proper grades to meet specified requirements will be rejected. Trees with forked leaders will not be accepted. All plants shall be freshly dug; no heeled-in plants from cold storage will be accepted.

Unless otherwise specified, all general conditions, planting operations, details and planting specification shall conform to "Landscape Specification Guidelines for Baltimore-Washington Metropolitan Area", hereinafter "Landscape Guidelines" approved by the Landscape Contractors Association of Metropolitan Washington and the Potomac Chapter of the American Society of Landscape Architects, latest edition, including all appendices.

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

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

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

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

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

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

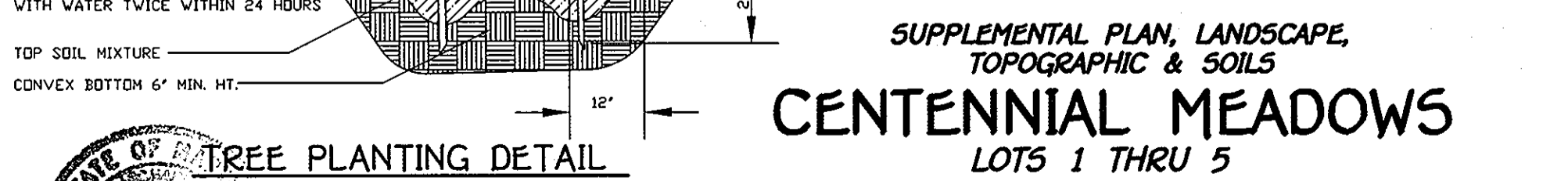
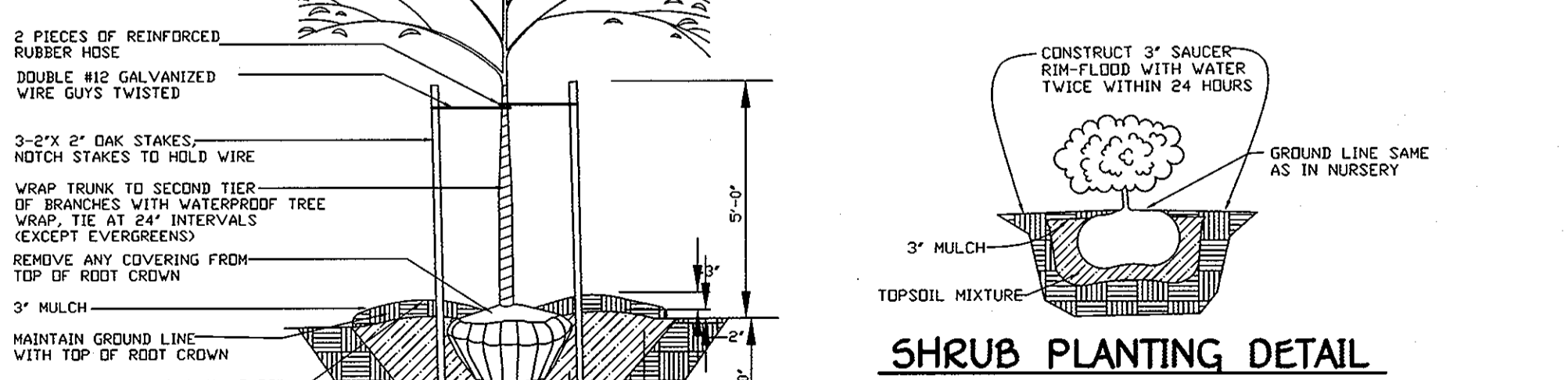
All shrubs shall be planted in continuous trenches or prepared planting beds and mulched with composted hardwood mulch as details and specified except where noted on plan.

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 green-green 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 suitability 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.



SUPPLEMENTAL PLAN, LANDSCAPE, TOPOGRAPHIC & SOILS

CENTENNIAL MEADOWS
 LOTS 1 THRU 5

A Resubdivision of Lot 6 And Part Of Lot 5, As Shown On A Plat Entitled "Gwynn Development, Section One" And Recorded Among The Land Records Of Howard County, Maryland In Plat Book 4, Folio 77.

ZONED: R-20
 TAX MAP NO. 30 GRID NO. 3 PARCEL NO. 112
 SECOND ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND
 SCALE: AS SHOWN DATE: APRIL 7, 2009
 SHEET 7 OF 11

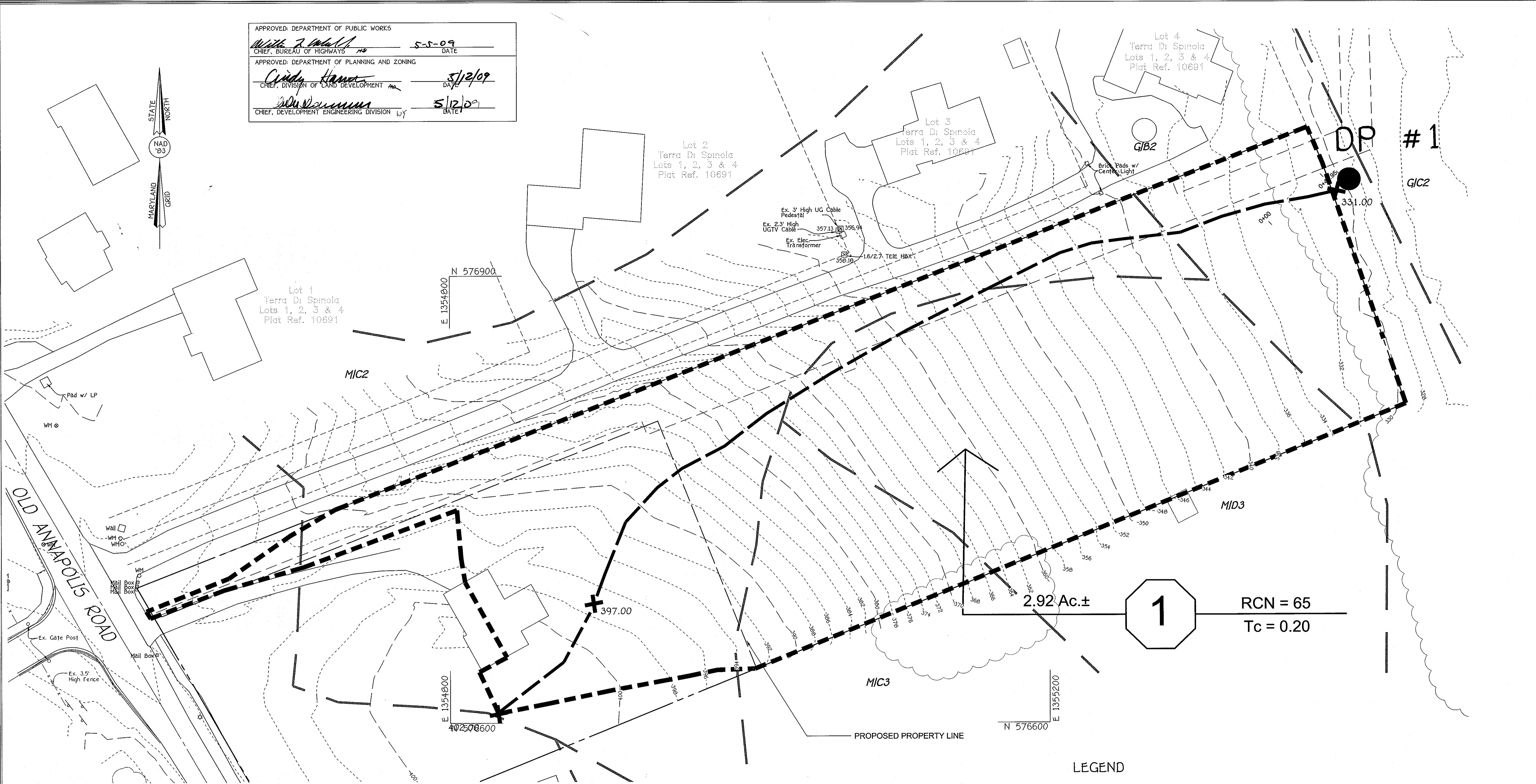


42309
 DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS
Michelle R. Smith 5-5-09
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
Cindy Hanna 5/12/09
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

W. J. Williams 5/12/09
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE



2.92 Ac.±

1

RCN = 65
Tc = 0.20

LEGEND

- EXISTING 2' CONTOURS
- EXISTING 10' CONTOURS
- SOIL LINES AND TYPES
- LIMIT OF DRAINAGE AREA
- TIME OF CONCENTRATION PATH
- DESIGN POINT

SOILS LEGEND		
SOIL	NAME	CLASS
GIB2	Glenelg loam, 3 to 8 percent slopes, moderately eroded	B
GIC2	Glenelg loam, 8 to 15 percent slopes, moderately eroded	B
MIB2	Manor loam, 3 to 8 percent slopes, moderately eroded	B
MIC2	Manor loam, 8 to 15 percent slopes, moderately eroded	B
MIC3	Manor loam, 8 to 15 percent slopes, severely eroded	B
MID3	Manor loam, 15 to 25 percent slopes, severely eroded	B

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

STORMWATER MANAGEMENT
 EXISTING DRAINAGE AREA MAP
CENTENNIAL MEADOWS
 LOTS 1 THRU 5

A Resubdivision Of Lot 6 And Part Of Lot 5,
 As Shown On A Plat Entitled "Gwynn Development, Section One" And Recorded Among The Land
 Records Of Howard County, Maryland In Plat Book 4, Folio 77.
 ZONED: R-20
 TAX MAP No. 30 GRID No. 3 PARCEL No. 112
 SECOND ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND
 SCALE: AS SHOWN DATE: APRIL 7, 2009
 SHEET 8 OF 11



4/5/09
 DATE

FISHER, COLLINS & CARTER, INC.
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
 CENTENNIAL SQUARE OFFICE PARK - 10772 BALTIMORE NATIONAL PIKE
 ELLICOTT CITY, MARYLAND 21114
 (410) 461-2895

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

OWNER
 LOWELL D. SAU
 9780 OLD ANNAPOLIS ROAD
 ELLICOTT CITY, MARYLAND 21042-6327
 (410) 730-9594

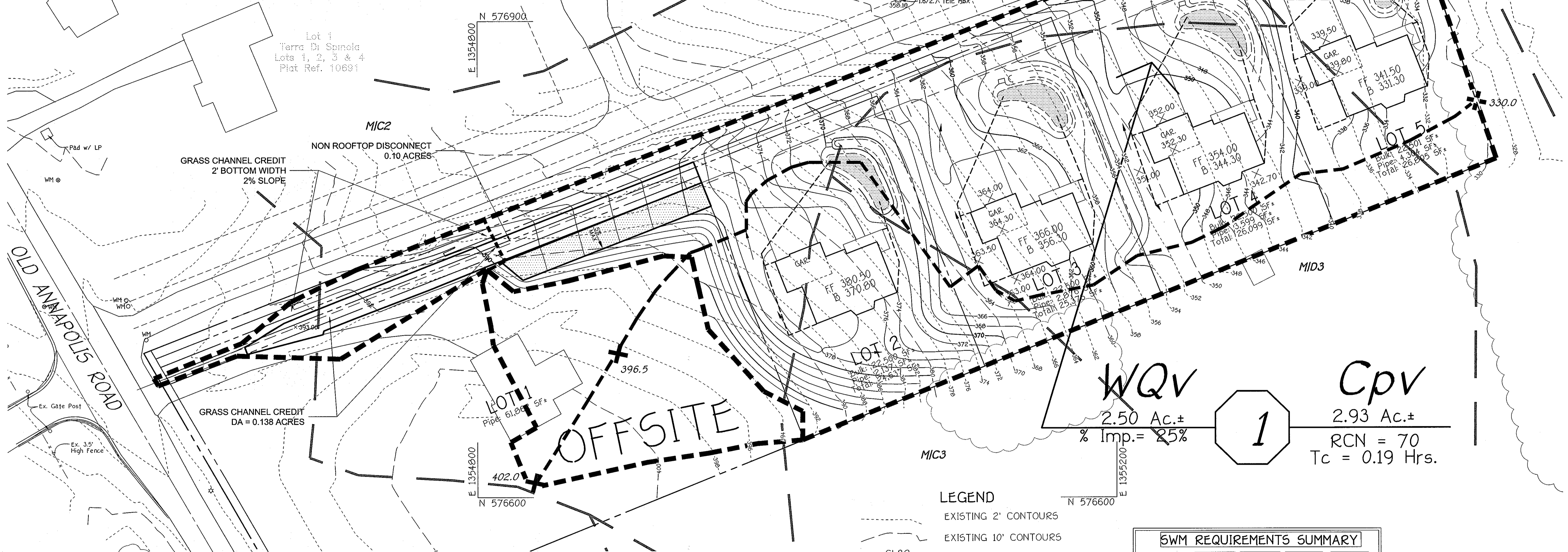
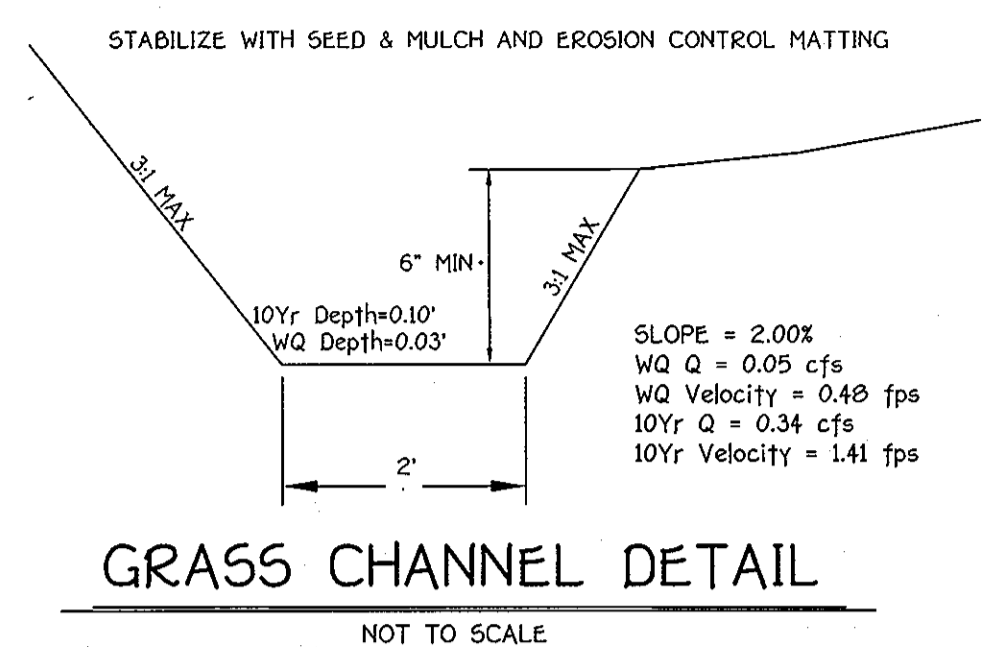
DEVELOPER
 CORNERSTONE HOLDINGS, LLC
 9625 NORFOLK AVENUE
 LAUREL, MARYLAND 20723
 (410) 792-2965

1:\2009\051228\DWG\FINALS\051228 SHEET 8-11 SUPPLEMENTAL SWM.dwg, 4/7/2009 10:24:44 AM, jsmel

APPROVED: DEPARTMENT OF PUBLIC WORKS
W. J. ... 5-5-09
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
Chris ... 5/19/09
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

Chris ... 5/12/09
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE



WQV
 2.50 Ac.±
 % Imp. = 25%

Cpv
 2.93 Ac.±
 RCN = 70
 Tc = 0.19 Hrs.

LEGEND

- EXISTING 2' CONTOURS
- EXISTING 10' CONTOURS
- SOIL LINES AND TYPES
- LIMIT OF DRAINAGE AREA
- TIME OF CONCENTRATION PATH
- PROPOSED CONTOUR
- DESIGN POINT
- DISCONNECTED IMPERVIOUS AREA
- DISCONNECTION RECEIVING AREA

SOILS LEGEND

SOIL	NAME	CLASS
GLB2	Glenelg loam, 3 to 8 percent slopes, moderately eroded	B
GIC2	Glenelg loam, 8 to 15 percent slopes, moderately eroded	B
MIB2	Manor loam, 3 to 8 percent slopes, moderately eroded	B
MIC2	Manor loam, 8 to 15 percent slopes, moderately eroded	B
MIC3	Manor loam, 8 to 15 percent slopes, severely eroded	B
MID3	Manor loam, 15 to 25 percent slopes, severely eroded	B

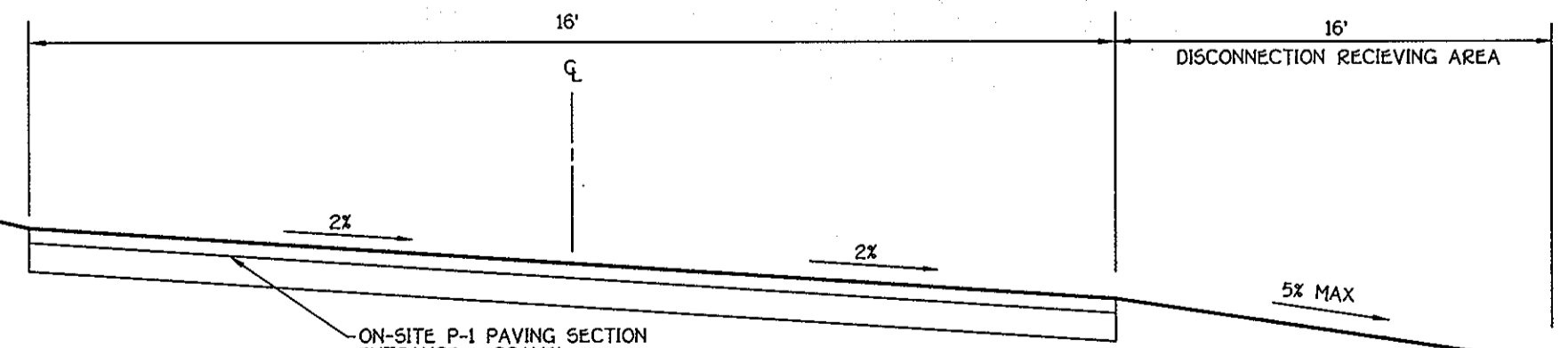
NOTES:
 * Hydric soils and/or contains hydric inclusions
 ** May contain hydric inclusions
 † Generally only within 100-year floodplain areas

SWM REQUIREMENTS SUMMARY

Subarea	Rev VOLUME	Rev AREA	WQV	Cpv qi
SUBAREA 001	0.015 ac/ft	0.163 ac	0.057 ac/ft	1.644 cfs

1-YR DISCHARGE SUMMARY

Subarea	EXISTING	PROPOSED
SUBAREA 001	0.83 cfs	1.49 cfs

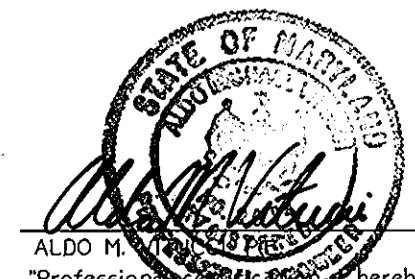


TYPICAL PRIVATE DRIVE CROSS SLOPE SECTION
 NOT TO SCALE

FISHER, COLLINS & CARTER, INC.
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
 129 Cockeysville Road, Hunt Valley, MD 21030
 Phone: 410.458.2651, Fax: 443.269.0216
 tes@mdswm.com, www.mdswm.com

OWNER
 LOWELL D. RAU
 9780 OLD ANNAPOLIS ROAD
 ELLICOTT CITY, MARYLAND 21042-6327
 (410) 792-8954

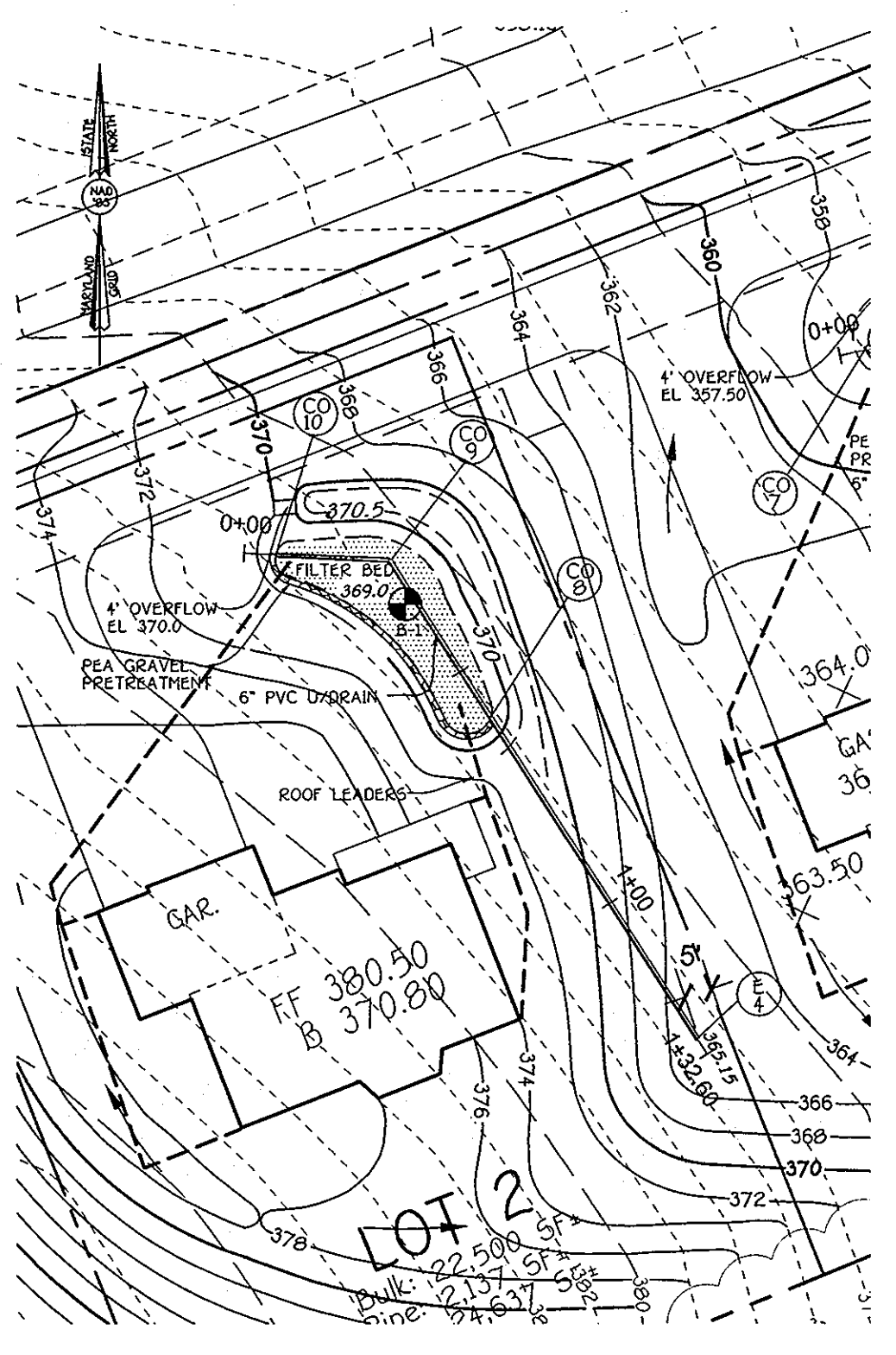
DEVELOPER
 CORNESTONE HOLDINGS, LLC
 8905 NORFOLK AVENUE
 LAUREL, MARYLAND 20723
 (410) 792-2565



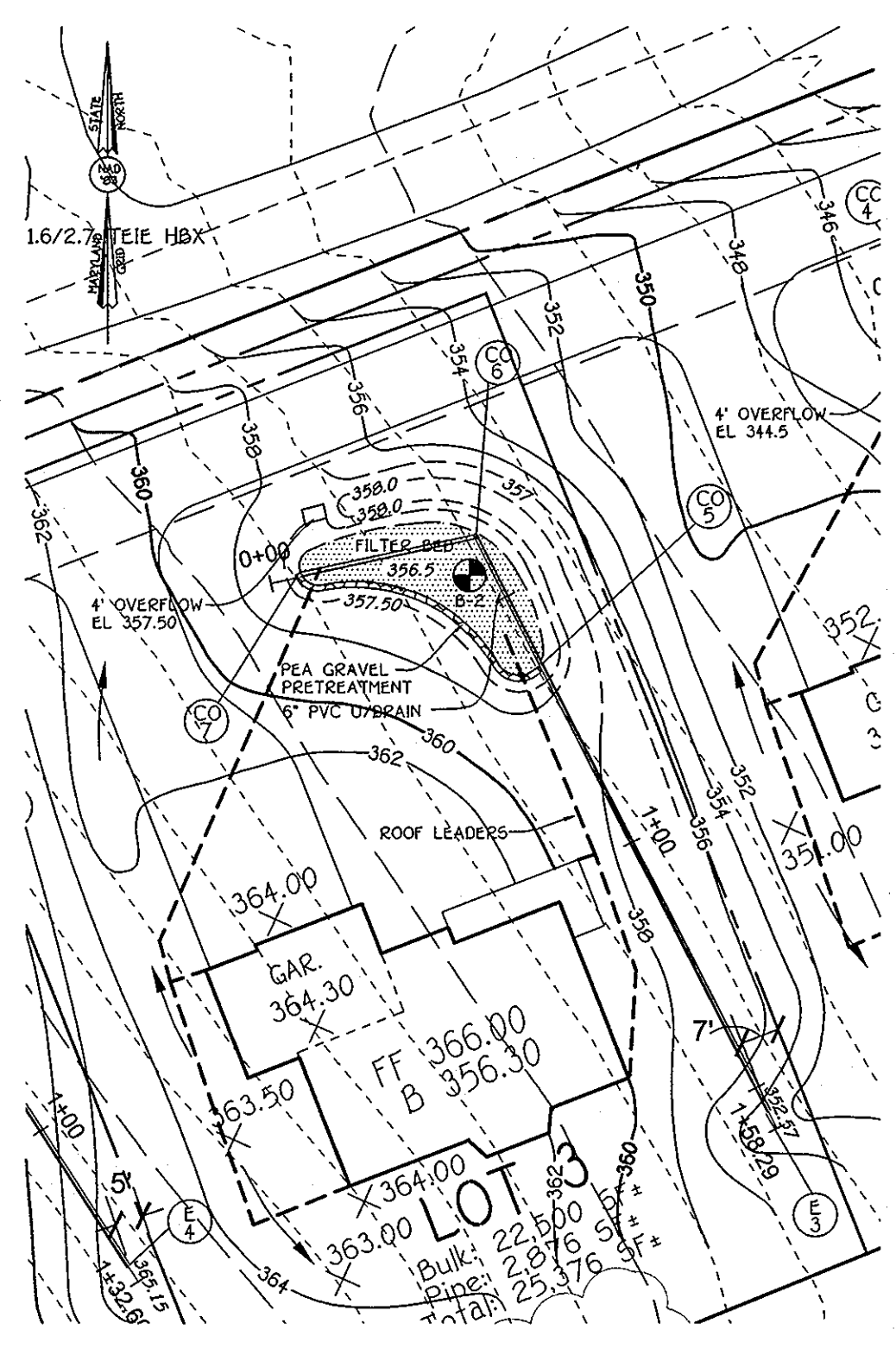
DATE: 4/15/09

STORMWATER MANAGEMENT
 PROPOSED CONDITIONS DRAINAGE AREA MAP
CENTENNIAL MEADOWS
 LOTS 1 THRU 5
 A Resubdivision Of Lot 6 And Part Of Lot 5,
 As Shown On A Plat Entitled "Gwynn Development, Section One" And Recorded Among The Land
 Records Of Howard County, Maryland In Plat Book 4, Folio 77.
 ZONED: R-20
 TAX MAP No. 30 GRID No. 3 PARCEL No. 112
 SECOND ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND
 SCALE: AS SHOWN DATE: APRIL 7, 2009
 SHEET 9 OF 11

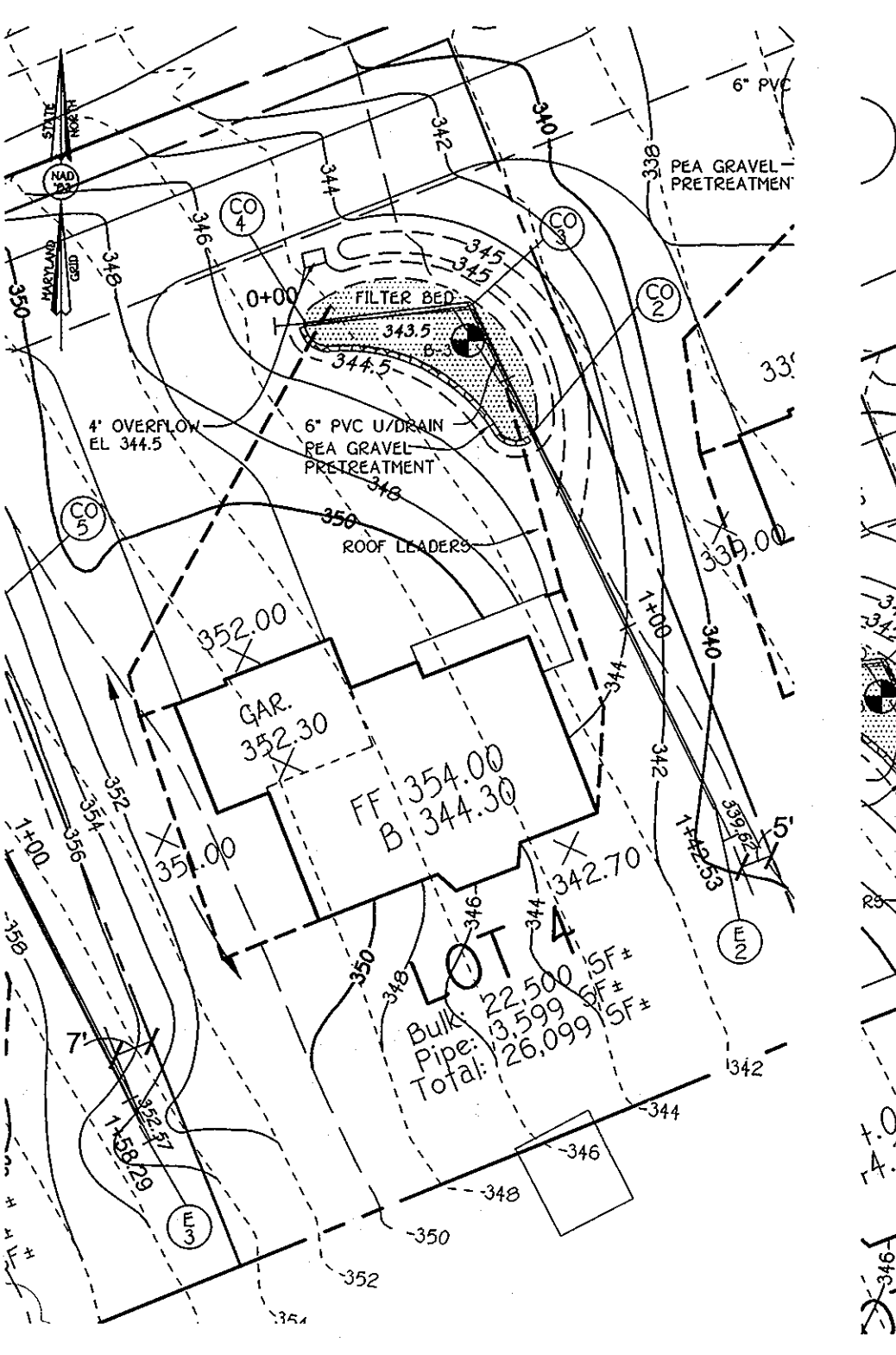
APPROVED: DEPARTMENT OF PUBLIC WORKS
 Mike P. M... 5-5-09 DATE
 CHIEF, BUREAU OF HIGHWAYS
 APPROVED: DEPARTMENT OF PLANNING AND ZONING
 Cindy Hunt 5/12/09 DATE
 CHIEF, DIVISION OF LAND DEVELOPMENT
 Chris... 6/12/09 DATE
 CHIEF, DEVELOPMENT ENGINEERING DIVISION



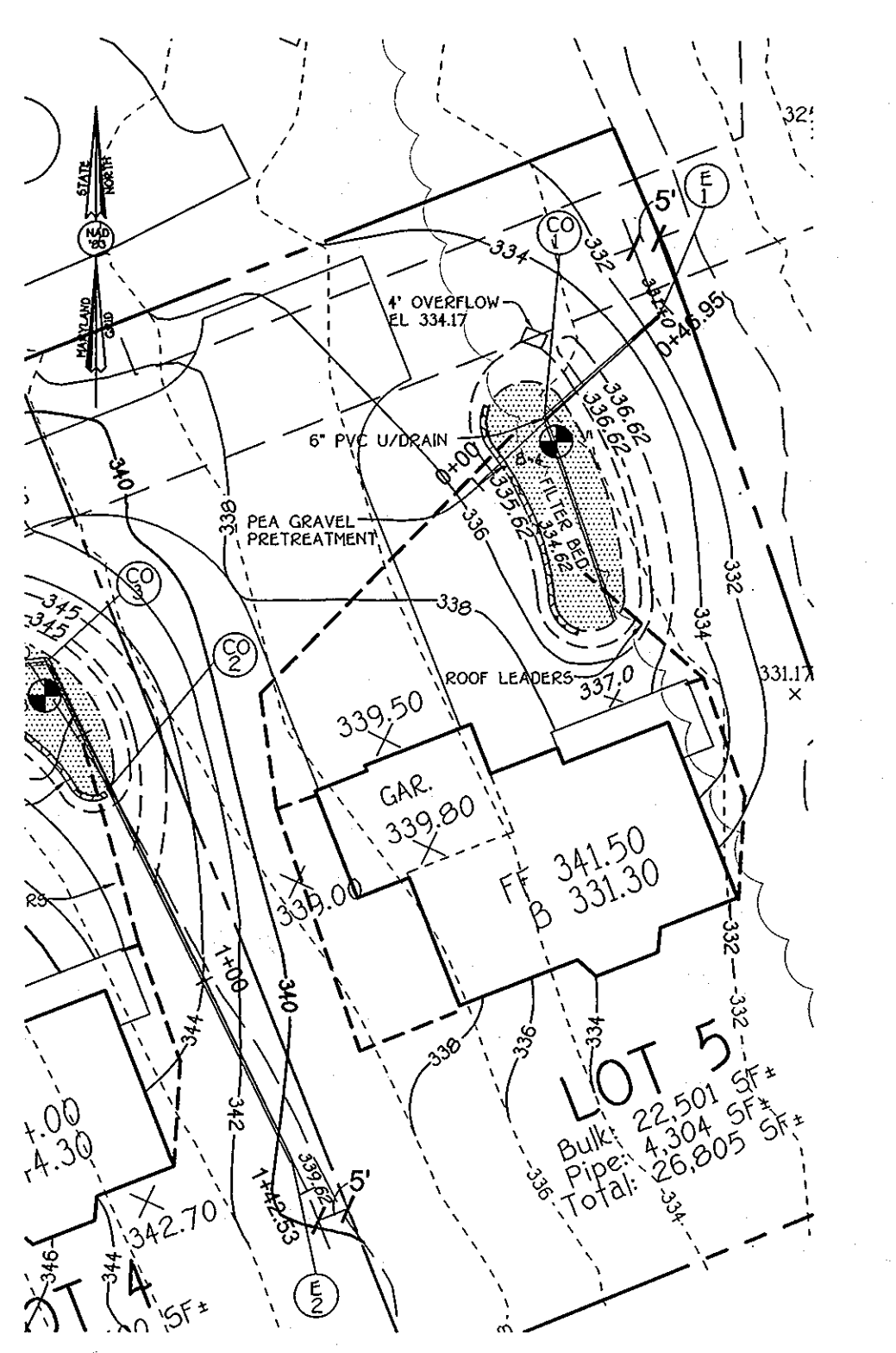
LOT #2 BIORETENTION PLAN
 1"=30'



LOT #3 BIORETENTION PLAN
 1"=30'



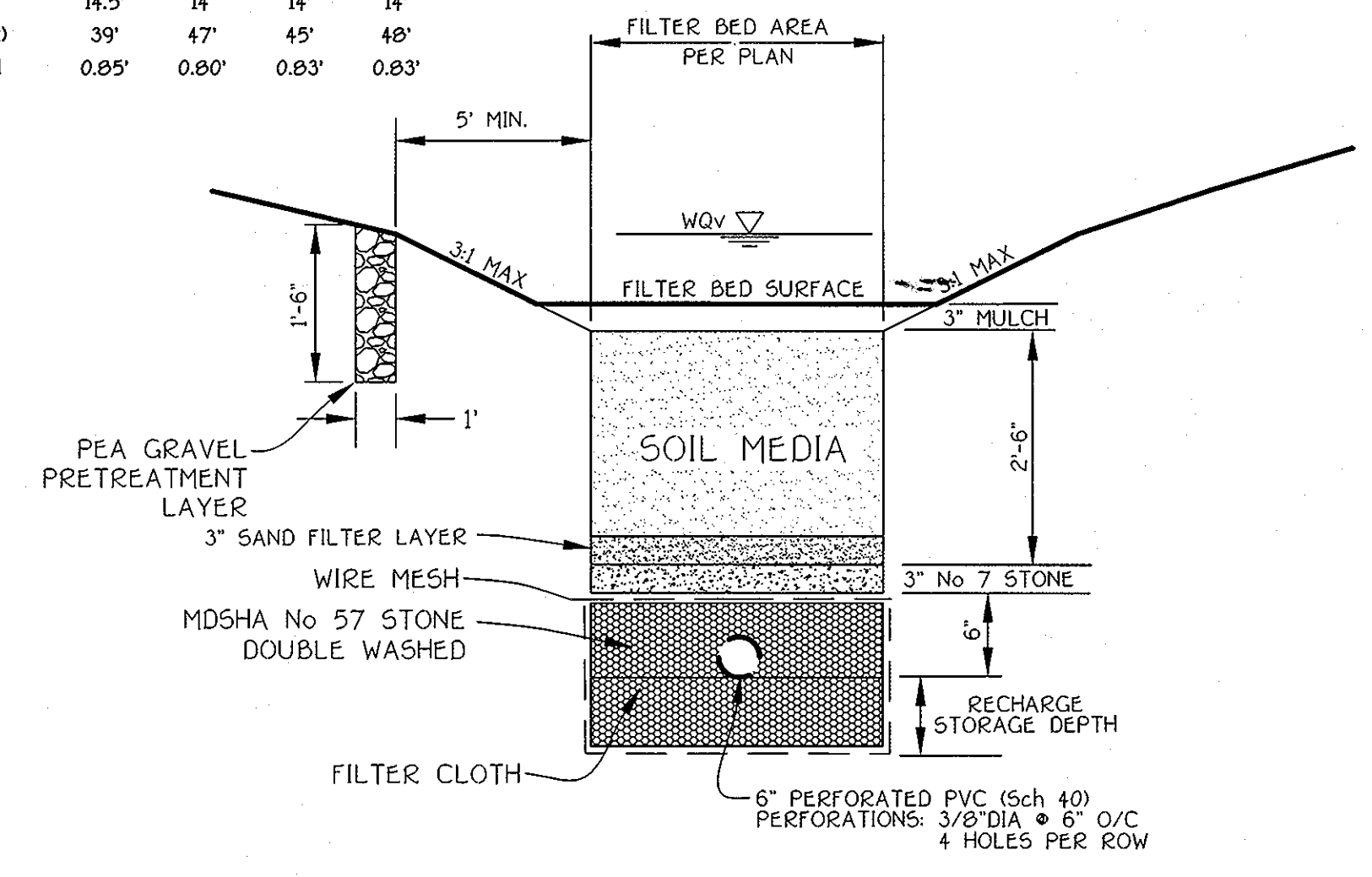
LOT #4 BIORETENTION PLAN
 1"=30'



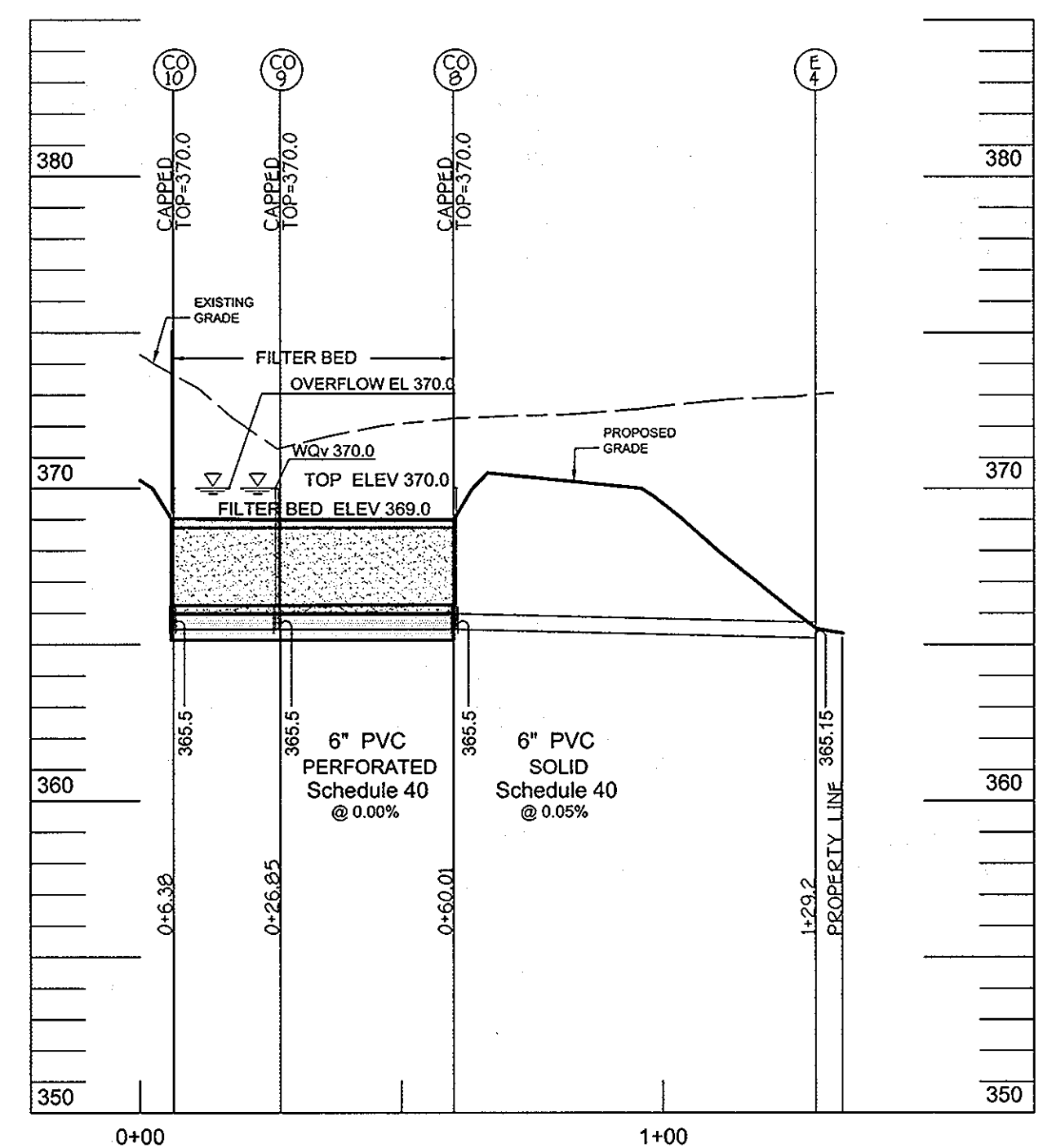
LOT #5 BIORETENTION PLAN
 1"=30'

BIORETENTION DATA

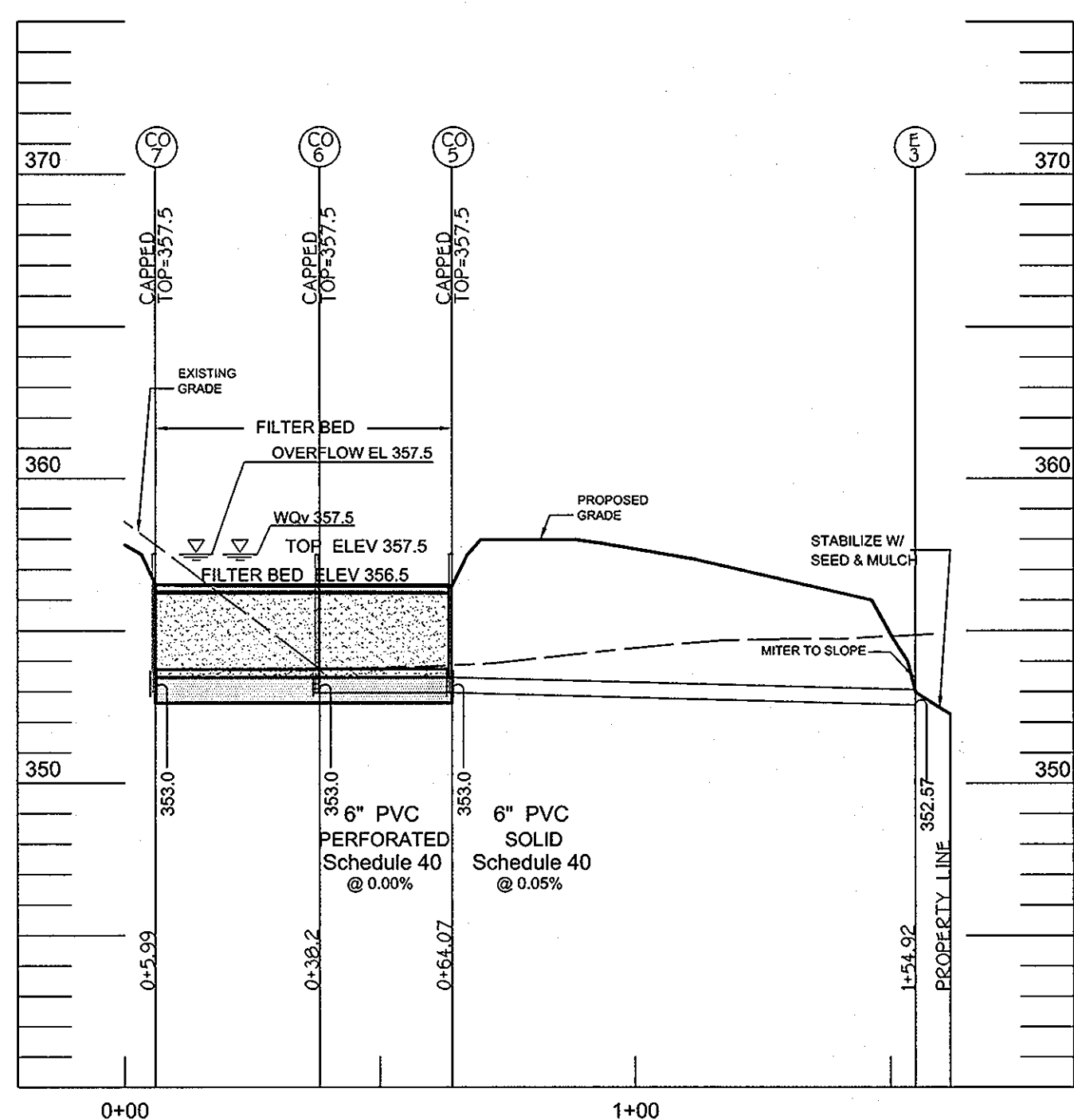
	LOT #2	LOT #3	LOT #4	LOT #5
INVERT ELEV	365.50	353.00	340.00	331.00
FILTER BED ELEV	369.00	356.50	343.50	334.62
OVERFLOW ELEV	370.00	357.17	344.50	335.62
WQV ELEV	370.00	357.17	344.50	335.62
TOP ELEV	370.50	357.67	345.00	336.62
FILTER BED WIDTH (ø Max)	14.5'	14'	14'	14'
FILTER BED LENGTH (ø Max)	39'	47'	45'	48'
RECHARGE STORAGE DEPTH	0.85'	0.80'	0.83'	0.83'



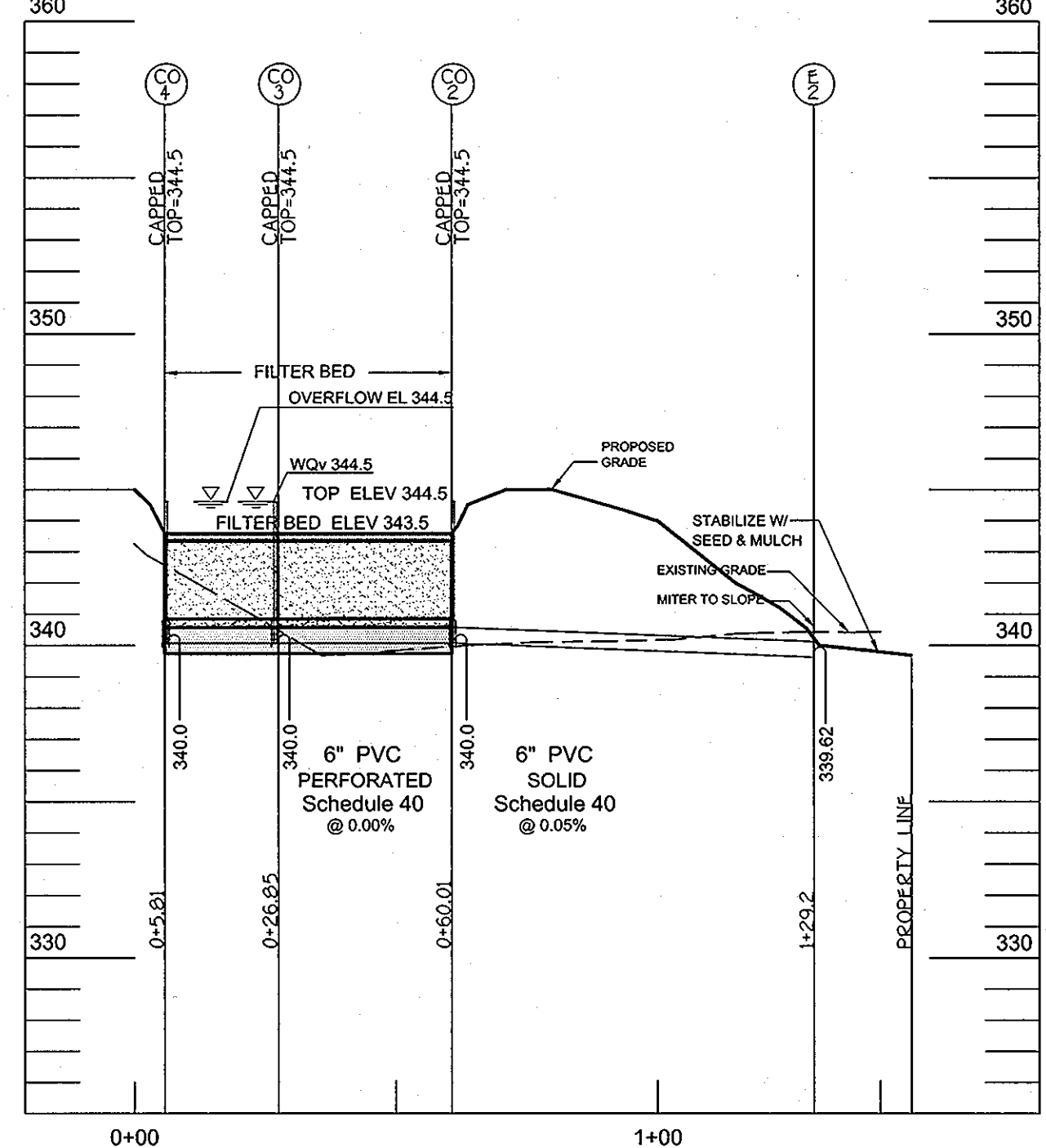
TYPICAL BIORETENTION SECTION
 NOT TO SCALE



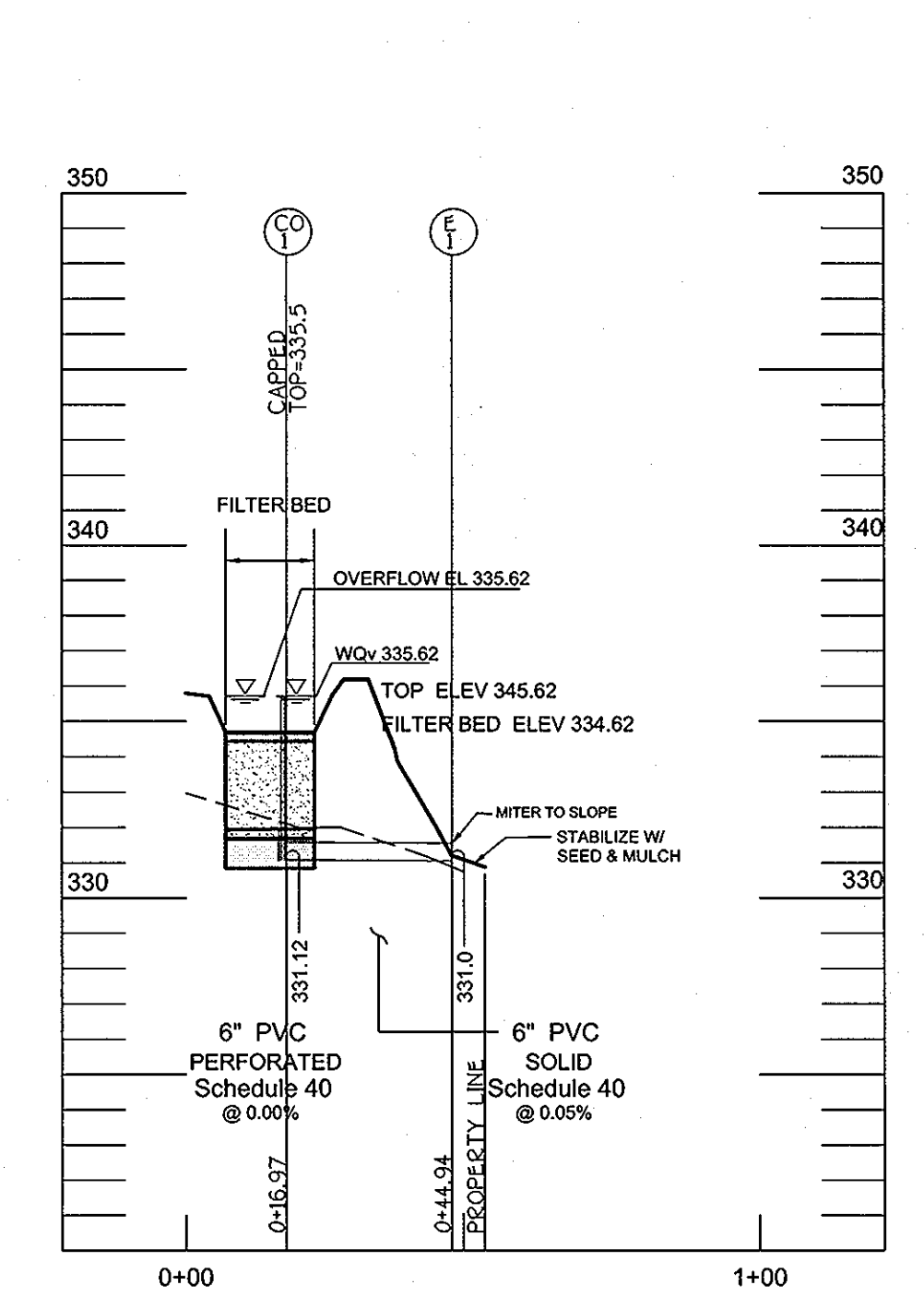
LOT #2 BIORETENTION PROFILE
 H:1"=30'
 V:1"=5'



LOT #3 BIORETENTION PROFILE
 H:1"=30'
 V:1"=5'



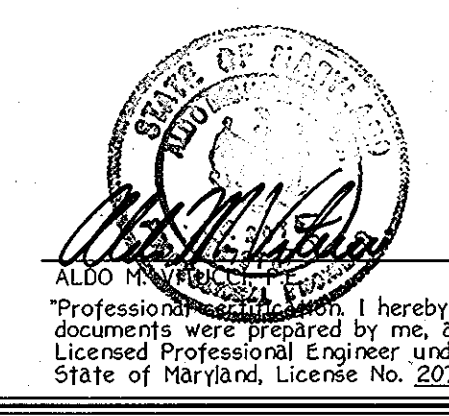
LOT #4 BIORETENTION PROFILE
 H:1"=30'
 V:1"=5'



LOT #5 BIORETENTION PROFILE
 H:1"=30'
 V:1"=5'

STORMWATER MANAGEMENT
 BIO-RETENTION PLANS & PROFILES
CENTENNIAL MEADOWS
 LOTS 1 THRU 5

A Resubdivision of Lot 6 And Part of Lot 5,
 As Shown On A Plat Entitled "Gwynn Development, Section One" And Recorded Among The Land
 Records Of Howard County, Maryland In Plat Book 4, Folio 77.
 ZONED: R-20
 TAX MAP No. 30 GRID No. 3 PARCEL No. 112
 SECOND ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND
 SCALE: AS SHOWN DATE: APRIL 7, 2009
 SHEET 10 OF 11



FISHER, COLLINS & CARTER, INC.
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
 CENTENNIAL SQUARE OFFICE PARK - 2072 BALTIMORE NATIONAL PIKE
 ELLICOTT CITY, MARYLAND 21117
 (410) 461-2955

APPLIEDSTORMWATER
 DESIGN/MAINTENANCE/CONSTRUCTION
 dba T.E. Scott & Associates, Inc.
 129 Cockeysville Road phone: 410.458.2651
 Hunt Valley, MD 21103 fax: 443.269.0216
 tes@mndswm.com www.mndswm.com

OWNER
 LOWELL D. BAU
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 (410) 730-8954

DEVELOPER
 CORNERSTONE HOLDINGS, LLC
 3055 NORFOLK AVENUE
 LAUREL, MARYLAND 20723
 (410) 792-2565

SPECIFICATIONS

SOIL TEXTURE AND STRUCTURE

Soil shall have a sandy loam, loamy sand, or loam texture per USDA textural triangle. Maximum clay content shall be <5%. Soil mixture shall be 50-60% sand; 20-30% leaf compost; and 20-30% topsoil. The soil shall be a uniform mix, free of stones, stumps, roots, or other similar objects larger than two inches. No other materials or substances should be mixed or dumped within the bioretention soil that may be harmful to plant growth, or prove a hindrance to the planting or maintenance operations. The planting soil must be free of plant or seed material of non-native, invasive species, or noxious weeds.

SOIL TESTING

Planting soil for bioretention areas must be tested prior to installation for PH and organic matter. The soil should meet the following criteria (Landscape Contractors Association, 1996).

PH Range: 5.5 - 6.5

Organic Matter: 1.5 - 4.0%

Sieve analysis, PH, and organic matter tests shall be performed for each bioretention area.

SOIL PREPARATION

Soil preparation can be performed onsite or offsite and transported to the facility location when ready for installation. Prior to transport, the soil mix should be certified as meeting the criteria established for the soil medium and approved by the site inspector.

Soil preparation can be accomplished by thoroughly mixing soil components, amendments and additives, as needed utilizing a backhoe or front-end loader.

SOIL PLACEMENT

Placement of the planting soil in the bioretention area should be after scarifying the invert area of the proposed facility and installing the underdrain and/or recharge area (if applicable), in lifts of 12 to 18 inches and lightly compacted. Minimal compaction effort can be applied to the soil by tamping with a bucket from a dozer or backhoe. Lifts are not to be compacted but are performed in order to reduce the possibility of excessive settlement. Installation of soils must be done in a manner that will ensure adequate filtration.

SOIL COMPACTION

Avoid over compaction by allowing time for natural compaction and settlement. No additional manual compaction of soil is necessary. Rake soil material as needed to level out. Overfill above the proposed surface invert to accommodate natural settlement to proper grade. Depending upon the soil material, up to 20% natural compaction may occur. For facilities designed with a liner, no scarification of the invert area is required.

It is very important to minimize compaction of both the base of the bioretention area and the required backfill. When possible, use excavation hoes to remove original soil. If bioretention areas are excavated using a loader, the contractor should use wide track or marsh track equipment, or light equipment with turf-type tires.

SOIL COMPACTION (cont)

Use of equipment with narrow tracks or narrow tires, rubber tires with large lugs, or high pressure tires will cause excessive compaction resulting in reducing infiltration rates and storage volumes and is not acceptable. Compaction will significantly contribute to design failure. Compaction can be alleviated at the base of the bioretention facility by using a primary tilling operation such as a Chisel Plow, Ripper, or Subsoiler. These tilling operations are to restructure the soil profile through the 12 inch compaction zone. Substitute methods must be approved by the engineer. Rototillers typically do not till deep enough to reduce the effects of compaction from heavy equipment.

Rototill 2 to 3 inches of sand into the base of the bioretention facility before back filling the facility and placement of underdrain. Pump any ponded water before preparing (rototilling) base.

When back filling the bioretention facility, do not use heavy equipment within the bioretention basin. Heavy equipment can be used around the perimeter of the basin to supply soils and sand. Grade bioretention materials with light equipment such as a compact loader or a dozer/loader with marsh tracks.

SOIL PRESOAK

In order to speed up the natural compaction process, presoaking the placed soil may be performed. Significant settlement can occur after the first presoak, and additional settlement may occur subsequent to the initial wetting. If time and construction scheduling permits, it is preferable to allow natural settlement to occur with the help of rain events to presoak the soil medium.

MULCH

Areas should be mulched once trees and shrubs have been planted. Any ground cover specified as plugs may be installed once mulch has been applied.

The mulch layer shall consist of either a standard landscape fine shredded hardwood mulch (preferred) or hardwood chips. The mulch may be either aged or fresh to maximize nitrogen and metal uptake by the facility. Mulch shall be free of weed seeds, soil, roots, or any other substance not consisting of either bole or branch wood and bark. The mulch should be uniformly applied approximately 2 to 3 inches in depth. Mulch applied any deeper than three inches reduces proper oxygen and carbon dioxide cycling between the soil and the atmosphere, and keeps plant roots from making good contact with the soil.

SAND

Sand shall be clean and free of deleterious materials, meeting AASHTO M-6 or ASTM C-33 with grain size of 0.02" - 0.04". MDSHA C-33 sand is acceptable.

GEOTEXTILE

Geotextile fabric should meet ASTM D-751 (puncture strength - 125 LB), ASTM D-1117 (Mullen burst strength - 400 PSF), and ASTM D-1602 (Tensile strength - 300 LB). Fabric should have 0.08" thick E.O.S. of #80 sieve, and maintain 125 GPM per SQ. FT. flow rate.

Structure Backfill

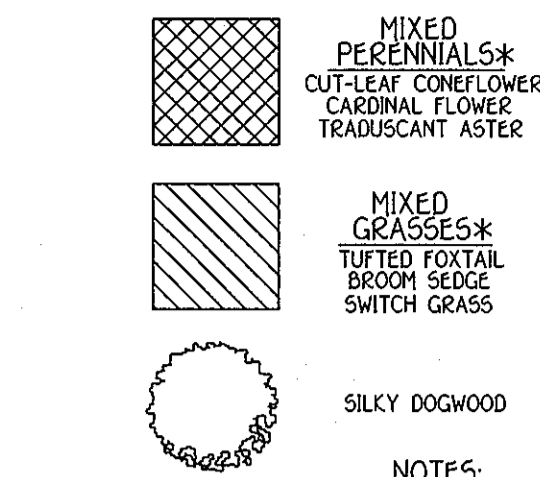
Backfill adjacent to pipes or structures shall be of the type and quality conforming to that specified for the adjoining fill material. The fill shall be placed in horizontal layers not to exceed four inches in thickness and compacted by hand tampers or other manually directed compaction equipment. The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

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

Plastic Pipe

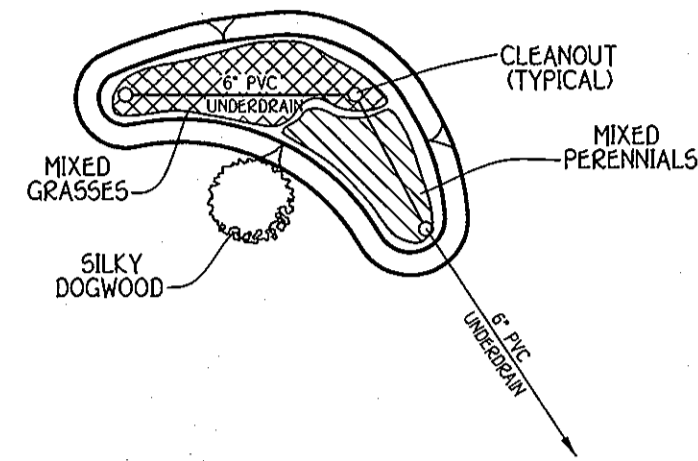
The following criteria shall apply for plastic pipe:

- Materials - PVC pipe shall be PVC-1120 or PVC-1220 conforming to ASTM D-1785 or ASTM D-2241. Corrugated High Density Polyethylene (HDPE) pipe, couplings and fittings shall conform to the following 4" - 10" inch pipe shall meet the requirement of AASHTO M252 Type 5, and 12" through 24" inch shall meet the requirement of AASHTO M294 Type 5.
- Joints and connections to anti-seep collars shall be completely watertight.
- 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.
- Backfilling shall conform to "Structure Backfill".

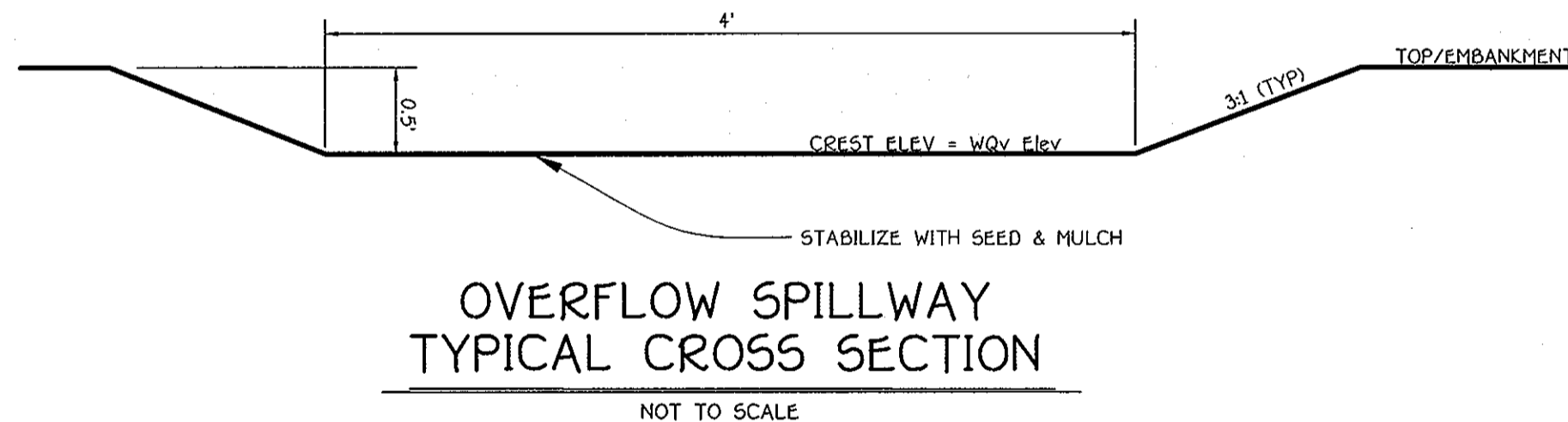


BIO-RETENTION FILTER PLANT MATERIAL		
QUANTITY	NAME	MAXIMUM SPACING (FT.)
45	MIXED PERENNIALS	1 FT.
N/A	MIXED GRASSES	-
1	SILKY DOGWOOD	PLANT AWAY FROM INFLOW LOCATION

*SEE PLANT MATERIAL CHARTS FOR QUANTITIES AND SPACING



TYPICAL BIO-RETENTION FILTER PLANTING DETAIL



APPROVED: DEPARTMENT OF PUBLIC WORKS

William R. Mahall 5-5-09
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Cindy Hamt 5/12/09
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

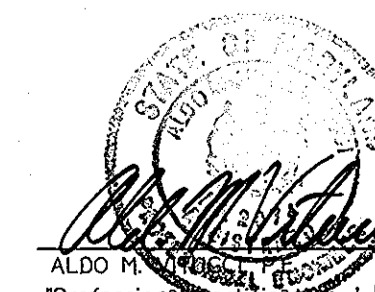
Aldo M. ... 5/12/09
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED BIORETENTION FACILITIES

- Annual maintenance of plant material, mulch layer, and soil layer is required. Maintenance of mulch and soil is limited to correcting areas of erosion or wash out. Any mulch replacement shall be done in the spring. Plant material shall be checked for disease and insect infestation. Maintenance will also address dead material and pruning.
- Schedule of plant inspection will be twice a year in spring and fall. This inspection will include removal of dead and diseased vegetation considered beyond treatment, treatment of all diseased trees and shrubs and replacement of all deficient stakes and wires.
- Mulch shall be inspected each spring. Remove previous mulch layer before applying new layer once every 2 to 3 years.
- Soil erosion to be addressed on an as-needed basis, minimum once a month and after heavy storm events.

STORMWATER MANAGEMENT BIO-RETENTION SPECIFICATIONS & DETAILS CENTENNIAL MEADOWS LOTS 1 THRU 5

A Resubdivision of Lot 6 And Part Of Lot 5,
As Shown On A Plat Entitled "Gwynn Development, Section One" And Recorded Among The Land
Records Of Howard County, Maryland In Plat Book 4, Folio 77.
ZONED: R-20
TAX MAP No. 30 GRID No. 3 PARCEL No. 112
SECOND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
SCALE: AS SHOWN DATE: APRIL 7, 2009
SHEET 11 OF 11



4-15-09
DATE

I hereby certify that these documents were prepared by me, and that I am a duly Licensed Professional Engineer under the laws of the State of Maryland, License No. 20748, Expiration Date 2-22-11.

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

APPLIEDSTORMWATER
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dba T.E. Scott & Associates, Inc.
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Hunt Valley, MD 21030 fax: 443.269.0216
tes@mdswm.com www.mdswm.com

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DEVELOPER
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