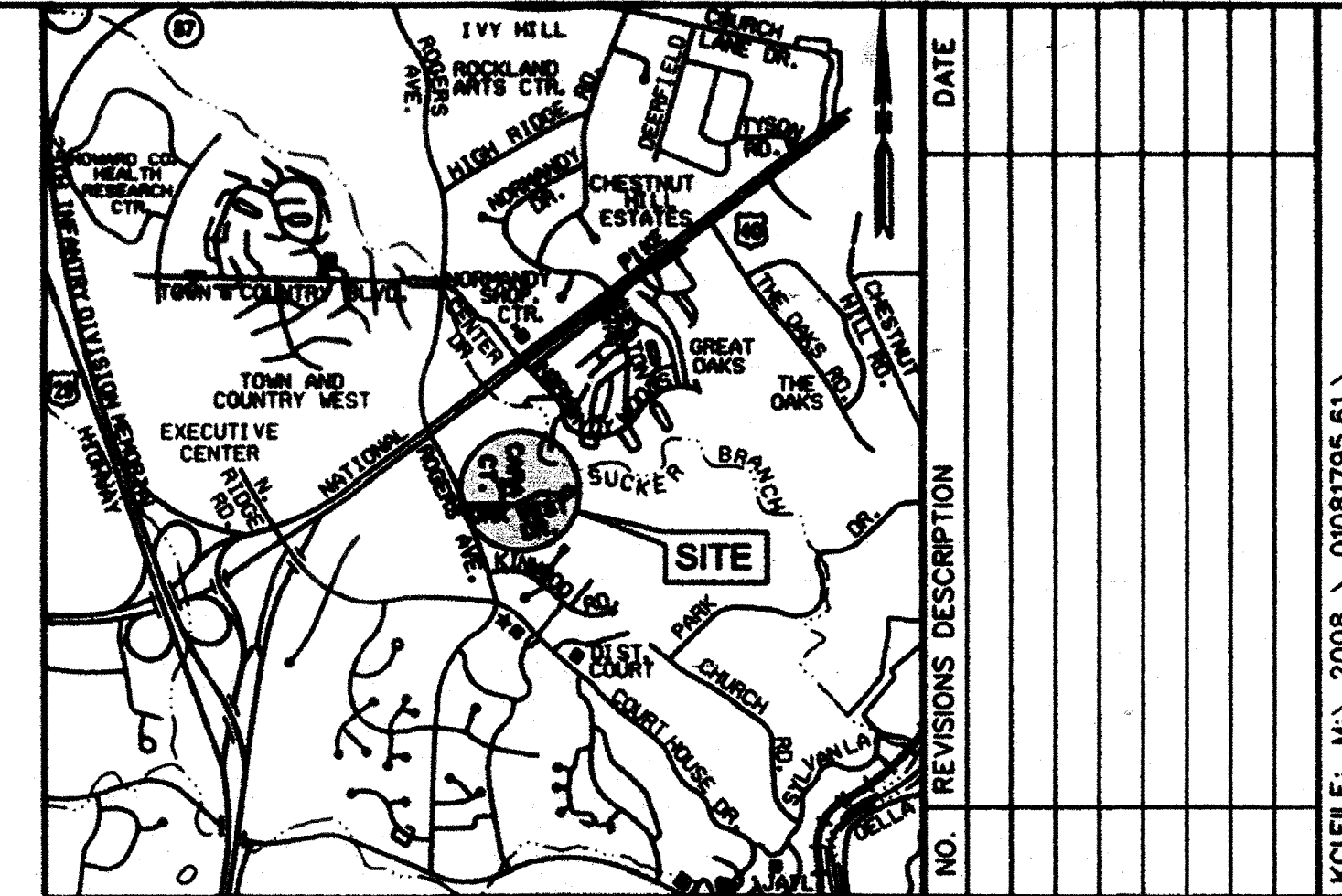


OAK WEST DRIVE STORMWATER POND RETROFIT & STREAM RESTORATION PROJECT HOWARD COUNTY, MARYLAND DEPARTMENT OF PUBLIC WORKS CAPITAL PROJECT D-1160

INDEX OF SHEETS

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13	FOREST CONSERVATION PLAN
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15	FOREST CONSERVATION PLAN NOTES AND DETAILS



LEGEND

LIMITS OF DISTURBANCE	LOD
EXISTING CONTOUR	350
PROPOSED CONTOUR	350
100-YEAR FLOODPLAIN	
PROPERTY LINE	101.43' N89°40'02"W
EASEMENT LINE	
WETLAND LINE	
WATERS OF U.S.	WUS
SEWER LINE	S
SEWER MANHOLE	
STORM DRAIN	SD
EX. TREE	
CONSTRUCTION BASELINE	
STONE TOE PROTECTION	
STABILIZED CONSTRUCTION ENTRANCE	
SUPER SILT FENCE	SSF
ORANGE SAFETY FENCE	OSF
SANDBAG DIVERSION	
PUMP	PUMP
FILTER BAG	FB
DISCHARGE HOSE	
EXISTING ROAD/ PARKING LOT	
EXISTING HOODS	

GENERAL NOTES

- THE SUBJECT PROPERTIES ARE ZONED R-SC PER FEBRUARY 2, 2004 COMPREHENSIVE ZONING PLAN AND THE COMP-LITE ZONING AMENDMENTS DATED 7/28/2006.
- THE HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING AND HOWARD SOIL CONSERVATION DISTRICT HAS 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.
- THIS PROJECT WILL MEET THE PURPOSE AND INTENT OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL BY ALTERNATIVE COMPLIANCE.
- THERE ARE NO KNOWN BURIAL GROUNDS OR CEMETERY SITES WITHIN THE PROJECT LIMITS.
- THIS PLAN MEETS THE REQUIREMENTS OF THE FOREST CONSERVATION REGULATIONS.
- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS, IF APPLICABLE.
- THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS, BUREAU OF ENGINEERING/CONSTRUCTION INSPECTION DIVISION AT (410) 313-1880 24 HOURS IN ADVANCE OF ANY WORK BEING DONE.
- THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.
- 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 25A2 WAS USED FOR THIS SITE.
- WATER IS PUBLIC.
- SEWER IS PUBLIC.
- EXISTING UTILITIES ARE BASED ON FIELD SURVEYS AND AVAILABLE RECORD DRAWINGS.
- THE EXISTING TOPOGRAPHY IS TAKEN FROM FIELD RUN SURVEY WITH ONE FOOT CONTOUR INTERVALS PREPARED BY AB CONSULTANTS, INC., IN FALL 2011.
- ALL WORK SHALL BE CONSTRUCTED ACCORDING TO THE REQUIREMENTS OF THE NONTIDAL WETLANDS AND WATERWAYS PERMIT (MDE TRACKING #201261163).
- A TRAFFIC STUDY IS NOT REQUIRED FOR THIS PROJECT.
- 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.
- 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.
- A WAIVER PETITION (WP-13-044) FROM SECTION 16.155(a)(1), 16.120(n), AND 16.1205(a)(7) & (10) WAS APPROVED ON OCTOBER 24, 2012 THAT: ALLOWS THE USE OF THE AREA INSIDE THE LIMIT OF DISTURBANCE AS THE NET TRACT AREA IN THE FOREST CONSERVATION CALCULATIONS; NO SDP SUBMITTAL IS REQUIRED; AND STATE CHAMPION TREES, TREES 75% OF THE DIAMETER OF STATE CHAMPION TREES, AND TREES 30" IN DIAMETER OR LARGER ARE NOT REQUIRED TO BE RETAINED; SUBJECT TO THE FOLLOWING CONDITIONS:
 - THE WAIVER PETITION PLAN EXHIBIT SHALL SERVE AS THE SUBSTITUTE FOR A SITE DEVELOPMENT PLAN FOR DEVELOPMENT. NO DISTURBANCE IS PERMITTED BEYOND THE LIMIT OF DISTURBANCE AS SHOWN ON THE WAIVER EXHIBIT.
 - PRIOR TO THE COMMENCEMENT OF CAPITAL PROJECT D-1160 THE DEPARTMENT OF PUBLIC WORKS SHALL FORWARD THE EXECUTED RIGHT-OF-ENTRY DOCUMENT FOR SITE ACCESS TO THE OAK WEST ASSOCIATION, INC. LOT 77 TO THE DEPARTMENT OF PLANNING AND ZONING DIVISION OF LAND DEVELOPMENT.
 - PRIOR TO THE COMMENCEMENT OF CAPITAL PROJECT D-1160 THE DEPARTMENT OF PUBLIC WORKS SHALL PAY A FEE-IN-LIEU IN THE AMOUNT OF \$6,534.00 FOR THE REFORESTATION OBLIGATION OF 0.20 ACRES AND MUST SUBMIT TO DPZ, DIVISION OF LAND DEVELOPMENT A COMPLETED FOREST CONSERVATION DATA SUMMARY FOR THIS PROJECT.
 - ONCE CAPITAL PROJECT D-1160 IS COMPLETE THE LIMIT OF DISTURBANCE SHALL BE RESTORED TO ITS PREVIOUS CONDITION THROUGH STABILIZATION AND REPLANTING OF FOREST RESOURCES.

ADC MAP NO. 12 GRID E7

THE HORIZONTAL AND VERTICAL DATUM SHOWN HEREON ARE BASED ON GPS OBSERVATIONS FROM THE FOLLOWING N.G.S. TRAVERSE POINTS
HORIZONTAL NAD 1983/91
VERTICAL NAVD 1988

HOWARD COUNTY CONTROL POINTS

	NORTH	EAST	ELEVATION
25A2 (1)	587502.7292	1366556.3776	348.15
25A2-VRS (2)	587502.6397	1366556.4192	348.13

NOTES:

- HOWARD COUNTY REFERENCE MONUMENT 25A2.
- SURVEY CONTROL WAS ESTABLISHED WITH ONE REFERENCE MONUMENT, 25A2, THAT WAS NEARBY THE PROJECT SITE. POSITION WAS ESTABLISHED USING GPS RTK VRS AND CHECKED AGAINST THE REFERENCE MONUMENT. VERTICAL CONTROL WAS ESTABLISHED BY PERFORMING A CLOSED DIFFERENTIAL LEVEL LOOP FROM MONUMENT 25A2. GPS RTK ELEVATIONS WERE NOT USED.

SPECIAL CONTRACTOR NOTES

- 100-YEAR FLOODPLAIN BOUNDARY IS SHOWN ON THE PLANS.
- NO PERMANENT STOCKPILE OF ANY MATERIAL IS ALLOWED IN THE 100-YEAR FLOODPLAIN.
- IN-STREAM WORK IS PROHIBITED FROM MARCH 1ST TO MAY 31ST, INCLUSIVE. STREAM CLASSIFICATION: USE I.
- CONTRACTOR SHALL CONTINUALLY MONITOR WEATHER FORECASTS DURING WORK ACTIVITIES AND SCHEDULE WORK DURING FAVORABLE CONDITIONS.
- 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 DRILLPIE 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 THE ENGINEER OR HIS/HER REPRESENTATIVE PRIOR TO CONSTRUCTION.
- CONTRACTOR SHALL NOT STORE EQUIPMENT, MATERIALS AND/OR SUPPLIES BEYOND THE ORANGE FENCING SHOWN ON THE PLANS.
- 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.
- PRIOR TO BEGINNING ANY CONSTRUCTION ACTIVITIES, PHOTOGRAPHS OF THE PROPOSED WORK AREA AND ACCESS SHALL BE TAKEN.
- 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 OR BY THE ENGINEER.
- ALL MATERIAL SHALL BE REMOVED AND DISPOSED OF OFF-SITE. REMOVED TREES AND BRUSH MAY BE REDISTRIBUTED ON SITE AT THE DISCRETION OF THE ENGINEER OR HIS/HER REPRESENTATIVE.

ENGINEER'S CERTIFICATE

I HEREBY 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 SOIL CONSERVATION DISTRICT.

Matthew Snyder P.E. • 25753 DATE 11/20/12

SIGNATURE OF ENGINEER (PRINT NAME BELOW SIGNATURE)
MATTHEW SNYDER, 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 SOIL CONSERVATION DISTRICT.

Howard Saltzman DATE 11/30/12

SIGNATURE OF DEVELOPER (PRINT NAME BELOW SIGNATURE)
Howard Saltzman

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

Approved *John R. Clayton* 12/18/12
Howard S.C.D. DATE

DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD

John R. Clayton 12/18/12 DATE
DIRECTOR OF PUBLIC WORKS

Matthew Snyder 11/20/12 DATE
CHIEF BUREAU OF ENVIRONMENTAL SERVICES

Howard E. Saltzman 11/30/12 DATE
CHIEF, STORMWATER MANAGEMENT DIVISION

DEPARTMENT OF RECREATION AND PARKS, HOWARD COUNTY, MD

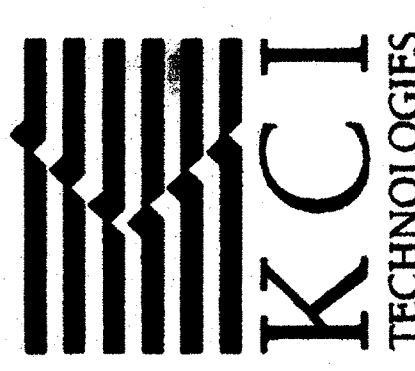
John R. Clayton 12/3/12 DATE
DIRECTOR OF RECREATION AND PARKS

AS-BUILT CERTIFICATION

I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND MEETS THE APPROVED PLANS AND SPECIFICATIONS.

Matthew Snyder 25753 3/19/2013
SIGNATURE PE NO. DATE

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



OAK WEST DRIVE
STORMWATER POND RETROFIT &
STREAM RESTORATION PROJECT
CAPITAL PROJECT D-1160
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
STORMWATER MANAGEMENT DIVISION
650 COLUMBIA GATEWAY DRIVE
COLUMBIA, MD 21046

TITLE SHEET

SCALE:	AS SHOWN
DATE:	NOVEMBER 2012
KCI JOB NO.:	01-081795.61
CAPITAL PROJECT NO.:	D-1160
PERMIT ISSUE:	
CONSTRUCTION ISSUE:	
SHEET NO.:	1 OF 15

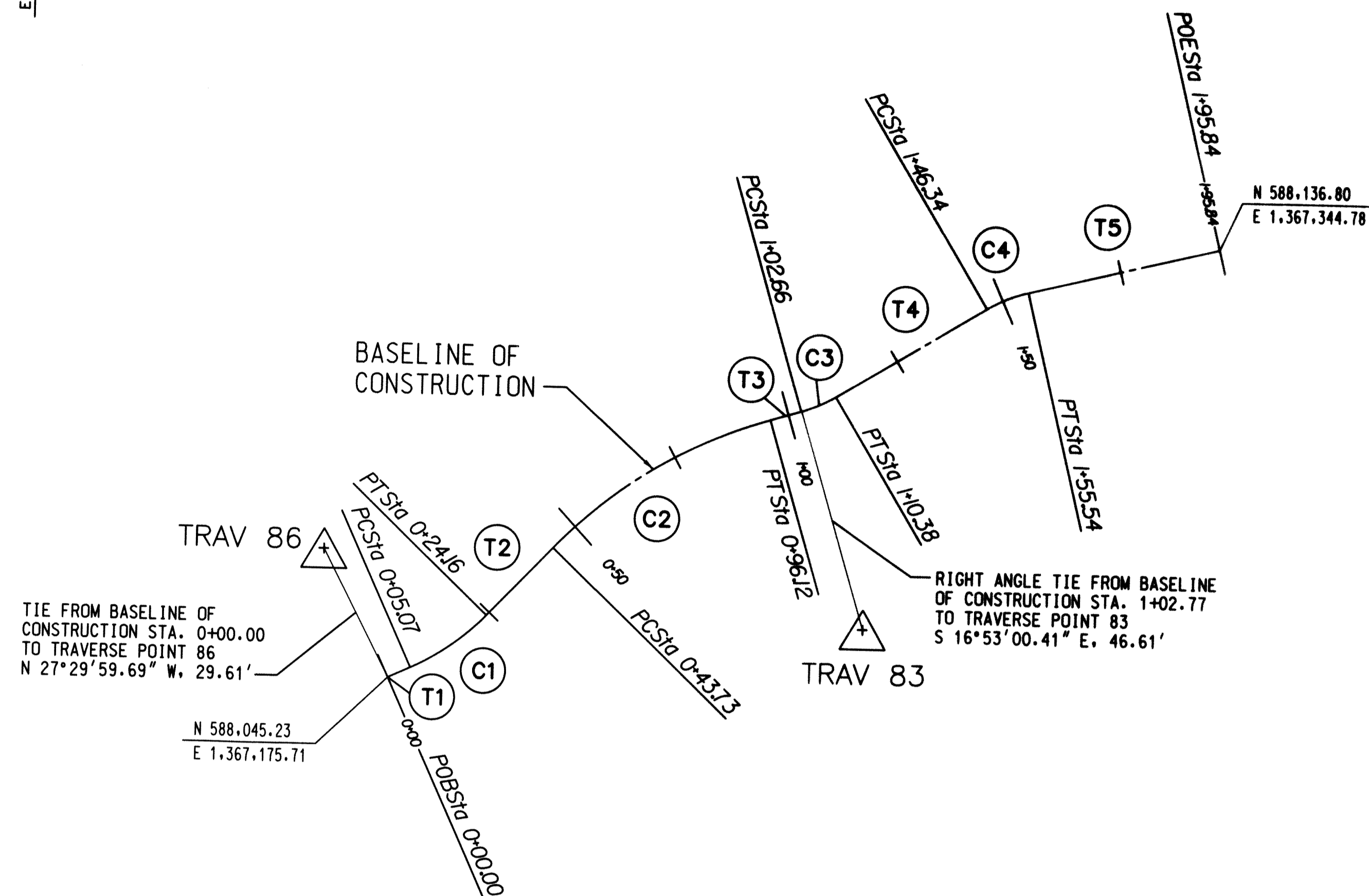
STATE OF MARYLAND
DEPARTMENT OF PUBLIC WORKS
STORMWATER MANAGEMENT DIVISION
11/20/12

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. 25753, EXPIRATION DATE: 01-16-13



E 1,367,100
N 588,200

E 1,367,500
N 588,200

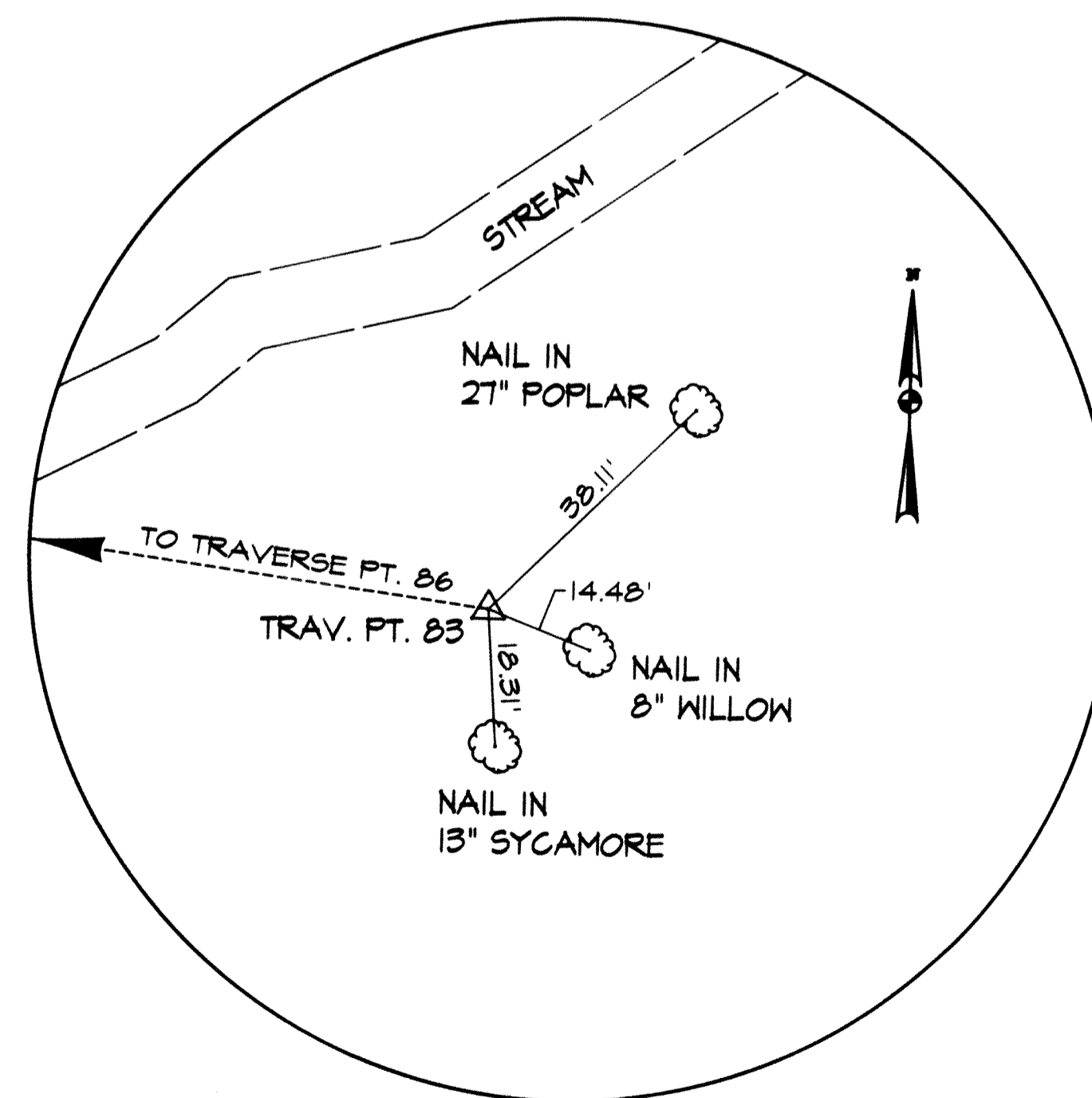


CURVE DATA					
CURVE NO.	RADIUS	LENGTH	DELTA	TANGENT	CHORD BEARING
C1	50.00'	19.09'	21°52'17.86"	9.66'	N 54°15'02.11" E 18.97'
C2	100.00'	52.40'	30°01'18.30"	26.82'	N 58°19'32.33" E 51.80'
C3	30.00'	7.73'	14°45'25.44"	3.88'	N 65°57'28.75" E 7.71'
C4	30.00'	9.20'	17°34'31.50"	4.64'	N 67°22'01.78" E 9.17'

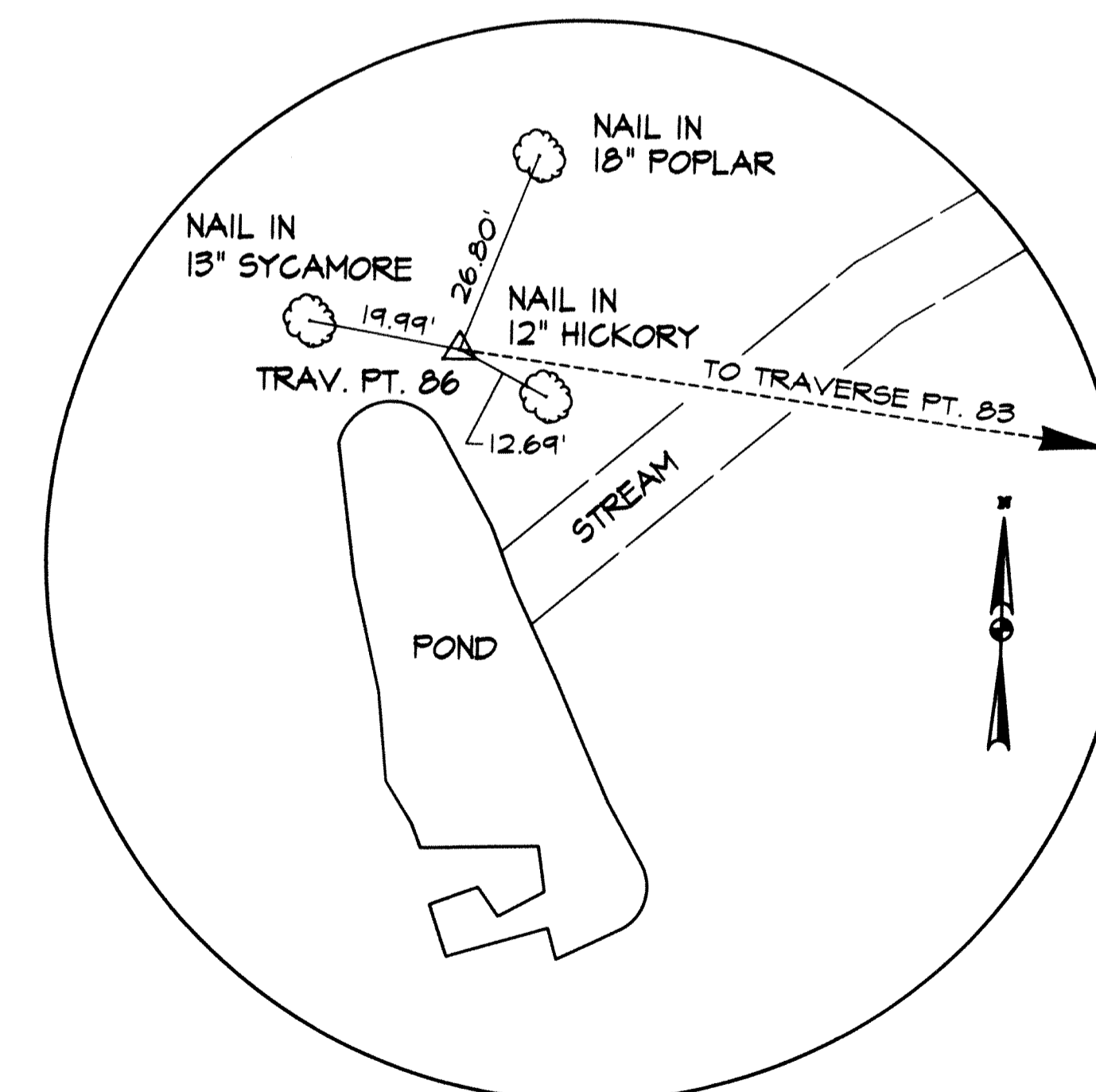
TANGENT DATA		
TANGENT NO.	BEARING	DISTANCE
T1	N 65°11'11.03" E	5.07'
T2	N 43°18'53.18" E	19.57'
T3	N 73°20'11.48" E	6.53'
T4	N 58°34'46.03" E	35.95'
T5	N 76°09'17.53" E	40.30'

TRAVERSE COORDINATE LIST			
PT #	NORTHING	EASTING	ELEVATION
83	N 588,057.18	E 1,367,273.12	300.62
86	N 588,071.49	E 1,367,162.03	304.83

E 1,367,100
N 587,900



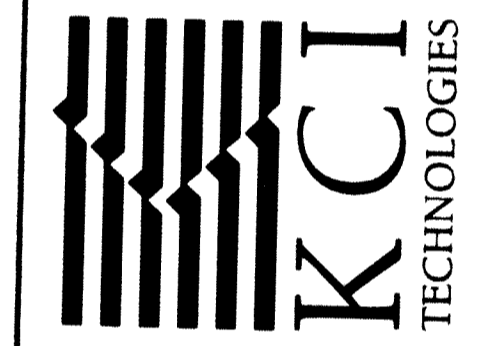
TRAVERSE POINT 83
PIN AND CAP
NOT TO SCALE



TRAVERSE POINT 86
PIN AND CAP
NOT TO SCALE

NO.	REVISIONS DESCRIPTION	DATE

936 RIDGEBROOK ROAD
SPARKS, MARYLAND 21152
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8751 COLUMBIA GATEWAY DRIVE
COLUMBIA, MD 21046

GEOMETRY SHEET

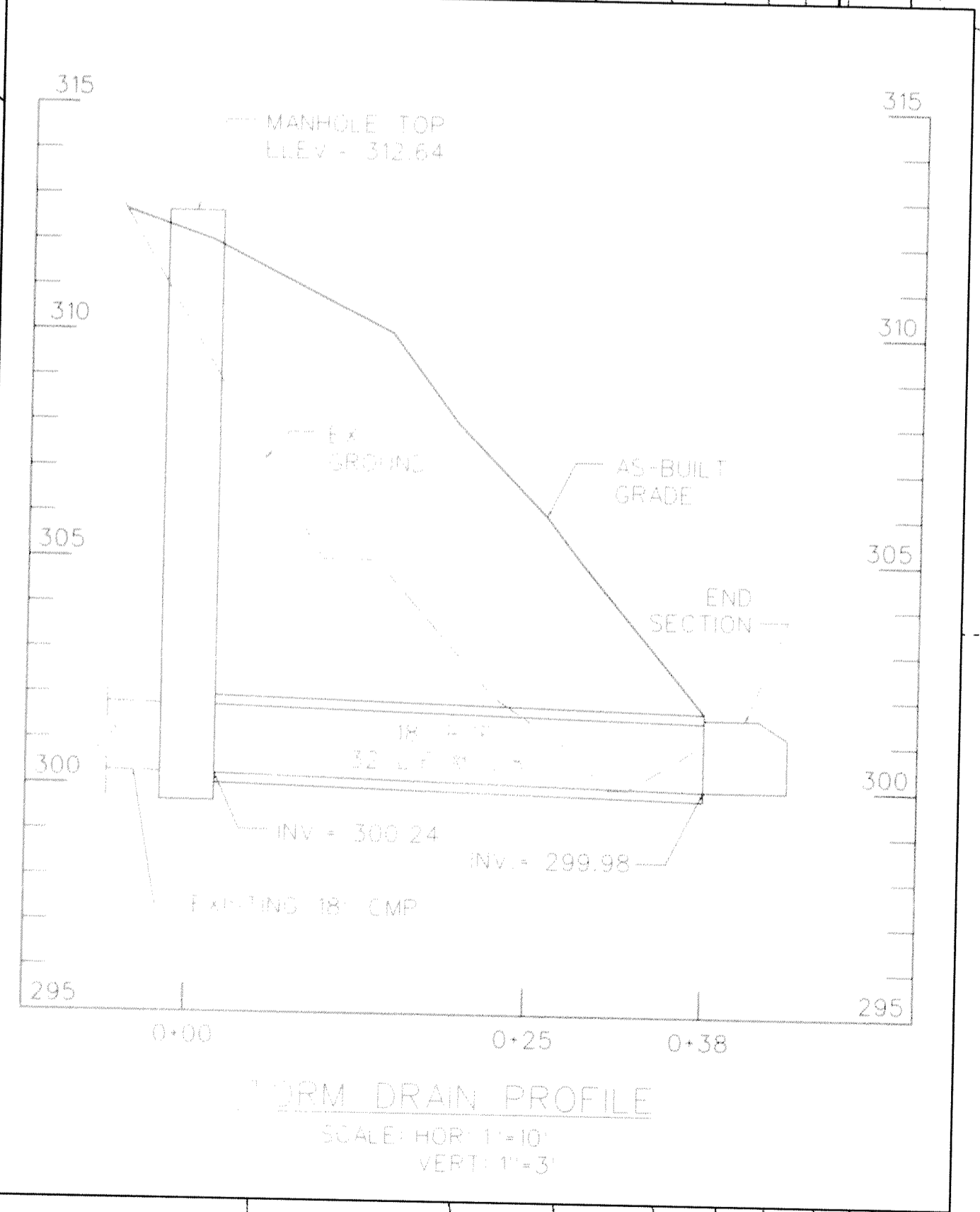
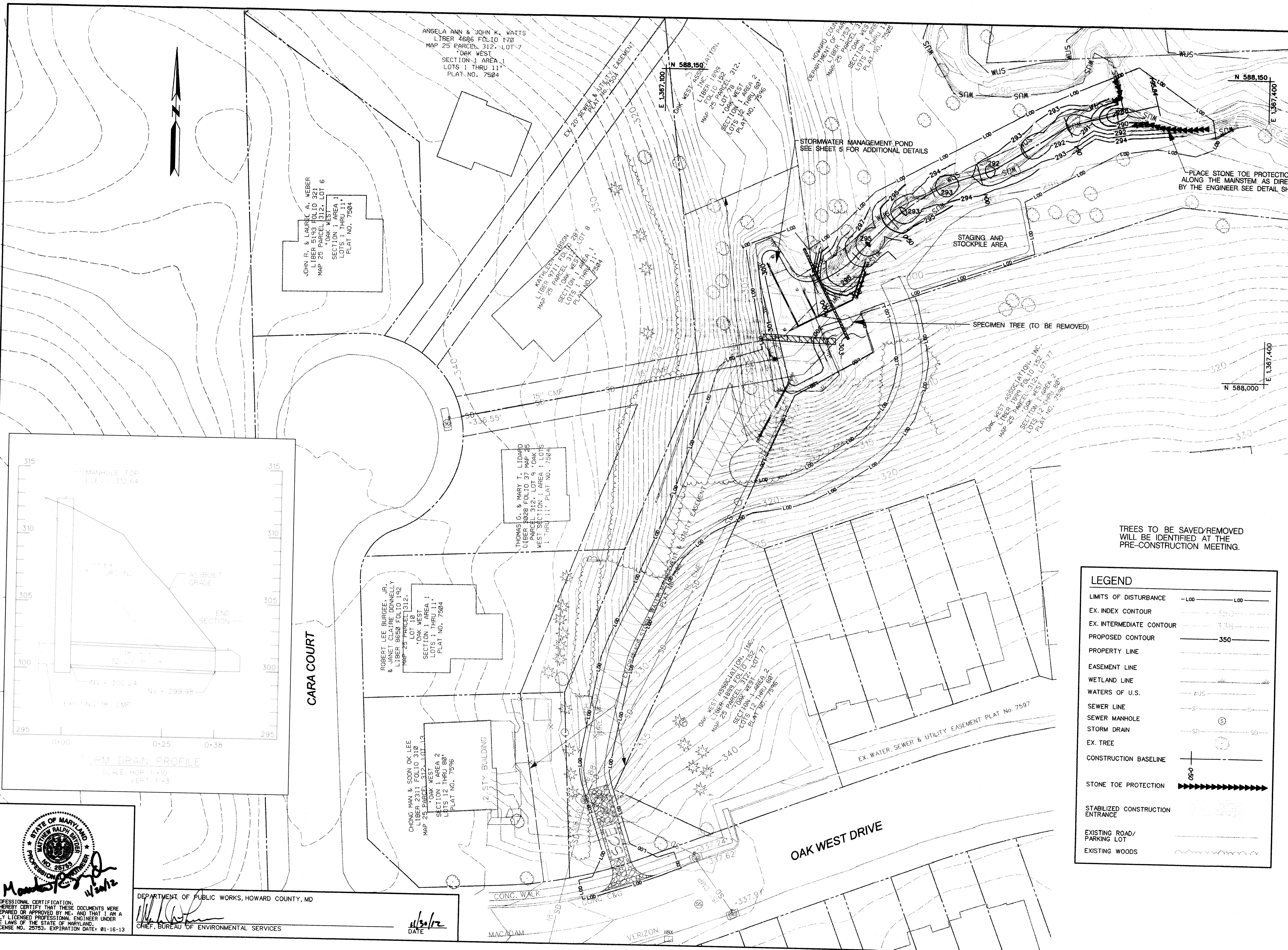
SCALE:	1" = 20'
DATE:	NOVEMBER 2012
KCI JOB NO.:	01-081795.61
CAPITAL PROJECT NO.:	D-1160
PERMIT ISSUE:	
CONSTRUCTION ISSUE:	

STATE OF MARYLAND
WALTER RALPH SLIDER
NO. 25753
PROFESSIONAL ENGINEER

Matthew R. Slider
11/30/12

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. 25753, EXPIRATION DATE: 01-16-13

DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES
Matthew R. Slider
DATE: 11/30/12



STATE OF MARYLAND
UNITED RALPH BRIDGES
PROFESSIONAL ENGINEER
NO. 2576
11/20/12

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. 2576, EXPIRATION DATE: 01-16-13

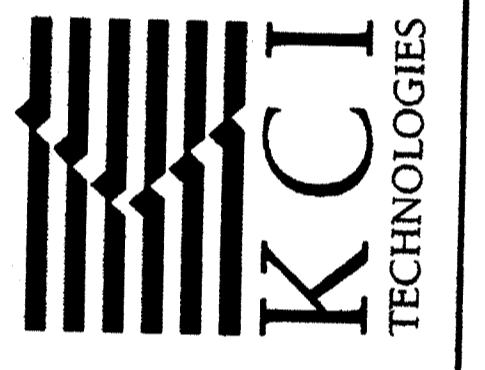
DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES
DATE: 11/20/12

LEGEND	
LIMITS OF DISTURBANCE	--- LOD --- LOD ---
EX. INDEX CONTOUR	----- 350 -----
EX. INTERMEDIATE CONTOUR	----- 335 -----
PROPOSED CONTOUR	----- 350 -----
PROPERTY LINE	-----
EASEMENT LINE	-----
WETLAND LINE	-----
WATERS OF U.S.	-----
SEWER LINE	-----
SEWER MANHOLE	----- (S) -----
STORM DRAIN	----- (SD) -----
EX. TREE	----- (T) -----
CONSTRUCTION BASELINE	-----
STONE TOE PROTECTION	----- (STP) -----
STABILIZED CONSTRUCTION ENTRANCE	----- (SCE) -----
EXISTING ROAD/ PARKING LOT	-----
EXISTING WOODS	-----

TREES TO BE SAVED/REMOVED
WILL BE IDENTIFIED AT THE
PRE-CONSTRUCTION MEETING.

NO.	REVISIONS DESCRIPTION	DATE

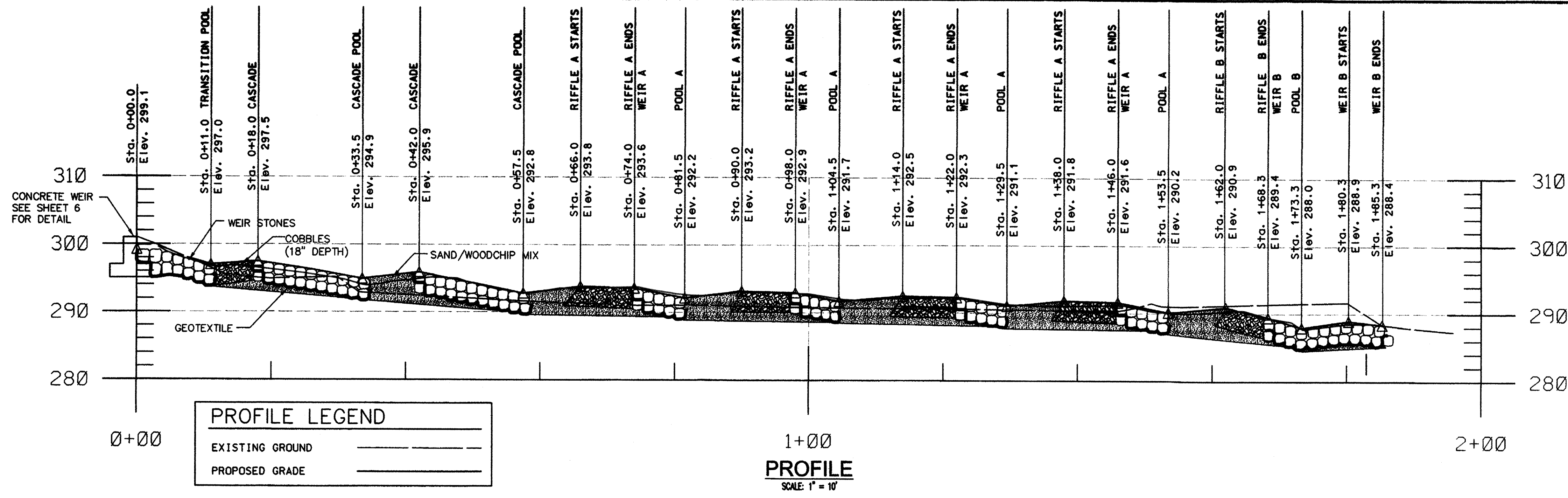
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**OAK WEST DRIVE
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HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
STORMWATER MANAGEMENT DIVISION
675 COLUMBIA GATEWAY DRIVE
COLUMBIA, MD 21046

**GRADING
PLAN**

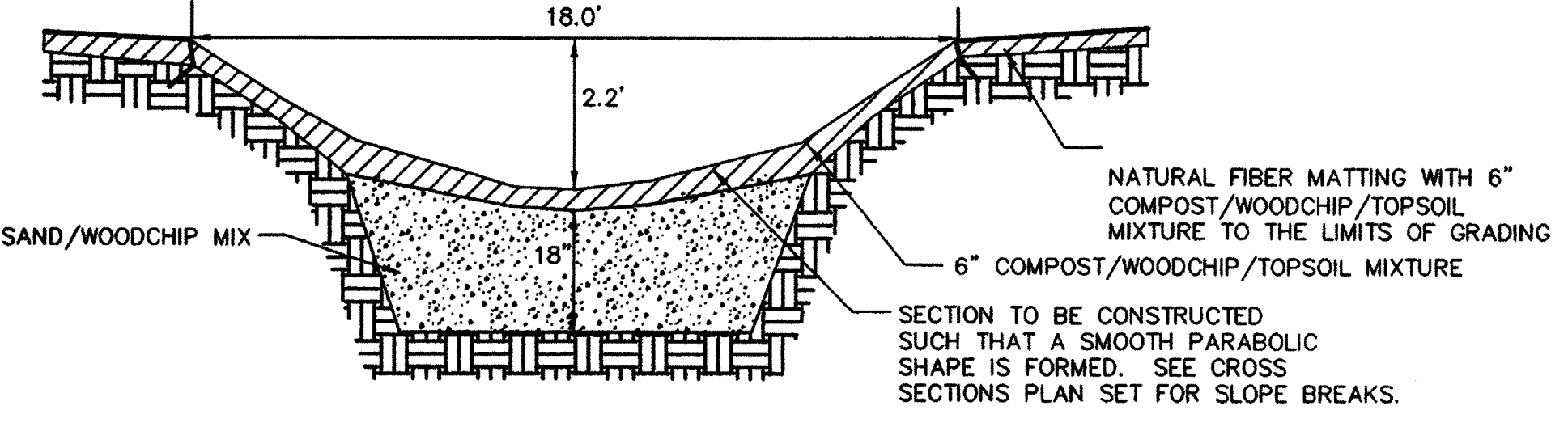
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DATE:	NOVEMBER 2012
KCIJOB NO.:	01-081795.61
CAPITAL PROJECT NO.:	D-1160
PERMIT ISSUE:	
CONSTRUCTION ISSUE:	



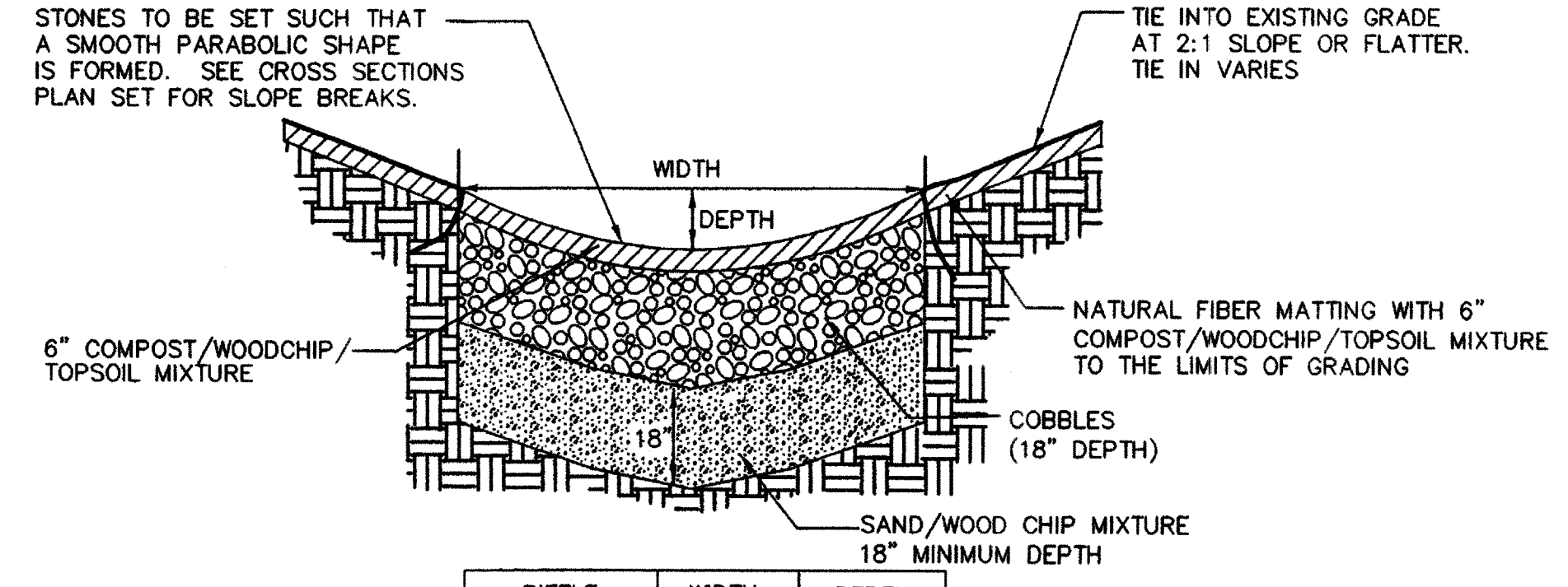
PROFILE LEGEND

EXISTING GROUND	---
PROPOSED GRADE	---

PROFILE
SCALE: 1" = 10'



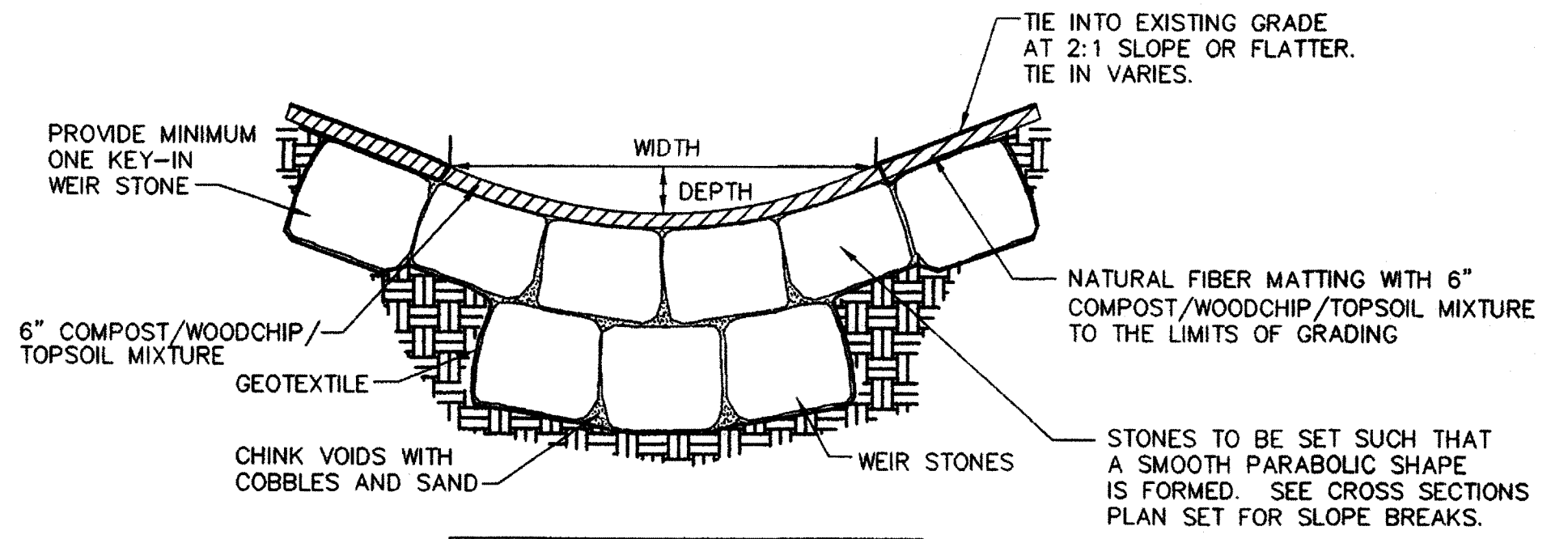
POOL A CROSS SECTION
NOT TO SCALE



RIFFLE	WIDTH	DEPTH
RIFFLE A	20.0'	1.0'
RIFFLE B	12.0'	1.5'

SEE THE PROFILE FOR THE LOCATION OF EACH RIFFLE.

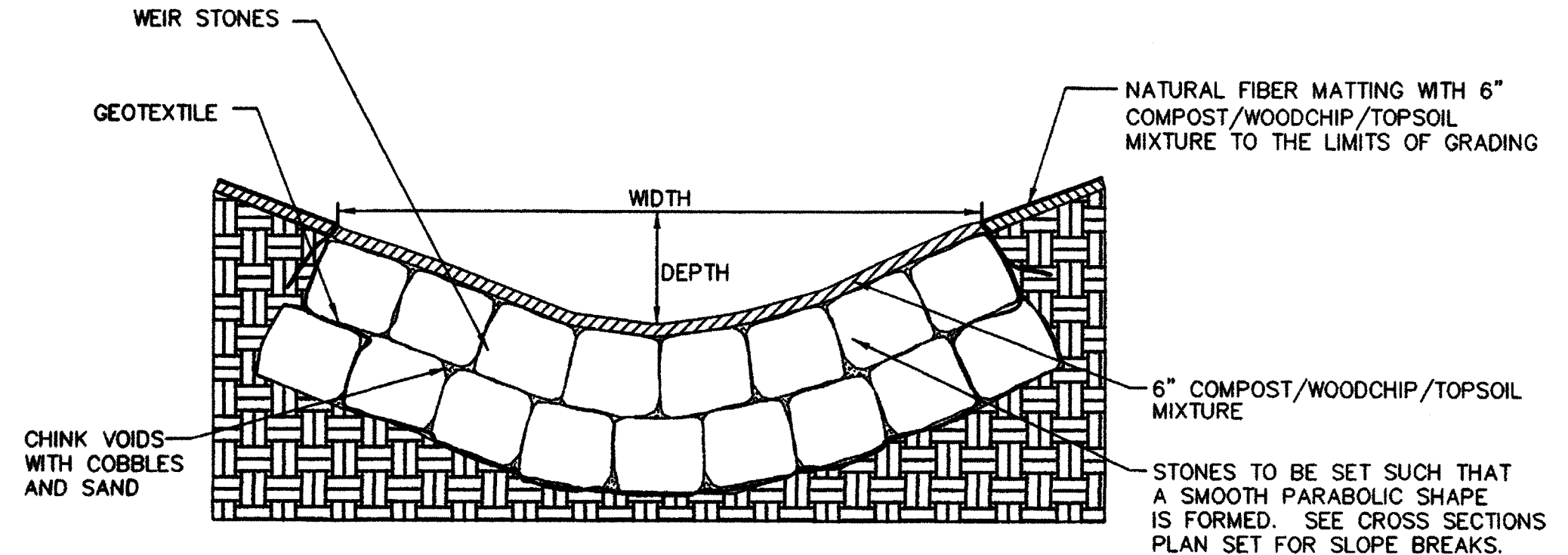
TYPICAL SECTION - RIFFLE
NOT TO SCALE



STRUCTURE	WIDTH	DEPTH
WEIR A	20.0'	1.0'
WEIR B	12.0'	1.5'
CASCADE	20.0'	1.0'

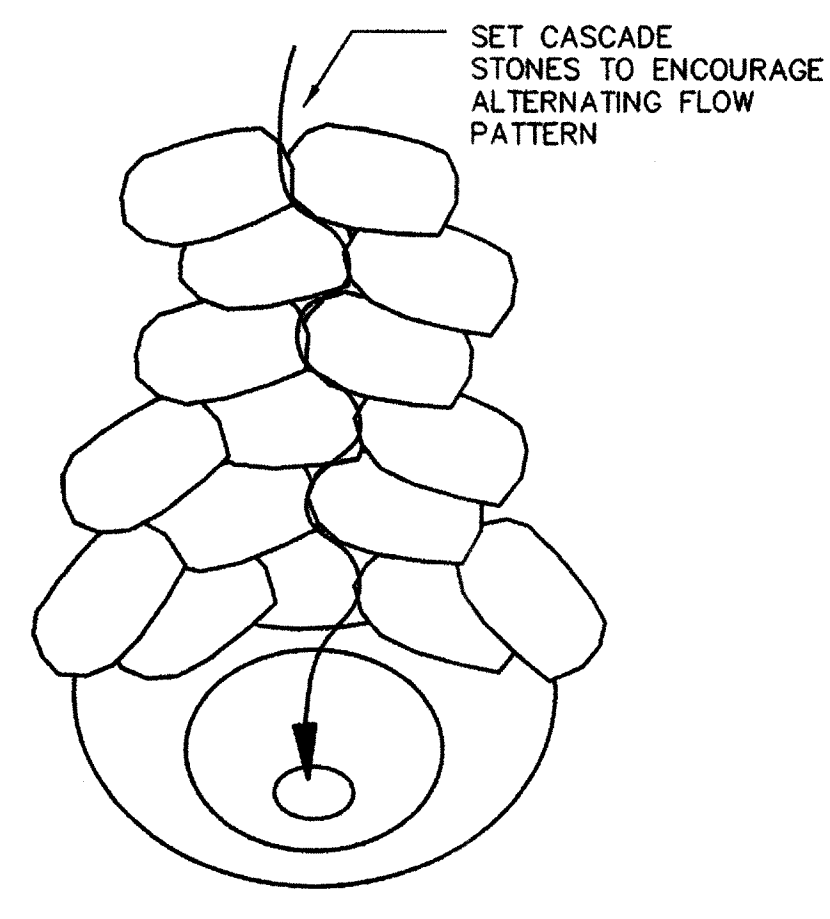
SEE THE PROFILE FOR THE LOCATION OF EACH WEIR AND CASCADE.

TYPICAL SECTION - WEIR/CASCADE
NOT TO SCALE

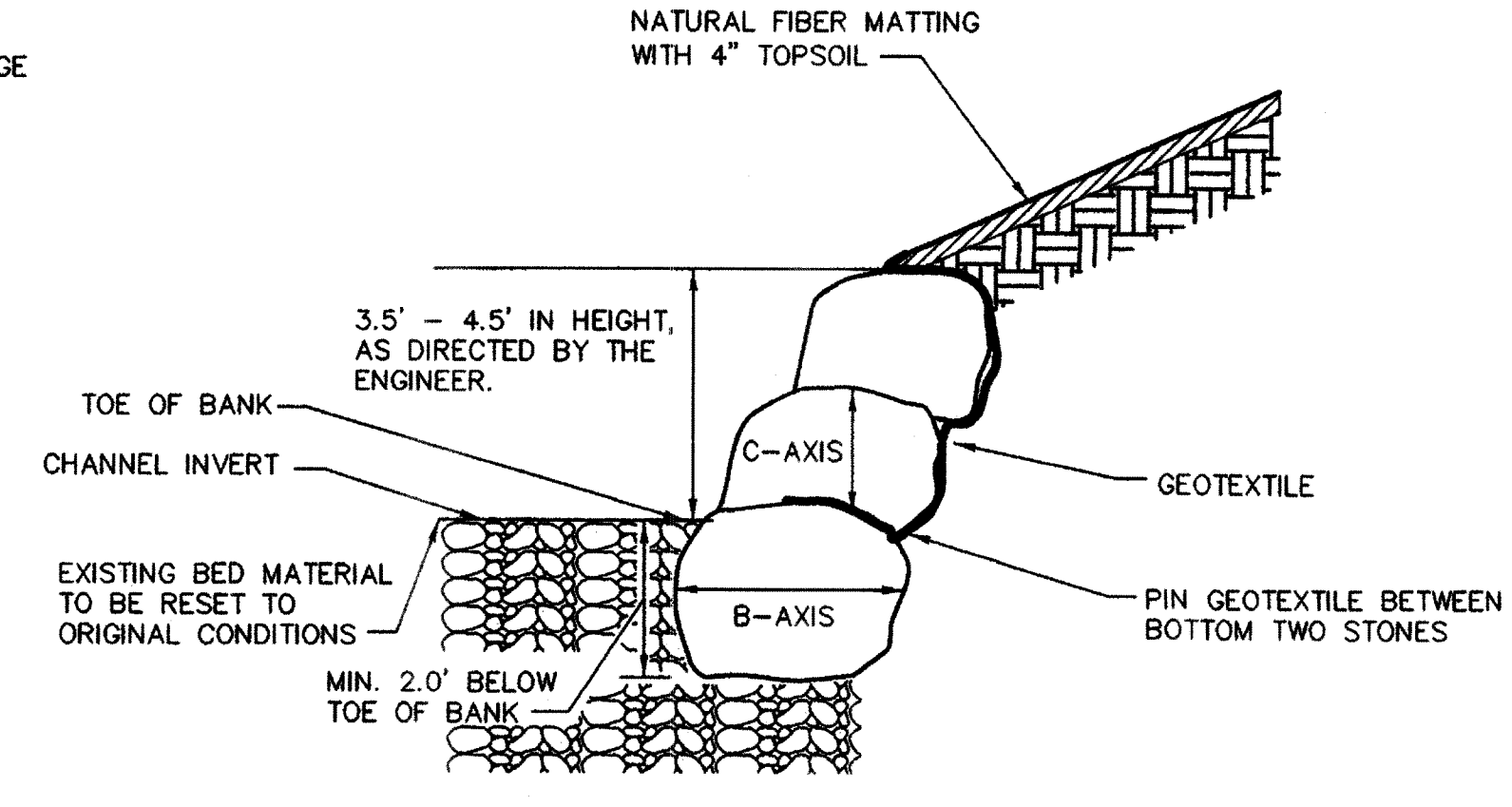


POOL	WIDTH	DEPTH
CASCADE POOL	18.0'	2.2'
POOL B	12.0'	2.8'
TRANSITION POOL	20.0'	1.8'

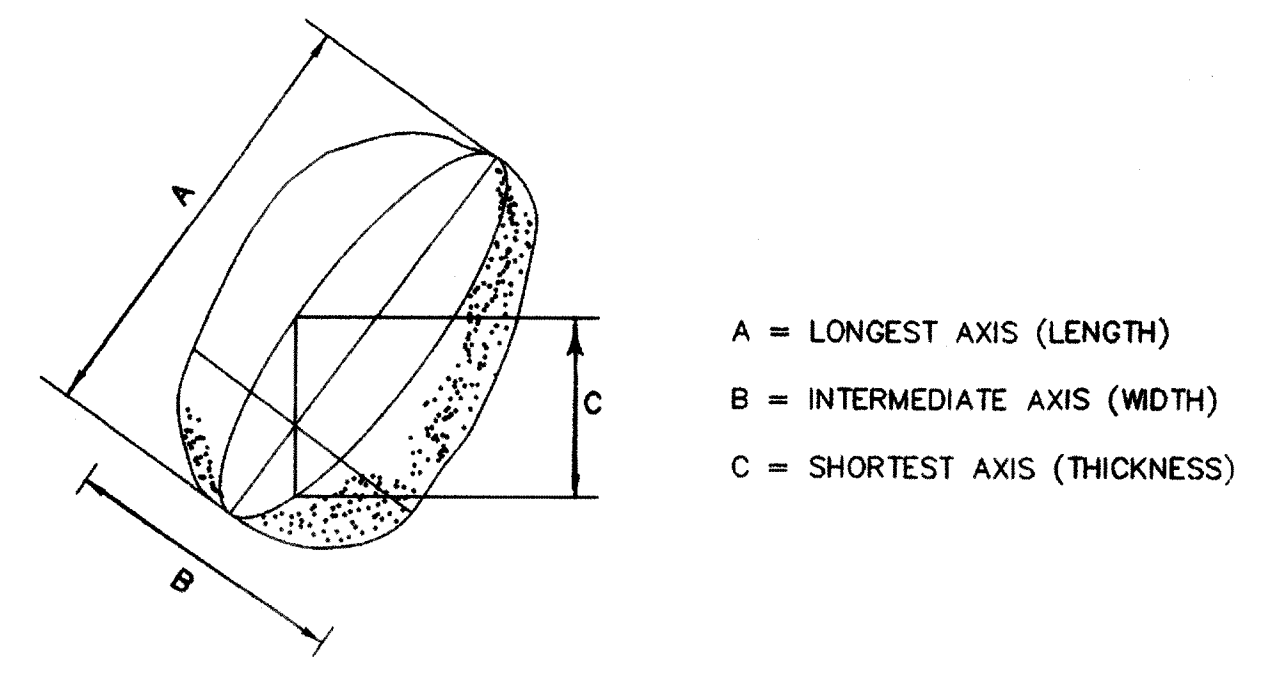
POOL CROSS SECTION
NOT TO SCALE



CASCADE PLAN DETAIL
NOT TO SCALE



STONE TOE PROTECTION DETAIL FOR MAINSTEM
NOT TO SCALE



ROCK AXIS DEFINITION
NOT TO SCALE

SAND/WOODCHIP MIXTURE	
80%	SAND (0.04" TO 0.08")*
20%	WOODCHIPS

COMPOST/WOODCHIP/TOPSOIL MIXTURE	
60%	TOPSOIL
20%	COMPOST
20%	WOODCHIPS

*SAND SHALL BE SALVAGED WHEN POSSIBLE AND APPROVED BY THE ENGINEER.

SIZES FOR STONE TYPES	
STONE TYPE	STONE SIZE
COBBLES*	5-7"
WEIR STONES**	2' X 2-3' X 2'
STONE TOE PROTECTION	CLASS III RIPRAP

* COBBLES SHALL BE ROUNDED RIVER STONE.
** WEIR STONES SHALL BE SANDSTONE.

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. 25783, EXPIRATION DATE: 01-16-13

DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES
DATE: 11/6/12

NO.	REVISIONS DESCRIPTION	DATE

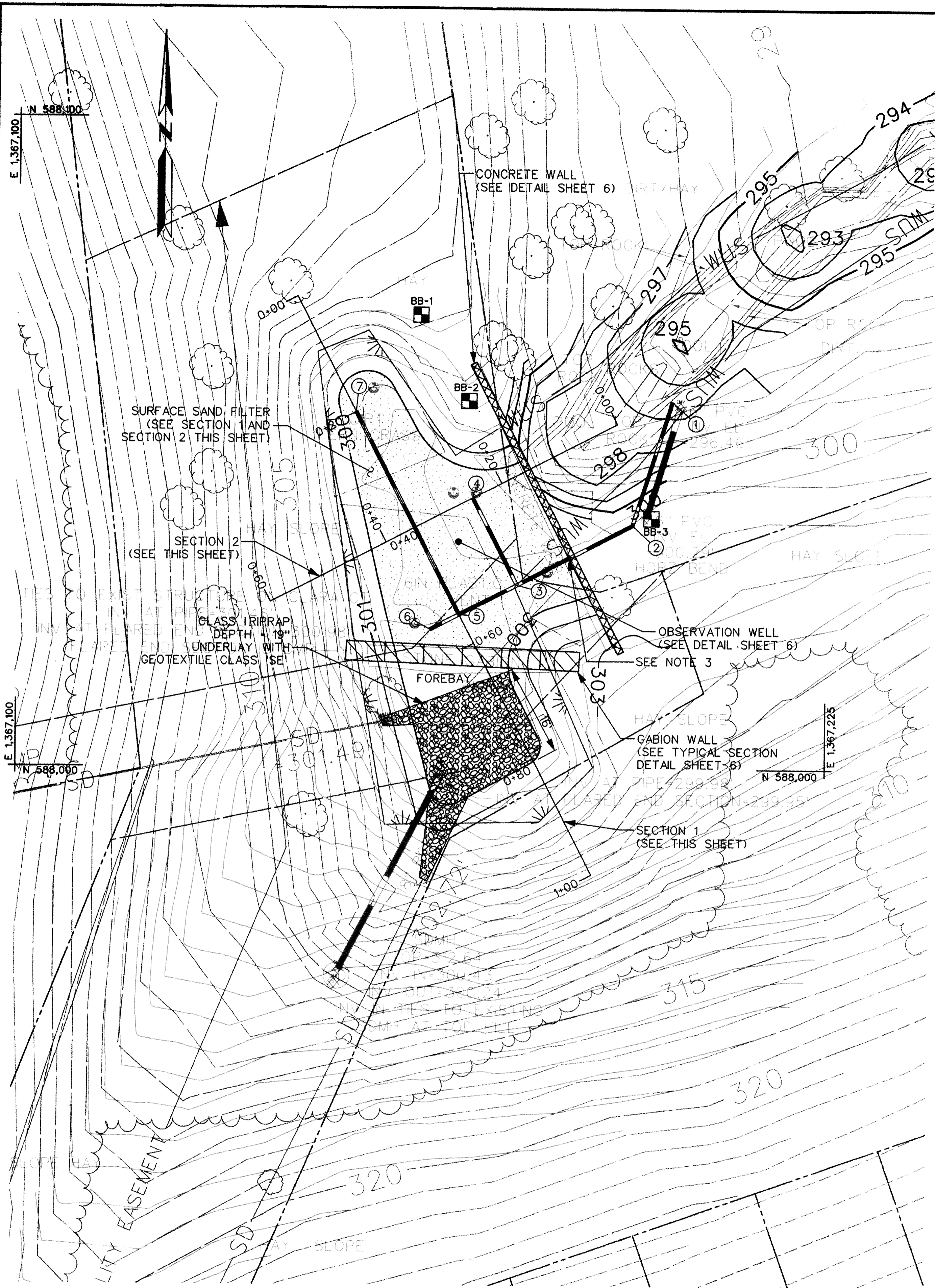
936 RIDGEBROOK ROAD
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STREAM PROFILE AND DETAILS

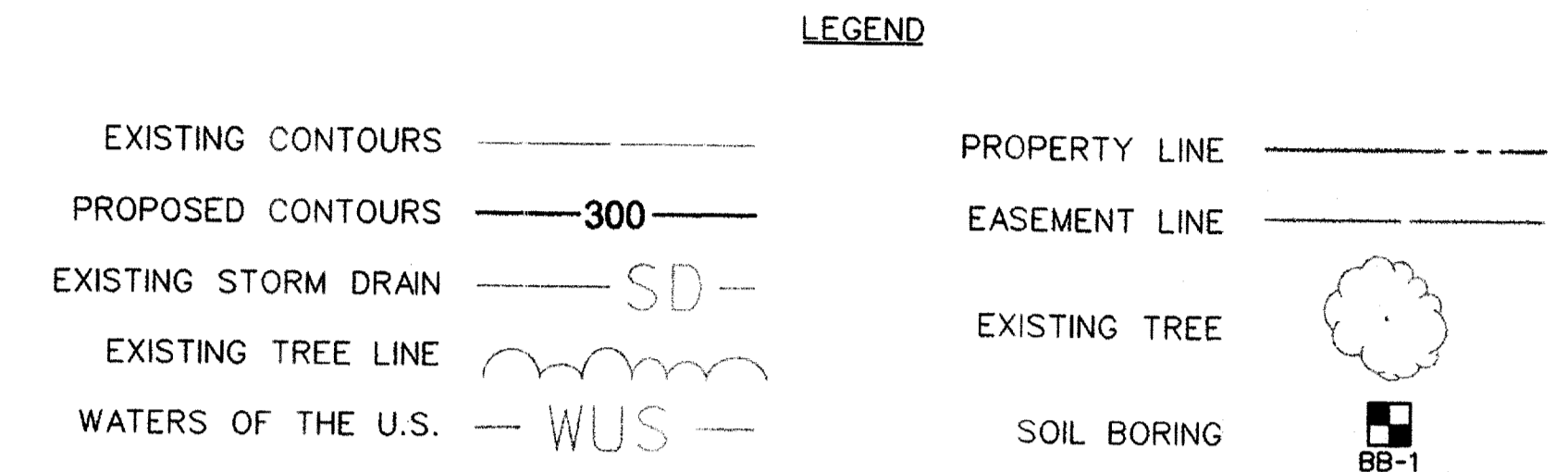
SCALE:	AS SHOWN
DATE:	NOVEMBER 2012
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CAPITAL PROJECT NO.:	D-1160
PERMIT ISSUE:	
CONSTRUCTION ISSUE:	



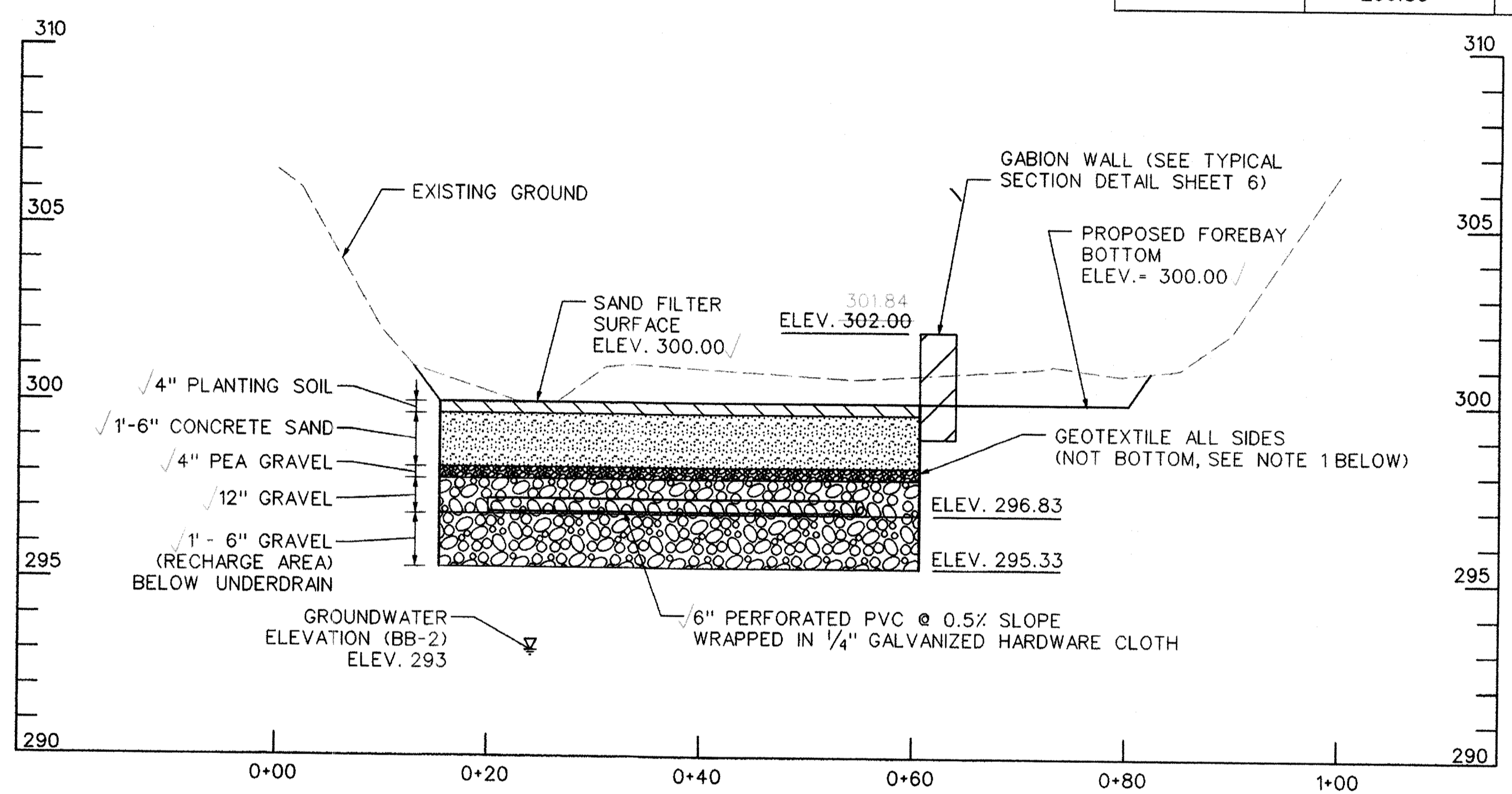
PLAN
SCALE: 1"=10'

STORMWATER MANAGEMENT SUMMARY TABLE								
DRAINAGE AREA [AC.]	WQv		REV		CPv		Q10 PROP. CONDITIONS [CFS]	Q100 PROP. CONDITIONS [CFS]
	REQUIRED* [CF.]	PROVIDED [CF.]	REQUIRED* [CF.]	PROVIDED [CF.]	REQUIRED [CF.]	PROVIDED [CF.]		
8.77	11,538	5,227	1,036	543	N/A	N/A	29.8	51.4

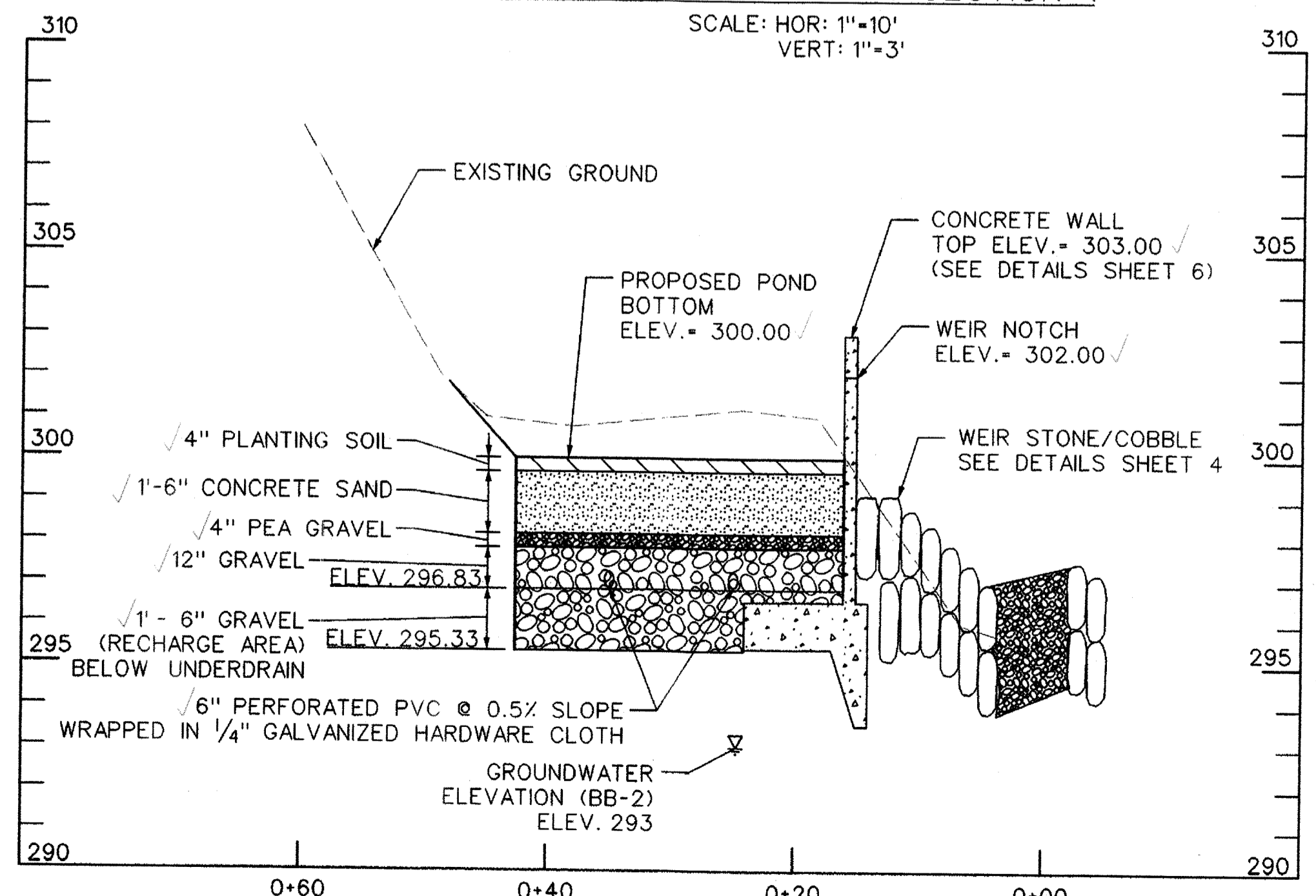
*THIS IS A RETROFIT PROJECT. THE REQUIRED COLUMN REFLECTS ONLY THE VOLUME NEEDED TO TREAT THE CONTRIBUTING DRAINAGE AREA.



UNDERDRAIN INVERT TABLE		
ID POINT	INVERT ELEV.	NOTES
1	296.43	OUTFALL
2	296.53	45° BEND
3	296.63	--
4	296.71	CLEANOUT ✓
5	296.66	J-VENT ✓
6	296.68	CLEANOUT ✓
7	296.83	CLEANOUT ✓



SURFACE SAND FILTER SECTION 1



SURFACE SAND FILTER SECTION 2

- NOTES:
1. GEOTEXTILE SHALL NOT BE PLACED ON BOTTOM OF FACILITY.
 2. FOR MATERIALS SPECIFICATIONS FOR SURFACE SAND FILTER, SEE TABLE SHEET 6.
 3. PERFORATIONS IN PVC UNDERDRAIN SHALL END AT UPSTREAM FACE OF CONCRETE WALL. FROM THE UPSTREAM FACE OF WALL TO THE OUTFALL AT ID POINT 1, THE PVC UNDERDRAIN SHALL BE NON-PERFORATED.

STATE OF MARYLAND
MATTIE R. SCHWARTZ
PROFESSIONAL ENGINEER
11/2/12

PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A FULLY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.
LICENSE NO. 25753, EXPIRATION DATE: 01-16-13

DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES
DATE: 11/2/12

DATE

NO. REVISIONS DESCRIPTION

KCI FILE: M.A. 2008 \ 01081795.61 \

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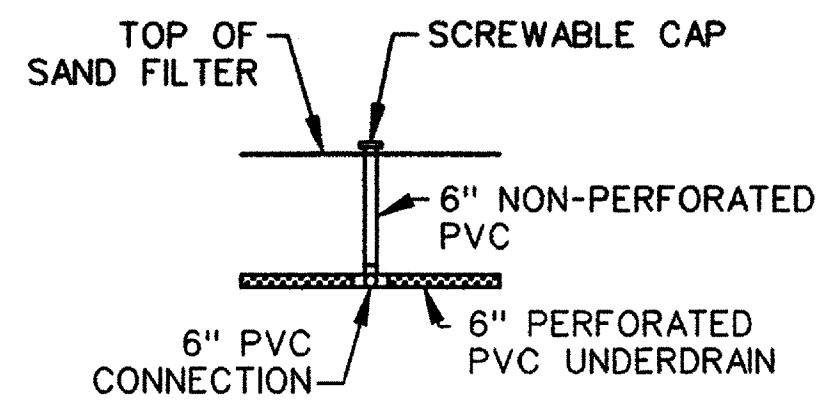
OAK WEST DRIVE
STORMWATER POND RETROFIT & STREAM RESTORATION PROJECT

CAPITAL PROJECT D-1160
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
STORMWATER MANAGEMENT DIVISION
9751 COLUMBIA GATEWAY DRIVE
COLUMBIA, MD 21046

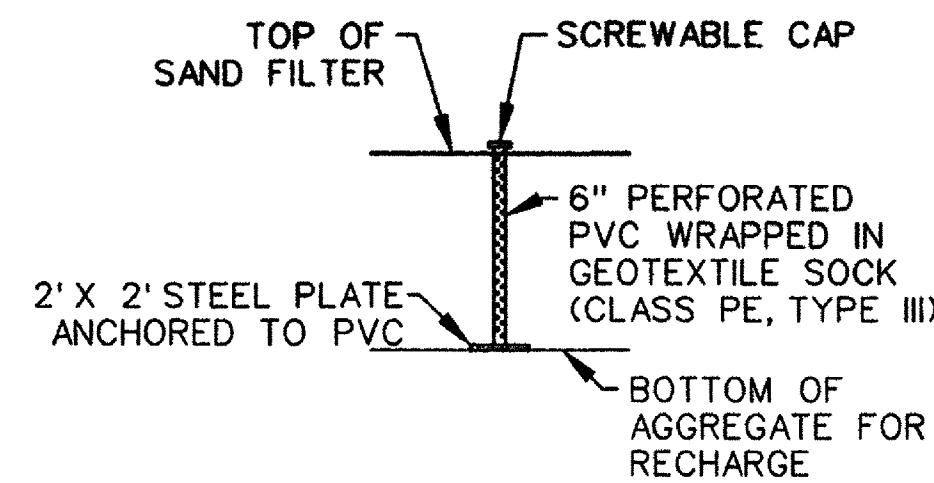
STORMWATER MANAGEMENT PLAN

SCALE: AS SHOWN
DATE: NOVEMBER 2012
KCI JOB NO.: 01-081795.61
CAPITAL PROJECT NO.: D-1160
PERMIT ISSUE:
CONSTRUCTION ISSUE:

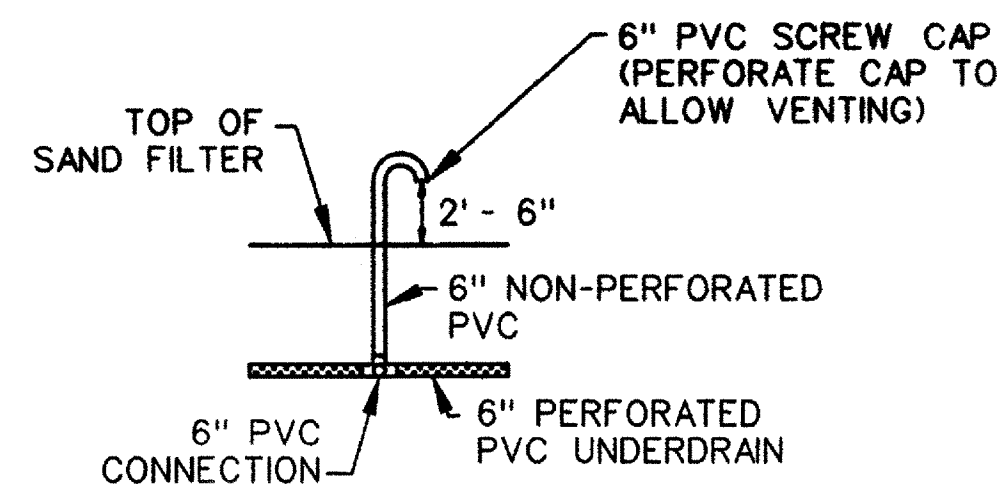
SHEET NO.: 5 OF 15
AS-BUILT 05-14-2013



CLEANOUT DETAIL
NOT TO SCALE



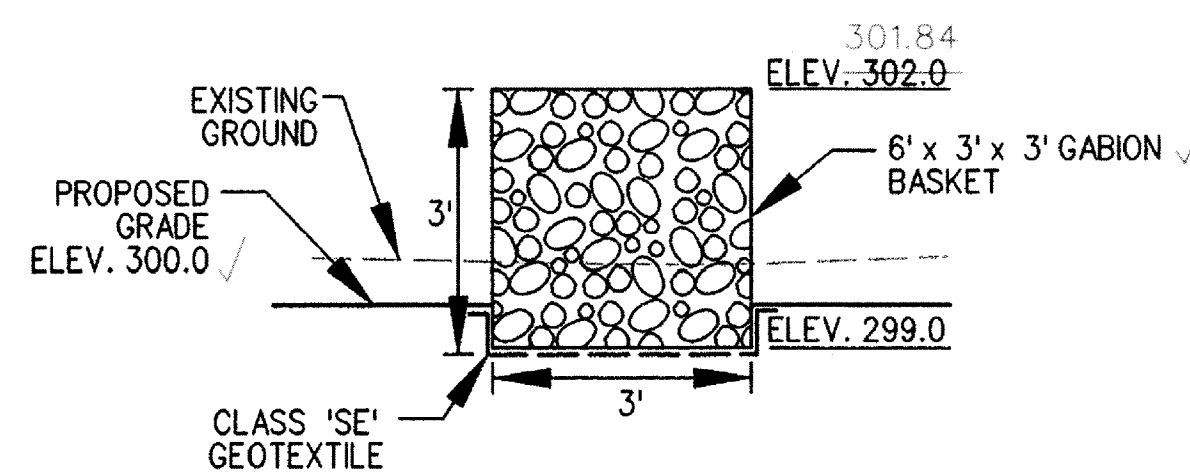
OBSERVATION WELL DETAIL
NOT TO SCALE



J-VENT DETAIL
NOT TO SCALE

NOTES:

- PVC SHALL HAVE A FACTORY ATTACHED CAST IRON OR HIGH IMPACT PLASTIC COLLAR WITH RIBS TO PREVENT ROTATION WHEN REMOVING SCREW TOP LID. THE SCREW TOP LID SHALL BE CAST IRON OR HIGH IMPACT PLASTIC THAT WILL WITHSTAND ULTRA-VIOLET RAYS.
- ALL VISIBLE PVC FEATURES ABOVE THE GROUND SURFACE SHALL BE BLACK IN COLOR.



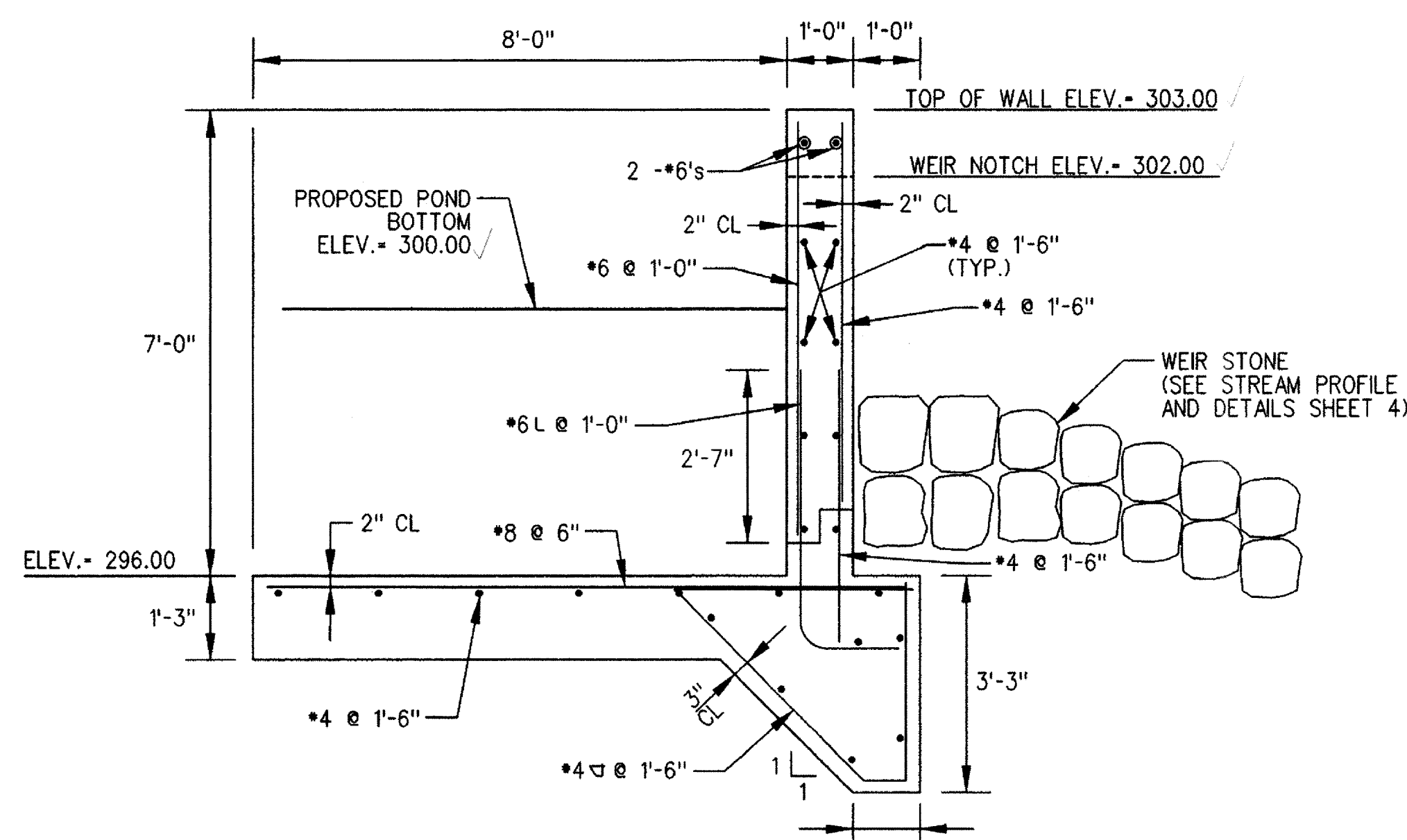
GABION WALL TYPICAL SECTION
NOT TO SCALE

MATERIALS SPECIFICATIONS FOR SURFACE SAND FILTER

Material	Specification	Size	Notes
planting soil	sand 35 - 60% silt 30 - 55% clay 10 - 25%	n/a	USDA soil types loamy sand, sandy loam or loam
pea gravel	pea gravel: ASTM-D-448	No. 8 or No. 9 (1/8" to 3/8")	
geotextile		n/a	PE Type 1 nonwoven
gravel	AASHTO M-43	No. 57 or No. 6 Aggregate (3/8" to 3/4")	
underdrain piping	F 758, Type PS 28 or AASHTO M-278	4" to 6" rigid schedule 40 PVC or SDR35	Slotted or perforated pipe: 3/8" perf. @ 6" on center, 4 holes per row; minimum of 3" of gravel over pipes; not necessary underneath pipes. Perforated pipe shall be wrapped with 1/4-inch galvanized hardware cloth
concrete sand	AASHTO-M-6 or ASTM-C-33	0.02" to 0.04"	Sand substitutions such as Diabase and Graystone (AASHTO) #10 are not acceptable. No calcium carbonated or dolomitic sand substitutions are acceptable. No "rock dust" can be used for sand.

SURFACE SAND FILTER MAINTENANCE SCHEDULE

Inspection Item	Frequency of Inspection	Inspection Requirements	Remedial Action
Filter Surface	Seasonally and after a major storm		
Dewatering		Facility must dewater within 48 hours of rainfall. Noticeable odors, stained water on the filter surface or at the outlet, or the presence of algae or aquatic vegetation are indicators of anaerobic conditions and inadequate dewatering of the facility.	Remove the top three inches of sand and replace with sand material per plan specifications. Follow up inspections must confirm adequate dewatering. If the facility does not function as intended after the above action, the entire filter and underdrain system may need maintenance. MDE approval may be necessary.
Sediment Accumulation		Check for sediment accumulation on the filter bed.	Silt/sediment must be removed from the filter bed when accumulation exceeds 1 inch.
Vegetative Surfaces	Monthly		
Vegetative Cover		Check for evidence of erosion and dead or dying vegetation on the filter or slopes.	Remove and replace plants in accordance with plan specifications.
Mowing		Grass on the filter must be maintained in good condition and be less than 12 inches in height.	Mow during the growing season to maintain the required height. Clippings must be removed.
Debris and Trash Cleanout	Monthly	Check that the facility is clean of trash and debris. Inlets, outlets, and contributing areas around the facility must be checked.	Trash and debris must be disposed of in an acceptable manner according to current regulations.
Structural Components	Annually	Check for evidence of erosion and dead or dying vegetation on the filter or slopes.	Repair to good condition in accordance with specifications on the approved plans.
Outlets	Seasonally and after a major storm	Check for evidence of erosion, rills, or gulying.	Stabilize all eroded areas and grade to provide stable conveyance.
Pretreatment Forebays	Seasonally and after a major storm	Check that riprap outlet is maintained in good functional condition.	Repair according to approved plan.
Sediment Accumulation		Check for sediment accumulation in the forebay.	When the forebay depth is less than half the proposed design, sediment must be removed and the forebay restored in accordance with the approved design.
Grass Channel Conveyance Systems	Seasonally and after a major storm	Check for erosion, flow blockages, and stable conveyance.	Stabilize and grade according to approved plan.
Overall Function of the Facility	Annually	Check that flow splitters are functioning as designed and that bypass is operating as designed.	Construction must be in accordance with approved plans.

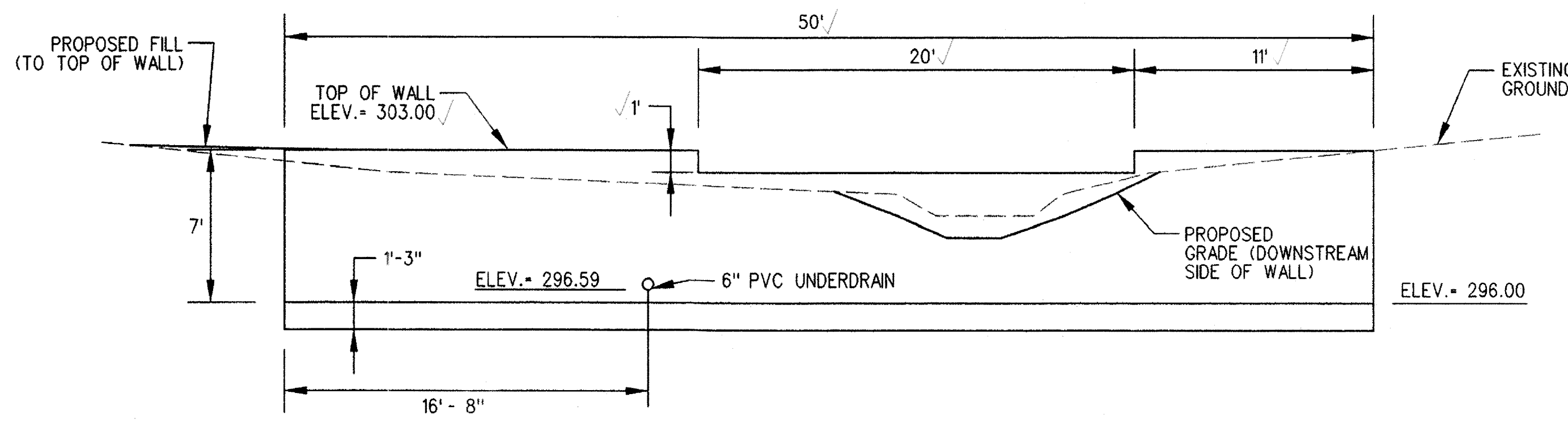


NOTES:

- ALL STRUCTURAL CONCRETE SHALL BE MIX NO. 3 (3500 PSI).
- REINFORCING STEEL SHALL CONFORM TO A615, GRADE 60.

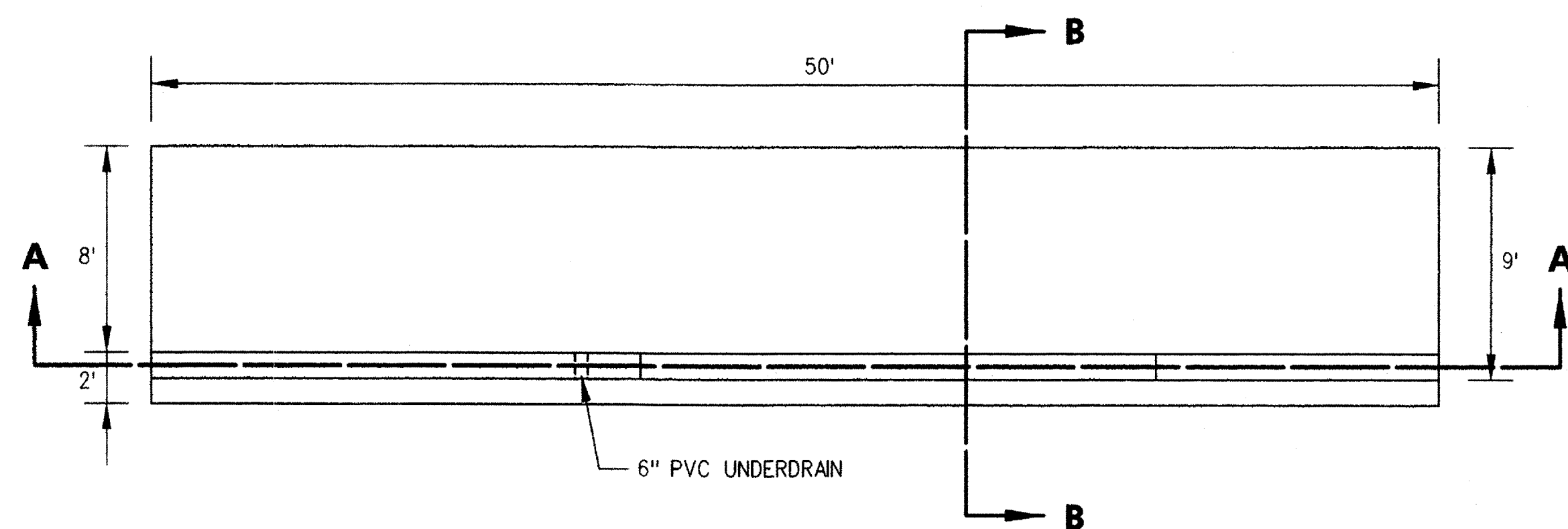
CONCRETE WALL SECTION B-B

SCALE: 1"=2'



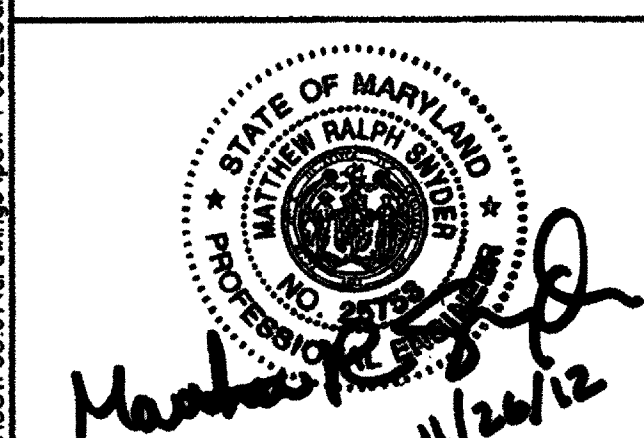
CONCRETE WALL SECTION A-A

SCALE: 1"=5'



CONCRETE WALL PLAN

SCALE: 1"=5'



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. 23753, EXPIRATION DATE: 01-16-13

DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD

CHIEF, BUREAU OF ENVIRONMENTAL SERVICES

11/20/12
DATE

NO.	REVISIONS DESCRIPTION	DATE

936 RIDGEBROOK ROAD
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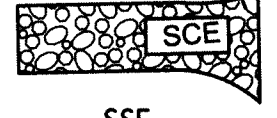

OAK WEST DRIVE
STORMWATER POND RETROFIT &
STREAM RESTORATION PROJECT
CAPITAL PROJECT D-1160
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
STORMWATER MANAGEMENT DIVISION
6751 COLUMBIA GATEWAY DRIVE
COLUMBIA, MD 21046

STORMWATER
MANAGEMENT
NOTES AND
DETAILS

SCALE: AS SHOWN
DATE: NOVEMBER 2012
KCI JOB NO.: 01-081795.61
CAPITAL PROJECT NO.: D-1160
PERMIT ISSUE:
CONSTRUCTION ISSUE:

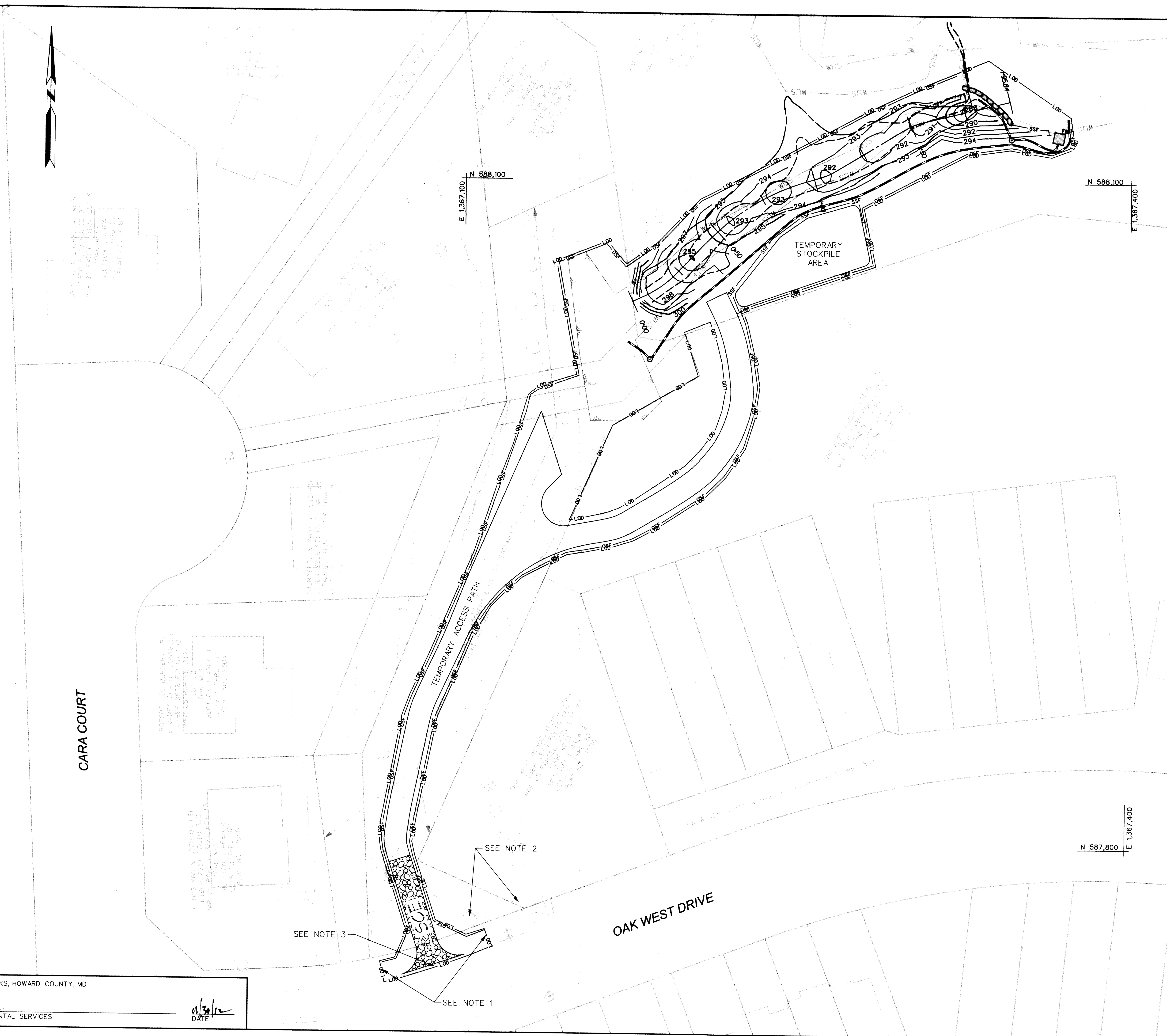
NOTES:

1. PLACE SIDEWALK CLOSED SIGNS ON BOTH SIDES OF LIMIT OF DISTURBANCE FOR DURATION OF CONSTRUCTION.
2. STREET TREES TO BE TRIMMED AS NECESSARY TO ALLOW FOR EQUIPMENT ACCESS BUT NOT REMOVED.
3. CONTRACTOR SHALL REPLACE SIDEWALK AND CURB AND GUTTER TO PRE-CONSTRUCTION CONDITIONS IF DAMAGED DURING CONSTRUCTION.

LEGEND	
LIMITS OF DISTURBANCE	— LOD —
EX. INDEX CONTOUR	
EX. INTERMEDIATE CONTOUR	
PROPOSED CONTOUR	———— 350 ————
EX. 100-YR FLOODPLAIN	—————
PROP. 100-YR FLOODPLAIN	—————
PROPERTY LINE	
EASEMENT LINE	
WETLAND LINE	
WATERS OF U.S.	
WETLAND BUFFER	
FENCE	
SEWER LINE	
SEWER MANHOLE	
STORM DRAIN	
EX. TREE	
CONSTRUCTION BASELINE	
STABILIZED CONSTRUCTION ENTRANCE	
SUPER SILT FENCE	— SSF —
ORANGE SAFETY FENCE	— OSF —
SANDBAG DIVERSION	
PUMP	⊕
FILTER BAG	□ FB
DISCHARGE HOSE	—————
EXISTING ROAD/PARKING LOT	
EXISTING WOODS	



DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD
 CHIEF, BUREAU OF ENVIRONMENTAL SERVICES
 DATE: 11/20/12



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KCI FILE: MA, 2008 \ 01081795.61

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**OAK WEST DRIVE
 STORMWATER POND RETROFIT &
 STREAM RESTORATION PROJECT**

CAPITAL PROJECT D-1160
 HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 STORMWATER MANAGEMENT DIVISION
 6751 COLUMBIA GATEWAY DRIVE
 COLUMBIA, MD 21046

EROSION AND SEDIMENT CONTROL PLAN PHASE 1

SCALE:	1" = 20'
DATE:	NOVEMBER 2012
KCIJOB NO.:	01-081795.61
CAPITAL PROJECT NO.:	D-1160
PERMIT ISSUE:	
CONSTRUCTION ISSUE:	

SHEET NO.: 7 OF 15

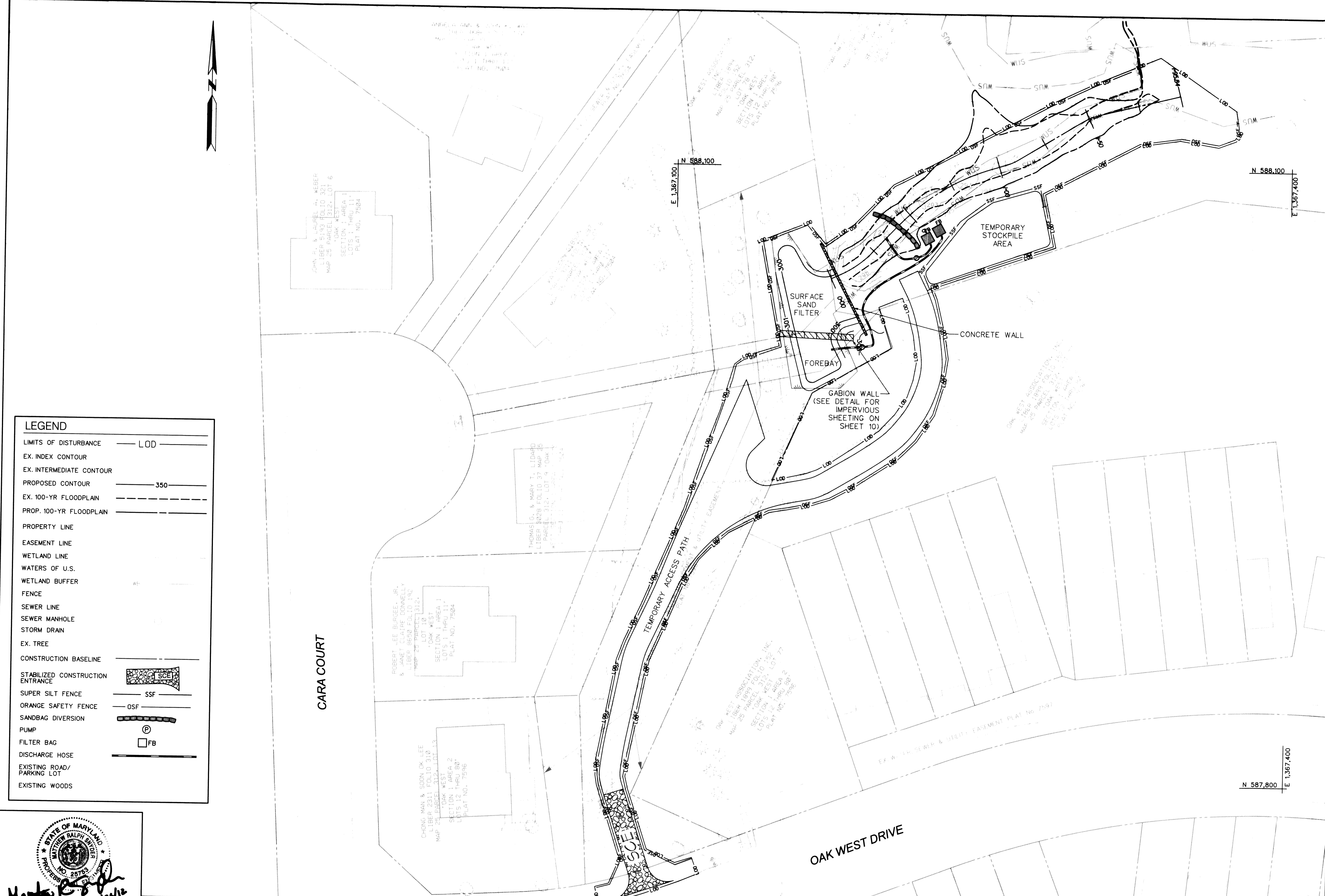
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 LICENSE NO. 25753, EXPIRATION DATE: 01-16-13

Mark R. ...
 11/30/12

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

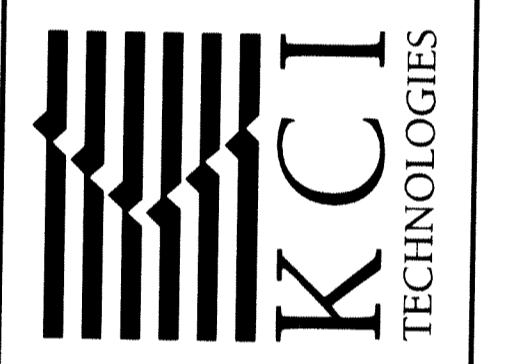
11/30/12
 DATE

LEGEND	
LIMITS OF DISTURBANCE	— LOD —
EX. INDEX CONTOUR	
EX. INTERMEDIATE CONTOUR	
PROPOSED CONTOUR	— 350 —
EX. 100-YR FLOODPLAIN	---
PROP. 100-YR FLOODPLAIN	---
PROPERTY LINE	
EASEMENT LINE	
WETLAND LINE	
WATERS OF U.S.	
WETLAND BUFFER	
FENCE	
SEWER LINE	
SEWER MANHOLE	
STORM DRAIN	
EX. TREE	
CONSTRUCTION BASELINE	
STABILIZED CONSTRUCTION ENTRANCE	
SUPER SILT FENCE	— SSF —
ORANGE SAFETY FENCE	— OSF —
SANDBAG DIVERSION	
PUMP	Ⓟ
FILTER BAG	□ FB
DISCHARGE HOSE	
EXISTING ROAD/ PARKING LOT	
EXISTING WOODS	



NO.	REVISIONS DESCRIPTION	DATE

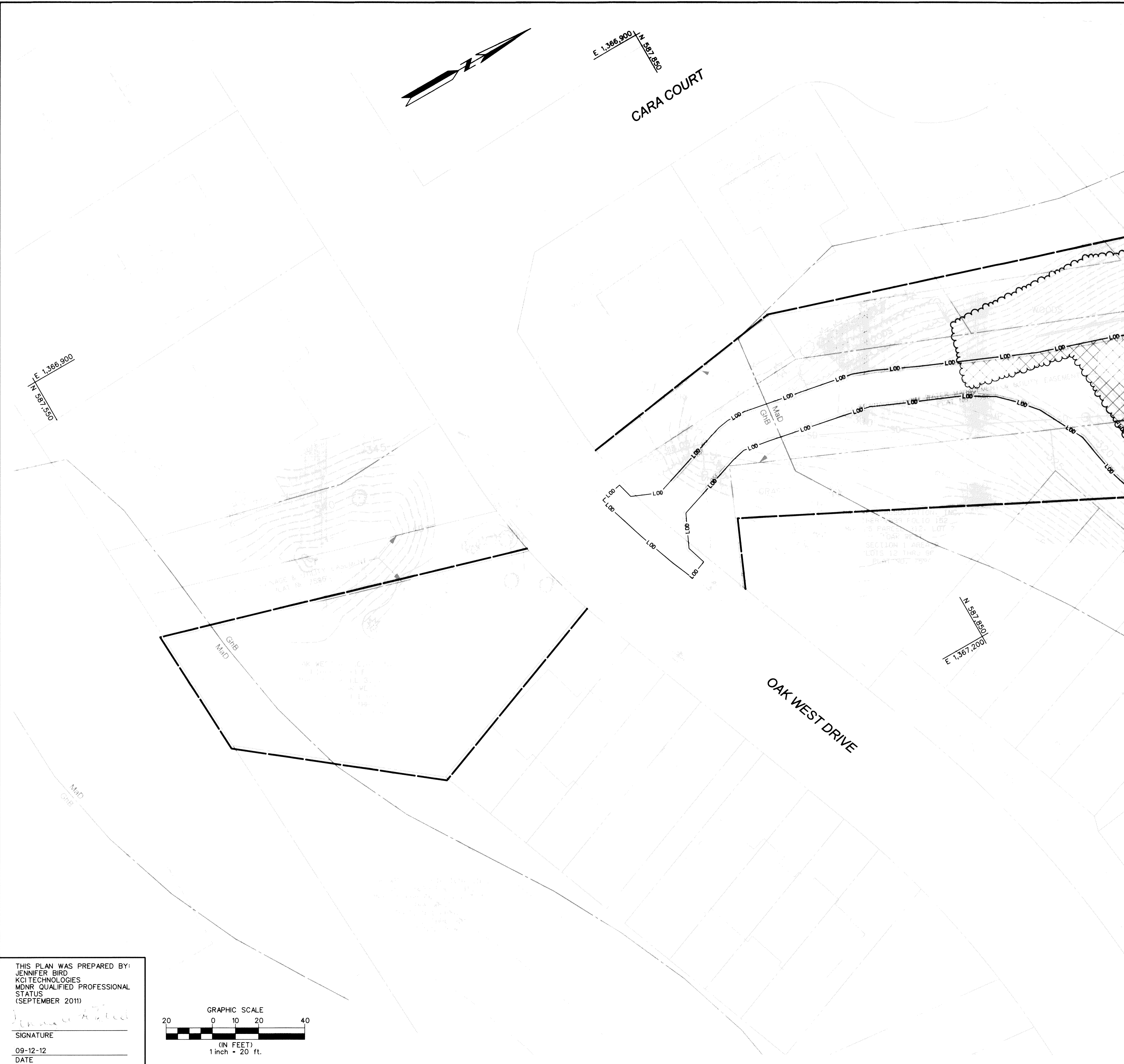
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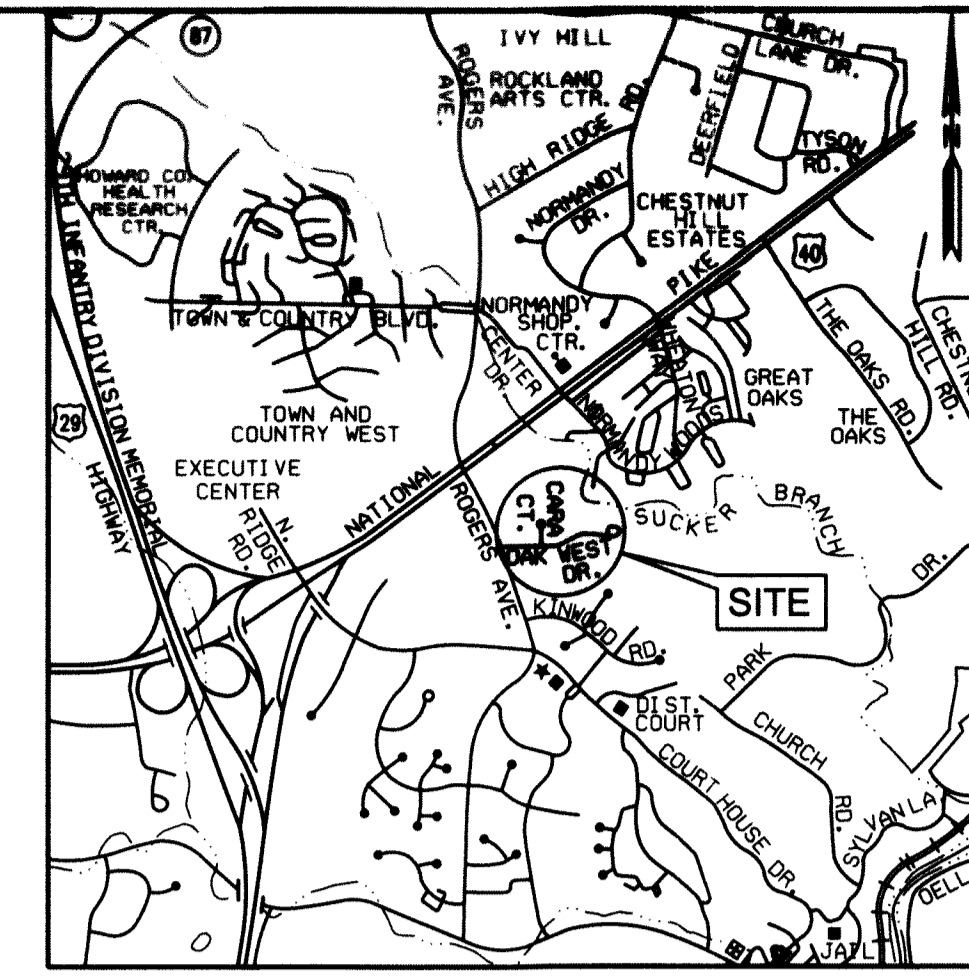
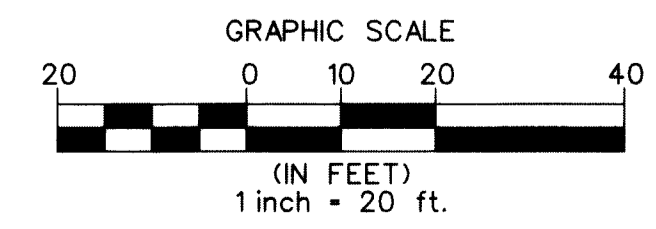
OAK WEST DRIVE
 STORMWATER POND RETROFIT &
 STREAM RESTORATION PROJECT
 CAPITAL PROJECT D-1160
 HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 STORMWATER MANAGEMENT DIVISION
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EROSION AND SEDIMENT CONTROL PLAN PHASE 2	
SCALE:	1" = 20'
DATE:	NOVEMBER 2012
KCIJOB NO.:	01-081795.61
CAPITAL PROJECT NO.:	D-1160
PERMIT ISSUE:	
CONSTRUCTION ISSUE:	
SHEET NO.: 8 OF 15	

PLOTTED: 01:58 PM on Tuesday, November 20, 2012
 BY: Matthew Snyder, Division: P053, Water Resources OMA Emp
 FILE: M:\2008\081795.61\Drawings\FCP-F001_Cak_West.dgn



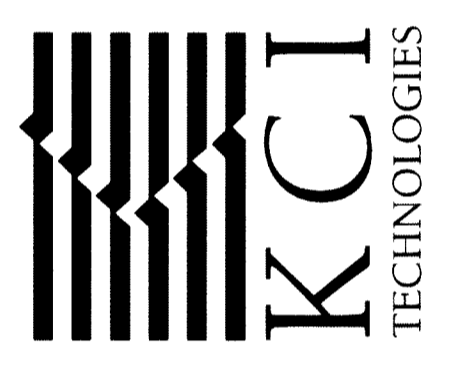
THIS PLAN WAS PREPARED BY:
 JENNIFER BIRO
 KCI TECHNOLOGIES
 MDNR QUALIFIED PROFESSIONAL
 STATUS
 (SEPTEMBER 2011)
 SIGNATURE _____
 DATE 09-12-12



VICINITY MAP
 SCALE: 1" = 2000'

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LEGEND	
	EX. CONTOUR
	EX. CURB
	EX. EDGE OF PAVEMENT
	EX. STORM DRAIN
	EX. FENCE
	EX. WOODS LINE
	EX. TREE
	EX. MANHOLE
	EX. SIGN
	EX. EASEMENT
	PROPERTY LINE
	STUDY AREA BOUNDARY
	WATERS OF THE U.S.
	EX. NON-TIDAL WETLAND
	SLOPES 15%/25%
	SLOPES 25% or GREATER
	SOILS LINE
	25' WETLAND BUFFER
	50' STREAM BUFFER
	LIMIT OF DISTURBANCE
	ORANGE SAFETY FENCE (TREE PROTECTION FENCE)
	WETLAND/UPLAND SAMPLE PLOT
	FOREST STAND SAMPLE PLOT
	FOREST TO BE REMOVED

OAK WEST DRIVE
 STORMWATER POND RETROFIT &
 STREAM RESTORATION PROJECT
 CAPITAL PROJECT D-1160
 HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 STORMWATER MANAGEMENT DIVISION
 6751 COLUMBIA GATEWAY DRIVE
 COLUMBIA, MD 21046

**FOREST
 CONSERVATION
 PLAN**

SCALE:	
DATE:	NOVEMBER 2012
KCIJOB NO.:	01-081795.61
CAPITAL PROJECT NO.:	D-1160
PERMIT ISSUE:	
CONSTRUCTION ISSUE:	

FOREST CONSERVATION NOTES

1. THE LOD WAS USED AS THE TOTAL TRACT AREA AND AS THE NET TRACT AREA (NTA) FOR FOREST CONSERVATION CALCULATIONS AS APPROVED UNDER WAIVER PETITION WP-13-044.
2. 0.33 ACRES OF CLEARING WILL BE REQUIRED TO COMPLETE THIS PROJECT. THESE AREAS WILL BE REPLANTED AS SEEN ON THE LANDSCAPE PLAN SHEET AND THE LANDSCAPE NOTES AND DETAILS SHEET.
3. ALL EFFORTS TO MINIMIZE THE AREA OF DISTURBANCE WILL BE MADE.
4. 0.28 ACRES OF FOREST MITIGATION ARE REQUIRED.

GENERAL NOTES

1. THE PROJECT AREA IS LOCATED ON ONE PROPERTY OWNED BY OAK WEST ASSOCIATION INC. (MAP 0025, GRID 0001, PARCEL 0312).
2. EXISTING ZONING: R-SC
3. EXISTING LAND USE: RESIDENTIAL - MEDIUM DENSITY
4. WATERS OF THE U.S. WERE DELINEATED BY KCI TECHNOLOGIES, INC. ON OCTOBER 11, 2011. WATERS OF THE U.S. SHOWN REPRESENT THE UNVERIFIED USAGE/MODE WATER RESOURCE BOUNDARIES.
5. TOTAL AREA OF NONTIDAL WETLANDS WITHIN THE PROJECT AREA: 0.041 AC.
6. TOTAL LINEAR FEET OF PERENNIAL AND INTERMITTENT STREAMS: 436 LF.
7. TOTAL FORESTED AREA WITHIN LIMITS OF DISTURBANCE: 0.33 AC.
8. 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.
9. ONE SPECIMEN TREE, IN POOR CONDITION, WILL BE REMOVED.
10. TREES WILL ONLY BE REMOVED IF NECESSARY FOR GRADING OR ACCESS.
11. THE COORDINATES SHOWN HEREON ARE BASED ON HOWARD COUNTY GEODETIC CONTROL, WHICH IS BASED UPON THE MARYLAND STATE PLANE COORDINATE SYSTEM. THE EXISTING TOPOGRAPHY IS TAKEN FROM FIELD RUN SURVEY WITH TWO FOOT CONTOUR INTERVALS PREPARED BY AB CONSULTANTS, INC., IN OCTOBER 2011.
12. ALL WETLAND AND WUS SYSTEMS DENOTED WITH AN ASTERISK (*) CONTINUE BEYOND THE LIMITS OF THE STUDY AREA.

KCI Technologies Inc.

9/21/2012

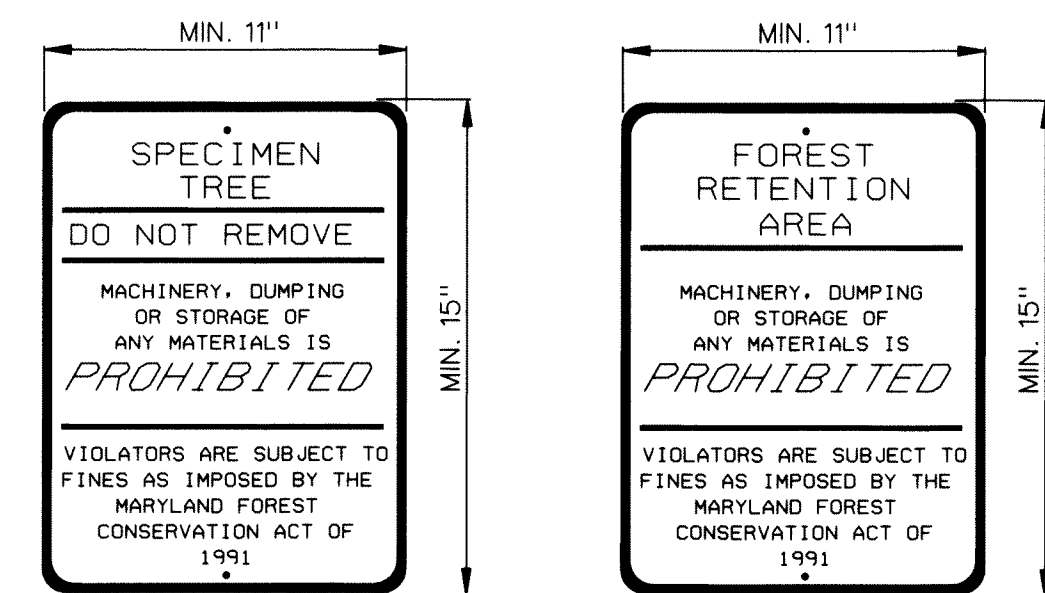
Forest Conservation Worksheet

Net Tract Area		
A	Total Tract Area	A= 0.46 ac.
B	Area within 100-year Floodplain	B= 0.06 ac.
C	Area to Remain in Agricultural Production	C= 0.00 ac.
D	Net Tract Area (D=A-B-C)	D= 0.43 ac.
Land Use Category :		
E	Afforestation Threshold (D x 20%)	E= 0.09 ac.
F	Conservation Threshold (D x 25%)	F= 0.11 ac.
Existing Forest Cover		
G	Existing Forest Cover (excluding floodplain)	G= 0.33 ac.
H	Area of Forest Above Afforestation Threshold (1) If G<=E then H=0 and I=0, go to L (2) If G>E then H=G-E, go to I	H= 0.24 ac.
I	Area of Forest Above Conservation Threshold (1) If G<=F then I=0, go to L (2) If G>F then I=G-F, go to J	I= 0.22 ac.
Break Even Point		
J	Forest Retention Above Threshold with no Mitigation (1) If I>0 then J=(0.2 x I)+F, go to K (2) If I=0, J=0, go to L	J= 0.15 ac.
K	Clearing Permitted Without Mitigation (K=G-J)	K= 0.18 ac.
Proposed Forest Clearing		
L	Total Area of Forest to be Cleared	L= 0.33 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 (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=I x 0.25, go to P	N= 0.08 ac.
P	Reforestation for Clearing Below the Conservation Threshold (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	P= 0.22 ac.
Q	Credit for Retention Above the Conservation Threshold (1) If M>F then Q=M-F, go to R (2) If M<=F then Q=0, go to R	Q= 0.00 ac.
R	Total Reforestation Required (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	R= 0.28 ac.
S	Total Afforestation Required (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	S= 0.00 ac.
T	Total Reforestation and Afforestation Requirement T=(R+S)	T= 0.28 ac.

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

oak_west_FCW

Page 1 of 1



FOREST CONSERVATION SIGNAGE

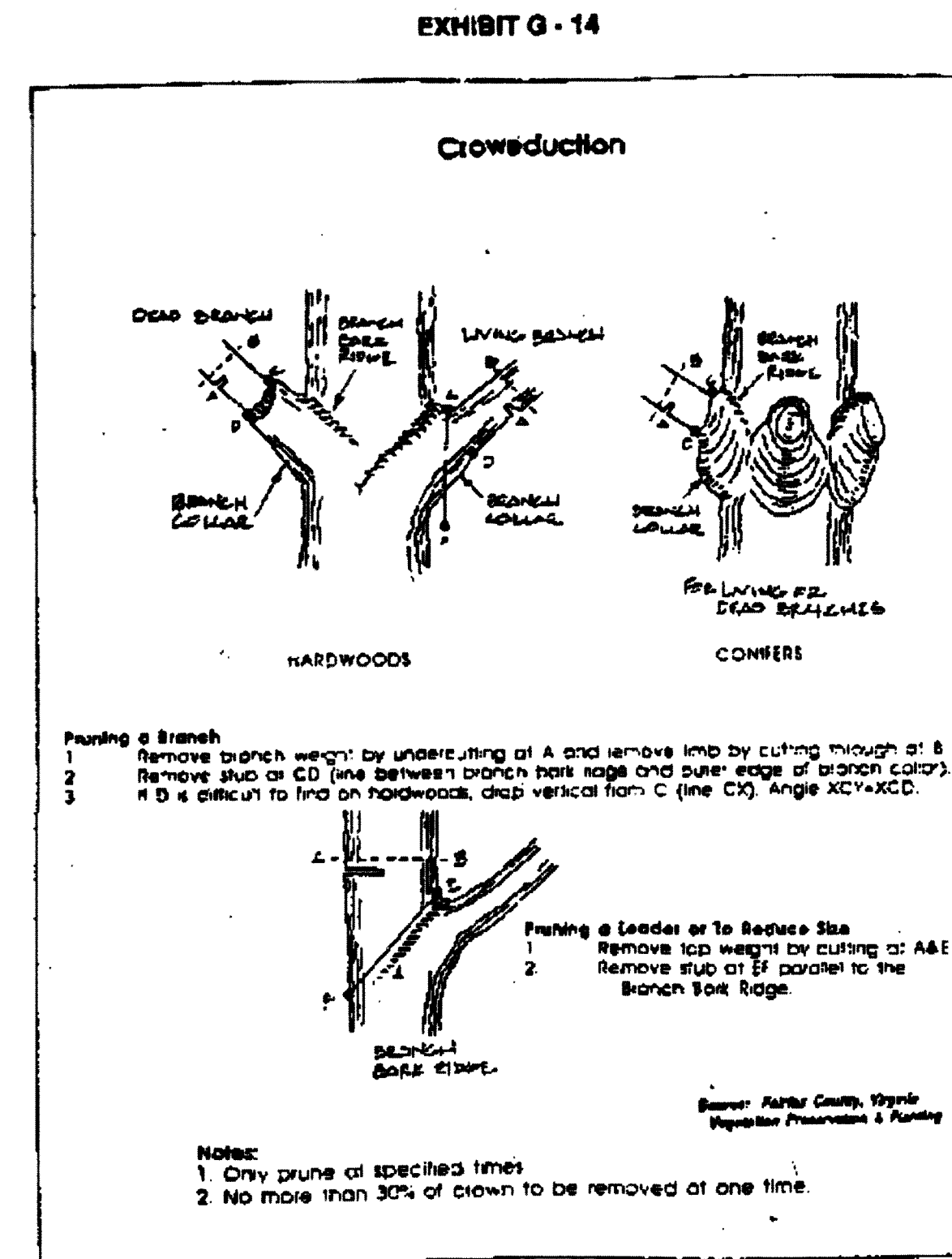
NOT TO SCALE

- NOTES:
1. BOTTOM OF SIGN TO BE HIGHER THAN TREE PROTECTION FENCE.
 2. SIGNS TO BE PLACED 50 TO 100' APART. CONDITIONS ON SITE AFFECTING VISIBILITY MAY WARRANT PLACING SIGNS CLOSER OR FARTHER APART WITHIN THE ACCEPTABLE NOTED RANGE.
 3. ATTACHMENT OF SIGNS TO TREES IS PROHIBITED.
 4. SIGNS MAY BE REMOVED FROM RESIDENTIAL LOTS UPON ISSUANCE OF USE AND OCCUPANCY RETENTION FOREST ONLY.
 5. ALL SIGNAGE MUST REMAIN DURING THE MAINTENANCE PERIOD.
 6. THE SIGNS NOTIFY CONSTRUCTION WORKERS AND FUTURE RESIDENTS OF THE NEWLY PLANTED MATERIAL, IMPROVING THE TREES' SURVIVAL RATES.
 7. SIGNS MAY BE ADAPTED BY RESIDENTS FOR IDENTIFICATION OF FOREST RETENTION AREAS.

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

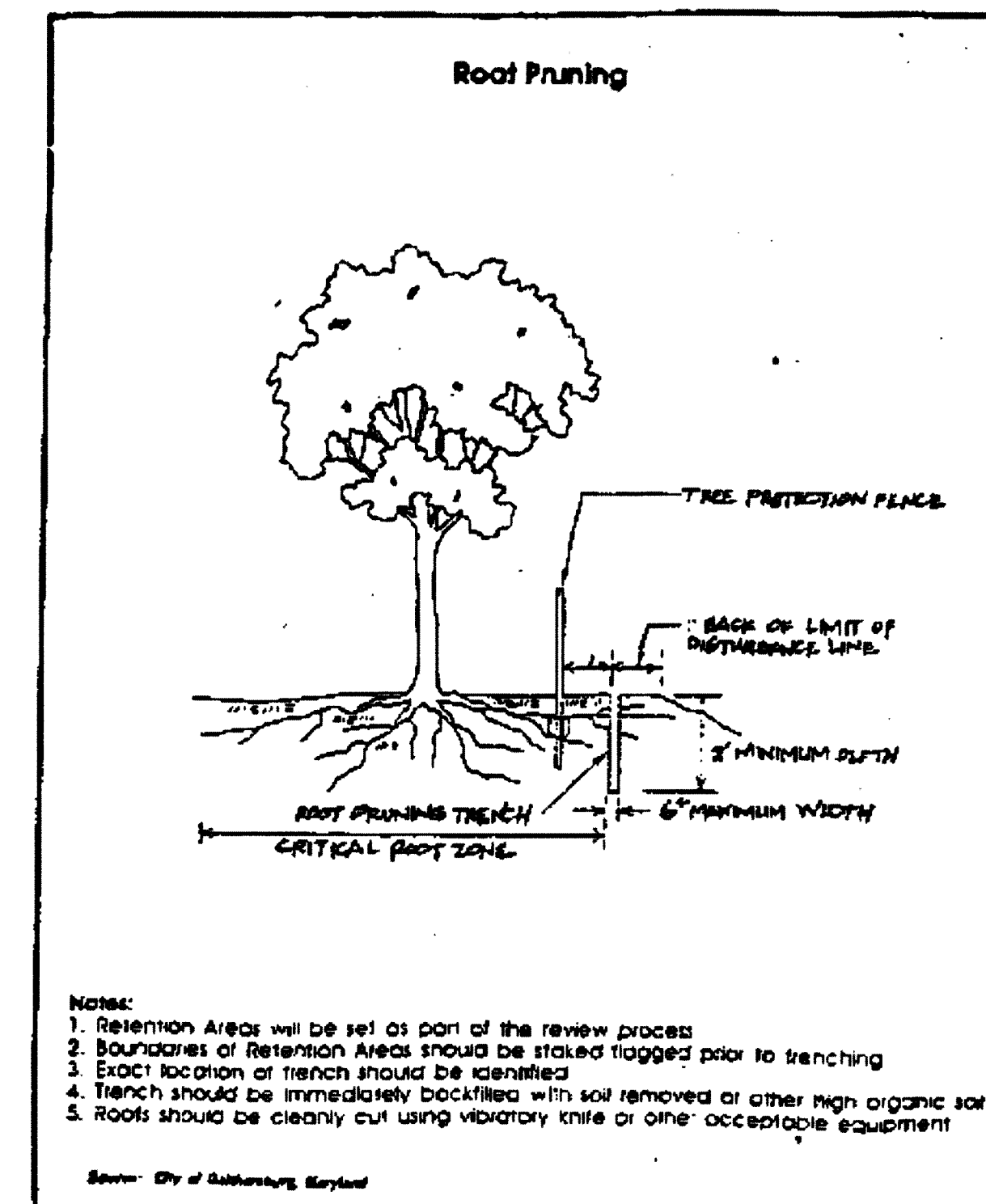
SIGNATURE

09-12-12
DATE



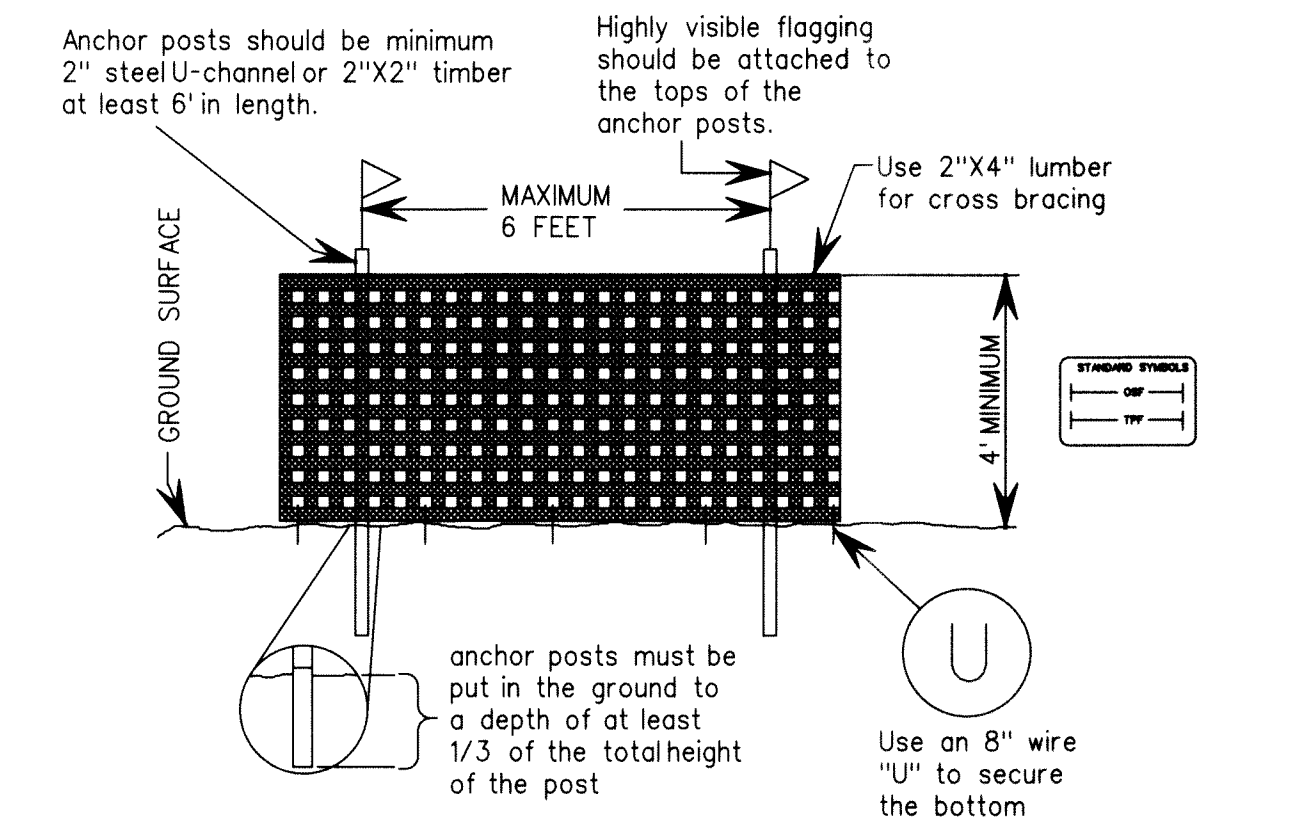
CROWN REDUCTION

NOT TO SCALE



ROOT PRUNING

NOT TO SCALE



BLAZE ORANGE PLASTIC MESH SAFETY FENCE/TREE PROTECTION DETAIL

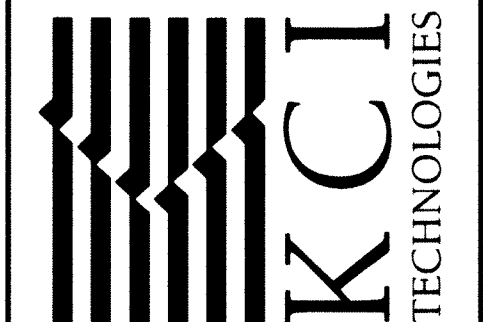
NOT TO SCALE

PLACEMENT OF ORANGE HIGH VISIBILITY FENCE:

1. ORANGE HIGH VISIBILITY FENCE SHALL BE MANUALLY INSTALLED ALONG THE LIMITS OF DISTURBANCE, WHERE THAT LIMIT IS WITHIN 50' OF THE FOREST CONSERVATION/ FOREST BUFFER EASEMENTS AND SHALL FUNCTION AS A FOREST PROTECTION DEVICE.
2. RETENTION AREA WILL BE SET AS PART OF THE REVIEW PROCESS.
3. BOUNDARIES OF THE RETENTION AREA SHALL BE STAKES AND FLAGGED PRIOR TO INSTALLING THE DEVICE.
4. ROOT DAMAGE SHALL BE AVOIDED.
5. PROTECTIVE SIGNAGE MAY ALSO BE USED.
6. DEVICE SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION.

NO.	REVISIONS DESCRIPTION	DATE

936 RIDGEBROOK ROAD
SPARKS, MARYLAND 21152
TELEPHONE: (410) 316-7800
FAX: (410) 316-7818
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OAK WEST DRIVE
STORMWATER POND RETROFIT & STREAM RESTORATION PROJECT
CAPITAL PROJECT D-1160
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
STORMWATER MANAGEMENT DIVISION
675 COLUMBIA GATEWAY DRIVE
COLUMBIA, MD 21046

FOREST CONSERVATION PLAN NOTES AND DETAIL

SCALE:	AS SHOWN
DATE:	NOVEMBER 2012
KCIJOB NO.:	01-081795.61
CAPITAL PROJECT NO.:	D-1160
PERMIT ISSUE:	
CONSTRUCTION ISSUE:	

PLOTTED: 02:00 PM on Tuesday, November 20, 2012
FILE: \\MA2008\01081795.61\Drawings\FCW NOTES.dgn