GLENBROOK DRAINAGE IMPROVEMENTS

ELECTION DISTRICT 1
HOWARD COUNTY, MARYLAND
CAPITAL PROJECT D-1167

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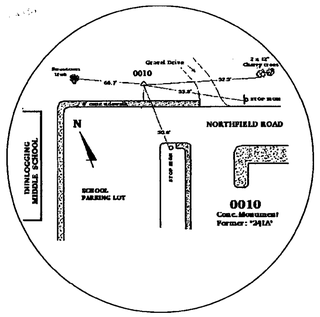
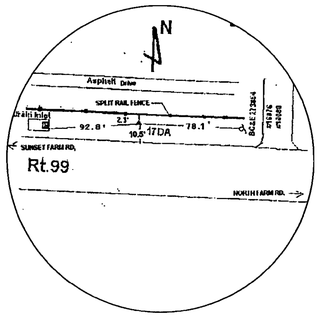
17. DRAINAGE AREA MAP



CONTROL 0010



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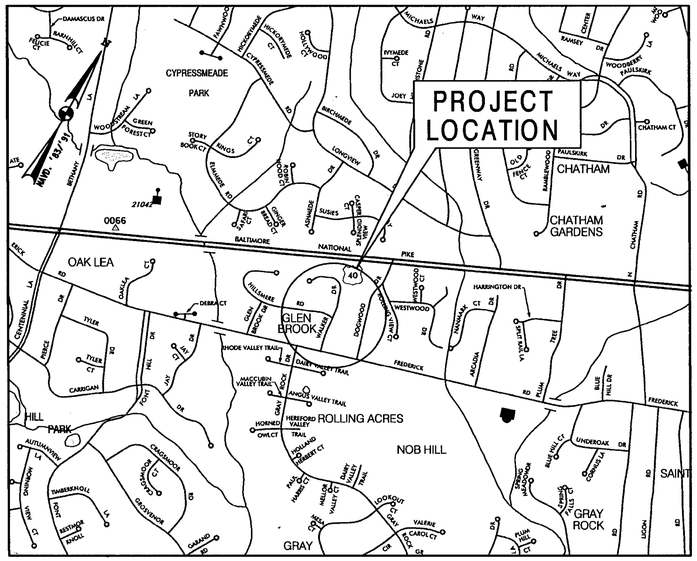
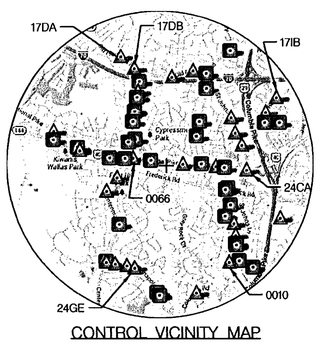


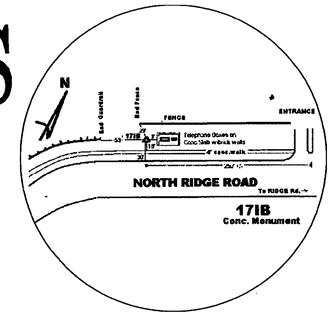
LOCATION MAP
HOWARD COUNTY

1000 0 1000 2000

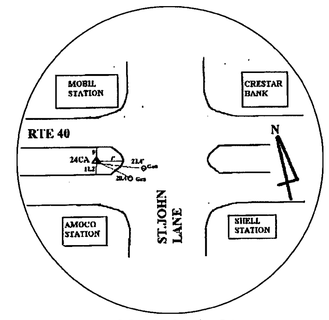
SCALE: 1" = 1000'



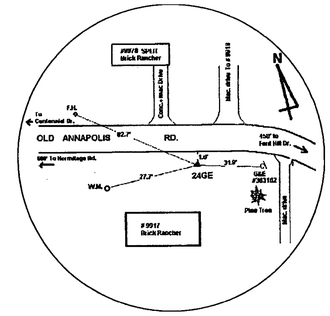
CONTROL VICINITY MAP



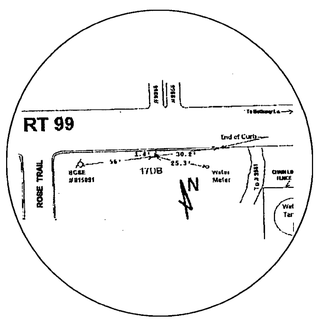
CONTROL 17IB



CONTROL 24CA



CONTROL 24GE



CONTROL 17DB

CONTROL 0066

GENERAL NOTES

1. COORDINATES SHOWN HEREON ARE BASED ON THE MARYLAND STATE REFERENCE SYSTEM NAD '83/'07 AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS 0010, 17DA, 17DB, 17IB, 24CA, 24GE AND 0066 UTILIZING A GPS NETWORK CALIBRATION.
2. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY.
3. ALL WORK SHALL COMPLY WITH ALL APPLICABLE PROVISIONS OF THE "2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL," ISSUED BY THE MARYLAND DEPARTMENT OF THE ENVIRONMENT.
4. TOPOGRAPHIC SURVEYS WERE PERFORMED BY URS CORPORATION IN JANUARY 2014.
5. THE PROPERTY LINES AND EASEMENT LINES ARE BASED ON LAND ACQUISITION DOCUMENTS RESEARCHED AND PLACED ON THE PLANS. PLAT REFERENCES ARE NOTED ON THE ROADWAY AND EROSION AND SEDIMENT CONTROL PLANS.
6. SHOULD THE CONTRACTOR DISCOVER DISCREPANCIES BETWEEN THE PLANS AND THE FIELD CONDITIONS, THE ENGINEER IS TO BE NOTIFIED IMMEDIATELY TO RESOLVE THE SITUATION. SHOULD THE CONTRACTOR MAKE FIELD CORRECTIONS OR ADJUSTMENTS WITHOUT NOTIFYING THE ENGINEER, THEN THE CONTRACTOR ASSUMES ALL RESPONSIBILITY FOR THOSE CHANGES.
7. CONTRACTOR IS SOLELY RESPONSIBLE FOR CONSTRUCTION MEANS, METHOD, TECHNIQUES, SEQUENCES, PROCEDURES, AND SAFETY PRECAUTIONS AND PROGRAMS.
8. APPROXIMATE UTILITIES ARE SHOWN FROM AVAILABLE RECORDS. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THE EXISTING UTILITIES AND MAINTAIN UNINTERRUPTED SERVICE. ANY DAMAGE INCURRED DUE TO CONTRACTOR'S OPERATION SHALL BE REPAIRED IMMEDIATELY AT THE CONTRACTOR'S EXPENSE.
9. ALL PIPE ELEVATIONS SHOWN ARE INVERT ELEVATIONS.
10. CONTRACTOR SHALL NOTIFY THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS/BUREAU OF ENGINEERING CONSTRUCTION INSPECTION DIVISION AT 410-313-1880 AND MISS UTILITY AT 1-800-257-7777 AT LEAST FIVE (5) WORKING DAYS BEFORE STARTING WORK
11. EXISTING OVERHEAD POWER LINES ARE IN THE VICINITY OF THE PROJECT. AT NO TIME WILL THE POWER BE PERMITTED TO BE SHUT OFF, AT ALL TIMES DURING CONSTRUCTION, THE CONTRACTOR SHALL COMPLY ABSOLUTELY WITH THE MARYLAND HIGH VOLTAGE ACT DURING CONSTRUCTION OPERATIONS. IT IS THE CONTRACTOR'S OBLIGATION TO VERIFY THE EXACT LOCATION OF THE POWER LINES IN THE FIELD AND TO MAINTAIN AND ENFORCE CLEARANCE REQUIREMENTS SPECIFIED IN THE ACT.
12. ANY RELOCATION OF WATER AND/OR SEWER HOUSE CONNECTIONS SHALL BE PER HOWARD COUNTY VOLUME IV DETAILS, AND ONLY UPON NOTIFICATION OF THE HOWARD COUNTY BUREAU OF UTILITIES,
13. SEWER CONTRACT NO. 186-S, 770-S
    WATER CONTRACT NO. 59-W, 73-W
    UTILITY CONTACTS:
14. BGE: (410)-470-7868 (ELECTRIC)
    BGE: (410)-470-7863 (GAS)
    VERIZON: (301)-282-4508
    COMCAST: (410)-497-0232
    BUREAU OF UTILITIES: (410)-313-4900 (WATER & SANITARY)

TRAVERSE POINTS AND BENCHMARK INFORMATION				
POINT NO.	NORTHING	EASTING	ELEVATION	MARKER TYPE
FLY4	586,373.772	1,355,723.392	368.32	PKNAIL
FLY5	586,196.093	1,355,841.162	368.53	REBAR & CAP
FLY6	586,091.198	1,355,413.213	357.97	REBAR & CAP
FLY7	586,072.514	1,355,599,756	366.45	PKNAIL
FLY12	586,487.471	1,356,192.883	391.96	REBAR & CAP
GPS1	586,476.631	1,355,740.477	369.79	PKNAIL
GPS2	586,230.482	1,355,693.463	365.61	PKNAIL
GPS3	586,001.518	1,355,568.635	368.24	PKNAIL
MB9	585,716.824	1,355,508.870	373.63	PKNAIL
MB10	585,602.508	1,356,000.532	385.40	PKNAIL
MB11	586,153.407	1,356,129.350	385.98	PKNAIL
0010	579,167.084	1,360,260.181	357.212	HOWARD COUNTY DISK
17DA	595,410.848	1,351,641.096	481.475	HOWARD COUNTY DISK
17DB	594,529.443	1,352,722.560	475.277	HOWARD COUNTY DISK
17IB	592,199.761	1,364,004.932	376.206	HOWARD COUNTY DISK
24CA	586,506.212	1,361,634.316	398.267	HOWARD COUNTY DISK
24GE	578,706.534	1,352,699.643	445.636	HOWARD COUNTY DISK
0066	587,380.551	1,352,603.448	386.488	HOWARD COUNTY DISK

DEVELOPER'S CERTIFICATION

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

SIGNATURE OF DEVELOPER DATE

ENGINEER'S CERTIFICATION

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

4-21-16
DAVID T. MORICONI DATE
URS CORPORATION
4 NORTH PARK DRIVE
HUNT VALLEY, MD 21030

~~SP-14-007~~ SP15-022

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

John R Robertson 7/26/16
HOWARD SOIL CONSERVATION DISTRICT DATE

PROFESSIONAL CERTIFICATION

"I HEREBY CERTIFY THAT 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. 16156, EXPIRATION DATE: 6/28/2016.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

5/11/16
DIRECTOR OF PUBLIC WORKS DATE

Thomas E Butler 5/12/16
CHIEF, BUREAU OF ENGINEERING DATE

Steve Sharar 5/10/16
CHIEF, TRANSPORTATION AND SPECIAL PROJECTS DIVISION DATE

5/11/2016
CHIEF, BUREAU OF HIGHWAYS DATE

PREPARED BY
URS
4 NORTH PARK DRIVE
HUNT VALLEY, MARYLAND
TEL: (410) 785-7220

STATE OF MARYLAND · DAVID THOMAS MORICONI · 21010 · REGISTERED PROFESSIONAL ENGINEER

DES: JHY
DRN: JHY
CHK: DTM
DATE: 04/16

BY	NO.	REVISION	DATE

TITLE SHEET

SCALE MAP NO. ____ BLOCK NO. ____

GLENBROOK
DRAINAGE IMPROVEMENTS
ELECTION DISTRICT NO. 1
CAPITAL PROJECT D-1167

SCALE AS SHOWN

SHEET 1 OF 17

U:\Projects\H\HoCo\20835732\CAD\PlanSet\pGN-T001_WAK.dgn ronald.landrum Thursday, April 21, 2016 AT 03:40 PM

MATCH LINE STA. 25+50 – SEE SHEET NO. 3

MATCH LINE – SEE SHEET NO. 4

TAX MAP 24, PARCEL 738
ACCOUNT No. 02-212722
RONALD LEE KELLY & SUE UHLER KELLY J/E
828/414 – LOT 36 – #9706 HILLSMERE RD.

TAX MAP 24, PARCEL 738
ACCOUNT No. 02-255170
ROBERT J. ADAMS & DIANE D. ADAMS
1660/323 – LOT 37 – #9702 HILLSMERE RD.

TAX MAP 24, PARCEL 738
ACCOUNT No. 02-199238
WALTER EARL GARMAN, III & JEAN GARMAN
1382/472 – LOT 64 – #3483 WALKER DR.

TAX MAP 24, PARCEL 533
ACCOUNT No. 02-245663
RITA SHAMLAL, et al
5314/618 – LOT 69
#3826 DOGWOOD DR
PLAT No. 0483

TAX MAP 24, PARCEL 738
ACCOUNT No. 02-196603
THE RITA S. MISKELLY REVOCABLE TRUST
5527/090 – LOT 65 – #3487 WALKER DR.
PLAT No. 0753

TAX MAP 24, PARCEL 533
ACCOUNT No. 02-238675
SHERMAN B. PAPER & KAREN L. PAPER
9792/151 – LOT 68
#3430 DOGWOOD DR
PLAT No. 0483

TAX MAP 24, PARCEL 533
ACCOUNT No. 02-229234
PETER W. WILKEY & CYNTHIA E. WILKEY
884/500 – LOT 67
#3434 DOGWOOD DR
PLAT No. 0483

TAX MAP 24, PARCEL 738
ACCOUNT No. 02-217791
MAXWELL LECRON HOLLAND, Jr.
7903/157 – LOT 14 – #9709 HILLSMERE RD.
PLAT No. 0753

TAX MAP 24, PARCEL 738
ACCOUNT No. 02-230216
ABIGAIL V. ADAMS
12052/450 – LOT 15 – #3490 WALKER DR.
PLAT No. 0795

TAX MAP 24, PARCEL 738
ACCOUNT No. 02-238217
ROBERT V. SCHRODER & ELIZABETH MARGARET FREY
2027/289 – LOT 66 – #3491 WALKER DR.
PLAT No. 0753

TAX MAP 24, PARCEL 738
ACCOUNT No. 02-241811
JUDITH S. JEFFERSON L/T & MEGHAN JEFFERSON WALDING
9899/238 – LOT 16 – #3494 WALKER DR.
PLAT No. 0681

TAX MAP 24, PARCEL 738
ACCOUNT No. 02-248557
CHRISTOPHER RICHARDSON & NORMA LYNN RICHARDSON
3525/676 – LOT 67 – #3495 WALKER DR.

HILLSMERE ROAD
WALKER DRIVE
RIGHT OF WAY
PT STA. 52+28.52
PC STA. 24+85.13
PT STA. 22+69.63
@ CONSTR. HILLSMERE ROAD
@ CONSTR. WALKER DRIVE
@ B/L HILLSMERE ROAD ROT STA. 50+00.00
@ B/L WALKER DRIVE POT STA. 24+35.17
CONTRACT NO. 186-S
CONTRACT NO. 73-W
CONTRACT NO. 185-S
TO FREDERICK ROAD

PROPOSED DRAINAGE EASEMENT
PROPOSED TEMPORARY CONSTRUCTION EASEMENT
EXISTING 20' DRAINAGE & UTILITY EASEMENT PLAT NO. 0753
EXISTING 5' UTILITY RIGHT-OF-WAY PLAT NO. 0753
EX. 6" UNDERDRAIN PER RECORD DRAWINGS

CONTROL MBFLY8
CONTROL FLY 6
CONTROL GPS 2
CONTROL FLY 5
CONTROL FLY7
CONTROL GPS3

DEMOLITION NOTES:

1. ABANDON EXISTING STORM DRAIN PIPE AND FILL WITH FLOWABLE FILL
2. REMOVE EXISTING STORM DRAIN PIPE
3. REMOVE EXISTING STORM DRAIN STRUCTURE
4. REMOVE AND RESET EXISTING PLANTER
5. ADJUST EXISTING SANITARY SEWER MANHOLE
6. REMOVE AND RESET EXISTING FENCE
7. EXISTING UTILITY POLE TO REMAIN
8. REMOVE EXISTING SHRUBS
9. EXISTING STORM DRAIN PIPE TO REMAIN
10. EXISTING STORM DRAIN STRUCTURE TO REMAIN
11. ADJUST EXISTING WATER METER
12. REMOVE EXISTING TREE

LEGEND

- 370 — EXISTING CONTOUR
- EXISTING FENCE
- EXISTING WATER
- SAN — EXISTING SANITARY SEWER
- E — EXISTING OVERHEAD ELECTRIC
- B — WETLAND BUFFER
- LINE OF DIVISION
- RIGHT OF WAY

SCALE: 1" = 20'

PROFESSIONAL CERTIFICATION

"I HEREBY CERTIFY THAT 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. 16156, EXPIRATION DATE: 8/28/2016."

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 5/11/16
CHIEF, BUREAU OF ENGINEERING — DATE 5/12/16
CHIEF, TRANSPORTATION AND SPECIAL PROJECTS DIVISION — DATE 5/11/16
CHIEF, BUREAU OF HIGHWAYS — DATE 5/11/2016

PREPARED BY
URS
4 NORTH PARK DRIVE
HUNT VALLEY, MARYLAND
TEL: (410) 785-7220

STATE OF MARYLAND — DAVID THOMAS MORICONI — No. 16156 — REGISTERED PROFESSIONAL ENGINEER — 4-14-16

DES:	JHY
DRN:	JHY
CHK:	DTM
DATE:	04/16

BY	NO.	REVISION	DATE

EXISTING /DEMOLITION PLAN NO. 1

SCALE MAP NO. ____ BLOCK NO. ____

GLENBROOK DRAINAGE IMPROVEMENTS

ELECTION DISTRICT NO. 1
CAPITAL PROJECT D-1167

SCALE 1" = 20'

SHEET 2 OF 17

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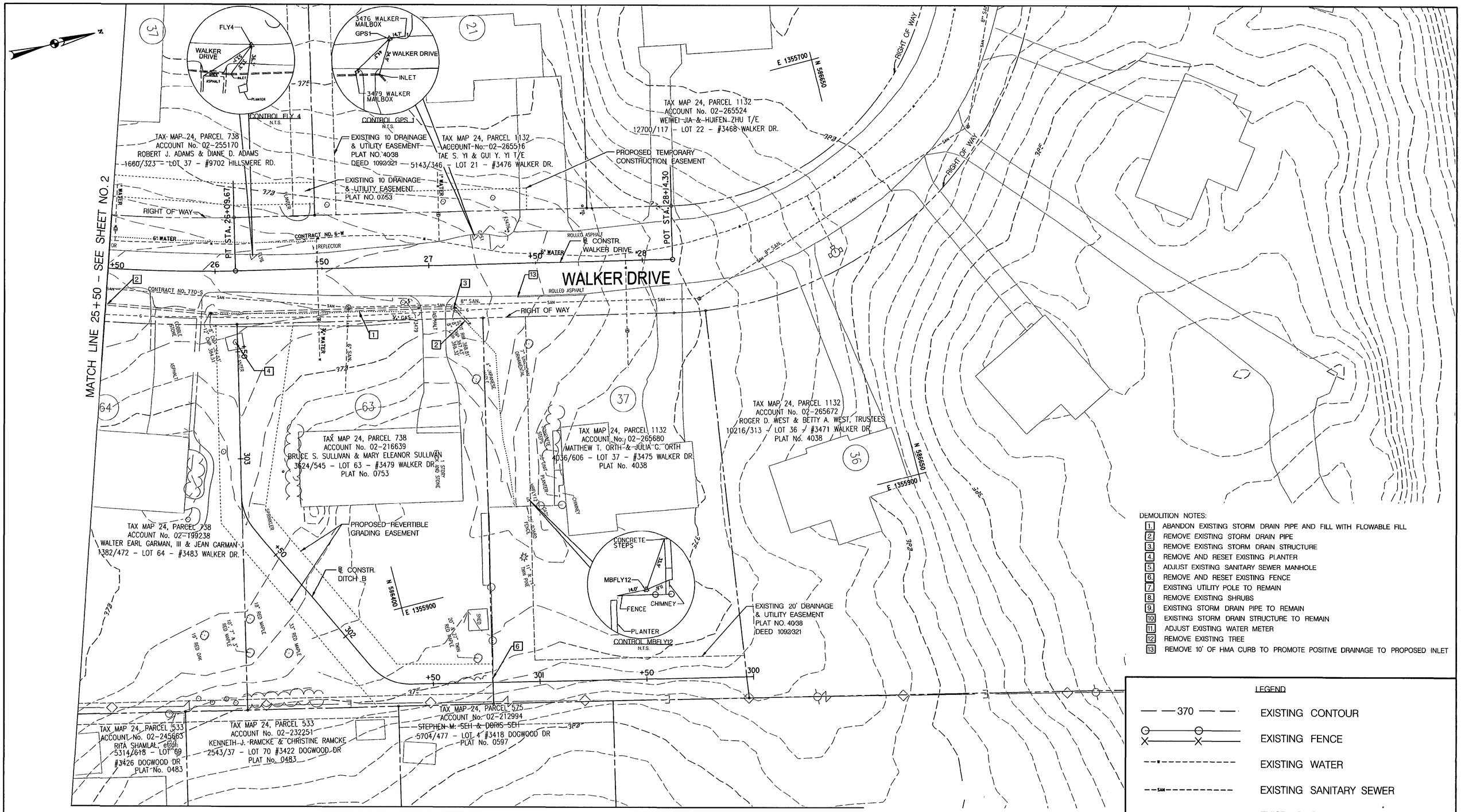

DEMOLITION NOTES:

1. ABANDON EXISTING STORM DRAIN PIPE AND FILL WITH FLOWABLE FILL
2. REMOVE EXISTING STORM DRAIN PIPE
3. REMOVE EXISTING STORM DRAIN STRUCTURE
4. REMOVE AND RESET EXISTING PLANTER
5. ADJUST EXISTING SANITARY SEWER MANHOLE
6. REMOVE AND RESET EXISTING FENCE
7. EXISTING UTILITY POLE TO REMAIN
8. REMOVE EXISTING SHRUBS
9. EXISTING STORM DRAIN PIPE TO REMAIN
10. EXISTING STORM DRAIN STRUCTURE TO REMAIN
11. ADJUST EXISTING WATER METER
12. REMOVE EXISTING TREE
13. REMOVE 10' OF HMA CURB TO PROMOTE POSITIVE DRAINAGE TO PROPOSED INLET

LEGEND

- EXISTING CONTOUR
- EXISTING FENCE
- EXISTING WATER
- EXISTING SANITARY SEWER
- EXISTING OVERHEAD ELECTRIC
- LINE OF DIVISION
- RIGHT OF WAY

20' 0 20' 40'
SCALE: 1" = 20'

NOTE: CONTRACTOR SHALL SEEK PERMISSION FROM PARCEL 63 AND 64 HOMEOWNERS PRIOR TO ANY REMOVAL/DEMOLITION OF THE PLANTER.

PROFESSIONAL CERTIFICATION

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DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 5/11/16
CHIEF, BUREAU OF ENGINEERING — DATE 5/11/16
CHIEF, TRANSPORTATION AND SPECIAL PROJECTS DIVISION — DATE 5/10/16
CHIEF, BUREAU OF HIGHWAYS — DATE 5/11/2016

PREPARED BY
URS
4 NORTH PARK DRIVE
HUNT VALLEY, MARYLAND
TEL: (410) 785-7220

STATE OF MARYLAND — DAVID THOMAS MORICONI — REG. NO. 16156 — PROFESSIONAL ENGINEER — 4-27-16

DES:	JHY
DRN:	JHY
CHK:	DTM
DATE:	04/16

BY	NO.	REVISION	DATE

EXISTING /DEMOLITION PLAN NO. 2

SCALE MAP NO. ____ BLOCK NO. ____

GLENBROOK DRAINAGE IMPROVEMENTS

ELECTION DISTRICT NO. 1
CAPITAL PROJECT D-1167

SCALE 1" = 20'

SHEET 3 OF 17

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MATCH LINE - SEE SHEET NO. 2

MATCH LINE - SEE SHEET NO. 2

MATCH LINE - SEE SHEET NO. 3

MATCH LINE - SEE SHEET NO. 3

DEMOLITION NOTES:

1. ABANDON EXISTING STORM DRAIN PIPE AND FILL WITH FLOWABLE FILL
2. REMOVE EXISTING STORM DRAIN PIPE
3. REMOVE EXISTING STORM DRAIN STRUCTURE
4. REMOVE AND RESET EXISTING PLANTER
5. ADJUST EXISTING SANITARY SEWER MANHOLE
6. REMOVE AND RESET EXISTING FENCE
7. EXISTING UTILITY POLE TO REMAIN
8. REMOVE EXISTING SHRUBS
9. EXISTING STORM DRAIN PIPE TO REMAIN
10. EXISTING STORM DRAIN STRUCTURE TO REMAIN
11. ADJUST EXISTING WATER METER
12. REMOVE EXISTING TREE

LEGEND

— 370 —	EXISTING CONTOUR
	EXISTING FENCE
	EXISTING WATER
SAN	EXISTING SANITARY SEWER
E	EXISTING OVERHEAD ELECTRIC
	LINE OF DIVISION
	RIGHT OF WAY

20' 0 20' 40'

SCALE: 1" = 20'

PROFESSIONAL CERTIFICATION

"I HEREBY CERTIFY THAT 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. 16156 EXPIRATION DATE: 8/28/2016 ."

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 5/11/16

CHIEF, BUREAU OF ENGINEERING — DATE 5/11/16

CHIEF, TRANSPORTATION AND SPECIAL PROJECTS DIVISION — DATE 5/11/16

CHIEF, BUREAU OF HIGHWAYS — DATE 5/11/2016

PREPARED BY URS
4 NORTH PARK DRIVE
HUNT VALLEY, MARYLAND
TEL: (410) 785-7220

STATE OF MARYLAND — DAVID THOMAS MORICONI — PROFESSIONAL ENGINEER — 16156 — REGISTERED — 4/19/16

DES: JHY				
DRN: JHY				
CHK: DTM				
DATE: 04/16	BY	NO.	REVISION	DATE

EXISTING /DEMOLITION PLAN NO. 3

SCALE MAP NO.______ BLOCK NO. -

GLENBROOK DRAINAGE IMPROVEMENTS

ELECTION DISTRICT NO. 1
CAPITAL PROJECT D-1167

SCALE 1" = 20'

SHEET 4 OF 17

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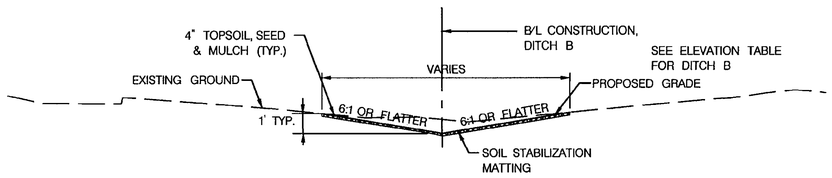
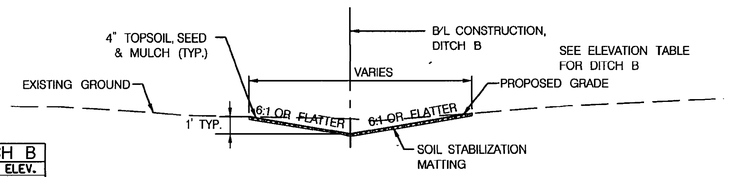


DITCH TYPICAL SECTION NO. 1

N.T.S.

DITCH B: STA. 301+60.10 TO STA. 303+62.89



DITCH TYPICAL SECTION NO. 2

N.T.S.

DITCH B: STA. 300+00.00 TO STA. 301+60.10

SEE SHEET NO. 8 FOR PROFILE

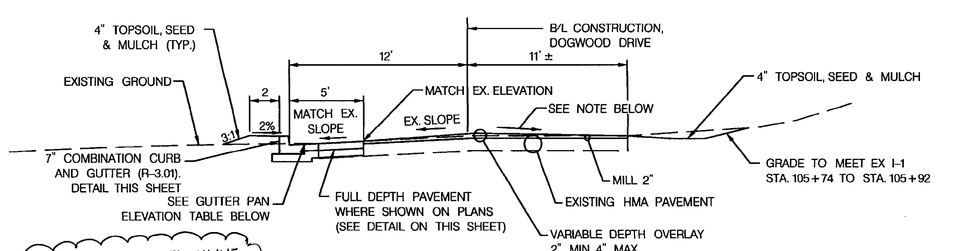
℄ DITCH B	
STATION	ELEV.
300+00	376.2
300+25	375.7
300+50	375.5
300+75	375.3
301+00	375.0
301+25	374.5
301+50	374.0
301+75	373.0
302+00	372.0
302+25	371.0
302+50	370.0
302+75	369.2
303+00	368.5
303+25	368.0
303+50	367.2

CONSTRUCTION CONTROL COORDINATES

CURVE	STATION	NORTHING	EASTING	BEARING
B/L WALKER DRIVE				
WAK-1	PC 20+00.00	585,795.2062	1,355,513.0154	N 12° 47' 15.59" E
	PI 21+35.28	585,927.1286	1,355,542.9576	
	PT 22+69.63	586,050.3197	1,355,598.8503	N 24° 24' 15.03" E
WAK-2	PC 24+85.13	586,246.4427	1,355,688.1589	N 24° 27' 16.73" E
	PI 25+47.61	586,303.3175	1,355,714.0239	
	PT 26+09.67	586,364.2068	1,355,728.0318	N 12° 57' 20.73" E
	POT 28+14.30	586,563.6276	1,355,773.9095	N 12° 57' 20.73" E
B/L DOGWOOD DRIVE				
	POT 100+00.00	585,585.0065	1,355,988.3717	N 13° 29' 36.05" E
DOGWOOD-1	PC 102+44.98	585,823.2270	1,356,045.5342	N 13° 29' 36.05" E
	PI 102+96.86	585,873.6730	1,356,057.6390	
	PT 103+48.73	585,924.3592	1,356,068.6945	N 12° 18' 15.97" E
DOGWOOD-2	PC 105+48.73	586,119.7650	1,356,111.3157	N 12° 18' 15.97" E
	PI 105+85.79	586,155.9714	1,356,119.2129	
	PT 106+22.85	586,191.9716	1,356,128.0020	N 13° 43' 11.49" E
DOGWOOD-3	PC 108+62.52	586,424.8063	1,356,184.8465	N 13° 43' 11.49" E
	PI 109+58.82	586,518.3565	1,356,207.6859	
	PT 110+49.91	586,584.9409	1,356,277.2545	N 46° 15' 20.06" E
	POT 111+45.69	586,651.1630	1,356,346.4444	N 46° 15' 20.06" E
B/L DITCH B				
	POT 300+00.00	586,551.4383	1,355,972.1591	S 13° 11' 53.22" W
DITCH B-1	PC 301+60.10	586,395.5718	1,355,935.6063	S 13° 11' 53.22" W
	PI 301+72.01	586,383.9739	1,355,932.8864	
	PT 301+82.33	586,376.7806	1,355,922.1655	S 64° 09' 14.53" W
DITCH B-2	PC 302+65.56	586,342.4965	1,355,847.2617	S 64° 09' 14.53" W
	PI 302+74.36	586,338.6582	1,355,839.3381	
	PT 302+82.49	586,364.9957	1,355,830.7579	N 77° 02' 39.27" W
	POT 303+62.89	586,358.6569	1,355,752.4080	N 77° 02' 39.27" W

CURVE DATA

CURVE	DELTA	Dc	RADIUS	TANGENT	LENGTH	EXTERNAL
WAK-1	11° 36' 59.43" RT	4° 18' 30.05"	1,329.88	135.28	269.63	6.86
WAK-2	11° 29' 56.00" LT	9° 13' 59.12"	620.55	62.48	124.54	3.14
DOGWOOD-1	1° 11' 20.08" LT	1° 08' 45.30"	5,000.00	51.88	103.75	0.27
DOGWOOD-2	1° 24' 55.52" RT	1° 54' 35.49"	3,000.00	37.06	74.11	0.23
DOGWOOD-3	32° 32' 08.57" RT	17° 21' 44.49"	330.00	96.30	187.39	13.76
DITCH B-1	50° 57' 21.32" RT	229° 10' 59.22"	25.00	11.91	22.23	2.69
DITCH B-2	38° 48' 06.20" RT	229° 10' 59.22"	25.00	8.80	16.93	1.51



DOGWOOD DRIVE TYPICAL SECTION

N.T.S.

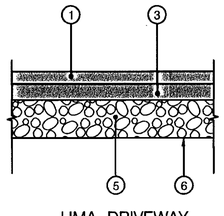
NOTE: TRANSITION CROSS SLOPE FROM EXISTING AT STA. 105+70 TO 2% AT STA. 105+85 AND BACK TO EXISTING AT STA 106+20 TO PROMOTE SURFACE RUNOFF TO EX. I-1

FLOWLINE.

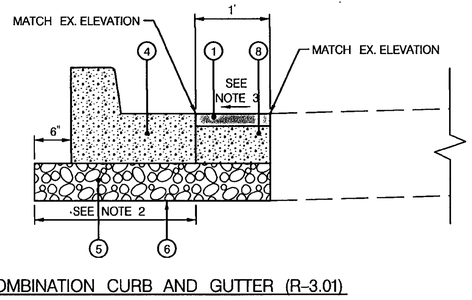
DOGWOOD ~~GUTTER PAN~~ ELEV.			
STATION	OFFSET	ELEV.	
~~105+04.39~~	~~11.0' LT~~	~~384.59~~	384.67
~~105+50.00~~	~~11.0' LT~~	~~384.90~~	385.05
~~106+00.00~~	~~11.0' LT~~	~~385.72~~	385.81
~~106+50.00~~	~~11.0' LT~~	~~387.04~~	387.10
~~107+00.00~~	~~11.0' LT~~	~~388.95~~	389.00
~~107+50.00~~	~~11.0' LT~~	~~390.36~~	390.16
~~108+00.00~~	~~11.0' LT~~	~~391.45~~	391.50
~~108+50.00~~	~~11.0' LT~~	~~391.93~~	391.03
~~108+62.52~~	~~11.0' LT~~	~~391.88~~	391.88
105+16.23	11.0' LT	384.44	℄ J-16
105+78.32	11.0' LT	385.21	℄ J-17

105+03.68
105+49.00
106+00.55
107+43.00
108+40.75
108+62.63

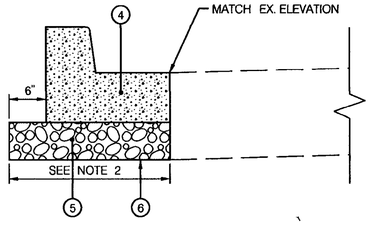
1 AS-BUILT



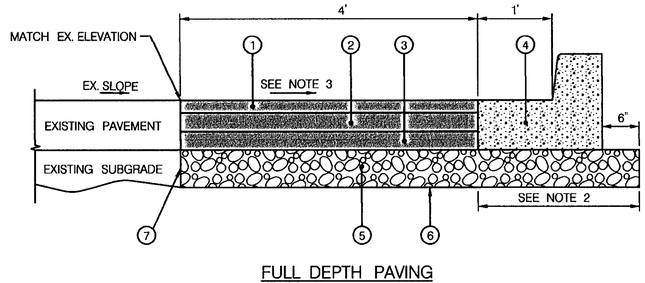
HMA DRIVEWAY



7" COMBINATION CURB AND GUTTER (R-3.01) WITH CONCRETE SLOT



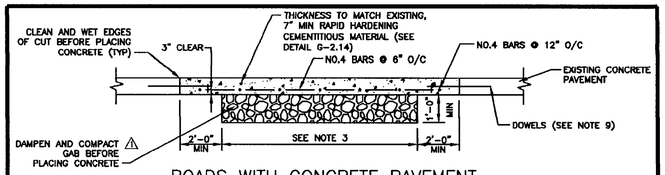
7" COMBINATION CURB AND GUTTER (R-3.01)



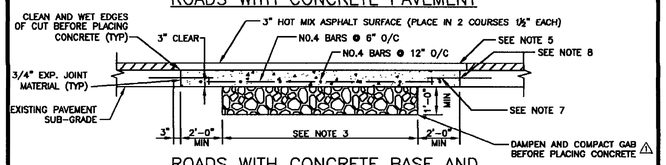
FULL DEPTH PAVING

PROFESSIONAL CERTIFICATION

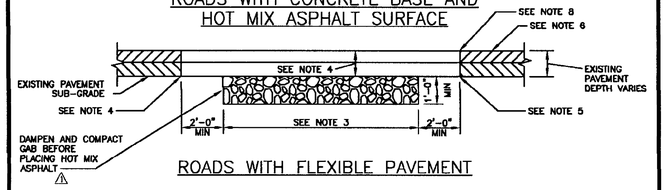
"I HEREBY CERTIFY THAT DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16156, EXPIRATION DATE: 8/28/2016.



ROADS WITH CONCRETE PAVEMENT



ROADS WITH CONCRETE BASE AND HOT MIX ASPHALT SURFACE



ROADS WITH FLEXIBLE PAVEMENT

NOTES:

1. WHEREVER A TRENCH CROSSES A CONCRETE ROADWAY THAT HAS JOINT INSTALLATIONS THE ENTIRE SLAB BETWEEN THE EDGE OF THE TRENCH AND THE NEAREST JOINT SHALL BE REMOVED IF THE DISTANCE IS LESS THAN 10 FEET.
2. CLEAN AND WET EDGES OF CUT AND SUBGRADE BEFORE PLACING CONCRETE.
3. AGGREGATE SUB-BASE WIDTH SHALL BE 6 FT MINIMUM OR ACTUAL TRENCH WIDTH, WHICH EVER IS GREATER.
4. ⚠ HOT MIX ASPHALT PAVEMENT PATCH THICKNESS SHALL BE EQUAL TO THE EXISTING PAVING SECTION OR AS APPROVED BY DPW. THE MINIMUM PAVING PATCH SHALL CONSIST OF 2" HMA SURFACE COURSE OVER 4" HMA BASE COURSE. GRADED AGGREGATE BASE (GAB) SHALL BE PLACED AND COMPACTED IN 6" MAXIMUM COMPACTED THICKNESS LAYERS.
5. CLEAN EXPOSED VERTICAL SURFACE OF ADJACENT PAVEMENT AND PLACE TACK COAT ON ALL VERTICAL SURFACES PRIOR TO PLACING HMA.
6. IF THE REMAINING EXISTING PAVEMENT IS LESS THAN 4' WIDE , THE RESIDUAL PAVEMENT SHALL BE REMOVED IN ITS ENTIRITY AND REPLACED.
7. CONCRETE REPLACEMENT SHALL BE 10" MINIMUM MIX NO. 6.
8. SAW CUT FULL DEPTH ALL JOINTS OF EXISTING CONCRETE, BITUMINOUS, AND BASE PAVEMENTS.
9. REINFORCEMENT OF CONCRETE PAVING SHALL BE ACCOMPLISHED BY DOWELING. DOWELS SHALL BE CENTERED IN PAVEMENT THICKNESS. NEW REINFORCING SHALL BE TIED TO DOWELS.
10. TOTAL REPAIR WIDTH SHALL BE EQUAL TO THE LANE WIDTH IN ACCORDANCE WITH THE SPECIFICATIONS.

Revised 5/1/2014 Revised 5/7/2007 Approved	Howard County, Maryland Department of Public Works Approved: Chief, Bureau of Engineering	Utility Trench Roadway Repaving	Detail G-4.01

PAVING LEGEND

1. 1.5" HMA SUPERPAVE FINAL SURFACE 9.5 MM, PG 64-22, LEVEL 1
2. 1" HMA SUPERPAVE INTERMEDIATE SURFACE 9.5 MM, PG 64-22, LEVEL 1
3. 3" HMA SUPERPAVE BASE 12.5 MM, PG 64-22, LEVEL 1
4. 7" COMBINATION CURB AND GUTTER (R-3.01)
5. 6" GRADED AGGREGATE BASE (GAB)
6. TOP OF SUBGRADE, LIMIT OF CLASS 1 EXCAVATION
7. FULL DEPTH SAWCUT
8. 6" PORTLAND CEMENT CONCRETE MIX NO 9 (SEE NOTE 1)

NOTES:

1. THE CONTRACTOR MAY EXCAVATE AN ADDITIONAL 1' WIDTH (MAXIMUM) FOR CURB AND GUTTER FORM PLACEMENT. THE ADDITIONAL EXCAVATION IS TO BE FILLED WITH A MINIMUM OF 6" GRADED AGGREGATE BASE AND 6 INCH PORTLAND CEMENT CONCRETE MIX #9 TO THE BOTTOM OF THE FINAL HMA COURSE. THE COST SHALL BE INCIDENTAL TO THE UNIT PRICE OF LINEAR FOOT OF CURB AND GUTTER. DOWEL BARS ARE NOT NECESSARY. THE TRANSVERSE JOINTS SHALL MATCH THOSE OF THE CURB AND GUTTER.
2. GRADED AGGREGATE BASE (GAB) AT THIS LOCATION SHALL BE INCIDENTAL TO THE LINEAR FOOT ITEM FOR THE CURB AND GUTTER.
3. PAVEMENT CROSS SLOPE SHALL BE SET AT EXISTING SLOPE IF EXSITING SLOPE IS MIN. 2% AND MAX 4%. OTHERWISE SLOPE SHALL BE 2%.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 5/11/16
CHIEF, BUREAU OF ENGINEERING — DATE 5/11/16
CHIEF, TRANSPORTATION AND SPECIAL PROJECTS DIVISION — DATE 5/10/16
CHIEF, BUREAU OF HIGHWAYS — DATE 5/11/2016

PREPARED BY
URS
4 NORTH PARK DRIVE
HUNT VALLEY, MARYLAND
TEL: (410) 785-7220

STATE OF MARYLAND — DAVID THOMAS MORGAN — REG. NO. 16156 — PROFESSIONAL ENGINEER — 4-21-16

DES: JHY				
DRN: JHY				
CHK: DTM				
DATE: 04/16	URS BY	1 NO.	AS-BUILT REVISION	7-7-16 DATE

TYPICAL SECTIONS AND DETAILS

SCALE MAP NO. ____ BLOCK NO. ____

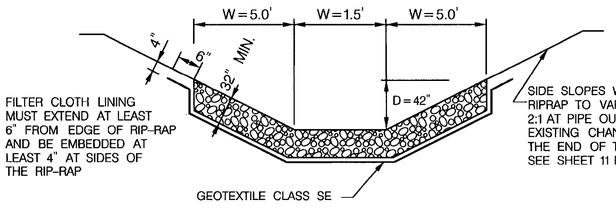
GLENBROOK
DRAINAGE IMPROVEMENTS

ELECTION DISTRICT NO. 1
CAPITAL PROJECT D-1167

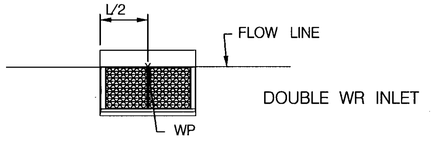
SCALE 1" = 5'

SHEET 5 OF 17

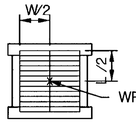
U:\Projects\H\HoCo\20835732\CAD\PlanSet\pHT-X001_WAK.dgn ronald.landrum Thursday, April 21, 2016 AT 03:40 PM



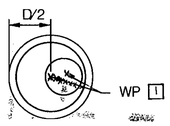
SECTION VIEW
CLASS II RIPRAP OUTFALL PROTECTION DETAIL
NOT TO SCALE



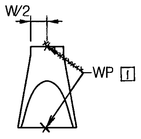
DOUBLE WR INLET



TYPE K /S /YARD INLET



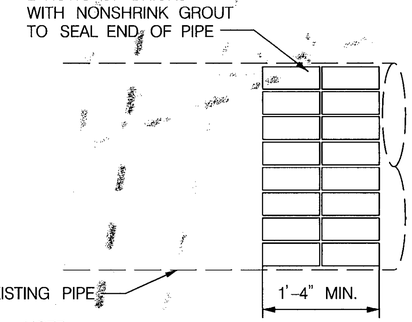
STANDARD MANHOLE / MODIFIED TYPE S INLET



END SECTION

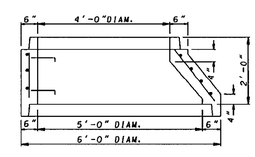
NOTE:
WORK POINT LOCATIONS FOR STRUCTURES ARE SHOWN IN THE DIAGRAMS ABOVE. THE TOP ELEVATIONS OF THE STRUCTURES ARE GIVEN AT THE WORK POINTS.

WORKPOINT LOCATIONS
NOT TO SCALE

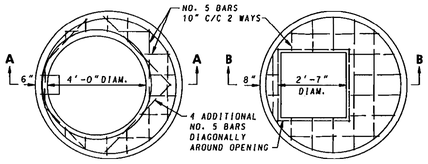


NOTE:
FLOWABLE FILL FOR ABANDONED PIPES SHALL BE MEASURED AND PAID FOR AS "FLOWABLE BACKFILL FOR UTILITY CUTS."

PERMANENT BULKHEAD EXISTING PIPE
NOT TO SCALE

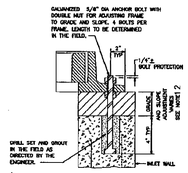


ECCENTRICAL CONE REDUCER
(ALTERNATE FOR FLATTOP REDUCER)

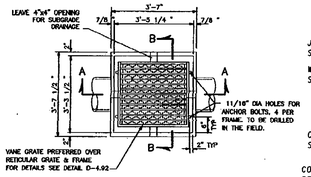


FLATTOP REDUCER

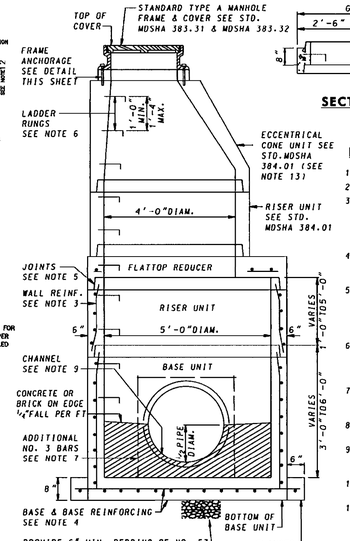
FLAT SLAB TOP
(SHOWN WITHOUT FRAME & COVER)



FRAME ANCHORAGE DETAIL

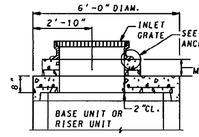


INLET GRATE - PLAN



SECTION VIEW

CONTRACTOR SHALL FIELD VERIFY PIPE LOCATIONS PRIOR TO FABRICATION AND INSTALLATION. CONTRACTOR SHALL FURNISH SHOP DRAWINGS TO THE ENGINEER FOR APPROVAL PRIOR TO FABRICATION.



SECTION A-A

SECTION B-B

NOTES

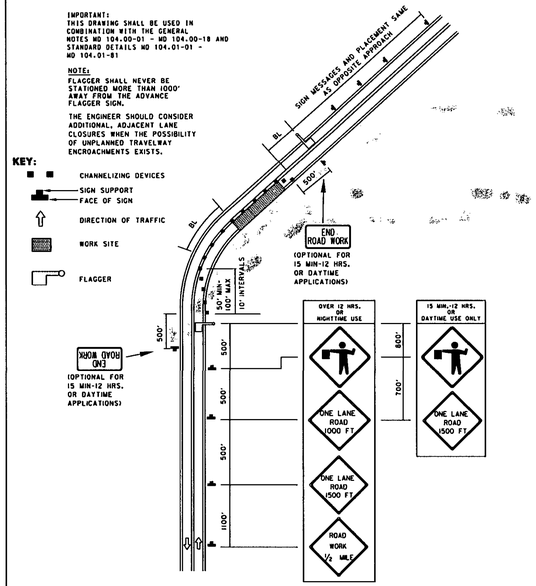
1. INLETS SHALL BE CONSTRUCTED IN ACCORDANCE WITH AASHTO M 199.
2. CONCRETE SHALL BE MIX NO.6 (4500PSI).
3. WALL REINFORCEMENT FOR BASE UNITS, RISER UNITS AND ECCENTRICAL CONE UNITS SHALL BE REINFORCEMENT BARS OR WELDED WIRE FABRIC WITH A MINIMUM AREA OF 0.15 IN.²/FT. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A 185 AND A 82. REINFORCEMENT BARS SHALL MEET ASTM A 615, GRADE 60.
4. BASE REINFORCEMENT TO BE REINFORCEMENT BARS OR WELDED WIRE FABRIC WITH A MINIMUM AREA OF 0.17 IN.²/FT. THE BASE SHALL BE CAST MONOLITHIC WITH THE BASE UNIT OR JOINTED PER MANUFACTURER'S DESIGN.
5. THE MANUFACTURER SHALL FORM MALE AND FEMALE ENDS OF JOINTS USING THEIR OWN DESIGN. THE JOINTS SHALL BE SEALED BY THE CONTRACTOR AND MADE WATERTIGHT USING (WHERE APPLICABLE) MORTAR, RUBBER O-RING GASKETS MEETING ASTM C 361 AND C 443 OR FLEXIBLE PLASTIC GASKETS MEETING AASHTO M 198 TYPE B.
6. LADDER RUNGS SHALL BE INSTALLED IN VERTICAL ALIGNMENT AT 1'-4" MAXIMUM C/C. RUNG TYPES SHALL BE IN ACCORDANCE WITH STANDARDS MD SHA NO. 383.91 OR 383.92. LADDER RUNGS SHALL BE INCIDENTAL TO THE COST OF THE INLET.
7. WHEN THE DISTANCE BETWEEN MUTIPLE OPENINGS IN THE BASE UNIT OR ANY RISER UNIT IS LESS THAN 6" ADDITIONAL NO.3 BARS ARE REQUIRED AROUND OPENINGS.
8. LIFT HOLES OR LIFT EYES SHALL BE PROVIDED IN EACH SECTION FOR HANDLING.
9. MIX NO.2 CONCRETE OR BRICK CHANNEL SHALL BE PROVIDED IN THE FIELD AND SHALL SLOPE 2" PER FOOT TOWARD OUTLET OR AS DIRECTED BY THE ENGINEER.
10. THE DRIP STONE LANDING SHALL BE USED ONLY WHEN THERE ARE PIPES CONNECTED TO THE RISER UNITS. SEE STD. MD 384.13 FOR DETAILS.
11. MINIMUM DEPTH PAYMENT PER EACH SHALL BE 9'-0" MEASURED FROM THE BOTTOM OF THE BASE UNIT TO THE TOP OF THE GRATE. VERTICAL DEPTH PAYMENT PER LINEAR FOOT SHALL INCLUDE ALL DEPTHS IN EXCESS OF 9'-0". THE COST OF THE DRIP STONE LANDING, NO.57 AGGREGATE, GROUT, SEALANT, AND ALL NECESSARY APPURTENANCES SHALL BE INCIDENTAL TO THE PRICE BID.
12. TOP 4" OF WALLS SHALL BE BRICK MASONRY. ADDITIONAL BRICK SHALL BE USED TO BRING THE GRATE TO EXISTING GRADE IF REQUIRED.
13. INSIDE WALL WIDTH AT THE TOP OF THE ECCENTRICAL CONE UNIT SHALL BE MODIFIED TO 2'-7" DIAMETER.

MODIFIED TYPE S INLET (60" DIAMETER BASE)
NOT TO SCALE

STRUCTURE SCHEDULE [1]

STRUCTURE DESIGNATION	WORKPOINT NORTHING	WORKPOINT EASTING	STRUCTURE TYPE	TOP OF STRUCTURE	HO. CO. STD. NO.	REMARKS
EXI-1	586,143.5	1,356,134.4	EXISTING INLET	384.75		INLET TO REMAIN
EXI-1A	586,146.9	1,356,098.9	EXISTING INLET	384.24		INLET TO REMAIN
EXI-2	586,183.2	1,355,887.3	EXISTING INLET	369.31		INLET TO REMAIN
I-3	586,237.4 .2	1,355,703~~45.3~~	~~SHA TYPE K TYPE S INLET~~	~~365.01~~ .04	~~D-4.22~~	MD 378.11
I-4	586,12~~4.3~~ 3.8	1,355,652~~94.1~~	~~SHA TYPE K TYPE S INLET~~	364.~~27~~ .11	~~D-4.22~~	MD 378.11
I-5	586,12~~2.9~~ 3.1	1,355,607.8 2	~~SHA TYPE K MODIFIED TYPE S INLET~~	364.64.50	--	MD 378.11 ~~SEE DETAIL ON THIS SHEET~~
I-6	586,~~360.4~~ 57.8	1,355,~~745.2~~ 6.0	TYPE S INLET	367.00 .32	D-4.22	
I-7	586,~~486.7~~ 65.1	1,355,~~780.2~~ 13.1	TYPE S INLET	369.~~80~~ 8.60	D-4.22	
I-8	586,~~163.3~~ 2.7	1,355,~~625.2~~ 3.9	MODIFIED TYPE S INLET	364.~~74~~ 3.92	--	SEE DETAIL ON THIS SHEET
I-9	586,~~249.8~~ 8.4	1,355,~~666.4~~ 8.9	MODIFIED TYPE S INLET	365.01 4.88	--	SEE DETAIL ON THIS SHEET
I-10	586,044.8 .6	1,355,~~572.8~~ 1.1	MODIFIED TYPE S INLET	366.~~49~~ 5.53	--	SEE DETAIL ON THIS SHEET
I-10A	586,~~086.5~~ 8.2	1,355,~~475.2~~ 2.6	MODIFIED TYPE S INLET	359.~~31~~ .04		SEE DETAIL ON THIS SHEET
I-11	586,224.2 .4	1,355,641.~~8~~ .7	TYPE S INLET	364.58 .~~49~~	D-4.22	
I-12	586,370.4 .9	1,355,~~708.3~~ 64	TYPE S INLET	367.~~25~~ 8.02	D-4.22	
I-13	586,~~210.7~~ 09.4	1,355,795.7 .6	YARD INLET	366.~~90~~ 7.10	D-4.14	
I-14	586,~~489.8~~ 58.0	1,355,737.~~4~~ 0.7	TYPE S INLET	370.00 ~~8.77~~	D-4.22	
I-16	586,090.~~2~~ .3	1,356,093.~~8~~ .7	DOUBLE WR INLET	384.~~74~~ .~~68~~	D-4.35	
I-17	586,145.4 .2	1,356,~~108.8~~ 5.8	DOUBLE WR INLET	385.~~21~~ .27	D-4.35	
MH-1	586,098.~~3~~ .8	1,355,432.~~8~~ .3	PRECAST 5'-0" MANHOLE	358.~~44~~ 9.12	G-5.13	
MH-3	586,~~220.0~~ 16.2	1,355,~~651.7~~ 2.3	PRECAST 5'-0" MANHOLE	358.~~44~~ 5.37	G-5.13	
ES-1	586,~~078.7~~ 5.3	1,355,~~385.3~~ 0.2	36" CONCRETE END SECTION	--	D-5.51	

TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION



SPECIFICATION 104	CATEGORY CODE ITEMS

APPROVED
DIRECTOR - OFFICE OF TRAFFIC AND SAFETY

APPROVAL + SHA REVISIONS		APPROVAL + FEDERAL HIGHWAY ADMINISTRATION	
APPROVAL	8-28-03	APPROVAL	9-23-03
REVISED	8-11-10	REVISED	7-29-10
REVISED		REVISED	
REVISED		REVISED	

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
FLAGGING OPERATION/2-LANE, 2-WAY EQULESS THAN 40 MPH
STANDARD NO. MD 104.02-10

PROFESSIONAL CERTIFICATION
"I HEREBY CERTIFY THAT 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. 16156, EXPIRATION DATE: 8/28/2016.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 5/11/16
CHIEF, BUREAU OF ENGINEERING — DATE 5/11/16
CHIEF, TRANSPORTATION AND SPECIAL PROJECTS DIVISION — DATE 5/11/16
CHIEF, BUREAU OF HIGHWAYS — DATE 5/11/2016

PREPARED BY
URS
4 NORTH PARK DRIVE
HUNT VALLEY, MARYLAND
TEL: (410) 785-7220

STATE OF MARYLAND — DAVID THOMAS MORGAN — No. 16156 — REGISTERED PROFESSIONAL ENGINEER — 4/7/16

DES:	JHY
DRN:	JHY
CHK:	DTM
DATE:	04/16

BY	NO.	REVISION	DATE
VRS	1	AS-BUILT	7.23.16

DRAINAGE DETAILS
SCALE MAP NO. ____ BLOCK NO. ____

GLENBROOK
DRAINAGE IMPROVEMENTS
ELECTION DISTRICT NO. 1
CAPITAL PROJECT D-1167

SCALE AS SHOWN
SHEET 6 OF 17

U:\Projects\H\HoCo\20835732\CAD\PlanSet\pDD-D000_WAK.dgn ronald.landrum Saturday, April 16, 2016 AT 10:18 AM

MATCH LINE STA. 25+50 – SEE SHEET NO. 8

MATCH LINE – SEE SHEET NO. 9

TAX MAP 24, PARCEL 738
ACCOUNT No. 02-212722
RONALD LEE KELLY & SUE UHLER KELLY J/E
828/414 – LOT 36 – #9706 HILLSMERE RD.

TAX MAP 24, PARCEL 738
ACCOUNT No. 02-255170
ROBERT J. ADAMS &-DIANE D. ADAMS
1660/323 – LOT 37 – #9702 HILLSMERE RD.

TAX MAP 24, PARCEL 738
ACCOUNT No. 02-199238
WALTER EARL GARMAN, III & JEAN GARMAN
1382/472 – LOT 64 – #3483 WALKER DR.

TAX MAP 24, PARCEL 533
ACCOUNT No. 02-245663
RITA SHAMLAL, et al
5314/618 – LOT 69
#3826 DOGWOOD DR
PLAT No. 0483

TAX MAP 24, PARCEL 533
ACCOUNT No. 02-238675
ISHERMAN B. PAPER &
KAREN L. PAPER
9792/151 – LOT 68
#3430 DOGWOOD DR
PLAT No. 0483

TAX MAP 24, PARCEL 738
ACCOUNT No. 02-196603
THE RITA S. MISKELLY REVOCABLE TRUST
5527/090 – LOT 65 – #3487 WALKER DR.
PLAT No. 0753

TAX MAP 24, PARCEL 738
ACCOUNT No. 02-230216
ABIGAIL V. ADAMS
12052/450 – LOT 15 – #3490 WALKER DR.
PLAT No. 0795

TAX MAP 24, PARCEL 738
ACCOUNT No. 02-217791
MAXWELL LECRON HOLLAND, Jr.
7903/157 – LOT 14 – #9709 HILLSMERE RD.
PLAT No. 0753

TAX MAP 24, PARCEL 738
ACCOUNT No. 02-238217
ROBERT V. SCHRODER & ELIZABETH MARGARET FREY
2027/289 – LOT 66 – #3491 WALKER DR.
PLAT No. 0753

TAX MAP 24, PARCEL 738
ACCOUNT No. 02-248557
CHRISTOPHER RICHARDSON & NORMA LYNN RICHARDSON
3525/676 – LOT 67 – #3495 WALKER DR.

TAX MAP 24, PARCEL 738
ACCOUNT No. 02-241811
JUDITH S. JEFFERSON L/T &
MEGHAN JEFFERSON WALDING
9899/238 – LOT 16 – #3494 WALKER DR.
PLAT No. 0681

TAX MAP 24, PARCEL 533
ACCOUNT No. 02-229234
PETER W. WILKEY &
CYNTHIA E. WILKEY
884/500 – LOT 67
#3434 DOGWOOD DR
PLAT No. 0483

TAX MAP 24, PARCEL 533
ACCOUNT No. 02-237474
DOROTHY L. PITTUS, et al

HILLSMERE ROAD
RIGHT OF WAY
CONTRACT NO. 186-S
PT STA. 52+29.52
PC STA. 24+85.13
PC STA. 50+89.82
B/L HILLSMERE ROAD POT STA. 50+00.00
B/L WALKER DRIVE POT STA. 24+35.17
PT STA. 24+69.63
WALKER DRIVE
CONTRACT NO. 6-W
CONTRACT NO. 186-S

PROPOSED DRAINAGE EASEMENT
PROPOSED TEMPORARY CONSTRUCTION EASEMENT
PROPOSED DRAINAGE EASEMENT
PROPOSED TEMPORARY CONSTRUCTION EASEMENT
EXISTING 20' DRAINAGE & UTILITY EASEMENT PLAT NO. 0753
EXISTING 20' DRAINAGE & UTILITY EASEMENT PLAT NO. 0753
EXISTING 5' UTILITY RIGHT OF WAY PLAT NO. 0753
FIELD LOCATE DRAIN PIPE FROM PATIO & DAYLIGHT
FIELD LOCATE EX. 6" UNDERDRAIN AND CONNECT TO INLET I-4.
EX. 6" UNDERDRAIN PER RECORD DRAWINGS
REMOVE & RECONSTRUCT FENCE TO MATCH EX.
SEE INSET DETAIL ON SHEET NO. 11
HORSESHOE PIT
WOOD LINED PLANTER

NOTE: SEE SHEET NO. 9 FOR TEST HOLE DATA TABLE

LEGEND

- PROPOSED HMA PAVEMENT
- 24"RCP — PROPOSED STORM DRAIN
- 358 — PROPOSED CONTOUR
- PROPOSED FENCE (MATCH EX. TYPE/COLOR)
- TEST PIT LOCATION
- B — WETLAND BUFFER
- LINE OF DIVISION
- RIGHT OF WAY

20' 0 20' 40'
SCALE: 1" = 20'

PROFESSIONAL CERTIFICATION

"I HEREBY CERTIFY THAT 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. 16156, EXPIRATION DATE: 8/28/2016.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 5/11/16
CHIEF, BUREAU OF ENGINEERING — DATE 5/7/16
CHIEF, TRANSPORTATION AND SPECIAL PROJECTS DIVISION — DATE 5/10/16
CHIEF, BUREAU OF HIGHWAYS — DATE 5/11/2016

PREPARED BY
URS
4 NORTH PARK DRIVE
HUNT VALLEY, MARYLAND
TEL: (410) 785-7220

STATE OF MARYLAND — DAVID THOMAS MONCOND — REGISTERED PROFESSIONAL ENGINEER — 5/7/16

DES: JHY
DRN: JHY
CHK: DTM
DATE: 04/16

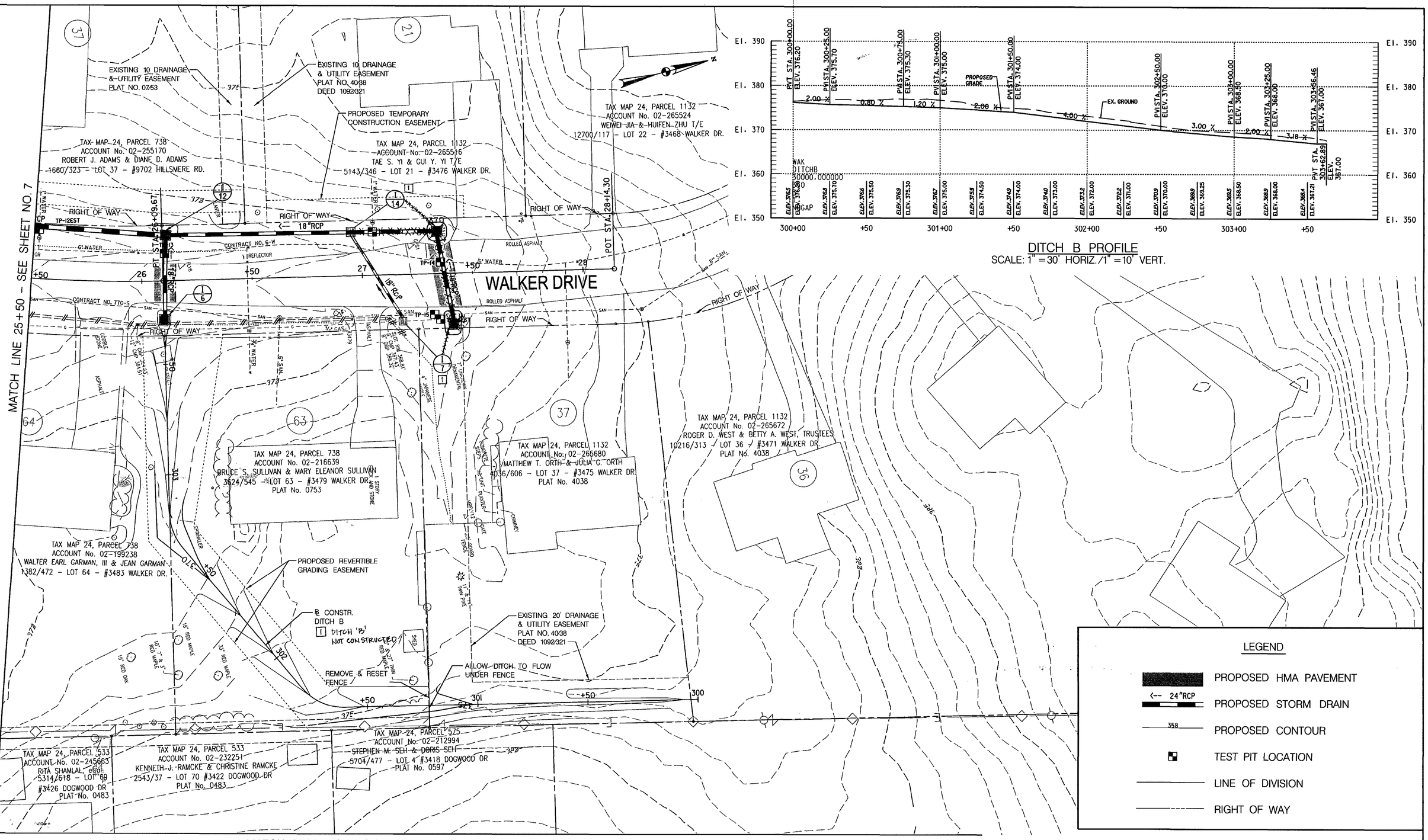
BY	NO.	REVISION	DATE

SCALE MAP NO. ____ BLOCK NO. ____

GLENBROOK
DRAINAGE IMPROVEMENTS
ELECTION DISTRICT NO. 1
CAPITAL PROJECT D-1167

SCALE 1" = 20'
SHEET 7 OF 17

U:\Projects\H\HoCo\20835732\CAD\PlanSet\pDD-P001_WAK.dgn ronald_landrum Saturday, April 16, 2016 AT 10:19 AM



DITCH B PROFILE
SCALE: 1" = 30' HORIZ. / 1" = 10' VERT.

NOTE: SEE SHEET NO. 9 FOR TEST HOLE DATA TABLE

LEGEND
- PROPOSED HMA PAVEMENT
- <-- 24"RCP — PROPOSED STORM DRAIN
- 358 — PROPOSED CONTOUR
- TEST PIT LOCATION
- LINE OF DIVISION
- RIGHT OF WAY

20' 0 20' 40'
SCALE: 1" = 20'

PROFESSIONAL CERTIFICATION

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DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 5/11/16
CHIEF, BUREAU OF ENGINEERING — DATE 5/12/16
CHIEF, TRANSPORTATION AND SPECIAL PROJECTS DIVISION — DATE 5/10/16
CHIEF, BUREAU OF HIGHWAYS — DATE 5/11/2016

PREPARED BY
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4 NORTH PARK DRIVE
HUNT VALLEY, MARYLAND
TEL: (410) 785-7220

STATE OF MARYLAND — DAVID THOMAS MONCOVE — NO. 16156 — REGISTERED PROFESSIONAL ENGINEER — 5/11/16

DES: JHY
DRN: JHY
CHK: DTM
DATE: 04/16

BY	NO.	REVISION	DATE
URS	1	AS-BUILT	7-23-18

SCALE MAP NO. — BLOCK NO. —

GLENBROOK
DRAINAGE IMPROVEMENTS
ELECTION DISTRICT NO. 1
CAPITAL PROJECT D-1167

SCALE 1" = 20'
SHEET 8 OF 17

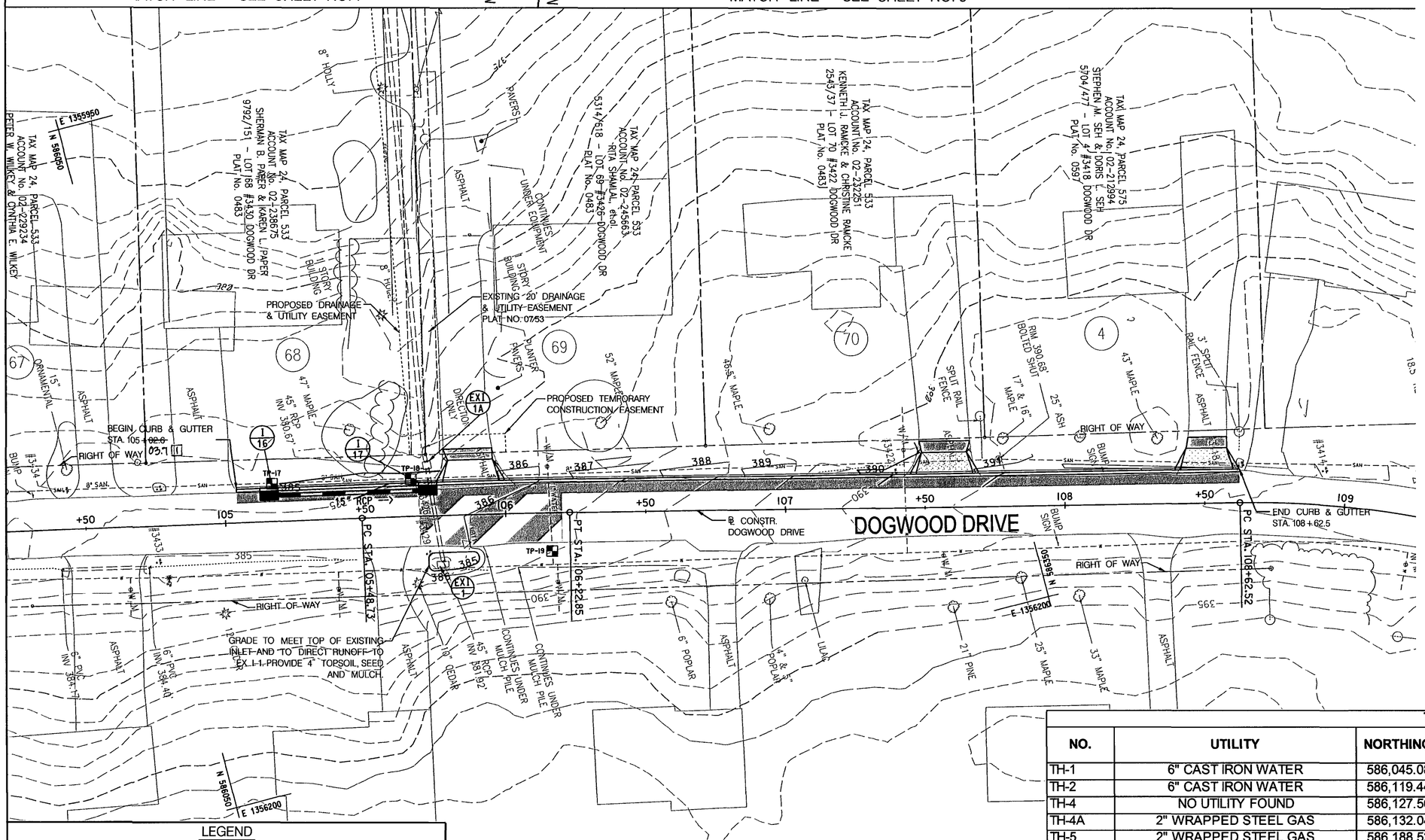
U:\Projects\H\HoCo\20835732\CAD\PlanSet\pDD-P002_WAK.dgn ronald.landrum Saturday, April 16, 2016 AT 10:19 AM

MATCH LINE – SEE SHEET NO. 7

MATCH LINE – SEE SHEET NO. 8

MATCH LINE – SEE SHEET NO. 7

MATCH LINE – SEE SHEET NO. 8



LEGEND

- PROPOSED HMA PAVEMENT
- PROPOSED 2" MILL /VAR. DEPTH OVERLAY
- <-- 24"RCP — PROPOSED STORM DRAIN
- 358 — PROPOSED CONTOUR
- TEST PIT LOCATION
- LINE OF DIVISION
- RIGHT OF WAY

PROFESSIONAL CERTIFICATION

"I HEREBY CERTIFY THAT 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. 16156, EXPIRATION DATE: 8/28/2016.

20' 0 20' 40'
SCALE: 1" = 20'

TEST HOLE DATA

NO.	UTILITY	NORTHING	EASTING	TOP UTILITY ELEVATION	TOP UTILITY DEPTH	SURFACE ELEVATION	REMARKS
TH-1	6" CAST IRON WATER	586,045.08	1,355,583.03	361.93	5.00	366.93	
TH-2	6" CAST IRON WATER	586,119.44	1,355,614.68	360.00	4.96	364.96	
TH-4	NO UTILITY FOUND	586,127.56	1,355,659.11	N/A	N/A	364.38	
TH-4A	2" WRAPPED STEEL GAS	586,132.04	1,355,662.01	360.84	3.58	364.42	
TH-5	2" WRAPPED STEEL GAS	586,188.52	1,355,640.14	361.54	3.60	365.14	
TH-6	6" CAST IRON WATER	586,187.06	1,355,642.61	361.57	3.63	365.20	
TH-7	6" CAST IRON WATER	586,217.78	1,355,659.59	361.95	3.60	365.55	
TH-9	6" CAST IRON WATER	586,250.55	1,355,675.62	361.56	3.68	365.24	
TH-11	NO UTILITY FOUND	586,234.08	1,355,707.86	N/A	N/A	365.98	
TH-11A	3/4" WRAAPPED STEEL GAS	586,228.78	1,355,705.24	361.24	3.70	364.94	
TH-12EST	1" COPPER WATER	586,315.86	1,355,691.41	362.97	3.84	366.81	APPROX
TH-13	6" CAST IRON WATER	586,367.79	1,355,716.14	363.89	3.52	367.41	
TH-14	6" CAST IRON WATER	586,487.84	1,355,751.18	366.14	4.00	370.14	
TH-15	8" TERRACOTTA SEWER	586,479.50	1,355,773.56	361.08	9.06	370.14	
TH-16EST	END OF 3/4" WRAPPED STEEL GAS	586,481.53	1,355,776.36	367.47	2.81	370.28	APPROX
TH-20EST	1" COPPER WATER	586,461.53	1,355,730.35	365.68	4.18	369.86	APPROX
TH-17	8" CONCRETE SEWER	586,091.74	1,356,091.37	373.67	10.71	384.38	
TH-18	8" CONCRETE SEWER	586,140.13	1,356,102.22	**374.82**	10.00	384.82	
TH-19	1" COPPER WATER	586,182.45	1,356,139.73	381.33	5.65	386.98	

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 5/11/16
CHIEF, BUREAU OF ENGINEERING — DATE 5/11/16
CHIEF, TRANSPORTATION AND SPECIAL PROJECTS DIVISION — DATE 5/10/16
CHIEF, BUREAU OF HIGHWAYS — DATE 5/10/2016

PREPARED BY
URS
4 NORTH PARK DRIVE
HUNT VALLEY, MARYLAND
TEL: (410) 785-7220

STATE OF MARYLAND — DAVID THOMAS MORDON — No. 16156 — REGISTERED PROFESSIONAL ENGINEER — 4/28/16

DES: JHY
DRN: JHY
CHK: DTM
DATE: 04/16

BY	NO.	REVISION	DATE
URS	1	AS-BUILT	7-23-18

STORM DRAIN PLAN NO.3

SCALE MAP NO. ____ BLOCK NO. ____

GLENBROOK
DRAINAGE IMPROVEMENTS

ELECTION DISTRICT NO. 1
CAPITAL PROJECT D-1167

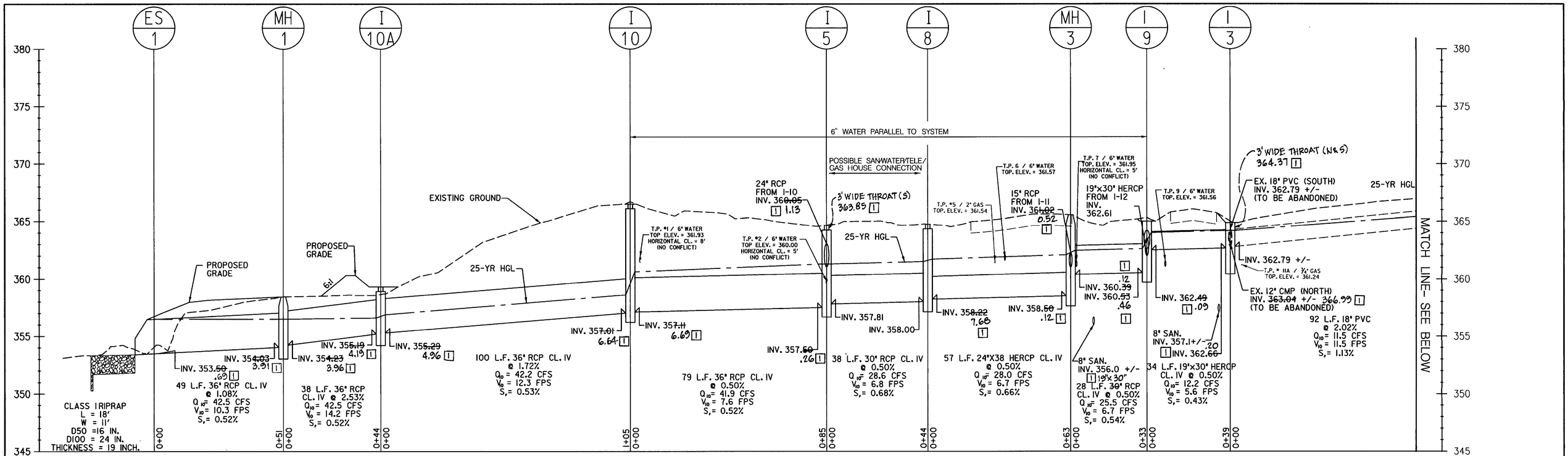
SCALE 1" = 20'

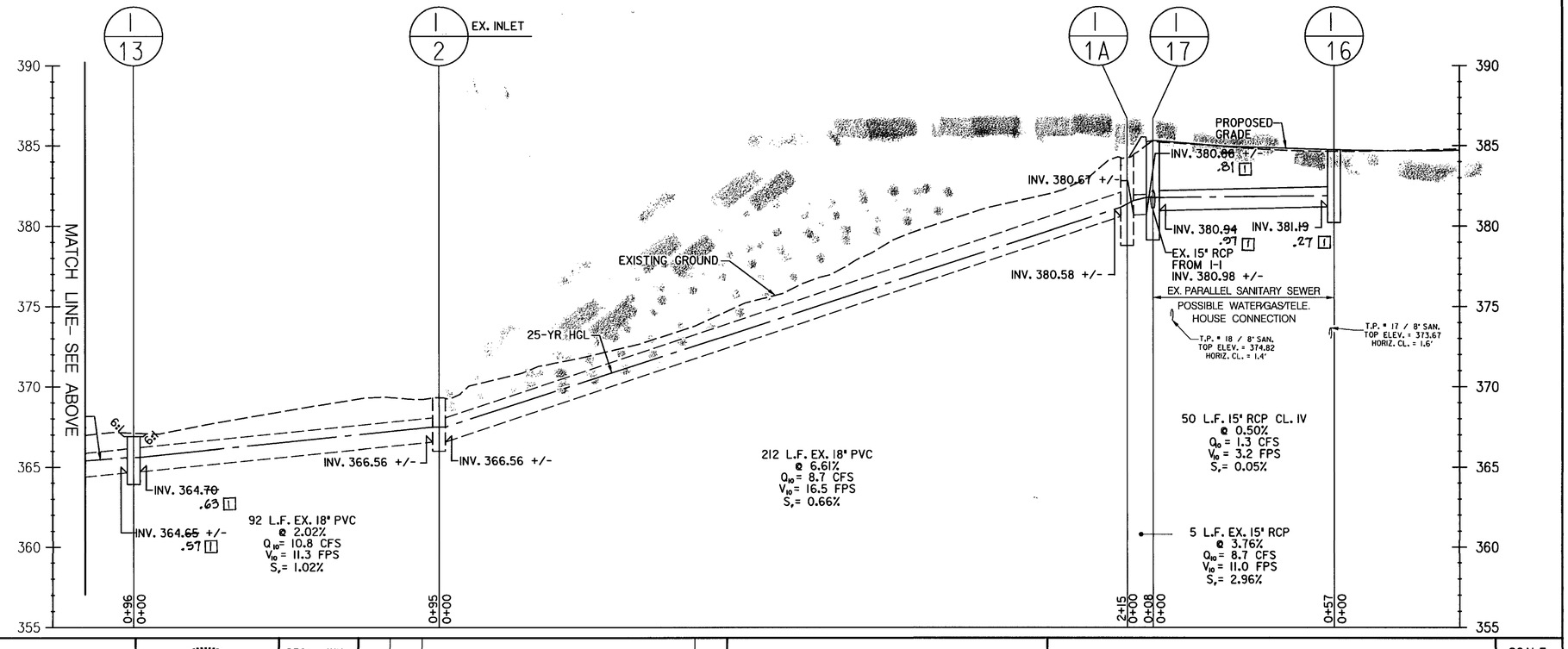
SHEET 9 OF 17

U:\Projects\if\HoCo\20835732\CAD\PlanSet\p00-P003_WAK.dgn ronald.landrum Thursday, April 21, 2016 AT 03:41 PM

ES-1 TO I-16

SCALE 1" = 20' (HORIZ)
1" = 4' (VERT)





PROFESSIONAL CERTIFICATION

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DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 5/10/16
CHIEF, BUREAU OF ENGINEERING — DATE 5/13/16
CHIEF, TRANSPORTATION AND SPECIAL PROJECTS DIVISION — DATE 5/10/16
CHIEF, BUREAU OF HIGHWAYS — DATE 5/16/2016

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TEL: (410) 785-7220

STATE OF MARYLAND — DAVID THOMAS MONTGOMERY — 21910 — REGISTERED PROFESSIONAL ENGINEER — 4-19-16

DES:	JHY
DRN:	JHY
CHK:	DTM
DATE:	04/16

BY	NO.	REVISION	DATE
URS	1	AS-BUILT	7-23-16

SCALE MAP NO. ____ BLOCK NO. ____

GLENBROOK
DRAINAGE IMPROVEMENTS

ELECTION DISTRICT NO. 1
CAPITAL PROJECT D-1167

SCALE AS SHOWN

SHEET 10 OF 17

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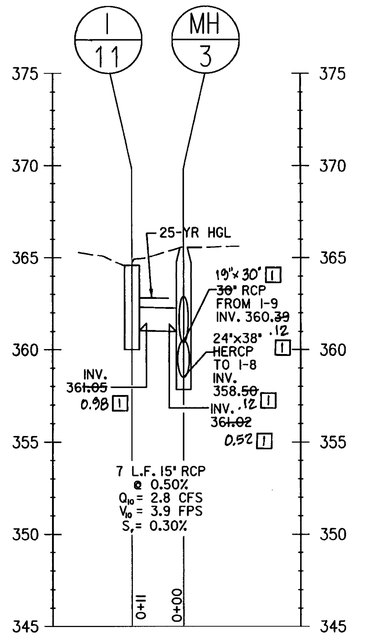
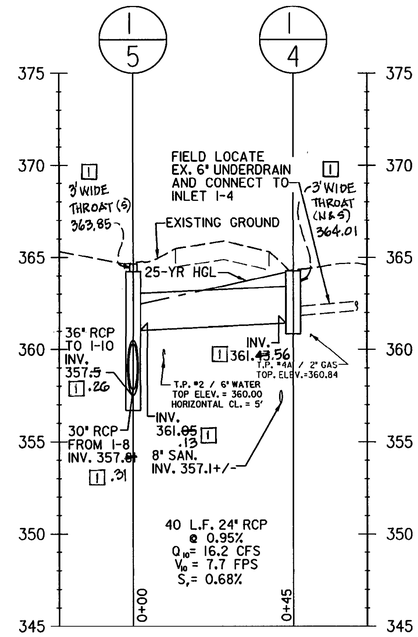


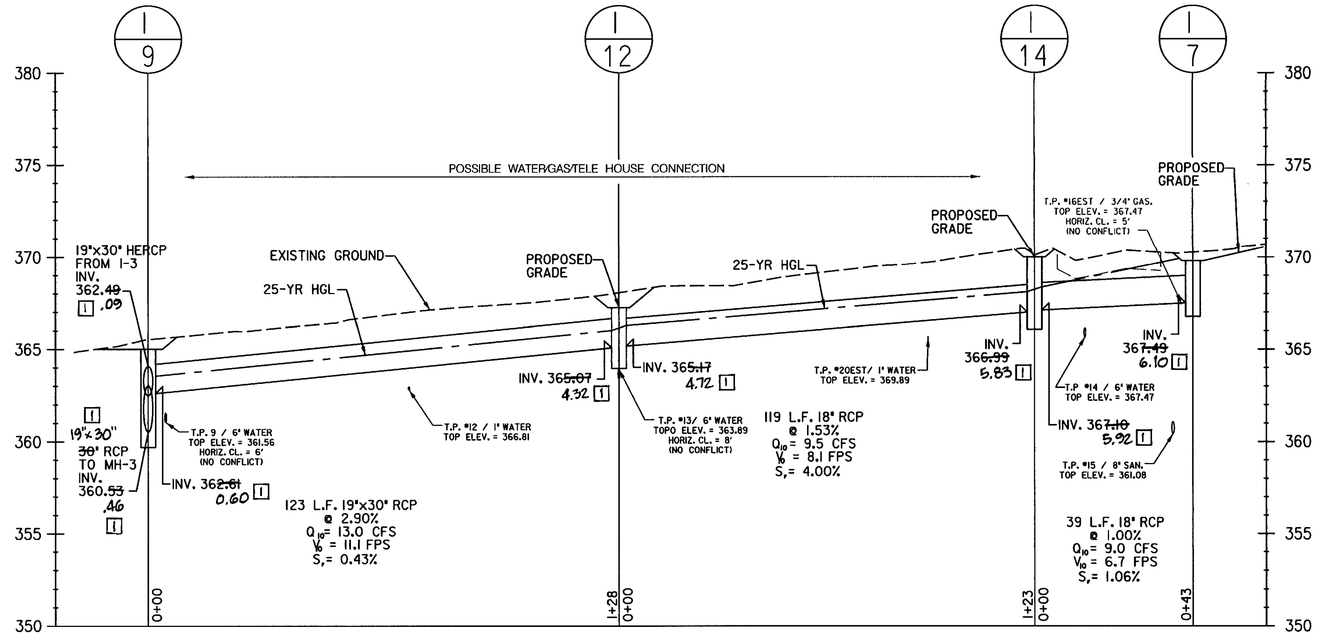
I–6 TO MH–3

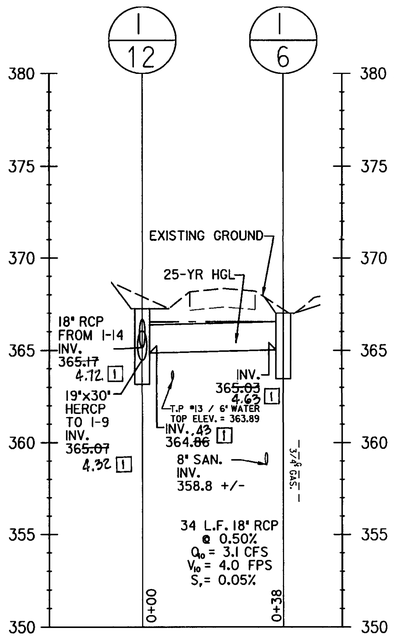
SCALE 1" = 20' H./4' V.



I–4 TO I–5

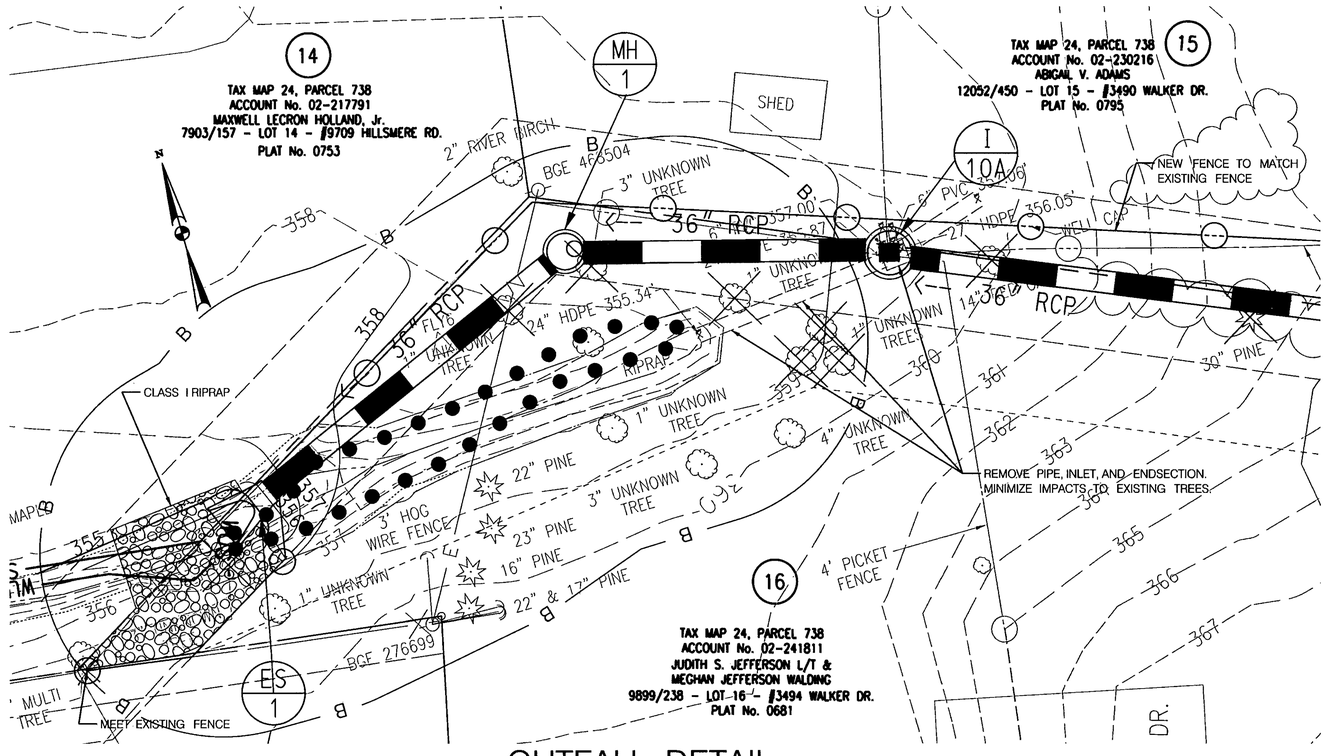
SCALE 1" = 20' H./4' V.





I–6 TO I–12

SCALE 1" = 20' H./4' V.



OUTFALL DETAIL

SCALE 1" = 10'

PROFESSIONAL CERTIFICATION

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DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 5/10/16
CHIEF, BUREAU OF ENGINEERING — DATE 5/10/16
CHIEF, TRANSPORTATION AND SPECIAL PROJECTS DIVISION — DATE 5/10/16
CHIEF, BUREAU OF HIGHWAYS — DATE 5/11/2016

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4 NORTH PARK DRIVE
HUNT VALLEY, MARYLAND
TEL: (410) 785-7220

STATE OF MARYLAND — DAVID THOMAS MORGOW — No. 16156 — REGISTERED PROFESSIONAL ENGINEER — 4-19-16

DES: JHY
DRN: JHY
CHK: DTM
DATE: 04/16

BY	NO.	REVISION	DATE
URS	1	AS-BUILT	7-23-16

STORM DRAIN PROFILE NO. 2 AND OUTFALL DETAIL

SCALE MAP NO. ____ BLOCK NO. ____

GLENBROOK
DRAINAGE IMPROVEMENTS

ELECTION DISTRICT NO. 1
CAPITAL PROJECT D-1167

SCALE AS SHOWN

SHEET 11 OF 17

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B-4-2 STANDARDS AND SPECIFICATIONS

FOR

SOIL PREPARATION, TOPSOILING, AND SOIL AMENDMENTS

Definition

The process of preparing the soils to sustain adequate vegetative stabilization.

Purpose

To provide a suitable soil medium for vegetative growth.

Conditions Where Practice Applies

Where vegetative stabilization is to be established.

Criteria

A. Soil Preparation

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

B. Topsoiling

1. Topsoil is placed over prepared subsoil prior to establishment of permanent vegetation. The purpose is to provide a suitable soil medium for vegetative growth. Soils of concern have low moisture content, low nutrient levels, low pH, materials toxic to plants, and/or unacceptable soil gradation.
2. Topsoil salvaged from an existing site may be used provided it meets the standards as set forth in these specifications. Typically, the depth of topsoil to be salvaged for a given soil type can be found in the representative soil profile section in the Soil Survey published by USDA-NRCS.
3. Topsoiling is limited to areas having 2:1 or flatter slopes where:
   a. The texture of the exposed subsoil/parent material is not adequate to produce vegetative growth.
   b. The soil material is so shallow that the rooting zone is not deep enough to support plants or furnish continuing supplies of moisture and plant nutrients.
   c. The original soil to be vegetated contains material toxic to plant growth.
   d. The soil is so acidic that treatment with limestone is not feasible.
4. Areas having slopes steeper than 2:1 require special consideration and design.
5. Topsoil Specifications: Soil to be used as topsoil must meet the following criteria:
   a. Topsoil must be a loam, sandy loam, clay loam, silt loam, sandy clay loam, or loamy sand. Other soils may be used if recommended by an agronomist or soil scientist and approved by the appropriate approval authority. Topsoil must not be a mixture of contrasting textured subsoils and must contain less than 5 percent by volume of cinders, stones, slag, coarse fragments, gravel, sticks, roots, trash, or other materials larger than 1½ inches in diameter.
   b. Topsoil must be free of noxious plants or plant parts such as Bermuda grass, quack grass, Johnson grass, nut sedge, poison ivy, thistle, or others as specified.
   c. Topsoil substitutes or amendments, as recommended by a qualified agronomist or soil scientist and approved by the appropriate approval authority, may be used in lieu of natural topsoil.
6. Topsoil Application
   a. Erosion and sediment control practices must be maintained when applying topsoil.
   b. Uniformly distribute topsoil in a 5 to 8 inch layer and lightly compact to a minimum thickness of 4 inches. Spreading is to be performed in such a manner that sodding or seeding can proceed with a minimum of additional soil preparation and tillage. Any irregularities in the surface resulting from topsoiling or other operations must be corrected in order to prevent the formation of depressions or water pockets.
   c. Topsoil must not be placed if the topsoil or subsoil is in a frozen or muddy condition, when the subsoil is excessively wet or in a condition that may otherwise be detrimental to proper grading and seedbed preparation.

C. Soil Amendments (Fertilizer and Lime Specifications)

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

B-4-3 STANDARDS AND SPECIFICATIONS

FOR

SEEDING AND MULCHING

Definition

The application of seed and mulch to establish vegetative cover.

Purpose

To protect disturbed soils from erosion during and at the end of construction.

Conditions Where Practice Applies

To the surface of all perimeter controls, slopes, and any disturbed area not under active grading.

Criteria

A. Seeding

1. Specifications
   a. All seed must meet the requirements of the Maryland State Seed Law. All seed must be subject to re-testing by a recognized seed laboratory. All seed used must have been tested within the 6 months immediately preceding the date of sowing such material on any project. Refer to Table B.4 regarding the quality of seed. Seed tags must be available upon request to the inspector to verify type of seed and seeding rate.
   b. Mulch alone may be applied between the fall and spring seeding dates only if the ground is frozen. The appropriate seeding mixture must be applied when the ground thaws.
   c. Inoculants: The inoculant for treating legume seed in the seed mixtures must be a pure culture of nitrogen fixing bacteria prepared specifically for the species. Inoculants must not be used later than the date indicated on the container. Add fresh inoculants as directed on the package. Use four times the recommended rate when hydroseeding. Note: It is very important to keep inoculant as cool as possible until used. Temperatures above 75 to 80 degrees Fahrenheit can weaken bacteria and make the inoculant less effective.
   d. Sod or seed must not be placed on soil which has been treated with soil sterilants or chemicals used for weed control until sufficient time has elapsed (14 days min.) to permit dissipation of phyto-toxic materials.
2. Application
   a. Dry Seeding: This includes use of conventional drop or broadcast spreaders.
      i. Incorporate seed into the subsoil at the rates prescribed on Temporary Seeding Table B.1, Permanent Seeding Table B.3, or site-specific seeding summaries.
      ii. Apply seed in two directions, perpendicular to each other. Apply half the seeding rate in each direction. Roll the seeded area with a weighted roller to provide good seed to soil contact.
   b. Drill or Cultipacker Seeding: Mechanized seeders that apply and cover seed with soil.
      i. Cultipacking seeders are required to bury the seed in such a fashion as to provide at least 1/4 inch of soil covering. Seedbed must be firm after planting.
      ii. Apply seed in two directions, perpendicular to each other. Apply half the seeding rate in each direction.
   c. Hydroseeding: Apply seed uniformly with hydroseeder (slurry includes seed and fertilizer).
      i. If fertilizer is being applied at the time of seeding, the application rates should not exceed the following: nitrogen, 100 pounds per acre total of soluble nitrogen; P_2O_5 (phosphorous), 200 pounds per acre; K_2O (potassium), 200 pounds per acre.
      ii. Lime: Use only ground agricultural limestone (up to 3 tons per acre may be applied by hydroseeding). Normally, not more than 2 tons are applied by hydroseeding at any one time. Do not use burnt or hydrated lime when hydroseeding.
      iii. Mix seed and fertilizer on site and seed immediately and without interruption.
      iv. When hydroseeding do not incorporate seed into the soil.

B. Mulching

1. Mulch Materials (in order of preference)
   a. Straw consisting of thoroughly threshed wheat, rye, oat, or barley and reasonably bright in color. Straw is to be free of noxious weed seeds as specified in the Maryland Seed Law and not musty, moldy, caked, decayed, or excessively dusty. **Note: Use only sterile straw mulch in areas where one species of grass is desired.**
   b. Wood Cellulose Fiber Mulch (WCFM) consisting of specially prepared wood cellulose processed into a uniform fibrous physical state.
      i. WCFM is to be dyed green or contain a green dye in the package that will provide an appropriate color to facilitate visual inspection of the uniformly spread slurry.
      ii. WCFM, including dye, must contain no germination or growth inhibiting factors.
      iii. WCFM materials are to be manufactured and processed in such a manner that the wood cellulose fiber mulch will remain in uniform suspension in water under agitation and will blend with seed, fertilizer and other additives to form a homogeneous slurry. The mulch material must form a blotter-like ground cover, on application, having moisture absorption and percolation properties and must cover and hold grass seed in contact with the soil without inhibiting the growth of the grass seedlings.
      iv. WCFM material must not contain elements or compounds at concentration levels that will be phyto-toxic.
      v. WCFM must conform to the following physical requirements: fiber length of approximately 10 millimeters, diameter approximately 1 millimeter, pH range of 4.0 to 8.5, ash content of 1.6 percent maximum and water holding capacity of 90 percent minimum.
2. Application
   a. Apply mulch to all seeded areas immediately after seeding.
   b. When straw mulch is used, spread it over all seeded areas at the rate of 2 tons per acre to a uniform loose depth of 1 to 2 inches. Apply mulch to achieve a uniform distribution and depth so that the soil surface is not exposed. When using a mulch anchoring tool, increase the application rate to 2.5 tons per acre.
   c. Wood cellulose fiber used as mulch must be applied at a net dry weight of 1500 pounds per acre. Mix the wood cellulose fiber with water to attain a mixture with a maximum of 50 pounds of wood cellulose fiber per 100 gallons of water.
3. Anchoring
   a. Perform mulch anchoring immediately following application of mulch to minimize loss by wind or water. This may be done by one of the following methods (listed by preference), depending upon the size of the area and erosion hazard:
      i. A mulch anchoring tool is a tractor drawn implement designed to punch and anchor mulch into the soil surface a minimum of 2 inches. This practice is most effective on large areas, but is limited to flatter slopes where equipment can operate safely. If used on sloping land, this practice should follow the contour.
      ii. Wood cellulose fiber may be used for anchoring straw. Apply the fiber binder at a net dry weight of 750 pounds per acre. Mix the wood cellulose fiber with water at a maximum of 50 pounds of wood cellulose fiber per 100 gallons of water.
      iii. Synthetic binders such as Acrylic DLR (Agro-Tack), DCA-70, Petroset, Terra Tax II, Terra Tack AR or other approved equal may be used. Follow application rates as specified by the manufacturer. Application of liquid binders needs to be heavier at the edges where wind catches mulch, such as in valleys and on crests of banks. **Use of asphalt binders is strictly prohibited.**
      iv. Lightweight plastic netting may be stapled over the mulch according to manufacturer recommendations. Netting is usually available in rolls 4 to 15 feet wide and 300 to 3,000 feet long.

B-4-5 STANDARDS AND SPECIFICATIONS

FOR

PERMANENT STABILIZATION

Definition

To stabilize disturbed soils with permanent vegetation.

Purpose

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

Conditions Where Practice Applies

Exposed soils where ground cover is needed for 6 months or more.

Criteria

A. Seed Mixtures

1. General Use
   a. Select one or more of the species or mixtures listed in Table B.3 for the appropriate Plant Hardiness Zone (from Figure B.3) and based on the site condition or purpose found on Table B.2. Enter selected mixture(s), application rates, and seeding dates in the Permanent Seeding Summary. The Summary is to be placed on the plan.
   b. Additional planting specifications for exceptional sites such as shorelines, stream banks, or dunes or for special purposes such as wildlife or aesthetic treatment may be found in USDA-NRCS Technical Field Office Guide, Section 342 - Critical Area Planting.
   c. For sites having disturbed area over 5 acres, use and show the rates recommended by the soil testing agency.
   d. For areas receiving low maintenance, apply urea form fertilizer (46-0-0) at 3 ½ pounds per 1000 square feet (150 pounds per acre) at the time of seeding in addition to the soil amendments shown in the Permanent Seeding Summary .
2. Turfgrass Mixtures
   a. Areas where turfgrass may be desired include lawns, parks, playgrounds, and commercial sites which will receive a medium to high level of maintenance.
   b. Select one or more of the species or mixtures listed below based on the site conditions or purpose. Enter selected mixture(s), application rates, and seeding dates in the Permanent Seeding Summary. The summary is to be placed on the plan.
      i. Kentucky Bluegrass: Full Sun Mixture: For use in areas that receive intensive management. Irrigation required in the areas of central Maryland and Eastern Shore. Recommended Certified Kentucky Bluegrass Cultivars Seeding Rate: 1.5 to 2.0 pounds per 1000 square feet. Choose a minimum of three Kentucky bluegrass cultivars with each ranging from 10 to 35 percent of the total mixture by weight.
      ii. Kentucky Bluegrass/Perennial Rye: Full Sun Mixture: For use in full sun areas where rapid establishment is necessary and when turf will receive medium to intensive management. Certified Perennial Ryegrass Cultivars/Certified Kentucky Bluegrass Seeding Rate: 2 pounds mixture per 1000 square feet. Choose a minimum of three Kentucky bluegrass cultivars with each ranging from 10 to 35 percent of the total mixture by weight.
      iii. Tall Fescue/Kentucky Bluegrass: Full Sun Mixture: For use in drought prone areas and/or for areas receiving low to medium management in full sun to medium shade. Recommended mixture includes; Certified Tall Fescue Cultivars 95 to 100 percent, Certified Kentucky Bluegrass Cultivars 0 to 5 percent. Seeding Rate: 5 to 8 pounds per 1000 square feet. One or more cultivars may be blended.
      iv. Kentucky Bluegrass/Fine Fescue: Shade Mixture: For use in areas with shade in Bluegrass lawns. For establishment in high quality, intensively managed turf area. Mixture includes; Certified Kentucky Bluegrass Cultivars 30 to 40 percent and Certified Fine Fescue and 60 to 70 percent. Seeding Rate: 1½ to 3 pounds per 1000 square feet.

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

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

      Western MD: March 15 to June 1, August 1 to October 1 (Hardiness Zones: 5b, 6a)

      Central MD: March 1 to May 15, August 15 to October 15 (Hardiness Zone: 6b)

      Southern MD, Eastern Shore: March 1 to May 15, August 15 to October 15 (Hardiness Zones: 7a, 7b)
   d. Till areas to receive seed by disking or other approved methods to a depth of 2 to 4 inches, level and rake the areas to prepare a proper seedbed. Remove stones and debris over 1½ inches in diameter. The resulting seedbed must be in such condition that future mowing of grasses will pose no difficulty.
   e. If soil moisture is deficient, supply new seedings with adequate water for plant growth (½ to 1 inch every 3 to 4 days depending on soil texture) until they are firmly established. This is especially true when seedings are made late in the planting season, in abnormally dry or hot seasons, or on adverse sites.

Permanent Seeding Summary

Hardiness Zone (from Figure B.3): 6B Seed Mixture (from Table B.3): 8					Fertilizer Rate (10-20-20)			Lime Rate
No.	Species	Application Rate (lb/ac)	Seeding Dates	Seeding Depths	N	P_2O_5	K_2O	
TALL	FESCUE	100	31-515	¼- ½ in	45 pounds per acre (1.0 lb/ 1000 sf)	90 lb/ac (2 lb/ 1000 sf)	90 lb/ac (2 lb/ 1000 sf)	2 tons/ac (90 lb/ 1000 sf)
			81-1015	¼- ½ in				
				¼- ½ in				

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

1. General Specifications
   a. Class of turfgrass sod must be Maryland State Certified. Sod labels must be made available to the job foreman and inspector.
   b. Sod must be machine cut at a uniform soil thickness of ¾ inch, plus or minus ¼ inch, at the time of cutting. Measurement for thickness must exclude top growth and thatch. Broken pads and torn or uneven ends will not be acceptable.
   c. Standard size sections of sod must be strong enough to support their own weight and retain their size and shape when suspended vertically with a firm grasp on the upper 10 percent of the section.
   d. Sod must not be harvested or transplanted when moisture content (excessively dry or wet) may adversely affect its survival.
   e. Sod must be harvested, delivered, and installed within a period of 36 hours. Sod not transplanted within this period must be approved by an agronomist or soil scientist prior to its installation.
2. Sod Installation
   a. During periods of excessively high temperature or in areas having dry subsoil, lightly irrigate the subsoil immediately prior to laying the sod.
   b. Lay the first row of sod in a straight line with subsequent rows placed parallel to it and tightly wedged against each other. Stagger lateral joints to promote more uniform growth and strength. Ensure that sod is not stretched or overlapped and that all joints are butted tight in order to prevent voids which would cause air drying of the roots.
   c. Wherever possible, lay sod with the long edges parallel to the contour and with staggering joints. Roll and tamp, peg or otherwise secure the sod to prevent slippage on slopes. Ensure solid contact exists between sod roots and the underlying soil surface.
   d. Water the sod immediately following rolling and tamping until the underside of the new sod pad and soil surface below the sod are thoroughly wet. Complete the operations of laying, tamping and irrigating for any piece of sod within eight hours.
3. Sod Maintenance
   a. In the absence of adequate rainfall, water daily during the first week or as often and sufficiently as necessary to maintain moist soil to a depth of 4 inches. Water sod during the heat of the day to prevent wilting.
   b. After the first week, sod watering is required as necessary to maintain adequate moisture content.
   c. Do not mow until the sod is firmly rooted. No more than ⅓ of the grass leaf must be removed by the initial cutting or subsequent cuttings. Maintain a grass height of at least 3 inches unless otherwise specified.

SEQUENCE OF CONSTRUCTION - GENERAL NOTES

1. THE CONTRACTOR SHALL NOTIFY THE HOWARD SOIL CONSERVATION DISTRICT AT (410) 489–7987 AT LEAST SEVEN (7) DAYS PRIOR TO ANY EARTH DISTURBANCE TO SCHEDULE A PRE–CONSTRUCTION MEETING WITH THE INSPECTOR.
2. UTILITIES AND STORM DRAINS SHOWN ON THE EROSION AND SEDIMENT CONTROL PLANS ARE FOR THE GUIDANCE OF THE CONTRACTOR ONLY. CONTRACTOR SHALL CALL "MISS UTILITY" AT 1–800–257–7777 48 HOURS PRIOR TO THE START OF WORK. THE EXCAVATOR MUST NOTIFY ALL PUBLIC UTILITY COMPANIES WITH UNDERGROUND UTILITIES IN THE AREA OF THE PROPOSED EXCAVATION AND HAVE THOSE UTILITIES LOCATED BY THE UTILITY COMPANIES PRIOR TO COMMENCING EXCAVATION.
3. THE EROSION AND SEDIMENT CONTROL MEASURES MUST BE IN PLACE AND FUNCTIONING PRIOR TO CLEARING THE ENTIRE SITE. CLEAR AND GRUB FOR EROSION AND SEDIMENT CONTROL MEASURES OR DEVICES ONLY ON COMMENCEMENT OF CONSTRUCTION.
4. INSTALL STABILIZED CONSTRUCTION ENTRANCES, AND OTHER EROSION SEDIMENT CONTROL DEVICES AS PER THE EROSION AND SEDIMENT CONTROL PLANS. THE LOCATIONS FOR STABILIZED CONSTRUCTION ENTRANCES SHOWN ON THE PLANS ARE APPROXIMATE, AND EXACT LOCATIONS SHALL BE DETERMINED IN THE FIELD WITH APPROVAL FROM THE ENGINEER AND INSPECTOR.
5. MAINTAIN ALL SEDIMENT CONTROL PRACTICES ACCORDING TO THE MARYLAND 2011 STANDARDS UNTIL THE ENTIRE SITE IS STABILIZED.
6. CONTRACTOR SHALL LOCATE THE STAGING AND STOCKPILE AREA AND IS RESPONSIBLE FOR PROVIDING ANY ADDITIONAL E/S CONTROLS FOR STAGING AND STOCKPILE AREAS AS REQUIRED BY THE INSPECTOR.
7. CLEAR AND GRUB AND PROCEED TO CONSTRUCTION ACCORDING TO THE SEQUENCE SPECIFIEDN ON THE TRAFFIC CONTROL PLAN SHEETS. STORM DRAIN SYSTEMS SHALL ALWAYS BE CONSTRUCTED FROM THE DOWNSTREAM ENDS. INLET PROTECTIONS SHALL BE INSTALLED AT EXISTING INLETS BEFORE ANY DISTURBANCE IN THE WORK AREA. NO DISTURBED AREA SHALL BE LEFT UNSTABILIZED OVERNIGHT UNLESS THE RUN OFF IS DIRECTED TO AN MDE APPROVED SEDIMENT CONTROL DEVICE. CONTRACTOR SHALL USE PORTABLE SEDIMENT TANK TO DEWATER THE WORKING AREA DURING CONSTRUCTION.
8. CONSTRUCTION SHALL BE COMPLETED IN THE FOLLOWING SEQUENCE:

SEQUENCE OF CONSTRUCTION

THE FOLLOWING SEQUENCE OF CONSTRUCTION DESCRIBES, IN PART, THE STEPS REQUIRED TO COMPLETE THE PROPOSED WORK. CONTRACTOR IS RESPONSIBLE FOR DETERMINING INTERIM SEQUENCE OF CONSTRUCTION, MEANS, METHODS, MATERIALS, LABOR AND/OR EQUIPMENT NECESSARY TO SATISFACTORILY CONSTRUCT THE FEATURES AS SHOWN ON THE PLANSET. IT SHALL BE CLEARLY UNDERSTOOD THAT FAILURE TO SPECIFICALLY MENTION ANY WORK WHICH WOULD NORMALLY BE REQUIRED TO COMPLETE THE PROJECT SHALL NOT RELIEVE THE CONTRACTOR'S RESPONSIBILITY TO COMPLETE THE PROJECT TO THE OWNER'S SATISFACTION.

1. OBTAIN THE GRADING PERMIT PRIOR TO CONSTRUCTION (1 DAY).
2. INSTALL SILT FENCE (SF) AS INDICATED ON THE PLANSET (1 DAY).
3. INSTALL TEMPORARY 24" CLEAR WATER DIVERSION PIPE FROM EXISTING INLET AT I–10A TO THE PROPOSED OUTFALL (1 DAY).
4. CONSTRUCT THE RIPRAP OUTFALL AT ES–2 AND THE NEW STORM DRAIN SYSTEM TO I–10A, WORKING DOWNSTREAM TO UPSTREAM. TEMPORARY PIPE INSTALLED IN STEP 3 MAY BE REMOVED, WITH THE APPROVAL OF THE INSPECTOR, ONCE THIS PORTION OF STORM DRAIN SYSTEM AND OUTFALL IS CONSTRUCTED/STABILIZED (5 DAYS).
5. CONSTRUCT PROPOSED STORM DRAIN SYSTEM FROM I–10A TO I–7 INCLUDING ALL CONNECTING PIPES, WORKING DOWNSTREAM TO UPSTREAM. CONTRACTOR SHALL STABILIZE ANY DISTURBED AREAS AT THE END OF EACH WORK DAY (21 DAYS).
6. CROSS PIPES ACROSS WALKER DRIVE SHALL BE CONSTRUCTED WITH A FLAGGING OPERATION PER MD SHA STD. 104–02–10. CONTRACTOR SHALL BACKFILL ANY STEEL PLATE ANY OPEN TRENCHES PRIOR AT THE END OF EACH WORK DAY, AND PRIOR TO ENDING THE FLAGGING OPERATION FOR THE DAY (7 DAYS).
7. CROSS PIPES ACROSS WALKER DRIVE SHALL BE CONSTRUCTED WITH A FLAGGING OPERATION PER MD SHA STD. 104–02–10. CONTRACTOR SHALL BACKFILL ANY STEEL PLATE ANY OPEN TRENCHES PRIOR AT THE END OF EACH WORK DAY, AND PRIOR TO ENDING THE FLAGGING OPERATION FOR THE DAY (7 DAYS).
8. CONSTRUCT ANY ROADWAY/DRIVEWAY PAVEMENT DISTURBED DUE TO THE STORM DRAIN WORK IMMEDIATELY AFTER STORM DRAIN CONSTRUCTION (4 DAYS).
9. AFTER THE CONSTRUCTION/STABILIZATION OF I–6, I–7, CONSTRUCT PROPOSED GRASS DITCH UPSTREAM OF THE INLETS. CONTRUCT I–13. CONTRACTOR HAS THE OPTION TO CONSTRUCT I–13 AT ANY POINT DURING CONSTRUCTION AND WITH THE APPROVAL OF THE INSPECTOR (3 DAYS).
10. INSTALL I–17 AND I–16, WORKING DOWNSTREAM TO UPSTREAM (3 DAYS).
11. CONSTRUCT PROPOSED CURB AND GUTTER ALONG DOGWOOD DRIVE INCLUDING DRIVEWAY APRONS, DRIVEWAY TIE–INS AND FULL DEPTH PAVEMENT RECONSTRUCTION. INSTALL I–17 AND I–16, WORKING DOWNSTREAM TO UPSTREAM (3 DAYS).

NOTE: THE TIME LINE EXCLUDES WEATHER RELATED DELAYS.

SEDIMENT CONTROL GENERAL 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 (410–313–1855).
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. THREE (3) CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DIKES, PERIMETER SLOPES AND ALL SLOPES GREATER THAN 3:1.
   B. SEVEN (7) CALENDAR DAYS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITECT 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 – 1.5 ACRES
   AREA DISTURBED – 0.76 ACRES
   AREAS TO BE ROOFED OR PAVED – 0.1 ACRES (INCLUDES OVERLAY AREA)
   AREA TO BE VEGETATIVELY STABILIZED – 0.6 ACRES
   TOTAL CUT – 750 CY ✱
   TOTAL FILL – 250 CY ✱
   OFF–SITE WASTE SITE – HOWARD COUNTY LANDFILL
   OFF–SITE BORROW SITE – APPROVED SITE WITH AN ACTIVE GRADING PERMIT
7. ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.
8. ADDITIONAL SEDIMENT CONTROLS 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 WITHIN ONE WORKING DAY, 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 BE 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.
13. SITE GRADING WILL BEGIN ONLY AFTER ALL PERIMETER SEDIMENT CONTROL MEASURES HAVE BEEN INSTALLED AND ARE IN A FUNCTIONING CONDITION.
14. SEDIMENT WILL BE REMOVED FROM TRAPS WHEN ITS DEPTH REACHES CLEAN OUT ELEVATION SHOWN ON THE PLANS.
15. CUT AND FILL QUANTITIES PROVIDED UNDER SITE ANALYSIS DO NOT REPRESENT BID QUANTITIES. THESE QUANTITIES DO NOT DISTINGUISH BETWEEN TOPSOIL, STRUCTURAL FILL OR EMBANKMENT MATERIAL, NOR DO THEY REFLECT CONSIDERATION OF UNDERCUTTING OR REMOVAL OF UNSUITABLE MATERIAL. THE CONTRACTOR SHALL FAMILIARIZE HIMSELF WITH SITE CONDITIONS WHICH MAY AFFECT THE WORK.
16. CONSTRUCTION WITHIN, ALONG OR ACROSS STREAM CHANNELS SHALL, AS A MINIMUM, CONFIRM TO CRITERIA DESCRIBED UNDER "MARYLAND'S WATERWAY CONSTRUCTION GUIDELINES."
17. ALL SEDIMENT TRAPS/BASINS SHOWN MUST BE FENCED AND WARNING SIGNS POSTED AROUND THE PERIMETER IN ACCORDANCE WITH VOLUME 1, CHAPTER 7, OF THE HOWARD COUNTY DESIGN MANUAL, STORM DRAINAGE.

✱ APPROXIMATE

ENGINEER'S CERTIFICATION

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

4.19.16

URS CORPORATION DAVID T. MORICONI DATE
4 NORTH PARK DRIVE
HUNT VALLEY, MD 21030

DEVELOPER'S CERTIFICATION

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

Steve Shanav 5/10/16
SIGNATURE OF DEVELOPER DATE

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

4/26/16
HOWARD SOIL CONSERVATION DISTRICT DATE

PROFESSIONAL CERTIFICATION

"I HEREBY CERTIFY THAT 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. 16156, EXPIRATION DATE: 8/28/2016.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 5/11/16
CHIEF, BUREAU OF ENGINEERING — DATE Thomas E. Butler 5/17/16
CHIEF, TRANSPORTATION AND SPECIAL PROJECTS DIVISION — DATE Steve Shanav 5/10/16
CHIEF, BUREAU OF HIGHWAYS — DATE 5/11/2016

PREPARED BY
URS
4 NORTH PARK DRIVE
HUNT VALLEY, MARYLAND
TEL: (410) 785-7220

STATE OF MARYLAND — DAVID THOMAS MORICONI — REG. NO. 16156 — PROFESSIONAL ENGINEER — 4.19.16

	BY	NO.	REVISION	DATE
DES: JHY				
DRN: JHY				
CHK: DTM				
DATE: 04/16				

EROSION AND SEDIMENT CONTROL NOTES AND DETAILS

SCALE MAP NO. ____ BLOCK NO. ____

GLENBROOK
DRAINAGE IMPROVEMENTS

ELECTION DISTRICT NO. 1
CAPITAL PROJECT D–1167

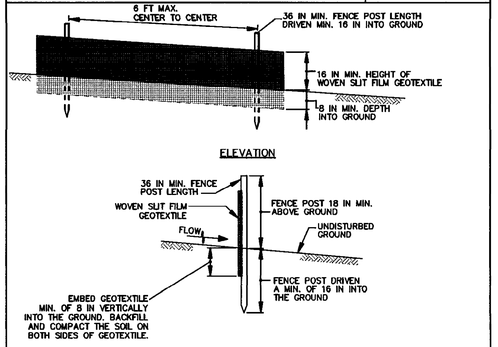
SCALE AS SHOWN

SHEET 12 OF 17

U:\Projects\H\HoCo\20835732\CAD\PlanSet\pES-N001.WAK.dgn ronald.landrum Saturday, April 16, 2016 AT 10:21 AM

DETAIL E-1 SILT FENCE

STANDARD SYMBOL: SF



1 OF 2

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL E-1 SILT FENCE

STANDARD SYMBOL: SF

CONSTRUCTION SPECIFICATIONS

1. USE WOOD POSTS 1¾ X 1¾ ± ⅛ INCH (MINIMUM) SQUARE CUT OF SOUND QUALITY HARDWOOD. AS AN ALTERNATIVE TO WOODEN POST USE STANDARD "T" OR "U" SECTION STEEL POSTS WEIGHING NOT LESS THAN 1 POUND PER LINEAR FOOT.
2. USE 36 INCH MINIMUM POSTS DRIVEN 16 INCH MINIMUM INTO GROUND NO MORE THAN 6 FEET APART.
3. USE WOVEN SLIT FILM GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS AND FASTEN GEOTEXTILE SECURELY TO UPSLOPE SIDE OF FENCE POSTS WITH WIRE TIES OR STAPLES AT TOP AND MID-SECTION.
4. PROVIDE MANUFACTURER CERTIFICATION TO THE AUTHORIZED REPRESENTATIVE OF THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT THE GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION H-1 MATERIALS.
5. EMBED GEOTEXTILE A MINIMUM OF 8 INCHES VERTICALLY INTO THE GROUND. BACKFILL AND COMPACT THE SOIL ON BOTH SIDES OF FABRIC.
6. WHERE TWO SECTIONS OF GEOTEXTILE ADJOIN: OVERLAP, TWIST, AND STAPLE TO POST IN ACCORDANCE WITH THIS DETAIL.
7. EXTEND BOTH ENDS OF THE SILT FENCE A MINIMUM OF FIVE HORIZONTAL FEET UPSLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT TO PREVENT RUNOFF FROM GOING AROUND THE ENDS OF THE SILT FENCE.
8. REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BULGES DEVELOP IN SILT FENCE OR WHEN SEDIMENT REACHES 25% OF FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN. IF UNDERMINING OCCURS, REINSTALL FENCE.

2 OF 2

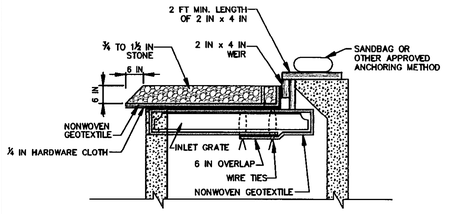
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

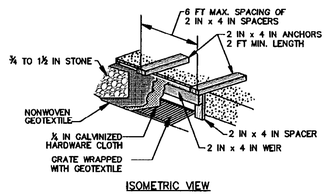
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL E-9-6 COMBINATION INLET PROTECTION

STANDARD SYMBOL: COIP

MAXIMUM DRAINAGE AREA = ¼ ACRE





1 OF 2

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL E-9-6 COMBINATION INLET PROTECTION

STANDARD SYMBOL: COIP

CONSTRUCTION SPECIFICATIONS

1. USE NOMINAL 2 INCH x 4 INCH LUMBER.
2. USE NONWOVEN GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS.
3. LIFT GRATE, AND WRAP WITH NONWOVEN GEOTEXTILE TO COMPLETELY COVER ALL OPENINGS, THEN SET GRATE BACK IN PLACE.
4. ATTACH A CONTINUOUS PIECE OF ½ INCH GALVANIZED HARDWARE CLOTH WITH A MINIMUM WIDTH OF 30 INCHES AND A MINIMUM LENGTH OF 4 FEET LONGER THAN THE THROAT OPENING, TO THE 2X4 WEIR, EXTENDING 2 FEET BEYOND THROAT ON EACH SIDE.
5. PLACE A CONTINUOUS PIECE OF NONWOVEN GEOTEXTILE THE SAME DIMENSIONS AS THE HARDWARE CLOTH OVER THE HARDWARE CLOTH AND SECURELY ATTACH IT TO THE WEIR.
6. NAIL THE 2X4 WEIR TO THE TOP OF A 9 INCH LONG VERTICAL SPACER TO BE LOCATED BETWEEN THE WEIR AND THE INLET FACE (MAXIMUM 4 FEET APART).
7. PLACE THE ASSEMBLY AGAINST THE INLET THROAT AND NAIL TO 2X4 ANCHORS (MINIMUM 2 FOOT LENGTHS OF 2x4 INCH TO THE TOP OF THE WEIR AT SPACER LOCATIONS). EXTEND 2X4 ANCHORS ACROSS THE INLET TOP AND HOLD IN PLACE BY SANDBAGS OR OTHER APPROVED ANCHORING METHOD.
8. INSTALL END SPACERS A MINIMUM OF 1 FOOT BEYOND BOTH ENDS OF THE THROAT OPENING.
9. FORM THE ¼ INCH HARDWARE CLOTH AND THE GEOTEXTILE TO THE CONCRETE GUTTER AND AGAINST THE FACE OF THE CURB ON BOTH SIDES OF THE INLET. PLACE CLEAN ¾ TO 1½ INCH STONE OR EQUIVALENT RECYCLED CONCRETE OVER THE HARDWARE CLOTH AND GEOTEXTILE IN SUCH A MANNER TO PREVENT WATER FROM ENTERING THE INLET UNDER OR AROUND THE GEOTEXTILE.
10. AT NON-SUMP LOCATIONS, INSTALL A TEMPORARY SANDBAG OR ASPHALT BERM TO PREVENT INLET BYPASS.
11. STORM DRAIN INLET PROTECTION REQUIRES FREQUENT MAINTENANCE. REMOVE ACCUMULATED SEDIMENT AFTER EACH RAIN EVENT TO MAINTAIN FUNCTION AND AVOID PREMATURE CLOGGING. IF INLET PROTECTION DOES NOT COMPLETELY DRAIN WITHIN 24 HOURS AFTER A STORM EVENT, IT IS CLOGGED. WHEN THIS OCCURS, REMOVE ACCUMULATED SEDIMENT AND CLEAN, OR REPLACE GEOTEXTILE AND STONE.

DEVELOPER'S CERTIFICATION

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

Steve Shaver 5/10/16
SIGNATURE OF DEVELOPER DATE

ENGINEER'S CERTIFICATION

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

4.19.16
URS CORPORATION DAVID T. MORICONI DATE
4 NORTH PARK DRIVE
HUNT VALLEY, MD 21030

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

HOWARD SOIL CONSERVATION DISTRICT 4/26/16 DATE

PROFESSIONAL CERTIFICATION

"I HEREBY CERTIFY THAT 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. 16156 EXPIRATION DATE: 8/28/2016."

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 5/11/16
CHIEF, BUREAU OF ENGINEERING — DATE 5/17/16
CHIEF, TRANSPORTATION AND SPECIAL PROJECTS DIVISION — DATE 5/10/16
CHIEF, BUREAU OF HIGHWAYS — DATE 5/11/2016

PREPARED BY
URS
4 NORTH PARK DRIVE
HUNT VALLEY, MARYLAND
TEL: (410) 785-7220

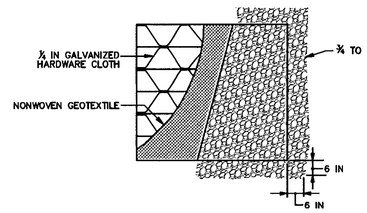
DAVID THOMAS MORICONI — STATE OF MARYLAND — No. 16156 — PROFESSIONAL ENGINEER — 4/19/16

DES: JHY				
DRN: JHY				
CHK: DTM				
DATE: 04/16	BY	NO.	REVISION	DATE

DETAIL E-9-2 AT-GRADE INLET PROTECTION

STANDARD SYMBOL: AGIP

MAXIMUM DRAINAGE AREA = 1 ACRE



CONSTRUCTION SPECIFICATIONS

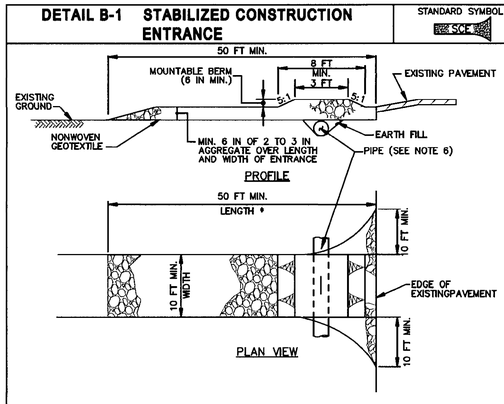
1. USE NONWOVEN GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS.
2. LIFT GRATE AND WRAP WITH NONWOVEN GEOTEXTILE TO COMPLETELY COVER ALL OPENINGS. SECURE WITH WIRE TIES AND SET GRATE BACK IN PLACE.
3. PLACE CLEAN ¾ TO 1½ INCH STONE OR EQUIVALENT RECYCLED CONCRETE 6 INCHES THICK ON THE GRATE.
4. STORM DRAIN INLET PROTECTION REQUIRES FREQUENT MAINTENANCE. REMOVE ACCUMULATED SEDIMENT AFTER EACH RAIN EVENT TO MAINTAIN FUNCTION AND AVOID PREMATURE CLOGGING. IF INLET PROTECTION DOES NOT COMPLETELY DRAIN WITHIN 24 HOURS AFTER A STORM EVENT, IT IS CLOGGED. WHEN THIS OCCURS, REMOVE ACCUMULATED SEDIMENT AND CLEAN, OR REPLACE GEOTEXTILE AND STONE.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL B-1 STABILIZED CONSTRUCTION ENTRANCE

STANDARD SYMBOL: SCE



CONSTRUCTION SPECIFICATIONS

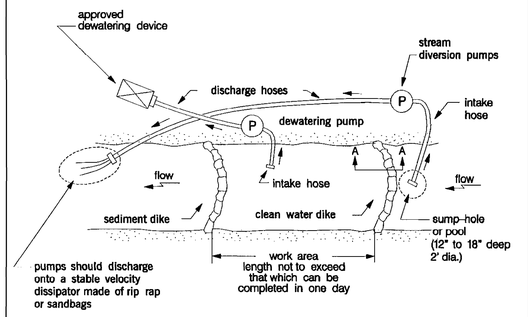
1. PLACE STABILIZED CONSTRUCTION ENTRANCE IN ACCORDANCE WITH THE APPROVED PLAN. VEHICLES MUST TRAVEL OVER THE ENTIRE LENGTH OF THE SCE. USE MINIMUM LENGTH OF 50 FEET (*30 FEET FOR SINGLE RESIDENCE LOT). USE MINIMUM WIDTH OF 10 FEET. FLARE SCE 10 FEET MINIMUM AT THE EXISTING ROAD TO PROVIDE A TURNING RADIUS.
2. PIPE ALL SURFACE WATER FLOWING TO OR DIVERTED TOWARD THE SCE UNDER THE ENTRANCE, MAINTAINING POSITIVE DRAINAGE. PROTECT PIPE INSTALLED THROUGH THE SCE WITH A MOUNTABLE BERM WITH 5:1 SLOPES AND A MINIMUM OF 12 INCHES OF STONE OVER THE PIPE. PROVIDE PIPE AS SPECIFIED ON APPROVED PLAN. WHEN THE SCE IS LOCATED AT A HIGH SPOT AND HAS NO DRAINAGE TO CONVEY, A PIPE IS NOT NECESSARY. A MOUNTABLE BERM IS REQUIRED WHEN SCE IS NOT LOCATED AT A HIGH SPOT.
3. PREPARE SUBGRADE AND PLACE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS.
4. PLACE CRUSHED AGGREGATE (2 TO 3 INCHES IN SIZE) OR EQUIVALENT RECYCLED CONCRETE (WITHOUT REBAR) AT LEAST 6 INCHES DEEP OVER THE LENGTH AND WIDTH OF THE SCE.
5. MAINTAIN ENTRANCE IN A CONDITION THAT MINIMIZES TRACKING OF SEDIMENT. ADD STONE OR MAKE OTHER REPAIRS AS CONDITIONS DEMAND TO MAINTAIN CLEAN SURFACE, MOUNTABLE BERM, AND SPECIFIED DIMENSIONS. IMMEDIATELY REMOVE STONE AND/OR SEDIMENT SPILLED, DROPPED, OR TRACKED ONTO ADJACENT ROADWAY BY VACUUMING, SCRAPING, AND/OR SWEEPING. WASHING ROADWAY TO REMOVE MUD TRACKED ONTO PAVEMENT IS NOT ACCEPTABLE UNLESS WASH WATER IS DIRECTED TO AN APPROVED SEDIMENT CONTROL PRACTICE.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

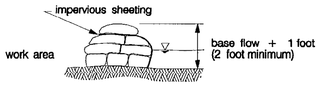
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

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

PLAN VIEW



SECTION A-A



cross section of sandbag dike

TEMPORARY INSTREAM CONSTRUCTION MEASURES | *REVISED NOVEMBER 2000 PAGE 1.2 - 3* | MARYLAND DEPARTMENT OF THE ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

B-4-4 STANDARDS AND SPECIFICATIONS FOR TEMPORARY STABILIZATION

Definition

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

Purpose

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

Conditions Where Practice Applies

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

Criteria

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

Temporary Seeding Summary

Hardiness Zone (from Figure B.3): 6B
Seed Mixture (from Table B.1): 6 OR 7

No.	Species	Application Rate (lb/ac)	Seeding Dates	Seeding Depths	Fertilizer Rate (10-20-20)	Lime Rate
6	FOXTAIL MILLET	30	5/16 - 7/31	0.5 IN.	436 lb/ac (10 lb/1000 sf)	2 tons/ac (90 lb/1000 sf)
7	PEARL MILLET	20	5/16 - 7/31	0.5 IN.		

EROSION AND SEDIMENT CONTROL NOTES AND DETAILS

SCALE MAP NO. ____ BLOCK NO. ____

GLENBROOK DRAINAGE IMPROVEMENTS

ELECTION DISTRICT NO. 1
CAPITAL PROJECT D-1167

SCALE AS SHOWN

SHEET 13 OF 17

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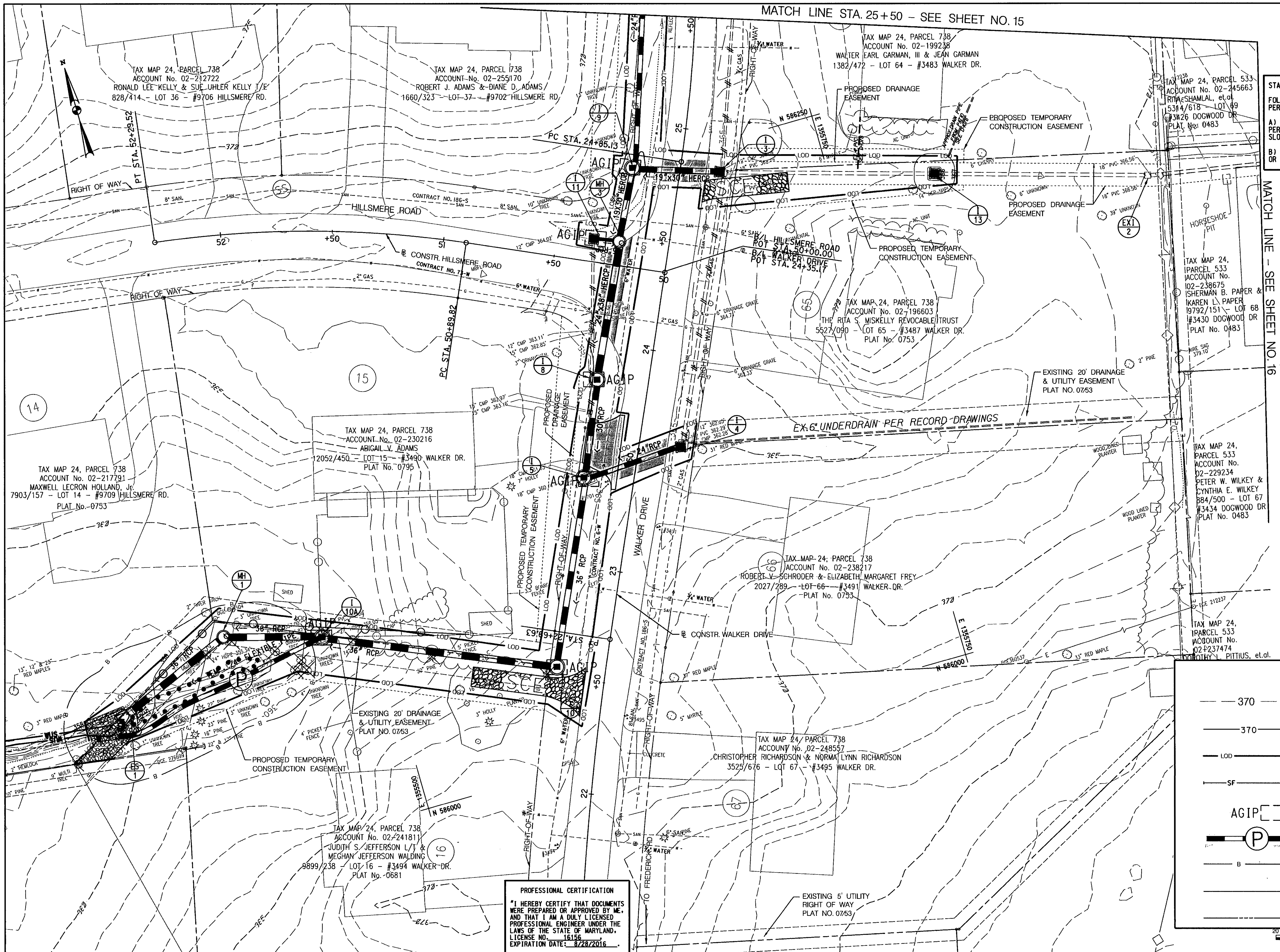

STANDARD STABILIZATION NOTE

FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION MUST BE COMPLETED WITHIN:

A) 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

B) SEVEN (7) CALENDAR DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE NOT UNDER ACTIVE GRADING.

DEVELOPER'S CERTIFICATION

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

Steve Sharar 5/10/16
SIGNATURE OF DEVELOPER — DATE

ENGINEER'S CERTIFICATION

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

URS CORPORATION DAVID T. MORICONI 4-19-16
4 NORTH PARK DRIVE
HUNT VALLEY, MD 21030
DATE

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

4/26/16
HOWARD SOIL CONSERVATION DISTRICT — DATE

LEGEND

— — 370 — —	EXISTING CONTOUR
——370——	PROPOSED CONTOUR
—LOD——LOD	LIMIT OF CONSTRUCTION (LOD)
—SF——SF—	SILT FENCE (SF)
AGIP	AT GRADE INLET PROTECTION (AGIP)
—(P)—	PUMP AROUND PRACTICE
—— B ——	WETLAND BUFFER
————	LINE OF DIVISION
————	RIGHT OF WAY

SCALE: 1" = 20'

PROFESSIONAL CERTIFICATION

"I HEREBY CERTIFY THAT 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. 16156 EXPIRATION DATE: 8/28/2016."

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 5/11/16
CHIEF, BUREAU OF ENGINEERING — DATE 5/17/16
CHIEF, TRANSPORTATION AND SPECIAL PROJECTS DIVISION — DATE 5/10/16
CHIEF, BUREAU OF HIGHWAYS — DATE 5/11/2016

PREPARED BY
URS
4 NORTH PARK DRIVE
HUNT VALLEY, MARYLAND
TEL: (410) 785-7220

STATE OF MARYLAND — DAVID THOMAS MORICONI — PROFESSIONAL ENGINEER — 4.19.16

DES: JHY
DRN: JHY
CHK: DTM
DATE: 04/16

BY	NO.	REVISION	DATE

EROSION & SEDIMENT CONTROL PLAN NO. 1

SCALE MAP NO. ____ BLOCK NO. -

GLENBROOK DRAINAGE IMPROVEMENTS

ELECTION DISTRICT NO. 1
CAPITAL PROJECT D-1167

SCALE 1" = 20'

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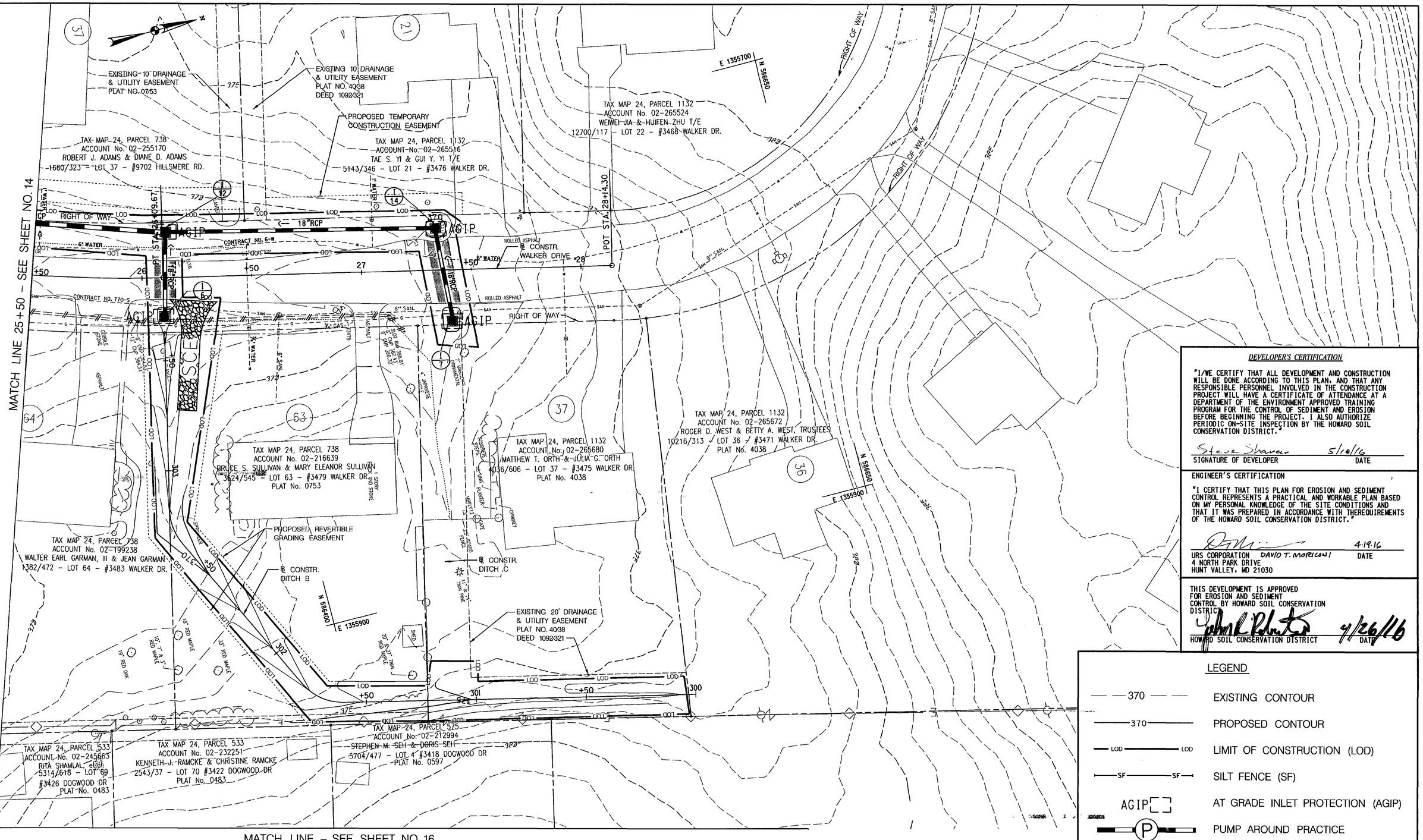

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Steve Shanaw — 5/10/16
SIGNATURE OF DEVELOPER — DATE

ENGINEER'S CERTIFICATION

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

4-19-16
URS CORPORATION DAVID T. MORICONI — DATE
4 NORTH PARK DRIVE
HUNT VALLEY, MD 21030

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

HOWARD SOIL CONSERVATION DISTRICT — 4/26/16 DATE

LEGEND

- 370 — EXISTING CONTOUR
- 370 — PROPOSED CONTOUR
- LOD — LOD — LIMIT OF CONSTRUCTION (LOD)
- SF — SF — SILT FENCE (SF)
- AGIP — AT GRADE INLET PROTECTION (AGIP)
- P — PUMP AROUND PRACTICE
- LINE OF DIVISION
- RIGHT OF WAY

SCALE: 1" = 20'

STANDARD STABILIZATION NOTE

FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION MUST BE COMPLETED WITHIN:

A) 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

B) SEVEN (7) CALENDAR DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE NOT UNDER ACTIVE GRADING.

PROFESSIONAL CERTIFICATION

"I HEREBY CERTIFY THAT 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. 16156, EXPIRATION DATE: 8/28/2016.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — 5/10/16 DATE
CHIEF, BUREAU OF ENGINEERING — 5/10/16 DATE
CHIEF, TRANSPORTATION AND SPECIAL PROJECTS DIVISION — 5/10/16 DATE
CHIEF, BUREAU OF HIGHWAYS — 5/10/16 DATE

PREPARED BY
URS
4 NORTH PARK DRIVE
HUNT VALLEY, MARYLAND
TEL: (410) 785-7220

STATE OF MARYLAND — DAVID THOMAS MORICONI — REG. NO. 16156 — PROFESSIONAL ENGINEER — 4-19-16

DES: JHY	
DRN: JHY	
CHK: DTM	
DATE: 04/16	

BY	NO.	REVISION	DATE

EROSION & SEDIMENT CONTROL PLAN NO. 2

SCALE MAP NO. ____ BLOCK NO. ____

GLENBROOK DRAINAGE IMPROVEMENTS

ELECTION DISTRICT NO. 1
CAPITAL PROJECT D-1167

SCALE 1" = 20'

SHEET 15 OF 17

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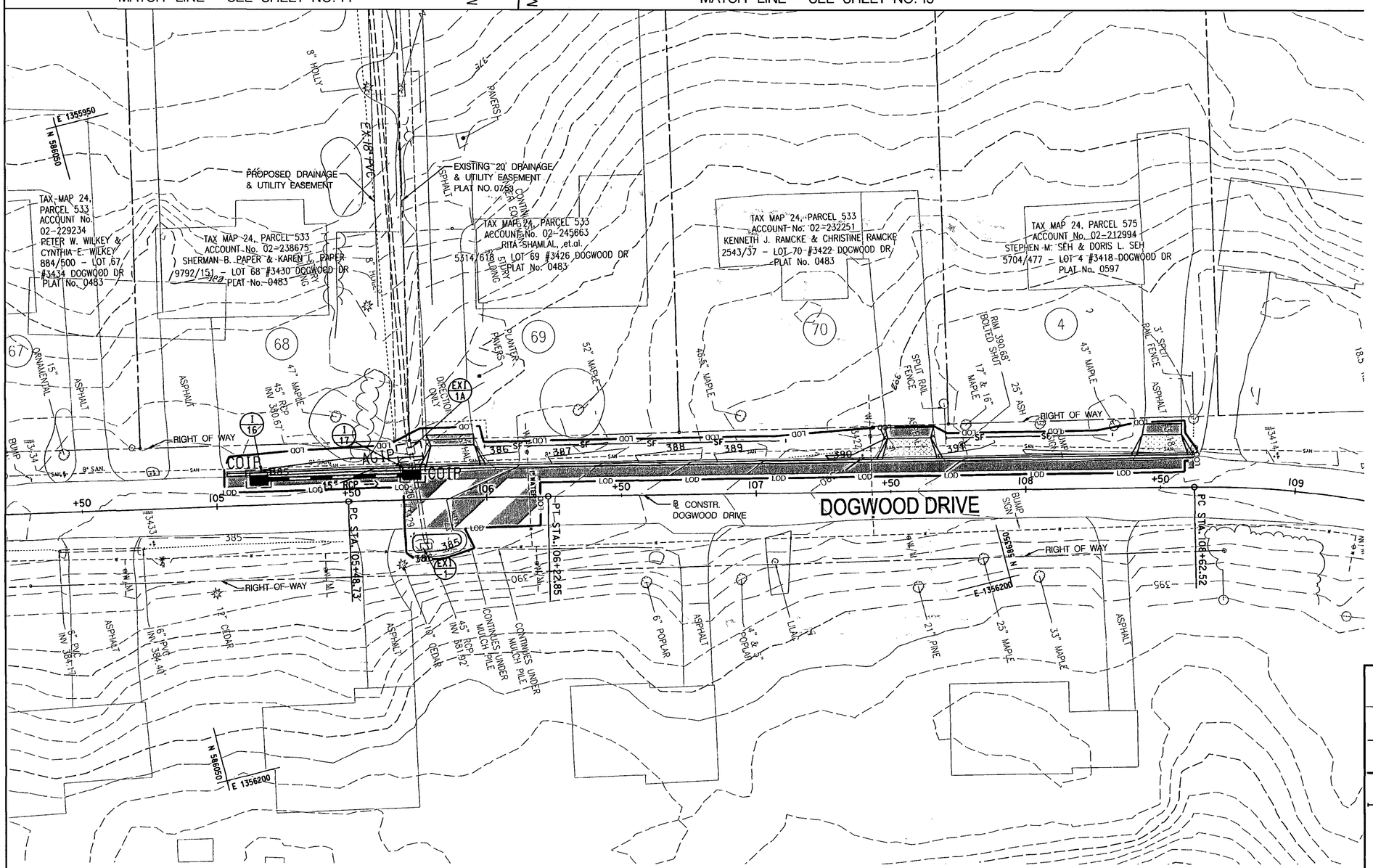
MATCH LINE – SEE SHEET NO. 14

MATCH LINE – SEE SHEET NO. 15

MATCH LINE – SEE SHEET NO. 15



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B) SEVEN (7) CALENDAR DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE NOT UNDER ACTIVE GRADING.

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DEVELOPER'S CERTIFICATION

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Steve Shanar 5/10/16
SIGNATURE OF DEVELOPER DATE

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4-21-16
URS CORPORATION DAVID T. MORICONI DATE
4 NORTH PARK DRIVE
HUNT VALLEY, MD 21030

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

John L Robertson 4/26/16
HOWARD SOIL CONSERVATION DISTRICT DATE

LEGEND

- 370 — EXISTING CONTOUR
- 370 — PROPOSED CONTOUR
- LOD — LOD — LIMIT OF CONSTRUCTION (LOD)
- SF — SF — SILT FENCE (SF)
- AGIP — AT GRADE INLET PROTECTION (AGIP)
- COIP — COMBINATION INLET PROTECTION (COIP)
- P — PUMP AROUND PRACTICE
- LINE OF DIVERSITY
- RIGHT OF WAY

20' 0 20' 40'
SCALE: 1" = 20'

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 5/11/16
CHIEF, BUREAU OF ENGINEERING — DATE 5/10/16
CHIEF, TRANSPORTATION AND SPECIAL PROJECTS DIVISION — DATE 5/10/16
CHIEF, BUREAU OF HIGHWAYS — DATE 5/11/2016

PREPARED BY
URS
4 NORTH PARK DRIVE
HUNT VALLEY, MARYLAND
TEL: (410) 785-7220

STATE OF MARYLAND — DAVID THOMAS MORICONI — NO. 16156 — REGISTERED PROFESSIONAL ENGINEER — 4-21-16

DES: JHY
DRN: JHY
CHK: DTM
DATE: 04/16

BY	NO.	REVISION	DATE

EROSION & SEDIMENT CONTROL PLAN NO. 3

SCALE MAP NO. ____ BLOCK NO. ____

GLENBROOK DRAINAGE IMPROVEMENTS

ELECTION DISTRICT NO. 1
CAPITAL PROJECT D-1167

SCALE 1" = 20'

SHEET 16 OF 17

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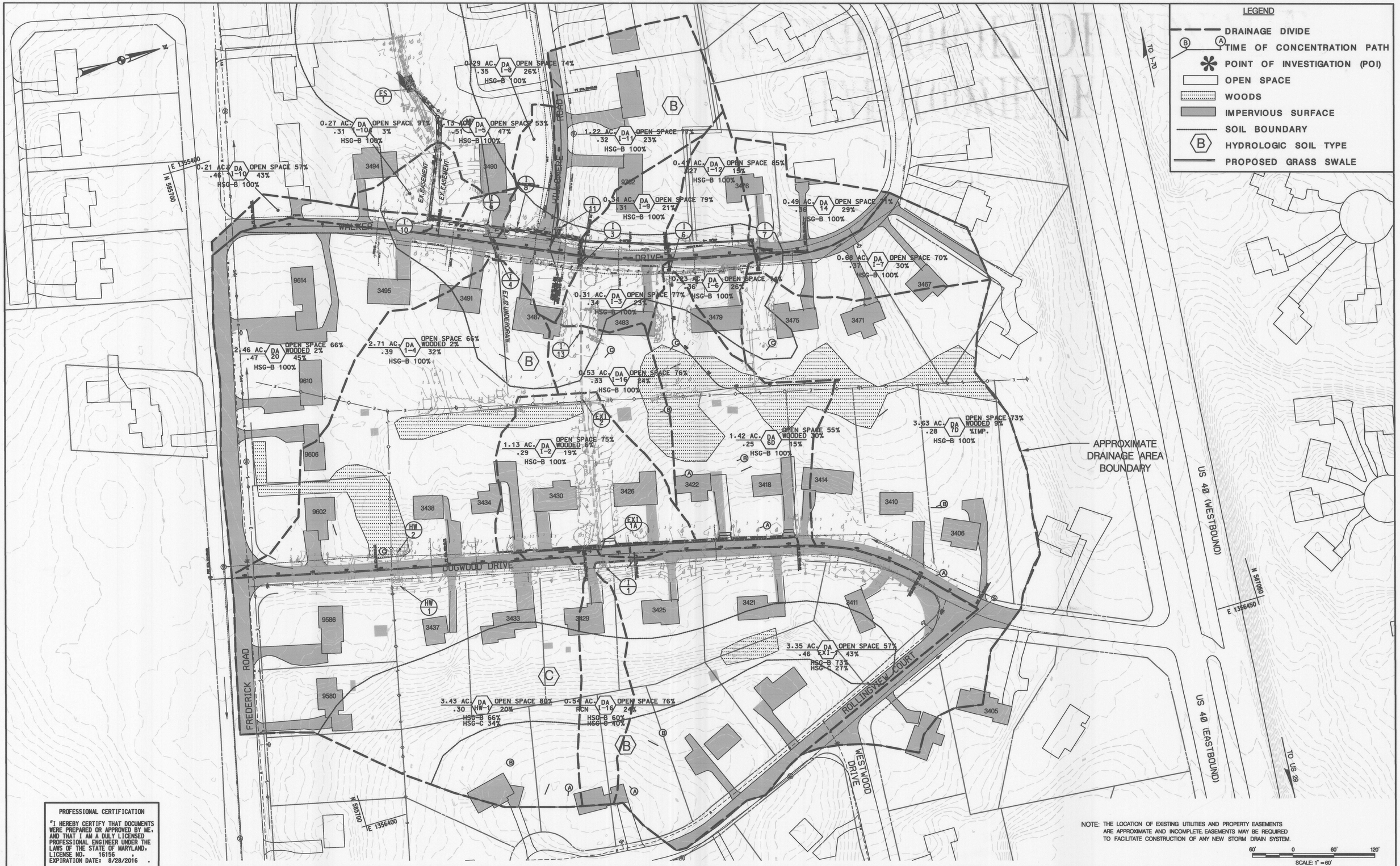

PROFESSIONAL CERTIFICATION

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NOTE: THE LOCATION OF EXISTING UTILITIES AND PROPERTY EASEMENTS ARE APPROXIMATE AND INCOMPLETE. EASEMENTS MAY BE REQUIRED TO FACILITATE CONSTRUCTION OF ANY NEW STORM DRAIN SYSTEM.

SCALE: 1" = 60'

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 5/11/16

CHIEF, BUREAU OF ENGINEERING — DATE 5/12/16

CHIEF, TRANSPORTATION AND SPECIAL PROJECTS DIVISION — DATE 5/10/16

CHIEF, BUREAU OF HIGHWAYS — DATE 5/11/2016

PREPARED BY
URS
4 NORTH PARK DRIVE
HUNT VALLEY, MARYLAND
TEL: (410) 785-7220

STATE OF MARYLAND — DAVID THOMAS MORGAN — NO. 16156 — REGISTERED PROFESSIONAL ENGINEER — 4-27-16

DES: JHY	
DRN: JHY	
CHK: DTM	
DATE: 04/16	

BY	NO.	REVISION	DATE

DRAINAGE AREA MAP

SCALE MAP NO. ____ BLOCK NO. ____

GLENBROOK DRAINAGE IMPROVEMENTS

ELECTION DISTRICT NO. 1
CAPITAL PROJECT D-1167

SCALE 1" = 60'

SHEET 17 OF 17

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