

STONE TRAIL COURT STREAM RESTORATION PROJECT HOWARD COUNTY, MARYLAND

DEPARTMENT OF PUBLIC WORKS
CAPITAL PROJECT NUMBER D-1158

GENERAL INFORMATION

1. THE SUBJECT PROPERTIES ARE ZONED R-SC AND R-20 PER AUGUST 2007 COMPREHENSIVE ZONING PLAN AND THE COMP-LITE ZONING AMENDMENTS DATED 07/04/2011.
2. THE DEPARTMENT OF PLANNING AND ZONING AND THE HOWARD SOIL CONSERVATION DISTRICT HAVE DETERMINED THAT THE DISTURBANCES WITHIN THE 100-YEAR FLOODPLAIN, WETLANDS, STREAM AND REQUIRED BUFFERS FOR THE PROPOSED STREAM RESTORATION PROJECT ARE CONSIDERED ESSENTIAL OR NECESSARY IN ACCORDANCE WITH SECTIONS 16.115(C) AND 16.116(C) OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS.
3. THIS PROJECT IS NOT A SUBDIVISION, AND THEREFORE THIS PLAN IS NOT REQUIRED TO MEET THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL.
4. THERE ARE NO BURIAL GROUNDS OR CEMETERY SITES LOCATED ON THE PROJECT SITE.
5. THIS PLAN MEETS THE REQUIREMENTS OF THE FOREST CONSERVATION REGULATIONS.
6. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY CONTAINED HEREIN PLUS MSHA STANDARDS AND SPECIFICATIONS, IF APPLICABLE.
7. THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS, BUREAU OF ENGINEERING/CONSTRUCTION INSPECTION DIVISION AT (410) 313-1880 24 HOURS IN ADVANCE OF ANY WORK BEING DONE.
8. THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.
9. THE COORDINATES SHOWN HEREON ARE BASED ON HOWARD COUNTY GEODETIC CONTROL, WHICH IS BASED UPON THE MARYLAND STATE PLANE COORDINATE SYSTEM, HOWARD COUNTY MONUMENT NUMBER 46FB & 47AA WAS USED FOR THIS SITE.
10. WATER IS PUBLIC.
11. SEWER IS PUBLIC.
12. EXISTING UTILITIES ARE BASED ON FIELD SURVEYS AND AVAILABLE RECORD DRAWINGS.
13. THE WETLANDS DELINEATION FOR THIS PROJECT WAS PERFORMED BY KCI TECHNOLOGIES IN SEPTEMBER, 2012.
14. THE EXISTING TOPOGRAPHY IS TAKEN FROM FIELD RUN SURVEY WITH ONE FOOT CONTOUR INTERVALS PREPARED BY AB CONSULTANTS, INC., IN NOVEMBER, 2012.
15. ALL WORK SHALL CONFORM TO THE MDE BEST MANAGEMENT PRACTICES FOR WETLANDS AND WATERWAYS AS LISTED IN THE REQUIREMENTS OF THE NONTIDAL WETLANDS AND WATERWAYS PERMIT APPROVED ON JULY 12, 2013 (MDE TRACKING # 201360573).
16. NO TRAFFIC STUDY IS REQUIRED FOR THIS PROJECT.
17. OBSTRUCTIONS SHOWN ON THIS DRAWING ARE FOR THE CONVENIENCE OF THE CONTRACTOR ONLY AND KCI TECHNOLOGIES, INC. DOES NOT WARRANT OR GUARANTEE THE CORRECTNESS OR COMPLETENESS OF THE INFORMATION GIVEN. SHOULD THE CONTRACTOR DISCOVER ANY DISCREPANCIES BETWEEN THE PLANS AND THE FIELD CONDITIONS, THE CONTRACTOR MUST VERIFY SUCH INFORMATION TO HIS OWN SATISFACTION. THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY TO RESOLVE THE SITUATION. SHOULD THE CONTRACTOR MAKE FIELD CORRECTIONS OR ADJUSTMENTS WITHOUT NOTIFYING THE ENGINEER, THE CONTRACTOR ASSUMES ALL RESPONSIBILITY FOR THOSE CHANGES.
18. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THE EXISTING UTILITIES AND MAINTAIN UNINTERRUPTED SERVICE. ANY DAMAGE INCURRED DUE TO THE CONTRACTOR'S OPERATION SHALL BE REPAIRED IMMEDIATELY AT THE CONTRACTOR'S EXPENSE.
19. A WAIVER PETITION (WP-13-192) WAS APPROVED ON JULY 31, 2013 FROM SECTION 16.155(a)(1)(ii), MAKING THE PROJECT EXEMPT FROM AN SDP SUBMITTAL: SECTION 16.120(n) AND 16.1202(b)(1)(d), THAT ALLOWS THE USE OF THE AREA INSIDE THE LIMIT OF DISTURBANCE AS THE NET TRACT AREA IN THE FOREST CONSERVATION CALCULATIONS; AND SECTION 16.1205(a)(7), THAT ALLOWS THE REMOVAL OF TWO SPECIMEN TREES WITHIN THE PROJECT AREA. APPROVAL OF THE WAIVER PETITION IS SUBJECT TO THE FOLLOWING CONDITIONS:
 1. THE PETITIONER SHALL OBTAIN AUTHORIZATION FROM MDE AND USACE FOR ACTIVITIES IN REGULATED AREAS ASSOCIATED WITH THE STONE TRAIL COURT STREAM RESTORATION PROJECT.
 2. THE APPLICANT SHALL PROVIDE WRITTEN PROOF THAT \$23,522.40 HAS BEEN TRANSFERRED FROM CAPITAL PROJECT D-1158 TO THE FOREST CONSERVATION FUND AS FEE-IN-LIEU PAYMENT FOR A TOTAL OF 0.72 ACRES OF REQUIRED REFORESTATION IN ASSOCIATION WITH THE STONE TRAIL COURT STREAM RESTORATION PROJECT.
 3. DISTURBANCE IS LIMITED TO 1,700'- LINEAR FEET OF STREAM BANK AND ADJACENT STORM DRAIN OUTFALLS WITHIN THE LOD AS DEPICTED ON THE WAIVER EXHIBIT AND AS DESCRIBED IN THE JUSTIFICATION PREPARED BY CHRISTINE S. SMITH, DATED JUNE 25, 2013.
 4. SPECIMEN TREE REMOVAL IS LIMITED TO THE 32" RED MAPLE IN POOR CONDITION AND A 40" AMERICAN SYCAMORE IN FAIR CONDITION AS OUTLINE IN THE APPLICANT'S JUSTIFICATION DATED JUNE 25, 2013.
 5. SUBMIT 2 FOLDED PAPER COPIES OF REVISED EXHIBIT- "STONE TRAIL COURT STREAM RESTORATION PROJECT" TO REFLECT THE CHANGES OUTLINED IN THE WAIVER APPROVAL LETTER DATED JULY 31, 2013.
 6. PROVIDE WRITTEN VERIFICATION OF PERMITTED RIGHT-OF-ENTRY FROM THE ENTITIES NOTED IN THE WAIVER APPROVAL LETTER DATED JULY 31, 2013.
20. THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS (DPW) HAS SATISFIED THE FOREST CONSERVATION OBLIGATION OF 0.72 ACRES OF REFORESTATION FOR THIS PLAN WITH A FEE-IN-LIEU PAYMENT OF \$23,522.40 MADE TO THE HOWARD COUNTY FOREST CONSERVATION FUND.

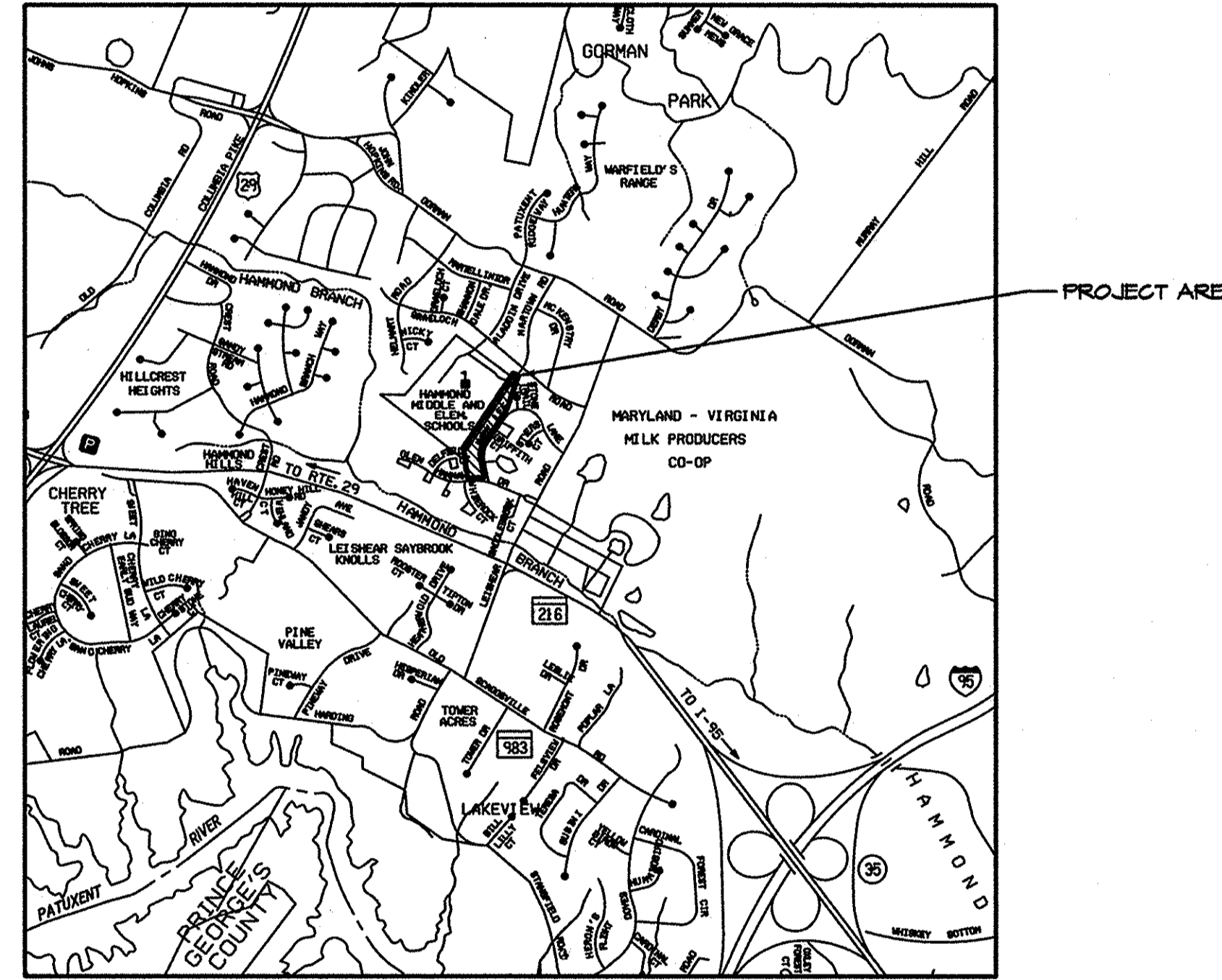
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LEGEND

LIMIT OF DISTURBANCE	---	LOD
EXISTING MAJOR CONTOURS	---	385
EXISTING MINOR CONTOURS	---	
PROPOSED CONTOURS	---	387
EXISTING TREE TO BE SAVED		
EXISTING TREE TO BE REMOVED		
EXISTING ASH TREE TO BE REMOVED		
EXISTING TREE		
EDGE OF TREELINE	---	
WATERS OF THE US	---	WUS
PROPERTY LINE	---	
EXISTING STORM DRAIN	---	SD
IMBRICATED BANK PROTECTION		
STONE TOE PROTECTION		
COIR FIBER ROLL		
EXISTING FENCE	---	
EXISTING EASEMENT LINE	---	
EX. 100 YEAR FLOODPLAIN	---	
PROP. 100 YEAR FLOODPLAIN	---	
OUTFALL PROTECTION		

*PROPOSED FLOODPLAIN ONLY SHOWN WHERE IT DIFFERS FROM EXISTING



VICINITY MAP
SCALE: 1" = 2000'
ADC MAP COORD. 5052/K7

DESIGNATION	PID	NORTHING	EASTING	ELEVATION
46FB	N/A	537149.8101	1347468.919	317.199
47AA	N/A	538961.6752	1348438.9285	362.600

SPECIAL CONTRACTOR NOTES

1. 100-YEAR FLOODPLAIN ELEVATION IS SHOWN ON THE PLANS.
2. NO STOCKPILE OF ANY MATERIAL IS ALLOWED IN THE 100-YEAR FLOODPLAIN.
3. IN-STREAM WORK IS PROHIBITED FROM MARCH 1 TO JUNE 15, INCLUSIVE. STREAM CLASSIFICATIONS: USE I
4. CONTRACTOR SHALL CONTINUALLY MONITOR WEATHER FORECASTS DURING WORK ACTIVITIES AND SCHEDULE WORK DURING FAVORABLE CONDITIONS.
5. THE CONTRACTOR SHALL EXERCISE CARE IN ACTIVITIES INVOLVING EITHER CUT AND FILL OR GRADING IN THE VICINITY OF TREES THAT ARE TO REMAIN AT THE CONSTRUCTION SITE. ALL EARTH CUTS AND ACTIVITIES IN THE VICINITY OF TREES TO REMAIN SHALL BE MADE IN A MANNER THAT DOES NOT DISTURB THE CRITICAL ROOT ZONE WITHIN THE DIAPHRANE OF THE TREE. PROTECTIVE ORANGE FENCING SHALL BE INSTALLED AROUND THE PERIMETER OF THE CRITICAL ROOT ZONE PRIOR TO CONSTRUCTION. THE LOCATION OF THE PROTECTIVE ORANGE FENCING SHALL BE APPROVED BY HOWARD COUNTY DEPARTMENT OF RECREATION AND PARKS PRIOR TO CONSTRUCTION.
6. CONTRACTOR SHALL NOT STORE EQUIPMENT, MATERIALS AND/OR SUPPLIES BEYOND THE ORANGE FENCING SHOWN ON THE PLANS.
7. UPON COMPLETION OF THE WORK, BUT PRIOR TO DE-MOBILIZATION, THE CONTRACTOR SHALL REMOVE ALL REMNANTS OF CONSTRUCTION MATERIALS FROM THE SITE. THE CONTRACTOR SHALL RESTORE ALL DISTURBED AREAS TO A CONDITION EQUAL TO OR BETTER THAN THE PRE-CONSTRUCTION CONDITIONS.
8. PRIOR TO BEGINNING ANY CONSTRUCTION ACTIVITIES, PHOTOGRAPHS OF THE PROPOSED WORK AREA AND ACCESS SHALL BE TAKEN.
9. ALL TREES TO BE REMOVED SHALL BE CUT AT THE BASE WITH A SAW AND NOT PUSHED OVER. TREE STUMPS MAY BE LEFT IN PLACE, UNLESS OTHERWISE DIRECTED ON THE PLANS.
10. ALL MATERIAL SHALL BE REMOVED AND DISPOSED OF OFFSITE. REMOVED TREES AND BRUSH MAY BE REDISTRIBUTED ON SITE AT THE DISCRETION OF THE ENGINEER OR HIS/HER REPRESENTATIVE.
11. THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN WORKING NEAR THE SCHOOL AND PAY CLOSE ATTENTION TO PEDESTRIANS WALKING NEAR THE WORK SITE.
12. WORKING HOURS ARE 7AM TO 7PM MONDAY THROUGH FRIDAY.
13. THE CONTRACTOR SHALL AVOID TRACKING HEAVY EQUIPMENT OVER THE CRITICAL ROOT ZONE OF SPECIMEN TREES. IF UNAVOIDABLE, LOAD MATS SHOULD BE USED WHEN TRACKING OVER THE CRITICAL ROOT ZONES.

ENGINEER'S CERTIFICATE

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

Kathy J. Hooverman P.E. # 38311 8/15/13
SIGNATURE OF ENGINEER (PRINT NAME BELOW SIGNATURE) DATE
KATHY J. HOVERMAN, P.E.

DEVELOPER'S CERTIFICATE

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

Mark S. Richmond 8/15/13
SIGNATURE OF DEVELOPER (PRINT NAME BELOW SIGNATURE) DATE
Mark S. Richmond

DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD

John K. McDevitt 8/20/13
DIRECTOR OF PUBLIC WORKS DATE

Mark S. Richmond 8/16/13
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES DATE

Mark S. Richmond 8/15/13
CHIEF, STORMWATER MANAGEMENT DIVISION DATE

DEPARTMENT OF RECREATION AND PARKS, HOWARD COUNTY, MD

John K. McDevitt 8/20/13
DIRECTOR OF RECREATION AND PARKS DATE

ACTING FOR JUNE 2013

PERMIT INFORMATION CHART

SUBDIVISION NAME	MURRAY HILLS	SECTION/AREA	N/A	PARCEL #	8884
PLAT # OF L/F	5392	GRID #	0886	ZONING	R-SC / R-20
TAX MAP NO.	46	ELECT. DISTR.	5	CENSUS TRACT	6868.02
WATER CODE	PUBLIC	SEWER CODE	PUBLIC		

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

OWNER:
HOWARD COUNTY
DEPARTMENT OF PUBLIC WORKS
6751 COLUMBIA GATEWAY DRIVE
COLUMBIA, MD 21046
410-313-6444

John K. McDevitt 8/20/13
HOWARD SCD DATE

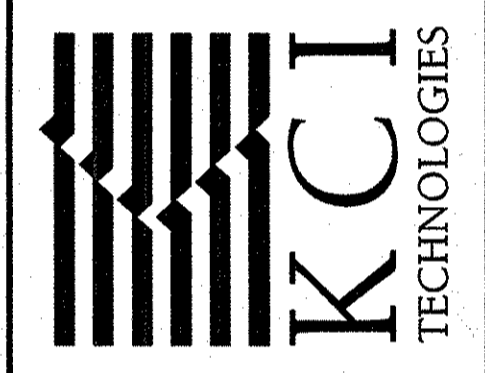
STATE OF MARYLAND
PROFESSIONAL ENGINEER

Kathy J. Hooverman 8/15/13
Kathy J. Hooverman, P.E.

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 38311. EXPIRATION DATE: JANUARY 6, 2014

NO.	REVISIONS DESCRIPTION	DATE

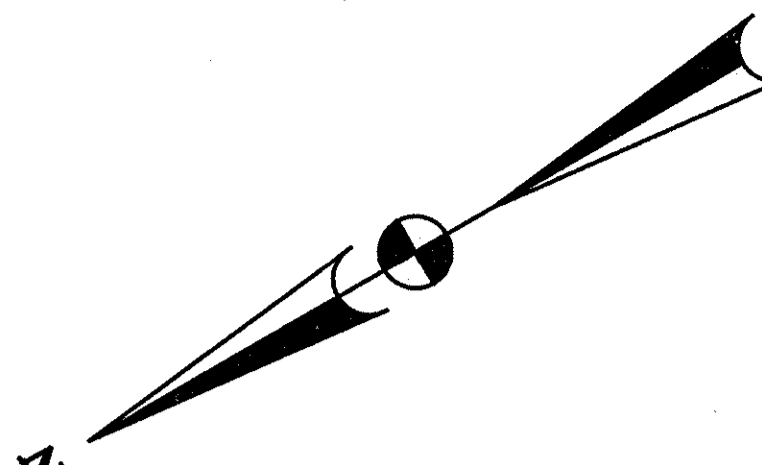
936 RIDGEBROOK ROAD
SPARKS, MARYLAND 21152
TELEPHONE: (410) 316-7800
FAX: (410) 316-7818
WWW.KCI.COM



STONE TRAIL COURT
STREAM RESTORATION PROJECT
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
STORMWATER MANAGEMENT DIVISION
6751 COLUMBIA GATEWAY DRIVE
COLUMBIA, MD 21046
PARCEL 3.4, 236, 283, 342 TAX MAP 46
ZONING R-20P-SC ELECTION DISTRICT 5

TITLE SHEET

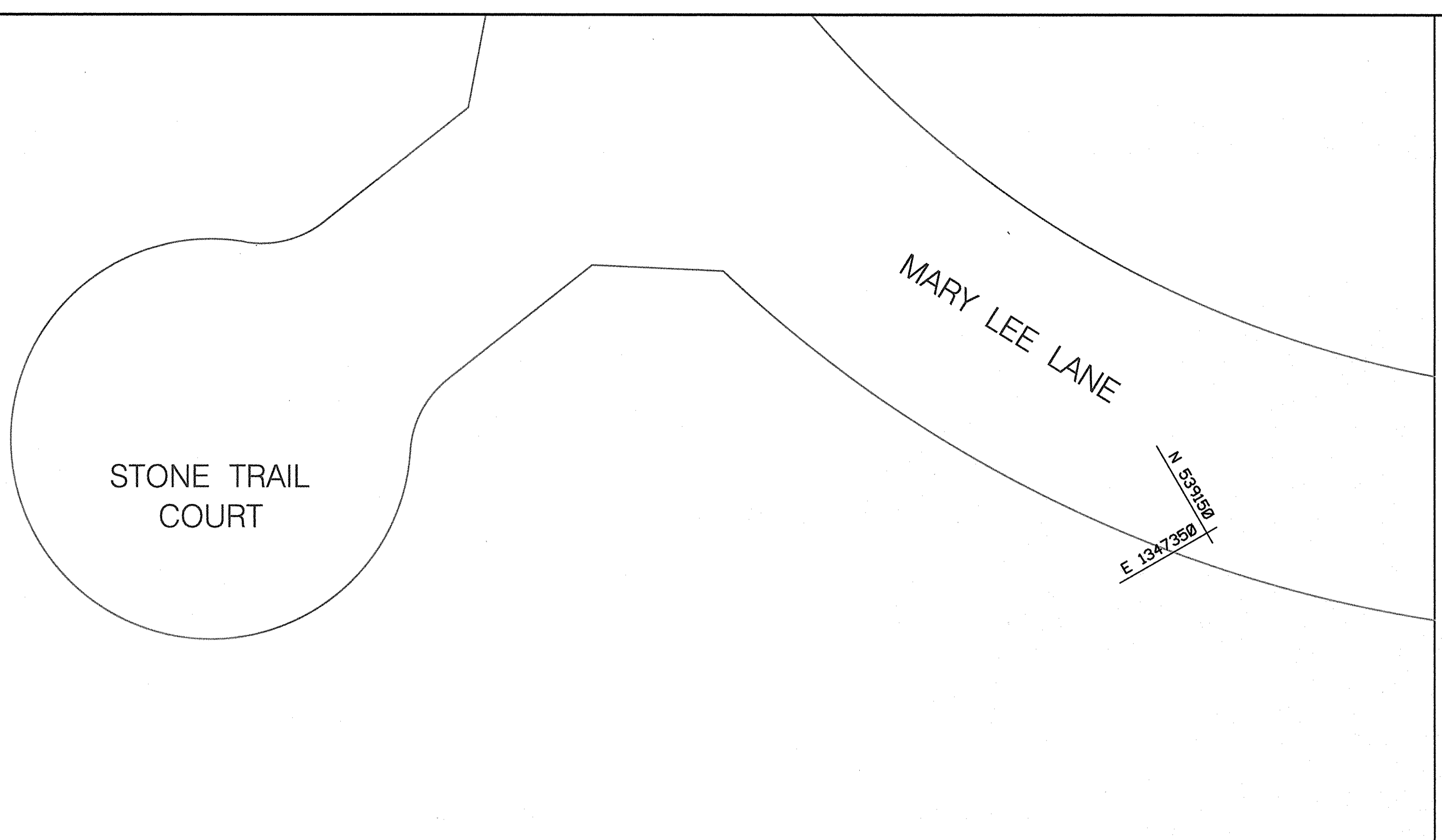
SCALE: NOT TO SCALE
DATE: AUGUST 2013
KCI JOB NO.: 01-081795.89
CAPITAL PROJECT NO.: D-1158
PERMIT ISSUE



Traverse Coordinate List			
Point #	Northing	Easting	Elevation
17	539339.12	1347239.35	356.66
18	539567.59	1347415.24	362.48

Line Table: Mainstem		
Line #	Length	Direction
L1	5.45	S35° 35' 23.59"W
L2	29.60	S55° 53' 37.13"W
L3	49.26	S34° 10' 22.74"W
L4	47.49	S30° 59' 46.85"W
L5	12.06	S34° 17' 20.95"W
L6	39.79	S28° 02' 00.73"W
L7	69.83	S30° 37' 52.80"W
L8	47.03	S33° 52' 02.52"W
L9	7.57	S32° 51' 20.24"W
L10	14.73	S35° 36' 12.74"W
L11	92.87	S30° 24' 36.81"W

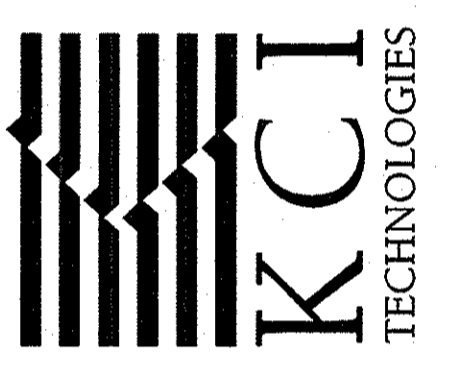
Curve Table: Mainstem						
Curve #	Radius	Length	Delta	Tangent	Chord Direction	Chord Length
C1	18.00	6.38	20°18'13.54"	3.22	S45° 44' 30.36"W	6.35
C2	40.00	15.16	21°43'14.39"	7.67	S45° 01' 59.94"W	15.07
C3	100.00	5.54	3°10'35.89"	2.77	S32° 35' 04.80"W	5.54
C4	100.00	5.75	3°17'34.10"	2.87	S32° 38' 33.90"W	5.75
C5	150.00	16.38	6°15'20.22"	8.20	S31° 09' 40.84"W	16.37
C6	150.00	6.80	2°35'52.07"	3.40	S29° 19' 56.76"W	6.80
C7	140.00	7.91	3°14'09.72"	3.95	S32° 14' 57.66"W	7.91
C8	140.00	2.47	1°00'42.28"	1.24	S33° 21' 41.38"W	2.47
C9	140.00	6.71	2°44'52.50"	3.36	S34° 13' 46.49"W	6.71
C10	140.00	12.69	5°11'35.93"	6.35	S33° 00' 24.77"W	12.69
C11	140.00	9.34	3°49'23.44"	4.67	S32° 19' 18.53"W	9.34



MATCH LINE A-A

NO.	REVISIONS DESCRIPTION	DATE

936 RIDGEBROOK ROAD
SPARKS, MARYLAND 21152
TELEPHONE: (410) 316-7800
FAX: (410) 316-7818
WWW.KCI.COM

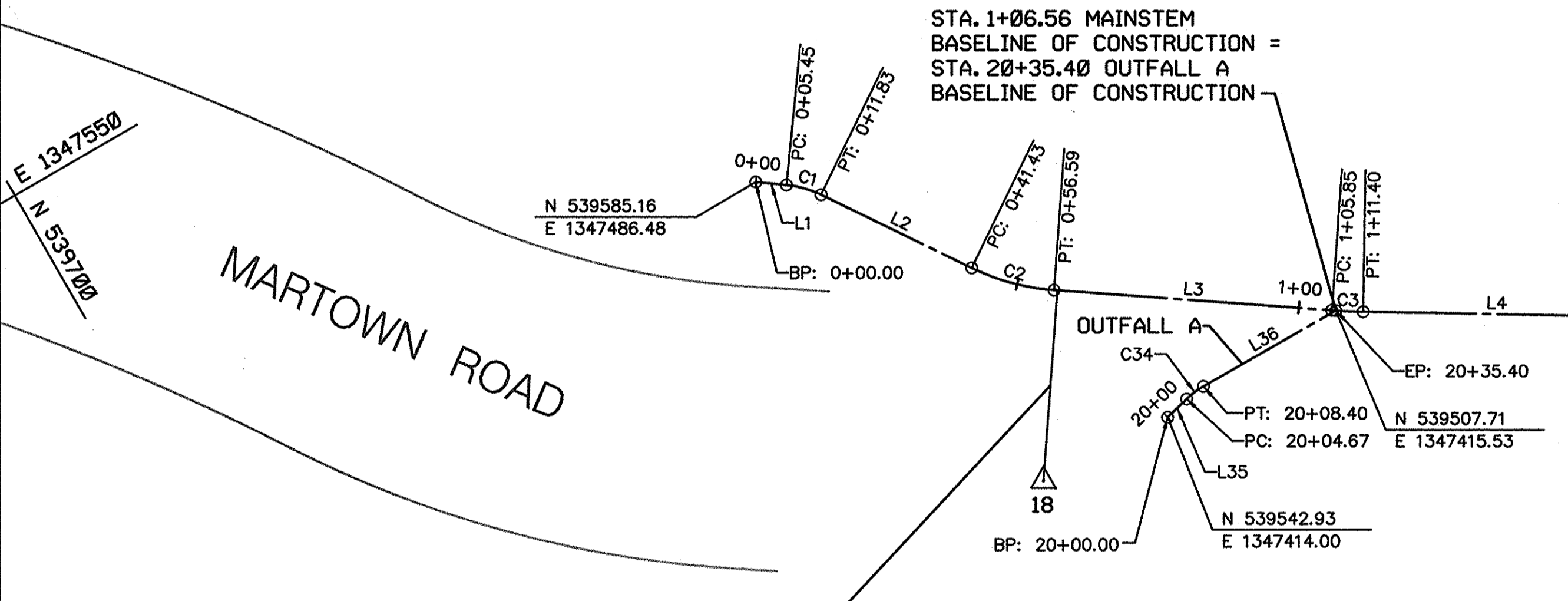


STONE TRAIL COURT
STREAM RESTORATION PROJECT
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
STORMWATER MANAGEMENT DIVISION
6751 COLUMBIA GATEWAY DRIVE
COLUMBIA, MD 21046
PARCEL 34, 295, 283, 342 TAX MAP 46
ZONING R-20P-SC ELECTION DISTRICT 5

GEOMETRY SHEET

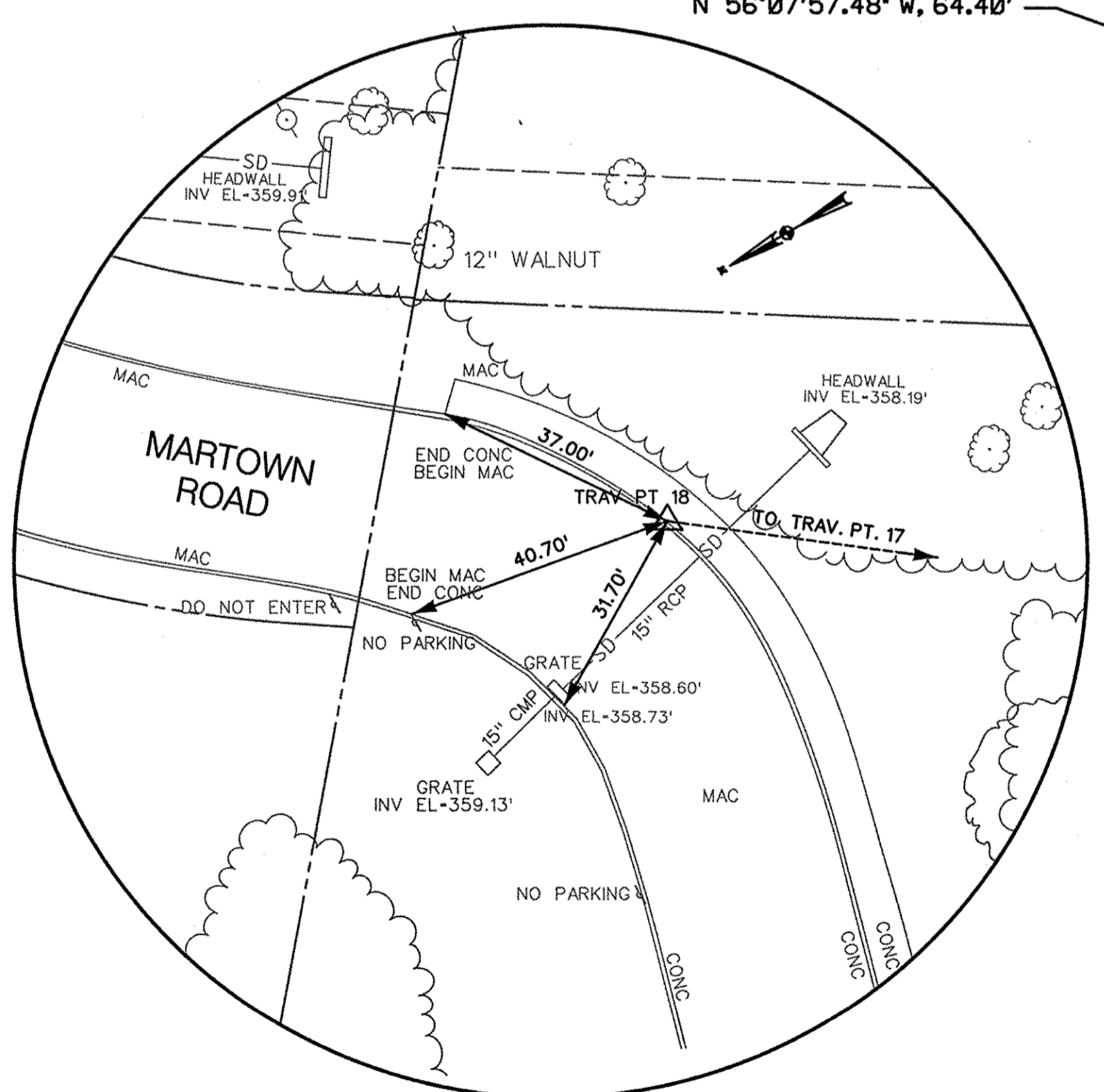
SCALE:	1" = 20'
DATE:	AUGUST 2013
KCI JOB NO.:	01-081795.89
CAPITAL PROJECT NO.:	D-1158
PERMIT ISSUE:	
CONSTRUCTION ISSUE:	

SHEET NO.: 2 OF 29

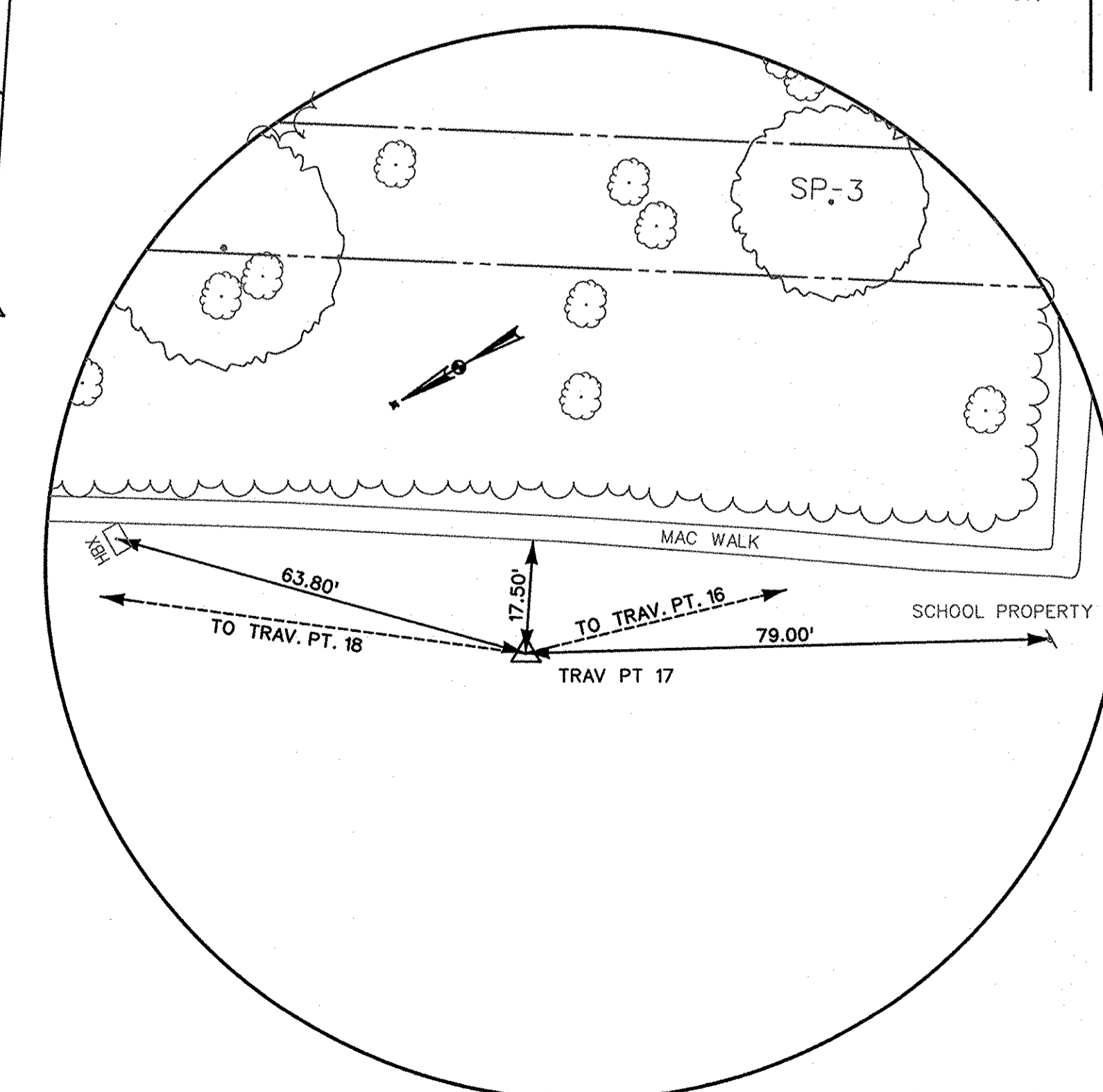


Line Table: Outfall A		
Line #	Length	Direction
L35	4.67	S14° 07' 46.30"E
L36	27.00	S0° 07' 26.43"W

Curve Table: Outfall A						
Curve #	Radius	Length	Delta	Tangent	Chord Direction	Chord Length
C34	15.00	3.73	14°15'12.73"	1.88	S7° 00' 09.94"E	3.72



TRAVERSE PT. 18
MAG NAIL TC
SCALE: 1"=20'



TRAVERSE PT. 17
REBAR AND CAP
SCALE: 1"=20'

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 38311, EXPIRATION DATE: JANUARY 6, 2014.

DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD
Matthew J. ...
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES
DATE 8/16/13

MARY LEE LANE

MATCH LINE A-A

MATCH LINE B-B

Line Table: Outfall B

Line #	Length	Direction
L37	8.09	N61° 30' 01.53"W
L38	2.11	S78° 00' 44.91"W

Curve Table: Outfall B

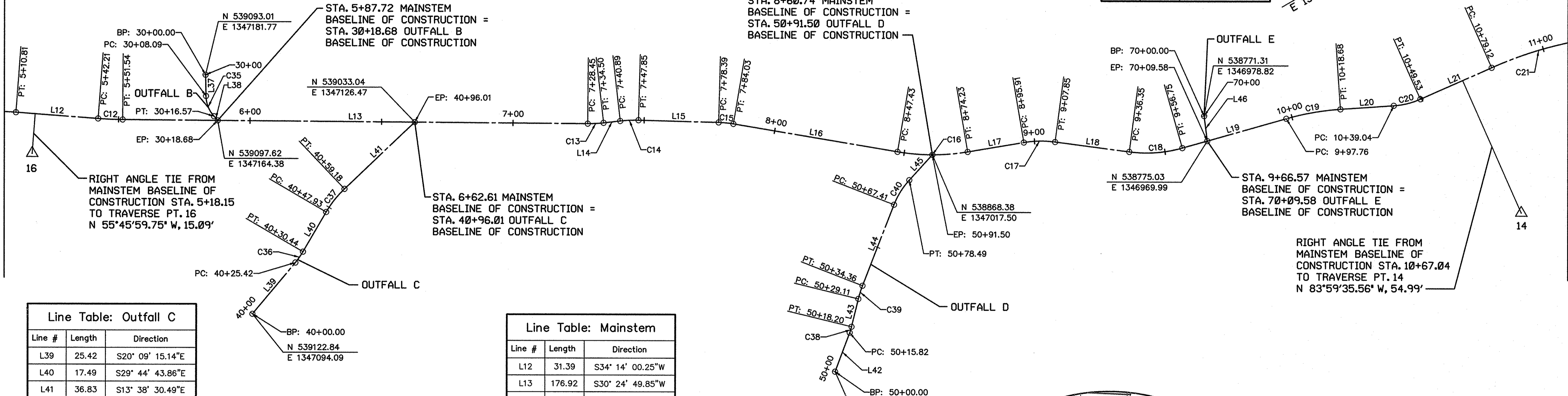
Curve #	Radius	Length	Delta	Tangent	Chord Direction	Chord Length
C35	12.00	8.48	40°29'13.56"	4.43	N81° 44' 38.31"W	8.30

Traverse Coordinate List

Point #	Northing	Easting	Elevation
14	538685.17	1346886.92	333.58
16	539165.09	1347188.74	345.50

Line Table: Outfall E

Line #	Length	Direction
L46	9.58	N67° 11' 34.41"W



Line Table: Outfall C

Line #	Length	Direction
L39	25.42	S20° 09' 15.14"E
L40	17.49	S29° 44' 43.86"E
L41	36.83	S13° 38' 30.49"E

Curve Table: Outfall C

Curve #	Radius	Length	Delta	Tangent	Chord Direction	Chord Length
C36	30.00	5.02	9°35'28.72"	2.52	S24° 56' 59.50"E	5.02
C37	40.00	11.24	16°06'13.37"	5.66	S21° 41' 37.18"E	11.21

Curve Table: Outfall D

Curve #	Radius	Length	Delta	Tangent	Chord Direction	Chord Length
C38	20.00	2.38	6°49'39.48"	1.19	S42° 56' 24.84"E	2.38
C39	40.00	5.25	7°31'31.85"	2.63	S42° 35' 28.65"E	5.25
C40	30.00	11.08	21°09'35.64"	5.60	S28° 14' 54.91"E	11.02

Line Table: Outfall D

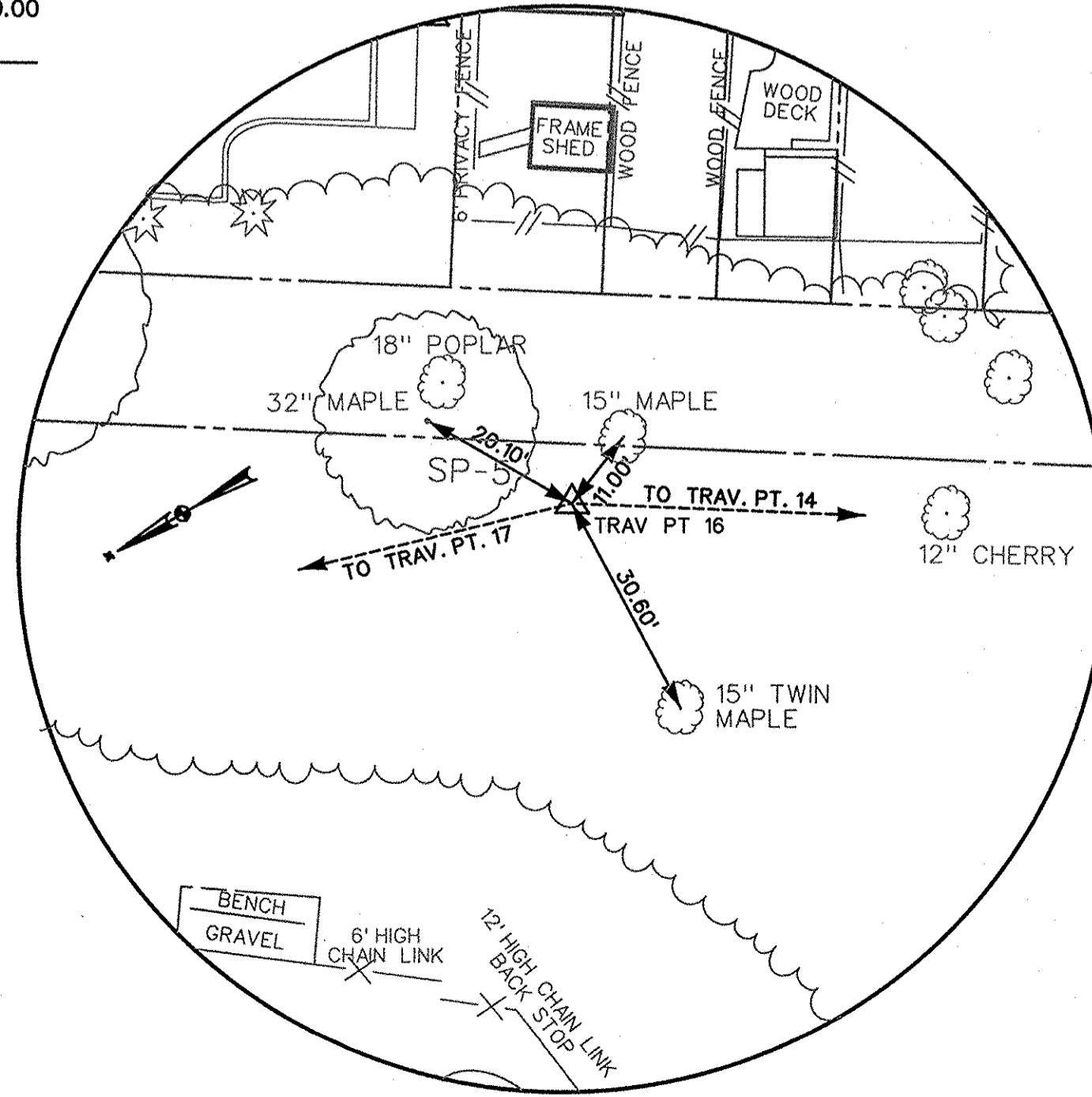
Line #	Length	Direction
L42	15.82	S39° 31' 35.10"E
L43	10.90	S46° 21' 14.58"E
L44	33.05	S38° 49' 42.73"E
L45	13.01	S17° 40' 07.08"E

Line Table: Mainstem

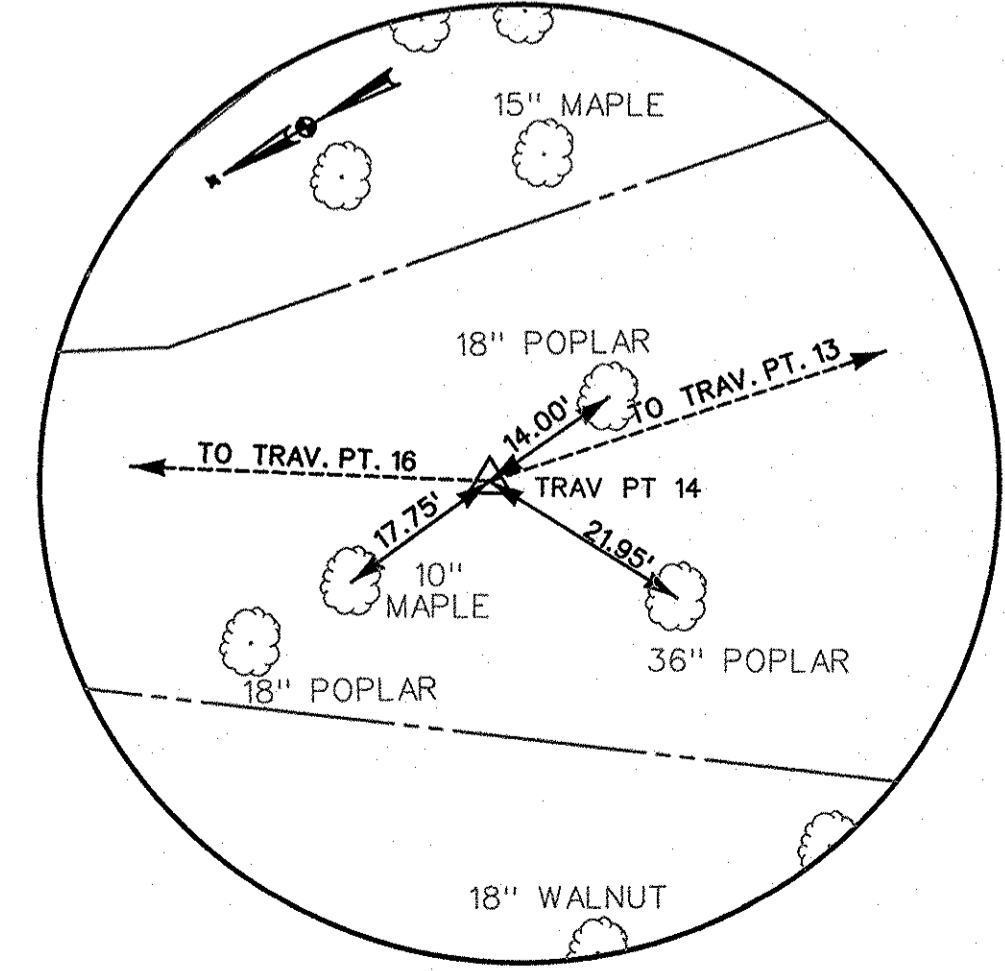
Line #	Length	Direction
L12	31.39	S34° 14' 00.25"W
L13	176.92	S30° 24' 49.85"W
L14	6.38	S23° 28' 48.71"W
L15	30.54	S31° 27' 40.72"W
L16	63.40	S39° 31' 48.46"W
L17	21.68	S20° 20' 00.95"W
L18	28.50	S37° 25' 53.07"W
L19	41.02	S14° 03' 16.57"W
L20	20.36	S26° 02' 22.88"W
L21	29.59	S6° 00' 24.44"W

Curve Table: Mainstem

Curve #	Radius	Length	Delta	Tangent	Chord Direction	Chord Length
C12	140.00	9.33	3°49'10.40"	4.67	S32° 19' 25.05"W	9.33
C13	50.00	6.05	6°56'01.13"	3.03	S26° 56' 49.28"W	6.05
C14	50.00	6.96	7°58'52.00"	3.49	S27° 28' 14.72"W	6.96
C15	40.00	5.63	8°04'07.74"	2.82	S35° 29' 44.59"W	5.63
C16	80.00	26.80	19°11'47.51"	13.53	S29° 55' 54.71"W	26.68
C17	40.00	11.94	17°05'52.12"	6.01	S28° 52' 57.01"W	11.89
C18	50.00	20.40	23°22'36.49"	10.34	S25° 44' 34.82"W	20.26
C19	100.00	20.92	11°59'06.30"	10.50	S20° 02' 49.73"W	20.88
C20	30.00	10.49	20°01'58.44"	5.30	S16° 01' 23.66"W	10.44
C21	150.00	38.18	14°34'57.30"	19.19	S13° 17' 53.09"W	38.07

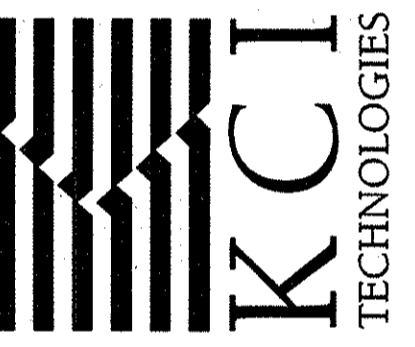


TRAVERSE PT. 16
REBAR AND CAP
SCALE: 1"=20'



TRAVERSE PT. 14
REBAR AND CAP
SCALE: 1"=20'

936 RIDGEBROOK ROAD
SPARKS, MARYLAND 21152
TELEPHONE: (410) 316-7800
FAX: (410) 316-7818
WWW.KCI.COM



STONE TRAIL COURT
STREAM RESTORATION PROJECT
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
STORMWATER MANAGEMENT DIVISION
6751 COLUMBIA GATEWAY DRIVE
COLUMBIA, MD 21046
PARCEL 3.4, 250, 283, 342 TAX MAP 46
ZONING R-20P-SC ELECTION DISTRICT 5

GEOMETRY SHEET

SCALE: 1" = 20'
DATE: AUGUST 2013
KCI JOB NO.: 01-081795.89
CAPITAL PROJECT NO.: D-1158
PERMIT ISSUE:
CONSTRUCTION ISSUE:

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 38311, EXPIRATION DATE: JANUARY 6, 2014.

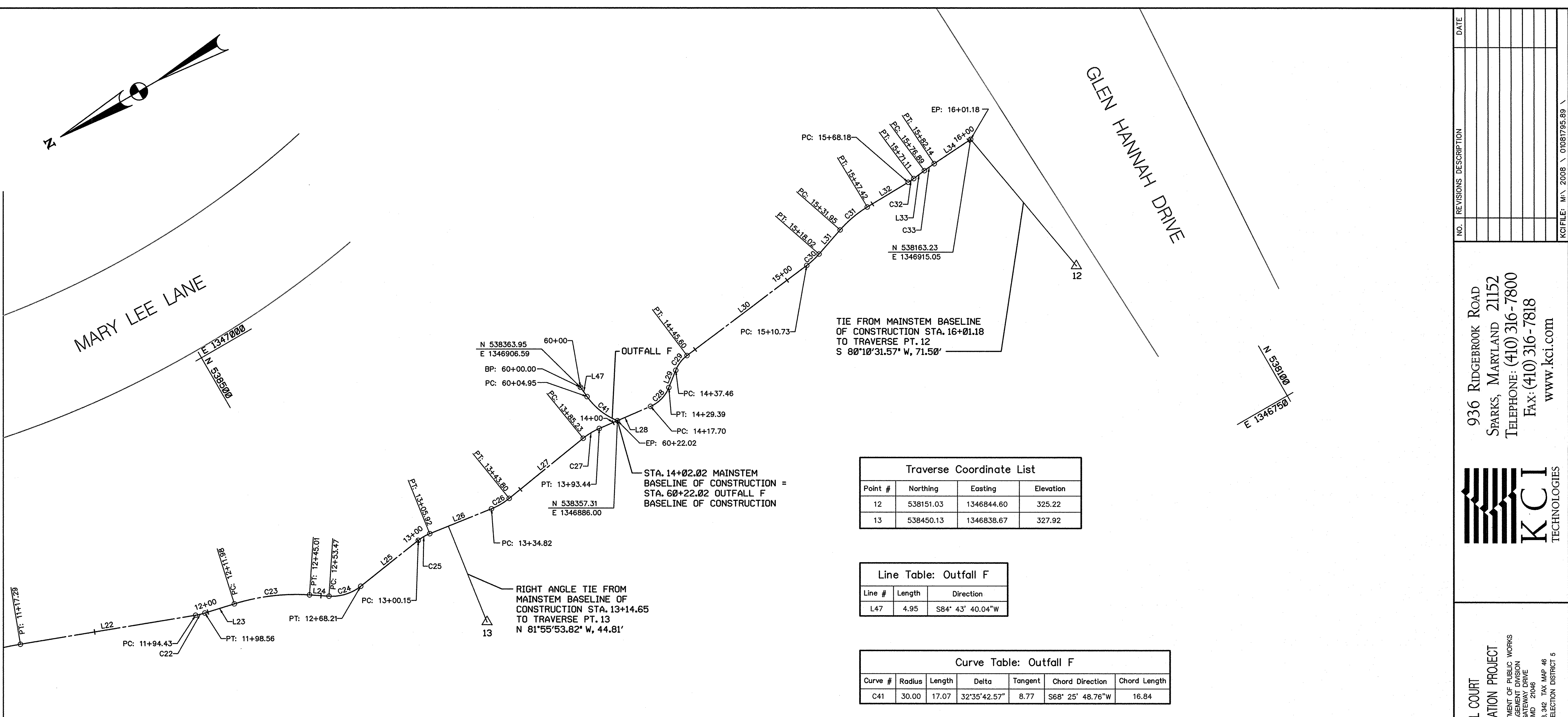
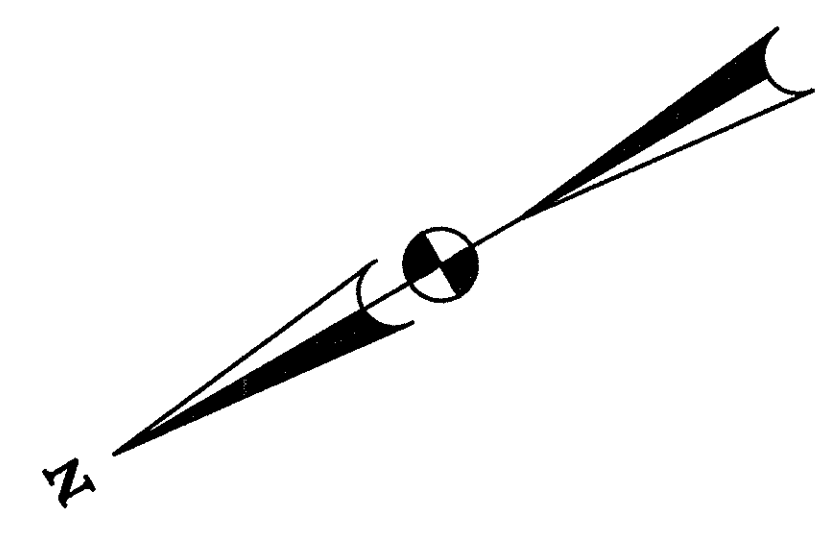
Katy... 8/15/13

DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES
8/16/13
DATE

NO.	REVISIONS DESCRIPTION	DATE

KCI FILE: M\2008\01081795.89

MATCH LINE B-B



TIE FROM MAINSTEM BASELINE OF CONSTRUCTION STA. 16+01.18 TO TRAVERSE PT. 12
S 80°10'31.57" W, 71.50'

STA. 14+02.02 MAINSTEM BASELINE OF CONSTRUCTION = STA. 60+22.02 OUTFALL F BASELINE OF CONSTRUCTION

RIGHT ANGLE TIE FROM MAINSTEM BASELINE OF CONSTRUCTION STA. 13+14.65 TO TRAVERSE PT. 13
N 81°55'53.82" W, 44.81'

Traverse Coordinate List

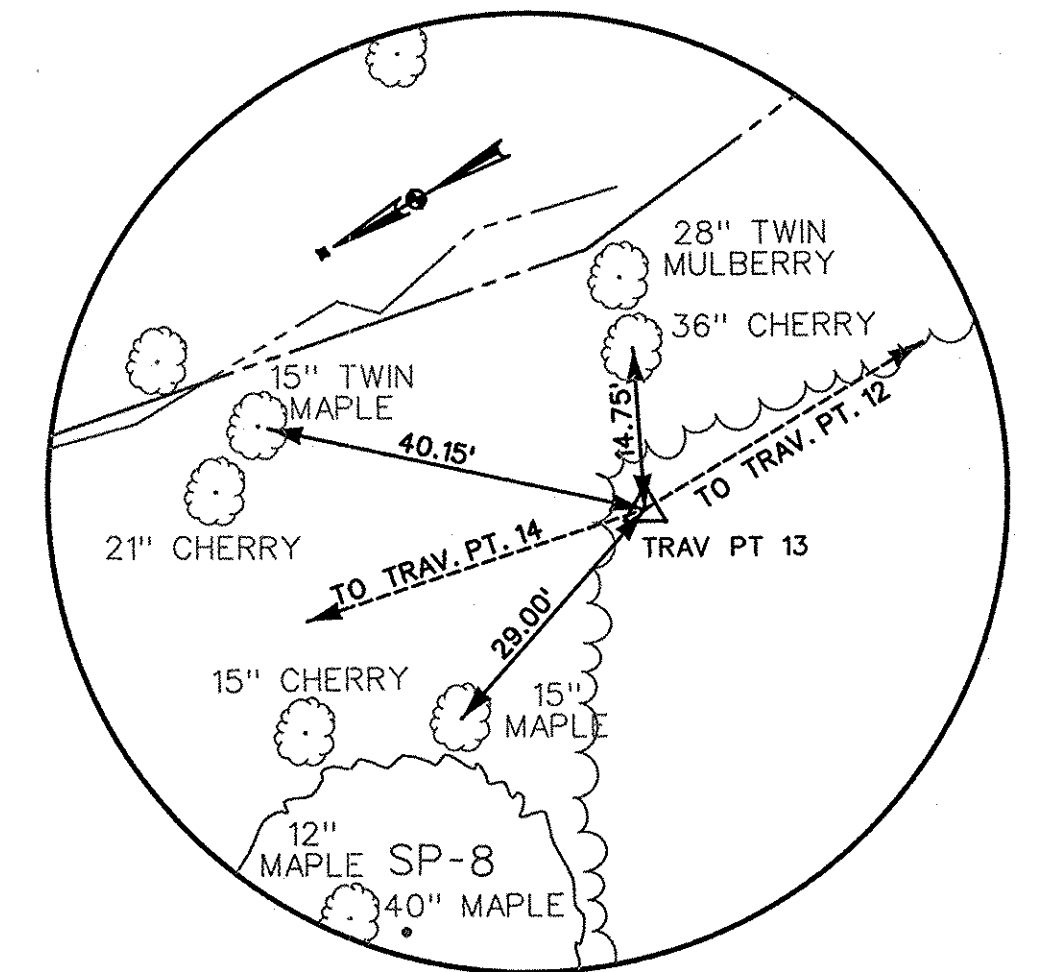
Point #	Northing	Easting	Elevation
12	538151.03	1346844.60	325.22
13	538450.13	1346838.67	327.92

Line Table: Outfall F

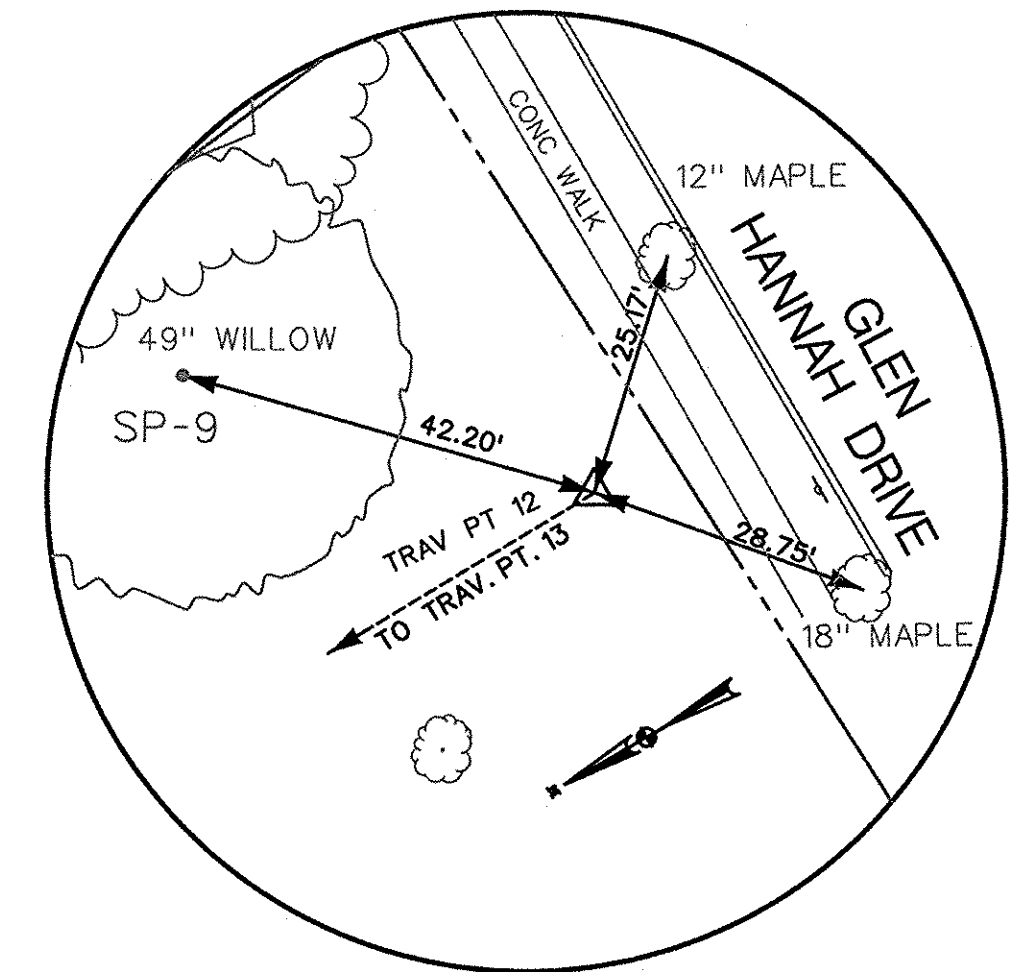
Line #	Length	Direction
L47	4.95	S84° 43' 40.04"W

Curve Table: Outfall F

Curve #	Radius	Length	Delta	Tangent	Chord Direction	Chord Length
C41	30.00	17.07	32°35'42.57"	8.77	S68° 25' 48.76"W	16.84



TRAVERSE PT. 13
REBAR AND CAP
SCALE: 1"=20'



TRAVERSE PT. 12
REBAR AND CAP
SCALE: 1"=20'

Line Table: Mainstem

Line #	Length	Direction
L22	77.14	S20° 35' 21.74"W
L23	13.43	S12° 42' 39.26"W
L24	8.47	S33° 44' 05.10"W
L25	31.94	S8° 28' 50.94"E
L26	28.90	S8° 04' 06.18"W
L27	41.44	S9° 04' 03.42"E
L28	24.26	S6° 35' 58.60"W
L29	8.07	S38° 03' 41.47"E
L30	65.12	S6° 56' 24.68"E
L31	13.93	S18° 53' 01.66"E
L32	20.76	S1° 09' 21.42"E
L33	5.78	S6° 45' 07.87"E
L34	19.04	S3° 44' 39.94"E

Curve Table: Mainstem

Curve #	Radius	Length	Delta	Tangent	Chord Direction	Chord Length
C22	30.00	4.13	7°52'42.49"	2.07	S16° 39' 00.50"W	4.12
C23	90.00	33.02	21°01'25.85"	16.70	S23° 13' 22.18"W	32.84
C24	20.00	14.74	42°12'56.04"	7.72	S12° 37' 37.08"W	14.40
C25	20.00	5.78	16°32'57.12"	2.91	S0° 12' 22.38"E	5.76
C26	30.00	8.97	17°08'09.61"	4.52	S0° 29' 58.62"E	8.94
C27	30.00	8.20	15°40'02.03"	4.13	S1° 14' 02.41"E	8.18
C28	15.00	11.69	44°39'40.07"	6.16	S15° 43' 51.43"E	11.40
C29	15.00	8.15	31°07'16.79"	4.18	S22° 30' 03.07"E	8.05
C30	35.00	7.30	11°56'36.98"	3.66	S12° 54' 43.17"E	7.28
C31	50.00	15.47	17°43'40.24"	7.80	S10° 01' 11.54"E	15.41
C32	30.00	2.93	5°35'46.45"	1.47	S3° 57' 14.65"E	2.93
C33	100.00	5.25	3°00'27.93"	2.63	S5° 14' 53.91"E	5.25

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 38311, EXPIRATION DATE: JANUARY 6, 2014.

Mark D. ... 8/16/13
 DATE

DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD
 CHIEF, BUREAU OF ENVIRONMENTAL SERVICES

NO.	REVISIONS DESCRIPTION	DATE

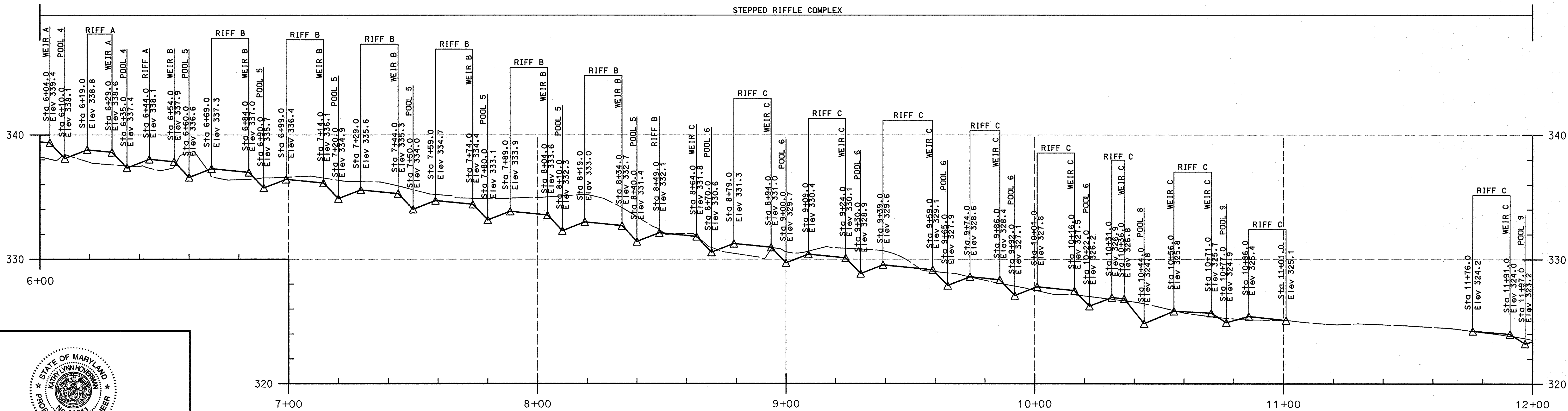
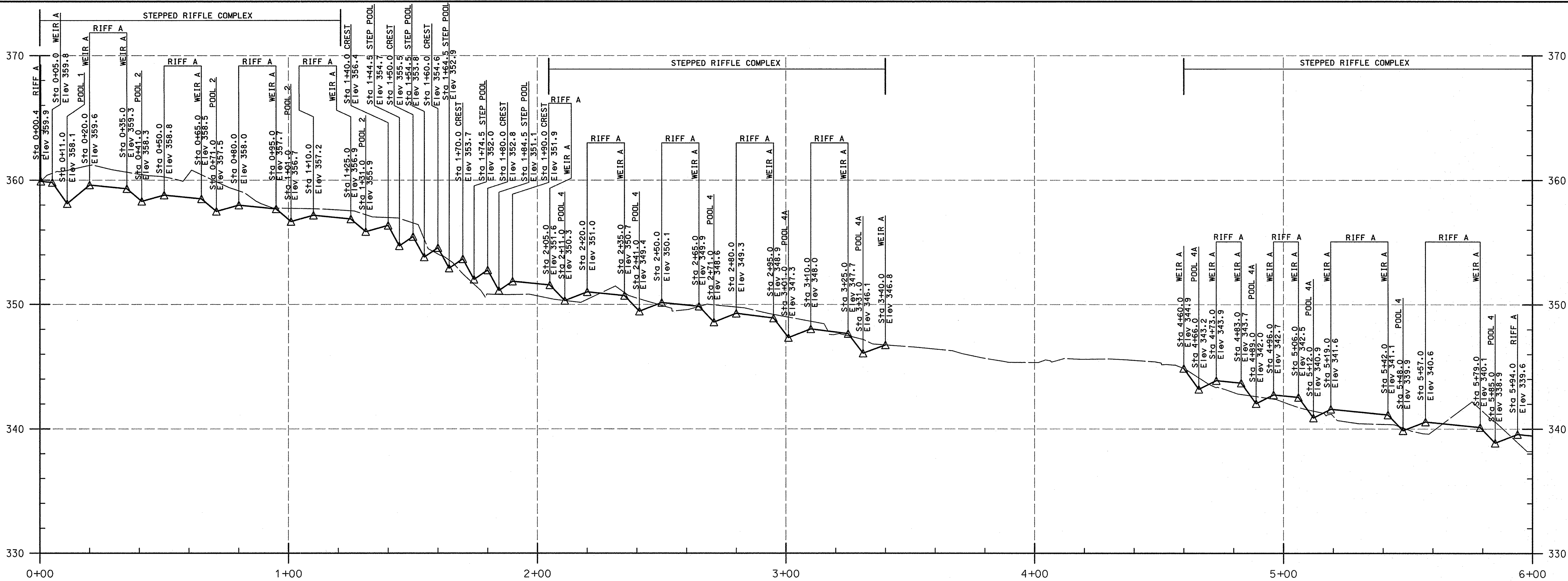
936 RIDGEBROOK ROAD
 SPARKS, MARYLAND 21152
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 FAX: (410) 316-7818
 WWW.KCI.COM



STONE TRAIL COURT
 STREAM RESTORATION PROJECT
 HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 STORMWATER MANAGEMENT DIVISION
 6751 COLUMBIA GATEWAY DRIVE
 COLUMBIA, MD 21046
 PARCEL 3.4, 286, 283, 342 TAX MAP 46
 ZONING R-20P-SC ELECTION DISTRICT 5

GEOMETRY SHEET

SCALE: 1" = 20'
 DATE: AUGUST 2013
 KCIJOB NO.: 01-081795.89
 CAPITAL PROJECT NO.: D-1158
 PERMIT ISSUE:
 CONSTRUCTION ISSUE:



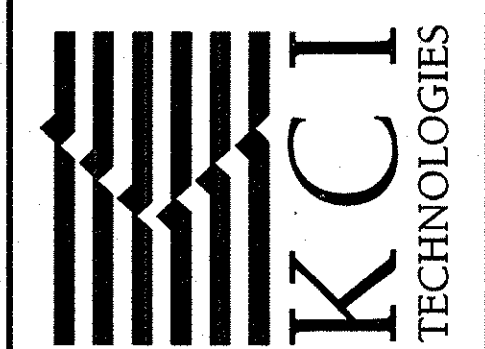
LEGEND

EXISTING GROUND _____

PROPOSED GROUND _____

NO.	REVISIONS DESCRIPTION	DATE

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 SPARKS, MARYLAND 21152
 TELEPHONE: (410) 316-7800
 FAX: (410) 316-7818
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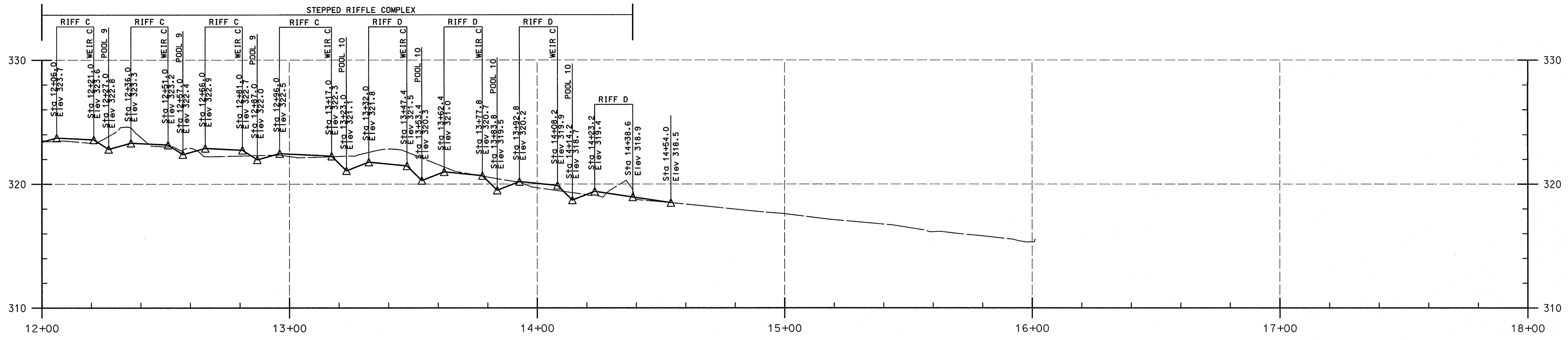


STONE TRAIL COURT
 STREAM RESTORATION PROJECT
 HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 STORMWATER MANAGEMENT DIVISION
 6751 COLUMBIA GATEWAY DRIVE
 COLUMBIA, MD 21046
 PARCEL 34, 295, 283, 342 TAX MAP 46
 ZONING R-20R-SC ELECTION DISTRICT 5

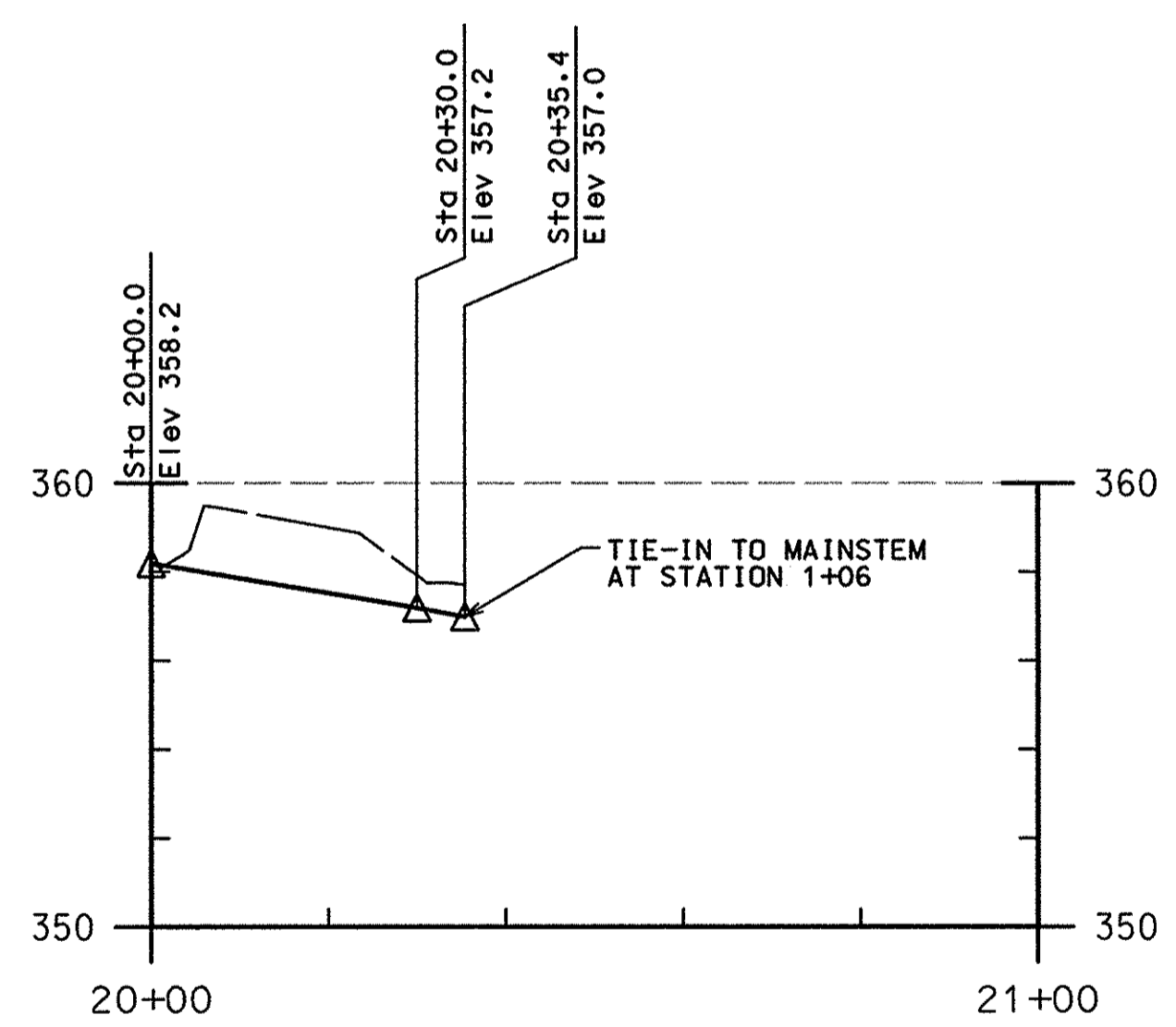
STREAM PROFILE

SCALE:	
DATE:	AUGUST 2013
KCI JOB NO.:	01-081795.89
CAPITAL PROJECT NO.:	D-1158
PERMIT ISSUE:	
CONSTRUCTION ISSUE:	

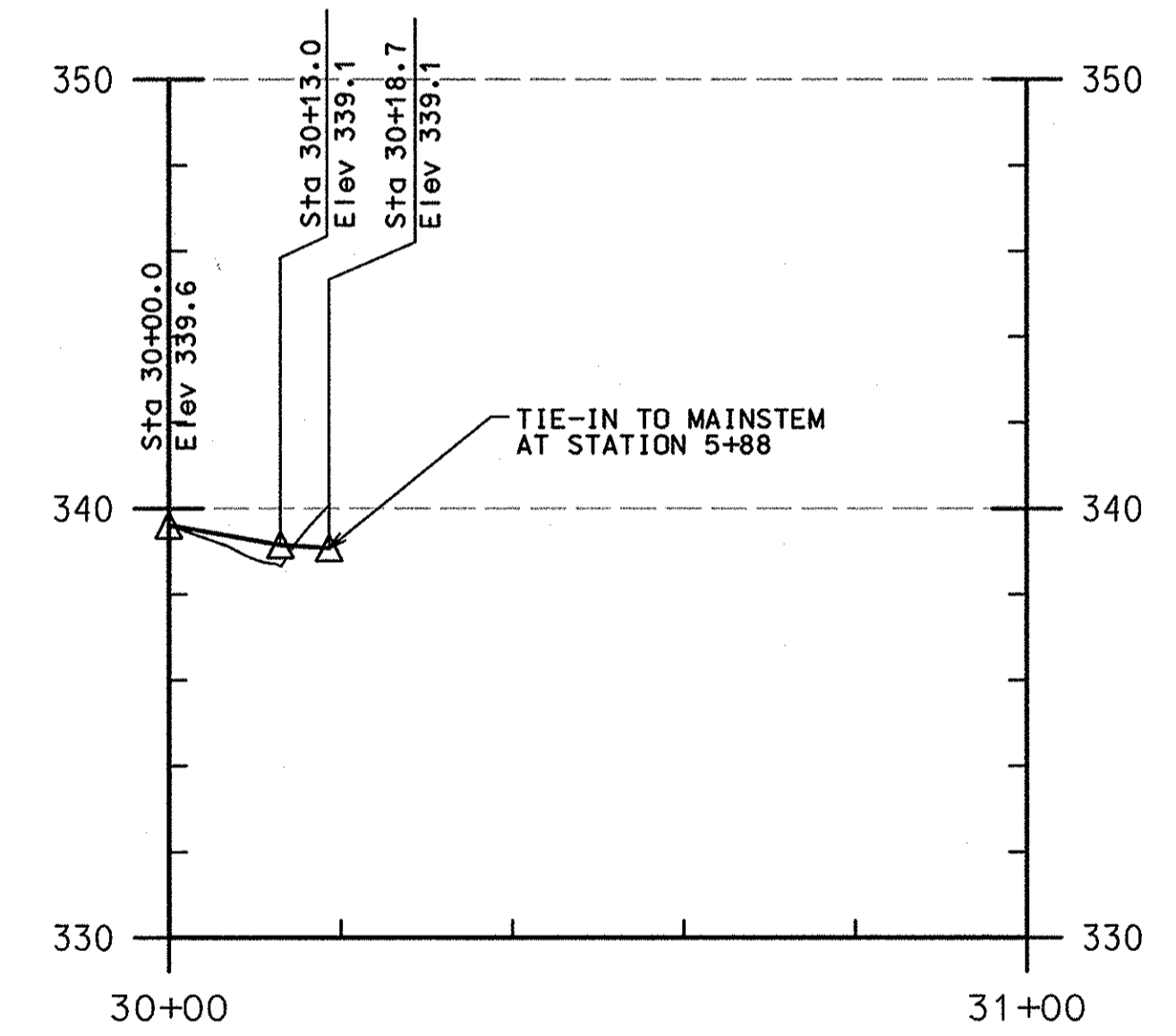
STATE OF MARYLAND
 PROFESSIONAL ENGINEER
 NO. 39311
 8/15/13
 DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD
 CHIEF, BUREAU OF ENVIRONMENTAL SERVICES
 DATE 8/16/13



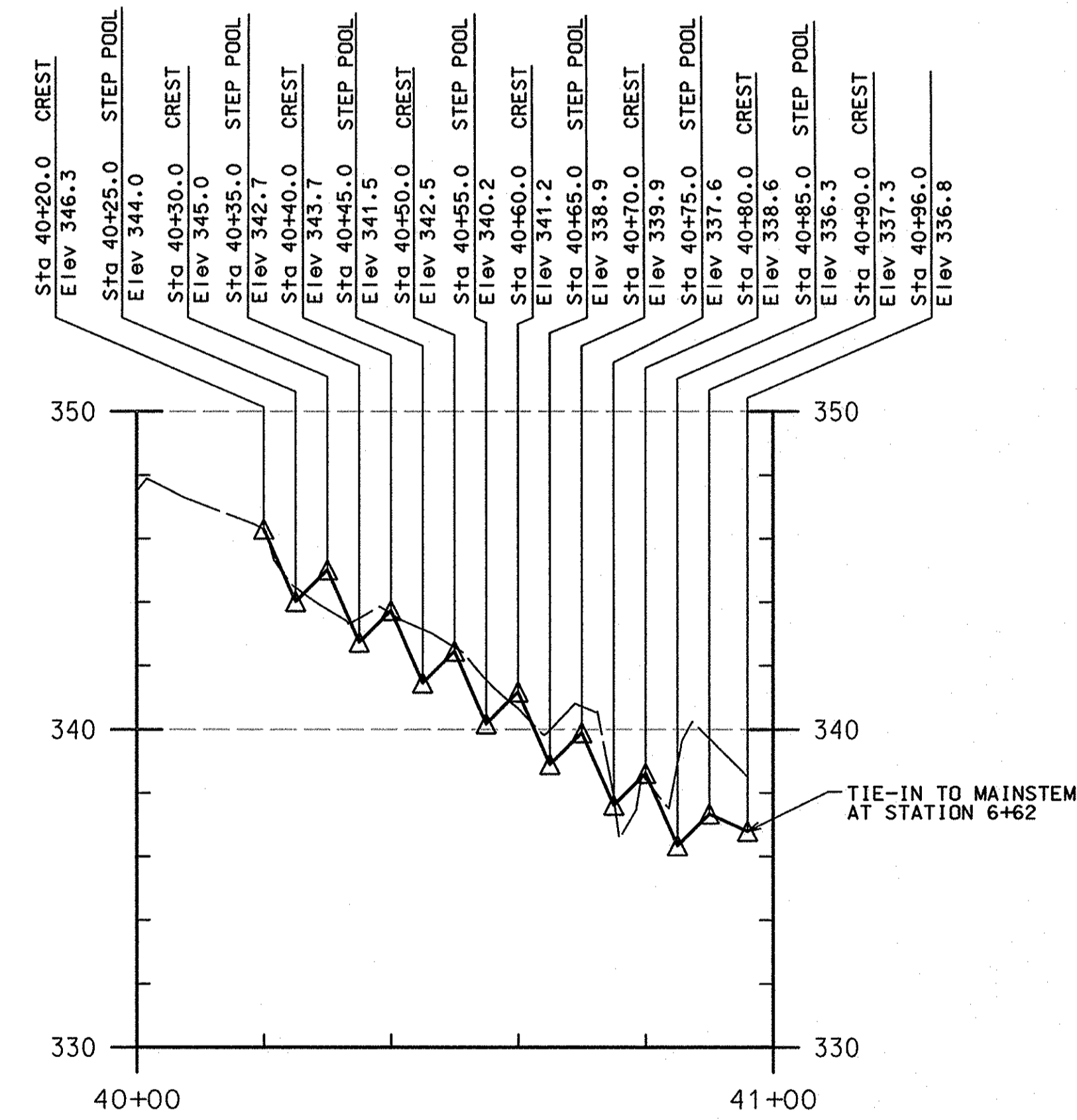
MAINSTEM



OUTFALL A



OUTFALL B



OUTFALL C

NO.	REVISIONS DESCRIPTION	DATE

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STONE TRAIL COURT
 STREAM RESTORATION PROJECT
 HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 STORMWATER MANAGEMENT DIVISION
 6751 COLUMBIA GATEWAY DRIVE
 COLUMBIA, MD 21046
 PARCEL S4, 256, 283, 342 TAX MAP 46
 ZONING R-20P-SC ELECTION DISTRICT 5

STREAM PROFILE

SCALE:
DATE: AUGUST 2013
KCI JOB NO.: 01-081795.89
CAPITAL PROJECT NO.: 5-115B
PERMIT ISSUE:
CONSTRUCTION ISSUE:

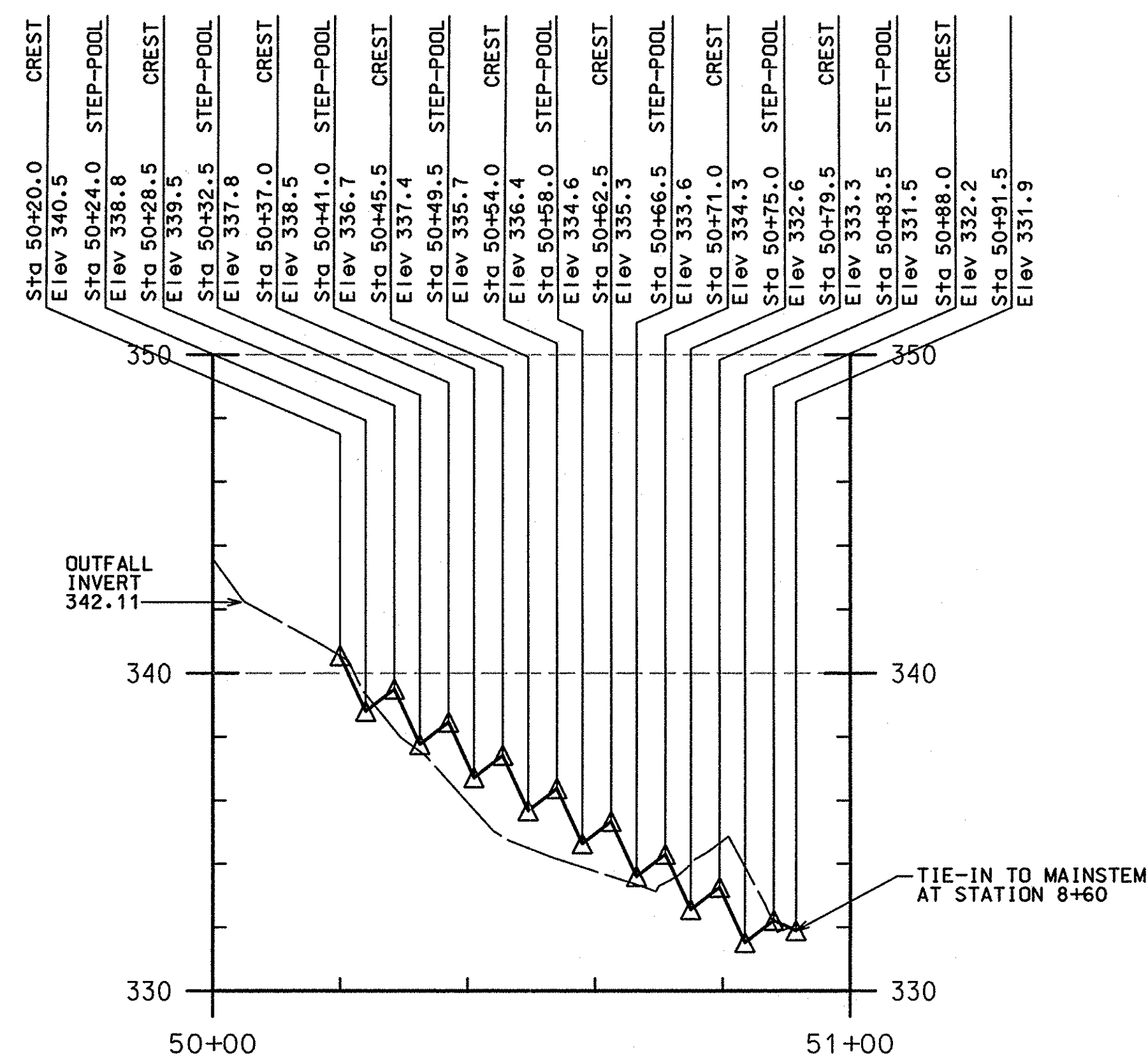
BY Ashley Pinner, Division: P050, Natural Res. Emp.
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8/15/13

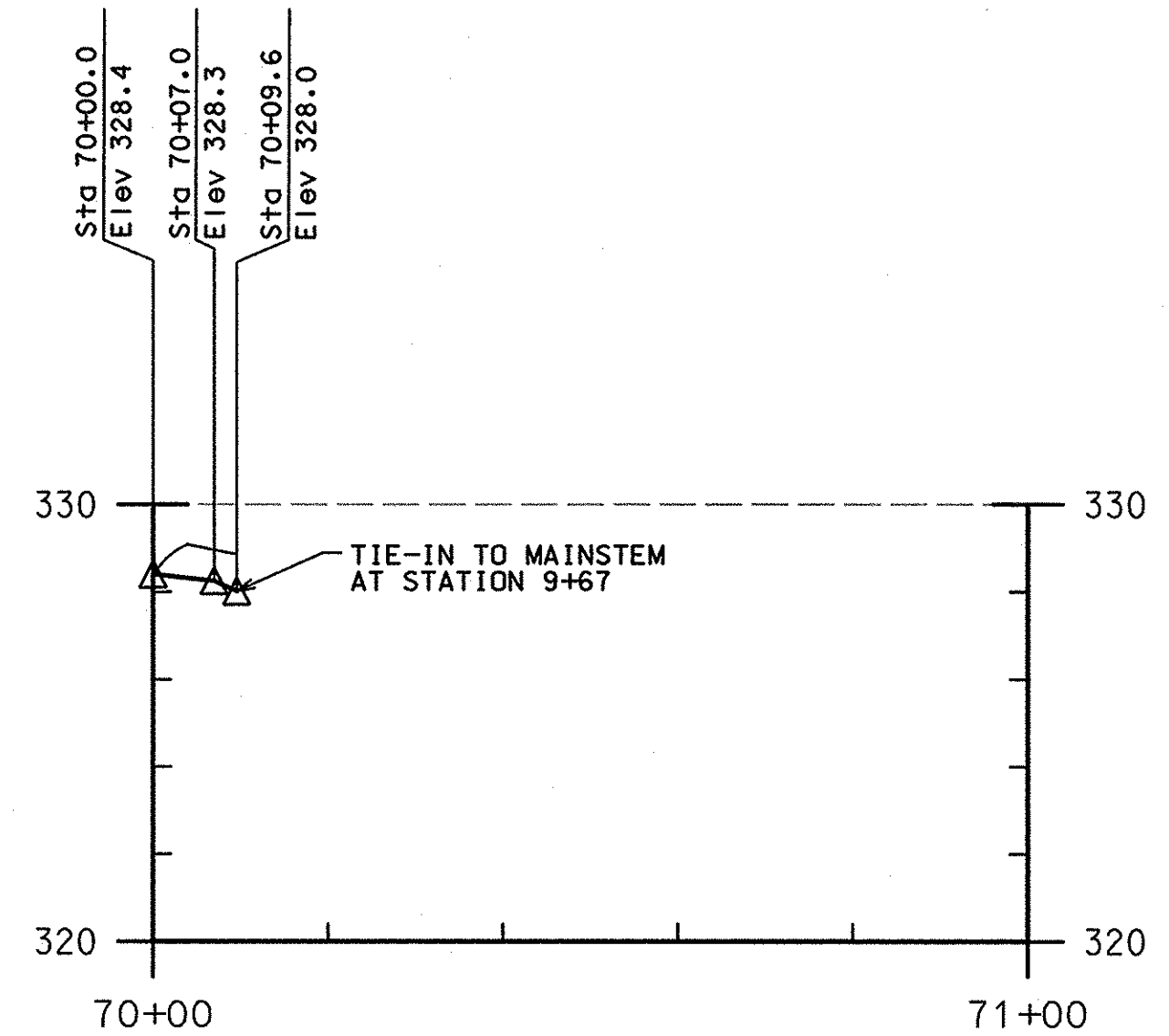
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DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD
 Chief, Bureau of Environmental Services
 Date: 8/15/13

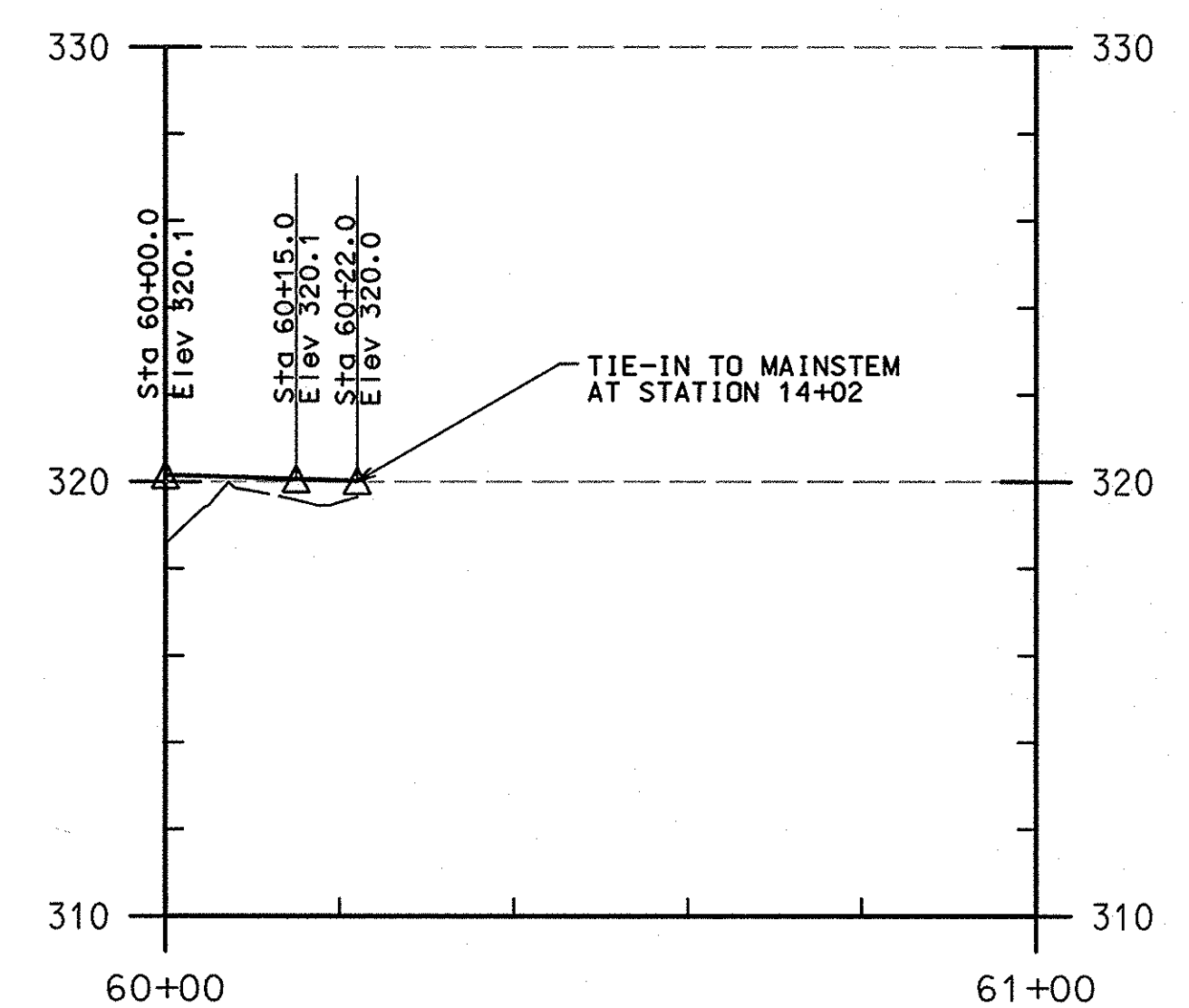
LEGEND
 EXISTING GROUND ———
 PROPOSED GROUND ———



OUTFALL D



OUTFALL E



OUTFALL F

LEGEND

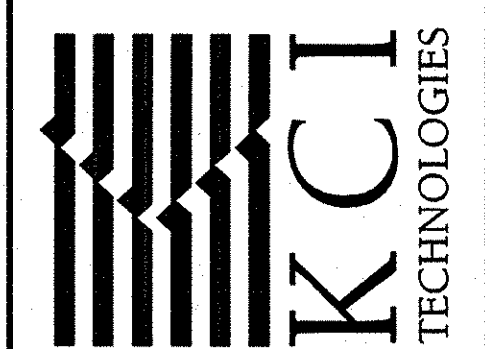
EXISTING GROUND ———
 PROPOSED GROUND ———

STATE OF MARYLAND
 PROFESSIONAL ENGINEER
 No. 38311
 8/13/15
 PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 38311, EXPIRATION DATE: JANUARY 6, 2014

DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD
 CHIEF, BUREAU OF ENVIRONMENTAL SERVICES
 DATE 8/16/13

NO.	REVISIONS DESCRIPTION	DATE

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STONE TRAIL COURT
 STREAM RESTORATION PROJECT
 HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 STORMWATER MANAGEMENT DIVISION
 6751 COLUMBIA GATEWAY DRIVE
 COLUMBIA, MD 21046
 PARCEL 3.4, 289, 283, 342 TAX MAP 46
 ZONING R-20F-SC ELECTION DISTRICT 5

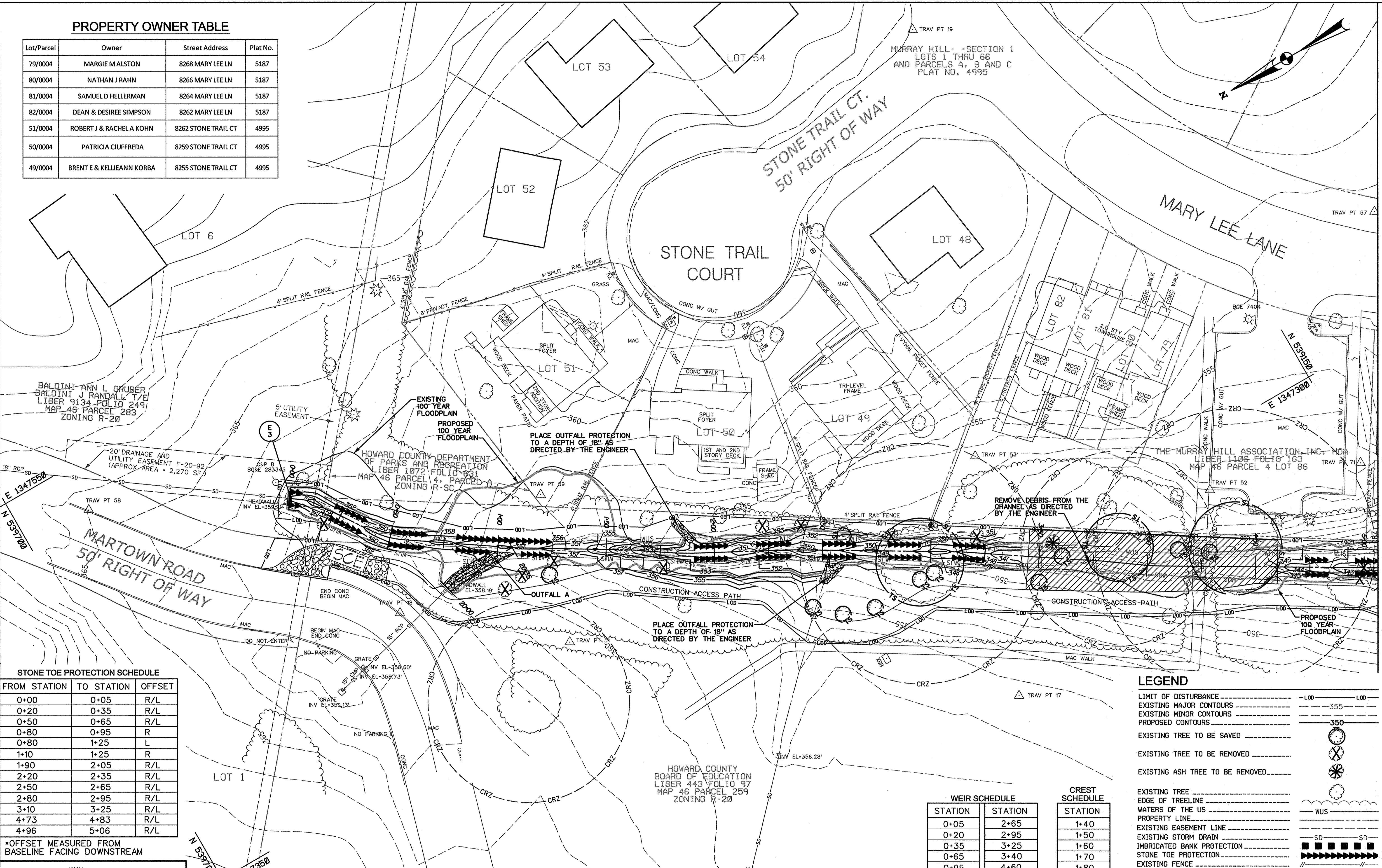
STREAM PROFILE

SCALE:
 DATE: AUGUST 2013
 KCI JOB NO.: 01-081795.89
 CAPITAL PROJECT NO.:
 PERMIT ISSUE: D-1158
 CONSTRUCTION ISSUE:

BY: Ashley Filmer, Division P050, Natural Resources, Emp. File: M:\2008\01081795.89\Drawings\0101stone.dgn

PROPERTY OWNER TABLE

Lot/Parcel	Owner	Street Address	Plat No.
79/0004	MARGIE M ALSTON	8268 MARY LEE LN	5187
80/0004	NATHAN J RAHN	8266 MARY LEE LN	5187
81/0004	SAMUEL D HELLERMAN	8264 MARY LEE LN	5187
82/0004	DEAN & DESIREE SIMPSON	8262 MARY LEE LN	5187
51/0004	ROBERT J & RACHEL A KOHN	8262 STONE TRAIL CT	4995
50/0004	PATRICIA CIUFFREDA	8259 STONE TRAIL CT	4995
49/0004	BRENT E & KELLIEANN KORBA	8255 STONE TRAIL CT	4995



STONE TOE PROTECTION SCHEDULE

FROM STATION	TO STATION	OFFSET
0+00	0+05	R/L
0+20	0+35	R/L
0+50	0+65	R/L
0+80	0+95	R
0+80	1+25	L
1+10	1+25	R
1+90	2+05	R/L
2+20	2+35	R/L
2+50	2+65	R/L
2+80	2+95	R/L
3+10	3+25	R/L
4+73	4+83	R/L
4+96	5+06	R/L

*OFFSET MEASURED FROM BASELINE FACING DOWNSTREAM

WEIR SCHEDULE

STATION	STATION
0+05	2+65
0+20	2+95
0+35	3+25
0+65	3+40
0+95	4+60
1+25	4+73
2+05	4+83
2+35	4+96

CREST SCHEDULE

STATION
1+40
1+50
1+60
1+70
1+80
1+90

LEGEND

- LIMIT OF DISTURBANCE ----- L-LOD ----- L-LOD
- EXISTING MAJOR CONTOURS ----- 355 -----
- EXISTING MINOR CONTOURS ----- 350 -----
- PROPOSED CONTOURS ----- 350 -----
- EXISTING TREE TO BE SAVED ----- (Tree Symbol) -----
- EXISTING TREE TO BE REMOVED ----- (Tree Symbol with X) -----
- EXISTING ASH TREE TO BE REMOVED ----- (Tree Symbol with X) -----
- EXISTING TREE ----- (Tree Symbol) -----
- EDGE OF TREELINE ----- (Wavy Line) -----
- WATERS OF THE US ----- WUS -----
- PROPERTY LINE ----- (Dashed Line) -----
- EXISTING EASEMENT LINE ----- (Dashed Line) -----
- EXISTING STORM DRAIN ----- SD ----- SD
- IMBRICATED BANK PROTECTION ----- (Hatched Area) -----
- STONE TOE PROTECTION ----- (Arrowheads) -----
- EXISTING FENCE ----- (Double Line) -----
- EX. 100 YEAR FLOODPLAIN ----- (Dotted Area) -----
- PROP. 100 YEAR FLOODPLAIN* ----- (Dotted Area) -----
- OUTFALL PROTECTION ----- (Hatched Area) -----
- PLANTING ONLY ZONE ----- (Hatched Area) -----
- SPECIMEN TREE SAVE WITH CRITICAL ROOT ZONE ----- (Circle with X) -----

- NOTES:**
1. THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN WORKING NEAR THE SCHOOL AND PAY CLOSE ATTENTION TO PEDESTRIANS WALKING NEAR THE WORK SITE.
 2. WORKING HOURS ARE 7AM TO 7PM MONDAY THROUGH FRIDAY.
 3. THE CONTRACTOR SHALL AVOID TRACKING HEAVY EQUIPMENT OVER THE CRITICAL ROOT ZONE OF SPECIMEN TREES. IF UNAVOIDABLE, LOAD MATTS SHOULD BE USED WHEN TRACKING OVER THE CRITICAL ROOT ZONES.
 4. NO HEAVY EQUIPMENT TO BE USED IN THE PLANTING ONLY ZONES.

STATE OF MARYLAND
 PROFESSIONAL ENGINEER
 No. 38311
 8/15/13
 PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 38311, EXPIRATION DATE: JANUARY 6, 2014

DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD
 CHIEF, BUREAU OF ENVIRONMENTAL SERVICES
 8/16/13
 DATE

MATCH LINE A-A

936 RIDGEBROOK ROAD
 SPARKS, MARYLAND 21152
 TELEPHONE: (410) 316-7800
 FAX: (410) 316-7818
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KCI TECHNOLOGIES

STONE TRAIL COURT
 STREAM RESTORATION PROJECT
 HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 STORMWATER MANAGEMENT DIVISION
 6751 COLUMBIA GATEWAY DRIVE
 COLUMBIA, MD 21046
 PARCEL 3, 4, 255, 283, 342 TAX MAP 46
 ZONING R-20P-SC ELECTION DISTRICT 5

GRADING PLAN

SCALE: 1" = 20'
 DATE: AUGUST 2013
 KCIJOB NO.: 01-081795.89
 CAPITAL PROJECT NO.: D-1158
 PERMIT ISSUE:
 CONSTRUCTION ISSUE:

SHEET NO.: 8 OF 29

FILE: M:\2008\01081795.89\Drawings\ep1stone.dgn

MATCH LINE A-A

MATCH LINE B-B

MARY LEE LANE

MURRAY HILL - SECTION 1
LOTS 1 THRU 66
AND PARCELS A, B AND C
PLAT NO. 4994

THE MURRAY HILL ASSOCIATION, INC. HOA
LIBER 1106 FOLIO 163
MAP 46 PARCEL 4 LOT 8
ZONING R-20

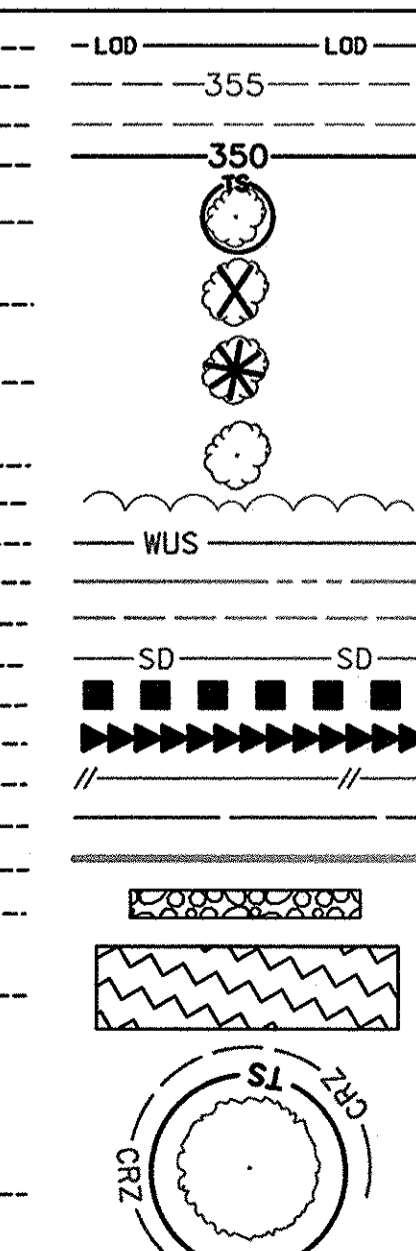
HOWARD COUNTY BOARD OF EDUCATION
LIBER 443 FOLIO 97
MAP 46 PARCEL 259
ZONING R-20

HOWARD COUNTY DEPARTMENT OF PARKS AND RECREATION
LIBER 1072 FOLIO 631 MAP 46
PARCEL 4 - PARCEL A
ZONING R-SC

APPROXIMATE LOCATION OF AZALEAS TO BE SAVED

LEGEND

- LIMIT OF DISTURBANCE
- EXISTING MAJOR CONTOURS
- EXISTING MINOR CONTOURS
- PROPOSED CONTOURS
- EXISTING TREE TO BE SAVED
- EXISTING TREE TO BE REMOVED
- EXISTING ASH TREE TO BE REMOVED
- EXISTING TREE
- EDGE OF TREELINE
- WATERS OF THE US
- PROPERTY LINE
- EXISTING EASEMENT LINE
- EXISTING STORM DRAIN
- IMBRICATED BANK PROTECTION
- STONE TOE PROTECTION
- EXISTING FENCE
- EX. 100 YEAR FLOODPLAIN
- PROP. 100 YEAR FLOODPLAIN
- OUTFALL PROTECTION
- WETLAND TERRACE
- SPECIMEN TREE SAVE WITH CRITICAL ROOT ZONE



PROPERTY OWNER TABLE

Lot/Parcel	Owner	Street Address	Plat No.
29/0342	FENG XU	8316 MARY LEE LN	5302
30/0342	JOEL R & DENISE L JONES	8314 MARY LEE LN	5302
31/0342	ANTONIO F & LESLIE C RAMIS	8312 MARY LEE LN	5302
32/0342	XINGMING LIANG	8310 MARY LEE LN	5302
67/0004	ALBERT E & CHERYL B SUHARI	8302 MARY LEE LN	5187
68/0004	JASON R OXENRIDER	8300 MARY LEE LN	5187
69/0004	KEVIN T & JEAN L HARTMAN	8298 MARY LEE LN	5187
70/0004	JAMES W & CAROL STEHMAN	8296 MARY LEE LN	5187
71/0004	PAIK SUCK KI AKA LEE SUKKI PAIK PAIK KATHERINE HYUN	8290 MARY LEE LN	5187
72/0004	DANIEL G & MICHELE M DOWNS	8288 MARY LEE LN	5187
73/0004	MARK J & TARA L BIZOKAS	8286 MARY LEE LN	5187
74/0004	OLAYINKA MAKININMARIN	8284 MARY LEE LN	5187
75/0004	MARTIN & SARA SCOVITCH	8280 MARY LEE LN	5187
76/0004	ROBERT A CORSO	8278 MARY LEE LN	5187
77/0004	CHRISTOPHER T & NATASHA Y MARANO	8276 MARY LEE LN	5187
78/0004	LE THANH QUOC	8274 MARY LEE LN	5187

STONE TOE PROTECTION SCHEDULE

FROM STATION	TO STATION	OFFSET
5+20	5+42	R/L
5+57	5+79	L
5+57	6+04	R
5+94	6+04	L
6+19	6+29	R/L
6+44	6+54	R/L
6+60	6+84	R
6+99	7+14	R
7+29	7+44	R
7+59	8+04	R
7+89	8+04	L
8+19	8+34	R/L
8+49	8+64	L
8+79	8+94	R
8+79	9+24	L
9+39	9+59	L
9+09	9+86	R
9+74	9+86	L
10+01	10+16	R/L
10+31	10+36	L
10+31	10+71	R
10+56	10+71	L

*OFFSET MEASURED FROM BASELINE FACING DOWNSTREAM

IMBRICATED SCHEDULE

FROM STATION	TO STATION	OFFSET
6+54	7+75	L

WEIR SCHEDULE

STATION	STATION
5+06	8+04
5+19	8+34
5+42	8+64
5+79	8+94
6+04	9+24
6+29	9+59
6+54	9+86
6+84	10+16
7+14	10+36
7+44	10+56
7+74	

CREST SCHEDULE

STATION	STATION
40+20	50+20
40+30	50+28.5
40+40	50+37
40+50	50+45.5
40+60	50+54
40+70	50+62.5
40+80	50+71
40+90	50+79.5
	50+88

NOTES:

- THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN WORKING NEAR THE SCHOOL AND PAY CLOSE ATTENTION TO PEDESTRIANS WALKING NEAR THE WORK SITE.
- WORKING HOURS ARE 7AM TO 7PM MONDAY THROUGH FRIDAY.
- THE CONTRACTOR SHALL AVOID TRACKING HEAVY EQUIPMENT OVER THE CRITICAL ROOT ZONE OF SPECIMEN TREES. IF UNAVOIDABLE, LOAD MATTS SHOULD BE USED WHEN TRACKING OVER THE CRITICAL ROOT ZONES.

DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD
 Chief, Bureau of Environmental Services
 DATE: 8/16/13

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NO.	REVISIONS DESCRIPTION	DATE

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 SPARKS, MARYLAND 21152
 TELEPHONE: (410) 316-7800
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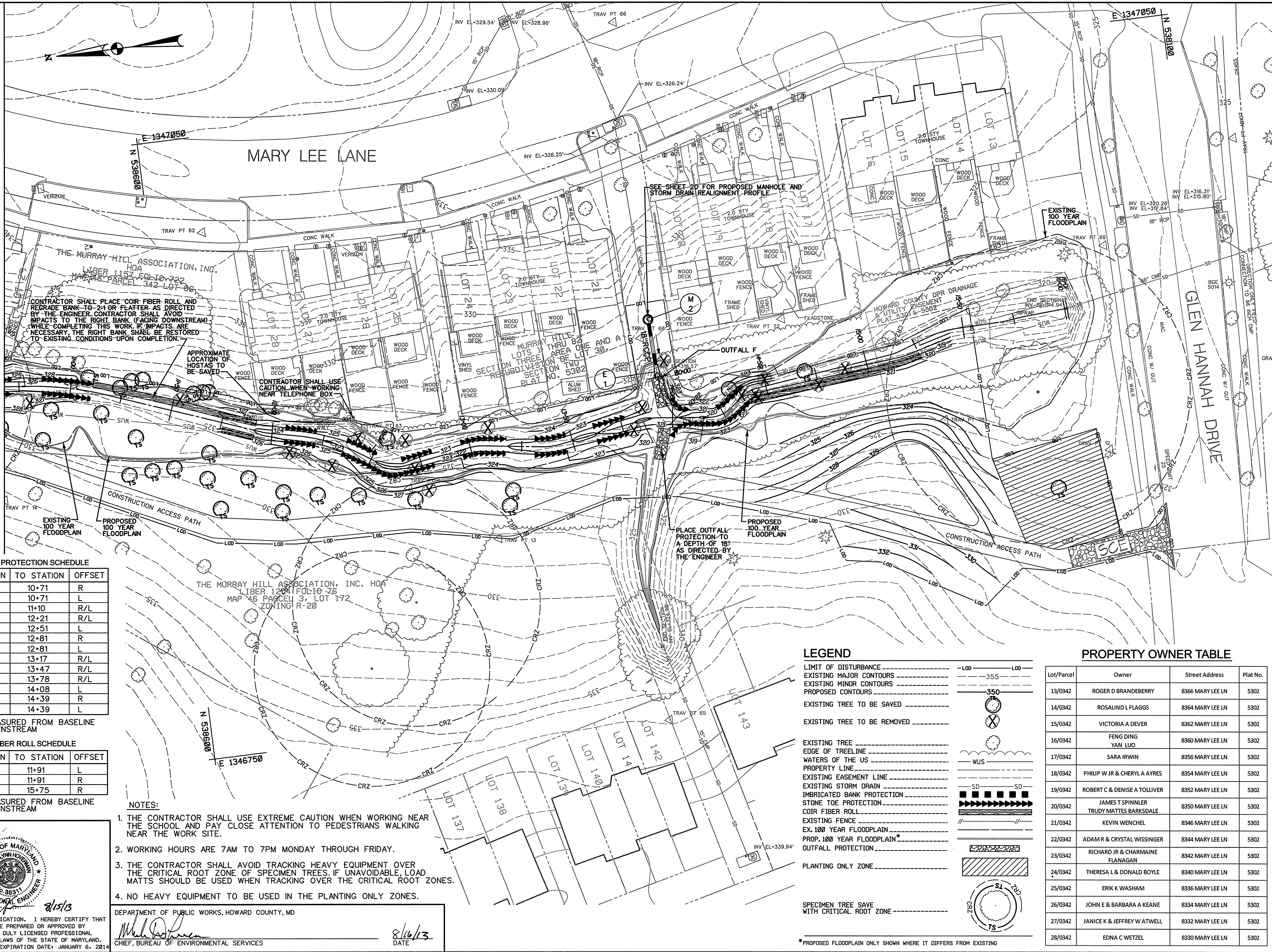


STONE TRAIL COURT
 STREAM RESTORATION PROJECT
 HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 STORMWATER MANAGEMENT DIVISION
 6751 COLUMBIA GATEWAY DRIVE
 COLUMBIA, MD 21046
 PARCEL 3, 4, 259, 283, 342 TAX MAP 46
 ZONING R-20P-SC ELECTION DISTRICT 5

GRADING PLAN

SCALE: 1" = 20'
 DATE: AUGUST 2013
 KCI JOB NO.: 01-081795.89
 CAPITAL PROJECT NO.: D-1158
 PERMIT ISSUE:
 CONSTRUCTION ISSUE:

MATCH LINE B-B



WEIR SCHEDULE

STATION
10+71
11+91
12+21
12+51
12+81
13+17
13+47.4
13+77.8
14+08.2

STONE TOE PROTECTION SCHEDULE

FROM STATION	TO STATION	OFFSET
10+31	10+71	R
10+56	10+71	L
10+86	11+10	R/L
12+06	12+21	R/L
12+36	12+51	L
12+36	12+81	R
12+66	12+81	L
12+96	13+17	R/L
13+32	13+47	R/L
13+62	13+78	R/L
14+00	14+08	L
14+00	14+39	R
14+23	14+39	L

COIR FIBER ROLL SCHEDULE

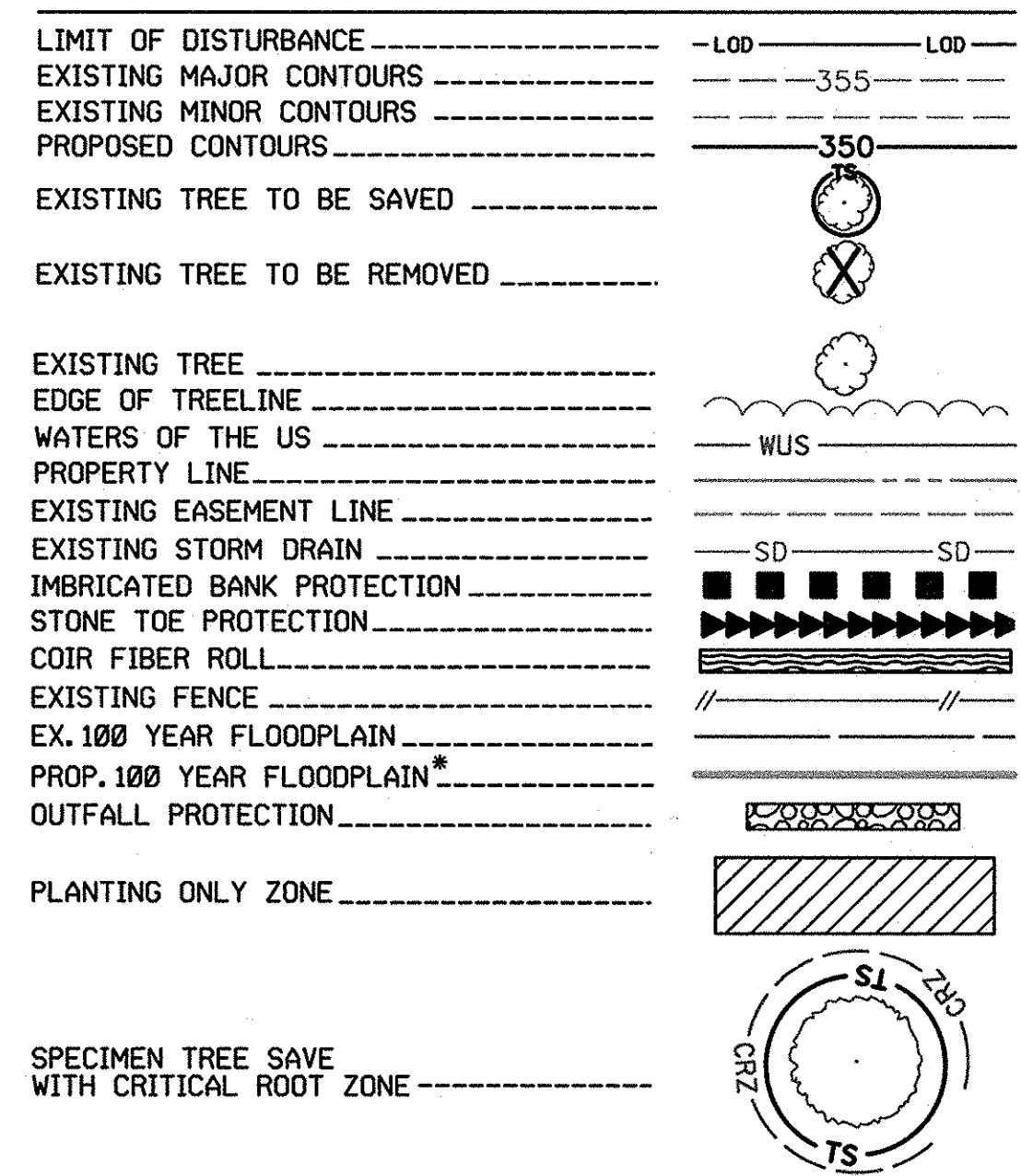
FROM STATION	TO STATION	OFFSET
11+10	11+91	L
11+76	11+91	R
14+39	15+75	R

NOTES:

1. THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN WORKING NEAR THE SCHOOL AND PAY CLOSE ATTENTION TO PEDESTRIANS WALKING NEAR THE WORK SITE.
2. WORKING HOURS ARE 7AM TO 7PM MONDAY THROUGH FRIDAY.
3. THE CONTRACTOR SHALL AVOID TRACKING HEAVY EQUIPMENT OVER THE CRITICAL ROOT ZONE OF SPECIMEN TREES. IF UNAVOIDABLE, LOAD MATTS SHOULD BE USED WHEN TRACKING OVER THE CRITICAL ROOT ZONES.
4. NO HEAVY EQUIPMENT TO BE USED IN THE PLANTING ONLY ZONES.

DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD
 CHIEF, BUREAU OF ENVIRONMENTAL SERVICES
 DATE 8/16/13

LEGEND



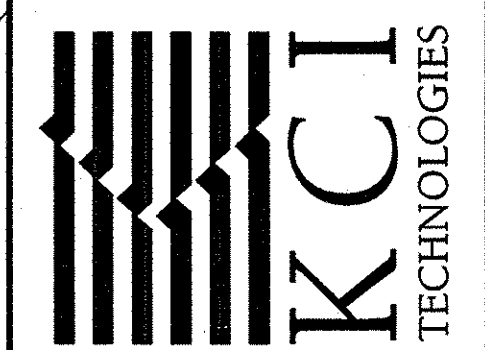
PROPERTY OWNER TABLE

Lot/Parcel	Owner	Street Address	Plat No.
13/0342	ROGER D BRANDEBERRY	8366 MARY LEE LN	5302
14/0342	ROSALIND L FLAGGS	8364 MARY LEE LN	5302
15/0342	VICTORIA A DEVER	8362 MARY LEE LN	5302
16/0342	FENG DING YAN LUO	8360 MARY LEE LN	5302
17/0342	SARA IRWIN	8356 MARY LEE LN	5302
18/0342	PHILIP W JR & CHERYL A AYRES	8354 MARY LEE LN	5302
19/0342	ROBERT C & DENISE A TOLLIVER	8352 MARY LEE LN	5302
20/0342	JAMES T SPINLER TRUDY MATTES BARKSDALE	8350 MARY LEE LN	5302
21/0342	KEVIN WENCHEL	8346 MARY LEE LN	5302
22/0342	ADAM R & CRYSTAL WISSINGER	8344 MARY LEE LN	5302
23/0342	RICHARD JR & CHARMINE FLANAGAN	8342 MARY LEE LN	5302
24/0342	THERESA L & DONALD BOYLE	8340 MARY LEE LN	5302
25/0342	ERIK K WASHAM	8336 MARY LEE LN	5302
26/0342	JOHN E & BARBARA A KEANE	8334 MARY LEE LN	5302
27/0342	JANICE K & JEFFREY W ATWELL	8332 MARY LEE LN	5302
28/0342	EDNA C WETZEL	8330 MARY LEE LN	5302

*PROPOSED FLOODPLAIN ONLY SHOWN WHERE IT DIFFERS FROM EXISTING

NO.	REVISIONS DESCRIPTION	DATE

936 RIDGEBROOK ROAD
 SPARKS, MARYLAND 21152
 TELEPHONE: (410) 316-7800
 FAX: (410) 316-7818
 WWW.KCI.COM



STONE TRAIL COURT
 STREAM RESTORATION PROJECT
 HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 STORMWATER MANAGEMENT DIVISION
 6751 COLUMBIA GATEWAY DRIVE
 COLUMBIA, MD 21046
 PARCEL 3A, 259, 283, 342 TAX MAP 46
 ZONING R-20P-SC ELECTION DISTRICT 5

GRADING PLAN

SCALE: 1" = 20'

DATE: AUGUST 2013

KCI JOB NO.: 01-081795.89

CAPITAL PROJECT NO.: D-1158

PERMIT ISSUE:

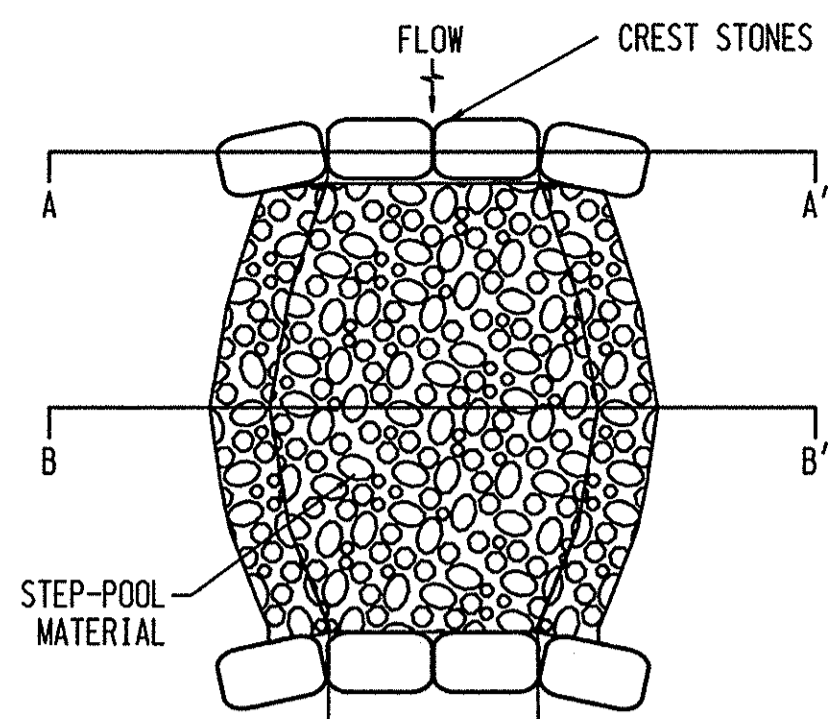
CONSTRUCTION ISSUE:

SHEET NO.: 10 OF 29

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 39311, EXPIRATION DATE: JANUARY 6, 2014.

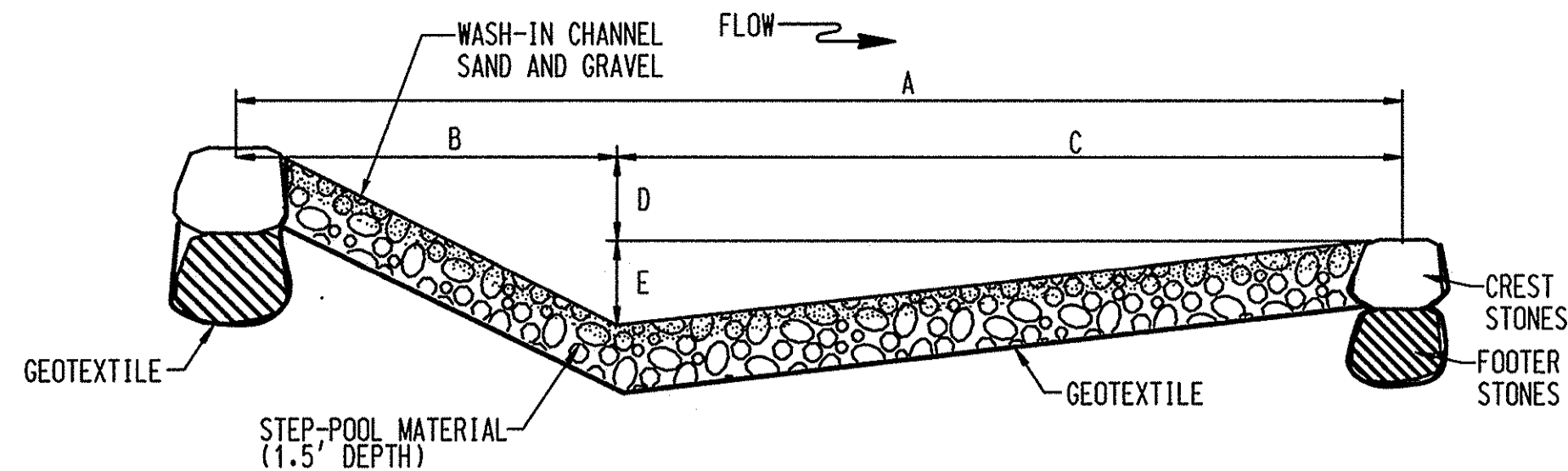
8/15/13

KCI FILE: M.A. 2008 \ 01081795.89 \



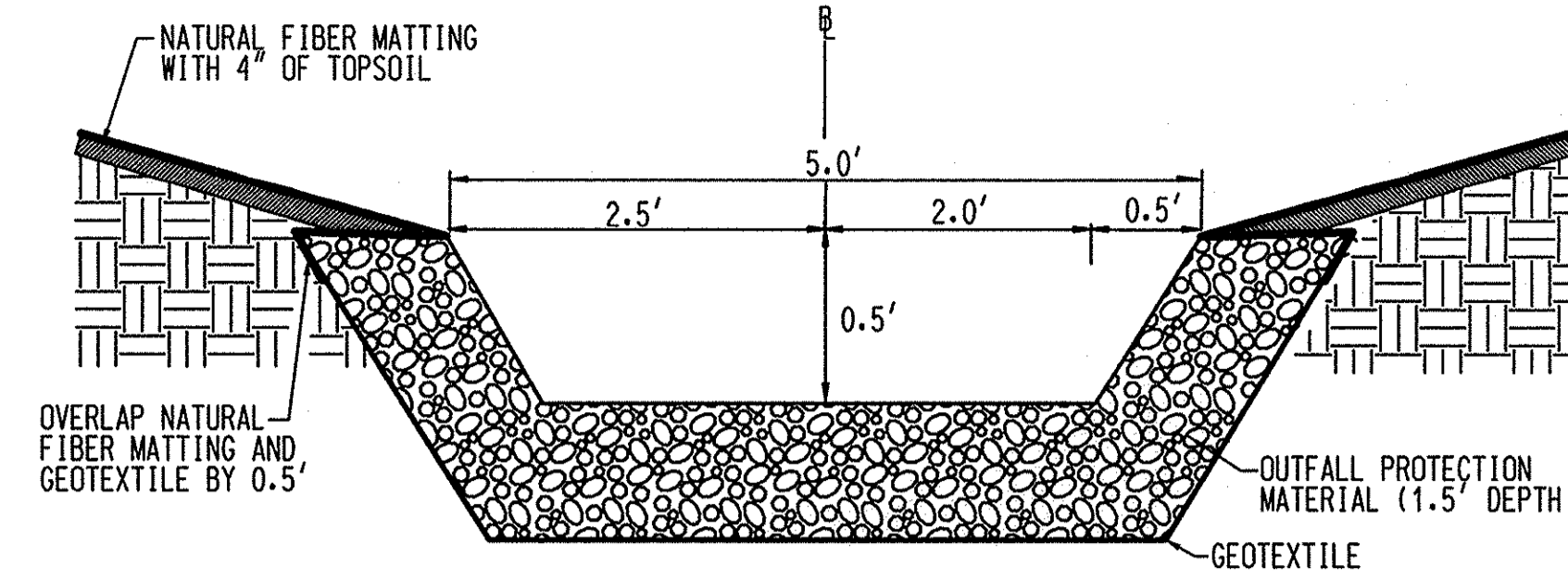
NOTE: WASH IN CHANNEL SAND & GRAVEL TO FILL VOID SPACE OF STEP-POOL MATERIAL

TYPICAL PLAN VIEW OF STEP-POOL
NOT TO SCALE

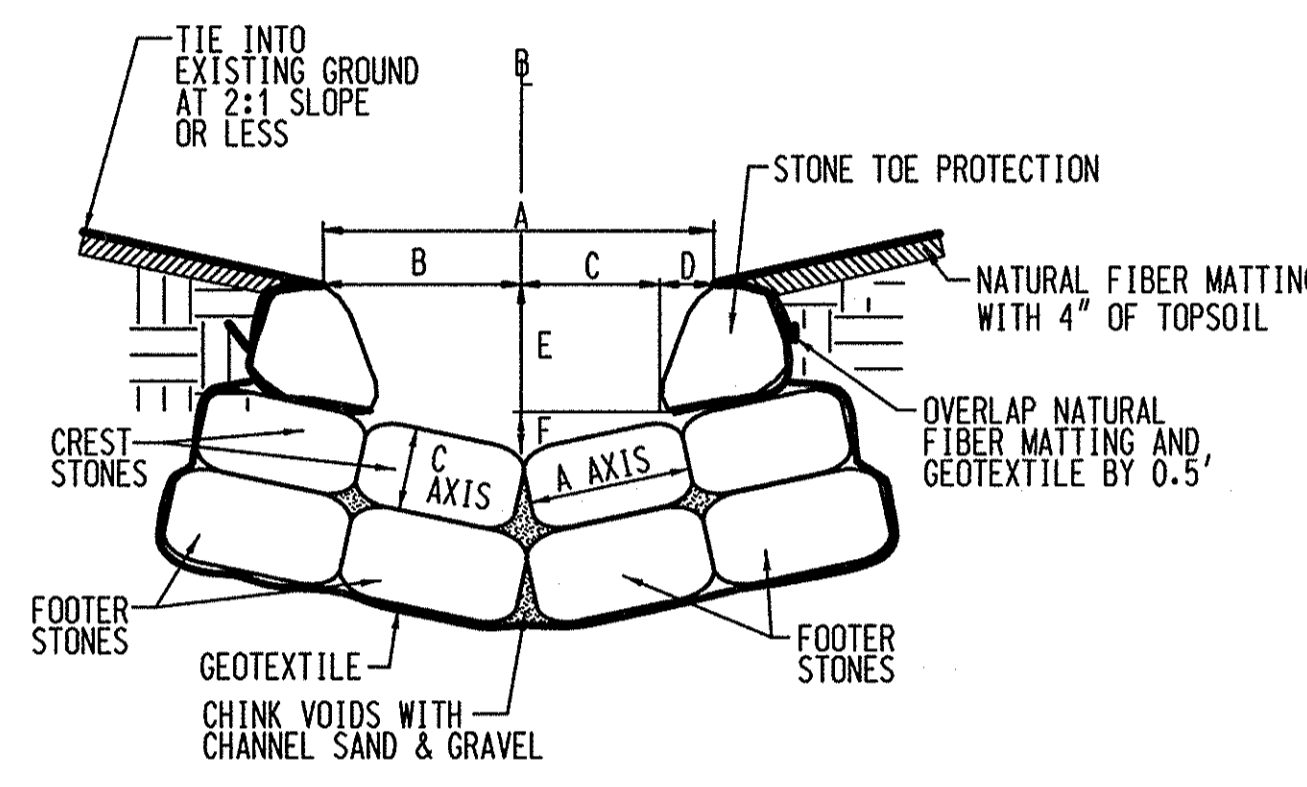


LOCATION	FROM STATION	TO STATION	A	B	C	D	E
MAINSTEM	1+40	1+90	10.0'	4.5'	5.5'	0.9'	1.0'
OUTFALL C	40+20	40+90	10.0'	5.0'	5.0'	1.3'	1.0'
OUTFALL D	50+20	50+88	8.5'	4.0'	4.5'	1.04'	0.7'

TYPICAL PROFILE THROUGH STEP-POOL
NOT TO SCALE



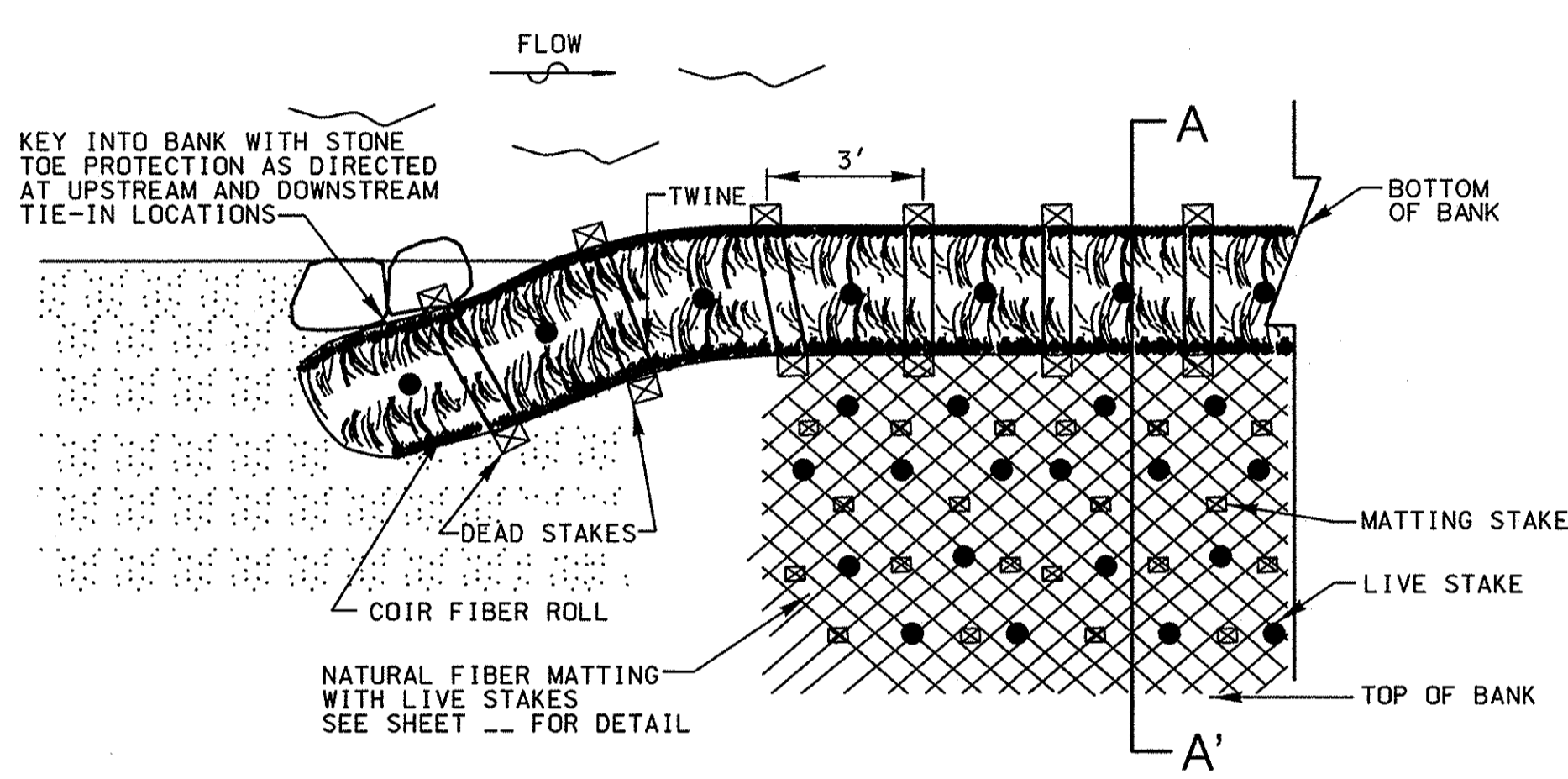
OUTFALL PROTECTION - OUTFALLS A, B, E, F
NOT TO SCALE



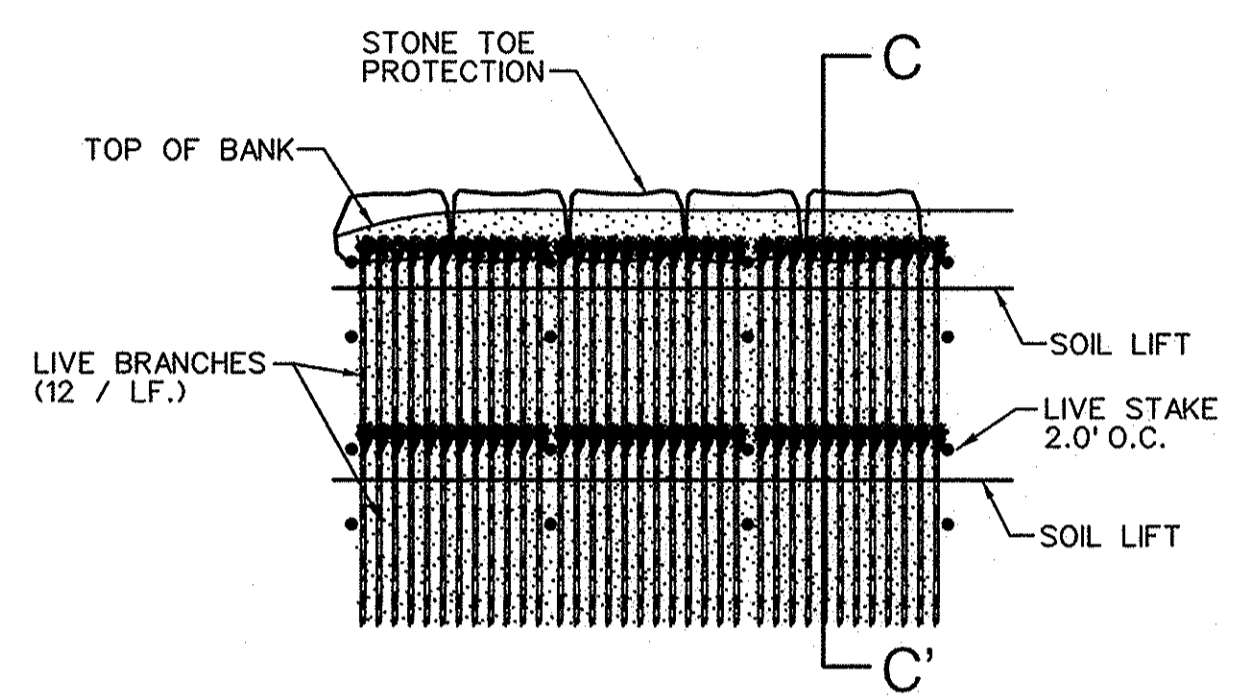
LOCATION	A	B	C	D	E	F
MAINSTEM	6.0'	3.0'	2.2'	0.8'	0.8'	0.2'
OUTFALL C/D	5.0'	2.5'	2.0'	0.5'	0.5'	0.0'

NOTE: SEE PROFILE FOR SPECIFIC LOCATIONS

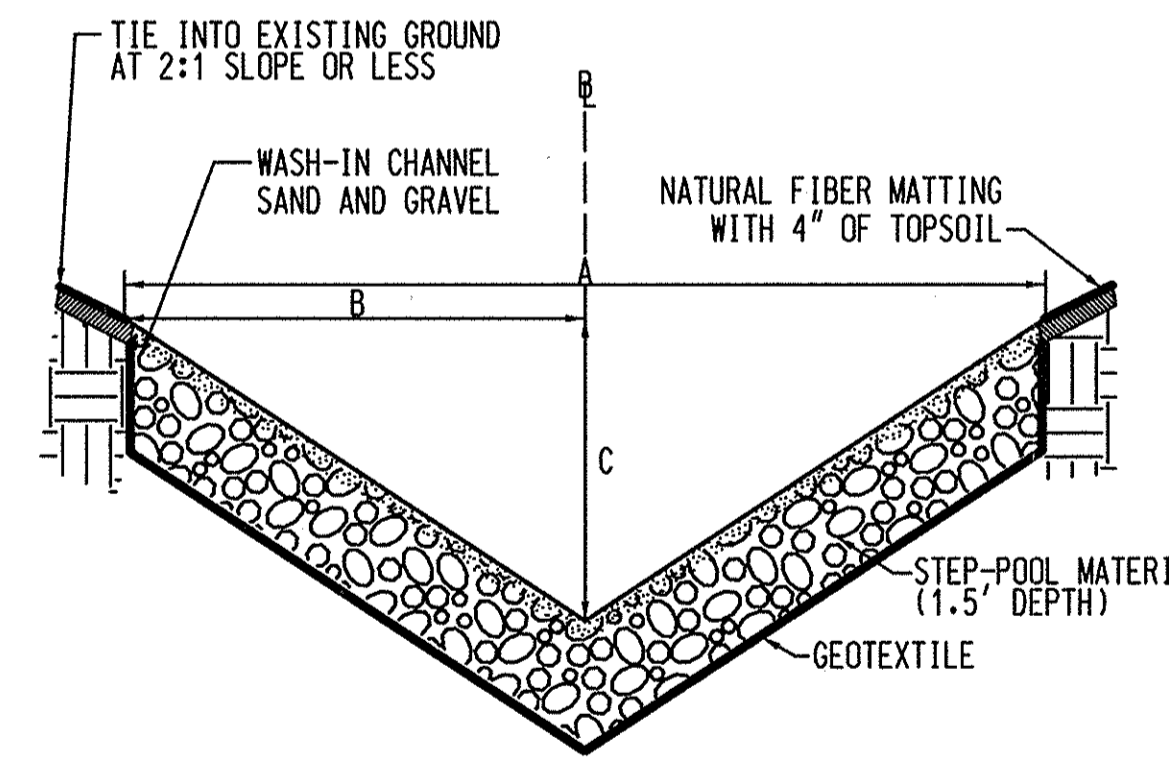
CREST A'-A
NOT TO SCALE



COIR FIBER ROLL WITH MATTING - PLAN VIEW DETAIL
NOT TO SCALE



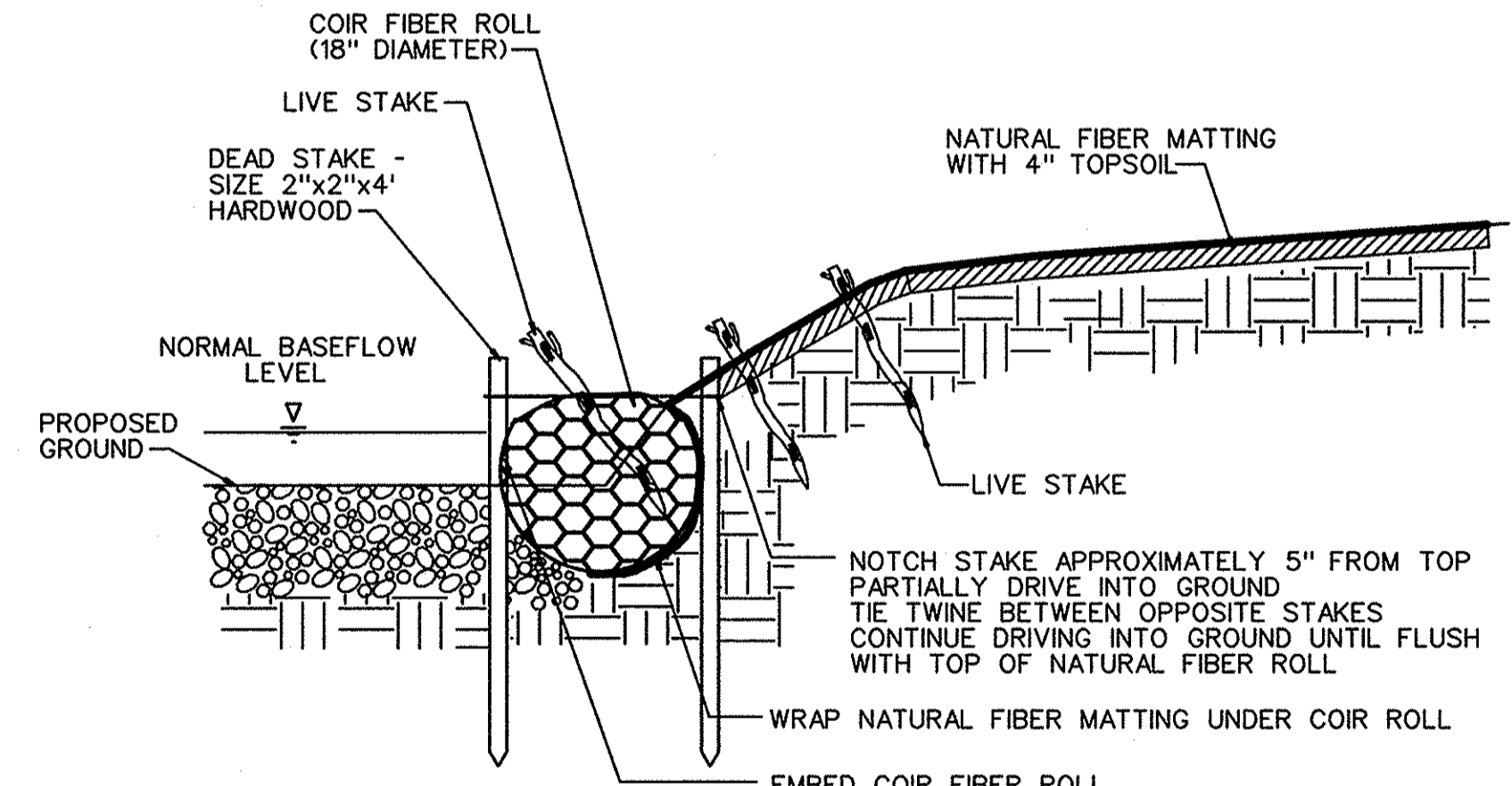
LIVE BRANCHES FOR WETLAND TERRACE ZONE PLAN VIEW DETAIL
NOT TO SCALE



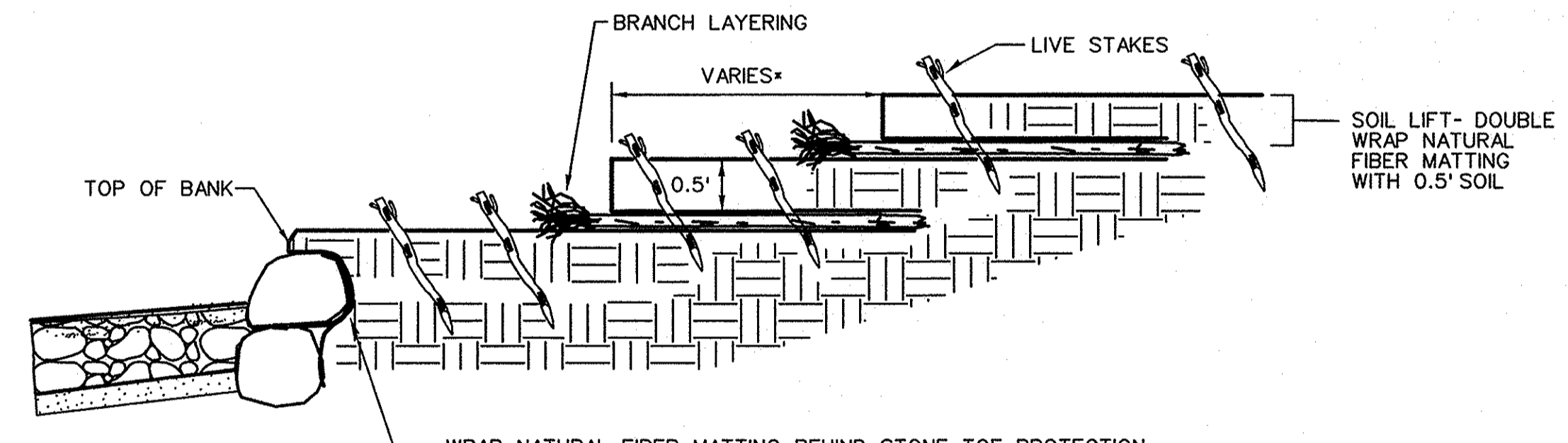
LOCATION	A	B	C
MAINSTEM	7.5	3.8	2.5
OUTFALL C	6.4	3.2	2.1
OUTFALL D	6.0	3.0	1.8

NOTE: SEE PROFILE FOR SPECIFIC LOCATIONS

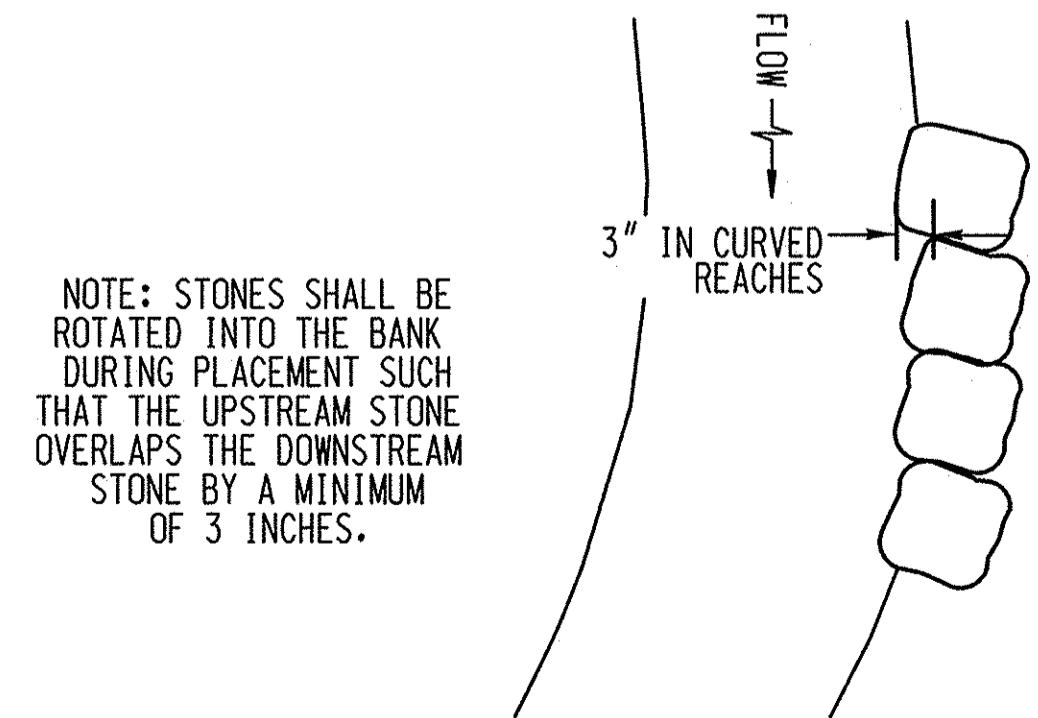
STEP-POOL B'-B
NOT TO SCALE



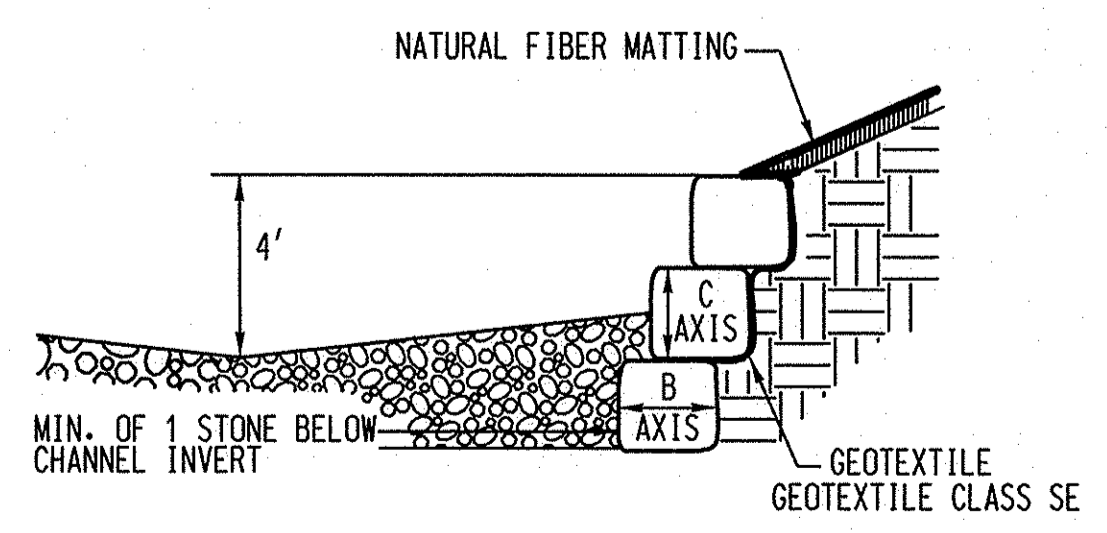
COIR FIBER ROLL WITH MATTING CROSS SECTION DETAIL A'-A
NOT TO SCALE



TERRACE CROSS SECTION DETAIL C'-C
NOT TO SCALE



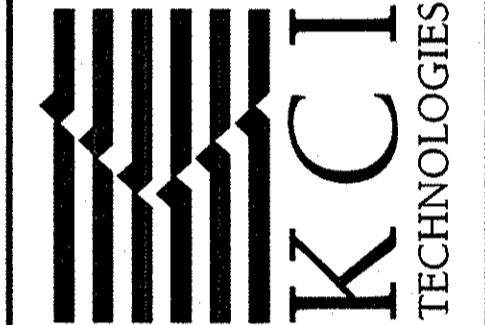
TYPICAL PLAN VIEW IMBRICATED BANK PROTECTION
NOT TO SCALE



TYPICAL IMBRICATED BANK PROTECTION DETAIL
NOT TO SCALE

NO.	REVISIONS DESCRIPTION	DATE

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STONE TRAIL COURT
STREAM RESTORATION PROJECT
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
STORMWATER MANAGEMENT DIVISION
6751 COLUMBIA GATEWAY DRIVE
COLUMBIA, MD 21046
PARCEL 3.4, 295, 283, 342 TAX MAP 46
ZONING R-20P-SC ELECTION DISTRICT 5

STREAM DETAILS

SCALE:	NTS
DATE:	AUGUST 2013
KCI JOB NO.:	01-081795.89
CAPITAL PROJECT NO.:	D-1158
PERMIT ISSUE:	
CONSTRUCTION ISSUE:	

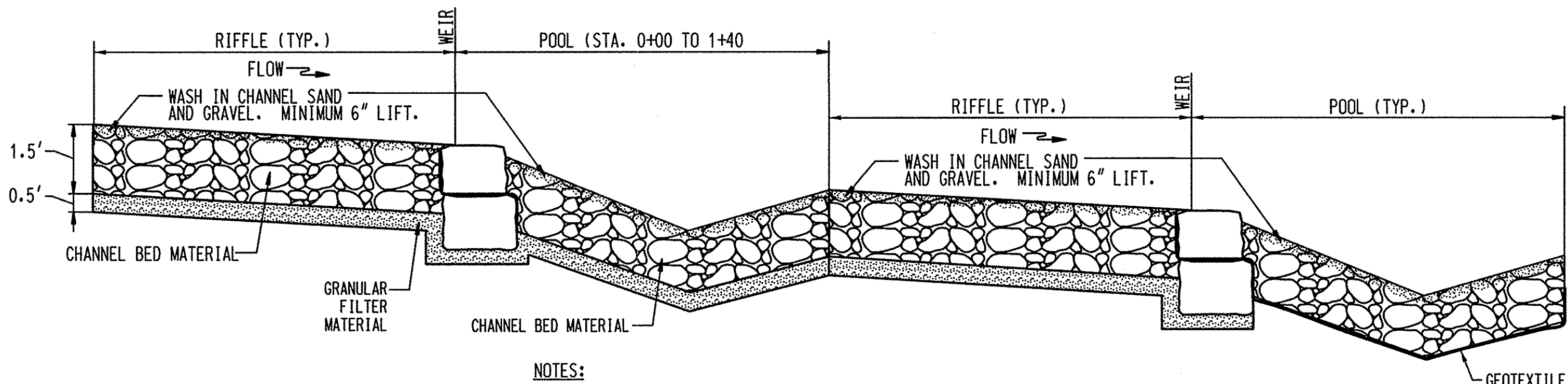
PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 38311. EXPIRATION DATE: JANUARY 6, 2014

8/15/13

DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD

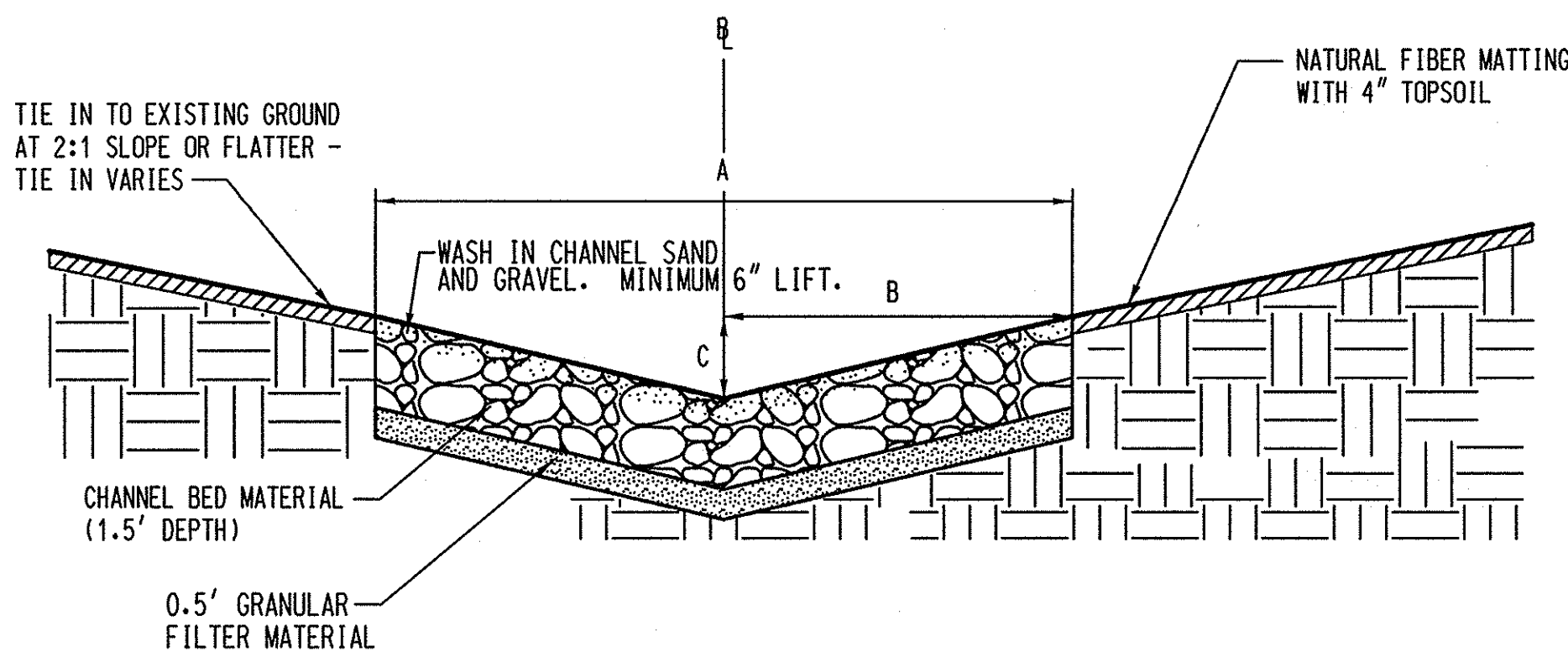
8/16/13

DATE



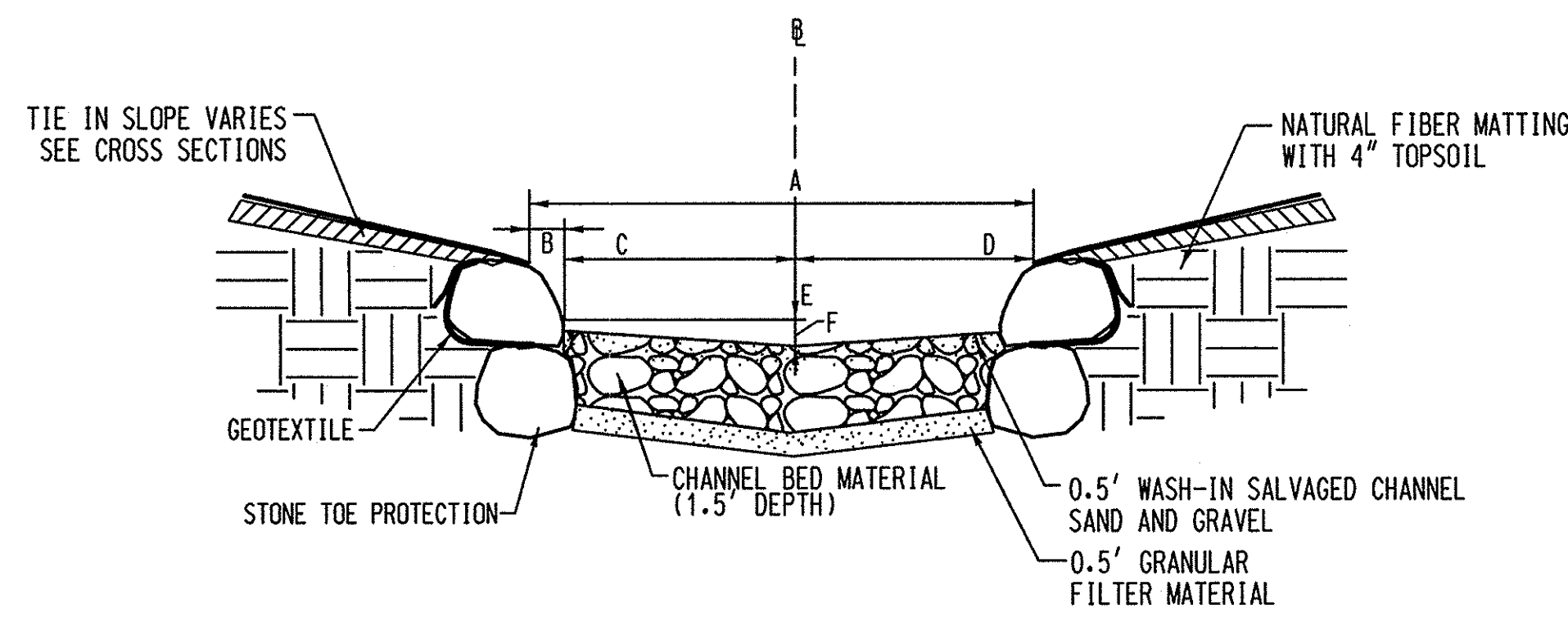
- NOTES:**
1. LENGTH OF STRUCTURE VARIES. SEE PROFILE FOR DETAILS.
 2. GRANULAR FILTER MATERIAL SHALL BE PLACED UNDER ALL RIFFLES AND WEIRS.
 3. WEIRS SHALL BE PLACED AT THE LOCATIONS NOTED ON THE PROFILE (SHEETS 5 & 6) AND ON THE GRADING PLANS (SHEETS 8 - 10).

STEPPED RIFFLE COMPLEX (SRC) PROFILE
NOT TO SCALE

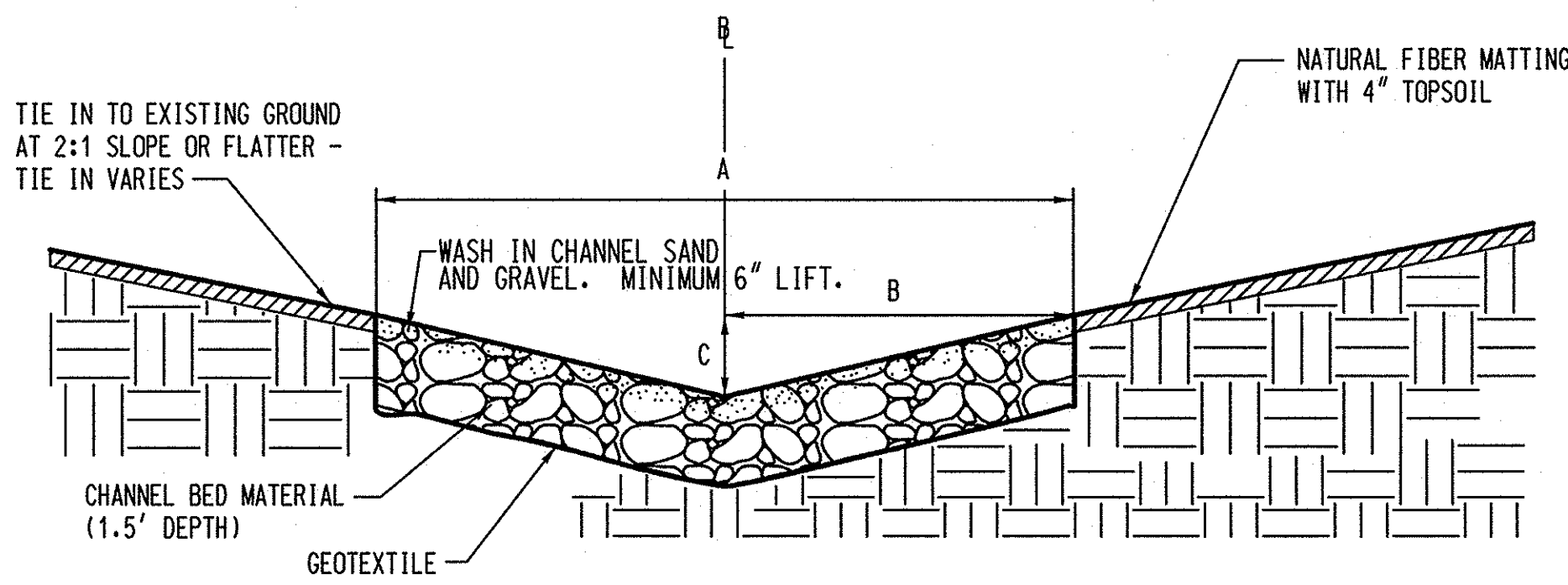


POOL DIMENSIONS			
	A	B	C
POOL 1	8.0'	4.0'	2.6'
POOL 2	7.2'	3.6'	1.8'
POOL 4	10.2'	5.1'	2.0'
POOL 4A	8.9'	4.45'	2.2'
POOL 5	9.3'	4.65'	2.3'
POOL 6	10.1'	5.05'	2.5'
POOL 7	8.0'	4.0'	2.6'
POOL 8	12.4'	6.2'	3.1'
POOL 9	8.6'	4.3'	2.2'
POOL 10	10.0'	5.0'	2.5'

POOL CROSS SECTION (STA. 0+00 TO 1+40)
NOT TO SCALE

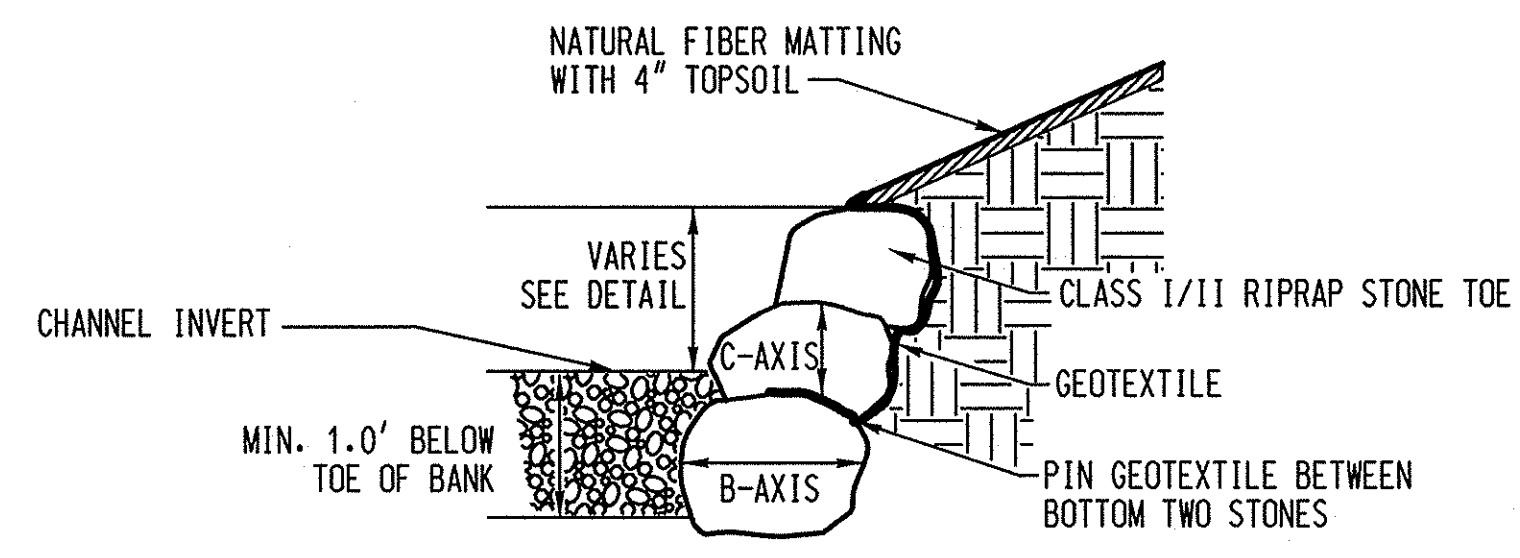


TYPICAL RIFFLE CROSS SECTION
NOT TO SCALE



TYPICAL POOL CROSS SECTION
NOT TO SCALE

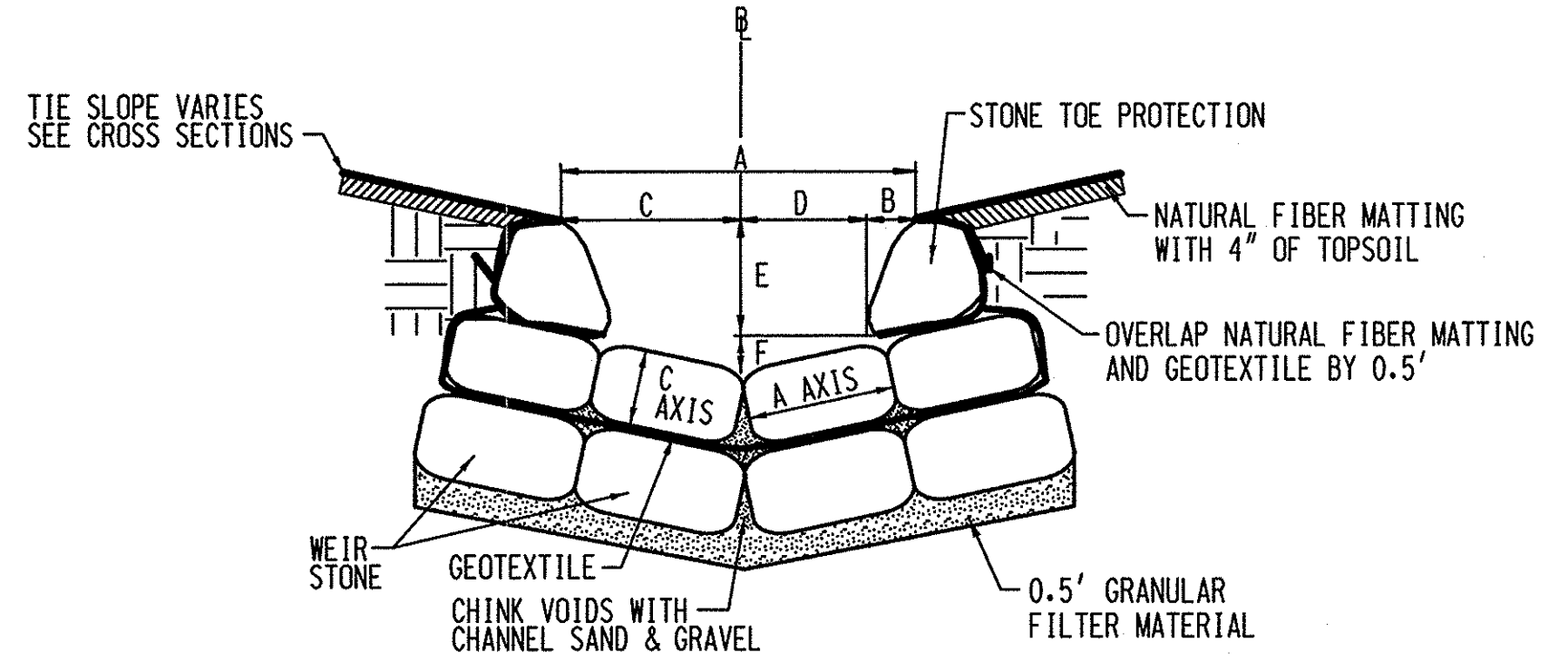
RIFFLE/WEIR DIMENSIONS						
	A	B	C	D	E	F
RIFFLE A/WEIR	6.0'	0.8'	2.2'	3.0'	0.8'	0.2'
RIFFLE B/WEIR	6.8'	1.0'	2.4'	3.4'	1.0'	0.3'
RIFFLE C/WEIR	7.0'	1.3'	2.2'	3.5'	1.3'	0.2'
RIFFLE D/WEIR	7.8'	1.3'	2.6'	3.9'	1.3'	0.2'



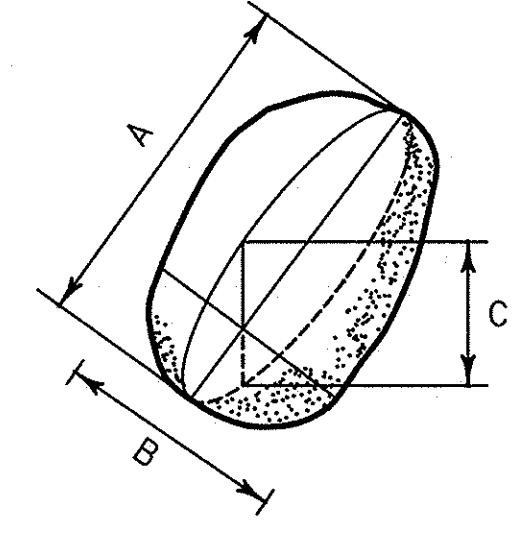
TYPICAL STONE TOE PROTECTION DETAIL
NOT TO SCALE

SIZES FOR STONE TYPES			
AXIS	STONE TYPE		
	A (LONGEST) MAX.	B (INTERMEDIATE) RANGE	C (SHORTEST) MIN.
CREST, FOOTER AND WEIR STONES IMBRICATED STONE*	3.0'	1.5' - 2.0'	1.5'
STONE TOE PROTECTION	MIX OF 80% CLASS II RIPRAP AND 20% CLASS I RIPRAP		
CHANNEL BED MATERIAL	60% CLASS I & 30% 3-6" ROUNDED RIVER STONES, & 10% CHANNEL SAND AND GRAVEL**		
STEP-POOL MATERIAL, OUTFALL PROTECTION, & POOL AT STA 3+31	20% CLASS II, 50% CLASS I, & 20% 3-6" ROUNDED RIVER STONES, & 10% CHANNEL SAND AND GRAVEL**		

* CREST, FOOTER, WEIR, AND IMBRICATED STONES SHALL BE BLOCKY IN SHAPE AND GREY OR BROWN IN COLOR.
** CHANNEL SAND AND GRAVEL SHALL BE SALVAGED WHERE POSSIBLE



WEIR CROSS SECTION
NOT TO SCALE



A = LONGEST AXIS (LENGTH)
B = INTERMEDIATE AXIS (WIDTH)
C = SHORTEST AXIS (THICKNESS)

ROCK AXIS DEFINITION
NOT TO SCALE

CHANNEL SAND & GRAVEL & GRANULAR FILTER MATERIAL	
% LESS THAN	US STD SIEVE
100	2.5 in
85-100	1.0 in
60-100	0.5 in
35-70	No. 10
20-50	No. 40
3-20	No. 200

* CHANNEL SAND, GRAVEL AND GRANULAR FILTER MATERIAL SHALL BE SALVAGED WHERE POSSIBLE

STATE OF MARYLAND
KIMMY LYNN HOVENS
PROFESSIONAL ENGINEER
NO. 38311

Kimmy L. Hovens 8/15/13
PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 38311. EXPIRATION DATE: JANUARY 6, 2014

DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD

Michael D. Brown 8/16/13
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES
DATE

NO.	REVISIONS DESCRIPTION	DATE

936 RIDGEBROOK ROAD
SPARKS, MARYLAND 21152
TELEPHONE: (410) 316-7800
FAX: (410) 316-7818
www.kci.com



STONE TRAIL COURT
STREAM RESTORATION PROJECT
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
STORMWATER MANAGEMENT DIVISION
6751 COLUMBIA GATEWAY DRIVE
COLUMBIA, MD 21046
PARCEL 34, 289, 283, 342 TAX MAP 46
ZONING R-20A-SC ELECTION DISTRICT 5

STREAM DETAILS

SCALE:	NTS
DATE:	AUGUST 2013
KCI JOB NO.:	01-081795.89
CAPITAL PROJECT NO.:	D-115B
PERMIT ISSUE#:	
CONSTRUCTION ISSUE#:	



NO.	REVISIONS DESCRIPTION	DATE

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**STONE TRAIL COURT
 STREAM RESTORATION PROJECT**
 HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 STORMWATER MANAGEMENT DIVISION
 6751 COLUMBIA GATEWAY DRIVE
 COLUMBIA, MD 21046
 PARCEL 3.4, 283, 283.342 TAX MAP 46
 ZONING R-20PA-SC ELECTION DISTRICT 5

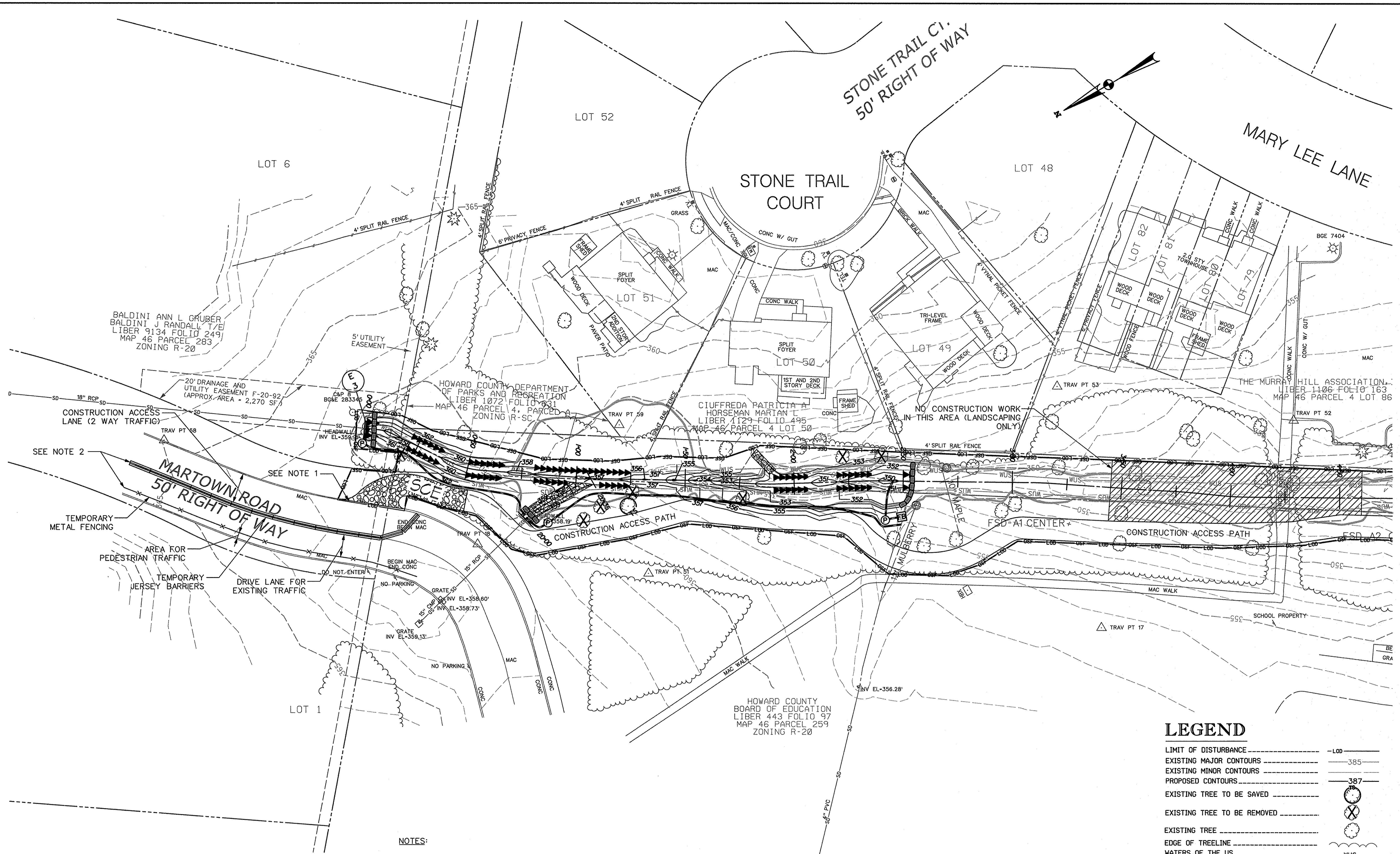
**EROSION &
 SEDIMENT
 CONTROL
 OVERVIEW**

SCALE:	1" = 50'
DATE:	AUGUST 2013
KCIJOB NO.:	01-081795.89
CAPITAL PROJECT NO.:	D-1156
PERMIT ISSUE:	
CONSTRUCTION ISSUE:	

BY: *Healy & Co.* 8/15/13
 PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 38311, EXPIRATION DATE: JANUARY 6, 2014.

DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD
 CHIEF, BUREAU OF ENVIRONMENTAL SERVICES
 DATE: 8/16/13

THIS DEVELOPMENT IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
John R. Roberts
 HOWARD SCD
 DATE: 8/20/13



- NOTES:**
1. CONTRACTOR SHALL REPLACE SIDEWALK, CURB AND GUTTER TO PRE-CONSTRUCTION CONDITIONS IF DAMAGED DURING CONSTRUCTION.
 2. JERSEY BARRIERS AND METAL FENCING SHALL EXTEND TO CORNER OF MARTOWN ROAD AND GRAELOCH ROAD.
 3. ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE MOST CURRENT MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL.

LEGEND

LIMIT OF DISTURBANCE	---	L0D
EXISTING MAJOR CONTOURS	---	385
EXISTING MINOR CONTOURS	---	387
PROPOSED CONTOURS	---	387
EXISTING TREE TO BE SAVED		
EXISTING TREE TO BE REMOVED		
EXISTING TREE		
EDGE OF TREELINE	---	WUS
WATERS OF THE US	---	WUS
PROPERTY LINE	---	
EXISTING STORM DRAIN	---	SD
IMBRICATED BANK PROTECTION	---	
STONE TOE PROTECTION	---	
ORANGE SAFETY FENCE	---	OSF
SANDBAG DAM	---	
PUMP		
FLEXIBLE PIPE	---	
FILTER BAG		
EXISTING FENCE	---	
EXISTING EASEMENT LINE	---	
EX. 100 YEAR FLOODPLAIN	---	
PROP. 100 YEAR FLOODPLAIN	---	
OUTFALL PROTECTION	---	

*PROPOSED FLOODPLAIN ONLY SHOWN WHERE IT DIFFERS FROM EXISTING

STATE OF MARYLAND
PROFESSIONAL ENGINEER
 No. 38311
 DATE: 8/15/13

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 38311, EXPIRATION DATE, JANUARY 6, 2014.

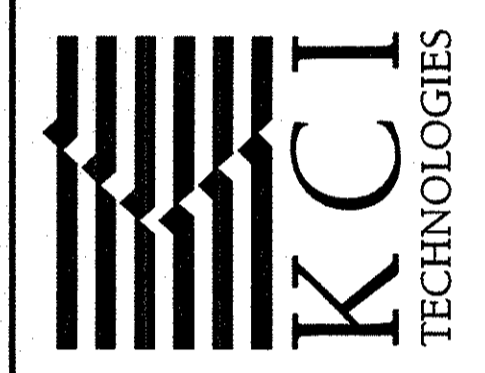
DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD
 CHIEF, BUREAU OF ENVIRONMENTAL SERVICES

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

DATE: 8/16/13
 DATE: 8/20/13

NO.	REVISIONS DESCRIPTION	DATE

936 RIDGEBROOK ROAD
 SPARKS, MARYLAND 21152
 TELEPHONE: (410) 316-7800
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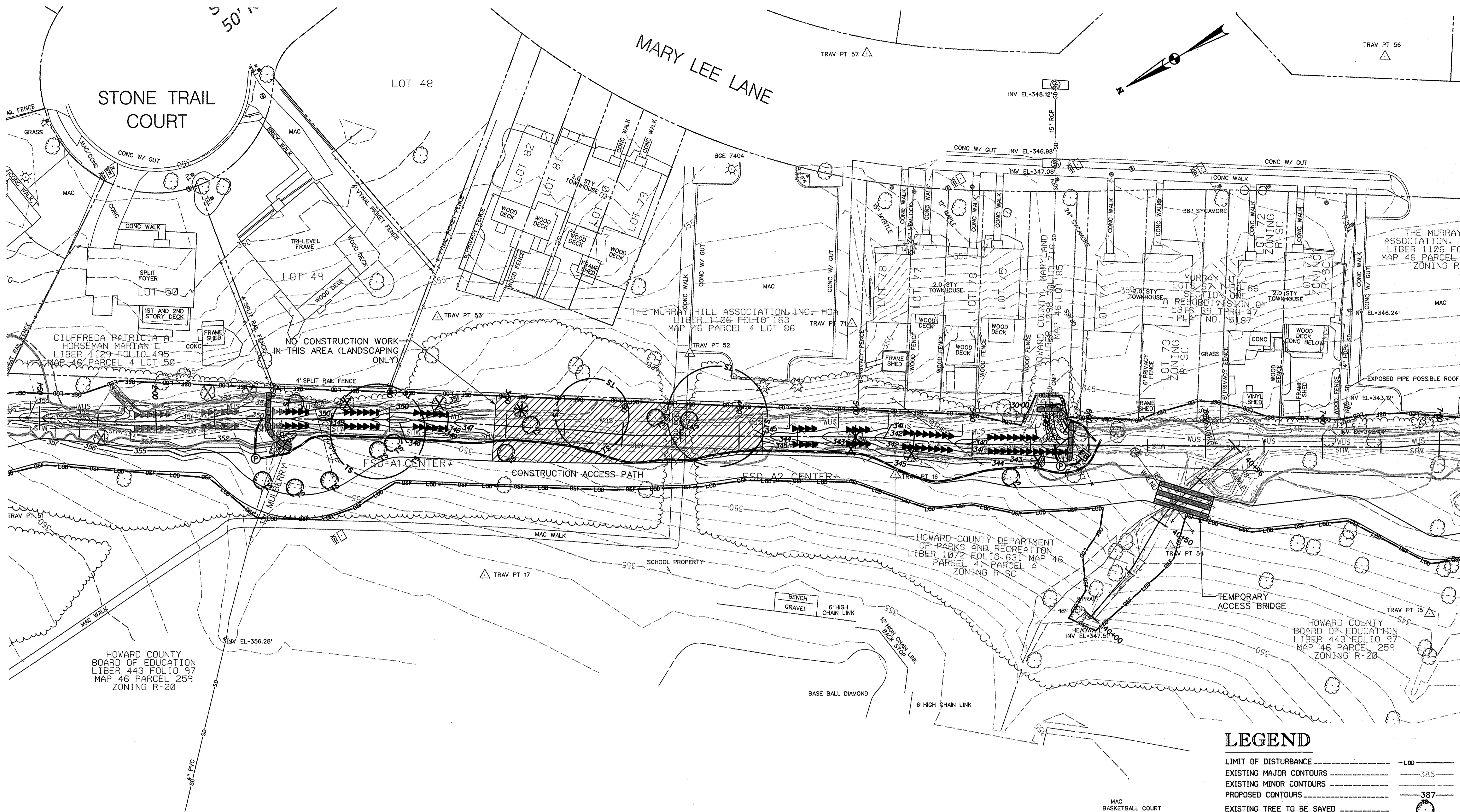


STONE TRAIL COURT
STREAM RESTORATION PROJECT
 HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 STORMWATER MANAGEMENT DIVISION
 6751 COLUMBIA GATEWAY DRIVE
 COLUMBIA, MD 21046
 PARCEL 3.4, 283, 283, 342 TAX MAP 48
 ZONING R-20F-SC ELECTION DISTRICT 5

EROSION & SEDIMENT CONTROL PLAN PHASE 1

SCALE: 1" = 20'
 DATE: AUGUST 2013
 KCI JOB NO.: 01-081795.89
 CAPITAL PROJECT NO.: D-1158
 PERMIT ISSUE:

CONSTRUCTION ISSUE:

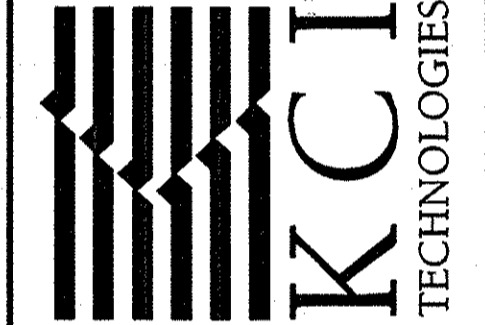


LEGEND

LIMIT OF DISTURBANCE	---	L00
EXISTING MAJOR CONTOURS	---	385
EXISTING MINOR CONTOURS	---	
PROPOSED CONTOURS	---	387
EXISTING TREE TO BE SAVED		
EXISTING TREE TO BE REMOVED		
EXISTING TREE		
EDGE OF TREELINE	---	
WATERS OF THE US	---	WUS
PROPERTY LINE	---	
EXISTING STORM DRAIN	---	SD
IMBRICATED BANK PROTECTION	---	
STONE TOE PROTECTION	---	
ORANGE SAFETY FENCE	---	OSF
SANDBAG DAM	---	
PUMP		
FLEXIBLE PIPE	---	
FILTER BAG		
EXISTING FENCE	---	FB
EXISTING EASEMENT LINE	---	---
EX. 100 YEAR FLOODPLAIN	---	
PROP. 100 YEAR FLOODPLAIN	---	
OUTFALL PROTECTION	---	

NO.	REVISIONS DESCRIPTION	DATE

936 RIDGEBROOK ROAD
 SPARKS, MARYLAND 21152
 TELEPHONE: (410) 316-7800
 FAX: (410) 316-7818
 WWW.KCI.COM



**STONE TRAIL COURT
 STREAM RESTORATION PROJECT**
 HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 STORMWATER MANAGEMENT DIVISION
 6751 COLUMBIA GATEWAY DRIVE
 COLUMBIA, MD 21046
 PARCEL 3.4, 259, 283, 342 TAX MAP 46
 ZONING R-20A-SC ELECTION DISTRICT 5

**EROSION &
 SEDIMENT
 CONTROL PLAN
 PHASE 2**

SCALE: 1" = 20'
 DATE: AUGUST 2013
 KCI JOB NO.: 01-081795.89
 CAPITAL PROJECT NO.: D-115B
 PERMIT ISSUE:
 CONSTRUCTION ISSUE:

STATE OF MARYLAND
 PROFESSIONAL ENGINEER
 No. 38311
 8/15/13

DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD
 CHIEF, BUREAU OF ENVIRONMENTAL SERVICES
 8/16/13

THIS DEVELOPMENT IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL
 BY THE HOWARD SOIL CONSERVATION DISTRICT.
 8/20/13

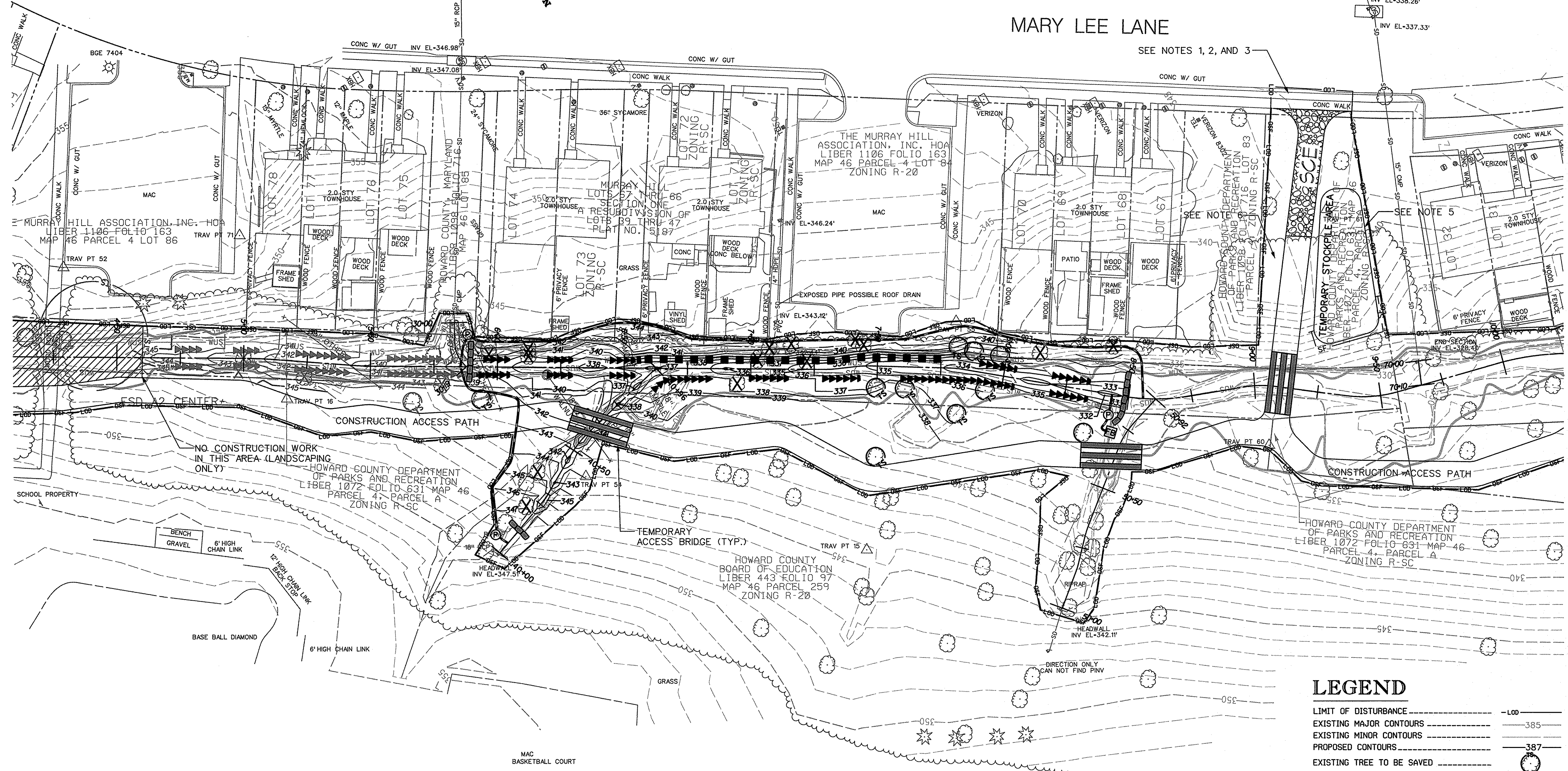
BY: Ashby Filmer, Division: P050, Natural Resources, Emp.
 FILE: M:\2008\01081795.89\Drawings\SES-P050_Stone.dgn

MARY LEE LANE

TYPE A TO TYPE C
MURRAY HILL - SECTION 1
LOTS 1 THRU 66
AND PARCELS A, B AND C
PLAT NO. 4994

MARY LEE LANE

SEE NOTES 1, 2, AND 3



LEGEND

LIMIT OF DISTURBANCE	---	LOD
EXISTING MAJOR CONTOURS	---	385
EXISTING MINOR CONTOURS	---	
PROPOSED CONTOURS	---	387
EXISTING TREE TO BE SAVED	⊗	
EXISTING TREE TO BE REMOVED	⊗	
EXISTING TREE	⊙	
EDGE OF TREELINE	~	
WATERS OF THE US	WUS	
PROPERTY LINE	---	
EXISTING STORM DRAIN	SD	
IMBRICATED BANK PROTECTION	■	
STONE TOE PROTECTION	▶▶▶▶▶	
ORANGE SAFETY FENCE	OSF	
SANDBAG DAM	▬	
PUMP	Ⓟ	
FLEXIBLE PIPE	Ⓟ	
FILTER BAG	Ⓟ	
EXISTING FENCE	Ⓟ	
EXISTING EASEMENT LINE	---	
EX. 100 YEAR FLOODPLAIN	---	
PROP. 100 YEAR FLOODPLAIN	---	
OUTFALL PROTECTION	---	

NOTES:

- PLACE "SIDEWALK CLOSED" SIGNS ON BOTH SIDES OF LIMIT OF DISTURBANCE FOR DURATION OF CONSTRUCTION.
- CONSULT THE ENGINEER IF TREE TRIMMING ALONG THE STREET IS REQUIRED TO ALLOW FOR EQUIPMENT ACCESS. NO TREES DIRECTLY ADJACENT TO THE STREET ARE TO BE REMOVED.
- CONTRACTOR SHALL REPLACE SIDEWALK, CURB AND GUTTER TO PRE-CONSTRUCTION CONDITIONS IF DAMAGED DURING CONSTRUCTION.
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- SHOULD THE STOCKPILE AREA EXCEED 15 FT. IN HEIGHT, THE STOCKPILE AREA MUST BE BENCHED.
- CLEAN OFF-SITE WATER SHALL BE DIVERTED AROUND STOCKPILE AREA AT THE DISCRETION OF THE SEDIMENT CONTROL INSPECTOR.

STATE OF MARYLAND
KATHY J. PETERSON
PROFESSIONAL ENGINEER
NO. 38311
8/15/13

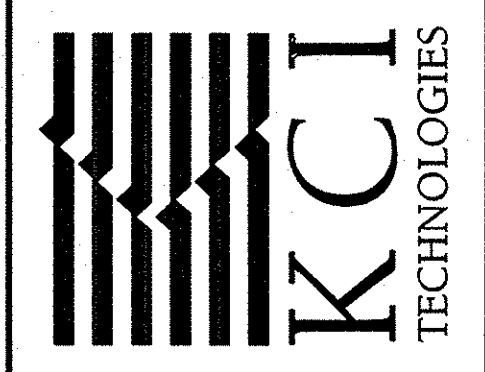
PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 38311. EXPIRATION DATE: JANUARY 6, 2014.

DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD
W. G. ...
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES
DATE: 8/16/13

THIS DEVELOPMENT IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD COUNTY SOIL CONSERVATION DISTRICT.
John R. ...
HOWARD SCD
DATE: 8/20/13

NO.	REVISIONS DESCRIPTION	DATE

936 RIDGEBROOK ROAD
SPARKS, MARYLAND 21152
TELEPHONE: (410) 316-7800
FAX: (410) 316-7818
WWW.KCI.COM

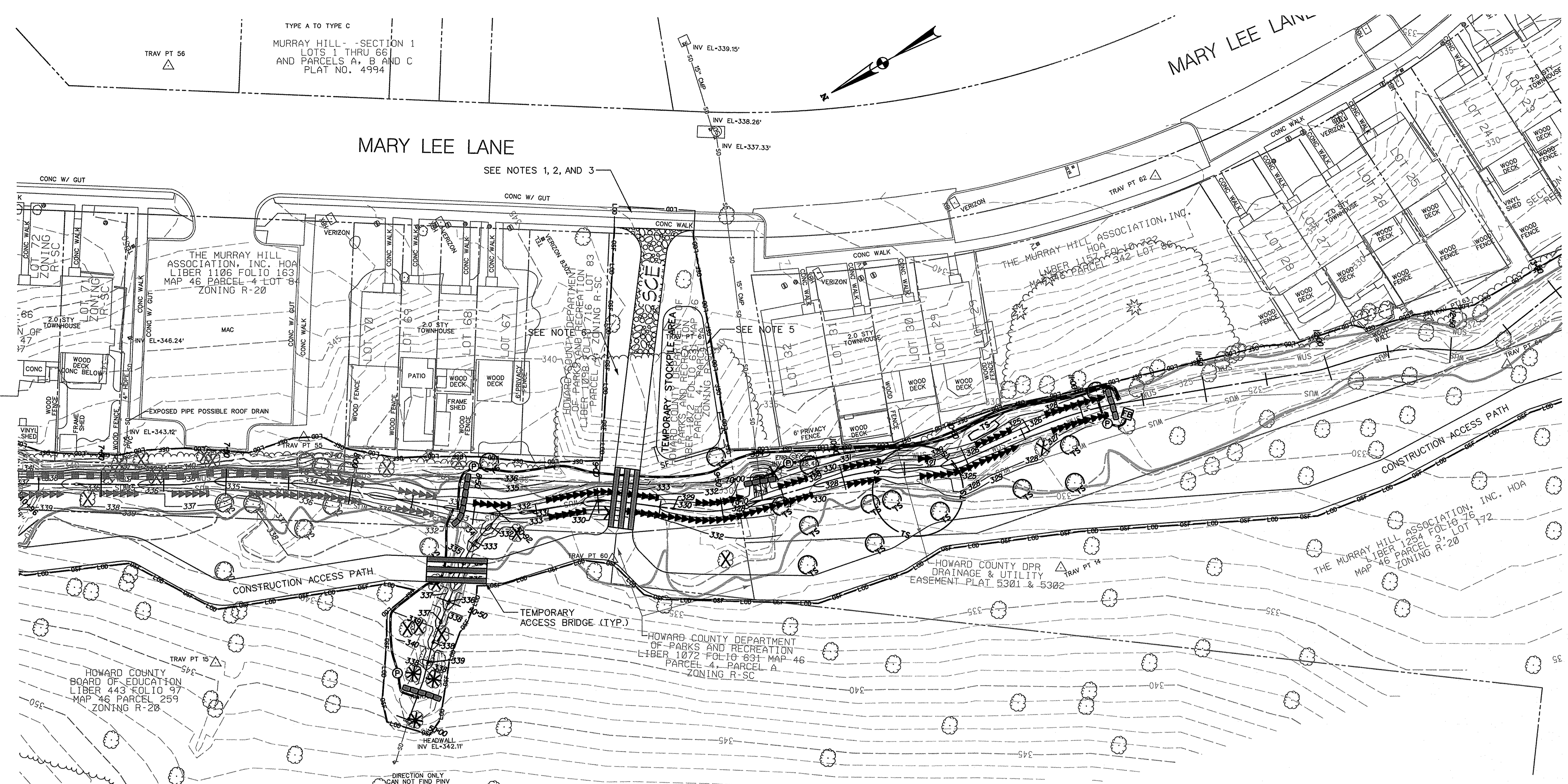


STONE TRAIL COURT
STREAM RESTORATION PROJECT
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
STORMWATER MANAGEMENT DIVISION
6751 COLUMBIA GATEWAY DRIVE
COLUMBIA, MD 21046
PARCEL 3, 4, 250, 283, 342 TAX MAP 46
ZONING R-20F-SC ELECTION DISTRICT 5

EROSION & SEDIMENT CONTROL PLAN PHASE 3

SCALE: 1" = 20'
DATE: AUGUST 2013
KCI JOB NO.: 01-081795.89
CAPITAL PROJECT NO.: D-1158
PERMIT ISSUE:

CONSTRUCTION ISSUE:
SHEET NO.: 16 OF 29



TYPE A TO TYPE C
 MURRAY HILL - SECTION 1
 LOTS 1 THRU 66
 AND PARCELS A, B AND C
 PLAT NO. 4994

MARY LEE LANE

MARY LEE LANE

SEE NOTES 1, 2, AND 3

SEE NOTE 4

SEE NOTE 5

THE MURRAY HILL ASSOCIATION, INC. HOA
 LIBER 1106 FOLIO 163
 MAP 46 PARCEL 4 LOT 8
 ZONING R-20

THE MURRAY HILL ASSOCIATION, INC.
 LIBER 1152 FOLIO 722
 MAP 46 PARCEL 342 LOT 86

HOWARD COUNTY DEPARTMENT OF PARKS AND RECREATION
 LIBER 1038 FOLIO 116 LOT 83
 PARCEL 2 ZONING R-SC

HOWARD COUNTY DEPARTMENT OF PARKS AND RECREATION
 LIBER 1072 FOLIO 631 MAP 46
 PARCEL 4 - PARCEL A
 ZONING R-SC

THE MURRAY HILL ASSOCIATION, INC. HOA
 LIBER 1254 FOLIO 78
 MAP 46 PARCEL 3 LOT 172
 ZONING R-20

HOWARD COUNTY DPR
 DRAINAGE & UTILITY
 EASEMENT PLAT 5301 & 5302

HOWARD COUNTY BOARD OF EDUCATION
 LIBER 443 FOLIO 97
 MAP 46 PARCEL 259
 ZONING R-20

NOTES:

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LEGEND

LIMIT OF DISTURBANCE	---	L00
EXISTING MAJOR CONTOURS	---	385
EXISTING MINOR CONTOURS	---	
PROPOSED CONTOURS	---	387
EXISTING TREE TO BE SAVED	⊗	
EXISTING TREE TO BE REMOVED	⊗	
EXISTING TREE	⊙	
EDGE OF TREELINE	~	
WATERS OF THE US	WUS	
PROPERTY LINE	---	
EXISTING STORM DRAIN	SD	
IMBRICATED BANK PROTECTION	■	
STONE TOE PROTECTION	▶▶▶▶▶	
ORANGE SAFETY FENCE	OSF	
SANDBAG DAM	▬	
PUMP	Ⓟ	
FLEXIBLE PIPE	Ⓟ	
FILTER BAG	Ⓟ	
EXISTING FENCE	---	
EXISTING EASEMENT LINE	---	
EX. 100 YEAR FLOODPLAIN	---	
PROP. 100 YEAR FLOODPLAIN	---	
OUTFALL PROTECTION	---	

*PROPOSED FLOODPLAIN ONLY SHOWN WHERE IT DIFFERS FROM EXISTING

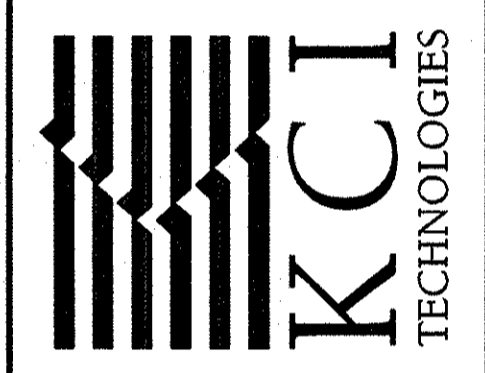
STATE OF MARYLAND
 PROFESSIONAL ENGINEER
 No. 38311
 8/15/13
 PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 38311, EXPIRATION DATE: JANUARY 6, 2014

DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD
 Chief, Bureau of Environmental Services
 8/15/13

THIS DEVELOPMENT IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
 Howard SCD
 8/20/13

NO.	REVISIONS DESCRIPTION	DATE

936 RIDGEBROOK ROAD
 SPARKS, MARYLAND 21152
 TELEPHONE: (410) 316-7800
 FAX: (410) 316-7818
 WWW.KCI.COM

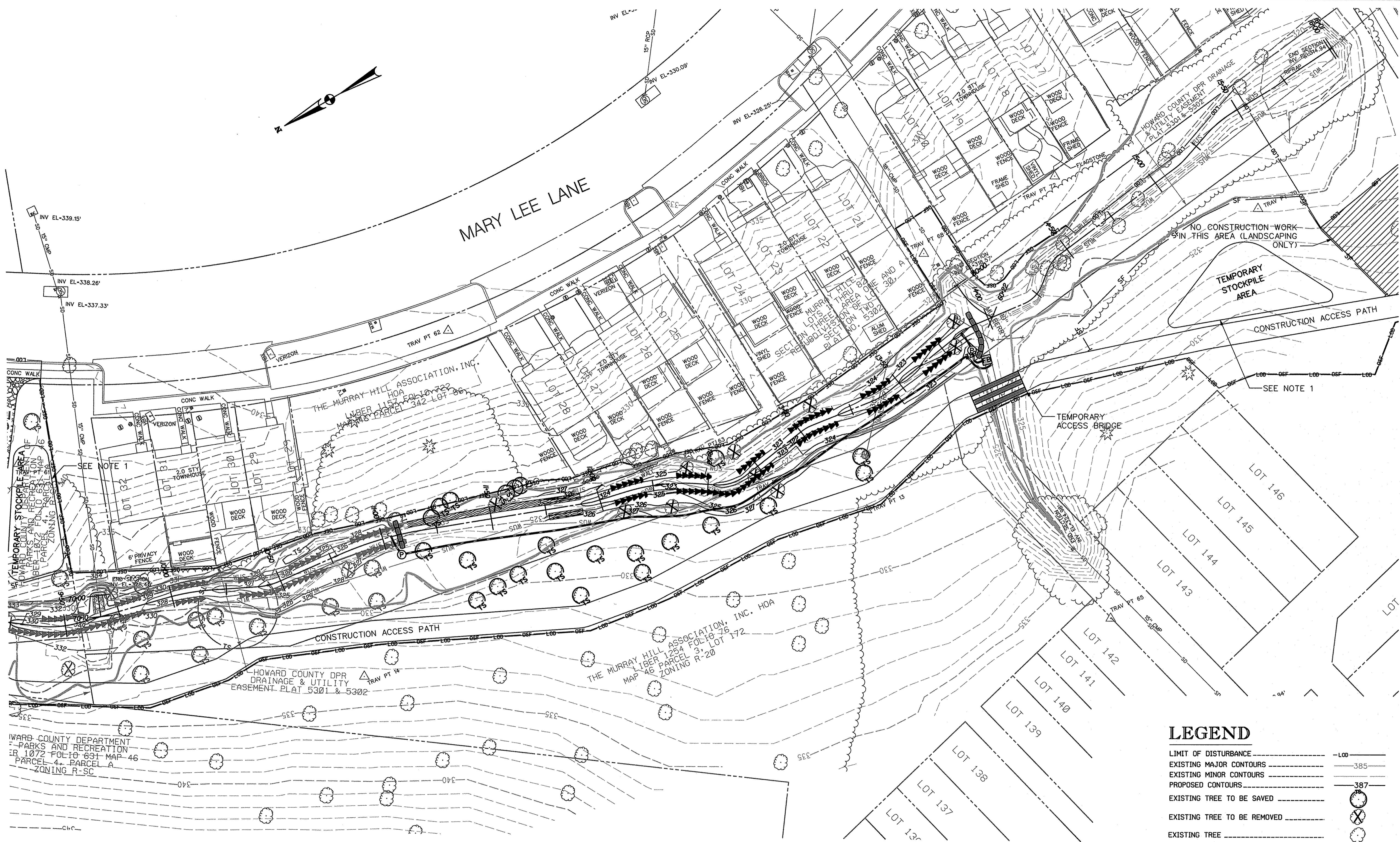


STONE TRAIL COURT
 STREAM RESTORATION PROJECT
 HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 STORMWATER MANAGEMENT DIVISION
 6751 COLUMBIA GATEWAY DRIVE
 COLUMBIA, MD 21046
 PARCEL 3, 4, 259, 283, 342 TAX MAP 46
 ZONING R-20P-SC ELECTION DISTRICT 5

EROSION & SEDIMENT CONTROL PLAN PHASE 4

SCALE: 1" = 20'
 DATE: AUGUST 2013
 KCI JOB NO.: 01-081795.89
 CAPITAL PROJECT NO.: D-1158
 PERMIT ISSUE:

CONSTRUCTION ISSUE:
 SHEET NO.: 17 OF 29



NOTE:
 1. SHOULD THE STOCKPILE AREA EXCEED 15 FT. IN HEIGHT, THE STOCKPILE AREA MUST BE BENCHED.

LEGEND

- LIMIT OF DISTURBANCE ----- L-00
- EXISTING MAJOR CONTOURS ----- 385
- EXISTING MINOR CONTOURS ----- 387
- PROPOSED CONTOURS ----- 387
- EXISTING TREE TO BE SAVED ----- (Tree symbol)
- EXISTING TREE TO BE REMOVED ----- (Tree symbol with X)
- EXISTING TREE ----- (Tree symbol)
- EDGE OF TREELINE ----- (Wavy line)
- WATERS OF THE US ----- WUS
- PROPERTY LINE ----- (Dashed line)
- EXISTING STORM DRAIN ----- SD
- IMBRICATED BANK PROTECTION ----- (Square symbols)
- STONE TOE PROTECTION ----- (Triangle symbols)
- ORANGE SAFETY FENCE ----- OSF
- SANDBAG DAM ----- (Circle symbols)
- PUMP ----- (P in circle)
- FLEXIBLE PIPE ----- (Dashed line with P)
- FILTER BAG ----- (Square symbol)
- EXISTING FENCE ----- (Double line)
- EXISTING EASEMENT LINE ----- (Double line with dots)
- EX. 100 YEAR FLOODPLAIN ----- (Dashed line with dots)
- PROP. 100 YEAR FLOODPLAIN ----- (Dashed line with dots)
- OUTFALL PROTECTION ----- (Dashed line with dots)

NO.	REVISIONS DESCRIPTION	DATE

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 SPARKS, MARYLAND 21152
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STONE TRAIL COURT
 STREAM RESTORATION PROJECT
 HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 STORMWATER MANAGEMENT DIVISION
 6751 COLUMBIA GATEWAY DRIVE
 COLUMBIA, MD 21046
 PARCEL 3.4, 289, 283, 342 TAX MAP 46
 ZONING R-20R-SC ELECTION DISTRICT 5

EROSION & SEDIMENT CONTROL PLAN PHASE 5

SCALE: 1" = 20'
 DATE: AUGUST 2013
 KCI JOB NO.: 01-081795.89
 CAPITAL PROJECT NO.: D-1158
 PERMIT ISSUE:

CONSTRUCTION ISSUE:
 SHEET NO.: 18 OF 29

STATE OF MARYLAND
 PROFESSIONAL ENGINEER
 8/15/13
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DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD
 CHIEF, BUREAU OF ENVIRONMENTAL SERVICES
 DATE: 8/16/13

THIS DEVELOPMENT IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
 DATE: 8/20/13

KCI FILE: M.V. 2008 \ 01081795.89 \





NOTES:

- 1. PLACE "SIDEWALK CLOSED" SIGNS ON BOTH SIDES OF LIMIT OF DISTURBANCE FOR DURATION OF CONSTRUCTION.
- 2. CONSULT THE ENGINEER IF TREE TRIMMING ALONG THE STREET IS REQUIRED TO ALLOW FOR EQUIPMENT ACCESS. NO TREES DIRECTLY ADJACENT TO THE STREET ARE TO BE REMOVED.
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LEGEND

LIMIT OF DISTURBANCE	---	L-00
EXISTING MAJOR CONTOURS	---	-385-
EXISTING MINOR CONTOURS	---	-387-
PROPOSED CONTOURS	---	-387-
EXISTING TREE TO BE SAVED	(Circle with 'X')	
EXISTING TREE TO BE REMOVED	(Circle with 'X')	
EXISTING TREE	(Circle with 'X')	
EDGE OF TREELINE	---	
WATERS OF THE US	---	WUS
PROPERTY LINE	---	
EXISTING STORM DRAIN	---	SD
IMBRICATED BANK PROTECTION	---	
STONE TOE PROTECTION	---	
ORANGE SAFETY FENCE	---	OSF
SANDBAG DAM	---	
PUMP	(Circle with 'P')	
FLEXIBLE PIPE	---	
FILTER BAG	(Square with 'F')	
EXISTING FENCE	---	
EXISTING EASEMENT LINE	---	
EX. 100 YEAR FLOODPLAIN	---	
PROP. 100 YEAR FLOODPLAIN	---	
OUTFALL PROTECTION	---	


 JOHN R. KABAN
 PROFESSIONAL ENGINEER
 No. 38311
 DATE: 8/16/13
 DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD
 CHIEF, BUREAU OF ENVIRONMENTAL SERVICES

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 JOHN R. KABAN
 HOWARD SCD
 DATE: 8/20/13

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**STONE TRAIL COURT
 STREAM RESTORATION PROJECT**
 HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 STORMWATER MANAGEMENT DIVISION
 6751 COLUMBIA GATEWAY DRIVE
 COLUMBIA, MD 21046
 PARCEL 34, 259, 283, 342 TAX MAP 46
 ZONING R-20P-SC ELECTION DISTRICT 5

EROSION & SEDIMENT CONTROL PLAN PHASE 6

SCALE: 1" = 20'
 DATE: AUGUST 2013
 KCI JOB NO.: 01-081795.89
 CAPITAL PROJECT NO.: D-1158
 PERMIT ISSUE:

B-4-8 STANDARDS AND SPECIFICATIONS FOR STOCKPILE AREA

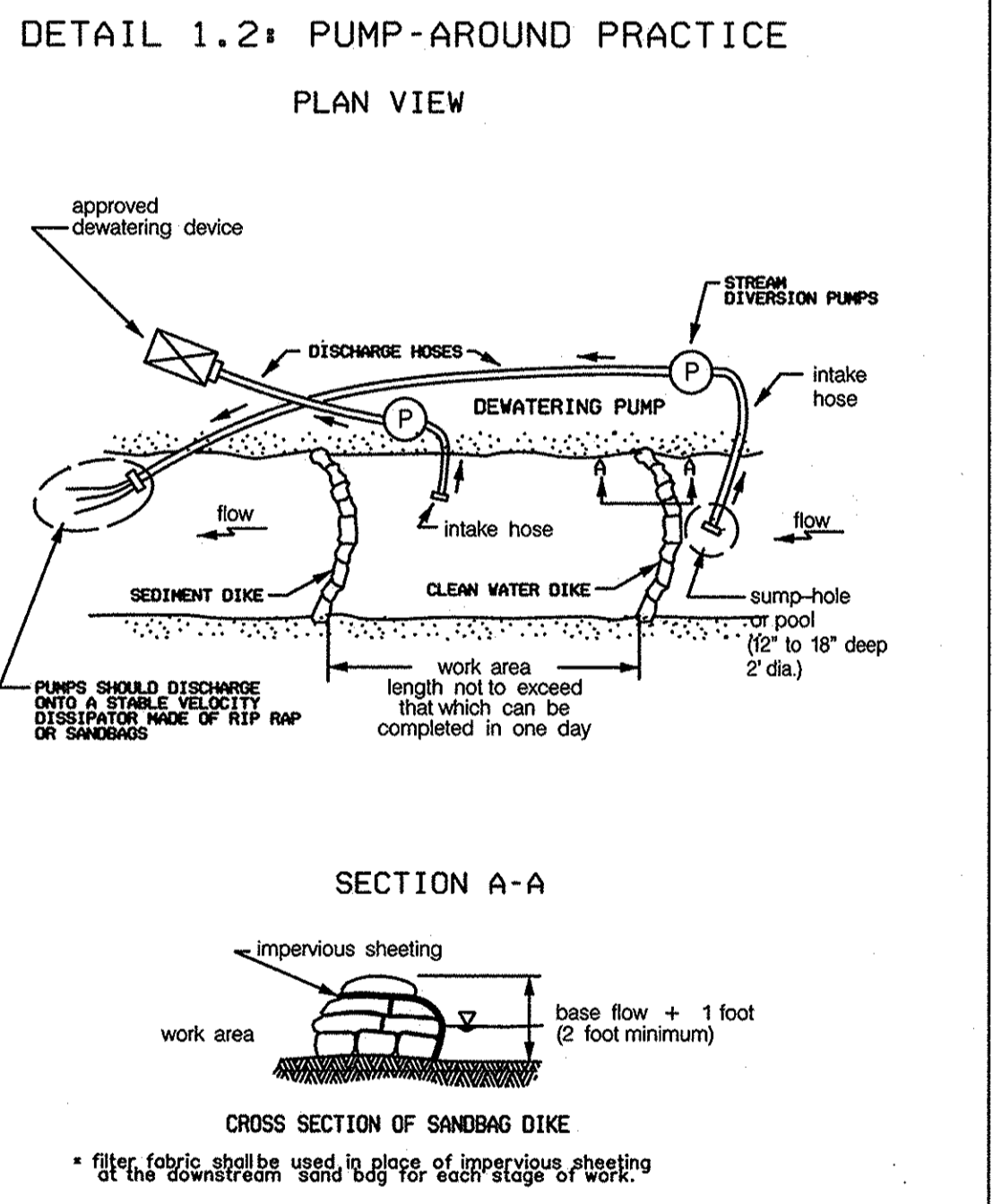
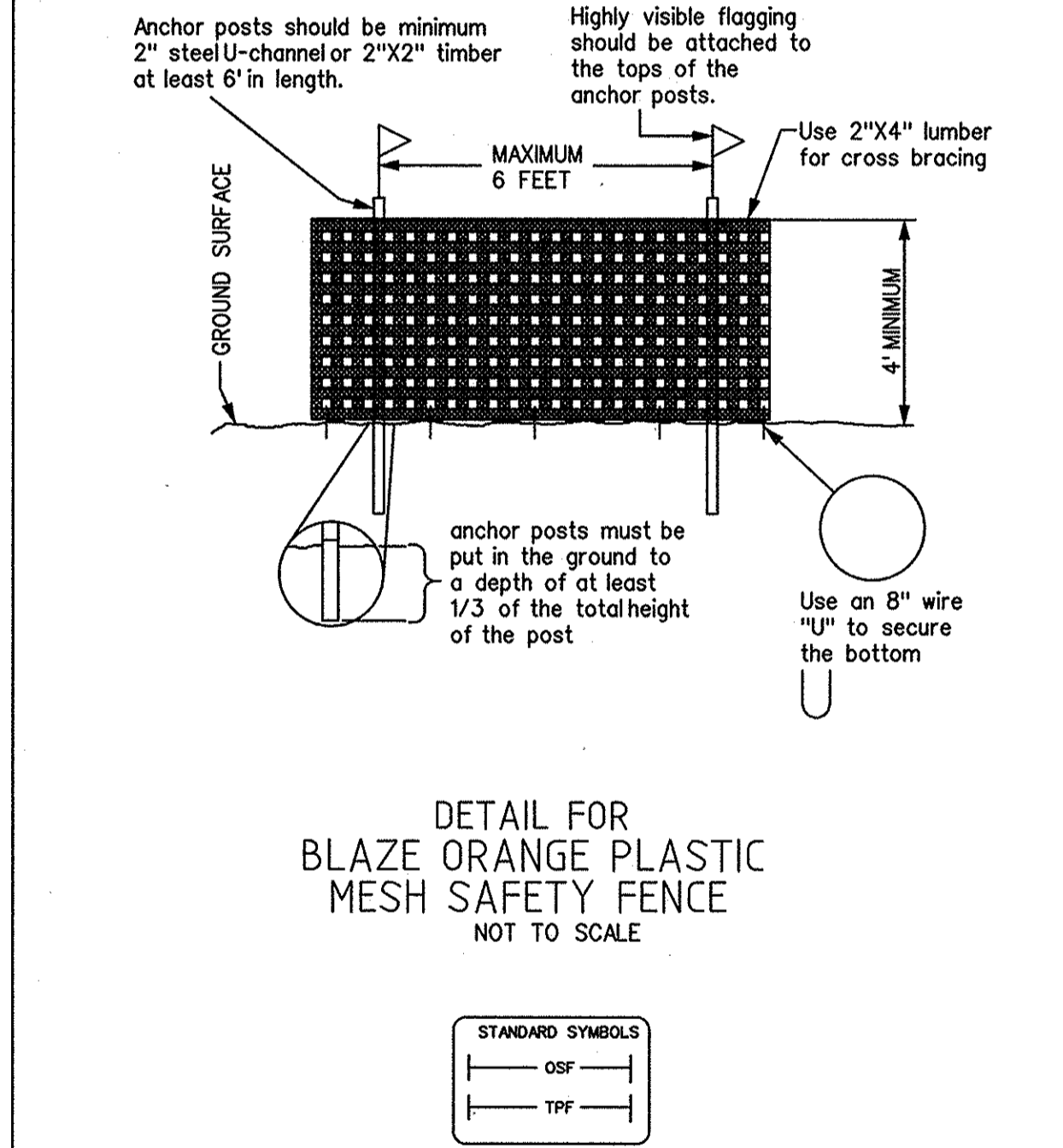
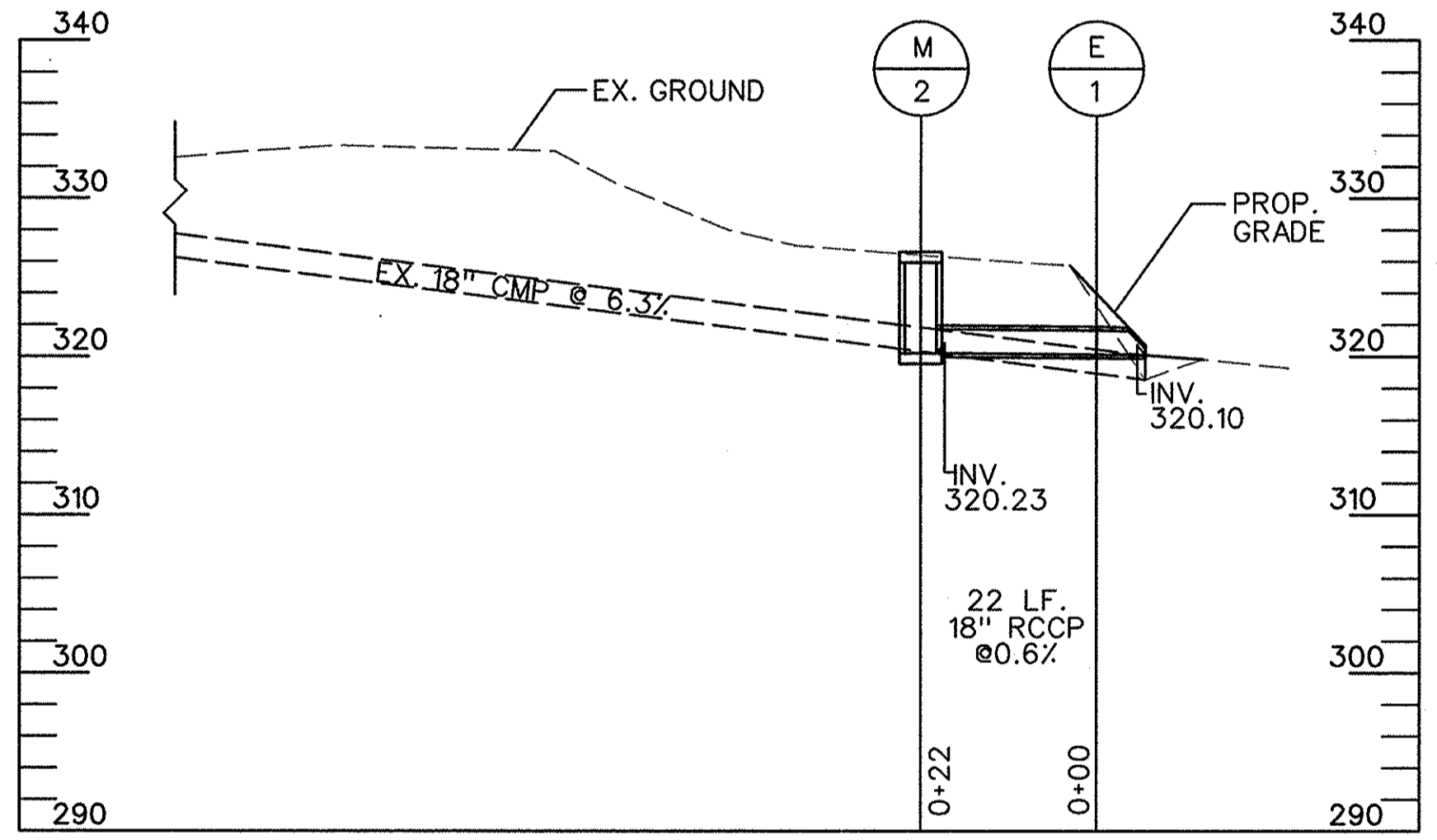
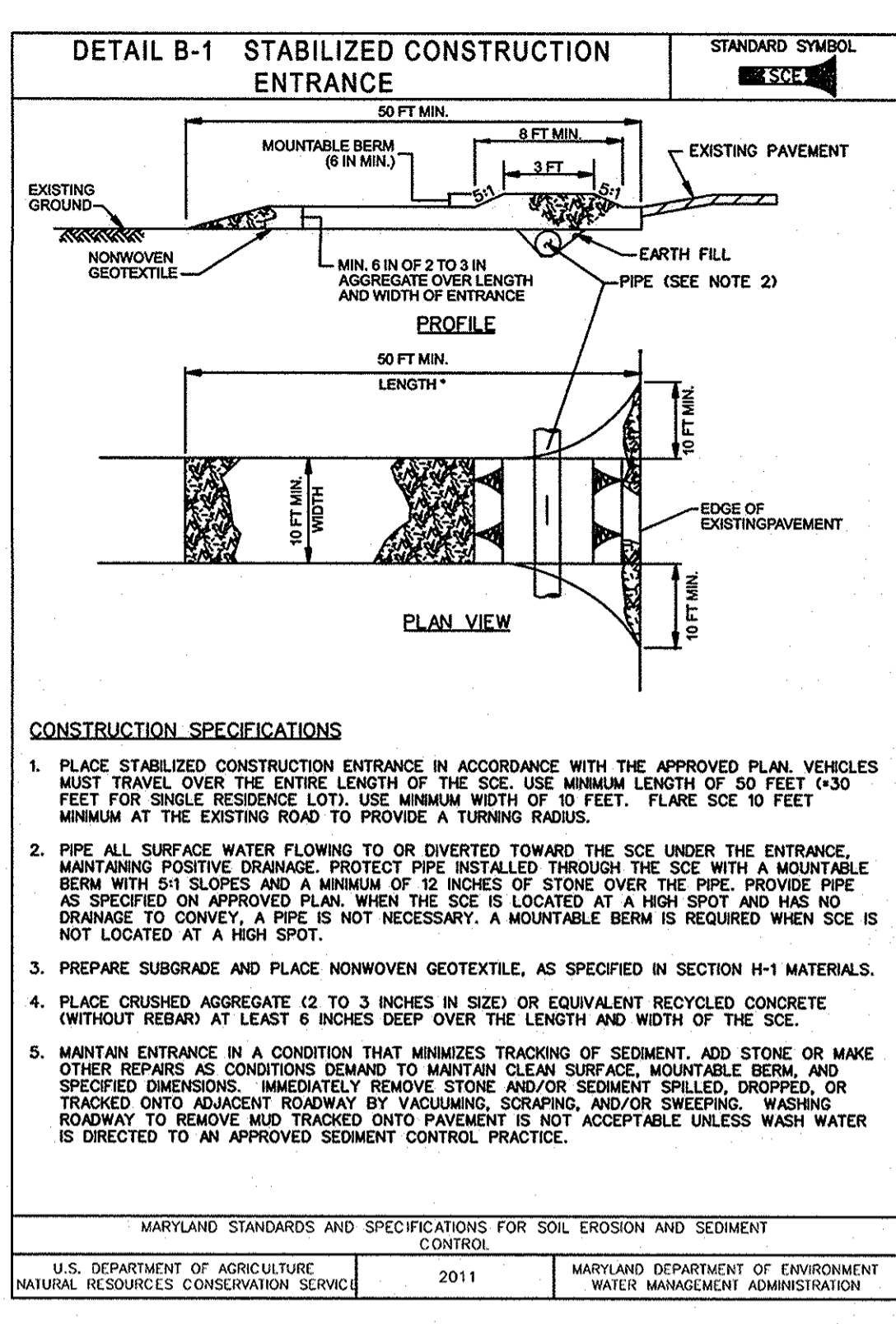
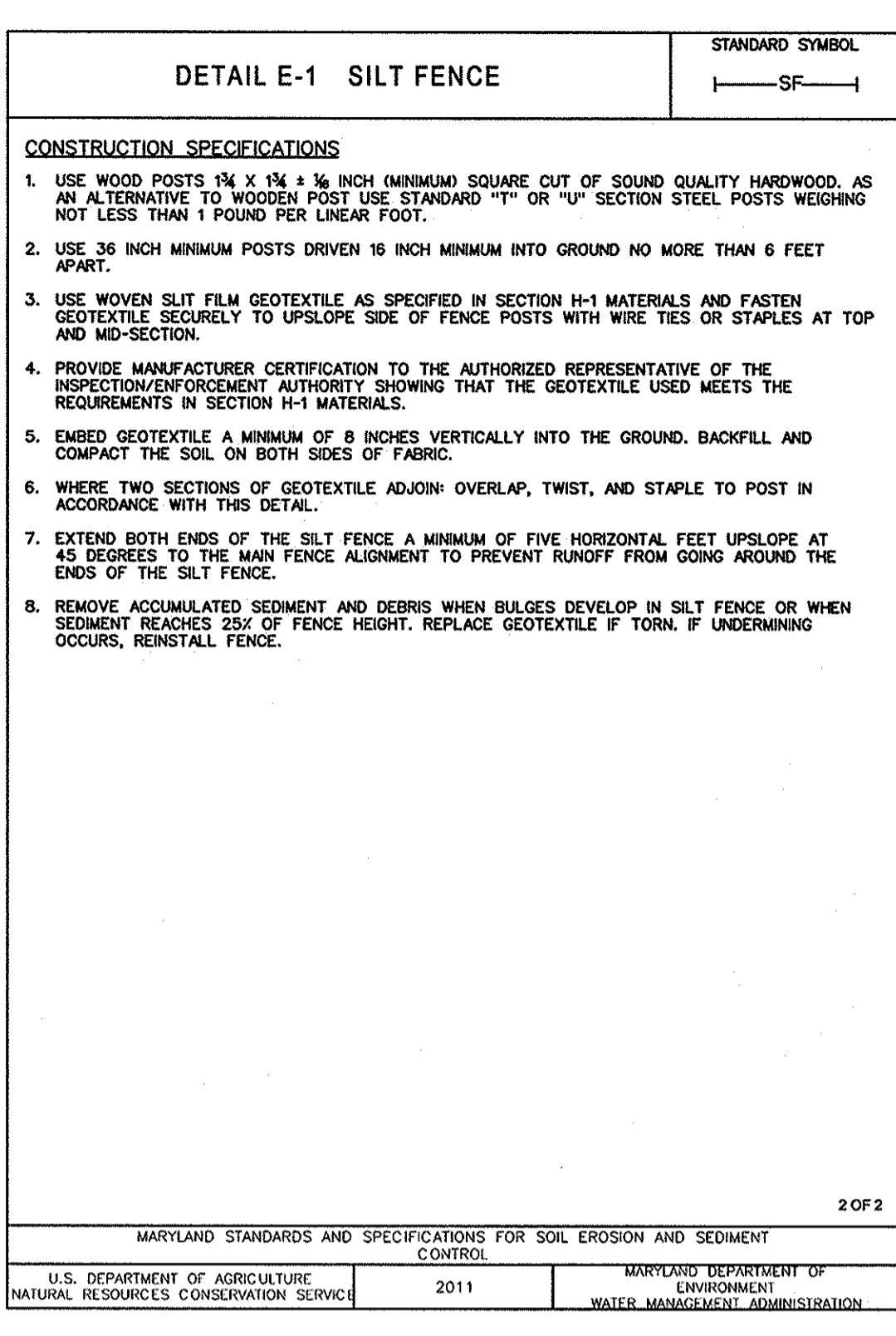
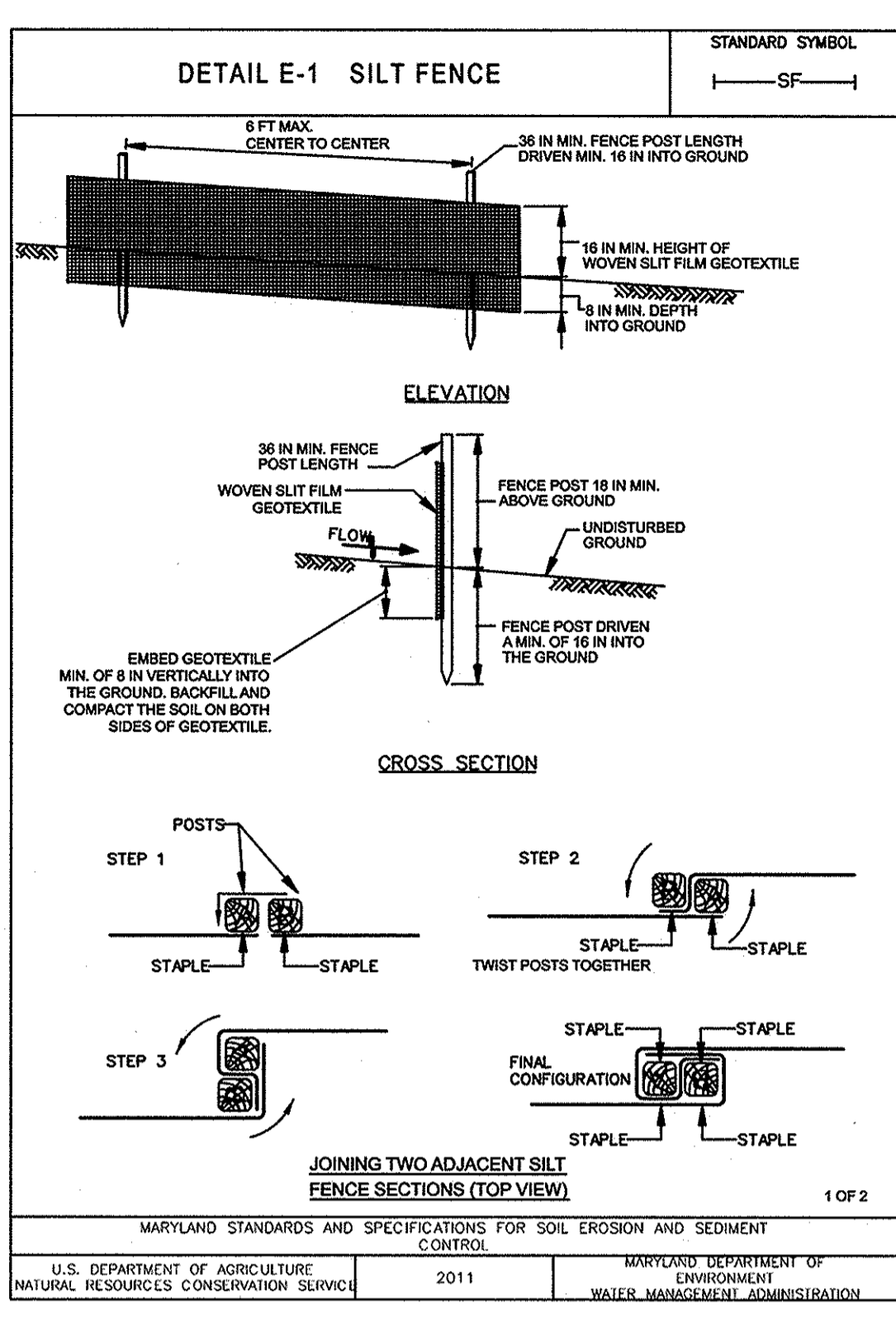
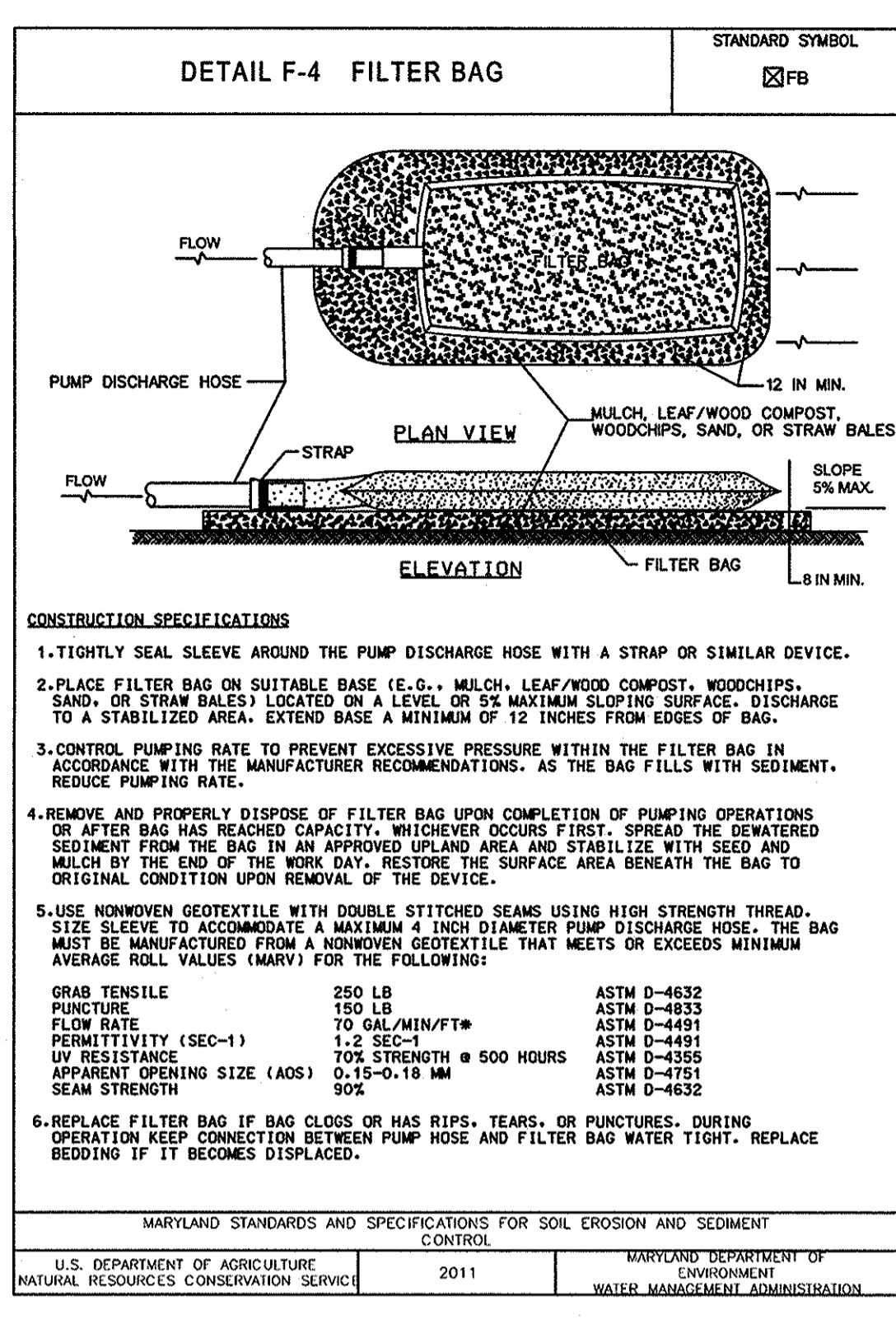
Definition
A mound or pile of soil protected by appropriately designed erosion and sediment control measures.

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

Conditions Where Practice Applies
Stockpile areas are utilized when it is necessary to salvage and store soil for later use.

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

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



HOW TO PUMP-AROUND PRACTICE

Temporary measure for dewatering in-channel construction sites.

DESCRIPTION
The work should consist of installing a temporary pump around and supporting structure to divert flow around in-stream construction sites.

IMPLEMENTATION SEQUENCE

- Construction activities including the installation of erosion and sediment control measures should not begin until dewatering and right-of-way work has been completed. At least 5 days before beginning construction, the contractor should inform the local environmental protection and resource management inspection and enforcement division and the provider of local utilities a minimum of 48 hours before starting construction.
- The contractor should notify the Maryland Department of the Environment or MWA sediment control inspector at least 5 days before beginning construction, additionally, the contractor should inform the local environmental protection and resource management inspection and enforcement division and the provider of local utilities a minimum of 48 hours before starting construction.
- Upon installation of sediment control measures and approval by the sediment control inspector and the local environmental protection and resource management inspection and enforcement division, the contractor should begin work at the upstream section and proceed downstream, beginning with the establishment of a sediment dike below the work area. The contractor should write a permit for deviations from the MWA or local authority. The contractor must ensure that work in an area which may degrade the contractor's stream area does not begin until the first of disturbance, which will be removed for construction access. Trees should not be removed within the limit of disturbance without approval from the MWA or local authority.
- Construction should not begin until sediment and erosion control measures have been installed and approved by the engineer and the sediment control inspector. The contractor should stay within the limits of the disturbance or the work area and minimize disturbance within the work area whenever possible.
- Upon installation of sediment control measures and approval by the sediment control inspector and the local environmental protection and resource management inspection and enforcement division, the contractor should begin work at the upstream section and proceed downstream, beginning with the establishment of a sediment dike below the work area. The contractor should write a permit for deviations from the MWA or local authority. The contractor must ensure that work in an area which may degrade the contractor's stream area does not begin until the first of disturbance, which will be removed for construction access. Trees should not be removed within the limit of disturbance without approval from the MWA or local authority.
- Sandbag dikes should be situated at the upstream and downstream ends of the work area as shown on the plans and stream flow should be pumped around the work area. The pump should discharge onto a stable velocity dissipater made of riprap or sandbags.
- Water from the work area should be pumped to a sediment filtering measure such as a dewatering basin, sediment bag, or other approved device. The measure should be located such that the water drains back into the channel below the downstream sandbag dike.
- Dewatering equipment with sediment within the work area where no work is proposed should be cleaned, if equipment has to be moved to another area, the contractor should ensure that the equipment is cleaned before being moved to another area. Temporary stream crossings should be used only when necessary and only where noted on the plans or justified. (See Section 4, Stream Crossings, Maryland Guidelines to Waterway Construction).
- All stream restoration measures should be installed as indicated by the plans and all banks graded in accordance with the grading plans and typical cross-sections. All grading must be stabilized at the end of each day with seed and mulch or seed and matting as specified on the plans.
- After an area is completed and stabilized, the clean water dike should be removed. After the first sediment flush, a new clean water dike should be established upstream from the old sediment dike. Flaps upon establishment of a new sediment dike below the old one, the sediment dike should be removed.
- A nurse around must be installed on any tributary or storm drain outlet, which contributes to the work area. This should be accomplished by locating a sandbag dike at the stream or storm drain outlet, which is located at the upstream end of the work area. This water should discharge onto the same velocity dissipater used for the main stem pump around.
- If a tributary is to be restored, construction should take place on the tributary before work on the main stem reaches the tributary confluence. Construction in the tributary, including pump around practices, should follow the same sequence as for the main stem of the river or stream. When construction on the tributary is completed, work on the main stem should resume. Water from the tributary should continue to be pumped around the work area in the main stem.
- The contractor is responsible for providing access to and maintaining all erosion and sediment control devices until the sediment control inspector approves their removal.
- After construction, all disturbed areas should be regraded and revegetated as per the planting plan.

Table B.1: Temporary Seeding for Site Stabilization

Plant Species	Seeding Rate ^v		Seeding Depth ^w (inches)	Recommended Seeding Dates by Plant Hardiness Zone ^{3v}		
	lb/ac	lb/1000 ft ²		5b and 6a	6b	7a and 7b
Cool-Season Grasses						
Annual Ryegrass (Lolium perenne ssp. multiflorum)	40	1.0	0.5	Mar 15 to May 31; Aug 1 to Sep 30	Mar 1 to May 15; Aug 1 to Oct 15	Feb 15 to Apr 30; Aug 15 to Nov 30
Barley (Hordeum vulgare)	96	2.2	1.0	Mar 15 to May 31; Aug 1 to Sep 30	Mar 1 to May 15; Aug 1 to Oct 15	Feb 15 to Apr 30; Aug 15 to Nov 30
Oats (Avena sativa)	72	1.7	1.0	Mar 15 to May 31; Aug 1 to Sep 30	Mar 1 to May 15; Aug 1 to Oct 15	Feb 15 to Apr 30; Aug 15 to Nov 30
Wheat (Triticum aestivum)	120	2.8	1.0	Mar 15 to May 31; Aug 1 to Sep 30	Mar 1 to May 15; Aug 1 to Oct 15	Feb 15 to Apr 30; Aug 15 to Nov 30
Cereal Rye (Secale cereale)	112	2.8	1.0	Mar 15 to May 31; Aug 1 to Oct 31	Mar 1 to May 15; Aug 1 to Nov 15	Feb 15 to Apr 30; Aug 15 to Dec 15
Warm-Season Grasses						
Foxtail Millet (Setaria italica)	30	0.7	0.5	Jun 1 to Jul 31	May 16 to Jul 31	May 1 to Aug 14
Pearl Millet (Pennisetum glaucum)	20	0.5	0.5	Jun 1 to Jul 31	May 16 to Jul 31	May 1 to Aug 14

NOTES:

- Seeding rates for the warm-season grasses are in pounds of Pure Live Seed (PLS). Actual planting rates shall be adjusted to reflect percent seed germination and purity, as tested. Adjustments are usually not needed for the cool-season grasses. Seeding rates listed above are for temporary seedings, when planted alone. When planted as a nurse crop with permanent seed mixes, use 1/3 of the seeding rate listed above for barley, oats, and wheat. For smaller-seeded grasses (annual ryegrass, pearl millet, foxtail millet), do not exceed more than 5% (by weight) of the overall permanent seeding mix. Cereal rye generally should not be used as a nurse crop, unless planting will occur in very late fall/beyond the seeding dates for other temporary seedings. Cereal rye has allelopathic properties that inhibit the germination and growth of other plants. If it must be used as a nurse crop, seed at 1/3 of the rate listed above. Oats are the recommended nurse crop for warm-season grasses.
- For sandy soils, plant seeds at twice the depth listed above.
- The planting dates listed are averages for each Zone and may require adjustment to reflect local conditions, especially near the boundaries of the zone.

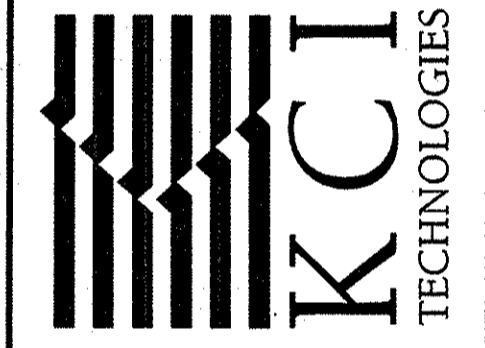
STATE OF MARYLAND
MARYLAND PROFESSIONAL ENGINEERS
No. 38311
Professional Engineer
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DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES

THIS DEVELOPMENT IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
DATE: 8/16/13
DATE: 8/20/13

NO.	REVISIONS DESCRIPTION

936 RIDGEBROOK ROAD
SPARKS, MARYLAND 21152
TELEPHONE: (410) 316-7800
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STONE TRAIL COURT
STREAM RESTORATION PROJECT
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
STORMWATER MANAGEMENT DIVISION
6751 COLUMBIA GATEWAY DRIVE
COLUMBIA, MD 21046
PARCEL 3.4, 259, 283, 342 TAX MAP 46
ZONING R-20R-SC ELECTION DISTRICT 5

EROSION & SEDIMENT CONTROL DETAILS

SCALE: 1" = 20'
DATE: AUGUST 2013
PROJECT NO.: 01-081795.89
CAPITAL PROJECT NO.: D-1158
PERMIT ISSUE:
CONSTRUCTION ISSUE:
SHEET NO.: 20 OF 29

SEQUENCE OF CONSTRUCTION

- OBTAIN GRADING PERMIT. STREAM CLOSURE PERIOD IS MARCH 1-JUNE 15, INCLUSIVE. MDE PERMIT TRACKING #201360573. PRIOR TO BEGINNING ANY CONSTRUCTION ACTIVITIES, A VIDEOTAPE AND PHOTOGRAPHS OF THE PROPOSED WORK AREA SHALL BE TAKEN. (1 DAY)
 - CONTRACTOR SHALL COORDINATE AN ON-SITE PRE-CONSTRUCTION MEETING THAT SHALL INCLUDE, BUT NOT BE LIMITED TO, THE COUNTY PROJECT MANAGER, THE ENGINEER, AND A REPRESENTATIVE FROM HOWARD COUNTY CONSTRUCTION INSPECTION. THE LIMIT OF DISTURBANCE SHALL BE STAKED PRIOR TO THE MEETING. (1 DAY)
 - NOTIFY THE MARYLAND DEPARTMENT OF THE ENVIRONMENT'S NONTIDAL WETLANDS AND WATERWAYS INSPECTIONS AND COMPLIANCE DIVISION AT LEAST FIVE (5) DAYS PRIOR TO ANY EARTH MOVING CONSTRUCTION WITHIN NONTIDAL WETLANDS AND/OR THEIR BUFFERS. THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST FIVE (5) WORKING DAYS PRIOR TO ANY WORK BEING DONE. THE CONTRACTOR SHALL NOTIFY THE HOWARD COUNTY CONSTRUCTION INSPECTION DIVISION (410-313-1880) A MINIMUM OF 24 HOURS PRIOR TO THE START OF ANY CONSTRUCTION. (5 DAYS)
 - CONSTRUCT ORANGE SAFETY FENCE AS SHOWN ON THE PLANS. HOWARD COUNTY STORMWATER MANAGEMENT DIVISION SHALL REVIEW AND APPROVE THE LOCATION OF THE ORANGE SAFETY FENCE PRIOR TO ANY EARTH MOVING OR REMOVING OF EXISTING TREES OR SHRUBS. (3 DAYS)
 - CLEAR AND GRUB ONLY AS NECESSARY FOR INSTALLATION OF EROSION AND SEDIMENT CONTROL MEASURES AND DEVICES. INSTALL THE STABILIZED CONSTRUCTION ENTRANCES, INCLUDING THE TEMPORARY JERSEY BARRIERS AND METAL FENCING AT MARTOWN ROAD, AND SILT FENCE DOWNSTREAM OF THE TEMPORARY STOCKPILE AREAS AS SHOWN ON THE PLANS OR AS DIRECTED BY THE SEDIMENT CONTROL INSPECTOR. THE ACCESS PATH SHALL BE STABILIZED WITH STONE OR PROTECTED WITH SILT FENCE AT THE INSPECTOR'S DISCRETION, WITH PERMISSION FROM INSPECTOR, CONTRACTOR SHALL PROCEED WITH PHASE 1. (3 DAYS)
- PHASE 1
- INSTALL PUMP-AROUND PRACTICES AS SHOWN ON THE PHASE 1 PLAN, WITH APPROVAL OF THE SEDIMENT CONTROL INSPECTOR, COMMENCE PHASE 1 IN STREAM WORK.(1 DAY)
 - INSTALL NEW ENDWALL E-3 AT THE UPSTREAM LIMITS OF THE PROJECT. PERFORM STREAM GRADING AND STREAM RESTORATION WORK ON CHANNEL AS SHOWN ON THE PHASE 1 PLAN, WORKING UPSTREAM TO DOWNSTREAM, AND STABILIZE ALL DISTURBED AREAS AT FINAL GRADE. PUMP-AROUNDS MAY BE SHIFTED AS NECESSARY TO PERFORM GRADING AND STREAM WORK WITH APPROVAL OF THE SEDIMENT CONTROL INSPECTOR. CONTRACTOR SHALL DISTURB ONLY THAT MUCH AREA THAT CAN BE BROUGHT TO FINAL GRADE AND STABILIZED BY THE END OF EACH DAY. (2 WEEKS)
 - PERMANENTLY STABILIZE WORK AREA WITHIN PHASE 1 AND WITH APPROVAL FROM THE SEDIMENT CONTROL INSPECTOR, PROCEED WITH PHASE 2. (2 DAYS)
- PHASE 2
- INSTALL PUMP-AROUND PRACTICES AS SHOWN ON THE PHASE 2 PLAN, WITH APPROVAL OF THE SEDIMENT CONTROL INSPECTOR, COMMENCE PHASE 2 IN STREAM WORK.(1 DAY)
 - PERFORM STREAM GRADING AND STREAM RESTORATION WORK ON CHANNEL AS SHOWN ON THE PHASE 2 PLAN, WORKING UPSTREAM TO DOWNSTREAM, AND STABILIZE ALL DISTURBED AREAS AT FINAL GRADE. REMOVE DEBRIS FROM THE CHANNEL AT STATION 3-75 AS DIRECTED BY THE ENGINEER. PUMP-AROUNDS MAY BE SHIFTED AS NECESSARY TO PERFORM GRADING AND STREAM WORK WITH APPROVAL OF THE SEDIMENT CONTROL INSPECTOR. CONTRACTOR SHALL DISTURB ONLY THAT MUCH AREA THAT CAN BE BROUGHT TO FINAL GRADE AND STABILIZED BY THE END OF EACH DAY. (2 WEEKS)
 - PERMANENTLY STABILIZE WORK AREA WITHIN PHASE 2 AND WITH APPROVAL FROM THE SEDIMENT CONTROL INSPECTOR, PROCEED WITH PHASE 3. (2 DAYS)

- PHASE 3
- INSTALL PUMP-AROUND PRACTICES AS SHOWN ON THE PHASE 3 PLAN, WITH APPROVAL OF THE SEDIMENT CONTROL INSPECTOR, COMMENCE PHASE 3 IN STREAM WORK.(1 DAY)
 - PERFORM STREAM GRADING AND STREAM RESTORATION WORK ON CHANNEL AS SHOWN ON THE PHASE 3 PLAN, WORKING UPSTREAM TO DOWNSTREAM, AND STABILIZE ALL DISTURBED AREAS AT FINAL GRADE. REMOVE DEBRIS FROM THE CHANNEL BETWEEN STATIONS 6+75 TO 7+50 AS DIRECTED BY THE ENGINEER. PUMP-AROUNDS MAY BE SHIFTED AS NECESSARY TO PERFORM GRADING AND STREAM WORK WITH APPROVAL OF THE SEDIMENT CONTROL INSPECTOR. CONTRACTOR SHALL DISTURB ONLY THAT MUCH AREA THAT CAN BE BROUGHT TO FINAL GRADE AND STABILIZED BY THE END OF EACH DAY. (2 WEEKS)
 - PERMANENTLY STABILIZE WORK AREA WITHIN PHASE 3 AND WITH APPROVAL FROM THE SEDIMENT CONTROL INSPECTOR, PROCEED WITH PHASE 4. (2 DAYS)
- PHASE 4
- INSTALL PUMP-AROUND PRACTICES AS SHOWN ON THE PHASE 4 PLAN, WITH APPROVAL OF THE SEDIMENT CONTROL INSPECTOR, COMMENCE PHASE 4 IN STREAM WORK.(1 DAY)
 - PERFORM STREAM GRADING AND STREAM RESTORATION WORK ON CHANNEL AS SHOWN ON THE PHASE 4 PLAN, WORKING UPSTREAM TO DOWNSTREAM, AND STABILIZE ALL DISTURBED AREAS AT FINAL GRADE. PUMP-AROUNDS MAY BE SHIFTED AS NECESSARY TO PERFORM GRADING AND STREAM WORK WITH APPROVAL OF THE SEDIMENT CONTROL INSPECTOR. CONTRACTOR SHALL DISTURB ONLY THAT MUCH AREA THAT CAN BE BROUGHT TO FINAL GRADE AND STABILIZED BY THE END OF EACH DAY. (2 WEEKS)
 - PERMANENTLY STABILIZE WORK AREA WITHIN PHASE 4 AND WITH APPROVAL FROM THE SEDIMENT CONTROL INSPECTOR, PROCEED WITH PHASE 5. (2 DAYS)
- PHASE 5
- INSTALL PUMP-AROUND PRACTICES AS SHOWN ON THE PHASE 5 PLAN, WITH APPROVAL OF THE SEDIMENT CONTROL INSPECTOR, COMMENCE PHASE 5 IN STREAM WORK.(1 DAY)
 - PERFORM STREAM GRADING AND STREAM RESTORATION WORK ON CHANNEL AS SHOWN ON THE PHASE 5 PLAN, WORKING UPSTREAM TO DOWNSTREAM, AND STABILIZE ALL DISTURBED AREAS AT FINAL GRADE. PUMP-AROUNDS MAY BE SHIFTED AS NECESSARY TO PERFORM GRADING AND STREAM WORK WITH APPROVAL OF THE SEDIMENT CONTROL INSPECTOR. CONTRACTOR SHALL DISTURB ONLY THAT MUCH AREA THAT CAN BE BROUGHT TO FINAL GRADE AND STABILIZED BY THE END OF EACH DAY. (2 WEEKS)
 - PERMANENTLY STABILIZE WORK AREA WITHIN PHASE 5 AND WITH APPROVAL FROM THE SEDIMENT CONTROL INSPECTOR, PROCEED WITH PHASE 6. (2 DAYS)
- PHASE 6
- INSTALL PUMP-AROUND PRACTICES AS SHOWN ON THE PHASE 6 PLAN, WITH APPROVAL OF THE SEDIMENT CONTROL INSPECTOR, COMMENCE PHASE 6 IN STREAM WORK.(1 DAY)
 - INSTALL NEW STORM DRAIN SYSTEM FROM MANHOLE M-2 TO END SECTION E-1. (2 DAYS)
 - PERFORM STREAM GRADING AND STREAM RESTORATION WORK ON CHANNEL AS SHOWN ON THE PHASE 6 PLAN, WORKING UPSTREAM TO DOWNSTREAM, AND STABILIZE ALL DISTURBED AREAS AT FINAL GRADE. PUMP-AROUNDS MAY BE SHIFTED AS NECESSARY TO PERFORM GRADING AND STREAM WORK WITH APPROVAL OF THE SEDIMENT CONTROL INSPECTOR. CONTRACTOR SHALL DISTURB ONLY THAT MUCH AREA THAT CAN BE BROUGHT TO FINAL GRADE AND STABILIZED BY THE END OF EACH DAY. (2 WEEKS)
 - PERMANENTLY STABILIZE WORK AREA WITHIN PHASE 6. (2 DAYS)
 - WHEN VEGETATION IS ESTABLISHED AND WITH PERMISSION OF THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR, REMOVE ALL REMAINING EROSION AND SEDIMENT CONTROL MEASURES AND PERMANENTLY STABILIZE THOSE AREAS DISTURBED BY THIS PROCESS. (2 DAYS)
 - CONDUCT FINAL "AS-BUILT" SURVEY OF STREAM RESTORATION MEASURES, STREAM PROFILE WITHIN RESTORATION AREAS, AND CULVERT AND SUBMIT "AS-BUILT" PLANS TO THE DEPARTMENT OF PUBLIC WORKS, STORMWATER MANAGEMENT DIVISION WITHIN 30 DAYS OF COMPLETION OF CONSTRUCTION. (30 DAYS)

B-4-4 STANDARDS AND SPECIFICATIONS FOR TEMPORARY STABILIZATION

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

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

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

Criteria
1. Select one or more of the species or seed mixtures listed in Table B.1 for the appropriate Plant Hardiness Zone (from Figure B.3), and enter them in the Temporary Seeding Summary below along with application rates, seeding dates and seeding depths. If this Summary is not put on the plan and completed, then Table B.1 plus fertilizer and lime rates must be put on the plan.

2. For sites having soil tests performed, use and show the recommended rates by the testing agency. Soil tests are not required for Temporary Seeding.

3. When stabilization is required outside of a seeding season, apply seed and mulch or straw mulch alone as prescribed in Section B-4-3.A.1.b and maintain until the next seeding season.

Temporary Seeding Summary

Hardiness Zone (from Figure B.3): _____		Seed Mixture (from Table B.1): _____		Fertilizer Rate (10-20-20)	Lime Rate
No.	Species	Application Rate (lb/ac)	Seeding Dates		
				436 lb/ac (10 lb/1000 sf)	2 tons/ac (90 lb/1000 sf)

DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 39311, EXPIRATION DATE: JANUARY 6, 2014

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

DATE: 8/16/13
DATE: 8/20/13

HOWARD SOIL CONSERVATION DISTRICT
STANDARD SEDIMENT CONTROL NOTES

- A minimum of 48 hours notice must be given to the Howard County Department of Inspections, Licenses and Permits, Sediment Control Division prior to the start of any construction (313-1855).
 - All vegetative and structural practices are to be installed according to the provisions of this plan and are to be in conformance with the most current MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL and revisions thereto.
 - Following initial soil disturbance or re-disturbance, permanent or temporary stabilization shall be completed within: a) 3 calendar days for all perimeter sediment control structures, dikes, perimeter slopes and all slopes greater than 3:1, b) 7 days as to all other disturbed or graded areas on the project site.
 - All disturbed areas must be stabilized within the time period specified above in accordance with the 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for permanent seeding (Sec. B-4-5), temporary seeding (Sec. B-4-4) and mulching (Sec. B-4-3). Temporary stabilization with mulch alone can only be done when recommended seeding dates do not allow for proper germination and establishment of grasses.
 - All sediment control structures are to remain in place and are to be maintained in operative condition until permission for their removal has been obtained from the Howard County Sediment Control Inspector.
 - Site Analysis:

Total Area of Site	2.13 Acres
Area Disturbed	2.13 Acres
Area to be roofed or paved	0.00 Acres
Area to be vegetatively stabilized	1.82 Acres
Total Cut	424 Cu. Yds.
Total Fill	488 Cu. Yds.
Offsite waste/borrow area location	To Be Determined
 - Any sediment control practice that is disturbed by grading activity for placement of utilities must be repaired on the same day of disturbance.
 - Additional sediment control must be provided, if deemed necessary by the Howard County Sediment Control Inspector.
 - On all sites with disturbed areas in excess of 2 acres, approval of the inspection agency shall be requested upon completion of installation of perimeter erosion and sediment controls, but before proceeding with any other earth disturbance or grading. Other building or grading inspection approvals may not be authorized until this initial approval by the inspection agency is made.
 - Trenches for the construction of utilities is limited to three pipe lengths or that which shall be back-filled and stabilized by the end of each workday, whichever is shorter.
 - Any changes or revisions to the sequence of construction must be reviewed and approved by the plan approval authority prior to proceeding with construction.
 - A project is to be sequenced so that grading activities begin on one grading unit (maximum acreage of 20 ac. per grading unit) at a time. Work may proceed to a subsequent grading unit when at least 50 percent of the disturbed area in the preceding grading unit has been stabilized and approved by the enforcement authority. Unless otherwise specified and approved by the approval authority, no more than 30 acres cumulatively may be disturbed at a given time.
- * Offsite waste/ borrow area, if needed, shall have an approved erosion and sediment control plan and active permit.

B-4-5 STANDARDS AND SPECIFICATIONS FOR PERMANENT STABILIZATION

Definition
To stabilize disturbed soils with permanent vegetation.

Purpose
To use long-lived perennial grasses and legumes to establish permanent ground cover on disturbed soils.

Conditions Where Practice Applies
Exposed soils where ground cover is needed for 6 months or more.

Criteria
A. Seed Mixtures

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

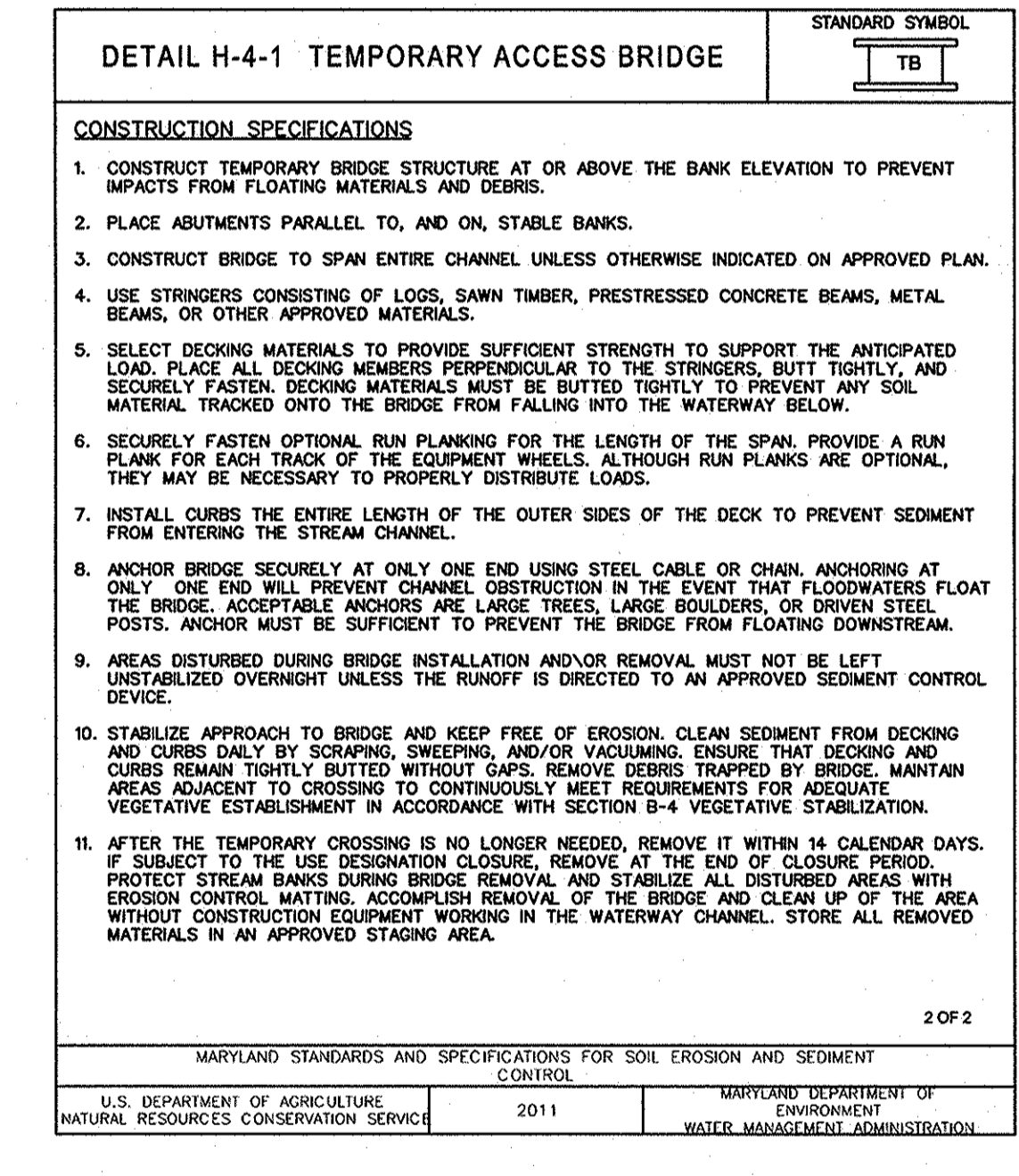
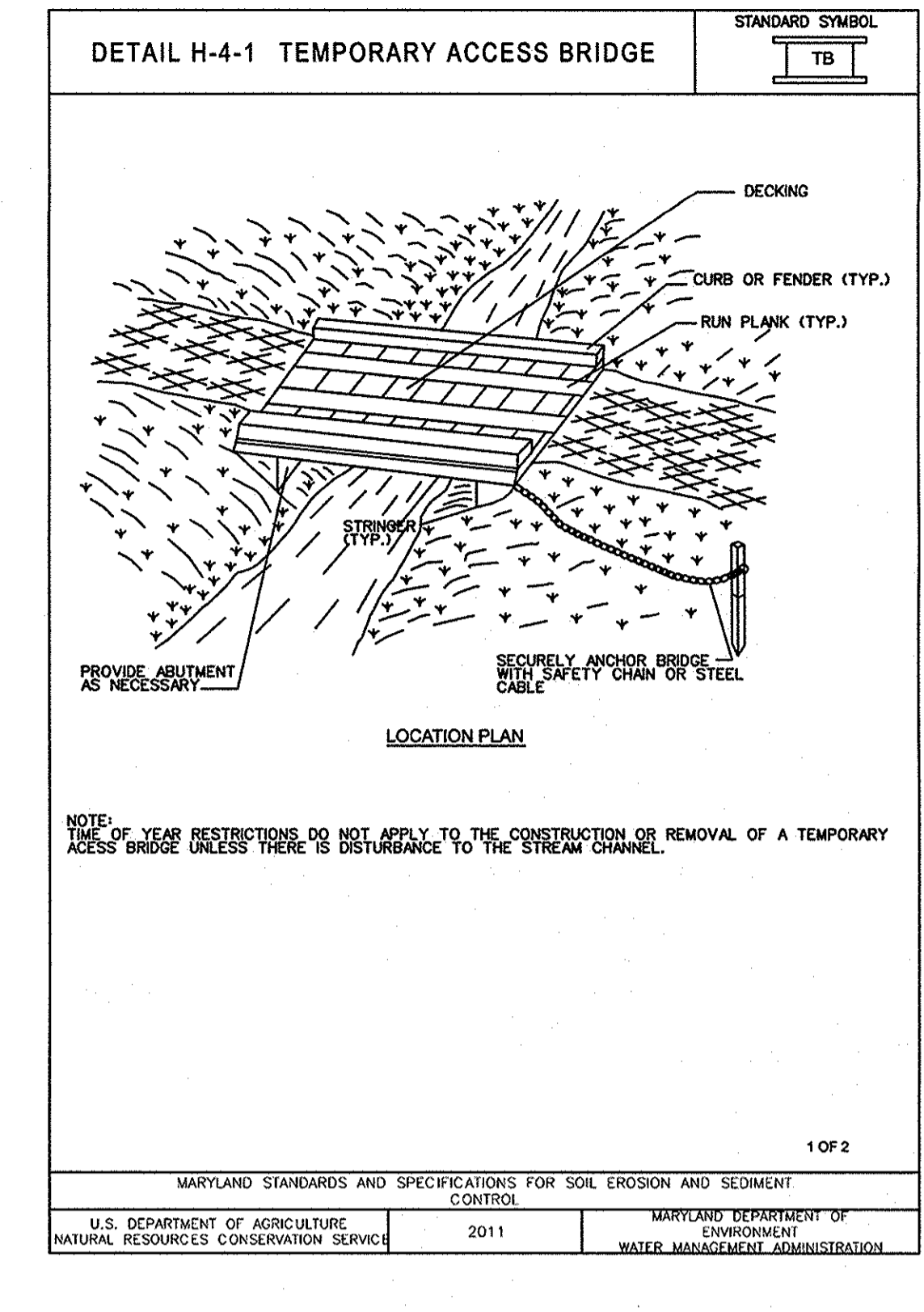
B-4-5 STANDARDS AND SPECIFICATIONS FOR PERMANENT STABILIZATION (continued)

- Tall Fescue/Kentucky Bluegrass: Full Sun Mixture: For use in drought prone areas and/or for areas receiving low to medium management in full sun to medium shade. Recommended mixture includes: Certified Tall Fescue Cultivars 95 to 100 percent, Certified Kentucky Bluegrass Cultivars 0 to 5 percent. Seeding Rate: 5 to 8 pounds per 1000 square feet. One or more cultivars may be blended.
- Kentucky Bluegrass/Fine Fescue: Shade Mixture: For use in areas with shade in Bluegrass lawns. For establishment in high quality, intensively managed turf area. Mixture includes: Certified Kentucky Bluegrass Cultivars 30 to 40 percent and Certified Fine Fescue and 60 to 70 percent. Seeding Rate: 1 1/2 to 3 pounds per 1000 square feet.

Notes:
Select turfgrass varieties from those listed in the most current University of Maryland Publication, Agronomy Memo #77, "Turfgrass Cultivar Recommendations for Maryland"

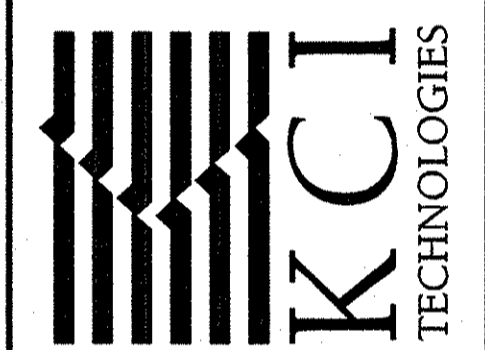
Choose certified material. Certified material is the best guarantee of cultivar purity. The certification program of the Maryland Department of Agriculture, Turf and Seed Section, provides a reliable means of consumer protection and assures a pure genetic line

- Ideal Times of Seeding for Turf Grass Mixtures
 - Western MD: March 15 to June 1, August 1 to October 1 (Hardiness Zones: 5b, 6a)
 - Central MD: March 1 to May 15, August 15 to October 15 (Hardiness Zone: 6b)
 - Southern MD, Eastern Shore: March 1 to May 15, August 15 to October 15 (Hardiness Zones: 7a, 7b)
- Till areas to receive seed by disking or other approved methods to a depth of 2 to 4 inches, level and rake the areas to prepare a proper seedbed. Remove stones and debris over 1 1/2 inches in diameter. The resulting seedbed must be in such condition that future mowing of grasses will pose no difficulty.
- If soil moisture is deficient, supply new seedlings with adequate water for plant growth (1/2 to 1 inch every 3 to 4 days depending on soil texture) until they are firmly established. This is especially true when seedlings are made late in the planting season, in abnormally dry or hot seasons, or on adverse sites.



NO.	REVISIONS DESCRIPTION	DATE

936 RIDGEBROOK ROAD
SPARKS, MARYLAND 21152
TELEPHONE: (410) 316-7800
FAX: (410) 316-7818
www.kci.com



STONE TRAIL COURT
STREAM RESTORATION PROJECT
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
STORMWATER MANAGEMENT DIVISION
6751 COLUMBIA GATEWAY DRIVE
COLUMBIA, MD 21046
PARCEL 3-4, 259, 283, 342 TAX MAP 46
ZONING R-20P-SC ELECTION DISTRICT 5

EROSION & SEDIMENT CONTROL NOTES

SCALE: 1" = 20'

DATE: AUGUST 2013

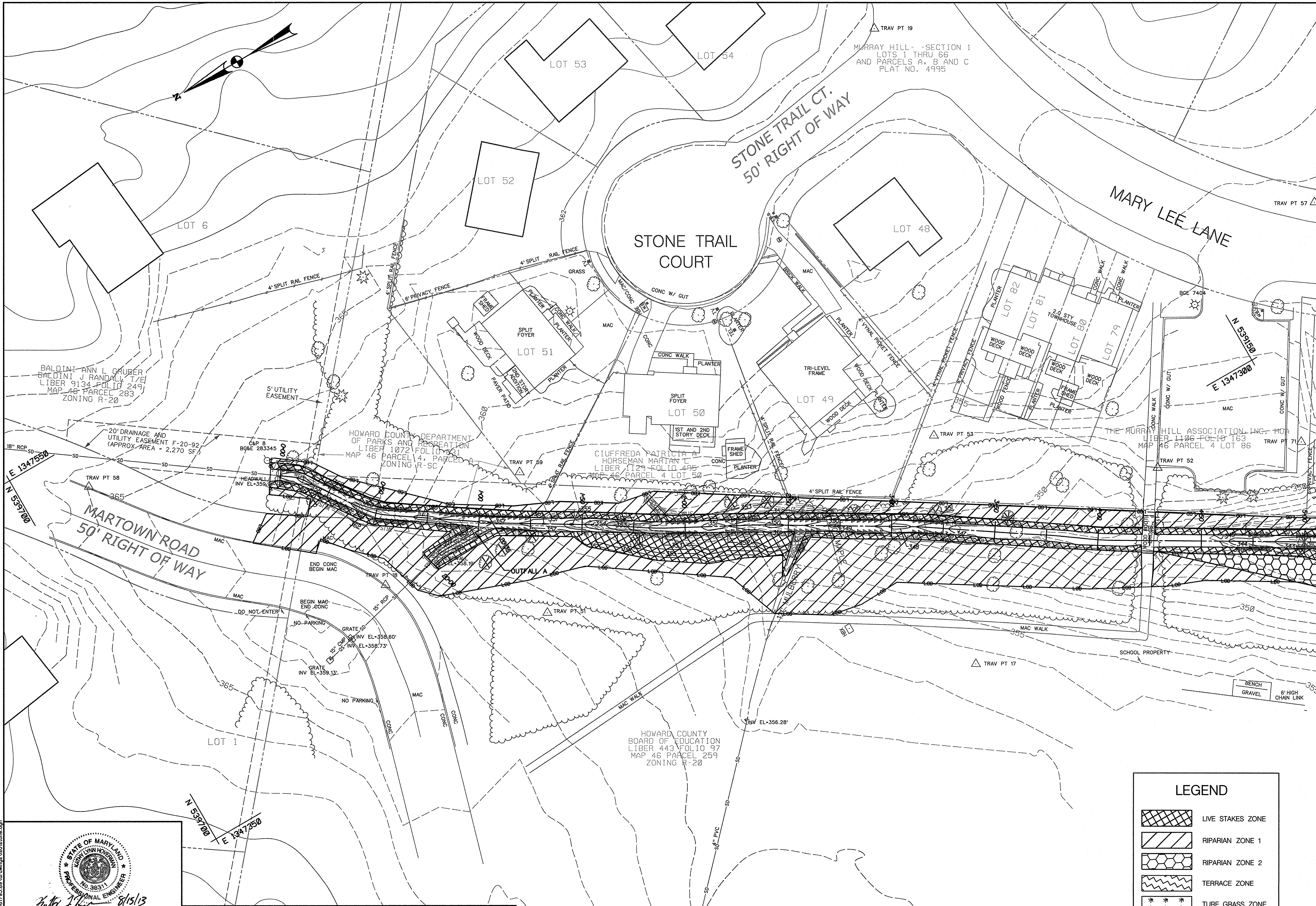
KCI JOB NO.: 01-081795.89

CAPITAL PROJECT NO.: D-115B

PERMIT ISSUE:

CONSTRUCTION ISSUE:

SHEET NO.: 21 OF 29



LEGEND

	LIVE STAKES ZONE
	RIPARIAN ZONE 1
	RIPARIAN ZONE 2
	TERRACE ZONE
	TURF GRASS ZONE

STATE OF MARYLAND
 PROFESSIONAL ENGINEER
 No. 38231
 KATY J. JONES
 8/15/13
 PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 38311, EXPIRATION DATE: JANUARY 6, 2014

DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD
 Chief, Bureau of Environmental Services
 DATE 8/16/13

NO.	REVISIONS DESCRIPTION	DATE

MATCH LINE A-A

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 TELEPHONE: (410) 316-7800
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 WWW.KCI.COM

KCI TECHNOLOGIES

**STONE TRAIL COURT
 STREAM RESTORATION PROJECT**

HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 STORMWATER MANAGEMENT DIVISION
 6751 COLUMBIA GATEWAY DRIVE
 COLUMBIA, MD 21046
 PARCEL 3.4, 285, 283, 342 TAX MAP 46
 ZONING R-20P-SC ELECTION DISTRICT 5

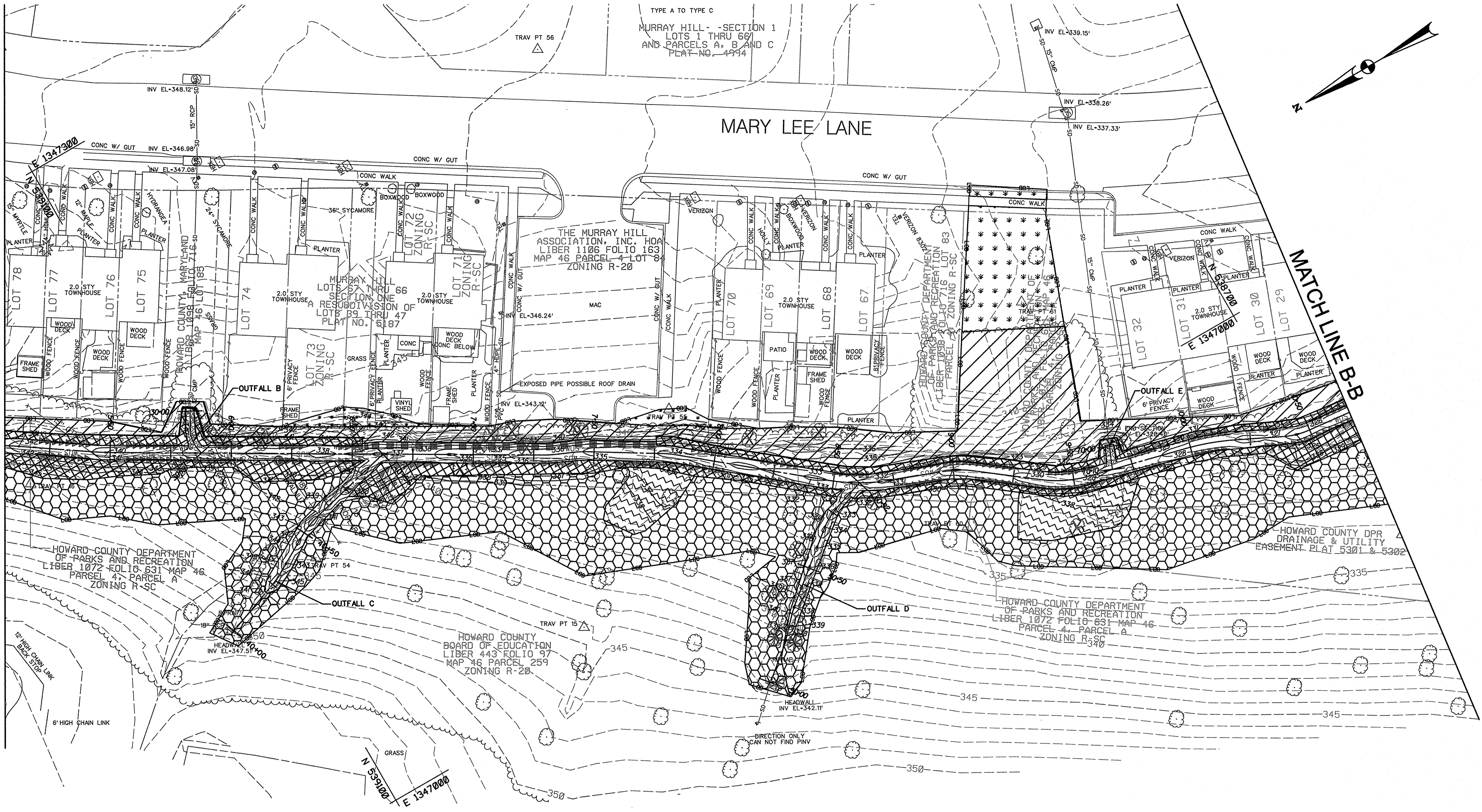
LANDSCAPE PLAN

SCALE: 1" = 20'
 DATE: AUGUST 2013
 KCI JOB NO.: 01-081795.89
 CAPITAL PROJECT NO.: D-115B
 PERMIT ISSUE:
 CONSTRUCTION ISSUE:

SHEET NO.: 22 OF 29

MATCH LINE A-A

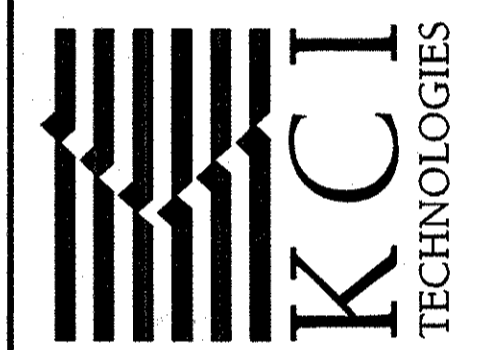
MATCH LINE B-B



LEGEND	
	LIVE STAKES ZONE
	RIPARIAN ZONE 1
	RIPARIAN ZONE 2
	TERRACE ZONE
	TURF GRASS ZONE

NO.	REVISIONS DESCRIPTION	DATE

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STONE TRAIL COURT
 STREAM RESTORATION PROJECT
 HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 STORMWATER MANAGEMENT DIVISION
 6751 COLUMBIA GATEWAY DRIVE
 COLUMBIA, MD 21046
 PARCEL 3, 4, 259, 283, 342 TAX MAP 46
 ZONING R-20R-SC ELECTION DISTRICT 5

LANDSCAPE PLAN

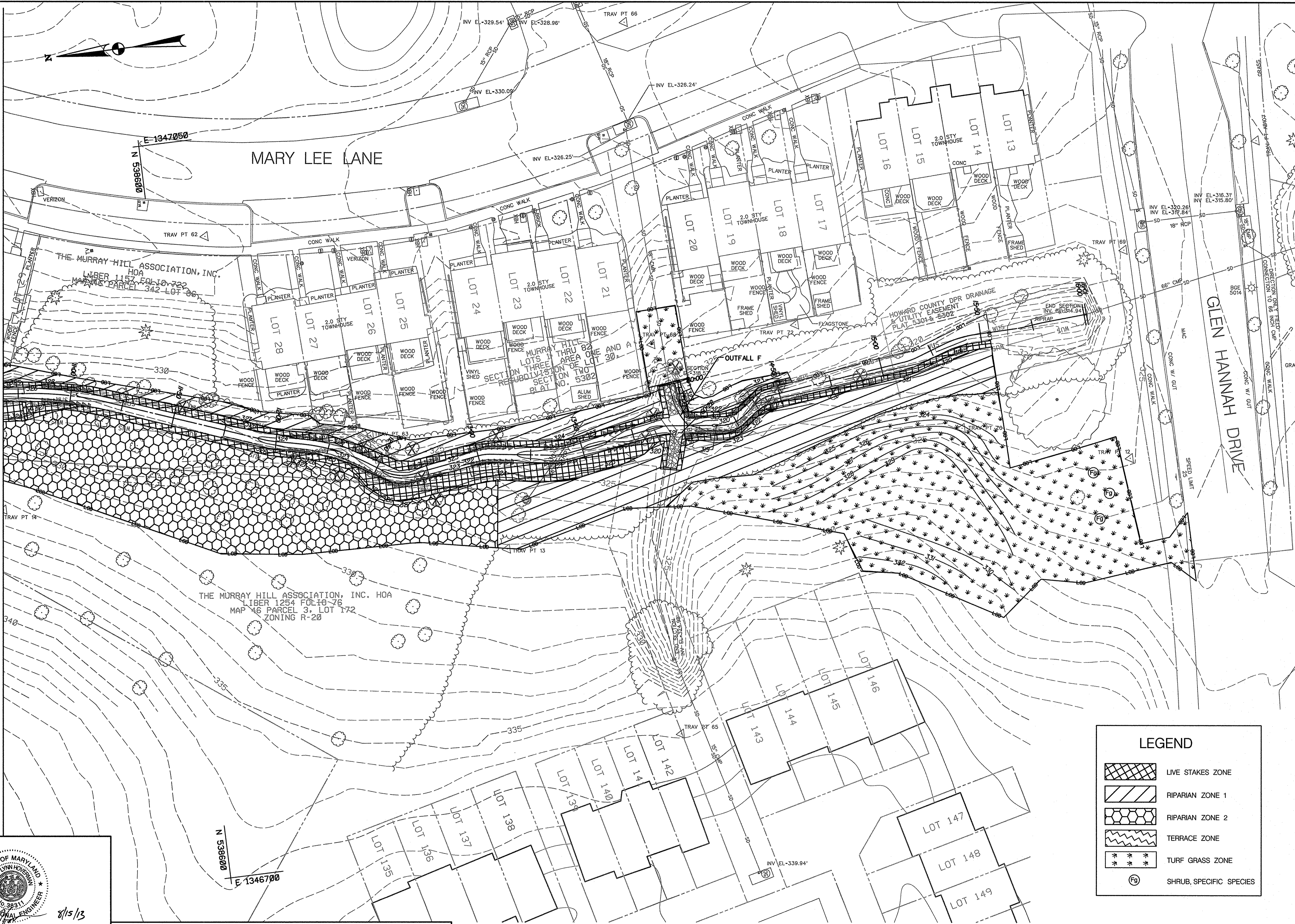
SCALE:	1" = 20'
DATE:	AUGUST 2013
KCI JOB NO.:	01-081795.89
CAPITAL PROJECT NO.:	C-1158
PERMIT ISSUE:	
CONSTRUCTION ISSUE:	

STATE OF MARYLAND
 PROFESSIONAL ENGINEER
 No. 38311
 8/15/13
 DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD
 Chief, Bureau of Environmental Services
 DATE: 8/16/13

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 38311, EXPIRATION DATE: JANUARY 6, 2014

BY: Ashley Pinner, Division: P250, Natural Res. Emp. FILE: M:\2008\01081795.89\Drawings\1802a10a.dgn

MATCH LINE B-B



LEGEND	
	LIVE STAKES ZONE
	RIPARIAN ZONE 1
	RIPARIAN ZONE 2
	TERRACE ZONE
	TURF GRASS ZONE
	SHRUB, SPECIFIC SPECIES

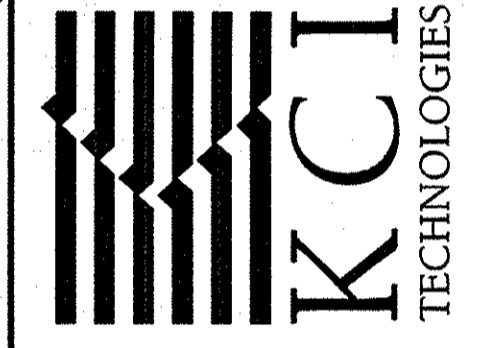
STATE OF MARYLAND
 PROFESSIONAL ENGINEER
 NO. 38311
 8/15/13

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DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD
 CHIEF, BUREAU OF ENVIRONMENTAL SERVICES
 DATE 8/16/13

NO.	REVISIONS DESCRIPTION	DATE

936 RIDGEBROOK ROAD
 SPARKS, MARYLAND 21152
 TELEPHONE: (410) 316-7800
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STONE TRAIL COURT
 STREAM RESTORATION PROJECT
 HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 STORMWATER MANAGEMENT DIVISION
 6751 COLUMBIA GATEWAY DRIVE
 COLUMBIA, MD 21046
 PARCEL 3.4, 259, 283, 342 TAX MAP 46
 ZONING R-20F-SC ELECTION DISTRICT 5

LANDSCAPE PLAN

SCALE:	1" = 20'
DATE:	AUGUST 2013
KCI JOB NO.:	01-081795.89
CAPITAL PROJECT NO.:	D-1158
PERMIT ISSUE:	
CONSTRUCTION ISSUE:	

MASTER PLANT SCHEDULE

RIPARIAN ZONES (SHEETS 22-24 OF 29)

(51,640 SQ FT/1.20 AC)

Quantity	Botanical Name	Common Name	Size	Form	Spacing/Rate
TREES					
64	Quercus rubra	Red Oak	5' Height	Container	10'-12' O.C.
64	Quercus alba	White Oak	5' Height	Container	10'-12' O.C.
64	Acer rubrum	Red Maple	5' Height	Container	10'-12' O.C.
64	Diospyros virginiana	Persimmon	5' Height	Container	10'-12' O.C.
SHRUBS					
105	Hamamelis virginiana	Witchhazel	3' Height	Container	6'-8' O.C.
105	Carpinus caroliniana	Musclewood	3' Height	Container	6'-8' O.C.
105	Cercis canadensis	Redbud	3' Height	Container	6'-8' O.C.
105	Amelanchier canadensis	Serviceberry	3' Height	Container	6'-8' O.C.

LIVE STAKES (SHEETS 22-24 OF 29)

(11,898 SQ FT/0.27 AC)

Quantity	Botanical Name	Common Name	Size	Form	Spacing/Rate
991	Cornus sericea	Red Osier Dogwood	3' Length 1"-1.5" dia.	Dormant Stems	2' O.C.
991	Cornus amomum	Silky Dogwood	3' Length 1"-1.5" dia.	Dormant Stems	2' O.C.
991	Viburnum dentatum	Arrowwood Viburnum	3' Length 1"-1.5" dia.	Dormant Stems	2' O.C.

WETLAND TERRACE ZONE (SHEETS 22-24 OF 29)

(1470 SQ FT/0.03 AC)

Quantity	Botanical Name	Common Name	Size	Form	Spacing/Rate
LIVE STAKES					
123	Viburnum dentatum	Arrowwood Viburnum	3' Length 1"-1.5" dia.	Dormant stems	2' O.C.
123	Cornus sericea	Red Osier Dogwood	3' Length 1"-1.5" dia.	Dormant stems	2' O.C.
123	Cornus amomum	Silky dogwood	3' Length 1"-1.5" dia.	Dormant stems	2' O.C.
LIVE BRANCHES FOR LAYERING					
2244	Platanus occidentalis	American Sycamore	6' Length	Dormant stems	12 BRANCHES/LF
2244	Salix sericea	Silky willow	6' Length	Dormant stems	12 BRANCHES/LF

Note: Dormant stem quantities represent the total number of individual stems.

PERMANENT SEEDING FOR LIVE STAKES, RIPARIAN ZONE 2, AND WETLAND TERRACE (SHEETS 22-24 OF 29)

(38,942 SQ FT/0.89 AC)

Qty(lbs)	Botanical Name
13.5	ERNMX-722

Application Rate of 15 lbs / ac

PERMANENT FLOWERING SEEDING FOR RIPARIAN ZONE 1 (SHEETS 22-24 OF 29)

(26,066 SQ FT/0.60 AC)

Qty(lbs)	Botanical Name
12	ERNMX-140

Application Rate of 20 lbs / ac

SHRUBS

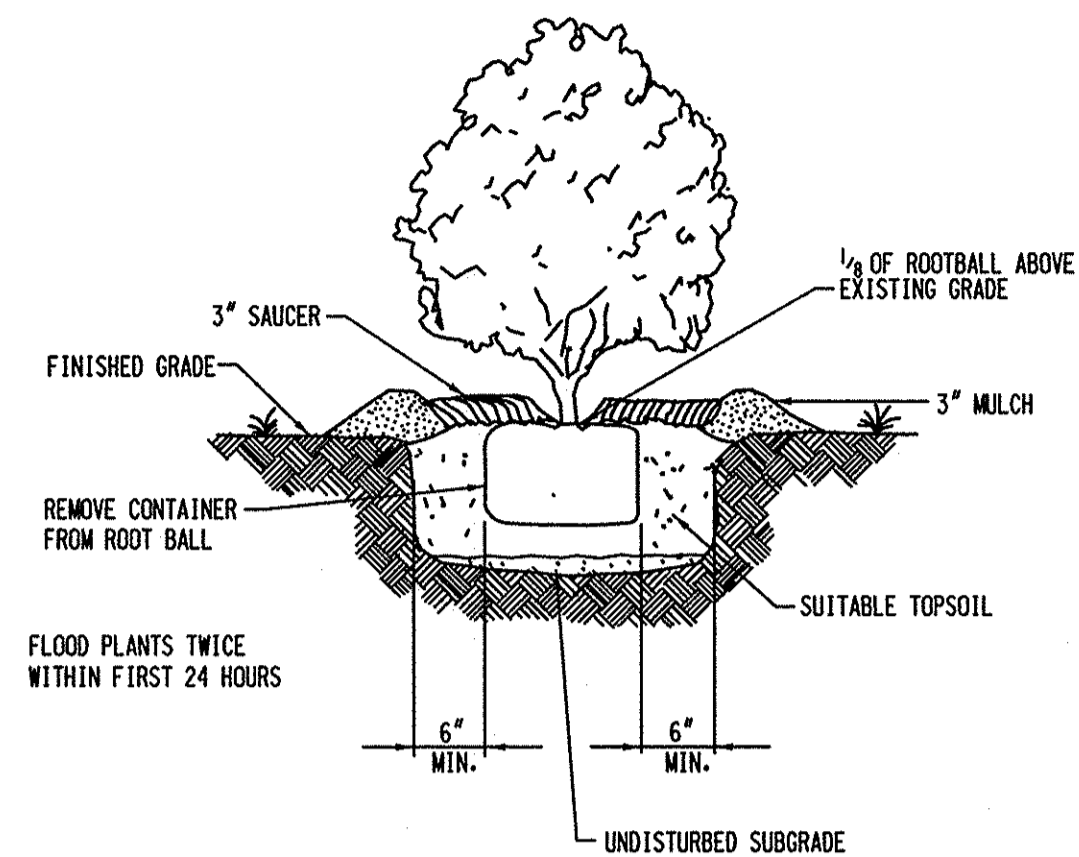
Quantity	Botanical Name	Common Name	Size	Form	Spacing/Rate
3	Fothergilla gardenii	Dwarf Fothergilla	3' Height	Container	Fg, As Shown

TURF GRASS ZONE (SHEETS 22-24 OF 29)

(15,917 SQ FT/0.4 AC)

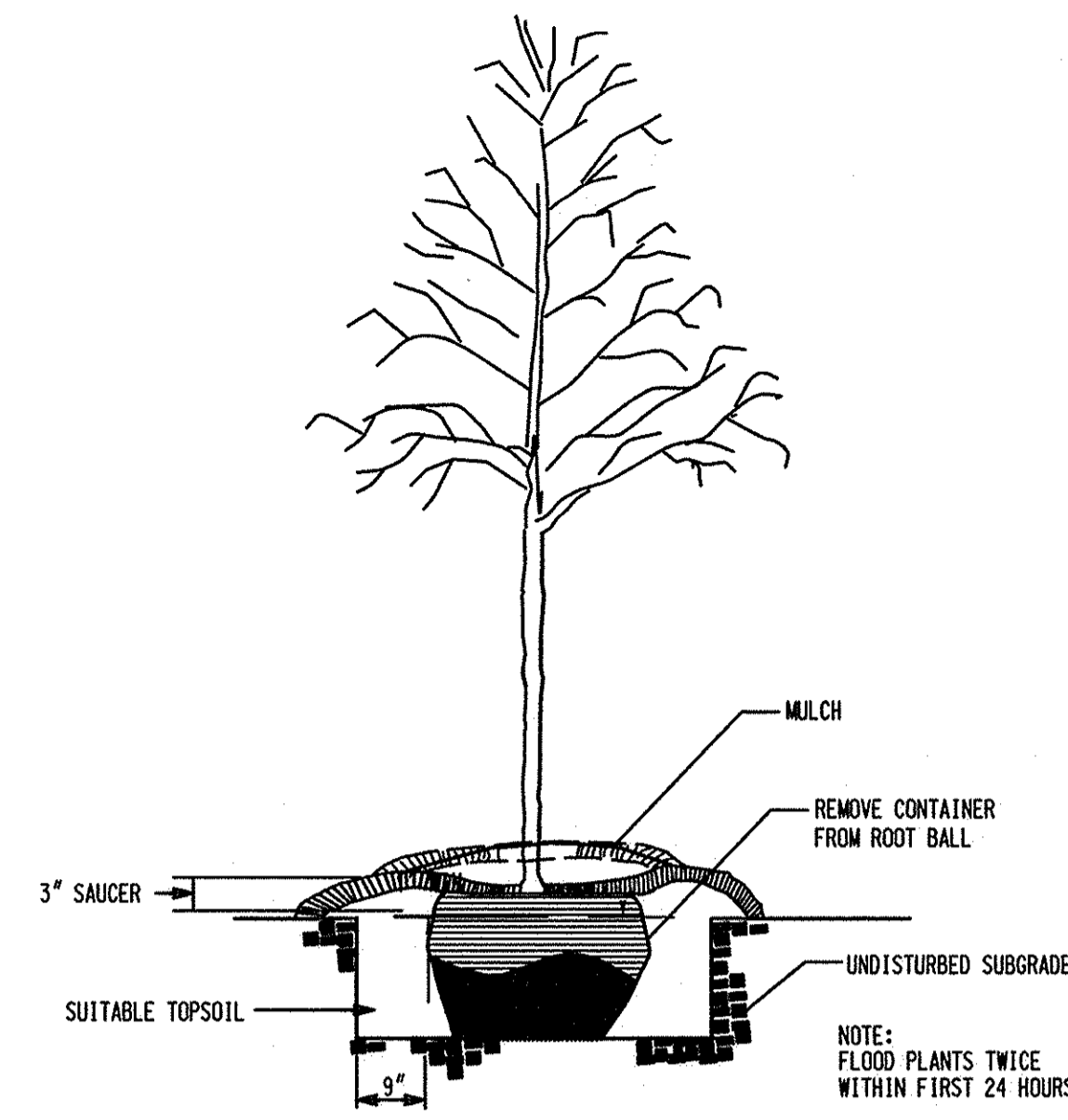
Qty(lbs)	Botanical Name
74	SHA Turf grass mix (920.06.01)

Application Rate of 200 lbs / ac



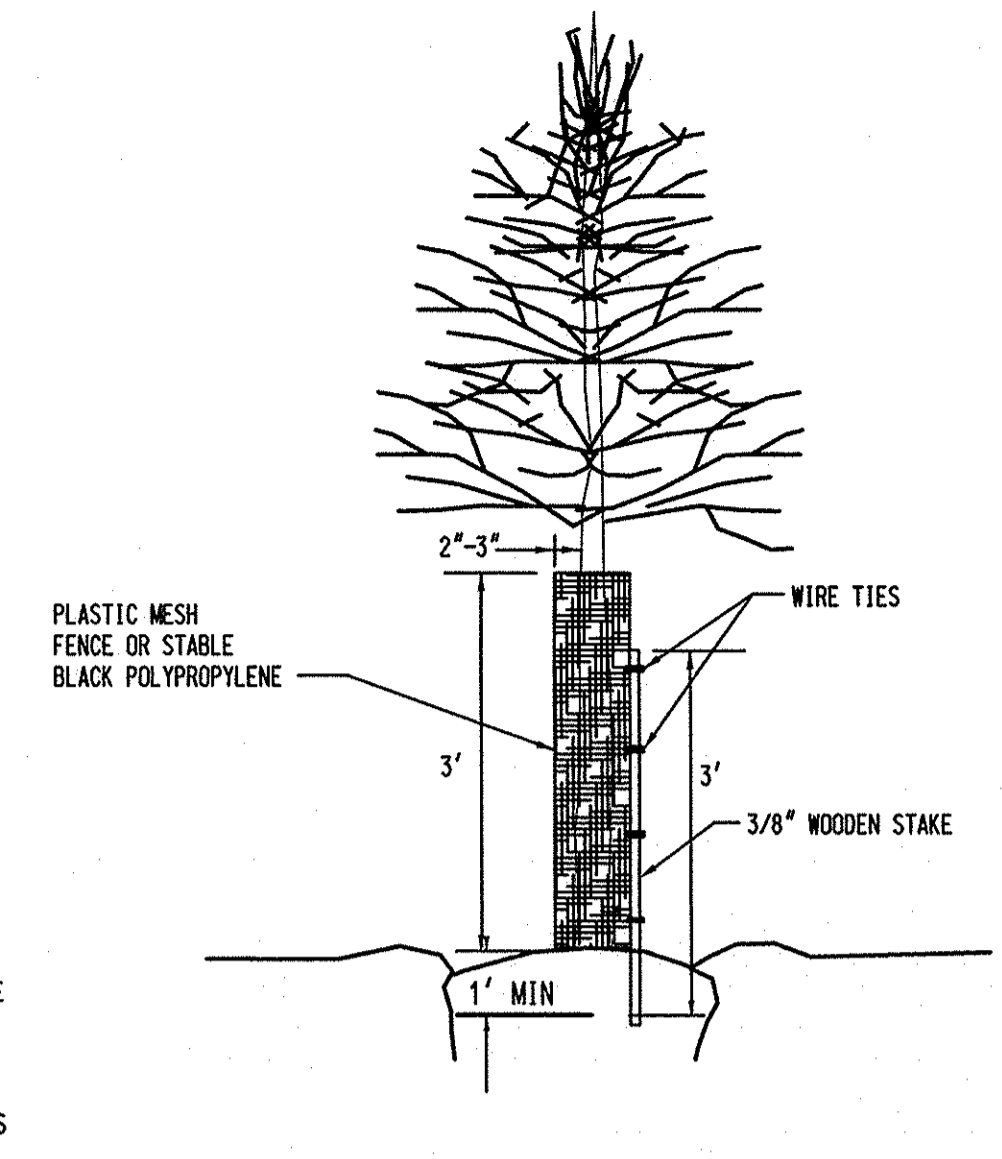
SHRUB PLANTING DETAIL

NOT TO SCALE



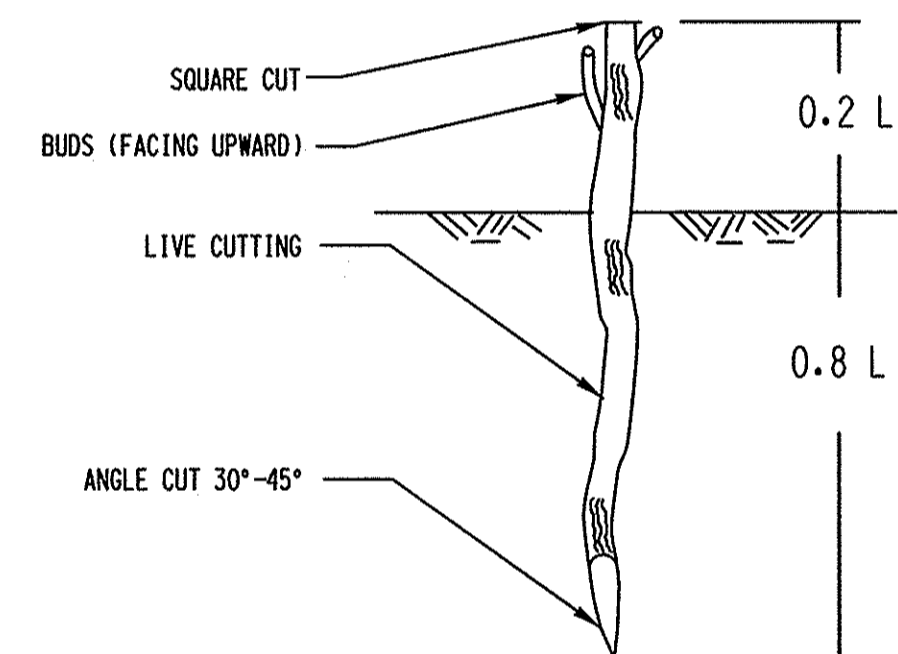
TREE PLANTING DETAIL

NOT TO SCALE



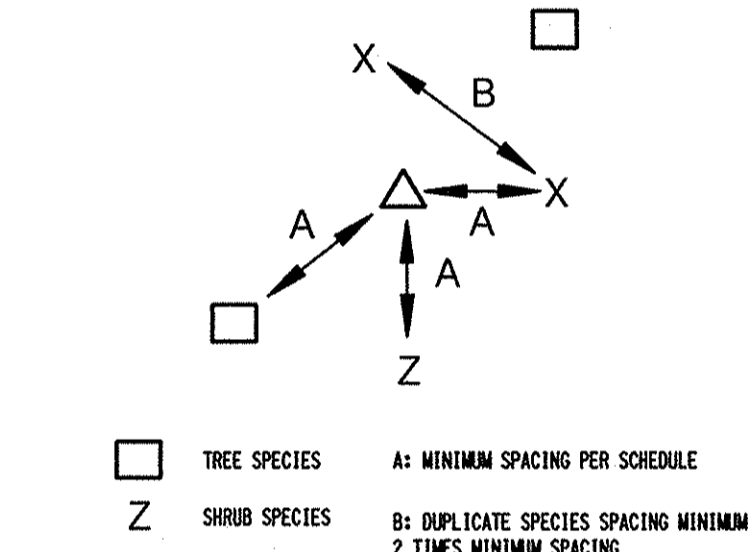
TREE SHELTER DETAIL

NOT TO SCALE



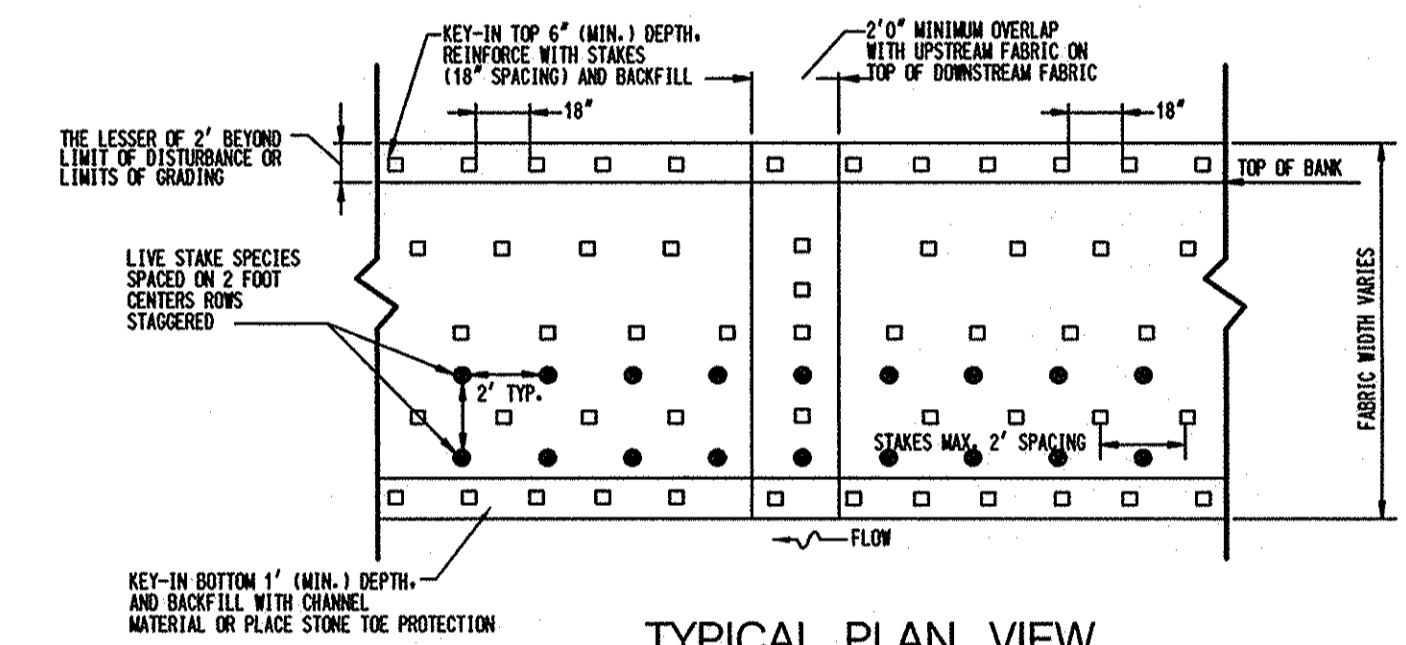
LIVE STAKE/POST PLANTING DETAIL

NOT TO SCALE



TREE AND SHRUB RANDOM SPACING

NOT TO SCALE



TYPICAL PLAN VIEW NATURAL FIBER MATTING WITH LIVE STAKES

NOT TO SCALE

- NOTES:
- NATURAL FIBER MATTING TO BE ROLLED LENGTHWISE ALONG STREAMBANK EXTENDING TO THE BOTTOM OF THE PROTECTION AND A MINIMUM OF ONE FOOT PAST TOP OF BANK. IF MORE THAN ONE ROLL IS REQUIRED, END-BANK OVERLAP SHOULD BE A MINIMUM OF ONE FOOT AND SECURELY FASTENED WITH STAKES.
 - NATURAL FIBER MATTING IS TO BE INSTALLED ON ALL GRADED BANK SLOPES THAT ARE NOT PROTECTED BY STONE TOE OR IMBRICATED BANK PROTECTIONS.

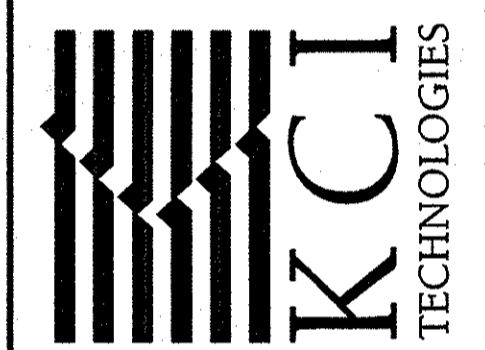
STATE OF MARYLAND
KATHY LYNN HOLLOWAY
PROFESSIONAL ENGINEER
8/15/13

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 38311, EXPIRATION DATE: JANUARY 6, 2014

DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD
Mark D. Luca
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES
8/16/13
DATE

NO.	REVISIONS DESCRIPTION	DATE

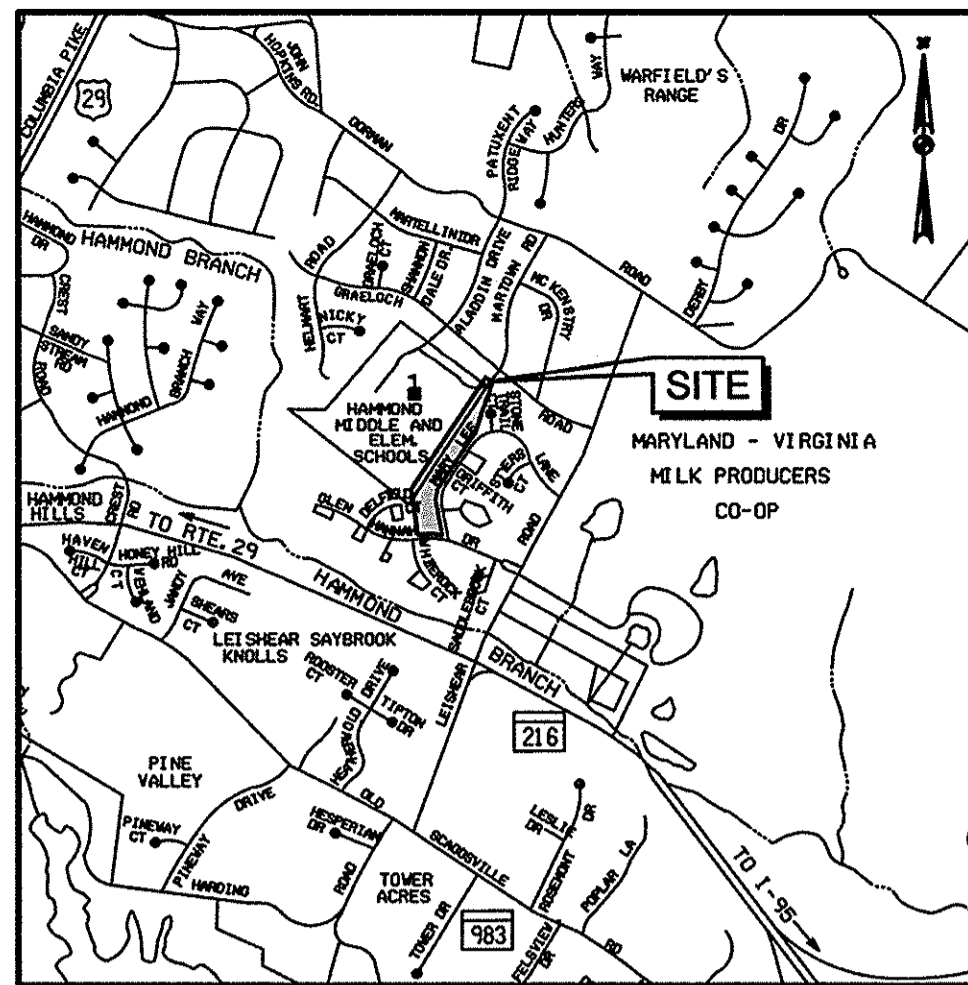
936 RIDGEBROOK ROAD
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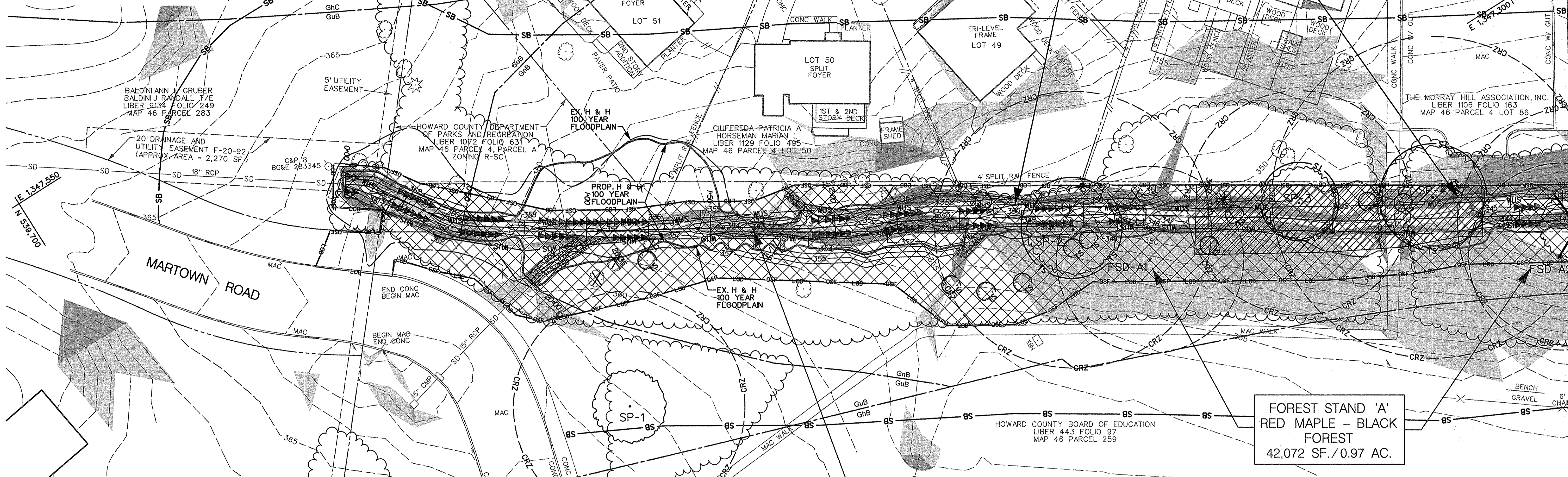
STONE TRAIL COURT
STREAM RESTORATION PROJECT
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
STORMWATER MANAGEMENT DIVISION
6751 COLUMBIA GATEWAY DRIVE
COLUMBIA, MD 21046
PARCEL 3.4, 259, 283, 342 TAX MAP 46
ZONING R-20P-SC ELECTION DISTRICT 5

LANDSCAPE DETAILS

SCALE:	NTS
DATE:	AUGUST 2013
KCI JOB NO.:	01-081795.89
CAPITAL PROJECT NO.:	D-115B
PERMIT ISSUE:	
CONSTRUCTION ISSUE:	



VICINITY MAP
SCALE: 1"=2000'

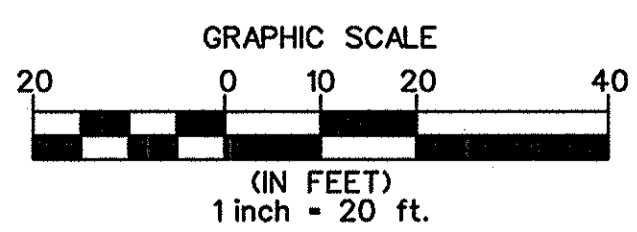


18,266 SF./0.42 AC.
OF FOREST CLEARING

FOREST STAND 'A'
RED MAPLE - BLACK
FOREST
42,072 SF./0.97 AC.

WUS WL001
R4SB3 /4;
1,597 LF.

LEGEND			
--- 360 ---	EX. CONTOUR	SB	75' STREAM BUFFER
-SD-	EX. STORM DRAIN	x UPL-1	UPLAND SAMPLE PLOT
-S-	EX. SANITARY SEWER	(x FS9 A-2)	FOREST STAND SAMPLE PLOT
-x-x-	EX. METAL FENCE	(Z40 SP-1)	SPECIMEN TREE / CRITICAL ROOT ZONE
-//	EX. WOOD FENCE	---	FOREST STAND BREAK
~~~~~	EX. WOODS LINE	[Pattern]	OUTFALL PROTECTION
●	EX. TREE	360	PROP. CONTOUR
○	EX. MANHOLE	[Pattern]	IMBRICATED BANK PROTECTION
○	EX. UTILITY POLE	[Pattern]	STONE TOE PROTECTION
○	EX. TELE. PED. AND CATV	[Pattern]	EX. TREE TO BE SAVED
○	EX. LIGHT POLE	[Pattern]	EX. TREE TO BE REMOVED
- - -	EX. EASEMENT	LOD	LIMIT OF DISTURBANCE
---	PROPERTY LINE	OSF	ORANGE SAFETY FENCE
- - -	RIGHT-OF-WAY	[Pattern]	EX. FOREST TO BE REMOVED
- - -	WATERS OF THE U.S.	[Pattern]	PLANTING ONLY ZONE
- - -	WATERWAY (EPHEMERAL)		
[Shaded]	SLOPES 15-25%		
[Shaded]	SLOPES 25% OR GREATER		
GhC	SOILS LINE		
GhB	EX. H & H 100 YEAR FLOODPLAIN		
- - -	PROP. H & H 100 YEAR FLOODPLAIN		
- - -	EX. STREAM CENTERLINE		
- - -	PROP. STREAM BASELINE		

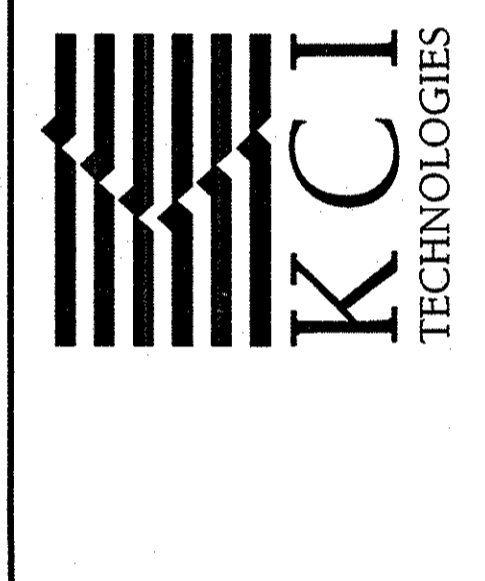


THIS PLAN WAS PREPARED BY:  
JENNIFER BIRD  
KCI TECHNOLOGIES  
MDNR QUALIFIED PROFESSIONAL  
STATUS  
(SEPTEMBER 2011)  
*Jennifer A. Bird*  
07/2013  
DATE

DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD  
*Mark D. ...*  
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES  
8/16/13  
DATE

NO.	REVISIONS DESCRIPTION	DATE

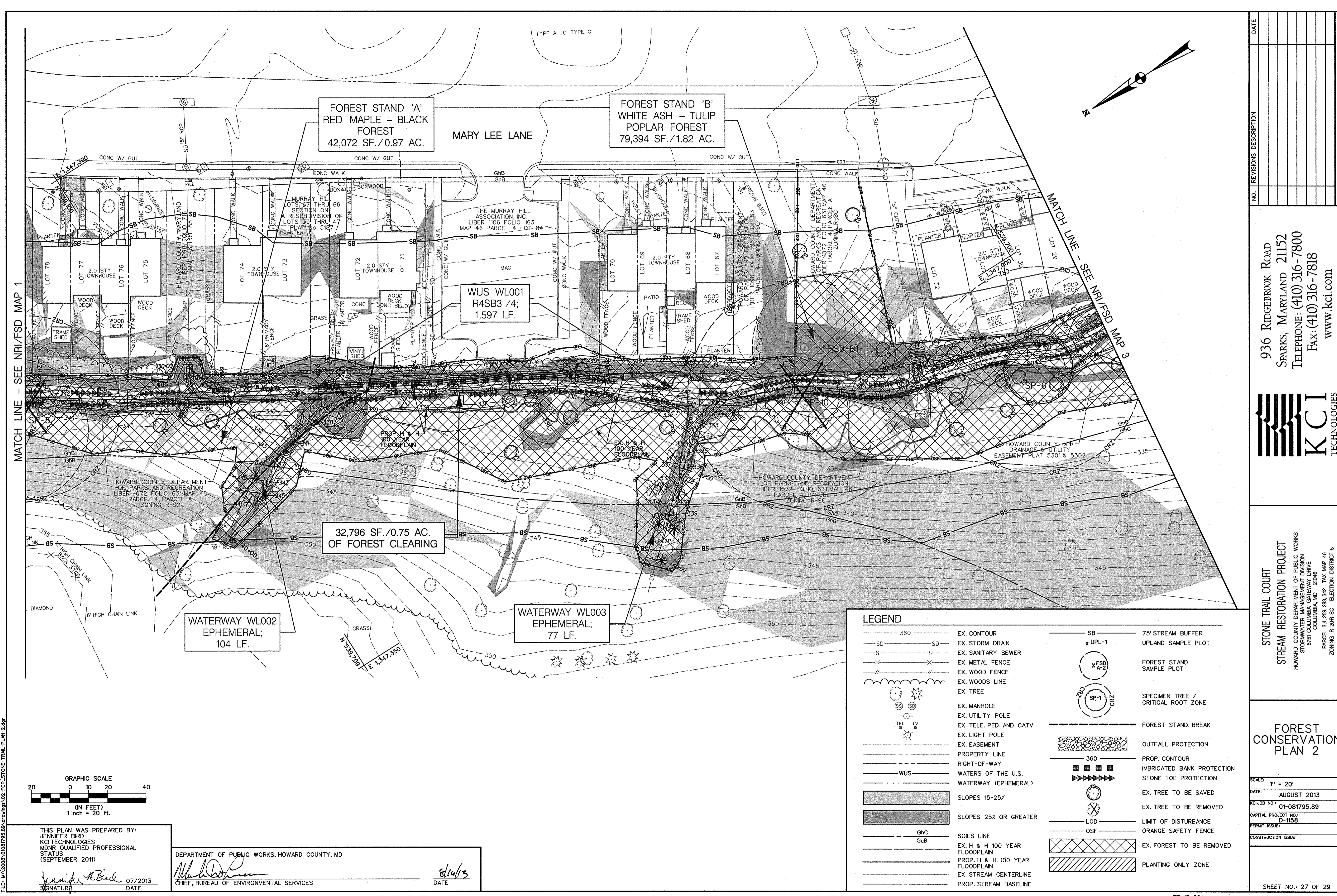
MATCH LINE - SEE NRI/FSD MAP 2  
936 RIDGEBROOK ROAD  
SPARKS, MARYLAND 21152  
TELEPHONE: (410) 316-7800  
FAX: (410) 316-7818  
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STONE TRAIL COURT  
STREAM RESTORATION PROJECT  
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
STORMWATER MANAGEMENT DIVISION  
6751 COLUMBIA GATEWAY DRIVE  
COLUMBIA, MD 21046  
PARCEL 34, 259, 283, 342 TAX MAP 46  
ZONING R-20P-SC ELECTION DISTRICT 5

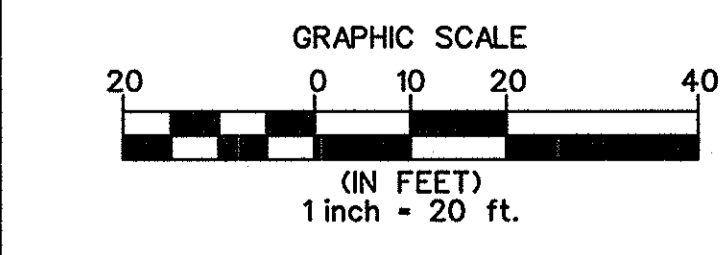
FOREST CONSERVATION PLAN 1  
SCALE: 1" = 20'  
DATE: AUGUST 2013  
KCI JOB NO.: 01-081795.89  
CAPITAL PROJECT NO.: D-1158  
PERMIT ISSUE:  
CONSTRUCTION ISSUE:  
SHEET NO.: 26 OF 29





MATCH LINE - SEE NR/FS MAP 1

MATCH LINE - SEE NR/FS MAP 3



THIS PLAN WAS PREPARED BY:  
 JENNIFER BIRD  
 KCI TECHNOLOGIES  
 MDR QUALIFIED PROFESSIONAL STATUS  
 (SEPTEMBER 2011)

*Jennifer Bird* 07/2013  
 SIGNATURE DATE

DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD

*[Signature]* 8/10/13  
 CHIEF, BUREAU OF ENVIRONMENTAL SERVICES DATE

LEGEND	
---	360 EX. CONTOUR
-SD-	EX. STORM DRAIN
-S-	EX. SANITARY SEWER
-X-	EX. METAL FENCE
-//	EX. WOOD FENCE
-	EX. WOODS LINE
(Tree symbol)	EX. TREE
(Manhole symbol)	EX. MANHOLE
(Pole symbol)	EX. UTILITY POLE
(Cat symbol)	EX. TELE. PED. AND CATV
(Light pole symbol)	EX. LIGHT POLE
(Easement symbol)	EX. EASEMENT
(Property line symbol)	PROPERTY LINE
(Right-of-way symbol)	RIGHT-OF-WAY
(Water symbol)	WATERS OF THE U.S.
(Waterway symbol)	WATERWAY (EPHEMERAL)
(Slopes 15-25% symbol)	SLOPES 15-25%
(Slopes 25% or greater symbol)	SLOPES 25% OR GREATER
(Soils line symbol)	SOILS LINE
(Floodplain symbol)	EX. H & H 100 YEAR FLOODPLAIN
(Floodplain symbol)	PROP. H & H 100 YEAR FLOODPLAIN
(Stream centerline symbol)	EX. STREAM CENTERLINE
(Stream centerline symbol)	PROP. STREAM BASELINE
(SB symbol)	75' STREAM BUFFER
(x UPL-1 symbol)	UPLAND SAMPLE PLOT
(x FSD A-2 symbol)	FOREST STAND SAMPLE PLOT
(SP-1 symbol)	SPECIMEN TREE / CRITICAL ROOT ZONE
(Forest stand break symbol)	FOREST STAND BREAK
(Outfall protection symbol)	OUTFALL PROTECTION
(Prop. contour symbol)	PROP. CONTOUR
(Imbricated bank protection symbol)	IMBRICATED BANK PROTECTION
(Stone toe protection symbol)	STONE TOE PROTECTION
(Tree to be saved symbol)	EX. TREE TO BE SAVED
(Tree to be removed symbol)	EX. TREE TO BE REMOVED
(LOD symbol)	LIMIT OF DISTURBANCE
(OSF symbol)	ORANGE SAFETY FENCE
(Ex. forest to be removed symbol)	EX. FOREST TO BE REMOVED
(Planting only zone symbol)	PLANTING ONLY ZONE

NO.	REVISIONS DESCRIPTION	DATE

KCI FILE: M:\2008\01081795.89\

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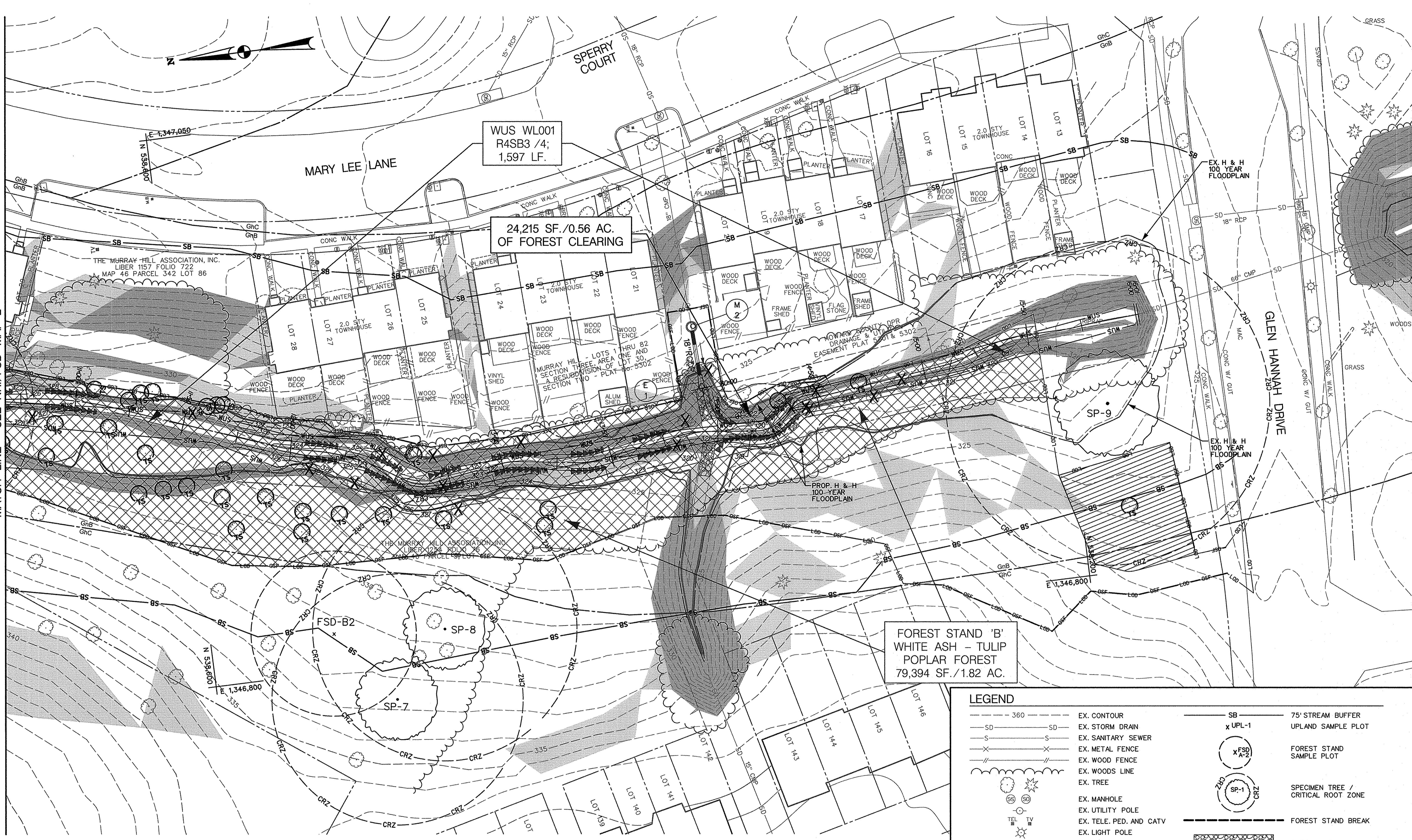
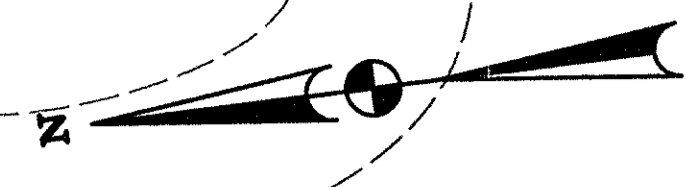
STONE TRAIL COURT  
 STREAM RESTORATION PROJECT  
 HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
 STORMWATER MANAGEMENT DIVISION  
 6751 COLUMBIA GATEWAY DRIVE  
 COLUMBIA, MD 21046  
 PARCEL 3A, 259, 283, 342 TAX MAP 46  
 ZONING R-20P-SC ELECTION DISTRICT 5

**FOREST CONSERVATION PLAN 2**

SCALE: 1" = 20'  
 DATE: AUGUST 2013  
 KCI JOB NO.: 01-081795.89  
 CAPITAL PROJECT NO.: D-1158  
 PERMIT ISSUE:  
 CONSTRUCTION ISSUE:



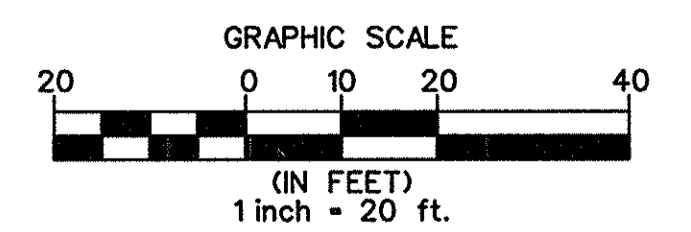
MATCH LINE - SEE NR/FSD MAP 2



WUS WL001  
R4SB3 /4;  
1,597 LF.

24,215 SF./0.56 AC.  
OF FOREST CLEARING

FOREST STAND 'B'  
WHITE ASH - TULIP  
POPLAR FOREST  
79,394 SF./1.82 AC.



THIS PLAN WAS PREPARED BY:  
JENNIFER BIRO  
KCI TECHNOLOGIES  
MDNR QUALIFIED PROFESSIONAL  
STATUS  
(SEPTEMBER 2011)  
*Jennifer A. Biro*  
SIGNATURE 07/2013  
DATE

DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD  
*Mark D. ...*  
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES  
DATE 8/14/13

LEGEND

- 360 --- EX. CONTOUR
- SD --- SD --- EX. STORM DRAIN
- S --- S --- EX. SANITARY SEWER
- X --- X --- EX. METAL FENCE
- // --- // --- EX. WOOD FENCE
- --- --- EX. WOODS LINE
- --- --- EX. TREE
- --- --- EX. MANHOLE
- --- --- EX. UTILITY POLE
- --- --- EX. TELE. PED. AND CATV
- --- --- EX. LIGHT POLE
- --- --- EX. EASEMENT
- --- --- PROPERTY LINE
- --- --- RIGHT-OF-WAY
- --- --- WUS --- WATERS OF THE U.S.
- --- --- WATERWAY (EPHEMERAL)
- --- --- SLOPES 15-25%
- --- --- SLOPES 25% OR GREATER
- --- --- GnC --- SOILS LINE
- --- --- GuB --- EX. H & H 100 YEAR FLOODPLAIN
- --- --- EX. H & H 100 YEAR FLOODPLAIN
- --- --- EX. STREAM CENTERLINE
- --- --- PROP. STREAM BASELINE
- SB --- 75' STREAM BUFFER
- x UPL-1 UPLAND SAMPLE PLOT
- x FSD A-2 FOREST STAND SAMPLE PLOT
- Z80 SP-1 CRZ SPECIMEN TREE / CRITICAL ROOT ZONE
- --- --- FOREST STAND BREAK
- --- --- OUTFALL PROTECTION
- 360 --- PROP. CONTOUR
- --- --- IMBRICATED BANK PROTECTION
- --- --- STONE TOE PROTECTION
- --- --- EX. TREE TO BE SAVED
- --- --- EX. TREE TO BE REMOVED
- LOD --- LIMIT OF DISTURBANCE
- OSF --- ORANGE SAFETY FENCE
- --- --- EX. FOREST TO BE REMOVED
- --- --- PLANTING ONLY ZONE

NO.	REVISIONS DESCRIPTION	DATE

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STONE TRAIL COURT  
STREAM RESTORATION PROJECT  
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
STORMWATER MANAGEMENT DIVISION  
6751 COLUMBIA GATEWAY DRIVE  
COLUMBIA, MD 21046  
PARCEL 3.4, 259, 283, 342 TAX MAP 46  
ZONING R-20R-SC ELECTION DISTRICT 5

FOREST CONSERVATION PLAN 3

SCALE: 1" = 20'  
DATE: AUGUST 2013  
KCI JOB NO.: 01-081795.89  
CAPITAL PROJECT NO.: D-1158  
PERMIT ISSUE:  
CONSTRUCTION ISSUE:  
SHEET NO.: 28 OF 29



**SOILS TABLE**

Soil Symbol	Soil Unit Name	Percent Slope	K _s value	Hydric (Y/N)
GuB	Glenville-Urban land-Udorthents complex	0-8%	0.43	N
GnB	Glenville-Balle silt loams	0-8%	0.43	N
GhB	Glenelg-Urban land complex	0-8%	N/A	N
GhC	Glenelg-Urban land complex	8-15%	0.28	N

**SPECIMEN TREES**

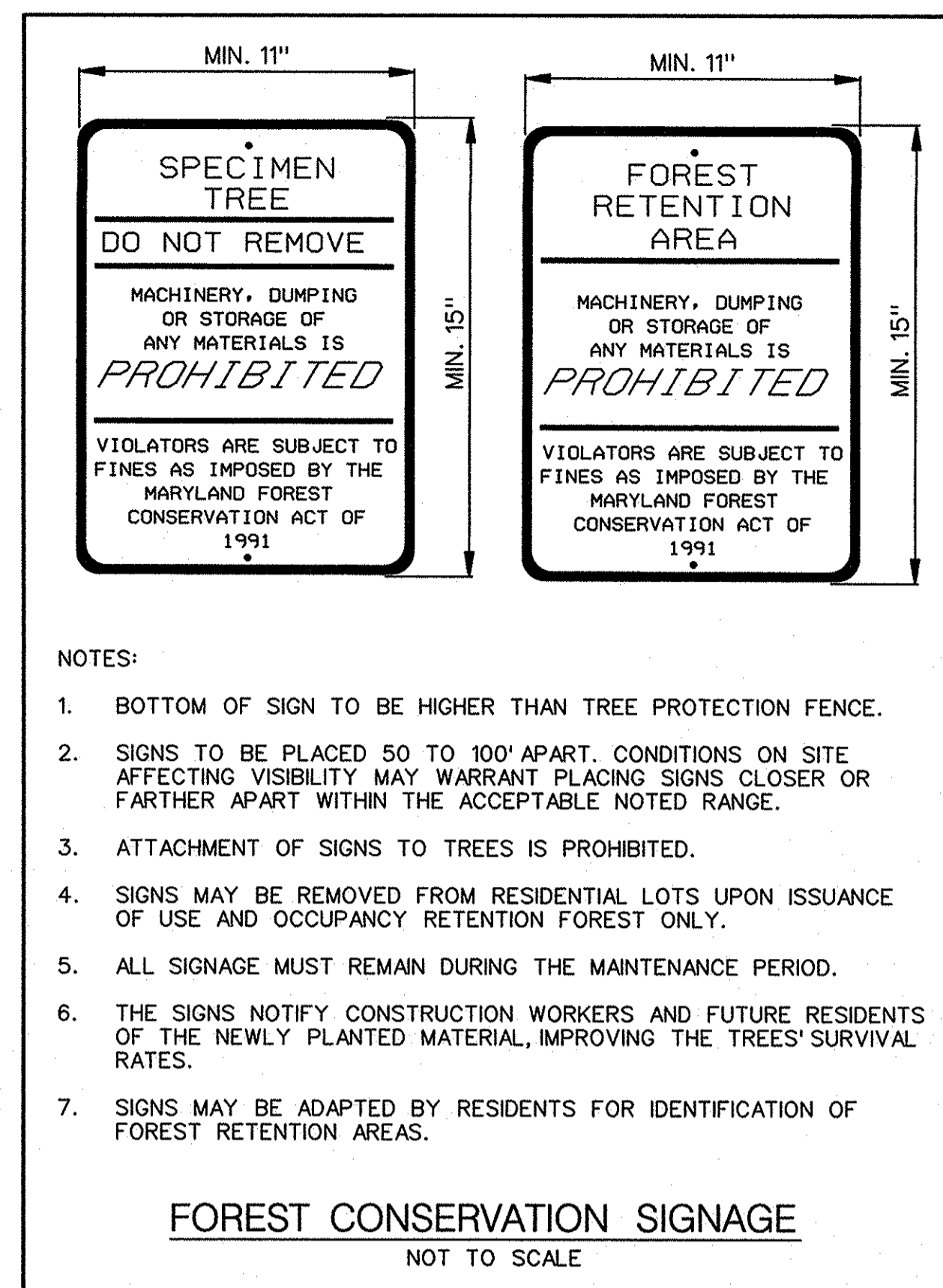
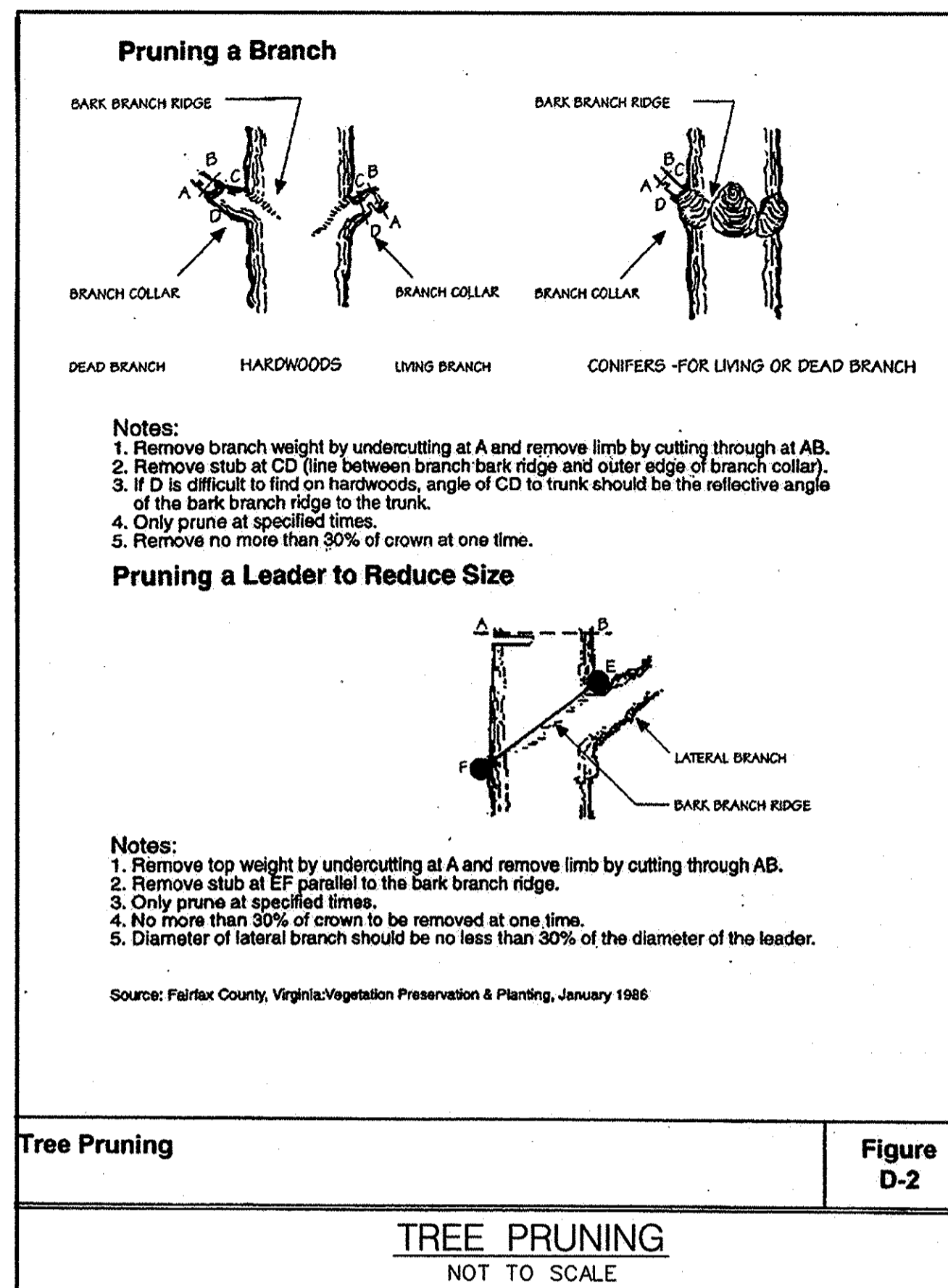
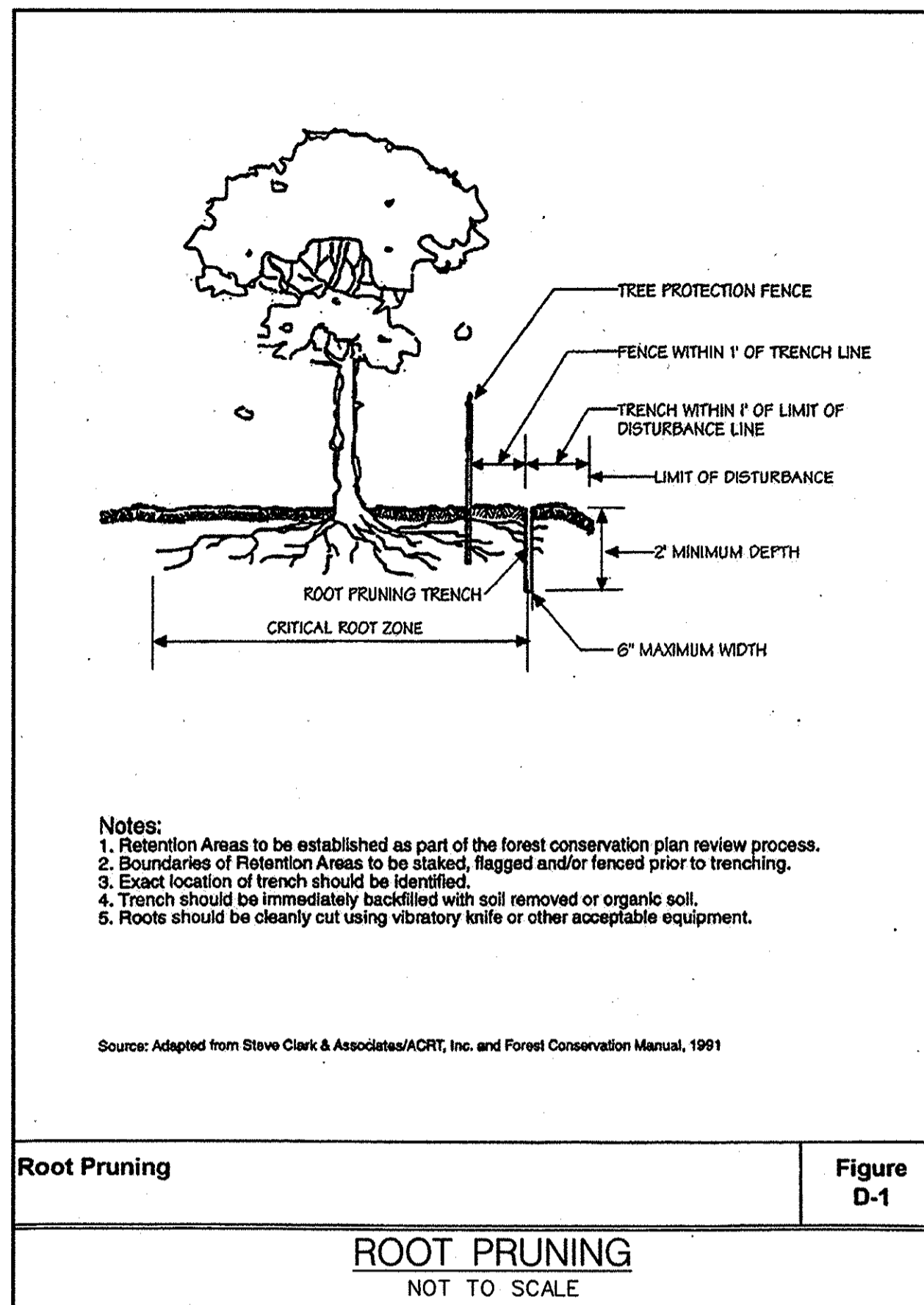
Number	Species	Common Name	Size, DBH (in)	Condition	Notes
1	<i>Prunus serotina</i>	Black Cherry	31"	Good	Multitrunked
2	<i>Plantanus occidentalis</i>	American Sycamore	37"	Good	
3	<i>Plantanus occidentalis</i>	American Sycamore	30"	Good	
4	<i>Acer rubrum</i>	Red Maple	43"	Good	2 Trunks
5	<i>Acer rubrum</i>	Red Maple	32"	Poor	Leaning, Half dead, 2 trunks, To Be Removed
6	<i>Plantanus occidentalis</i>	American Sycamore	36"	Poor	Dead with resprouting
7	<i>Liriodendron tulipifera</i>	Tulip Poplar	38"	Good	
8	<i>Acer rubrum</i>	Red Maple	40"	Good	Multitrunked
9	<i>Salix sepulcralis</i>	Weeping Willow	49"	Good	
10	<i>Plantanus occidentalis</i>	American Sycamore	40"	Fair	Missing branches; heavy vines, To Be Removed

**FOREST CONSERVATION NOTES**

- THE LOD WAS USED AS THE TOTAL TRACT FOR FOREST CONSERVATION CALCULATIONS AS APPROVED UNDER WAIVER PETITION WP-13-192.
- 0.77 ACRE OF CLEARING WILL BE WITHIN THE 100-YEAR FLOODPLAIN. THESE AREAS WILL BE REPLANTED AS SEEN ON THE LANDSCAPE PLANS, SHEETS 22, 23, 24 AND THE LANDSCAPE NOTES AND DETAILS ON SHEET 25.
- ALL EFFORTS TO MINIMIZE THE AREA OF DISTURBANCE WILL BE MADE.
- THE 0.72 ACRE OF FOREST MITIGATION WILL BE SATISFIED THROUGH FEE-IN-LIEU. FEE-IN-LIEU WILL BE PAID AT \$0.75/SF. (31,363 SF. X \$0.75 = \$23,522.40).
- CURRENT ACREAGE OF FOREST WITHIN THE LOD IS 1.49 ACRES. TOTAL ACREAGE OF FOREST AFTER PROJECT COMPLETION IS 1.49 ACRES.

**GENERAL NOTES**

- THE PROJECT AREA IS LOCATED ON ONE PROPERTY OWNED BY HOWARD COUNTY RECREATION AND PARKS (MAP 46, GRID 6, PARCEL 0004).
- EXISTING ZONING: R-SC - RESIDENTIAL - SINGLE CLUSTER
- EXISTING LAND USE: RESIDENTIAL - HIGH DENSITY
- WATERS OF THE U.S. WERE DELINEATED BY KCI TECHNOLOGIES, INC. ON SEPTEMBER 4, 2012. WATERS OF THE U.S. SHOWN REPRESENT THE VERIFIED USACE/MDA WATER RESOURCE BOUNDARIES.
- THERE WERE NO WETLANDS IDENTIFIED WITHIN THE PROJECT AREA. TOTAL AREA OF NONTIDAL WETLANDS WITHIN THE PROJECT AREA: 0.00 AC.
- TOTAL LINEAR FEET OF INTERMITTENT STREAMS: 1,597 LF
- TOTAL FORESTED AREA WITHIN LIMITS OF DISTURBANCE BUT OUTSIDE THE 100 YEAR FLOODPLAIN IS: 0.96 ACRE
- THERE ARE NO CRITICAL HABITAT AREAS WITHIN THE PROJECT AREA. NO RARE, THREATENED OR ENDANGERED SPECIES WERE ENCOUNTERED DURING THE FIELD INVESTIGATIONS. IN ADDITION, CORRESPONDENCE WITH THE MARYLAND HISTORIC TRUST, THE U.S. FISH AND WILDLIFE SERVICE, AND THE MARYLAND DEPARTMENT OF NATURAL RESOURCES INDICATE THERE ARE NO RECORDS OF HISTORIC RESOURCES OR SENSITIVE NATURAL RESOURCES WITHIN THE AFFECTED AREA.
- TWO (2) SPECIMEN TREES WILL BE REMOVED.
- TREE SAVE IS SHOWN ON TREES WITHIN THE LOD BECAUSE AN ATTEMPT WILL BE MADE TO SAVE THESE TREES. TREES WILL ONLY BE REMOVED IF NECESSARY FOR GRADING OR ACCESS.
- THE COORDINATES SHOWN HEREON ARE BASED ON HOWARD COUNTY GEODETIC CONTROL, WHICH IS BASED UPON THE MARYLAND STATE PLANE COORDINATE SYSTEM. HOWARD COUNTY MONUMENT NUMBERS 46FB AND 47AA WERE USED FOR THIS SITE. THE EXISTING TOPOGRAPHY IS TAKEN FROM FIELD RUN SURVEY WITH ONE FOOT CONTOUR INTERVALS PREPARED BY KCI TECHNOLOGIES, INC., IN NOVEMBER 2012.
- ALL WETLAND AND WUS SYSTEMS DENOTED WITH AN ASTERISK (*) CONTINUE BEYOND THE LIMITS OF THE STUDY AREA.

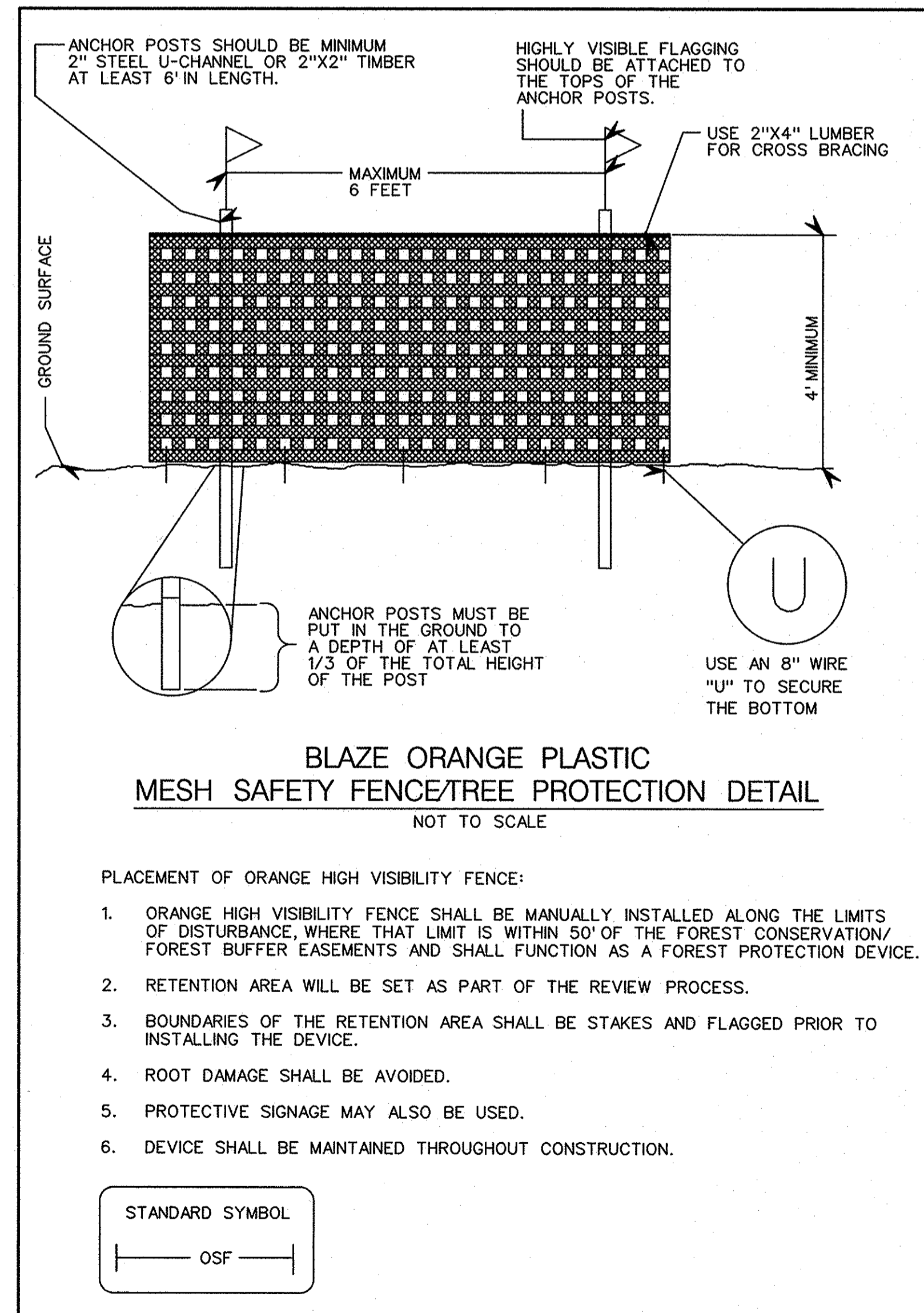


**Forest Conservation Worksheet**

Net Tract Area		
A.	Total Tract Area	A= 2.13 ac.
B.	Area within 100-year Floodplain	B= 0.77 ac.
C.	Area to Remain in Agricultural Production	C=
D.	Net Tract Area (D=(A-B-C))	D= 1.36 ac.
Land Use Category :		
E.	Afforestation Threshold (D x 15%)	E= 0.20 ac.
F.	Conservation Threshold (D x 20%)	F= 0.27 ac.
Existing Forest Cover		
G.	Existing Forest Cover (excluding floodplain)	G= 0.96 ac.
H.	Area of Forest Above Afforestation Threshold	H= 0.76 ac.
(1) If G<E then H=0 and I=0, go to L		
(2) If G>E then H=G-E, go to I		
I.	Area of Forest Above Conservation Threshold	I= 0.69 ac.
(1) If G<F then I=0, go to L		
(2) If G>F then I=G-F, go to J		
Break Even Point		
J.	Forest Retention Above Threshold with no Mitigation	J= 0.41 ac.
(1) If I>0 then J=(0.2 x I) + F, go to K		
(2) If I=0, J=0, go to L		
K.	Clearing Permitted Without Mitigation (K=G-J)	K= 0.55 ac.
Proposed Forest Clearing		
L.	Total Area of Forest to be Cleared (excluding floodplain)	L= 0.96 ac.
M.	Total Area of Forest to be Retained (M=G-L)	M= 0.00 ac.
Planting Requirements		
N.	Reforestation for Clearing Above the Conservation Threshold	N= 0.17 ac.
(1) If L=K then N=0, P=0, Q=0, R=0, S=0, go to T		
(2) If M>F then N=L x 0.25, P=0, go to Q		
(3) If M<=F then N=L x 0.25, go to P		
P.	Reforestation for Clearing Below the Conservation Threshold	P= 0.54 ac.
(1) If G>F and M>F then P=0, Q=0, go to R		
(2) If G>F and M<=F then P=2.0 x (F-M), Q=0, go to R		
(3) If G<=F then P=2.0 x L, Q=0, go to R		
Q.	Credit for Retention Above the Conservation Threshold	Q= 0.00 ac.
(1) If M>F then Q=M-F, go to R		
(2) If M<=F then Q=0, go to R		
R.	Total Reforestation Required	R= 0.72 ac.
(1) If Q>N and M>E then R=0, S=0, go to T		
(2) If Q<=N and M>E then R=(N-P)-Q, S=0, go to T		
(3) If Q<=N and M<=E then R=N+P, go to S		
S.	Total Afforestation Required	S= 0.00 ac.
(1) If G<E and M<E then S=E-G, go to T		
(2) If G<E and M>E then S=0, go to T		
T.	Total Reforestation and Afforestation Requirement T=(R+S)	T= 0.72 ac.

Note: Use 0 for all negative numbers that result from the calculations.

NOTE:  
TOTAL FOREST CLEARING WITHIN THE LOD = 1.77 AC.  
CLEARING OUTSIDE THE FLOODPLAIN BUT WITHIN THE LOD = 0.96 AC



THIS PLAN WAS PREPARED BY:  
JENNIFER BIRD  
KCI TECHNOLOGIES  
MDNR QUALIFIED PROFESSIONAL  
STATUS  
(SEPTEMBER 2011)

Signature: *Jennifer Bird*  
DATE: 07/2013

DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD

Signature: *M. J. ...*  
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES  
DATE: 8/16/13

NO.	REVISIONS DESCRIPTION	DATE

936 RIDGEBROOK ROAD  
SPARKS, MARYLAND 21152  
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STONE TRAIL COURT  
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PARCEL 3.4, 259, 283, 342 TAX MAP 46  
ZONING R-20R-SC ELECTION DISTRICT 5

**FOREST CONSERVATION NOTES AND DETAILS**

SCALE: AS SHOWN  
DATE: AUGUST 2013  
KCI JOB NO.: 01-081795.89  
CAPITAL PROJECT NO.: D-1158  
PERMIT ISSUE:  
CONSTRUCTION ISSUE: