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DORSEY HALL VILLAGE STORMWATER RETROFITS

HOWARD COUNTY, MD

FINAL DESIGN

CAPITAL PROJECT # D-1160

NOTE:
THE FIELD WORK FOR THIS STREAM AS-BUILT WAS
PERFORMED ON MAY 7 - 15, 2015.

HOWARD COUNTY
GEORGE HOWARD BUILDING
3430 COURTHOUSE DRIVE
ELLCOTT CITY, MD 21043
(P) 410 313 2022
(F) 410 313 3390

GEORGE WILLIAM STEPHENS, JR. and ASSOCIATES, INC.
ENGINEERS- PLANNERS- SURVEYORS- TRANSPORTATION
4692 MILLENNIUM DRIVE, SUITE 100
BELCAMP, MARYLAND 21017
Phone: (410) 297-2340 gwsstephens.com Fax: (410) 297-2345

DATE	ISSUES / REVISIONS
09/18/2014	60% DESIGN
12/04/2014	FINAL DESIGN
06/09/2015	AS-BUILT DRAWING
06/15/2016	TIE TO EXISTING CONTOURS (SHEETS 7&8)

STATE OF MARYLAND
NICK LONGCORE
AS-BUILT CERTIFICATION
I HEREBY CERTIFY BY MY SEAL THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF THE FACILITIES SHOWN ON THIS PLAN WERE CONSTRUCTED AS SHOWN ON THIS AS-BUILT PLAN MEET THE APPROVED PLANS AND SPECIFICATIONS.


NAME: Nick Longcore DATE: 12/15
APPROVED: DEPARTMENT OF PUBLIC WORKS
Mark S. Richmond DATE: 1/20/15
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES

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DORSEY HALL VILLAGE STORMWATER RETROFITS

EP-15-017

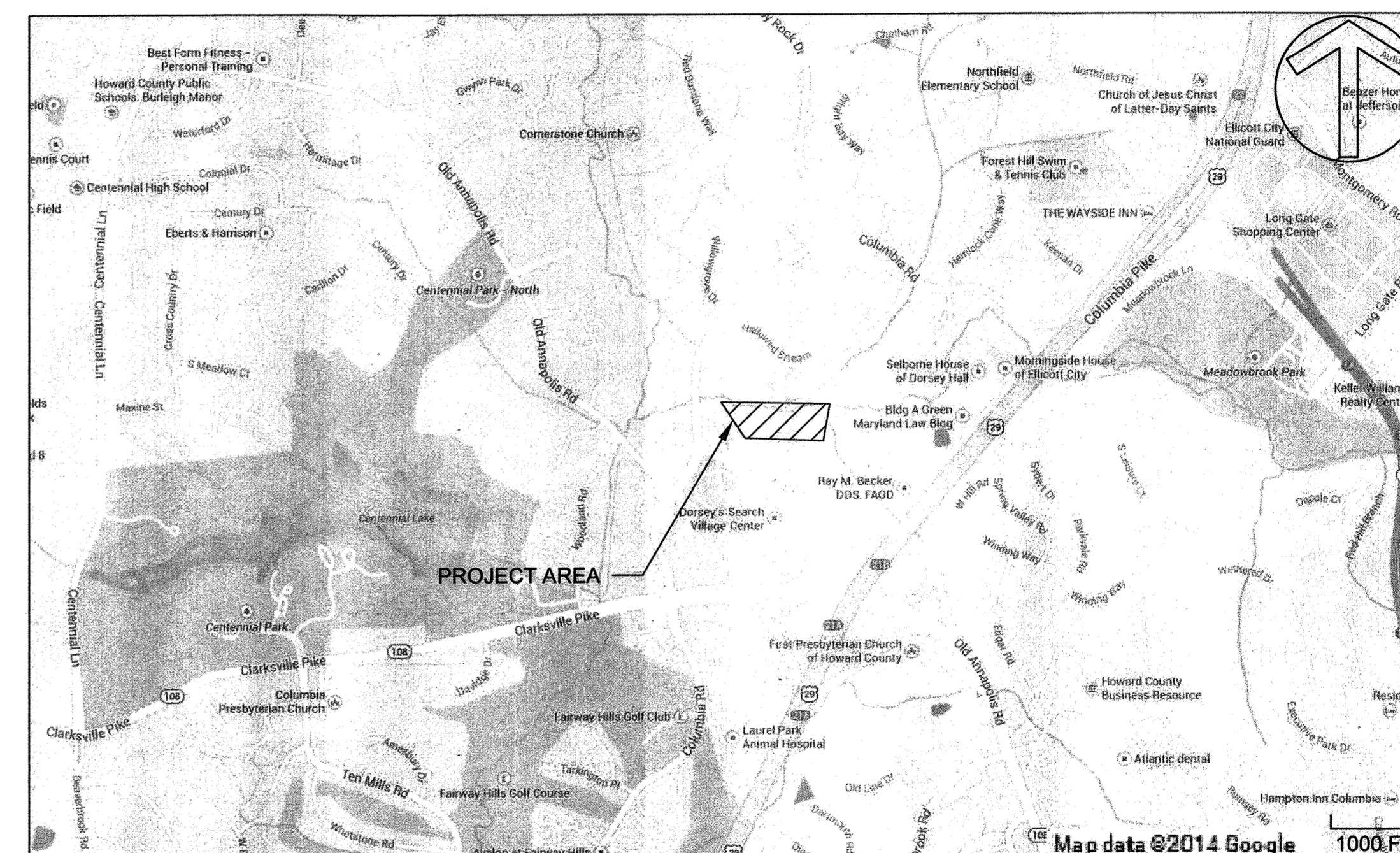
COVER SHEET AS-BUILT

PROJECT NO.:	13005.14	SCALE:	
SEAL:		BY:	KT/NL CHECK
		DWG. NO.:	
		1 of 22	

LEGEND

EXISTING	PROPOSED
— MAJOR CONTOUR	— 425 — MAJOR CONTOURS
— MINOR CONTOUR	— 424 — MINOR CONTOURS
— SAN — SANITARY SEWER	— . . . — BASELINE
— SD — STORM DRAIN	— LOD — LIMIT OF DISTURBANCE
— TREELINE	— BOF — BLAZE ORANGE FENCE
— WL — WETLAND LINE	— FL — FILTER LOG
— WB — WETLAND BUFFER LINE	⊗ TREE REMOVAL
— PROPERTY LINE	⊙ TREE SAVE
— EXISTING 100 YEAR FLOODPLAIN	— LARGE WOODY DEBRIS
— TREE	— CASCADE
— TRAVERSE POINT	— COBBLE TOE TRENCH
— SOIL BORING	— STAGING AND STOCKPILING AREA
— SEWER MANHOLE	— MULCH ACCESS ROAD
— CRITICAL ROOT ZONE	— STABILIZED CONSTRUCTION ENTRANCE
AS-BUILT LEGEND	— PUMP AROUND
— 340 — CONTOUR - INDEX	— FILTER BAG
— 338 — CONTOUR - INTERMEDIATE	— SAND BAGS
— — STREAM CENTERLINE	
— — STORM DRAIN MH / PIPE	
— — BOULDER LINE	
— — STRUCTURE - CASCADE	
— — COBBLE TOE / RIP RAP	

VICINITY MAP



NOTE:
1. 2-FT CONTOURS - SPRING 2011 LIDAR, ALL EXISTING GIS MAPPING IS FROM HOWARD COUNTY BASE DATA, COORDINATE SYSTEM NAD 1983 STATE PLANE MARYLAND FIPS 1900 FEET.
2. ALL SWM BMPS ARE IN 100 YR FLOODPLAIN

PERMIT INFORMATION CHART

SUBDIVISION NAME		SECTION/AREA	LOT/PARCEL#
DORSEY HALL VILLAGE		2/2	1
PLAT# OR L/F	GRID#	ZONING	TAX MAP NO.
6390	004	RA-15	30
WATER CODE		ELECT. DISTR.	CENSUS TRACT
PUBLIC		2	6069.02
SEWER CODE			
PUBLIC			

"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"

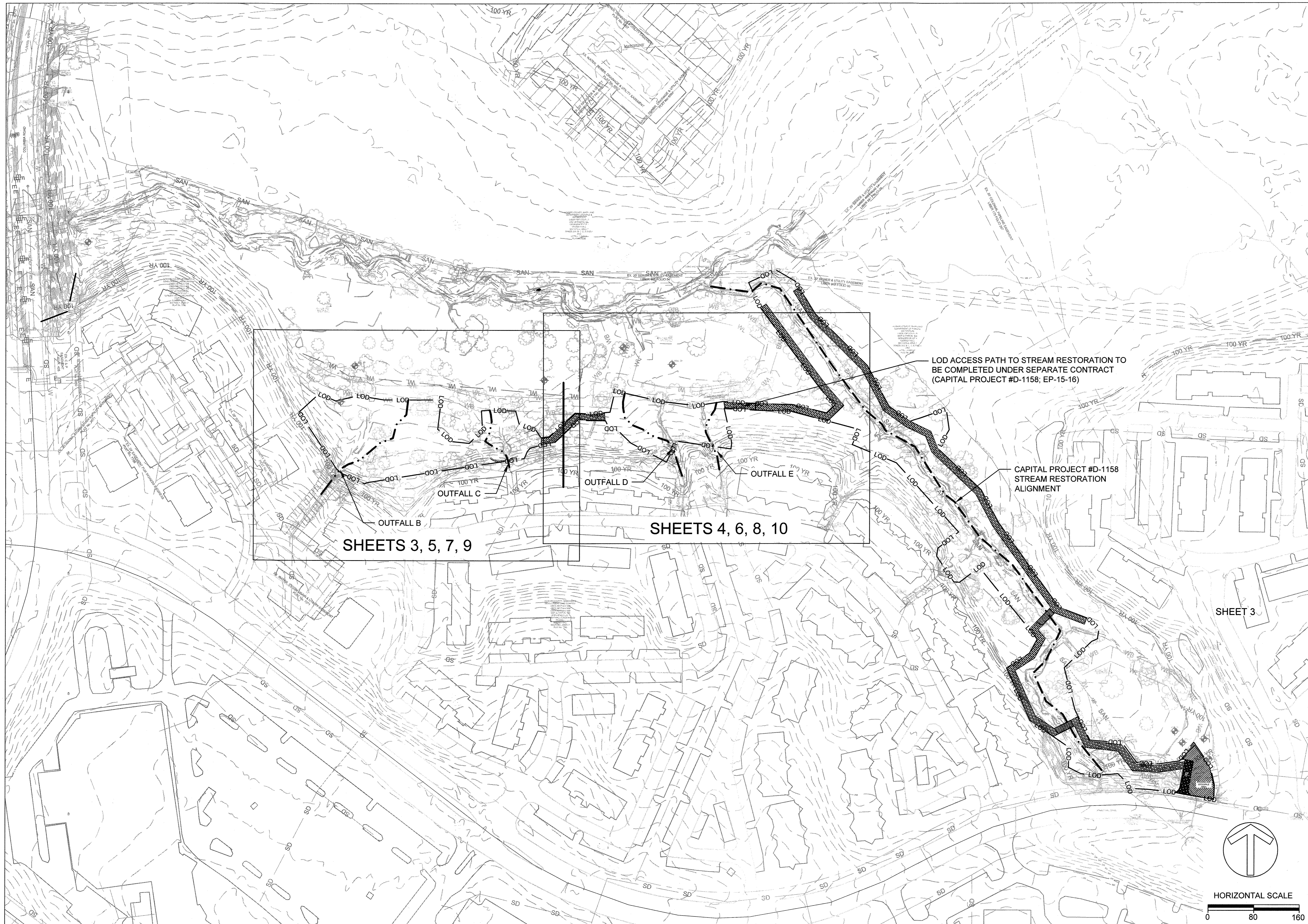
Nick Lindow (Nick Lindow) DATE: 01-26-15
SIGNATURE OF ENGINEER (PRINTNAME BELOW SIGNATURE)

DEVELOPERS CERTIFICATE
"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 (Mark S. Richmond) DATE: 1/20/15
SIGNATURE OF DEVELOPER (PRINTNAME BELOW SIGNATURE)

This development plan is approved for soil erosion and sediment control by the HOWARD SOIL CONSERVATION DISTRICT <u>John K. Robertson</u> DATE: <u>2/3/15</u> HOWARD SCD	DEPARTMENT OF PUBLIC WORKS, HOWARD CO, MD <u>Mark S. Richmond</u> DATE: <u>1/20/15</u> CHIEF, BUREAU OF ENVIRONMENTAL SERVICES
DEPARTMENT OF PUBLIC WORKS, HOWARD CO, MD <u>Mark S. Richmond</u> DATE: <u>1/20/15</u> CHIEF, STORMWATER MANAGEMENT DIVISION	DEPARTMENT OF PUBLIC WORKS, HOWARD CO, MD <u>John G. De</u> DATE: <u>1/20/15</u> DIRECTOR, DEPARTMENT OF PUBLIC WORKS

- GENERAL NOTES:
- A WAIVER PETITION (WP-15-080) FROM SECTION 16.1202 WAS APPROVED ON 01/21/2015 THAT ALLOWS THE USE OF THE AREA INSIDE THE LIMIT OF DISTURBANCE AS THE NET TRACT AREA IN THE FOREST CONSERVATION CALCULATIONS SUBJECT TO THE FOLLOWING CONDITIONS:
 - AUTHORIZATION FROM THE MARYLAND DEPARTMENT OF THE ENVIRONMENT AND THE U.S. ARMY CORPS OF ENGINEERING FOR ACTIVITIES IN THE REGULATED AREAS
 - DISTURBANCE IS LIMITED TO THE LIMIT OF DISTURBANCE AS DEPICTED ON THE WAIVER EXHIBIT
 - ALL AREAS MUST BE REPLANTED AND STABILIZED.
 - THE DEPARTMENT OF PLANNING AND ZONING HAVE DETERMINED THAT THE DISTURBANCE WITHIN THE 100-YEAR FLOODPLAIN AND REQUIRED BUFFERS FOR THE PROPOSED OUTFALL RETROFIT PROJECT ARE CONSIDERED ESSENTIAL OR NECESSARY IN ACCORDANCE WITH SECTIONS 16.115(A)(1)(II) OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS.
 - RED HILL BRANCH IS A USE IV WATERWAY; IN-STREAM WORK MAY NOT BE CONDUCTED FROM MARCH 1 THROUGH MAY 31 INCLUSIVE, OF ANY YEAR.
 - ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY.
 - SURVEY OF THE SITE WAS PERFORMED BY AB CONSULTANTS, SPRING 2014.
 - THE COORDINATES SHOWN HEREON ARE BASED ON HOWARD COUNTY GEODETIC CONTROL, WHICH IS BASED UPON THE MARYLAND STATE PLAN COORDINATE SYSTEM. BENCHMARKS SHOWN HEREON WERE PROVIDED BY AB CONSULTANTS.
 - WETLANDS WERE DELINEATED BY BIOHABITATS, JUNE 2014.
 - OBSTRUCTIONS SHOWN ON THESE DRAWINGS ARE FOR THE CONVENIENCE OF THE CONTRACTOR ONLY AND BIOHABITATS DOES NOT WARRANT OR GUARANTEE THE CORRECTNESS OR COMPLETENESS OF THE INFORMATION GIVEN. THE CONTRACTOR MUST VERIFY SUCH INFORMATION TO HIS OWN SATISFACTION.
 - THE EXISTING INFORMATION SHOWN ON THESE PLANS WAS TAKEN FROM THE BEST AVAILABLE SOURCES AND SHALL BE VERIFIED BEFORE STARTING CONSTRUCTION. HOWARD COUNTY DOES NOT GUARANTEE THE COMPLETENESS OR THE CORRECTNESS OF THE SHOWN INFORMATION.
 - THE CONTRACTORS SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THE EXISTING UTILITIES AND MAINTAIN UNINTERRUPTED SERVICE. ANY DAMAGE INCURRED DUE TO THE CONTRACTORS OPERATION SHALL BE REPAIRED IMMEDIATELY. ALL UTILITIES SHALL HAVE A CLEARANCE BY A MINIMUM OF 6 INCHES VERTICALLY AND A MINIMUM OF 5 FEET HORIZONTALLY.
 - SHOULD THE CONTRACTOR DISCOVER DISCREPANCIES BETWEEN THE PLANS AND FIELD CONDITIONS, THE CONTRACTOR SHALL NOTIFY BIOHABITATS IMMEDIATELY TO RESOLVE THE SITUATION.
 - THE CONTRACTOR IS SOLELY RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, PROCEDURES, AND SAFETY PRECAUTIONS AND PROGRAMS.



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12/04/2014	FINAL DESIGN

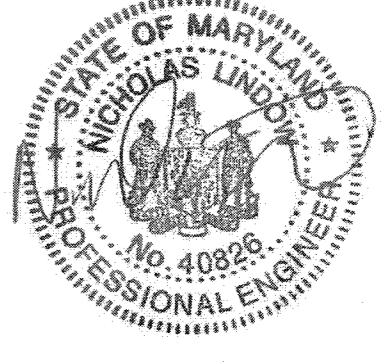
APPROVED: DEPARTMENT OF PUBLIC WORKS
Michael J. K... 12/04/14
 CHIEF, BUREAU OF ENVIRONMENTAL SERVICES DATE

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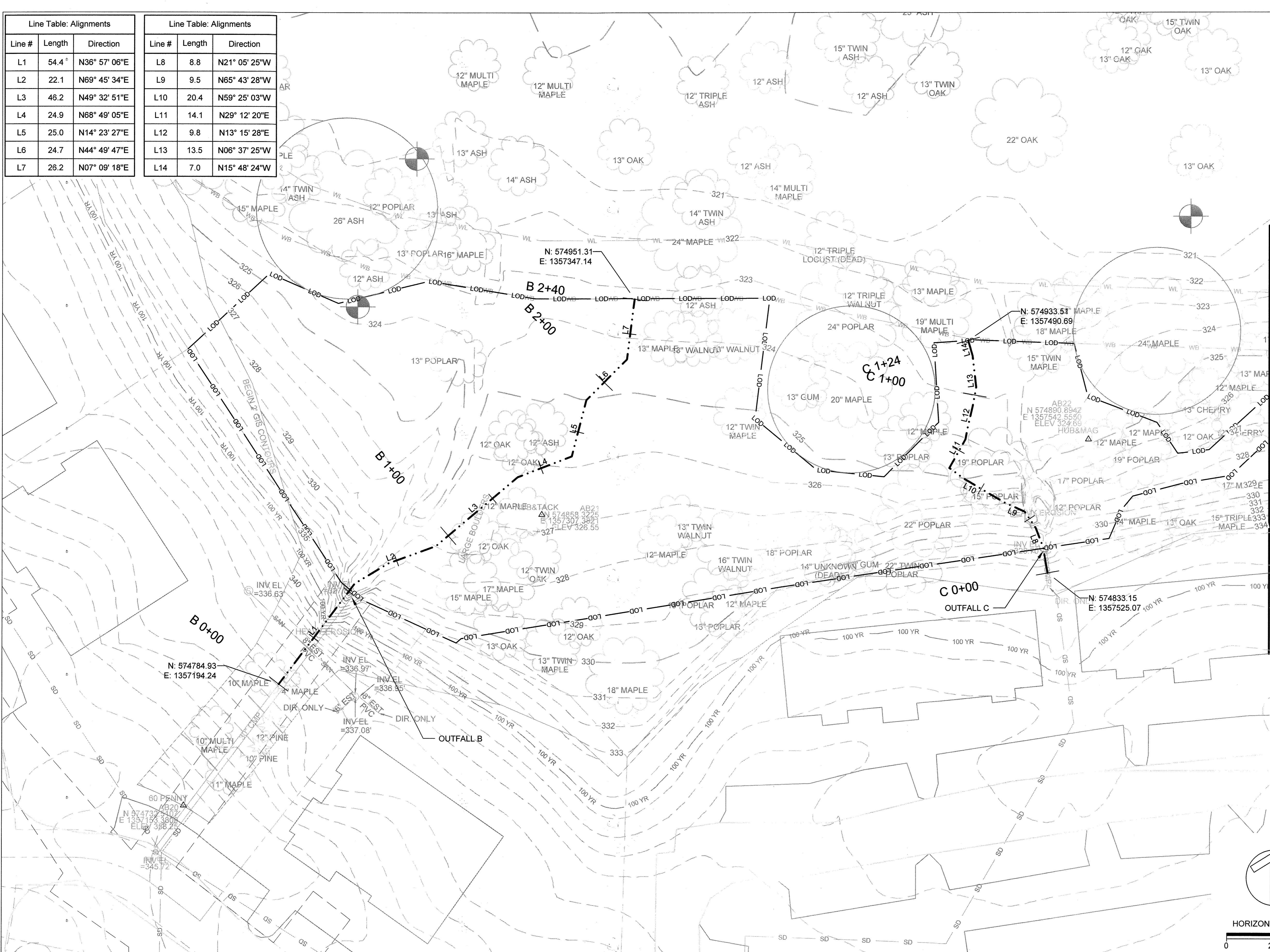
**DORSEY HALL VILLAGE
 STORMWATER
 RETROFITS**

TITLE: SITE MAP

PROJECT NO.: 13005.14 SCALE: 1" = 80'
 SEAL: BY: KT/NL CHECK: DWG. NO.:



Line Table: Alignments			Line Table: Alignments		
Line #	Length	Direction	Line #	Length	Direction
L1	54.4'	N36° 57' 06"E	L8	8.8'	N21° 05' 25"W
L2	22.1'	N69° 45' 34"E	L9	9.5'	N65° 43' 28"W
L3	46.2'	N49° 32' 51"E	L10	20.4'	N59° 25' 03"W
L4	24.9'	N68° 49' 05"E	L11	14.1'	N29° 12' 20"E
L5	25.0'	N14° 23' 27"E	L12	9.8'	N13° 15' 28"E
L6	24.7'	N44° 49' 47"E	L13	13.5'	N06° 37' 25"W
L7	26.2'	N07° 09' 18"E	L14	7.0'	N15° 48' 24"W



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APPROVED: DEPARTMENT OF PUBLIC WORKS
Mark Deane DATE: 12/15/14
 CHIEF, BUREAU OF ENVIRONMENTAL SERVICES

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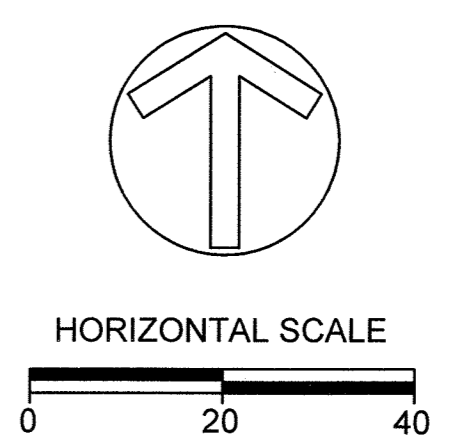
DORSEY HALL VILLAGE STORMWATER RETROFITS

TITLE: **EXISTING CONDITIONS & GEOMETRY**

PROJECT NO.:	13005 14	SCALE:	1" = 20'
SEAL:		BY:	KT/NL
		CHECK:	
		DWG. NO.:	

STATE OF MARYLAND
 NICHOLAS LINDORF
 No. 40828
 PROFESSIONAL ENGINEER

3 of 22




Line Table: Alignments			Line Table: Alignments		
Line #	Length	Direction	Line #	Length	Direction
L15	23.4	N16° 35' 41"W	L24	25.0	N09° 50' 48"W
L16	10.2	N40° 30' 04"W	L25	23.7	N26° 07' 21"W
L17	28.8	N71° 27' 20"W	L26	8.2	N04° 35' 27"W
L18	20.4	N55° 45' 06"W	L27	20.4	N25° 37' 56"E
L19	17.4	N68° 11' 40"W	L28	8.9	N34° 01' 27"E
L20	19.8	N48° 15' 30"W	L29	12.7	N13° 22' 54"E
L21	19.0	N09° 57' 02"W			
L22	10.2	N00° 06' 16"W			
L23	7.8	N12° 06' 01"E			

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APPROVED: DEPARTMENT OF PUBLIC WORKS

 CHIEF, BUREAU OF ENVIRONMENTAL SERVICES DATE 1/28/15

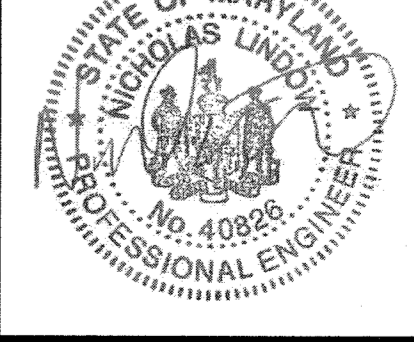


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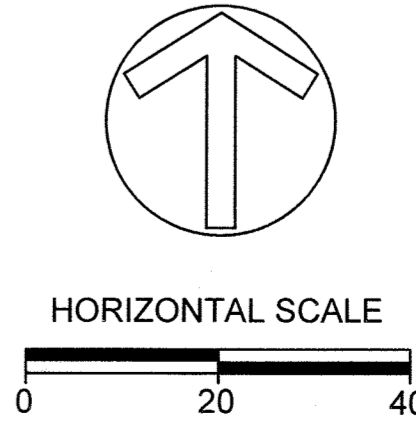
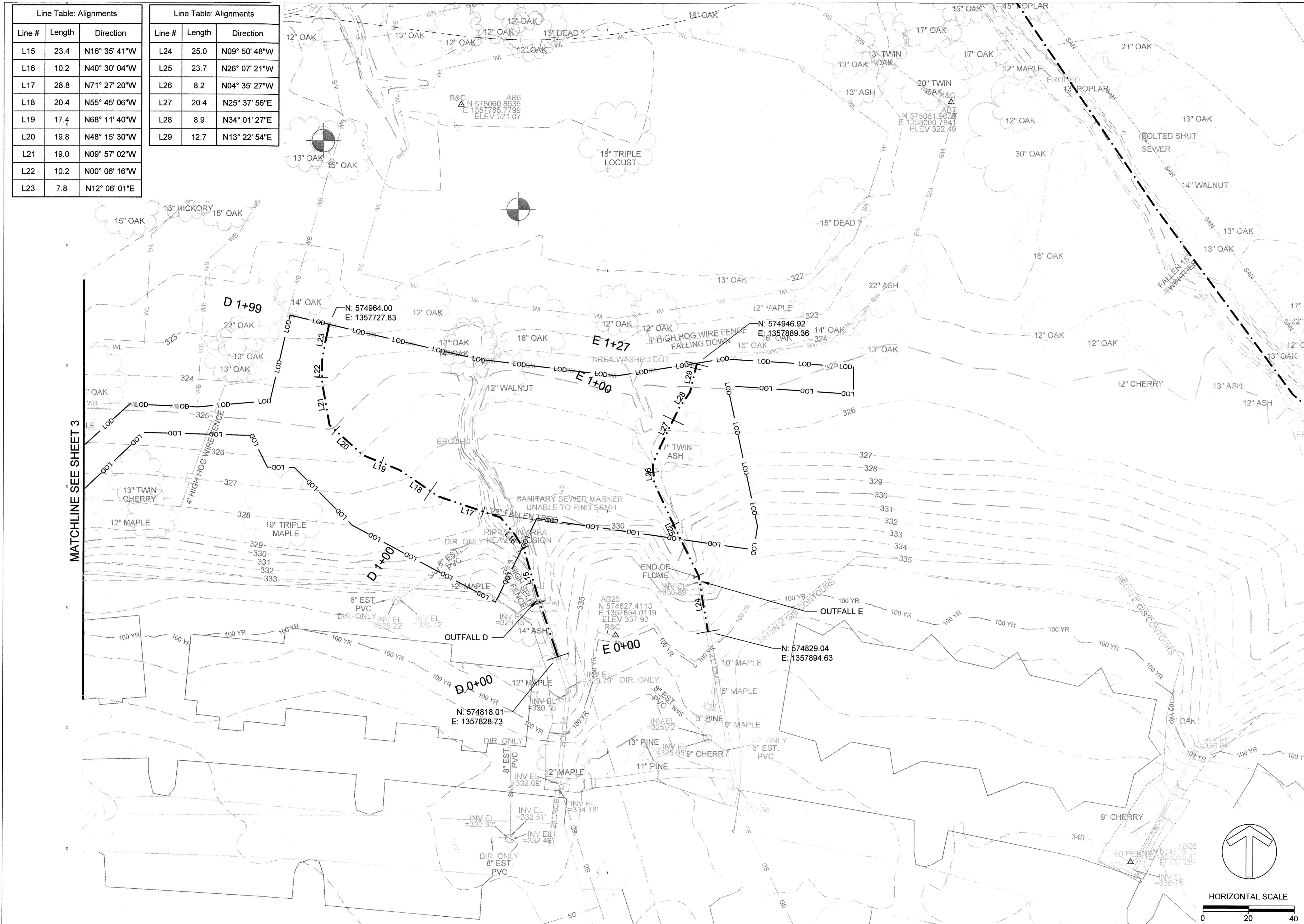
DORSEY HALL VILLAGE STORMWATER RETROFITS

EXISTING CONDITIONS & GEOMETRY

PROJECT NO.: 13005.14 SCALE: 1" = 20'
 SEAL: BY: KT/NL CHECK: DWG NO.:



4 of 22





FILTER LOGS TO BE REPLACED BY SUPER SILT FENCE IN THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR IN AREAS STEEPER THAN ALLOWED.

MATCHLINE SEE SHEET 6

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DATE	ISSUES / REVISIONS
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12/04/2014	FINAL DESIGN

APPROVED: DEPARTMENT OF PUBLIC WORKS
Mark D. L...
 CHIEF, BUREAU OF ENVIRONMENTAL SERVICES DATE

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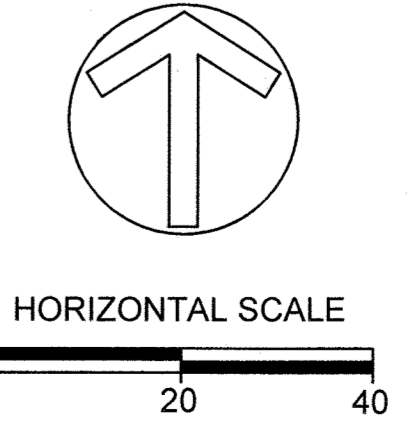
DORSEY HALL VILLAGE STORMWATER RETROFITS

EROSION AND SEDIMENT CONTROL

PROJECT NO.: 13005.14 SCALE: 1" = 20'
 BY: KT/NL CHECK: []
 DWG. NO.:

STATE OF MARYLAND
 MICHAEL S. LINDLAND
 No. 40825
 PROFESSIONAL ENGINEER

5 of 22





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06 / 09 / 2015	AS-BUILT DRAWING
06 / 15 / 2016	TIE TO EXISTING CONTOURS (SHEETS 7&8)

STATE OF MARYLAND
 MY LONGGIER
 I HEREBY CERTIFY BY MY SIGNATURE THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF THE FACILITIES SHOWN ON THIS PLAN WERE CONSTRUCTED AS SHOWN ON THIS "AS-BUILT" PLAN MEET THE APPROVED PLANS AND SPECIFICATIONS.

APPROVED: *[Signature]* 12/6/16 DATE
 DEPARTMENT OF PUBLIC WORKS
 CHIEF, BUREAU OF ENVIRONMENTAL SERVICES 1/28/15 DATE

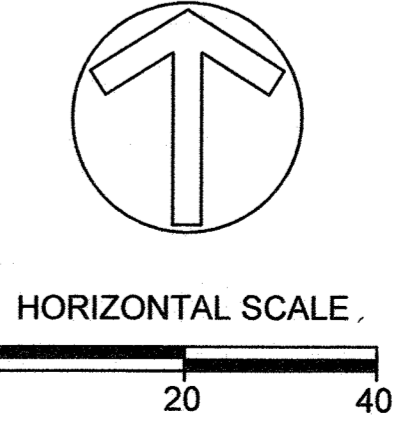
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DORSEY HALL VILLAGE STORMWATER RETROFITS AS-BUILT

TITLE: **PROPOSED CONDITIONS**

PROJECT NO.: 13005.14 SCALE: 1" = 20'
 SEAL: BY: KT/NL CHECK: DWG. NO.:

STATE OF MARYLAND
 NICHOLAS LINDO
 No. 40823
 PROFESSIONAL ENGINEER
 7 of 22



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08/15/2016	TIE TO EXISTING CONTOURS (SHEETS 7&8)



AS-BUILT CERTIFICATE
 I HEREBY CERTIFY, TO THE BEST OF MY KNOWLEDGE AND BELIEF THE FACILITIES SHOWN ON THIS "AS-BUILT" PLAN WERE CONSTRUCTED AS SHOWN ON THIS "AS-BUILT" PLAN MEET THE APPROVED PLANS AND SPECIFICATIONS.

APPROVED: *AG* 12/6/16
 NAME: DATE
 DEPARTMENT OF PUBLIC WORKS
Michael... 12/2/15
 CHIEF, BUREAU OF ENVIRONMENTAL SERVICES DATE

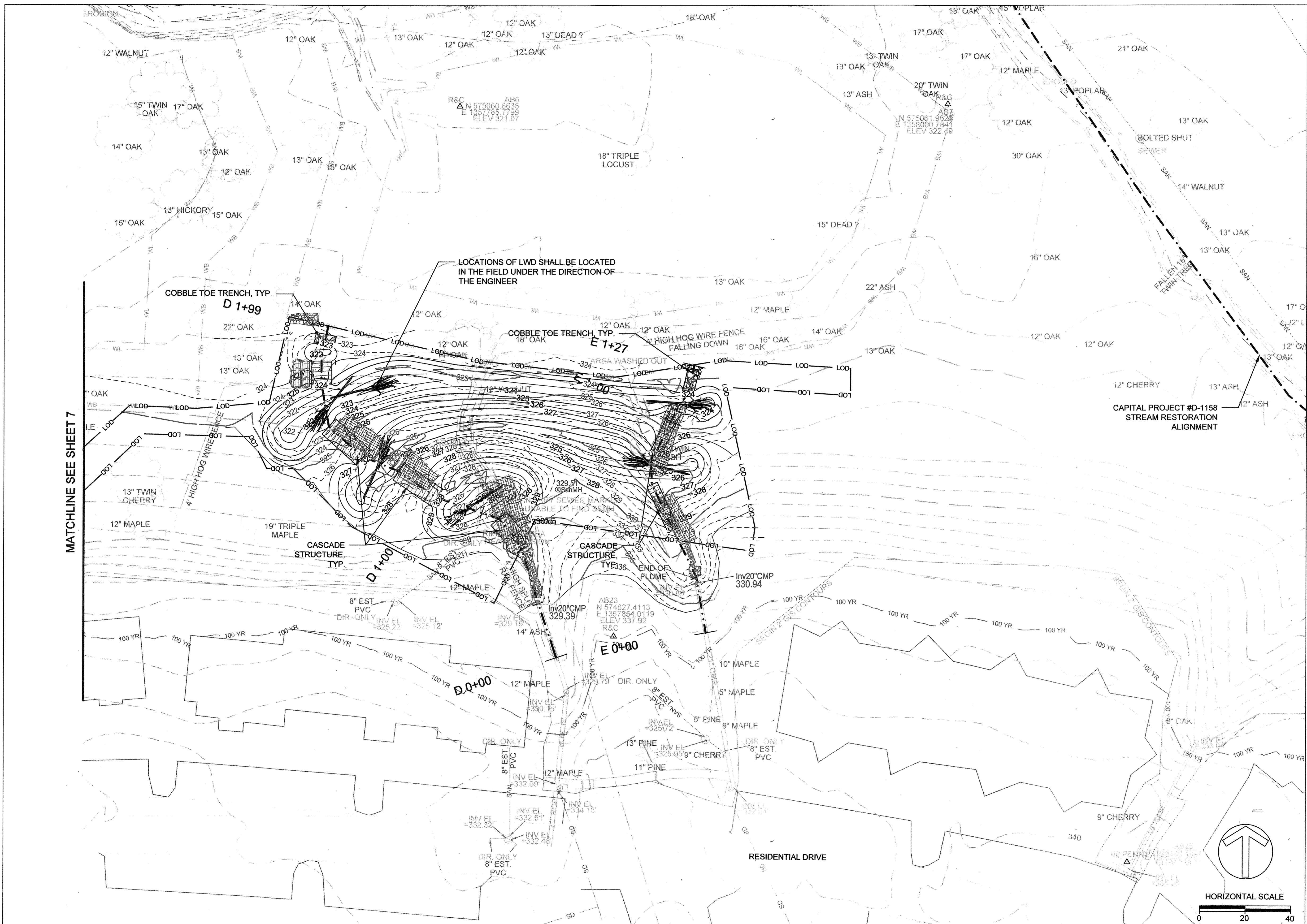
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**DORSEY HALL VILLAGE
 STORMWATER RETROFITS
 AS-BUILT**

PROPOSED CONDITIONS

PROJECT NO.: 13005.14 SCALE: 1" = 20'
 SEAL: BY: KT/NL CHECK: DWG. NO.:

STATE OF MARYLAND
 PROFESSIONAL ENGINEER
 No. 40828
8 of 22



MATCHLINE SEE SHEET 7

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APPROVED: DEPARTMENT OF PUBLIC WORKS

 CHIEF, BUREAU OF ENVIRONMENTAL SERVICES DATE 1/28/15

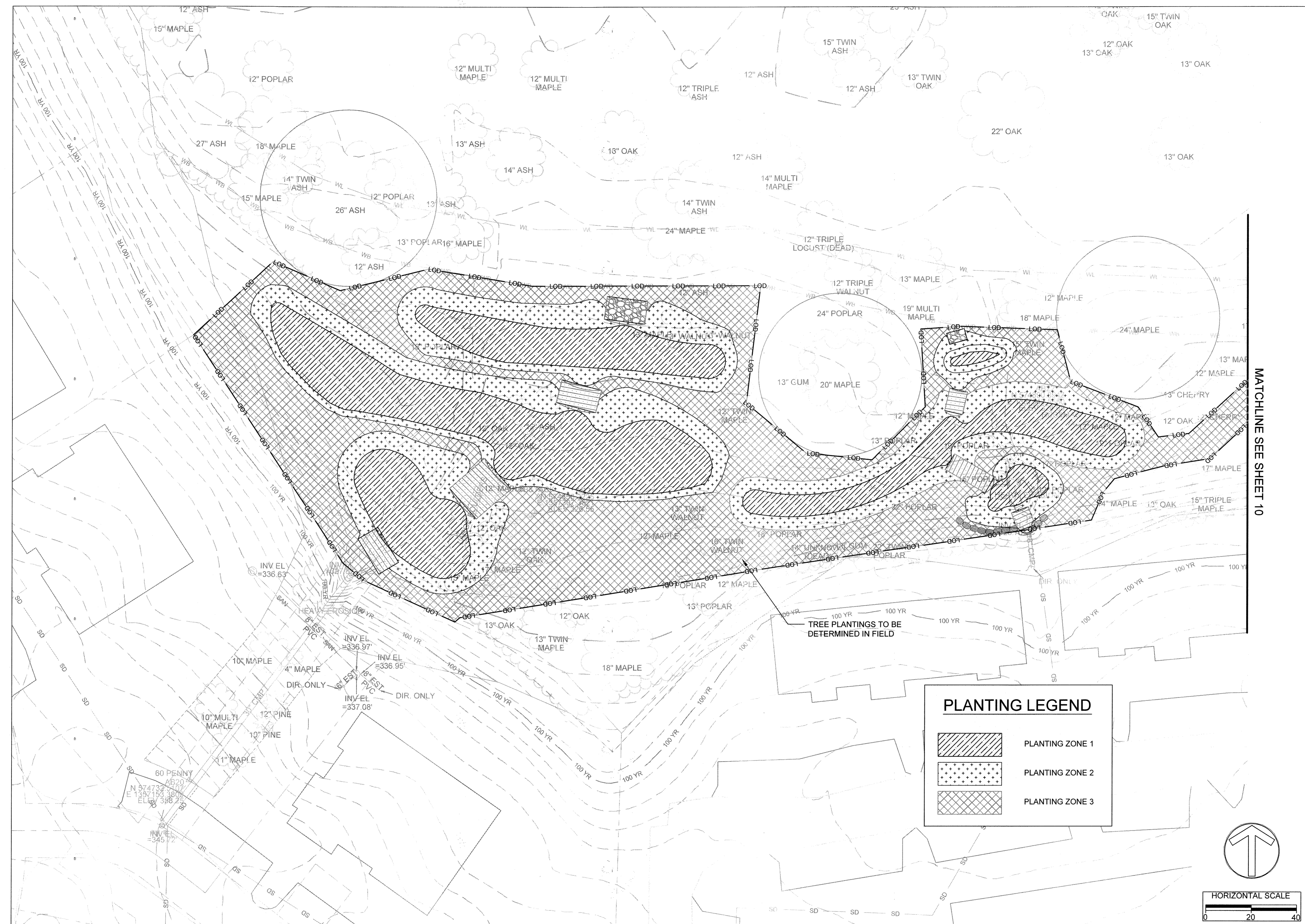
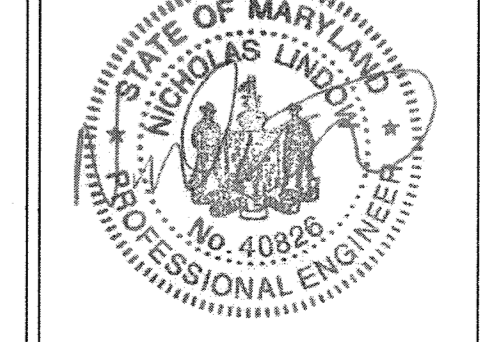


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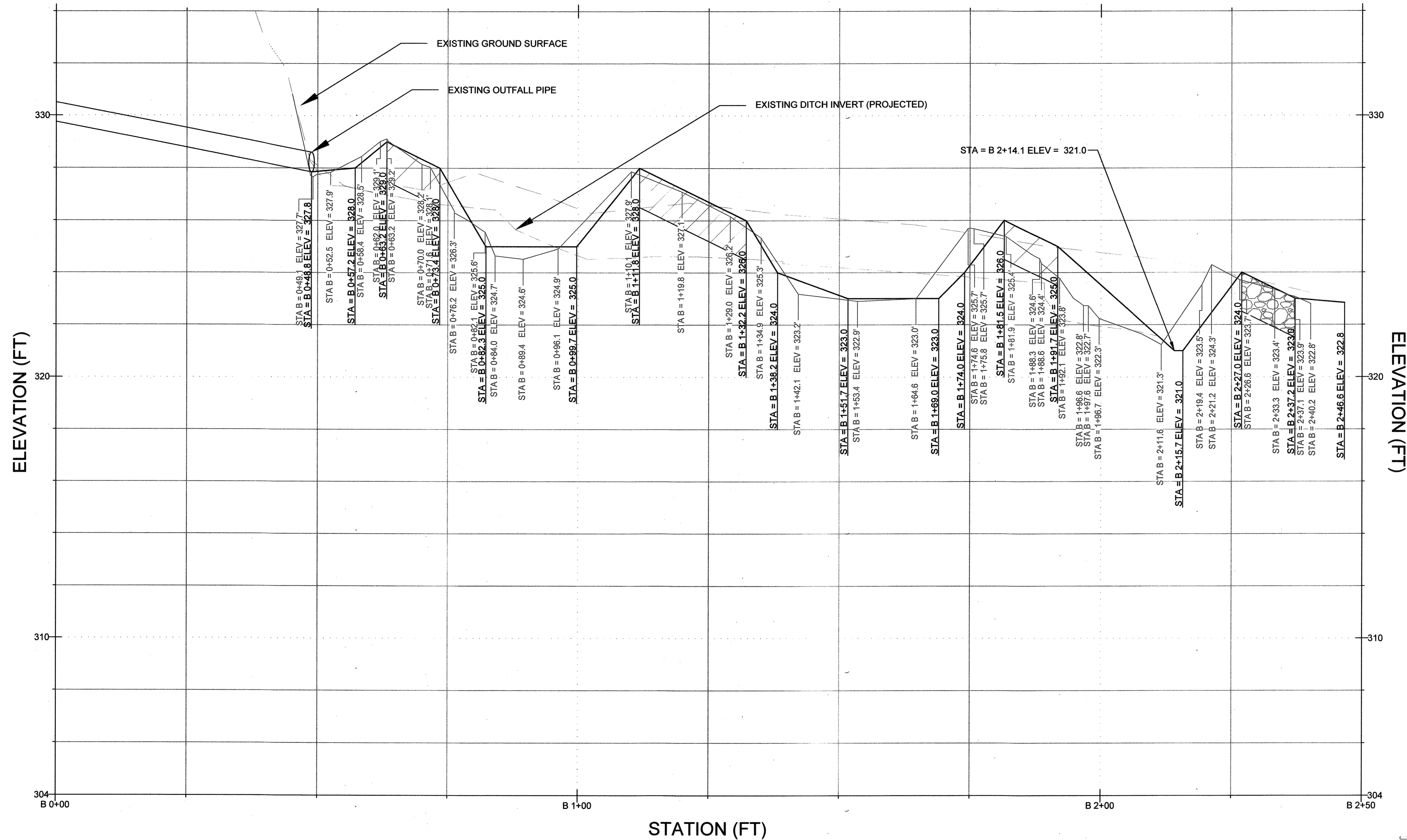
**DORSEY HALL
 VILLAGE
 STORMWATER
 RETROFITS**

PLANTING PLAN

PROJECT NO.	13005.14	SCALE	1" = 20'
SEAL		BY	KT/NL
		CHECK	
		DWG. NO.	



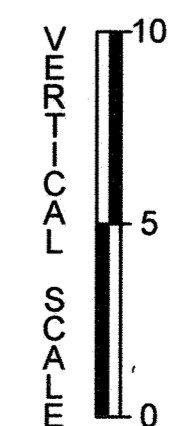
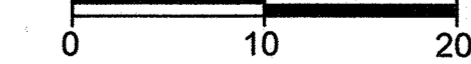
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PROFILE LEGEND

- EXISTING
- PROPOSED
- CASCADE STRUCTURE
- COBBLE TOE TRENCH

HORIZONTAL SCALE



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DATE ISSUES / REVISIONS

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I HEREBY CERTIFY, BY MY SEAL, THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF THE FACILITIES SHOWN ON THIS PLAN WERE CONSTRUCTED AS SHOWN ON THIS "AS-BUILT" PLAN MEET THE APPROVED PLANS AND SPECIFICATIONS.

APPROVED: 12/6/16
 NAME: Amy Longciser DATE: 12/6/16
 DEPARTMENT OF PUBLIC WORKS
 APPROVED: 1/28/15
 NAME: Michael J. Pomeroy DATE: 1/28/15
 CHIEF, BUREAU OF ENVIRONMENTAL SERVICES

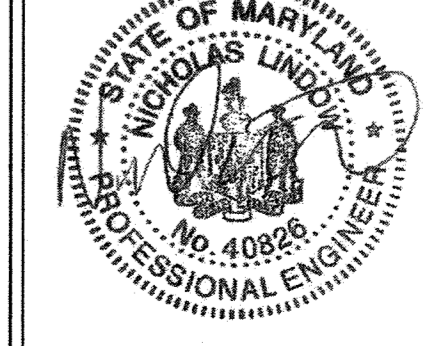
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**DORSEY HALL
 VILLAGE
 STORMWATER
 RETROFITS**

TITLE: **PROFILE
 AS-BUILT**

PROJECT NO.: 13005.14 SCALE: AS SHOWN

SEAL: BY: KT/NL CHECK: DWG. NO.:



11 of 22

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12/04/2014	FINAL DESIGN
06 / 05 / 2015	AS-BUILT DRAWING



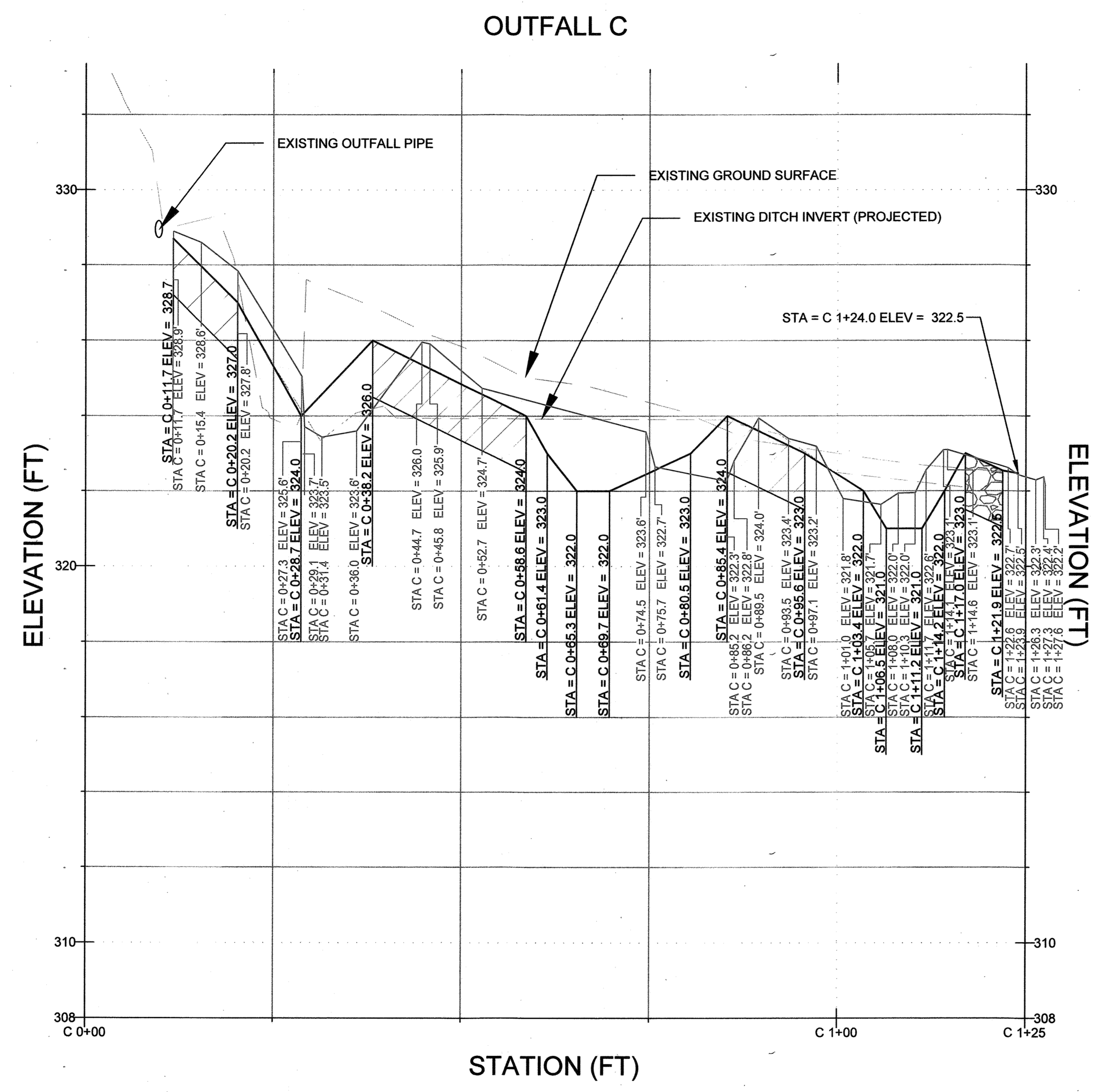
AS-BUILT CERTIFICATE
 I HEREBY CERTIFY BY MY SEAL THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF THE FACILITIES SHOWN ON THIS PLAN WERE CONSTRUCTED AS SHOWN ON THIS "AS-BUILT" PLAN MEET THE APPROVED PLANS AND SPECIFICATIONS.

NAME: *AG* DATE: 12/6/16
 APPROVED: DEPARTMENT OF PUBLIC WORKS
 CHIEF, BUREAU OF ENVIRONMENTAL SERVICES DATE: 12/8/16

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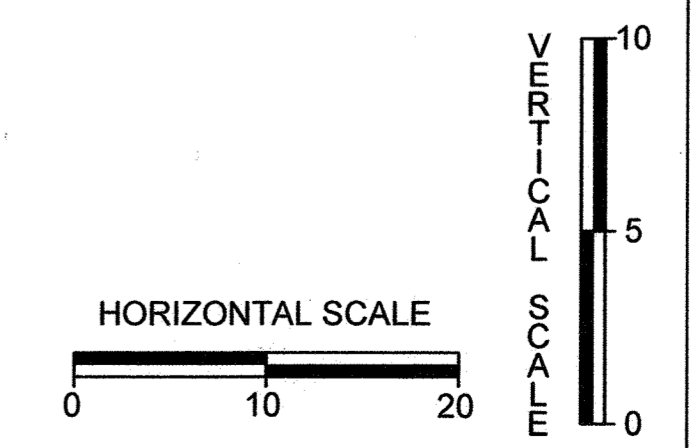
DORSEY HALL VILLAGE STORMWATER RETROFITS

TITLE: PROFILE AS-BUILT	
PROJECT NO.: 13005.14	SCALE: AS SHOWN
SEAL:	BY: KT/NL CHECK: [Signature] DWG. NO.:
 12 of 22	



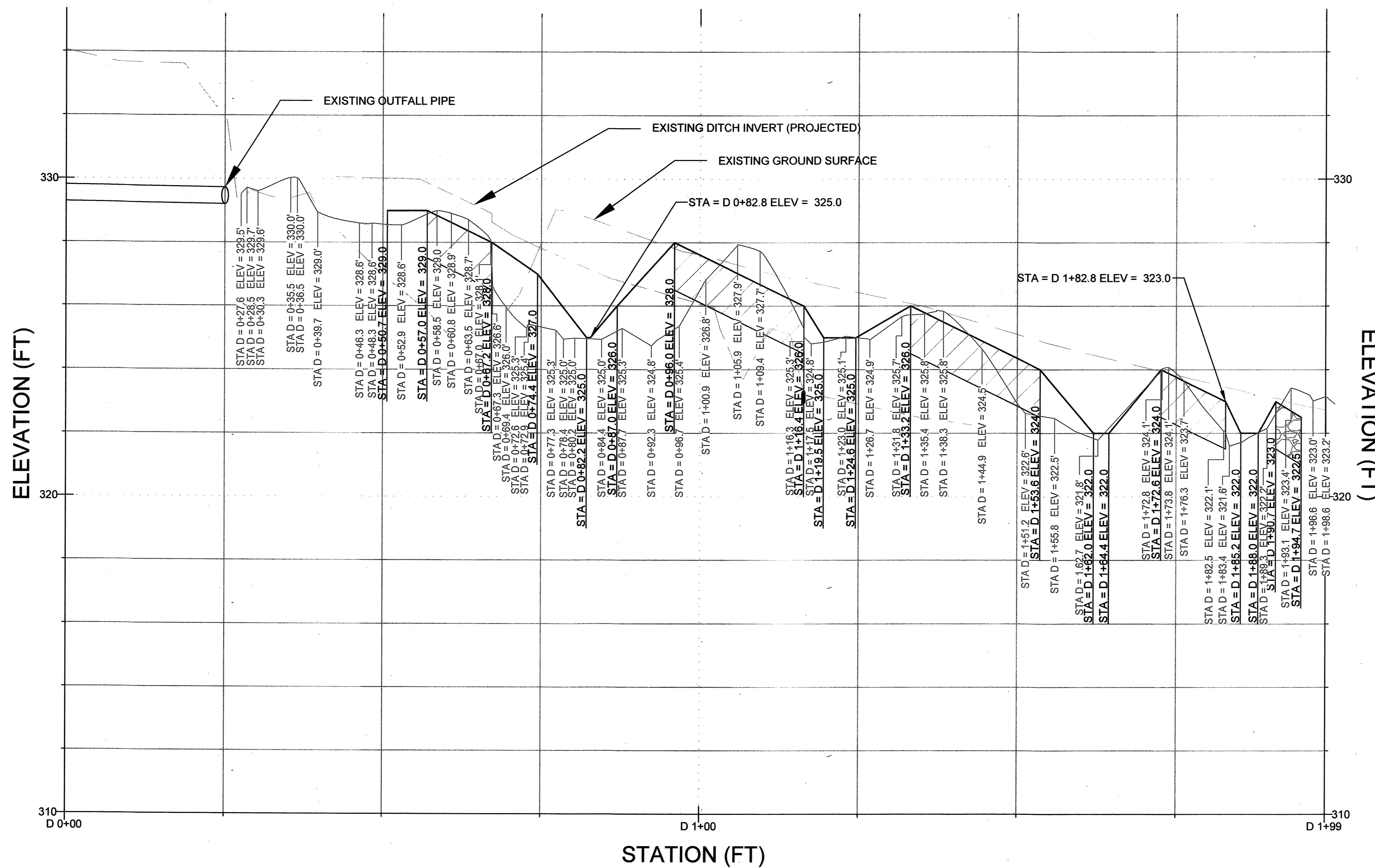
PROFILE LEGEND

- EXISTING
- PROPOSED
- CASCADE STRUCTURE
- COBBLE TOE TRENCH



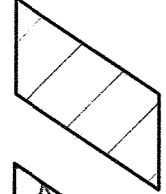
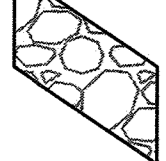


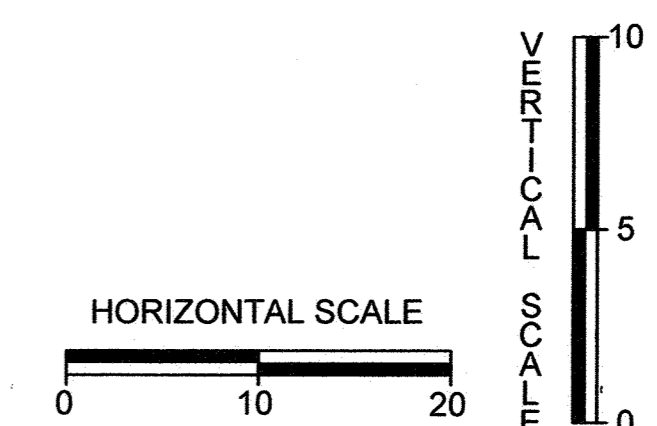
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OUTFALL D



PROFILE LEGEND

-  EXISTING
-  PROPOSED
-  CASCADE STRUCTURE
-  COBBLE TOE TRENCH

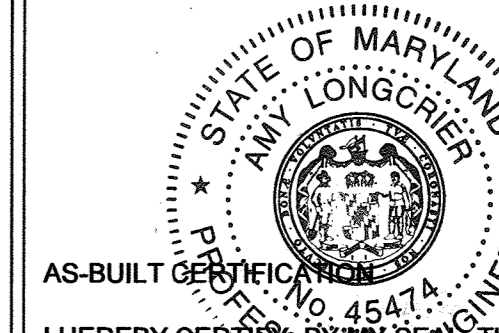


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 ELLICOTT CITY, MD 21043
 (P) 410 313 2022
 (F) 410 313 3390

GEORGE WILLIAM STEPHENS, JR. and ASSOCIATES, INC.
 ENGINEERS - PLANNERS - SURVEYORS - TRANSPORTATION
 4692 MILLENNIUM DRIVE, SUITE 100
 BELCAMP, MARYLAND 21037
 Phone: (410) 297-2340 gwestephens.com Fax: (410) 297-2345

DATE ISSUES / REVISIONS

DATE	ISSUES / REVISIONS
09/18/2014	60% DESIGN
12/04/2014	FINAL DESIGN
06 / 05 / 2015	AS-BUILT DRAWING



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NAME: *AS* DATE: 12/16/15

APPROVED: DEPARTMENT OF PUBLIC WORKS
 NAME: *Michael P. ...* DATE: 1/28/15
 CHIEF, BUREAU OF ENVIRONMENTAL SERVICES

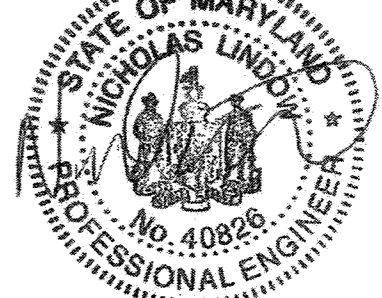


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DORSEY HALL VILLAGE STORMWATER RETROFITS

PROFILE AS-BUILT

PROJECT NO.:	13005.14	SCALE:	AS SHOWN
SEAL:		BY:	CHECK:
		KT/NL	
		DWG. NO.:	



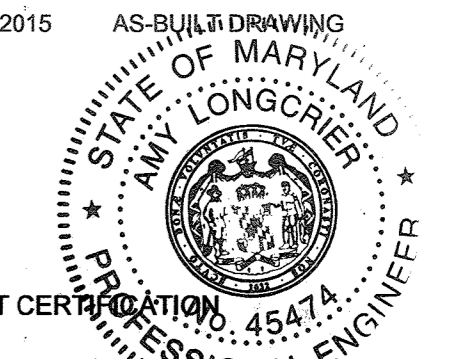
13 of 22

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 BELCAMP, MARYLAND 21017
 Phone: (410) 297-2340 gwsstephens.com Fax: (410) 297-2345

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 06/09/2015 AS-BUILT DRAWING



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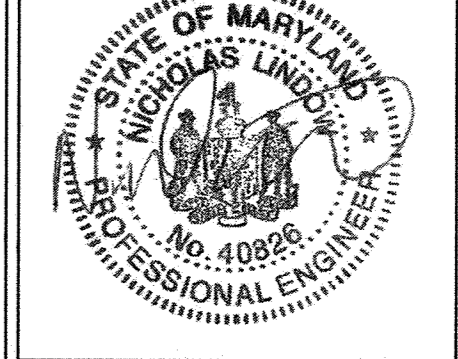
APPROVED: *[Signature]* 12/16/16
 NAME DATE
 DEPARTMENT OF PUBLIC WORKS
 APPROVED: *[Signature]* 1/28/15
 CHIEF, BUREAU OF ENVIRONMENTAL SERVICES DATE

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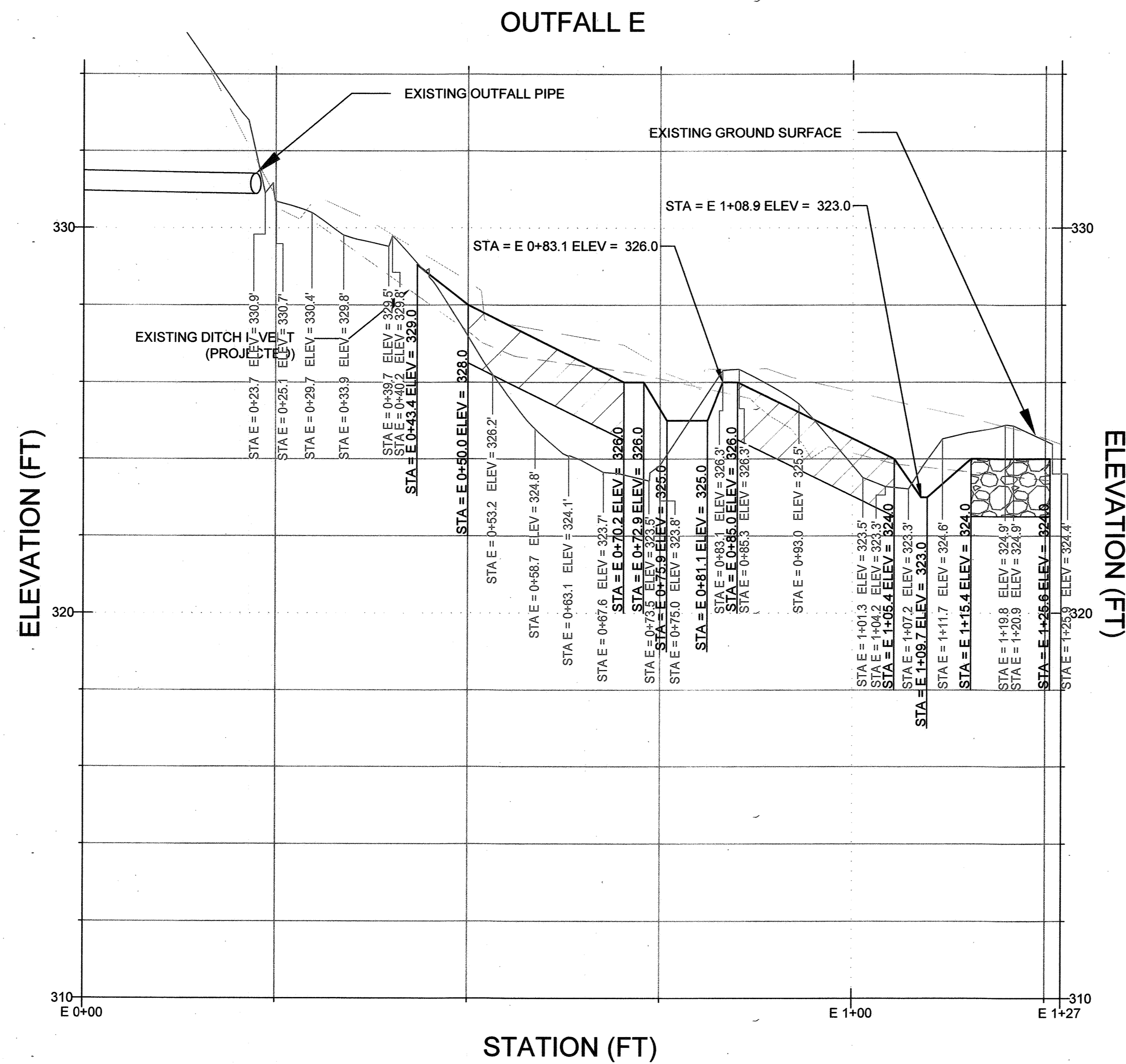
**DORSEY HALL
 VILLAGE
 STORMWATER
 RETROFITS**

TITLE
**PROFILE
 AS-BUILT**

PROJECT NO. 13005.14 SCALE: AS SHOWN
 SEAL: BY: KT/NL CHECK: DWG. NO.:

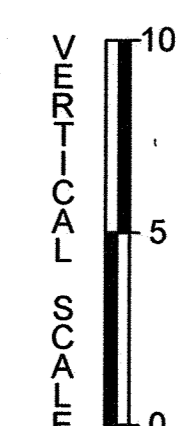
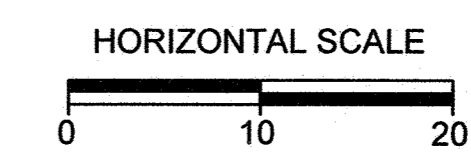


14 of 22



PROFILE LEGEND

- EXISTING
- PROPOSED
- CASCADE STRUCTURE
- COBBLE TOE TRENCH



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OUTFALL B STRUCTURE TABLE				
CASCADE				
STATION	NODE	NORTHING	EASTING	ELEVATION
B 0+63.2	US-L	574839.4	1357227.7	330.0
	US-T	574831.7	1357232.3	329.0
	US-R	574823.9	1357236.9	330.0
	DS-L	574844.6	1357236.5	329.0
	DS-T	574836.9	1357241.1	328.0
	DS-R	574829.2	1357245.7	329.0
STATION	NODE	NORTHING	EASTING	ELEVATION
B 1+11.8	US-L	574862.0	1357268.2	329.0
	US-T	574854.5	1357273.1	328.0
	US-R	574848.4	1357280.0	329.0
	DS-L	574875.3	1357283.6	327.0
	DS-T	574868.5	1357289.5	326.0
	DS-R	574861.7	1357295.4	327.0
STATION	NODE	NORTHING	EASTING	ELEVATION
B 1+81.5	US-L	574900.2	1357315.1	327.0
	US-T	574897.9	1357323.8	326.0
	US-R	574895.6	1357332.5	327.0
	DS-L	574910.1	1357317.8	326.0
	DS-T	574907.8	1357326.5	325.0
	DS-R	574905.5	1357335.2	326.0

OUTFALL B STRUCTURE TABLE				
COBBLE TOE TRENCH				
STATION	NODE	NORTHING	EASTING	ELEVATION
B 2+27.0	US-L	574936.8	1357336.3	325.0
	US-T	574935.7	1357345.2	324.0
	US-R	574934.6	1357354.2	325.0
	DS-L	574947.0	1357337.6	324.0
	DS-T	574945.9	1357346.5	323.0
	DS-R	574944.7	1357355.4	324.0

OUTFALL C STRUCTURE TABLE				
CASCADE				
STATION	NODE	NORTHING	EASTING	ELEVATION
C 0+11.7	US-L	574843.6	1357518.8	329.7
	US-T	574844.6	1357522.8	328.7
	US-R	574846.0	1357526.6	329.7
	DS-L	574851.2	1357516.1	328.0
	DS-T	574852.6	1357519.9	327.0
	DS-R	574854.0	1357523.7	328.0
	STATION	NODE	NORTHING	EASTING
C 0+38.2	US-L	574860.1	1357504.5	327.0
	US-T	574863.2	1357507.1	326.0
	US-R	574867.0	1357508.5	327.0
	DS-L	574870.5	1357486.9	325.0
	DS-T	574873.9	1357488.9	324.0
	DS-R	574877.4	1357491.0	325.0
	STATION	NODE	NORTHING	EASTING
C 0+85.4	US-L	574896.5	1357486.6	325.0
	US-T	574895.6	1357490.5	324.0
	US-R	574894.8	1357494.4	325.0
	DS-L	574906.5	1357488.8	324.0
	DS-T	574905.6	1357492.8	323.0
	DS-R	574904.7	1357496.7	324.0

OUTFALL C STRUCTURE TABLE				
COBBLE TOE TRENCH				
STATION	NODE	NORTHING	EASTING	ELEVATION
C 1+17.0	US-L	574925.7	1357488.7	323.5
	US-T	574926.8	1357492.6	323.0
	US-R	574927.8	1357496.5	323.5
	DS-L	574930.6	1357487.4	323.0
	DS-T	574931.7	1357491.3	322.5
	DS-R	574932.7	1357495.2	323.0

OUTFALL D STRUCTURE TABLE				
CASCADES				
STATION	NODE	NORTHING	EASTING	ELEVATION
D 0+57.0	US-L	574868.6	1357806.5	330.0
	US-T	574871.6	1357809.9	329.0
	US-R	574874.5	1357813.3	330.0
	DS-L	574876.4	1357799.8	329.0
	DS-T	574879.3	1357803.3	328.0
	DS-R	574882.3	1357806.7	329.0
	STATION	NODE	NORTHING	EASTING
D 0+96.0	US-L	574884.7	1357773.4	329.0
	US-T	574888.5	1357776.0	328.0
	US-R	574892.2	1357778.5	329.0
	DS-L	574896.2	1357756.6	327.0
	DS-T	574900.0	1357759.1	326.0
	DS-R	574903.7	1357761.7	327.0
	STATION	NODE	NORTHING	EASTING
D 1+33.2	US-L	574902.7	1357740.4	327.0
	US-T	574906.1	1357743.4	326.0
	US-R	574909.4	1357746.4	327.0
	DS-L	574916.3	1357725.1	325.0
	DS-T	574919.6	1357728.1	324.0
	DS-R	574923.0	1357731.2	325.0
	STATION	NODE	NORTHING	EASTING
D 1+72.6	US-L	574938.4	1357720.3	325.0
	US-T	574938.4	1357724.9	324.0
	US-R	574938.4	1357729.4	325.0
	DS-L	574948.6	1357720.3	324.0
	DS-T	574948.6	1357724.8	323.0
	DS-R	574948.6	1357729.4	324.0


OUTFALL D STRUCTURE TABLE				
COBBLE TOE TRENCH				
STATION	NODE	NORTHING	EASTING	ELEVATION
D 1+90.7	US-L	574957.0	1357721.7	323.5
	US-T	574956.4	1357726.1	323.0
	US-R	574955.7	1357730.5	323.5
	DS-L	574961.1	1357722.6	323.0
	DS-T	574960.3	1357727.0	322.5
	DS-R	574959.5	1357731.4	323.0

OUTFALL E STRUCTURE TABLE				
CASCADES				
STATION	NODE	NORTHING	EASTING	ELEVATION
E 0+50.0	US-L	574874.9	1357877.1	329.0
	US-T	574876.0	1357879.4	328.0
	US-R	574877.0	1357881.7	329.0
	DS-L	574893.4	1357868.5	327.0
	DS-T	574894.5	1357870.7	326.0
	DS-R	574895.5	1357873.1	327.0
	STATION	NODE	NORTHING	EASTING
E 0+85.0	US-L	574909.8	1357870.3	327.0
	US-T	574908.8	1357872.6	326.0
	US-R	574907.9	1357875.1	327.0
	DS-L	574928.2	1357879.2	325.0
	DS-T	574927.1	1357881.4	324.0
	DS-R	574926.1	1357883.7	325.0

OUTFALL E STRUCTURE TABLE				
COBBLE TOE TRENCH				
STATION	NODE	NORTHING	EASTING	ELEVATION
E 1+15.4	US-L	574936.1	1357884.2	325.0
	US-T	574935.6	1357886.7	324.0
	US-R	574935.0	1357889.1	325.0
	DS-L	574946.0	1357886.6	324.0
	DS-T	574945.5	1357889.0	324.0
	DS-R	574944.9	1357891.4	324.0

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09/18/2014	60% DESIGN
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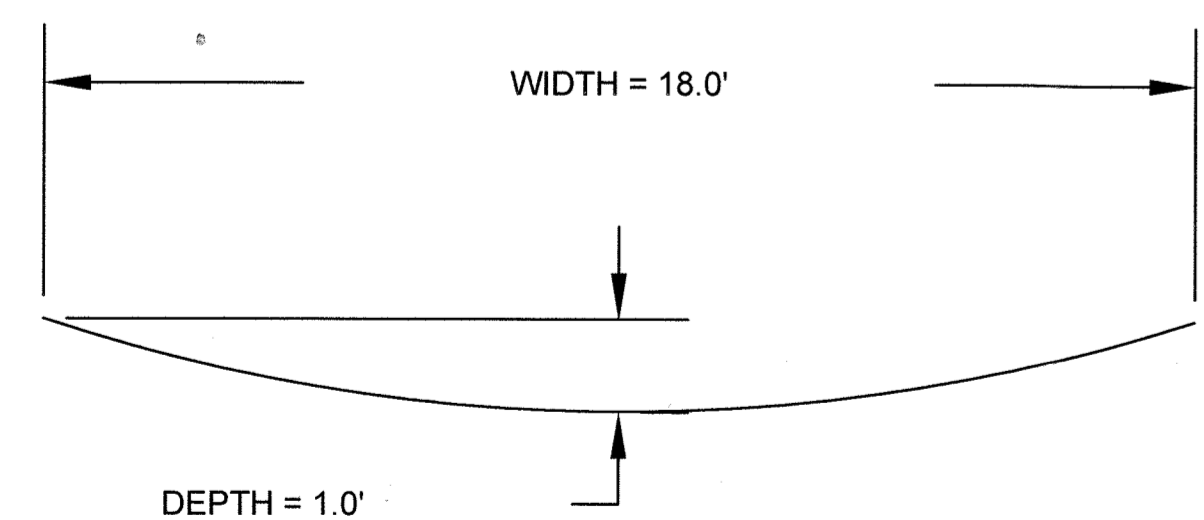
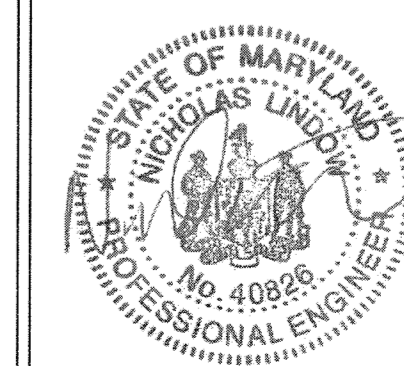
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 CHIEF, BUREAU OF ENVIRONMENTAL SERVICES DATE 12/15


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DORSEY HALL VILLAGE STORMWATER RETROFITS

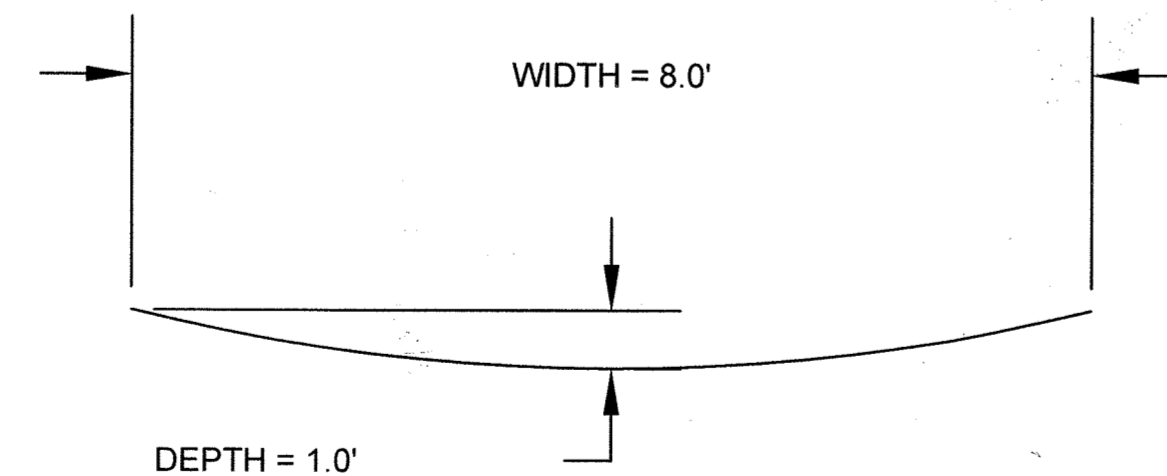
STRUCTURE TABLES

PROJECT NO.:	13005.14	SCALE:	
SEAL		BY:	KT/NL
		CHECK:	
		DWG. NO.:	



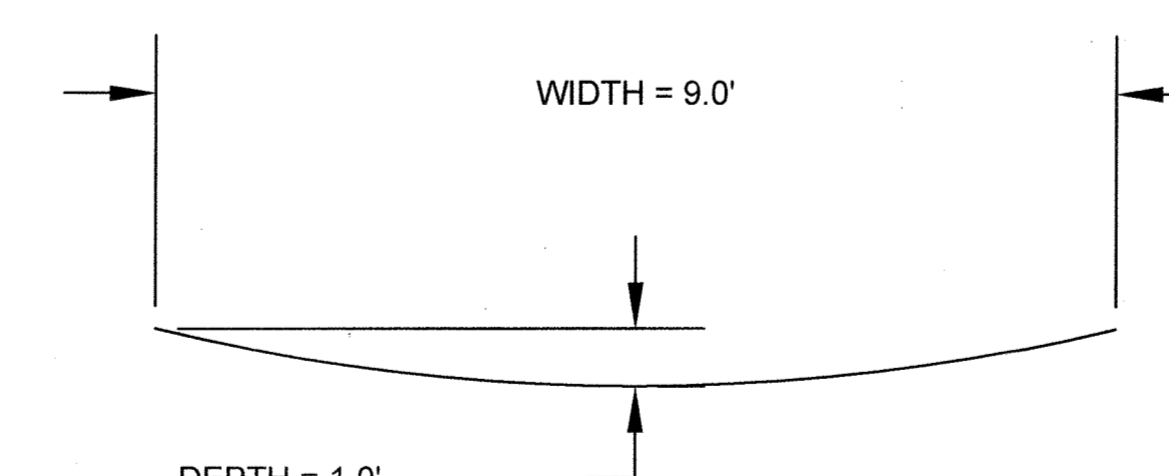
TYPICAL CROSS SECTION
 CASCADE & COBBLE TOE
 TRENCH - OUTFALL B

NOT TO SCALE



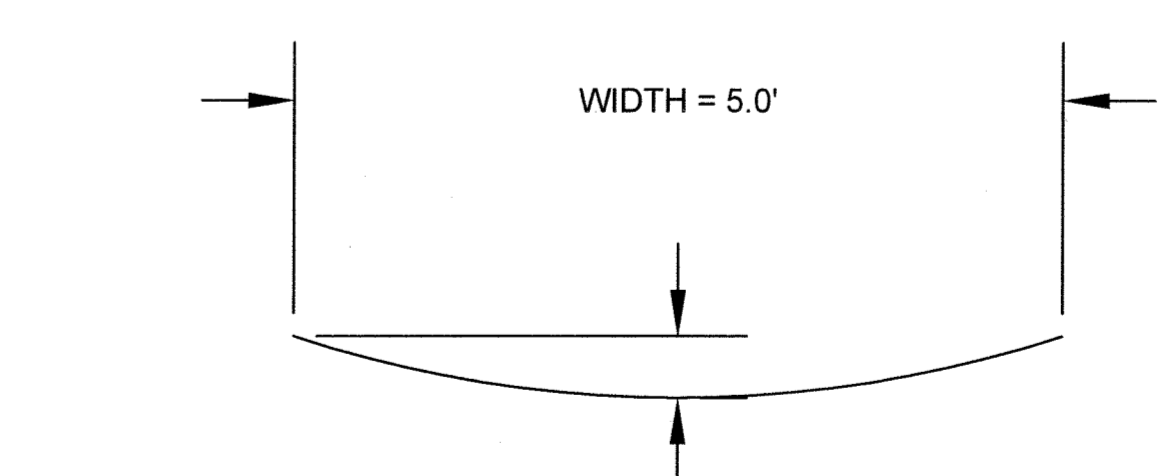
TYPICAL CROSS SECTION
 CASCADE & COBBLE TOE
 TRENCH - OUTFALL C

NOT TO SCALE



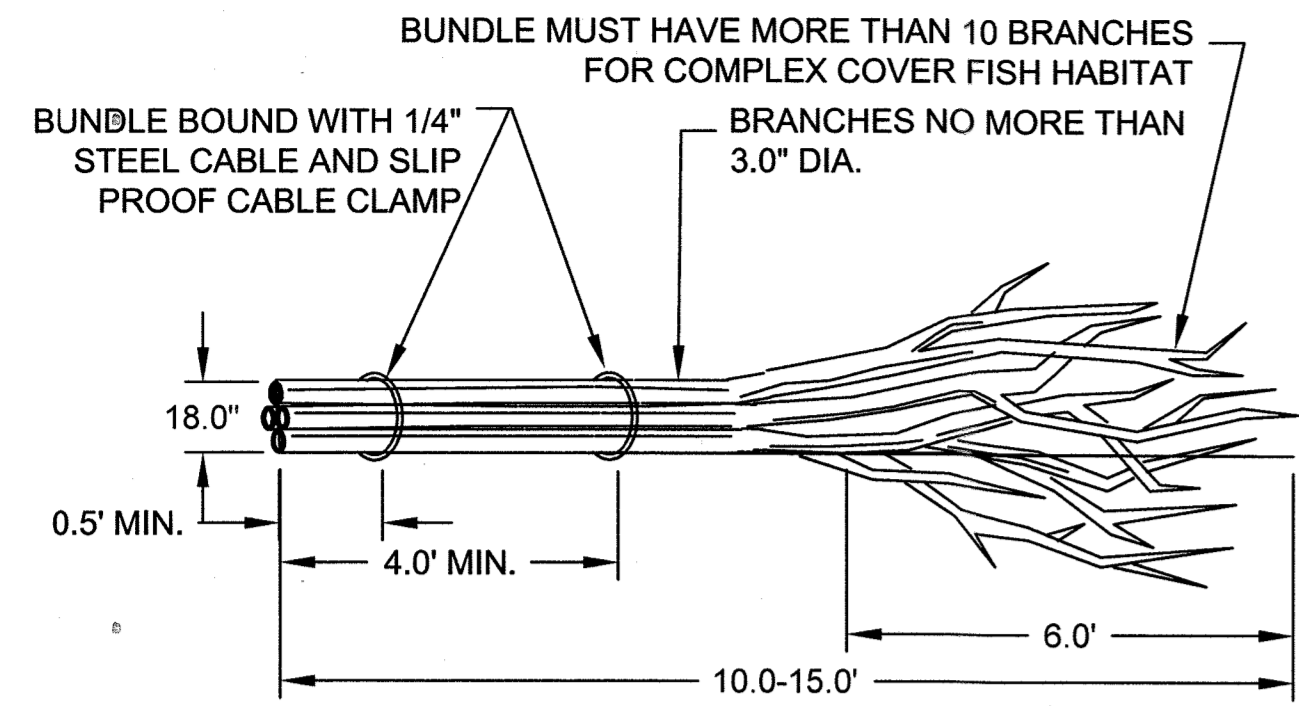
TYPICAL CROSS SECTION
 CASCADE & COBBLE TOE
 TRENCH - OUTFALL D

NOT TO SCALE



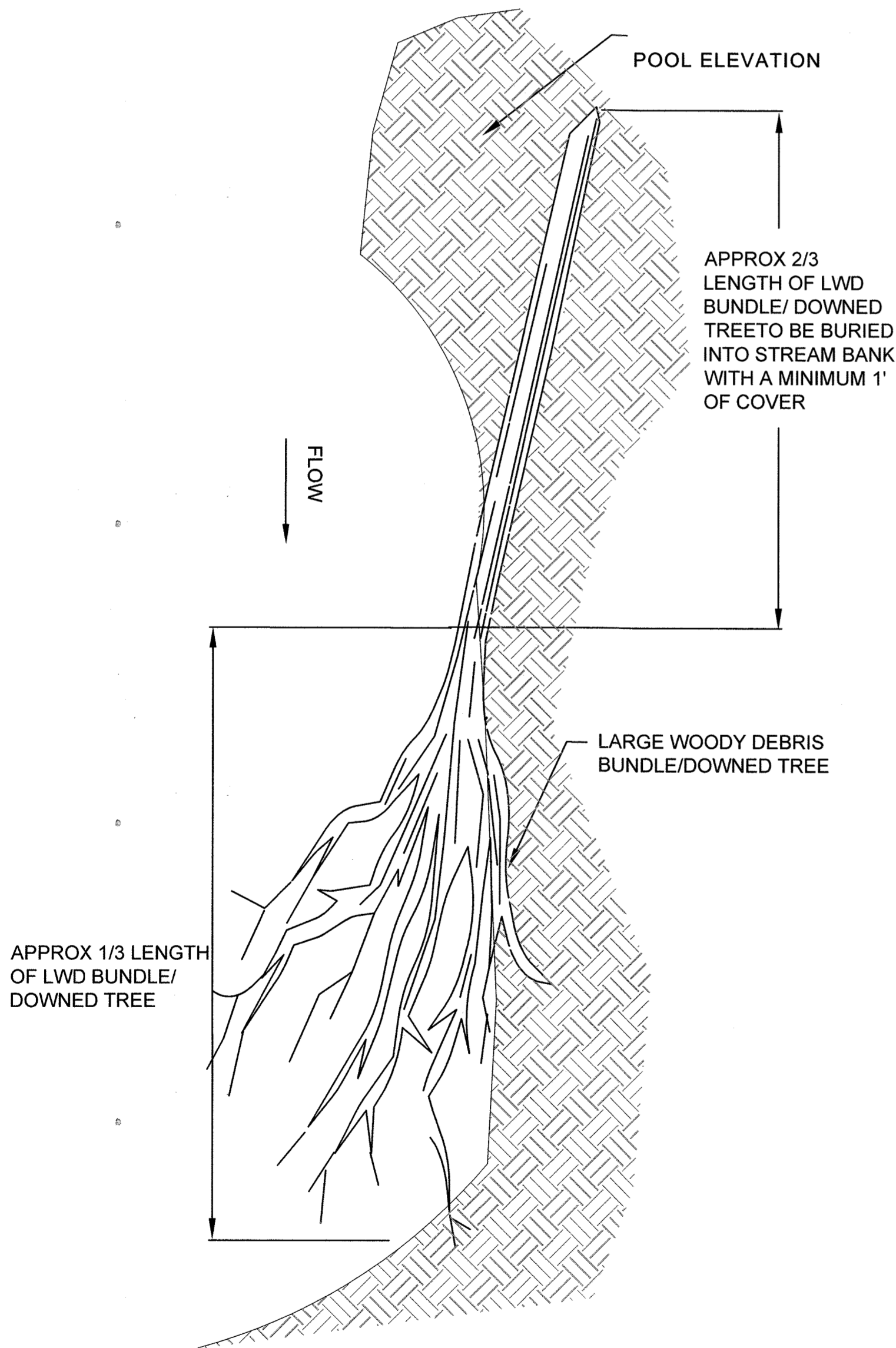
TYPICAL CROSS SECTION
 CASCADE & COBBLE TOE
 TRENCH - OUTFALL E

NOT TO SCALE

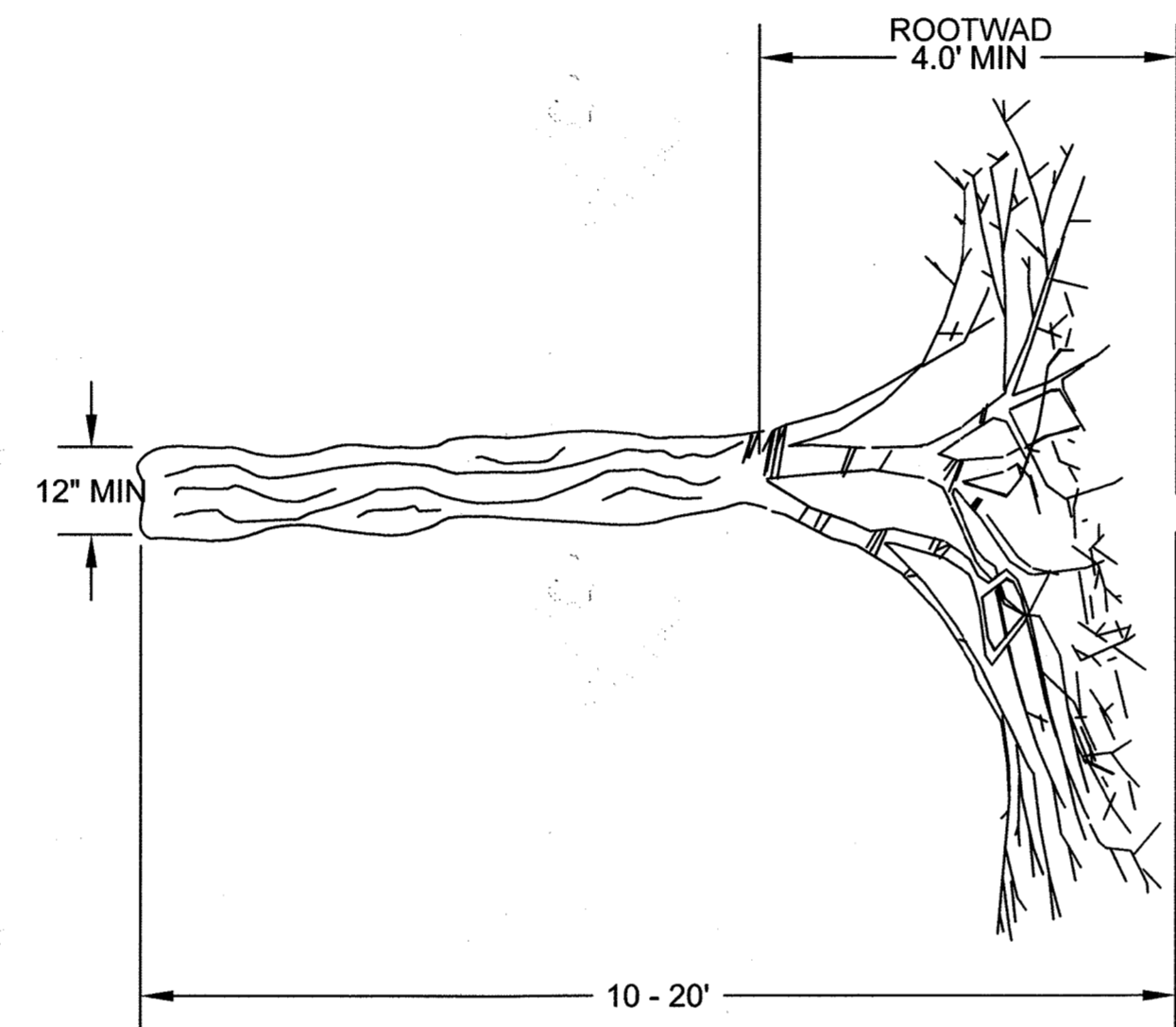


**INSTREAM LARGE WOODY DEBRIS (LWD)
LARGE WOODY DEBRIS BUNDLE** NOT TO SCALE

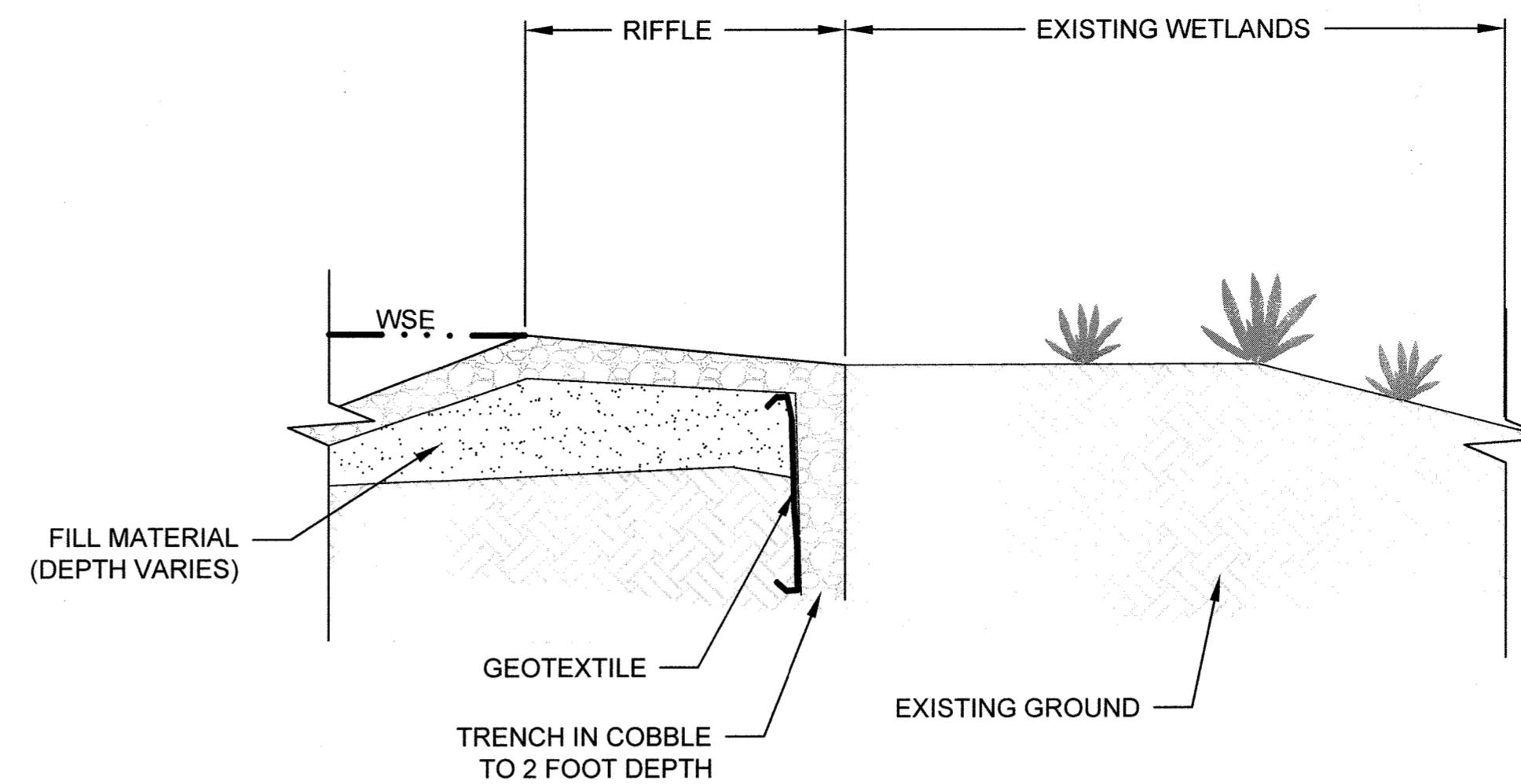
- NOTE:
1. INSTALL IN-STREAM LARGE WOODY DEBRIS, ONE PER POOL AT LOCATIONS DETERMINED BY ENGINEER
 2. PARTIALLY BURY ONSITE LWD INTO THE STREAM BANK APPROXIMATELY 2/3 OF TOTAL LENGTH TO SECURE IN PLACE AS DIRECTED BY THE ENGINEER
 3. IF DOWNED LOG IS BEING USED INSTEAD OF LWD, THE ROOTWAD SHALL BE PLACED WHERE BRANCHES ARE INDICATED ON THIS SHEET.



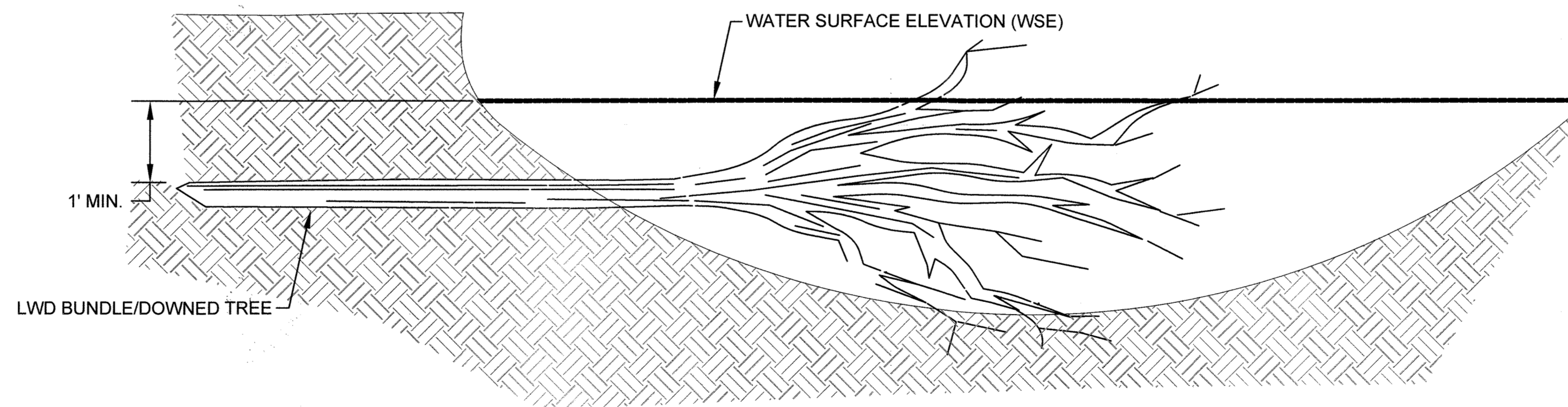
**INSTREAM LARGE WOODY DEBRIS (LWD)
PLAN VIEW- TYPICAL** NOT TO SCALE



**INSTREAM LARGE WOODY DEBRIS (LWD)
DOWNED LOG** NOT TO SCALE



**COBBLE TOE TRENCH
TYPICAL DETAIL** NOT TO SCALE



**INSTREAM LARGE WOODY DEBRIS (LWD)
CROSS SECTION** NOT TO SCALE

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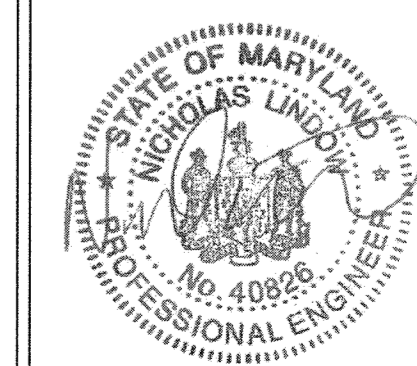
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APPROVED: DEPARTMENT OF PUBLIC WORKS
Michael J. ...
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES DATE: 1/20/15

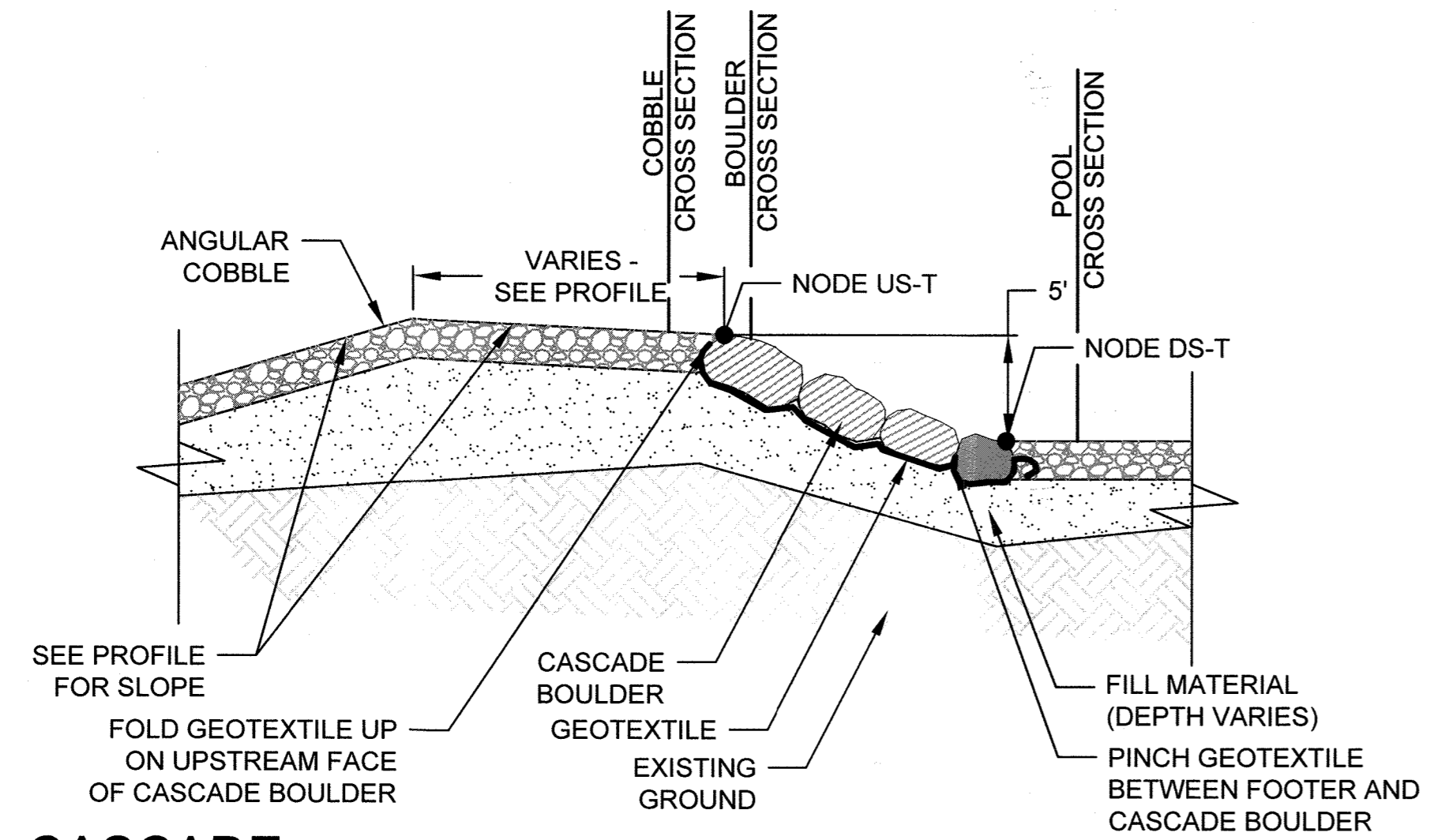
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**DORSEY HALL
VILLAGE
STORMWATER
RETROFITS**

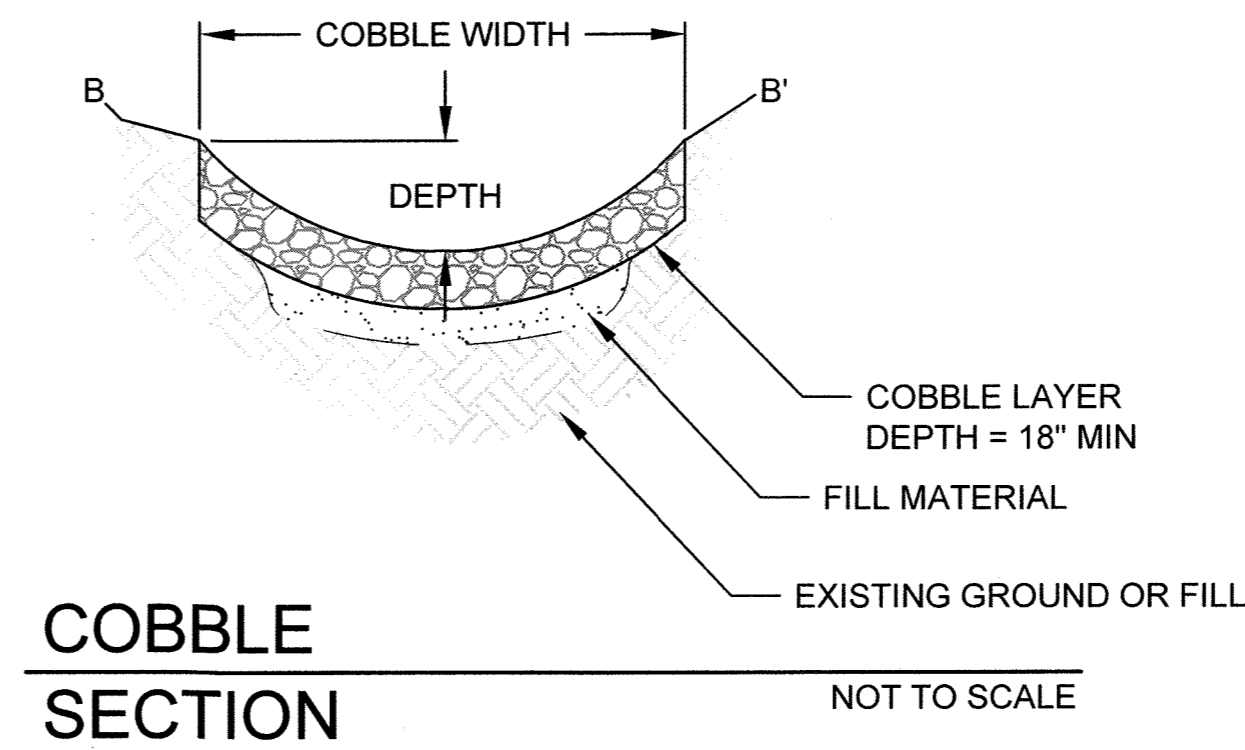
TITLE:	
DETAILS	
PROJECT NO. 13005.14	SCALE:
SEAL:	BY: KT/NL CHECK: DWG. NO.:



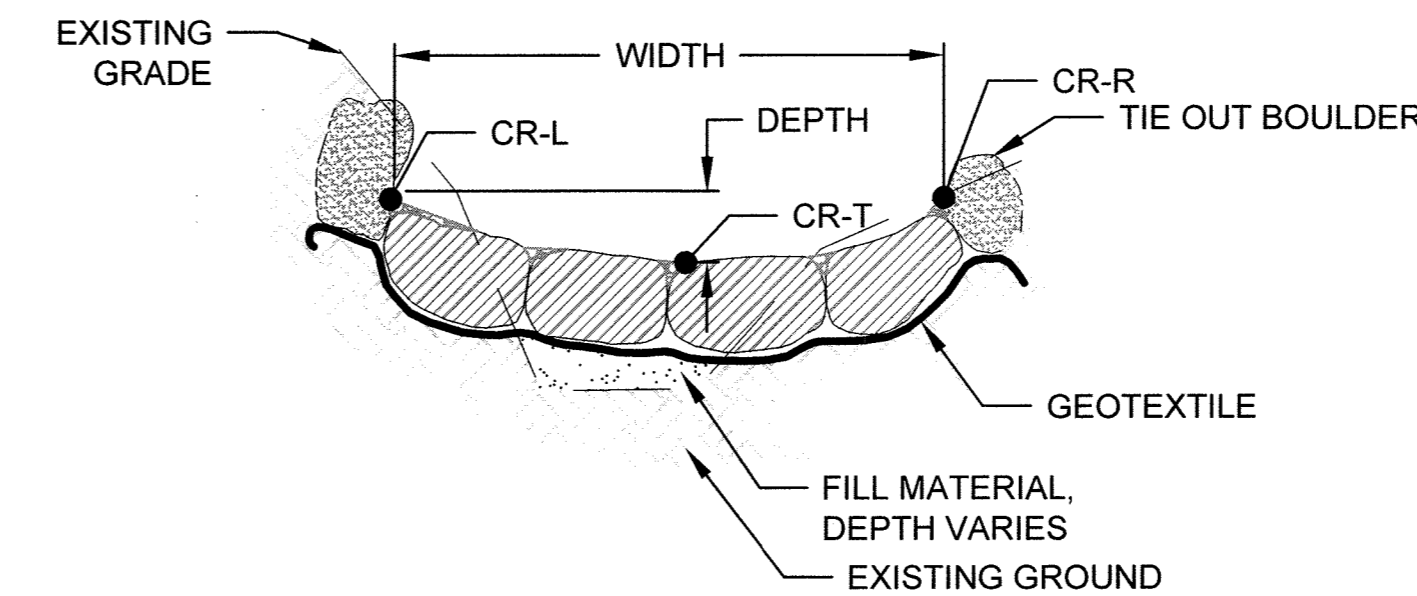
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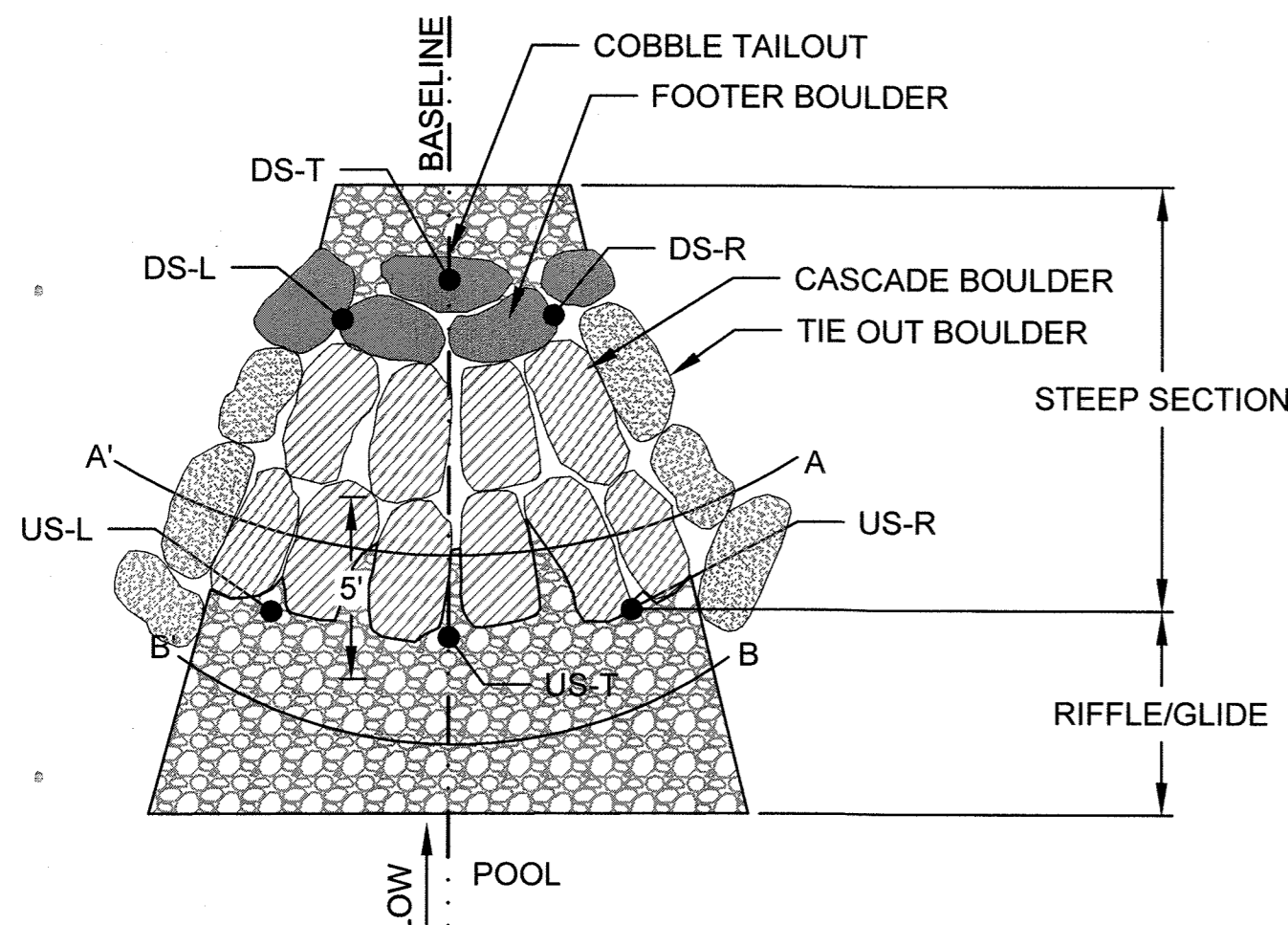
CASCADe
CENTERLINE PROFILE
 NOT TO SCALE



COBBLE SECTION
 NOT TO SCALE



BOULDER SECTION
 NOT TO SCALE



CASCADe
PLAN VIEW
 NOT TO SCALE

CASCADe NOTES:

1. PLACE COBBLE IN A LIFT WITH THICKNESS EQUAL TO THE LARGEST STONE IN GRADATION. DO NOT DROP STONES FROM A HEIGHT GREATER THAN 2 FEET ABOVE THE FINISHED SUBGRADE.
2. PLACE FINES GRADATION ON TOP OF EACH LIFT OF THE FRAMEWORK GRADATION AND USE PRESSURIZED WATER TO WASH THE FINES INTO THE VOIDS IN THE STONE LAYER. APPLY WATER SUFFICIENT TO ASSURE THAT ALL VOID SPACES ARE COMPLETELY FILLED WITH FINES.
3. REMOVE ANY EXCESS FINES PRIOR TO PLACING THE NEXT LIFT OF COBBLE TO ASSURE COBBLE-TO-COBBLE CONTACT AND THAT THE SUBSEQUENT LIFT DOES NOT REST ON FINES.
4. PLACE THE NEXT LIFT AS DESCRIBED ABOVE UNTIL THE FINISH GRADE HAS BEEN REACHED.
5. NUMBER OF CASCADe BOULDERS MAY VARY FROM THAT SHOWN BASED ON SIZE AND SHAPE OF ACTUAL STONE.
6. JOINTS BETWEEN CASCADe STONE IN SEQUENTIAL LAYERS SHALL BE STAGGERED A MINIMUM OF 1/3 STONE DIAMETER

FILL MATERIAL NOTES:

1. FILL MATERIAL SHALL BE SUITABLE MATERIAL FROM ON-SITE EXCAVATIONS OR FROM OTHER SOURCES. THE MATERIAL SHALL BE CLEAN EARTH.
2. THE MATERIAL SHALL BE FREE FROM VEGETABLE MATTER, ORGANIC MATERIAL, SLUDGE, GRIT, TRASH, DEBRIS, MUCK, SWAMP MUCK, ROOTS, ROOT MAT, LOGS, STUMPS, TREE STUMPS, BRUSH, FROZEN MATERIAL OR OTHER DELETERIOUS SUBSTANCES.

COBBLE MATERIAL NOTES:

1. COBBLE FILL SHALL CONSIST OF CRUSHED STONE AND/OR ROUNDED ALLUVIAL GRAVELS THAT IS OF APPROPRIATE COLOR (E.G. GREEN/GRAY, BROWN/GRAY, DARK GRAY, AND/OR DARK BROWN IN COLOR).
2. COBBLE SHALL BE COMPOSED OF WELL-GRADED MIXTURE OF STONE SIZE SO THAT 50% OF THE PIECES, BY WEIGHT, SHALL BE LARGER THAN THE D50 SIZE OF 4 INCHES. A WELL-GRADED MIXTURE AS USED HEREIN IS DEFINED AS A MIXTURE COMPOSED PRIMARILY OF LARGER STONE SIZES BUT WITH A SUFFICIENT MIXTURE OF OTHER SIZES TO FILL THE SMALL VOIDS BETWEEN THE COBBLES. SEE GRADATION TABLE ON THIS SHEET. GRADING OF COBBLE PIECES SHALL BE CONTROLLED BY VISUAL INSPECTION OR AS DIRECTED BY THE ENGINEER.
3. SALVAGED STREAMBED MATERIAL AVAILABLE FROM BOTTOM OF THE EXISTING STREAM CHANNEL WITHIN LIMITS OF WORK MAY BE USED IN PLACE OF IMPORTING GRAVEL. SIZE AND TYPE OF STREAMBED MATERIAL MUST BE VISUALLY INSPECTED AND APPROVED BY THE ENGINEER. SALVAGING OF STREAMBED MATERIAL CAN ONLY OCCUR WHERE EXISTING STREAM BED IS TO BE FILLED.

COBBLE GRADATION TABLE

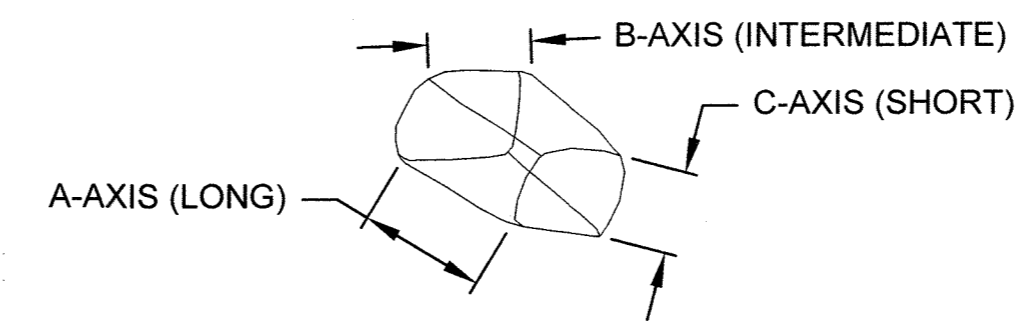
CUMULATIVE % FINER	COBBLE SIZE (IN)
100	7
84	6
60	5
50	4
30	3
10	1

FINES GRADATION TABLE

CUMULATIVE % FINER	FINES SIZE (IN)
100	NO. 7
50	NO. 10
15	NO. 200

BOULDER MATERIAL NOTES:

1. GAPS BETWEEN BOULDERS SHALL BE CHINKED WITH COBBLE
2. TYPICALLY, CASCADe BOULDER A-AXIS WILL BE ORIENTED IN DIRECTION OF FLOW FOOTER BOULDERS A-AXIS WILL BE ORIENTED PERPENDICULAR TO FLOW.



BOULDER AXIS
 NOT TO SCALE

BOULDER DIMENSIONS

	A-AXIS	B-AXIS	C-AXIS
CASCADe	3'-4'	2.5'-3.5'	1.5'-2'
FOOTER	3'-4'	2.5'-3.5'	1.5'-2'
TIE-OUT	2.5'-3.5'	2'-3'	1'-2'

DATE ISSUES / REVISIONS

09/18/2014	60% DESIGN
12/04/2014	FINAL DESIGN

APPROVED: DEPARTMENT OF PUBLIC WORKS

[Signature]
 CHIEF, BUREAU OF ENVIRONMENTAL SERVICES DATE: 1/24/15



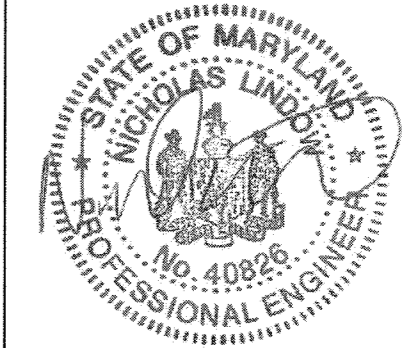
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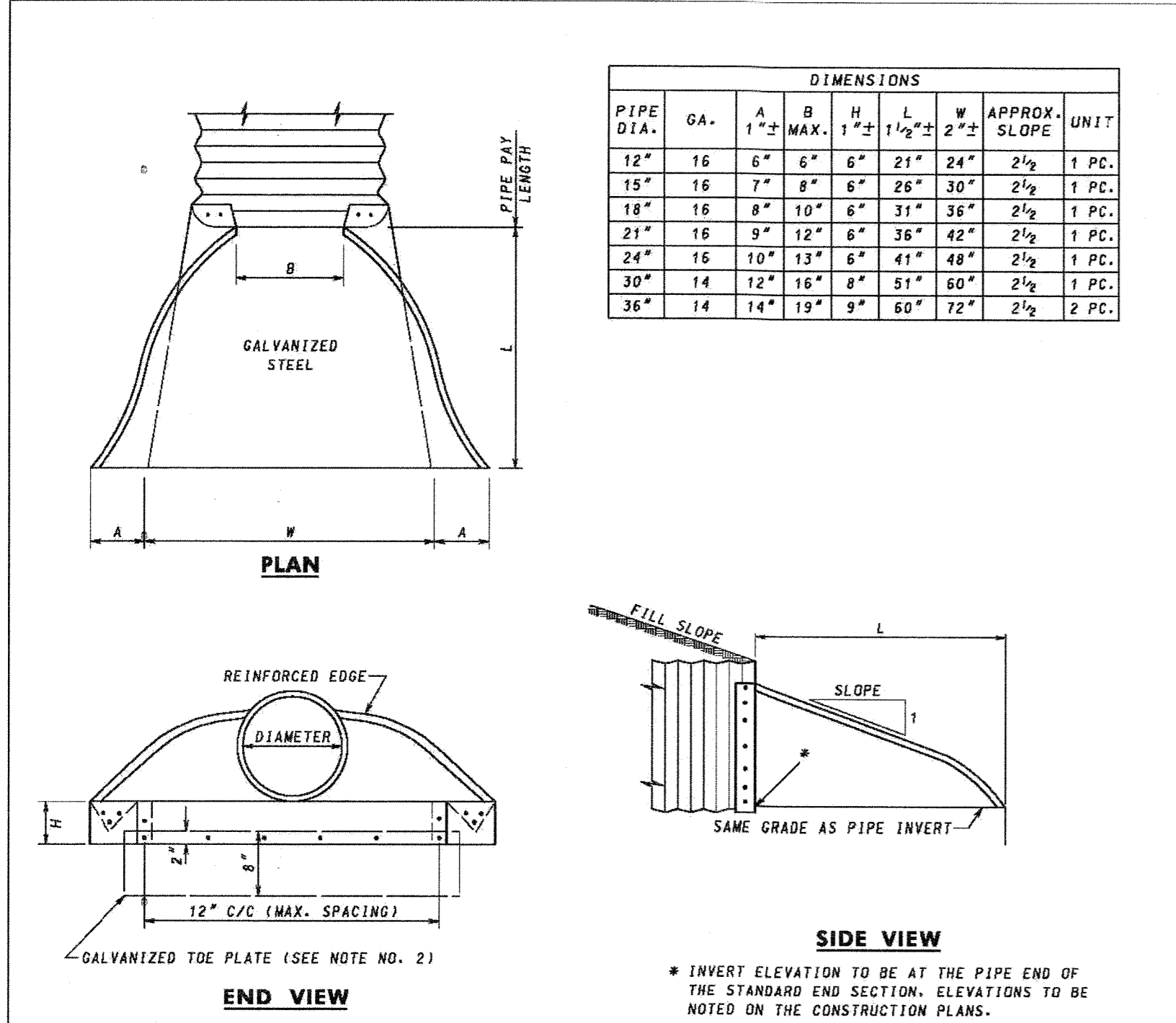
DORSEY HALL VILLAGE STORMWATER RETROFITS

DETAILS

PROJECT NO.: 13005.14 SCALE:

SEAL: BY: KT/NL CHECK: DWG. NO.:



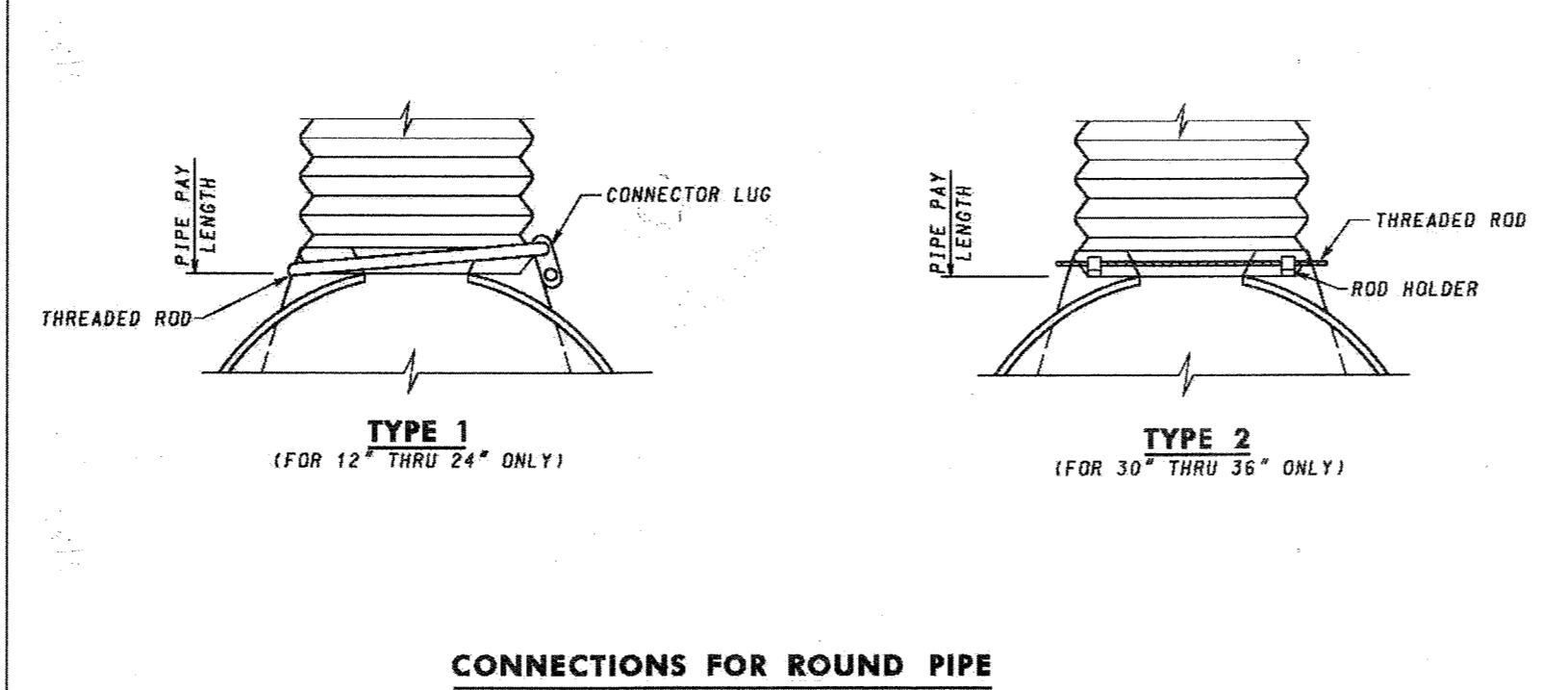


DIMENSIONS								
PIPE DIA.	GA.	A	B	H	L	W	APPROX. SLOPE	UNIT
12"	16	6"	6"	6"	21"	24"	2 1/2	1 PC.
15"	16	7"	8"	6"	26"	30"	2 1/2	1 PC.
18"	16	8"	10"	6"	31"	36"	2 1/2	1 PC.
21"	16	9"	12"	6"	36"	42"	2 1/2	1 PC.
24"	16	10"	13"	6"	41"	48"	2 1/2	1 PC.
30"	14	12"	16"	8"	51"	60"	2 1/2	1 PC.
36"	14	14"	19"	9"	60"	72"	2 1/2	2 PC.

NOTES

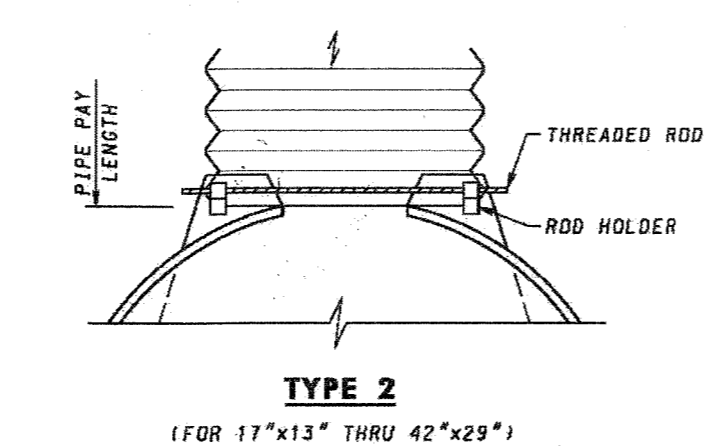
- METAL END SECTIONS SHALL BE GAGE 16 FOR PIPES RANGING FROM 15" THRU 24", AND GAGE 14 FOR PIPES RANGING FROM 30" THRU 36". MULTIPLE PANEL UNITS TO HAVE LAP SEAMS WHICH ARE TO BE TIGHTLY JOINED BY 3/8" DIAMETER GALVANIZED RIVETS OR BOLTS.
- THE PLATES SHALL BE USED WHEN SPECIFIED ON THE PLANS. THICKNESS OF END PLATE TO BE SAME AS END SECTION. COST OF THE PLATE TO BE INCIDENTAL TO THE BID PRICE PER EACH OF METAL END SECTION.

SPECIFICATION 303	CATEGORY CODE ITEMS	Maryland Department of Transportation STATE HIGHWAY ADMINISTRATION STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES STANDARD METAL END SECTION ROUND METAL PIPE STANDARD NO. MD 370.01
APPROVED <i>Kirk G. McCall</i> DIRECTOR - OFFICE OF HIGHWAY DEVELOPMENT	APPROVAL - SHA REVISIONS APPROVAL - FEDERAL HIGHWAY ADMINISTRATION	



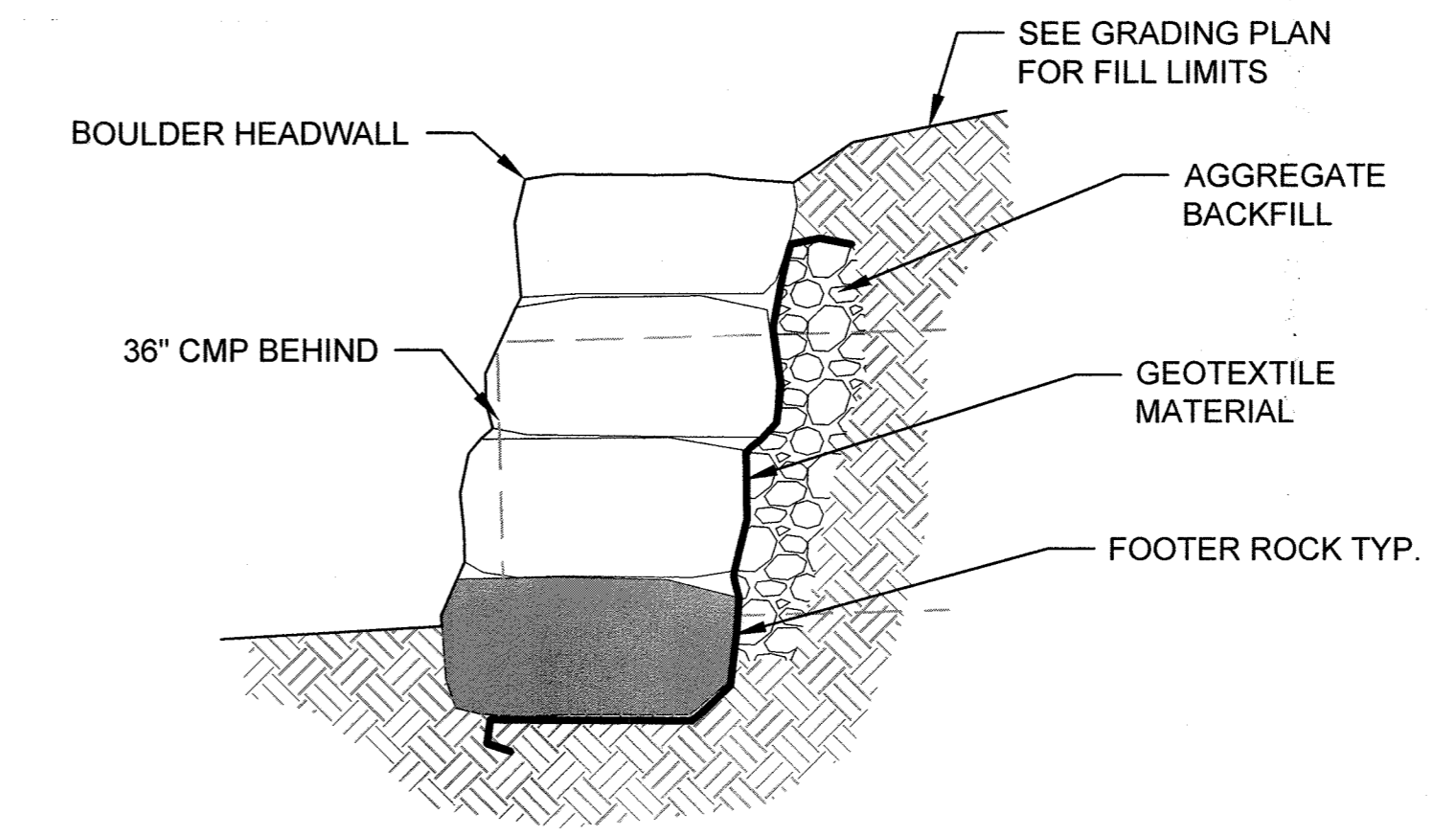
CONNECTIONS FOR ROUND PIPE

NOTE:
PIPES AND CONNECTION BANDS SHALL CONFORM TO APPLICABLE SECTION OF THE STANDARD SPECIFICATIONS AND TO AASHTO REQUIREMENTS.

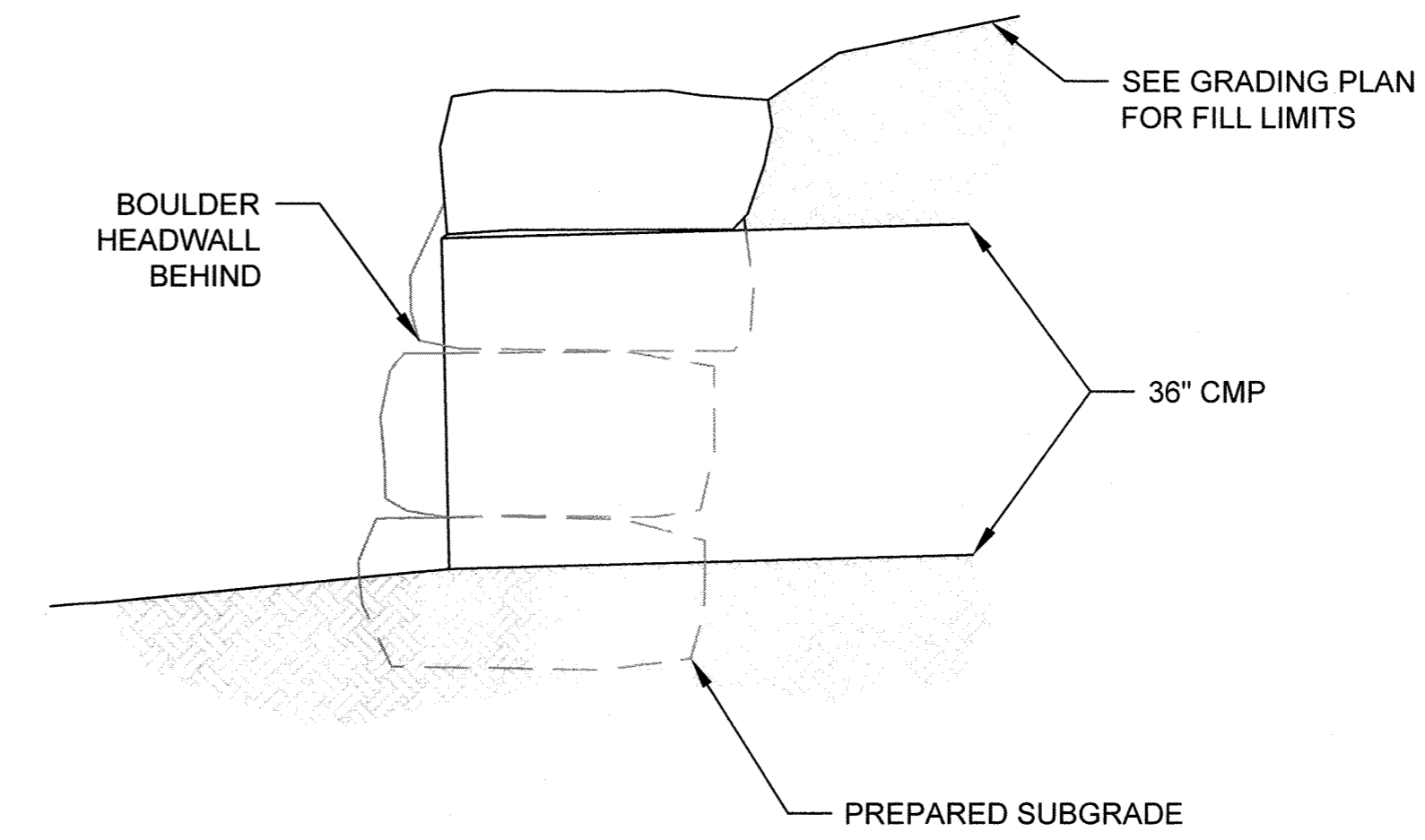


CONNECTIONS FOR PIPE ARCH

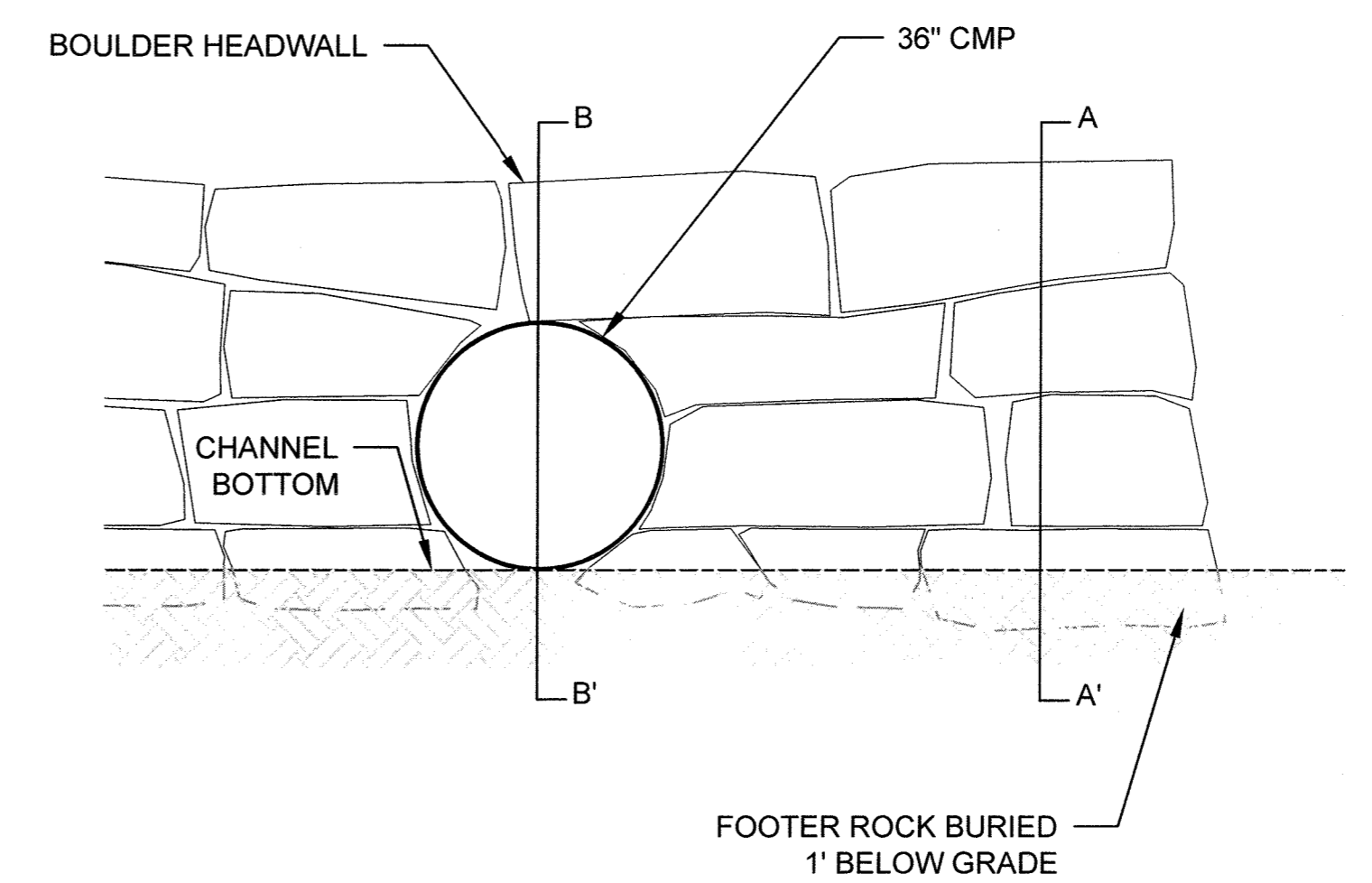
SPECIFICATION 303	CATEGORY CODE ITEMS	Maryland Department of Transportation STATE HIGHWAY ADMINISTRATION STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES STANDARD CONNECTIONS METAL END SECTIONS STANDARD NO. MD 370.11
APPROVED <i>Kirk G. McCall</i> DIRECTOR - OFFICE OF HIGHWAY DEVELOPMENT	APPROVAL - SHA REVISIONS APPROVAL - FEDERAL HIGHWAY ADMINISTRATION	



BOULDER HEADWALL SECTION A - A' NOT TO SCALE



BOULDER HEADWALL SECTION B - B' NOT TO SCALE



BOULDER HEADWALL SECTION C - C' NOT TO SCALE

HOWARD COUNTY
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 (F) 410 313 3390

DATE	ISSUES / REVISIONS
09/18/2014	60% DESIGN
12/04/2014	FINAL DESIGN

APPROVED: DEPARTMENT OF PUBLIC WORKS
Michael...
 CHIEF, BUREAU OF ENVIRONMENTAL SERVICES

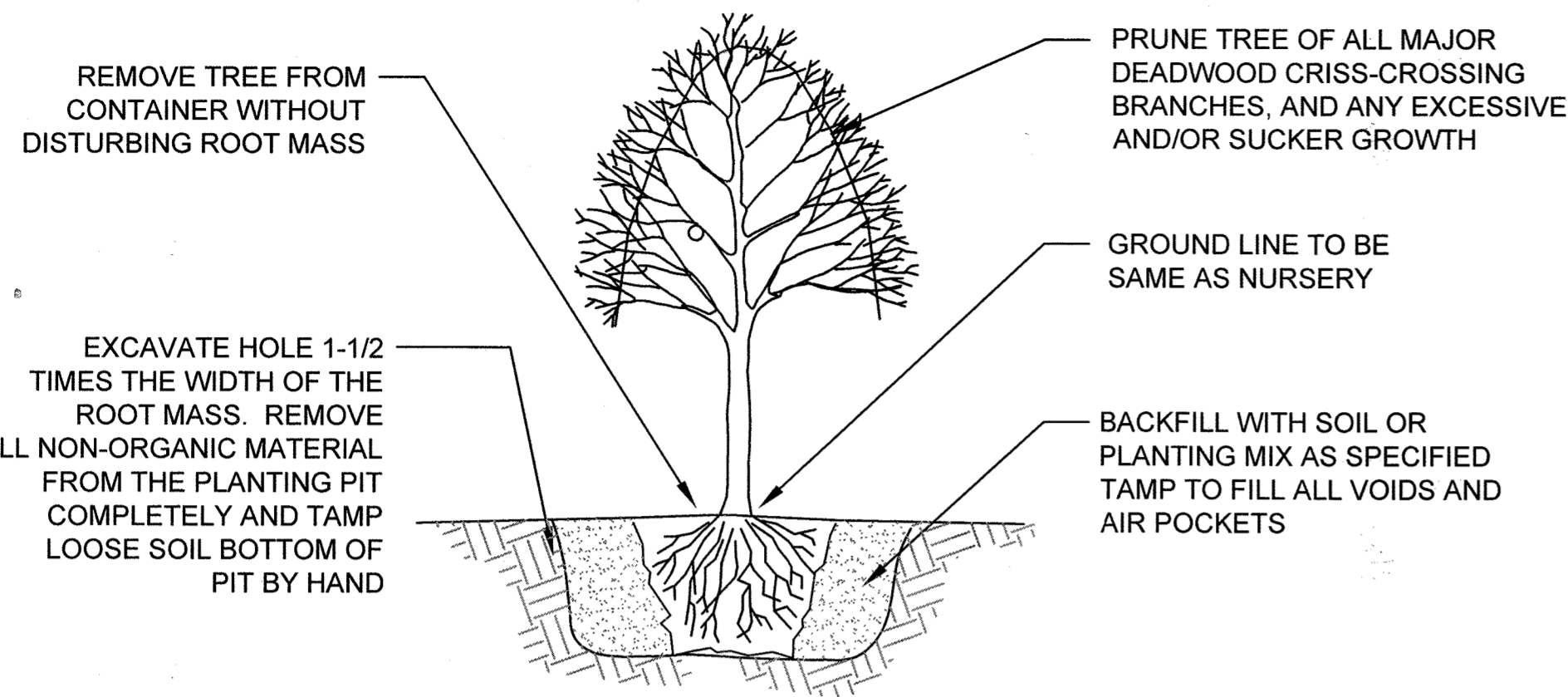
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DORSEY HALL VILLAGE
STORMWATER RETROFITS

DETAILS

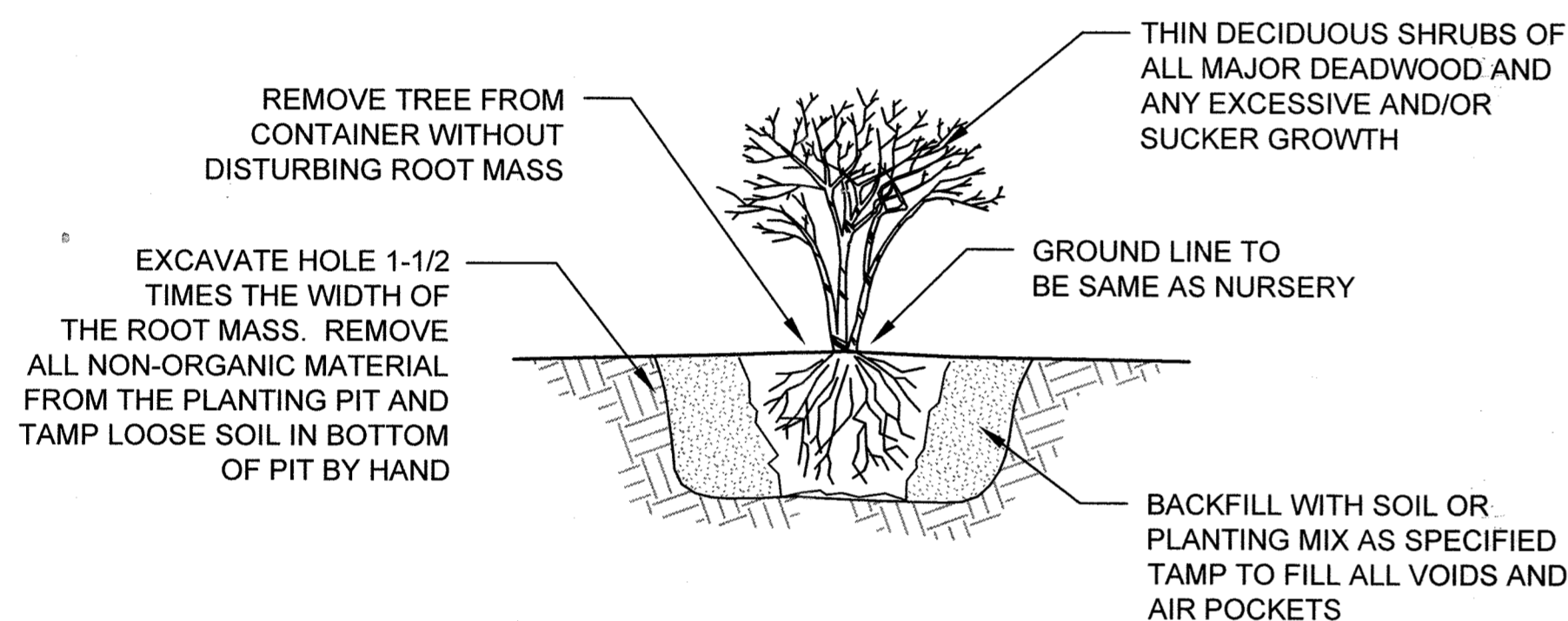
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SEAL	BY: KT/NL CHECK: DWG NO.

STATE OF MARYLAND
 NICHOLAS LINDO
 No. 40822
 PROFESSIONAL ENGINEER



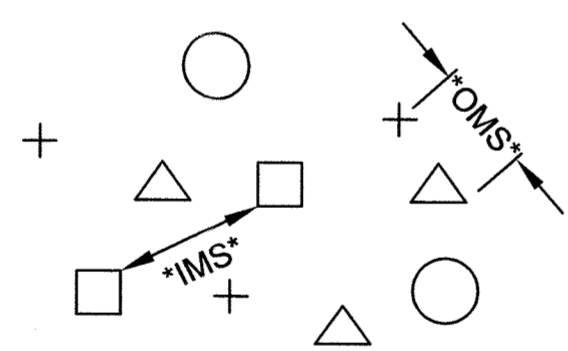
TREE PLANTING - CONTAINER GROWN

NOT TO SCALE



SHRUB PLANTING - CONTAINER GROWN

NOT TO SCALE



OMS- AN OVERALL MINIMUM SPACING DISTANCE "OMS" IS ASSIGNED TO THE PLANTING CONFIGURATION "SEE PLANT SCHEDULE"
IMS- AN INDIVIDUAL MINIMUM SPACING DISTANCES "IMS" IS ASSIGNED TO EACH INDIVIDUAL SPECIES "SEE PLANT SCHEDULE"

PLANT SPACING - RANDOM

NOTE: EACH SYMBOL INDICATES A DIFFERENT SPECIES

PLAN VIEW

NOT TO SCALE

PLANT AND COMPOSITION SCHEDULE Planting Zone 1: Shaded Emergent Freshwater Wetland

Size (acres): 0.4

Overall Minimum Spacing (feet off center)	Quantity per acre	Frequency (%)	Species Quantity	Vegetation Strata/ Species Name	Common Name	Unit	Spacing Type	Size	Individual Minimum Spacing (ft.)
2.5	6970			HERBACEOUS PLANTS					
		15	418	<i>Iris versicolor</i>	Blue flag iris	CON	Clump	2" Plug	6
		20	558	<i>Pontederia cordata</i>	Pickereelweed	CON	Clump	2" Plug	6
		10	279	<i>Peltandra virginica</i>	Arrow arum	CON	Clump	2" Plug	8
		20	558	<i>Saururus cernuus</i>	Lizards tail	CON	Clump	2" Plug	6
		15	418	<i>Juncus effusus</i>	Soft rush	CON	Clump	2" Plug	6
		20	558	<i>Carex stricta</i>	Tussock sedge	CON	Clump	2" Plug	6
		100	2789	= Total					

CON= container
P.L.S.= Pure Live Seed

PLANT COMPOSITION SCHEDULE Planting Zone 2: Scrub Shrub

Size (acres): 0.4

Overall Minimum Spacing (ft.)	Quantity per acre	Frequency (%)	Species Quantity	Vegetation Strata/ Species Name	Common Name	Unit	Spacing Type	Size	Individual Minimum Spacing (ft.)
6	1210			SHRUB					
		20	97	<i>Cornus amomum</i>	Silky dogwood	CONT	Random	18-24"	13
		15	73	<i>Alnus serrulata</i>	Smooth alder	CONT	Random	18-24"	15
		30	145	<i>Cornus sericea</i>	Red osier dogwood	CONT	Random	18-24"	11
		15	73	<i>Salix sericea</i>	Silky willow	CONT	Random	18-24"	15
		20	97	<i>Cephalanthus occidentalis</i>	Buttonbush	CONT	Random	18-24"	13
		100	485	= total					
N/A	35			HERBACEOUS SEED					
		10	1.4	<i>Scirpus cyperinus</i>	Wool grass	SEED	LB of P.L.S. 76 %	N/A	N/A
		25	3.5	<i>Elymus riparius</i>	Riverbank wild rye	SEED	LB of P.L.S. 76 %	N/A	N/A
		25	3.5	<i>Elymus virginicus</i>	Virginia wild rye	SEED	LB of P.L.S. 76 %	N/A	N/A
		25	3.5	<i>Tridens flavus</i>	Purpletop	SEED	LB of P.L.S. 76 %	N/A	N/A
		15	2.1	<i>Dichanthelium clandestinum</i>	Deertongue	SEED	LB of P.L.S. 76 %	N/A	N/A
		100	14	= total					

CON = Containerized
P.L.S. = Pure Live Seed

PLANT AND COMPOSITION SCHEDULE Planting Zone 3: Floodplain Forest

Size (acres): 0.6

Overall Minimum Spacing (feet off center)	Quantity per acre	Frequency (%)	Species Quantity	Vegetation Strata/ Species Name	Common Name	Unit	Spacing Type	Size	Individual Minimum Spacing (ft.)
25	70			OVERSTORY TREES					
		10	4	<i>Acer saccharinum</i>	Silver maple	B&B	See Plan	2.5" CAL	81
		20	8	<i>Quercus bicolor</i>	Swamp white oak	B&B	See Plan	2.5" CAL	57
		20	8	<i>Quercus phellos</i>	Willow oak	B&B	See Plan	2.5" CAL	57
		25	11	<i>Platanus occidentalis</i>	Sycamore	B&B	See Plan	2.5" CAL	49
		75	31	= Total					
18	134			MIDSTORY TREES					
		15	2	<i>Betula nigra</i>	River birch	CONT	See Plan	2" CAL	114
		10	1	<i>Amelanchier canadensis</i>	Serviceberry	CONT	See Plan	2" CAL	162
		25	3	= total					
12	303			SHRUBS					
		15	27	<i>Alnus serrulata</i>	Smooth alder	CON	Random	1 Gal	31
		20	36	<i>Sambucus canadensis</i>	Common elderberry	CON	Random	1 Gal	27
		10	18	<i>Ilex verticillata</i>	Winterberry	CON	Random	1 Gal	38
		30	55	<i>Lindera benzoin</i>	Common spicebush	CON	Random	1 Gal	22
		25	45	<i>Viburnum dentatum</i>	Arrowwood	CON	Random	1 Gal	24
		100	181	= Total					
4	2723			HERBACEOUS PLANTS					
		15	245	<i>Symplocarpus foetidus</i>	Skunk cabbage	CON	Clump	Quart	10
		20	327	<i>Oncoclea sensibilis</i>	Sensitive fern	CON	Clump	Quart	9
		15	245	<i>Osmunda cinnamomea</i>	Cinnamon fern	CON	Clump	Quart	10
		25	408	<i>Lobelia cardinalis</i>	Cardinal flower	CON	Clump	Quart	8
		75	1225	= Total					
N/A	30			NATIVE SEED					
		50	9	<i>Carex pennsylvanica</i>	Pennsylvania sedge	LB of P.L.S. 76 %	SEED	N/A	N/A
		50	9	<i>Elymus virginicus</i>	Virginia wild rye	LB of P.L.S. 76 %	SEED	N/A	N/A
		100	18.0	= Total					

CON= container
P.L.S.= Pure Live Seed
B&B= Balled & Burlapped

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[Signature] 1/28/15
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES DATE

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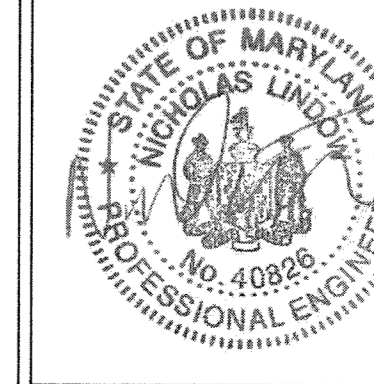
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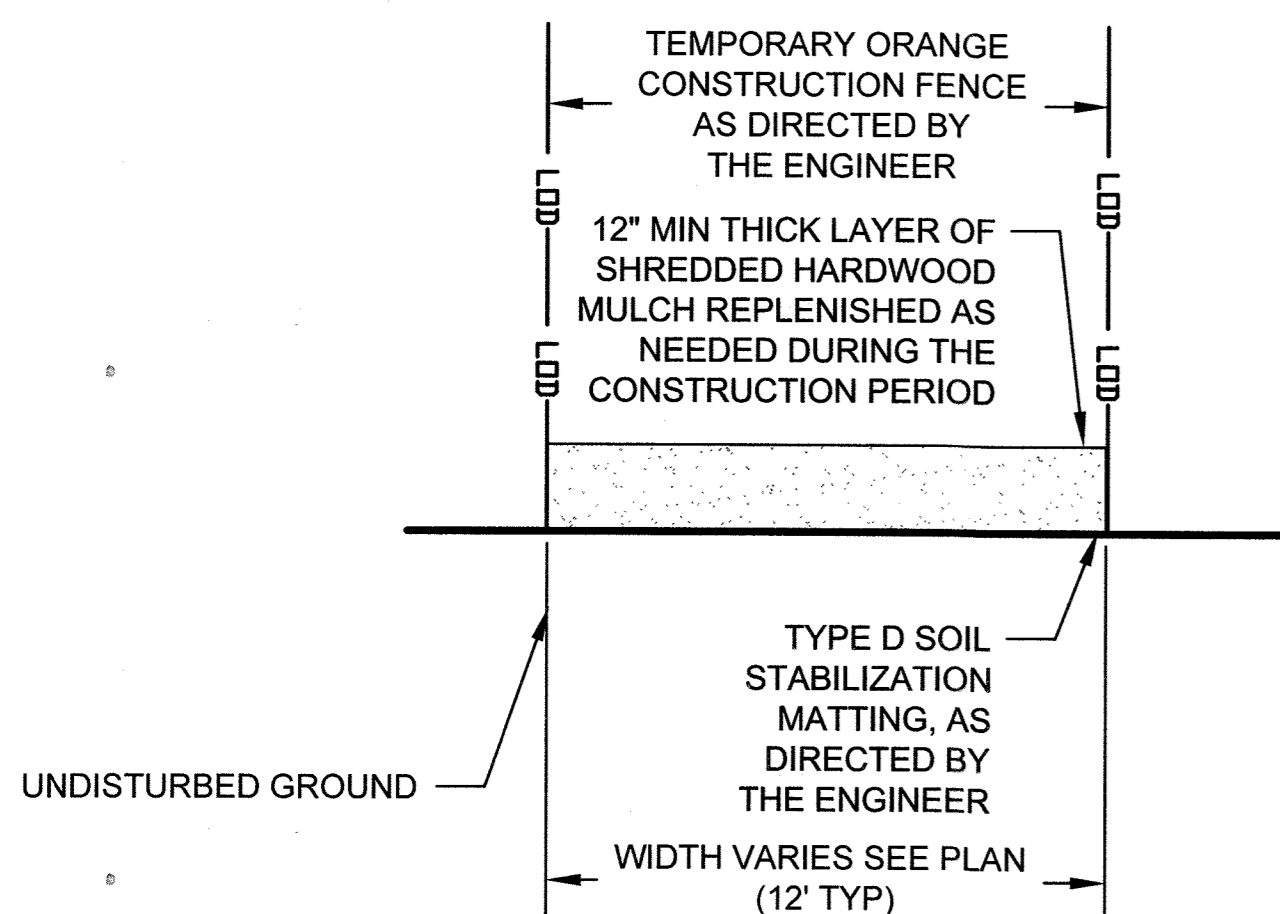
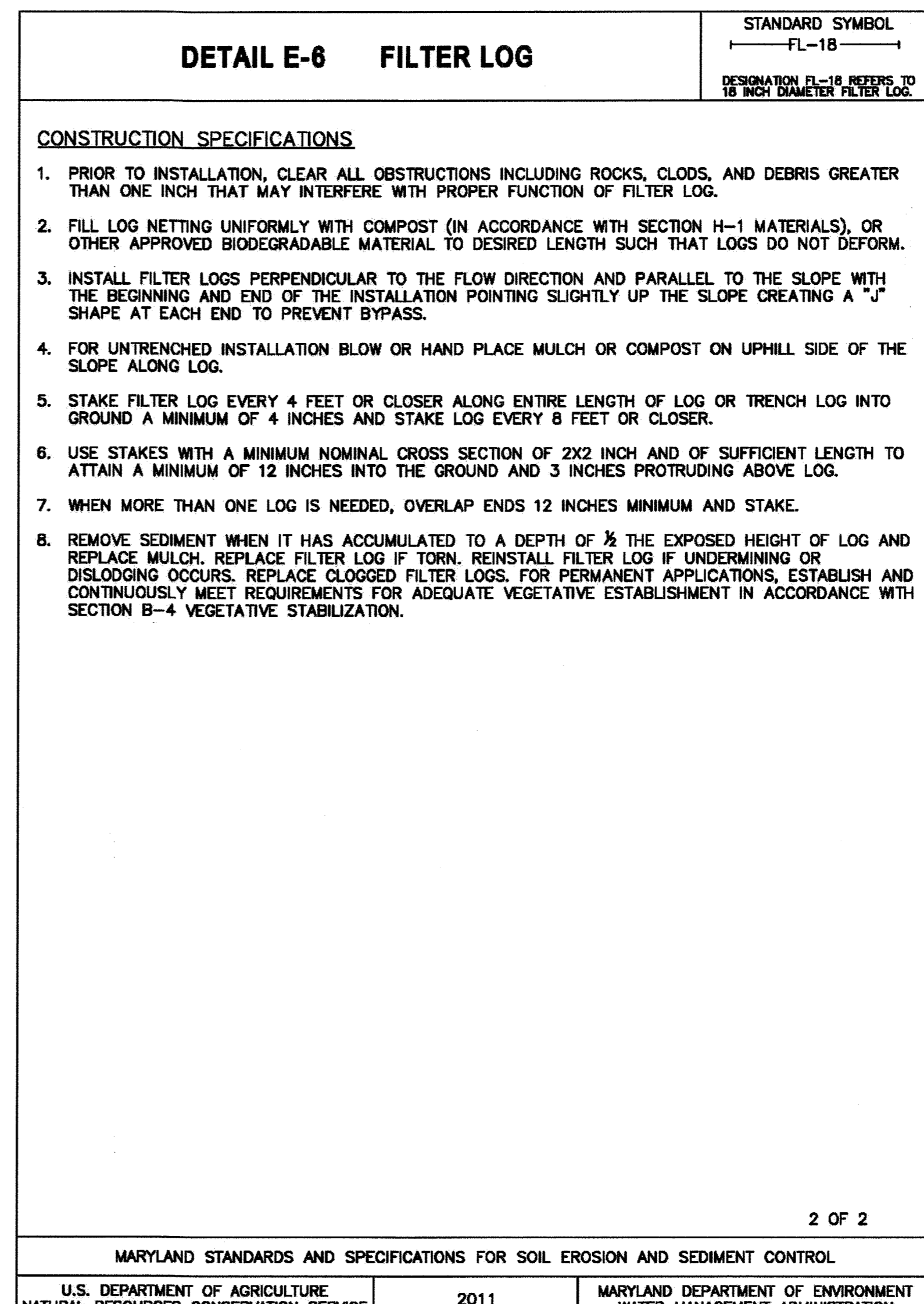
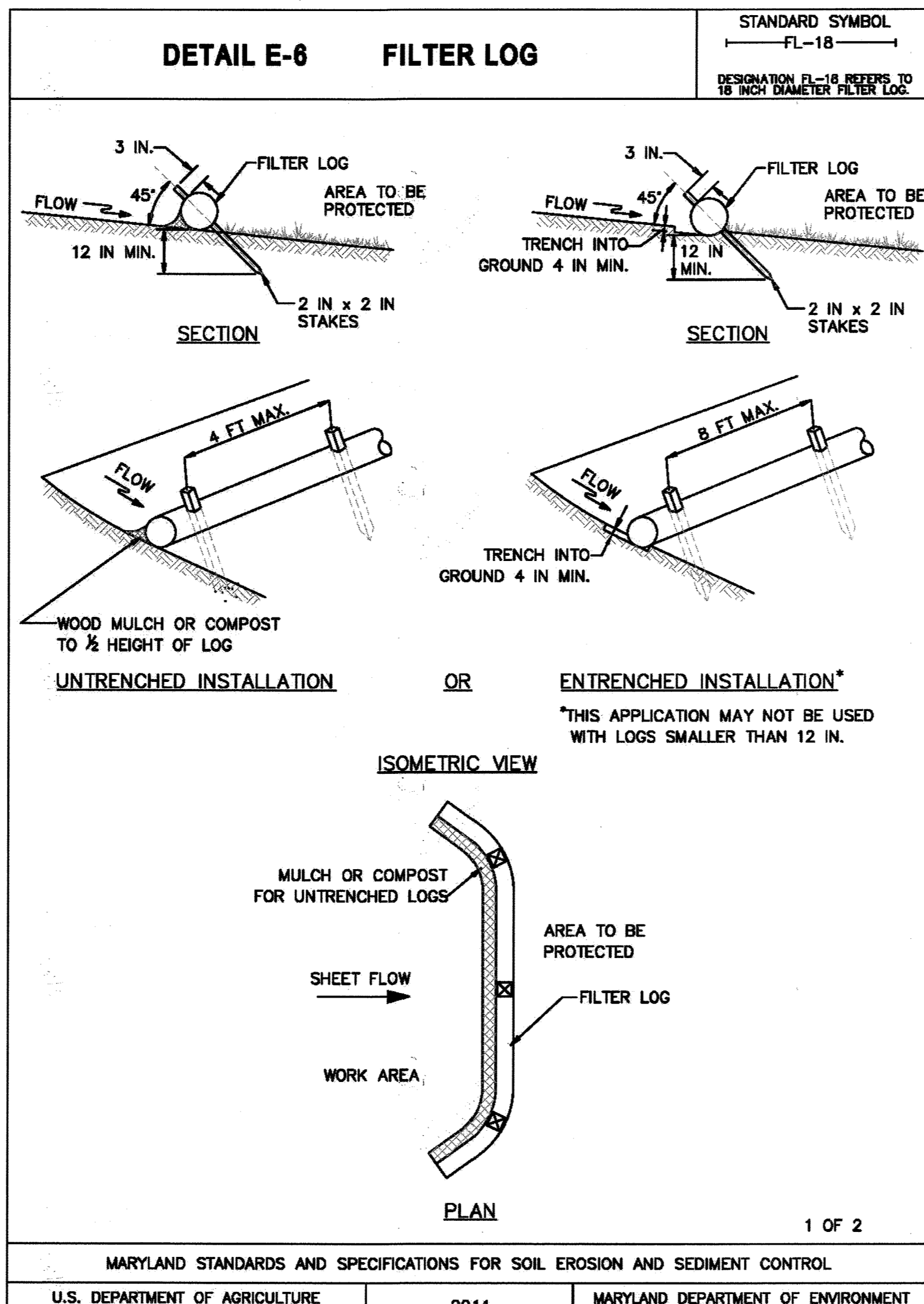
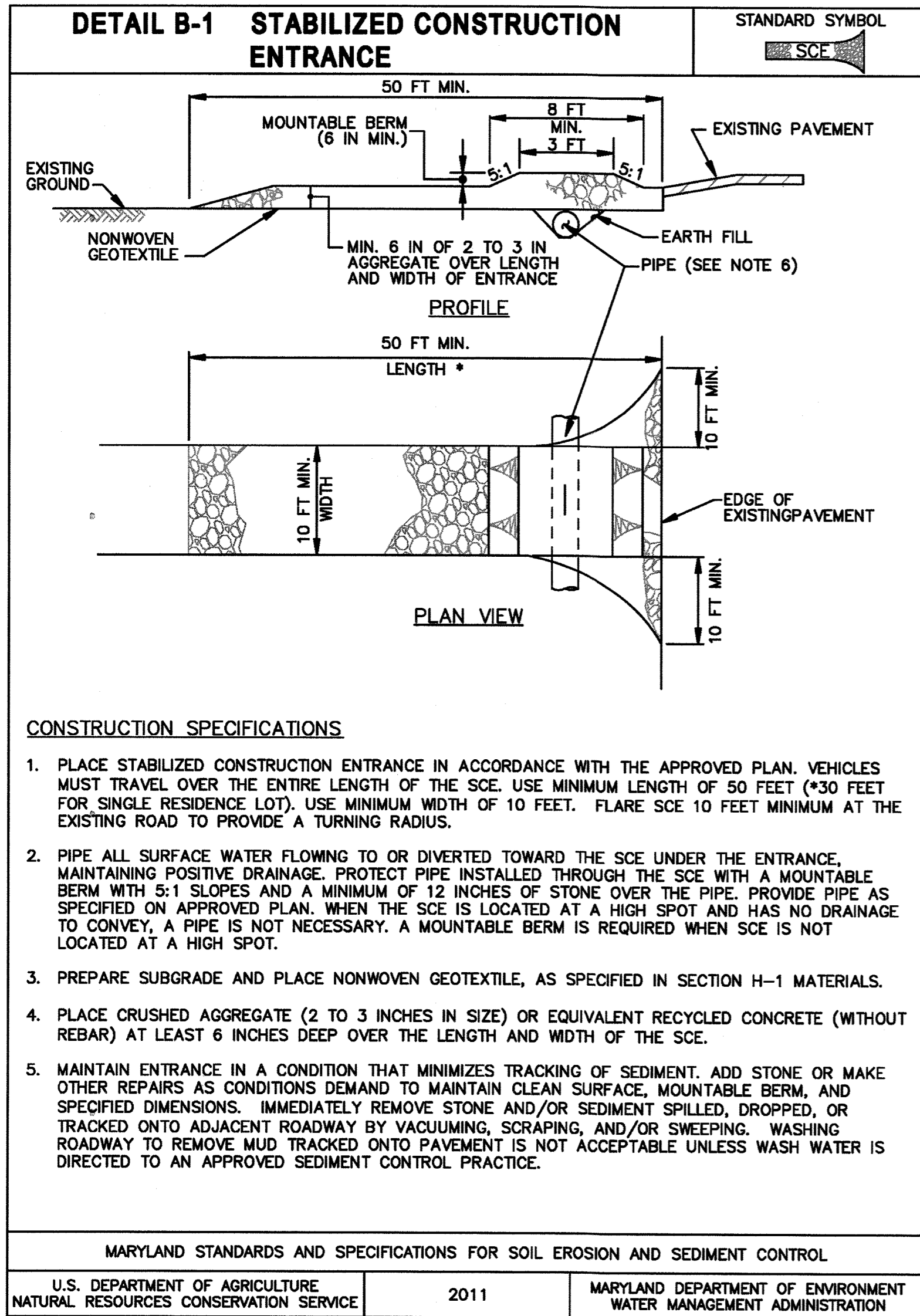
DORSEY HALL VILLAGE STORMWATER RETROFITS

DETAILS

PROJECT NO. 13005.14 SCALE:

SEAL: BY: KT/NL CHECK: DWG. NO.





- NOTES:**
1. ACCESS ROUTES TO BE VERIFIED BY ENGINEER AT EROSION AND SEDIMENT CONTROL MEETING. REVISIONS TO THE ALIGNMENT THAT MINIMIZE TREE DISTURBANCE ARE ENCOURAGED AND REQUIRE REVIEW AND APPROVAL BY THE ENGINEER.
 2. SOIL STABILIZATION MATTING SHALL BE PLACED AT THE DISCRETION OF THE ENGINEER, WITH SEAMS PARALLEL TO THE FLOW OF TRAFFIC AND SHALL OVERLAP BY 18" MINIMUM AT SEAMS.
 3. CONTRACTOR SHALL MAINTAIN MULCH ACCESS THROUGHOUT THE CONSTRUCTION PERIOD. UPON COMPLETION OF PROJECT, MULCH AND COIR MATTING SHALL BE FULLY REMOVED IN ZONE 1. IN ZONE 2 MULCH AND SOIL STABILIZATION MATTING CAN REMAIN IN PLACE AT A MAXIMUM DEPTH OF 2".
 4. SCARIFICATION OF COMPACTED MULCH TO OCCUR UPON REMOVAL OF ACCESS ROAD, AT THE DIRECTION OF THE ENGINEER.
 5. THE ACCESS ROAD IS DESIGNED TO PREVENT COMPACTION OF EXISTING SOILS USING LOW PRESSURE EQUIPMENT WHICH EXERTS NO MORE THAN 8 PSI. IF THE CONTRACTOR INTENDS TO USE ANY EQUIPMENT WITH HIGHER LOADS, ADDITIONAL PROTECTION MEASURES MUST BE PROVIDED, AT NO ADDITIONAL COST TO THE COUNTY, AND THOSE MEASURES MUST BE APPROVED BY THE ENGINEER PRIOR TO IMPLEMENTATION.

NOT TO SCALE

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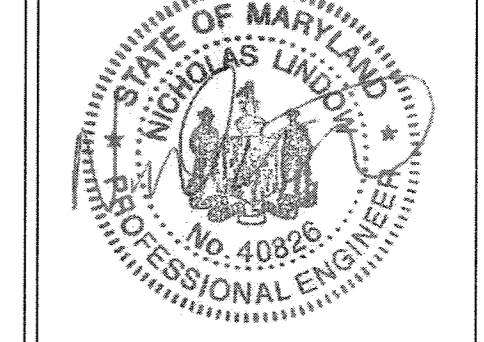
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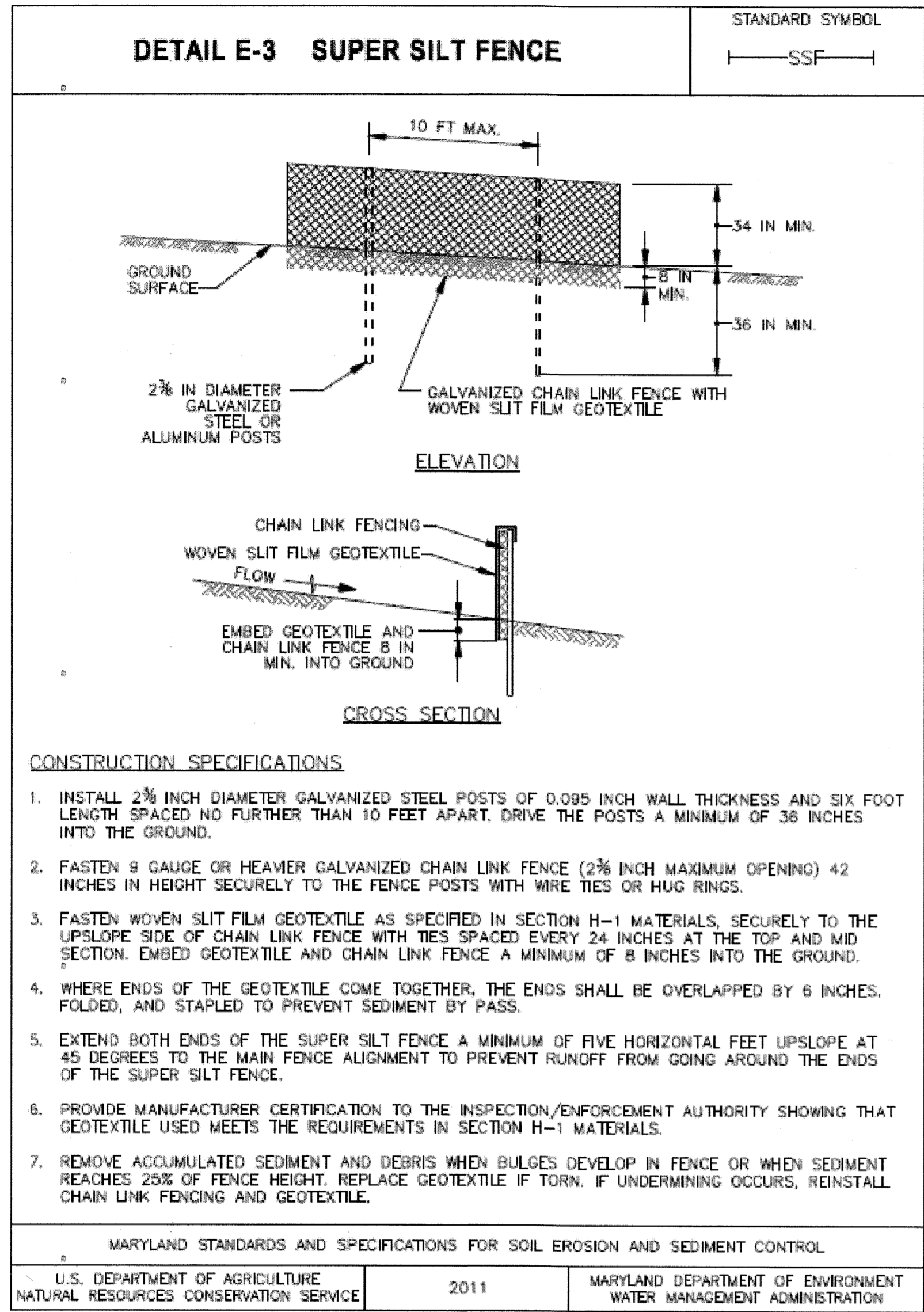
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DORSEY HALL VILLAGE STORMWATER RETROFITS

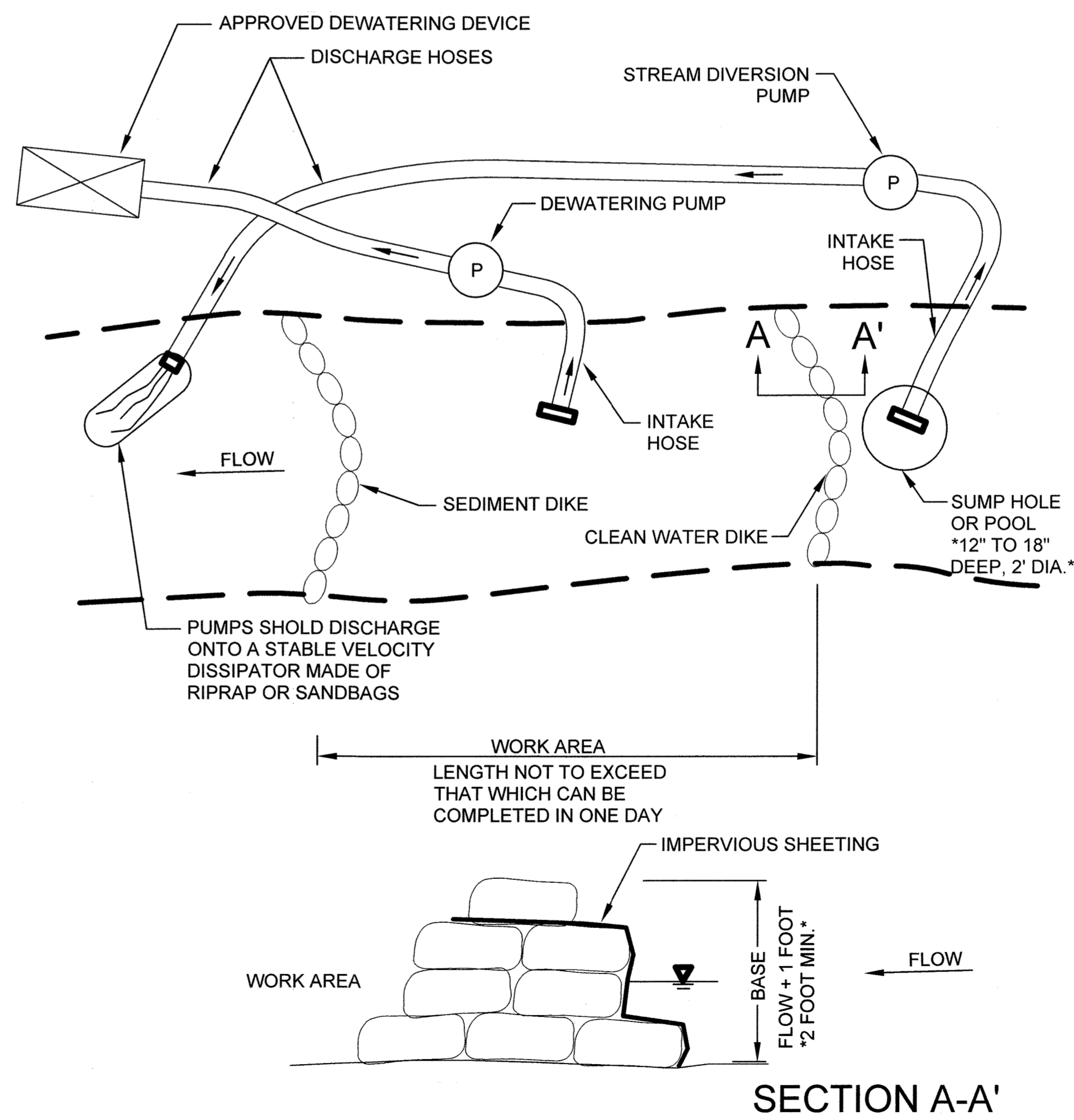
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PROJECT NO.:	13005.14	SCALE:	
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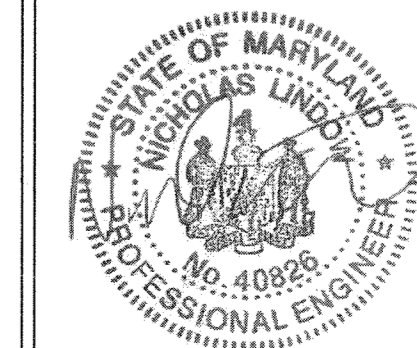
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**DORSEY HALL
 VILLAGE
 STORMWATER
 RETROFITS**

DETAILS

PROJECT NO.:	13005.14	SCALE:	
SEAL:	BY: KT/NL	CHECK:	
	DWG. NO.:		



2011 MD STANDARDS & SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL - B-4-8 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:

1. THE STOCKPILE LOCATION AND ALL RELATED SEDIMENT CONTROL PRACTICES MUST BE CLEARLY INDICATED ON THE EROSION AND SEDIMENT CONTROL PLAN.
 2. 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.
 3. RUNOFF FROM THE STOCKPILE AREA MUST DRAIN TO A SUITABLE SEDIMENT CONTROL PRACTICE.
 4. ACCESS THE STOCKPILE AREA FROM THE UPGRADE SIDE.
 5. 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.
 6. WHERE RUNOFF CONCENTRATES ALONG THE TOE OF THE STOCKPILE FILL, AN APPROPRIATE EROSION/SEDIMENT CONTROL PRACTICE MUST BE USED TO INTERCEPT THE DISCHARGE.
 7. 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.
 8. 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.

HOWARD SOIL CONSERVATION DISTRICT STANDARD SEDIMENT CONTROL NOTES

1. A MINIMUM OF 48 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY DEPARTMENT OF INSPECTIONS, LICENSES AND PERMITS, SEDIMENT CONTROL DIVISION PRIOR TO THE START OF ANY CONSTRUCTION (313-1855).
2. ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE MOST CURRENT MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL AND REVISIONS THERETO.
3. 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.
4. 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.
5. 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.
6. SITE ANALYSIS:

TOTAL AREA OF SITE	1.4 acres
AREA DISTURBED	1.4 acres
AREA TO BE ROOFED OR PAVED	0 acres
AREA TO BE VEGETATIVELY STABILIZED	1.4 acres
TOTAL CUT	1,337 cubic yards
TOTAL FILL	568 cubic yards
OFFSITE WASTE/BORROW AREA LOCATION	SEE CAPITAL PROJECT PLAN #D-1158; EP-15-16
7. ANY SEDIMENT CONTROL PRACTICE THAT IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.
8. ADDITIONAL SEDIMENT CONTROL MUST BE PROVIDED, IF DEEMED NECESSARY BY THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
9. 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.
10. 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.
11. ANY CHANGES OR REVISIONS TO THE SEQUENCE OF CONSTRUCTION MUST BE REVIEWED AND APPROVED BY THE PLAN APPROVAL AUTHORITY PRIOR TO PROCEEDING WITH CONSTRUCTION.
12. 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.

NOTE: TEMPORARY AND/OR PERMANENT STABILIZATION IS TO BE PERFORMED AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR OR AT THE INTERVALS REQUIRED BY THE 2011 STANDARDS & SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, WHICHEVER IS MORE RESTRICTIVE.

SEQUENCE OF CONSTRUCTION

EROSION AND SEDIMENT CONTROL SETUP (1 WEEK)

1. CONTRACTOR SHALL STAKE OUT THE LIMITS OF DISTURBANCE, PROPOSED CHANNEL BASELINE STATIONING AS SHOWN ON THE GEOMETRY PLAN, AND STRUCTURE LOCATIONS PER COORDINATE LOCATIONS SHOWN ON THE GRADING PLANS.
2. CONTRACTOR SHALL FLAG ALL TREES WITHIN THE LIMIT OF DISTURBANCE WHICH WILL BE REMOVED FOR CONSTRUCTION ACCESS AND GRADING. NO TREES SHALL BE REMOVED WITHIN THE LIMITS OF DISTURBANCE WITHOUT APPROVAL FROM THE PROJECT ENGINEER OR CONSTRUCTION SUPERVISOR.
3. CONTRACTOR SHALL CONDUCT A PRE-CONSTRUCTION MEETING ONSITE WITH THE PROJECT ENGINEER, CONSTRUCTION SUPERVISOR, AND APPROPRIATE AGENCY PERSONNEL TO REVIEW THE EROSION AND SEDIMENT CONTROL REQUIREMENTS, SEQUENCE OF CONSTRUCTION, LIMITS OF DISTURBANCE, PROJECT LAYOUT, AND TREE IMPACT BEFORE WORK BEGINS.
4. CONTRACTOR SHALL CLEAR AND GRUB AS NECESSARY TO INSTALL SEDIMENT EROSION CONTROLS AND STAGING AREAS WITH APPROVAL OF THE SEDIMENT AND EROSION CONTROL INSPECTOR, THE CONTRACTOR MAY BEGIN GRADING OPERATIONS.
5. CONTRACTOR SHALL INSTALL THE STABILIZED CONSTRUCTION ENTRANCES, MULCH ACCESS PATHWAYS, BLAZE ORANGE FENCE, AND TREE PROTECTION AREAS AS SHOWN ON THE GRADING PLANS OR AS DIRECTED BY THE ENGINEER.
6. CONTRACTOR SHALL ESTABLISH THE TEMPORARY STOCKPILE AREA IN THE LOCATION INDICATED ON GRADING PLAN (NOTE: INSTALL SILT FENCE AROUND STOCKPILE AREA AS INDICATED ON PLANS).
7. MATERIALS FOR PUMPING STATION AND FILTER BAG SHALL BE LOCATED ON SITE.
8. CONTRACTOR SHALL INSTALL A CLEAR WATER DIVERSION, OR PUMPING STATION AND FILTER BAG DEWATERING DEVICE AS NECESSARY TO DIVERT STORM AND STREAM FLOW AROUND THE WORK AREA. SEDIMENT SHALL NOT BE RELEASED INTO THE STREAM AND FLOODPLAIN. SEDIMENT LADEN WATER IS TO BE PUMPED INTO A SEDIMENT FILTERING BAG. CLEAN WATER ONLY IS TO BE DISCHARGED INTO THE STREAM AND FLOODPLAIN. NO WORK SHALL BE CONDUCTED IN THE STREAM, CHANNEL, OR FLOODPLAIN DURING RAIN EVENTS.
9. INSTALL REMAINING EROSION AND SEDIMENT CONTROL DEVICES SHOWN ON THE PLANS.
10. PERMANENT OR TEMPORARY STABILIZATION MUST BE COMPLETED WITHIN THREE (3) CALENDAR DAYS AS TO THE SURFACE OF ALL PERIMETER DIKES, SWALES, DITCHES, PERIMETER SLOPES, AND ALL SLOPES STEEPER THAN 3 HORIZONTAL TO 1 VERTICAL (3:1); AND SEVEN (7) CALENDAR DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE NOT UNDER ACTIVE GRADING.
11. ANY SEDIMENT CONTROL PRACTICE THAT IS DISTURBED BY GRADING ACTIVITY BE REPAIRED ON THE SAME DAY OF DISTURBANCE.
12. ADDITIONAL SEDIMENT CONTROL MUST BE PROVIDED, IF DEEMED NECESSARY BY THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.

OUTFALL CONSTRUCTION

1. NOTE: CONSTRUCTION OF OUTFALLS AND STREAM RESTORATION SHOULD BE DONE CONCURRENTLY. WORK SHALL BE PERFORMED FROM THE WEST TO EAST DIRECTION AND DOWNSTREAM TO UPSTREAM AS MUCH AS POSSIBLE. THIS IS TO UTILIZE MATERIALS, BOTH FILL AND WOODY MATERIAL, AVAILABE FROM BOTH RETROFIT AND RESTORATION PROJECTS. STOCKPILE AND STAGING AREAS FOR BOTH PROJECTS WILL BE SHARED.

PHASE I - OUTFALL B TO BE CONSTRUCTED UPSTREAM TO DOWNSTREAM (3 WEEKS)

2. DEWATER WORK AREA BEFORE BEGINNING WORK. PUMP AROUND SHOULD OCCUR UPSTREAM TO DOWNSTREAM. SANDBAG DIKES SHOULD BE SITUATED AT UPSTREAM AND DOWNSTREAM ENDS OF WORK AND PUMP SHOULD DISCHARGE ONTO A STABLE VELOCITY DISSIPATOR. WATER FROM WORK AREA SHOULD BE PUMPED TO A SEDIMENT FILTERING MEASURE SUCH AS A FILTER BAG AND SHOULD DRAIN BACK TOWARDS THE STREAM CHANNEL BELOW THE DOWNSTREAM SANDBAG DIKE.
3. PLACE FILL MATERIAL, STRUCTURES AND PERFORM GRADING AS DETAILED ON PLANS, WORKING UPSTREAM TO DOWNSTREAM. ONLY INSTALL AS MANY STRUCTURES AS CAN BE COMPLETED AND STABILIZED IN ONE DAY. ALL FINISHED GRADING MUST BE PERMANENTLY STABILIZED AT THE END OF EACH DAY WITH A 3" LAYER OF SINGLE SCREENED HARDWOOD MULCH. OTHERWISE TEMPORARILY STABILIZE ALL DISTURBED AREAS AT THE END OF EACH WORKING DAY.
4. UPON COMPLETION OF INSTALLATION, STABILIZE REMAINING DISTURBED AREAS AND SECURE PUMP AROUND DEVICES AT THE END OF EACH DAY.
5. A STABLE OUTFALL MUST BE OPERABLE AT THE END OF EACH DAY SUCH THAT ANY STORM FLOW CAN BE SAFELY CONVEYED. THE OUTFALL SHALL BE THE EXISTING OUTFALL, THE PROPOSED OUTFALL, OR A COMBINATION OF THE TWO.

PHASE II - OUTFALL C TO BE CONSTRUCTED UPSTREAM TO DOWNSTREAM (3 WEEKS)

6. DEWATER WORK AREA BEFORE BEGINNING WORK. PUMP AROUND SHOULD OCCUR UPSTREAM TO DOWNSTREAM. SANDBAG DIKES SHOULD BE SITUATED AT UPSTREAM AND DOWNSTREAM ENDS OF WORK AND PUMP SHOULD DISCHARGE ONTO A STABLE VELOCITY DISSIPATOR. WATER FROM WORK AREA SHOULD BE PUMPED TO A SEDIMENT FILTERING MEASURE SUCH AS A FILTER BAG AND SHOULD DRAIN BACK TOWARDS THE STREAM CHANNEL BELOW THE DOWNSTREAM SANDBAG DIKE.
7. PLACE FILL MATERIAL, STRUCTURES AND PERFORM GRADING AS DETAILED ON PLANS, WORKING UPSTREAM TO DOWNSTREAM. ONLY INSTALL AS MANY STRUCTURES AS CAN BE COMPLETED AND STABILIZED IN ONE DAY. ALL FINISHED GRADING MUST BE PERMANENTLY STABILIZED AT THE END OF EACH DAY WITH A 3" LAYER OF SINGLE SCREENED HARDWOOD MULCH. OTHERWISE TEMPORARILY STABILIZE ALL DISTURBED AREAS AT THE END OF EACH WORKING DAY.
8. UPON COMPLETION OF INSTALLATION, STABILIZE REMAINING DISTURBED AREAS AND SECURE PUMP AROUND DEVICES AT THE END OF EACH DAY.
9. A STABLE OUTFALL MUST BE OPERABLE AT THE END OF EACH DAY SUCH THAT ANY STORM FLOW CAN BE SAFELY CONVEYED. THE OUTFALL SHALL BE THE EXISTING OUTFALL, THE PROPOSED OUTFALL, OR A COMBINATION OF THE TWO.

PHASE III - OUTFALL D & E TO BE CONSTRUCTED DOWNSTREAM TO UPSTREAM (3 WEEKS)

10. DEWATER WORK AREA BEFORE BEGINNING WORK. PUMP AROUND SHOULD OCCUR UPSTREAM TO DOWNSTREAM. SANDBAG DIKES SHOULD BE SITUATED AT UPSTREAM AND DOWNSTREAM ENDS OF WORK AND PUMP SHOULD DISCHARGE ONTO A STABLE VELOCITY DISSIPATOR. WATER FROM WORK AREA SHOULD BE PUMPED TO A SEDIMENT FILTERING MEASURE SUCH AS A FILTER BAG AND SHOULD DRAIN BACK TOWARD THE STREAM CHANNEL BELOW THE DOWNSTREAM SANDBAG DIKE.
11. PLACE FILL MATERIAL, STRUCTURES AND PERFORM GRADING AS DETAILED ON PLANS, WORKING UPSTREAM TO DOWNSTREAM. ONLY INSTALL AS MANY STRUCTURES AS CAN BE COMPLETED AND STABILIZED IN ONE DAY. ALL FINISHED GRADING MUST BE PERMANENTLY STABILIZED AT THE END OF EACH DAY WITH A 3" LAYER OF SINGLE SCREENED HARDWOOD MULCH. OTHERWISE TEMPORARILY STABILIZE ALL DISTURBED AREAS AT THE END OF EACH WORKING DAY.
12. UPON COMPLETION OF INSTALLATION, STABILIZE REMAINING DISTURBED AREAS AND SECURE PUMP AROUND DEVICES AT THE END OF EACH DAY.
13. A STABLE OUTFALL MUST BE OPERABLE AT THE END OF EACH DAY SUCH THAT ANY BASE FLOW OR STORM FLOW CAN BE SAFELY CONVEYED. THE OUTFALL SHALL BE THE EXISTING OUTFALL, THE PROPOSED OUTFALL, OR A COMBINATION OF THE TWO.

PHASE IV - PLANTING AND DEMOBILIZATION (2 WEEKS)

1. PLANT SITE ACCORDING TO THE PLANTING PLAN.
2. WITH THE APPROVAL OF THE SEDIMENT CONTROL INSPECTOR, REMOVE THE SEDIMENT CONTROL DEVICES. STABILIZE ANY AREAS DISTURBED BY SEDIMENT CONTROL REMOVAL.

CONTRACTOR SPECIAL NOTES

1. NOTIFY THE DEPARTMENT OF PUBLIC WORKS, BUREAU OF ENGINEERING/CONSTRUCTION INSPECTION DIVISION AT LEAST 48 HOURS BEFORE COMMENCING WORK AT (410)-313-1880. WORK MAY NOT COMMENCE UNTIL THE PERMITTEE OR THE RESPONSIBLE PE HAVE MET ON SITE WITH THE SEDIMENT AND EROSION CONTROL INSPECTOR TO REVIEW THE APPROVED PLANS.
2. NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.
3. CONSTRUCTION SHALL NOT BEGIN UNTIL ALL SEDIMENT AND EROSION CONTROL MEASURES HAVE BEEN INSTALLED AND APPROVED BY THE ENGINEER AND SEDIMENT CONTROL INSPECTOR. THE CONTRACTOR SHALL STAY WITHIN THE LIMIT OF DISTURBANCE AS SHOWN ON THE PLANS AND MINIMIZE DISTURBANCE WITHIN THE WORKING AREA WHENEVER POSSIBLE.
4. CONTRACTOR SHALL TAKE EXTRA PRECAUTION FOR TRANSPORTING MATERIALS FROM THE STORAGE AREA TO THE CONSTRUCTION SITE. CONTRACTOR SHALL MINIMIZE THE IMPACT ON EXISTING TREES, WETLANDS, U.S. WATERS, EXISTING UTILITY AND OTHER EXISTING FEATURES.
5. CONTRACTOR SHALL CAUTION THE TRUCK DRIVERS TO TAKE EXTRA PRECAUTION WHILE DRIVING ON THE TEMPORARY ACCESS PATHWAY SO THAT IT CAN MINIMIZE THE IMPACTS ON STREAMBED, SIDE SLOPES, EXISTING TRESS, U.S. WATERS, AND ANY EXISTING FEATURES.
6. ALL OUTFALL AND IN STREAM WORK SHALL BE DONE IN STRICT ACCORDANCE WITH THE PUMP AROUND CRITERIA.

HOWARD COUNTY
GEORGE HOWARD BUILDING
3430 COURHOUSE DRIVE
ELLCOTT CITY, MD 21043
(P) 410 313 2022
(F) 410 313 3390

DATE	ISSUES / REVISIONS
09/18/2014	60% DESIGN
12/04/2014	FINAL DESIGN

APPROVED: DEPARTMENT OF PUBLIC WORKS

[Signature]
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES DATE: *[Signature]*



The Stables Building 2081 Clipper Park Road
Baltimore, MD 21211 / ph: 410.554.0156
fx: 410.554.0168 / www.biohabitats.com

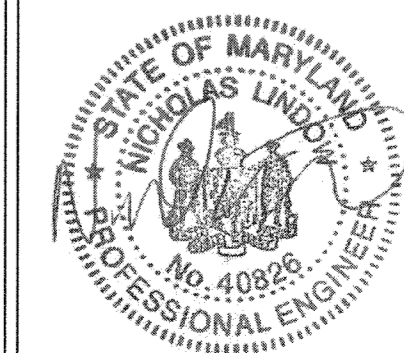
Restore the Earth & Inspire Ecological Stewardship

DORSEY HALL VILLAGE STORMWATER RETROFITS

TITLE:

DETAILS

PROJECT NO.:	13005.14	SCALE:	
SEAL:		BY:	KT/NL
		CHECK:	
		DWG. NO.:	



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