

SWM SUMMARY TABLE AREA					
AREA	REQUIREMENT	VOLUME REQUIREMENT N/O CREDITS	CREDITS	VOLUME REQUIREMENT AFTER CREDITS	NOTES
1	WATER QUALITY VOLUME WQV	0.78 AC.FT.	0.5976 AC.FT. WITHIN GRASS CHANNELS ALONG ROAD	0.1929 AC.FT.	MICROPOOL POND(P-1)
2	RECHARGE VOLUME REV	0.19 AC.FT. OR 2.07 AC.	2.27 AC. IMP. AREA TO GRASS CHANNELS ALONG ROAD	0	
3	CHANNEL PROTECTION VOLUME CPV	0.73 AC.FT.	N/A	0.73 AC.FT.	MICROPOOL POND(P-1)
4	OVERHEAD FLOOD PROTECTION, Q10P	N/A	N/A	N/A	
5	EXTREME FLOOD VOLUME, Q100P	N/A	N/A	N/A	

NOTE: SWM PROVIDED BY A MICROPOOL POND(P-1) FACILITY
 WP-05-094, approved on 4/15/05 and
 APPROVAL IS SUBJECT TO THE FOLLOWING CONDITIONS:

- PENDING THE APPROVAL OF A REGULATORY AMENDMENT TO PERMIT 2 ACRE LOTS WITHIN 2500 FEET OF THE RESERVOIR, THE AREA DESIGNATED ON THE WAIVER EXHIBIT AS "OPEN SPACE LOT 38 MUST BE LABELED AS A PUBLIC EASEMENT HELD BY THE COUNTY (DEPARTMENT OF RECREATION AND PARKS). IF THIS AMENDMENT IS APPROVED, THE AREA SHOWN ON THE WAIVER EXHIBIT ON LOTS 14 AND 19 EASEMENT AND/OR OPEN SPACE SHALL BE DESIGNATED AS AN OPEN SPACE LOT(S) FOR DEDICATION TO THE COUNTY. THIS OPEN SPACE WILL BE SUFFICIENTLY SIZED TO FULFILL THE OPEN SPACE OBLIGATION ASSOCIATED WITH THIS 142+ ACRE SUBDIVISION. SHOULD THIS REGULATORY AMENDMENT NOT BE APPROVED, THE DEVELOPER MUST PAY FEE-IN-LIEU OF OPEN SPACE CREATION (\$1500 PER LOT) - A FEE PRIOR TO PLAT RECORDATION.
- ADD A NOTE TO SP-05-009 STATING THAT IF A REGULATORY AMENDMENT IS APPROVED WHICH ALLOWS LOT SIZES TO BE REDUCED TO 2 ACRES, THE LOT YIELD SHOWN ON THIS PRELIMINARY EQUIVALENT SKETCH PLAN MAY NOT BE INCREASED.
- THE LOCATION OF THE PROPOSED FOREST CONSERVATION EASEMENTS MAY NOT IMPOSE UNREALISTIC RESTRICTIONS UPON THE LOT OWNERS. DO THE FOLLOWING:
 - ON LOT 23, ELIMINATE THE FOREST CONSERVATION EASEMENT AREA NORTH OF THE SEPTIC EASEMENT.
 - ON LOT 23, ELIMINATE THE FOREST CONSERVATION EASEMENT AREA NORTH OF THE SEPTIC EASEMENT.
 - ON LOT 22, ELIMINATE THE FOREST CONSERVATION EASEMENT AREA SOUTH OF THE PROPOSED HOUSE LOCATION. ON LOT 2, PULL THE FOREST CONSERVATION EASEMENT BACK TO ALIGN WITH THE WESTERN EDGE OF THE STREAMBANK BUFFER AND/OR THE WETLANDS BUFFER MAKE FOREST CONSERVATION EASEMENT #1 ADJOIN WITH FOREST CONSERVATION EASEMENT #2.
 - THE CENTRAL PORTION OF THE RETENTION EASEMENT ON LOT 13 APPEARS TO BE DEVOID OF TREES. ELIMINATE EASEMENT.
 - DUE TO CONSTRAINED BUILDING ENVELOPES AND THE LOCATIONS OF THE SEPTIC EASEMENTS ON LOTS 2, 15, 17-19, 21-23 THE DEVELOPER IS ADVISED THE NO FUTURE WAIVERS WILL BE GRANTED BY THIS DEPARTMENT FOR ENCROACHMENT INTO THE FOREST CONSERVATION EASEMENTS OR THEIR SETBACKS.
 - A 35' SETBACK MUST BE DELINEATED FROM THE MOST RESTRICTIVE EDGE OF ANY ENVIRONMENTAL FEATURE (INCLUDING FOREST CONSERVATION EASEMENTS, WETLANDS BUFFERS AND STREAMBANK BUFFERS) LOCATED ON ANY RESIDENTIAL LOT.
 - THE MAXIMUM FEE-IN-LIEU OF FOREST CONSERVATION WILL BE ACCEPTED BY THIS DEPARTMENT FOR THIS SUBDIVISION IS ONE ACRE. ANY OBLIGATION IN EXCESS OF ONE ACRE WHICH CANNOT BE ACCOMMODATED ON-SITE MUST BE ADDRESS AT AN OFF-SITE LOCATION.
- POST THE FOREST CONSERVATION SIGNAGE DURING THE CONSTRUCTION OF THE ROADS AND PROVIDE EACH LOT OWNER A COPY OF THE EDUCATION DOCUMENT PRIOR TO OCCUPANCY OF THE HOME.

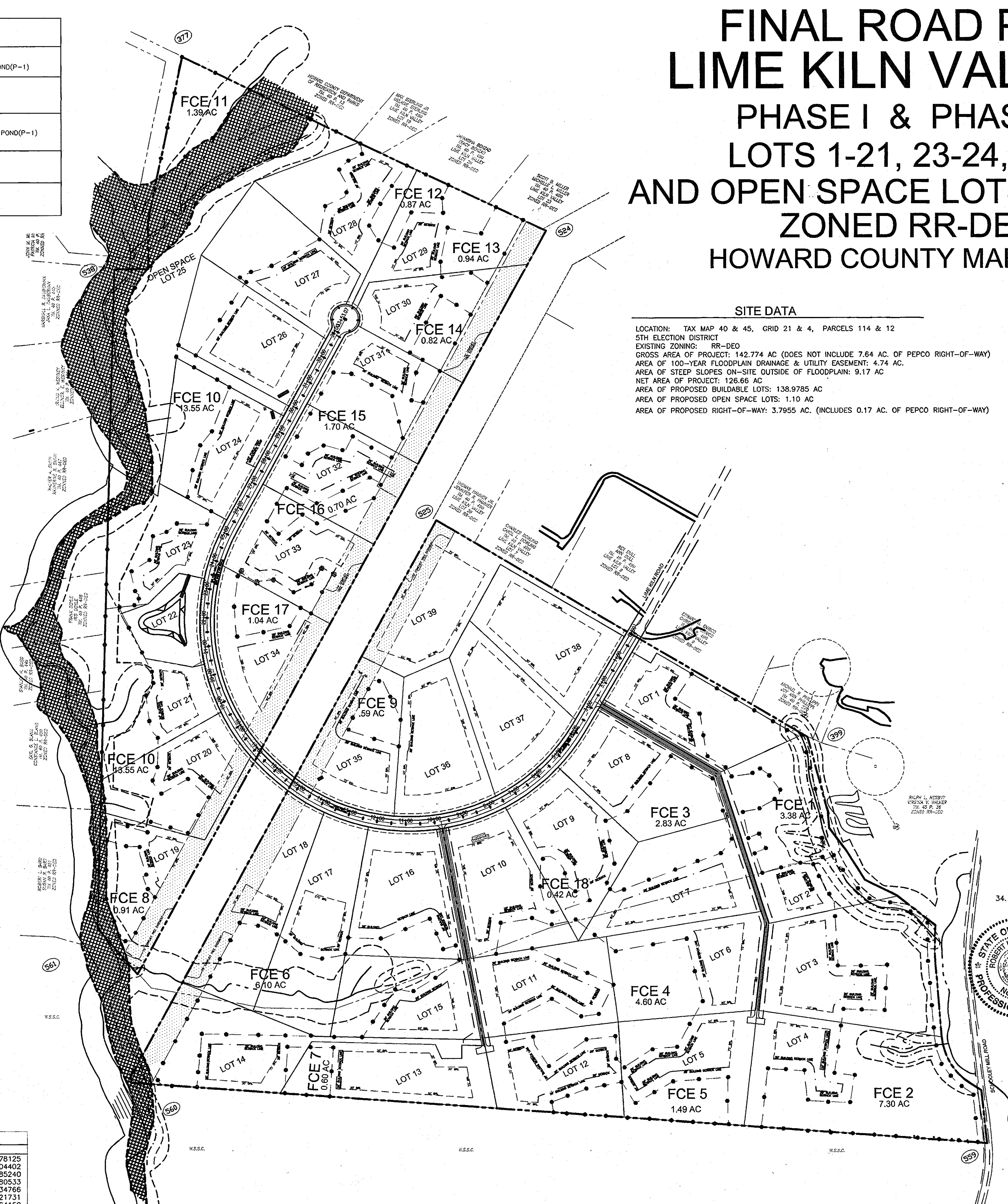
SHEET INDEX	
DESCRIPTION	SHEET NO.
COVER SHEET	1
ROAD LAYOUT AND PROFILE	2
ROAD LAYOUT AND PROFILE	3
ROAD LAYOUT AND PROFILE	4
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COORDINATE LIST		
POINT	NORTH	EAST
377	544210.46256	1323267.78125
399	541131.83027	1324158.04402
524	543109.28971	1324157.85240
525	542376.28950	1323340.80533
538	543653.57791	1322730.34766
559	539591.63407	1324089.21731
560	541093.95055	1321529.84159
561	541626.55222	1321661.28637

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 [Signature] 6-26-07
 CHIEF, BUREAU OF HIGHWAYS

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 [Signature] 7/22/07
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

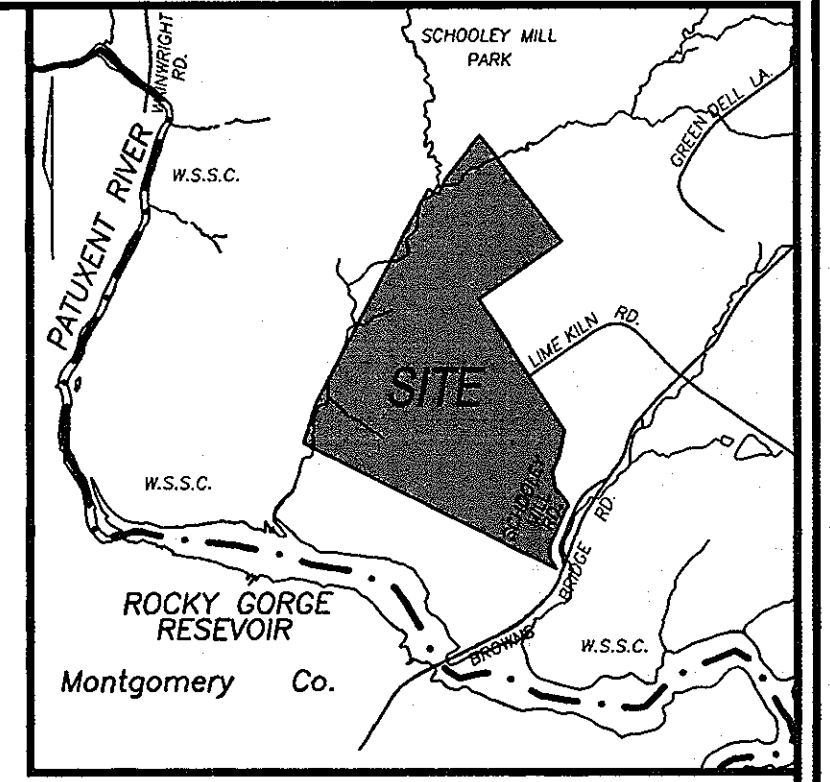
[Signature] 8/07/07
 CHIEF, DIVISION OF LAND DEVELOPMENT



FINAL ROAD PLAN LIME KILN VALLEY II PHASE I & PHASE II LOTS 1-21, 23-24, 26-39 AND OPEN SPACE LOTS 22 AND 25 ZONED RR-DEO HOWARD COUNTY MARYLAND

SITE DATA

LOCATION: TAX MAP 40 & 45, GRID 21 & 4, PARCELS 114 & 12
 5TH ELECTION DISTRICT
 EXISTING ZONING: RR-DEO
 GROSS AREA OF PROJECT: 142.774 AC (DOES NOT INCLUDE 7.64 AC. OF PEPCO RIGHT-OF-WAY)
 AREA OF 100-YEAR FLOODPLAIN DRAINAGE & UTILITY EASEMENT: 4.74 AC.
 AREA OF STEEP SLOPES ON-SITE OUTSIDE OF FLOODPLAIN: 9.17 AC
 NET AREA OF PROJECT: 128.86 AC
 DWELLING UNITS PROPOSED: 38 SINGLE FAMILY UNITS (PHASE I & II)
 AREA OF PROPOSED BUILDABLE LOTS: 138.9785 AC
 AREA OF PROPOSED OPEN SPACE LOTS: 1.10 AC
 AREA OF PROPOSED RIGHT-OF-WAY: 3.7955 AC. (INCLUDES 0.17 AC. OF PEPCO RIGHT-OF-WAY)



VICINITY MAP
 SCALE: 1"=2000'

- GENERAL NOTES**
- ALL ASPECTS OF THE PROJECT ARE IN CONFORMANCE WITH THE LATEST HOWARD COUNTY STANDARDS UNLESS WAIVERS HAVE BEEN APPROVED.
 - DEED REFERENCE: 4600/302 & 8403/532
 - DENSITY TABULATION:
 GROSS AREA OF PROJECT: 142.774 AC
 AREA OF 100-YEAR FLOODPLAIN DRAINAGE & UTILITY EASEMENT: 4.74 AC.
 AREA OF STEEP SLOPES ON-SITE OUTSIDE FLOODPLAIN: 9.17 AC.
 NET AREA OF PROJECT: 128.86 AC
 DWELLING UNITS PROPOSED: 38 SINGLE FAMILY UNITS (PHASE I & II)
 - THE PROJECT BOUNDARY IS BASED ON A BOUNDARY SURVEY PREPARED BY ROBERT H. VOGEL ENGINEERING INC., DATED SEPTEMBER 2004.
 - THE TOPOGRAPHY SHOWN HEREON IS BASED ON AN AERIAL TOPOGRAPHIC SURVEY PREPARED BY POTOMAC AERIAL SURVEYS, DATED OCTOBER 2004.
 - WATER AND SEWER FOR THIS PROJECT WILL BE PRIVATE.
 - STORMWATER MANAGEMENT FOR THIS SITE ON LOTS 31-38, WILL BE PROVIDED BY A MICRO-POOL FACILITY LOCATED ON OPEN SPACE LOT 22. THE FACILITY IS TO BE PRIVATELY OWNED AND JOINTLY MAINTAINED, BY THE H.O.A. AND HOWARD COUNTY. WATER QUALITY ATTENUATION FOR LOTS 1-30, AND USE-IN-COMMON DRIVEWAYS WILL BE PROVIDED BY A COMBINATION OF GRASS SWALES, RAIN GARDENS, SHEET FLOW TO BUFFER CREDIT WITH LEVEL SPREADERS WHERE REQUIRED. THESE CREDITS, AND NON-STRUCTURAL PRACTICES WILL BE PROVIDED INDIVIDUALLY OR IN COMBINATION TO MEET THE REQUIREMENTS OF EACH LOT WHICH DOES NOT DISCHARGE TO THE MICRO-POOL POND. THE REQUIREMENTS FOR THESE LOTS WILL BE ESTABLISHED AT BUILDING PERMIT STAGE.
 - THIS SITE IS NOT LOCATED IN A HISTORIC DISTRICT.
 - STREAMS SHOWN ON-SITE ARE BASED ON A FIELD INVESTIGATION PREPARED BY ECO-SCIENCE PROFESSIONALS, INC., DATED SEPTEMBER 2004.
 - FLOODPLAIN STUDY PREPARED BY ROBERT H. VOGEL ENGINEERING, INC. DATED NOVEMBER 2004.
 - FOREST CONSERVATION REQUIREMENTS FOR THIS PROJECT SHALL BE FULFILLED BY THE ON-SITE RETENTION OF 49.23 AC. AND OFF-SITE REFORESTATION OF 1.79 ACRES. SURETY FOR ON-SITE RETENTION WILL BE \$428,891.76 AND FOR OFF-SITE REFORESTATION WILL BE \$38,987.00; FOR A TOTAL SURETY OF \$467,878.76.
 - A TRAFFIC STUDY WAS PREPARED BY THE MARS GROUP DATED OCTOBER 2004.
 - ALL LANDSCAPING REQUIREMENTS AS SET FORTH IN SECTION 16.124 OF THE HOWARD COUNTY SUBDIVISION REGULATIONS AND THE LANDSCAPE MANUAL SHALL BE COMPLIED WITH. FINANCIAL SURETY FOR THE REQUIRED PLANTINGS WILL BE POSTED AS PART OF THE DEVELOPERS AGREEMENT.
 - STREET LIGHTING IS NOT REQUIRED FOR THIS SITE.
 - THIS PROPERTY IS NOT WITHIN THE METROPOLITAN DISTRICT.
 - TO THE BEST OF THE OWNERS KNOWLEDGE, THERE ARE NO BURIAL/CEMETERY LOCATIONS ON SITE.
 - STREET TREES ARE REQUIRED FOR THIS SUBDIVISION IN ACCORDANCE WITH SECTION 16.124(e)(1) OF THE SUBDIVISION REGULATIONS AND THE LANDSCAPE MANUAL.
 - A NOISE STUDY IS NOT REQUIRED.
 - NO CLEARING, GRADING, OR CONSTRUCTION IS PERMITTED WITHIN THE STREAMS OR THEIR BUFFERS AND THE FOREST CONSERVATION EASEMENTS.
 - REFUSE COLLECTION, SNOW REMOVAL, AND MAINTENANCE FOR THE PIPESTEN LOTS SHALL BE PROVIDED AT THE JUNCTION OF THE PRIVATE USE-IN-COMMON ACCESS EASEMENT AND THE RIGHT-OF-WAY OF LIME KILN ROAD.
 - TREE PROTECTION FENCING WILL BE PROVIDED AT THE LIMITS OF DISTURBANCE WHERE GRADING IS ADJACENT TO ENVIRONMENTAL AREAS.
 - ALL EXISTING STRUCTURES SHALL BE REMOVED PRIOR TO RECORDATION OF THE PLAT.
 - THIS SUBDIVISION COMPLIES WITH THE AMENDED 5TH EDITION OF THE SUBDIVISION AND ZONING REGULATIONS (CB-45-2003) AND THE ZONING REGULATIONS, AS AMENDED BY COUNCIL BILL 75-2003.
 - PRIOR TO OR AT THE TIME OF RECORD PLAT REVIEW, THE APPLICANT IS REQUESTED TO SUBMIT DOCUMENTATION OF THE LOCATIONS OF EXISTING WELLS AND SEPTIC SYSTEMS ON THE PROPERTY.
 - A FOREST STAND DELINEATION WAS PREPARED BY ECO-SCIENCE PROFESSIONALS, INC., DATED NOVEMBER 2004.
 - THE LOTS SHOWN HEREON COMPLY WITH THE MINIMUM OWNERSHIP WIDTH AND LOT AREA AS REQUIRED BY THE MARYLAND DEPARTMENT OF THE ENVIRONMENT.
 - A GROUNDWATER APPROPRIATION PERMIT WILL BE REQUIRED PRIOR TO SUBMITTAL OF A RECORD PLAT FOR SIGNATURE.
 - ALL WELLS TO BE DRILLED PRIOR TO RECORD PLAT SIGNATURE.
 - DRIVEWAY TO BE LOCATED A MINIMUM OF 10' FROM ANY WELL.
 - THIS AREAS DESIGNATED AS A PRIVATE SEWAGE EASEMENT OF AT LEAST 10,000 SQUARE FEET AS REQUIRED BY THE MARYLAND STATE DEPARTMENT OF THE ENVIRONMENT FOR INDIVIDUAL SEWAGE DISPOSAL (COMAR 26.04.03). IMPROVEMENTS OF ANY NATURE IN THIS AREA ARE RESTRICTED UNTIL PUBLIC SEWAGE IS AVAILABLE. THESE EASEMENTS SHALL BECOME NULL AND VOID UPON CONNECTION TO A PUBLIC SEWAGE SYSTEM. THE HEALTH OFFICER SHALL HAVE THE AUTHORITY TO GRANT ADJUSTMENTS TO THE PRIVATE SEWAGE EASEMENTS. RECORDATION OF A MODIFIED SEWAGE EASEMENT SHALL NOT BE NECESSARY.
 - A GROUNDWATER APPROPRIATION PERMIT WILL BE REQUIRED PRIOR TO SUBMITTAL OF A RECORD PLAT FOR SIGNATURE.
 - ALL FILL AREAS WITHIN THE ROADBED WILL MEET 95% COMPACTION PER AASHTO T-180.
 - ALL OLD AND NEW JUNK, DEBRIS, TRASH AND OTHER NON-NATURAL ITEMS SHALL BE REMOVED FROM FOREST CONSERVATION, OPEN SPACE, FLOODPLAIN, STREAMS, WETLANDS AND THEIR BUFFERS.
 - THE TOTAL LANDSCAPE SURETY WILL BE \$5400.00. FOR 11 SHADE TREES @ \$300.00 EACH, AND 14 EVERGREEN TREES @ \$150.00 EACH.

AS-BUILT CERTIFICATION
 I hereby certify that the facility shown on this plan was constructed as shown on the "as-built" plans and meets the approved plans and specifications

[Signature]
 P.E. NO. 10193
 Date 11/17/05

OWNER / DEVELOPER
 LIME KILN VALLEY, L.L.C.
 8835-P COLUMBIA 100 PARKWAY
 COLUMBIA, MARYLAND 21045
 (410) 730-0810

NO.	REVISION	DATE
1	REVISE FOREST CONSERVATION EASEMENT AND BRLS ON LOT 33	9/26/11

**COVER SHEET
 LIME KILN VALLEY II
 PHASE I & PHASE II
 LOTS 1-21, 23-24, 26-39
 AND OPEN SPACE LOTS 22 AND 25**

TAX MAPS 40 AND 45 PARCELS 114 AND 12
 5TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

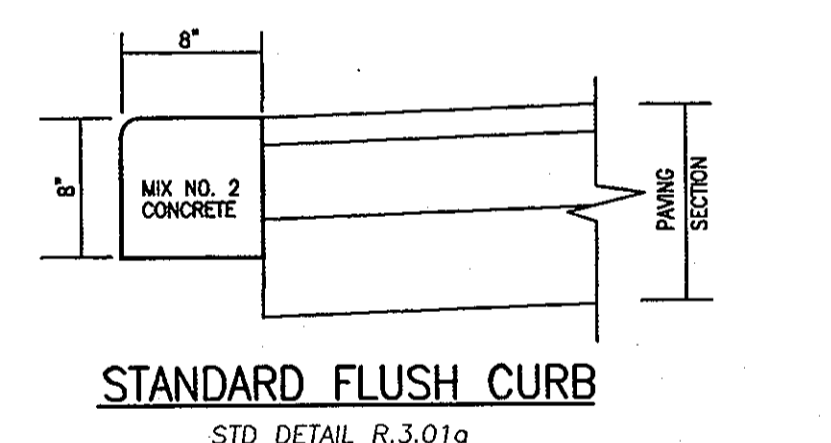
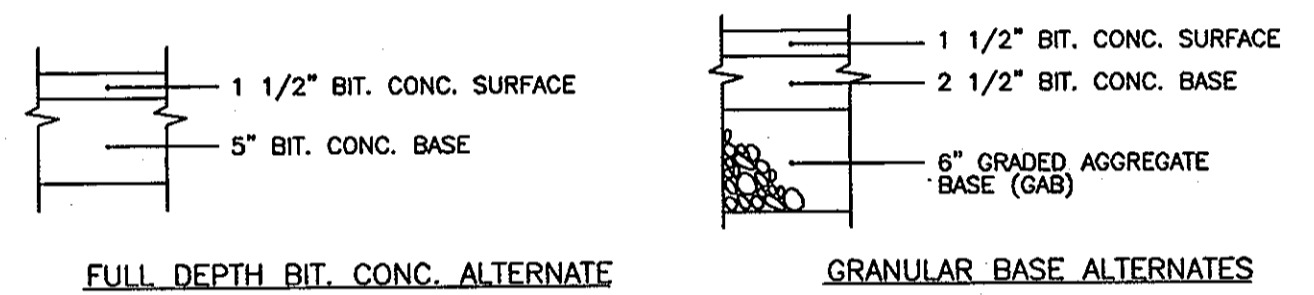
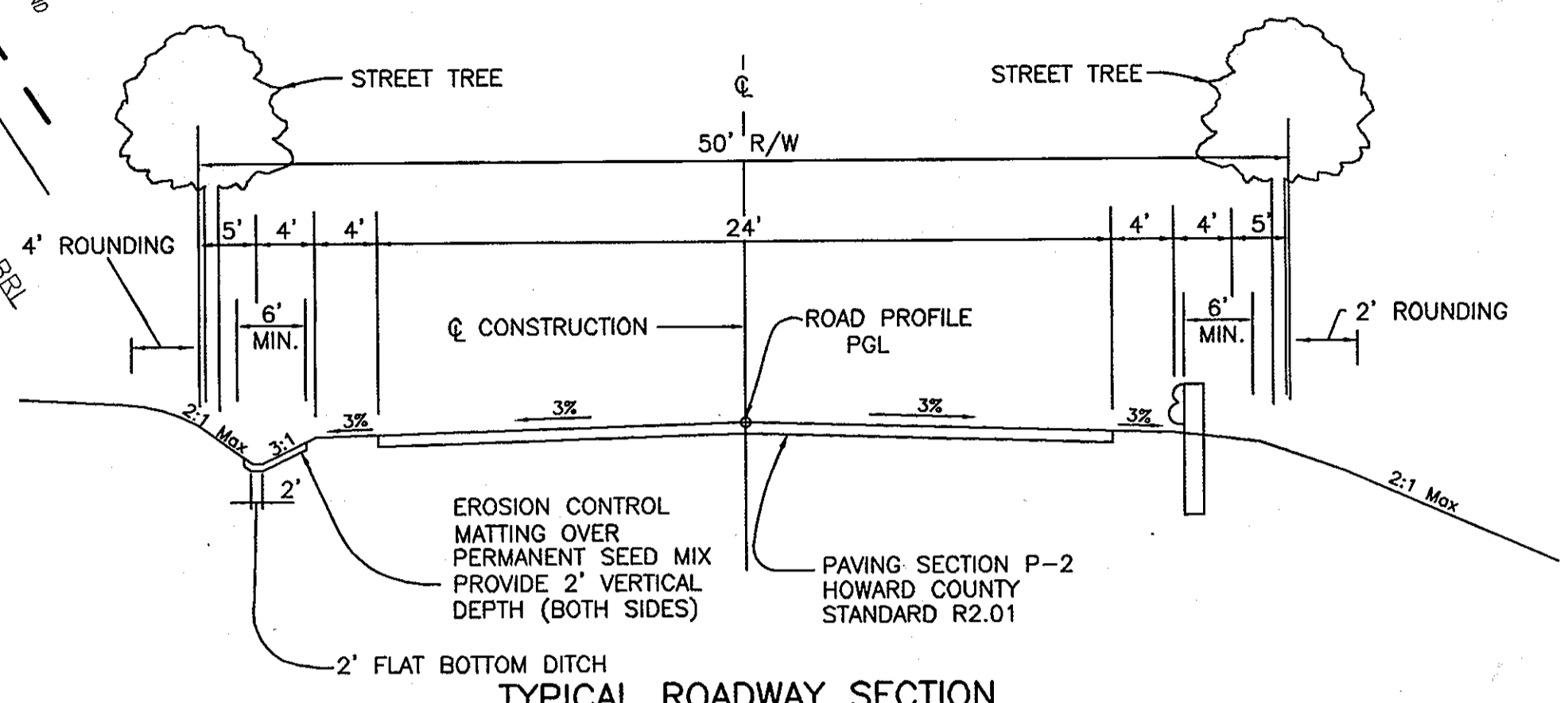
**ROBERT H. VOGEL
 ENGINEERING, INC.**
 ENGINEERS • SURVEYORS • PLANNERS
 8407 MAIN STREET TEL: 410.461.7666
 ELLICOTT CITY, MD 21043 FAX: 410.461.8961

DESIGN BY: JCO
 DRAWN BY: JCO
 CHECKED BY: RHV
 DATE: DEC 2006
 SCALE: AS SHOWN
 W.D. NO.: 04-21.00

1 SHEET OF 16

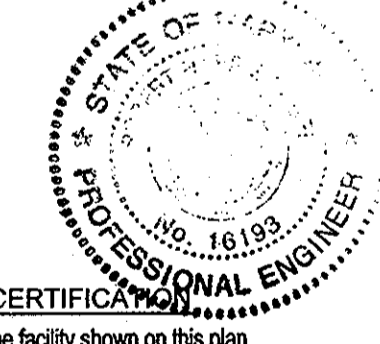
ROAD CENTERLINE CURVE DATA TABLE						
CURVE	LENGTH	RADIUS	DELTA ANGLE	TANGENT	CHORD DIRECTION	CHORD LENGTH
C1	1192.57'	680.00'	100°29'04"	817.39'	N 72°54'52" W	1045.51'
C2	931.47'	687.00'	77°41'04"	553.20'	N 16°10'12" E	861.74'

CONVERT EXISTING I-15 TO A MANHOLE. PROVIDE TOP SLAB AND SIDEWALK FRAME, AND COVER D3.91. ADJUST TDP TO FINAL ROAD GRADE.



MINIMUM LOT SIZE CHART			
LOT NO.	MINIMUM LOT SIZE	PIPESTEM AREA	GROSS AREA
2	4.77259 AC.	0.04375 AC.	4.81634 AC.
3	5.20280 AC.	0.09410 AC.	5.29690 AC.
4	6.31323 AC.	0.12159 AC.	6.43482 AC.
5	3.76834 AC.	0.12118 AC.	3.88952 AC.
6	3.81470 AC.	0.08881 AC.	3.90351 AC.
7	3.54575 AC.	0.05689 AC.	3.60264 AC.
11	3.13988 AC.	0.05094 AC.	3.19082 AC.
12	3.00844 AC.	0.08176 AC.	3.09020 AC.
13	3.00805 AC.	0.08460 AC.	3.09265 AC.
14	3.76886 AC.	0.14983 AC.	3.91869 AC.
15	3.02716 AC.	0.05093 AC.	3.07809 AC.
19	3.00008 AC.	0.15332 AC.	3.15340 AC.
28	3.02973 AC.	0.05427 AC.	3.08400 AC.
29	3.16340 AC.	0.04790 AC.	3.21130 AC.
39	3.09856 AC.	0.22848 AC.	3.32704 AC.

NOTE: PROVIDE FLUSH CURB ALONG INNER CURVE OF LIME KILN ROAD FROM STATION 4+00 TO STATION 24+00



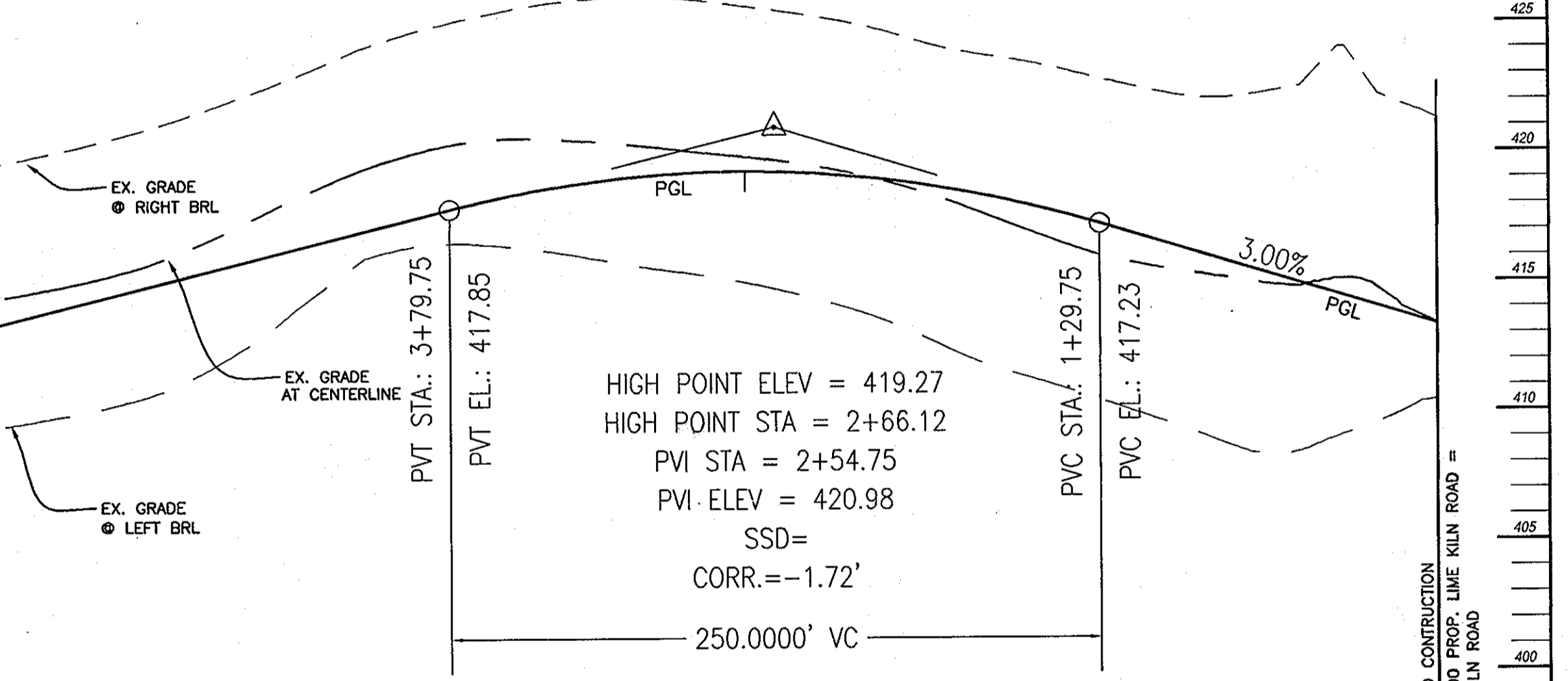
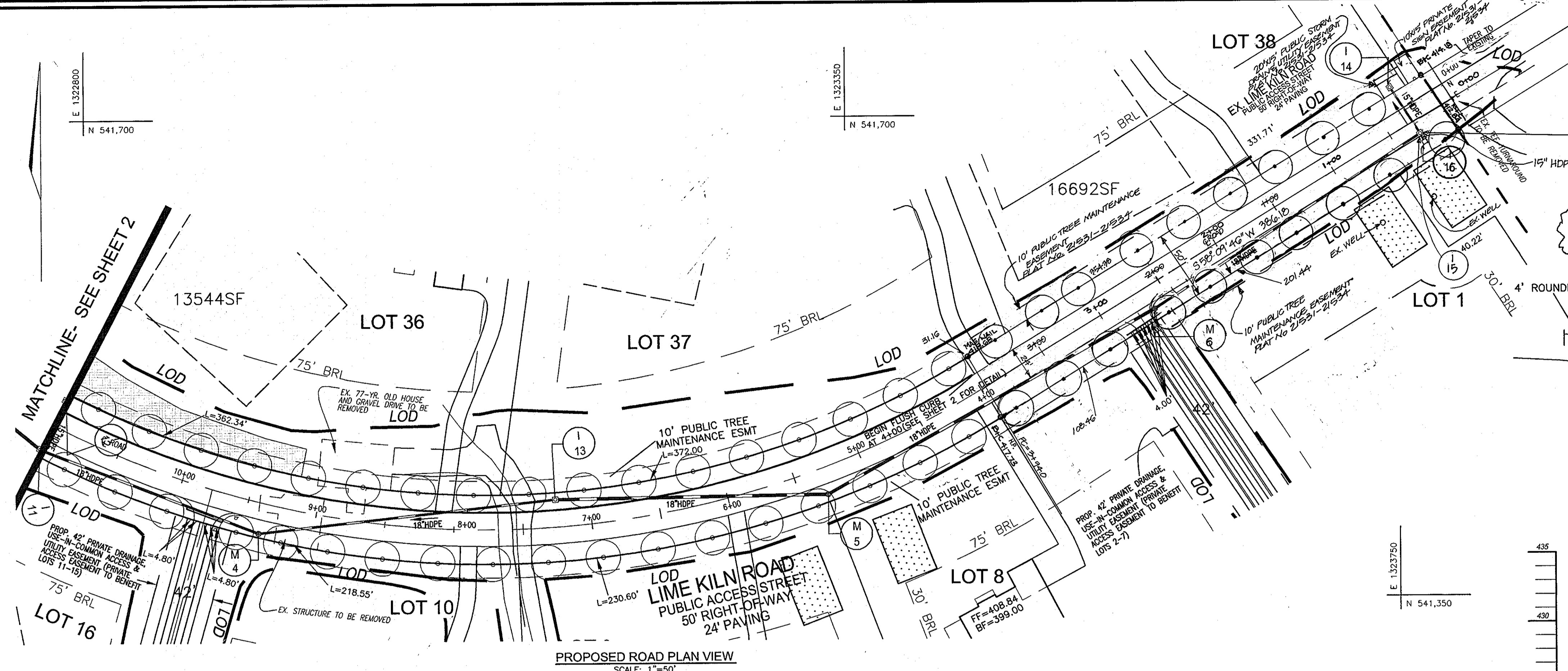
AS-BUILT CERTIFICATION
I hereby certify that the facility shown on this plan was constructed as shown on the "as-built" plans and meets the approved plans and specifications.
Signature: _____
P.E. NO. 16193
Date: 11/21/13

NO.	REVISION	DATE
1	REVISE STORM DRAIN EASEMENT AND PUBLIC TREE EASEMENT. ADJUST ROAD ALIGNMENT AT STATION 3+94, CONVERT I-15 TO MANHOLE, INSTALL I-16	8/20/08

ROAD LAYOUT AND PROFILE
LIME KILN VALLEY II
PHASE I & PHASE II
LOTS 1-21, 23-24, 26-39
AND OPEN SPACE LOTS 22 AND 25
TAX MAPS 40 AND 45 PARCELS 114 AND 12
5TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

ROBERT H. VOGEL
ENGINEERING, INC.
ENGINEERS • SURVEYORS • PLANNERS
8407 MAIN STREET
ELICOTT CITY, MD 21043 FAX: 410.461.7666

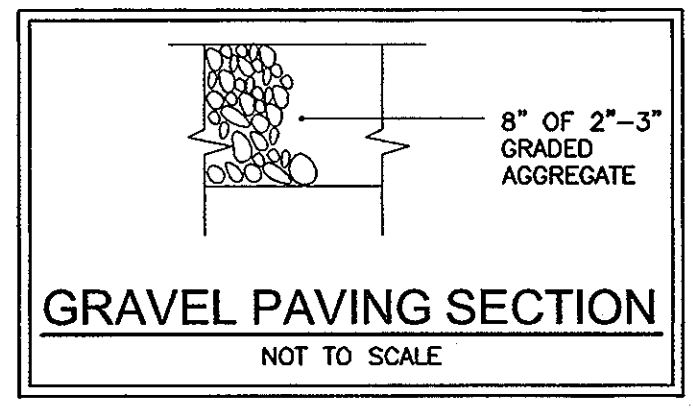
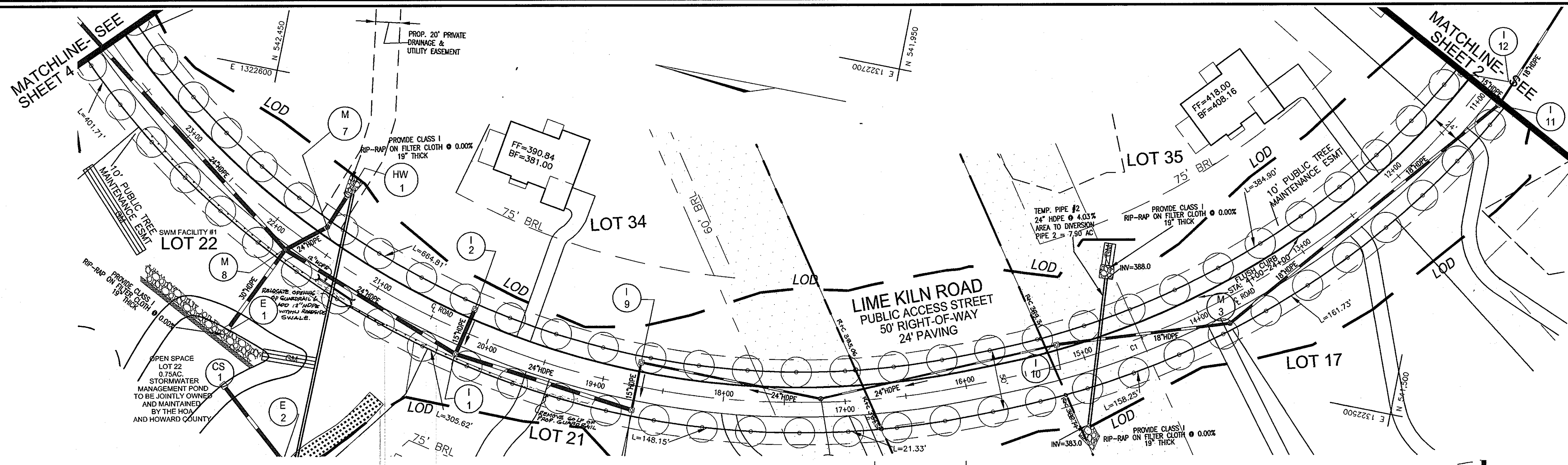
DESIGN BY: JCO	
DRAWN BY: JCO	
CHECKED BY: RHV	
DATE: DEC 2006	
SCALE: AS SHOWN	
W.O. NO.: 04-21-00	2 SHEET OF 16



399.65	399.94
10+50	401.10
401.10	401.20
10+00	402.35
402.35	402.44
9+50	403.60
403.60	403.03
9+00	404.85
404.85	405.10
8+50	406.10
406.10	406.27
8+00	407.35
407.35	407.42
7+50	408.60
408.60	408.67
7+00	409.85
409.85	409.97
6+50	411.10
411.10	411.15
6+00	412.35
412.35	412.43
5+50	413.60
413.60	413.73
5+00	414.85
414.85	414.89
4+50	416.10
416.10	416.30
4+00	417.35
417.35	417.46
3+50	418.60
418.60	418.57
3+00	419.85
419.85	419.00
2+50	420.25
420.25	419.18
2+00	421.50
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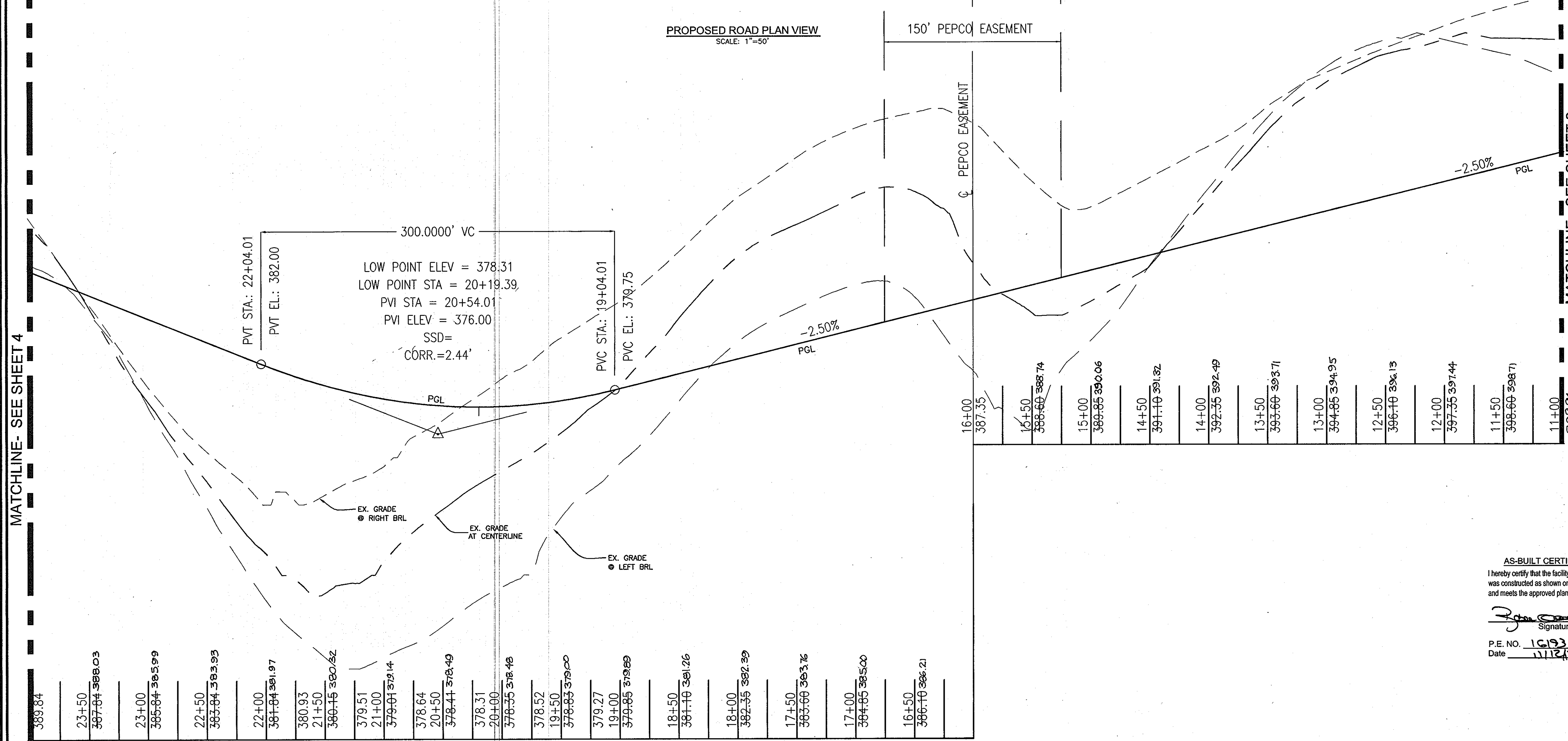
APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 [Signature] 10-26-07
 CHIEF, BUREAU OF HIGHWAYS
 APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 [Signature] 7/21/07
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 [Signature] 8/21/07
 CHIEF, DIVISION OF LAND DEVELOPMENT

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



PROPOSED ROAD PLAN VIEW
SCALE: 1"=50'

150' PEPCO EASEMENT



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

PEPCO ENTRANCE GATE DETAIL
NOT TO SCALE

GATE DETAIL NOTES

- ENTRANCE IS COMPOSED OF TWO (2) 8' HIGH GATES
- 2" DIAMETER, ALL 16 GAUGE ROUND HIGH TENSILE STRENGTH STEEL TUBING WITH TECHNOLOGICAL SUPERIOR CONTINUOUS WELDED SADDLE JOINT
- 52" HIGH WITH 16 GAUGE VERTICAL "Z" BRACES
- GATES COME WITH 2 3/4" X 12" HINGE PINS AND HEAVY DUTY WELDED CHAIN LATCH
- 6 BAR HEAVY DUTY 2"-16 BULL GATE

NO.	REVISION	DATE
2	REMOVE 50 LF OF PROPOSED GUARDRAIL	10/24/12
1	REMOVE GUARDRAIL AT STA 2900 BASED ON FINAL GRADES	08/28/12

AS-BUILT CERTIFICATION
I hereby certify that the facility shown on this plan was constructed as shown on the "as-built" plans and meets the approved plans and specifications.

Signature: *[Signature]*
P.E. NO. 16193
Date: 11/12/13

ROAD LAYOUT AND PROFILE
LIME KILN VALLEY II
PHASE I & PHASE II
LOTS 1-21, 23-24, 26-39
AND OPEN SPACE LOTS 22 AND 25

TAX MAPS 40 AND 45 PARCELS 114 AND 12
5TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

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ENGINEERS • SURVEYORS • PLANNERS
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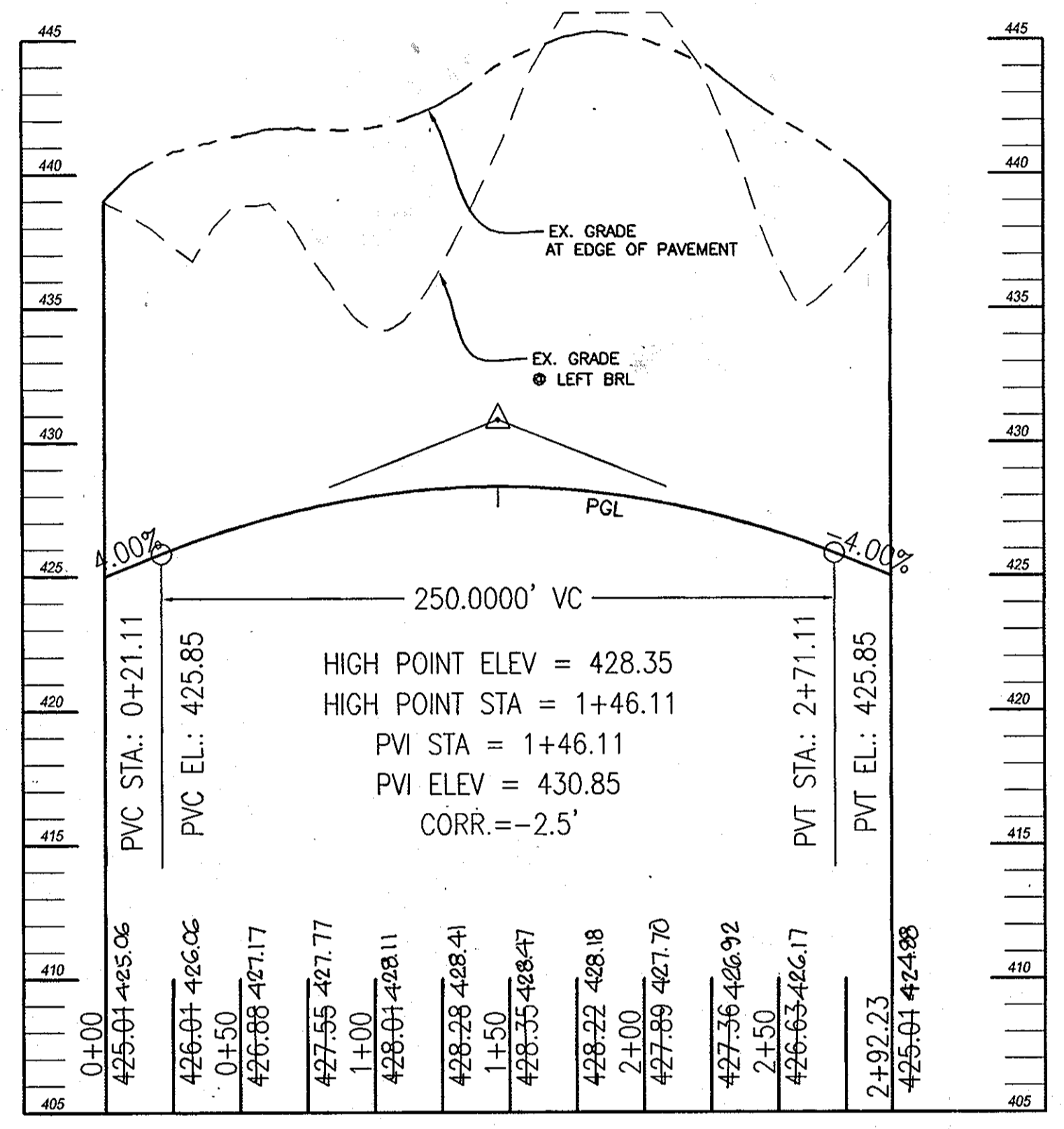
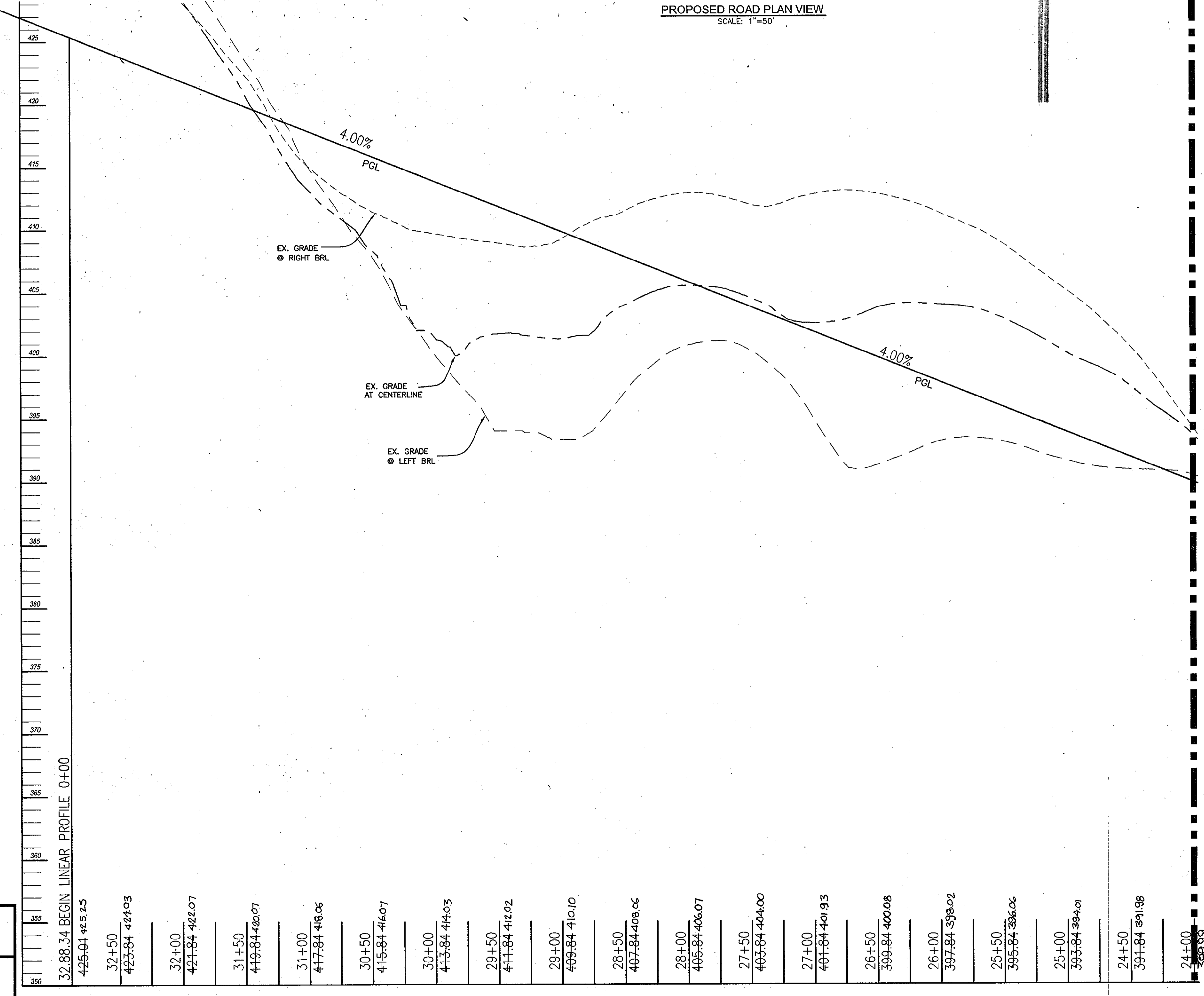
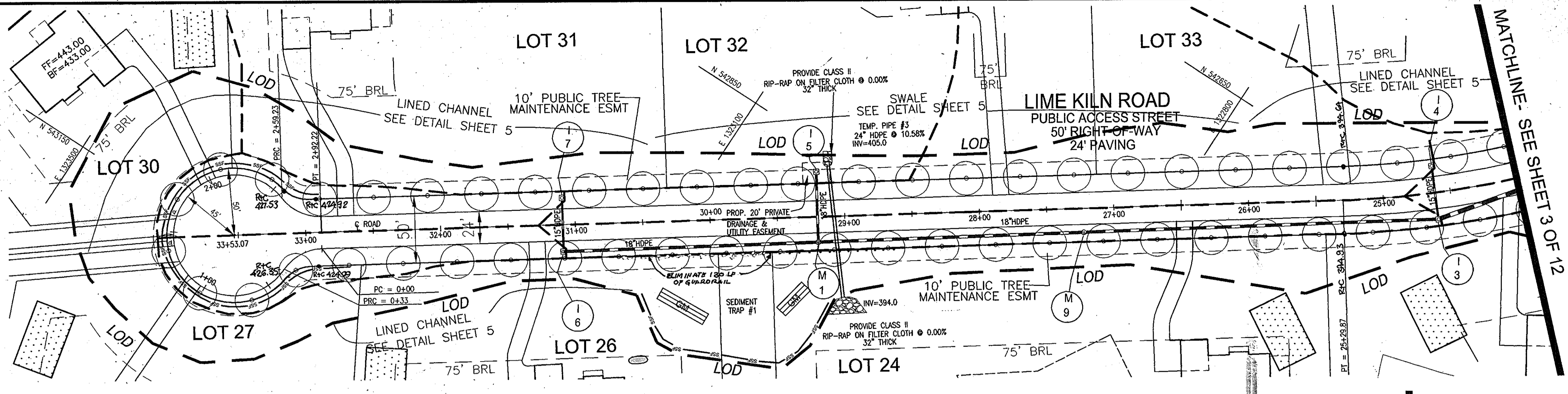
OWNER / DEVELOPER
LIME KILN VALLEY, L.L.C.
8835-P COLUMBIA 100 PARKWAY
COLUMBIA, MARYLAND 21045
(410) 730-0810

3 SHEET OF 16

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
[Signature] 6-26-07
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
[Signature] 7/2/07
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

[Signature] 8/20/07
CHIEF, DIVISION OF LAND DEVELOPMENT DATE



APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Willa F. M... 6-26-07
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
... 7/2/07
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

... 8/1/07
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

AS-BUILT CERTIFICATION
 I hereby certify that the facility shown on this plan was constructed as shown on the "as-built" plans and meets the approved plans and specifications.

[Signature]
 Signature
 P.E. NO. 16193
 Date 11/12/15



1	FINAL/REVISION	08/28/12
NO.	REVISION	DATE

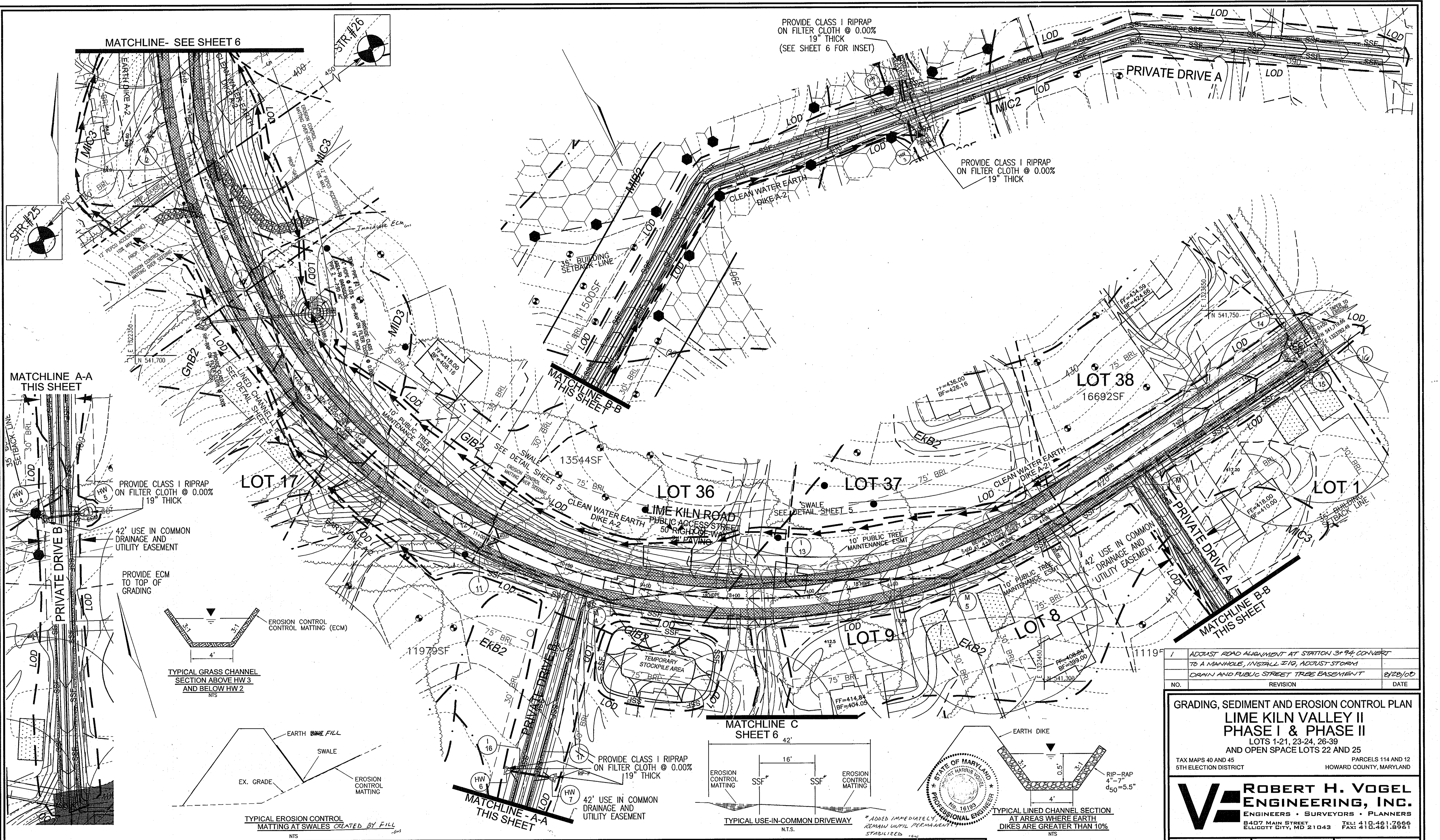
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LIME KILN VALLEY II
PHASE I & PHASE II
 LOTS 1-21, 23-24, 26-39
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TAX MAPS 40 AND 45 PARCELS 114 AND 12
 5TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

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 SCALE: AS SHOWN
 W.O. NO.: 04-21-09

4 SHEET OF 16



PROVIDE CLASS I RIPRAP
ON FILTER CLOTH @ 0.00%
19" THICK
(SEE SHEET 6 FOR INSET)

PROVIDE CLASS I RIPRAP
ON FILTER CLOTH @ 0.00%
19" THICK

MATCHLINE- SEE SHEET 6

MATCHLINE A-A
THIS SHEET

MATCHLINE B-B
THIS SHEET

MATCHLINE B-B
THIS SHEET

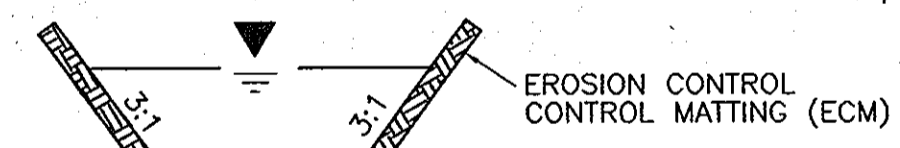
MATCHLINE C
SHEET 6

MATCHLINE A-A
THIS SHEET

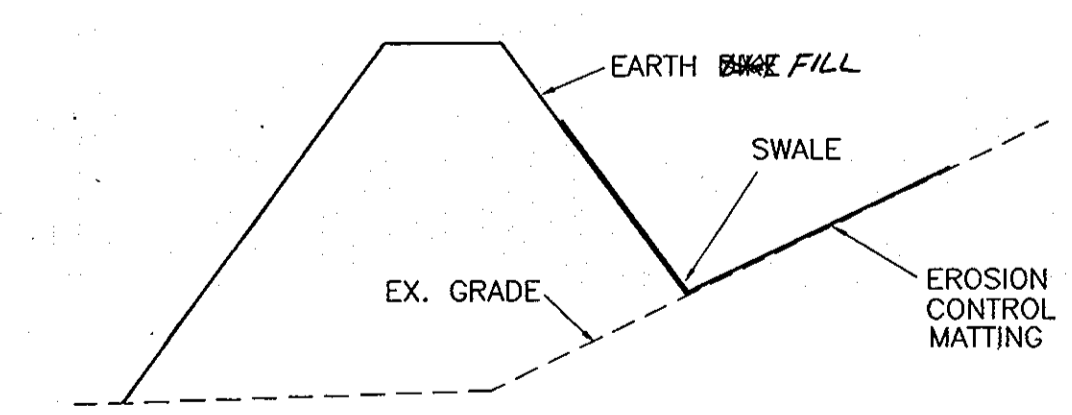
PROVIDE CLASS I RIPRAP
ON FILTER CLOTH @ 0.00%
19" THICK

42' USE IN COMMON
DRAINAGE AND
UTILITY EASEMENT

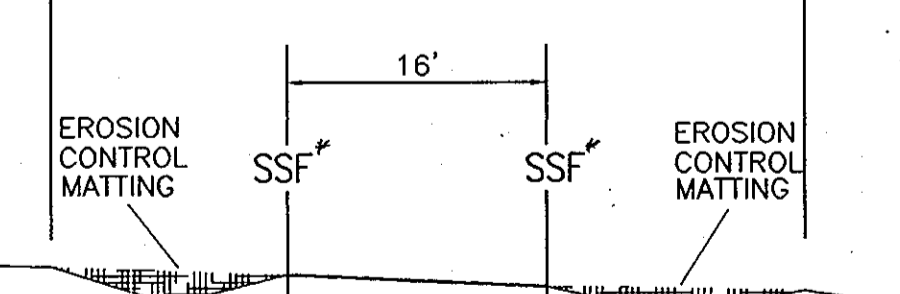
PROVIDE ECM
TO TOP OF
GRADING



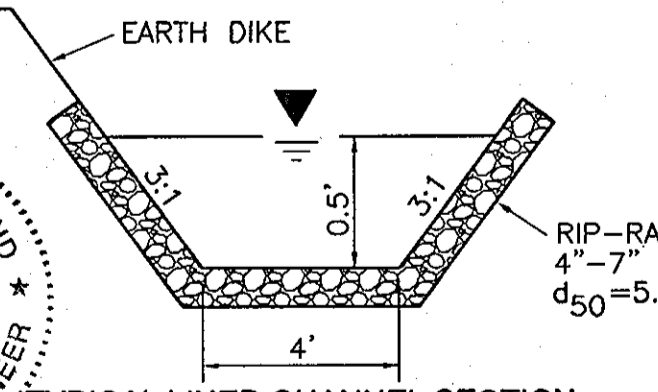
TYPICAL GRASS CHANNEL
SECTION ABOVE HW 3
AND BELOW HW 2
N.T.S.



TYPICAL EROSION CONTROL
MATTING AT SWALES CREATED BY FILL
N.T.S.



TYPICAL USE-IN-COMMON DRIVEWAY
N.T.S.



TYPICAL LINED CHANNEL SECTION
AT AREAS WHERE EARTH
DIKES ARE GREATER THAN 10%
N.T.S.

1	ADJUST ROAD ALIGNMENT AT STATION 3+94; CONVERT TO A MANHOLE, INSTALL 2'IG, ADJUST STORM DRAIN AND PUBLIC STREET TREE EASEMENT	8/28/07
NO.	REVISION	DATE

**GRADING, SEDIMENT AND EROSION CONTROL PLAN
LIME KILN VALLEY II
PHASE I & PHASE II**
LOTS 1-21, 23-24, 26-39
AND OPEN SPACE LOTS 22 AND 25

TAX MAPS 40 AND 45 PARCELS 114 AND 12
5TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

**ROBERT H. VOGEL
ENGINEERING, INC.**
ENGINEERS • SURVEYORS • PLANNERS

8407 MAIN STREET ELLICOTT CITY, MD 21043 TEL: 410-461-7666
FAX: 410-461-8961

DESIGN BY:	JCO
DRAWN BY:	JCO
CHECKED BY:	RHM
DATE:	DEC 2006
SCALE:	1"=50'
W.O. NO.:	04-2100

5 SHEET OF 16

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
William Z. Schall 6-26-07
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
Robert H. Vogel 7/27/07
CHIEF, DEVELOPMENT ENGINEERING DIVISION CE DATE

Ketzel 8/20/07
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS
Jim 4/22/07
USDA-NATURAL RESOURCES CONSERVATION SERVICE DATE

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT
Wally 6/22/07
HOWARD SCD DATE

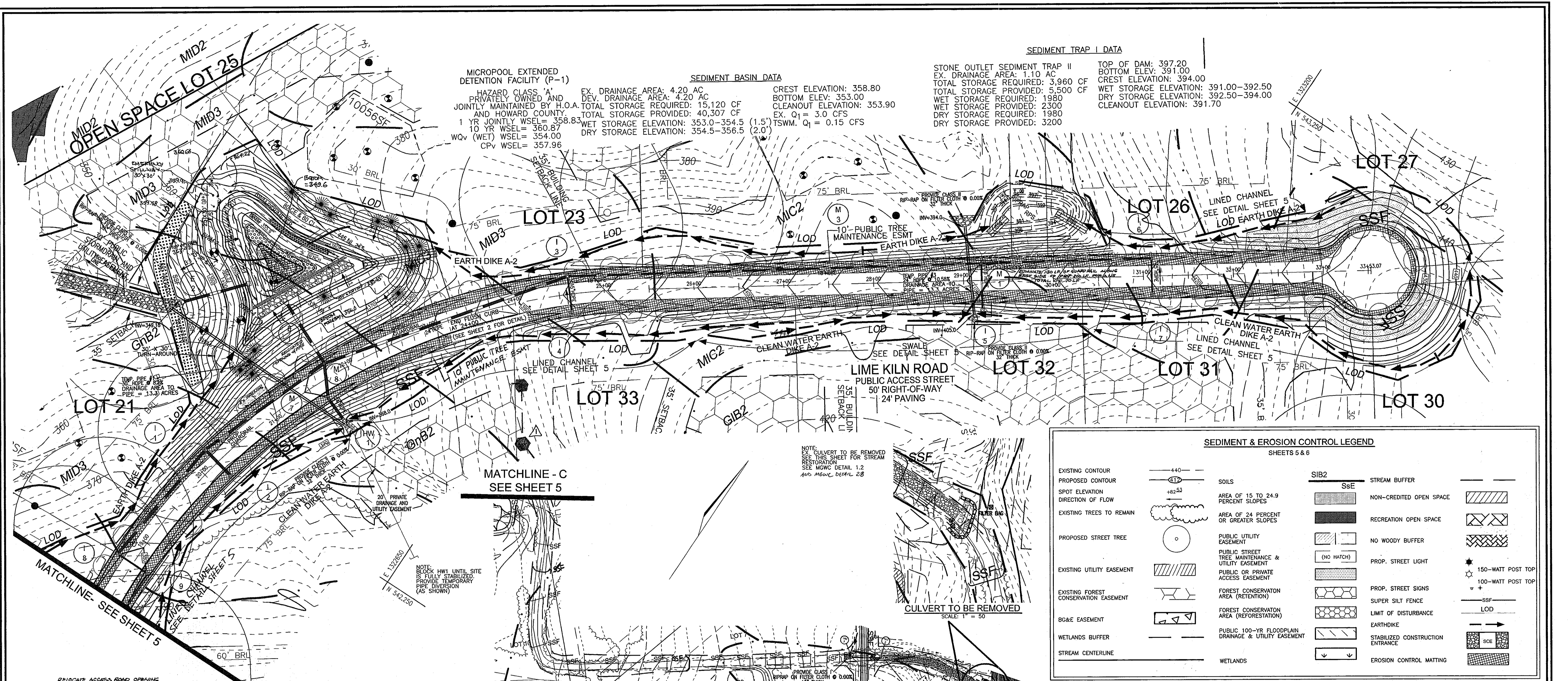
ENGINEER'S CERTIFICATE
I HEREBY CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL, REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. 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.
M. RAZAVI 6/14/07
DATE

DEVELOPER'S CERTIFICATE
I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE IN ACCORDANCE 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.
Robert H. Vogel 6/14/07
DATE

"AS-BUILT" CERTIFICATION
I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND MEETS THE APPROVED PLANS AND SPECIFICATIONS.
Robert H. Vogel 11/2/03
DATE

ROBERT H. VOGEL, P.E. #16193
I HEREBY MEANS TO STATE OR DECLARE A PROFESSIONAL OPINION BASED UPON ON-SITE INSPECTIONS AND MATERIAL TESTS WHICH ARE CONDUCTED DURING CONSTRUCTION. THE ON-SITE INSPECTION AND TESTS DEEMED SUFFICIENT AND APPROPRIATE BY COMMONLY ACCEPTED ENGINEERING STANDARDS CERTIFY DOES NOT MEAN OR IMPLY A GUARANTEE BY THE ENGINEER NOR DOES AN ENGINEER'S CERTIFICATION RELIEVE ANY OTHER PARTY FROM MEETING COMMONLY ACCEPTED INDUSTRY PRACTICES.

OWNER / DEVELOPER
LIME KILN VALLEY, L.L.C.
8835-P COLUMBIA 100 PARKWAY
COLUMBIA, MARYLAND 21045
(410) 730-0810



SEDIMENT BASIN DATA
 CREST ELEVATION: 358.80
 BOTTOM ELEV: 353.00
 CLEANOUT ELEVATION: 353.90
 EX. $Q_1 = 3.0$ CFS
 EX. $Q_2 = 0.15$ CFS

SEDIMENT TRAP I DATA
 STONE OUTLET SEDIMENT TRAP II
 EX. DRAINAGE AREA: 1.10 AC
 TOTAL STORAGE REQUIRED: 3,960 CF
 TOTAL STORAGE PROVIDED: 5,500 CF
 WET STORAGE REQUIRED: 1980
 WET STORAGE PROVIDED: 2300
 DRY STORAGE REQUIRED: 1980
 DRY STORAGE PROVIDED: 3200

SEDIMENT TRAP II DATA
 TOP OF DAM: 397.20
 BOTTOM ELEV: 391.00
 CREST ELEVATION: 394.00
 WET STORAGE ELEVATION: 391.00-392.50
 DRY STORAGE ELEVATION: 392.50-394.00
 CLEANOUT ELEVATION: 391.70

SEDIMENT & EROSION CONTROL LEGEND
SHEETS 5 & 6

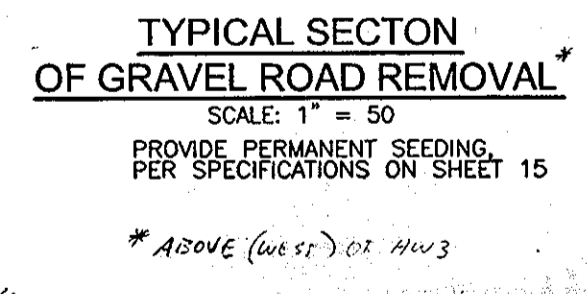
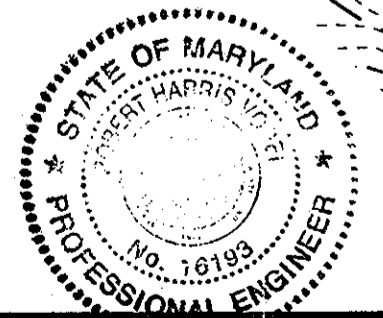
EXISTING CONTOUR	440	SOILS	SIB2	STREAM BUFFER	
PROPOSED CONTOUR	410	AREA OF 15 TO 24.9 PERCENT SLOPES	SSE	NON-CREDITED OPEN SPACE	
SPOT ELEVATION	+82.53	AREA OF 24 PERCENT OR GREATER SLOPES		RECREATION OPEN SPACE	
DIRECTION OF FLOW		PUBLIC UTILITY EASEMENT		NO WOODY BUFFER	
EXISTING TREES TO REMAIN		PUBLIC STREET TREE MAINTENANCE & UTILITY EASEMENT		PROP. STREET LIGHT	
PROPOSED STREET TREE		PUBLIC OR PRIVATE ACCESS EASEMENT		PROP. STREET SIGNS	
EXISTING UTILITY EASEMENT		FOREST CONSERVATION AREA (RETENTION)		SUPER SILT FENCE	
EXISTING FOREST CONSERVATION EASEMENT		FOREST CONSERVATION AREA (REFORESTATION)		LIMIT OF DISTURBANCE	
BO&E EASEMENT		PUBLIC 100-YR FLOODPLAIN DRAINAGE & UTILITY EASEMENT		EARTHDIKE	
WETLANDS BUFFER		WETLANDS		STABILIZED CONSTRUCTION ENTRANCE	
STREAM CENTERLINE				EROSION CONTROL MATTING	

BEST MANAGEMENT PRACTICES FOR WORKING IN NONTIDEL WETLANDS, WETLAND BUFFERS, WATERWAYS, AND 100-YEAR FLOODPLAINS

- NO EXCESS FILL, CONSTRUCTION MATERIAL, OR DEBRIS SHALL BE STOCKPILED OR STORED IN NONTIDEL WETLANDS, NONTIDEL WETLAND BUFFERS, WATERWAYS, OR THE 100-YEAR FLOODPLAIN.
- PLACE MATERIALS IN A LOCATION AND MANNER THAT DOES NOT ADVERSELY IMPACT SURFACE OR SUBSURFACE WATER FLOW INTO OR OUT OF NONTIDEL WETLANDS, NONTIDEL WETLAND BUFFERS, WATERWAYS, OR THE 100-YEAR FLOODPLAIN.
- DO NOT USE THE EXCAVATED MATERIAL AS BACKFILL IF IT CONTAINS WASTE METAL PRODUCTS, UNSIGHTLY DEBRIS, TOXIC MATERIAL, OR ANY OTHER DELETERIOUS SUBSTANCE.
- PLACE HEAVY EQUIPMENT ON MATS OR SUITABLY OPERATE THE EQUIPMENT TO PREVENT DAMAGE TO NONTIDEL WETLANDS, NONTIDEL WETLAND BUFFERS, WATERWAYS, OR THE 100-YEAR FLOODPLAIN.
- REPAIR AND MAINTAIN ANY TEMPORARY STRUCTURE OR FILL SO THERE IS NO PERMANENT LOSS OF NONTIDEL WETLANDS, NONTIDEL WETLAND BUFFERS, OR WATERWAYS, OR PERMANENT MODIFICATION OF THE 100-YEAR FLOODPLAIN IN EXCESS OF THAT LOSS UNDER THE ORIGINALLY AUTHORIZED STRUCTURE OR FILL.
- REPAIR ANY NONTIDEL WETLANDS, WETLAND BUFFERS, WATERWAYS, OR 100-YEAR FLOODPLAIN TEMPORARILY IMPACTED BY ANY CONSTRUCTION.
- ALL STABILIZATION IN THE NONTIDEL WETLAND AND NONTIDEL WETLAND BUFFER SHALL CONSIST OF THE FOLLOWING SPECIES: ANNUAL GRASS (CITRUS MULTIFLORA), WHEAT (Triticum aestivum), BARLEY (Hordeum sp.), OATS (Avena sp.), AND/OR THE SPECIES LISTED. THESE SPECIES WILL ALLOW FOR THE STABILIZATION OF THE SITE WHICH ALSO ALLOWING FOR THE VOLUNTARY REVEGETATION OF THE NATURAL WETLAND SPECIES. OTHER NON-PERSISTENT VEGETATION MAY BE ACCEPTABLE, BUT MUST BE APPROVED BY THE NONTIDEL WETLANDS AND WATERWAYS DIVISION.
- VEGETATION IN EXCESS SHALL NOT BE UTILIZED IN WETLAND OR BUFFER AREAS. THE AREA SHOULD BE REVEGETED AND MAINTAINED TO REDUCE EROSION AFTER CONSTRUCTION ACTIVITIES HAVE BEEN COMPLETED.
- AFTER INSTALLATION HAS BEEN COMPLETED, HAVE POST-CONSTRUCTION GRASSES AND ELEVATIONS THE SAME AS THE ORIGINAL GRADES AND ELEVATIONS IN THE TEMPORARILY IMPACTED AREAS.
- NO PROJECT AQUATIC SPECIES, IN-STREAM WORK IS PROHIBITED AS DETERMINED BY THE CLASSIFICATION OF THE STREAM.
- USE 1 WATER: IN-STREAM WORK SHALL NOT BE CONDUCTED DURING THE PERIOD MARCH 1 THROUGH JUNE 15, INCLUDING BIRCHING ANY YEAR.
- STORMWATER RUNOFF FROM IMPERVIOUS SURFACES SHALL BE CONTROLLED TO PREVENT THE WASHING OF DEBRIS INTO THE WATERWAY.
- CULVERTS SHALL BE CONSTRUCTED AND ANY RIPRAP PLACED SO AS NOT TO OBSTRUCT THE MOVEMENT OF AQUATIC SPECIES, UNLESS THE PURPOSE OF THE ACTIVITY IS TO IMPROVE WATER.

CARE OF WATER DURING CONSTRUCTION

ALL WORK ON PERMANENT STRUCTURES SHALL BE CARRIED OUT IN AREAS FREE FROM WATER. THE CONTRACTOR SHALL CONSTRUCT AND MAINTAIN ALL TEMPORARY DIKES, LEVEES, COFFERDAMS, DRAINAGE CHANNELS, AND STREAM DIVERSIONS NECESSARY TO PROTECT THE AREAS TO BE OCCUPIED BY THE PERMANENT WORKS. THE CONTRACTOR SHALL ALSO FURNISH, INSTALL, OPERATE, AND MAINTAIN ALL NECESSARY PUMPING AND OTHER EQUIPMENT REQUIRED FOR REMOVAL OF WATER FROM THE VARIOUS PARTS OF THE WORK AND FOR MAINTAINING THE EXCAVATIONS, FOUNDATION, AND OTHER PARTS OF THE WORK FREE FROM WATER AS REQUIRED OR DIRECTED BY THE ENGINEER FOR CONSTRUCTING EACH PART OF THE WORK. AFTER HAVING SERVED THEIR PURPOSE, ALL TEMPORARY PROTECTIVE WORKS SHALL BE REMOVED OR LEVELED AND GRADED TO THE EXTENT REQUIRED OR PREVENT OBSTRUCTION IN ANY DEGREE WHATSOEVER OF THE FLOW OF WATER TO THE SPILLWAY OR OUTLET WORKS AND SO AS NOT TO INTERFERE IN ANY WAY WITH THE OPERATION OR MAINTENANCE OF THE STRUCTURE. STREAM DIVERSIONS SHALL BE MAINTAINED UNTIL THE FULL FLOW CAN BE PASSED THROUGH THE PERMANENT WORKS. THE REMOVAL OF WATER FROM THE REQUIRED EXCAVATION AND THE FOUNDATION SHALL BE ACCOMPLISHED IN A MANNER AND TO THE EXTENT THAT WILL MAINTAIN STABILITY OF THE EXCAVATED SLOPES AND BOTTOM OF REQUIRED EXCAVATIONS AND WILL ALLOW SATISFACTORY PERFORMANCE OF ALL CONSTRUCTION OPERATIONS. DURING THE PLACING AND COMPACTING OF MATERIAL IN REQUIRED EXCAVATIONS, THE WATER LEVEL AT THE LOCATIONS BEING REFILLED SHALL BE MAINTAINED BELOW THE BOTTOM OF THE EXCAVATION AT SUCH LOCATIONS WHICH MAY REQUIRE DRAINING THE WATER TO SUMPS FROM WHICH THE WATER SHALL BE PUMPED.



NO.	REVISION	DATE
2	REMOVE GUARDRAIL AT 5742900 BASED ON PHAL NUMBERS	08/20/12
1	REVISE FOREST CONSERVATION EASEMENT AND BRLS ON LOT 33	9/26/11

GRADING, SEDIMENT AND EROSION CONTROL PLAN
LIME KILN VALLEY II
PHASE I & PHASE II
 LOTS 1-21, 23-24, 26-39
 AND OPEN SPACE LOTS 22 AND 25

TAX MAPS 40 AND 45 PARCELS 114 AND 12
 5TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

ROBERT H. VOGEL ENGINEERING, INC.
 ENGINEERS • SURVEYORS • PLANNERS
 8407 MAIN STREET ELLICOTT CITY, MD 21043 TEL: 410.461.7666 FAX: 410.461.8961

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 With 2nd edit 6-26-07
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 7/2/07
 CHIEF, DEVELOPMENT ENGINEERING DIVISION CE DATE
 8/01/07
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS
 6/22/07
 USDA-NATURAL RESOURCES CONSERVATION SERVICE DATE

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT
 6/11/12
 HOWARD SCD DATE

ENGINEERS' CERTIFICATE

I HEREBY 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.
 6/11/12
 M. RAZAVI DATE

DEVELOPER'S CERTIFICATE

I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE IN ACCORDANCE 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.
 6/14/07
 DATE

"AS-BUILT" CERTIFICATION

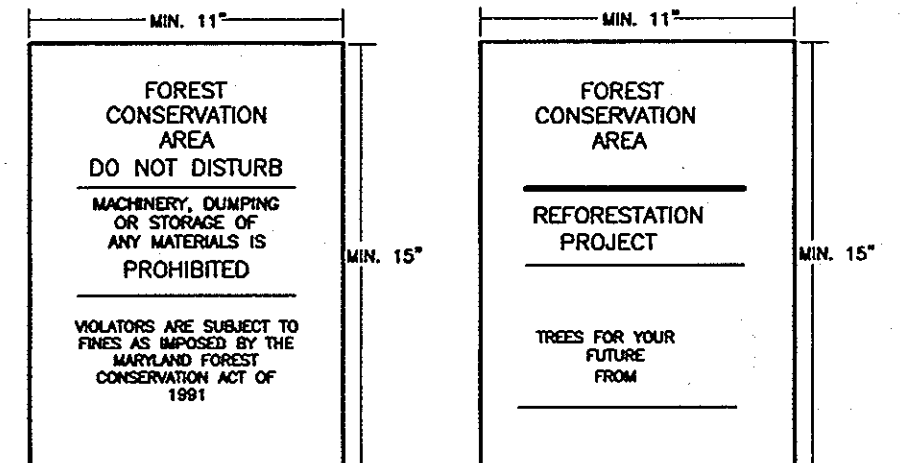
I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE AS-BUILT PLANS AND MEETS THE APPROVED PLANS AND SPECIFICATIONS.
 11/2/13
 ROBERT H. VOGEL, P.E. #16193 DATE
 CERTIFY MEANS TO STATE OR DECLARE A PROFESSIONAL OPINION BASED UPON ON-SITE INSPECTIONS AND MATERIAL TESTS WHICH ARE CONDUCTED DURING CONSTRUCTION. THE ON-SITE INSPECTION AND TESTS DEEMED SUFFICIENT AND APPROPRIATE BY COMMONLY ACCEPTED ENGINEERING STANDARDS CERTIFY DOES NOT MEAN OR IMPLY A GUARANTEE BY THE ENGINEER NOR DOES AN ENGINEER'S CERTIFICATION RELIEVE ANY OTHER PARTY FROM MEETING COMMONLY ACCEPTED INDUSTRY PRACTICES.

OWNER / DEVELOPER

LIME KILN VALLEY, L.L.C.
 8835-P COLUMBIA 100 PARKWAY
 COLUMBIA, MARYLAND 21045
 (410) 730-0810

DESIGN BY: JCO
 DRAWN BY: JCO
 CHECKED BY: RIV
 DATE: DEC 2006
 SCALE: 1"=50'
 W.D. NO.: 04-21.00

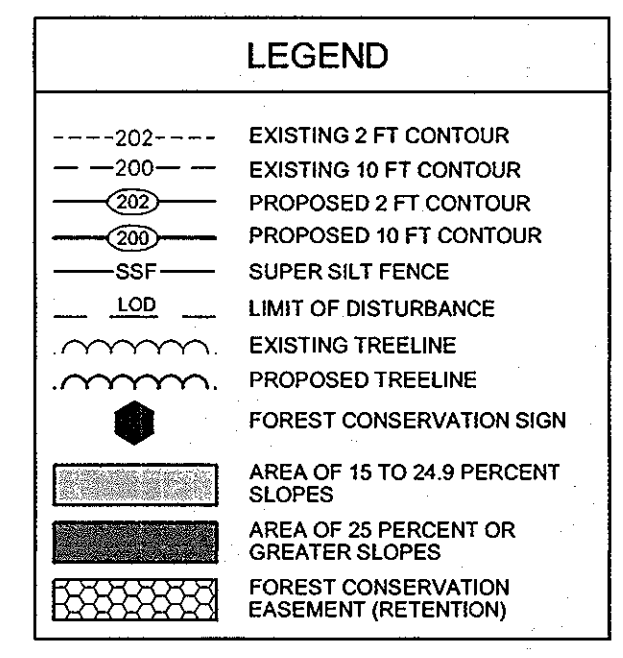
6 SHEET OF 16



NOTE:
 1. BOTTOM OF SIGNS TO BE HIGHER THAN TOP OF TREE PROTECTION FENCE.
 2. SIGNS TO BE PLACED AT A MAXIMUM SPACING OF 50-100 FEET.
 CONDITIONS ON-SITE AFFECTING VISIBILITY MAY WARRANT PLACING SIGNS CLOSER OR FARTHER APART.
 3. ATTACHMENT OF SIGNS TO TREES IS PROHIBITED.

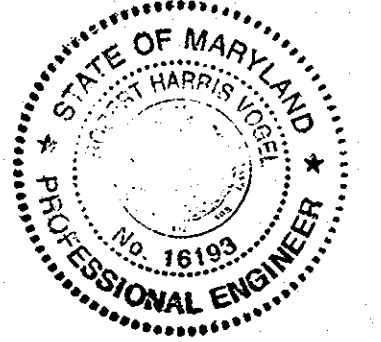
SCHEDULE A PERIMETER LANDSCAPE EDGE				
CATEGORY	ADJACENT TO ROADWAYS	ADJACENT TO PERIMETER PROPERTIES	ADJACENT TO PERIMETER PROPERTIES	ADJACENT TO PERIMETER PROPERTIES
Perimeter/Frontage Designation	1	2	3	4
Linear Feet of Roadway Frontage/Perimeter	1325'	2968'	3706'	3419'
Credit for Existing Vegetation (Yes, No, Linear Feet Describe below if needed)	YES* 1325'	YES* 2968'	YES* 3706'	YES* 3419'
Credit for Wall, Fence or Berm (Yes, No, Linear Feet Describe below if needed)	No	No	No	No
Number of Plants Required	150 0 140 0	160 0 -	160 0 -	160 0 -
Number of Plants Provided	0 0	0 0	0 0	0 0
Other Trees (2:1 Substitution) Shrubs (10:1 Substitution) Describe Plant Substitution Credits Below if needed)	-	-	-	-

STREET TREE SCHEDULE						
KEY	QUAN.	ROAD NAME	LENGTH	BOTANICAL NAME	SIZE	REM.
○	171	LIME KILN ROAD	3353.07'	ACER RUBRUM OCTOBER GLORY* OCTOBER GLORY RED MAPLE	2 1/2"-3" CAL.	B & B



DEVELOPERS 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
 9/14/07

Forest Conservation Worksheet 2.2	
Net Tract Area	
A. Total Tract Area	= 142.77 acres
B. Deductions	= 4.87 acres
C. Net Tract Area	= 137.90 acres
Land Use Category	
Input the number "1" under the appropriate land use zoning, and limit to only one entry	
ARA MDR IDA HDR MPD CIA	0 1 0 0 0 0
D. Afforestation Threshold (Net Tract Area x 20 %)	= 27.58
E. Conservation Threshold (Net Tract Area x 25 %)	= 34.48
Existing Forest Cover	
F. Existing Forest Cover within the Net Tract Area	= 115.39
G. Area of Forest Above Conservation Threshold	= 80.92
Break Even Point	
H. Break Even Point	= 50.66
I. Forest Clearing Permitted Without Mitigation	= 64.73
Proposed Forest Clearing	
J. Total Area of Forest to be Cleared	= 66.16
K. Total Area of Forest to be Retained	= 49.23
Planting Requirements	
L. Reforestation for Clearing Above the Conservation Threshold	= 16.54
M. Reforestation for Clearing Below the Conservation Threshold	= 0.00
N. Credit for Retention above the Conservation Threshold	= 14.76
P. Total Reforestation Required	= 1.79
Q. Total Afforestation Required	= 0.00
R. Total Planting Requirement	= 1.79



AS-BUILT CERTIFICATION
 I hereby certify that the facility shown on this plan was constructed as shown on the "as-built" plans and meets the approved plans and specifications.

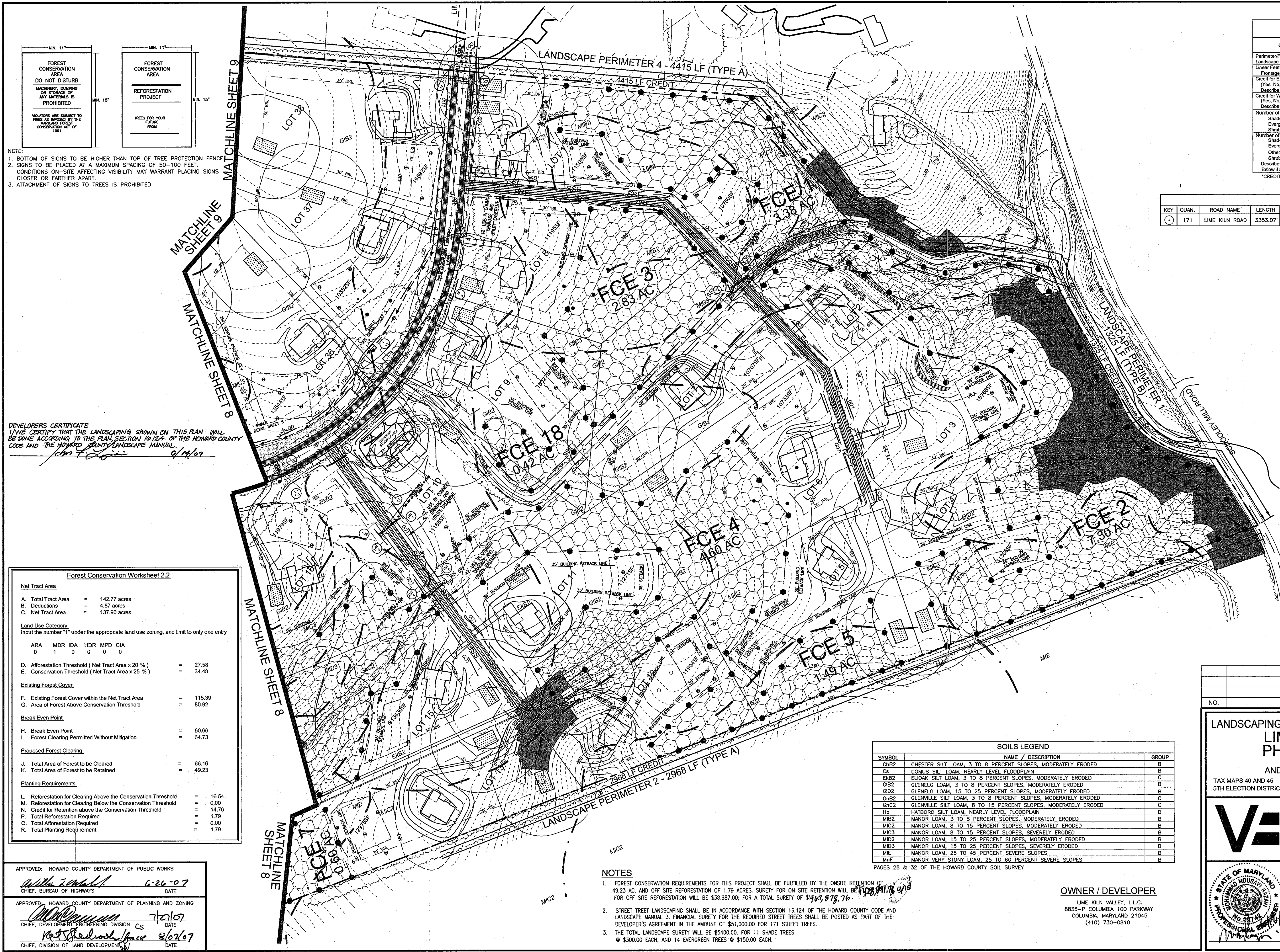
Signature
 P.E. NO. 18193
 Date: 11/12/13

JOHN CANOLES
 DNR QUALIFIED PROFESSIONAL

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 W. J. ... 6-26-07
 CHIEF, BUREAU OF HIGHWAYS

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 ... 7/21/07
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

... 8/6/07
 CHIEF, DIVISION OF LAND DEVELOPMENT



SYMBOL	NAME / DESCRIPTION	GROUP
ChB2	CHESTER SILT LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY ERODED	B
Cs	COMUS SILT LOAM, NEARLY LEVEL FLOODPLAIN	B
EkB2	ELOAK SILT LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY ERODED	C
GIB2	GLENELG LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY ERODED	B
GI2	GLENELG LOAM, 15 TO 25 PERCENT SLOPES, MODERATELY ERODED	B
GcB2	GLENVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY ERODED	C
GcC2	GLENVILLE SILT LOAM, 8 TO 15 PERCENT SLOPES, MODERATELY ERODED	C
Ho	HATBORO SILT LOAM, NEARLY LEVEL FLOODPLAIN	D
MI2	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
MID2	MANOR LOAM, 15 TO 25 PERCENT SLOPES, MODERATELY ERODED	B
MID3	MANOR LOAM, 15 TO 25 PERCENT SLOPES, SEVERELY ERODED	B
MIE	MANOR LOAM, 25 TO 45 PERCENT SEVERE SLOPES	B
MmF	MANOR VERY STONY LOAM, 25 TO 60 PERCENT SEVERE SLOPES	B

NOTES
 1. FOREST CONSERVATION REQUIREMENTS FOR THIS PROJECT SHALL BE FULFILLED BY THE ONSITE RETENTION OF 49.23 AC. AND OFF SITE REFORESTATION OF 1.79 ACRES. SURETY FOR ON SITE RETENTION WILL BE \$400,000.00 AND FOR OFF SITE REFORESTATION WILL BE \$38,987.00; FOR A TOTAL SURETY OF \$438,987.00.
 2. STREET TREE LANDSCAPING SHALL BE IN ACCORDANCE WITH SECTION 16.124 OF THE HOWARD COUNTY CODE AND LANDSCAPE MANUAL 3. FINANCIAL SURETY FOR THE REQUIRED STREET TREES SHALL BE POSTED AS PART OF THE DEVELOPER'S AGREEMENT IN THE AMOUNT OF \$51,000.00 FOR 171 STREET TREES.
 3. THE TOTAL LANDSCAPE SURETY WILL BE \$5400.00 FOR 11 SHADE TREES @ \$300.00 EACH, AND 14 EVERGREEN TREES @ \$150.00 EACH.

OWNER / DEVELOPER
 LIME KILN VALLEY, L.L.C.
 8835-P COLUMBIA 100 PARKWAY
 COLUMBIA, MARYLAND 21045
 (410) 730-0810

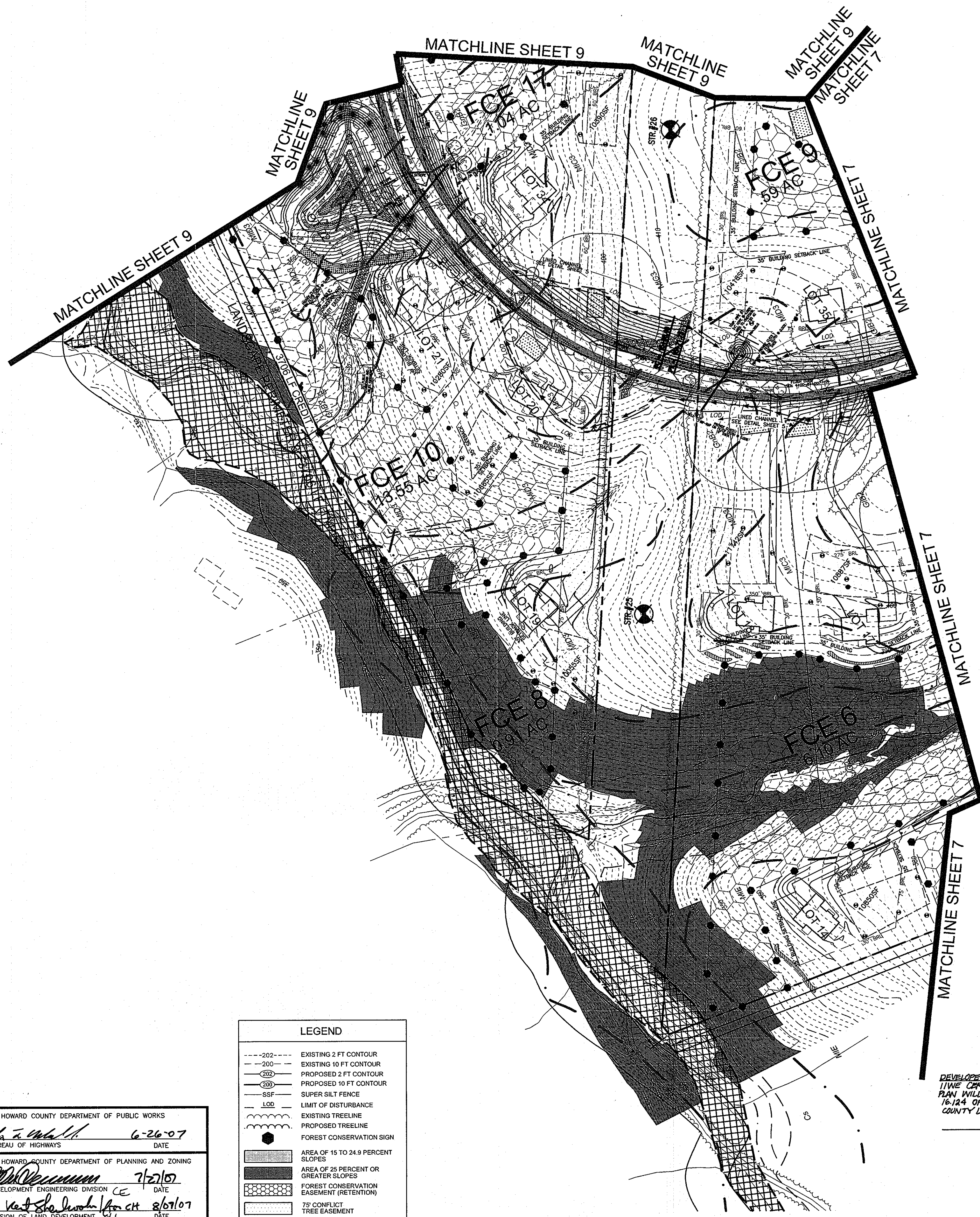
NO.	REVISION	DATE

LANDSCAPING AND FOREST CONSERVATION PLAN
 LIME KILN VALLEY II
 PHASE I & PHASE II
 LOTS 1-21, 23-24, 26-39
 AND OPEN SPACE LOTS 22 AND 25
 TAX MAPS 40 AND 45 PARCELS 114 AND 12
 5TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

ROBERT H. VOGEL
ENGINEERING, INC.
 ENGINEERS • SURVEYORS • PLANNERS
 8407 MAIN STREET TEL: 410.461.7666
 ELLICOTT CITY, MD 21043 FAX: 410.461.8961

DESIGN BY: JCO
 DRAWN BY: JCO
 CHECKED BY: RHV
 DATE: DEC 2006
 SCALE: 1"=100'
 W.O. NO.: 04-21.00

7 SHEET OF 16



SOILS LEGEND		
SYMBOL	NAME / DESCRIPTION	GROUP
ChB2	CHESTER SILT LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY ERODED	B
Cs	COMUS SILT LOAM, NEARLY LEVEL FLOODPLAIN	B
ERB2	ELDMK SILT LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY ERODED	C
GB2	GLENELG LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY ERODED	B
GD2	GLENELG LOAM, 15 TO 25 PERCENT SLOPES, MODERATELY ERODED	B
GnB2	GLENVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY ERODED	C
GnC2	GLENVILLE SILT LOAM, 8 TO 15 PERCENT SLOPES, MODERATELY ERODED	C
Hs	HATBORO SILT LOAM, NEARLY LEVEL FLOODPLAIN	D
MB2	MANOR LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY ERODED	B
MC2	MANOR LOAM, 8 TO 15 PERCENT SLOPES, MODERATELY ERODED	B
MIC3	MANOR LOAM, 8 TO 15 PERCENT SLOPES, SEVERELY ERODED	B
MID2	MANOR LOAM, 15 TO 25 PERCENT SLOPES, MODERATELY ERODED	B
MID3	MANOR LOAM, 15 TO 25 PERCENT SLOPES, SEVERELY ERODED	B
ME	MANOR LOAM, 25 TO 45 PERCENT SEVERE SLOPES	B
MnF	MANOR VERY STONY LOAM, 25 TO 60 PERCENT SEVERE SLOPES	B

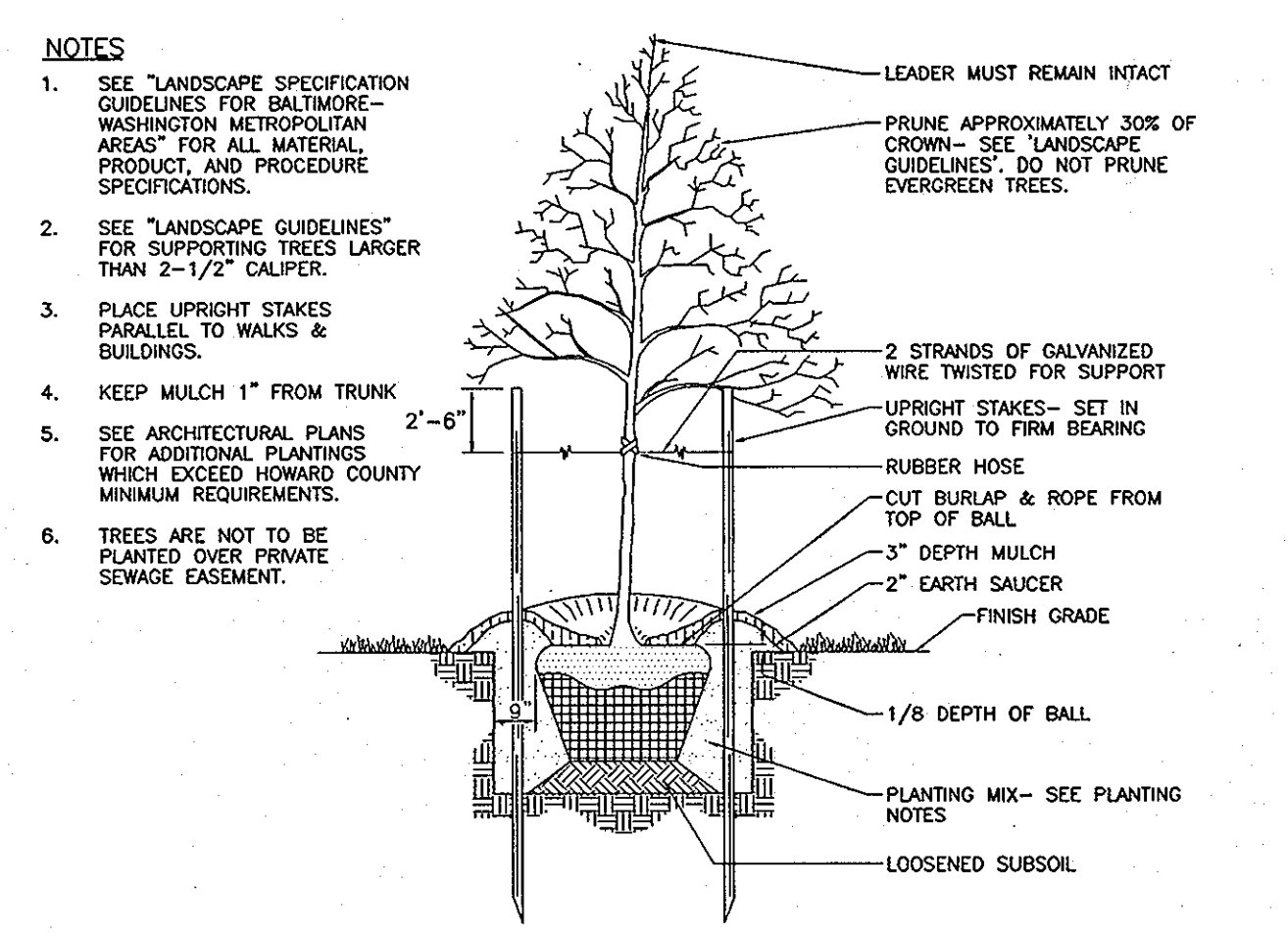
PAGES 28 & 32 OF THE HOWARD COUNTY SOIL SURVEY

FACILITY #1

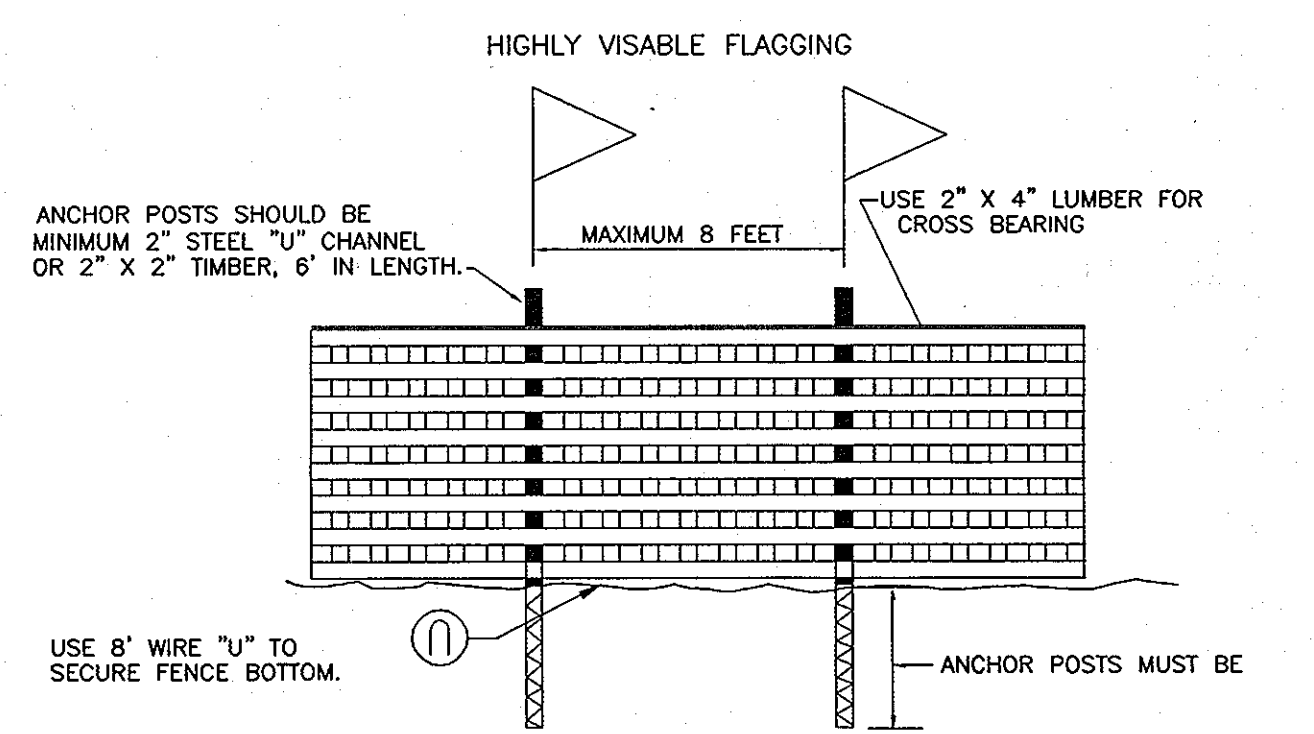
STORMWATER POND HERBACEOUS LANDSCAPE SCHEDULE			
KEY	QUAN.	BOTANICAL NAME	SIZE REMARKS
QC	11	Quercus coccinea, Scarlet Oak (shade tree)	2 1/2'-3' CU B&B
PN	14	Pinus Nigra Austrian Pine (Evergreen Tree)	6'-8' ht B&B

SCHEDULE D: STORMWATER MANAGEMENT AREA LANDSCAPING

LINEAR FEET OF PERIMETER	POND #1 545 LF
CREDIT FOR EXISTING VEGETATION (NO, YES AND LINEAR FEET)	NO*
CREDIT FOR OTHER LANDSCAPING (NO, YES AND %)	NO
NUMBER OF TREES REQUIRED	
SHADE TREES (1:30)	11 SHADE TREES
EVERGREEN TREES (1:40)	14 EVERGREEN TREES
NUMBER OF TREES PROVIDED	
SHADE TREES	11 SHADE TREES
EVERGREEN TREES	14 EVERGREEN TREES
SHRUBS	
*EXISTING WOODS TO REMAIN	



TREE PLANTING AND STAKING
DECIDUOUS TREES UP TO 2-1/2" CALIPER NOT TO SCALE



- NOTES:**
- FOREST PROTECTION DEVICE ONLY.
 - RETENTION AREA WILL BE SET AS PART OF THE REVIEW PROCESS.
 - BOUNDARIES OF RETENTION AREA SHOULD BE STAKED AND FLAGGED PRIOR TO INSTALLING DEVICE.
 - ROOF DAMAGE SHOULD BE AVOIDED.

STATE OF MARYLAND
PROFESSIONAL ENGINEER
No. 16193
AS-BUILT
I hereby certify that the work shown on this plan was constructed as shown on the "as-built" plans and meets the approved plans and specifications.
Signature: [Signature]
P.E. NO. 16193
Date: 11/12/13

LEGEND

---202---	EXISTING 2 FT CONTOUR
---200---	EXISTING 10 FT CONTOUR
---200---	PROPOSED 2 FT CONTOUR
---200---	PROPOSED 10 FT CONTOUR
SSF	SUPER SILT FENCE
LOD	LIMIT OF DISTURBANCE
---	EXISTING TREELINE
---	PROPOSED TREELINE
---	FOREST CONSERVATION SIGN
■	AREA OF 15 TO 24.9 PERCENT SLOPES
■	AREA OF 25 PERCENT OR GREATER SLOPES
■	FOREST CONSERVATION EASEMENT (RETENTION)
■	75' CONFLICT TREE EASEMENT

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
[Signature] 6-26-07
CHIEF, BUREAU OF HIGHWAYS

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
[Signature] 7/27/07
CHIEF, DEVELOPMENT ENGINEERING DIVISION

[Signature] 8/6/107
CHIEF, DIVISION OF LAND DEVELOPMENT

DEVELOPER'S CERTIFICATE
I HEREBY CERTIFY THAT THE LANDSCAPING SHOWN ON THIS PLAN WILL BE DONE ACCORDING TO THE PLAN, SECTION 16.12.4 OF HOWARD COUNTY CODE AND THE HOWARD COUNTY LANDSCAPE MANUAL.
[Signature] 11/12/13
JOHN CANDLES
DNR QUALIFIED PROFESSIONAL

2' DEEP STORMWATER POND HERBACEOUS LANDSCAPE SCHEDULE

KEY	QUAN.	BOTANICAL NAME	SIZE	REMARKS
IP	25	Iris pseudocaris Yellow Water Iris	plug	1.5' oc
IV	23	Iris versicolor Blue Flag (wear gloves)	plug	1.5' oc
CE	80	Cyperus esculentus Yellow Nut Sedge	plug	2' oc
CL	80	Carex lasiocarpa Lotus Sedge	plug	2' oc
VA	335	Vallisneria spiralis Wild Celery	plug	2' oc
NL	445	Najas luteum Splittendock	plug	1.5' oc

PRIOR TO INSTALLATION OF PLANT MATERIALS, ADD THREE INCHES OF TOPSOIL TO PLANTING AREA. STABILIZE WITH 40 POUNDS PER ACRE OF A HYDROSEED MIX (NET MIX AND MEADOW MIX) FROM SYLVIA NURSERY OR EQUAL. ALL PLANT MATERIALS TO CONFORM TO THE MOST CURRENT AAS SPECIFICATIONS AND BE INSTALLED IN ACCORDANCE WITH LOAMN SPECIFICATIONS.

OWNER / DEVELOPER
LIME KILN VALLEY, L.L.C.
8835-P COLUMBIA 100 PARKWAY
COLUMBIA, MARYLAND 21045
(410) 730-0810

NO.	REVISION	DATE

LANDSCAPING AND FOREST CONSERVATION PLAN
LIME KILN VALLEY II
PHASE I & PHASE II
LOTS 1-21, 23-24, 26-39
AND OPEN SPACE LOTS 22 AND 25
TAX MAPS 40 AND 45 PARCELS 114 AND 12
5TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

ROBERT H. VOGEL ENGINEERING, INC.
ENGINEERS • SURVEYORS • PLANNERS
8407 MAIN STREET ELLICOTT CITY, MD 21043 TEL: 410.461.7666 FAX: 410.461.8961

DESIGN BY: JCO
DRAWN BY: JCO
CHECKED BY: RMV
DATE: DEC 2006
SCALE: 1"=100'
W.O. NO.: 04-21.00

8 SHEET OF 16



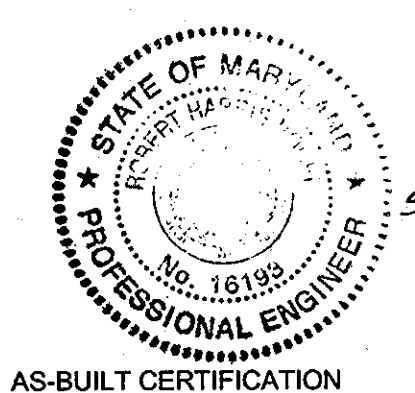
FOREST CONSERVATION DECREASE			
LEGEND			
EASEMENT	ACRES	EASEMENT	ACRES
FCE 1	3.38 AC	FCE 10	13.55 AC
FCE 2	7.30 AC	FCE 11	1.39 AC
FCE 3	2.83 AC	FCE 12	0.87 AC
FCE 4	4.60 AC	FCE 13	0.94 AC
FCE 5	1.49 AC	FCE 14	0.82 AC
FCE 6	6.10 AC	FCE 15	1.70 AC
FCE 7	0.60 AC	FCE 16	0.70 AC
FCE 8	0.91 AC	FCE 17	1.04 AC
FCE 9	0.59 AC	FCE 18	0.42 AC

LEGEND	
---202---	EXISTING 2 FT CONTOUR
---200---	EXISTING 10 FT CONTOUR
---20---	PROPOSED 2 FT CONTOUR
---10---	PROPOSED 10 FT CONTOUR
SSF	SUPER SILT FENCE
---	LIMIT OF DISTURBANCE
---	EXISTING TREELINE
---	PROPOSED TREELINE
●	FOREST CONSERVATION SIGN
■	AREA OF 15 TO 24.9 PERCENT SLOPES
■	AREA OF 25 PERCENT OR GREATER SLOPES
■	FOREST CONSERVATION EASEMENT (RETENTION)
■	75' TREE CONFLICT EASEMENT

SOILS LEGEND		
SYMBOL	NAME / DESCRIPTION	GROUP
CHB2	CHESTER SILT LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY ERODED	B
Cs	COMUS SILT LOAM, NEARLY LEVEL FLOODPLAIN	C
EKB2	ELYAK SILT LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY ERODED	B
GB2	GLENELG LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY ERODED	B
GB2	GLENELG LOAM, 15 TO 25 PERCENT SLOPES, MODERATELY ERODED	B
GnB2	GLENVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY ERODED	C
GnC2	GLENVILLE SILT LOAM, 8 TO 15 PERCENT SLOPES, MODERATELY ERODED	C
Hc	HATBORO SILT LOAM, NEARLY LEVEL FLOODPLAIN	D
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
MID2	MANOR LOAM, 15 TO 25 PERCENT SLOPES, MODERATELY ERODED	B
MID3	MANOR LOAM, 15 TO 25 PERCENT SLOPES, SEVERELY ERODED	B
MIe	MANOR LOAM, 25 TO 45 PERCENT SEVERE SLOPES	B
MVf	MANOR VERY STONY LOAM, 25 TO 60 PERCENT SEVERE SLOPES	B

PAGES 28 & 32 OF THE HOWARD COUNTY SOIL SURVEY

NO.	REVISION	DATE
1	REVISE FOREST CONSERVATION EASEMENT AND ERLs ON LOT 23	9/26/11



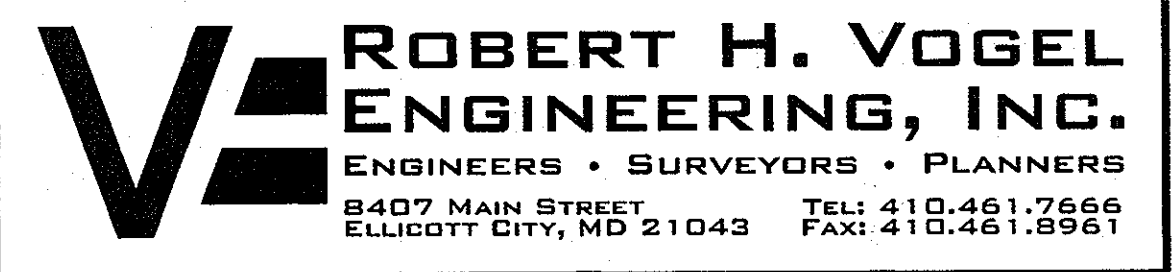
AS-BUILT CERTIFICATION
 I hereby certify that the facility shown on this plan was constructed as shown on the "as-built" plans and meets the approved plans and specifications.
 Signature: [Signature]
 P.E. NO. 18193
 Date 11/12/13

DEVELOPERS 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.
 [Signature] 6/14/07

[Signature]
 JOHN CANOLES
 DNR QUALIFIED PROFESSIONAL

OWNER / DEVELOPER
 LIME KILN VALLEY, LLC
 8835-P COLUMBIA 100 PARKWAY
 COLUMBIA, MARYLAND 21045
 (410) 730-0810

LANDSCAPING AND FOREST CONSERVATION PLAN
LIME KILN VALLEY II
PHASE I & PHASE II
 LOTS 1-21, 23-24, 26-39
 AND OPEN SPACE LOTS 22 AND 25
 TAX MAPS 40 AND 45 PARCELS 114 AND 12
 5TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

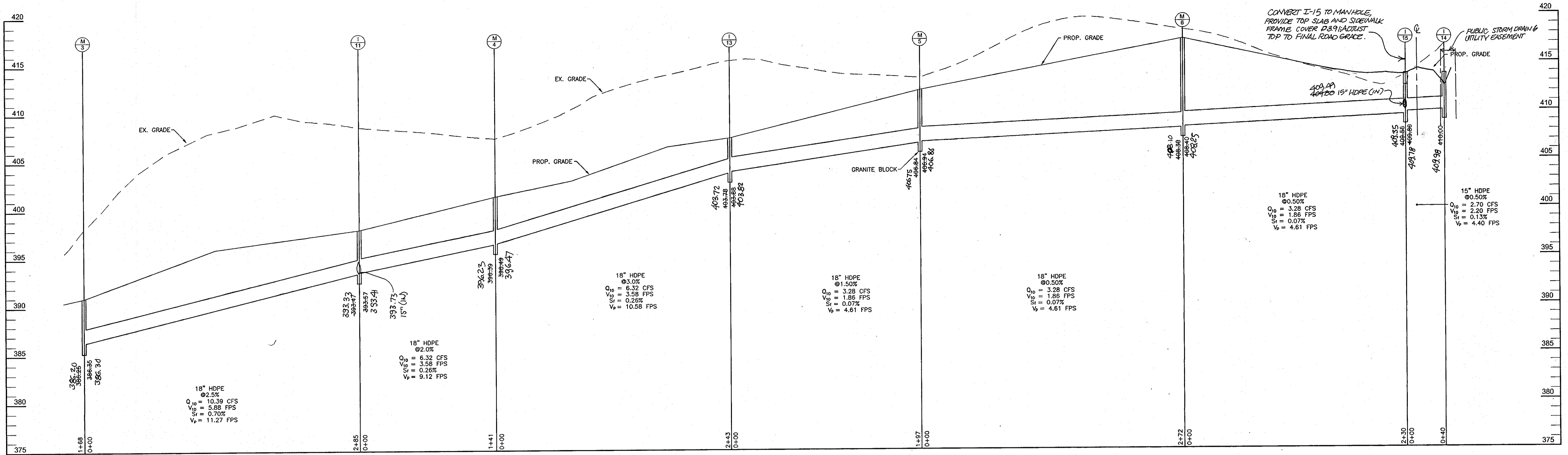


DESIGN BY: JCO	
DRAWN BY: JCO	
CHECKED BY: RHV	
DATE: DEC 2006	
SCALE: 1"=100'	
W.O. NO.: 04-21-00	9 SHEET OF 16

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 [Signature] 6-26-07
 CHIEF, BUREAU OF HIGHWAYS DATE

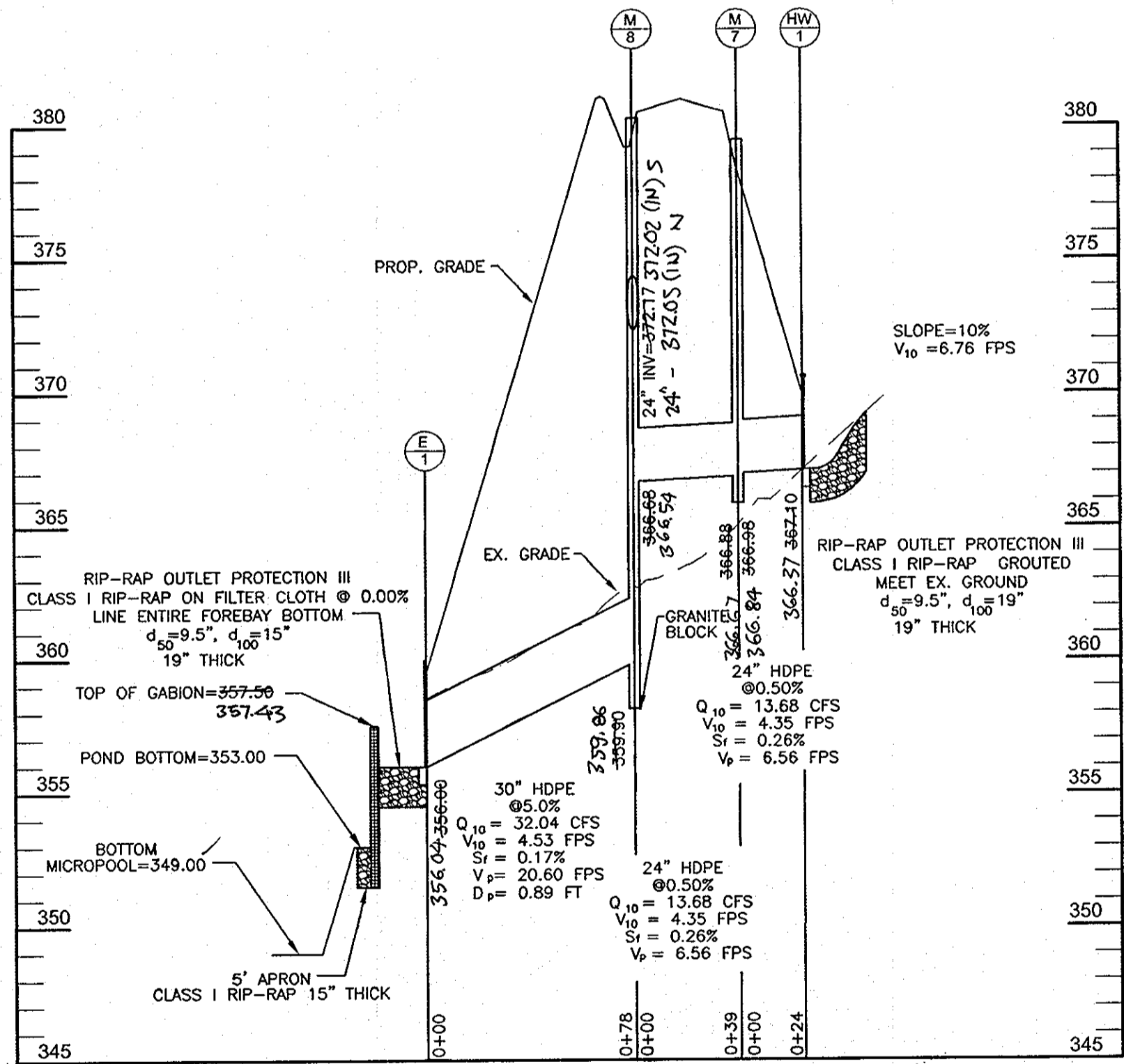
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 [Signature] 7/2/07
 CHIEF, DEVELOPMENT ENGINEERING DIVISION CE DATE

[Signature] 8/6/07
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE



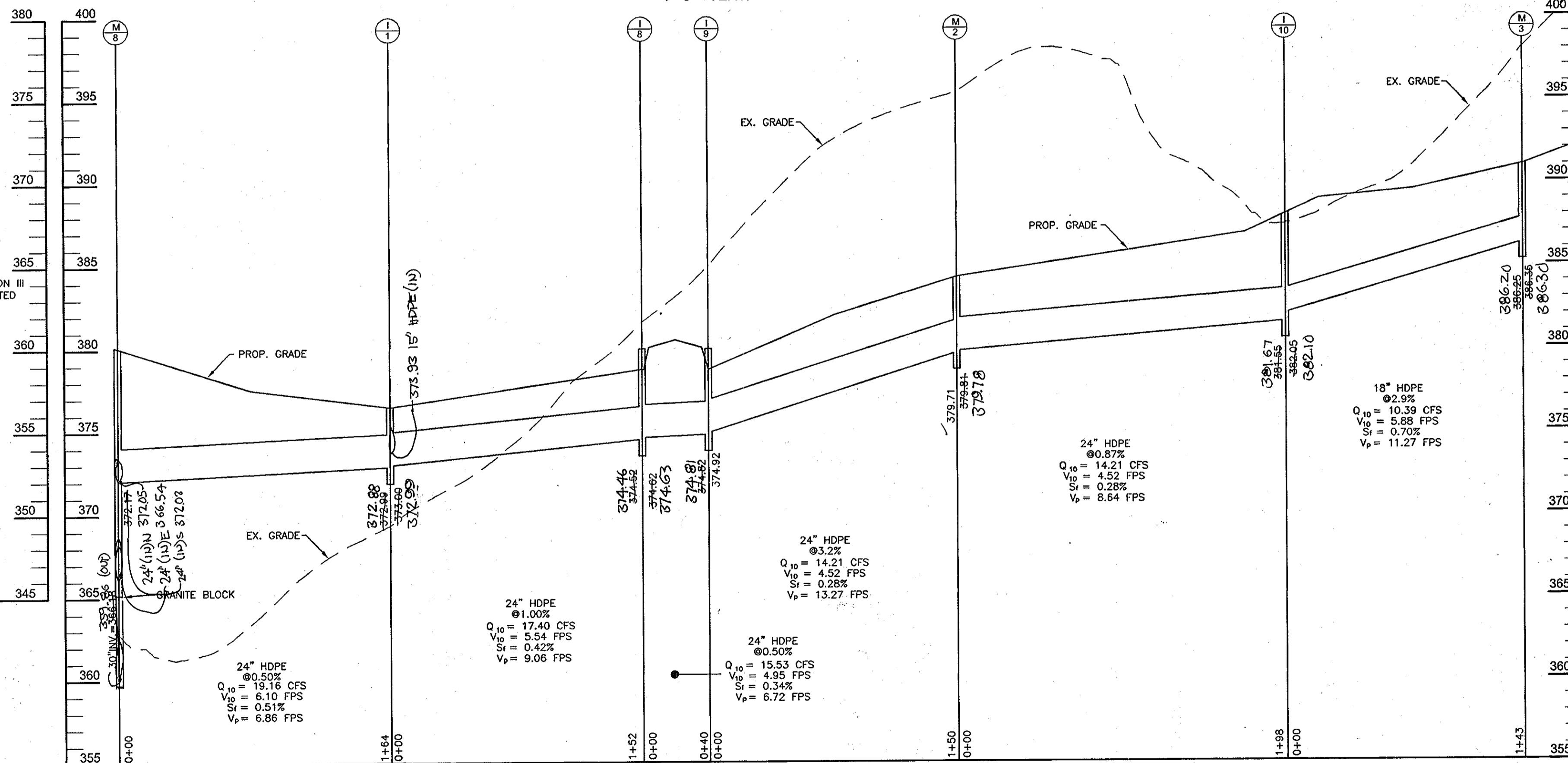
STORM DRAIN PROFILE

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



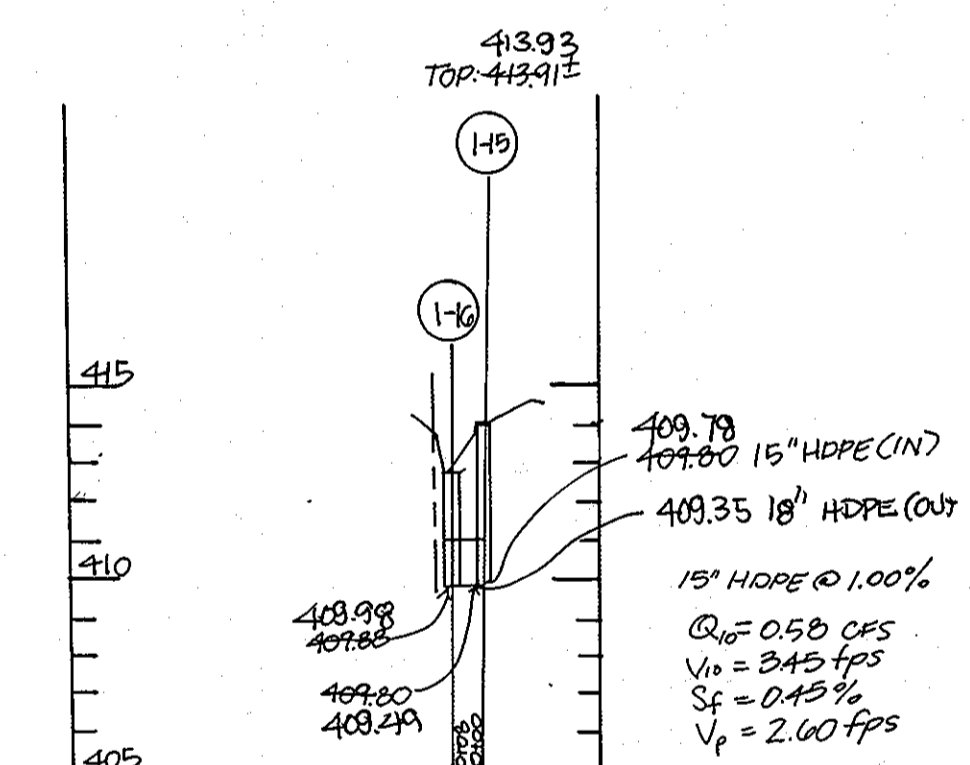
STORM DRAIN PROFILE

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



STORM DRAIN PROFILE

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



NO.	REVISION	DATE
1	ADJUST ROAD ALIGNMENT AT STATION 3+94, CONVERT I-15 TO A MANHOLE, INSTALL NEW I/G AND ADJUST STORM DRAIN AND PUBLIC STREET TREE BASEMENT	01/20/08

**STORM DRAIN PROFILES
LIME KILN VALLEY II
PHASE I & PHASE II**

LOTS 1-21, 23-24, 26-39
AND OPEN SPACE LOTS 22 AND 25
TAX MAPS 40 AND 45 PARCELS 114 AND 12
5TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

**ROBERT H. VOGEL
ENGINEERING, INC.**
ENGINEERS • SURVEYORS • PLANNERS
8407 MAIN STREET TEL: 410.461.7866
ELLCOTT CITY, MD 21043 FAX: 410.461.8961

DESIGN BY: JCO	
DRAWN BY: JCO	
CHECKED BY: RHV	
DATE: DEC 2008	
SCALE: AS SHOWN	
W.O. NO.: 04-21-00	10 SHEET OF 16

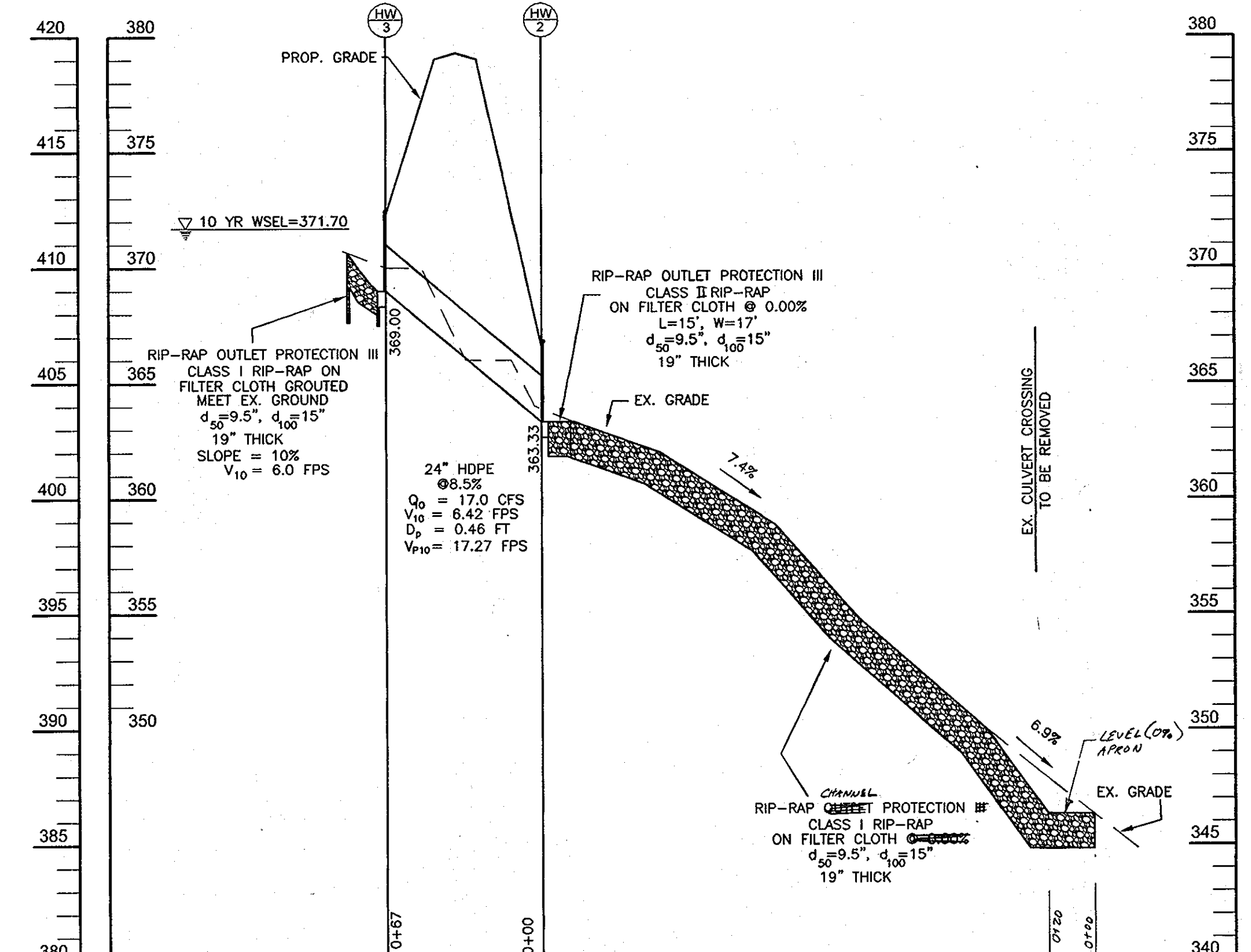
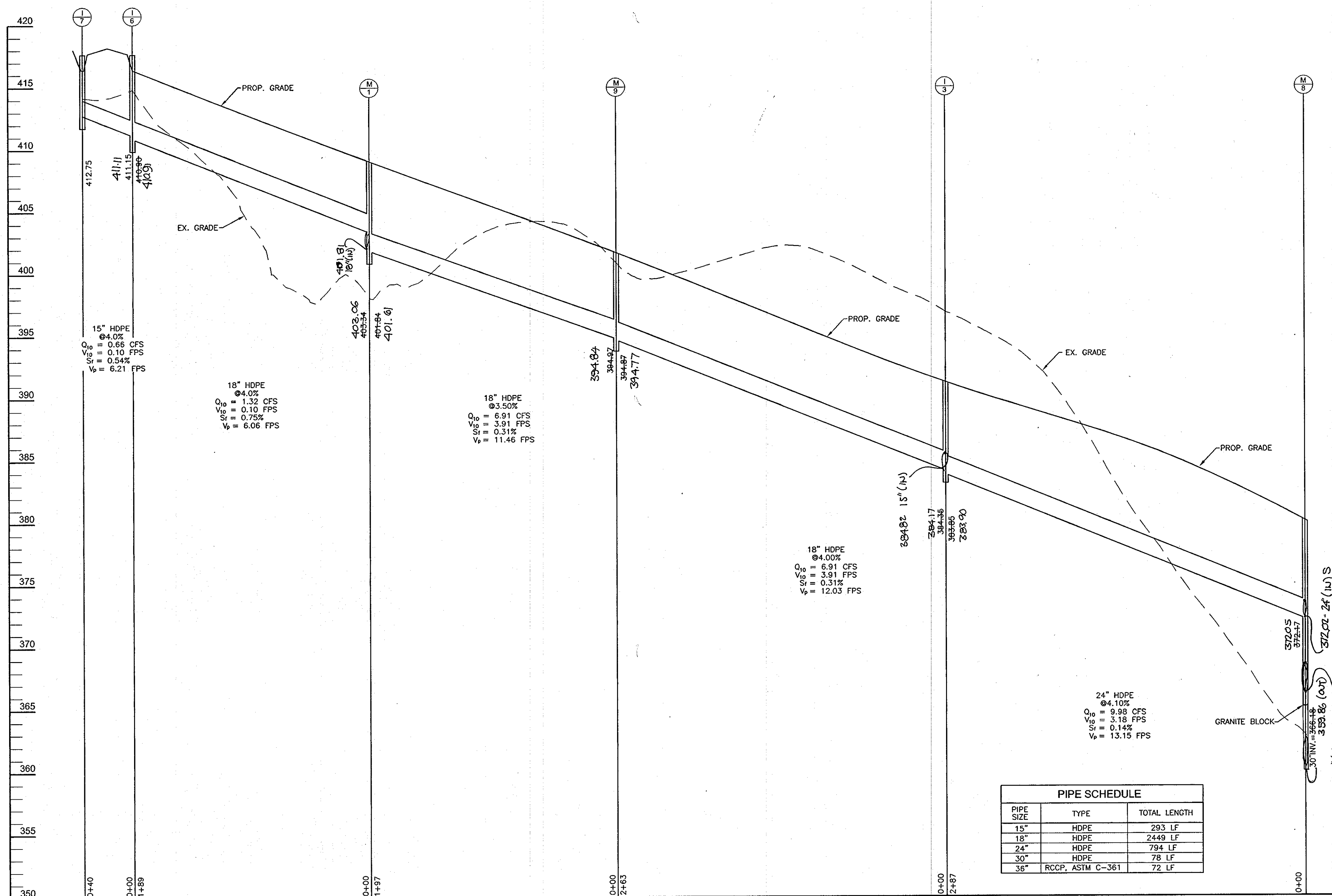
APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
W. Smith 6-26-07
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
John Deane 7/21/08
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

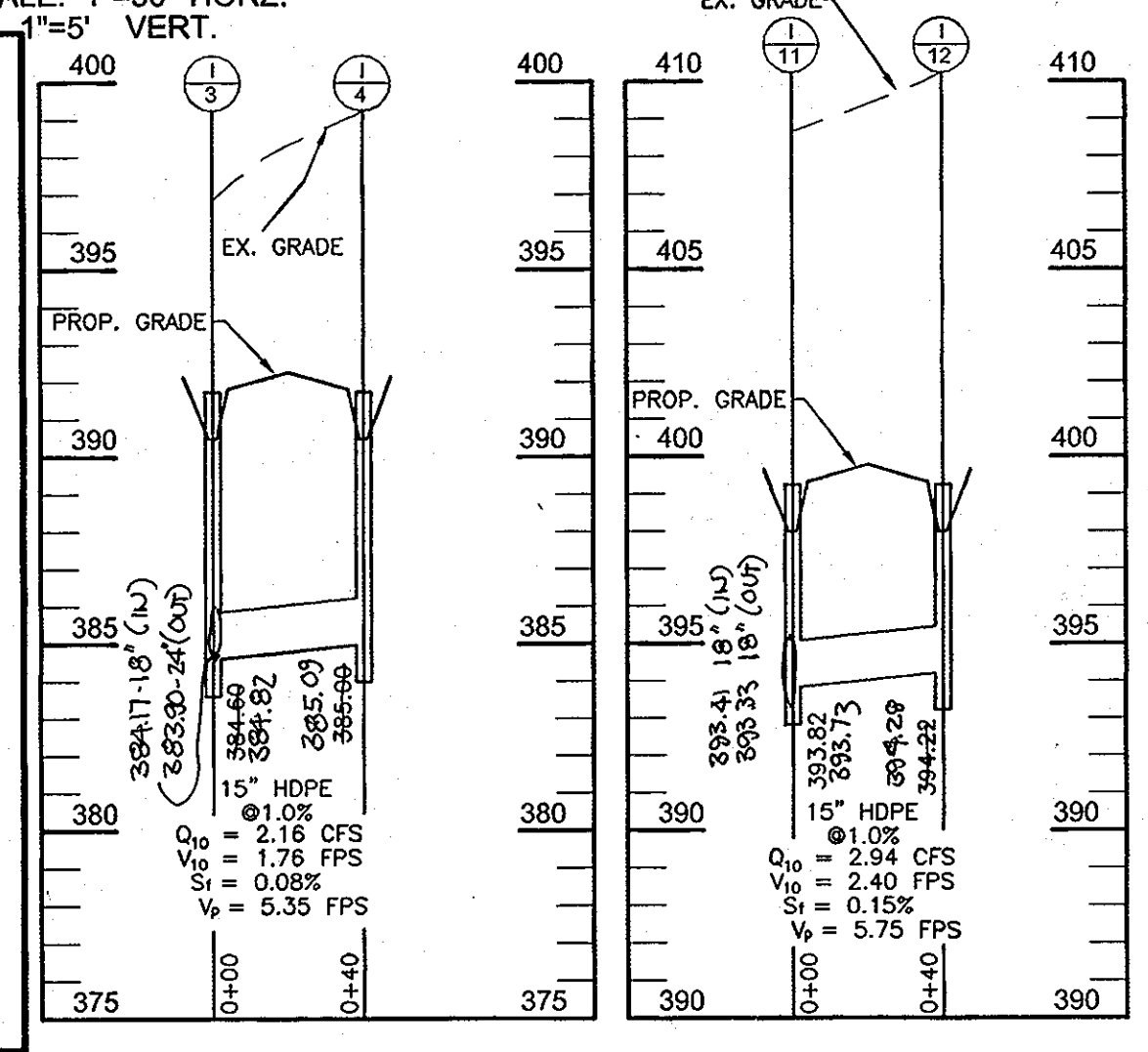
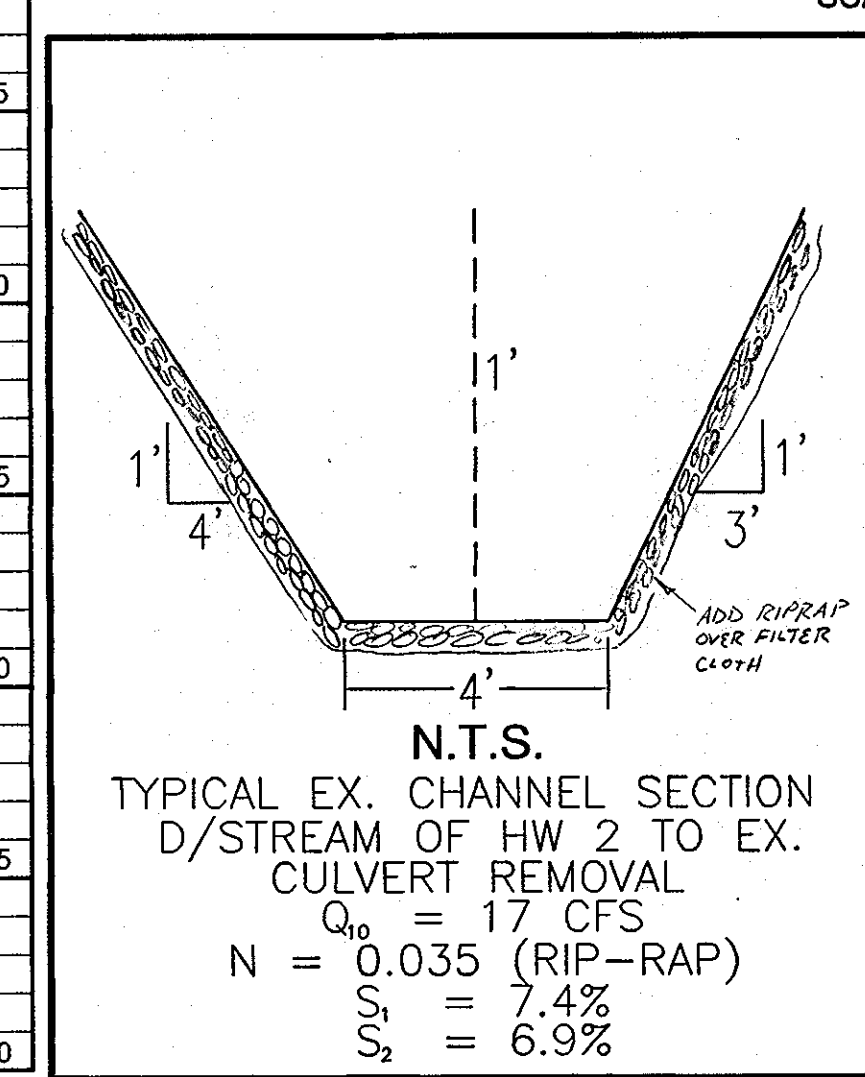
Scott Sheppard 8/07/07
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

AS-BUILT CERTIFICATION
I hereby certify that the facility shown on this plan was constructed as shown on the "as-built" plans and meets the approved plans and specifications.
John Deane
Signature
P.E. NO. 16193
Date 11/12/13

OWNER / DEVELOPER
LIME KILN VALLEY, L.L.C.
8835-P COLUMBIA 100 PARKWAY
COLUMBIA, MARYLAND 21045
(410) 730-0810



CULVERT PROFILE
SCALE: 1"=50' HORZ.
1"=5' VERT.



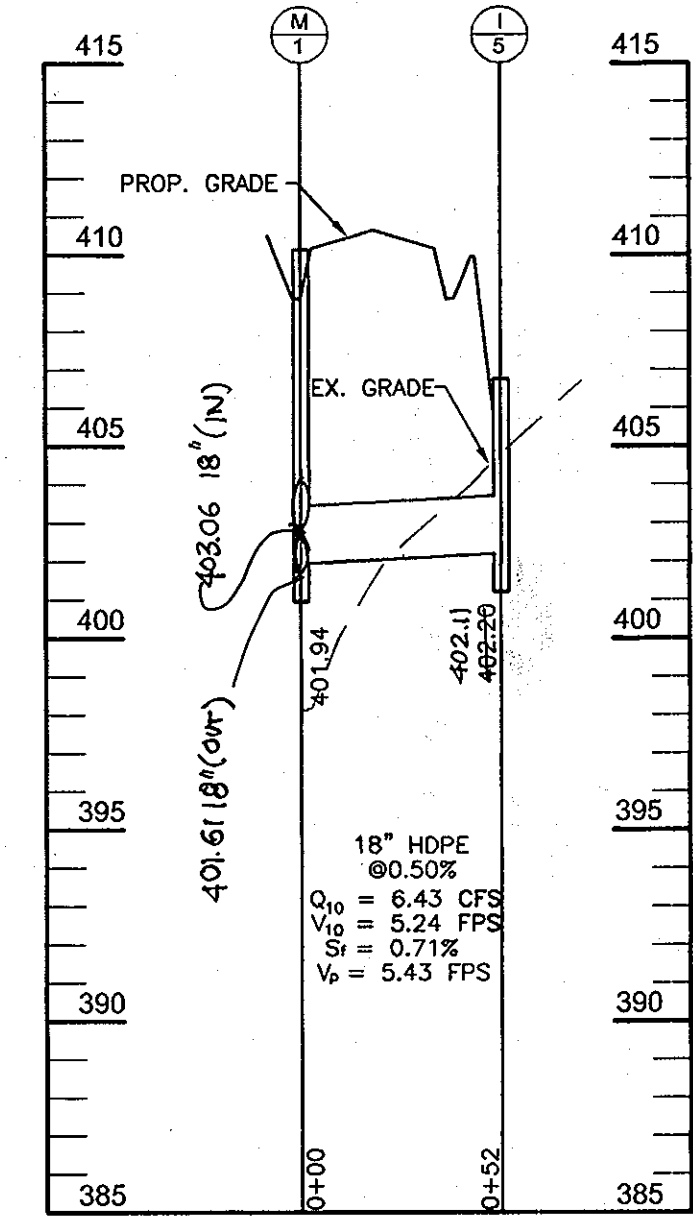
STORM DRAIN PROFILE STORM DRAIN PROFILE
SCALE: 1"=50' HORZ.
1"=5' VERT.

STRUCTURE SCHEDULE						
NO.	TYPE	LOCATION	TOP ELEV.	INV IN	INV OUT	REMARKS
M-1	PRECAST CONCRETE MANHOLE	29+20.2, 18.9'LT.	401.84	18' 401.94	401.84	G 5.12
M-2	PRECAST CONCRETE MANHOLE	17+20.2, 2.9'RT.	379.71	379.81	379.71	G 5.12
M-3	PRECAST CONCRETE MANHOLE	13+80.6, 19.7'LT.	386.25	386.35	386.25	G 5.12
M-4	PRECAST CONCRETE MANHOLE	9+65.0, 23.3'LT.	396.39	396.49	396.39	G 5.12
M-5	PRECAST CONCRETE MANHOLE	5+31.0, 19.4'LT.	406.84	406.94	406.84	G 5.12
M-6	PRECAST CONCRETE MANHOLE	2+62.9, 20'LT.	408.40	408.40	408.40	G 5.12
M-7	PRECAST CONCRETE MANHOLE	21+62.9, 19.7'RT.	366.88	366.88	366.98	G 5.12
M-8	PRECAST CONCRETE MANHOLE	21+79.6, 15.8'LT.	359.90	24' 372.17	359.90	G 5.12
M-9	PRECAST CONCRETE MANHOLE	27+22.9, 17.9'LT.	394.87	394.97	394.87	G 5.12
E-1	30" TYPE 'A' ENDWALL	N 542397.6 E 1322298.2	356.00	-	356.00	SD 5.11
E-2	36" TYPE 'A' ENDWALL	N 542447.2 E 1322386.0	347.00	-	347.00	SD 5.11
HW-1	24" TYPE 'A' ENDWALL	N 542376.8 E 1322502.5	368.80	-	368.80	SD 5.11
HW-2	24" TYPE 'A' ENDWALL	N 540883.9 E 1323822.65	363.30	-	363.30	SD 5.11
HW-3	24" TYPE 'A' ENDWALL	N 540894.1 E 1323756.7	371.00	-	369.00	SD 5.11

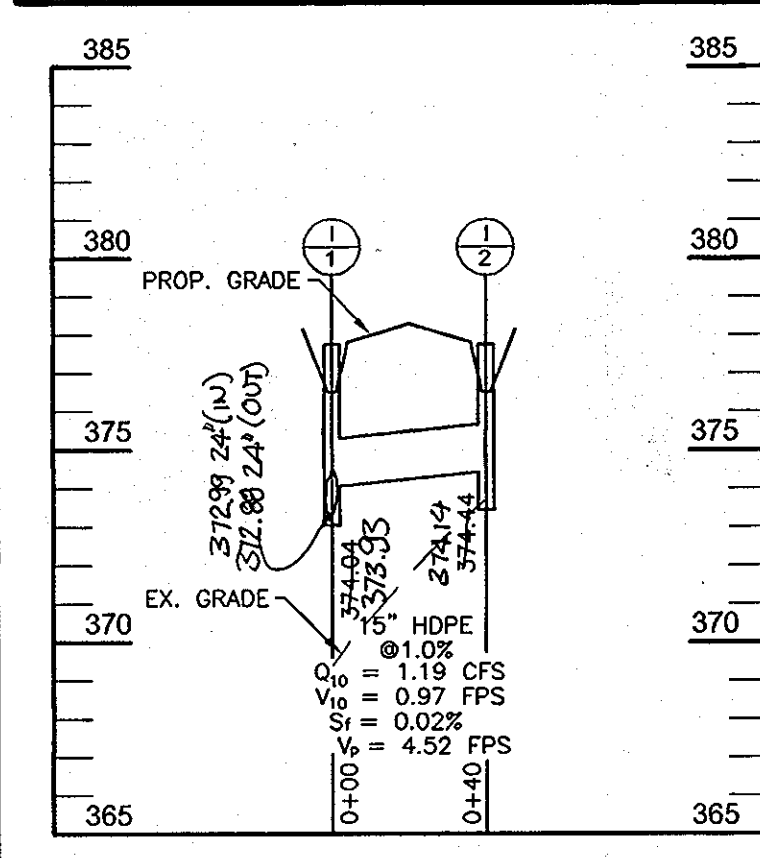
STORM DRAIN PROFILE
SCALE: 1"=50' HORZ.
1"=5' VERT.

STRUCTURE SCHEDULE						
NO.	TYPE	LOCATION	TOP ELEV.	INV IN	INV OUT	REMARKS
I-1	TYPE 'K' INLET	20+19.9, 20'LT.	376.50	15' 374.04	372.90	SD 4.13
I-2	TYPE 'K' INLET	20+19.9, 20'RT.	376.50	24' 373.00	372.90	SD 4.13
I-3	TYPE 'K' INLET	24+61.5, 20'LT.	377.44	15' 384.81	374.44	SD 4.13
I-4	TYPE 'K' INLET	24+61.5, 20'RT.	377.44	18' 384.81	374.44	SD 4.13
I-5	TYPE 'K' INLET	N. 542868.1, E. 1323034.3	402.20	-	402.20	SD 4.13
I-6	TYPE 'K' INLET	31+09.3, 20'RT.	410.90	411+15	410.90	SD 4.13
I-7	TYPE 'K' INLET	31+09.3, 20'LT.	412.75	-	412.75	SD 4.13
I-8	TYPE 'K' INLET	18+72.0, 20'LT.	374.62	374.62	374.52	SD 4.13
I-9	TYPE 'K' INLET	18+72.0, 20'RT.	374.82	374.82	374.82	SD 4.13
I-10	TYPE 'K' INLET	15+44.6, 20'RT.	381.55	382.05	381.55	SD 4.13
I-11	TYPE 'K' INLET	11+02.0, 20'LT.	393.47	15' 393.52	393.47	SD 4.13
I-12	TYPE 'K' INLET	11+02.0, 20'RT.	394.22	18' 394.27	394.22	SD 4.13
I-13	TYPE 'K' INLET	7+25.3, 20'RT.	403.77	403.88	403.77	SD 4.13
I-14	TYPE 'K' INLET	0+32.9, 20'RT.	410.00	-	410.00	SD 4.13
I-15	TYPE 'K' INLET *	0+32.9, 12'LT.	409.55	409.55	409.55	SD 4.13
I-16	TYPE 'K' INLET	0+22.9, 20'LT.	404.00	-	404.00	SD 4.13

NOTES: 1. FOR TYPE 'K' INLETS IN EXCESS OF 3'-6" OF DEPTH, PROVIDE MANHOLE STEPS FOR ACCESS.
* CONVERTED TO MANHOLE - PROVIDE TOP SLAB AND SIDEWALK FRAME AND COVER (0.391)



STORM DRAIN PROFILE
SCALE: 1"=50' HORZ.
1"=5' VERT.



STORM DRAIN PROFILE
SCALE: 1"=50' HORZ.
1"=5' VERT.

OWNER / DEVELOPER
LIME KILN VALLEY, L.L.C.
8835-P COLUMBIA, 100 PARKWAY
COLUMBIA, MARYLAND 21045
(410) 730-0810

NO.	REVISION	DATE
1	ADJUST ROAD ALIGNMENT AT STATION 3+99, CONVERT I/I'S TO MANHOLE, INSTALL NEW I/I AND ADJUST STORM DRAIN AND PUBLIC STREET TREE EASEMENTS 02/20/08	

**STORM DRAIN PROFILES
LIME KILN VALLEY II
PHASE I & PHASE II**
LOTS 1-21, 23-24, 26-39
AND OPEN SPACE LOTS 22 AND 25

TAX MAPS 40 AND 45 PARCELS 114 AND 12
5TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

**ROBERT H. VOGEL
ENGINEERING, INC.**
ENGINEERS • SURVEYORS • PLANNERS
8407 MAIN STREET TEL: 410.461.7666
ELLCOTT CITY, MD 21043 FAX: 410.461.8961

DESIGN BY: JCO
DRAWN BY: JCO
CHECKED BY: RHM
DATE: DEC 2006
SCALE: AS SHOWN
W.O. NO.: 04-21.00

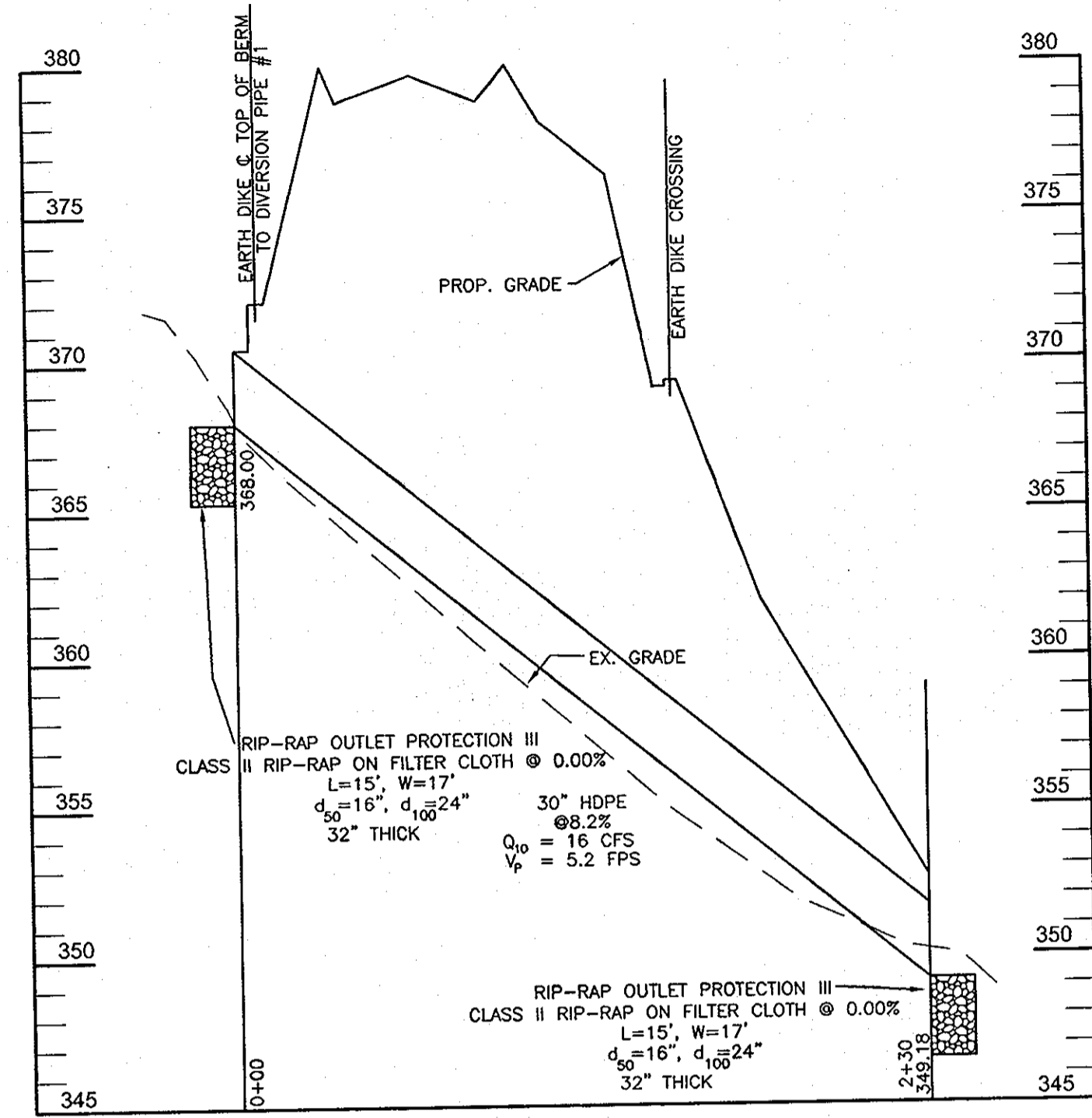
11 SHEET OF 16

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Walter E. Marshall
CHIEF, BUREAU OF HIGHWAYS
DATE: 6-26-07

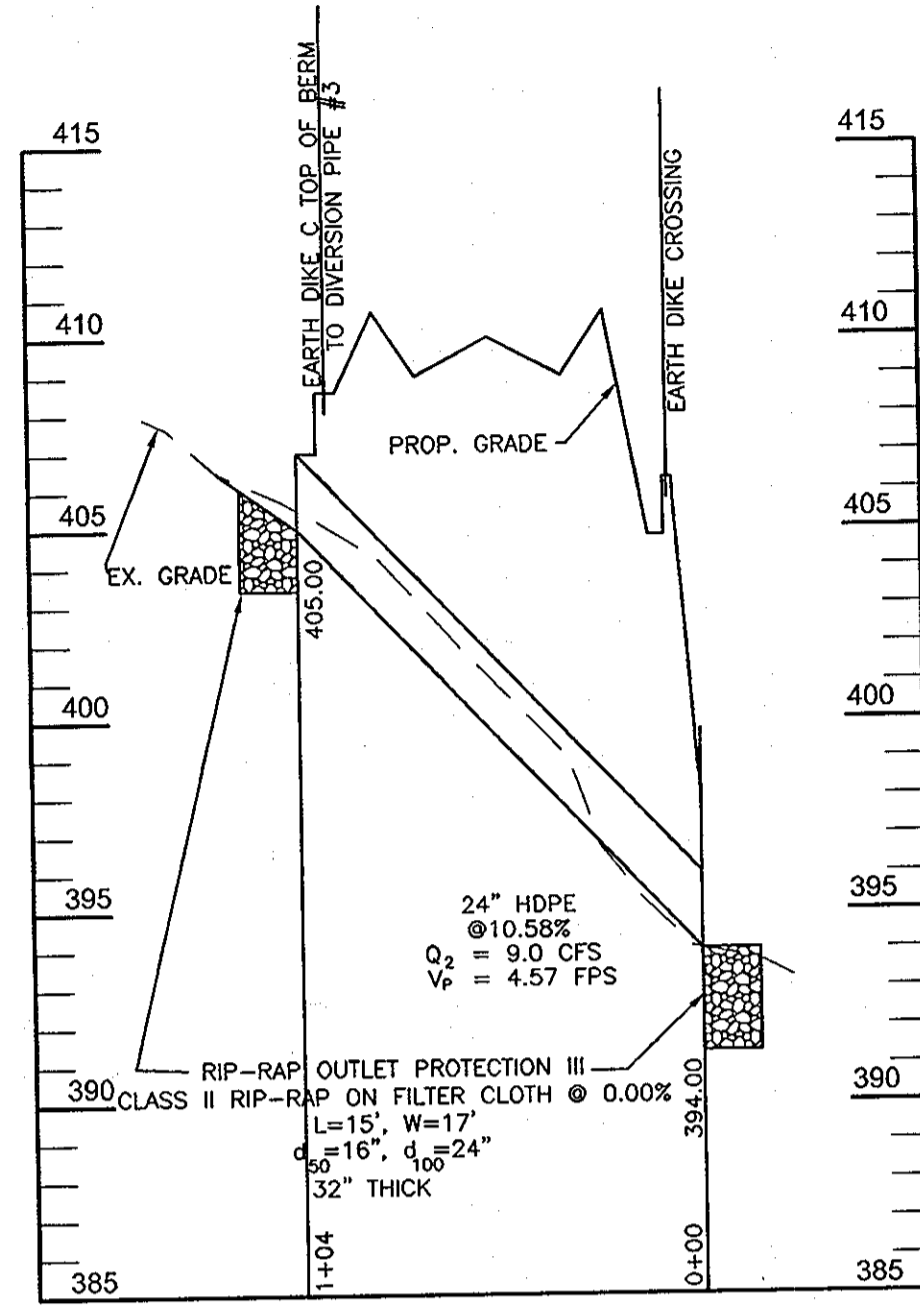
AS-BUILT CERTIFICATION
I hereby certify that the facility shown on this plan was constructed as shown on the "as-built" plans and meets the approved plans and specifications.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
Chief, Development Engineering Division
Date: 6/27/07

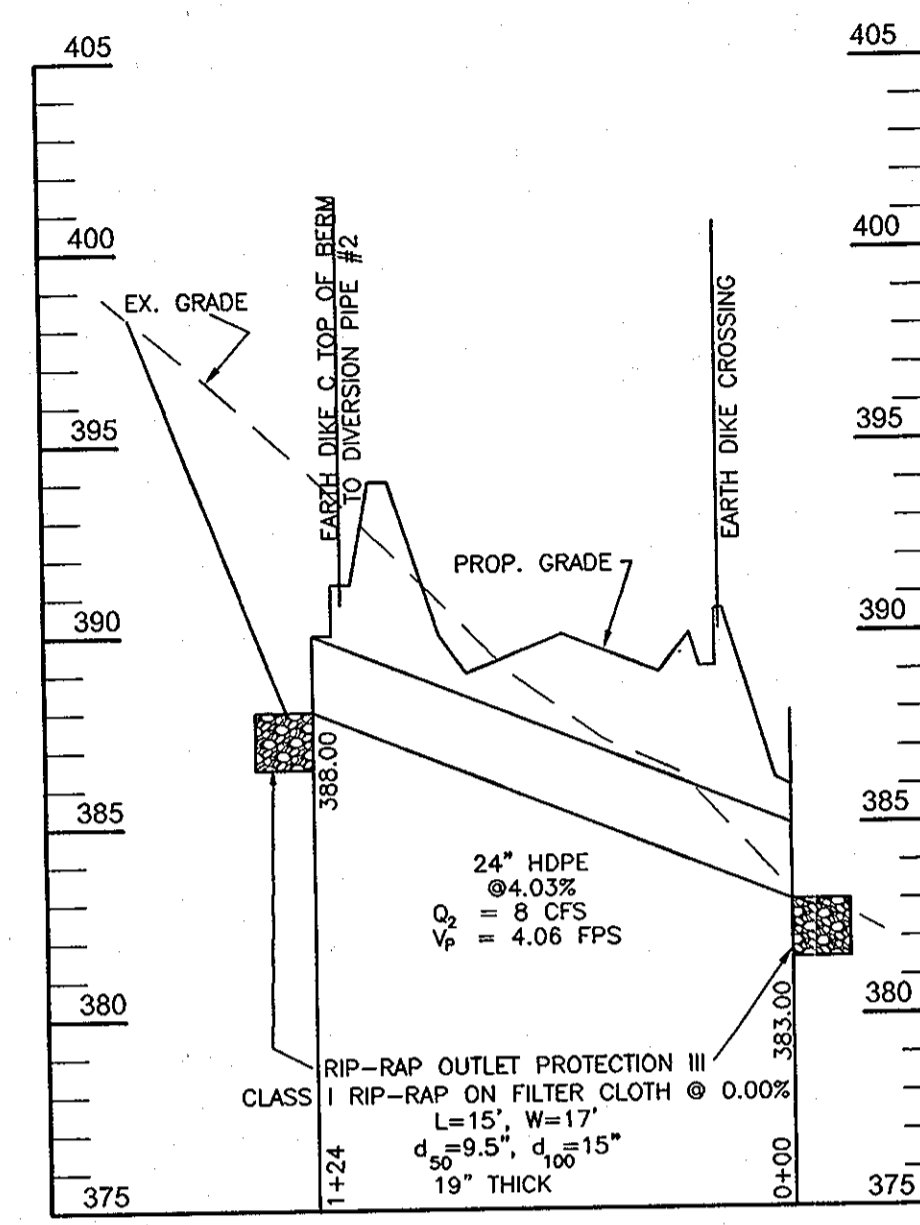
Signature: [Signature]
P.E. NO. 16193
Date: 11/17/05



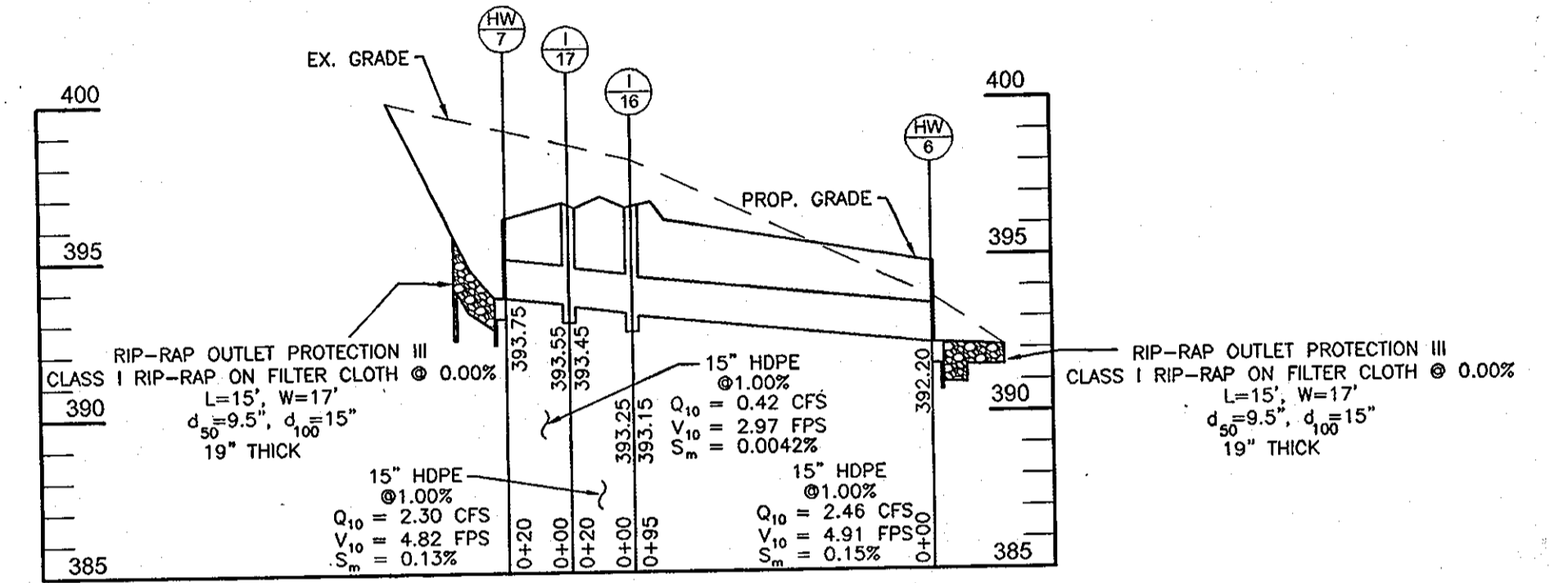
**TEMPORARY DIVERSION PIPE # 1
STORM DRAIN PROFILE**
SCALE: 1"=50' HORZ.
1"=5' VERT.



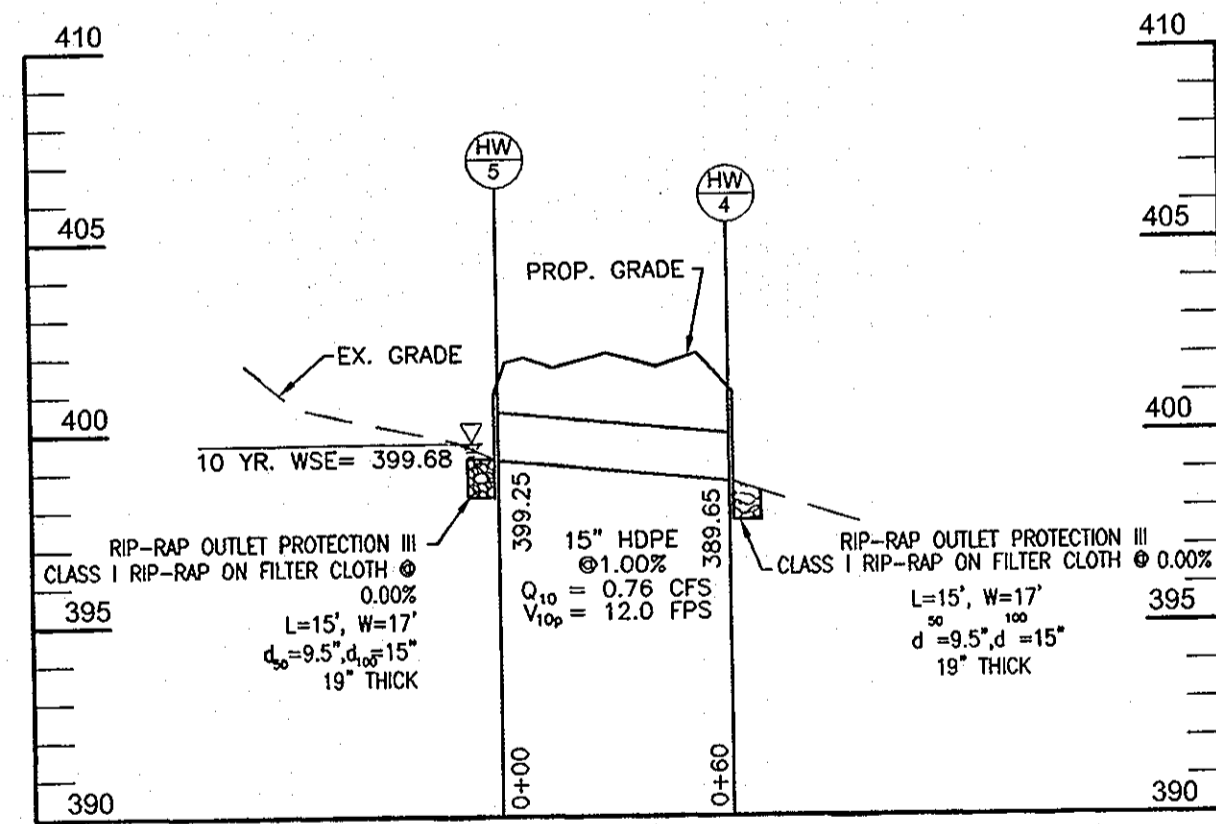
**TEMPORARY DIVERSION PIPE # 3
STORM DRAIN PROFILE**
SCALE: 1"=50' HORZ.
1"=5' VERT.



**TEMPORARY DIVERSION PIPE # 2
STORM DRAIN PROFILE**
SCALE: 1"=50' HORZ.
1"=5' VERT.



STORM DRAIN PROFILE (PRIVATE)
SCALE: 1"=50' HORZ.
1"=5' VERT.



STORM DRAIN PROFILE
SCALE: 1"=50' HORZ.
1"=5' VERT.

**Maryland's Guidelines To Waterway Construction
DETAIL 1.2: PUMP-AROUND PRACTICE**

MGWC 1.2: PUMP-AROUND PRACTICE

MGWC 1.2: PUMP-AROUND PRACTICE

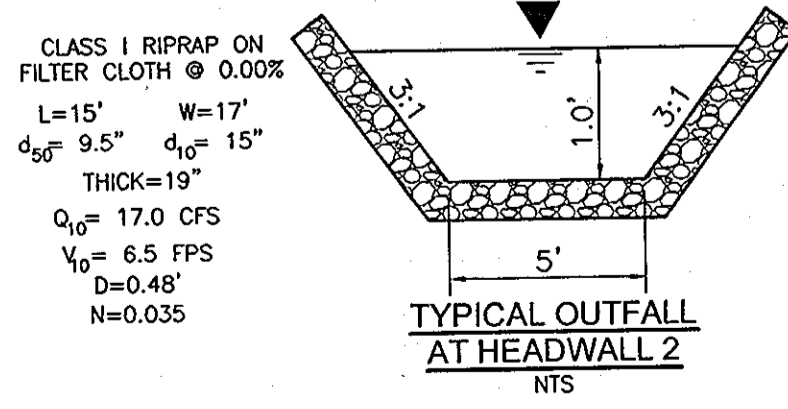
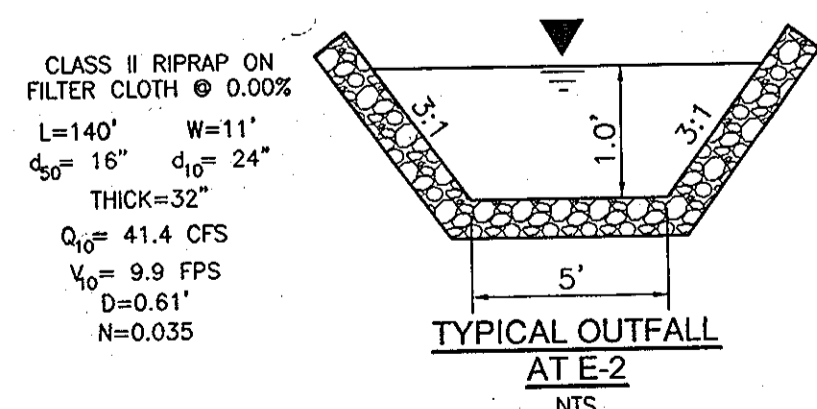
PLAN VIEW

SECTION A-A

DESCRIPTION

CONSTRUCTION SEQUENCE

1. The contractor shall install a temporary pump around and supporting structure to divert flow around the structure to be constructed.
2. The contractor shall install a temporary pump around and supporting structure to divert flow around the structure to be constructed.
3. The contractor shall install a temporary pump around and supporting structure to divert flow around the structure to be constructed.
4. The contractor shall install a temporary pump around and supporting structure to divert flow around the structure to be constructed.



APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Walter F. Marshall 6-26-07
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
Walter F. Marshall 7/2/07
CHIEF, DEVELOPMENT ENGINEERING DIVISION CE DATE

Kurt Sheehy 8/27/07
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

AS-BUILT CERTIFICATION

I hereby certify that the facility shown on this plan was constructed as shown on the "as-built" plans and meets the approved plans and specifications.

[Signature]
Signature
P.E. NO. 1693
Date 11/12/13

NO.	REVISION	DATE

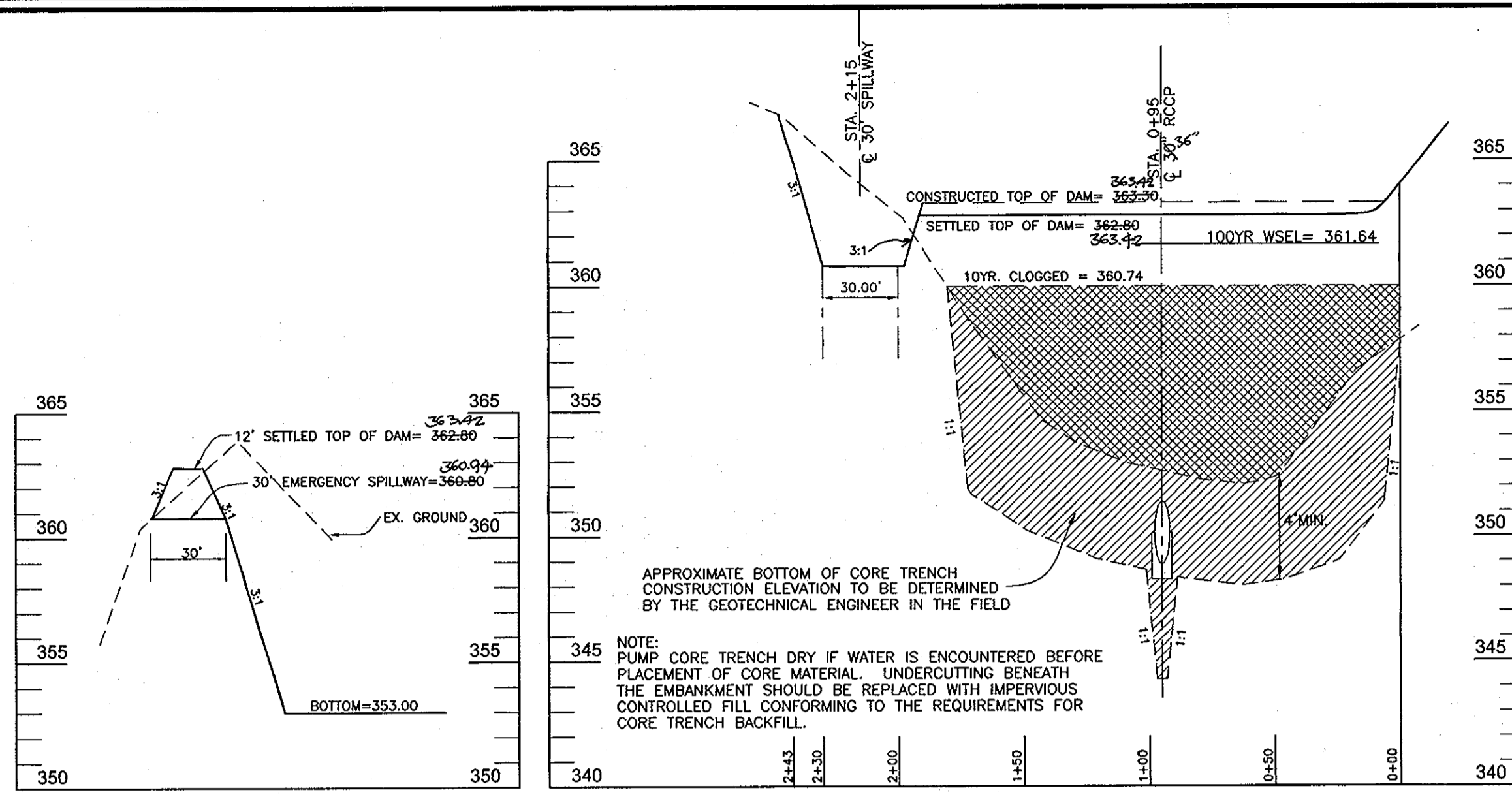
**STORM DRAIN PROFILES
LIME KILN VALLEY II
PHASE I & PHASE II**
LOTS 1-21, 23-24, 26-39
AND OPEN SPACE LOTS 22 AND 25

TAX MAPS 40 AND 45 PARCELS 114 AND 12
5TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

**ROBERT H. VOGEL
ENGINEERS • SURVEYORS • PLANNERS**
8407 MAIN STREET TEL: 410.461.7666
ELICOTT CITY, MD 21043 FAX: 410.461.8961

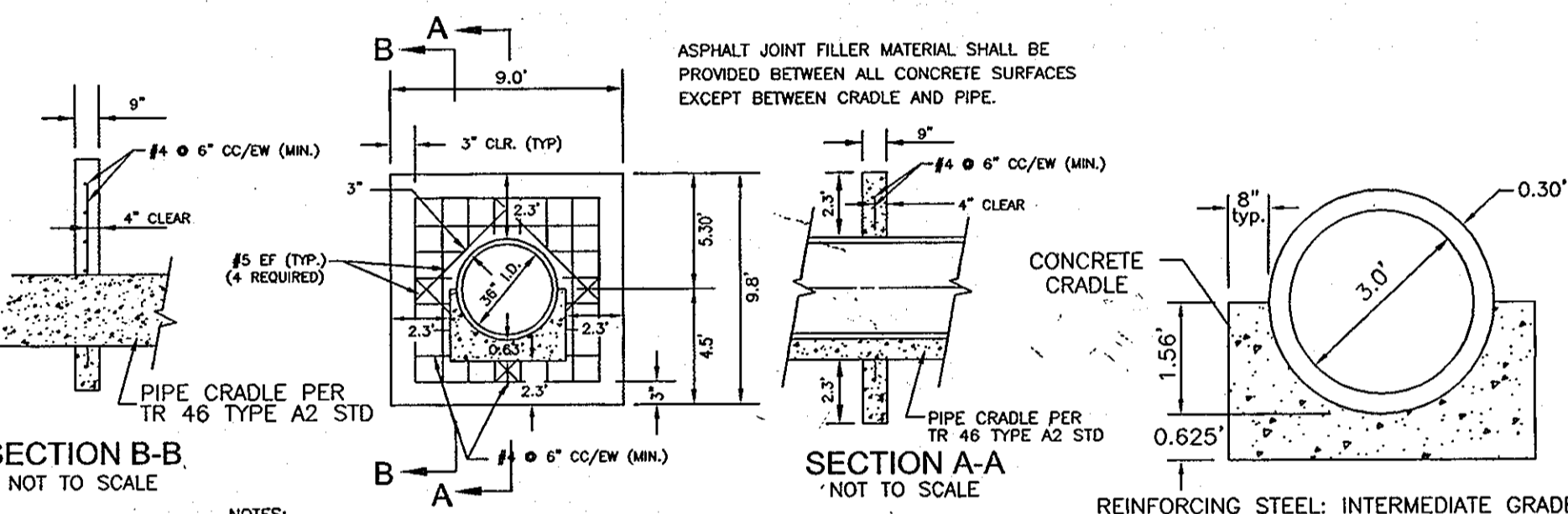
DESIGN BY: JCO
DRAWN BY: JCO
CHECKED BY: RHV
DATE: DEC 2006
SCALE: AS SHOWN
W.O. NO.: 04-21.00

12 SHEET OF 16



SECTION THROUGH EMERGENCY SPILLWAY
SCALE: 1"=50' HORZ.
1"=5' VERT.

PROFILE ALONG CENTERLINE OF DAM
SCALE: 1"=50' HORZ.
1"=5' VERT.

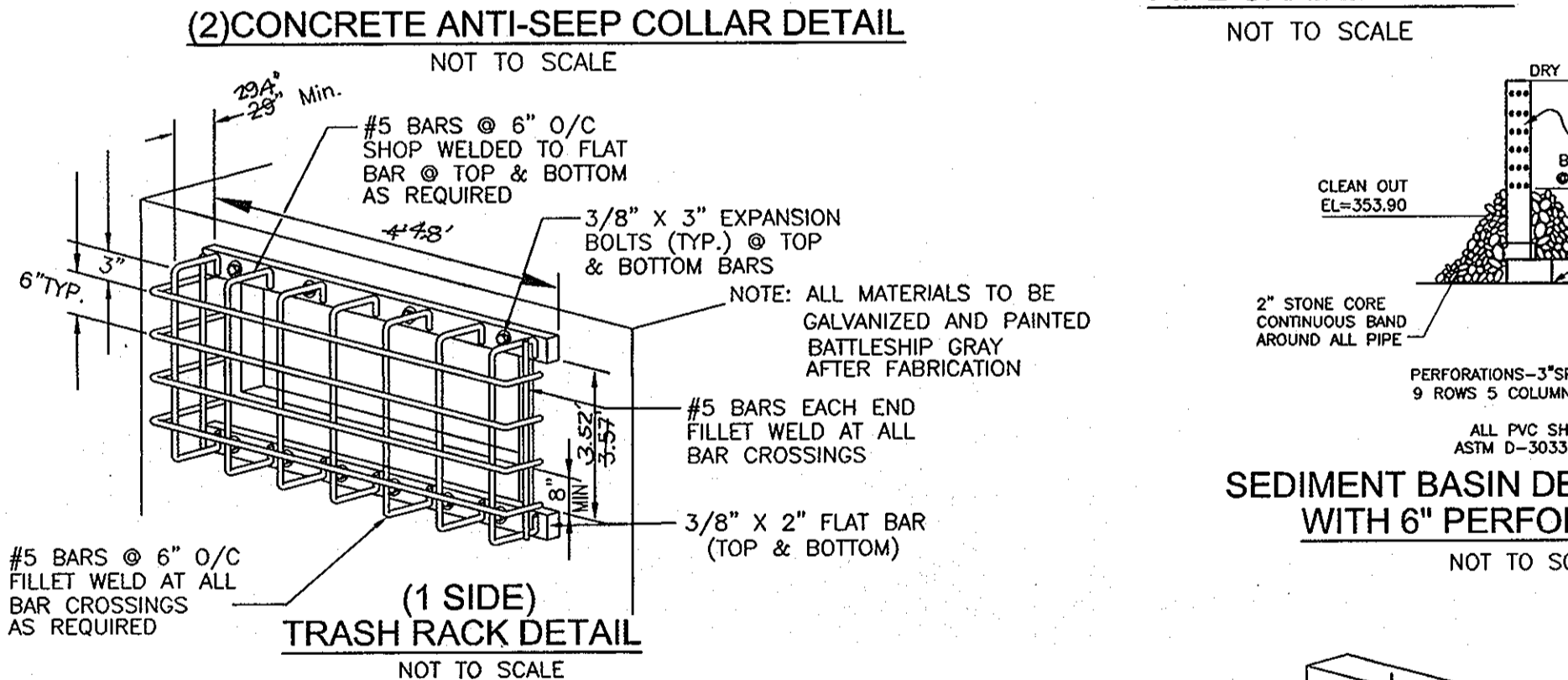


SECTION B-B
NOT TO SCALE

SECTION A-A
NOT TO SCALE

PIPE CRADLE DETAIL
NOT TO SCALE

REINFORCING STEEL: INTERMEDIATE GRADE
CONCRETE: CLASS B
1c=4,000 P.S.I.
fc=1,600 P.S.I.
(REF. TR-46)



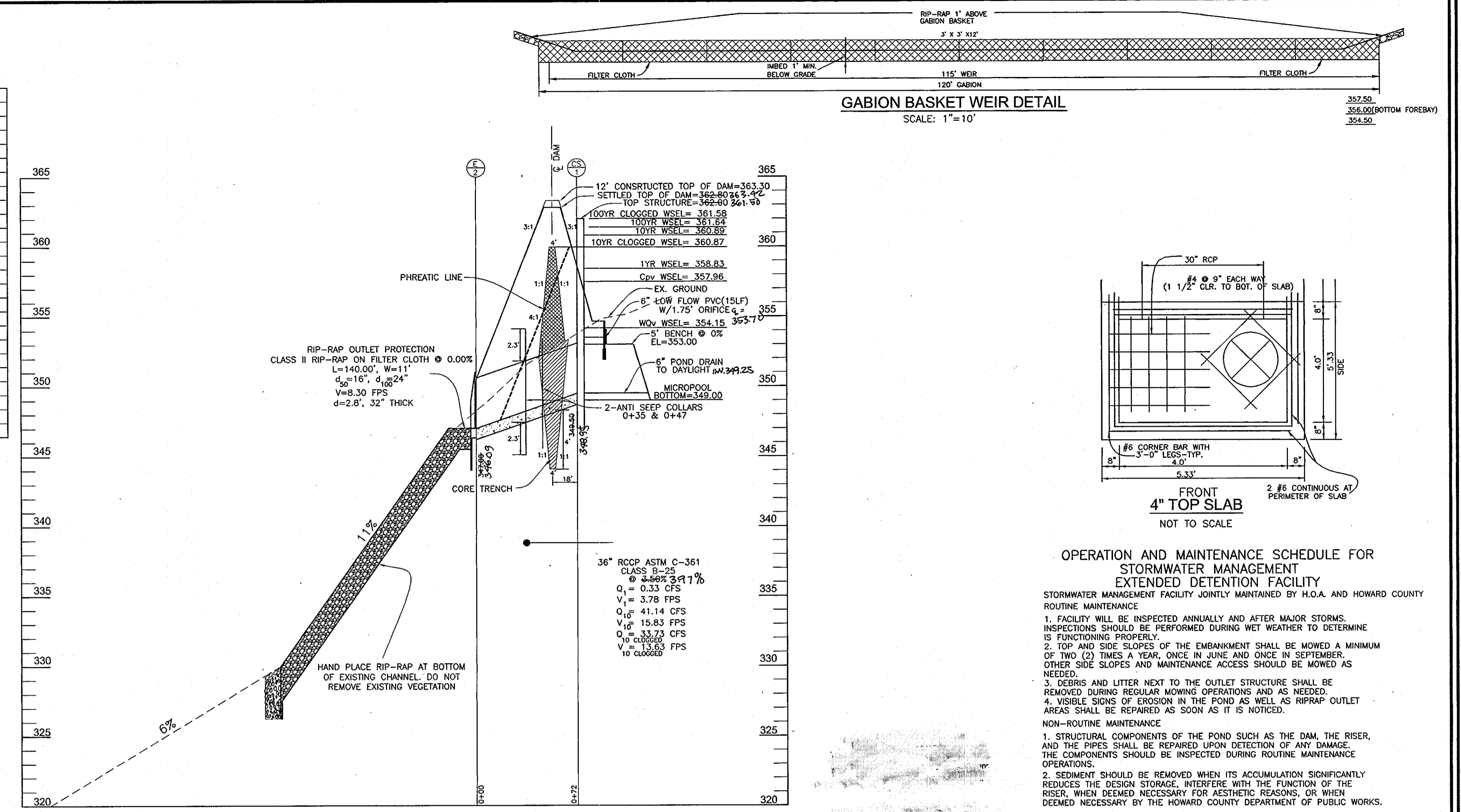
(2) CONCRETE ANTI-SEEP COLLAR DETAIL
NOT TO SCALE

TRASH RACK DETAIL (1 SIDE)
NOT TO SCALE

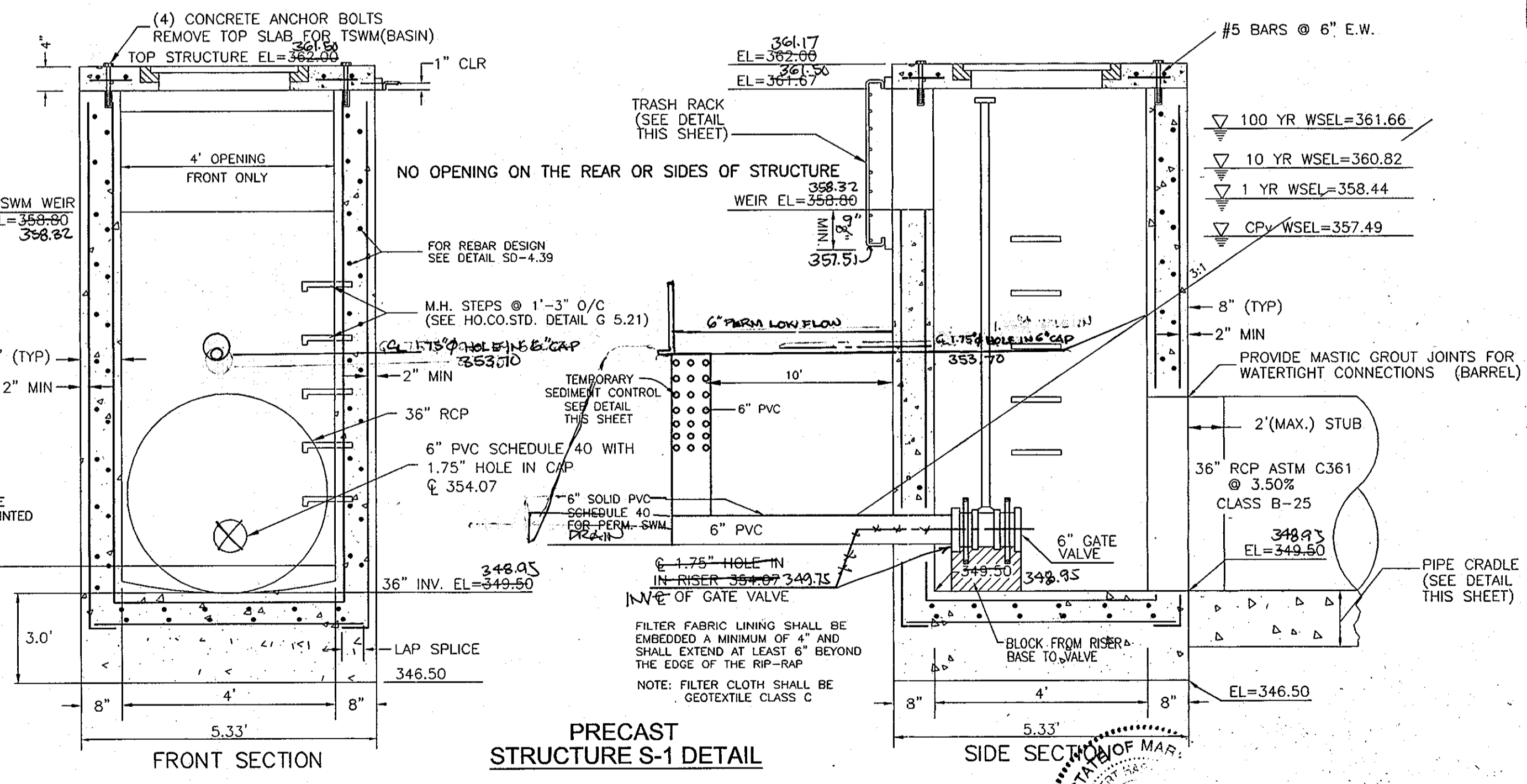
LOW FLOW ORIFICE TRASH RACK DETAIL
NOT TO SCALE

AREA	REQUIREMENT	VOLUME REQUIREMENT W/O CREDITS	CREDITS	VOLUME REQUIREMENT AFTER CREDITS	NOTES
1	WATER QUALITY VOLUME WQV	0.78 AC.FT.	0.9970 AC.FT. W/WHOLE GRASS ALONG ROAD	0.1929 AC.FT.	MICROPOOL POND(P-1)
2	RECHARGE VOLUME REV	0.19 AC.FT. OR 2.07 AC.	2.27 AC. IMP. AREA TO GRASS CHANNELS ALONG ROAD	0	
3	CHANNEL PROTECTION VOLUME CPV	0.73 AC.FT.	N/A	0.73 AC.FT.	MICROPOOL POND(P-1)
4	OVERHEAD FLOOD PROTECTION Q10P	N/A	N/A	N/A	
5	EXTREME FLOOD VOLUME Q100P	N/A	N/A	N/A	

NOTE: SWM PROVIDED BY A MICROPOOL POND(P-1) FACILITY



PRINCIPAL SPILLWAY PROFILE
SCALE: 1"=50' HORZ.
1"=5' VERT.



POND #1 SUMMARY

	1 YEAR	10 YEAR	100 YEAR
FLOW INTO POND	8.12 c.f.s.	62.75 c.f.s.	121.44 c.f.s.
FLOW OUT OF POND	0.33 c.f.s.	41.14 c.f.s.	112.83 c.f.s.
W.S. ELEVATION	358.83	360.89	361.64
STORAGE VOLUME	0.84 AC.FT	1.39 AC.FT	1.42 AC.FT

	WQV	CPV	REV
	0.19 AC.Ft.	0.73 AC.Ft.	0.00 AC.Ft.

OPERATION AND MAINTENANCE SCHEDULE FOR STORMWATER MANAGEMENT EXTENDED DETENTION FACILITY

STORMWATER MANAGEMENT FACILITY JOINTLY MAINTAINED BY H.O.A. AND HOWARD COUNTY ROUTINE MAINTENANCE:

- FACILITY WILL BE INSPECTED ANNUALLY AND AFTER MAJOR STORMS. INSPECTIONS SHOULD BE PERFORMED DURING WET WEATHER TO DETERMINE IS FUNCTIONING PROPERLY.
- TOP AND SIDE SLOPES OF THE EMBANKMENT SHALL BE MOWED A MINIMUM OF TWO (2) TIMES A YEAR, ONCE IN JUNE AND ONCE IN SEPTEMBER. OTHER SIDE SLOPES AND MAINTENANCE ACCESS SHOULD BE MOWED AS NEEDED.
- DEBRIS AND LITTER NEXT TO THE OUTLET STRUCTURE SHALL BE REMOVED DURING REGULAR MOWING OPERATIONS AND AS NEEDED.
- VISIBLE SIGNS OF EROSION IN THE POND AS WELL AS RIPRAP OUTLET AREAS SHALL BE REPAIRED AS SOON AS IT IS NOTICED.

NON-ROUTINE MAINTENANCE

- STRUCTURAL COMPONENTS OF THE POND SUCH AS THE DAM, THE RISER, AND THE PIPES SHALL BE REPAIRED UPON DETECTION OF ANY DAMAGE. THE COMPONENTS SHOULD BE INSPECTED DURING ROUTINE MAINTENANCE OPERATIONS.
- SEDIMENT SHOULD BE REMOVED WHEN ITS ACCUMULATION SIGNIFICANTLY REDUCES THE DESIGN STORAGE, INTERFERE WITH THE FUNCTION OF THE RISER, WHEN DEEMED NECESSARY FOR AESTHETIC REASONS, OR WHEN DEEMED NECESSARY BY THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.

OPERATION, MAINTENANCE AND INSPECTION

INSPECTION OF THE POND(S) SHOWN HEREON SHALL BE PERFORMED AT LEAST ANNUALLY, IN ACCORDANCE WITH THE CHECKLIST AND REQUIREMENTS CONTAINED WITHIN USDA, SCS "STANDARDS AND SPECIFICATIONS FOR PONDS" (MD-378). THE POND OWNER(S) AND ANY HEIRS, SUCCESSORS, OR ASSIGNS SHALL BE RESPONSIBLE FOR THE SAFETY OF THE POND AND THE CONTINUED OPERATION, SURVEILLANCE, INSPECTION, AND MAINTENANCE THEREOF. THE POND OWNER(S) SHALL PROMPTLY NOTIFY THE SOIL CONSERVATION DISTRICT OF ANY UNUSUAL OBSERVATIONS THAT MAY BE INDICATORS OF DISTRESS SUCH AS EXCESSIVE SEEPAGE, TURBID SEEPAGE, SLIDING OR SLUMPING.

STORMWATER MANAGEMENT DETAILS
LIME KILN VALLEY II
PHASE I & PHASE II
LOTS 1-21, 23-24, 26-39
AND OPEN SPACE LOTS 22 AND 25

TAX MAPS 40 AND 45
5TH ELECTION DISTRICT

PARCELS 114 AND 12
HOWARD COUNTY, MARYLAND

ROBERT H. VOGEL ENGINEERING, INC.
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DESIGN BY: JCO
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DATE: DEC 2006
SCALE: AS SHOWN
W.O. NO.: 04-21.00

13 OF 16

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
6-26-07
CHIEF, BUREAU OF HIGHWAYS

REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS
USDA-NATURAL RESOURCES CONSERVATION SERVICE
DATE: 6/22/07

ENGINEERS' CERTIFICATE
I HEREBY 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 NOTICED 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.
M. RAZAVI
6/14/07

DEVELOPER'S CERTIFICATE
I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE IN ACCORDANCE 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.
DATE: 6/14/07

SCALE: "AS-BUILT" CERTIFICATION
I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE AS-BUILT PLANS AND MEETS THE APPROVED PLANS AND SPECIFICATIONS.
ROBERT H. VOGEL, P.E. #16193
DATE: 1/12/13

OWNER / DEVELOPER
LIME KILN VALLEY, L.L.C.
8835-P COLUMBIA 100 PARKWAY
COLUMBIA, MARYLAND 21045
(410) 730-0810

MARYLAND 378
STORMWATER MANAGEMENT POND CONSTRUCTION SPECIFICATIONS

CONSTRUCTION SPECIFICATIONS

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

Site Preparation

Areas designated for borrow areas, embankment, and structural works shall be cleared, grubbed and stripped of topsoil. All trees, vegetation, roots and other objectionable material shall be removed. Channel banks and sharp berms shall be sloped to no steeper than 1:1. All trees shall be cleared and grubbed within 15 feet of the low of the embankment.

Areas to be covered by the reservoir will be cleared of all trees, brush, logs, stumps, rubbish and other objectionable material unless otherwise designated on the plans. Trees, brush, and stumps shall be cut approximately level with the ground surface. For stormwater management ponds, a minimum of a 25-foot radius around the inlet structure shall be cleared.

All cleared and grubbed material shall be disposed of outside and below the limits of the dam and reservoir as directed by the owner or his representative. When specified, a sufficient quantity of topsoil will be stockpiled in a suitable location for use on the embankment and other designated areas.

Earth Fill

Material - The fill material shall be taken from approved designated borrow areas. It shall be free of roots, stumps, wood, rubbish, stones greater than 6", frozen or other objectionable materials. Fill material for the center of the embankment, and cut off trench shall conform to Unified Soil Classification Code, SC, CH, or CL and must have at least 30% passing the #20 sieve. Consideration may be given to the use of other materials in the embankment if designed by a geotechnical engineer. Such special designs must have construction supervised by a geotechnical engineer. Materials used in the outer shell of the embankment must have the capability to support vegetation of the quality required to prevent erosion of the embankment.

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

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

When required by the reviewing agency the minimum required density shall not be less than 95% of maximum dry density with a moisture content within +1% to -2% of optimum. Each layer of fill shall be compacted as necessary to obtain that density, and is to be certified by the Engineer at the time of construction. All compaction is to be determined by ASHTO Method T-99 (Standard Proctor).

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

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

Structure Backfill

Backfill adjacent to pipes or structures shall be of the type and quality conforming to that specified for the adjoining fill material. The fill shall be placed in horizontal layers not to exceed four inches in thickness and compacted by hand tampers or other manually directed compaction equipment. The material needs to fill completely all spaces under and adjacent to the pipe. At no time during the backfilling operation shall driven equipment be allowed to compact 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 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 ensure flowability of the material. Adequate measures shall be taken (sand bags, etc.) to prevent flooding the pipe. When using flowable fill, all metal pipe shall be bluntnosed, open. 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 compact closer than four feet, measured horizontally, to any part of the 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 (flowable fill) zone shall be of the type and quality conforming to that specified for the core of the embankment or other embankment materials.

Pipe Conduits

All pipes shall be circular in cross section.

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

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

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

Materials - (Aluminum Pipe) - This pipe and its appurtenances shall conform to the requirements of ASHTO Specification M-195 or M-211 with watertight coupling bands or flanges. Aluminum Pipe, when used with flowable fill or when soil and/or water conditions warrant the need for increased durability, shall be fully bituminous coated per requirements of ASHTO Specification M-190 Type A. Aluminum surfaces that are to be in contact with concrete shall be primed with one coat of zinc chromate primer or two coats of asphalt. Hot dip galvanized bolts may be used for connections. The pH of the surrounding soils shall be between 4 and 9.

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

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

All connections shall use a rubber or neoprene gasket when joining pipe sections. The end of each pipe shall be reinforced on adequate number of corrugations to accommodate the backfill. The following type connections are acceptable for pipes less than 24 inches diameter. Flanges on both ends of the pipe with a circular 3/8 inch thick closed cell circular neoprene gasket; and a 12-inch wide lugger type band with o-ring gaskets having a minimum diameter of 1/2 inch greater than the corrugation depth. Pipes 24 inches in diameter and larger shall be connected by a 24 inch long annular corrugated band using a minimum of 4(four) rods and lugs, 2 on each connecting pipe end. A 24-inch wide by 3/8-inch thick closed cell circular neoprene gasket will be installed with 12 inches on the end of each pipe. Flanged joints with 3/8 inch closed cell gaskets the full width of the flange is also acceptable.

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

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

5. Backfilling shall conform to ASHTO Backfill "C".

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

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

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

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

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

4. Backfilling shall conform to ASHTO Backfill "C".

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

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

1. Materials - PVC pipe shall be PVC-1120 or PVC-1220 conforming to ASTM D-1785 or ASTM D-2241. Corrugated high density polyethylene (HDPE) pipe, coatings and fittings shall conform to the following: 4" - 10" inch pipe shall meet the requirements of ASHTO M252 Type S, and 12" through 24" inch shall meet the requirements of ASHTO M294 Type S.

2. Joints and connections to anti-seep collars shall be completely watertight.

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

4. Backfilling shall conform to ASHTO Backfill "C".

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

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

Concrete

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

Rock Riprap

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

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

Core of Water during Construction

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

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

Erosion and Sediment Control

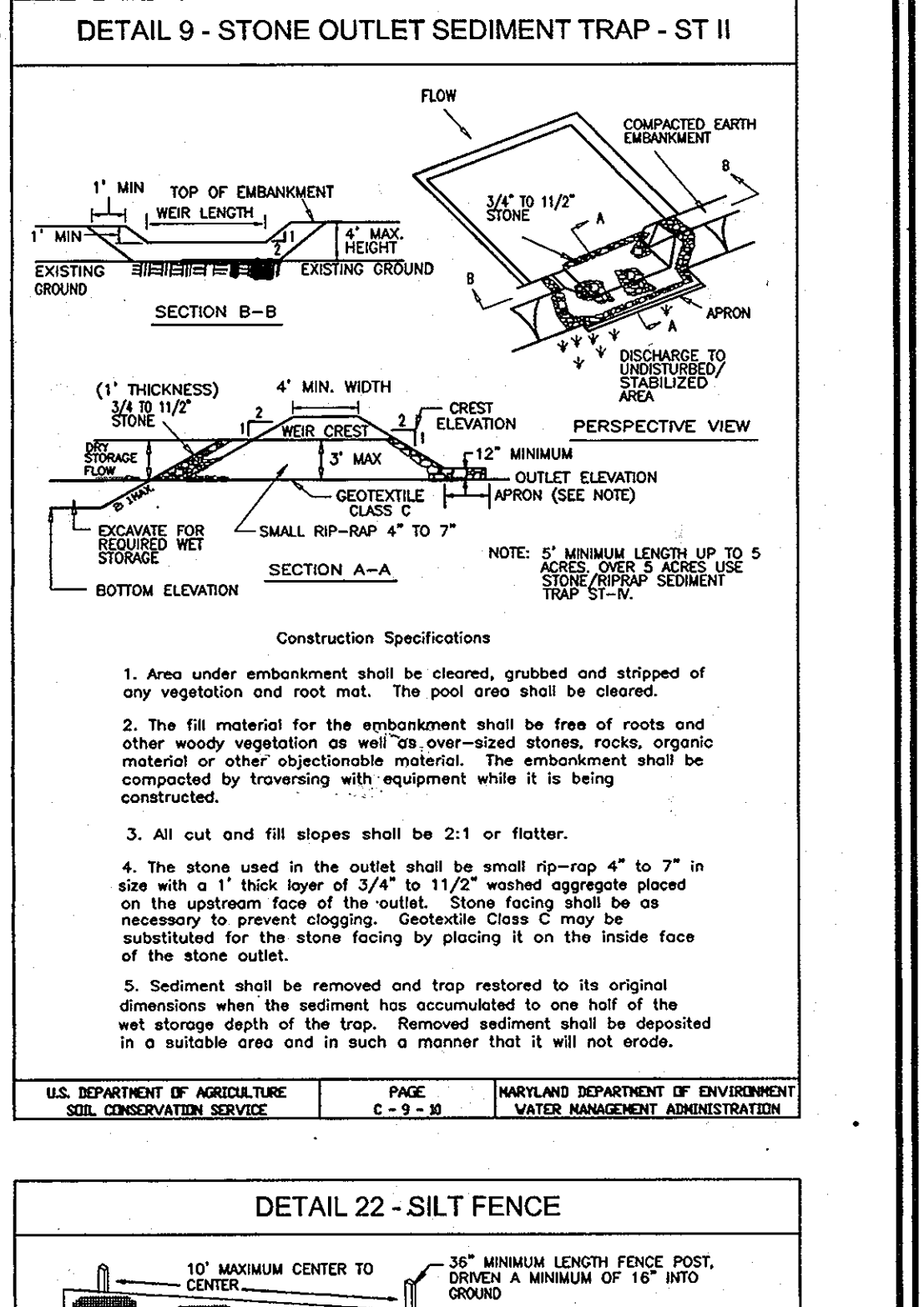
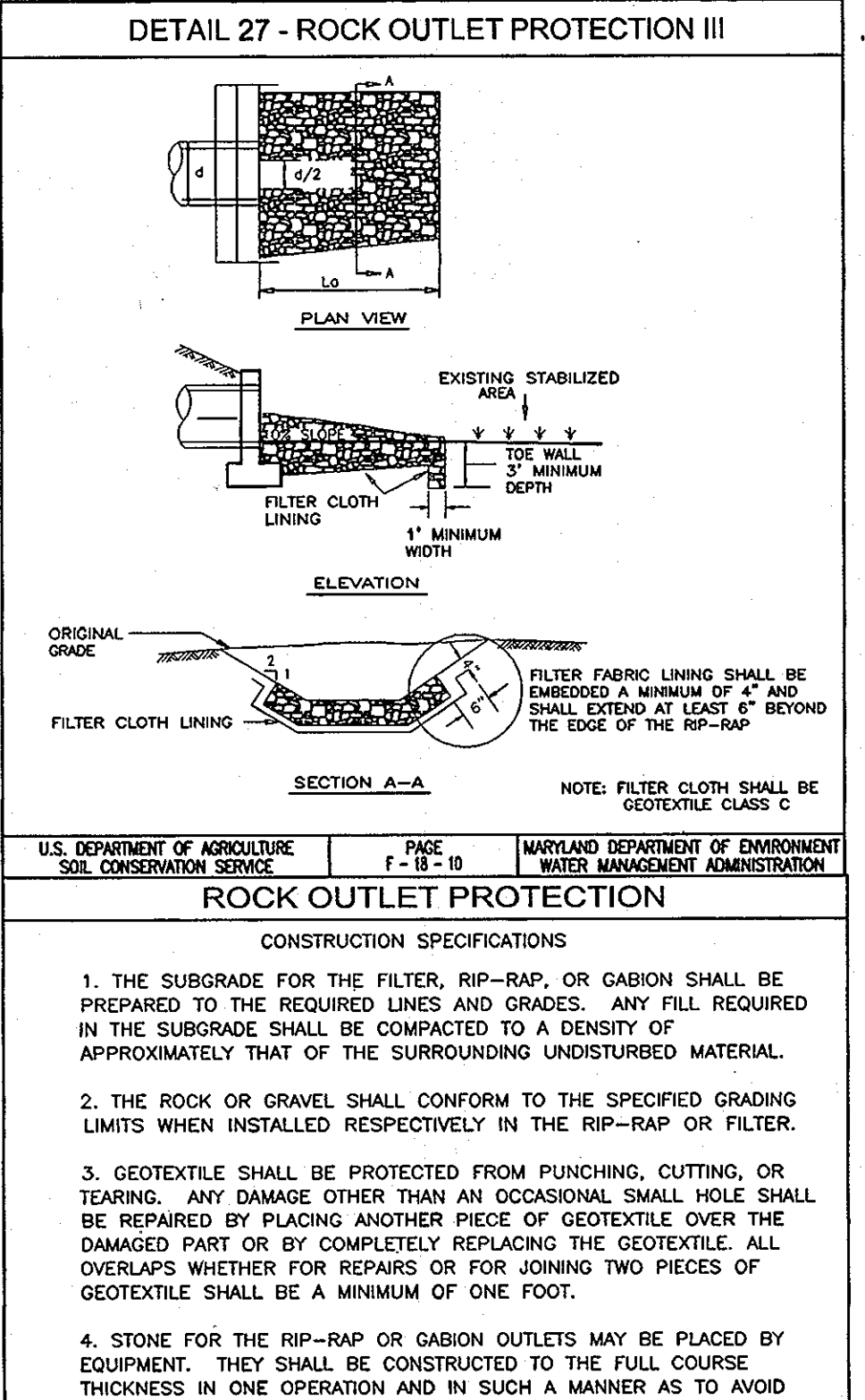
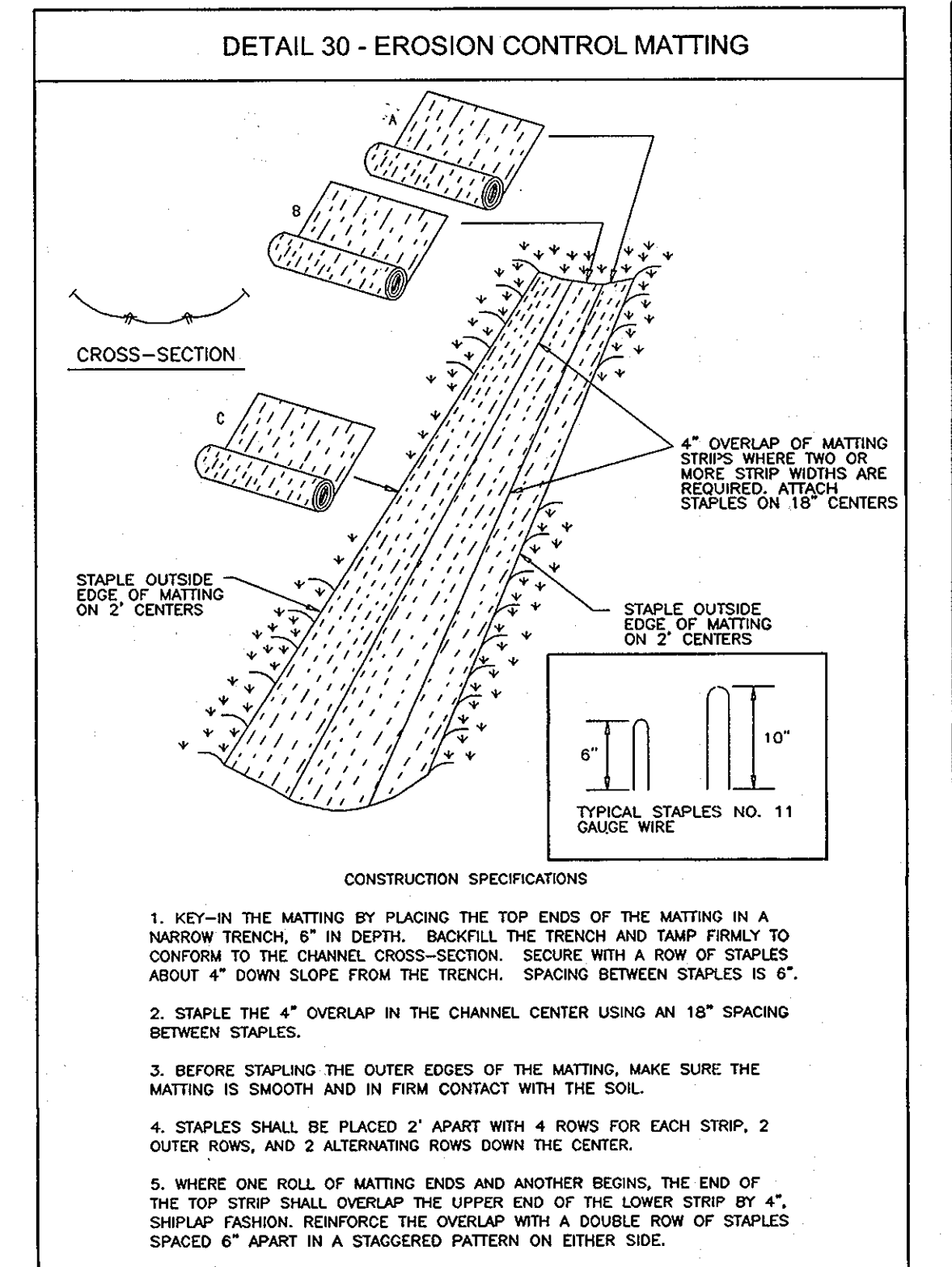
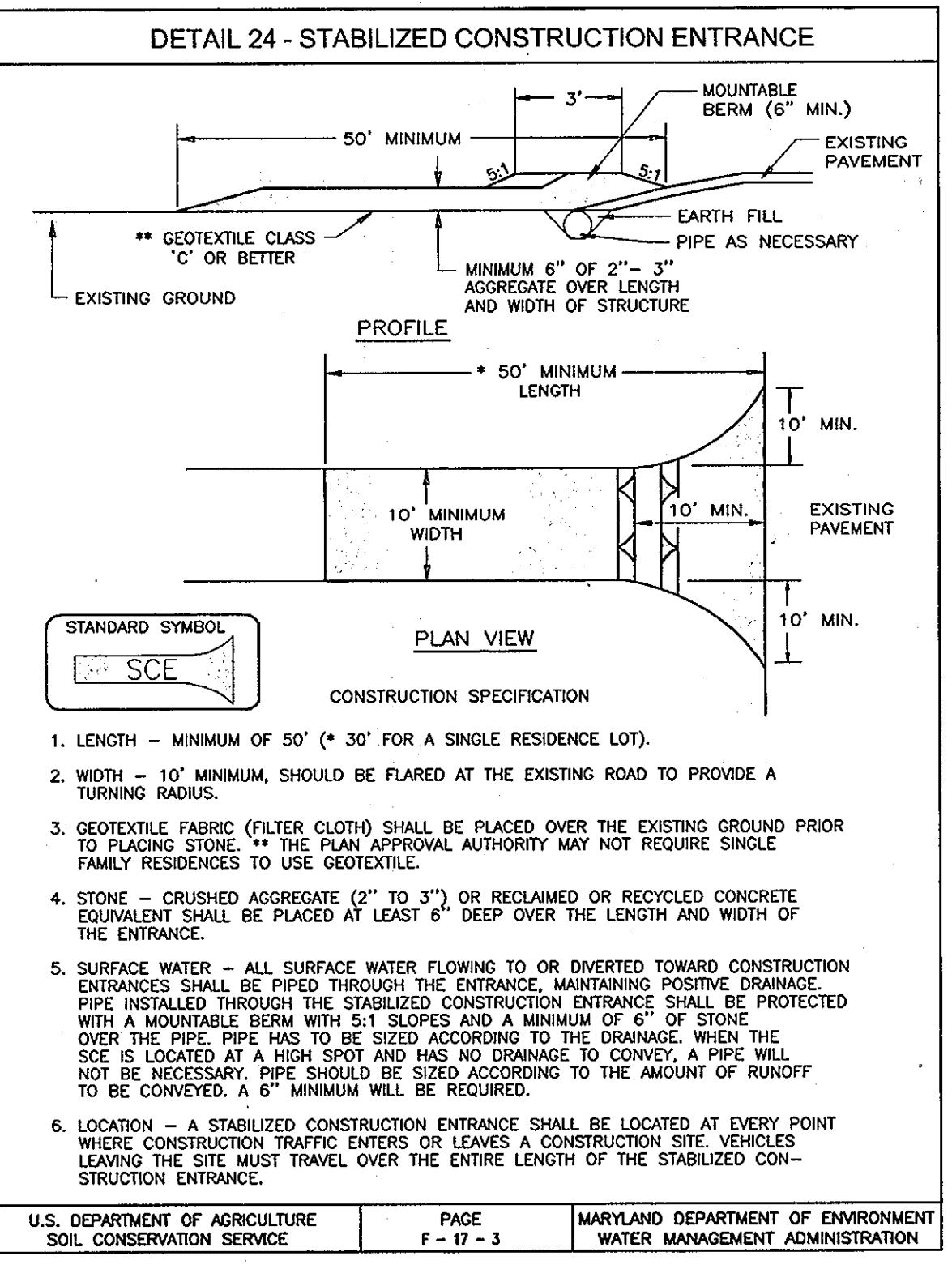
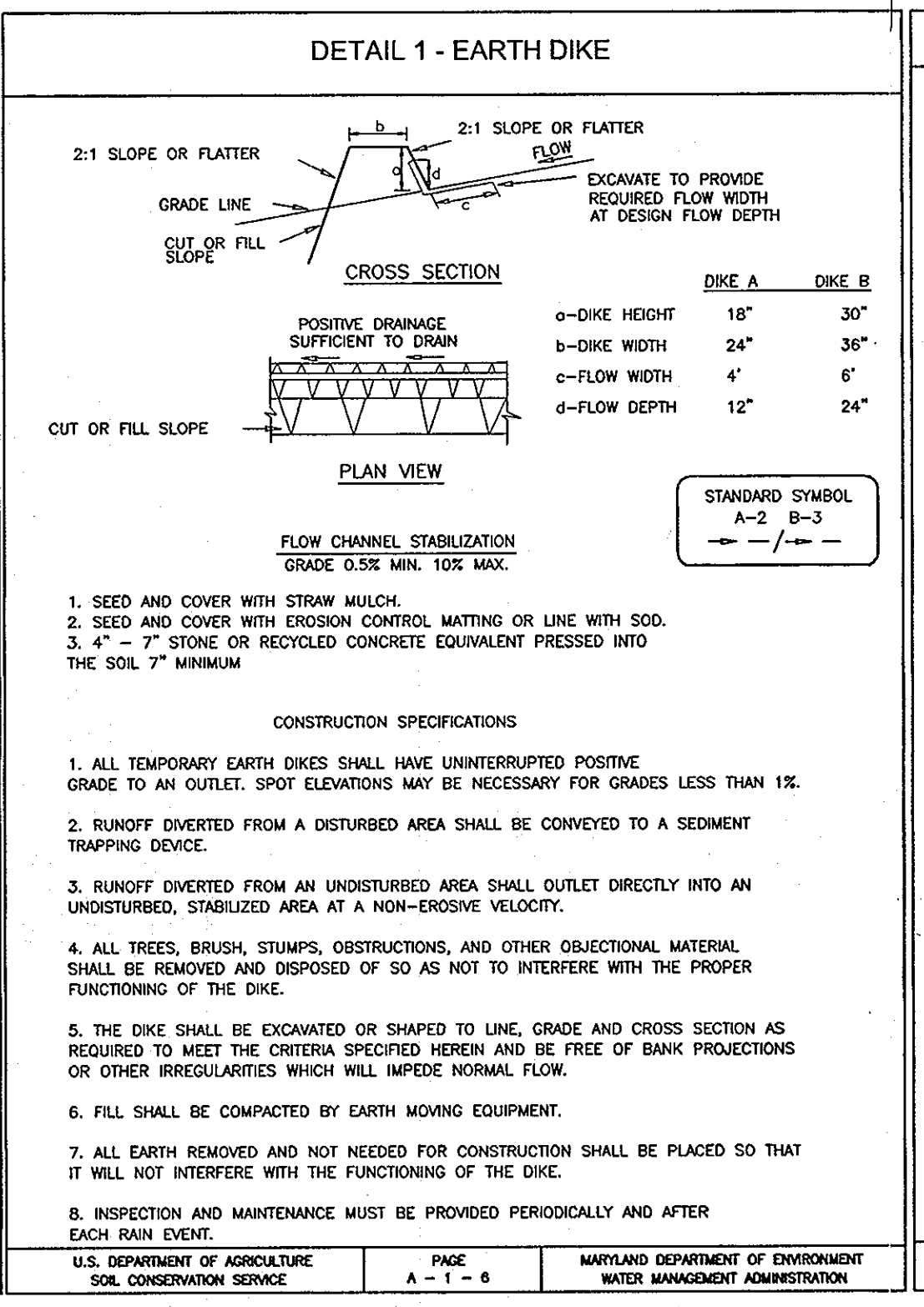
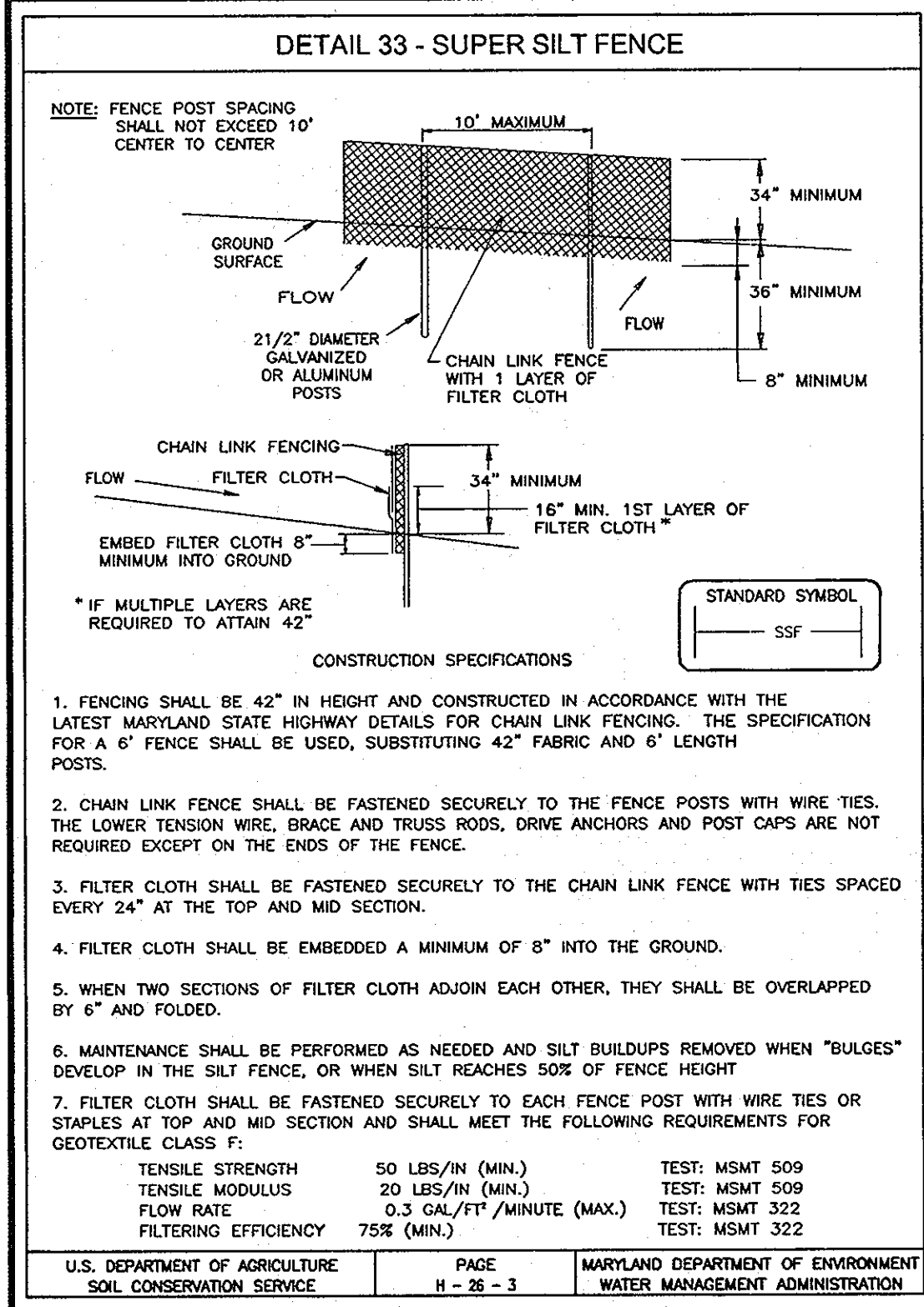
Construction operations will be carried out in such a manner that erosion will be controlled and water and air pollution minimized. State and local laws concerning pollution abatement will be followed. Construction plans shall detail erosion and sediment control measures.

POND BOTTOM SOIL CONDITIONS

If broken rock fragments are encountered at finished pond bottom, under cut a minimum of 12" below basin grade and to a horizontal distance of at least 18" beyond each edge of the broken rock and backfill with fine-grained ML or CL soils compacted to a firm condition. This procedure should be performed under the supervision of the project Geotechnical Engineer.

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

Station	Depth	Soil Description	Moisture	Specific Gravity	Notes
150	0-2	Dark brown silty clay	22.5	2.70	
150	2-5	Dark brown silty clay	22.5	2.70	
150	5-8	Dark brown silty clay	22.5	2.70	
150	8-11	Dark brown silty clay	22.5	2.70	
150	11-14	Dark brown silty clay	22.5	2.70	
150	14-17	Dark brown silty clay	22.5	2.70	
150	17-20	Dark brown silty clay	22.5	2.70	
150	20-23	Dark brown silty clay	22.5	2.70	
150	23-26	Dark brown silty clay	22.5	2.70	
150	26-29	Dark brown silty clay	22.5	2.70	
150	29-32	Dark brown silty clay	22.5	2.70	
150	32-35	Dark brown silty clay	22.5	2.70	
150	35-38	Dark brown silty clay	22.5	2.70	
150	38-41	Dark brown silty clay	22.5	2.70	
150	41-44	Dark brown silty clay	22.5	2.70	
150	44-47	Dark brown silty clay	22.5	2.70	
150	47-50	Dark brown silty clay	22.5	2.70	
150	50-53	Dark brown silty clay	22.5	2.70	
150	53-56	Dark brown silty clay	22.5	2.70	
150	56-59	Dark brown silty clay	22.5	2.70	
150	59-62	Dark brown silty clay	22.5	2.70	
150	62-65	Dark brown silty clay	22.5	2.70	
150	65-68	Dark brown silty clay	22.5	2.70	
150	68-71	Dark brown silty clay	22.5	2.70	
150	71-74	Dark brown silty clay	22.5	2.70	
150	74-77	Dark brown silty clay	22.5	2.70	
150	77-80	Dark brown silty clay	22.5	2.70	
150	80-83	Dark brown silty clay	22.5	2.70	
150	83-86	Dark brown silty clay	22.5	2.70	
150	86-89	Dark brown silty clay	22.5	2.70	
150	89-92	Dark brown silty clay	22.5	2.70	
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150	101-104	Dark brown silty clay	22.5	2.70	
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150	107-110	Dark brown silty clay	22.5	2.70	
150	110-113	Dark brown silty clay	22.5	2.70	
150	113-116	Dark brown silty clay	22.5	2.70	
150	116-119	Dark brown silty clay	22.5	2.70	
150	119-122	Dark brown silty clay	22.5	2.70	
150	122-125	Dark brown silty clay	22.5	2.70	
150	125-128	Dark brown silty clay	22.5	2.70	
150	128-131	Dark brown silty clay	22.5	2.70	
150	131-134	Dark brown silty clay	22.5	2.70	
150	134-137	Dark brown silty clay	22.5	2.70	
150	137-140	Dark brown silty clay	22.5	2.70	
150	140-143	Dark brown silty clay	22.5	2.70	
150	143-146	Dark brown silty clay	22.5	2.70	
150	146-149	Dark brown silty clay	22.5	2.70	
150	149-152	Dark brown silty clay	22.5	2.70	
150	152-155	Dark brown silty clay	22.5	2.70	
150	155-158	Dark brown silty clay	22.5	2.70	
150	158-161	Dark brown silty clay	22.5	2.70	
150	161-164	Dark brown silty clay	22.5	2.70	
150	164-167	Dark brown silty clay	22.5	2.70	
150	167-170	Dark brown silty clay	22.5	2.70	
150	170-173	Dark brown silty clay	22.5	2.70	
150	173-176	Dark brown silty clay	22.5	2.70	
150	176-179	Dark brown silty clay	22.5	2.70	
150	179-182	Dark brown silty clay	22.5	2.70	
150	182-185	Dark brown silty clay	22.5	2.70	
150	185-188	Dark brown silty clay	22.5	2.70	
150	188-191	Dark brown silty clay	22.5	2.70	
150	191-194	Dark brown silty clay	22.5	2.70	
150	194-197	Dark brown silty clay	22.5	2.70	
150	197-200	Dark brown silty clay	22.5	2.70	
150	200-203	Dark brown silty clay	22.5	2.70	
150	203-206	Dark brown silty clay	22.5	2.70	
150	206-209	Dark brown silty clay	22.5	2.70	
150	209-212	Dark brown silty clay	22.5	2.70	
150	212-215	Dark brown silty clay	22.5	2.70	
150	215-218	Dark brown silty clay	22.5	2.70	
150	218-221	Dark brown silty clay	22.5	2.70	
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150	224-227	Dark brown silty clay	22.5	2.70	
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150	230-233	Dark brown silty clay	22.5	2.70	
150	233-236	Dark brown silty clay	22.5	2.70	
150	236-239	Dark brown silty clay	22.5	2.70	
150	239-242	Dark brown silty clay	22.5	2.70	
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150	245-248	Dark brown silty clay	22.5	2.70	
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150	251-254	Dark brown silty clay	22.5	2.70	
150	254-257	Dark brown silty clay	22.5	2.70	
150	257-260	Dark brown silty clay	22.5	2.70	
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150	263-266	Dark brown silty clay	22.5	2.70	
150	266-269	Dark brown silty clay	22.5	2.70	
150	269-272	Dark brown silty clay	22.5	2.70	
150	272-275	Dark brown silty clay	22.5	2.70	
150	275-278	Dark brown silty clay	22.5	2.70	
150	278-281	Dark brown silty clay	22.5	2.70	
150	281-284	Dark brown silty clay	22.5	2.70	
150	284-287	Dark brown silty clay	22.5	2.70	
150	287-290	Dark brown silty clay	22.5	2.70	
150	290-293	Dark brown silty clay	22.5	2.70	
150	293-296	Dark brown silty clay	22.5	2.70	
150	296-299	Dark brown silty clay	22.5	2.70	
150	299-302	Dark brown silty clay	22.5	2.70	
150	302-305	Dark brown silty clay	22.5	2.70	
150	305-308	Dark brown silty clay	22.5	2.70	
150	308-311	Dark brown silty clay	22.5	2.70	
150	311-314	Dark brown silty			



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

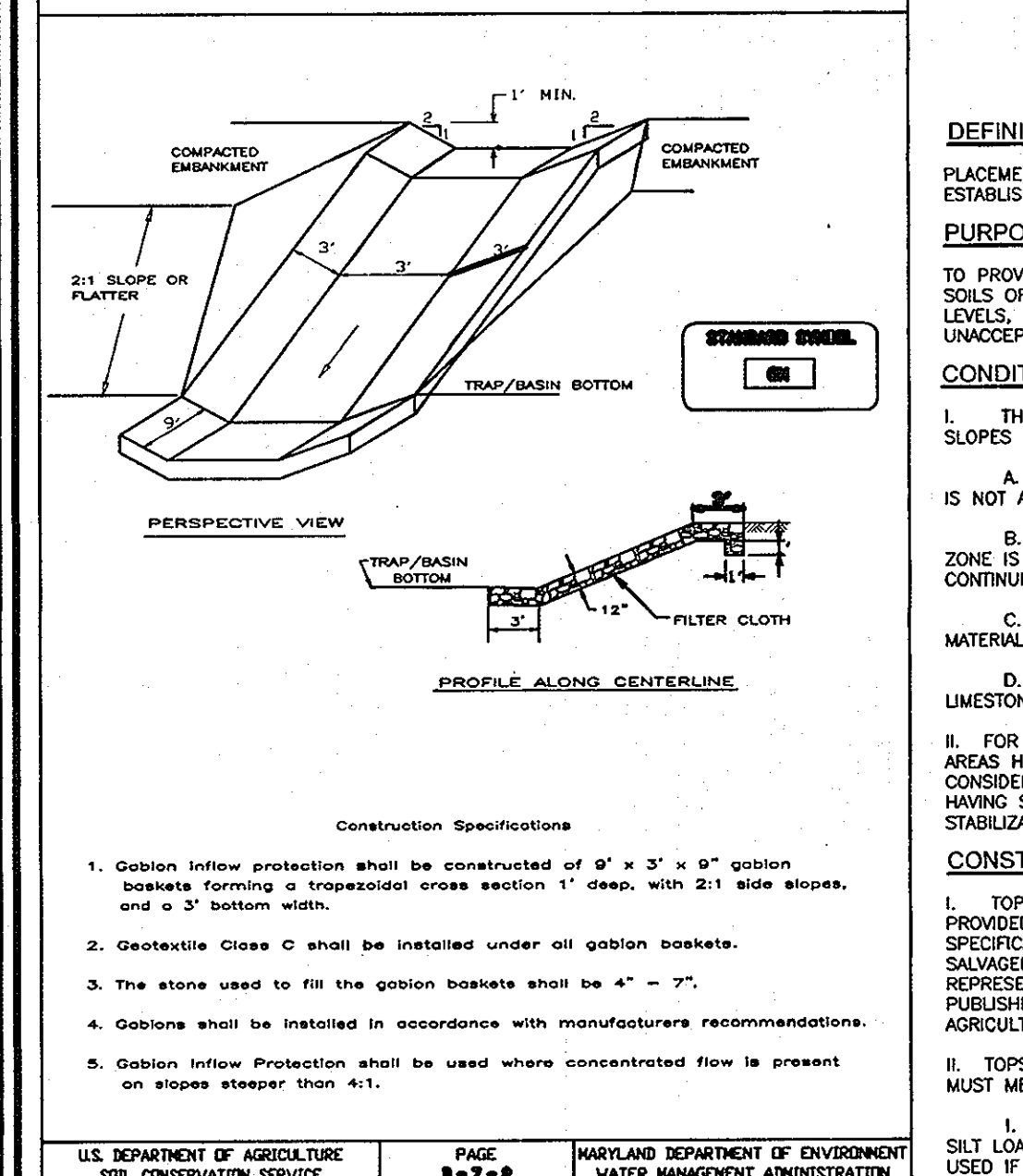
U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE A-1-6	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

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

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U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE F-18-8A	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE C-9-2	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION



21.0 STANDARDS AND SPECIFICATIONS FOR TOPSOIL

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

PURPOSE
TO PROVIDE A SUITABLE SOIL MEDIUM FOR VEGETABLE 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 WILL NOT BE DEEP ENOUGH TO SUPPORT PERMANENT VEGETATION CONTAINING SPECIES 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

- 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 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.
- TOPSOIL SPECIFICATIONS - SOIL TO BE USED AS TOPSOIL MUST MEET THE FOLLOWING:
 - 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 A 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 CONDS, STONES, SLAG, COARSE FRAGMENTS, GRAVEL, STICKS, ROOTS, TRASH, OR OTHER MATERIALS LARGER THAN 1 AND 1/2" IN DIAMETER.
 - TOPSOIL MUST BE FREE OF PLANTS OR PLANT PARTS SUCH AS BERBERIS GRASS, QUACKGRASS, JOHNSONGRASS, NUTSEDGE, 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 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.
- FOR SITES HAVING DISTURBED AREAS UNDER 5 ACRES:
 - PLACE TOPSOIL (IF REQUIRED) AND APPLY SOIL AMENDMENTS AS SPECIFIED IN 20.0 VEGETATIVE STABILIZATION - SECTION I - VEGETATIVE STABILIZATION METHODS AND MATERIALS.

PERMANENT SEEDING NOTES

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

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

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

- 1) PREFERRED-APPLY 2 TONS PER ACRE DOLOMITE LIMESTONE (92 LBS/1000 SQ.FT.) AND 500 LBS PER ACRE (1.4 LBS/1000 SQ.FT.) OF KENTUCKY 31 FERTILIZER FOR THE PERIOD MARCH 1 THRU JULY 31, SEED WITH 60 LBS. KENTUCKY 31 FERTILIZER PER ACRE AND 2 LBS PER ACRE (0.5 LBS/1000 SQ.FT.) OF WEEDING LOGGRASS. DURING THE PERIOD OF OCTOBER 16 THRU FEBRUARY 28, PROTECT SITE BY OPTION (1) 2 TONS PER ACRE OF WEEPING LOGGRASS OR OPTION (2) 2 TONS PER ACRE OF KENTUCKY 31 FERTILIZER AND MULCH WITH 2 TONS/ACRE WELLS ANCHORED STRAW.
- 2) ACCEPTABLE-APPLY 2 TONS PER ACRE DOLOMITE LIMESTONE (92 LBS/1000 SQ.FT.) AND APPLY 1000 LBS. PER ACRE 10-10-10 FERTILIZER (23 LBS/1000 SQ.FT.) BEFORE SEEDING. HARROW OR DISC INTO UPPER THREE INCHES OF SOIL.

SEEDING: FOR PERIODS MARCH 1 THRU APRIL 30, AND AUGUST 1 THRU OCTOBER 15, SEED WITH 60 LBS. PER ACRE (1.4 LBS/1000 SQ.FT.) OF KENTUCKY 31 FERTILIZER FOR THE PERIOD MAY 1 THRU JULY 31, SEED WITH 60 LBS. KENTUCKY 31 FERTILIZER PER ACRE AND 2 LBS PER ACRE (0.5 LBS/1000 SQ.FT.) OF WEEDING LOGGRASS. DURING THE PERIOD OF OCTOBER 16 THRU FEBRUARY 28, PROTECT SITE BY OPTION (1) 2 TONS PER ACRE OF WEEPING LOGGRASS OR OPTION (2) 2 TONS PER ACRE OF KENTUCKY 31 FERTILIZER AND MULCH WITH 2 TONS/ACRE WELLS ANCHORED STRAW.

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

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

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

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

SEEDING: FOR PERIODS MARCH 1 THRU APRIL 30 AND FROM AUGUST 15 THRU NOVEMBER 15, SEED WITH 2 1/2 BU/SHL PER ACRE OF ANNUAL RYE (3.2 LBS/1000 SQ.FT.) FOR THE PERIOD MAY 1 THRU AUGUST 14, SEED WITH 3 LBS PER ACRE OF WEEPING LOGGRASS (0.7 LBS/1000 SQ.FT.) FOR THE PERIOD NOVEMBER 1 THRU FEBRUARY 28, PROTECT SITE BY APPLYING 2 TONS PER ACRE OF WELLS ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING, OR USE SOO.

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

REFER TO THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR RATE AND METHODS NOT COVERED.

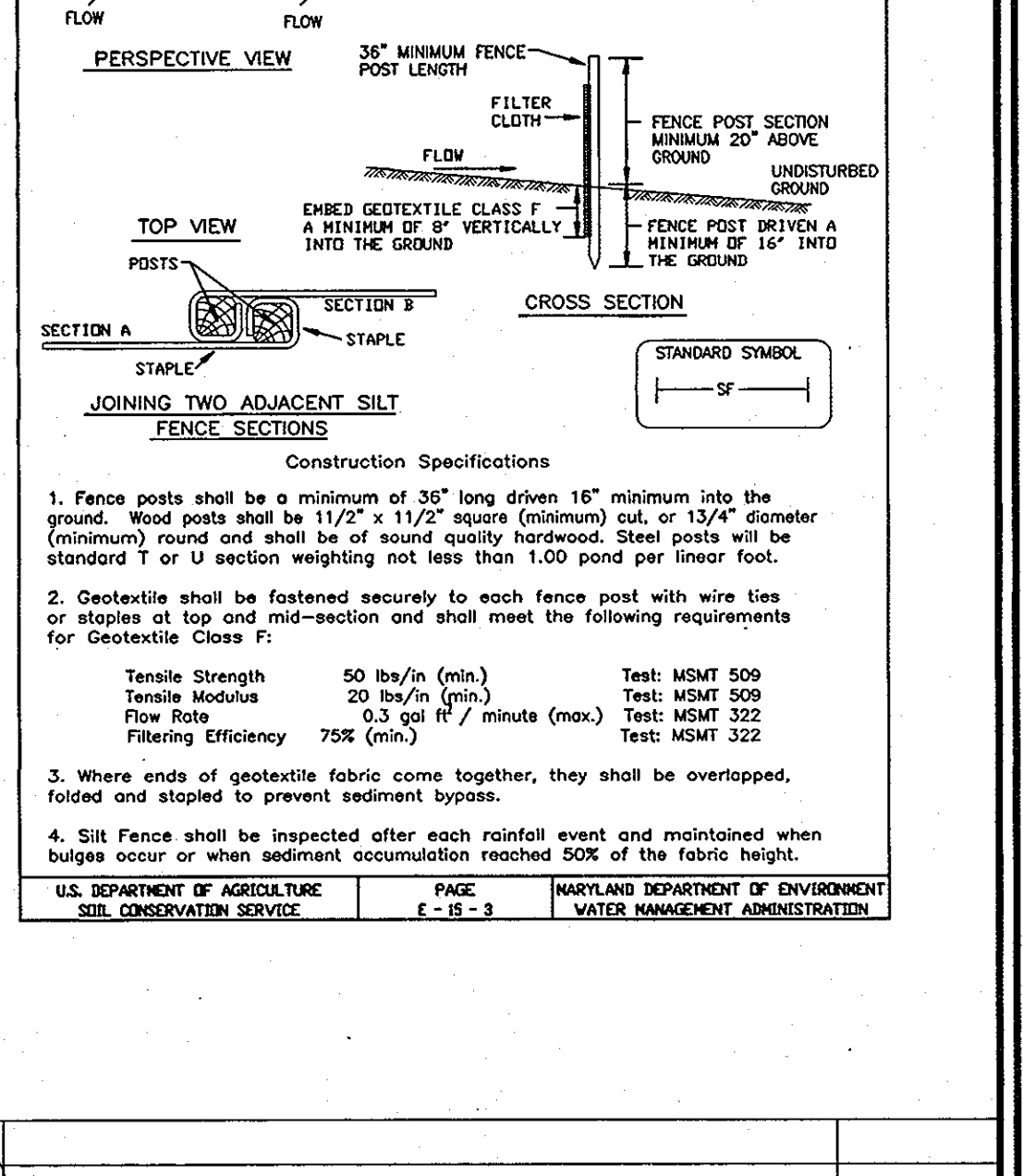
SEDIMENT CONTROL NOTES

1. A MINIMUM OF 48 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY DEPARTMENT OF LICENSING, LICENSE AND PERMITS SEDIMENT CONTROL DIVISION PRIOR TO THE START OF ANY CONSTRUCTION (213-1850).
2. ALL VEGETATION AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, AND REVISIONS THERETO.
3. FOLLOWING INITIAL SOIL DISTURBANCE OR RESTORANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN: (A) 7 CALENDAR DAYS FOR ALL PERMETER SEDIMENT CONTROL STRUCTURES, DICES, PERMETER 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 DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR PERMANENT SEEDING, SOIL TEMPORARY SEEDING, AND MULCHING (SEC. C). TEMPORARY STABILIZATION WITH MULCH ALONE SHALL BE DONE WHEN RECOMMENDED SEEDING DATES DO NOT ALLOW FOR PROPER GERMINATION AND ESTABLISHMENT OF GRASSES.
5. 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.
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	142.77 AC
AREA DISTURBED	11.88 AC
AREA TO BE ROOFED OR PAVED	11.88 AC
AREA TO BE VEGETATIVELY STABILIZED	34.500 CY
TOTAL FILL	16,000 CY
8. ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.
9. ADDITIONAL SEDIMENT CONTROLS MUST BE PROVIDED, IF DEEMED NECESSARY BY THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
10. ON ALL SITES WITH DISTURBED AREAS IN EXCESS OF 2 ACRES, APPROVAL OF THE INSPECTION AGENCY SHALL BE REQUESTED UPON COMPLETION OF INSTALLATION OF PERMETER EROSION AND SEDIMENT CONTROLS, BUT BEFORE PROCEEDING WITH ANY OTHER EARTH DISTURBANCE OR GRADING. OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THIS INITIAL APPROVAL BY THE INSPECTION AGENCY IS MADE.
11. TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THREE PIPE LENGTHS OR THAT WHICH SHALL BE BACK-FILLED AND STABILIZED WITHIN ONE WORKING DAY, WHICHEVER IS SHORTER.
 - * TO BE DETERMINED BY CONTRACTOR, WITH PRE-APPROVAL OF THE SEDIMENT CONTROL INSPECTOR, WITH AN APPROVED AND ACTIVE GRADING PERMIT

SEQUENCE OF CONSTRUCTION

ACTIVITY	DURATION
1. OBTAIN GRADING PERMIT.	
2. NOTIFY HOWARD COUNTY BUREAU OF INSPECTIONS AND PERMITS (313-1880) AT LEAST 24 HOURS BEFORE STARTING ANY WORK.	
3. CONSTRUCT STABILIZED CONSTRUCTION ENTRANCE.	1 DAY
4. INSTALL SUPER SILT FENCE.	1 DAY
5. INSTALL CLEARWATERER EARTH DIKES.	2 DAYS
6. CONSTRUCT STORMWATER MANAGEMENT FACILITY (SEDIMENT BASIN) AND INSTALL EARTH DIKES.	3 WEEKS
7. AFTER OBTAINING PERMISSION FROM SEDIMENT CONTROL INSPECTOR TO PROCEED WITH GRADING TO LOD, BEGIN CONSTRUCTION STORM DRAIN SYSTEM.	2 WEEKS
8. BLOCK HWI UNTIL SITE IS FULLY STABILIZED.	3 WEEKS
9. GRADE ROAD TO SUB-BASE. PRIVATE DRIVEWAYS ARE TO BE INSTALLED WITH SIDE DITCHES AS SHOWN ON PLAN. PRIVATE DRIVE DITCHES ARE TO BE CONSTRUCTED IN SECTION NO LONGER THAN THAT WHICH CAN AND SHALL BE STABILIZED IN ONE DAY. AS DITCHES ARE INSTALLED, THE INSIDE EDGE-OF-DITCH SHALL INCLUDE CONSTRUCTED OF THE SILT FENCE SHOWN ON THE PLANS.	5 DAYS
10. WITH ROAD GRADED TO SUB-BASE BEGIN ROAD PAVING.	6 WEEK
11. FINE GRADE SITE IN CONFORMANCE WITH PLAN.	2 DAYS
12. WITH INSPECTOR APPROVAL AND FINAL ROAD PAVING COMPLETE STABILIZE ANY REMAINING DISTURBED AREAS.	3 DAYS
13. CONVERT SEDIMENT BASIN TO FINAL STORMWATER MANAGEMENT FACILITY, REMOVE SEDIMENT CONTROL MEASURES AND PREPARE AS-BUILT.	1 WEEK
14. INSTALL STREET TREES AND ALL LANDSCAPING.	
15. CUT ENDS OF TEMPORARY (2) 24" AND 30" CULVERTS AND CLOSE CULVERTS BY FILLING PIPES WITH GRAVEL, BURYING PIPES, AND GROUTING THE ENDS OF THE PIPES.	
16. STABILIZE ALL REMAINING DISTURBED AREAS.	



APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 Chief, Bureau of Highways
 DATE: 6/26/07

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 Chief, Development Engineering Division
 DATE: 7/2/07

APPROVED: HOWARD COUNTY DEPARTMENT OF LAND DEVELOPMENT
 Chief, Division of Land Development
 DATE: 8/27/07

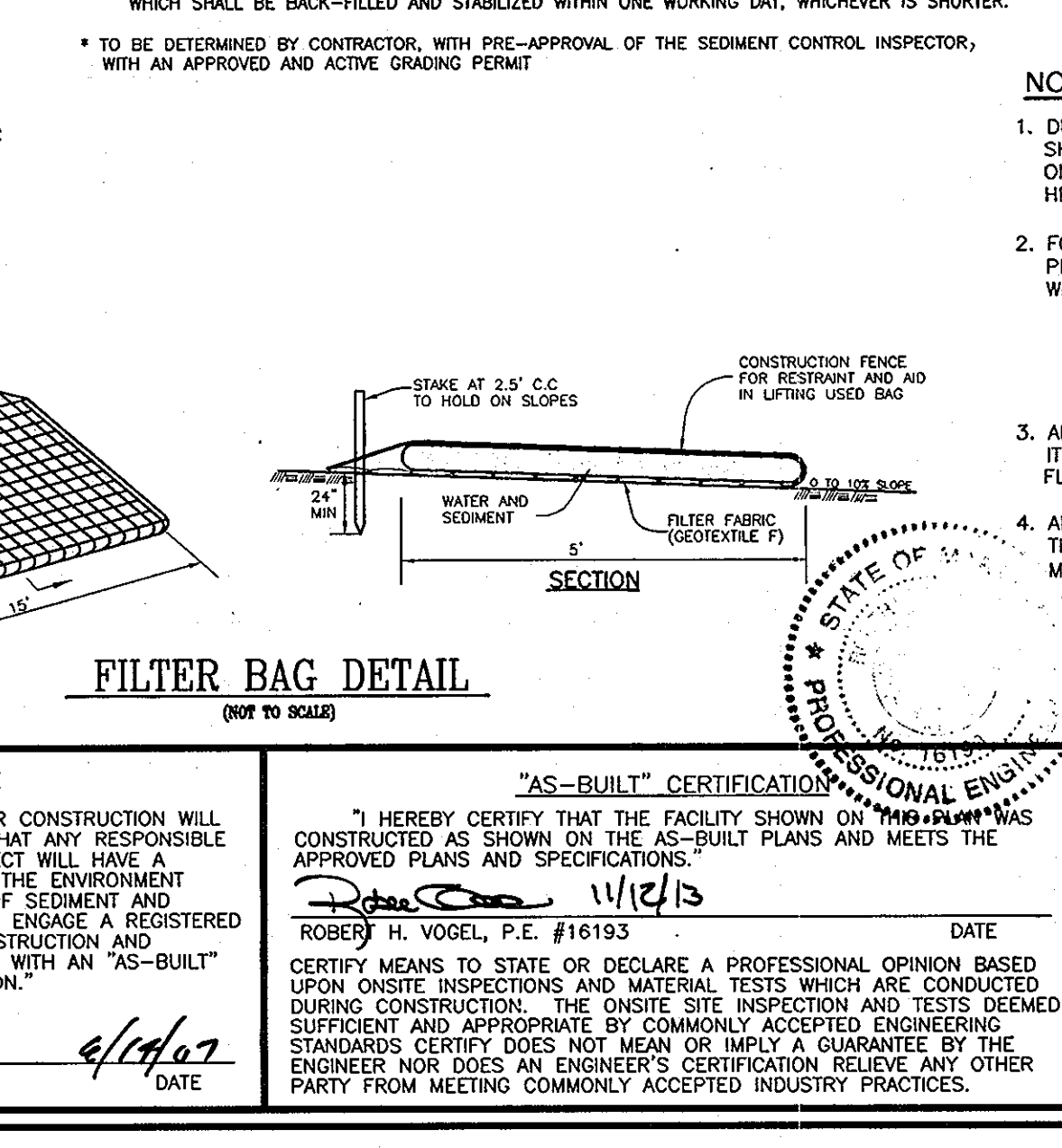
REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS
 USA-NATURAL RESOURCES CONSERVATION SERVICE
 DATE: 6/26/07

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT
 HOWARD SCD
 DATE: 6/26/07

ENGINEERS CERTIFICATE
 I HEREBY 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 FRODGE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION.

DEVELOPER'S CERTIFICATE
 I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE IN ACCORDANCE 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 FRODGE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION.

"AS-BUILT" CERTIFICATION
 I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND MEETS THE APPROVED PLANS AND SPECIFICATIONS.
 ROBERT H. VOGEL, P.E. #16193
 DATE: 11/12/13



OWNER / DEVELOPER
 LIME KILN VALLEY, L.L.C.
 8835-P COLUMBIA 100 PARKWAY
 COLUMBIA, MARYLAND 21045
 (410) 730-0810

DESIGN BY: JCO
DRAWN BY: JCO
CHECKED BY: RHM
DATE: DEC 2006
SCALE: AS SHOWN
W.C. NO.: 04-21.00

SEDIMENT AND EROSION CONTROL DETAILS
LIME KILN VALLEY II
PHASE I & PHASE II
 LOTS 1-21, 23-24, 26-39
 AND OPEN SPACE LOTS 22 AND 25

TAX MAPS 40 AND 45
 5TH ELECTION DISTRICT

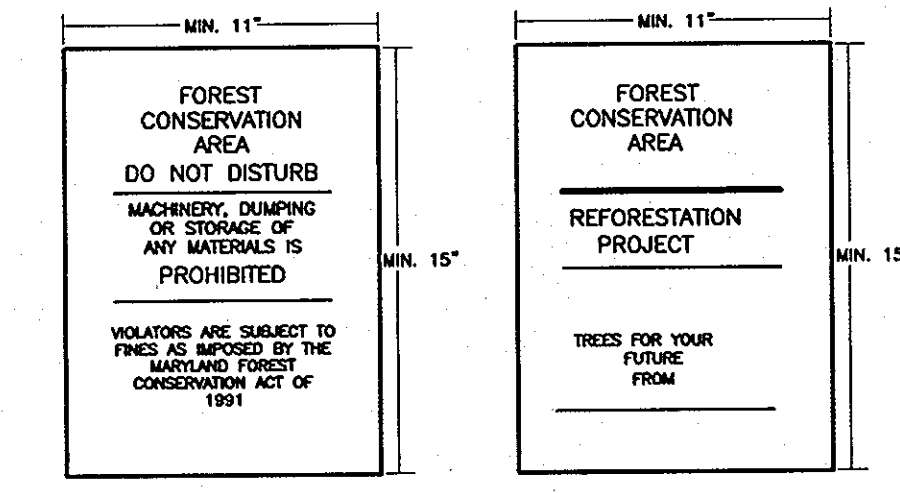
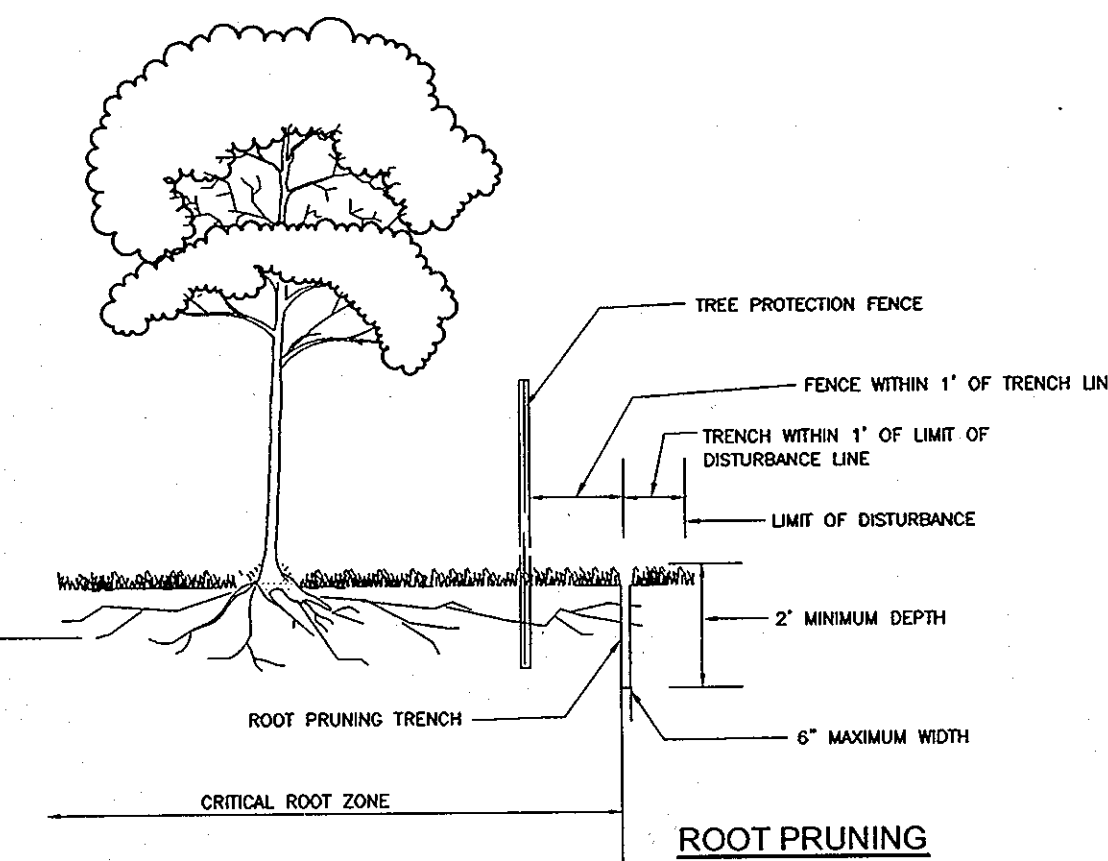
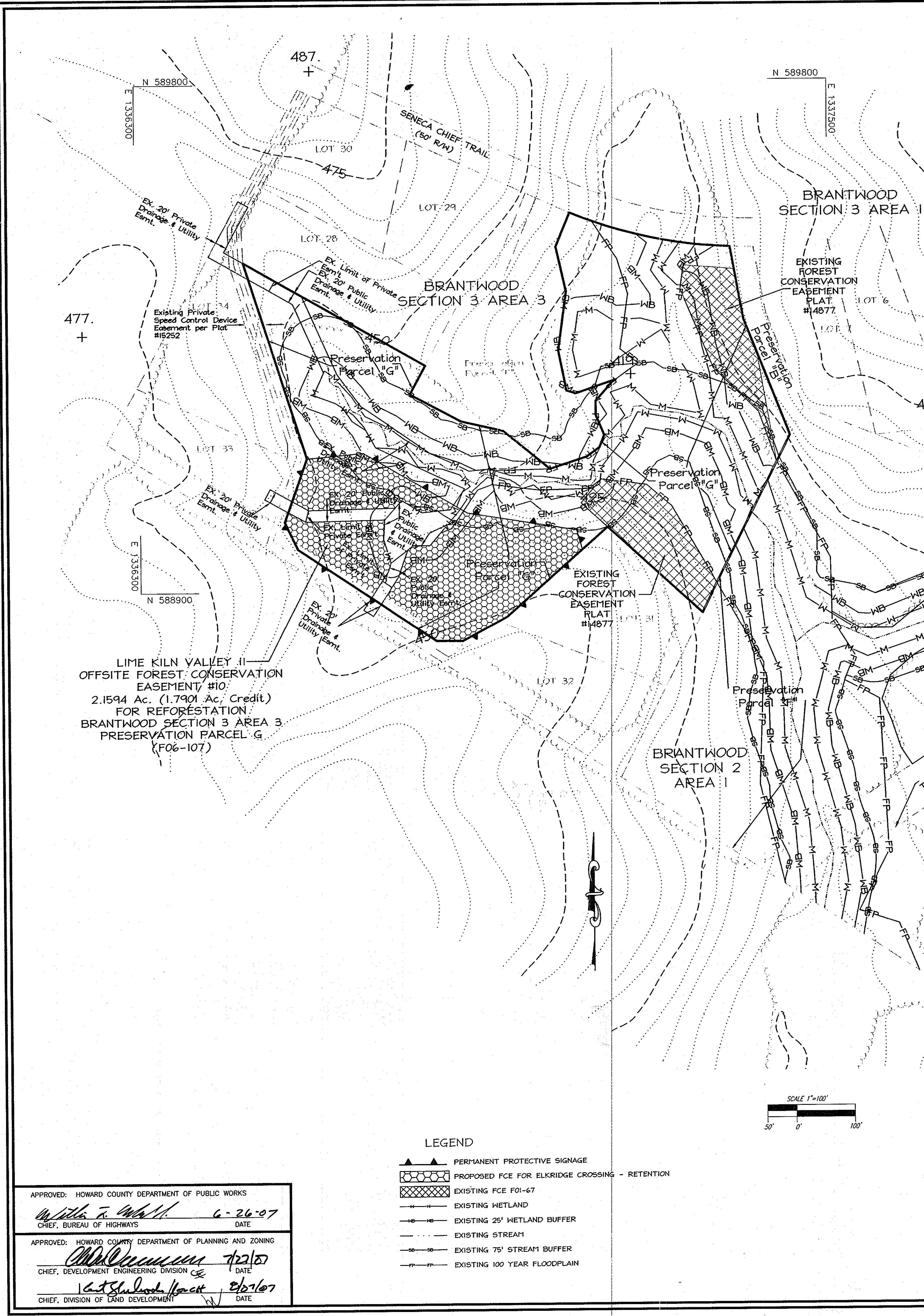
PARCELS 114 AND 12
 HOWARD COUNTY, MARYLAND

ROBERT H. VOGEL ENGINEERING, INC.
 ENGINEERS • SURVEYORS • PLANNERS
 8407 MAIN STREET
 ELLICOTT CITY, MD 21043
 TEL: 410.461.7666
 FAX: 410.461.8961

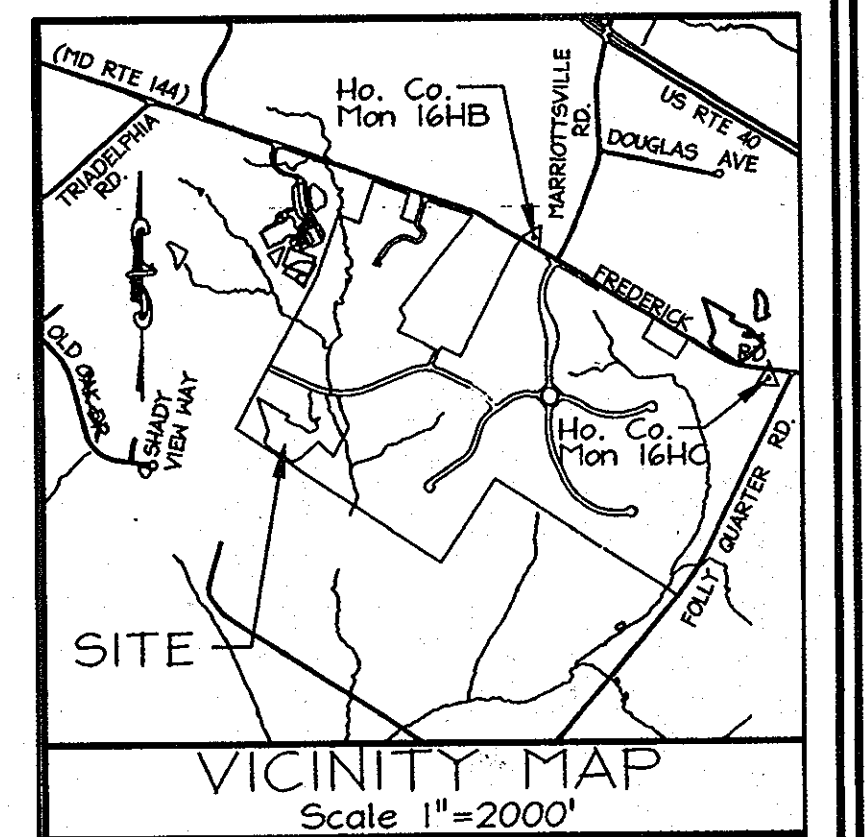
DESIGN BY: JCO
 DRAWN BY: JCO
 CHECKED BY: RHM
 DATE: DEC 2006
 SCALE: AS SHOWN
 W.C. NO.: 04-21.00

15 SHEET OF 16

AS-BUILT 11-12-13 F-06-107



NOTE:
 1. BOTTOM OF SIGNS TO BE HIGHER THAN TOP OF TREE PROTECTION FENCE.
 2. SIGNS TO BE PLACED AT A MAXIMUM SPACING OF 50-100 FEET. CONDITIONS ON-SITE AFFECTING VISIBILITY MAY WARRANT PLACING SIGNS CLOSER OR FARTHER APART.
 3. ATTACHMENT OF SIGNS TO TREES IS PROHIBITED.



NOTES:
 1. RETENTION AREAS TO BE ESTABLISHED AS PART OF THE FOREST CONSERVATION PLAN REVIEW PROCESS.
 2. BOUNDARIES OF RETENTION AREAS TO BE STAKED, FLAGGED AND/OR FENCED PRIOR TRENCHING.
 3. EXACT LOCATION OF TRENCH SHOULD BE IDENTIFIED.
 4. TRENCH SHOULD BE IMMEDIATELY BACKFILLED WITH SOIL REMOVED OR ORGANIC SOIL. ALTERNATE PLANTING DATES MAY BE CONSIDERED AS CONDITION WARRANTS.
 5. ROOTS SHOULD BE CLEANLY CUT USING VIBRATORY KNIFE OR OTHER ACCEPTABLE EQUIPMENT.

REFORESTATION PLANTING NOTES
 1. REFORESTATION AREAS MAY BE PLANTED AS SOON AS REASONABLE TO DO SO. LATE WINTER-EARLY SPRING PLANTINGS ARE PREFERRED. EARLIEST PLANTING DATES WILL VARY FROM YEAR TO YEAR BUT PLANTING MAY GENERALLY BEGIN AS SOON AS THE GROUND IS NO LONGER FROZEN. ALTERNATE PLANTING DATES MAY BE CONSIDERED AS CONDITION WARRANTS.
 2. SOIL AMENDMENTS AND FERTILIZATION RECOMMENDATIONS WILL BE MADE BASED UPON THE RESULTS OF SOIL ANALYSIS FOR NITROGEN, PHOSPHORUS, POTASSIUM, ORGANIC MATTER CONTENT AND pH. IF REQUIRED, FERTILIZER WILL BE PROVIDED USING A SLOW RELEASE, SOLUBLE 16-8-16 ANALYSIS DESIGNED TO LAST 5-8 YEARS CONTAINED IN POLYETHYLENE PERFORATED BAGS SUCH AS MANUFACTURED BY ADCO WORKS, P.O. BOX 310 HOLLIS, N.Y. 11423 OR APPROVED EQUAL.
 3. PLANT MATERIALS WILL BE PLANTED IN ACCORDANCE WITH THE PLANTING DETAILS AND PLANT SCHEDULE.
 4. PLANT MATERIAL SHALL BE NURSERY GROWN AND INSPECTED PRIOR TO PLANTING. PLANTS NOT CONFORMING TO THE AMERICAN STANDARD FOR NURSERY STOCK SPECIFICATIONS FOR SIZE, FORM, VIGOR, OR ROOTS, OR DUE TO TRUNK WOUNDS, BREAKAGE, DESICCATION, INSECT OR DISEASE MUST BE REPLACED.
 5. PLANTING STOCK MUST BE PROTECTED FROM DESICCATION AT ALL TIMES PRIOR TO PLANTING. MATERIALS HELD FOR PLANTING SHALL BE MOISTENED AND PLACED IN COOL SHADED AREAS UNTIL READY FOR PLACEMENT.
 6. NEWLY PLANTED TREES MAY REQUIRE WATERING AS AT LEAST ONCE PER WEEK DURING THE FIRST GROWING SEASON DEPENDING ON RAINFALL IN ORDER TO GET ESTABLISHED. THE INITIAL PLANTING OPERATION SHOULD ALLOW FOR WATERING DURING INSTALLATION TO COMPLETELY SOAK BACKFILL MATERIAL.
 7. MULCH SHALL BE APPLIED IN ACCORDANCE WITH THE DIAGRAM PROVIDED AND SHALL CONSIST OF COMPOSTED, SHREDDED HARDWOOD BARK MULCH, FREE OF WOOD ALCOHOL.
 8. ALL NURSERY STOCK TO BE SPRAYED WITH DEER REPELLENT CONTAINING BITREX, SUCH AS REPELLEX. ALL NURSERY STOCK TO BE GROWN WITH DEER REPELLENT TABLETS IN GROWING MEDIUM, SUCH AS REPELLEX TABLETS.

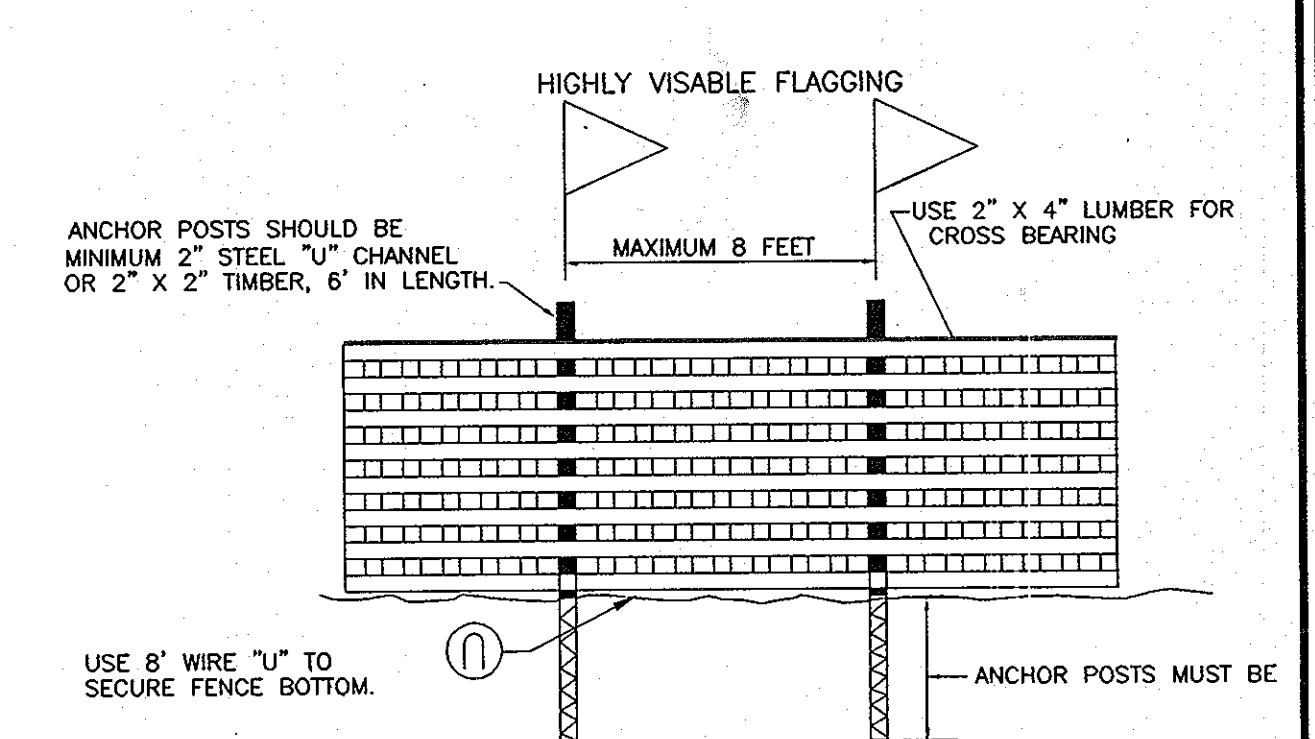
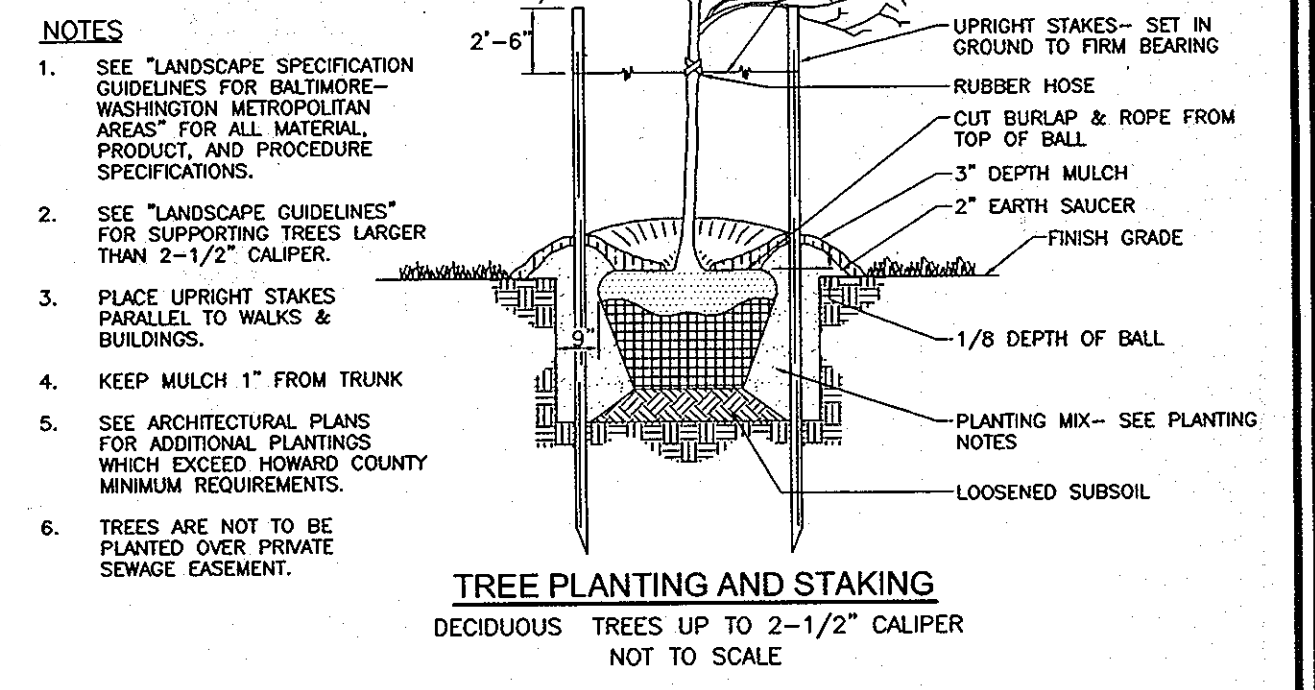
FOREST RETENTION AREAS AND NOTES
 1. FORESTED STREAM AND WETLAND BUFFERS ARE RETAINED IN OPEN SPACE LOTS.
 2. NO RARE, THREATENED OR ENDANGERED SPECIES WERE OBSERVED ON THIS SITE.
 3. FORESTED AREAS ADJACENT TO FLOODPLAINS AND STREAM BUFFERS ARE SUBSTANTIALLY RETAINED IN OPEN SPACE LOTS.
 4. THERE ARE NO ISOLATED FOREST STANDS ON THIS SITE.
 5. CHANGES IN GRADING AND RUNOFF WITHIN CONSTRUCTION/INSTALLATION AREAS WILL NOT ADVERSELY AFFECT THE SOILS WITHIN THE FOREST RETENTION AREA. SEDIMENT CONTROL MEASURES WILL REDIRECT CONCENTRATED FLOW RUNOFF TO STORMWATER MANAGEMENT FACILITIES, RETAIN SEDIMENT WITHIN THE CONSTRUCTION SITE, AND/OR REDIRECT CLEAN WATER AWAY FROM CONSTRUCTION AREAS.
 6. FOREST CONSERVATION REQUIREMENTS PER SECTION 16.1200 OF THE HOWARD COUNTY CODE, DPZ AND THE FOREST CONSERVATION MANUAL FOR THIS SUBDIVISION WILL BE FULFILLED BY THE REFORESTATION IN THE AMOUNT OF 1.79 AC.
 7. THE FOREST CONSERVATION EASEMENT HAS BEEN ESTABLISHED TO FULFILL THE REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY CODE. NO CLEARING, GRADING OR CONSTRUCTION IS PERMITTED WITHIN THE FOREST CONSERVATION EASEMENT, HOWEVER, FOREST MANAGEMENT PRACTICES AS DEFINED IN THE DEED OF FOREST CONSERVATION EASEMENT ARE ALLOWED.

REFORESTATION PLANT SCHEDULE			
TOTAL AFForestation AREA: 1.79 AC.			
PLANTING DENSITY: 179 #/AC @ 1" CAL.			
TOTAL # OF TREES TO BE PLANTED: 318			
QTY	BOTANICAL NAME	SIZE	SPACING
72	ACER RUBRUM RED MAPLE	1" CAL	15'x15'
72	LIQUIDAMBAR STRYCIIFLUA AMERICAN SWEETGUM	1" CAL	15'x15'
72	PRUNUS SEROTINA BLACK CHERRY	1" CAL	15'x15'
71	PLATANUS OCCIDENTALIS SYCAMORE	1" CAL	15'x15'
71	QUERCUS PALUSTRIS PIN OAK	1" CAL	15'x15'

FOREST PROTECTION NOTES
PRE-CONSTRUCTION ACTIVITIES
 1. FOR RETENTION AREAS, INSTALL BLAZE ORANGE FENCE AND RETENTION SIGNS BEFORE CONSTRUCTION BEGINS.
 2. FENCING SHALL BE MAINTAINED IN GOOD CONDITION AND PROMPTLY REPAIRED OR RESTORED AS THE SITUATION WARRANTS.
 3. A QUALIFIED TREE CARE EXPERT SHALL DETERMINE IF ROOT PRUNING IS REQUIRED ALONG THE LIMIT OF DISTURBANCE. ROOT PRUNE TREES AS REQUIRED. WATER ANY ROOT-PRUNED TREES IMMEDIATELY AFTER ROOT-PRUNING AND MONITOR FOR SIGNS OF STRESS DURING CONSTRUCTION.
CONSTRUCTION PHASE
 1. NO DISTURBANCE OR DUMPING IS ALLOWED INSIDE THE TREE RETENTION AREA.
 2. NO EQUIPMENT SHALL BE OPERATED INSIDE THE TREE RETENTION AREA INCLUDING TREE CANOPIES.
 3. IN THE EVENT OF DROUGHT, THE PROTECTED TREES SHALL BE MONITORED FOR SIGNS OF STRESS AND WATERED AS NEEDED.

POST-CONSTRUCTION ACTIVITIES
 1. AT THE DIRECTION OF A QUALIFIED TREE CARE EXPERT, DAMAGES TO RETAINED TREES SHALL BE REPAIRED BY THE CONTRACTOR.
 2. FENCE REMOVAL AND STABILIZATION SHALL BE AS PER THE SEDIMENT AND EROSION CONTROL PLAN.
 3. DO NOT REMOVE SIGNS.
 COST ESTIMATE: (For bonding purposes, only)
 (REFORESTATION - (1.79 AC.) 77,972.40 SF x .50 = \$38,986.20)
SURETY NOTE
 FINANCIAL SURETY IN THE AMOUNT OF \$38,986.20 WILL BE POSTED WITH THE FC MAINTENANCE AGREEMENT.

SEQUENCE OF CONSTRUCTION-FOREST CONSERVATION
 1. PRECONSTRUCTION MEETING / SITE WALK WITH CONTRACTORS AND OTHER RESPONSIBLE PARTIES TO DEFINE PROTECTION MEASURES TO BE UTILIZED AND TO POINT OUT PARTICULAR TREES TO BE SAVED.
 2. STAKE OUT LIMITS OF DISTURBANCE AND TREE PROTECTION FENCING LOCATIONS.
 3. INSTALL TREE PROTECTION FENCING; FENCING TO BE INSPECTED BY THE PROJECT ENGINEER OR THE PROJECT ECOLOGIST AND HOWARD COUNTY PLANNING AND ZONING.
 4. PROCEED WITH TREE REMOVAL AND SITE IMPROVEMENTS AS PER APPROVED SEDIMENT CONTROL PLAN - TO BE INSPECTED BY HOWARD COUNTY PLANNING AND ZONING.
 5. TEMPORARY TREE PROTECTION DEVICES SHALL BE REMOVED AFTER ALL FINISHED GRADING AND UTILITY CONSTRUCTION HAS OCCURRED AND WITH APPROVAL FROM THE HOWARD COUNTY OFFICE OF PLANNING AND ZONING.



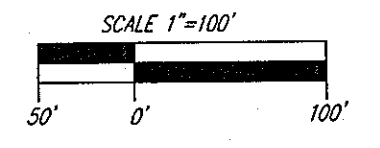
BLAZE ORANGE PLASTIC MESH TYPICAL TREE PROTECTION FENCE DETAIL
 NOTES:
 1. RETENTION PROTECTION DEVICE ONLY.
 2. RETENTION AREA WILL BE SET AS PART OF THE REVIEW PROCESS.
 3. BOUNDARIES OF RETENTION AREA SHOULD BE STAKED AND FLAGGED PRIOR TO INSTALLING DEVICE.
 4. ROOF DAMAGE SHOULD BE AVOIDED.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 Chief, Bureau of Highways
 DATE: 6-26-07

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 Chief, Development Engineering Division
 DATE: 7/2/07

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 Chief, Division of Land Development
 DATE: 8/6/07

LEGEND
 ▲ PERMANENT PROTECTIVE SIGNAGE
 [Pattern] PROPOSED FCE FOR ELKRIE CROSSING - RETENTION
 [Pattern] EXISTING FCE F01-67
 [Pattern] EXISTING WETLAND
 [Pattern] EXISTING 25' WETLAND BUFFER
 [Pattern] EXISTING STREAM
 [Pattern] EXISTING 75' STREAM BUFFER
 [Pattern] EXISTING 100' YEAR FLOODPLAIN



AS-BUILT CERTIFICATION
 I hereby certify that the facility shown on this plan was constructed as shown on the "as-built" plans and meets the approved plans and specifications.
 Signature: [Signature]
 P.E. NO. 16193
 Date: 11/12/13

JOHN CANOLES
 DNR QUALIFIED PROFESSIONAL

OWNER / DEVELOPER
 LIME KILN VALLEY, L.L.C.
 8835-P COLUMBIA 100 PARKWAY
 COLUMBIA, MARYLAND 21045
 (410) 730-0810

OFF-SITE FOREST CONSERVATION LIME KILN VALLEY II PHASE I & PHASE II
 LOTS 1-21, 23-24, 26-39 AND OPEN SPACE LOTS 22 AND 25
 TAX MAPS 40 AND 45 5TH ELECTION DISTRICT PARCELS 114 AND 12 HOWARD COUNTY, MARYLAND

ROBERT H. VOGEL ENGINEERING, INC.
 ENGINEERS • SURVEYORS • PLANNERS
 8407 MAIN STREET ELLICOTT CITY, MD 21043 TEL: 410.461.7666 FAX: 410.461.8961

DESIGN BY: JCO
 DRAWN BY: JCO
 CHECKED BY: RHV
 DATE: DEC 2006
 SCALE: AS SHOWN
 W.O. NO.: 04-21.00

16 SHEET OF 16