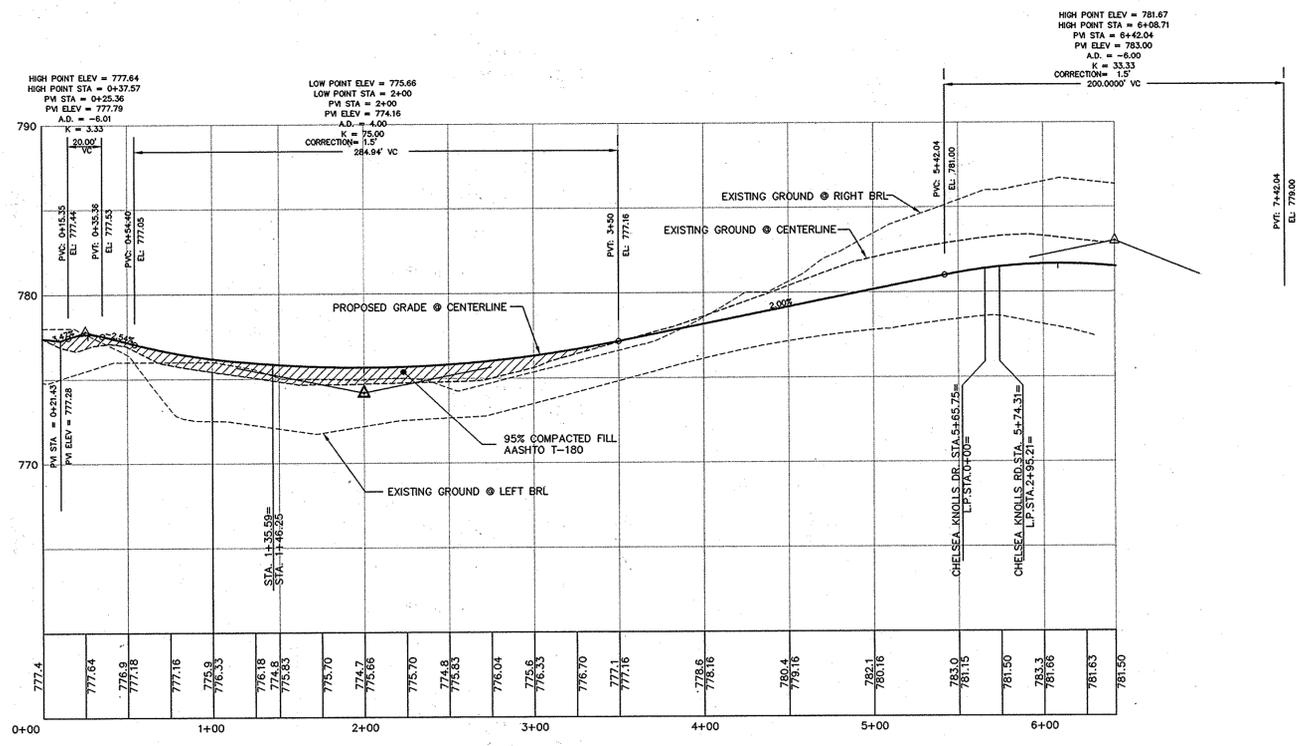
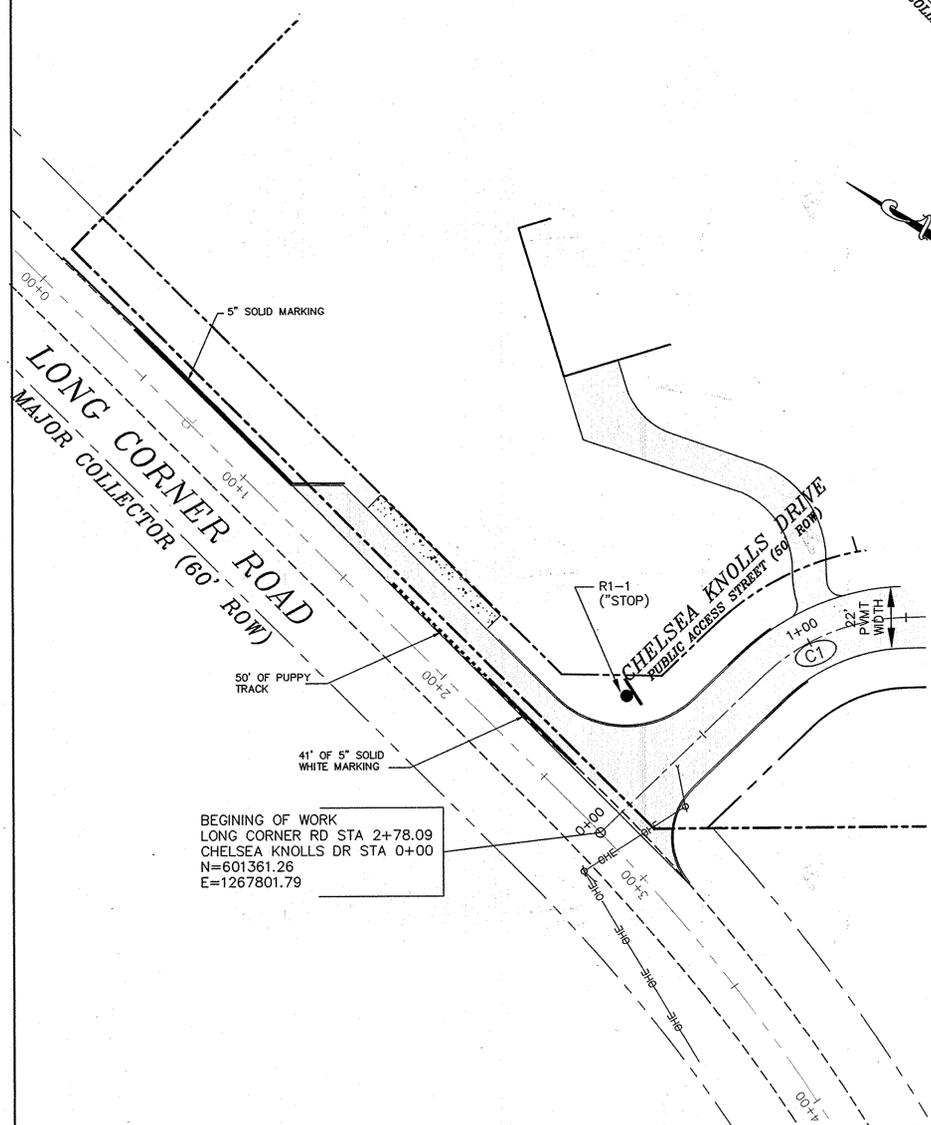
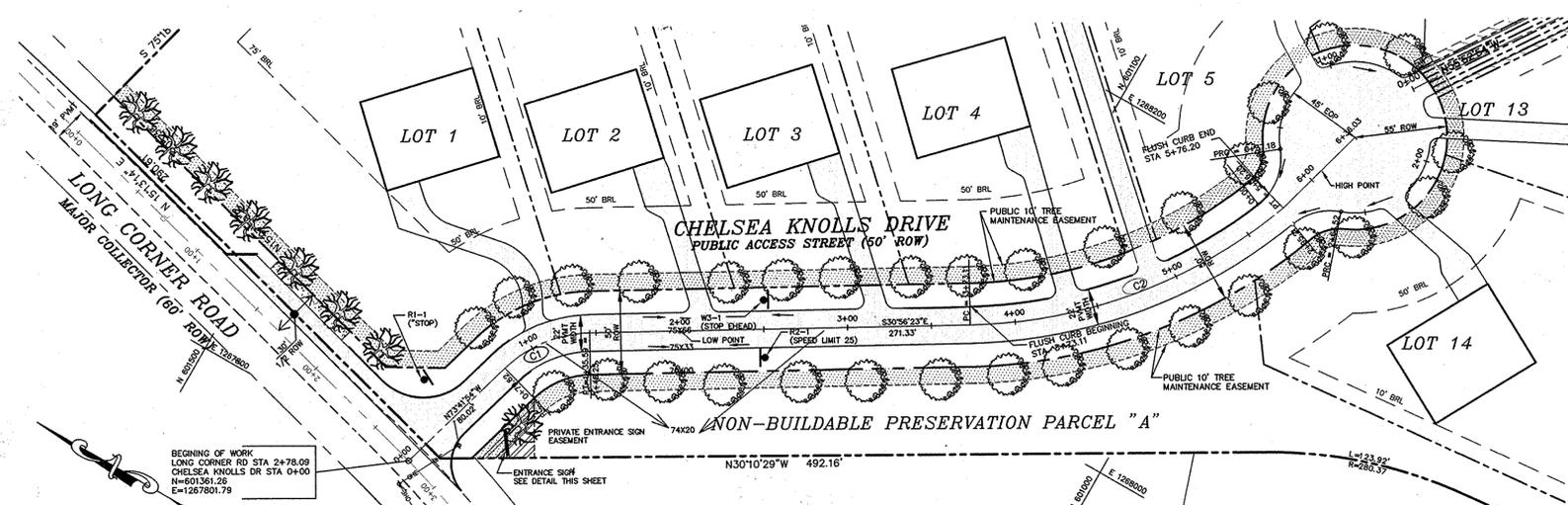
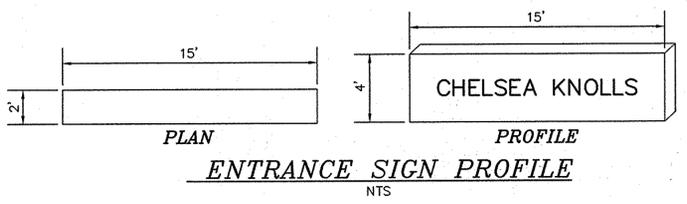




CURVE TABLE					
CURVE	RADIUS	LENGTH	TANGENT	DELTA	CHORD BEARING & DISTANCE
C1	75.00	55.97	29.36	42°54'31"	N52°19'09"W 54.68
C2	300.00	203.09	105.61	38°47'10"	S50°19'58"E 199.23



**OWNER/DEVELOPER**  
CHelsea KNOLLS, LC  
1355 BEVERLY RD. SUITE 240  
McLEAN, VIRGINIA 22101  
(703) 734-9730  
(301) 720-3021

APPROVED: DEPARTMENT OF PUBLIC WORKS  
*[Signature]* 2/11/15  
DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
*[Signature]* 7-13-15  
DATE

APPROVED: CHIEF, DEVELOPMENT ENGINEERING DIVISION  
*[Signature]* 7-10-15  
DATE

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. 17942, EXP DATE 9/3/16.

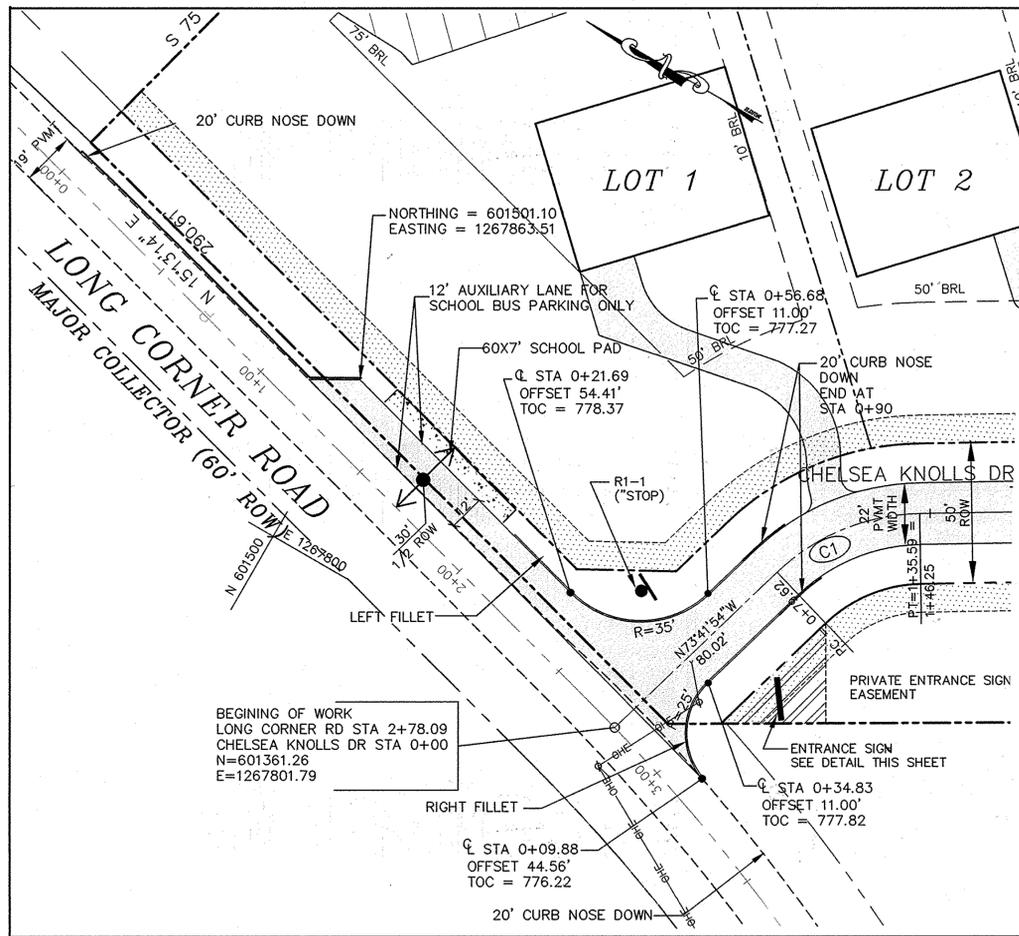
REVISED

**CHelsea KNOLLS**

LOTS 1-14, NON-BUILDABLE PRESERVATION PARCELS A & B & NON-BUILDABLE BULK PARCEL C  
TAX MAP 6 & 12, PARCEL 9  
FOURTH ELECTION DISTRICT  
HOWARD COUNTY, MARYLAND  
ROAD PLAN, PROFILE AND PAVEMENT MARKING

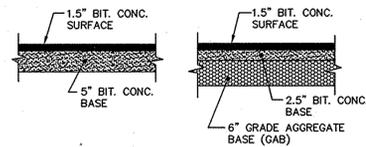
**MILDENBERG, BOENDER & ASSOC., INC.**  
Engineers Planners Surveyors  
5072 Dorsey Hall Drive, Suite 202, Elkton City, Maryland 21042  
(410) 997-0296 Bal. (410) 997-0296 Fax.

F:\01-009\Draw\Plan\Draw-Plan-6-23-08\Draw.dwg

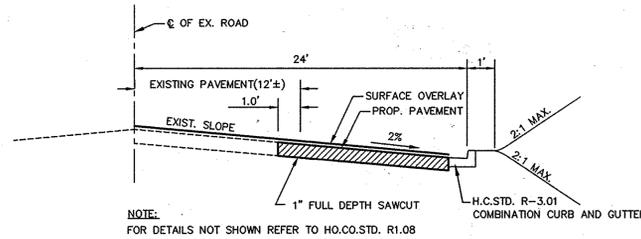


**CHELSEA KNOLLS DRIVE ENTRANCE PLAN**

SCALE: 1"=30'

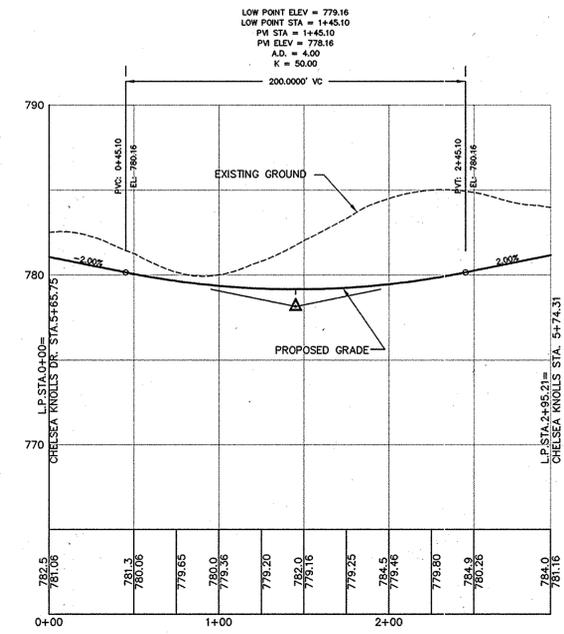


**ALTERNATE "A" ALTERNATE "B"  
PAVING SECTION - P2  
ROAD AND DRIVEWAY**



**TYP. ROAD IMPROVEMENT SECTION**

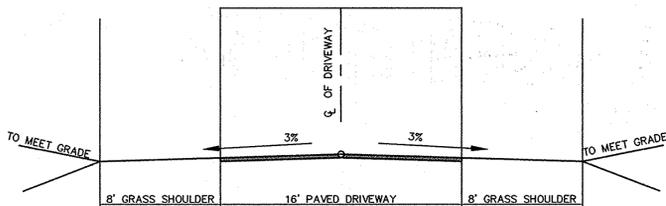
LONG CORNER RD  
SECTION NOT TO SCALE



**CHELSEA KNOLLS DRIVE LINEAR PROFILE**

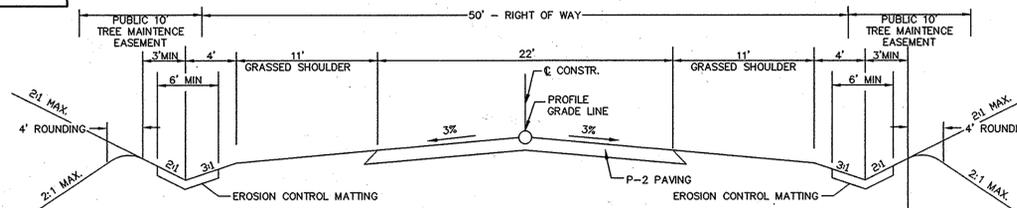
CLASSIFICATION: PUBLIC ACCESS STREET (50' ROW)  
DESIGN SPEED: 25 MPH

SCALE: HOR: 1"=50'  
VER: 1"=50'



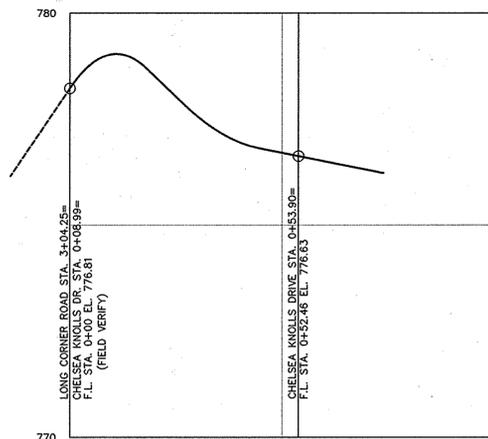
**TYPICAL USE-IN-COMMON DRIVEWAY SECTION**

DESIGN SPEED: 15 MPH  
SECTION NOT TO SCALE



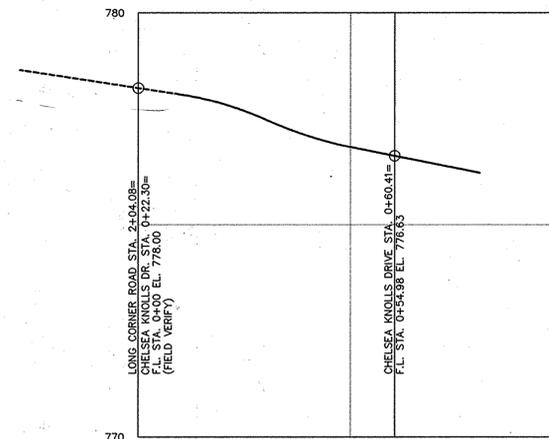
**TYPICAL ROADWAY SECTION**  
CLASSIFICATION: PUBLIC ACCESS STREET (50' ROW)  
DESIGN SPEED: 25 MPH

SECTION NOT TO SCALE



**CHELSEA KNOLLS DRIVE  
LEFT FILLET PROFILE**

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



**CHELSEA KNOLLS DRIVE  
RIGHT FILLET PROFILE**

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

**TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION**

IMPORTANT: THESE SIGNS SHALL BE USED IN COMBINATION WITH THE GENERAL NOTES TO 104.00-01 - 104.00-18 AND STANDARD DETAILS MD 104.01-01 - MD 104.01-04.

NOTES:  
SHOULDER CLOSED SIGNS ARE REQUIRED IN PLACE OF SHOULDER WORK SIGNS WHEN THE SHOULDER IS CLOSED BY POSITIVE PROTECTION (TEMPORARY CONCRETE BARRIER OR SIMILAR DEVICE). REFER TO STANDARD NO. MD 104.06-18.  
WHEN WORK INVOLVES A PAVEMENT EDGE DROP-OFF, REFER TO STANDARD NO. MD 104.06-15 TO MD 104.06-16.  
THERE SHALL BE A MINIMUM OF SEVEN CHANNELIZING DEVICES IN THE SHOULDER TAPER.  
THE ENGINEER SHOULD CONSIDER ADDITIONAL ADJUNCT LANE CLOSURES WHEN THE POSSIBILITY OF UNPLANNED TRAVELWAY ENCROACHMENTS EXISTS.

KEY:  
CHANNELIZING DEVICES  
SIGN SUPPORT  
FACE OF SIGN  
DIRECTION OF TRAFFIC  
WORK SITE  
ROAD (NO) (NO) (NO)  
OPTIONAL FOR 15 MPH-12 MPH, OR BATTERED APPLICATIONS!

Maryland Department of Transportation  
STATE HIGHWAY ADMINISTRATION  
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES  
SHOULDER WORK/2-LANE, 2-WAY  
EQL/LESS THAN 40 MPH  
STANDARD NO. MD 104.02-02

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. 17942, EXP DATE 9/3/16.

APPROVED: DEPARTMENT OF PUBLIC WORKS  
CHIEF BUREAU OF HIGHWAYS  
DATE: 2/10/15

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
CHIEF, DIVISION OF LAND DEVELOPMENT  
DATE: 7-13-15

APPROVED: CHIEF, DEVELOPMENT ENGINEERING DIVISION  
DATE: 7-10-15



**OWNER/DEVELOPER**

CHELSEA KNOLLS, LC  
1355 BEVERLY RD. SUITE 240  
MCLEAN, VIRGINIA 22101  
(703) 734-9730  
(301) 720-3021

Project	date	approval
01-009	MAR. 2009	AS SHOWN R/H
illustration	engineering	
MMM	MMM	
scale		

3	REVISIONAL ALIGNMENT OF THE ENTRANCE	JUNE 2015
2	REVISED TOTAL NUMBER OF SHEETS (ETC)	APRIL 2015
1	ADD ENTRY SIGN EASEMENT AND DETAIL, REV. TITLE BLOCK	MARCH 2012
	description	date
	revisions	

REVISED  
**CHELSEA KNOLLS**  
LOTS 1-14, NON-BUILDABLE PRESERVATION PARCELS A & B & NON-BUILDABLE BULK PARCEL C  
TAX MAP 6 & 12, PARCEL 9  
HOWARD COUNTY, MARYLAND  
FOURTH ELECTION DISTRICT  
LINEAR PROFILE & TYPICAL SECTIONS

**MILDENBERG, BOENDER & ASSOC., INC.**  
Engineers Planners Surveyors  
5072 Dorsey Hall Drive, Suite 202, Blitts Creek, Maryland 21042  
(410) 997-0296, Fax (410) 997-0298

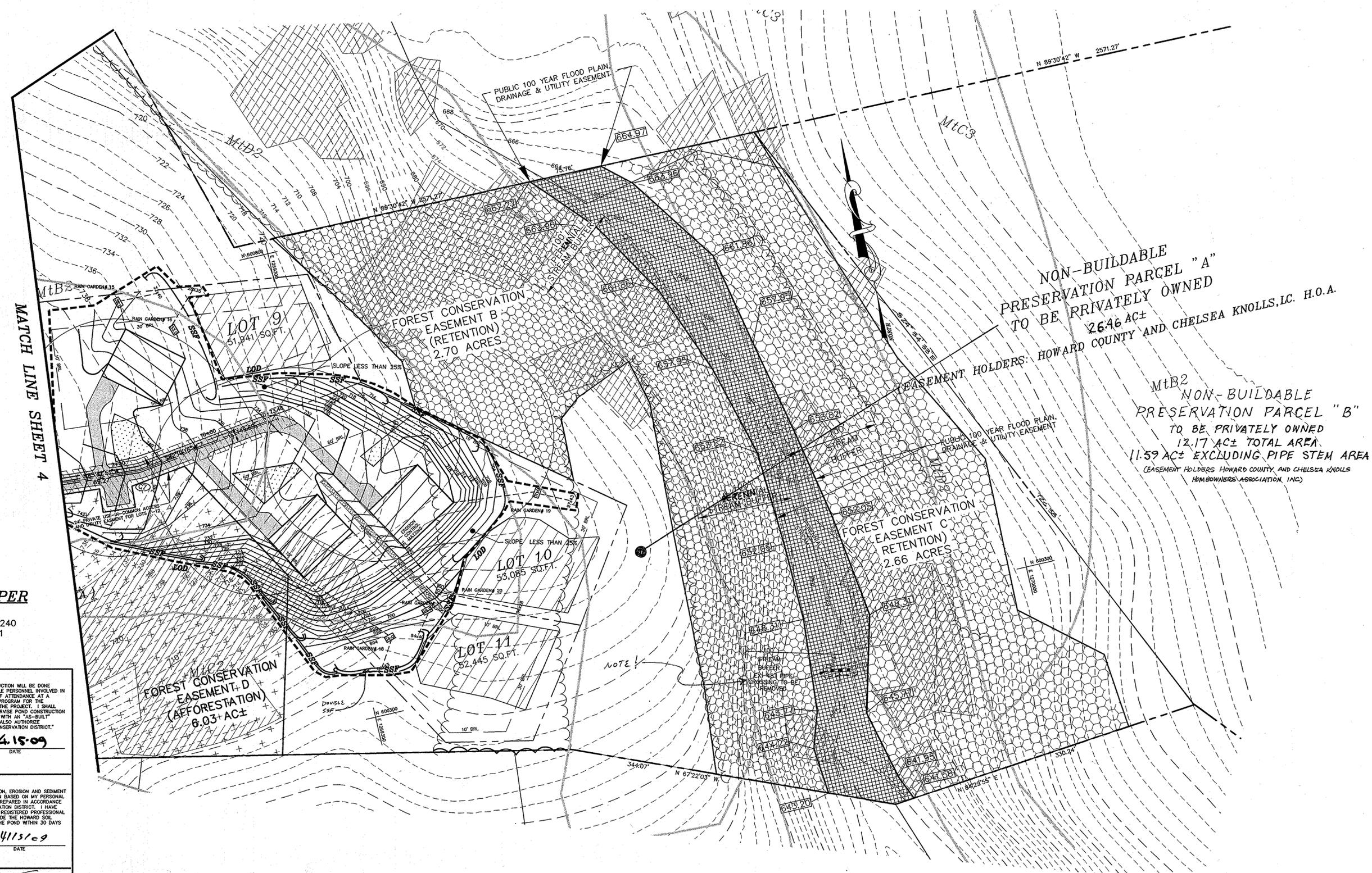


project	01-009	date	APR 2009
illustration	MMM	engineering	MMM
scale	1"=50'	approval	RIH

REV. TOTAL SHEET NO.	3	date	9/15/15
REVISE TOTAL NUMBER OF SHEETS (of 3)	2	description	REVISE TOTAL NUMBER OF SHEETS (of 3)
REV. TOTAL NUMBER OF SHEETS (of 3)	2	revisions	3/2/12

**CHELSEA KNOLLS**  
 LOTS 1-14, NON-BUILDABLE PRESERVATION PARCELS A & B & NON-BUILDABLE BULK PARCEL C  
 TAX MAP 6 & 12, PARCEL 9  
 HOWARD COUNTY, MARYLAND  
 FOURTH ELECTION DISTRICT  
 GRADING AND SEDIMENT CONTROL PLAN

**MILDENBERG, BOENDER & ASSOC., INC.**  
 Engineers Planners Surveyors  
 5072 Dorsy Hall Drive, Suite 202, Ellicott City, Maryland 21042  
 (410) 997-0286 Fax (410) 997-0286 Fax



**OWNER/DEVELOPER**  
 CHELSEA KNOLLS, LC  
 1355 BEVERLY RD. SUITE 240  
 McLEAN, VIRGINIA 22101  
 (703) 734-9730  
 (301) 720-3021

BY THE DEVELOPER:  
 I, ME, 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: *R. Jacobs* DATE: 4/15/09  
 PRINTED NAME OF DEVELOPER: R. JACOBS

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: *R. Jacobs Hilchay* DATE: 4/15/09  
 PRINTED NAME OF ENGINEER: R. JACOBS HILCHAY

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS.  
 Signature: *[Signature]* DATE: 4/23/09  
 HOWARD SOIL CONSERVATION DISTRICT

APPROVED: DEPARTMENT OF PUBLIC WORKS  
 Signature: *Diane Johnson* DATE: 4/29/09  
 CHIEF BUREAU OF HIGHWAYS, ACTING

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
 Signature: *Candice Hantz* DATE: 5/1/09  
 CHIEF, DIVISION OF LAND DEVELOPMENT

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



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. 17942, EXP. DATE 9/3/10.

SYMBOL	DESCRIPTION
Co	CODORUS SILT LOAM --- TYPE C
G1A	GLENELG LOAM, 0% TO 3% SLOPES --- TYPE B
G1B2	GLENELG LOAM, 3% TO 8% SLOPES, MODERATELY ERODED --- TYPE B
G1C2	GLENELG LOAM, 8% TO 15% SLOPES, MODERATELY ERODED --- TYPE B
GnB2	GLENVILLE SILT LOAM, 3% TO 8% SLOPES, MODERATELY ERODED --- TYPE C
H6	HATBRO SILT LOAM --- TYPE D
LnC2	LINGANORE CHANNERY LOAM, 8% TO 15% SLOPES, MODERATELY ERODED --- TYPE B
M1B2	MANOR LOAM, 3% TO 8% SLOPES, MODERATELY ERODED --- TYPE B
M1C2	MANOR LOAM, 8% TO 15% SLOPES, MODERATELY ERODED --- TYPE B
M1C3	MANOR LOAM, 8% TO 15% SLOPES, SEVERELY ERODED --- TYPE B
M1D2	MANOR LOAM, 15% TO 25% SLOPES, MODERATELY ERODED --- TYPE B
M1D3	MANOR LOAM, 15% TO 25% SLOPES, SEVERELY ERODED --- TYPE B
M1E	MANOR LOAM, 25% TO 45% SLOPES --- TYPE B
M1D	MANOR VERY STONY LOAM, 3% TO 25% SLOPES --- TYPE B
M1F	MANOR VERY STONY LOAM, 25% TO 60% SLOPES --- TYPE B
M1B1	MT. AIRY CHANNERY LOAM, 3% TO 8% SLOPES, MODERATELY ERODED --- TYPE A
M1C1	MT. AIRY CHANNERY LOAM, 8% TO 15% SLOPES, MODERATELY ERODED --- TYPE A
M1C3	MT. AIRY CHANNERY LOAM, 8% TO 15% SLOPES, SEVERELY ERODED --- TYPE A
M1D1	MT. AIRY CHANNERY LOAM, 15% TO 25% SLOPES, MODERATELY ERODED --- TYPE A
M1E	MT. AIRY CHANNERY LOAM, 25% TO 45% SLOPES --- TYPE A

CURVE	RADIUS	LENGTH	DELTA	TANGENT	CHORD BEARING	CHORD LENGTH
C6	52.00	15.30	16°51'29"	7.71	S77°22'07"E	15.24
C7	52.00	10.78	11°52'53"	5.41	N88°15'42"E	10.78

h:\01-009\eng\final\view-final-6-23-08\lbase.dwg

**HOWARD SOIL CONSERVATION DISTRICT**

**PERMANENT SEEDING NOTES**

APPLY TO GRADED OR CLEARED AREAS NOT SUBJECT TO IMMEDIATE FURTHER DISTURBANCE WHERE A PERMANENT LONG-TERM VEGETATIVE COVER IS NEEDED.

SEEDBED PREPARATION: LOOSEN UPPER THREE INCHES OF SOIL BY RAKING, DISKING OR OTHER ACCEPTABLE MEANS BEFORE SEEDING, IF NOT PREVIOUSLY LOOSENED.

SOIL AMENDMENTS: IN LIEU OF SOIL TEST RECOMMENDATIONS, USE ONE OF THE FOLLOWING SCHEDULES:

- 1) **PREPARED** - APPLY 4 TONS PER ACRE (82 LBS./1000 SQ.FT.) OF 10-10-10 FERTILIZER (14 LBS./1000 SQ.FT.) BEFORE SEEDING.
- 2) **ACCIDENTALLY** - APPLY 2 TONS PER ACRE DOLOMITE LIME (22 LBS./1000 SQ.FT.) AND 1000 LBS. PER ACRE 10-10-10 FERTILIZER (22 LBS./1000 SQ.FT.) BEFORE SEEDING.

SEEDING - FOR THE PERIODS MARCH 1 THRU APRIL 30, AND AUGUST 1 THRU OCTOBER 15, SEED WITH 60 LBS. PER ACRE 1 1/2" DEEP INTO UPPER THREE INCHES OF SOIL. FOR THE PERIOD MAY 1 THRU AUGUST 31, SEED WITH 60 LBS. PER ACRE 1 1/2" DEEP INTO UPPER THREE INCHES OF SOIL. FOR THE PERIOD OCTOBER 16 THRU NOVEMBER 31, SEED WITH 60 LBS. PER ACRE 1 1/2" DEEP INTO UPPER THREE INCHES OF SOIL.

MULCHING - APPLY 1 1/2" TO 2 TONS PER ACRE (70 TO 90 LBS./1000 SQ.FT.) OF UNROTTED WEED FREE SMALL GRASS STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING MULCH ANCHORING TOOL OR 216 GALLONS PER ACRE (8 GAL./1000 SQ.FT.) OF EMULSIONED ASPHALT ON FLAT AREAS ON SLOPES 5 FEET OR HIGHER, USE 348 GALLONS PER ACRE (8 GAL./1000 SQ.FT.) FOR ANCHORING.

MAINTENANCE - INSPECT ALL SEEDING AREAS AND MAKE NEEDED REPAIRS, REPLACEMENTS AND RESEEDINGS.

**TEMPORARY SEEDING NOTES**

APPLY TO GRADED OR CLEARED AREAS LIKELY TO BE REDISTURBED WHERE A SHORT-TERM VEGETATIVE COVER IS NEEDED.

SEEDBED PREPARATION: LOOSEN UPPER THREE INCHES OF SOIL BY RAKING/DISKING OR OTHER ACCEPTABLE MEANS BEFORE SEEDING, IF NOT PREVIOUSLY LOOSENED.

SOIL AMENDMENTS: APPLY 600 LBS. PER ACRE 10-10-10 FERTILIZER (14 LBS./1000 SQ.FT.)

SEEDING - FOR PERIODS MARCH 1 THRU APRIL 30 AND AUGUST 1 THRU OCTOBER 15, SEED WITH 2 1/2" DEEP INTO UPPER THREE INCHES OF SOIL. FOR THE PERIOD MAY 1 THRU AUGUST 31, SEED WITH 3 LBS. PER ACRE OF WEEDING COVERGASS (0.7 LBS./1000 SQ.FT.). FOR THE PERIOD NOVEMBER 1 THRU NOVEMBER 31, SEED WITH 3 LBS. PER ACRE OF WEEDING COVERGASS (0.7 LBS./1000 SQ.FT.).

MULCHING - APPLY 1 1/2" TO 2 TONS PER ACRE (70 TO 90 LBS./1000 SQ.FT.) OF UNROTTED WEED FREE SMALL GRASS STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING MULCH ANCHORING TOOL OR 216 GALLONS PER ACRE (8 GAL./1000 SQ.FT.) OF EMULSIONED ASPHALT ON FLAT AREAS ON SLOPES 5 FEET OR HIGHER, USE 348 GALLONS PER ACRE (8 GAL./1000 SQ.FT.) FOR ANCHORING.

REFER TO THE 1983 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR ADDITIONAL RATES AND METHODS NOT COVERED.

**STANDARD SEDIMENT CONTROL NOTES**

- 1) A MINIMUM OF 48 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY DEPARTMENT OF INSPECTIONS, LICENSES AND PERMITS, SEDIMENT CONTROL DIVISION PRIOR TO THE START OF ANY CONSTRUCTION, (303-1855).
- 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 THEREOF.
- 3) FOLLOWING INITIAL SOIL DISTURBANCE OR REDISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN:
  - a) 7 CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DIKES, PERIMETER SLOPES AND ALL SLOPES GREATER THAN 3:1.
  - b) 14 DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.
- 4) ALL SEDIMENT TRAPS 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 1991 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR PERMANENT SEEDING (SEC. 24), SOIL (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 PERMITS FOR THEIR REMOVAL HAS BEEN OBTAINED FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
- 7) **SITE ANALYSIS:**

TOTAL AREA OF SITE:	85.00 ACRES
AREA DISTURBED:	14.45 ACRES
AREA TO BE VEGETATED:	5.98 ACRES
TOTAL CUT:	20,000 CU YD
TOTAL FILL:	20,000 CU YD
- 8) ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.
- 9) ADDITIONAL SEDIMENT CONTROL MUST BE PROVIDED, IF DEEMED NECESSARY BY THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
- 10) ON ALL SITES WITH DISTURBED AREAS IN EXCESS OF 2 ACRES, APPROVAL OF THE INSPECTION AGENCY SHALL BE OBTAINED PRIOR TO THE COMPLETION OF PERIMETER EROSION AND SEDIMENT CONTROL, BUT BEFORE DISTURBANCE OR REDISTURBANCE OF GRADING, OTHER BULGING OR GRADING INSPECTION APPROVALS MAY BE OBTAINED UNTIL THIS INITIAL APPROVAL BY THE INSPECTION AGENCY IS MADE.
- 11) TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THREE PILE LENGTHS OR THAT WHICH CAN BE BACK FILLED AND STABILIZED WITHIN ONE WORKING DAY, WHICHEVER IS SHORTER.

**OWNER/DEVELOPER**

CHELSEA KNOLLS, LC  
1355 BEVERLY RD. SUITE 240  
MCLEAN, VIRGINIA 22101  
(703) 734-9730  
(301) 720-3021

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

*R. J. Dickman* 4/15/09  
REGISTERED DEVELOPER DATE

*R. J. Dickman*  
PRINTED NAME OF DEVELOPER

BY THE ENGINEER:  
I CERTIFY THAT THIS PLAN FOR FOND 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 FOND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE FOND WITHIN 30 DAYS OF COMPLETION.

*R. J. Dickman* 4/15/09  
REGISTERED PROFESSIONAL ENGINEER DATE

*R. J. Dickman* 4/15/09  
PRINTED NAME OF ENGINEER

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS.

USDA NATURAL RESOURCE CONSERVATION SERVICE DATE: 4/23/09

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

APPROVED: DEPARTMENT OF PUBLIC WORKS  
*Diane Ahern Acting* 4/21/09  
CHIEF BUREAU OF HIGHWAYS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
*Chris Haman* 5/7/09  
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

*Chris Haman* 6/5/09  
CHIEF, DIVISION OF ENGINEERING DATE

**STANDARD AND SPECIFICATIONS FOR TOPSOIL**

**DEFINITION**  
PLACEMENT OF TOPSOIL OVER A PREPARED SUBSOIL PRIOR TO ESTABLISHMENT OF PERMANENT VEGETATION.

**PURPOSE**  
TO PROVIDE A SUITABLE SOIL MEDIUM FOR VEGETATIVE GROWTH. SOILS OF CONCERN HAVE LOW MOISTURE CONTENT, LOW NUTRIENT LEVELS, LOW PH, MATERIALS TOXIC TO PLANTS, AND/OR UNACCEPTABLE SOIL GRADATION.

**CONDITIONS WHERE PRACTICE APPLIES**  
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 SUBSOIL 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.

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**

1. 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.
2. 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 ONIONS, STONES, SLAG, COARSE FRAGMENTS, GRAVEL, STICKS, ROOTS, OR OTHER MATERIALS LARGER THAN 1 1/2" IN DIAMETER.
  - ii. TOPSOIL MUST BE FREE OF PLANTS OR PLANT PARTS SUCH AS BERMUDA GRASS, QUACKGRASS, JOHNSONSON GRASS, NUTGRASS, 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 1000 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.
3. 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.
4. FOR SITES HAVING DISTURBED AREAS OVER 5 ACRES:
  - i. ON SOIL MEETING TOPSOIL SPECIFICATIONS, OBTAIN TEST RESULTS DICTATING FERTILIZER AND LIME AMENDMENTS RELIANT TO THE FOLLOWING:
    - a. PH FOR TOPSOILS SHALL BE BETWEEN 6.0 AND 7.5. IF THE TESTED SOIL DEMONSTRATES A PH OF LESS THAN 6.0, SUFFICIENT LIME SHALL BE PERCIBED 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 SOIL OR SEED SHALL BE PLACED ON SOIL WHICH HAS BEEN TREATED WITH SOIL STERILANTS OR CHEMICALS USED FOR SUFFICIENT TIME HAS ELAPSED (14 DAYS MIN) TO PERMIT DISSIPATION OF PHYTO-TOXIC MATERIALS.
  - ii. 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.

**TOPSOIL APPLICATION**

1. WHEN TOPSOILING, MAINTAIN NEEDED EROSION AND SEDIMENT CONTROL PRACTICES SUCH AS DIVERSIONS, GRADE STABILIZATION STRUCTURES, EARTH DIKES, SLOPE SILT FENCE AND SEDIMENT TRAPS AND BASINS.
2. GRADES ON THE AREAS TO BE TOPSOILED WHICH HAVE BEEN PREVIOUSLY ESTABLISHED, SHALL BE MAINTAINED, ALBERT TO 1" HIGHER IN ELEVATION.
3. TOPSOIL SHALL BE UNIFORMLY DISTRIBUTED IN A 4" TO 8" LAYER AND LIGHTLY COMPACTED TO A MINIMUM THICKNESS OF 4". SPREADING SHALL BE PERFORMED IN SUCH A MANNER THAT SOONER OR SEEDING CAN PROCEED WITH A MINIMUM OF ADDITIONAL SOIL PREPARATION AND TILLAGE. ANY IRREGULARITIES IN THE SURFACE RESULTING FROM TOPSOILING OR OTHER OPERATIONS SHALL BE CORRECTED IN ORDER TO PREVENT THE FORMATION OF DEPRESSIONS OR WATER POCKETS.
4. 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.
5. ALTERNATIVE FOR PERMANENT SEEDING - INSTEAD OF APPLYING THE FULL AMOUNTS OF LIME AND COMMERCIAL FERTILIZER, COMPOSTED SLUDGE MAY BE APPLIED AS SPECIFIED BELOW:
  - i. COMPOSTED SLUDGE MATERIAL FOR USE AS A SOIL CONDITIONER FOR SITES HAVING DISTURBED AREAS OVER 5 ACRES SHALL BE TESTED TO PRESCRIBE AMENDMENTS AND FOR SITES HAVING AREAS UNDER 5 ACRES SHALL CONFORM TO THE FOLLOWING REQUIREMENTS:
    - a. COMPOSTED SLUDGE SHALL BE SUPPLIED BY, OR ORIGINATE FROM, A PERSON OR PERSONS WHO 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 PHOSPHOROUS, 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.
  - ii. 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 SOILING, MD-VIA, PUB. #1. COOPERATIVE EXTENSION SERVICE, UNIVERSITY OF MARYLAND AND VIRGINIA POLYTECHNIC INSTITUTES. REVISED 1973.

**EROSION AND SEDIMENT CONTROL NOTES**

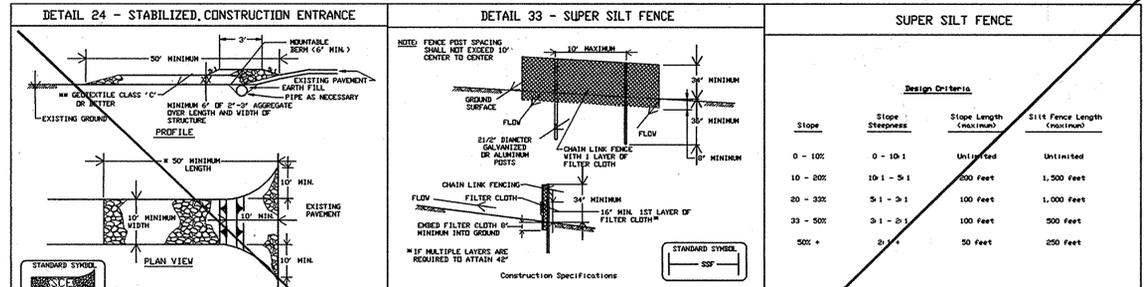
1. ALL SEDIMENT CONTROL OPERATIONS ARE TO BE DONE IN ACCORDANCE WITH SECTION 219 OF THE HOWARD COUNTY VOLUME IV DESIGN MANUAL AND THE STANDARDS AND SPECIFICATIONS FOR SEDIMENT CONTROL IN DEVELOPING AREAS.
2. ALL EROSION AND SEDIMENT CONTROL DEVICES SHALL BE INSTALLED AS THE FIRST ORDER OF BUSINESS.
3. ALL EXCAVATED MATERIALS SHALL BE STOCKPILED ON THE UPSIDE SIDE OF THE MAIN TRENCH.
4. EXCAVATION AND BACKFILL SHALL BE LIMITED TO THAT WHICH CAN BE STABILIZED WITHIN ONE WORKING DAY.
5. IMMEDIATELY FOLLOWING BACKFILL OF THE SEWER TRENCH, ALL DISTURBED AREAS ARE TO BE STABILIZED IN ACCORDANCE WITH THE PERMANENT STABILIZATION AND SEEDING NOTES SHOWN ON THESE PLANS.
6. THROUGHOUT THE PROJECT, THE CONTRACTOR SHALL REGULARLY INSPECT ALL SEDIMENT CONTROL DEVICES AND PROVIDE ALL NECESSARY MAINTENANCE TO INSURE THAT ALL DEVICES ARE IN OPERATIVE CONDITION.
7. ALL SEDIMENT CONTROL FACILITIES SHALL REMAIN IN PLACE UNTIL PERMITS FOR THEIR REMOVAL HAS BEEN OBTAINED FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.

**SEQUENCE OF CONSTRUCTION**

1. OBTAIN GRADING PERMIT. (1 DAY)
2. CONSTRUCT STABILIZED CONSTRUCTION ENTRANCE (1 DAY)
3. CONSTRUCT SILT FENCE AND SUPER SILT FENCE (3 DAYS)
4. AFTER RECEIVING PERMISSION FROM INSPECTOR CONSTRUCT ROAD. (7 DAYS)
5. BRING SITE TO DESIGN GRADES, CONSTRUCT SITE PER APPROVED DRAWINGS. (25 DAYS)
6. WHEN ALL CONTRIBUTING AREAS TO SEDIMENT AND EROSION CONTROL DEVICES HAVE BEEN STABILIZED, AND WITH PERMISSION OF SEDIMENT CONTROL INSPECTOR, REMOVE SEDIMENT AND EROSION CONTROL DEVICES AND STABILIZE REMAINING DISTURBED AREAS. (15 DAYS)
7. WITH PERMISSION OF SEDIMENT CONTROL INSPECTOR, REMOVE ALL OLD AND NEW ALIEN TRASH AND DEBRIS FROM THE FLOODPLAINS, STREAMS, WETLANDS AND THEIR BUFFERS, AND FROM FOREST CONSERVATION AREAS. (3 DAYS), INCLUDING THE 18" AIR, SHEET 5.
8. STABILIZE REMAINING DISTURBED AREAS. (2 DAYS)  
SCALE: 1" = 20' HORIZONTAL, AREA IMMEDIATELY WITH EGM/SEED. ADD EGM/SEED TO ALL SHORES AND RETAIN TO L.O.S.

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. 17942. EXP. DATE 9/3/10.

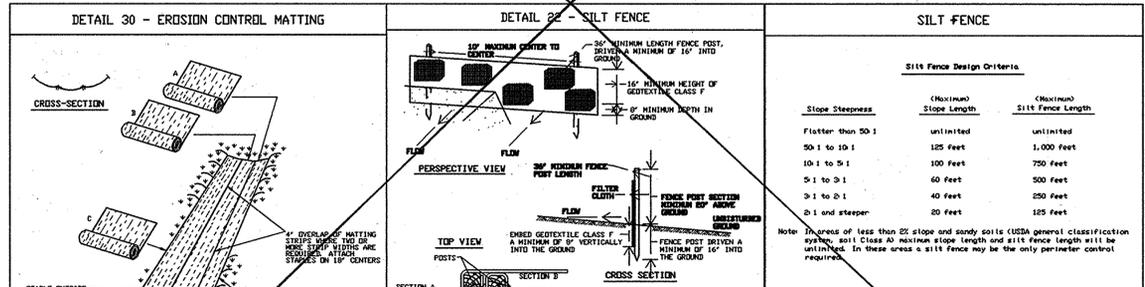
FOR UPDATED NOTES & DETAILS, SEE SHEET 12



**Construction Specifications**

1. Length - minimum of 50' x 450' for single residence lots.
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. With 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 entrance shall be piped through the entrance, maintaining positive drainage. Pipe installed through the stabilized construction entrance shall be protected with a minimum 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 pipe 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.

US. DEPARTMENT OF AGRICULTURE, SOIL CONSERVATION SERVICE, PAGE 1-2-3, MARYLAND DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES, WATER MANAGEMENT ADMINISTRATION



**Silt Fence Design Criteria**

Slope Steepness	(Maximum) Slope Length	Silt Fence Length
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 2% 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.

**Construction Specifications**

1. Fence posts shall be a minimum of 30' long driven 16" minimum into the ground. Wood posts shall be 1 1/2" x 1 1/2" square (minimum cut, or 1 1/2" diameter (minimum) round and shall be of sound quality hardwood. Steel posts will be standard 1" U section weighing not less than 1.00 pound per linear foot.
2. Geotextile shall be fastened securely to each fence post with wire ties or staples at top and mid-section and shall meet the following requirements for Geotextile Class I:
 

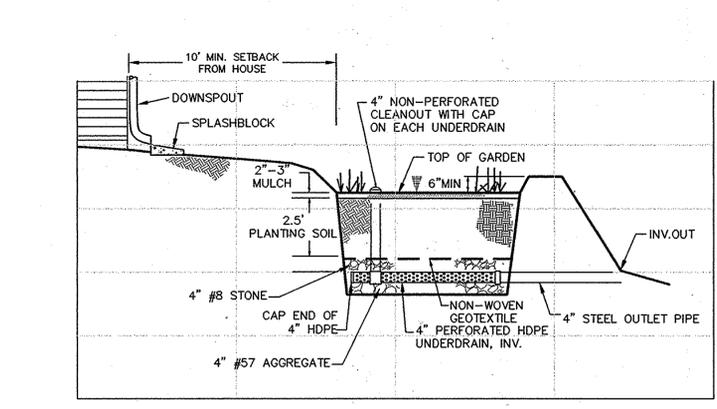
Tensile Strength	50 lbs/in (min.)	Test: HMT 509
Tensile Modulus	20 lbs/in (min.)	Test: HMT 509
Flow Rate	0.3 gal/ft <sup>2</sup> /minute (max.)	Test: HMT 382
Filtering Efficiency	75% (min.)	Test: HMT 382
3. Where ends of geotextile fabric come together, they shall be overlapped, folded and stapled to prevent sediment bulges. They shall be overlapped.
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.

US. DEPARTMENT OF AGRICULTURE, SOIL CONSERVATION SERVICE, PAGE 1-2-3, MARYLAND DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES, WATER MANAGEMENT ADMINISTRATION

**PLANT LIST**

QUANTITY	SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE
1	☉	PLATANUS OCCIDENTALIS	AMERICAN SYCAMORE	2-1/2" - 3" CAL.
1	☉	ILEX GLABRA	INK BERRY	2" - 3" HT.
6	○	LOBELIA SPILLICOLA	GREAT BLUE LOBELIA	1 GAL. CONTAINER
4	○	ONOCLEA SENSIBILIS	SENSITIVE FERN	1 GAL. CONTAINER
3	○	ASTER NOVAE-ANGIAE	NEW ENGLAND ASTER	1 GAL. CONTAINER

TOTAL: 13 PERENNIALS, 1 SHRUB, 1 TREE (PER EACH RAIN GARDEN)



**RAINGARDEN INFORMATION**

RAINGARDEN DIMENSIONS	TOP OF RAINGARDEN ELEVATION	PONDING DEPTH	DEPTH OF GRAVEL	UNDERDRAIN INVERT	INV. OUT	
1	5'X10'	769.00'	0.5'	2.5'	766.58'	765.23'
2	5'X10'	766.00'	0.5'	2.5'	763.258'	762.41'
3	5'X10'	765.50'	0.5'	2.5'	762.08'	762.00'
4	5'X10'	766.00'	0.5'	2.5'	762.58'	762.40'
5	5'X10'	755.00'	0.5'	2.5'	751.58'	751.45'
6	5'X10'	759.00'	0.5'	2.5'	755.58'	755.45'
7	5'X10'	769.00'	0.5'	2.5'	765.58'	765.23'
8	5'X10'	772.00'	0.5'	2.5'	768.58'	768.38'
9	5'X10'	734.00'	0.5'	2.5'	730.58'	730.40'
10	5'X10'	745.50'	0.5'	2.5'	742.08'	741.90'
11	5'X10'	747.00'	0.5'	2.5'	743.58'	743.38'
12	5'X10'	752.00'	0.5'	2.5'	748.58'	748.25'
13	5'X10'	775.00'	0.5'	2.5'	771.58'	771.38'
14	5'X10'	776.00'	0.5'	2.5'	772.58'	772.28'
15	5'X10'	736.00'	0.5'	2.5'	732.58'	732.40'
16	5'X10'	733.00'	0.5'	2.5'	729.58'	728.35'
17	5'X10'	698.00'	0.5'	2.5'	694.58'	694.40'
18	5'X10'	694.00'	0.5'	2.5'	690.58'	690.43'
19	5'X10'	701.00'	0.5'	2.5'	697.58'	697.43'
20	5'X10'	700.00'	0.5'	2.5'	696.58'	696.28'

**OPERATION AND MAINTENANCE SCHEDULE FOR RAINGARDENS**

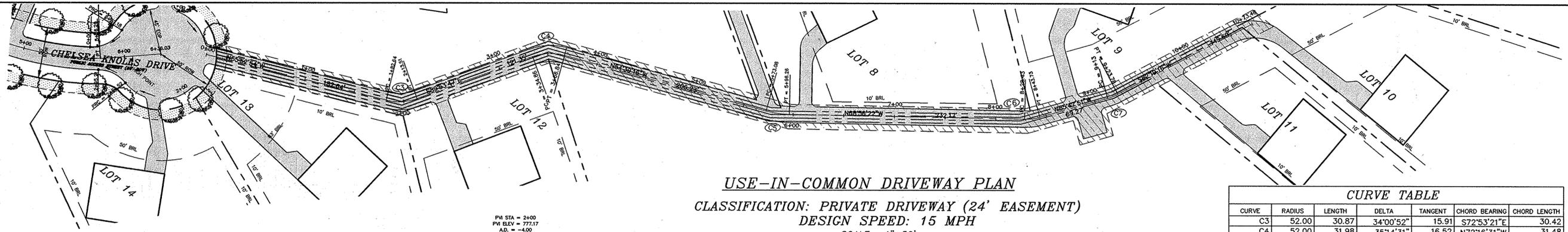
- ANNUAL MAINTENANCE OF PLANT MATERIAL, MULCH LAYER AND SOIL LAYER IS REQUIRED. MAINTENANCE OF MULCH AND SOIL IS LIMITED TO CORRECTING AREAS OF EROSION OR WASH OUT. ANY MULCH REPLACEMENT SHALL BE DONE IN THE SPRING. PLANT MATERIAL SHALL BE CHECKED FOR DISEASE AND INSECT INFESTATION AND MAINTENANCE WILL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

date	APR. 2008	description	RFH
project	01-009	illustration	MMH
scale	1"=60'	approval	MMH

REV. TOTAL SHEET NO.	6/15/15	date	
NO. OF SHEETS	12	description	
NO. OF SHEETS	12	revisions	

CHELSEA KNOLLS  
LOTS 1-14, NON-BUILDABLE (PREVAILING PARCELS A & B & NON-BUILDABLE BULK PARCEL C  
TAX MAP 6 & 12, PARCEL 9  
HOWARD COUNTY, MARYLAND  
SEDIMENT CONTROL NOTES AND DETAILS  
FOURTH ELECTION DISTRICT

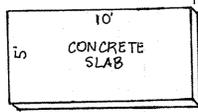
MILDENBERG, BOENDER & ASSOC., INC.  
Engineers Planners Surveyors  
5072 Dorsey Hall Drive, Suite 202, Ellicott City, Maryland 21042  
(410) 997-0298 Fax



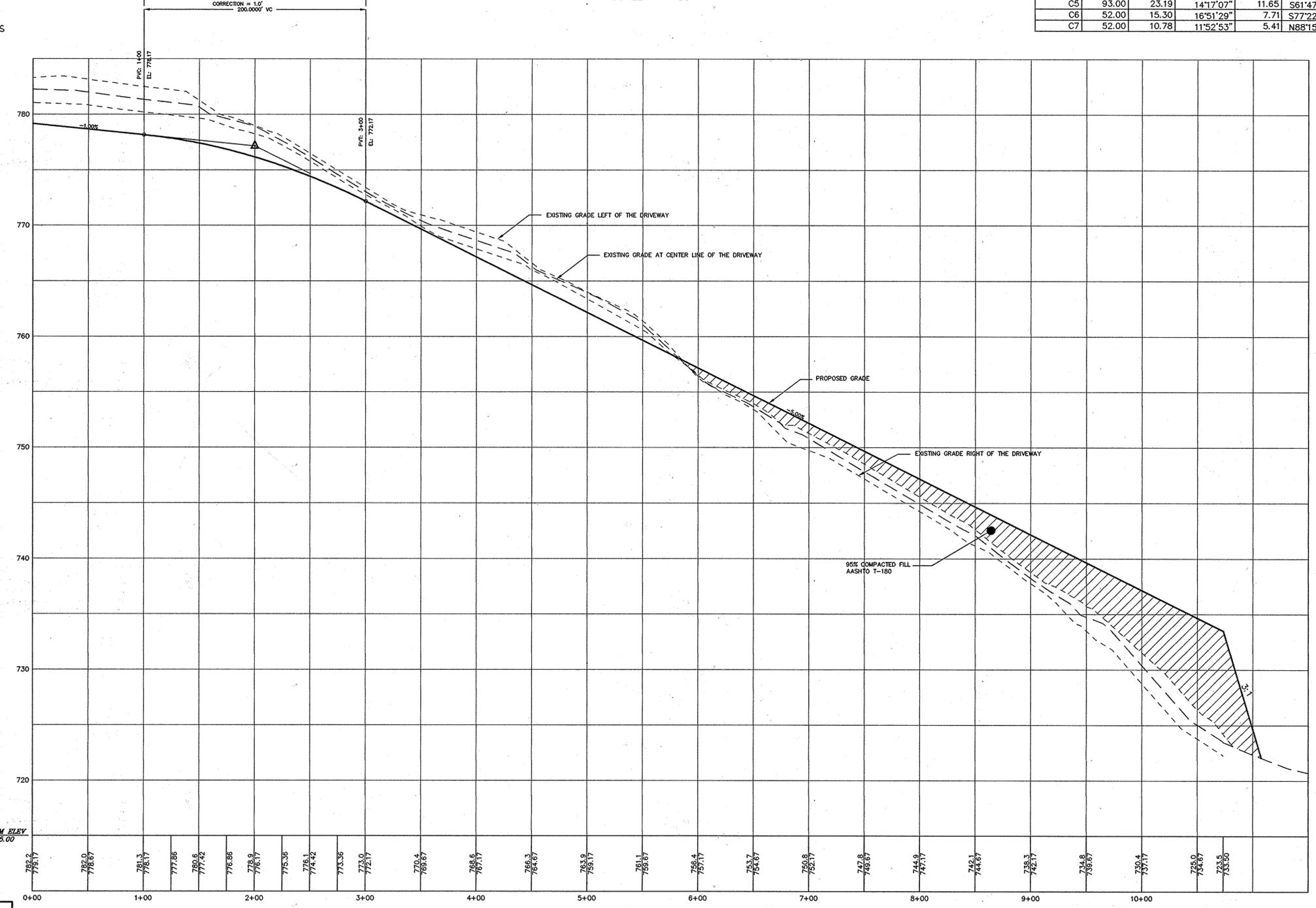
**USE-IN-COMMON DRIVEWAY PLAN**  
 CLASSIFICATION: PRIVATE DRIVEWAY (24' EASEMENT)  
 DESIGN SPEED: 15 MPH  
 SCALE: 1"=50'

CURVE	RADIUS	LENGTH	DELTA	TANGENT	CHORD BEARING	CHORD LENGTH
C3	52.00	30.87	34°00'52"	15.91	S72°53'21"E	30.42
C4	52.00	31.98	35°14'31"	16.52	N72°16'31"W	31.48
C5	93.00	23.19	14°17'07"	11.65	S61°47'49"E	23.13
C6	52.00	15.30	16°51'29"	7.71	S77°22'07"E	15.24
C7	52.00	10.78	11°52'53"	5.41	N88°15'42"E	10.76

PVI STA = 2+00  
 PVI ELEV = 777.17  
 A.D. = -4.00  
 K = 50.00  
 CORRECTION = 1.0'  
 200.0000' VC



PLAN  
 NOT TO SCALE  
**TRASH PAD DETAIL**  
 FOR THE BENEFIT OF  
 LOTS 5 & 6, AND 7 THRU 12



**USE-IN-COMMON DRIVEWAY PROFILE**  
 CLASSIFICATION: PRIVATE DRIVEWAY (24' EASEMENT)  
 DESIGN SPEED: 15 MPH  
 SCALE: HOR: 1"=50'  
 VER: 1"=50'

**OWNER/DEVELOPER**  
 CHELSEA KNOLLS, LC  
 1355 BEVERLY RD. SUITE 240  
 McLEAN, VIRGINIA 22101  
 (703) 734-9730  
 (301) 720-3021

APPROVED: DEPARTMENT OF PUBLIC WORKS  
*Diane Schwab*, Acting Chief Bureau of Highways, 4/29/09  
 APPROVED: DEPARTMENT OF PLANNING AND ZONING  
*Cindy Hamer*, Chief, Division of Land Development, 5/1/09  
 APPROVED: *[Signature]*, Chief, Development Engineering Division, 5.5.09



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. 17942, EXP. DATE 9/3/10.

project	01-009	date	MAR. 2009
illustration	MMM	engineering	MMM
scale	1/8"=1'-0"	approval	MMM
revision		AS SHOWN	RJH

REV. TOTAL SHEET NO.	01515	date	
REVISE TOTAL NUMBER OF SHEETS (FOR ALL SHEETS)	42/115		
NO.	1	description	ADD TRASH PAD DETAIL, REV. TITLE BLOCK
NO.	2	description	
NO.	3	description	

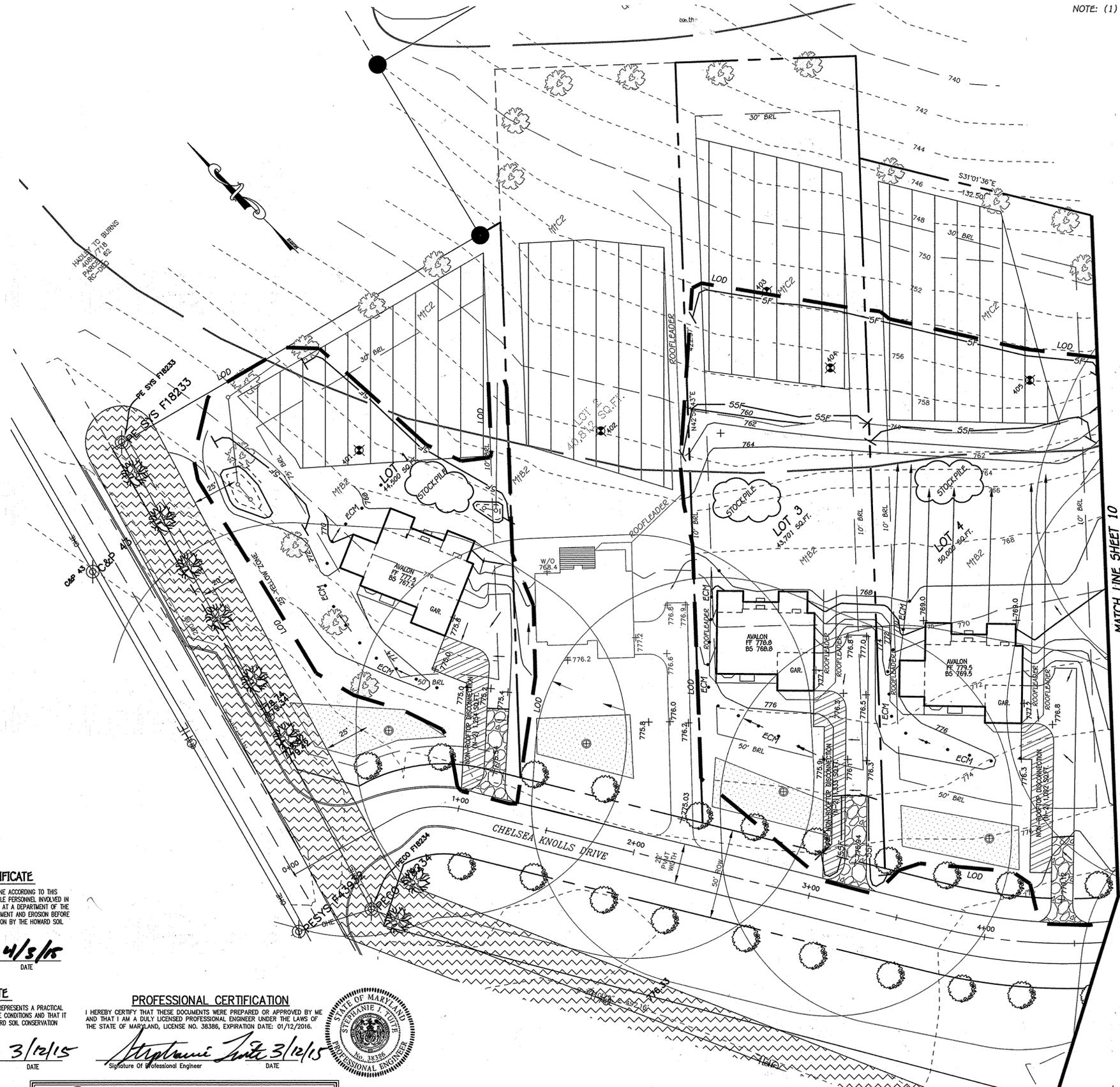
**CHELSEA KNOLLS**  
 LOTS 1-14, Non-BUILDABLE PRESERVATION PARCELS 1 & 8 & Non-BUILDABLE BULK PARCEL C  
 TAX MAP 6 & 12, PARCEL 9  
 HOWARD COUNTY, MARYLAND  
 FOURTH ELECTION DISTRICT  
**USE-IN-COMMON DRIVEWAY PLAN AND PROFILE**

**MILDENBERG, BOENDER & ASSOC., INC.**  
 Engineers Planners Surveyors  
 5072 Dorsey Hall Drive, Suite 202, Ellicott City, Maryland 21042  
 (410) 397-0286 Fax



NOTE: (1) STOCKPILING EXCEEDING 15 FEET IN HEIGHT MUST BE BENCHED.

LEGEND	
SYMBOL	DESCRIPTION
---	EXISTING CONTOUR 2' INTERVAL
- - - -	PROPOSED CONTOUR 2' INTERVAL
x362.5	SPOT ELEVATION
ECM	EROSION CONTROL MATTING
-SSP-SSP-	SUPER SILT FENCE
-SF-SF-	SILT FENCE
LOD	LIMITS OF DISTURBANCE
(circle with cross)	EXISTING STREET TREES FROM F-12-072
(circle with dot)	EXISTING PERIMETER TREES FROM F-12-072



**BUILDER/DEVELOPER'S CERTIFICATE**

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

*[Signature]* 4/13/15  
 SIGNATURE OF DEVELOPER/Darren Snyder, Ryan Homes DATE

**ENGINEER'S CERTIFICATE**

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

*[Signature]* 3/12/15  
 SIGNATURE OF ENGINEER DATE

**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. 38386, EXPIRATION DATE: 01/12/2016.

*[Signature]* 3/12/15  
 SIGNATURE OF PROFESSIONAL ENGINEER DATE



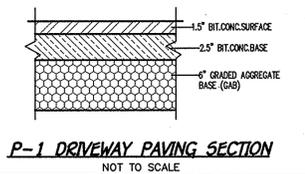
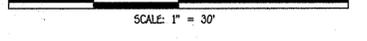
**OWNER**  
 CHELSEA KNOLLS, LC  
 1395 BEVERLY RD. SUITE 240  
 FOLEY, VIRGINIA 22101 (703) 734-9750  
 (301) 720-3021

**DEVELOPER**  
 RYAN HOMES, INC.  
 ATTN: KEVIN BOWSER  
 9700 PATRICK WOODS DRIVE  
 COLUMBIA, MARYLAND 21046  
 410-756-0980

**FISHER, COLLINS & CARTER, INC.**  
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
 10273 BALTIMORE NATIONAL FREE  
 SUITE 100, BALTIMORE, MARYLAND 21044  
 (410) 461-2895

APPROVED: DEPARTMENT OF PUBLIC WORKS <i>[Signature]</i> Chief, Bureau of Highways	4/14/2015 Date
APPROVED: DEPARTMENT OF PLANNING AND ZONING <i>[Signature]</i> Chief, Division of Land Development & Planning	4-22-15 Date
<i>[Signature]</i> Chief, Development Engineering Division	4-17-15 Date

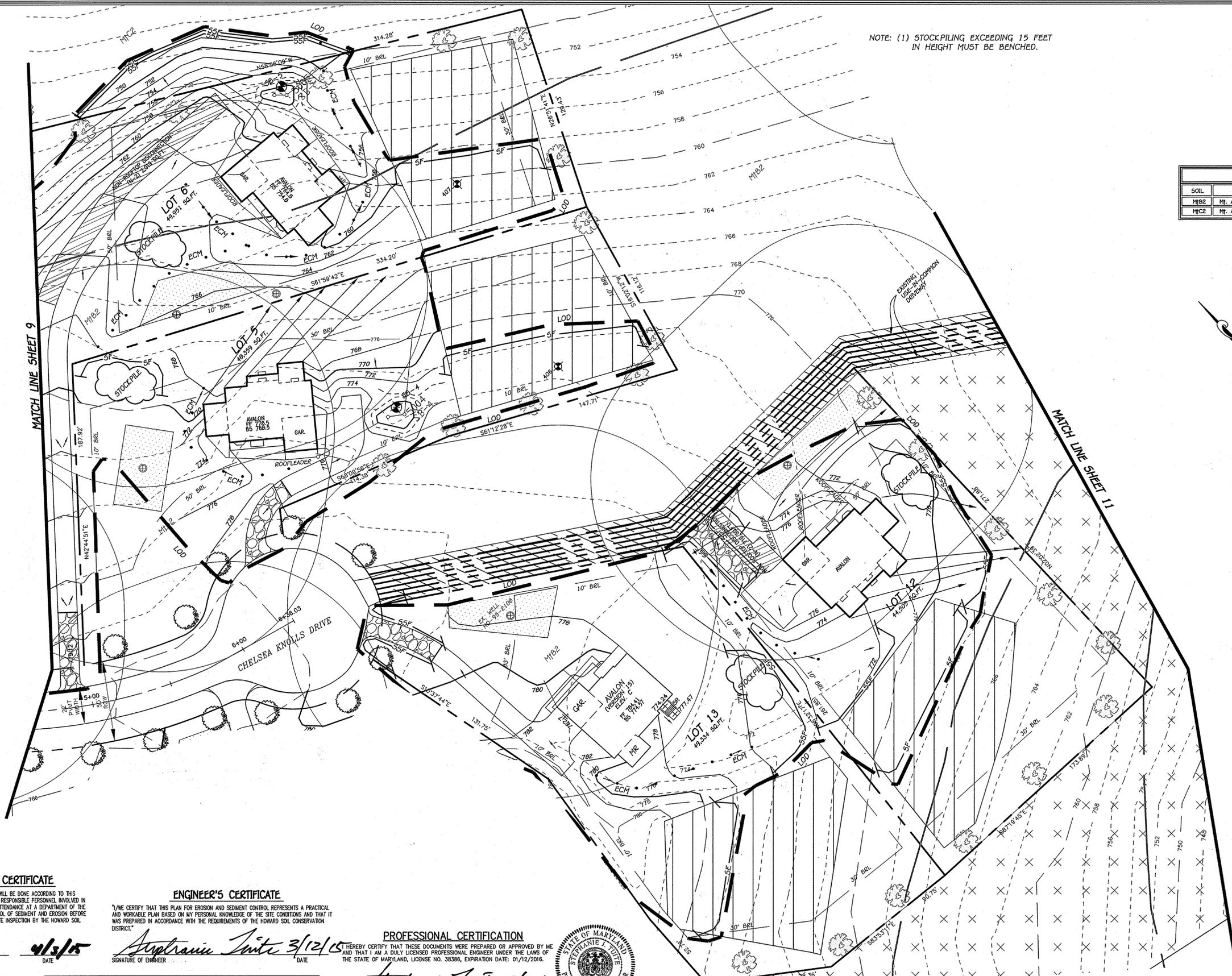
THIS DEVELOPMENT IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.  
 APPROVED:  
*[Signature]* 3/17/15  
 HOWARD SOIL CONSERVATION DISTRICT DATE



GP-15-048

SOILS LEGEND		
SOIL	NAME	CLASS
MIB2	Mt. Airy channery loam, 3 to 8 percent slopes, moderately eroded	A
MIC2	Mt. Airy channery loam, 8 to 15 percent slopes, moderately eroded	A

**GRADING, SEDIMENT, & EROSION CONTROL PLAN**  
**CHELSEA KNOLLS**  
 LOTS 1-14, NON-BUILDABLE PRESERVATION PARCELS A & B AND NON-BUILDABLE BULK PARCEL 'C'  
 ZONING: RC-DEO  
 TAX MAP No. 6 GRID No. 22 AND TAX MAP 12, GRID 5, PARCEL 9  
 FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND  
 DATE: FEBRUARY, 2015  
 SHEET 9 OF 13



NOTE: (1) STOCKPILING EXCEEDING 15 FEET IN HEIGHT MUST BE BENCHED.

LEGEND	
SYMBOL	DESCRIPTION
---	EXISTING CONTOUR 2' INTERVAL
- - - -	PROPOSED CONTOUR 2' INTERVAL
x362.5	SPOT ELEVATION
ECM	EROSION CONTROL MATTING
-SS-SS-	SUPER SILT FENCE
-SF-SF-	SILT FENCE
LOD	LIMITS OF DISTURBANCE
(Tree symbol)	EXISTING STREET TREES FROM F-12-072
(Tree symbol)	EXISTING PERIMETER TREES FROM F-12-072

SOILS LEGEND		
SOIL	NAME	CLASS
MB2	Mt. Airy channery loam, 3 to 8 percent slopes, moderately eroded	A
MC2	Mt. Airy channery loam, 8 to 15 percent slopes, moderately eroded	A



**BUILDER/DEVELOPER'S CERTIFICATE**

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

Signature of Developer: *[Signature]* Date: 4/13/15

**ENGINEER'S CERTIFICATE**

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

Signature of Engineer: *[Signature]* Date: 3/12/15

**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. 38386, EXPIRATION DATE: 01/12/2016.

Signature of Professional Engineer: *[Signature]* Date: 3/12/15



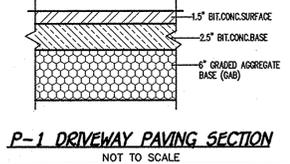
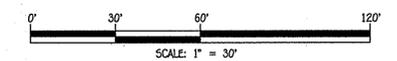
APPROVED: DEPARTMENT OF PUBLIC WORKS  
 Chief, Bureau of Highways: *[Signature]* Date: 4/14/2015

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
 Chief, Division of Land Development: *[Signature]* Date: 4-22-15  
 Chief, Development Engineering Division: *[Signature]* Date: 4-17-15

**OWNER**  
 CHELSEA KNOLLS, LC  
 1395 BEVERLY RD. SUITE 240  
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 (301) 720-3021

**DEVELOPER**  
 RYAN HOMES, INC.  
 ATTN: KEVIN BOWSER  
 9750 PATRICK HODGES DRIVE  
 COLUMBIA, MARYLAND 21046  
 410-796-0980

**FISHER, COLLINS & CARTER, INC.**  
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
 CONTINENTAL SQUARE OFFICE PARK - 10725 BALDORNE NATIONAL PIKE  
 ELICOTT CITY, MARYLAND 21042  
 (410) 461-2899



**GRADING, SEDIMENT, & EROSION CONTROL PLAN**  
**CHELSEA KNOLLS**  
 LOTS 1-14, NON-BUILDABLE PRESERVATION PARCELS A & B AND NON-BUILDABLE BULK PARCEL 'C'  
 ZONING: RC-DEO  
 TAX MAP No. 6 GRID No. 22 AND TAX MAP 12, GRID 5, PARCEL 9  
 FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND  
 DATE: FEBRUARY, 2015  
 SHEET 10 OF 13

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**BUILDER/DEVELOPER'S CERTIFICATE**

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

SIGNATURE OF DEVELOPER *[Signature]* DATE *4/2/15*

**ENGINEER'S CERTIFICATE**

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

SIGNATURE OF ENGINEER *[Signature]* DATE *3/12/15*

**PROFESSIONAL CERTIFICATION**

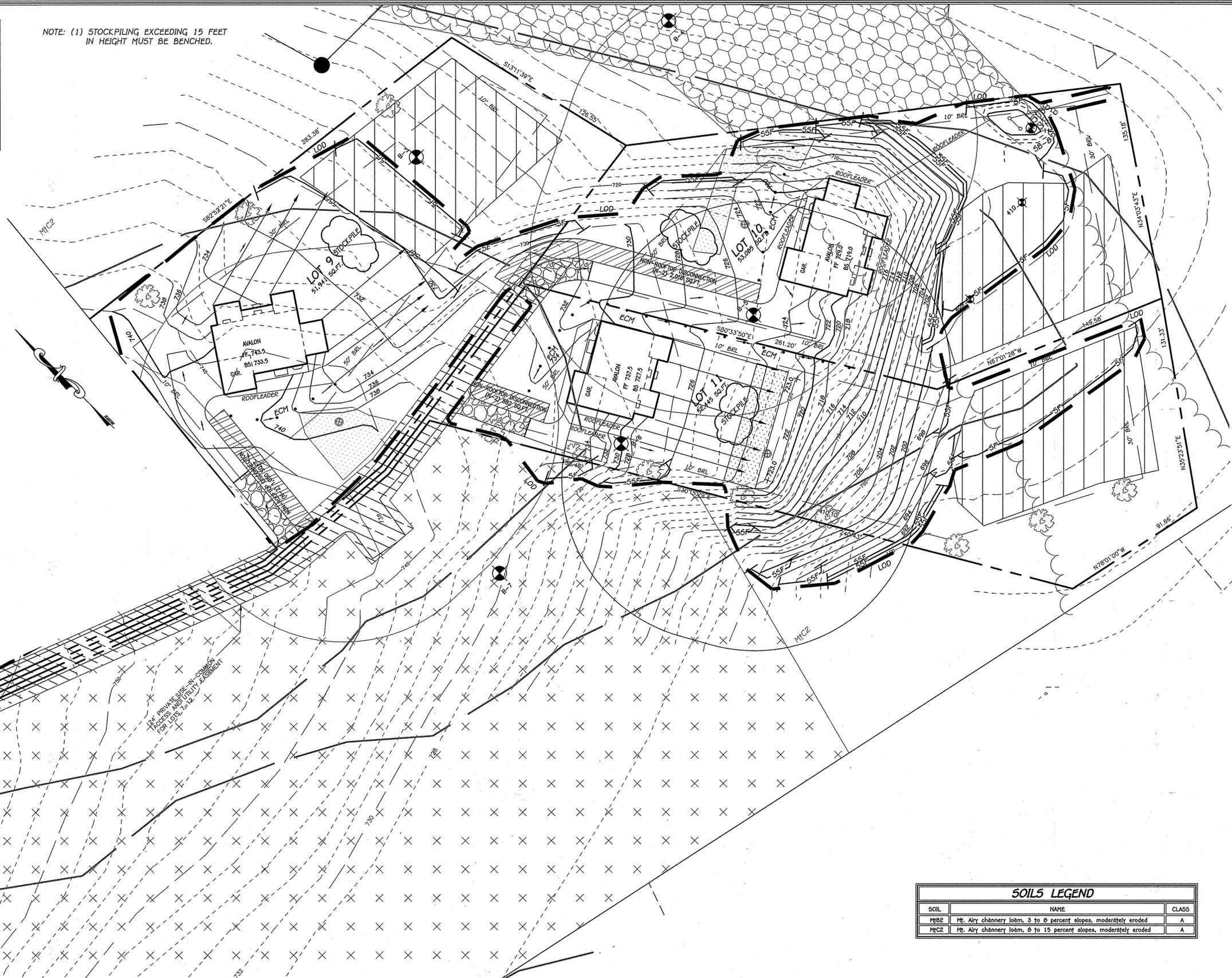
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 38386, EXPIRATION DATE: 01/12/2016.

SIGNATURE OF PROFESSIONAL ENGINEER *[Signature]* DATE *3/12/15*

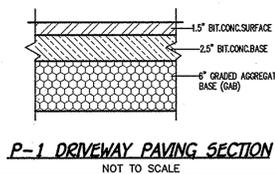


LEGEND	
SYMBOL	DESCRIPTION
---	EXISTING CONTOUR 2' INTERVAL
- - - -	PROPOSED CONTOUR 2' INTERVAL
•	SPOT ELEVATION
ECM	EROSION CONTROL MATTING
SSP-SSP	SUPER SILT FENCE
SF-SF	SILT FENCE
LOD	LIMITS OF DISTURBANCE
(Tree symbol)	EXISTING STREET TREES FROM F-12-072
(Tree symbol)	EXISTING PERIMETER TREES FROM F-12-072

NOTE: (1) STOCKPILING EXCEEDING 15 FEET IN HEIGHT MUST BE BENCHED.



SOILS LEGEND		
SOIL	NAME	CLASS
M82	Mt. Airy channery loam, 3 to 8 percent slopes, moderately eroded	A
MPC2	Mt. Airy channery loam, 8 to 15 percent slopes, moderately eroded	A



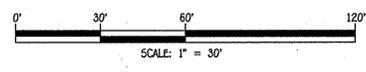
**GRADING, SEDIMENT, & EROSION CONTROL PLAN**  
**CHELSEA KNOLLS**  
 LOTS 1-14, NON-BUILDABLE PRESERVATION PARCELS A & B AND NON-BUILDABLE BULK PARCEL 'C'  
 ZONING: RC-DEO  
 TAX MAP No. 6 GRID No. 22 AND TAX MAP 12, GRID 5, PARCEL 9  
 FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND  
 DATE: FEBRUARY, 2015  
 SHEET 11 OF 19

APPROVED: DEPARTMENT OF PUBLIC WORKS  
*[Signature]* *4/2/2015*  
 Chief, Bureau of Highways

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
*[Signature]* *4-22-15*  
 Chief, Division of Land Development

*[Signature]* *4-17-15*  
 Chief, Development Engineering Division

THIS DEVELOPMENT IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.  
 APPROVED:  
*[Signature]* *3/17/15*  
 HOWARD SOIL CONSERVATION DISTRICT



**OWNER**  
 CHELSEA KNOLLS, LC  
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 WHELAN, VIRGINIA 22101 (703) 734-9730  
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**DEVELOPER**  
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**FISHER, COLLINS & CARTER, INC.**  
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 10772 BALTIMORE NATIONAL PIKE  
 SUITE 100, BALTIMORE, MARYLAND 21044  
 (410) 461-2895

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# SOIL PREPARATION, TOPSOILING AND SOIL AMENDMENTS (B-4-2)

## A. Soil Preparation

- Temporary Stabilization**
  - Seeded preparation consists of loosening soil to a depth of 3 to 5 inches 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 must not be rolled or dragged smooth but left in the roughened condition. Slopes 3:1 or flatter are to be tracked with ridges running parallel to the contour of the slope.
  - Apply fertilizer and lime as prescribed on the plans.
  - Incorporate lime and fertilizer into the top 3 to 5 inches of soil by disking or other suitable means.
- Permanent Stabilization**
  - A soil test is required for any earth disturbance of 5 acres or more. The minimum soil conditions required for permanent vegetative establishment are:
    - Soil pH between 6.0 and 7.0.
    - Soluble salts less than 500 parts per million (ppm).
    - Soil contains less than 40 percent clay but enough fine grained material (greater than 30 percent silt plus clay) to provide the capacity to hold a moderate amount of moisture. An exception: if loess will be planted, then a sandy soil (less than 30 percent silt plus clay) would be acceptable.
    - Soil contains 1.5 percent minimum organic matter by weight.
    - Soil contains sufficient pore space to permit adequate root penetration.
  - Application of amendments or topsoil is required if on-site soils do not meet the above conditions.
  - Graded areas must be maintained in a true and even grade as specified on the approved plan, then scarified or otherwise loosened to a depth of 3 to 5 inches.
  - Apply soil amendments as specified on the approved plan or as indicated by the results of a soil test.
  - Mix soil amendments into the top 3 to 5 inches of soil by disking or other suitable means. Roll down areas to smooth the surface, remove large objects like stones and branches, and ready the area for seed application. Loosen surface soil by dragging with a heavy chain or other equipment to roughen the surface where site conditions will not permit normal seeded preparation. Track slopes 3:1 or flatter with tracked equipment leaving the soil in an irregular condition with ridges running parallel to the contour of the slope. Leave the top 1 to 3 inches of soil loose and friable. Seeded loosening may be unnecessary on newly disturbed areas.

## B. Topsoiling

- Topsoil is placed over prepared subsoil prior to establishment of permanent vegetation. The purpose is 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.
- Topsoil salvaged from an existing site may be used provided 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-NRCS.
- Topsoiling 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.
  - Areas having slopes steeper than 2:1 require special consideration and design.
- Topsoil Specifications: Soil to be used as topsoil must meet the following criteria:
  - Topsoil must be a loam, sandy loam, clay loam, silt loam, sandy clay loam, or loamy sand. Other soils may be used if recommended by an agronomist or soil scientist and approved by the appropriate approval authority. Topsoil must not be a mixture of contrasting textured subsoils and must contain less than 5 percent by volume of cinders, stones, slag, coarse fragments, gravel, sticks, roots, trash, or other materials larger than 1 1/2 inches in diameter.
  - Topsoil must be free of noxious plants or plant parts such as Bermuda grass, quack grass, Johnson grass, nut sedge, poison ivy, thistle, or others as specified.
  - 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.

## 6. Topsoil Application

- Erosion and sediment control practices must be maintained when applying topsoil.
- Uniformly distribute topsoil in a 5 to 8 inch layer and lightly compact to a minimum thickness of 4 inches. Spreading is to be performed in a random or grid pattern with a minimum of additional soil preparation and tillage. Any irregularities in the surface resulting from topsoiling or other operations must be corrected in order to prevent the formation of depressions or water pockets.
- Topsoil must not be placed if 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 seeded preparation.

## C. Soil Amendments (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 of 5 acres or more. Soil analysis may be performed by a recognized private or commercial laboratory. Soil samples taken for engineering purposes may also be used for chemical analyses.
- Fertilizers must be uniform in composition, free flowing and suitable for accurate application by appropriate equipment. Manure may be substituted for fertilizer with prior approval from the appropriate approval authority. Fertilizers must all be delivered to the site fully labeled according to the applicable laws and must bear the name, trade name or trademark and warranty of the producer.
- Lime materials must be ground limestone (hydrated or burnt lime may be substituted except when hydrossed) which contains at least 50 percent total oxides (calcium oxide plus magnesium oxide). Limestone must be ground to such fineness that at least 50 percent will pass through a #100 mesh sieve and 98 to 100 percent will pass through a #20 mesh sieve.
- Lime and fertilizer are to be evenly distributed and incorporated into the top 3 to 5 inches of soil by disking or other suitable means.
- Where the subsoil is either highly acidic or composed of heavy clays, spread ground limestone at the rate of 4 to 8 tons/acre (200-400 pounds per 1,000 square feet) prior to the placement of topsoil.

## TEMPORARY SEEDING NOTES (B-4-4)

**Definition**  
To stabilize disturbed soils with vegetation for up to 6 months.

**Purpose**  
To use fast growing vegetation that provides cover on disturbed soils.

**Conditions Where Practice Applies**  
Exposed soils where ground cover is needed for a period of 6 months or less. For longer duration of time, permanent stabilization practices are required.

- Criteria**
- Select one or more of the species or seed mixtures listed in Table B.1 for the appropriate Plant Hardiness Zone (from Figure B.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 plan and completed, then Table B.1 plus fertilizer and lime rates must be put on the plan.
  - For sites having soil tests performed, use and show the recommended rates by the testing agency. Soil tests are not required for Temporary Seeding.
  - When stabilization is required outside of a seeding season, apply seed and mulch or straw mulch alone as prescribed in Section B-4-3.A.1.b and maintain until the next seeding season.

Temporary Seeding Summary				Fertilizer Rate (10-20-20)	Lime Rate
Hardness Zone (from Figure B.3):	6b	Seeding Dates	Seeding Depths		
Species (from Table B.1):	Application Rate (lb/oc)	Seeding Dates	Seeding Depths		
BARLEY	96	3/1 - 5/15	1"	436 lb/oc (10 lb/1000 sf)	2 tons/oc (90 lb/1000 sf)
OATS	72	8/15 - 10/15	1"		
RYE	112		1"		

## PERMANENT SEEDING NOTES (B-4-5)

### A. Seed Mixtures

- General Use**
  - Select one or more of the species or mixtures listed in Table B.3 for the appropriate Plant Hardiness Zone (from Figure B.3) and based on the site condition or purpose found on Table B.2. Enter selected mixture(s), application rates, and seeding dates in the Permanent Seeding Summary. The Summary is to be placed on the plan.
  - Additional planting specifications for exceptional sites such as shorelines, stream banks, or dunes or for special purposes such as wildlife or aesthetic treatment may be found in USDA-NRCS Technical Field Office Guide, Section 342 - Critical Area Planting.
  - For sites having disturbed area over 5 acres, use and show the rates recommended by the soil testing agency. For areas receiving low maintenance, apply urea form fertilizer (46-0-0) at 3 1/2 pounds per 1000 square feet (150 pounds per acre) at the time of seeding in addition to the soil amendments shown in the Permanent Seeding Summary.
- Turfgrass Mixtures**
  - Areas where turfgrass may be desired include lawns, parks, playgrounds, and commercial sites which will receive a medium to high level of maintenance.
  - Select one or more of the species or mixtures listed below based on the site conditions or purpose. Enter selected mixture(s), application rates, and seeding dates in the Permanent Seeding Summary. The Summary is to be placed on the plan.
    - Kentucky Bluegrass: Full Sun Mixture:** For use in areas that receive intensive management. Irrigation required in the areas of central Maryland and Eastern Shore. Recommended Certified Kentucky Bluegrass Cultivars Seeding Rate: 1.5 to 2.0 pounds per 1000 square feet. Choose a minimum of three Kentucky bluegrass cultivars with each ranging from 10 to 35 percent of the total mixture by weight.
    - Kentucky Bluegrass/Perennial Rye: Full Sun Mixture:** For use in full sun areas where rapid establishment is necessary and when turf will receive medium to intensive management. Certified Perennial Ryegrass Cultivars/Certified Kentucky Bluegrass Seeding Rate: 2 pounds mixture per 1000 square feet. Choose a minimum of three Kentucky bluegrass cultivars with each ranging from 10 to 35 percent of the total mixture by weight.
    - Tall Fescue/Kentucky Bluegrass: Full Sun Mixture:** For use in drought prone areas and/or for areas receiving low to medium management in full sun to medium shade. Recommended mixture includes: Certified Tall Fescue Cultivars 95 to 100 percent, Certified Kentucky Bluegrass Cultivars 0 to 5 percent. Seeding Rate: 5 to 8 pounds per 1000 square feet. One or more cultivars may be blended.
    - Kentucky Bluegrass/Fine Fescue: Shade Mixture:** For use in areas with shade in Bluegrass lawns. For establishment in high quality, intensively managed turf area. Mixture includes: Certified Kentucky Bluegrass Cultivars 30 to 40 percent and Certified Fine Fescue and 60 to 70 percent. Seeding Rate: 1 1/2 to 3 pounds per 1000 square feet.

**Notes:**  
Select turfgrass varieties from those listed in the most current University of Maryland Publication, Agronomy Memo #77, "Turfgrass Cultivar Recommendations for Maryland".  
Choose certified material. Certified material is the best guarantee of cultivar purity. The certification program of the Maryland Department of Agriculture, Turf and Seed Section, provides a reliable means of consumer protection and assures a pure genetic line.

**Ideal Times of Seeding for Turf Grass Mixtures Western MD:** March 15 to June 1, August 1 to October 1 (Hardness Zones: 5b, 6a) Central MD: March 1 to May 15, August 15 to October 15 (Hardness Zones: 6b) Southern MD, Eastern Shore: March 1 to May 15, August 15 to October 15 (Hardness Zones: 7a, 7b)

**Till areas to receive seed by disking or other approved methods to a depth of 2 to 4 inches, level and rake the areas to prepare a proper seedbed. Remove stones and debris over 1 1/2 inches in diameter. The resulting seedbed must be in such condition that future mowing of grasses will pose no difficulty.**

**If soil moisture is deficient, supply new seedlings with adequate water for plant growth (1/2 to 1 inch every 3 to 4 days depending on soil texture) until they are firmly established. This is especially true when seedlings are made late in the planting season, in abnormally dry or hot seasons, or on adverse sites.**

Permanent Seeding Summary				Fertilizer Rate (10-20-20)	Lime Rate	
Hardness Zone (from Figure B.3):	6b	Seeding Dates	Seeding Depths			
No. Species	Application Rate (lb/oc)	Seeding Dates	Seeding Depths	N P O <sub>2</sub> S H O <sub>2</sub>		
8	TALL FESCUE	Mar. 1-May 15 Aug. 15-Oct. 15	1/4-1/2 in.	45 lb./oc (10 lb/1000 sf)	90 lb./oc (2 lb/1000 sf)	2 tons/oc (90 lb/1000 sf)

## B. Sod: To provide quick cover on disturbed areas (2:1 grade or flatter).

- General Specifications**
  - Class of turfgrass sod must be Maryland State Certified. Sod labels must be made available to the job foreman and inspector.
  - Sod must be machine cut at a uniform soil thickness of 3/4 inch, plus or minus 1/8 inch, at the time of cutting. Measurement for thickness must exclude top growth and thatch. Broken pots and torn or uneven ends will not be acceptable.
  - Standard size sections of sod must be strong enough to support their own weight and retain their size and shape when suspended vertically with a firm grasp on the upper 10 percent of the section.
  - Sod must not be harvested or transported when moisture content (excessively dry or wet) may adversely affect its survival.
  - Sod must be harvested, delivered, and installed within a period of 36 hours. Sod not transplanted within this period must be approved by an agronomist or soil scientist prior to its installation.
- Sod Installation**
  - During periods of excessively high temperature or in areas having dry subsoil, lightly irrigate the subsoil immediately prior to laying the sod.
  - Lay the first row of sod in a straight line with subsequent rows placed parallel to it and tightly wedged against each other. Stagger lateral joints to promote more uniform growth and strength. Ensure that sod is not stretched or overlapped and that all joints are butted tight in order to prevent voids which would cause air drying of the roots.
  - Wherever possible, lay sod with the long edges parallel to the contour and with staggering joints. Roll and tamp, peg or otherwise secure the sod to prevent slippage on slopes. Ensure solid contact exists between sod roots and the underlying soil surface.
  - Water the sod immediately following rolling and tamping until the underside of the new sod pad and soil surface below the sod are thoroughly wet. Complete the operations of laying, tamping, and irrigating for any piece of sod within eight hours.
- Sod Maintenance**
  - In the absence of adequate rainfall, water daily during the first week or as often and sufficiently as necessary to maintain moist soil to a depth of 4 inches. Water sod during the heat of the day to prevent wilting.
  - After the first week, wet watering is required as necessary to maintain adequate moisture content.
- Do not mow until the sod is firmly rooted. No more than 2/3 of the grass leaf must be removed by the initial cutting or subsequent cuttings. Maintain a grass height of at least 3 inches unless otherwise specified.

## HOWARD SOIL CONSERVATION DISTRICT STANDARD SEDIMENT CONTROL NOTES

- 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 (410-313-1895).
- 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 THEREOF.
- FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN: a) 3 CALENDAR DAYS FOR ALL PERIMETER CONTROL STRUCTURES, DIKES, PERIMETER SLOPES AND ALL SLOPES GREATER THAN 3:1; b) 7 DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.
- ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR PERMANENT SEEDING (SEC. B-4-5), TEMPORARY SEEDING (SEC. B-4-4) AND MULCHING (SEC. B-4-3). TEMPORARY STABILIZATION WITH MULCH ALONE CAN ONLY BE DONE WHEN RECOMMENDED SEEDING DATES DO NOT ALLOW FOR PROPER ESTABLISHMENT AND ESTABLISHMENT OF PERMANENT VEGETATION.
- ALL SEDIMENT CONTROL STRUCTURES ARE TO REMAIN IN PLACE AND ARE TO BE MAINTAINED IN OPERATIVE CONDITION UNTIL PERMITS FOR THEIR REMOVAL HAS BEEN OBTAINED FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
- ANALYSIS: TOTAL AREA OF SITE: 69.00 ACRES; AREA DISTURBED: 13.45 ACRES; AREA TO BE ROOFED OR PAVED: 9.95 ACRES; TOTAL CULDS: 20,000 CULDS; TOTAL FILL: 20,000 CULDS; OFFSITE WASTE/BORROW AREA LOCATION: N/A.
- ANY SEDIMENT CONTROL PRACTICE THAT IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.
- ADDITIONAL SEDIMENT CONTROL MUST BE PROVIDED, IF DEEMED NECESSARY BY THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
- 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.
- TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THREE PIPE LENGTHS OR THAT WHICH SHALL BE BACK-FILLED AND STABILIZED BY THE END OF EACH WORKDAY, WHICHEVER IS SHORTER.
- 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.
- TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THREE PIPE LENGTHS OR THAT WHICH SHALL BE BACK-FILLED AND STABILIZED BY THE END OF EACH WORKDAY, WHICHEVER IS SHORTER.
- ANY CHANGES OR REVISIONS TO THE SEQUENCE OF CONSTRUCTION MUST BE REVIEWED AND APPROVED BY THE PLAN APPROVAL AUTHORITY PRIOR TO PROCEEDING WITH CONSTRUCTION.
- PROJECT IS TO BE SEQUENCED SO THAT GRADING ACTIVITIES BEGIN ON ONE GRADING UNIT (MAXIMUM ACREAGE OF 20 ACRES PER GRADING UNIT) AT A TIME. WORK MAY PROCEED TO A SUBSEQUENT GRADING UNIT WHEN AT LEAST 50 PERCENT OF THE DISTURBED AREA IN THE PRECEDING GRADING UNIT HAS BEEN STABILIZED AND APPROVED BY THE ENFORCEMENT AUTHORITY, UNLESS OTHERWISE SPECIFIED AND APPROVED BY THE APPROVAL AUTHORITY, NO MORE THAN 30 ACRES CUMULATIVELY MAY BE DISTURBED AT A GIVEN TIME.

## B-4-8 STANDARDS AND SPECIFICATIONS FOR STOCKPILE AREAS

**Definition**  
A mound or pile of soil protected by appropriately designed erosion and sediment control measures.

To provide a designated location for the temporary storage of soil that controls the potential for erosion, sedimentation, and changes to drainage patterns.

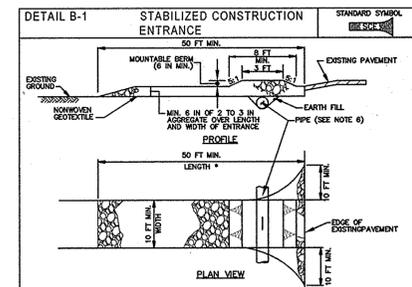
- Conditions Where Practice Applies**  
Stockpile areas are utilized when it is necessary to salvage and store soil for later use.
- The stockpile location and all related sediment control practices must be clearly indicated on the erosion and sediment control plan.
  - The footprint of the stockpile must be sized to accommodate the anticipated volume of material and based on a side slope ratio no steeper than 2:1. Benching must be provided in accordance with Section B-3 Land Grading.
  - Runoff from the stockpile area must drain to a suitable sediment control practice.
  - Access to the stockpile area from the upgrade side.
  - Clear water runoff into the stockpile area must be minimized by use of a diversion device such as an earth dike, temporary swale or diversion fence. Provisions must be made for discharging concentrated flow in a non-erosive manner.
  - Where runoff concentrates along the toe of the stockpile fill, an appropriate erosion/sediment control practice must be used to intercept the discharge.
  - Stockpiles must be stabilized in accordance with the 3/7 day stabilization requirement as well as Standard B-4-1 Incremental Stabilization and Standard B-4-4 Temporary Stabilization.
  - If the stockpile is located on an impervious surface, a liner should be provided below the stockpile to facilitate cleanup. Stockpiles containing contaminated material must be covered with impermeable sheeting.

**Maintenance**  
The stockpile area must continuously meet the requirements for Adequate Vegetative Establishment in accordance with Section B-4 Vegetative Stabilization. Side slopes must be maintained at no steeper than a 2:1 ratio. The stockpile area must be kept free of erosion. If the vertical height of a stockpile exceeds 20 feet for 2:1 slopes, 30 feet for 3:1 slopes, or 40 feet for 4:1 slopes, benching must be provided in accordance with Section B-3 Land Grading.

## SEQUENCE OF CONSTRUCTION

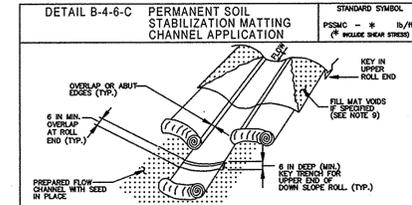
- OBTAIN A GRADING PERMIT AND HOLD PRE-CONSTRUCTION MEETING WITH COUNTY INSPECTOR. (2 WEEKS)
- NOTIFY "MIS" UTILITY AT LEAST 48 HOURS BEFORE BEGINNING ANY WORK AT 1-800-257-7777. NOTIFY THE HOWARD COUNTY OFFICE OF CONSTRUCTION INSPECTION AT 410-313-1330 AT LEAST 24 HOURS BEFORE STARTING WORK.
- INSTALL STABILIZED CONSTRUCTION ENTRANCES, SILT FENCE, AND SUPER SILT FENCE. (5 DAYS)
- ROUGH GRADE SITE. (1 WEEK)
- INSTALL TEMPORARY SEEDING. (3 DAYS)
- CONSTRUCT EACH BUILDING AND DRIVEWAY ASSOCIATED WITH INDIVIDUAL LOTS. (18 MONTHS)
- FINE GRADE SITE AND INSTALL PERMANENT SEEDING ON A PER LOT BASIS. (2 WEEKS PER LOT)
- UPON STABILIZATION AND ONCE ALL SITE WORK IS COMPLETED, INSTALL MICRO-BIORETENTION FACILITIES PROPOSED ON LOTS 1, 5, 6, AND 10. (2 WEEKS PER LOT)
- ALL FINAL GRADES AND STABILIZATION SHOULD BE COMPLETED BEFORE ANY REMOVAL OF CONTROLS ASSOCIATED WITH EACH INDIVIDUAL LOT, WHEN ALL CONTRIBUTING AREAS TO THE SEDIMENT CONTROL DEVICES HAVE BEEN STABILIZED AND WITH THE PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, THE INDIVIDUAL SEDIMENT CONTROL DEVICES MAY BE REMOVED PER LOT. (3 DAYS PER LOT)

NOTE: THE CONTRACTOR SHALL INSPECT AND PROVIDE NECESSARY MAINTENANCE EACH RAINFALL AND ON A DAILY BASIS.



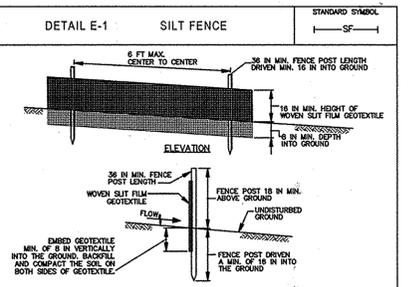
- CONSTRUCTION SPECIFICATIONS**
- PLACE STABILIZED CONSTRUCTION ENTRANCE IN ACCORDANCE WITH THE APPROVED PLAN. VEHICLES MUST TRAVEL OVER THE ENTIRE LENGTH OF THE SIDE. USE MINIMUM LENGTH OF 50 FEET (40 FEET FOR SINGLE RESIDENCE LOTS). USE MINIMUM WIDTH OF 10 FEET. FLARE SIZE TO FEET MINIMUM AT THE EXISTING ROAD TO PROVIDE A TURNING RADIUS.
  - PIPE ALL SURFACE WATER FLOWING TO OR DIVERTED TOWARD THE SIDE UNDER THE ENTRANCE. MAINTAIN POSITIVE DRAINAGE. PROTECT PIPE INSTALLED BELOW THE SIDE WITH A MOUNTABLE BERM WITH 6:1 SLOPES AND A MINIMUM OF 12 INCHES OF STONE OVER THE PIPE AND A PIPE AS SPECIFIED ON APPROVED PLAN. WHEN THE SIDE IS LOCATED AT A HIGH POINT AND HAS NO DRAINAGE TO CONVEY, A PIPE IS NOT NECESSARY. A MOUNTABLE BERM IS REQUIRED WHEN SIDE IS NOT LOCATED AT A HIGH POINT.
  - PREPARE SUBGRADE AND PLACE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS.
  - PLACE CRUSHED AGGREGATE (2 TO 3 INCHES IN SIZE) OR EQUIVALENT RECYCLED CONCRETE (WITHOUT REBAR) AT LEAST 6 INCHES DEEP OVER THE LENGTH AND WIDTH OF THE SIDE.
  - MAINTAIN ENTRANCE AS A CONVEYOR THAT MINIMIZES TRACKING OF SEDIMENT AND STONE OR MAKE OTHER REPAIRS AS CONDITIONS DEMAND TO MAINTAIN CLEAN SURFACE. MOUNTABLE BERM, AND SPECIFIED DIMENSIONS. IMMEDIATELY REMOVE STONE AND/OR SEDIMENT SPILLS. CLEAN AND TRACKED OUT ADJACENT ROADWAY BY VACUATING, SCOPING, AND/OR SHEEPING. WASHING SHOULD BE PROVIDED. MUD TRACKING FROM ENTRANCE IS NOT ACCEPTABLE UNLESS WASH WATER IS DIRECTED TO AN APPROVED SEDIMENT CONTROL PRACTICE.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION



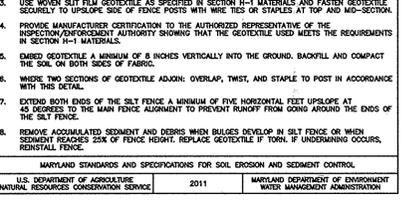
- CONSTRUCTION SPECIFICATIONS**
- USE MATTING THAT HAS A DESIGN VALUE FOR SHEAR STRESS EQUAL TO OR HIGHER THAN THE SHEAR STRESS DESIGNATED ON APPROVED PLANS.
  - USE PERMANENT SOIL STABILIZATION MATTING MADE OF OPEN WEAVE SYNTHETIC, NON-DEGRADABLE FIBERS OR FIBERS OF NATURAL FIBERS AND DISTRIBUTION UNIFORMITY. CHANNELS USED IN THE MAT MUST BE 1 TO 1 1/2 INCHES WIDE AND BE A MINIMUM OF 6 INCHES LONG. "U" SHAPED STAPLES MUST HAVE A MINIMUM 8 INCH SPAN LEAD, A MINIMUM 1/2 INCH SPAN LEAD, AND BE 4 INCH LONG. WOOD STAPLES MUST BE PREVENT SEPARATION OF THE MAT FROM THE PARENT MATERIAL.
  - SECURE MATTING USING STEEL STAPLES OR WOOD STAPLES. STAPLES MUST BE "U" OR "T" SHAPED STEEL WIRE HAVING A MINIMUM GAUGE OF NO. 11 AND NO. 9 RESPECTIVELY. "U" SHAPED STAPLES MUST AVERAGE 1 TO 1 1/2 INCHES WIDE AND BE A MINIMUM OF 6 INCHES LONG. "T" SHAPED STAPLES MUST HAVE A MINIMUM 8 INCH SPAN LEAD, A MINIMUM 1/2 INCH SPAN LEAD, AND BE 4 INCH LONG. WOOD STAPLES MUST BE PREVENT SEPARATION OF THE MAT FROM THE PARENT MATERIAL.
  - PERFORM FINAL GRADING, TOPSOIL APPLICATION, SEEDING PREPARATION, AND PERMANENT SEEDING IN ACCORDANCE WITH OPERATIONS. PLACE MATTING WITHIN 48 HOURS OF COMPLETING SEEDING OPERATIONS. UNLESS END OF WORKDAY STABILIZATION IS SPECIFIED ON THE APPROVED EROSION AND SEDIMENT CONTROL PLAN.
  - UNROLL MATTING IN DIRECTION OF WATER FLOW, CENTERING THE FIRST ROLL ON THE CHANNEL CENTER LINE. WORK FROM CENTER OF CHANNEL OUTWARD WHEN PLACING ROLLS. LAY MATTING SMOOTHLY AND FIRMLY UPON THE SEEDED SURFACE, AVOID STRETCHING THE MATTING.
  - OVERLAP ON ADJ. EDGES OF MATTING ROLLS PER MANUFACTURER RECOMMENDATIONS. OVERLAP ROLL EDGES BY 6 INCHES (MINIMUM), WITH THE UPPER ROLL OVERLAPPING ON TOP OF THE NEXT DOWNSTREAM ROLL.
  - KEY IN THE TOP OF SLOPE END OF MAT 6 INCHES (MINIMUM) BY DIGGING A TRENCH, PLACING THE MATTING ROLL END IN THE TRENCH, STAPLING THE MAT IN PLACE, REPLACING THE EXCAVATED MATERIAL, AND TAMING TO SECURE THE MAT END IN THE KEY.
  - STAPLE/PIN MAT IN A STAGGERED PATTERN ON 4 FOOT (MAXIMUM) CENTERS THROUGHOUT AND 2 FOOT (MAXIMUM) CENTERS ALONG SEAMS, JOINTS, AND ROLL EDGES.
  - IF SPECIFIED BY THE DESIGNER OR MANUFACTURER AND DEPENDING ON THE TYPE OF MAT BEING INSTALLED, ONCE THE MATTING IS KEPT AND STAPLED IN PLACE, FILL THE MAT Voids WITH TOP SOIL OR GRANULAR MATERIAL AND LIGHTLY COMPACT OR ROLL TO MAINTAIN SOIL MAT CONTACT WITHOUT GRADING MAT.
  - ESTABLISH AND MAINTAIN VEGETATION SO THAT REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT ARE CONTINUOUSLY MET IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION.

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- CONSTRUCTION SPECIFICATIONS**
- USE WOOD POSTS 1 1/2 x 1 1/2 x 1/2 (MINIMUM) SQUARE END OF SOUND QUALITY HARDWOOD AS AN ALTERNATIVE TO WOODEN POST USE STANDARD "O" OR "V" SECTION STEEL POSTS BEARING NOT LESS THAN 1 POUND PER LINEAR FOOT.
  - USE 36 INCH MINIMUM POSTS DRIVEN 18 INCH MINIMUM INTO GROUND NO MORE THAN 6 FEET APART.
  - USE 36 INCH SLIT FILM GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS AND FASTEN GEOTEXTILE SECURELY TO UPSLOPE SIDE OF FENCE POSTS WITH WIRE TIES OR STAPLES AT TOP AND MID-SECTION.
  - PROVIDE MANUFACTURER CERTIFICATION TO THE AUTHORIZED REPRESENTATIVE OF THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT THE GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION H-1 MATERIALS.
  - EMBED GEOTEXTILE A MINIMUM OF 6 INCHES VERTICALLY INTO THE GROUND, BACKFILL AND COMPACT THE SOIL ON BOTH SIDES OF THE FENCE.
  - WHERE TWO SECTIONS OF GEOTEXTILE ADJOIN, OVERLAP, TWIST, AND STAPLE TO POST IN ACCORDANCE WITH THIS DETAIL.
  - EXTEND BOTH ENDS OF THE SILT FENCE A MINIMUM OF FIVE HORIZONTAL FEET UPSLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT TO PREVENT RUNOFF FROM GOING AROUND THE ENDS OF THE SILT FENCE.
  - REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BUILDS DEVELOP IN FENCE OR WHEN SEDIMENT REACHES 20% OF FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN, IF UNDERMINING OCCURS, REINSTALL CHAIN LINK FENCING AND GEOTEXTILE.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION
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- CONSTRUCTION SPECIFICATIONS**
- INSTALL 2 1/2 INCH DIAMETER GALVANIZED STEEL POSTS OF 0.063 INCH WALL THICKNESS AND SIX FOOT LENGTH OR FURTHER THAN TO FEET APART. DRIVE THE POSTS A MINIMUM OF 36 INCHES INTO THE GROUND.
  - FASTEN 8 GAUGE OR HEAVIER GALVANIZED CHAIN LINK FENCE (26 INCH MAXIMUM OPENING) 42 INCHES IN HEIGHT SECURELY TO THE FENCE POSTS WITH WIRE TIES OR HOOD RINGS.
  - FASTEN NONWOVEN SILT FENCE GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS, SECURELY TO THE UPSLOPE SIDE OF CHAIN LINK FENCE WITH TIES SPACED EVERY 24 INCHES AT THE TOP AND MID SECTION. EMBED GEOTEXTILE AND CHAIN LINK FENCE A MINIMUM OF 6 INCHES INTO THE GROUND.
  - WHERE ENDS OF THE GEOTEXTILE COME TOGETHER, THE ENDS SHALL BE OVERLAPPED BY 6 INCHES, FOLDED, AND STAPLED TO PREVENT SEDIMENT BY PASS.
  - EXTEND BOTH ENDS OF THE SUPER SILT FENCE A MINIMUM OF FIVE HORIZONTAL FEET UPSLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT TO PREVENT RUNOFF FROM GOING AROUND THE ENDS OF THE SUPER SILT FENCE.
  - PROVIDE MANUFACTURER CERTIFICATION TO THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION H-1 MATERIALS.
  - REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BUILDS DEVELOP IN FENCE OR WHEN SEDIMENT REACHES 20% OF FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN, IF UNDERMINING OCCURS, REINSTALL CHAIN LINK FENCING AND GEOTEXTILE.

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## BUILDER/DEVELOPER'S CERTIFICATE

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

Signature of Developer: *[Signature]* DATE: 4/15/15

## ENGINEER'S CERTIFICATE

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

Signature of Engineer: *[Signature]* DATE: 3/12/15

## 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. 38386, EXPIRATION DATE: 01/12/2016.

Signature of Professional Engineer: *[Signature]* DATE: 3/12/15

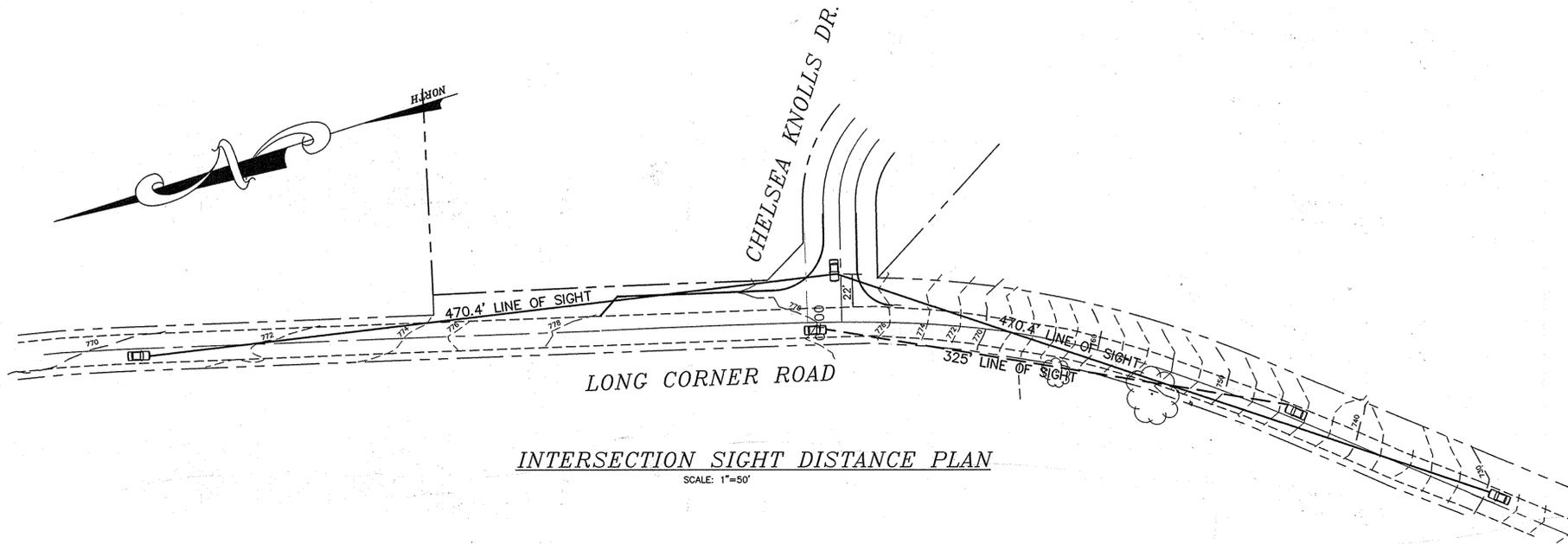
**OWNER**  
CHELSEA KNOLLS, LC  
1395 BEVERLY RD, SUITE 240  
HELENSVILLE, VIRGINIA 22041 (703) 731-9730  
(501) 720-3021

**DEVELOPER**  
RYAN HOMES, INC.  
ATTN: EDWIN BOSWELL  
9720 PATENTWOOD DRIVE  
COLUMBIA, MARYLAND 21046  
410-798-0980

**FISHER, COLLINS & CARTER, INC.**  
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
CONTINGENT OFFICE: 1672 BALDWIN NATIONAL FEE  
ELLCOTT CITY, MARYLAND 21042  
(410) 461-2895

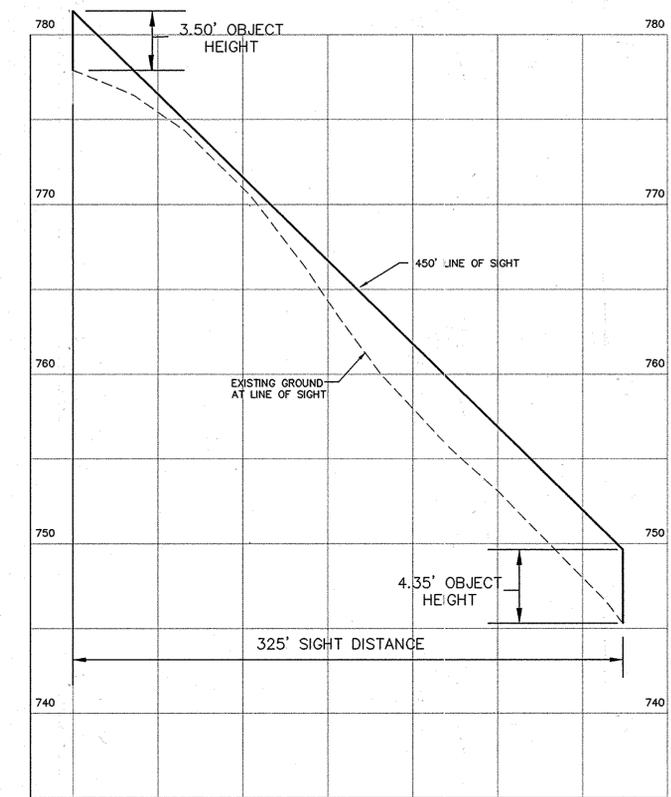
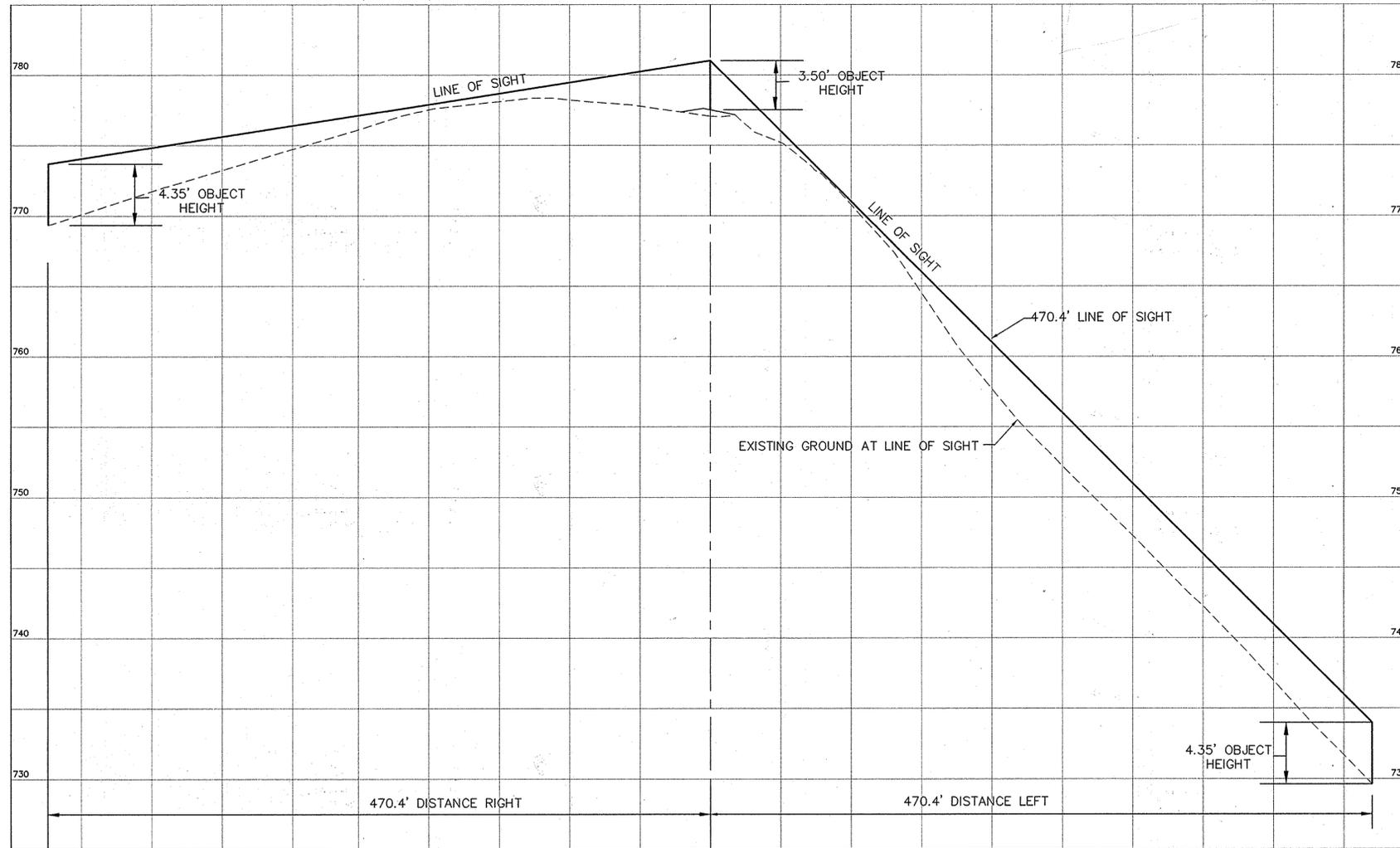
**APPROVED - DEPARTMENT OF PUBLIC WORKS**  
Chief, Bureau of Highways  
Date: 4/14/2015

**APPROVED - DEPARTMENT OF PLANNING AND ZONING**  
Chief, Division of Land Development  
Date: 4-22-15  
Date: 4-1



**NOTES**

OPERATING SPEED= 39.6 MPH NORTH BOUND  
 OPERATING SPEED= 40.6 MPH SOUTH BOUND  
 HEIGHT OF EYE = 3.5'  
 HEIGHT OF OBJECT = 4.35'



**LEFT TURN FROM MAJOR ROAD SIGHT DISTANCE PROFILE**

PER AASHTO, CHAPTER 8.5.3, CASE F, TABLE 9-14 (LEFT TURN FROM THE MAJOR ROAD), INTERSECTION SIGHT DISTANCE =  $(1.47)(40)(5.5) = 323.4$  FEET.

PER AASHTO, CHAPTER 8.5.3, CASE B, TABLE 9-5, (INTERSECTION WITH STOP CONTROL ON A MINOR ROAD FOR MULTILANE HIGHWAY), INTERSECTION SIGHT DISTANCE =  $(1.47)(40)(7.5+0.5) = 470.4$  FEET.

BASED ON THIS ANALYSIS, THE INTERSECTION HAS ADEQUATE SIGHT DISTANCE.

APPROVED: DEPARTMENT OF PUBLIC WORKS <i>[Signature]</i> CHIEF BUREAU OF HIGHWAYS DATE: 7-13-15		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. 17942, EXP. DATE 9/3/16.
APPROVED: DEPARTMENT OF PLANNING AND ZONING <i>[Signature]</i> CHIEF, DIVISION OF LAND DEVELOPMENT DATE: 7-13-15		<i>[Signature]</i>
<i>[Signature]</i> CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE: 7-10-15		R. JACOB HIKMAT, P.E.

REVISED  
**CHELSEA KNOLLS**  
 LOTS 1-14, NON-BUILDABLE PRESERVATION PARCELS A & B AND NON-BUILDABLE BULK PARCEL C  
 TAX MAP 6 GRID 22 AND TAX MAP 12, GRID 5, PARCEL 78  
 FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND  
 SIGHT DISTANCE ANALYSIS

date	JUNE 2015
project	01-009
illustration	MM
scale	1"=50'
approval	MMT
revision	RJH

**MILDENBERG, BOENDER & ASSOC., INC.**  
 Engineers Planners Surveyors  
 7360-B Crues Drive, Columbia, Maryland 21044  
 (410) 997-0286 Fax

13 OF 13  
 F-07-072