

- GENERAL NOTES:**
- The property is zoned NT per the October 6, 2013 Comprehensive Zoning Plan.
  - Applicable DPZ File References: FDP DC Crescent-I, ECP 15-014, ECP 15-083, F 15-048, F 15-106, SDF 15-068, SDF 14-073, FDP-DC-MSH-A, and FDP-4-A-V.
  - The following permits and tracking number have been assigned to this project by state and federal agencies:  
For the Maryland Dept. of the Environment: 14-NT-3184/201461063  
For the Army Corps of Engineers: CENAB-FP-RMN-2014-61063-M36
  - Site Analysis:**  
Total area of subdivision 99.44 acres  
Area of this submission (Limit of Disturbance) 16.42 acres  
LOD within Merrimether Neighborhood 2.54 acres  
LOD within the Crescent Neighborhood 13.83 acres  
Number of Parcels under this submission 7  
Area of Parcels 32.23 acres  
Number of Non-Buildable Parcels under this submission 10  
Area of Non-Buildable Parcels 9.42 acres  
Number of Open Space Lots under this submission 9  
Area of Open Space Lots 54.08 acres  
Area of Public Roadways 4.21 acres

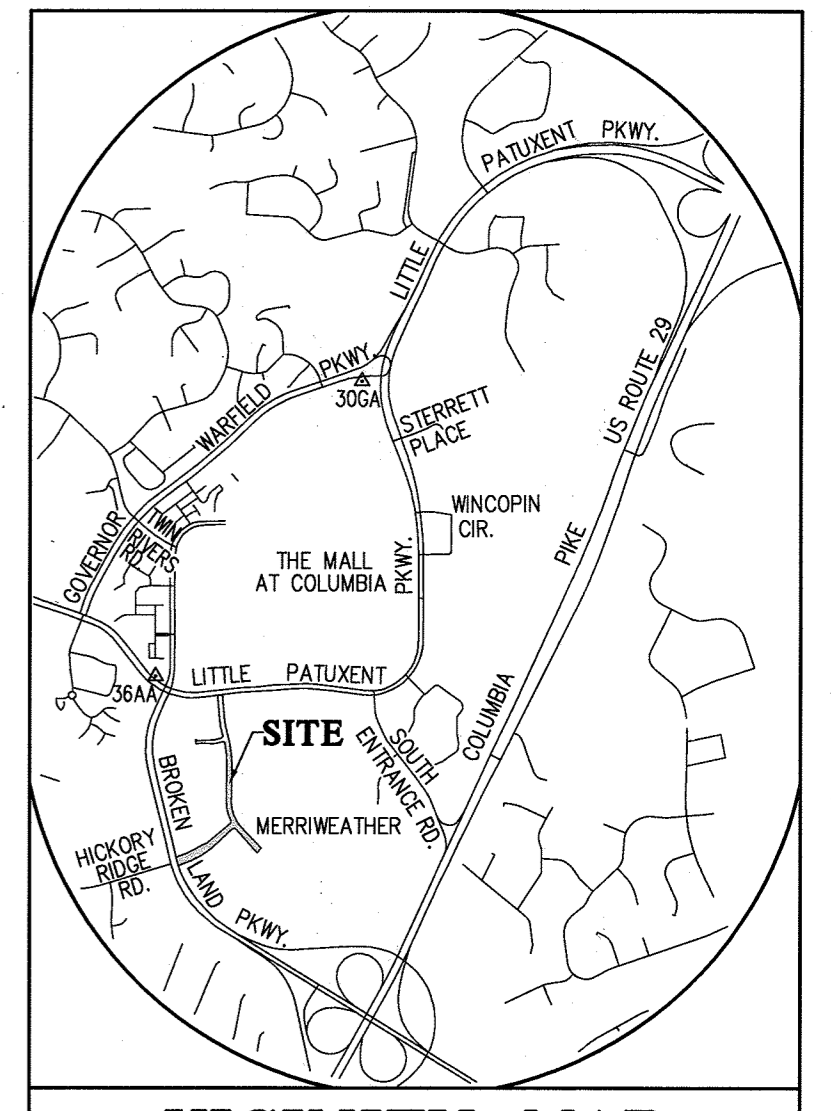
All construction shall be in accordance with the latest standards and specifications of Howard County plus MSHA standards and specifications if applicable.

- The contractor shall notify the Department of Public Works/Bureau of Engineering/Construction Inspection Division at (410) 313-1800 at least five (5) working days prior to the start of work.
- The contractor shall notify "Miss Utility" at 1-800-251-TTTT at least 48 hours prior to any excavation work being done.
- Street light placement and the type of fixtures and poles shall be in accordance with the Howard County Design Manual, Volume III (2006), Section 55.A and Crescent Neighborhood Design Guidelines. A minimum of 20' shall be maintained between any street light and any tree.
- Traffic Control Devices: a) The R-1 (STOP) signs and the street name signs (SNS) assemblies for this development must be installed before the base paving is completed. b) The traffic control device locations shown on the plans are approximate and must be field approved by Howard County traffic division (410-313-2450) prior to the installation of any traffic control devices. c) All traffic control devices and their locations shall be in accordance with the latest edition of the "Maryland Manual on Uniform Traffic Control Devices" (MUTCD). d) All sign posts used for traffic control signs installed in the County Right-of-Way shall be mounted on a 2" galvanized steel, perforated ("Quick Punch"), square tube post (14 gauge) inserted into a 2-1/2" galvanized steel, perforated square tube sleeve (2gauge) - 3' long. The anchor shall not extend more than two "Quick Punch" holes "Quick Punch" ground level. A galvanized steel pole cap shall be mounted on top of each post.
- 95% compaction in fill areas shall meet AASHTO T-100 requirements.
- This project is in conformance with the latest Howard County standards unless waivers have been approved.
- A Traffic Impact Study and Traffic Signal Warrant Analysis submitted and approved as a part of the Final Development Plan (FDP-DC-Crescent-I) by Hells and Associates.
- Boundary information from boundary surveys by Gutschick, Little, and Weber, P.A., dated November, 2011.
- Horizontal and vertical datum is based on Howard County Control Stations: 306A, 36AA.
- Aerial topography by McKenzie Snyder, Inc. on March, 2007 and Gutschick, Little and Weber on August, 2011. Topography north and west of Broken Land Parkway provided by Howard County GIS.
- No grading, removal of vegetation cover or trees or placement of new structures is permitted within wetlands, streams or their required buffers, and 100 year floodplain areas unless approved by the Department of Planning and Zoning as necessary disturbances or waivers have been approved.
- Vehicle ingress & egress to Broken Land Parkway is restricted except as approved by Howard County Department of Planning and Zoning.
- The Cemetery Inventory Maps do not show any cemeteries within the project limits.
- The Scenic Roads Map does not indicate any scenic roads within or adjacent to the project limits.  
Existing utilities are based on available Howard County records.
- This property is within the Metropolitan District.
- Water and Sewer are Public per Contract No. 24-4431-D and are within the Little Patuxent Sewerage Area
- The 100-year Flood plain limits shown on these plans were determined in a Floodplain study submitted as part of this Final Plan submission.
- This subdivision is exempt from the requirements of Section 16.1202(b)(1)(v) of the Howard County Code for Forest Conservation because the subject property is part of a Planned Unit Development which has preliminary development plan approval and 50% or more of the land is recorded and substantially developed before December 31, 1942.
- This site is subject to the Final Development Plan recorded as plat numbers 23403 thru 23404, the Neighborhood Concept Plan (NCP) recorded as plat numbers 23401 thru 23402, the Neighborhood Specific Design Guidelines (NSDG) recorded as Liber 16305 Folio 415 and the Neighborhood Specific Implementation Plan (NSIP) recorded as Liber 16306 Folio 1.
- For information on the potential transit route circulation, see the Neighborhood Specific Implementation Plan pages 10 and 11.
- For information on the locations of primary and secondary pedestrian routes, and the bicycle circulation, see Chapter 3 of the Crescent Neighborhood Specific Design Guidelines. For information on the Street Framework changes, see Chapter 3 of the Crescent Neighborhood Specific Design Guidelines.

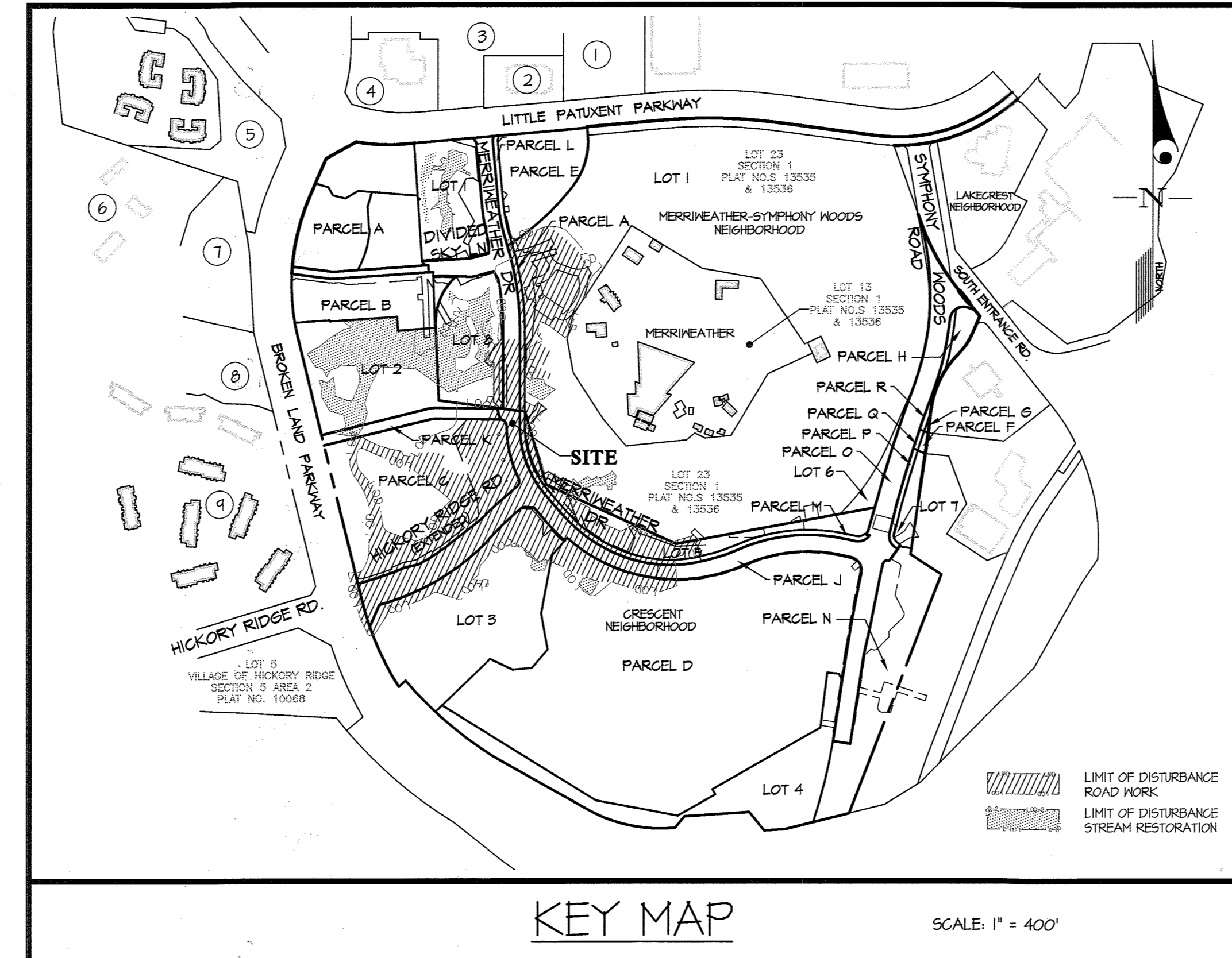
# PHASE I-FINAL PLAN

## DOWNTOWN COLUMBIA

### CRESCENT NEIGHBORHOOD PARCELS B THRU H, NON-BUILDABLE BLOCK PARCELS J THRU R, OPEN SPACE LOTS 1 THRU 8 AND MERRIWEATHER-SYMPHONY WOODS NEIGHBORHOOD OPEN SPACE LOT 1 AND NON-BUILDABLE BULK PARCEL A



- Street tree and landscape plans have been prepared by a Registered Landscape Architect and are certified to conform with the Crescent Neighborhood Design Guidelines recorded in the Land Records of Howard County in Liber 16305, Folio 415 thru 511 and Liber 16306, Folio 001 thru 142.
- Landscape surety in the amount of \$6,000 for tree replacement for trees not within micro bio-retention facilities will be provided with the Developer's Agreement.
- Stormwater management for this site is provided in accordance with Chapter 5 of the MDE Stormwater Management Design Manual, Volumes 1 and 2. Throughout the site, Micro Bio-Retention (M6), Saturated Gravel Wetlands (M2), Pervious Pavement (A-2), and Filtergrass have been utilized. A Pe value of 1.85" was calculated for the site. The Bio-Retention and Saturated Gravel Wetland facilities will be publicly owned but jointly maintained, while the Filtergrass and Pervious Pavement will be privately owned and maintained.
- Water and sewer service to these parcels will be granted under the provisions of Section 18.122B of the Howard County Code.
- Public water and sewer allocations will be granted at the time of issuance of building permit if capacity is available at that time.
- See Sheet 26 for Stormwater Management Practice chart.
- A determination for the impacts to the environmental features to be "essential and necessary" has been submitted to the Dept. of Planning and Zoning. The determination is for impacts as a result of the construction of the bridge, arch spans, storm drain outfalls, water and sewer, stream restoration and mitigation, and the removal of existing access roads.
- A reciprocal easement agreement between Inner Arbor Trust, Inc., as expressly authorized by Columbia Association Inc., and Merrimether Post Business Trust and the Howard Research and Development Corporation was recorded on May 21, 2015 at Liber 16235, Folio 245. Easement Area B is for the purposes of constructing and providing a new, re-designed ADA-compliant parking lot and pedestrian ingress and egress for the Pavilion and Symphony Woods for shared use. The remaining easement areas established under the reciprocal easement agreement are: Easement Areas: B, D-1, F-1, and F-2.
- Howard County's maintenance responsibility is limited to the improvement shown from the back of curb to the other back of curb. This will leave an area between the back of curb and the right-of-way line that will be the responsibility of an Owner's Association or similar entity to be determined with the Developer's Agreement.
- The upgrade of the existing traffic signal located at Broken Land Parkway and Hickory Ridge Road is tied to this plan and can be viewed under the Red Line to F 11-042. As part of the upgrade to the existing signal several existing street lights will need to be upgraded, removed and/or new installed.
- A surety of \$16,200 will be provided for the street trees as part of the DPW Development Agreement.



- PARCEL C-1 COLUMBIA TOWN CENTER SECTION 2 AREA 5 PLAT NO. 17846
- PARCEL C-1 COLUMBIA TOWN CENTER SECTION 2 AREA 5 PLAT NO. 17846
- PARCEL E COLUMBIA TOWN CENTER SECTION 2 AREA 8 PLAT NO. 14022
- PARCEL B COLUMBIA TOWN CENTER SECTION 3 AREA 6 PLAT NO. 19512
- LOT 2 COLUMBIA TOWN CENTER SECTION 3 AREA 2 PLAT NO. 10124
- PARCEL A COLUMBIA TOWN CENTER SECTION 3 AREA 2 PLAT NO. 9144
- LOT 1 COLUMBIA TOWN CENTER SECTION 3 AREA 2 PLAT NO. 9144
- VILLAGE OF HICKORY RIDGE SECTION 5 AREA 2 PLAT NOS. 6324 & 6325
- PARCEL D VILLAGE OF HICKORY RIDGE SECTION 5 AREA 2 PLAT NO. 6503

**LEGEND**

366	EXISTING CONTOUR	PROPOSED CURB AND GUTTER
300	EXISTING CONTOUR	PROPOSED REVERSE CONCRETE SIDEWALK
---	PROPOSED TREELINE (DOES NOT MEET CRITERIA FOR A FOREST)	PROPOSED MULTI-PURPOSE PATH
---	LIMIT OF EXISTING FOREST	DRAINAGE DIVIDE
---	LIMIT OF ULTIMATE FOREST	SOIL TYPE BOUNDARY
EX 8" S	EXISTING SANITARY SEWER	SOIL TYPE / SOIL GROUP
---	PROPOSED SANITARY SEWER	LIMIT OF DISTURBANCE ROAD WORK
EX 8" W	EXISTING WATERLINE	LIMIT OF DISTURBANCE STREAM RESTORATION
---	PROPOSED WATERLINE	MICRO BIO-RETENTION FACILITY (M-6)
EX 8" D	EXISTING FIRE HYDRANT	SEDIMENT TRAP
---	PROPOSED FIRE HYDRANT	LIMIT OF WETLAND
EX 5" D	EXISTING STORM DRAIN	WETLAND BUFFER
---	PROPOSED STORM DRAIN	100 YEAR FLOODPLAIN
FB	FILTER BAG	STREAM BANK
HB	HAND BOX	STREAM / BANK BUFFER
OB	EXISTING POST	FLOODPLAIN CROSS SECTION
OP	EXISTING POLE	SOIL BORING LOCATION
OF	EXISTING FLAG	
OM	EXISTING MANHOLE	
OS	EXISTING FIRE HYDRANT	
OS	EXISTING SIGN	
---	EXISTING CURB AND GUTTER	
---	EXISTING EDGE OF PAVEMENT	
---	36" HIGH FENCE (AT BRIDGE)	
---	DIVERSION FENCE	
---	EXISTING STREET LIGHT	
---	PROPOSED STREET LIGHT	
---	DETECTABLE WARNING TRUNCATED CURB (No. Co. DPM R-4.7)	

**SHEET INDEX**

1 - COVER SHEET	BRIDGES	TRAFFIC MAINTENANCE OF TRAFFIC	75 - GRADING & EROSION AND SEDIMENT CONTROL
2 - EXISTENCE PLAN	34 - GENERAL PLAN AND ELEVATION	52 - TEMPORARY TRAFFIC CONTROL PLAN (TTC) - GENERAL NOTES	76 - GRADING & EROSION AND SEDIMENT CONTROL
3 - LIMITS OF WORK - THIS PLAN	30 - ABUTMENT 'A' PLAN AND ELEVATION	53 - TEMPORARY TRAFFIC CONTROL PLAN (TTC) - PHASE I	77 - GRADING & EROSION AND SEDIMENT CONTROL
4 - MERRIWEATHER DR - PLAN AND PROFILE	32 - ABUTMENT TYPICAL SECTIONS	54 - TEMPORARY TRAFFIC CONTROL PLAN (TTC) - PHASE II	78 - GRADING & EROSION AND SEDIMENT CONTROL
5 - HICKORY RIDGE ROAD - PLAN AND PROFILE	33 - WING WALL ELEVATIONS	55 - TEMPORARY TRAFFIC CONTROL PLAN (TTC) - PHASE III	79 - GRADING & EROSION AND SEDIMENT CONTROL
6 - TYPICAL ROAD SECTION & CURB DETAILS	34 - WING WALL TYPICAL SECTION	56 - TEMPORARY TRAFFIC CONTROL PLAN (TTC) - PHASE IV	80 - GRADING & EROSION AND SEDIMENT CONTROL
7 - PARK LAND REPLACEMENT PLAN	35 - FRAMING PLAN AND GUTTER ELEVATION	57 - TEMPORARY TRAFFIC CONTROL PLAN (TTC) - PHASE V	81 - PROFILE
8 - ADA RAMP	36 - SUPERSTRUCTURE TYPICAL SECTION	58 - TEMPORARY TRAFFIC CONTROL PLAN (TTC) - PHASE VI	82 - PROFILE
9 - DEMOLITION PLAN NORTH	37 - BORING LOCATION PLAN	59 - TEMPORARY TRAFFIC CONTROL PLAN (TTC) - PHASE VII	83 - PROFILE
10 - DEMOLITION PLAN SOUTH	38 - BORINGS AND DRIVE TESTS I	60 - SIGNING AND STRIPING PLAN 1 OF 2	84 - STRUCTURE TABLES
11 - GRADING PLAN	39 - BORINGS AND DRIVE TESTS II	61 - SIGNING AND STRIPING PLAN 2 OF 2	85 - STRUCTURE TABLES
12 - GRADING PLAN	40 - MISCELLANEOUS DETAILS	62 - GENERAL NOTES	86 - CROSS SECTIONS
13 - STORM DRAIN DRAINAGE AREA MAP	41 - ORNAMENTAL FENCE DETAILS	63 - INDEX SHEET	87 - CROSS SECTIONS
14 - STORM DRAIN PROFILES		64 - DELINEATION PLAN	88 - CROSS SECTIONS
15 - STORM DRAIN PROFILES		65 - EXISTING CONDITIONS & GEOMETRY	89 - CROSS SECTIONS
		66 - EXISTING CONDITIONS & GEOMETRY	90 - DETAILS
		67 - EXISTING CONDITIONS & GEOMETRY	91 - DETAILS
		68 - EXISTING CONDITIONS & GEOMETRY	92 - DETAILS
		69 - EXISTING CONDITIONS & GEOMETRY	93 - EROSION AND SEDIMENT CONTROL DETAILS
		70 - EXISTING CONDITIONS & GEOMETRY	94 - PLANTING PLAN
		71 - WETLAND MITIGATION PLAN	95 - PLANTING PLAN
		72 - WETLAND MITIGATION PLAN	96 - PLANTING PLAN
		73 - WETLAND MITIGATION PLAN	97 - PLANTING PLAN
		74 - WETLAND MITIGATION PLAN	98 - PLANTING SCHEDULES

On April 16, 2018 the Howard County Department of Planning and Zoning approved a request for an alternative compliance of the following Subdivision and Land Development Code Sections:

Section 16.115(c)(1): A person shall not store materials of any kind in a floodplain either temporarily or permanently. Accordingly, building materials and other debris shall not be stored or discarded in floodplains.

Section 16.115(c)(2): No clearing, excavating, filling, altering drainage, or impervious paving, may occur on land located in a floodplain unless required or authorized by the Department of Planning and Zoning upon the advice of the Department of Inspections, Licenses and Permits, the Department of Public Works, the Department of Recreation and Parks, the Soil Conservation District, or the Maryland Department of the Environment. Any proposed construction of a structure located within a floodplain shall be subject to the requirements of the Howard County Building Code.

Section 18.116(a)(1): Grading, removal of vegetative cover and trees, paving, and new structures shall not be permitted within 25' of a wetland in any zoning district.

Section 16.116(a)(2)(iv): Grading, removal of vegetative cover and trees, paving, and new structures shall not be permitted within 50 feet of a perennial stream bank in nonresidential zoning districts.

Approval is subject to the following conditions:

- Boardwalk construction must stay within boundaries shown on the alternative compliance exhibit and meet all requirements/hold any restrictions specified within MDE/Corps Permit #14-NT-3189/201461063.
- A redline to F-15-106 to show the boardwalk must reflect the disturbance shown on the alternative compliance exhibit.
- No other stream, wetland or floodplain disturbance or disturbances of any stream or wetland buffers within Lot 2 or the other open space lots within Crescent Neighborhood is permitted without additional review.
- Notation of this approval and conditions of WP-18-090 should be added on F-15-106.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*[Signature]* 7/12/2016  
 Chief, Bureau of Highways

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
*[Signature]* 8-3-16  
 Chief, Division of Land Development

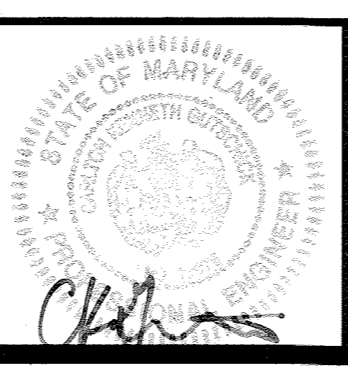
*[Signature]* 7-26-16  
 Chief, Development Engineering Division

**GLWGUTSCHICK LITTLE & WEBER, P.A.**  
 CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS  
 3509 NATIONAL DRIVE - SUITE 250 - BURTONSVILLE OFFICE PARK  
 BURTONSVILLE, MARYLAND 20866  
 TEL: 301-421-4024 FAX: 301-421-4186

DES. JRD	DRN. JRD	CHK. DEV	DATE	REVISION	BY	APPR.

PREPARED FOR:  
 THE HOWARD HUGHES CORPORATION  
 10480 LITTLE PATUXENT PARKWAY  
 SUITE 400  
 COLUMBIA, MD 21044  
 ATTN: BOB JENKINS  
 410-964-5443

PROFESSIONAL CERTIFICATION  
 I HEREBY CERTIFY THAT THESE PLANS 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. 12975  
 EXPIRATION DATE: MAY 26, 2018

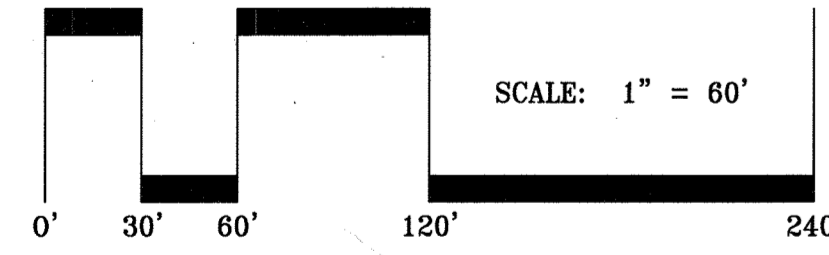
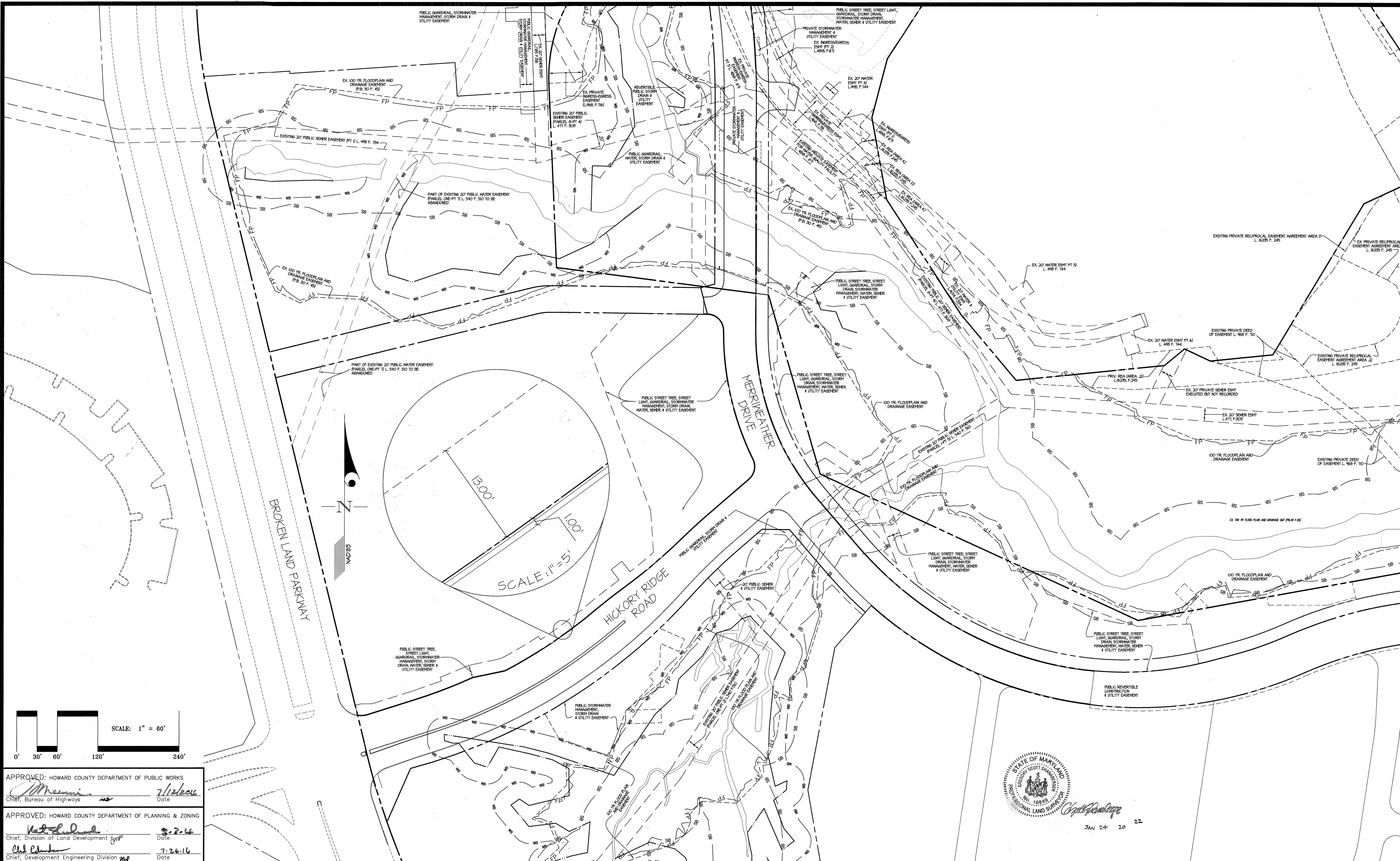


**COVER SHEET**  
**DOWNTOWN COLUMBIA**  
**CRESCENT NEIGHBORHOOD**  
**PARCELS B THRU H, NON-BUILDABLE BULK PARCELS J THRU R, O.S. LOTS 1 THRU 8 AND MERRIWEATHER-SYMPHONY WOODS NEIGHBORHOOD O.S. LOT 1 AND NON-BUILDABLE BULK PARCEL A**  
 HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE NO.
AS SHOWN	NT	11071
DATE	TAX MAP - GRID	SHEET
JUNE, 2016	36 - 01	1 OF 102

L:\CAD\DRAWINGS\11071\PLANS BY GLW\FINAL\PHASE I\11071\_01\_COVER SHEET.dwg  
 PLOTTED: 6/29/2016 10:28 AM. LAST SAVED: 6/29/2016 4:48 PM. PLOTTED BY: JAY HARRISON





APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*M. M...* 7/26/16  
 Chief, Bureau of Highways Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
*N. L...* 7-26-16  
 Chief, Division of Land Development Date

*C. J. C...* 7-26-16  
 Chief, Development Engineering Division Date

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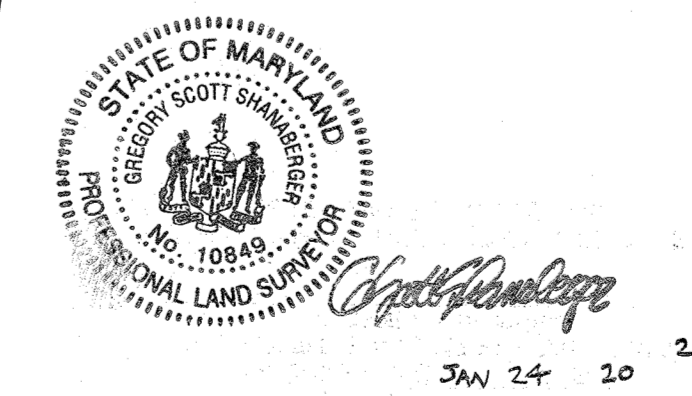
DATE	REVISION	BY	APPR.

PREPARED FOR:  
 THE HOWARD HUGHES CORPORATION  
 10480 LITTLE PATUXENT PARKWAY  
 SUITE 400  
 COLUMBIA, MD 21044  
 ATTN: BOB JENKINS  
 410-964-5443

PROFESSIONAL CERTIFICATION  
 I HEREBY CERTIFY THAT THESE PLANS  
 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. 12975  
 EXPIRATION DATE: MAY 26, 2018  
*6/16/16*

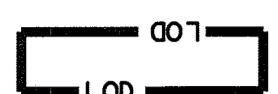
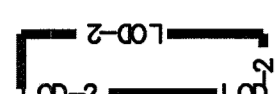
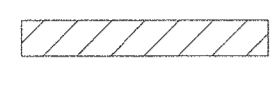
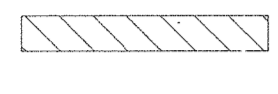
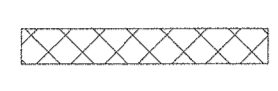
**EASEMENTS PLAN**  
**DOWNTOWN COLUMBIA**  
**CRESCENT NEIGHBORHOOD**  
**PARCELS B THRU H, NON-BUILDABLE BULK PARCELS J THRU R,**  
**O.S. LOTS 1 THRU 8 AND**  
**MERRIWEATHER-SYMPHONY WOODS NEIGHBORHOOD O.S. LOT 1**  
**AND NON-BUILDABLE BULK PARCEL A**  
 ELECTION DISTRICT No. 5  
 HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
1"=60'	NT	11071
DATE	TAX MAP - GRID	SHEET
JUNE, 2016	36 - 01	2 OF 102





**LEGEND**

-  007 LIMIT OF DISTURBANCE DUE TO F-15-106 ROAD WORK
-  2-007 LIMIT OF DISTURBANCE DUE TO F-15-106 STREAM RESTORATION (SEE SHEETS 65-105)
-  WORK IN THIS AREA REQUIRES SDP-15-066
-  WORK IN THIS AREA REQUIRES F-15-098
-  WORK IN THIS AREA REQUIRES BOTH SDP-15-066 AND F-15-098

NOTES:  
 1. SEE SHEETS 24-41 FOR BRIDGE CONSTRUCTION INFORMATION  
 2. SEE SHEETS 42-51 FOR ARCH SPAN CONSTRUCTION INFORMATION



APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*Howard* 7/26/16  
 Chief, Bureau of Highways Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
*Hutchinson* 8-2-16  
 Chief, Division of Land Development Date

*Ed Ender* 7-26-16  
 Chief, Development Engineering Division Date

**GLWGUTSCHICK LITTLE & WEBER, P.A.**  
 CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS  
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 BURTONSVILLE, MARYLAND 20866  
 TEL: 301-421-4024 BAL: 410-880-1820 DC/VA: 301-989-2524 FAX: 301-421-4186

DATE	REVISION	BY	APPR.
4-20-18	Add Boardwalk/Path, Adjust Lob-2 Line	JD	

PREPARED FOR:  
 THE HOWARD HUGHES CORPORATION  
 10480 LITTLE PATUXENT PARKWAY  
 SUITE 400  
 COLUMBIA, MD 21044  
 ATTN: BOB JENKINS  
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 EXPIRATION DATE: MAY 26, 2018  
*GLW*

**LIMITS OF WORK - THIS PLAN**  
**DOWNTOWN COLUMBIA**  
**CRESCENT NEIGHBORHOOD**  
**PARCELS B THRU H, NON-BUILDABLE BULK PARCELS J THRU R,**  
**O.S. LOTS 1 THRU 8 AND**  
**MERRIWEATHER-SYMPHONY WOODS NEIGHBORHOOD O.S. LOT 1**  
**AND NON-BUILDABLE BULK PARCEL A**  
 ELECTION DISTRICT No. 5  
 HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
1"=100'	NT	11071
DATE	TAX MAP - GRID	SHEET
JUNE, 2016	36 - 01	3 OF 102



**MERRIWEATHER DRIVE**

**AS-BUILT FLOWLINE ELEV. TABLE**

NO.	STA.	OFFSET	ELEV.
14A	7+14.22	22.84L	333.54
15A	7+19.24	23.06L	333.95
16A	7+36.10	25.61L	333.60
18A	7+43.09	33.96L	333.94
19A	7+45.53	71.11L	334.04
20A	7+52.82	87.95L	333.95
21A	7+84.73	80.16L	332.51
22A	7+82.82	84.03L	332.32
23A	7+72.99	53.30R	331.71
24A	7+69.81	34.36R	332.17
25A	8+11.65	23.05L	333.20
26A	11+11.48	02.97L	337.36
27A	12+50.05	23.01L	339.30
28A	14+86.46	22.92L	342.79
29A	16+49.97	22.95L	343.81
30A	19+09.51	25.10L	341.44
31A	19+16.19	22.87R	341.49
32A	16+63.95	24.77R	343.75
33A	14+86.58	23.01R	342.48
34A	13+28.47	23.15R	341.23
35A	13+76.67	32.93R	341.01
36A	13+12.42	32.53R	340.13
37A	12+94.21	43.33R	339.98
38A	12+02.01	22.98R	338.85
39A	11+11.35	23.17R	337.47
40A	7+43.88	22.82R	333.40
41A	7+16.66	22.76R	333.83

**MERRIWEATHER DR-PLAN**

SCALE: 1" = 50'

MERRIWEATHER DR CURB FLOW LINE ELEVATION TABLE				MERRIWEATHER DR CURB FLOW LINE ELEVATION TABLE			
PT. NO.	STATION	OFFSET	ELEV.	PT. NO.	STATION	OFFSET	ELEV.
(14)	6+25.81	23.00' L.	333.00	(31)	14+10.05	23.00' R.	341.60
(15)	7+24.43	23.00' L.	333.53	(32)	16+11.74	23.00' R.	343.75
(16)	7+37.93	20.71' L.	333.76	(33)	14+86.51	23.00' R.	342.73
(17)				(34)	13+88.18	23.00' R.	341.23
(18)				(35)	13+11.90	31.10' R.	340.99
(19)	7+43.84	58.58' L.	333.99	(36)	13+08.96	28.51' R.	340.03
(20)	7+46.18	14.04' L.	334.05	(37)	12+14.67	23.00' R.	339.85
(21)	7+52.43	81.04' L.	334.18	(38)	12+02.85	23.00' R.	338.44
(22)	7+84.55	74.86' L.	331.83	(39)	11+11.03	23.00' R.	337.30
(23)	7+82.94	64.42' L.	331.80	(40)	7+54.19	23.00' R.	333.24
(24)	7+82.94	53.00' L.	331.80	(41)	6+44.74	23.00' R.	334.50
(25)	7+41.73	31.74' L.	332.51				
(26)	8+12.94	23.00' L.	333.33				
(27)	11+11.03	23.00' L.	337.30				
(28)	12+53.47	23.00' L.	334.24				
(29)	14+86.51	23.00' L.	342.73				
(30)	16+11.74	23.00' L.	343.75				
(31)	14+10.05	25.27' L.	341.56				

NOTE: POINT 17 OMITTED INTENTIONALLY.

**STREET LIGHT SCHEDULE**

STATION	LOCATION	TYPE
ST. 514.265	MERRIWEATHER DR	2105' LT. D
ST. 1388.4	MERRIWEATHER DR	2162' RT. D
ST. 3400.2	MERRIWEATHER DR	2121' LT. A
ST. 3401.7	MERRIWEATHER DR	26.67' RT. A
ST. 3466.5	MERRIWEATHER DR	26.71' LT. A
ST. 1114.1	MERRIWEATHER DR	25.98' RT. D
ST. 1117.8	MERRIWEATHER DR	26.00' LT. D
ST. 12+05.7	MERRIWEATHER DR	26.67' RT. A
ST. 12+00.0	MERRIWEATHER DR	28.24' LT. A
ST. 12+07.9	MERRIWEATHER DR	28.00' LT. B
ST. 13+42.4	MERRIWEATHER DR	26.78' RT. B
ST. 14+35.0	MERRIWEATHER DR	26.67' LT. A
ST. 15+15.0	MERRIWEATHER DR	26.67' RT. A
ST. 15+45.0	MERRIWEATHER DR	26.67' LT. A
ST. 16+81.1	MERRIWEATHER DR	26.67' RT. A
ST. 17+61.2	MERRIWEATHER DR	26.67' LT. A
ST. 18+53.0	MERRIWEATHER DR	26.67' RT. A

**LEGEND:**  
 \* A) LED-100 MODERN POST-TOP FIXTURE MOUNTED ON A 14' BLACK FIBERGLASS POLE  
 B) LED-200 COBRA FIXTURE MOUNTED AT 30' ON A BRONZE FIBERGLASS POLE USING A 6" ARM  
 C) LED-150 COBRA FIXTURE MOUNTED AT 30' ON A BRONZE FIBERGLASS POLE USING A 6" ARM

**LEGEND**

- EXISTING PAVING
- CONCRETE WALKS
- ASPHALT MULTI-USE PATH SEE NOTE 9
- PUBLIC LIGHT AND UTILITY EASEMENT
- PUBLIC STORM DRAIN, STORMWATER MANAGEMENT AND UTILITY EASEMENT
- PUBLIC WATER AND UTILITY EASEMENT
- PUBLIC SEWER AND UTILITY EASEMENT
- 50' STREAM / BANK BUFFER
- 25' WETLAND BUFFER
- EXISTING PARKING LOT / STREET LIGHT

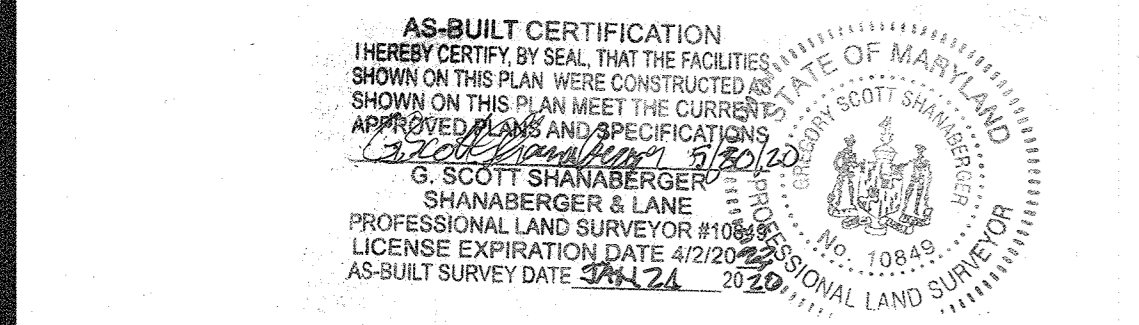
**Guardrail Stations**

Left side	Right side
Starting Sta.	Ending Sta.
8+34	8+95
10+00	17+65
18+30	19+10
17+89	14+78

**CURVE DATA CHART**

CURVE	STREET NAME	PC STA.	PT STA.	RADIUS	TANGENT	ARC	CHORD	BEARING	DELTA
C3	MERRIWEATHER DRIVE	11+11.03	13+45.91	400.00'	148.78'	284.88'	278.90'	S20°24'11"E	40°48'22"

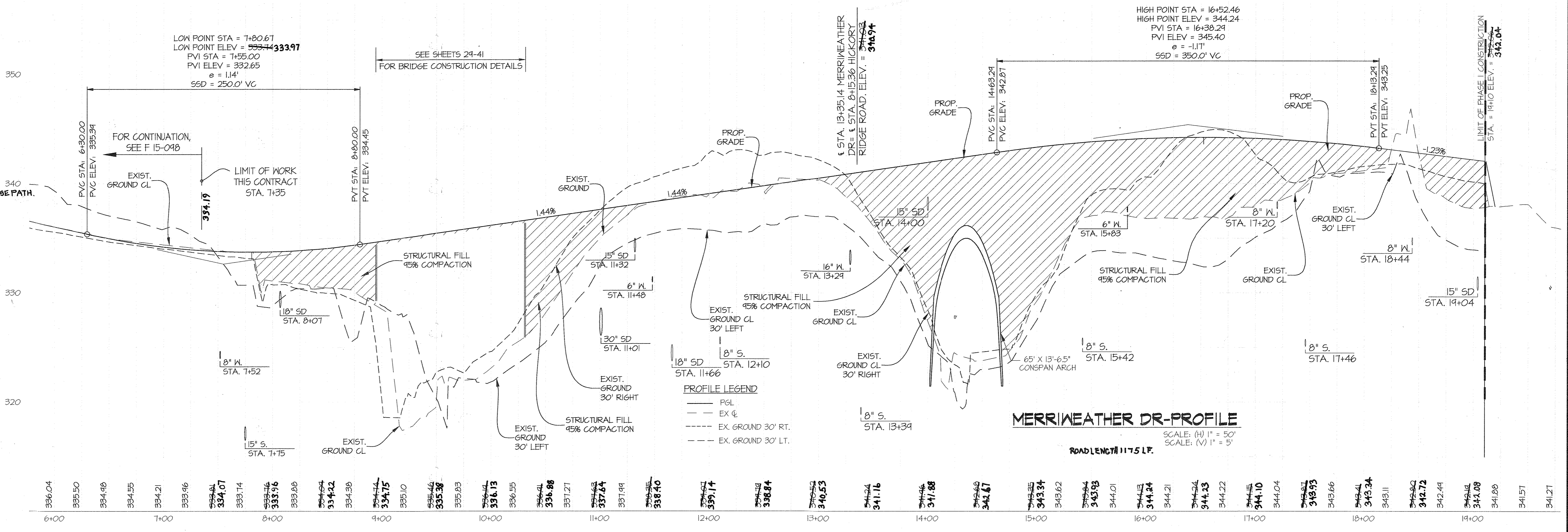
- NOTES:**
- SEE SHEET 6 FOR TYPICAL ROAD SECTIONS
  - SEE SHEET 6 FOR CURB DETAILS
  - SEE SHEETS 11 AND 12 FOR FLOODPLAIN CROSS SECTION LOCATIONS AND WELLS
  - SEE SHEETS 9 AND 10 FOR EXISTING ITEMS TO BE REMOVED AND BEARINGS AND DISTANCES
  - SEE SHEET 14 FOR STORM DRAIN INFORMATION
  - ALL SIDEWALK RAMP ARE TYPE B HOWARD COUNTY DETAIL R-4.03 UNLESS OTHERWISE NOTED.
  - SEE SHEET 21 FOR STREET TREES AND STREET LIGHTS
  - FOR LIMITS OF WORK, SEE SHEET 3; "LIMITS OF WORK - THIS PLAN"
  - TYPICAL SECTIONS FOR THE PERMEABLE ASPHALT MULTI-USE PATH HAVE BEEN PROVIDED ON SHEET 11.
  - THE ENDS OF GUARDRAIL SEGMENTS SHALL HAVE TYPE I END TREATMENT PER MD 605.10-01. SEE DETAIL, SHEET 5.
  - STYLE AND MATERIAL OF FENCING TO BE SPECIFIED BY GRAPHIC DESIGNER PRIOR TO FABRICATION.
  - FOR THE BRIDGE GUARDRAIL, FENCING, AND TYPICAL SECTIONS, SEE SHEETS 24-41.
  - SEE SHEETS 60-61 FOR STRIPING AND SIGNING FOR BOTH ROADS + MULTI-USE PATH.
  - FOR STREET SECTION ABOVE CULVERT AT STATION 14+36, SEE TYPICAL SECTION #1 ON SHEET 6.
  - FOR LIMITS AND PLACEMENT OF RAILING ALONG BRIDGE, SEE SHEET 24.
  - SEE SHEET 11 FOR MULTI-USE PATH SIGNING AND STRIPING NOTES AND DETAILS.



**APPROVED:** HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
 Chief, Bureau of Highways  
 Date: 7/26/16

**APPROVED:** HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
 Chief, Development Engineering Division  
 Date: 7/26/16

**GLWGUTSCHICK LITTLE & WEBER, P.A.**  
 CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS  
 3809 NATIONAL DRIVE - SUITE 250 - BURTONSVILLE OFFICE PARK  
 BURTONSVILLE, MARYLAND 20866  
 TEL: 301-421-4024 FAX: 301-421-4188



STATION	ELEVATION	STATION	ELEVATION	STATION	ELEVATION
6+00	336.04	11+00	337.40	16+00	344.21
7+00	334.46	12+00	337.14	17+00	344.24
8+00	334.15	13+00	336.55	18+00	343.94
9+00	334.07	14+00	336.84	19+00	343.11
10+00	333.74	15+00	340.53		
11+00	333.76				
12+00	333.39				
13+00	333.63				
14+00	333.15				
15+00	333.84				
16+00	340.53				
17+00	341.16				
18+00	341.88				
19+00	344.67				
	343.34				
	343.62				
	343.93				
	344.01				
	344.24				
	344.21				
	344.24				
	344.25				
	344.22				
	344.10				
	344.04				
	343.93				
	343.66				
	343.94				
	343.94				
	343.11				
	342.62				
	342.72				
	342.41				
	341.88				
	341.57				
	341.21				

**PREPARED FOR:**  
 THE HOWARD HUGHES CORPORATION  
 10480 LITTLE PATUXENT PARKWAY  
 SUITE 400  
 COLUMBIA, MD 21044  
 ATTN: BOB JENKINS  
 410-964-5443

**PROFESSIONAL CERTIFICATION**  
 I HEREBY CERTIFY THAT THESE PLANS 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. 12975  
 EXPIRATION DATE: MAY 26, 2018  
 6/1/16

**MERRIWEATHER DR - PLAN AND PROFILE**  
**DOWNTOWN COLUMBIA CRESCENT NEIGHBORHOOD**  
 PARCELS B THRU H, NON-BUILDABLE BULK PARCELS J THRU R, O.S. LOTS I THRU S AND MERRIWEATHER-SYMPHONY WOODS NEIGHBORHOOD O.S. LOT I AND NON-BUILDABLE BULK PARCEL A  
 HOWARD COUNTY, MARYLAND

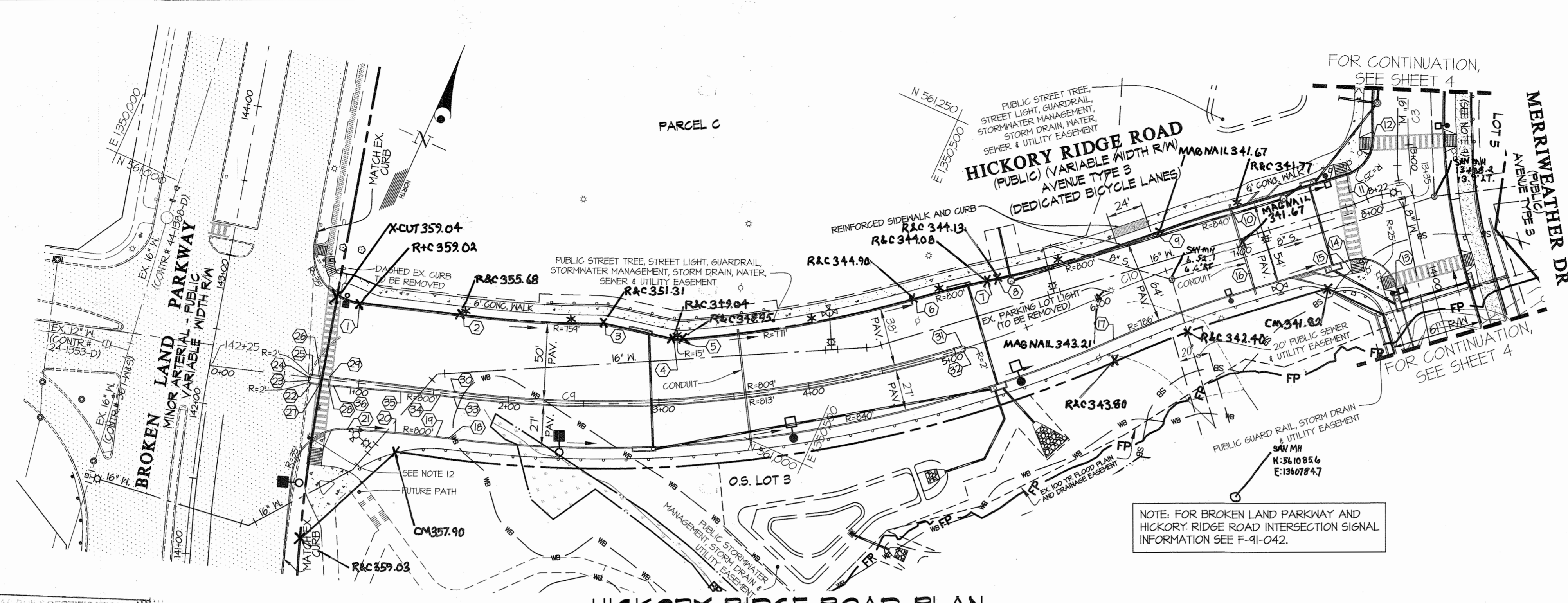
SCALE	ZONING	G. L. W. FILE NO.
AS SHOWN	NT	11071
DATE	TAX MAP - GRID	SHEET
JUNE, 2016	36 - 01	4 OF 102

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 PLOTTED: 6/24/2016 12:28 PM, LIST SAVED: 6/24/2016 12:27 PM, PLOTTED BY: Andrew Larson  
 L:\CAD\DRAWINGS\11071\PLANS BY G\W\PHASE 1\11071\_04-05-ROADS.dwg  
 DES: MJT DRN: Wsj CHK: MJT



### HICKORY RIDGE ROAD CURB FLOW LINE ELEVATION TABLE

PT. NO.	STATION	OFFSET	ELEV.
1	0+44.35'	52.01' L.	357.31
2	1+63.90	52.01' L.	355.27
3	2+64.43	52.00' L.	350.84
4	3+12.31	40.58' L.	349.65
5	3+16.71	40.00' L.	349.45
6	4+84.36	40.00' L.	344.26
7	5+35.38	36.94' L.	343.53
8	5+43.04	36.04' L.	343.43
9	6+53.06	25.00' L.	341.96
10	7+02.86	25.00' L.	341.20
11	7+82.94	25.00' L.	340.25
12	8+07.52	45.19' L.	339.96
13	7+43.71	54.00' R.	341.26
14	7+68.71	24.00' R.	341.00
15	7+64.81	24.00' R.	340.85
16	7+02.86	24.00' R.	341.12
17	5+44.73	24.00' R.	342.70
18	1+63.71	28.94' R.	355.73
19	1+55.25	28.94' R.	355.44
20	1+21.75	29.47' R.	356.56
21	0+46.21	30.55' R.	357.10
22	0+68.41	4.00' R.	358.94
23	0+66.41	1.95' R.	354.04
24	0+66.52	0.05' L.	354.11
25	0+68.52	2.00' L.	357.03
26	0+74.00	2.00' L.	358.84
27	0+74.00	4.00' R.	358.85
28	0+80.02	4.00' R.	358.64
29	0+80.02	2.00' L.	358.73
30	1+63.78	2.01' L.	356.32
31	5+05.41	2.00' L.	344.73
32	5+05.41	2.00' R.	344.73
33	1+63.71	1.91' R.	356.32
34	1+54.54	1.91' R.	356.54
35	1+28.40	2.42' R.	357.13
36	0+83.51	4.00' R.	358.60

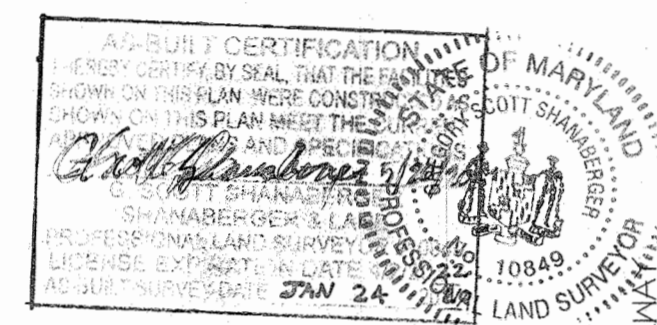


### HICKORY RIDGE ROAD ASBUILT FLOWLINE ELEV. TABLE

NO.	STA.	OFFSET	ELEV.
1A	0+94.43	52.13' L.	358.42
2A	1+68.73	51.94' L.	355.07
3A	2+59.42	51.93' L.	351.86
4A	3+10.67	41.01' L.	348.57
5A	3+22.58	38.94' L.	348.28
6A	4+84.41	39.99' L.	344.35
7A	5+35.39	34.94' L.	343.67
8A	5+43.09	35.98' L.	343.58
9A	6+53.15	24.98' L.	341.93
10A	7+02.86	24.98' L.	341.21
11A	7+83.58	25.11' L.	340.24
12A	8+07.09	44.27' L.	339.98
13A	7+33.43	54.31' R.	341.33
14A	7+68.71	23.98' R.	341.88
15A	7+64.71	23.98' R.	341.90
16A	7+03.76	23.94' R.	341.25
17A	6+06.32	23.97' R.	342.05
18A	1+70.22	24.02' R.	355.49
19A	1+48.87	29.01' R.	356.27
20A	1+21.47	29.64' R.	357.10
21A	0+94.75	30.41' R.	357.93
22A	0+69.45	4.34' R.	358.09
23A	0+68.49	1.15' R.	359.27
24A	0+65.96	0.00' L.	359.05
25A	0+69.10	1.48' L.	358.90
26A	0+73.48	1.84' L.	358.90
27A	0+73.75	4.21' R.	358.94
28A	0+80.14	4.04' R.	358.77
29A	0+80.14	1.92' L.	358.79
30A	1+67.64	2.01' L.	356.15
31A	5+05.59	1.85' L.	344.74
32A	5+05.68	2.03' R.	344.64
33A	1+67.70	2.15' R.	354.12
34A	1+61.88	2.16' R.	356.33
35A	1+29.95	2.64' R.	357.23
36A	1+00.04	3.36' R.	358.10

### STREET LIGHT SCHEDULE

LOCATION	TYPE
STATION 14+50.00 BROKEN LAND PKWY.	6
STATION 0+85.71 HICKORY RIDGE	L
STATION 1+65.00 HICKORY RIDGE	A
STATION 2+35.00 HICKORY RIDGE	6
STATION 2+40.00 HICKORY RIDGE	A
STATION 3+95.00 HICKORY RIDGE	A
STATION 3+85.00 HICKORY RIDGE	C
STATION 4+40.00 HICKORY RIDGE	A
STATION 5+04.4 HICKORY RIDGE	A
STATION 5+35.00 HICKORY RIDGE	C
STATION 5+86.9 HICKORY RIDGE	A
STATION 6+85.0 HICKORY RIDGE	B
STATION 7+08.2 HICKORY RIDGE	A
STATION 7+10.0 HICKORY RIDGE	B



HIGH POINT STA = 1+26.05  
HIGH POINT ELEV = 357.61  
PVI STA = 2+01.05  
PVI ELEV = 355.36  
 $\theta = -0.45^\circ$   
SSD = 150.0' VC

### CURVE DATA CHART

CURVE	STREET NAME	PC STA.	PT STA.	RADIUS	TANGENT	ARC	CHORD	BEARING	DELTA
C4	HICKORY RIDGE	1+61.60	5+49.73	811.00'	221.24'	432.05'	426.96'	N57°12'21"E	30°31'26"
C10	HICKORY RIDGE	5+49.73	7+02.86	815.00'	51.63'	103.13'	103.06'	N45°34'08"E	71°50'00"

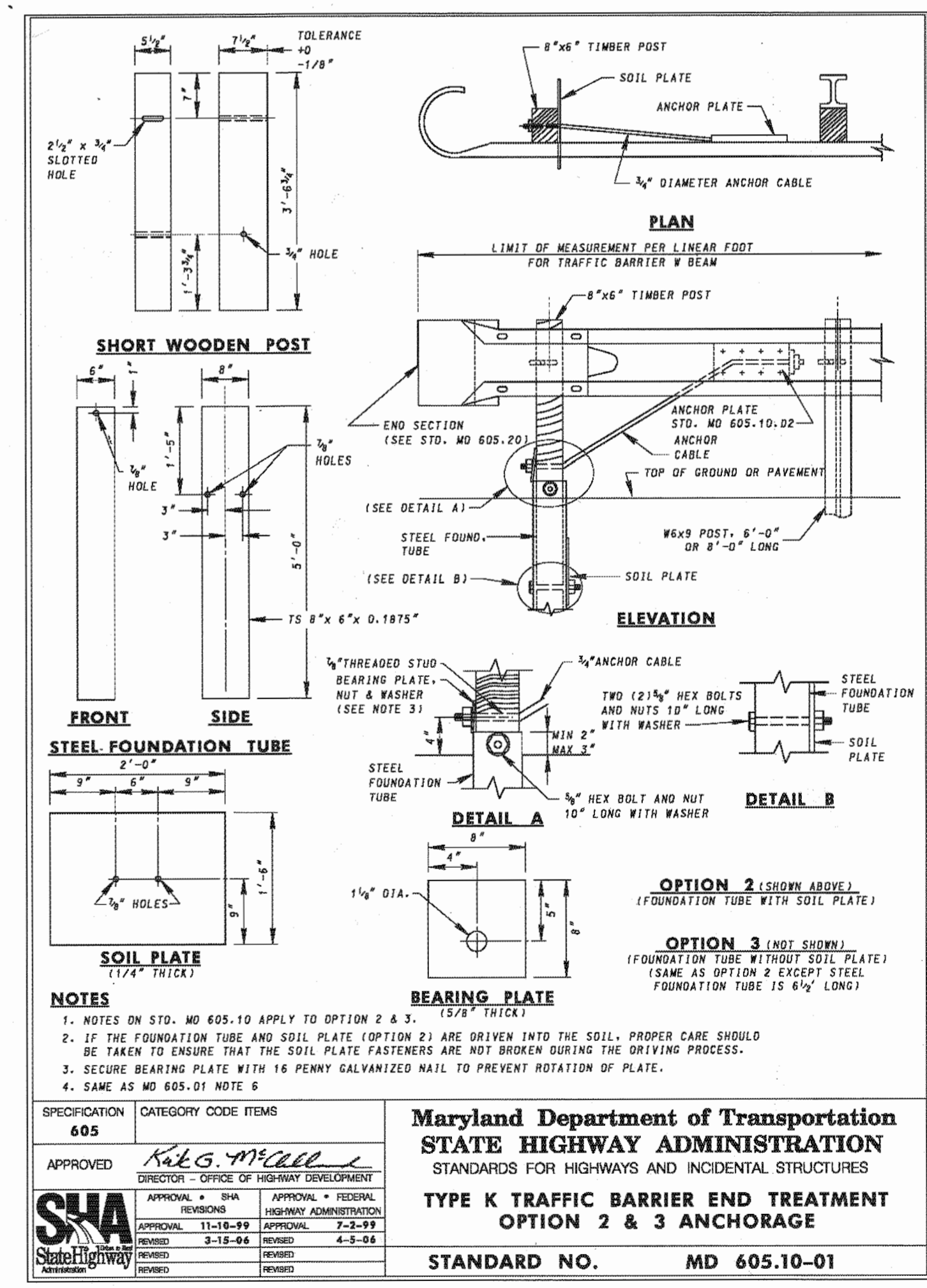
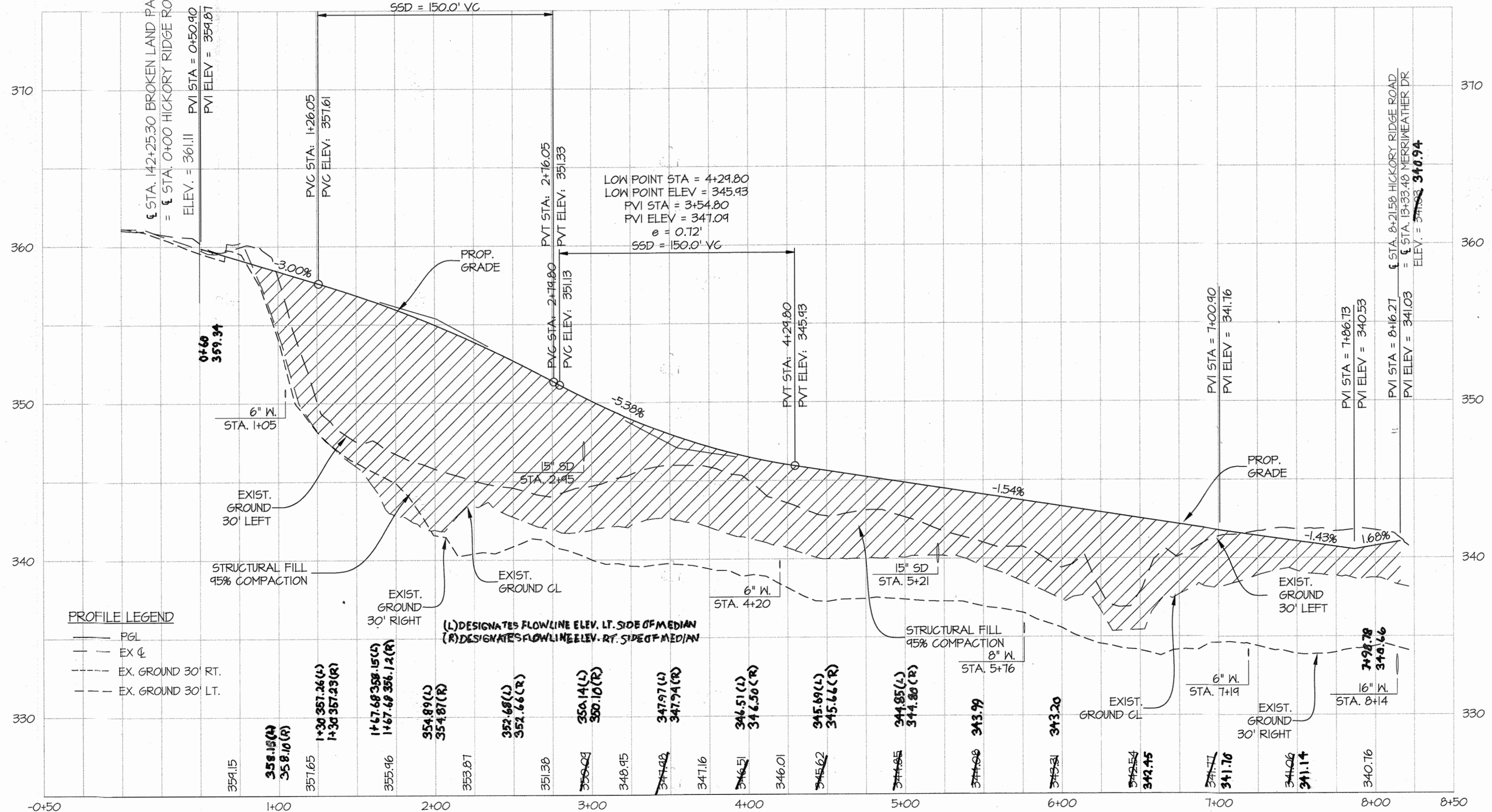
- ### LEGEND
- A) LED-100 MODERN POST-TOP FIXTURE MOUNTED ON A 14" BLACK FIBERGLASS POLE
  - B) LED-200 COBRA FIXTURE MOUNTED AT 30' ON A BRONZE FIBERGLASS POLE USING A 6" ARM
  - C) LED-200 COBRA FIXTURE MOUNTED AT 30' ON A BRONZE FIBERGLASS POLE USING A 12" ARM
  - F) LED-250 COBRA FIXTURE MOUNTED AT 30' ON A BRONZE FIBERGLASS POLE USING A 6" ARM
  - G) LED-250 COBRA FIXTURE MOUNTED AT 30' ON A BRONZE FIBERGLASS POLE USING A 12" ARM

- ### LEGEND
- EXISTING PAVING
  - CONCRETE WALKS
  - ASPHALT MULTI-USE PATH - SEE NOTE 1
  - PUBLIC LIGHT AND UTILITY EASEMENT
  - PUBLIC STORM DRAIN, STORMWATER MANAGEMENT AND UTILITY EASEMENT
  - PUBLIC WATER AND UTILITY EASEMENT
  - PUBLIC SEWER AND UTILITY EASEMENT
  - 50' STREAM / BANK BUFFER
  - 25' WETLAND BUFFER
  - EXISTING PARKING LOT / STREET LIGHT

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*[Signature]* 7/12/2016  
Chief, Bureau of Highways

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
*[Signature]* 9.2.16  
Chief, Division of Land Development

*[Signature]* 7.26.16  
Chief, Development Engineering Division



**GLWGUTSCHICK LITTLE & WEBER, P.A.**  
CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS  
5909 NATIONAL DRIVE - SUITE 250 - BURTNSVILLE OFFICE PARK  
BURTNSVILLE, MARYLAND 20866  
TEL: 301-421-4024 FAX: 301-421-4186

DES.	MJT	DRN.	Wsj	CHK.	MJT
DATE	REVISION	BY	APPR.		

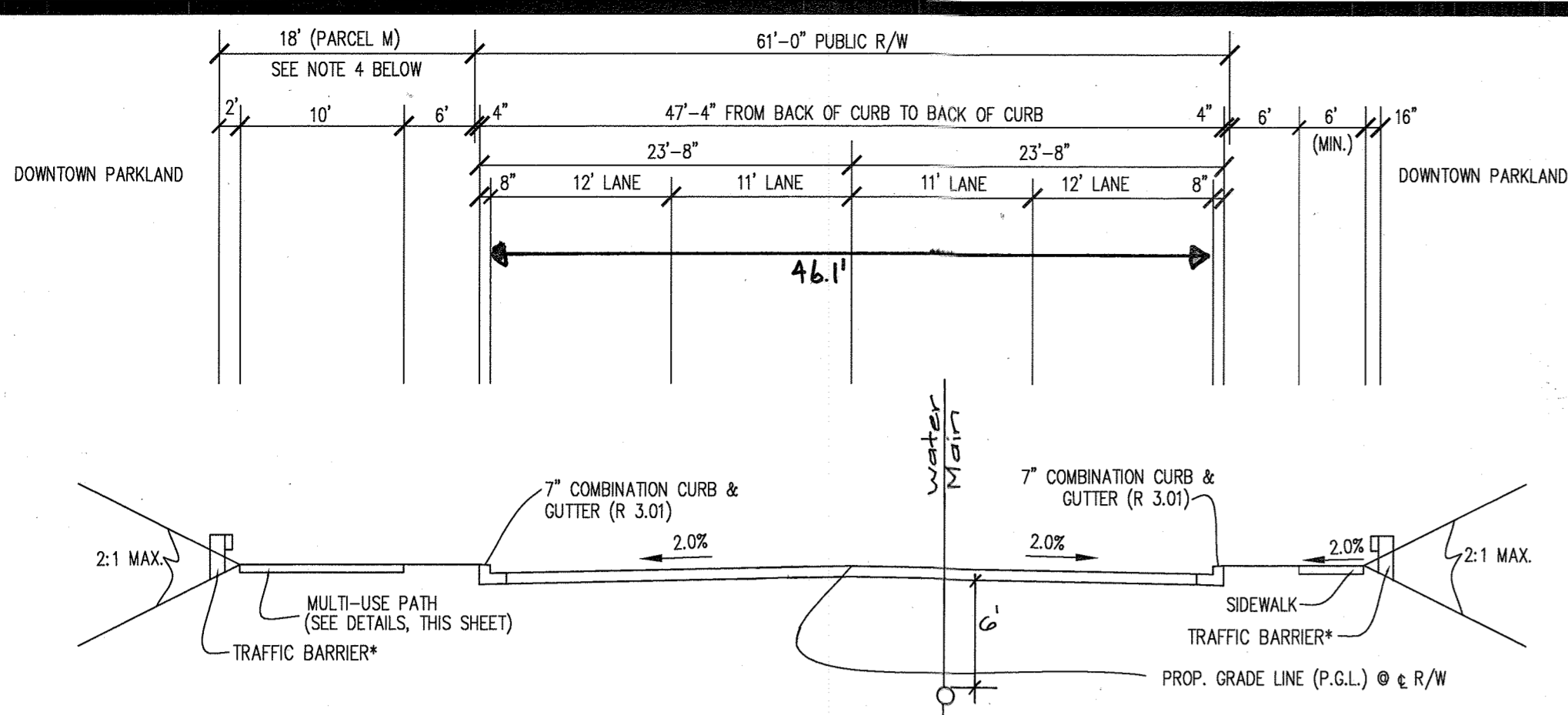
PREPARED FOR:  
THE HOWARD HUGHES CORPORATION  
10480 LITTLE PATUXENT PARKWAY  
SUITE 400  
COLUMBIA, MD 21044  
ATTN: BOB JENKINS  
410-964-5443

PROFESSIONAL CERTIFICATION  
I HEREBY CERTIFY THAT THESE PLANS 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. 12975  
EXPIRATION DATE: MAY 28, 2018

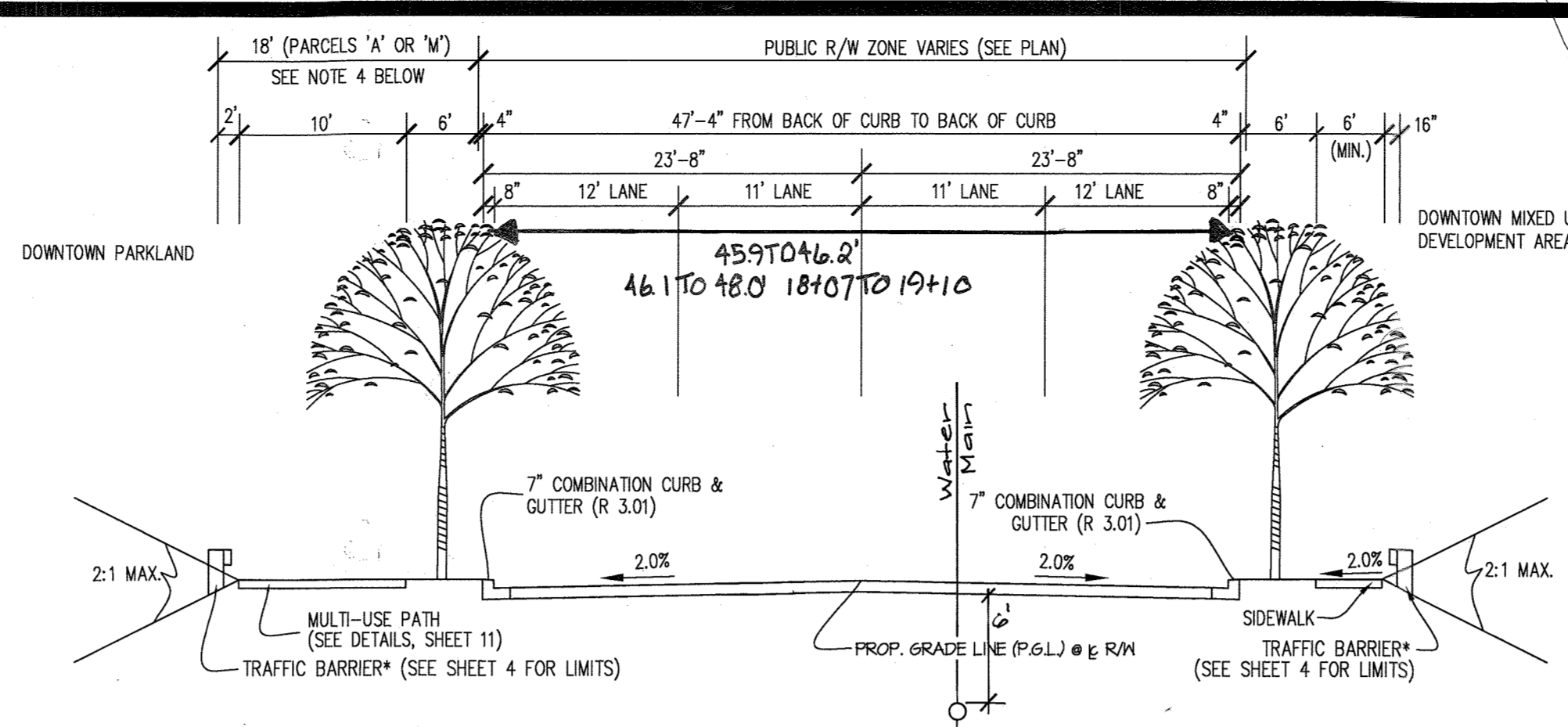
**HICKORY RIDGE ROAD - PLAN AND PROFILE**  
**DOWNTOWN COLUMBIA**  
**CRESCENT NEIGHBORHOOD**  
PARCELS B THRU H, NON-BUILDABLE BULK PARCELS J THRU R,  
O.S. LOTS 1 THRU 8 AND  
MERRIWEATHER-SYMPHONY WOODS NEIGHBORHOOD O.S. LOT 1  
AND NON-BUILDABLE BULK PARCEL A

SCALE	ZONING	G. L. W. FILE NO.
AS SHOWN	NT	11071
DATE	TAX MAP - GRID	SHEET
JUNE, 2016	36 - 01	5 OF 102

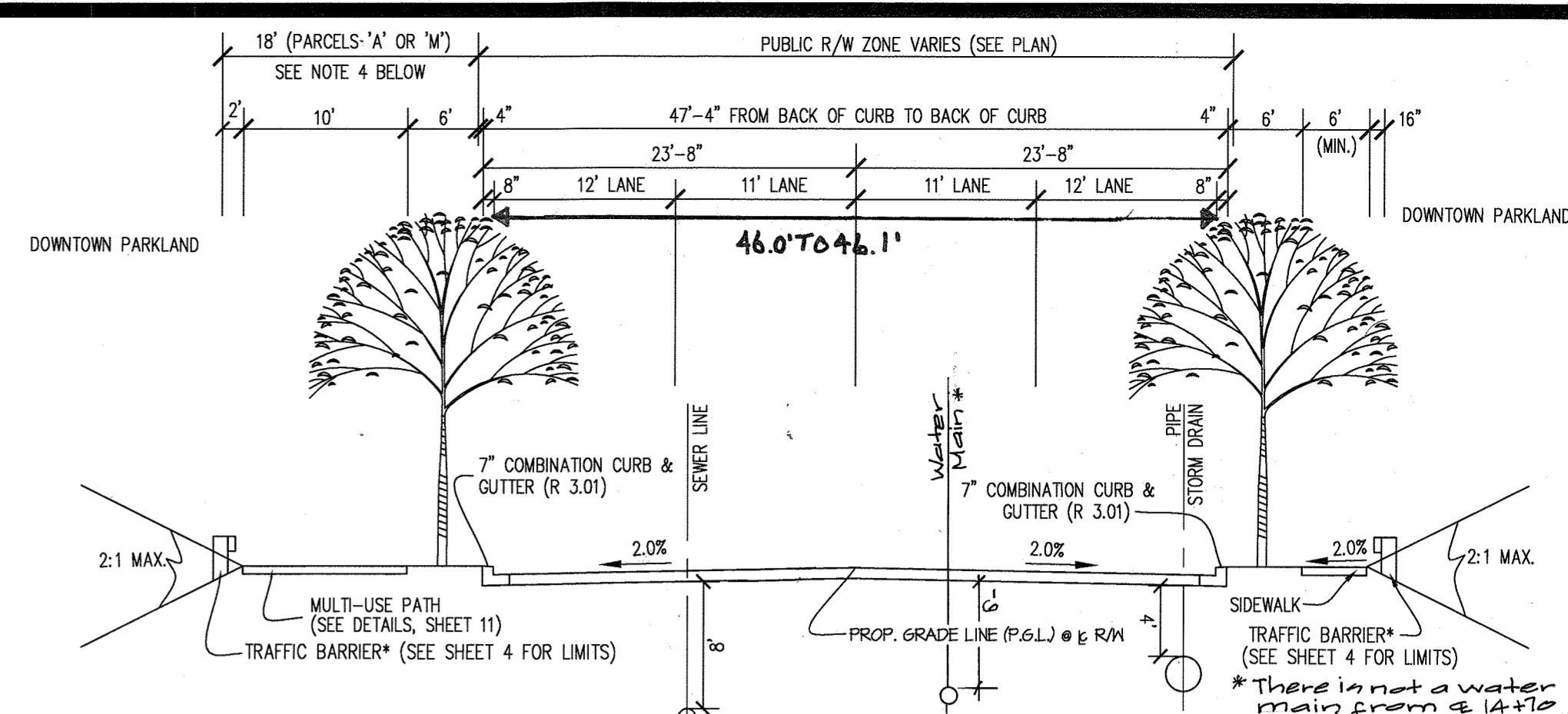




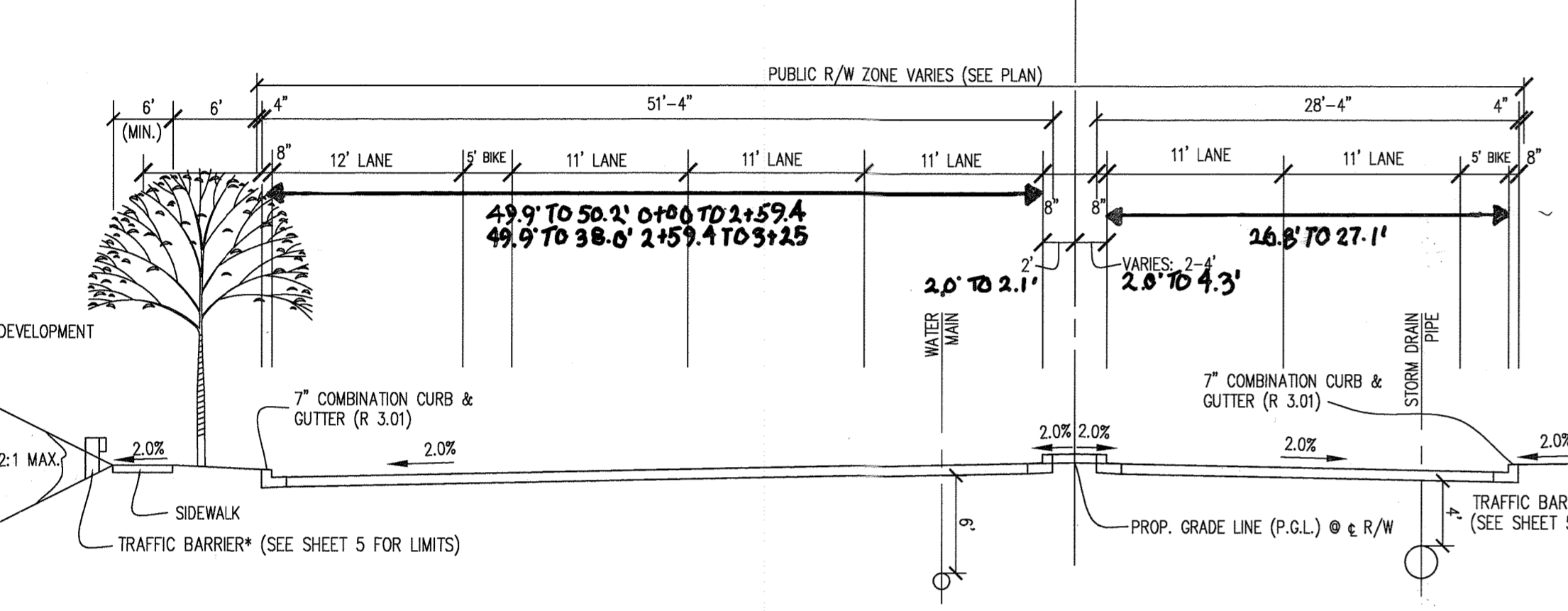
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DOWNTOWN COLUMBIA  
NOT TO SCALE  
MERRIMWEATHER DR  
(13+75 TO 14+70)



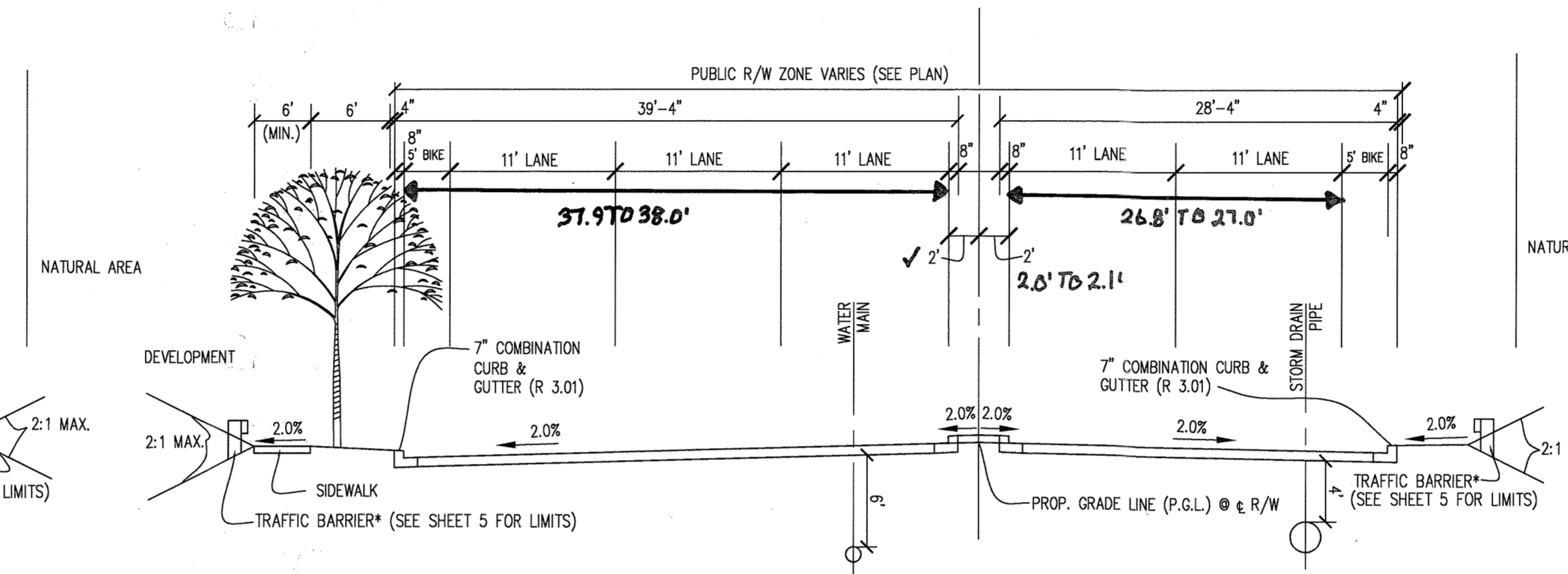
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DOWNTOWN COLUMBIA  
NOT TO SCALE  
MERRIMWEATHER DR  
(10+28 TO 13+20, 15+65 TO 19+10)



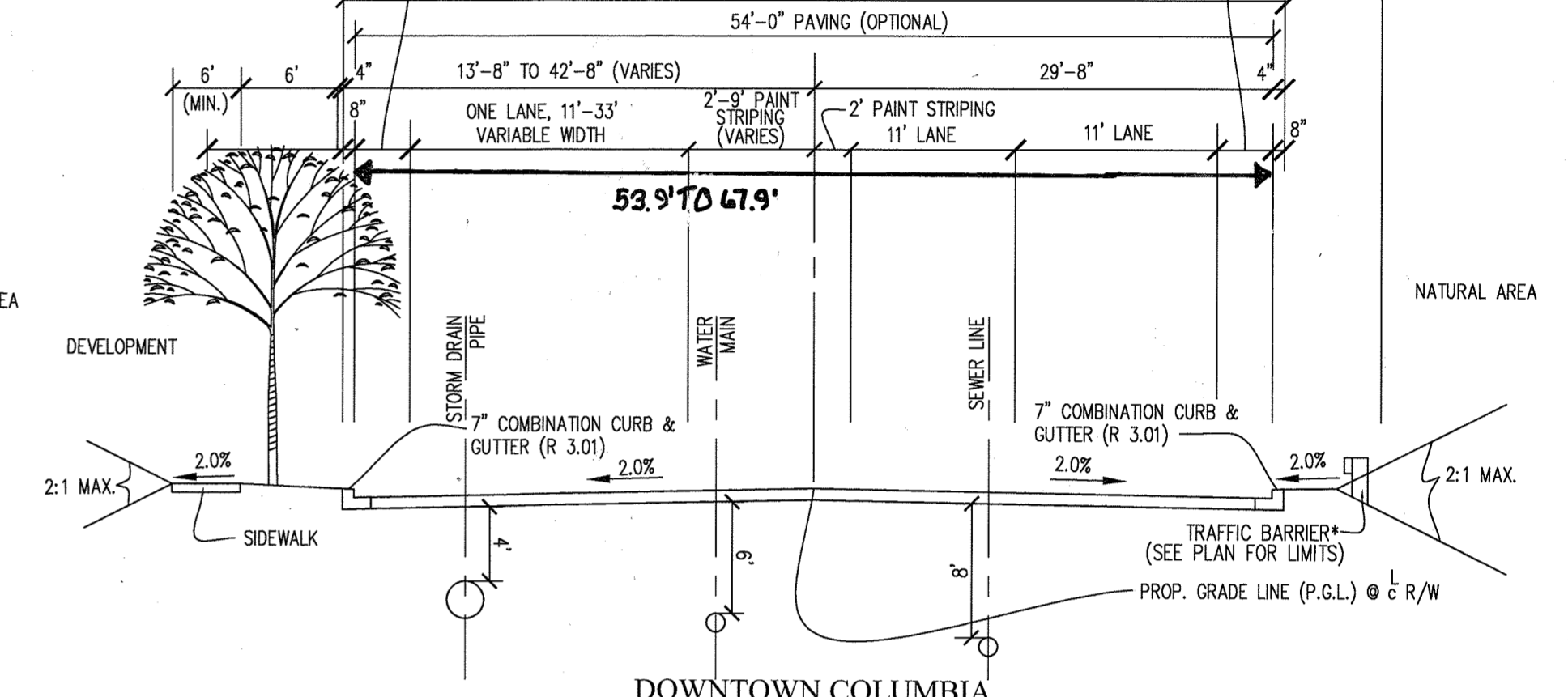
③ TYPICAL AVENUE TYPE 3 (4 LANE) ROAD SECTION and MULTI-USE PATH  
DOWNTOWN COLUMBIA  
NOT TO SCALE  
MERRIMWEATHER DR  
(7+35 TO 8+98, 14+70 TO 15+65)



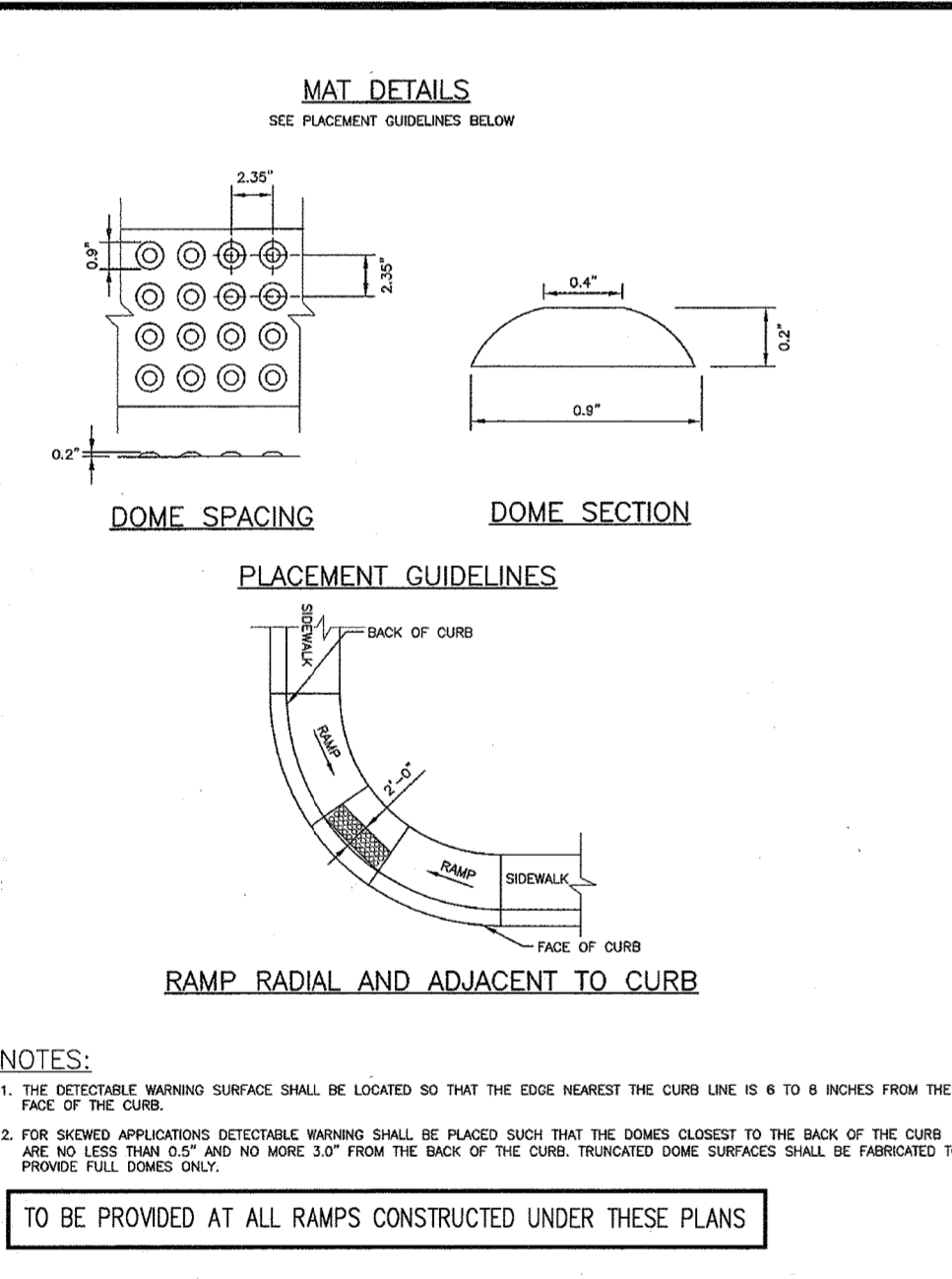
④ TYPICAL AVENUE TYPE 3 (4 LANE) ROAD  
DOWNTOWN COLUMBIA  
NOT TO SCALE  
HICKORY RIDGE ROAD  
(0+00 TO 3+15)



⑤ TYPICAL AVENUE TYPE 3 (4 LANE) ROAD  
DOWNTOWN COLUMBIA  
NOT TO SCALE  
HICKORY RIDGE ROAD  
(3+15 TO 5+07)



⑥ TYPICAL AVENUE TYPE 3 (4 LANE) ROAD  
DOWNTOWN COLUMBIA  
NOT TO SCALE  
HICKORY RIDGE ROAD  
(5+07 TO 8+22)

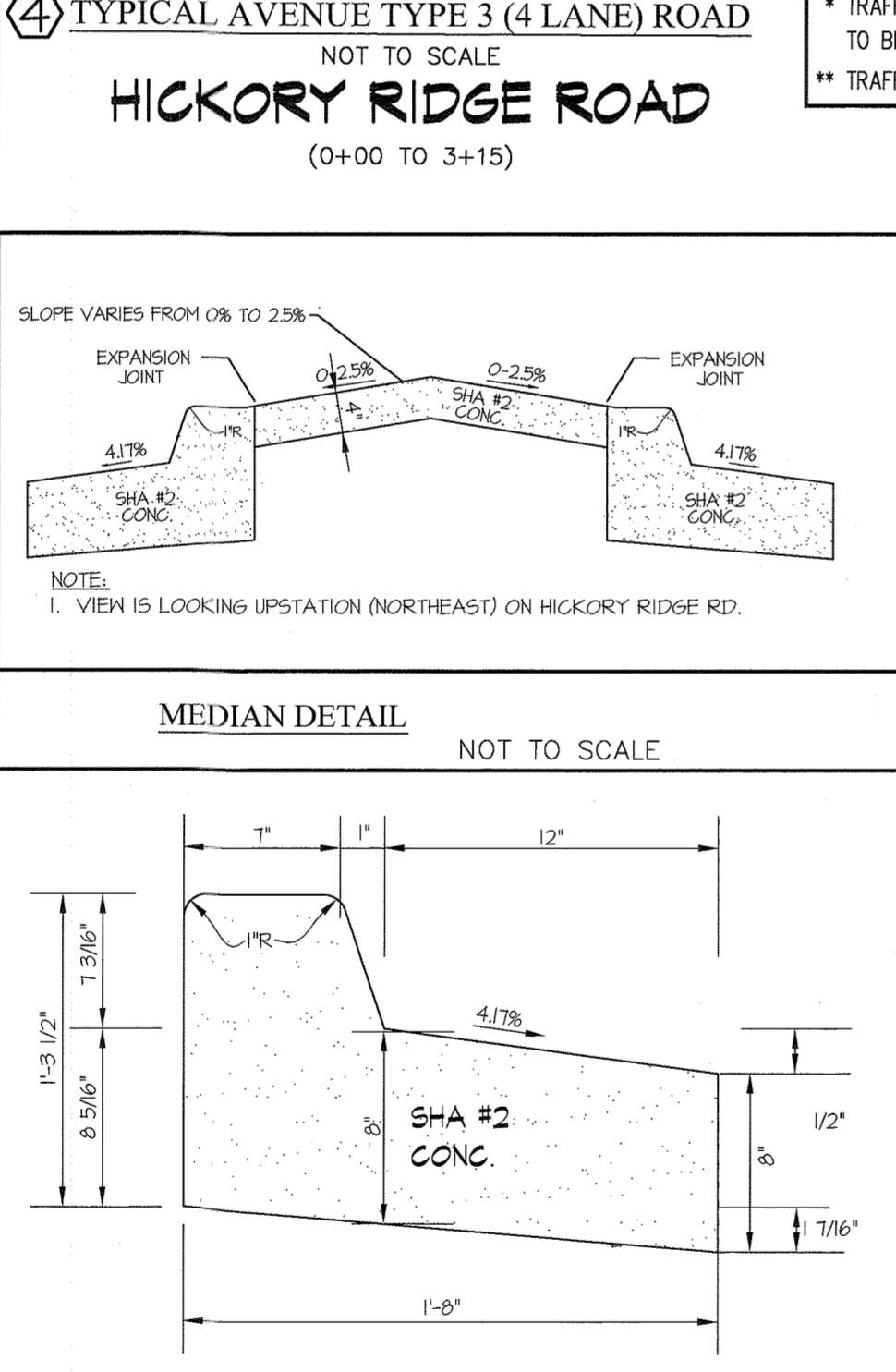


HOWARD COUNTY, MARYLAND Department of Public Works	SIDEWALK RAMP Detectable Warning Truncated Domes	Detail R-4.07
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APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*[Signature]* 7/12/2016  
Chief, Bureau of Highways

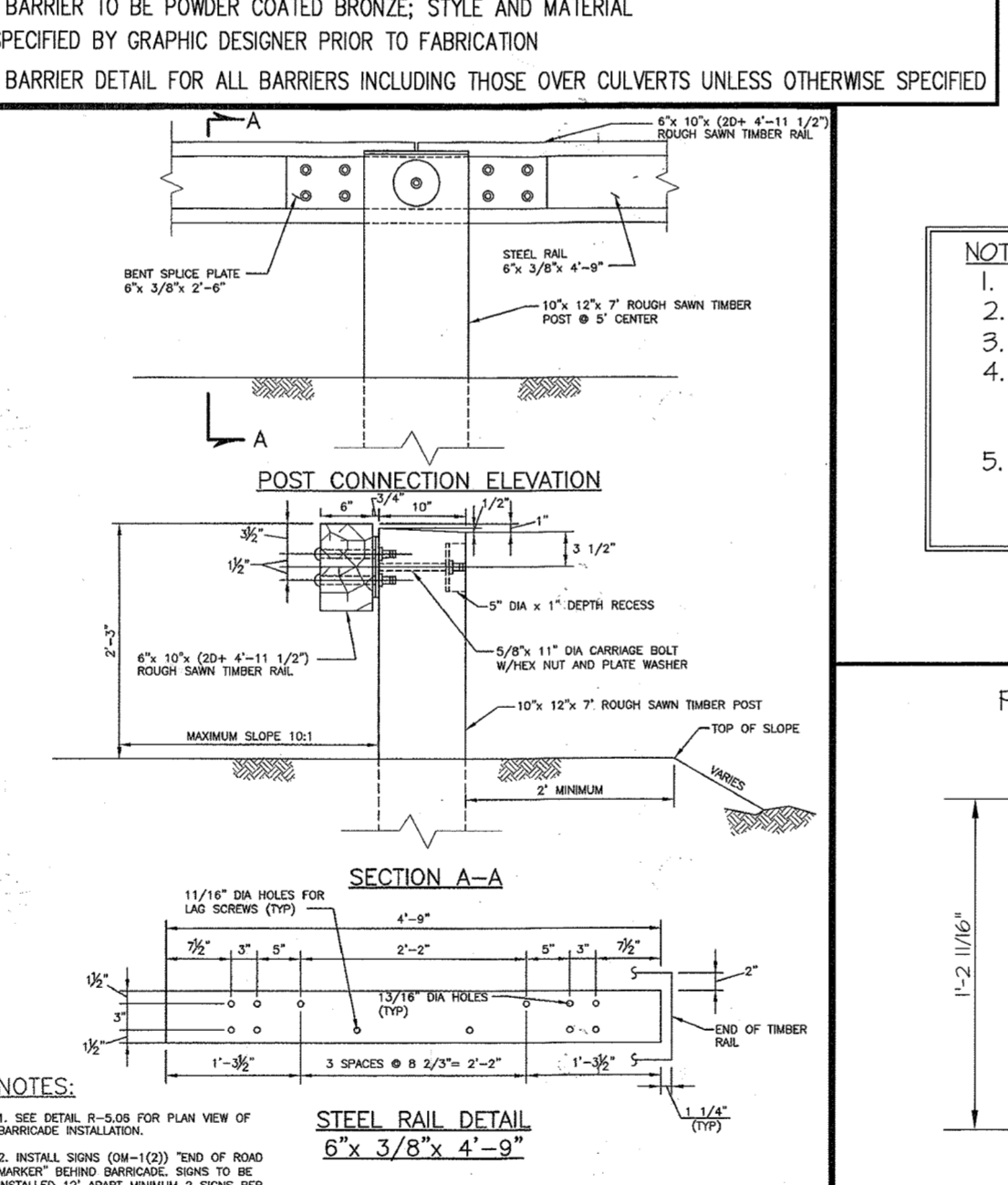
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
*[Signature]* 8-2-16  
Chief, Division of Land Development

**GLWGUTSCHICK LITTLE & WEBER, P.A.**  
CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS  
3909 NATIONAL DRIVE - SUITE 250 - BURTONSVILLE OFFICE PARK  
BURTONSVILLE, MARYLAND 20866  
TEL: 301-421-4024 BAL: 410-880-1820 DC/VA: 301-989-2524 FAX: 301-421-4186

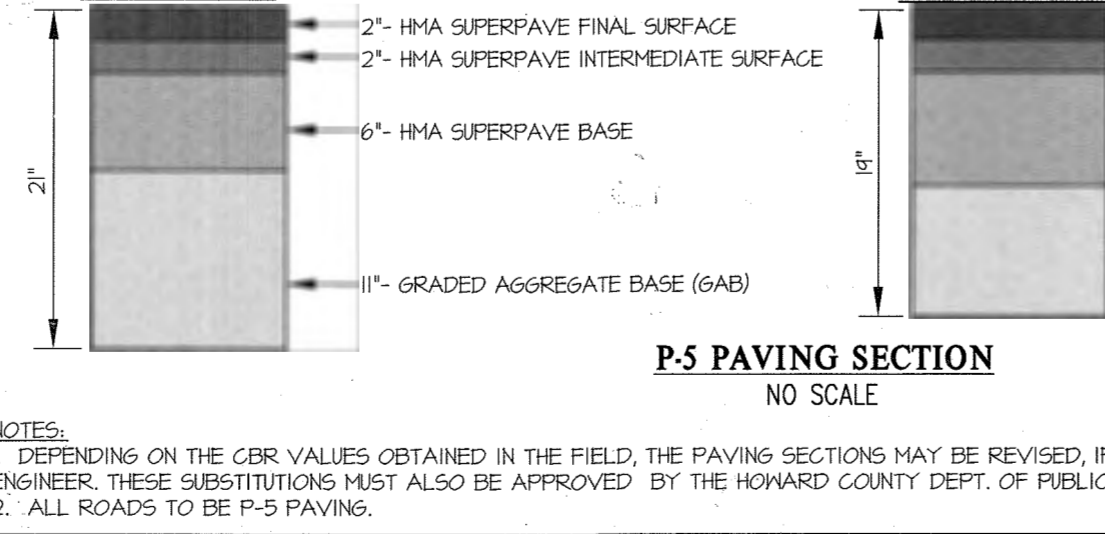


NOTES:  
1. 50' MAX. BETWEEN EXPANSION JOINTS & 10' MAX. BETWEEN CONTROL JOINTS.  
2. ALL ON-SITE CURB & GUTTER SHALL BE 6" HIGH.  
3. STANDARD CURB & GUTTER SHALL BE USED WHERE THE DRIVEWAY SLOPES TOWARDS THE CURB & GUTTER. REVERSE CURB & GUTTER SHALL BE USED WHERE THE DRIVEWAY SLOPES AWAY FROM THE CURB & GUTTER.  
4. PROVIDE A 5' TRANSITION TO OPEN SECTION.

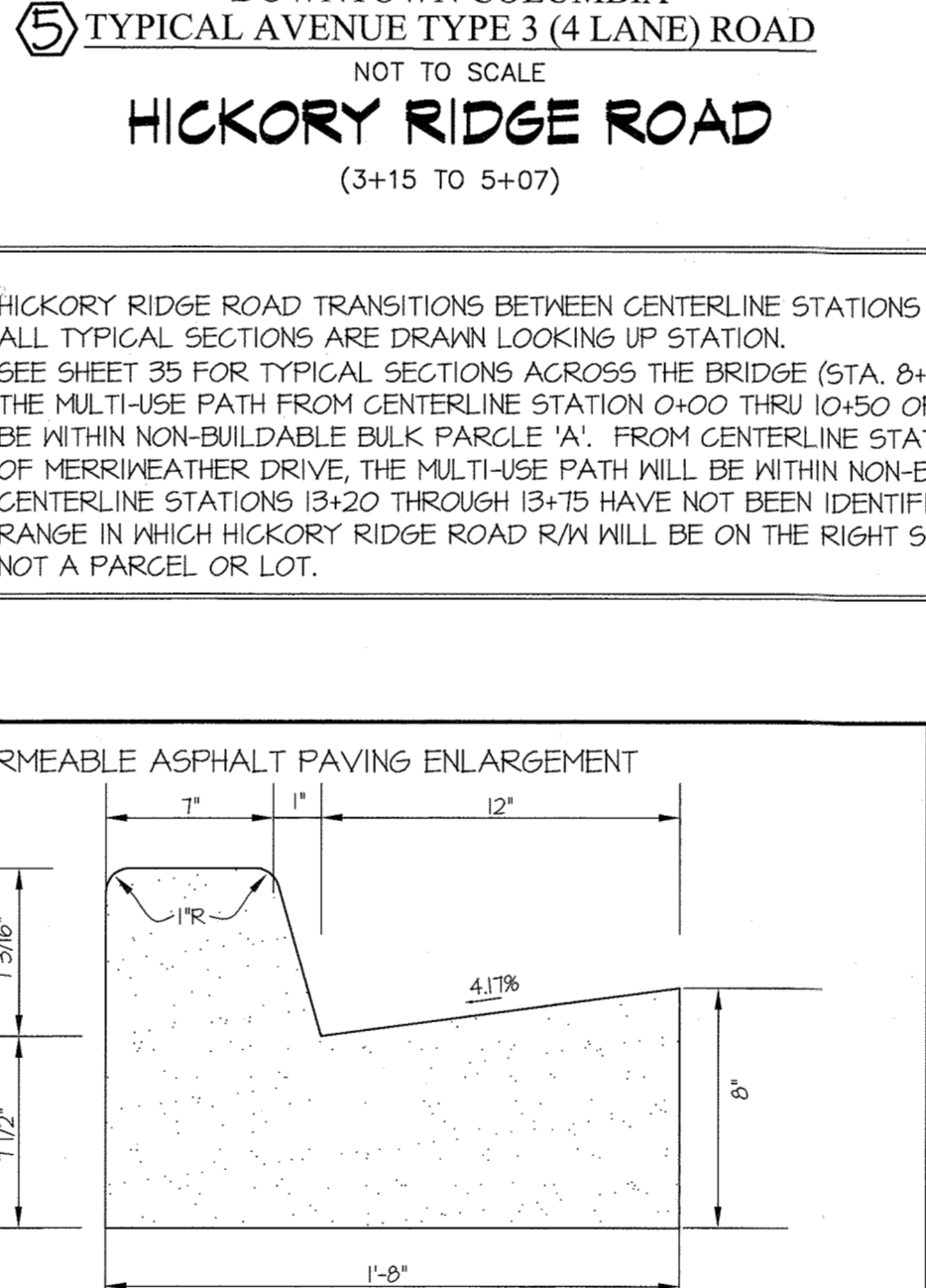
DATE	REVISION	BY	APPR.



HOWARD COUNTY, MARYLAND Department of Public Works	DEAD END BARRICADE Type B	Detail R-5.10
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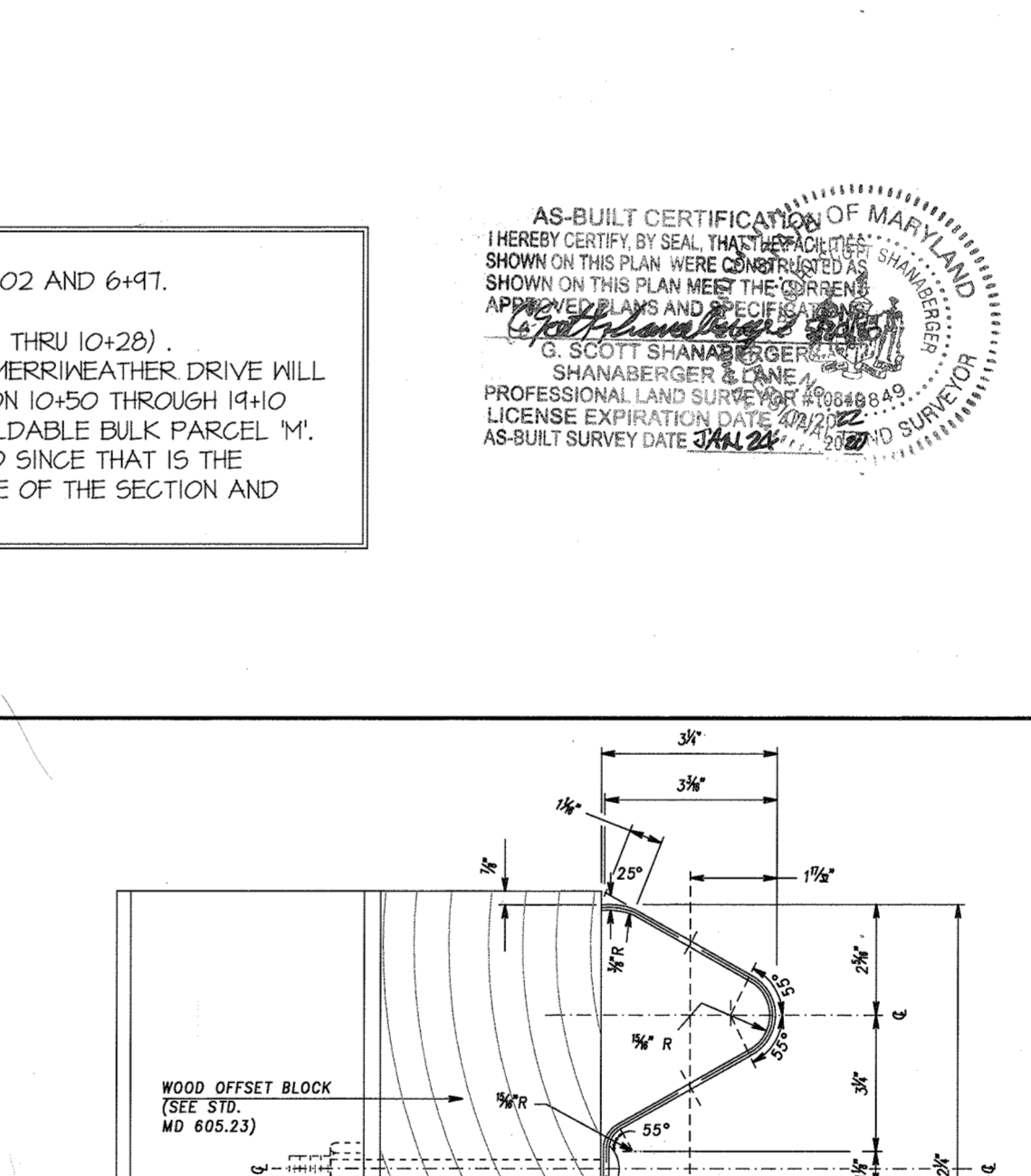
NOTES:  
1. DEPENDING ON THE CBR VALUES OBTAINED IN THE FIELD, THE PAVING SECTIONS MAY BE REVISED, IF APPROVED BY A PROFESSIONAL SOILS ENGINEER. THESE SUBSTITUTIONS MUST ALSO BE APPROVED BY THE HOWARD COUNTY DEPT. OF PUBLIC WORKS.  
2. ALL ROADS TO BE P-5 PAVING.



HOWARD COUNTY, MARYLAND Department of Public Works	PERMEABLE ASPHALT PAVING ENLARGEMENT	Detail R-5.11
---	--------------------------------------	------------------

NOTES:  
1. HICKORY RIDGE ROAD TRANSITIONS BETWEEN CENTERLINE STATIONS 5+02 AND 6+47.  
2. ALL TYPICAL SECTIONS ARE DRAWN LOOKING UP STATION.  
3. SEE SHEET 35 FOR TYPICAL SECTIONS ACROSS THE BRIDGE (STA. 0+48 THRU 10+26).  
4. THE MULTI-USE PATH FROM CENTERLINE STATION 0+00 THRU 10+50 OF MERRIMWEATHER DRIVE WILL BE WITHIN NON-BUILDABLE BULK PARCEL 'A'. FROM CENTERLINE STATION 10+50 THROUGH 14+10 OF MERRIMWEATHER DRIVE, THE MULTI-USE PATH WILL BE WITHIN NON-BUILDABLE BULK PARCEL 'M'. CENTERLINE STATIONS 13+20 THROUGH 13+15 HAVE NOT BEEN IDENTIFIED SINCE THAT IS THE RANGE IN WHICH HICKORY RIDGE ROAD R/W WILL BE ON THE RIGHT SIDE OF THE SECTION AND NOT A PARCEL OR LOT.

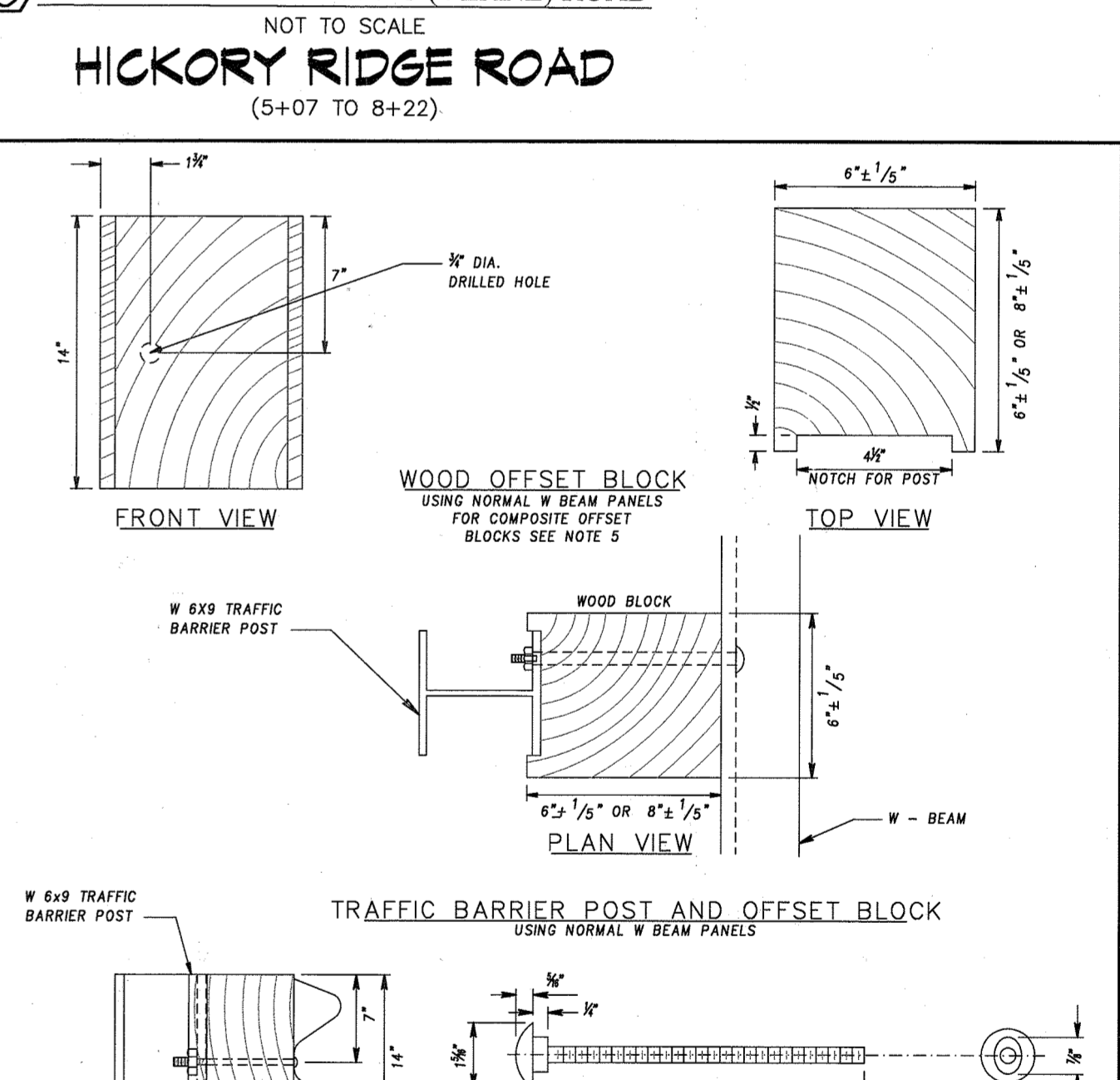
PREPARED FOR:  
THE HOWARD HUGHES CORPORATION  
10480-LITTLE PATUXENT PARKWAY  
SUITE 400  
COLUMBIA, MD 21044  
ATTN: BOB JENKINS  
410-964-5443



HOWARD COUNTY, MARYLAND Department of Public Works	TRAFFIC BARRIER W BEAM SINGLE FACE STANDARD NO. MD 605.22	Detail R-5.12
---	--	------------------

NOTES:  
1. RAIL ELEMENTS ARE FURNISHED SHOP CURVED, CONCAVE OR CONVEX TO RADIUS BETWEEN 20 FT. & 150 FT.  
2. BARRIER SECTIONS SHALL BE 12'-6" OR 25'-0" LENGTHS.  
3. FOR COMPOSITE OFFSET BLOCKS SEE SHEET 5 ON MD 605.21

PROFESSIONAL CERTIFICATION  
I HEREBY CERTIFY THAT THESE PLANS 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. 123456789  
EXPIRATION DATE: MAY 26, 2018  
*[Signature]*



HOWARD COUNTY, MARYLAND Department of Public Works	TRAFFIC BARRIER W BEAM W WOOD OFFSET BLOCK STANDARD NO. MD 605.21	Detail R-5.13
---	--	------------------

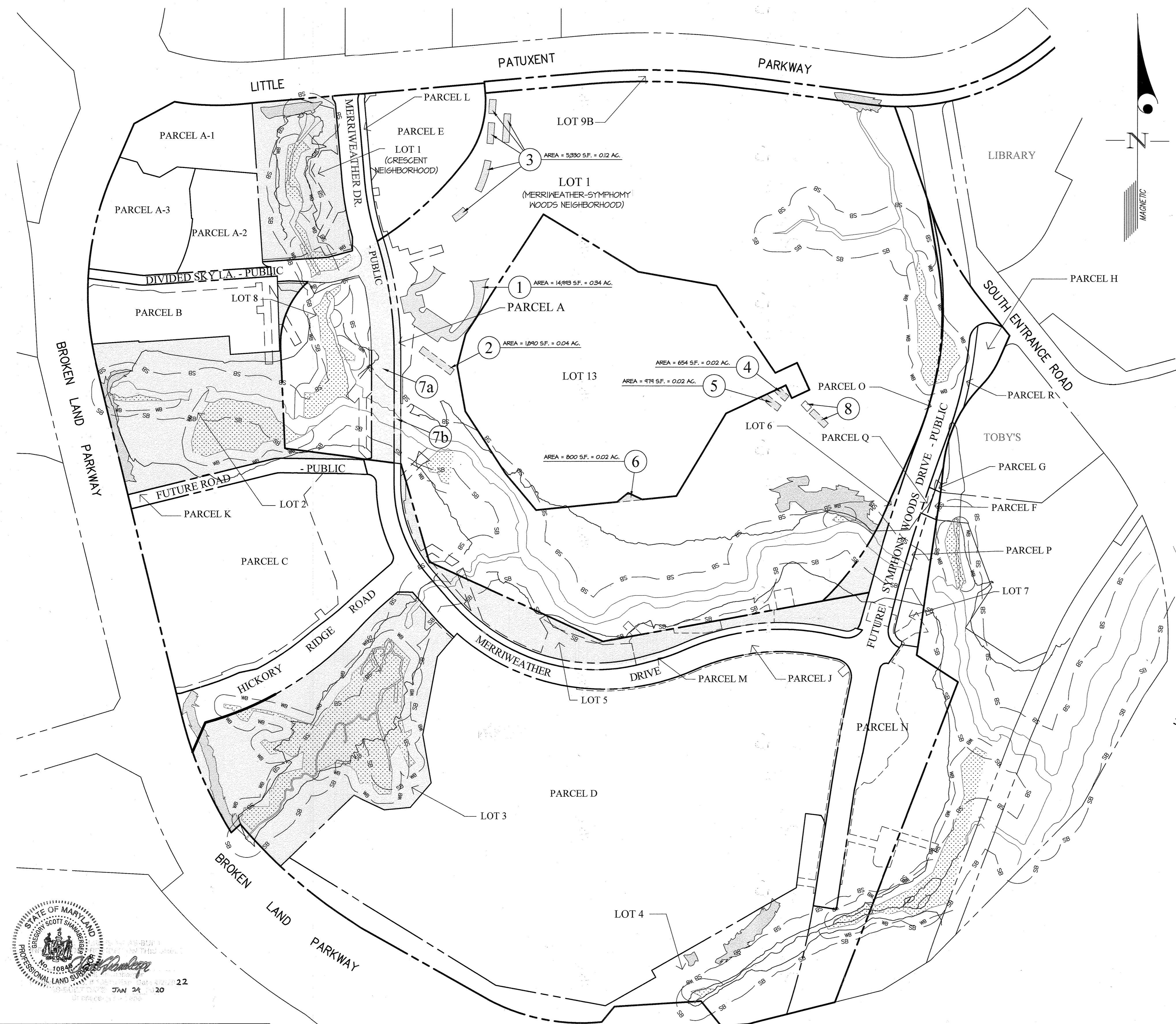
NOTES:  
1. WOOD OFFSET BLOCKS 6x8x14 INCHES TO BE USED ON ALL NEW CONSTRUCTION AND WHEN THE EXISTING TRAFFIC BARRIER WITH METAL OFFSET BLOCKS IS TO BE REMOVED AND RESET.  
2. THE CONTRACTOR HAS THE OPTION TO USE SHORTER BOLTS WITH A MINIMUM OF 1/2" PROTRUSION BEYOND NUT.  
3. WOOD BLOCKS FOR THREE BEAM PANELS SHALL BE 6x8x22 1/2 INCHES AND NOTCHED AS SHOWN IN THE TOP VIEW. TWO BOLTS ARE REQUIRED FOR ATTACHMENT TO THE POSTS.  
4. THE 6x8x14 INCH WOOD OFFSET BLOCKS ARE TO BE USED FOR REPAIR WORK ONLY.  
5. WHEN DIRECTED BY THE ENGINEER OR WHEN SPECIFIED IN THE CONTRACT DOCUMENTS, COMPOSITE OFFSET BLOCKS THAT ARE APPROVED BY THE ADMINISTRATION CAN BE USED IN LIEU OF THE WOOD BLOCKS. FOR THE APPROVED SUBSTITUTES LIST SEE SHEET 1 OF 1 APPROVED SUBSTITUTES FOR WOOD OFFSET BLOCKS.

SCALE AS SHOWN	ZONING NT	G. L. W. FILE No. 11071
DATE JUNE, 2016	TAX MAP - GRID 36 - 01	SHEET 6 OF 102

TYPICAL ROAD SECTION & CURB DETAILS  
DOWNTOWN COLUMBIA  
CRESCENT NEIGHBORHOOD  
PARCELS B THRU H, NON-BUILDABLE BULK PARCELS J THRU R,  
O.S. LOTS 1 THRU 8 AND  
MERRIMWEATHER-SYMPHONY WOODS NEIGHBORHOOD O.S. LOT 1  
AND NON-BUILDABLE BULK PARCEL A  
ELECTION DISTRICT No. 5  
HOWARD COUNTY, MARYLAND

L:\CAD\DRAWINGS\11071\PLANS BY QLV\Final\Phase 1\11071\_06\_ROAD\_DETAILS.dwg  
PLOTTER: 6/2/2016 10:17 AM, LAST SAVED: 5/23/2016 3:36 PM, PLOTTED BY: JAY HARRISON





**LEGEND**

- PROPOSED DOWNTOWN PARKLAND (COUNTY)
- EXISTING, APPROVED AND PLANNED PARKING ON DOWNTOWN PARKLAND PROPERTY.
- PROPOSED DOWNTOWN PARKLAND (COLUMBIA ASSOCIATION, INC.)
- LIMIT OF STEEP SLOPES (SLOPES THAT AVERAGE 25% OR GREATER OVER 10 VERTICAL FEET)
- EXISTING LIMIT OF WETLANDS
- EXISTING WETLANDS
- LIMIT OF FLOOD PLAIN
- EX. & PROP. PROPERTY LINES
- EX. STREAM BANK
- 50' STREAM BUFFER
- 25' WETLAND BUFFER

ON JUNE 1, 2012 A MEMORANDUM OF UNDERSTANDING BETWEEN HOWARD COUNTY AND HOWARD HUGHES WAS ISSUED TO ADDRESS WHAT CONSTITUTES ALLOWABLE LAND AREA FOR PARKLAND REPLACEMENT. THE MOU STATES "THE COUNTY UNDERSTANDS THAT HRO HAS IDENTIFIED AREAS OF NON-DOWNTOWN ENVIRONMENTALLY SENSITIVE LAND AREA (DESA) IN THE CRESCENT NEIGHBORHOOD THAT ADJOIN SYMPHONY WOODS FOR POTENTIAL REPLACEMENT OF DOWNTOWN PARKLAND. WHILE SOME OF THESE AREAS ARE SMALLER THAN ONE ACRE, THEY ARE INTEGRATED INTO LARGER OPEN SPACE AREAS THAT INCLUDE DESA LAND. THE ACRES OF THESE NON-DESA AREAS CAN BE COUNTED TOWARDS THE ACRES NEEDED FOR DOWNTOWN PARKLAND REPLACEMENT UNDER SECTION 125A-4.6.5), AS LONG AS THE AREAS ARE INCORPORATED INTO PARCELS OF AT LEAST ONE CONTIGUOUS ACRE (WHICH MAY INCLUDE DESA AND NON-DESA LAND). THESE NON-DESA AREAS MAY ALSO BE USED FOR ENVIRONMENTAL ENHANCEMENT, ENVIRONMENTAL RESTORATION AND ENVIRONMENTAL SITE DESIGN FOR STORMWATER MANAGEMENT AND WATER QUALITY PURPOSES. THE USE OF NON-DESA LAND FOR ENVIRONMENTAL ENHANCEMENT, ENVIRONMENTAL RESTORATION AND ENVIRONMENTAL SITE DESIGN FOR STORMWATER MANAGEMENT AND WATER QUALITY PURPOSES WILL NOT CONVERT THE NON-DESA LAND INTO DESA LAND, AND ANY NON-DESA LAND SO USED WILL STILL BE COUNTED TOWARDS THE ACRES NEEDED FOR DOWNTOWN PARKLAND REPLACEMENT."

**Downtown Columbia Replacement Parkland Tabulation**

Neighborhood	Lot	Area - Envir (Ac.)	Area - Non-envir (Ac.)	Total Area (Ac.)
Crescent	1	1.34	0.94	2.28
Crescent	2	3.06	1.00	4.06
Crescent	3	4.10	2.12	6.22
Crescent	5	0.23	1.71	1.94
Crescent	6	0.20	0.14	0.39
<b>Total</b>		<b>8.93</b>	<b>5.92</b>	<b>14.89</b>

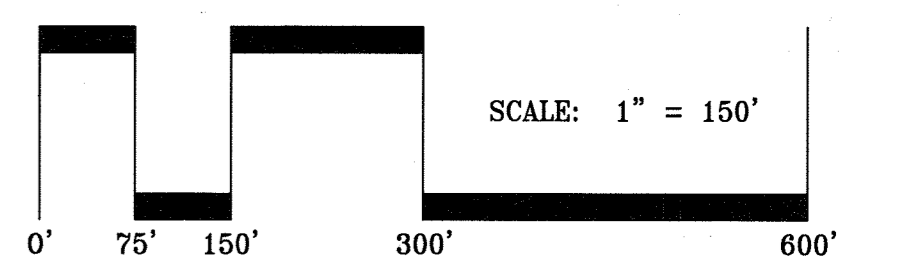
A total of 14.89 acres, of which 5.92 acres will be non-environmental Downtown Parkland, is to be transferred to The Columbia Association, Inc.

**Downtown Columbia Existing Parkland Tabulation - Lots**

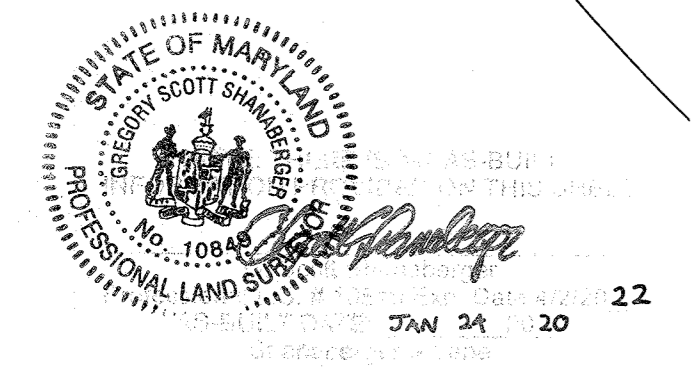
Neighborhood	Lot or Parcel	Downtown Parkland			Notes
		Area - Non-credited* (Ac.)	Area - Credited (Ac.)	Total Area (Ac.)	
MSW	1	0.56	32.00	32.56	Formerly P/O Lot 23, non-credited areas identified as circled nos. 1-6
MSW	A	0.25	0.00	0.25	Formerly P/O Lot 23, non-credited areas identified as circled no. 7b
Crescent	8	0.00	2.47	2.47	Formerly P/O Lot 23
Crescent	Merriweather Dr.	0.95	0.00	0.95	Formerly P/O Lot 23, non-credited area identified as circled no. 7a
<b>Total</b>		<b>1.76</b>	<b>34.47</b>	<b>36.23</b>	

Total area to be exchanged with non-environmental Downtown Parkland from the Crescent is 1.61 acres.

\* Area for parking\*\* and public roadways and apurtenances and multi-use path.  
 \*\* The area for handicap parking includes the handicap transfer space. When parking is within a parking lot, the area of parking spaces and the drive isles are included in the area. When parking is adjacent to a circulation route, only the area of the parking spaces is included.



THIS PLAN DEMONSTRATES THE AREAS WHICH ARE USED TO OFFSET THE LOSS OF CREDITED DOWNTOWN PARKLAND.



APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*[Signature]* 2/12/2016  
 Chief, Bureau of Highways  
 Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
*[Signature]* 2-3-16  
 Chief, Division of Land Development  
 Date

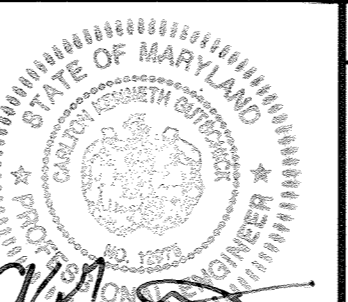
*[Signature]* 1-7-16  
 Chief, Development Engineering Division  
 Date

**GLWGUTSCHICK LITTLE & WEBER, P.A.**  
 CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS  
 3909 NATIONAL DRIVE - SUITE 250 - BURTONSVILLE OFFICE PARK  
 BURTONSVILLE, MARYLAND 20866  
 TEL: 301-421-4024 BALT: 410-880-1820 DC/VA: 301-989-2524 FAX: 301-421-4186

DATE	REVISION	BY	APPR.

PREPARED FOR:  
 THE HOWARD HUGHES CORPORATION  
 10480 LITTLE PATUXENT PARKWAY  
 SUITE 400  
 COLUMBIA, MD 21044  
 ATTN: BOB JENKINS  
 410-964-5443

PROFESSIONAL CERTIFICATION  
 I HEREBY CERTIFY THAT THESE PLANS 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. 12975  
 EXPIRATION DATE: MAY 26, 2018  
*[Signature]* 6/1/16

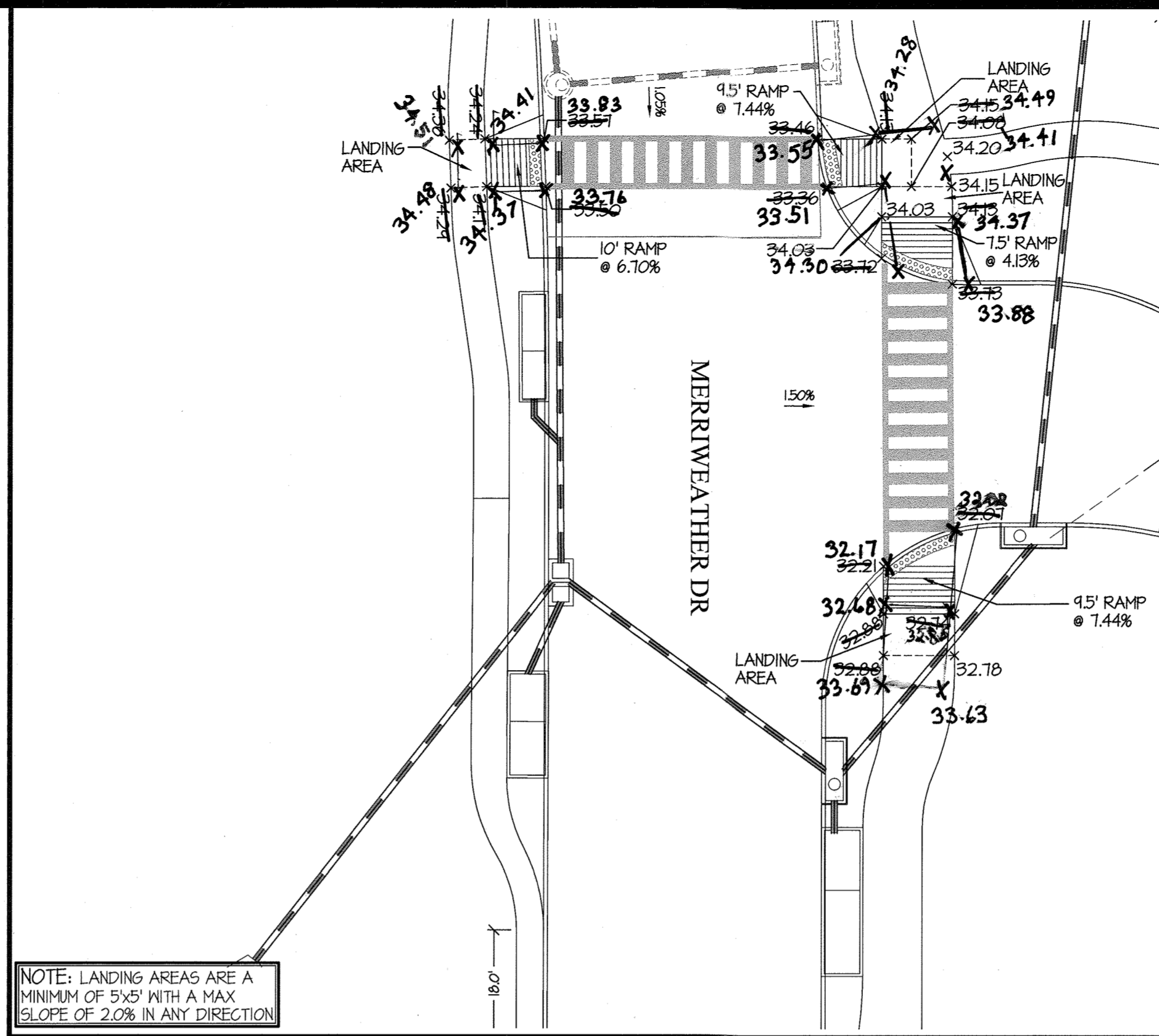


**PARKLAND REPLACEMENT PLAN**  
**DOWNTOWN COLUMBIA**  
**CRESCENT NEIGHBORHOOD**  
**PARCELS B THRU H, NON-BUILDABLE BULK PARCELS J THRU R, O.S. LOTS 1 THRU 8 AND MERRIWEATHER-SYMPHONY WOODS NEIGHBORHOOD O.S. LOT 1 AND NON-BUILDABLE BULK PARCEL A**  
 HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
1"=150'	NT	11071
DATE	TAX MAP - GRID	SHEET
JUNE, 2016	36 - 01	7 OF 102

L:\CAD\DRAWINGS\11071\PLANS BY G.L.W.\PHASE 1\11071\_07-PARKLAND REPLACEMENT.dwg, PLOTTER: 6/2/2016 10:18 AM, LAST SAVED: 5/16/2016 3:00 PM, PLOTTED BY: gwg

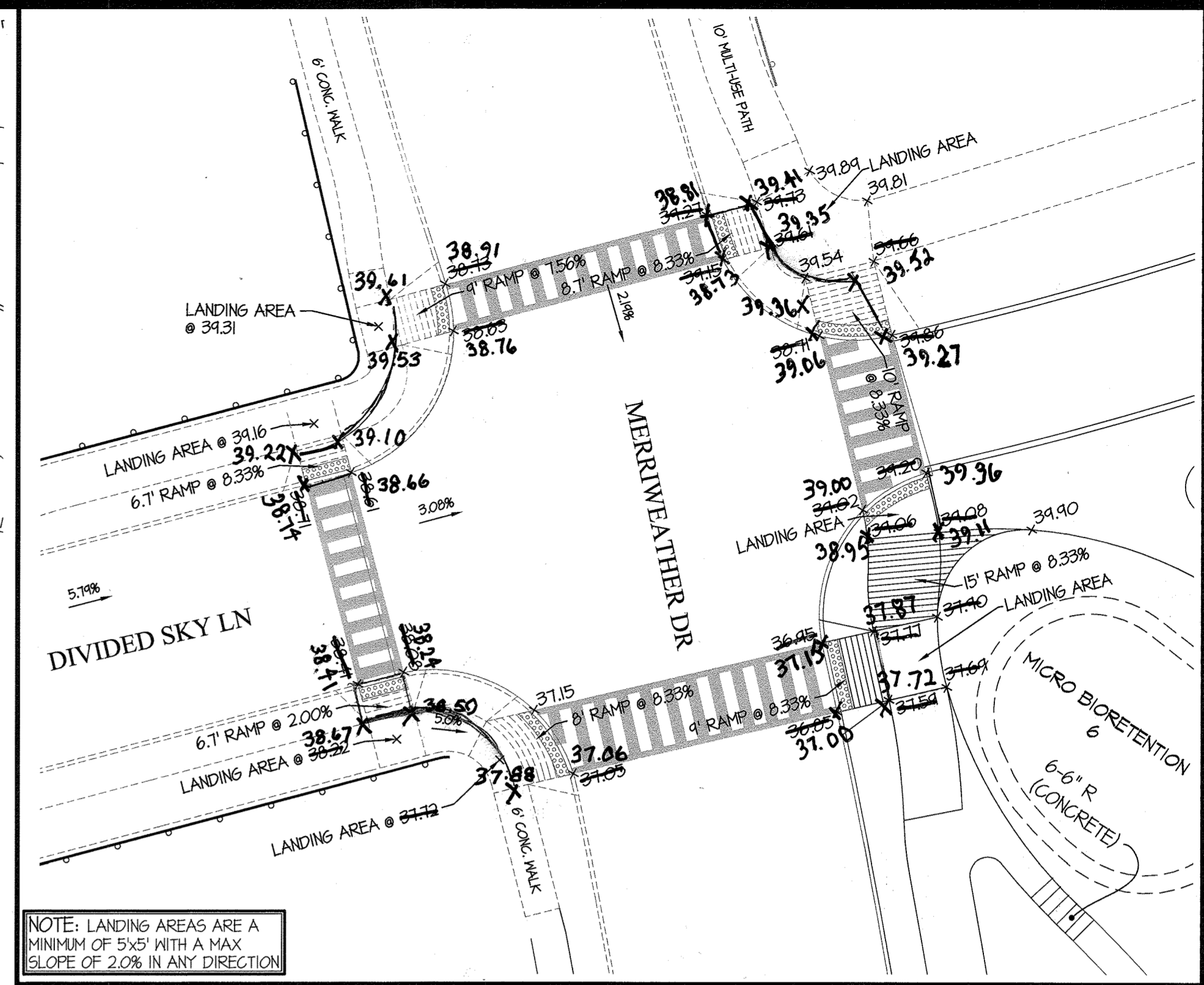




NOTE: LANDING AREAS ARE A MINIMUM OF 5'x5' WITH A MAX SLOPE OF 2.0% IN ANY DIRECTION

INTERSECTION 'J'

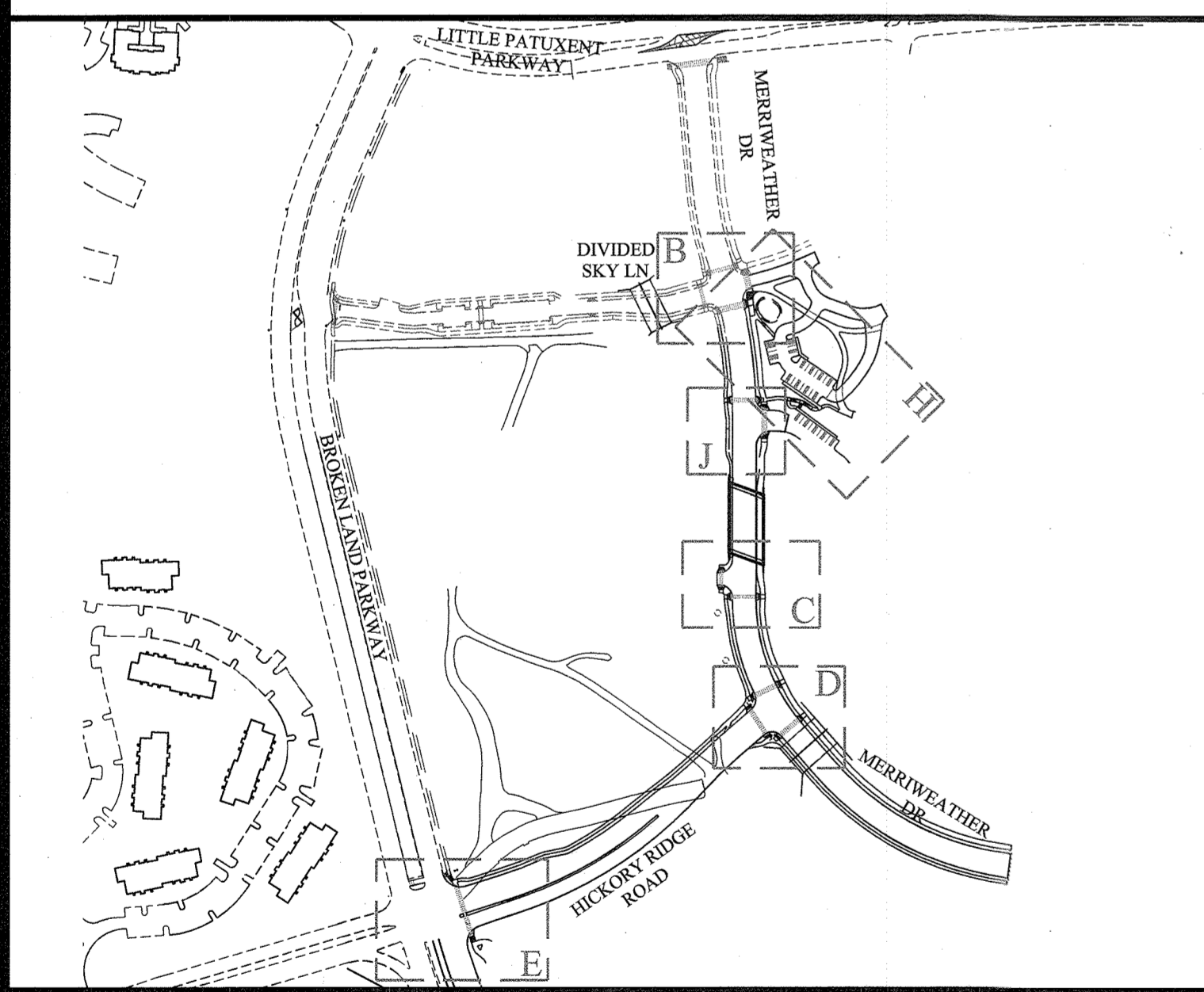
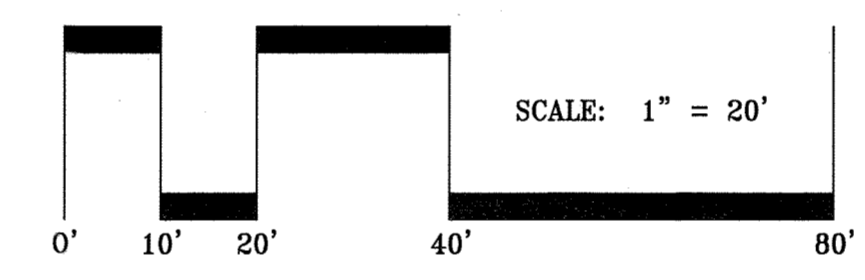
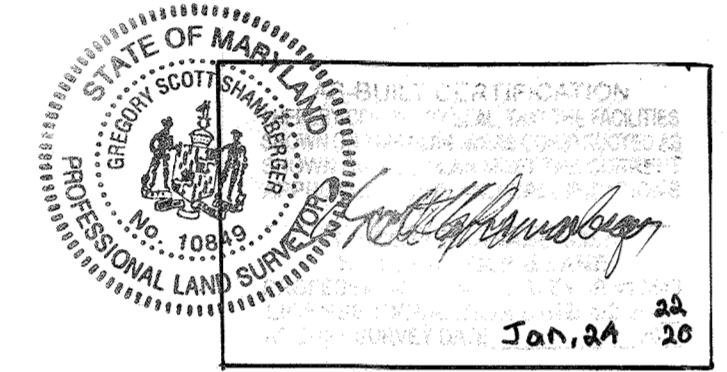
SCALE: 1" = 20'



NOTE: LANDING AREAS ARE A MINIMUM OF 5'x5' WITH A MAX SLOPE OF 2.0% IN ANY DIRECTION

INTERSECTION 'B'

SCALE: 1" = 20'

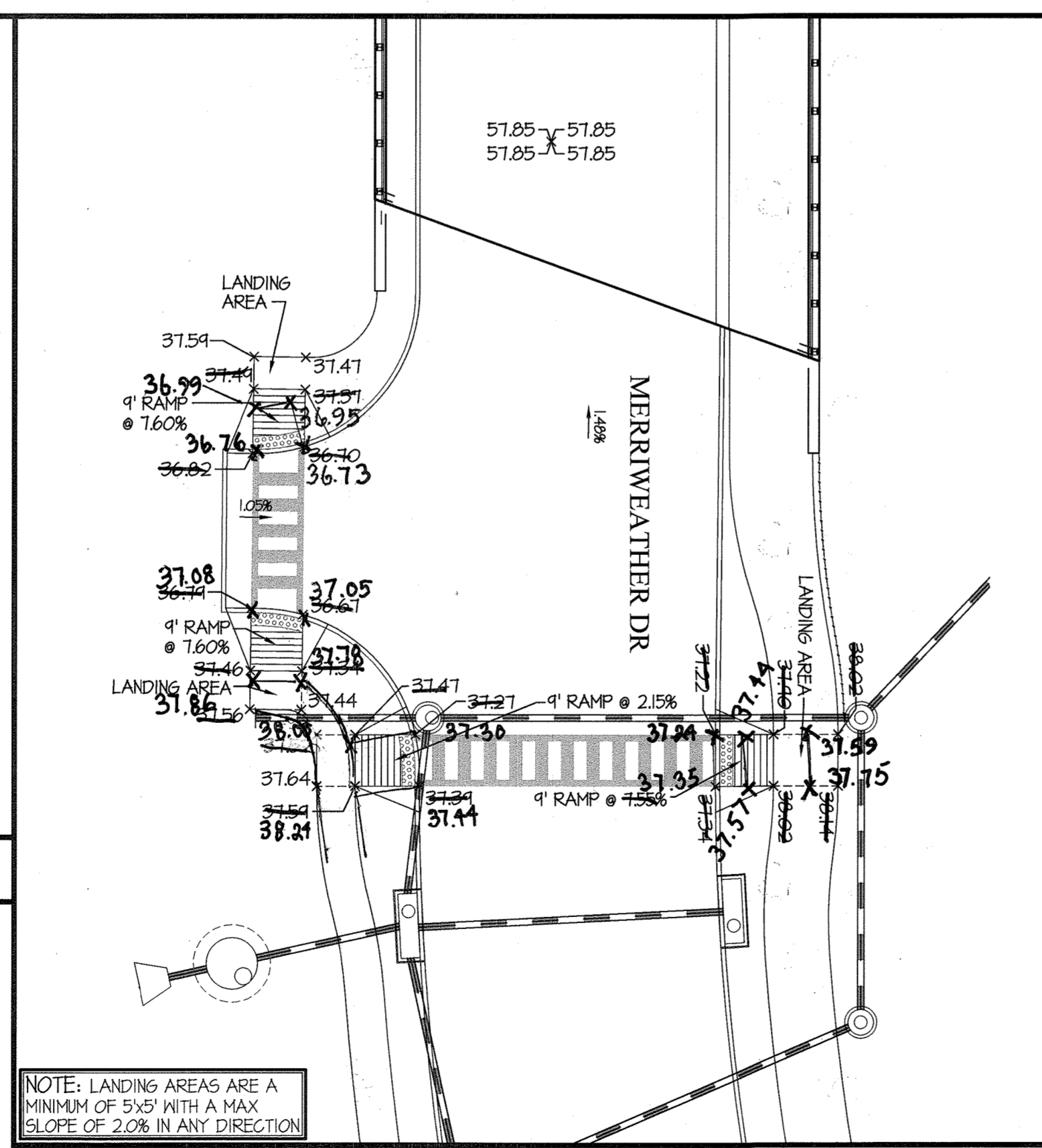


LOCATION MAP SCALE: 1" = 300'

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
 Chief, Bureau of Highways  
 Date: 2/26/16

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
 Chief, Division of Land Development  
 Date: 2-3-16

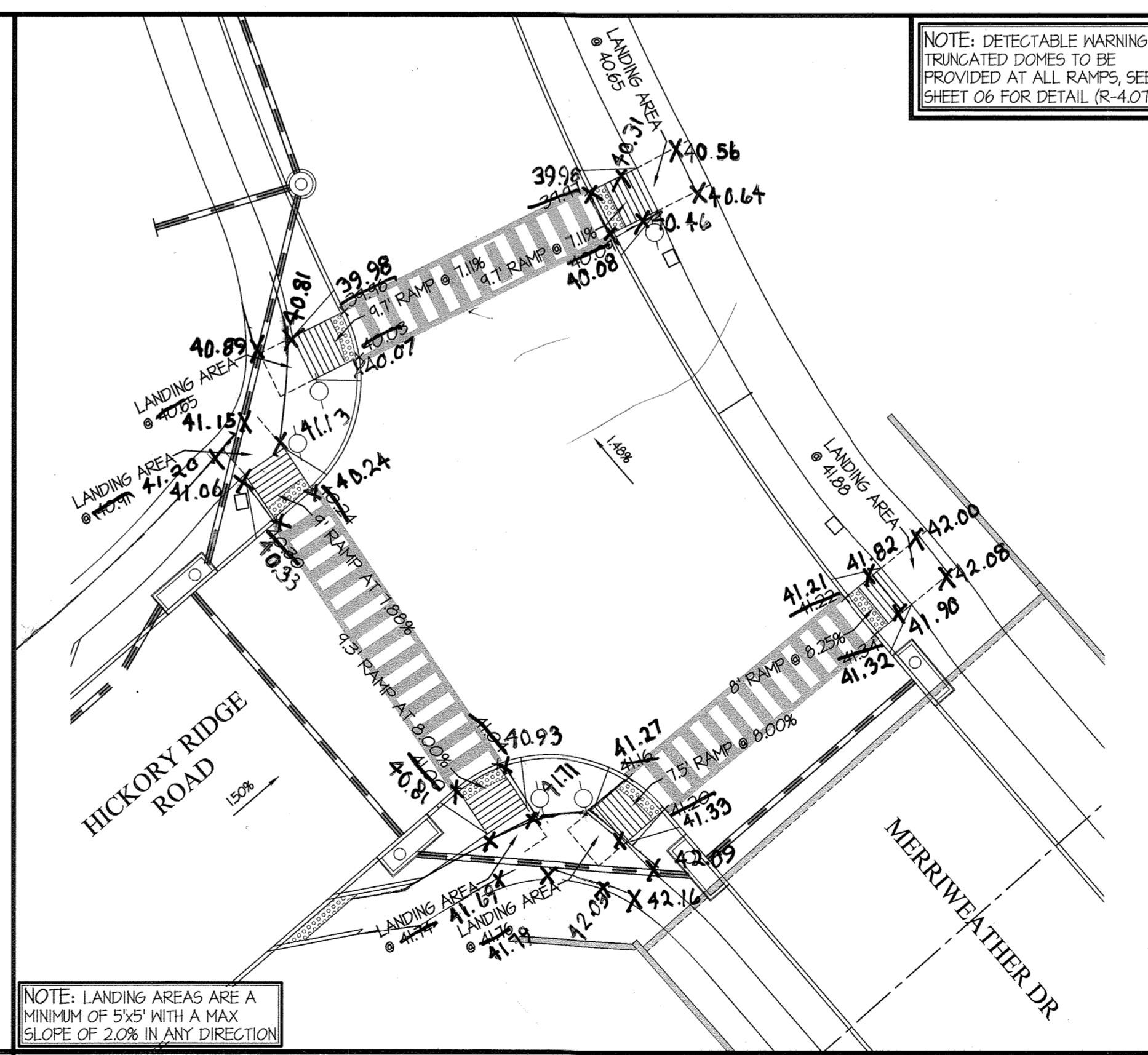
Chief, Development Engineering Division  
 Date: 7-28-16



NOTE: LANDING AREAS ARE A MINIMUM OF 5'x5' WITH A MAX SLOPE OF 2.0% IN ANY DIRECTION

INTERSECTION 'C'

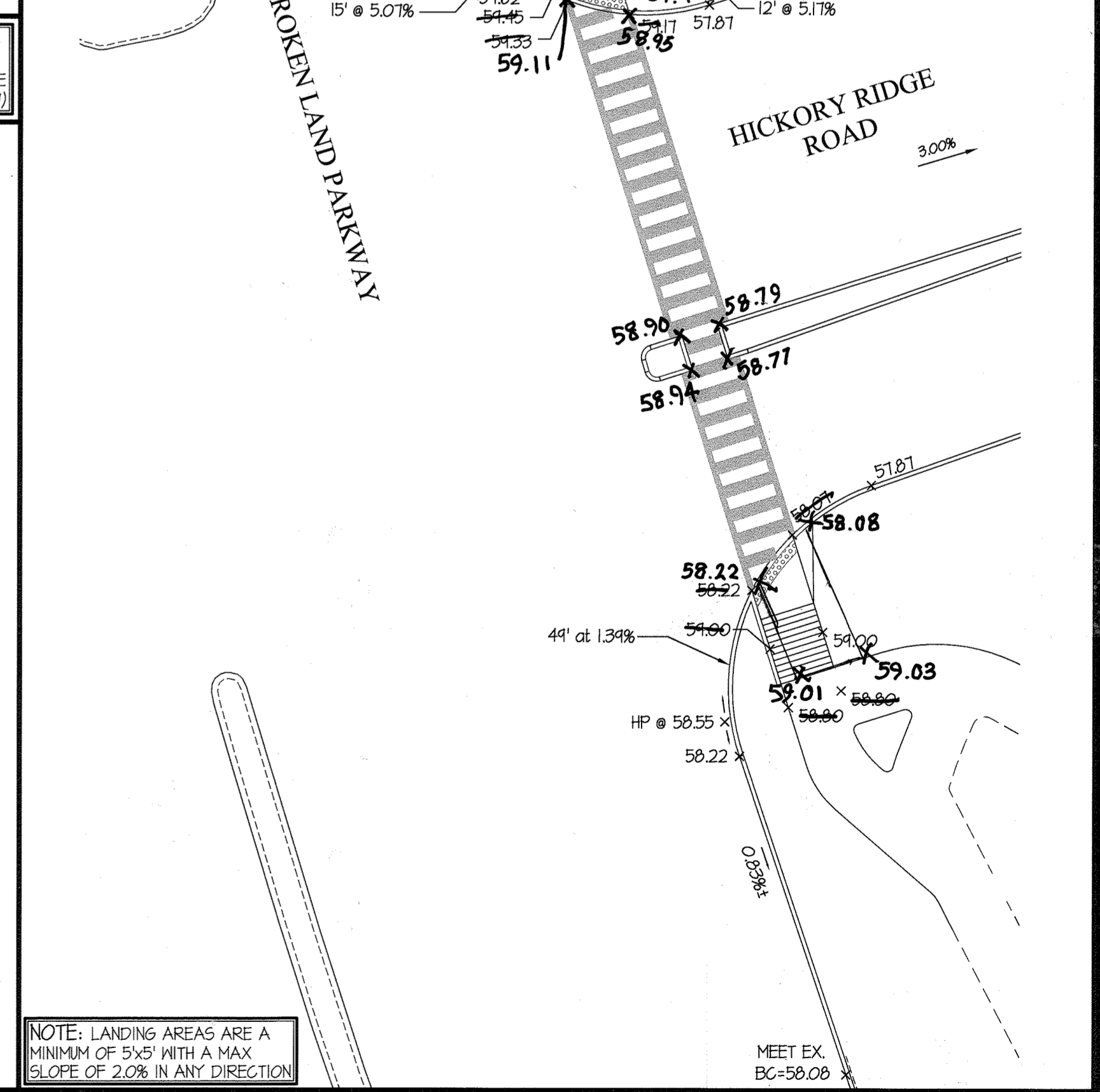
SCALE: 1" = 20'



NOTE: LANDING AREAS ARE A MINIMUM OF 5'x5' WITH A MAX SLOPE OF 2.0% IN ANY DIRECTION

INTERSECTION 'D'

SCALE: 1" = 20'



NOTE: LANDING AREAS ARE A MINIMUM OF 5'x5' WITH A MAX SLOPE OF 2.0% IN ANY DIRECTION

INTERSECTION 'E'

SCALE: 1" = 20'

**GLWGUTSCHICK LITTLE & WEBER, P.A.**  
 CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS  
 3909 NATIONAL DRIVE - SUITE 250 - BURTONSVILLE OFFICE PARK  
 BURTONSVILLE, MARYLAND 20866  
 TEL: 301-421-4024 BAL: 410-880-1820 DC/VA: 301-989-2524 FAX: 301-421-4186

DATE	REVISION	BY	APPR.

PREPARED FOR:  
 THE HOWARD HUGHES CORPORATION  
 10480 LITTLE PATUXENT PARKWAY  
 SUITE 400  
 COLUMBIA, MD 21044  
 ATTN: BOB JENKINS  
 410-964-5443

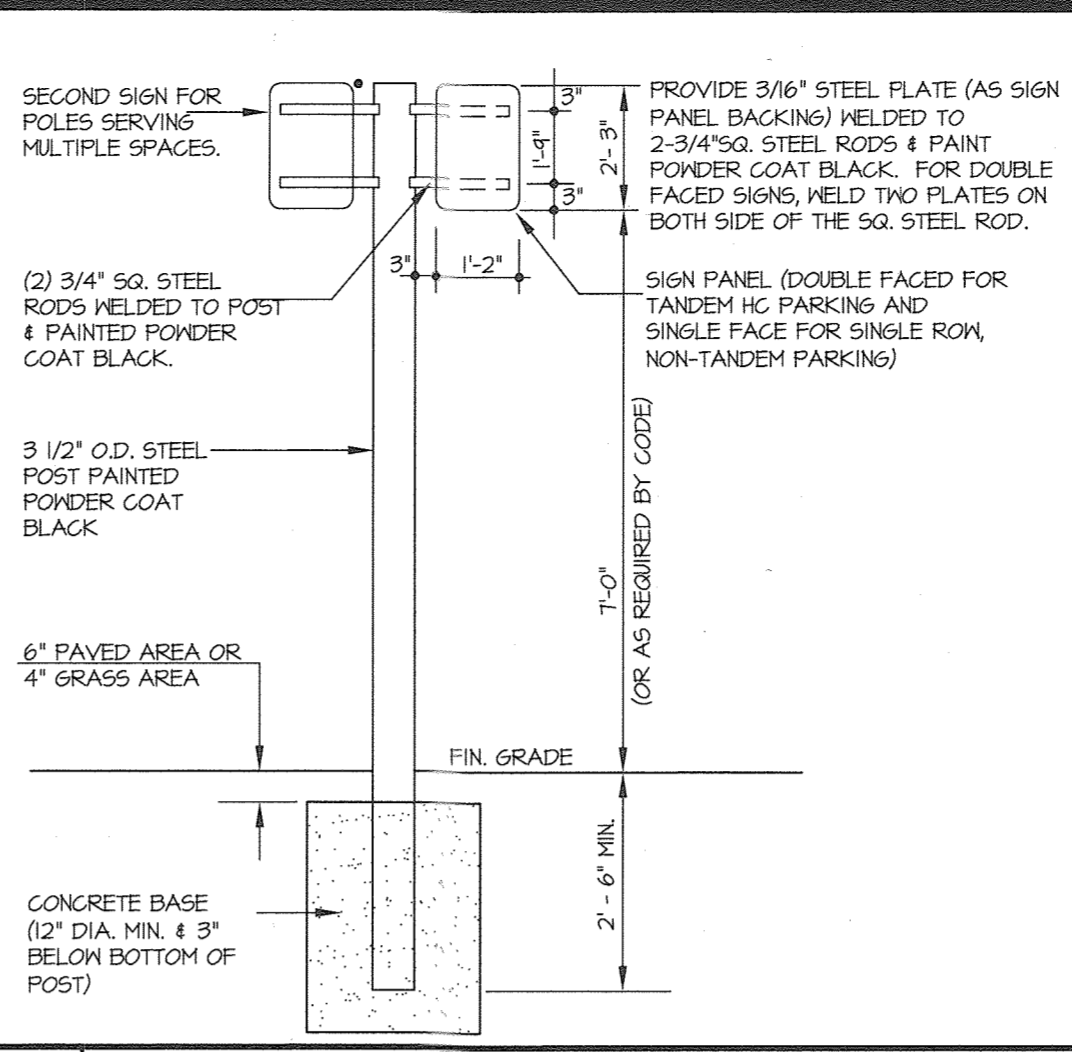
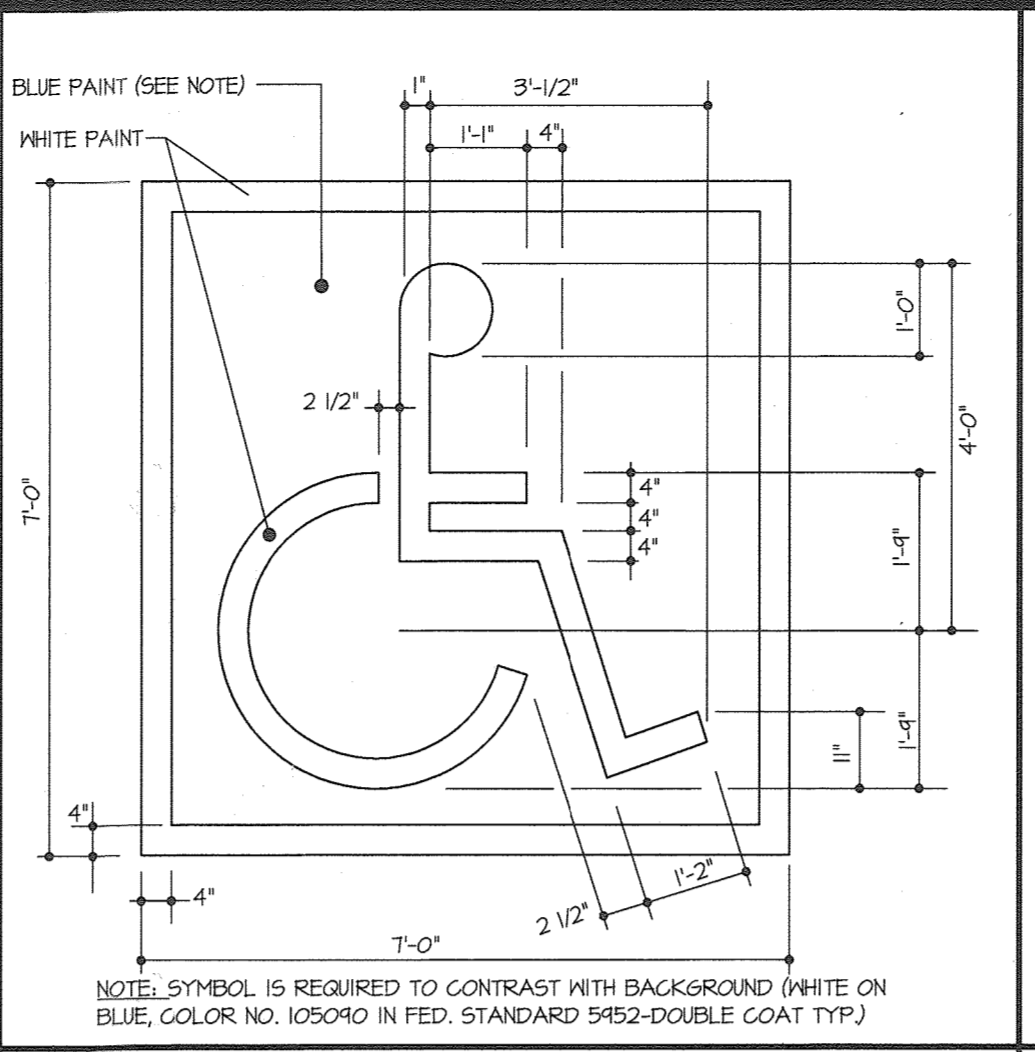
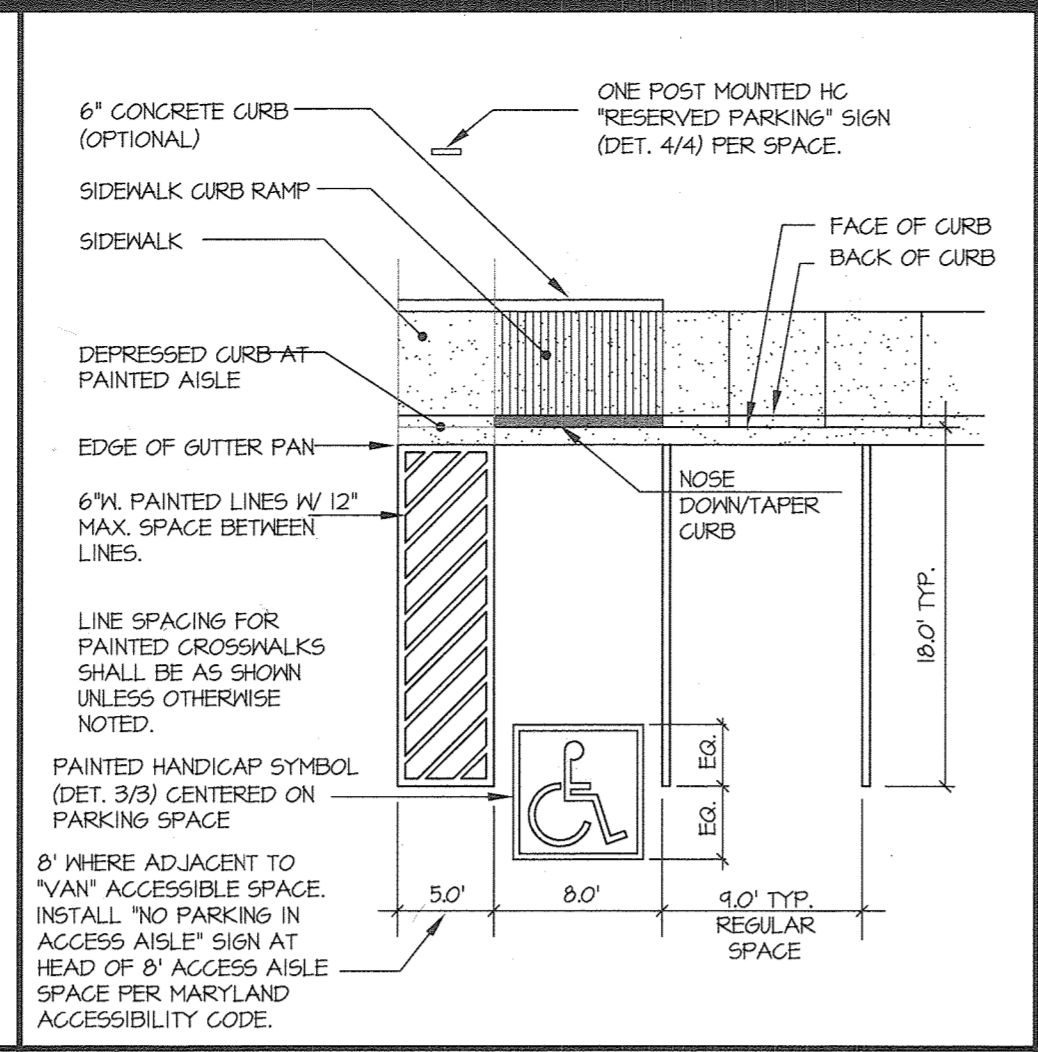
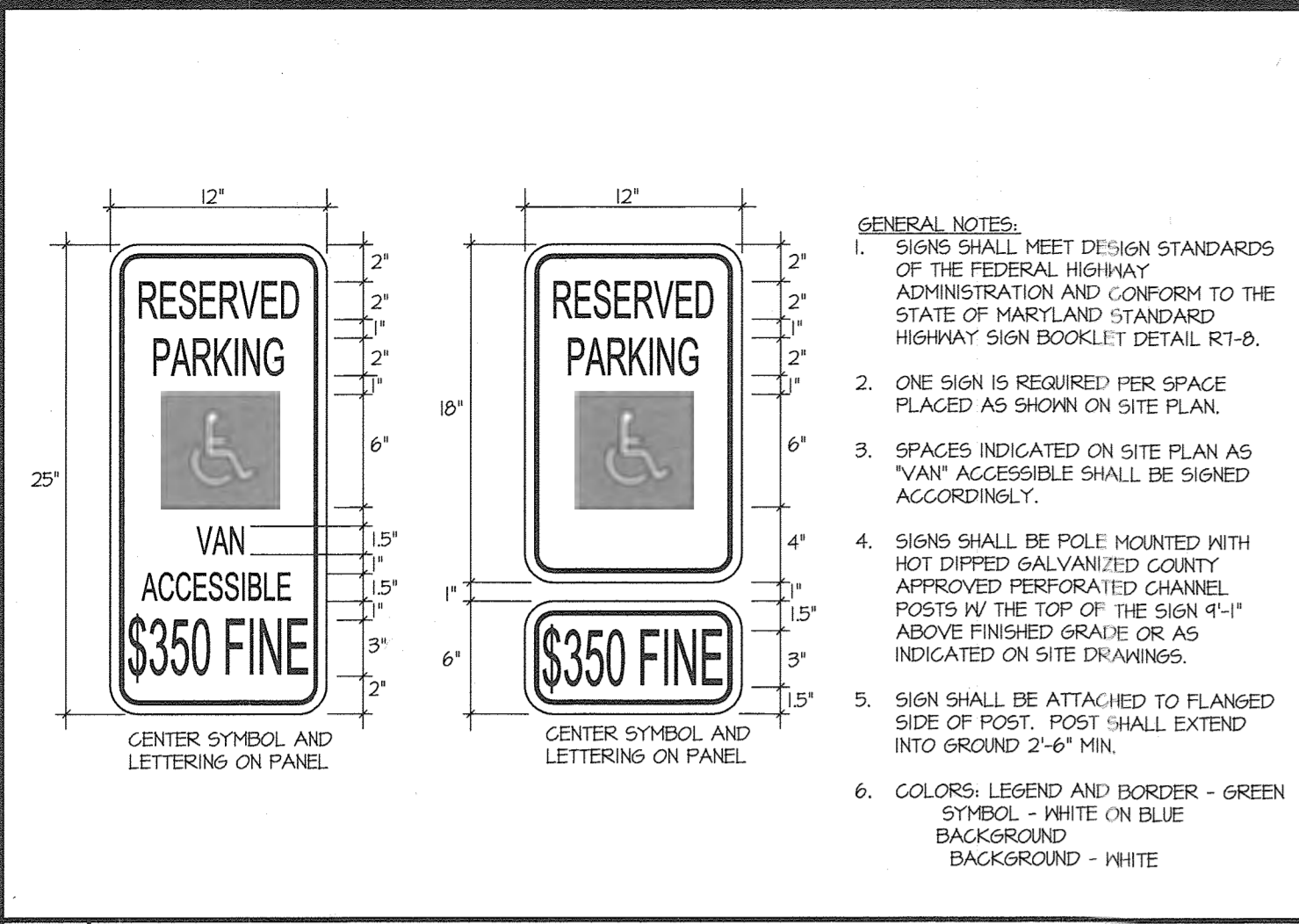
PROFESSIONAL CERTIFICATION  
 I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 12975  
 EXPIRATION DATE: MAY 26, 2018  
 6/9/16

**ADA RAMP**  
**DOWNTOWN COLUMBIA**  
**CRESCENT NEIGHBORHOOD**  
 PARCELS B THRU H, NON-BUILDABLE BULK PARCELS J THRU R,  
 O.S. LOTS I THRU 8 AND  
 MERRIWEATHER-SYMPHONY WOODS NEIGHBORHOOD O.S. LOT 1  
 AND NON-BUILDABLE BULK PARCEL A  
 ELECTION DISTRICT No. 5  
 HOWARD COUNTY, MARYLAND

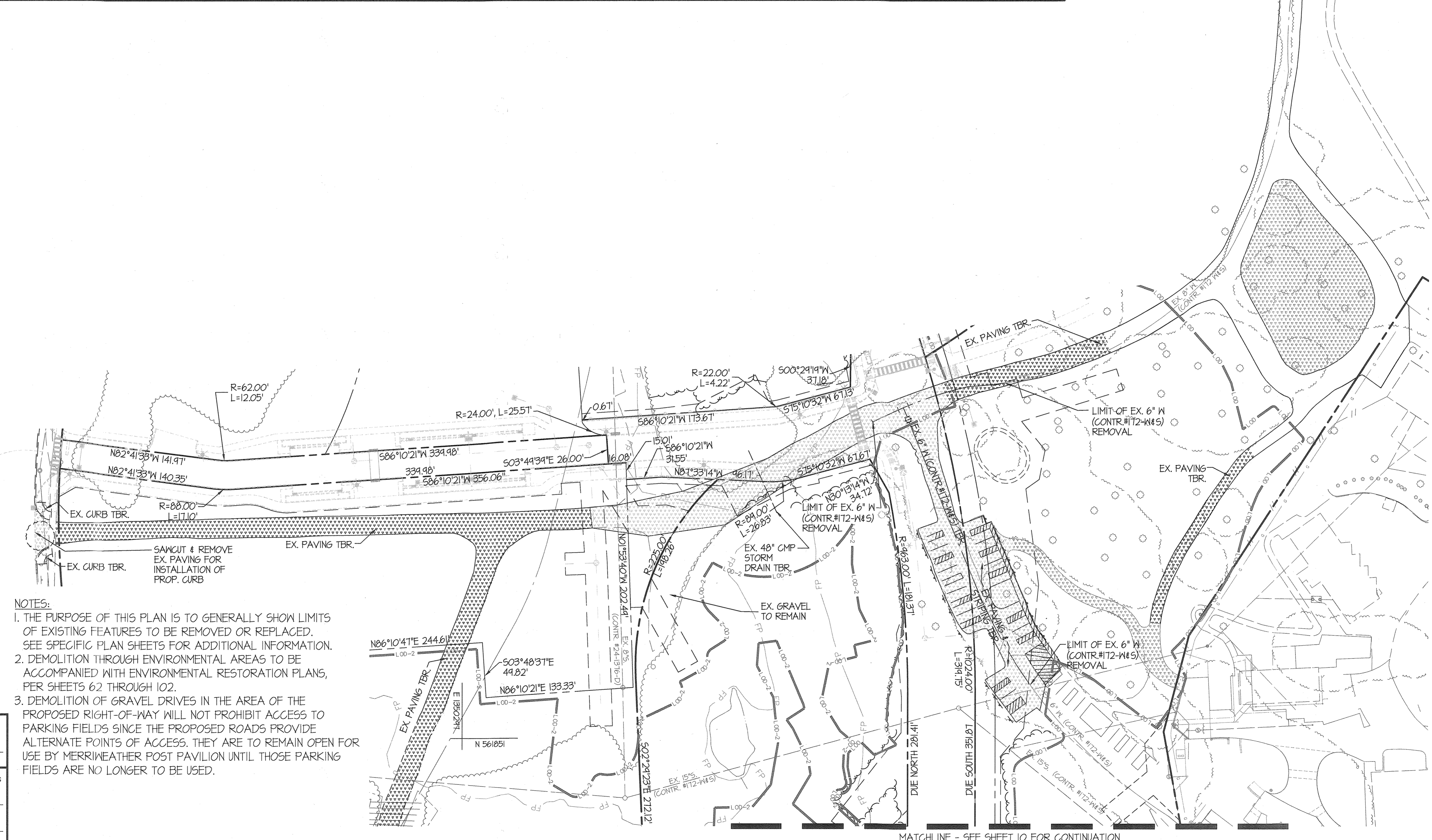
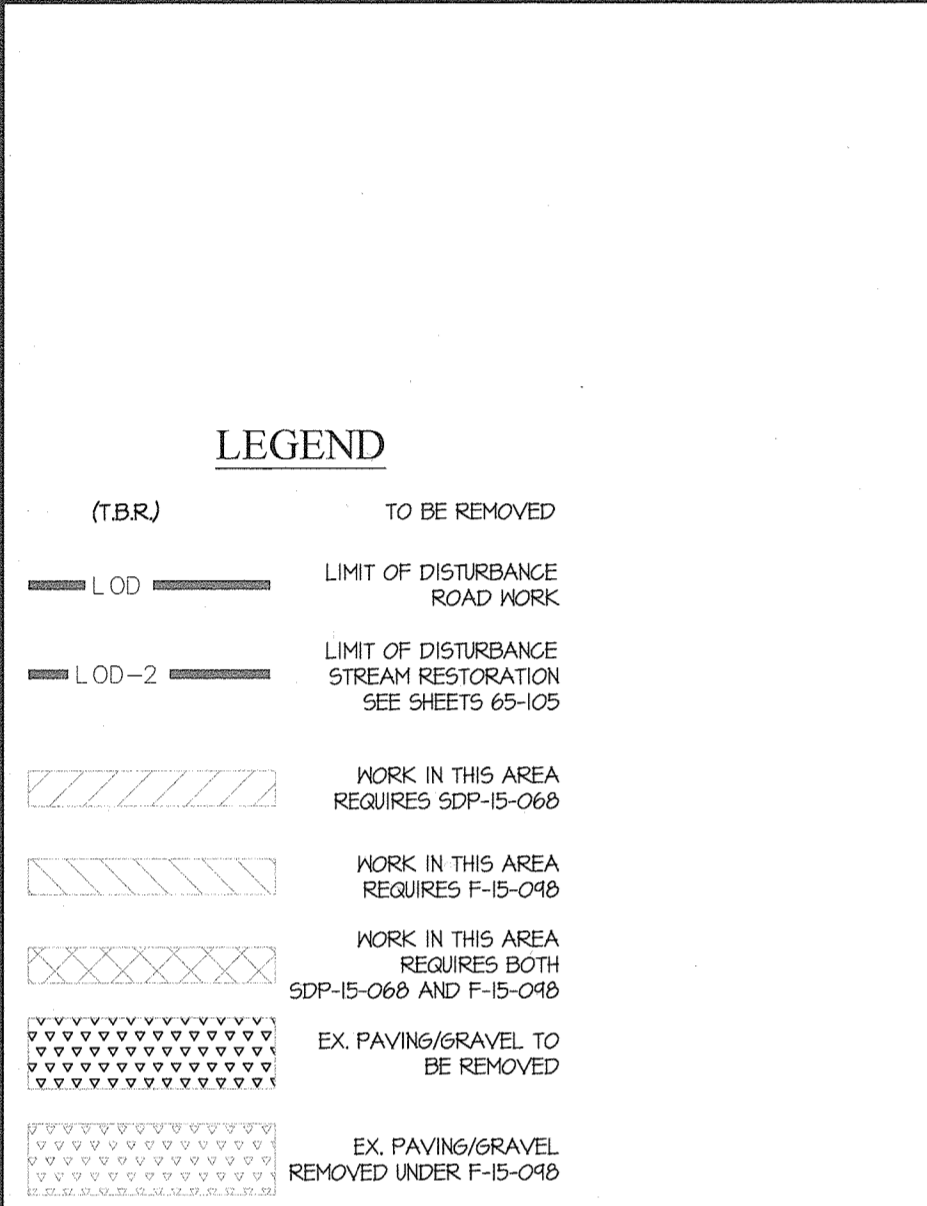
SCALE	ZONING	G. L. W. FILE NO.
AS SHOWN	NT	11071
DATE	TAX MAP - GRID	SHEET
JUNE, 2016	36 - 01	8 OF 102

L:\CAD\DRAWINGS\11071\PLANS BY GUY\11071\_08\_ADA\_Ramps.dwg, DATE: 2/26/16, 10:55 AM, LAST SAVE: 2/26/16, 10:55 AM, PLOTTED: 2/26/16, 10:55 AM





1	HANDICAP PARKING SIGNS DETAIL	NO SCALE
2	PARKING SPACE LAYOUT	NO SCALE
3	HANDICAP SPACE STENCIL LAYOUT	NO SCALE
4	POST & SIGN DETAIL FOR PARKING RESTRICTION SIGN	NO SCALE



APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*M. Mearns* 7/12/2016  
Chief, Bureau of Highways

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
*K. S. S. S.* 8-3-16  
Chief, Division of Land Development

*C. S. S.* 7-26-16  
Chief, Development Engineering Division

**GLWGUTSCHICK LITTLE & WEBER, P.A.**  
CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS  
3909 NATIONAL DRIVE - SUITE 250 - BURTONSVILLE OFFICE PARK  
BURTONSVILLE, MARYLAND 20866  
TEL: 301-421-4024 BAL: 410-880-1820 DC/VA: 301-989-2524 FAX: 301-421-4186

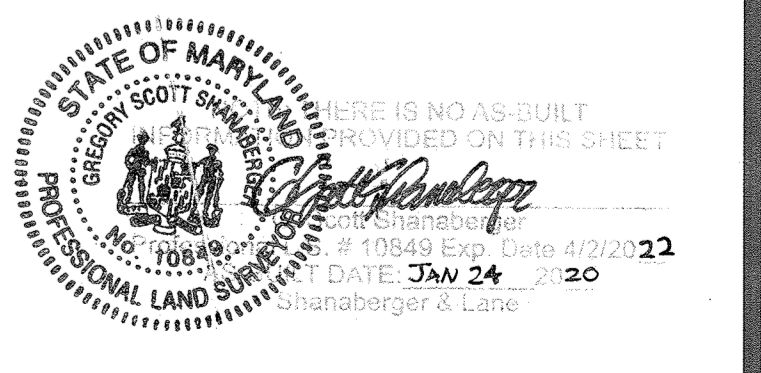
DATE	REVISION	BY	APP'R.

PREPARED FOR:  
THE HOWARD HUGHES CORPORATION  
10480 LITTLE PATUXENT PARKWAY  
SUITE 400  
COLUMBIA, MD 21044  
ATTN: BOB JENKINS  
410-964-5443

PROFESSIONAL CERTIFICATION  
HEREBY CERTIFY THAT THESE PLANS 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. 12975  
EXPIRATION DATE: MAY 28, 2018  
6/9/16

**DEMOLITION PLAN NORTH**  
**DOWNTOWN COLUMBIA**  
**CRESCENT NEIGHBORHOOD**  
PARCELS B THRU H, NON-BUILDABLE BULK PARCELS J THRU R,  
O.S. LOTS 1 THRU 8 AND  
MERRIWEATHER-SYMPHONY WOODS NEIGHBORHOOD O.S. LOT 1  
AND NON-BUILDABLE BULK PARCEL A  
HOWARD COUNTY, MARYLAND

SCALE 1"=50'	ZONING NT	G. L. W. FILE NO. 11071
DATE JUNE, 2016	TAX MAP - GRID 36 - 01	SHEET 9 OF 102

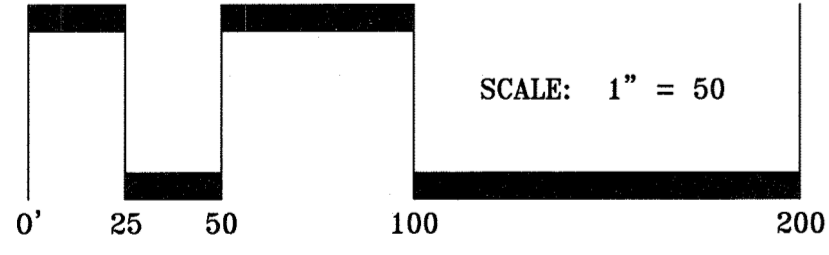
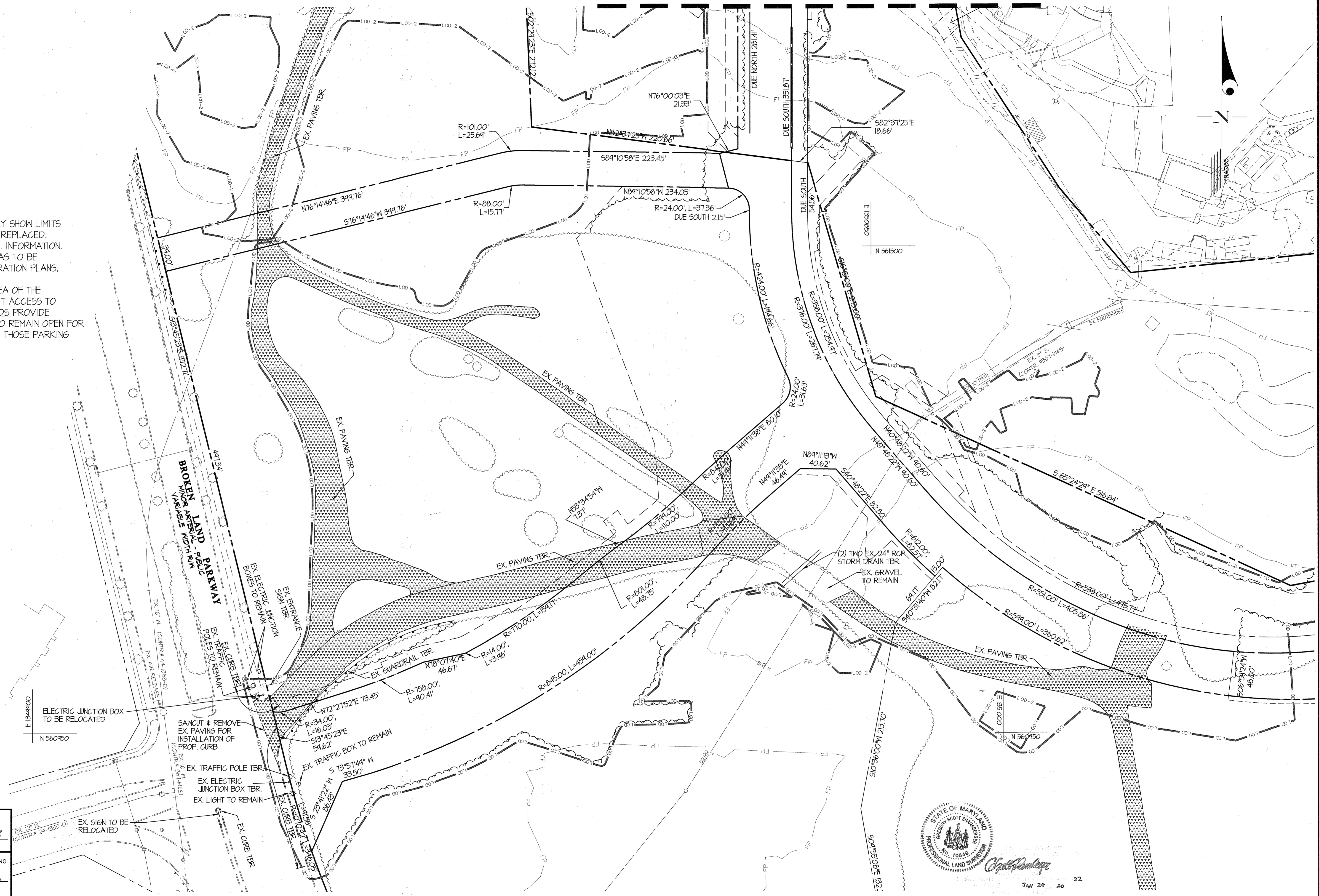




**LEGEND**

- (TBR) TO BE REMOVED
- L-00 LIMIT OF DISTURBANCE ROAD WORK
- 2-00-1 LIMIT OF DISTURBANCE STREAM RESTORATION SEE SHEETS 65-105
- L-00-2 WORK IN THIS AREA REQUIRES SDP-15-06B
- WORK IN THIS AREA REQUIRES F-15-09B
- WORK IN THIS AREA REQUIRES BOTH SDP-15-06B AND F-15-09B
- EX. PAVING TO BE REMOVED

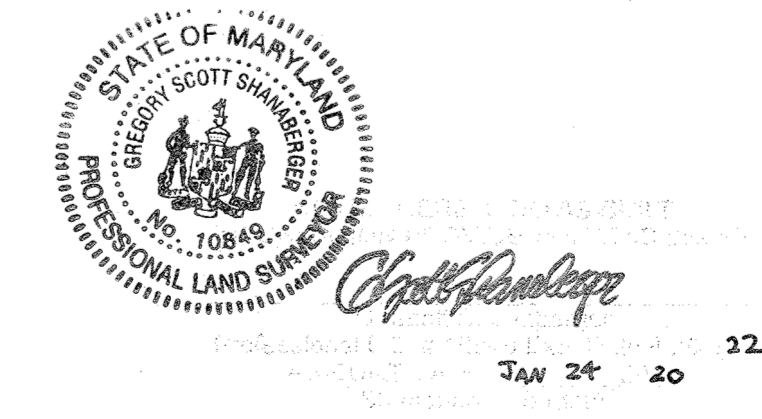
- NOTES:**
1. THE PURPOSE OF THIS PLAN IS TO GENERALLY SHOW LIMITS OF EXISTING FEATURES TO BE REMOVED OR REPLACED. SEE SPECIFIC PLAN SHEETS FOR ADDITIONAL INFORMATION.
  2. DEMOLITION THROUGH ENVIRONMENTAL AREAS TO BE ACCOMPANIED WITH ENVIRONMENTAL RESTORATION PLANS, PER SHEETS 62 THROUGH 102.
  3. DEMOLITION OF GRAVEL DRIVES IN THE AREA OF THE PROPOSED RIGHT-OF-WAY WILL NOT PROHIBIT ACCESS TO PARKING FIELDS SINCE THE PROPOSED ROADS PROVIDE ALTERNATE POINTS OF ACCESS. THEY ARE TO REMAIN OPEN FOR USE BY MERRIWEATHER POST PAVILION UNTIL THOSE PARKING FIELDS ARE NO LONGER TO BE USED.



APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*[Signature]*  
 Chief, Bureau of Highways

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
*[Signature]* 8-3-16  
 Chief, Division of Land Development

*[Signature]* 7-26-16  
 Chief, Development Engineering Division



**GLWGUTSCHICK LITTLE & WEBER, P.A.**  
 CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS  
 3909 NATIONAL DRIVE - SUITE 230 - BURTNSVILLE OFFICE PARK  
 BURTNSVILLE, MARYLAND, 20866  
 TEL: 301-421-4024 FAX: 410-880-1820 DC/VA: 301-989-2524 FAX: 301-421-4186

DATE	REVISION	BY	APP'R.

PREPARED FOR:  
 THE HOWARD HUGHES CORPORATION  
 10480 LITTLE PATUXENT PARKWAY  
 SUITE 400  
 COLUMBIA, MD 21044  
 ATTN: BOB JENKINS  
 410-964-5443

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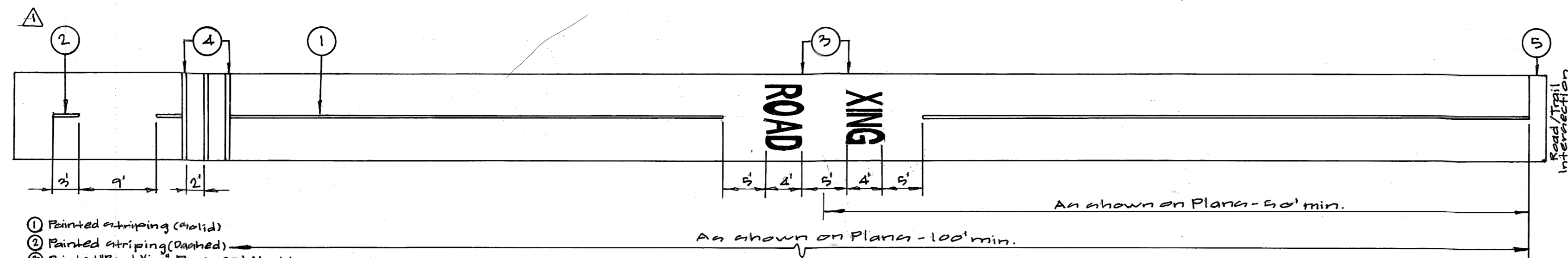
*[Signature]*  
 6/1/16

**DEMOLITION PLAN SOUTH**  
**DOWNTOWN COLUMBIA**  
**CRESCENT NEIGHBORHOOD**  
**PARCELS B THRU H, NON-BUILDABLE BULK PARCELS J THRU R, OS. LOTS 1 THRU 8 AND MERRIWEATHER-SYMPHONY WOODS NEIGHBORHOOD O.S. LOT 1 AND NON-BUILDABLE BULK PARCEL A**  
 HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
1"=50'	NT	11071
DATE	TAX MAP - GRID	SHEET
JUNE, 2016	36 - 01	10 OF 102

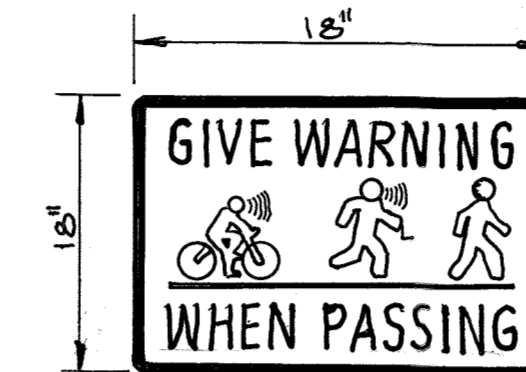


RIVER STATION	WSEL
34+96.69	332.33
34+19.67	331.83
33+22.41	330.51
32+32.74	328.97
32+01.77	
31+68.30	328.62
31+00.38	327.38
30+31.84	326.84
29+23.68	326.47
28+44.01	326.20
27+55.21	325.54
26+16.50	AT CULVERT
26+18.65	322.80
25+19.30	322.18
25+61.75	322.24
25+44.07	322.01
25+33.64	322.01
24+93.75	321.82
100+58.78	326.08
100+46.91	326.24
101+43.82	326.45
101+82.80	326.41
102+66.84	330.82
103+09.19	332.46
104+13.35	AT CULVERT
104+51.07	335.56
104+94.29	335.86
105+58.75	331.24
106+01.37	331.73
106+47.17	338.02
106+94.26	339.23
107+28.60	339.46
107+63.19	341.06
108+03.63	342.88
108+31.44	343.44

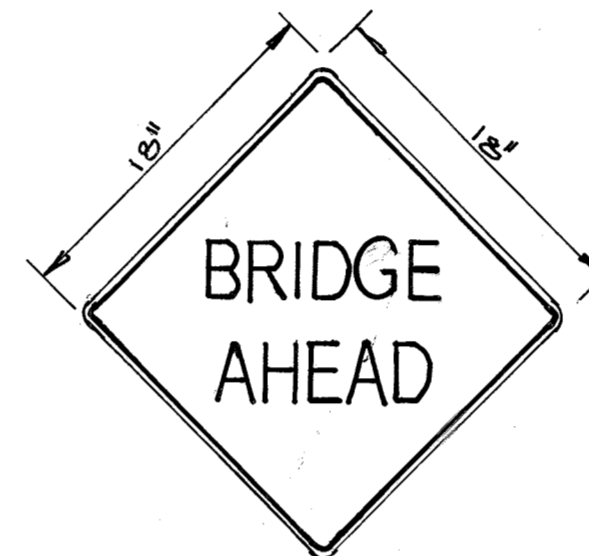


- ① Painted striping (Painted)
- ② Painted striping (Dashed)
- ③ Painted "Road King" Pavement Marking
- ④ (R) Rumble striping on center
- ⑤ 12" stop bar (no "stop" marking depending on Traffic Control)

**TRAIL PAVEMENT MARKING SYMBOL PLACEMENT**  
Not to scale



CUSTOM SIGN  
Not to scale



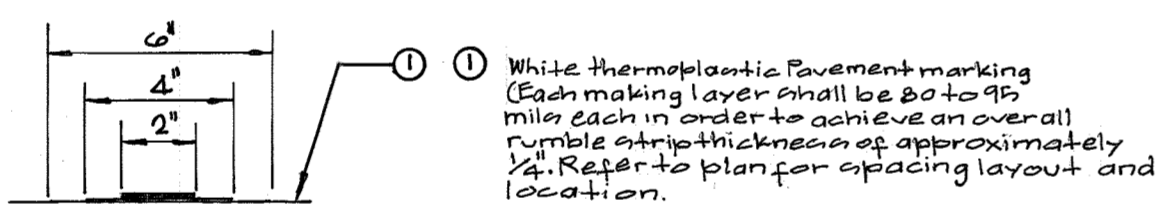
W5 - 4A MOD SIGN  
Not to scale

**SIGN NOTES:**

- Applicable specifications and standards: Maryland Manual on Uniform Traffic Control (MD MUTCD), American Society for Testing and Materials (ASTM).
- PREPARATION:
  - If site conditions vary from plan, Contractor shall notify Owner's representative prior to installation.
  - Dimensions, size and all related dimensions for sign layout, panel sizes, post sizes, mounting dimensions are as specified in the plans.
  - All graphic format, use of typography color, directional arrow graphics and pictograms are as specified in the plan. Shop drawings of proposed sign layout shall be submitted and approved prior to sign panel fabrication.
  - All structures shall be engineered to meet a variety of site conditions. Signs shall be engineered for wind loads, soil conditions, frost depth and structural integrity. Special conditions that are outside parameters are to be engineered on a site-specific basis. The design by the structural requirements of special one-of-a-kind signs shall conform to the basic engineering specifications for sign types. The modified assembly shall fulfill the requirements of local criteria for wind pressure, soil and frost depth. All engineering and structural integrity will be the responsibility of the Contractor unless otherwise noted.
- FABRICATION:
  - Provide shop and fabrication drawings for Review and Approval detailing the proposed fabrication of all signs and structures indicated in plan documents.
  - The Contractor shall prepare for review by the Owner's representative a fabrication shop drawing upon review of the shop drawing the Contractor shall make all corrections and adjustments. An indicated and resubmit for review and approval, revisions to shop drawings shall include a revision date. Fabrication shop drawings shall include, but are not limited to the following:
    - All sign used for Traffic Control signs shall be mounted on 2" galvanized steel perforated (diamond) square tube posts (4 gauge) inserted into a 2-1/2" galvanized steel square tube sleeve (2" long) the anchor shall not extend more than two (2) inch punch holes above ground level.
- INSTALLATION:
  - All Traffic Control signs located within County rights-of-way are to be checked and be field approved prior to installation by Howard County Traffic Division (410-315-2492).
  - All Traffic Control signs and their locations shall be in accordance with the latest edition of the Maryland Manual on Uniform Traffic Control Devices (MD MUTCD).
  - Sign locations shall be marked with a stake and shall have the sign type code and location code and correspond to the sign location in the plan drawings.
  - Unforeseen obstructions may limit the depth of standard footing or require special mitigation to prevent damage to existing tree roots where feasible, move the sign needed to allow unobstructed subgrade installation. Adjust sign installation location on to keep them beyond the drip line of trees wherever possible. Notify the Project Designer of any proposed sign locations within the drip line of the trees. The drip line shall be defined as the area below the lowest spreading branches of a tree if a sign placement location must be moved. The Contractor shall get approval of the Project Designer and/or County Representative to move the sign to a logically moved. Verify sight-lines of proposed locations to affirm that sign is still visible from the designated approach.

- Materials: All thermoplastic marking materials shall conform to the MHA Manual of Technical Design Standards.
- Application Method: All pavement marking Application Methods shall be approved by Project Designer prior to start of work.
- Painted Striping for Path:
  - Material Specifications: Sprayable non-toxic lead free water-borne pavement marking per MSHA section 550 at thickness of 1/8" mils. 2" / Traffic yellow.
  - Stripe Width/Color: 2" / Traffic yellow.
  - Stripe Character: Center of Pathway smooth edge with constant arc in curves (no waving or serpentine appearance will be accepted). Beginning/End (one per marking Plan). On each side of a Bridge or Intersection there shall be solid line pattern implemented in place of the dashed pattern.
  - Solid Line: 2" stripe/break. Dashed line shall end one foot before Rumble stripes, crosswalk or other pavement markings.
  - DASHED: 2" stripe/break. Dashed line shall end one foot before Rumble stripes, crosswalk or other pavement markings.
- Thermoplastic Rumble Stripes:
  - Material Specifications: 90 mils beaded 2" / 4" and 2" wide/white. Three separate lines beginning at 10' from the crossing for the plan line. The next two lines shall be placed 20' from center heading toward the intersection. Each stripe shall extend the entire width of the trail.
  - Stripe Width/Color: 2" / 4" and 2" wide/white.
  - PATTERN: Three separate lines beginning at 10' from the crossing for the plan line. The next two lines shall be placed 20' from center heading toward the intersection. Each stripe shall extend the entire width of the trail.
- Painted Advance Marking For Path:
  - Material Specifications: Sprayable non-toxic lead free water-borne pavement marking per MSHA section 550 at thickness of 1/8" mils. 4" height/white.
  - Stripe Width/Color: 4" height/white.
  - Letter Width/Spacing: 2" / 5" spacing.
  - Location: Minimum 10' from concrete threshold or stop sign. Road King.
- Painted Stop bar for Path:
  - Material Specifications: Sprayable non-toxic lead free water-borne pavement marking per MSHA section 550 at thickness of 1/8" mils. Even with the STOP sign no more than 5' from the road threshold. At intersections with pedestrian signals, a thermoplastic stop bar shall be placed at the edge of the pavement without the word "STOP".
  - Length/Color: 2' / 5" spacing.
  - Location: Road King.
- Painted Stop Lettering For Path:
  - Material Specifications: Sprayable non-toxic lead free water-borne pavement marking per MSHA section 550 at thickness of 1/8" mils. 4" height/white.
  - Stripe Width/Color: 4" height/white.
  - Letter Width: 2" / 5" spacing.
  - Location: Path side of stop bar (see intersection layout for placement).
- Thermoplastic Crosswalk:
  - Material Specifications: 90 mils beaded thermoplastic heat applied 12" white edge/1/4" white cross bars.
  - Stripe Width/Color: 12" white edge/1/4" white cross bars.
  - Stripe Character: Smooth edge with constant arc in curves (no waving or serpentine appearance will be accepted). Centerline of crosswalk to be at centerline of pedestrian ramp unless otherwise noted.
  - Location: Centerline of crosswalk to be at centerline of pedestrian ramp unless otherwise noted.

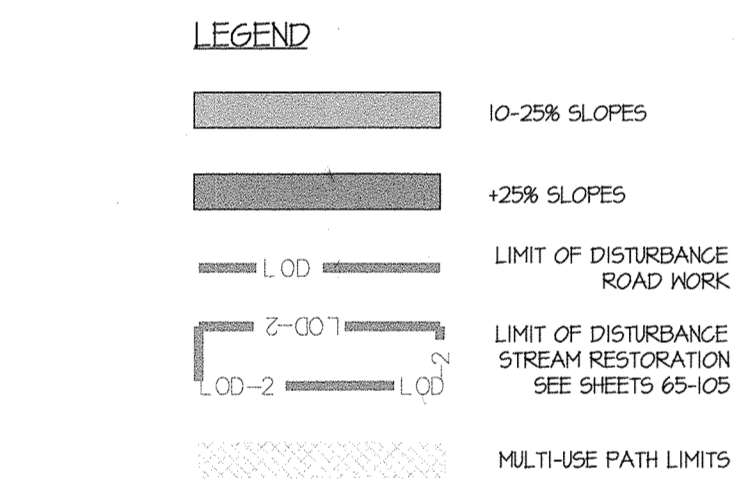
**PAVEMENT MARKING SPECIFICATIONS**  
Not to scale



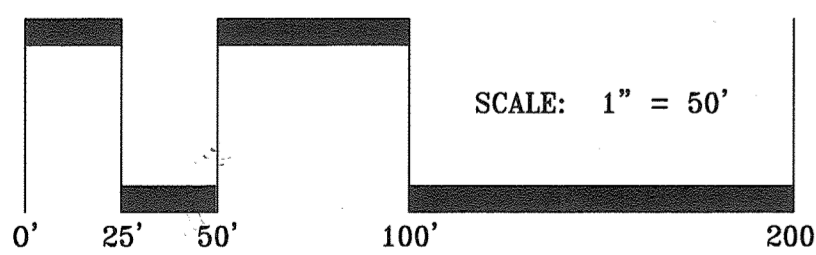
**Note:**

- Traffic Control signs should be installed at a minimum of 1' height when adjacent to trail.
- Sign posts: 2-pouch square tubular posts.

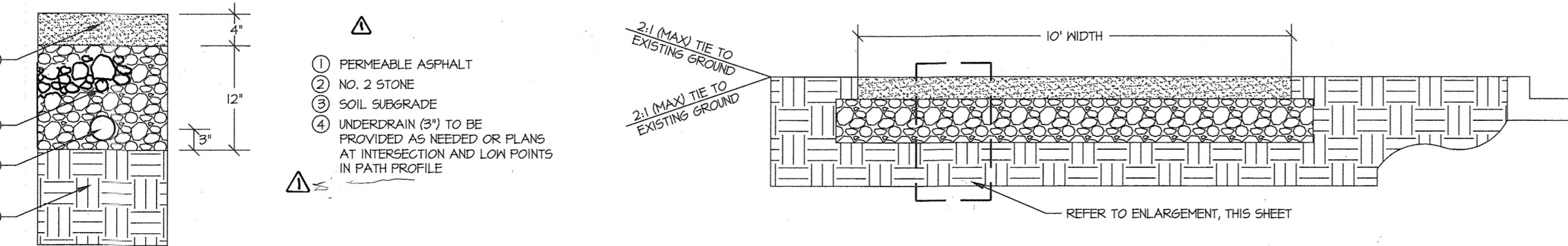
**BICYCLE RUMBLE STRIP**  
Not to scale



**NOTE:** 1. HANDICAP PARKING LOT REVIEWED AND APPROVED BY THE PLANNING BOARD WITH SDP 16-018.  
2. A RECIPROCAL EASEMENT AGREEMENT BETWEEN INNER ARBOR TRUST, INC., AS EXPRESSLY AUTHORIZED BY COLUMBIA ASSOCIATION INC., AND MERRIWEATHER POST BUSINESS TRUST AND THE HOWARD RESEARCH AND DEVELOPMENT CORPORATION WAS RECORDED ON MAY 27, 2015 AT LIBER 16235, FOLIO 245. EASEMENT AREA B IS FOR THE PURPOSES OF CONSTRUCTING AND PROVIDING A NEW, RE-DESIGNED ADA-COMPLIANT PARKING LOT AND PEDESTRIAN INGRESS AND EGRESS FOR THE PAVILION AND SYMPHONY WOODS FOR SHARED USE.



TYPICAL SECTION THROUGH MULTI-USE PATH



APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*[Signature]* 7/16/16  
Chief, Bureau of Highways  
Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
*[Signature]* 8-3-16  
Chief, Division of Land Development  
Date

*[Signature]* 7-26-16  
Chief, Development Engineering Division  
Date

**GLWGUTSCHICK LITTLE & WEBER, P.A.**  
CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS  
3909 NATIONAL DRIVE - SUITE 250 - BURTONSVILLE OFFICE PARK  
BURTONSVILLE, MARYLAND 20866  
TEL: 301-421-6024 BAL: 410-880-1820 DC/VA: 301-989-2524 FAX: 301-421-4186

DATE	REVISION	BY	APP'R.
7-12-17	1. Revised multi-use path to eliminate overdrain and added 21" max tie to existing ground	g4	DEV

PREPARED FOR:  
THE HOWARD HUGHES CORPORATION  
10480 LITTLE PATUXENT PARKWAY  
SUITE 400  
COLUMBIA, MD 21044  
ATTN: BOB JENKINS  
410-964-5443

PROFESSIONAL CERTIFICATION  
I HEREBY CERTIFY THAT THESE PLANS 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. 12975  
EXPIRATION DATE: MAY 26, 2018  
6/19/16



**GRADING PLAN**  
**DOWNTOWN COLUMBIA**  
**CRESCENT NEIGHBORHOOD**  
PARCELS B THRU H, NON-BUILDABLE BULK PARCELS J THRU R, O.S. LOTS 1 THRU 8 AND MERRIWEATHER-SYMPHONY WOODS NEIGHBORHOOD O.S. LOT 1 AND NON-BUILDABLE BULK PARCEL A  
HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
1"=50'	NT	11071
DATE	TAX MAP - GRID	SHEET
JUNE, 2016	36 - 01	11 OF 102



L:\CAD\DRAWINGS\11071\PLANS BY G\W\Phase 1\11071-11-12 GRADING PLAN.dwg, PLOTTED: 6/19/2016 9:49 AM, LAST SAVED: 6/17/2016 7:24 AM, PLOTTED BY: Joy Horton



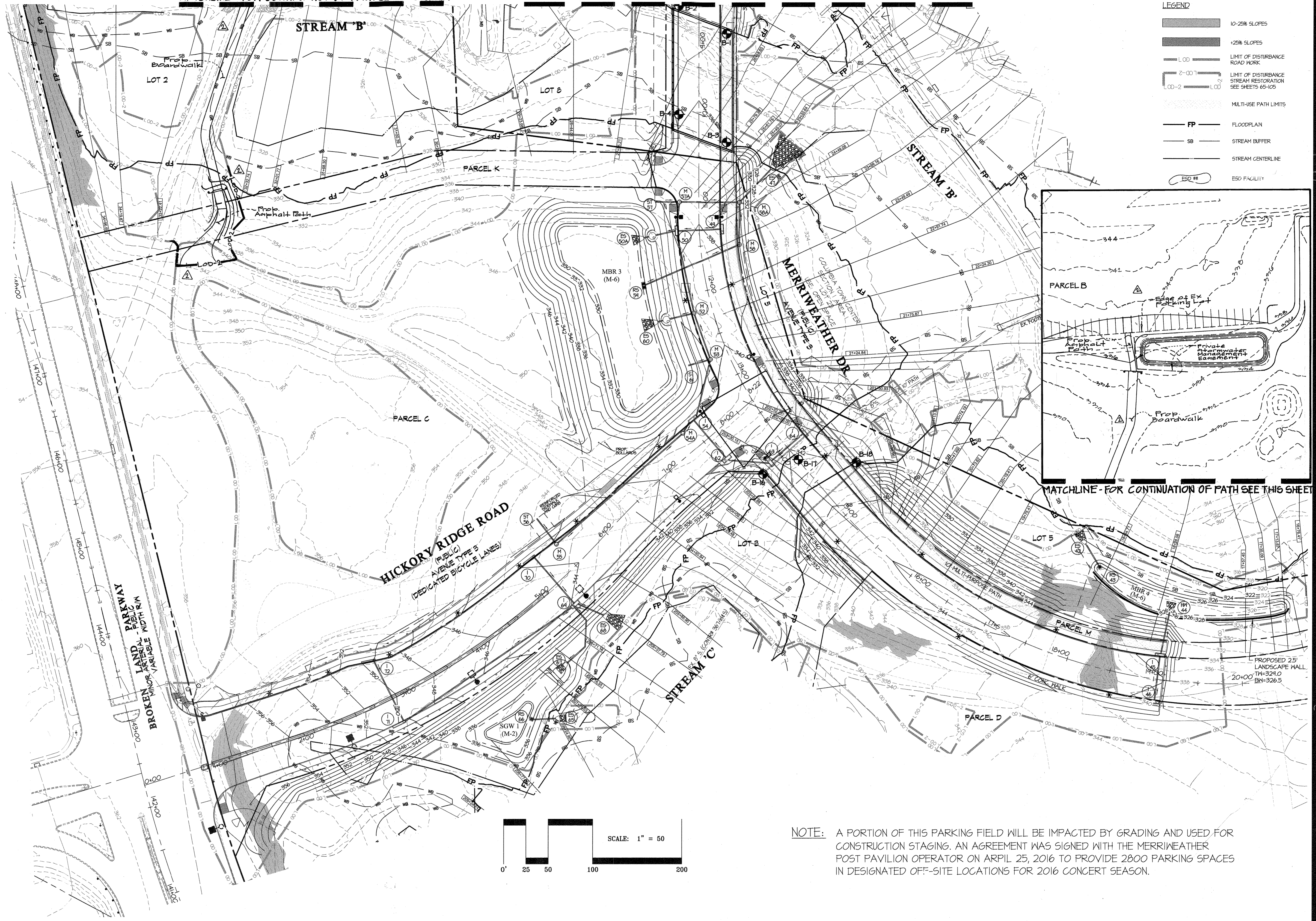
RIVER STATION	WSEL
34+46.69	332.33
34+14.67	331.83
33+22.41	330.57
32+32.74	328.97
32+01.77	
31+68.30	328.62
31+00.34	327.38
30+31.84	326.89
29+23.68	326.47
28+44.01	326.20
27+55.21	325.54
26+76.50	AT CULVERT
26+18.65	322.80
25+79.30	322.18
25+61.75	322.29
25+49.07	322.01
25+33.64	322.01
24+43.75	321.82
24+41.08	321.71
23+49.44	320.47
22+41.74	320.15
22+24.30	319.70
21+75.87	319.55
21+24.84	316.70
20+73.62	317.01
20+19.41	316.73
19+75.41	316.56
18+84.71	315.99
18+28.08	315.62
17+57.45	315.50
17+35.09	315.47
17+13.67	315.29
16+76.41	315.19
200+41.69	317.90
200+74.19	318.80
201+13.91	319.66
201+50.93	320.65
201+48.96	322.38
202+32.29	324.30
202+68.03	AT CULVERT
203+30.15	AT CULVERT
203+84.88	326.62
204+04.33	
204+24.48	328.25
204+80.84	
205+85.90	330.74
206+37.79	331.08
206+71.16	331.84
207+16.55	332.07
207+74.53	332.64
208+24.90	333.25
208+71.06	334.15
209+24.74	335.12

MATCHLINE - FOR CONTINUATION OF PATH SEE THIS SHEET

MATCHLINE - SEE SHEET II FOR CONTINUATION

LEGEND

- 10-25% SLOPES
- >25% SLOPES
- LIMIT OF DISTURBANCE ROAD WORK
- LIMIT OF DISTURBANCE STREAM RESTORATION SEE SHEETS 65-66
- MULTI-USE PATH LIMITS
- FLOODPLAIN
- STREAM BUFFER
- STREAM CENTERLINE
- ESD #1



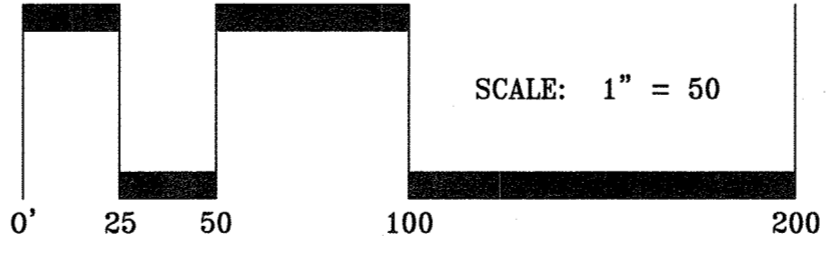
MATCHLINE - FOR CONTINUATION OF PATH SEE THIS SHEET

STATE OF MARYLAND  
 PROFESSIONAL LAND SURVEYOR  
 No. 10949  
 Greg Scott  
 22  
 JAN 24 2016

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
 Chief, Bureau of Highways  
 Date: 7/12/2016

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
 Chief, Division of Land Development  
 Date: 7-26-16

Chief, Development Engineering Division



NOTE: A PORTION OF THIS PARKING FIELD WILL BE IMPACTED BY GRADING AND USED FOR CONSTRUCTION STAGING. AN AGREEMENT WAS SIGNED WITH THE MERRIWEATHER POST PAVILION OPERATOR ON APRIL 25, 2016 TO PROVIDE 2800 PARKING SPACES IN DESIGNATED OFF-SITE LOCATIONS FOR 2016 CONCERT SEASON.

**GLWGUTSCHICK LITTLE & WEBER, P.A.**  
 CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS  
 3909 NATIONAL DRIVE - SUITE 250 - BURTONSVILLE OFFICE PARK  
 BURTONSVILLE, MARYLAND 20866  
 TEL: 301-421-4024 FAX: 301-989-2524

NO.	DATE	DESCRIPTION	BY	APPR.
1	4-28-16	Add boardwalk/Path - Adjust Loop-2 Line	34	DEV.

PREPARED FOR:  
 THE HOWARD HUGHES CORPORATION  
 10480 LITTLE PATUXENT PARKWAY  
 SUITE 400  
 COLUMBIA, MD 21044  
 ATTN: BOB JENKINS  
 410-964-5443

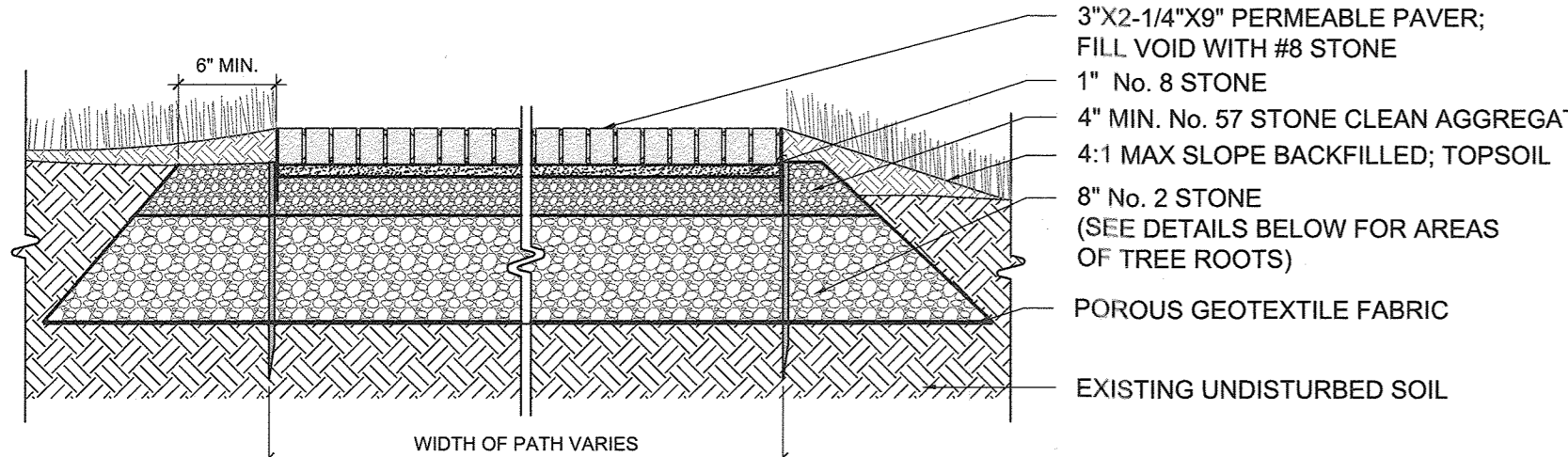
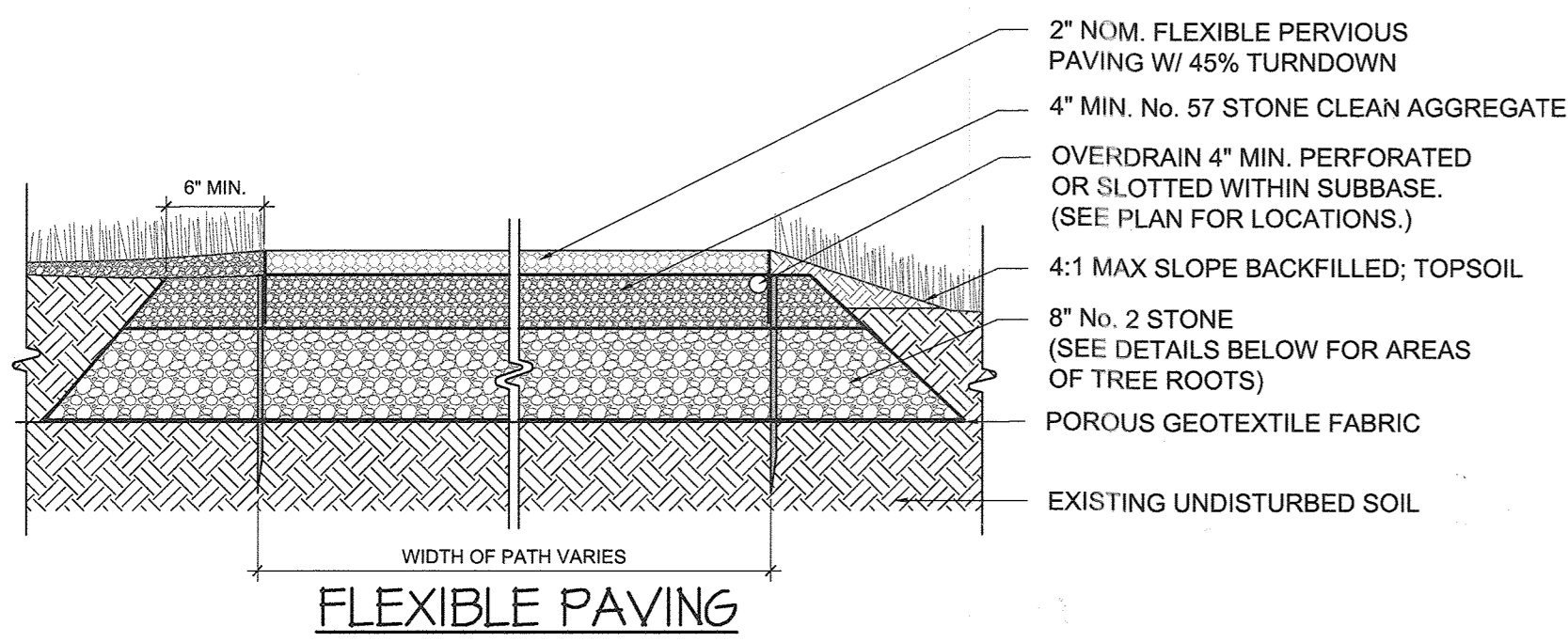
PROFESSIONAL CERTIFICATION  
 I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 12975  
 EXPIRATION DATE: MAY 26, 2018  
 6/9/16

**GRADING PLAN**  
**DOWNTOWN COLUMBIA**  
**CRESCENT NEIGHBORHOOD**  
**PARCELS B THRU H, NON-BUILDABLE BULK PARCELS J THRU R,**  
**O.S. LOTS 1 THRU 8 AND**  
**MERRIWEATHER-SYMPHONY WOODS NEIGHBORHOOD O.S. LOT 1**  
**AND NON-BUILDABLE BULK PARCEL A**  
 ELECTION DISTRICT No. 5  
 HOWARD COUNTY, MARYLAND

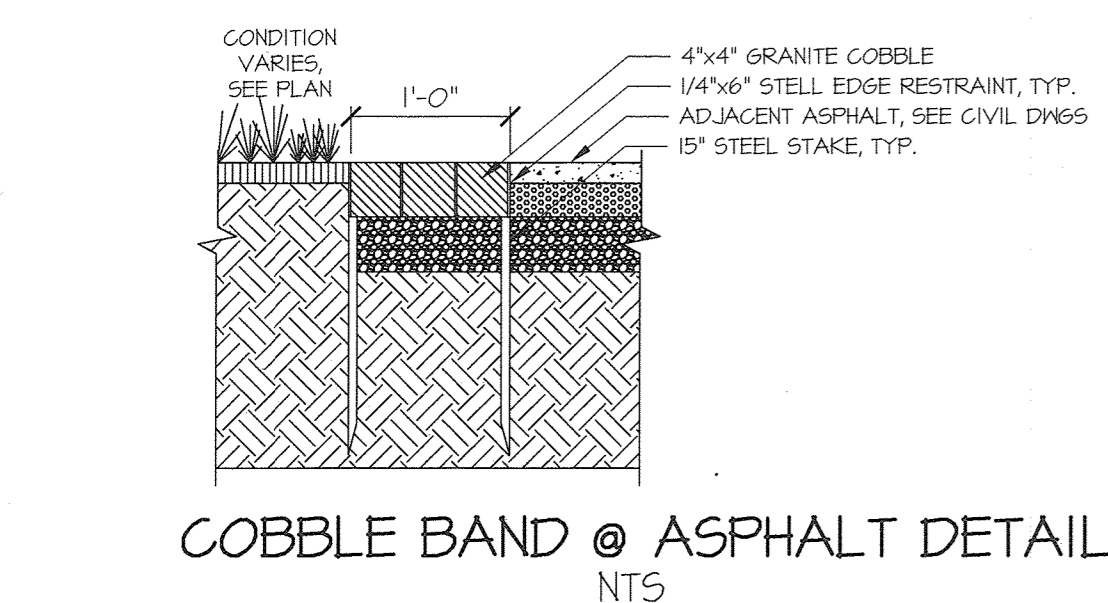
SCALE	ZONING	G. L. W. FILE NO.
1"=50'	NT	11071
DATE	TAX MAP - GRID	SHEET
JUNE, 2016	36 - 01	12 OF 102

L:\CADD\DRAWINGS\11071\PLANS BY GUTSCHICK LITTLE & WEBER, P.A. 11-15-15 GRADING PLAN.dwg  
 PLOTTED 6/28/2016 2:46 PM. LAST SAVED 6/28/2016 2:43 PM. PLOTTED BY: [unclear]





**TYPICAL 12" PERMEABLE PAVEMENT SECTIONS**  
(FOR ROOT AREAS, SEE DETAILS THIS SHEET) NTS



**B.4.B Specifications for Permeable Pavements**

These specifications include information on acceptable materials for typical applications and are not exclusive or limiting. The designer is responsible for developing detailed specifications for individual projects and specific conditions.

**1. Pervious Concrete Specifications**

**Design Thickness** - Pervious concrete applications shall be designed so that the thickness of the concrete slab shall support the traffic and vehicle types that will be carried. Applications may be designed using either standard pavement procedures (e.g., AASHTO, ACI 325.9R, ACI 330R) or using structural values derived from flexible pavement design procedures.

**Mix & Installation** - Traditional Portland cements (ASTM C 150, C 151) may be used in pervious concrete applications. Phosphorus admixtures may also be used. Materials should be tested (e.g., trial batching) prior to construction so that critical properties (e.g., setting time, rate of strength development, porosity, permeability) can be determined.

**Aggregate** - Pervious concrete contains a limited fine aggregate content. Commonly used gradations include ASTM C 33 No. 67 (¾ in. to No. 4), No. 8 (¾ in. to No. 16) and No. 89 (¾ in. to No. 50) sieves. Single-sized aggregate (up to 1 inch) may also be used.

**Water Content** - Water-to-cement ratios between 0.21 and 0.30 are used routinely with proper inclusion of chemical admixtures. Water quality should meet ACI 308. As a general rule, potable water should be used although recycled concrete production water meeting ASTM C 44 or AASHTO M 151 may also be used.

**Admixtures** - Chemical admixtures (e.g., retarders or hydration-stabilizers) are used to obtain special properties in pervious concrete. Use of admixtures should meet ASTM C 494 (chemical admixtures) and ASTM C 260 (air entraining admixtures) and closely follow manufacturer's recommendations.

**OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED PERMEABLE PAVEMENT (A-2)**

- The Owner shall periodically sweep (or vacuum porous concrete pavement) the pavement surfaces to reduce sediment accumulation and ensure continued surface porosity. Sweeping should be performed at least twice annually with a commercial cleaning unit. Mowing or compressed air units should not be used to perform surface cleaning.
- The Owner shall periodically clean drainage pipes, inlets, stone edge drains and other structures within or draining to the subbase.
- The Owner shall use deicers in moderation. Deicers should be non-toxic and be applied either as calcium magnesium acetate or as pretreated salt.
- The Owner shall ensure snow plowing is performed carefully with blades set one inch above the surface. Plowed snow piles and snowmelt should not be directed to permeable pavement.

**Base Course** - The base course shall be AASHTO No. 3 or 4 course aggregate with an assumed open pore space of 30% (n = 0.30).

**2. Permeable Interlocking Concrete Pavements (PICP)**

**Paver Blocks** - Blocks should be either 3 ½ in. or 4 in. thick, and meet ASTM C 936 or CSA A231.2 requirements. Applications should have 20% or more (40% preferred) of the surface area open. Installation should follow manufacturer's instructions, except that infill and base course materials and dimensions specified in this Appendix shall be followed.

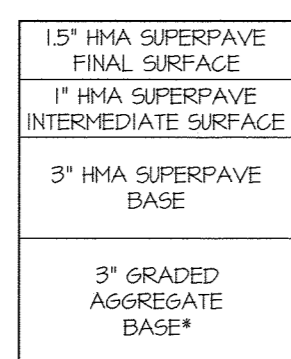
**Infill Materials and Leveling Course** - Openings shall be filled with ASTM C-33 graded sand or sandy loam. PICP blocks shall be placed on a one-inch thick leveling course of ASTM C-33 sand.

**Base Course** - The base course shall be AASHTO No. 3 or 4 course aggregate with an assumed open pore space of 30% (n = 0.30).

**Reinforced Turf**

**Reinforced Grass Pavement (RGP)** - Whether used with grass or gravel, the RGP thickness shall be at least 1 ¾" thick with a load capacity capable of supporting the traffic and vehicle types that will be carried.

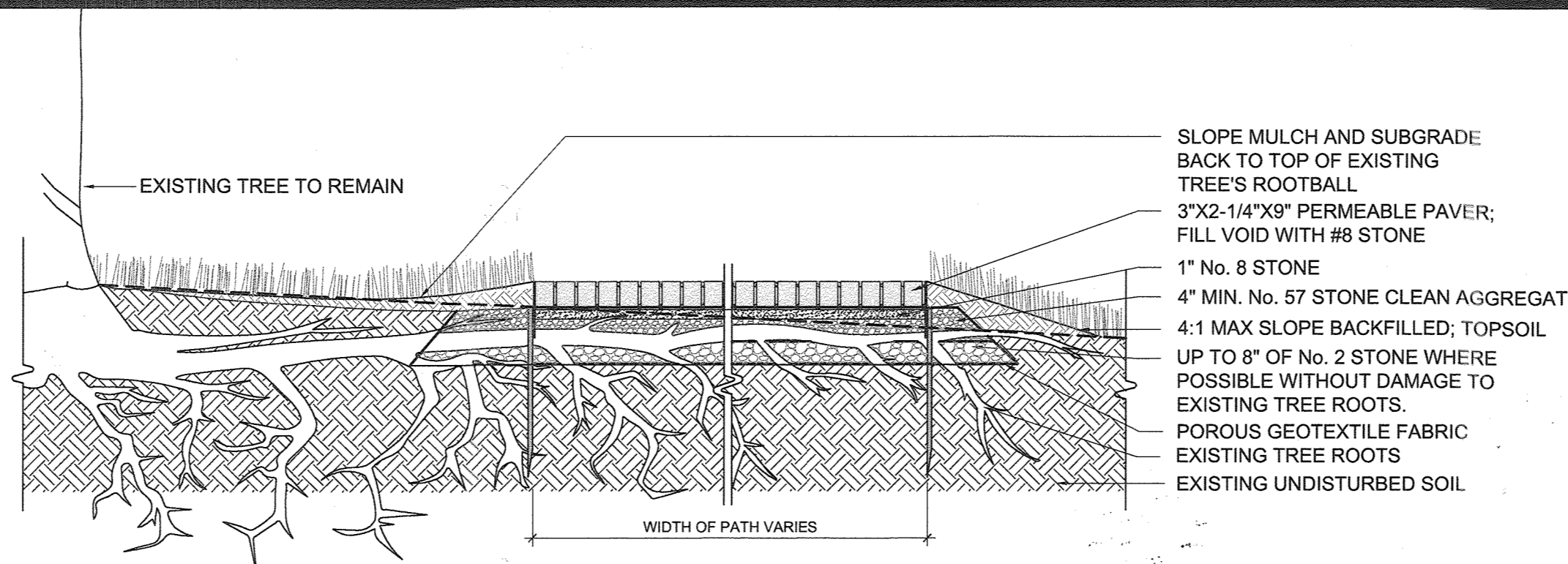
**BITUMINOUS PAVING SECTION**



\* NOTE:  
FOR CBR 3 TO 5, USE 10" GAB  
FOR CBR 5 TO 11, USE 6" GAB  
FOR CBR > 11, USE 3" GAB

**PAVING NOTES:**

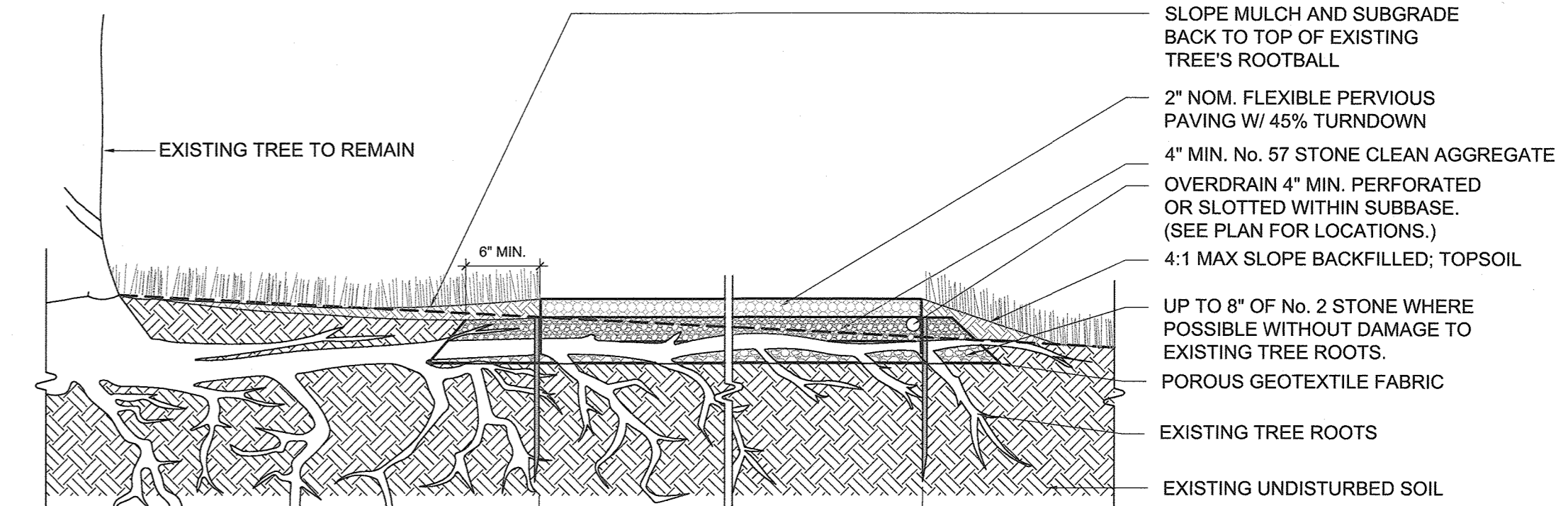
- P-3 IS PER HOWARD COUNTY R-2.01 SECTION DESIGNATIONS
- OTHER EQUIVALENT PAVING SECTIONS MAY BE USED WHEN APPROVED BY A PROFESSIONAL SOILS ENGINEER.



**PERMEABLE PAVEMENT (A-2)-PAVER IN ROOT AREAS DETAIL**

**NOTES:**

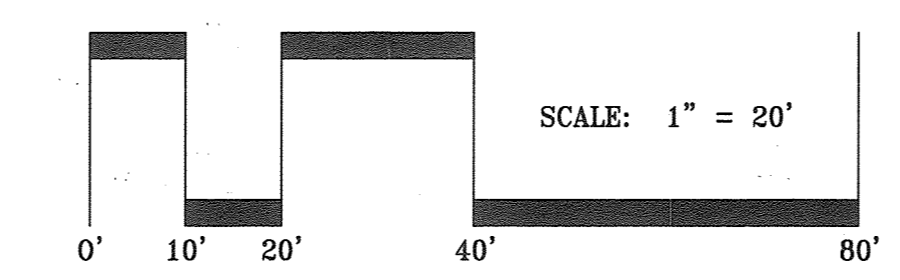
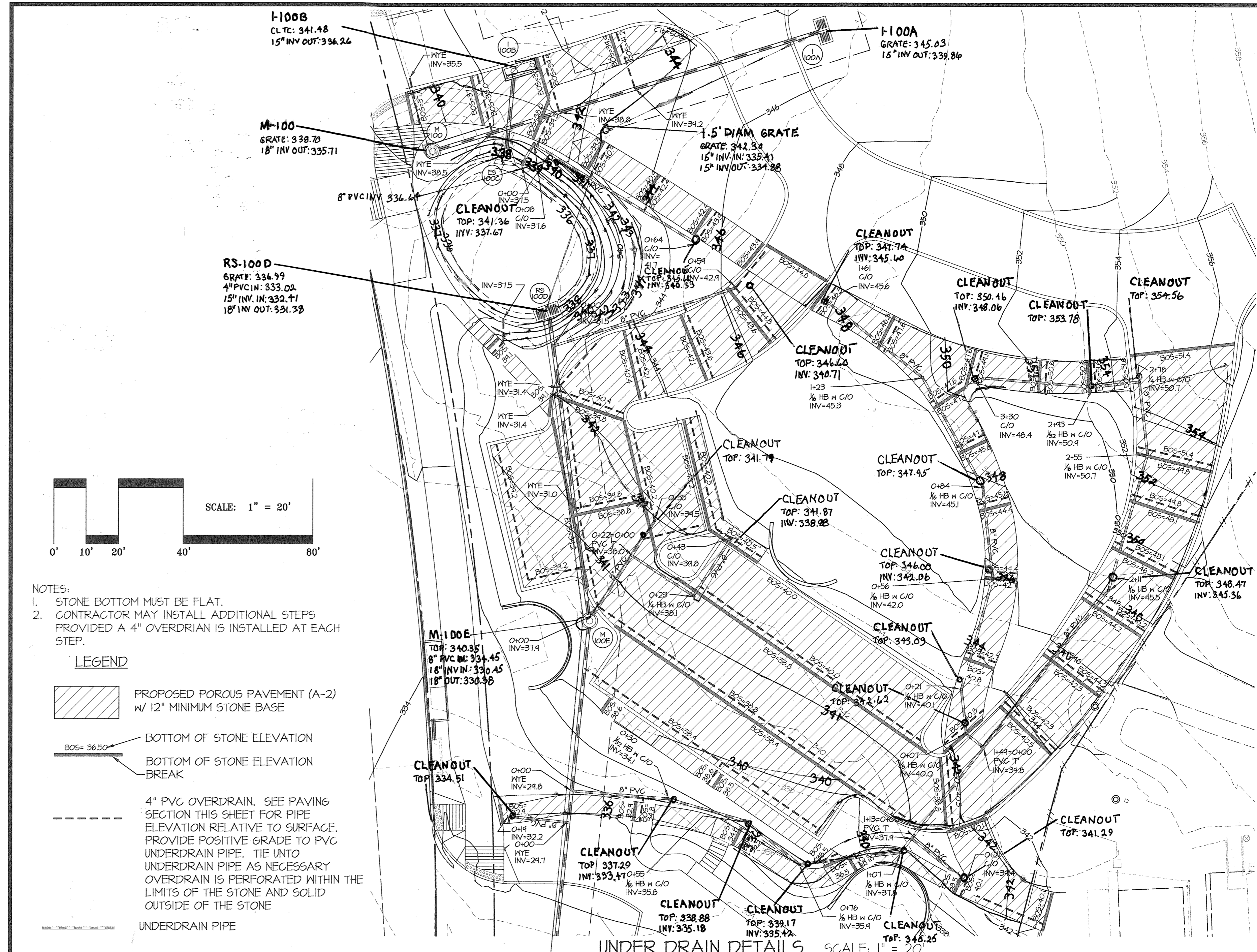
- INSTALL EDGE RESTRAINT PER MANUFACTURER'S GUIDELINES.
- USE AIR SPADE TO REMOVE SOIL BETWEEN TREE ROOTS
- FIELD VERIFY STAKE LOCATIONS TO AVOID MAJOR ROOTS
- REFER TO SHEET LS105 FOR PAVEMENT SELECTION
- GRAVEL SUBBASE TO BE INCREASED TO 12" WHERE TREE ROOTS ARE NOT LOCATED.
- THE PERMEABLE PAVING USED AT SYMPHONY WOODS IS PLACED MAINLY ABOVE THE EXISTING TREE ROOTS ON A MINIMUM 4" (UP TO 12") AGGREGATE BASE. THE PAVING SURFACE, JOINT TREATMENT, AND AGGREGATE BASE ARE DESIGNED TO FILTER RAIN WATER THROUGH THEM INTO THE EXISTING SOIL LIMITING OR ELIMINATING ROOT INTRUSION INTO THE PAVING SURFACE. ALL PAVING SURFACES ARE ERGONOMIC AND EXCEED ADA GUIDELINES.
- AN IMPERMEABLE LINING WILL BE INCORPORATED INTO THE PAVING SECTION OF ANY IMPERMEABLE PAVEMENT WITHIN 10' OF THE BUILDING FOUNDATION. THIS LINING WILL BE INSTALLED BETWEEN THE GRAVEL SUBBASE AND THE EXISTING SUBGRADE AND WILL WRAP UP ALONG THE BUILDING EDGE.



**PERMEABLE PAVEMENT-FLEXIBLE PAVING IN ROOT AREAS DETAIL**

**NOTES:**

- INSTALL EDGE RESTRAINT PER MANUFACTURER'S GUIDELINES.
- USE AIR SPADE TO REMOVE SOIL BETWEEN TREE ROOTS
- FIELD VERIFY STAKE LOCATIONS TO AVOID MAJOR ROOTS
- REFER TO SHEET LS105 FOR PAVEMENT SELECTION
- GRAVEL SUBBASE TO BE INCREASED TO 12" WHERE TREE ROOTS ARE NOT LOCATED.
- SINCE FLEXI-PAVE PRODUCTS ARE NON-CRACKING, TRIP AND FALL LIABILITIES THAT ARE NORMALLY CAUSED BY SHEERING OR ROOT INTRUSION ARE VASTLY REDUCED. IF NOT COMPLETELY ELIMINATED, FLEXI-PAVE SURFACES ARE ERGONOMIC AND EXCEED ADA GUIDELINES.
- AN IMPERMEABLE LINING WILL BE INCORPORATED INTO THE PAVING SECTION OF ANY IMPERMEABLE PAVEMENT WITHIN 10' OF THE BUILDING FOUNDATION. THIS LINING WILL BE INSTALLED BETWEEN THE GRAVEL SUBBASE AND THE EXISTING SUBGRADE AND WILL WRAP UP ALONG THE BUILDING EDGE.



**NOTES:**

- STONE BOTTOM MUST BE FLAT.
- CONTRACTOR MAY INSTALL ADDITIONAL STEPS PROVIDED A 4" OVERDRAIN IS INSTALLED AT EACH STEP.

**LEGEND**

- PROPOSED POROUS PAVEMENT (A-2) w/ 12" MINIMUM STONE BASE
- BOTTOM OF STONE ELEVATION
- BOTTOM OF STONE ELEVATION BREAK
- 4" PVC OVERDRAIN. SEE PAVING SECTION THIS SHEET FOR PIPE ELEVATION RELATIVE TO SURFACE. PROVIDE POSITIVE GRADE TO PVC UNDERDRAIN PIPE. TIE UNTO UNDERDRAIN PIPE AS NECESSARY OVERDRAIN IS PERFORATED WITHIN THE LIMITS OF THE STONE AND SOLID OUTSIDE OF THE STONE
- UNDERDRAIN PIPE

**UNDER DRAIN DETAILS** SCALE: 1" = 20'

**APPROVED:** HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*Howard* 7/16/2016  
Chief, Bureau of Highways

**APPROVED:** HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
*John* 8-3-16  
Chief, Division of Land Development

*John* 7-26-16  
Chief, Development Engineering Division

**GLWGUTSCHICK LITTLE & WEBER, P.A.**  
CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS  
3909 NATIONAL DRIVE - SUITE 250 - BURTONSVILLE OFFICE PARK  
BURTONSVILLE, MARYLAND 20866  
TEL: 301-421-4024 BALT: 410-880-1820 DC/VA: 301-989-2524 FAX: 301-421-4186

DATE	REVISION	BY	APPR.

**PREPARED FOR:**  
THE HOWARD HUGHES CORPORATION  
10480 LITTLE PATUXENT PARKWAY  
SUITE 400  
COLUMBIA, MD 21044  
ATTN: BOB JENKINS  
410-964-5443

**PROFESSIONAL CERTIFICATION**  
I HEREBY CERTIFY THAT THESE PLANS 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. 12975  
EXPIRATION DATE: MAY 26, 2018  
6/9/16 *CKJ*

**SITE DETAILS**  
**DOWNTOWN COLUMBIA**  
**CRESCENT NEIGHBORHOOD**  
PARCELS B THRU H, NON-BUILDABLE BULK PARCELS J THRU R,  
O.S. LOTS 1 THRU 8 AND  
MERRIWEATHER-SYMPHONY WOODS NEIGHBORHOOD O.S. LOT 1  
AND NON-BUILDABLE BULK PARCEL A  
HOWARD COUNTY, MARYLAND  
ELECTION DISTRICT No. 5

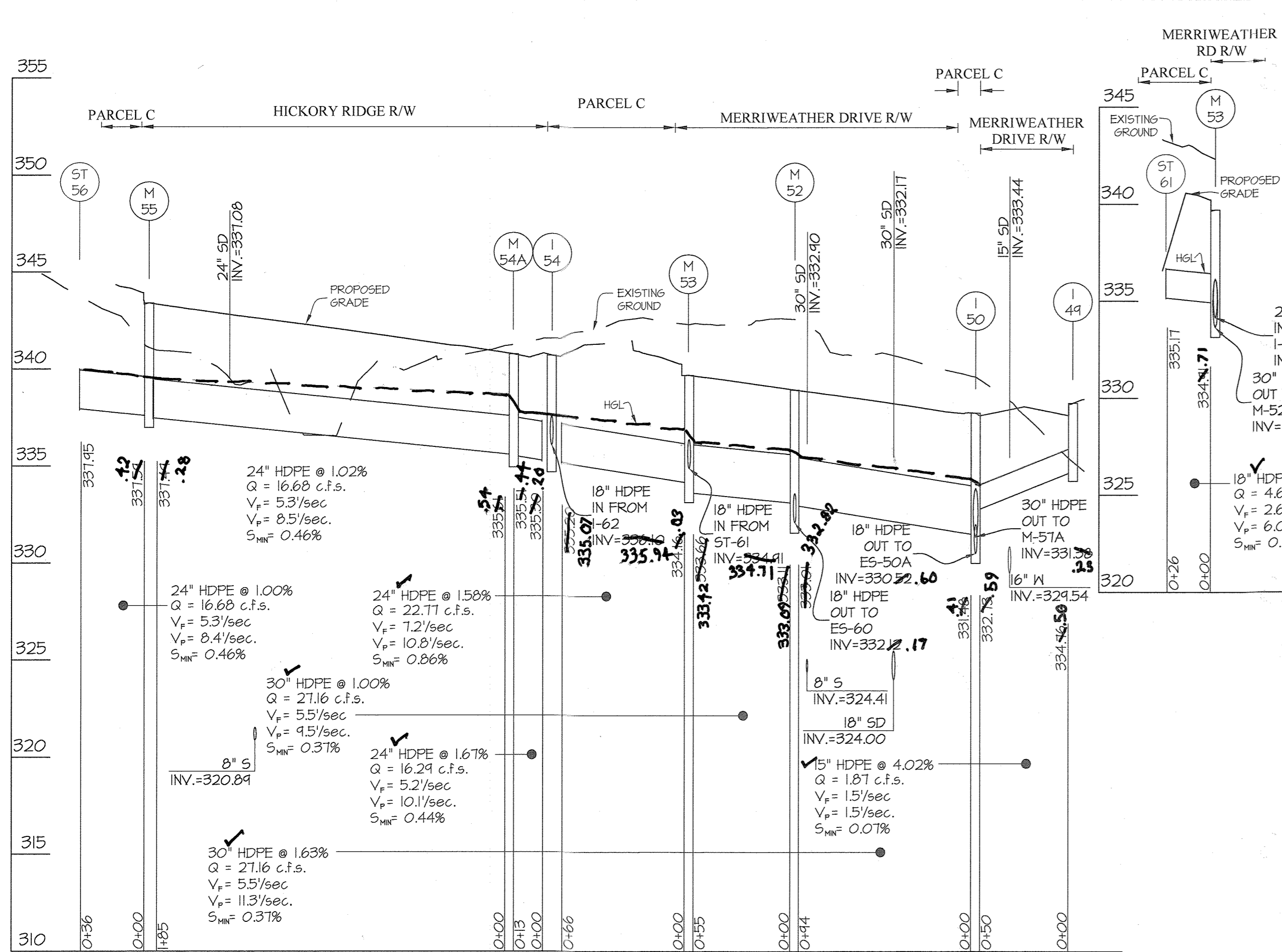
SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	NT	11071
DATE	TAX MAP - GRID	SHEET
JUNE, 2016	36 - 01	13 OF 102

L:\CADD\DRAWINGS\11071\PLANS BY CLEW\FINAL PHASE 1\11071\_13-14\_S.D. Drawing.dwg, 11/16/2016 2:29:26 PM, LAST SAVE: 5/27/2016 2:16:17 PM, PLOTTED: 6/9/2016 9:50:10 AM



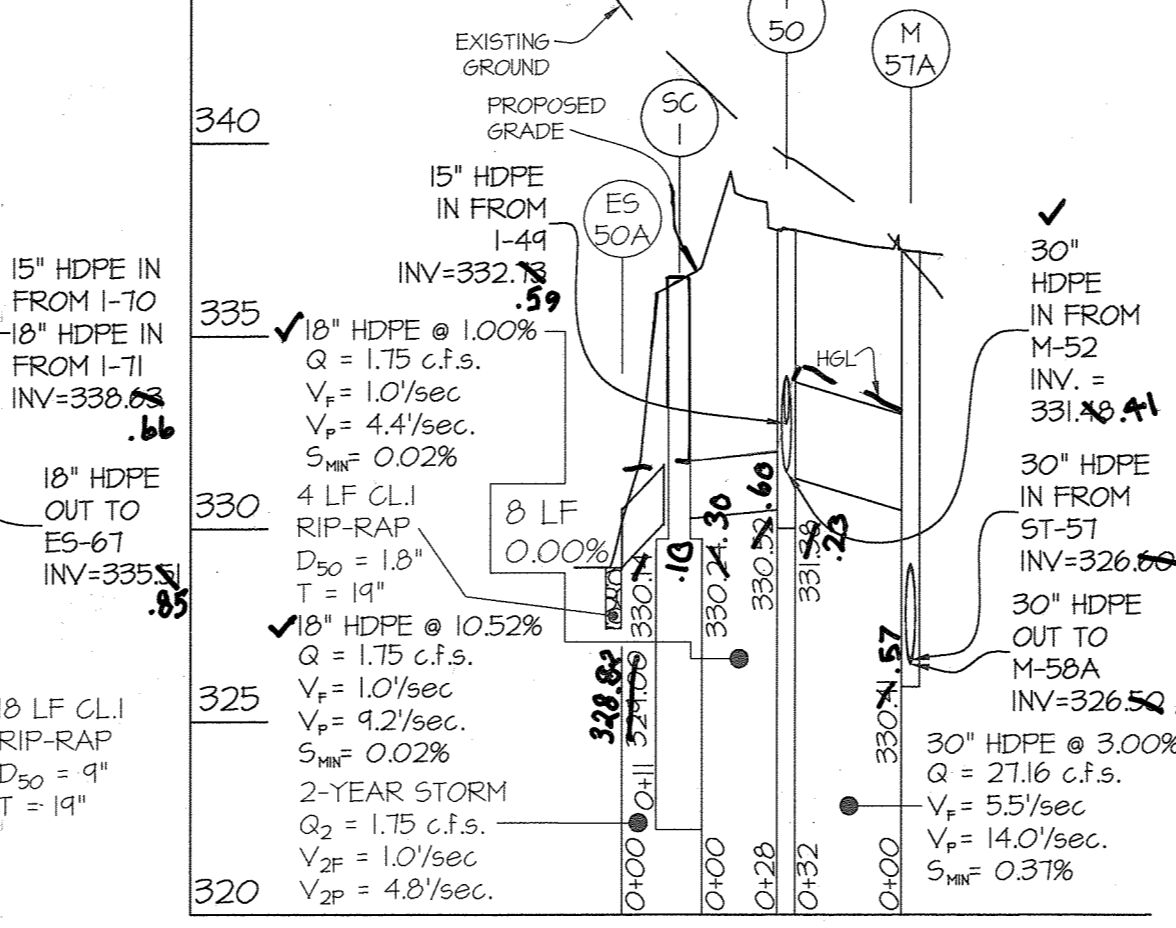
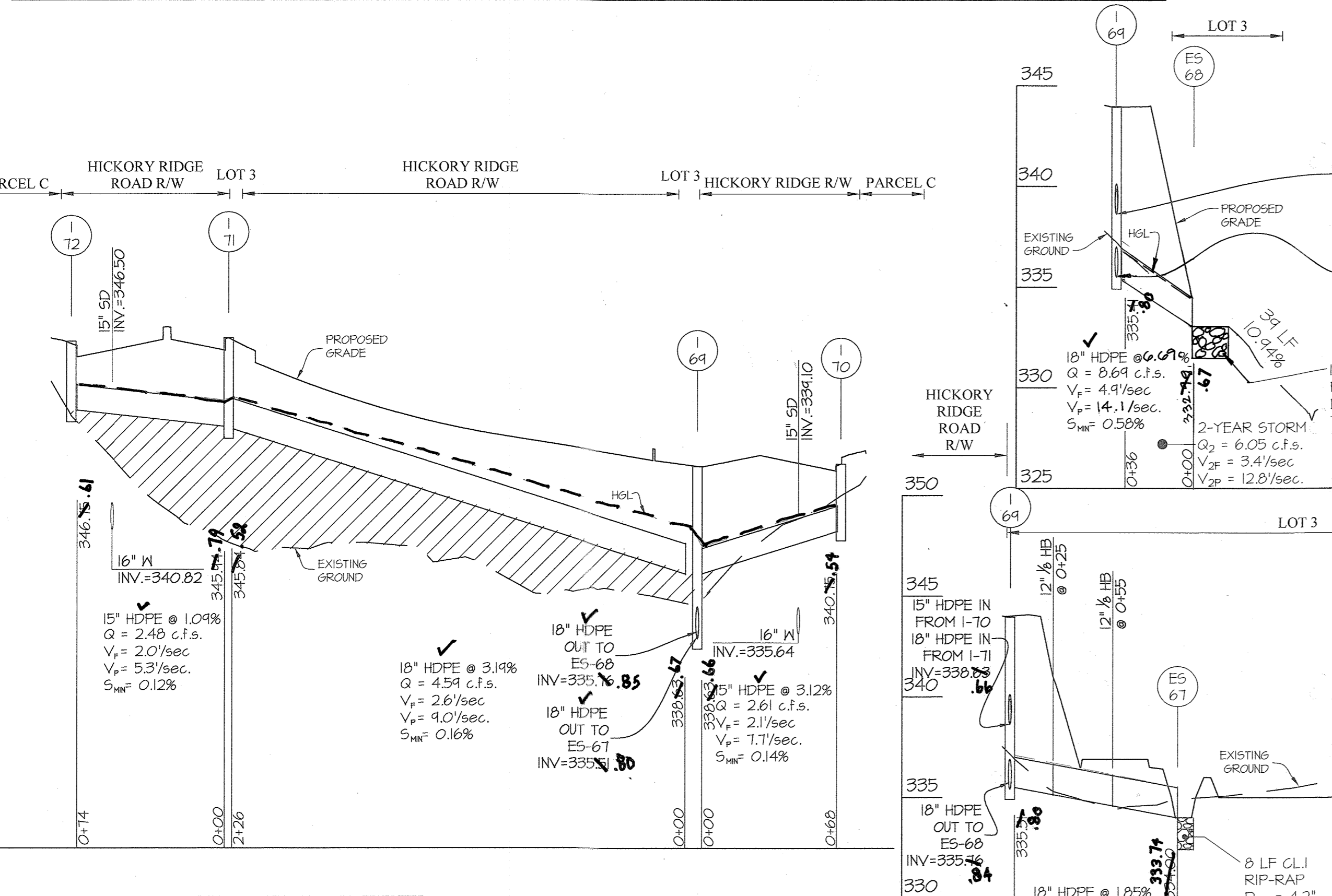






RIP RAP INFORMATION				
END SECTION	CLASS	LENGTH	D <sub>50</sub>	THICKNESS
E5-47	CLASS II	32'	13.2"	32"
E5-50A	CLASS I	4'	1.8"	14"
E5-60	CLASS I	15'	6.6"	14"
E5-65	CLASS I	7'	2.4"	14"
E5-67	CLASS I	8'	4.2"	14"
E5-68	CLASS I	18'	9"	14"

NO	TYPE	WIDTH (INSIDE)	TOP ELEVATION		INVERT		STD. DETAIL	LOCATIONS	REMARKS					
			PROPOSED		AS-BUILT									
			UPPER	LOWER	UPPER	LOWER				UPPER	LOWER			
I-44	A-10 INLET	2'-6"	338.13	337.12	338.29	338.08	---	334.76	334.50	HO.CO. D-4.03	N 561,520 E 1,350,760			
I-50	A-10 INLET	2'-6"	338.24	338.13	338.26	338.16	---	332.73	330.52	332.59	330.40	HO.CO. D-4.03	N 561,518 E 1,350,714	
I-54	A-10 INLET	2'-6"	340.53	340.41	341.10	341.03	---	336.10	335.20	335.94	335.07	HO.CO. D-4.03	N 561,306 E 1,350,731	
I-62	A-10 INLET	2'-6"	340.76	340.73	341.42	341.38	---	336.74	336.64	336.54	336.41	HO.CO. D-4.03	N 561,265 E 1,350,717	
I-63	A-10 INLET	2'-6"	341.99	341.83	342.12	342.06	---	337.30	337.20	337.18	336.98	HO.CO. D-4.03	N 561,261 E 1,350,818	
I-64	A-10 INLET	2'-6"	341.99	341.57	342.09	341.92	---	337.78	---	337.59	---	HO.CO. D-4.03	N 561,291 E 1,350,853	
I-64	A-10 INLET	2'-6"	344.61	344.44	344.53	344.42	---	338.63	335.51	338.66	335.80	HO.CO. D-4.03	N 561,101 E 1,350,597	
I-10	COG-15 INLET	2'-6"	344.52	344.29	344.62	344.37	---	340.75	---	340.54	---	MD 374.31	N 561,148 E 1,350,548	
I-71	COG-15 INLET	2'-6"	350.99	350.20	350.94	350.17	---	345.94	345.84	345.79	345.52	MD 374.31	N 560,967 E 1,350,400	
I-72	COG-15 INLET	2'-6"	350.64	349.88	350.60	349.86	---	346.75	---	346.41	---	MD 374.31	N 561,035 E 1,350,366	
R5-54	5" RISER	2'-15"	330.00	---	330.05	---	---	324.50	---	324.34	---	HO.CO. D-4.23	N 561,457 E 1,350,675	
R5-66	5" RISER	2'-15"	336.00	---	335.96	---	---	331.34	---	331.34	---	HO.CO. D-4.22	N 560,971 E 1,350,549	
E5-47	END SECTION	3'-0"	323.00	---	322.95	---	---	320.00	---	319.95	---	HO.CO. D-5.51	N 561,591 E 1,350,820	
E5-50A	END SECTION	1'-6"	322.50	---	320.32	---	---	321.00	---	320.82	---	HO.CO. D-5.51	N 561,504 E 1,350,670	
E5-60	END SECTION	1'-6"	322.50	---	320.40	---	---	321.00	---	320.90	---	HO.CO. D-5.51	N 561,414 E 1,350,686	
E5-65	END SECTION	1'-6"	322.50	---	322.24	---	---	331.00	---	330.74	---	HO.CO. D-5.51	N 560,912 E 1,350,581	
E5-67	END SECTION	1'-6"	322.50	---	322.39	---	---	334.00	---	333.74	---	---	N 561,030 E 1,350,555	
E5-68	END SECTION	1'-6"	322.44	---	324.17	---	---	322.11	---	322.17	---	HO.CO. D-5.51	N 561,086 E 1,350,634	
M-52	STANDARD MANHOLE	5'-0"	338.95	---	339.02	---	333.11	332.12	333.09	333.17	HO.CO. G-5.13	N 561,426 E 1,350,731		
M-53	STANDARD MANHOLE	6'-0"	334.71	---	339.71	---	334.91	333.66	334.71	334.42	MD 384.05	N 561,375 E 1,350,750		
M-54A	STANDARD MANHOLE	5'-0"	340.78	---	340.91	---	335.61	335.51	335.54	335.44	HO.CO. G-5.13	N 561,291 E 1,350,719		
M-55	STANDARD MANHOLE	5'-0"	343.41	---	343.51	---	337.59	337.49	337.42	337.28	HO.CO. G-5.13	N 561,167 E 1,350,577		
M-57A	STANDARD MANHOLE	5'-0"	337.56	---	337.28	---	330.41	326.50	330.57	326.30	HO.CO. G-5.13	N 561,550 E 1,350,715		
M-58	STANDARD MANHOLE	5'-0"	338.04	---	338.92	---	323.33	323.23	323.16	323.83	HO.CO. G-5.13	N 561,503 E 1,350,782		
M-58A	STANDARD MANHOLE	5'-0"	336.32	---	338.03	---	325.16	321.26	324.21	321.24	HO.CO. G-5.13	N 561,550 E 1,350,782		
SC-1	STORMCEPTOR	8'-0"	326.00	---	326.00	---	330.24	330.14	330.30	330.10	OSR 560	N 561,512 E 1,350,684		
SC-2	STORMCEPTOR	8'-0"	326.00	---	326.04	---	331.56	331.46	331.53	331.42	OSR 560	N 561,418 E 1,350,700		



APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
 Chief, Bureau of Highways  
 Date: 7/12/2016

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
 Chief, Division of Land Development  
 Date: 8/3/16

AS-BUILT CERTIFICATION  
 I HEREBY CERTIFY THAT THE FACILITIES SHOWN ON THIS PLAN WERE CONSTRUCTED SHOWN ON THIS PLAN MEET THE CURVES SHOWN ON THIS PLAN AND SPECIFICATIONS.  
 SHANNON BREWER & LANE  
 PROFESSIONAL LAND SURVEYOR  
 LICENSE EXPIRATION DATE: 12/31/2018  
 AS-BUILT SURVEY DATE: 5/20/16

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
 Chief, Bureau of Highways  
 Date: 7/12/2016

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
 Chief, Division of Land Development  
 Date: 8/3/16

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
 Chief, Bureau of Highways  
 Date: 7/12/2016

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
 Chief, Division of Land Development  
 Date: 8/3/16

- AS-BUILT ELEVATIONS FOR INLETS ARE TOP OF CURB OR TOP OF GRATE
- COORDINATE POINT GIVEN IS TO THE CENTERLINE OF STRUCTURE AT THE FACE OF CURBS FOR INLETS AND TO THE CENTER OF STRUCTURE FOR MANHOLES, 'S' INLETS AND END SECTIONS.
  - END SECTION IS A 12'x8" TRANSITION FITTING FOR STORMWATER MANAGEMENT UNDERDRAIN
  - SEE SHEET 26 FOR DETAIL OF I-64 SPLITTER STRUCTURE.
  - SEE SHEET 26 FOR STORMCEPTOR DETAILS.

PIPE SCHEDULE			
SIZE	TYPE	QUANTITY (LF)	REMARKS
15"	HDPE	257	
18"	HDPE	162	
24"	HDPE	303	
30"	HDPE	275	
36"	HDPE	56	

HDPE indicates High Density Polyethylene pipe, such as N-12 by ADS, or HI-Q by Hancor or an approved equal.  
 Trench bedding to be provided per Howard County Detail G 2.01, "Trench for P.V.C. pipe and H.D.P.E."

GLWGUTSCHICK LITTLE & WEBER, P.A.  
 CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS  
 3909 NATIONAL DRIVE - SUITE 250 - BURTONSVILLE OFFICE PARK  
 BURTONSVILLE, MARYLAND 20866  
 TEL: 301-421-4024 FAX: 301-421-4188

PREPARED FOR:  
 THE HOWARD HUGHES CORPORATION  
 10480 LITTLE PATUXENT PARKWAY  
 SUITE 400  
 COLUMBIA, MD 21044  
 ATTN: BOB JENKINS  
 410-964-5443

PROFESSIONAL CERTIFICATION  
 I HEREBY CERTIFY THAT THESE PLANS 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. 18975  
 EXPIRATION DATE: MAY 26, 2018  
 6/9/16

STORM DRAIN PROFILES  
 DOWNTOWN COLUMBIA  
 CRESCENT NEIGHBORHOOD  
 PARCELS B THRU H, NON-BUILDABLE BULK PARCELS J THRU R,  
 O.S. LOTS 1 THRU 8 AND  
 MERRIWEATHER-SYMPHONY WOODS NEIGHBORHOOD O.S. LOT 1  
 AND NON-BUILDABLE BULK PARCEL A  
 HOWARD COUNTY, MARYLAND

SCALE  
 1" = 5' (V)  
 1" = 50' (H)

ZONING  
 NT

G. L. W. FILE NO.  
 11071

DATE  
 JUNE, 2016

TAX MAP - GRID  
 36 - 01

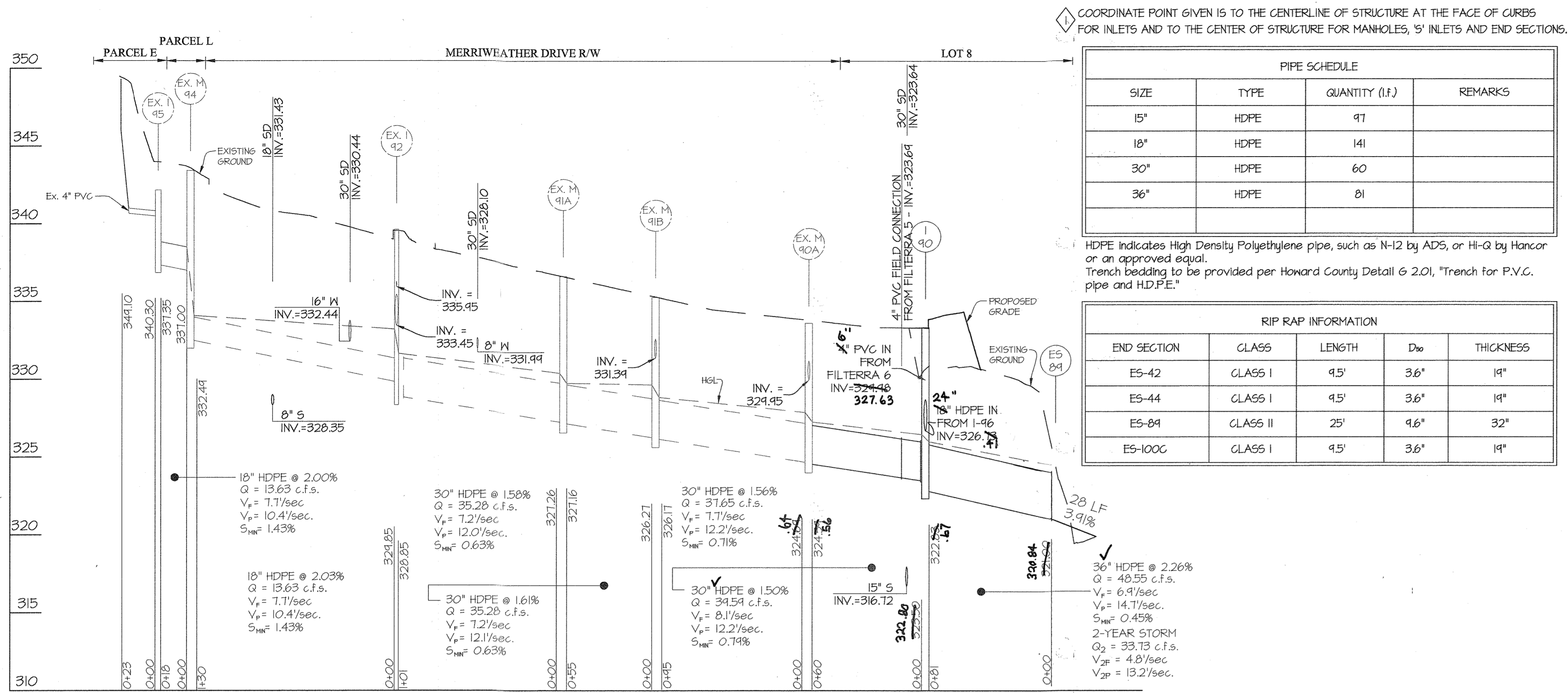
SHEET  
 15 OF 102

DATE  
 JUNE, 2016

TAX MAP - GRID  
 36 - 01

SHEET  
 15 OF 102





COORDINATE POINT GIVEN IS TO THE CENTERLINE OF STRUCTURE AT THE FACE OF CURBS FOR INLETS AND TO THE CENTER OF STRUCTURE FOR MANHOLES, 'S' INLETS AND END SECTIONS.

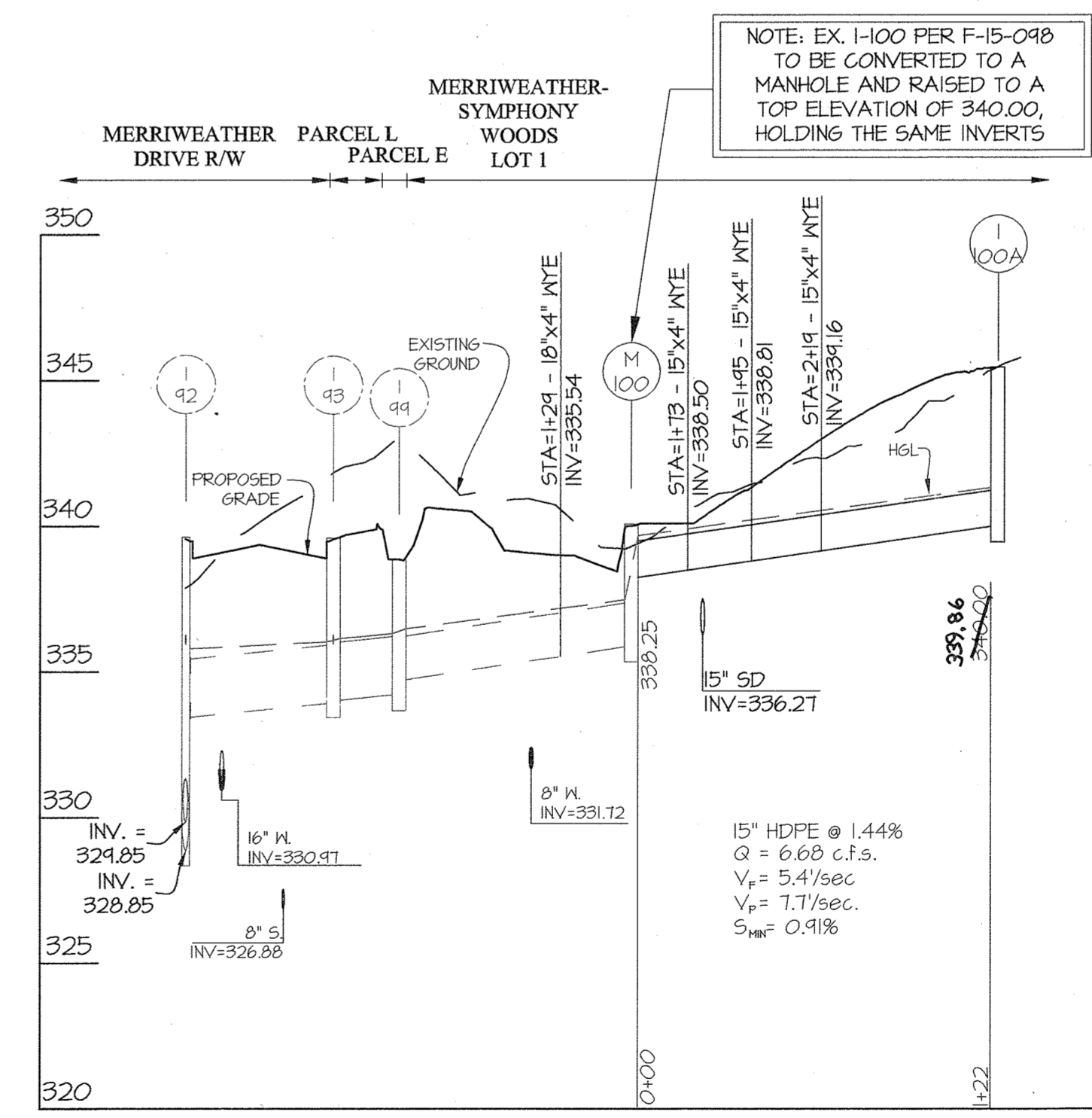
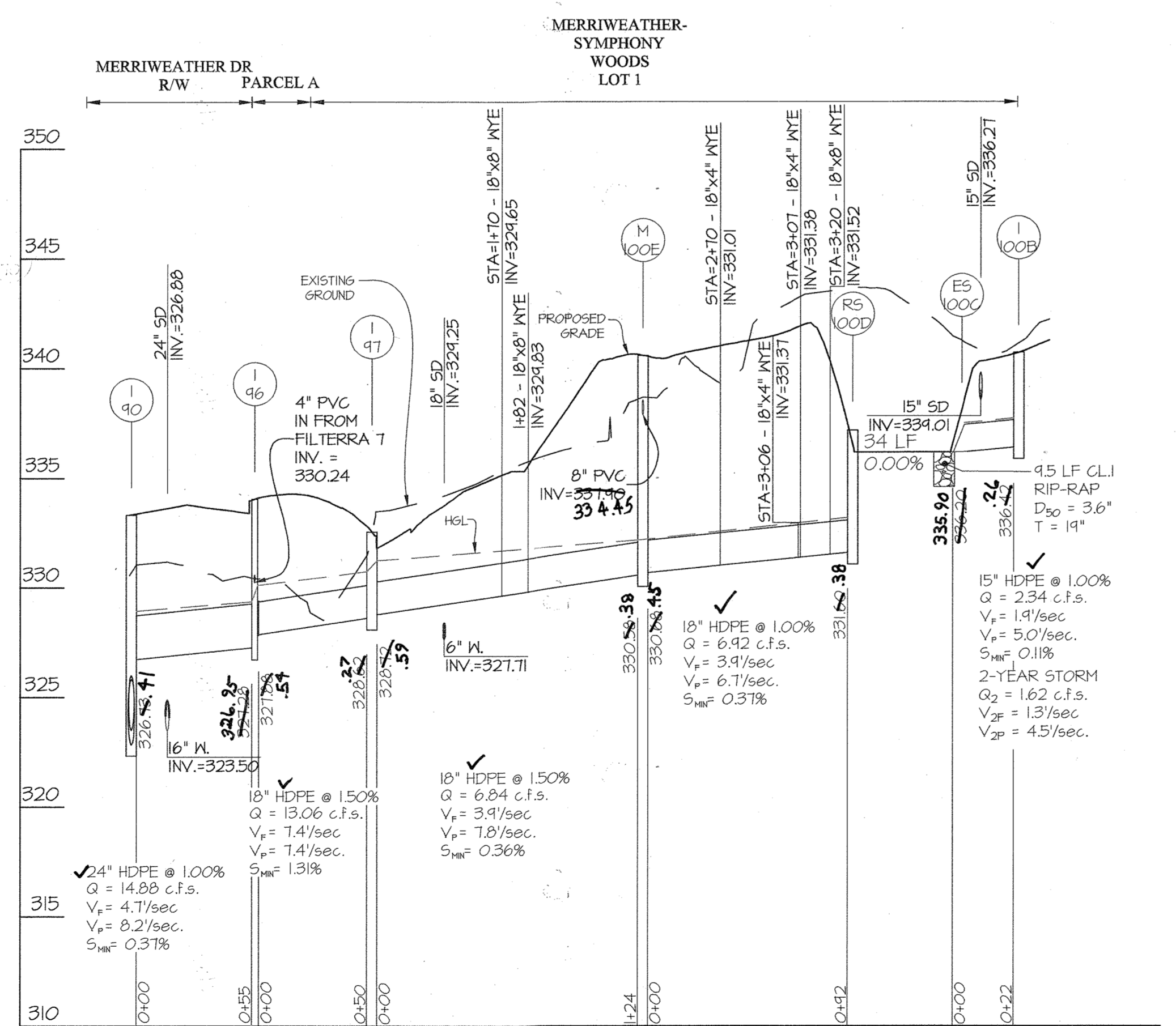
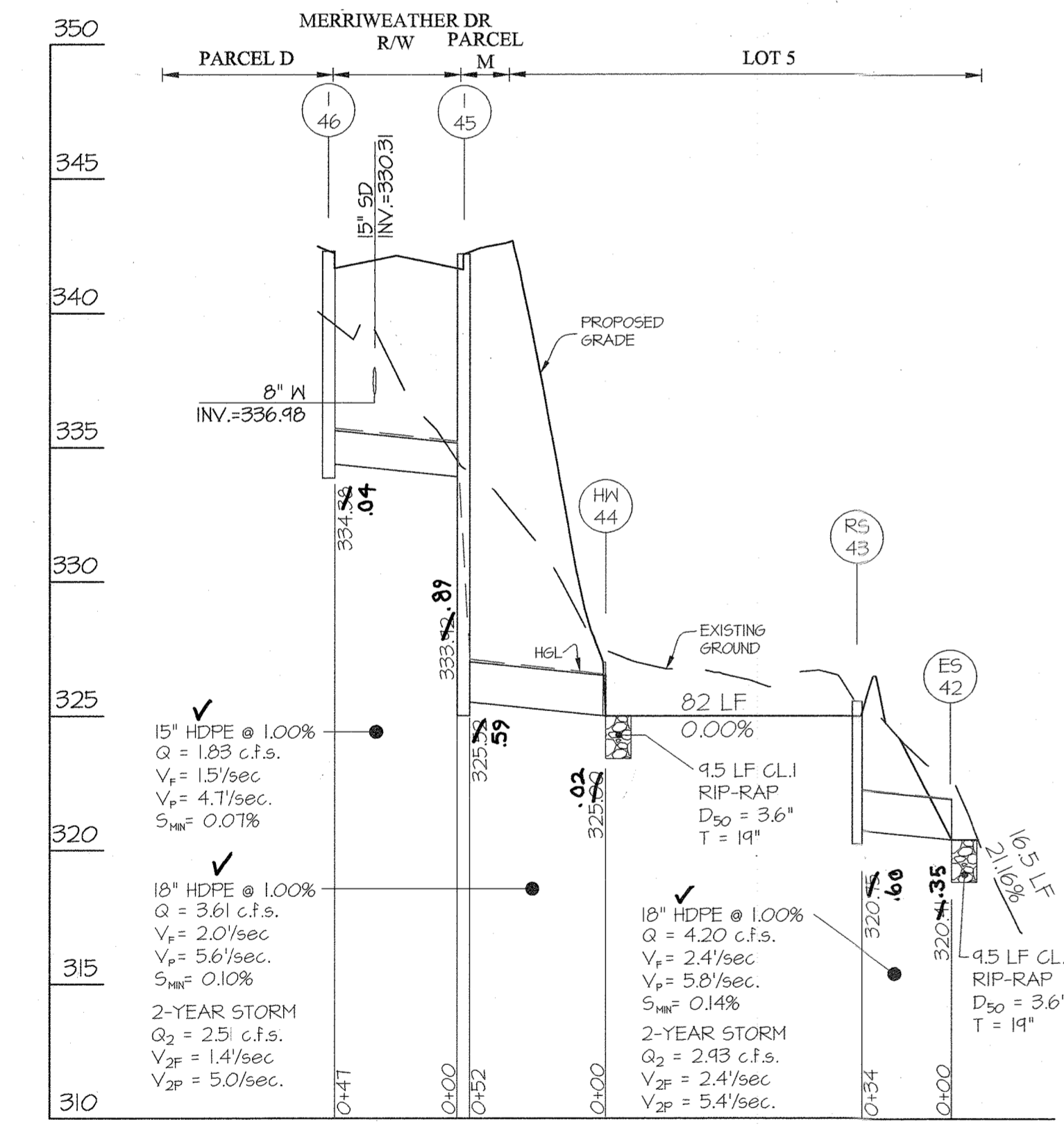
PIPE SCHEDULE			
SIZE	TYPE	QUANTITY (LF)	REMARKS
15"	HDPE	97	
18"	HDPE	141	
30"	HDPE	60	
36"	HDPE	81	

HDPE indicates High Density Polyethylene pipe, such as N-12 by ADS, or HI-Q by Hancor or an approved equal. Trench bedding to be provided per Howard County Detail G 2.01, "Trench for P.V.C. pipe and HDPE."

RIP RAP INFORMATION				
END SECTION	CLASS	LENGTH	D <sub>50</sub>	THICKNESS
ES-42	CLASS I	4.5'	3.6"	19"
ES-44	CLASS I	4.5'	3.6"	19"
ES-84	CLASS II	25'	4.6"	32"
ES-100C	CLASS I	4.5'	3.6"	19"

NO	TYPE	WIDTH (INSIDE)	TOP ELEVATION				INVERT				STD. DETAIL	LOCATIONS	REMARKS
			PROPOSED		AS-BUILT		PROPOSED		AS-BUILT				
			UPPER	LOWER	UPPER	LOWER	UPPER	LOWER	UPPER	LOWER			
I-45	A-10 INLET	2'-6"	342.30	342.15	<b>342.25</b>	<b>342.15</b>	333.42	325.52	<b>333.89</b>	<b>325.59</b>	HO.CO. D-4.03	N 561,034 E 1,351,255	
I-46	A-10 INLET	2'-6"	342.33	342.18	<b>342.17</b>	<b>342.14</b>	---	334.38	---	<b>334.04</b>	HO.CO. D-4.03	N 560,993 E 1,351,244	
I-40	'S' INLET	2'-15"	333.34	333.32	<b>333.42</b>	<b>333.40</b>	324.98	322.83	<b>321.13</b>	<b>322.47</b>	HO.CO. D-4.23	N 561,858 E 1,350,715	
I-46	A-10 INLET	2'-6"	333.46	333.38	<b>333.91</b>	<b>333.83</b>	330.24	328.46	<b>329.55</b>	<b>324.95</b>	HO.CO. D-4.03	N 561,826 E 1,350,754	
I-47	A-10 INLET	2'-6"	331.80	331.80	<b>331.41</b>	<b>332.32</b>	---	324.80	---	<b>328.59</b>	HO.CO. D-4.03	N 561,868 E 1,350,745	
I-100A	'S' INLET	2'-15"	345.00	---	<b>345.03</b>	---	---	340.00	---	<b>339.84</b>	HO.CO. D-4.23	N 562,171 E 1,350,814	
I-100B	A-10 INLET	2'-6"	341.96	341.04	<b>341.84</b>	<b>341.30</b>	---	336.42	---	<b>336.24</b>	HO.CO. D-4.03	N 562,161 E 1,350,785	
R5-43	'S' RISER	2'-15"	326.00	---	<b>325.75</b>	---	---	320.75	---	<b>320.60</b>	HO.CO. D-4.22	N 561,142 E 1,351,088	
R5-100D	'S' RISER	2'-15"	331.20	---	<b>330.99</b>	---	---	331.60	---	<b>332.41</b>	HO.CO. D-4.23	N 562,084 E 1,350,745	
ES-42	END SECTION	1'-6"	321.91	---	<b>321.85</b>	---	---	320.41	---	<b>320.35</b>	HO.CO. D-5.51	N 561,668 E 1,351,711	
ES-84	END SECTION	3'-0"	324.00	---	<b>323.84</b>	---	---	321.00	---	<b>320.84</b>	HO.CO. D-5.51	N 561,744 E 1,350,664	
ES-100C	END SECTION	1'-3"	336.20	---	---	---	---	331.60	---	<b>335.90</b>	HO.CO. D-5.51	N 562,132 E 1,350,781	
HN-44	'C' ENDWALL	7'-4"	321.00	---	<b>327.28</b>	---	---	325.00	---	<b>325.02</b>	HO.CO. D-5.21	N 561,088 E 1,351,266	
M-100			<b>338.70 @ RATE</b>										
M-100E	STANDARD MANHOLE	5'-0"	340.60	---	<b>340.35</b>	---	330.68	330.58	<b>330.45</b>	<b>330.38</b>	HO.CO. G-5.13	N 561,984 E 1,350,808	

AS-BUILT ELEVATIONS FOR INLETS ARE TOP OF CURB OR TOP OF GRATE



APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
 Chief, Bureau of Highways  
 Date: 7/18/2016

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
 Chief, Division of Land Development  
 Date: 8-3-16

Chief, Development Engineering Division  
 Date: 7-26-16

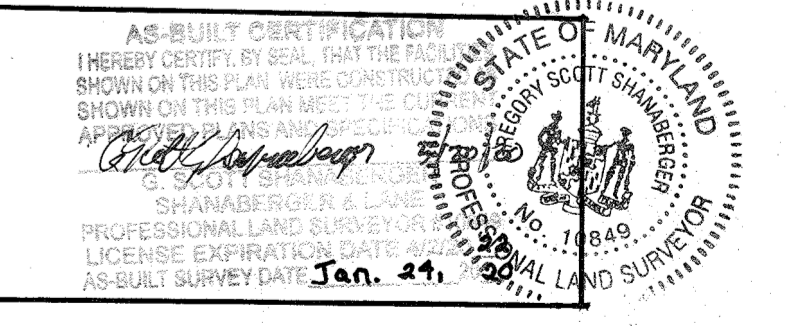
**GLWGUTSCHICK LITTLE & WEBER, P.A.**  
 CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS  
 3909 NATIONAL DRIVE - SUITE 250 - BURTONSVILLE OFFICE PARK  
 BURTONSVILLE, MARYLAND 20866  
 TEL: 301-421-4024 BALI: 410-880-1820 DC/VA: 301-989-2524 FAX: 301-421-4186

DATE	REVISION	BY	APPR.

PREPARED FOR:  
 THE HOWARD HUGHES CORPORATION  
 10480 LITTLE PATUXENT PARKWAY  
 SUITE 400  
 COLUMBIA, MD 21044  
 ATTN: BOB JENKINS  
 410-964-5443

PROFESSIONAL CERTIFICATION  
 I HEREBY CERTIFY THAT THESE PLANS 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. 12975  
 EXPIRATION DATE: MAY 28, 2018  
 6/9/16



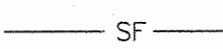
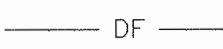

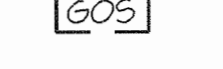

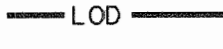
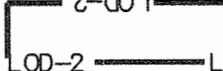
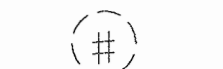

**STORM DRAIN PROFILES**  
**DOWNTOWN COLUMBIA**  
**CRESCENT NEIGHBORHOOD**  
 PARCELS B THRU H, NON-BUILDABLE BULK PARCELS J THRU R,  
 O.S. LOTS 1 THRU 8 AND  
 MERRIWEATHER-SYMPHONY WOODS NEIGHBORHOOD O.S. LOT 1  
 AND NON-BUILDABLE BULK PARCEL A  
 ELECTION DISTRICT No. 5  
 HOWARD COUNTY, MARYLAND



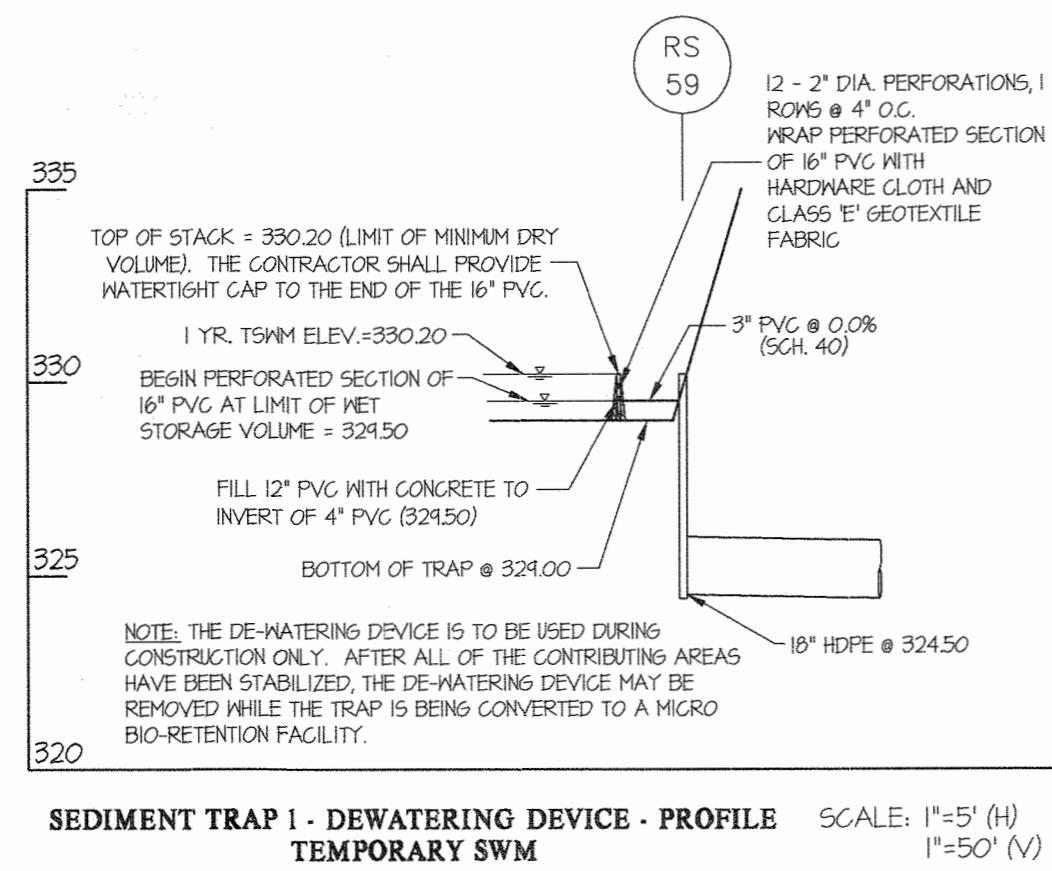
SCALE	ZONING	G. L. W. FILE NO.
1" = 5' (V) 1" = 50' (H)	NT	11071
DATE	TAX MAP - GRID	SHEET
JUNE, 2016	36 - 01	16 OF 102



**LEGEND**

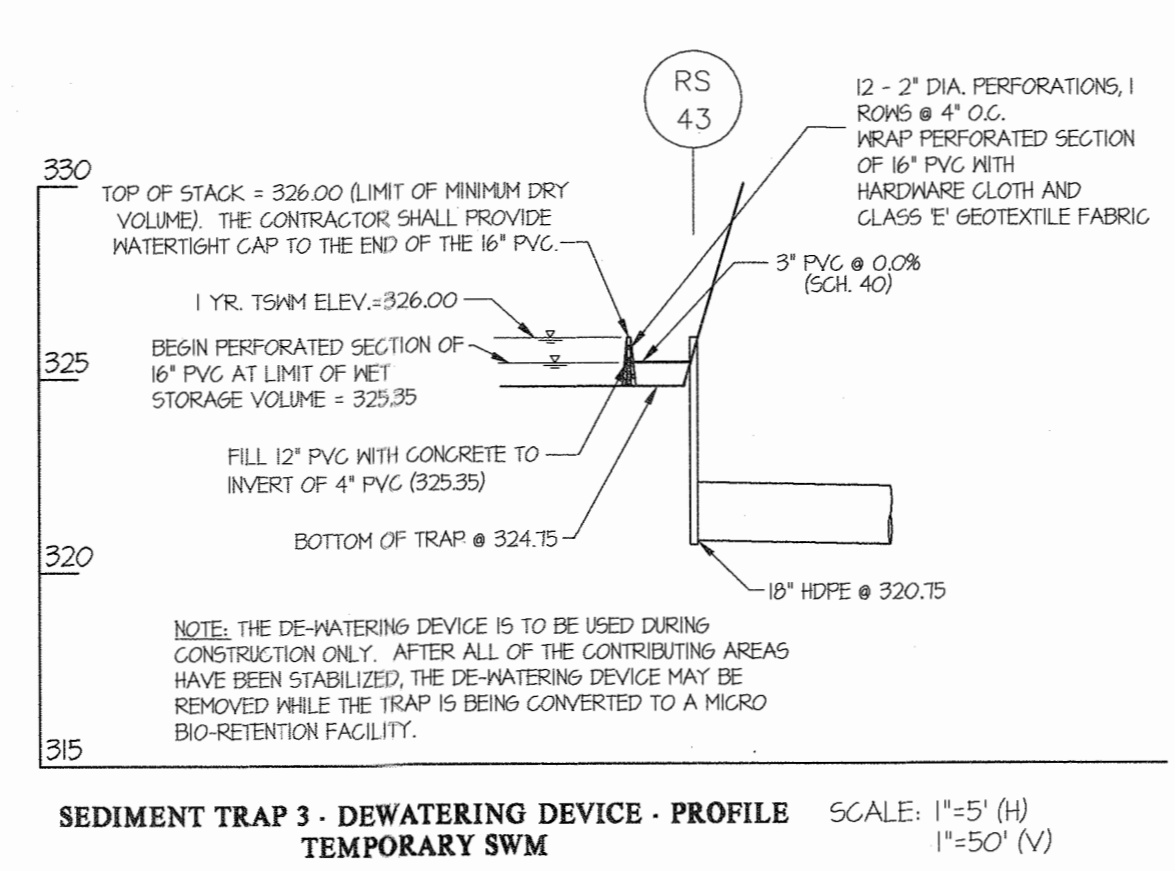
-  STABILIZED CONSTRUCTION ENTRANCE
-  EARTH DIKE / CLEAN WATER DIVERSION
-  SILT FENCE / SUPER SILT FENCE
-  DIVERSION FENCE
-  PROPOSED INLET PROTECTION
-  TEMPORARY GABION OUTLET STRUCTURE
-  SANDBAG BARRIER
-  LIMIT OF DISTURBANCE ROAD WORK
-  LIMIT OF DISTURBANCE STREAM RESTORATION SEE SHEETS 65-105
-  EXISTING STRUCTURE
-  PROPOSED STRUCTURE

SEE SHEET 1 FOR A SITE LEGEND THAT CONTAINS ADDITIONAL SYMBOLS THAT MAY APPEAR ON THIS SHEET.



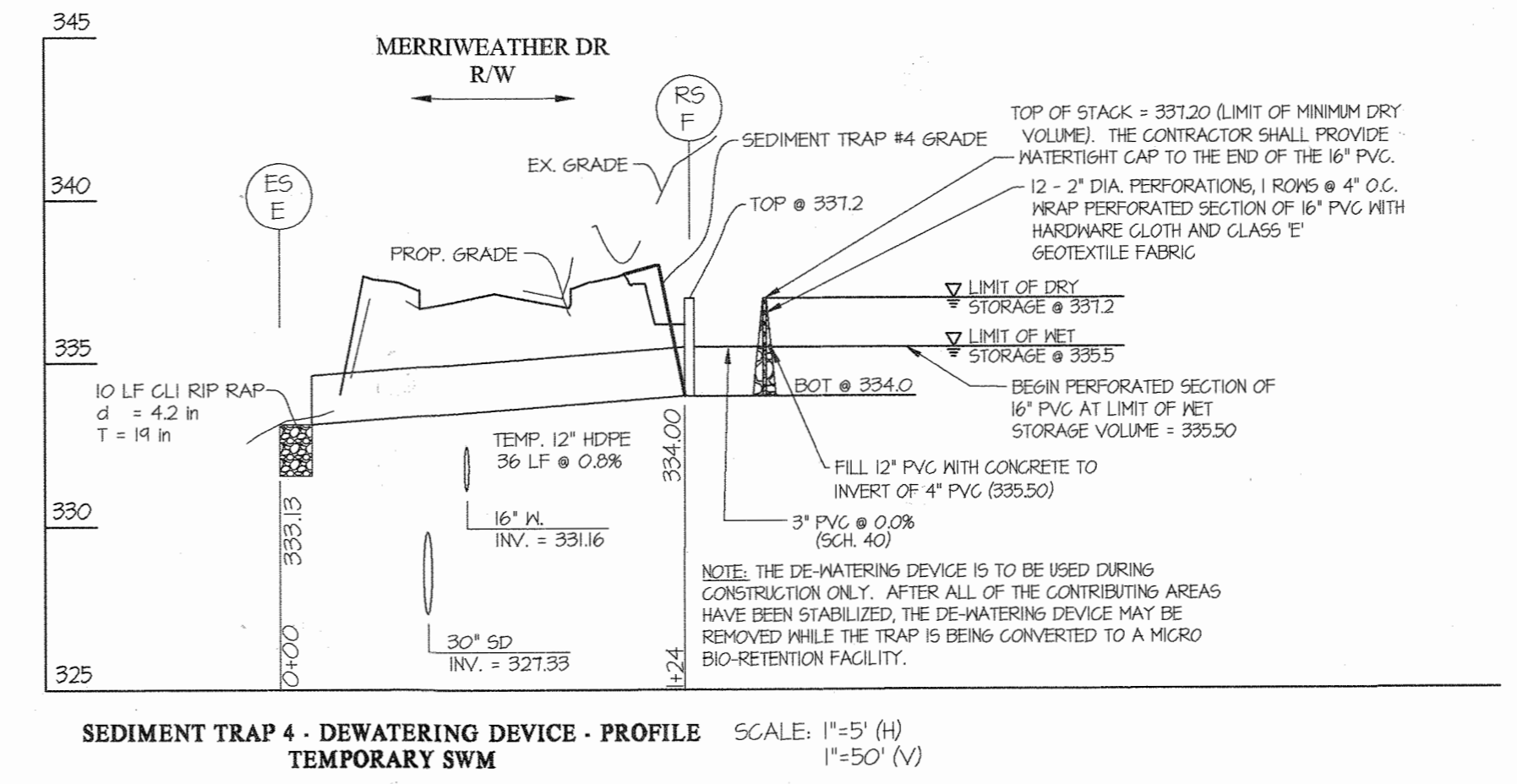
**SEDIMENT TRAP 1 - DEWATERING DEVICE - PROFILE** SCALE: 1"=5' (H) 1"=50' (V)  
**TEMPORARY SWM**

- NOTE:**
- CONTRACTOR TO TEMPORARILY BRICK AND MORTAR RISER TO AN ELEVATION OF 330.20.
  - CONTRACTOR TO PROVIDE 3/4" DIA. ORIFICE AT THE END OF THE 3" PVC PIPE INSIDE THE RISER.



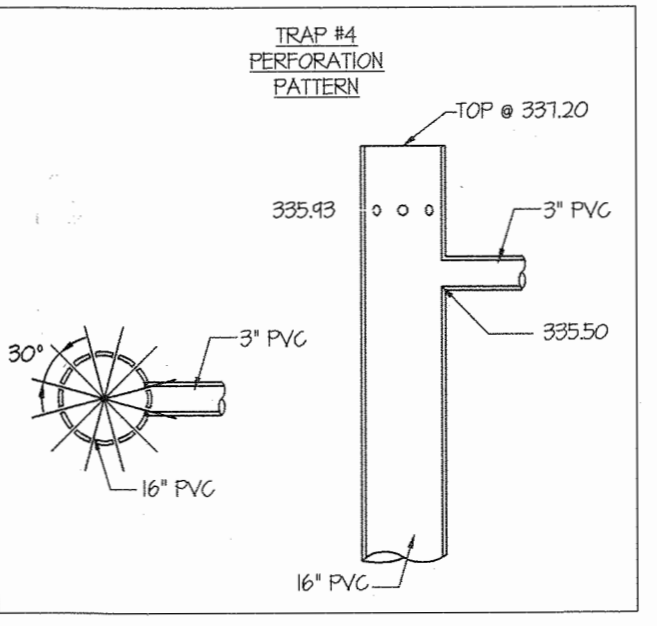
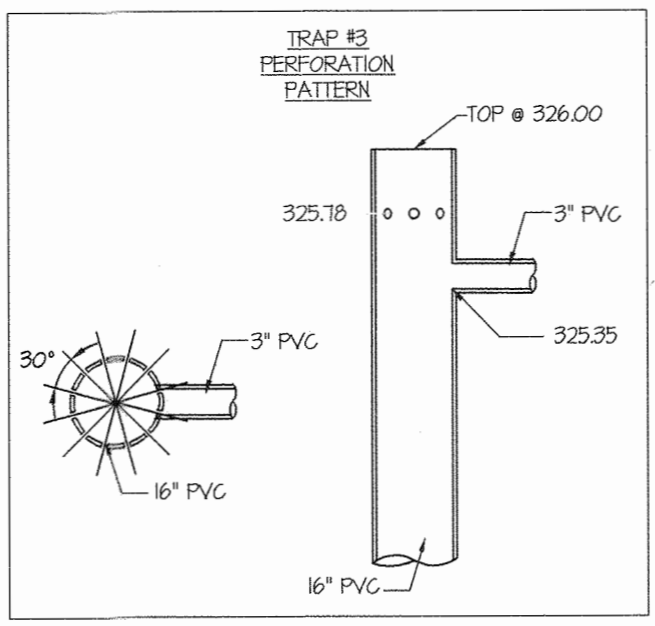
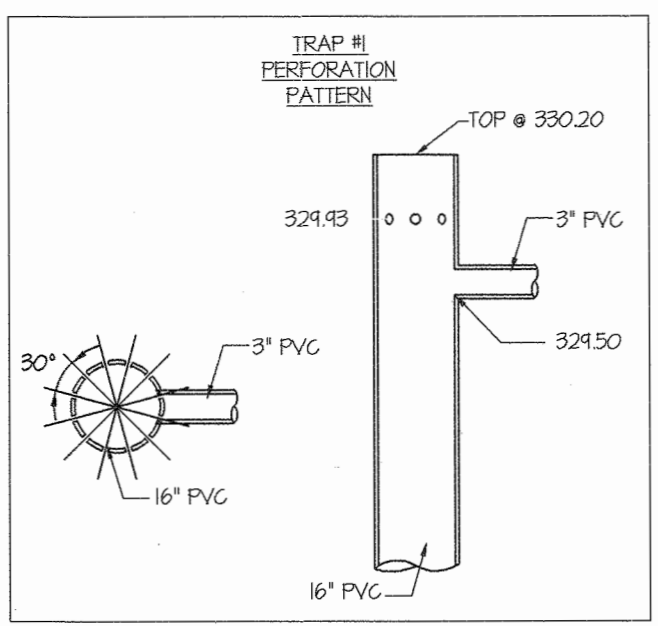
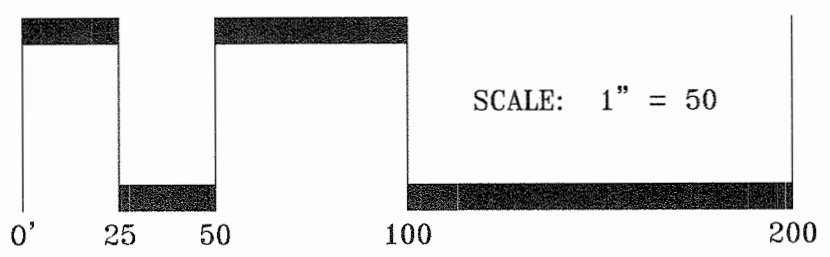
**SEDIMENT TRAP 3 - DEWATERING DEVICE - PROFILE** SCALE: 1"=5' (H) 1"=50' (V)  
**TEMPORARY SWM**

- NOTE:**
- CONTRACTOR TO PROVIDE 3/4" DIA. ORIFICE AT THE END OF THE 3" PVC PIPE INSIDE THE RISER.

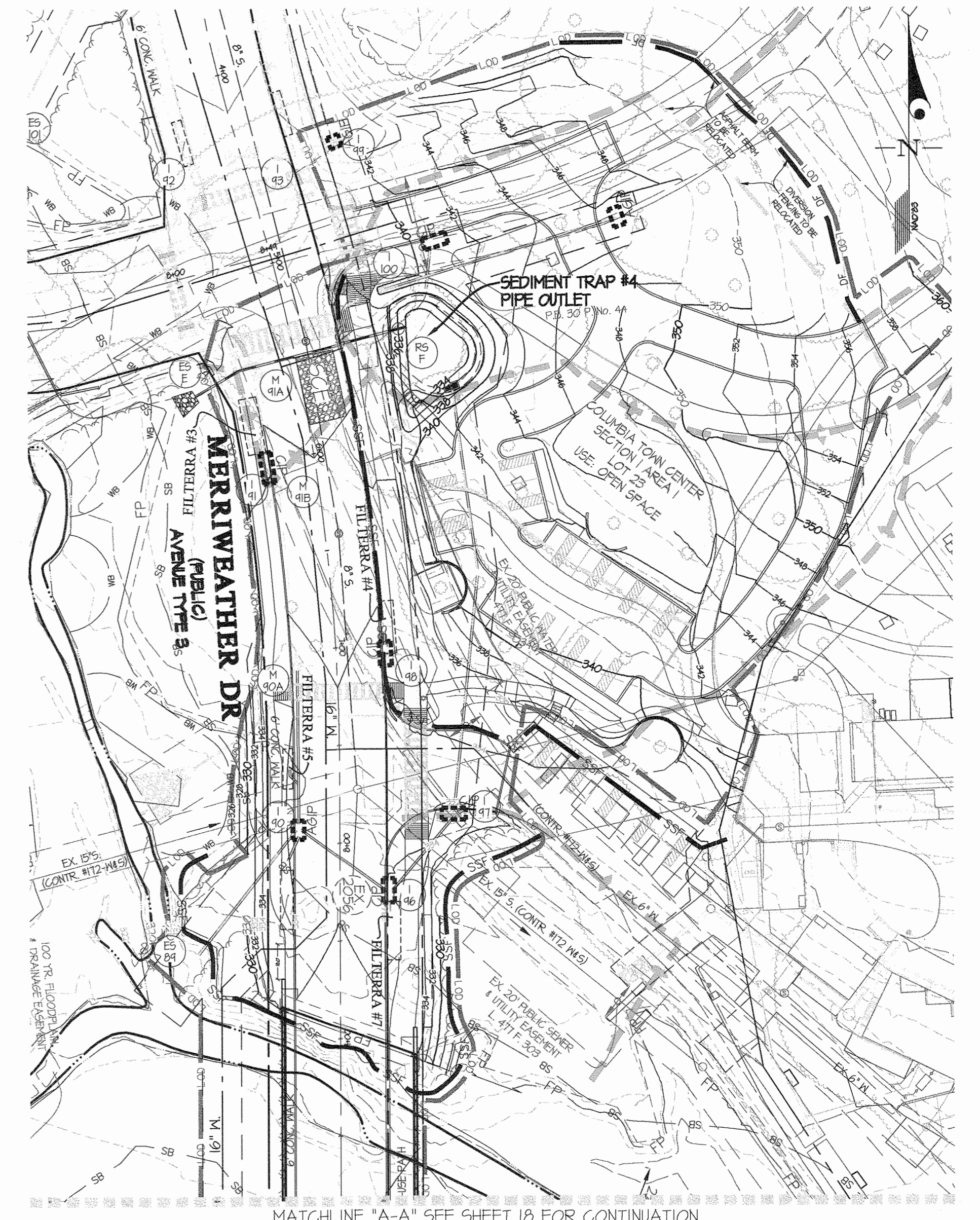


**SEDIMENT TRAP 4 - DEWATERING DEVICE - PROFILE** SCALE: 1"=5' (H) 1"=50' (V)  
**TEMPORARY SWM**

- NOTE:**
- CONTRACTOR TO PROVIDE 3/4" DIA. ORIFICE AT THE END OF THE 3" PVC PIPE INSIDE THE RISER.



SEDIMENT CONTROL DESIGN INFORMATION	TRAP 1	TRAP 2	TRAP 3	TRAP 4
TYPE OF TRAP	PIPE OUTLET	STONE OUTLET	PIPE OUTLET	PIPE OUTLET
PRE-DEVELOPMENT DRAINAGE AREA	1.5 ACRES	1.7 ACRES	1.0 ACRES	0.6 ACRES
POST DEVELOPMENT DRAINAGE AREA	2.2 ACRES	1.7 ACRES	1.0 ACRES	0.6 ACRES
TOTAL STORAGE REQUIRED (WET AND DRY VOLUME)	12,820 C.F.	6,120 C.F.	3,600 C.F.	2,160 C.F.
TOTAL STORAGE PROVIDED	15,271 C.F.	7,920 C.F.	3,841 C.F.	4,586 C.F.
WET STORAGE REQUIRED	3,960 C.F.	3,060 C.F.	1,800 C.F.	1,080 C.F.
WET STORAGE PROVIDED	6,417 C.F.	4,200 C.F.	1,897 C.F.	1,968 C.F.
DRY STORAGE REQUIRED	8,860 C.F.	3,060 C.F.	1,800 C.F.	1,080 C.F.
DRY STORAGE PROVIDED	8,860 C.F.	3,720 C.F.	1,944 C.F.	2,618 C.F.
EXISTING GROUND ELEV. AT OUTLET (WET STORAGE ELEV.)	324.50	334.00	325.4	335.5
TRAP BOTTOM ELEVATION	324.00	332.00	324.75	334.00
TRAP BOTTOM DIMENSIONS	VARIABLES	VARIABLES	VARIABLES	VARIABLES
WEIR LENGTH	16.25' (DBL 'S' INLET)	7'	16.25' (DBL 'S' INLET)	16.25' (DBL 'S' INLET)
WEIR CREST (DRY STORAGE) ELEVATION	330.20	335.00	326.00	337.20
CLEANOUT ELEVATION	330.50	333.00	325.38	334.75
TOP OF EMBANKMENT ELEVATION	---	336.42	326.42	338.00
SIDE SLOPE	3:1	3:1	3:1	2:1
EMBANKMENT TOP WIDTH	---	4'	4'	4'
BARREL DIMENSIONS	18"	---	18"	18"
ANTI-SLEEP COLLAR	---	---	---	---
RISER DIMENSIONS	5.54' x 2.63'	---	2.71' x 2.63'	5.54' x 2.63'



MATCHLINE "A-A" SEE SHEET 18 FOR CONTINUATION

This Development Plan is approved for Soil Erosion and Sediment Control by the Howard Soil Conservation District.

*John H. Little* 6/29/16  
 Howard S.C.D. Date

**ENGINEER'S CERTIFICATE**

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

*CKJ* 6/9/16  
 ENGINEER'S SIGNATURE DATE

**DEVELOPER'S/BUILDER'S CERTIFICATE**

I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT FOR SEDIMENT AND EROSION CONTROL AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF 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.

*Robert Jenkins* 6/9/16  
 SIGNATURE OF DEVELOPER/BUILDER DATE

**APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS**

*Scott Shanberger* 7/12/2016  
 Chief, Bureau of Highways Date

**APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING**

*Kathleen* 6-3-16  
 Chief, Division of Land Development Date

*John* 7-26-16  
 Chief, Development Engineering Division Date

STATE OF MARYLAND  
 SCOTT SHANBERGER  
 PROFESSIONAL LAND SURVEYOR  
 THERE IS NO AS-BUILT INFORMATION PROVIDED ON THIS SHEET  
 PROFESSIONAL L.S. # 10849 Exp. Date 4/27/2022  
 AS-BUILT DATE: **JUN 24 2016**  
 Shanberger & Lane

**GLW GUTSCHICK LITTLE & WEBER, P.A.**  
 CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS  
 3909 NATIONAL DRIVE - SUITE 250 - BURTONTOWN OFFICE PARK  
 BURTONTOWN, MARYLAND 20868  
 TEL: 301-421-4024 BALT: 410-880-1820 DC/VA: 301-991-2524 FAX: 301-421-4186

DATE	REVISION	BY	APPR.

**PREPARED FOR:**  
 THE HOWARD HUGHES CORPORATION  
 10480 LITTLE PATUXENT PARKWAY  
 SUITE 400  
 COLUMBIA, MD 21044  
 ATTN: BOB JENKINS  
 410-964-5443

**PROFESSIONAL CERTIFICATION**

I HEREBY CERTIFY THAT THESE PLANS 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. 12975  
 EXPIRATION DATE: MAY 26, 2018

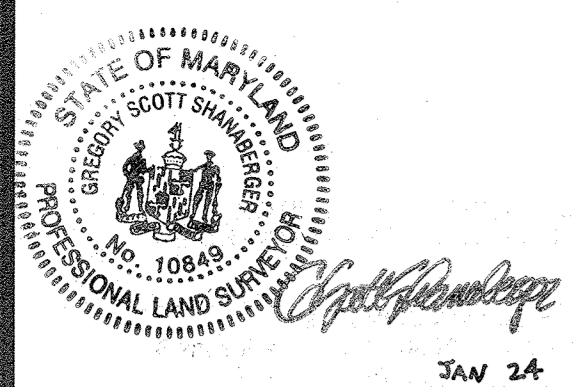
6/9/16 *CKJ*

**SEDIMENT CONTROL PLAN - PHASE A**  
**DOWNTOWN COLUMBIA CRESCENT NEIGHBORHOOD**  
**PARCELS B THRU H, NON-BUILDABLE BULK PARCELS J THRU R, O.S. LOTS I THRU S AND MERRIWEATHER-SYMPHONY WOODS NEIGHBORHOOD O.S. LOT I AND NON-BUILDABLE BULK PARCEL A**  
 HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE NO.
1"=50'	NT	11071
DATE	TAX MAP - GRID	SHEET
JUNE, 2016	36 - 01	17 OF 102

I:\CAD\DRAWINGS\11071\PHASE 1\11071\_17-18\_SC\_PLAN.dwg DES. MJT DRN. Wsj CHK. MJT DATE REVISION BY APPR.





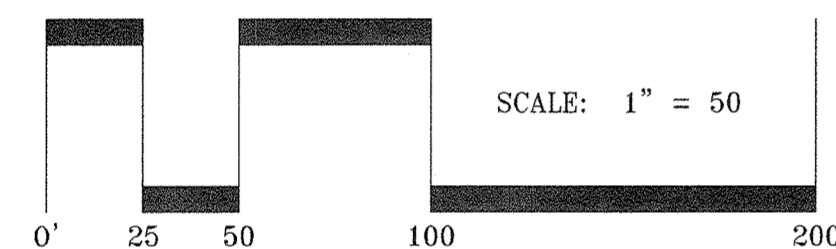
**LEGEND**

- STABILIZED CONSTRUCTION ENTRANCE
- EARTH DIKE / CLEAN WATER DIVERSION
- SILT FENCE / SUPER SILT FENCE
- DIVERSION FENCE
- PROPOSED INLET PROTECTION
- TEMPORARY GABION OUTLET STRUCTURE
- SANDBAG BARRIER
- LIMIT OF DISTURBANCE ROAD WORK
- LIMIT OF DISTURBANCE STREAM RESTORATION SEE SHEETS 65-105
- EXISTING STRUCTURE
- PROPOSED STRUCTURE

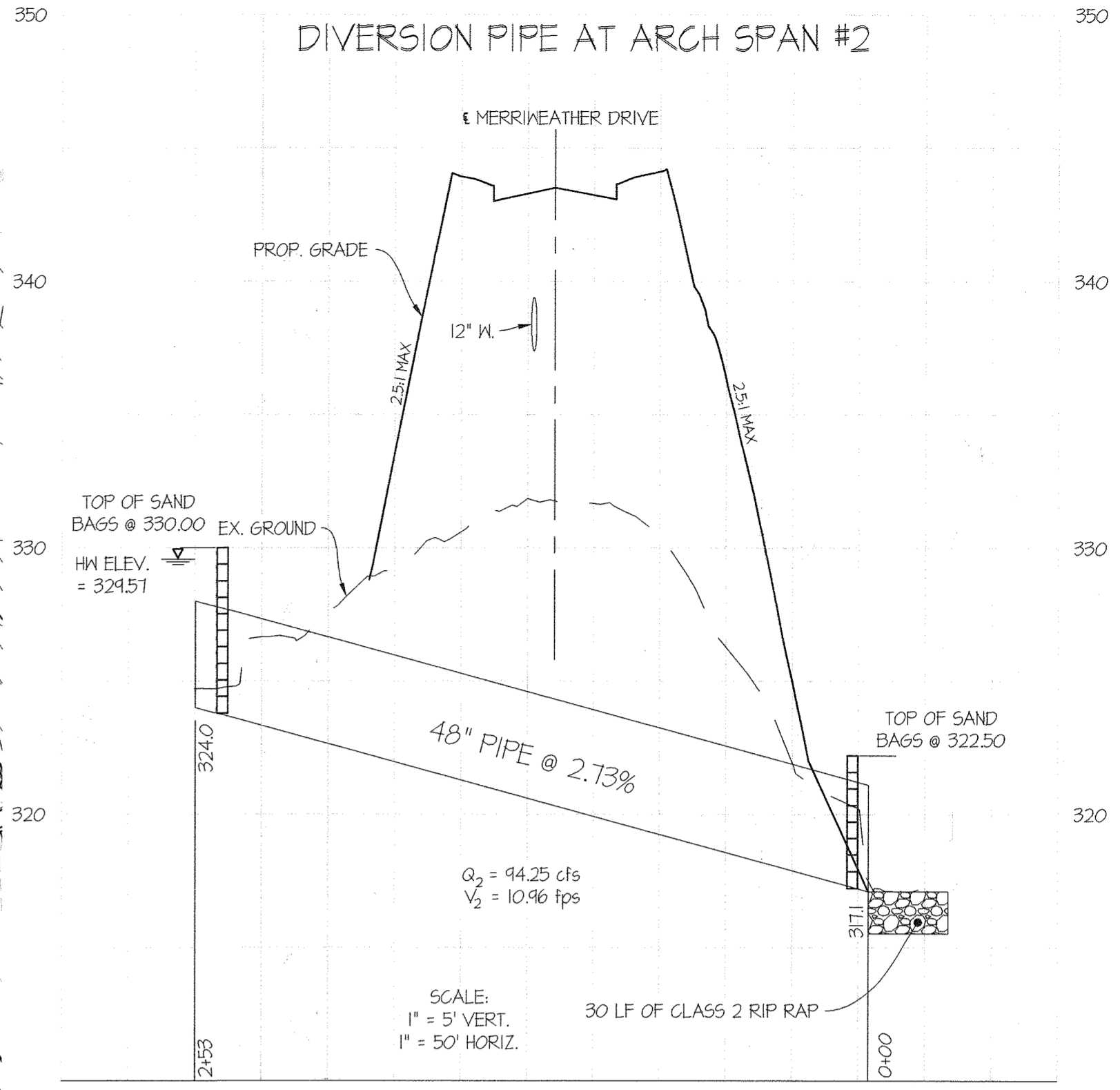
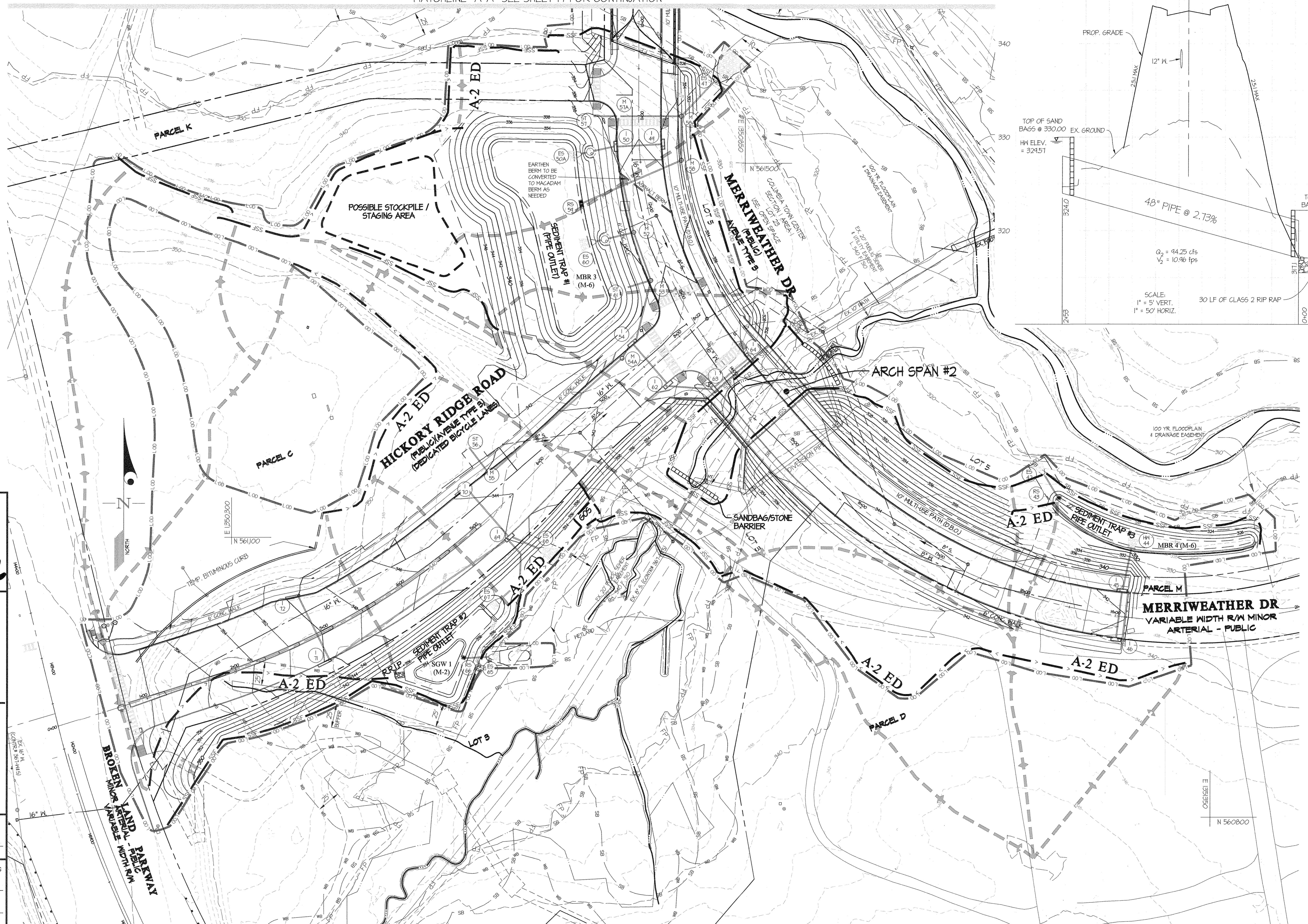
SEE SHEET 1 FOR A SITE LEGEND THAT CONTAINS ADDITIONAL SYMBOLS THAT MAY APPEAR ON THIS SHEET.

NOTES: THIS PLAN IS TO BE CONSIDERED A PRELIMINARY DESIGN SHEET.

JAN 24 2016



MATCHLINE "A-A" SEE SHEET 17 FOR CONTINUATION



This Development Plan is approved for Soil Erosion and Sediment Control by the Howard Soil Conservation District.

*John P. Roberts* 6/29/16  
Howard S.C.D. Date

**ENGINEER'S CERTIFICATE**

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

*Chad Jenkins* 6/9/16  
Date

**DEVELOPER'S/BUILDER'S CERTIFICATE**

I HEREBY CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT FOR SEDIMENT AND EROSION CONTROL, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF 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.

*Robert Jenkins* 6/27/16  
SIGNATURE OF DEVELOPER/BUILDER

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*[Signature]* 7/12/2016  
Chief, Bureau of Highways Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
*[Signature]* 9-3-16  
Chief, Division of Land Development Date  
*[Signature]* 7-26-16  
Chief, Development Engineering Division Date

**GLWGUTSCHICK LITTLE & WEBER, P.A.**  
CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS  
3909 NATIONAL DRIVE - SUITE 250 - BURTONSVILLE OFFICE PARK  
BURTONSVILLE, MARYLAND 20866  
TEL: 301-421-4024 BALT: 410-860-1820 DC/VA: 301-986-2524 FAX: 301-421-4186

PREPARED FOR:  
THE HOWARD HUGHES CORPORATION  
10480 LITTLE PATUXENT PARKWAY  
SUITE 400  
COLUMBIA, MD 21044  
ATTN: BOB JENKINS  
410-964-5443

PROFESSIONAL CERTIFICATION  
I HEREBY CERTIFY THAT THESE PLANS 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. 12975  
EXPIRATION DATE: MAR 28, 2018  
6/9/16



**SEDIMENT CONTROL PLAN - PHASE A**  
**DOWNTOWN COLUMBIA**  
**CRESCENT NEIGHBORHOOD**  
PARCELS B THRU H, NON-BUILDABLE BULK PARCELS J THRU R,  
O.S. LOTS 1 THRU 8 AND  
MERRIWEATHER-SYMPHONY WOODS NEIGHBORHOOD O.S. LOT 1  
AND NON-BUILDABLE BULK PARCEL A  
ELECTION DISTRICT No. 5  
HOWARD COUNTY, MARYLAND


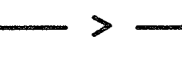
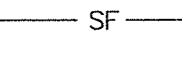
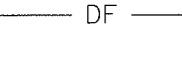



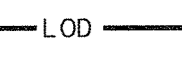
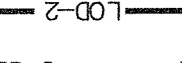


SCALE 1"=50'	ZONING NT	G. L. W. FILE No. 11071
DATE JUNE, 2016	TAX MAP - GRID 36 - 01	SHEET 18 OF 102

DATE	REVISION	BY	APPR.

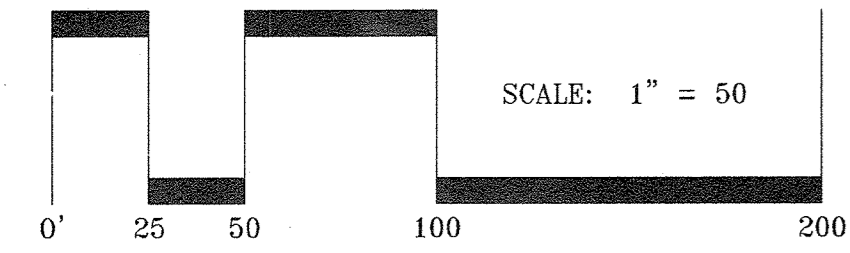
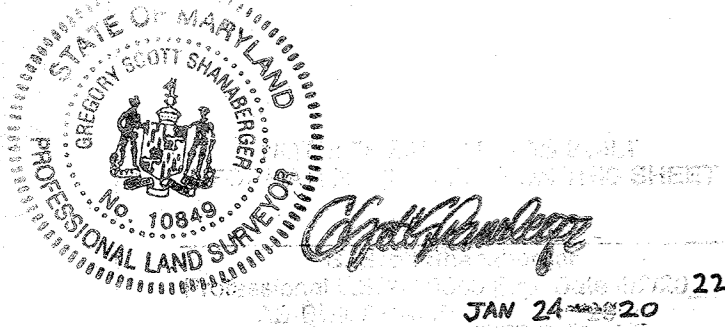


MATCHLINE - FOR CONTINUATION OF PATH SEE THIS SHEET

**LEGEND**

-  STABILIZED CONSTRUCTION ENTRANCE
-  EARTH DIKE / CLEAN WATER DIVERSION
-  SILT FENCE / SUPER SILT FENCE
-  DIVERSION FENCE
-  PROPOSED INLET PROTECTION
-  TEMPORARY GABION OUTLET STRUCTURE
-  SANDBAG BARRIER
-  LIMIT OF DISTURBANCE ROAD WORK
-  LIMIT OF DISTURBANCE STREAM RESTORATION SEE SHEETS 65-105
-  EXISTING STRUCTURE
-  PROPOSED STRUCTURE

SEE SHEET 1 FOR A SITE LEGEND THAT CONTAINS ADDITIONAL SYMBOLS THAT MAY APPEAR ON THIS SHEET.



This Development Plan is approved for Soil Erosion and Sediment Control by the Howard Soil Conservation District.

*John P. Risher*  
Howard S.C.D. Date

**ENGINEER'S CERTIFICATE**

I HEREBY CERTIFY THAT THIS PLAN FOR SEDIMENT AND EROSION CONTROL REPRESENTS A PRACTICAL AND FEASIBLE 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.

*Clark* 6/1/16  
DATE

**DEVELOPER'S/BUILDER'S CERTIFICATE**

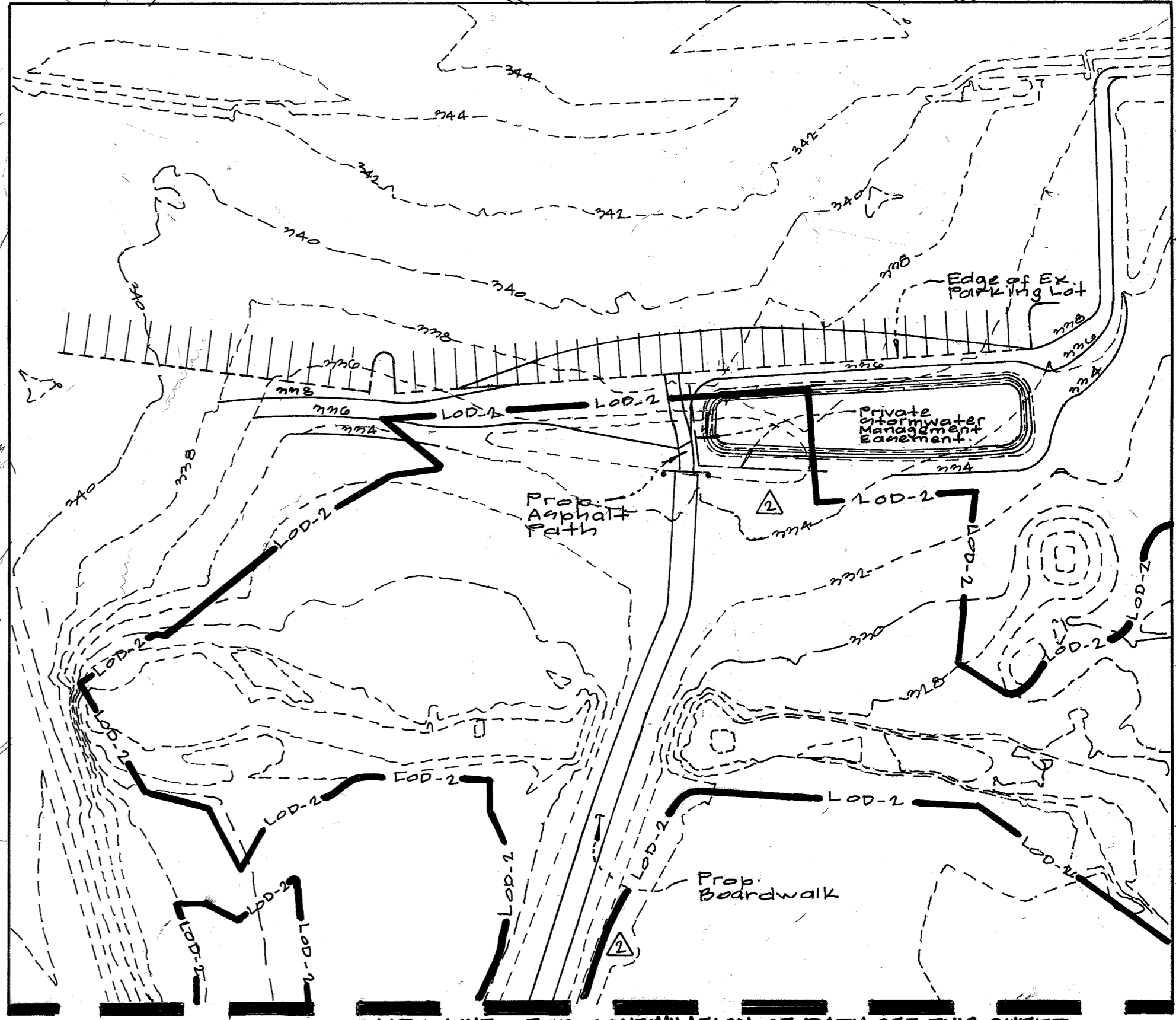
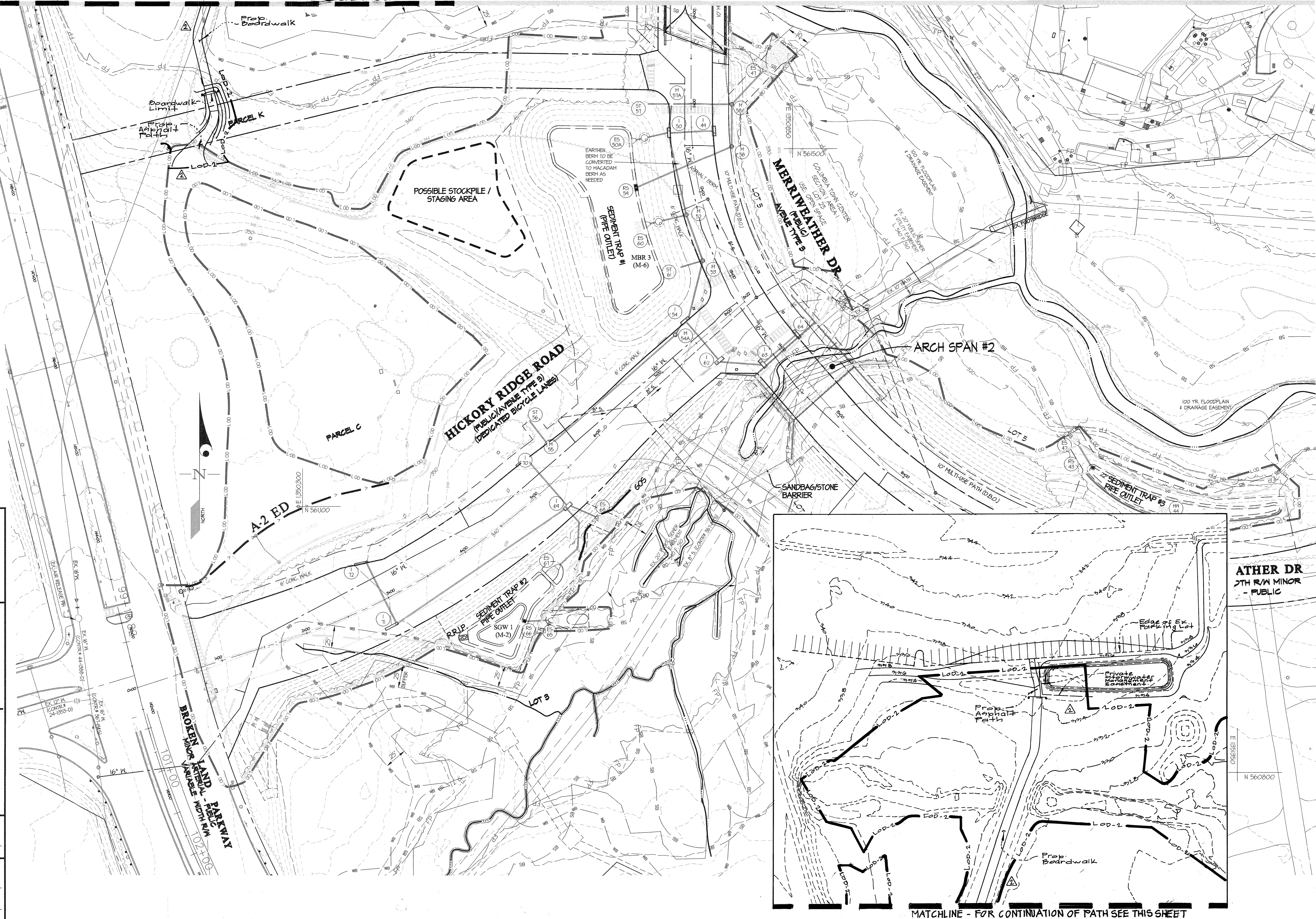
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*Robert Jenkins* 6/28/16  
SIGNATURE OF DEVELOPER/BUILDER DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*J. McEvain* 7/12/2016  
Chief, Bureau of Highways Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
*K. Stalwood* 5-3-16  
Chief, Division of Land Development Date  
*C. L. White* 7-26-16  
Chief, Development Engineering Division Date

**GLWGUTSCHICK LITTLE & WEBER, P.A.**  
CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS  
3909 NATIONAL DRIVE - SUITE 250 - BURTONSVILLE OFFICE PARK  
BURTONSVILLE, MARYLAND 20866  
TEL: 301-421-4024 BALT: 410-980-1820 DC/VA: 301-989-2524 FAX: 301-421-4186



MATCHLINE - FOR CONTINUATION OF PATH SEE THIS SHEET

DES. MJT	DRN. Wsj	CHK. MJT
----------	----------	----------

4-17-16	Adel boardwalk Path, Adjust LOD-2 line around Path	9+	DEV.
DATE	REVISION	BY	APPR.

PREPARED FOR:  
THE HOWARD HUGHES CORPORATION  
10480 LITTLE PATUXENT PARKWAY  
SUITE 400  
COLUMBIA, MD 21044  
ATTN: BOB JENKINS  
410-964-5443

PROFESSIONAL CERTIFICATION  
I HEREBY CERTIFY THAT THESE PLANS 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. 12975  
EXPIRATION DATE: MAY 28, 2018  
*Clark* 6/1/16

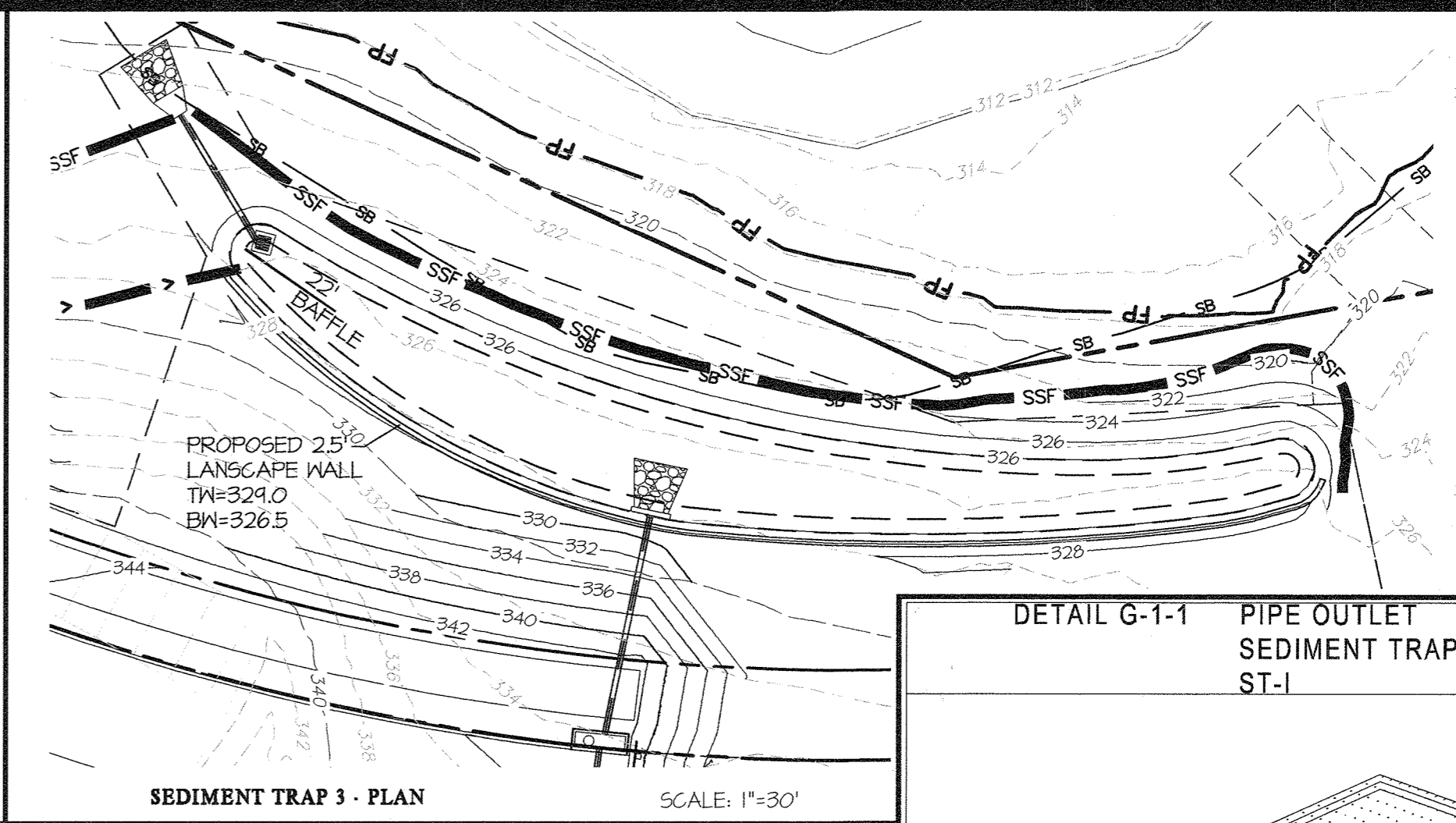
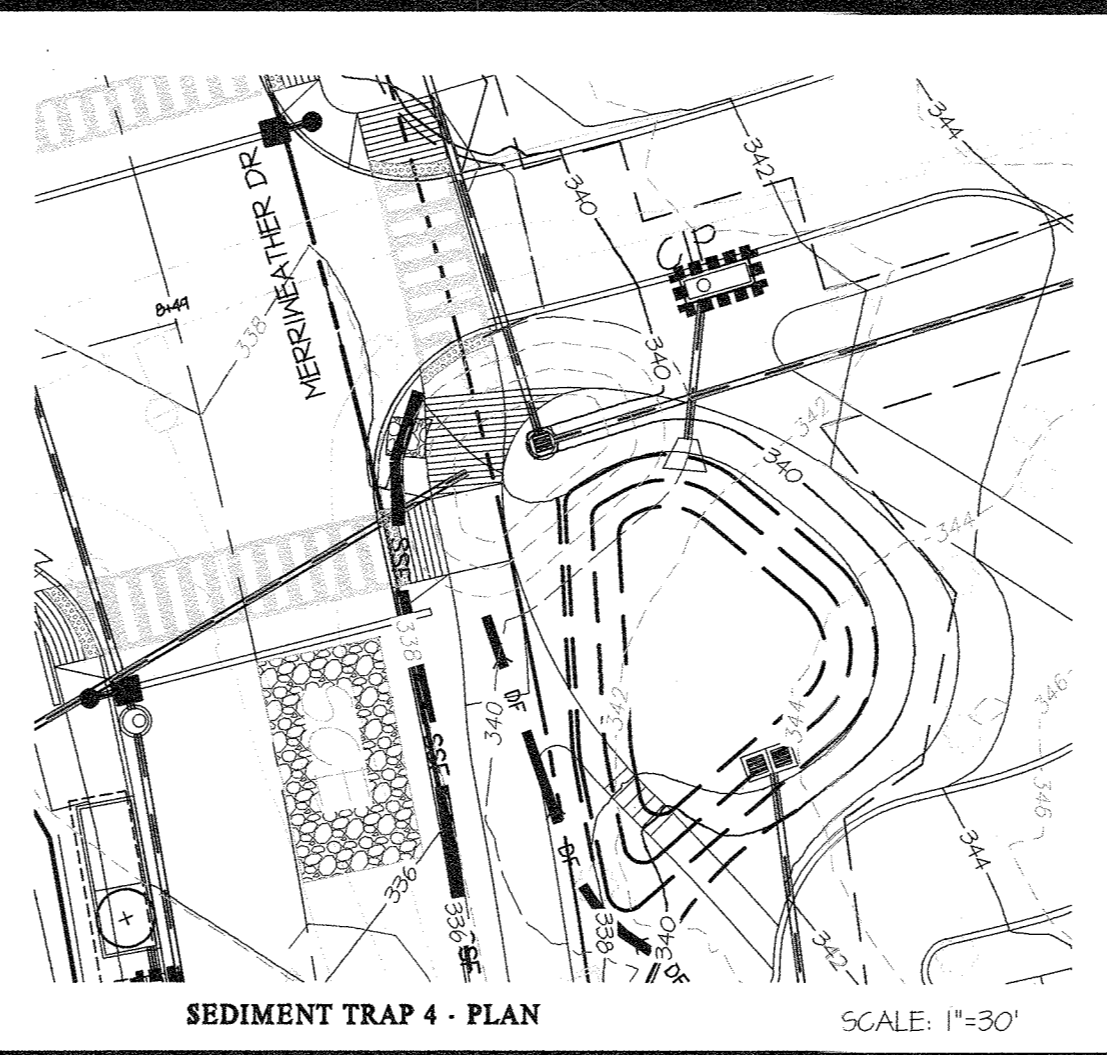
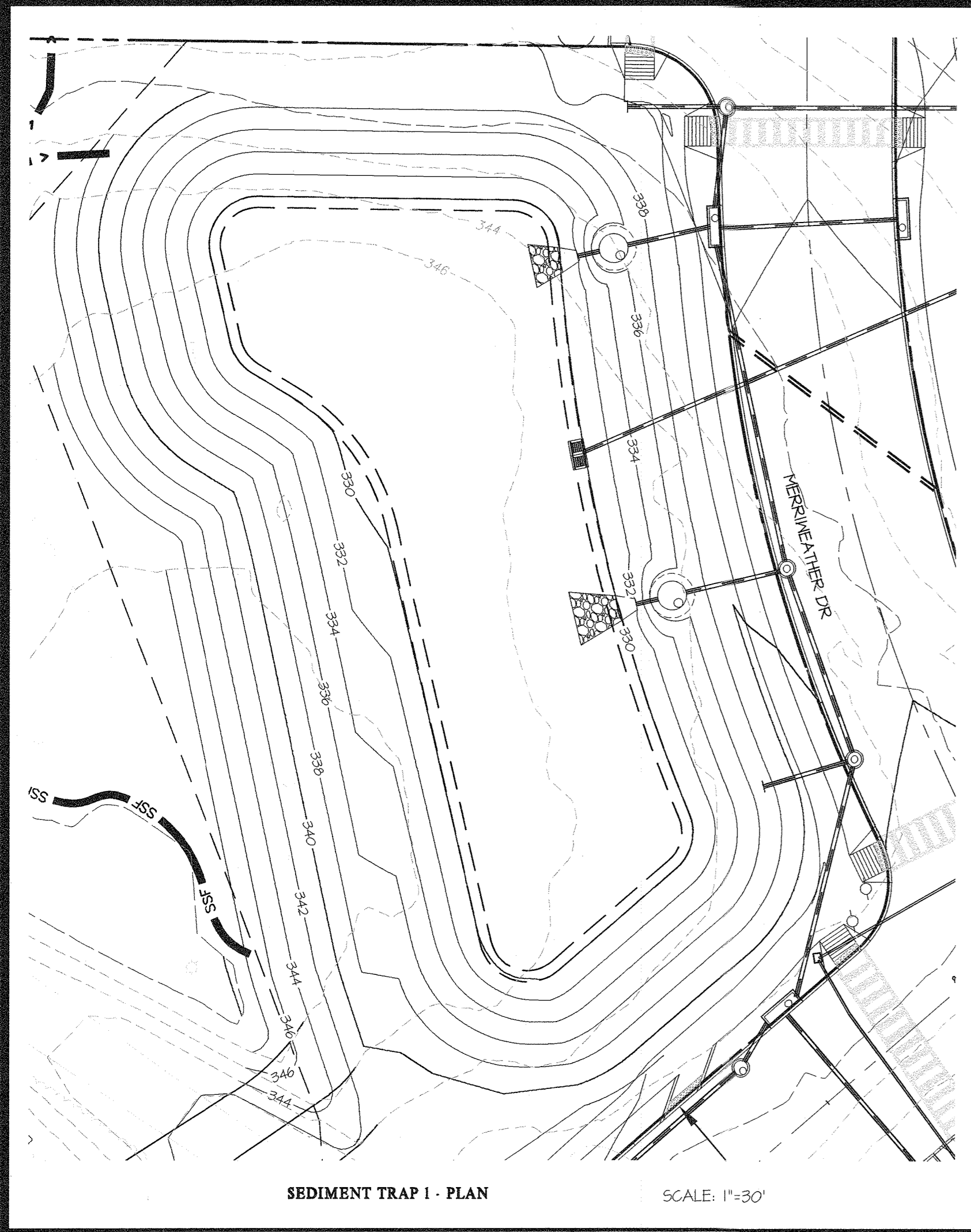


**SEDIMENT CONTROL PLAN - PHASE B**  
**DOWNTOWN COLUMBIA**  
**CRESCENT NEIGHBORHOOD**  
PARCELS B THRU H, NON-BUILDABLE BULK PARCELS J THRU R,  
O.S. LOTS 1 THRU 8 AND  
MERRIWETHER-SYMPHONY WOODS NEIGHBORHOOD O.S. LOT 1  
AND NON-BUILDABLE BULK PARCEL A  
ELECTION DISTRICT No. 5  
HOWARD COUNTY, MARYLAND

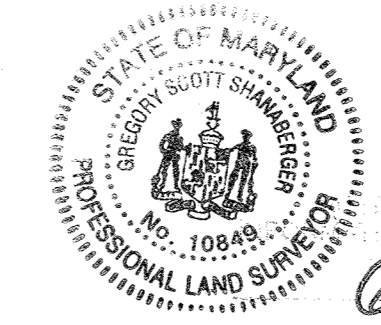
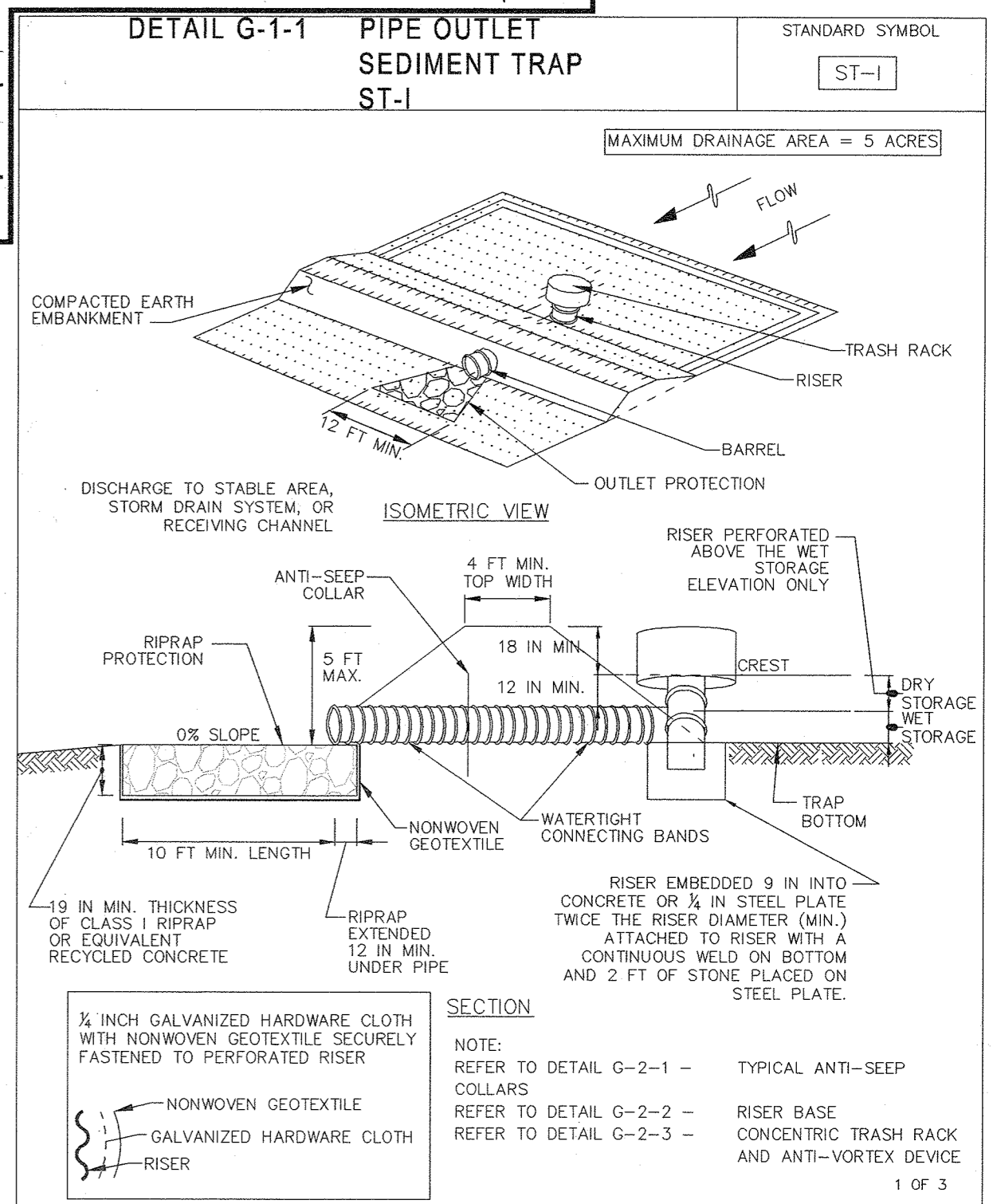
SCALE	ZONING	G. L. W. FILE No.
1"=50'	NT	11071
DATE	TAX MAP - GRID	SHEET
JUNE, 2016	36 - 01	19 OF 102

L:\CAD\DRAWINGS\11071\PLANS BY GUTSCHICK\PHASE 1\11071\_17-19\_SC\_PLAN.dwg 6/28/16 8:58 AM LAST SAVE: 6/28/16 8:58 AM PLOTTED: 6/28/16 9:00 AM





BAFFLE BOARD DESIGN	TRAP 3
SURFACE AREA AT NET STORAGE ELEVATION	3,945 SQ. FT.
EFFECTIVE WIDTH	44.5 FT.
FLOW LENGTH FROM INFLOW POINT TO OUTLET	5 FT.
BAFFLE BOARD LENGTH	22 FT.
EFFECTIVE FLOW LENGTH	44 FT.



This Development Plan is approved for Soil Erosion and Sediment Control by the Howard Soil Conservation District.

*John R. Klotter & Partners*  
Howard S.C.D. Date

**ENGINEER'S CERTIFICATE**

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

*CK*  
ENGINEER'S SIGNATURE DATE: 6/11/16

**DEVELOPER'S/BUILDER'S CERTIFICATE**

"I HEREBY CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT FOR SEDIMENT AND EROSION CONTROL, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF 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."

*Robert G. J. G. J.*  
SIGNATURE OF DEVELOPER/BUILDER DATE: 6/27/16

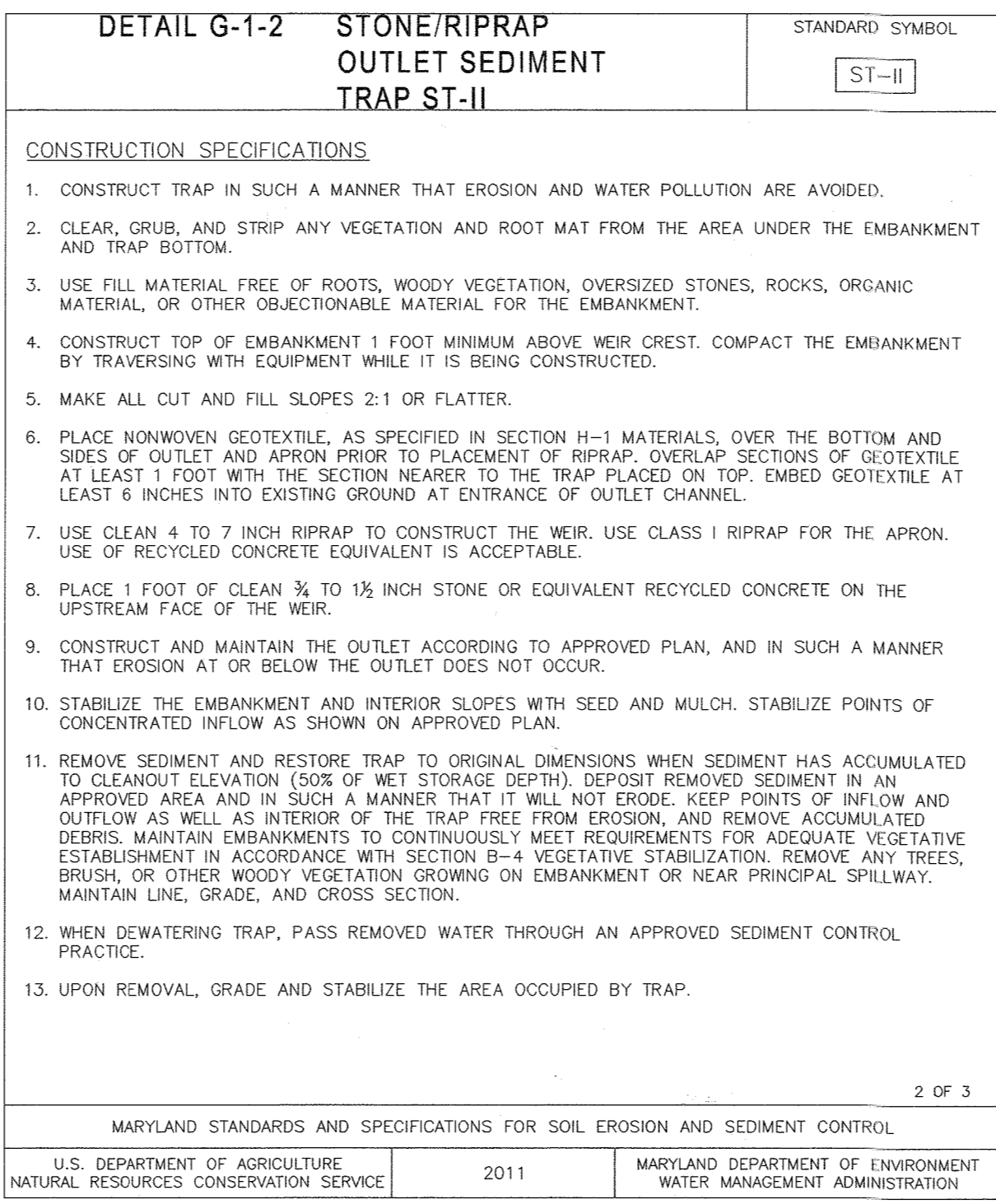
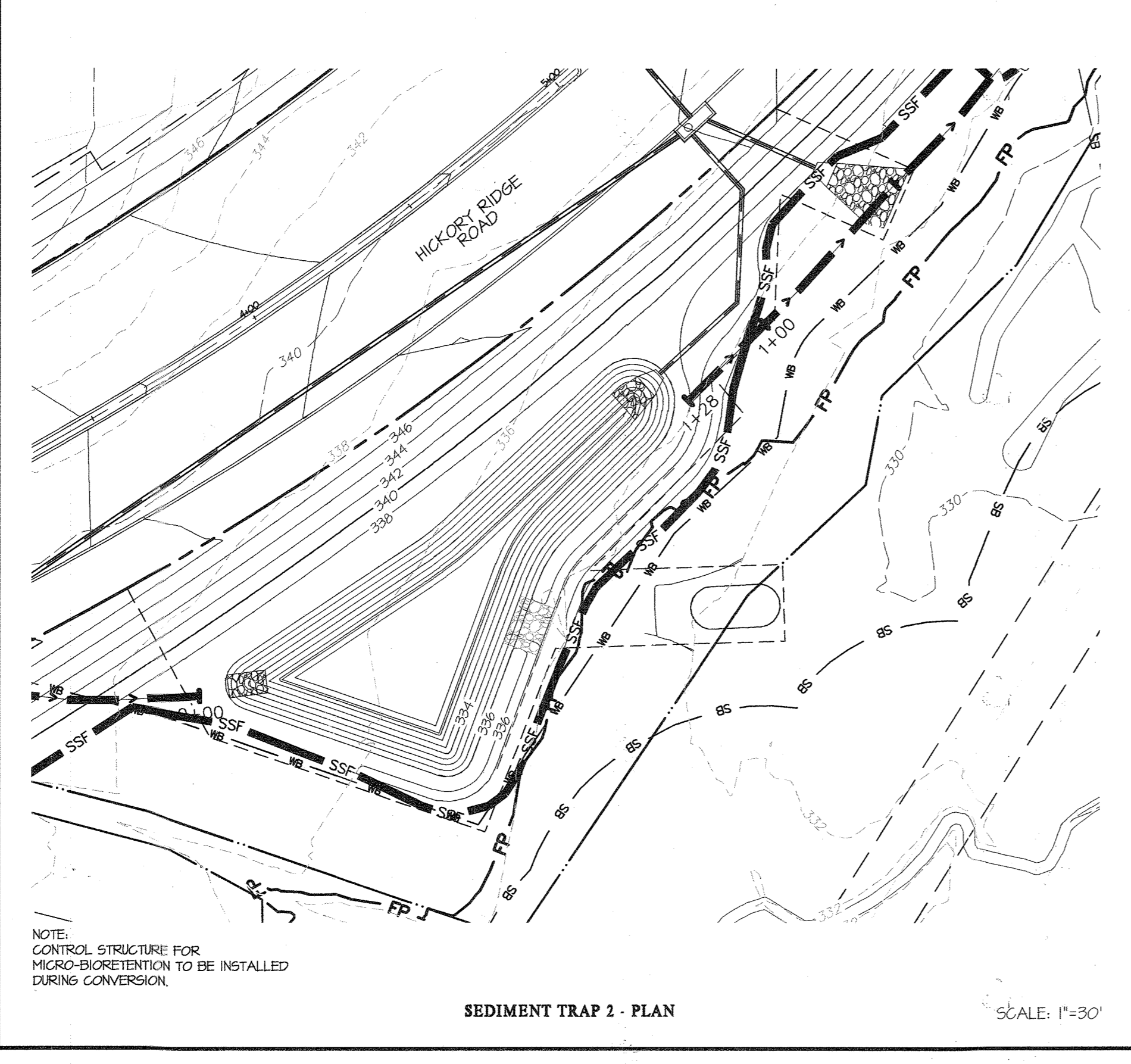
**APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS**

*M. M. M.*  
Chief, Bureau of Highways Date: 7/16/16

**APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING**

*K. S. K.*  
Chief, Division of Land Development Date: 8-3-16

*D. E. D.*  
Chief, Development Engineering Division Date: 7-26-16

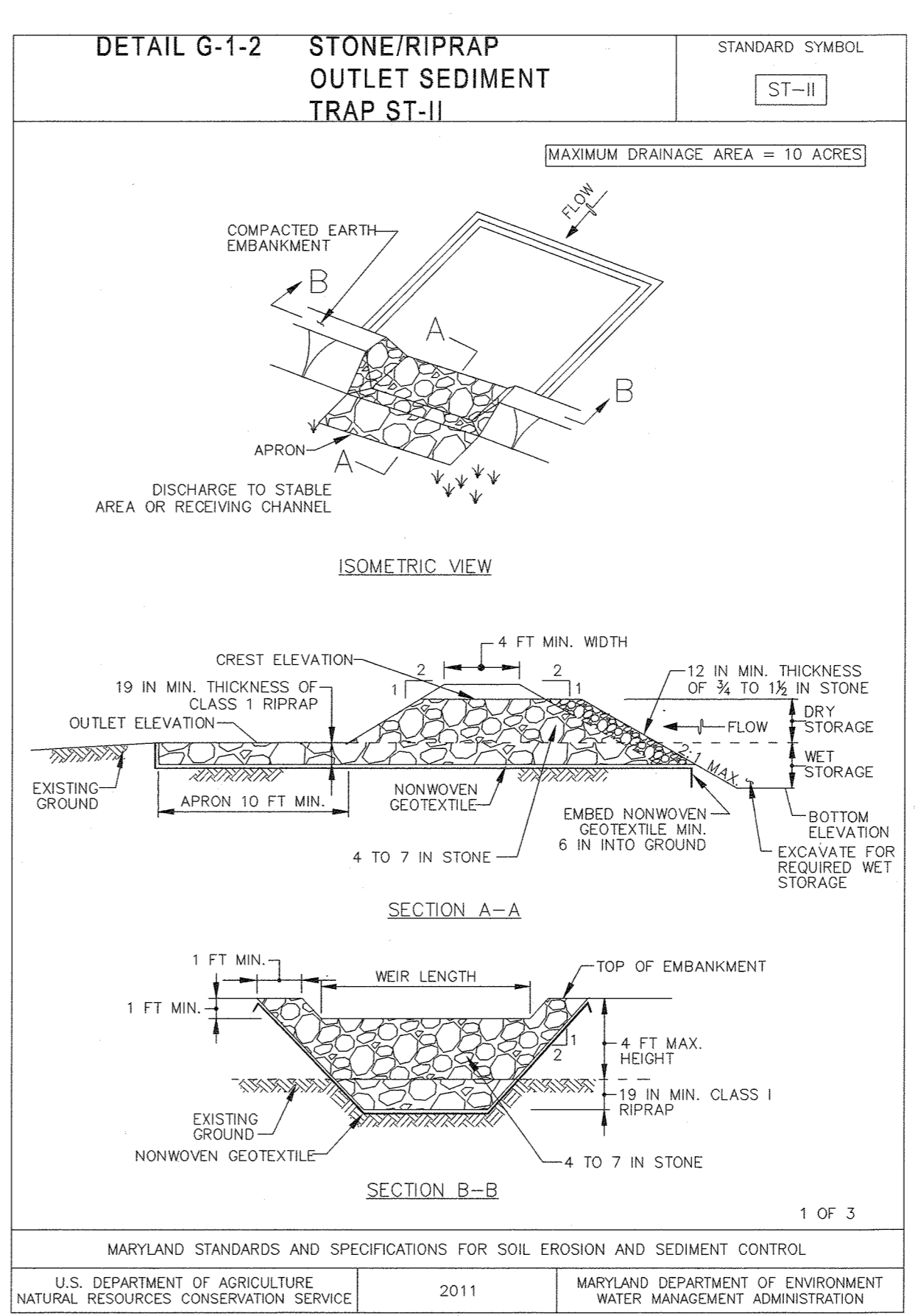


DETAIL G-1-2 STONE/RIPRAP OUTLET SEDIMENT TRAP ST-II	STANDARD SYMBOL
	ST-II

- CONSTRUCTION SPECIFICATIONS**
- CONSTRUCT TRAP IN SUCH A MANNER THAT EROSION AND WATER POLLUTION ARE AVOIDED.
  - CLEAR, GRUB, AND STRIP ANY VEGETATION AND ROOT MAT FROM THE AREA UNDER THE EMBANKMENT AND TRAP BOTTOM.
  - USE FILL MATERIAL FREE OF ROOTS, WOODY VEGETATION, OVERSIZED STONES, ROCKS, ORGANIC MATERIAL, OR OTHER OBJECTIONABLE MATERIAL FOR THE EMBANKMENT.
  - CONSTRUCT TOP OF EMBANKMENT 1 FOOT MINIMUM ABOVE WEIR CREST. COMPACT THE EMBANKMENT BY TRAVERSING WITH EQUIPMENT WHILE IT IS BEING CONSTRUCTED.
  - MAKE ALL CUT AND FILL SLOPES 2:1 OR FLATTER.
  - PLACE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS, OVER THE BOTTOM AND SIDES OF OUTLET AND APRON PRIOR TO PLACEMENT OF RIPRAP. OVERLAP SECTIONS OF GEOTEXTILE AT LEAST 1 FOOT WITH THE SECTION NEARER TO THE TRAP PLACED ON TOP. EMBED GEOTEXTILE AT LEAST 6 INCHES INTO EXISTING GROUND AT ENTRANCE OF OUTLET CHANNEL.
  - USE CLEAN 4 TO 7 INCH RIPRAP TO CONSTRUCT THE WEIR. USE CLASS I RIPRAP FOR THE APRON. USE OF RECYCLED CONCRETE EQUIVALENT IS ACCEPTABLE.
  - PLACE 1 FOOT OF CLEAN 3/4 TO 1 1/2 INCH STONE OR EQUIVALENT RECYCLED CONCRETE ON THE UPSTREAM FACE OF THE WEIR.
  - CONSTRUCT AND MAINTAIN THE OUTLET ACCORDING TO APPROVED PLAN, AND IN SUCH A MANNER THAT EROSION AT OR BELOW THE OUTLET DOES NOT OCCUR.
  - STABILIZE THE EMBANKMENT AND INTERIOR SLOPES WITH SEED AND MULCH. STABILIZE POINTS OF CONCENTRATED INFLOW AS SHOWN ON APPROVED PLAN.
  - REMOVE SEDIMENT AND RESTORE TRAP TO ORIGINAL DIMENSIONS WHEN SEDIMENT HAS ACCUMULATED TO CLEANOUT ELEVATION (50% OF WET STORAGE DEPTH). DEPOSIT REMOVED SEDIMENT IN AN APPROVED AREA AND IN SUCH A MANNER THAT IT WILL NOT ERODE. KEEP POINTS OF INFLOW AND OUTFLOW AS WELL AS INTERIOR OF THE TRAP FREE FROM EROSION, AND REMOVE ACCUMULATED DEBRIS. MAINTAIN EMBANKMENTS TO CONTINUOUSLY MEET REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION. REMOVE ANY TREES, BRUSH, OR OTHER WOODY VEGETATION GROWING ON EMBANKMENT OR NEAR PRINCIPAL SPILLWAY. MAINTAIN LINE, GRADE, AND CROSS SECTION.
  - WHEN DEWATERING TRAP, PASS REMOVED WATER THROUGH AN APPROVED SEDIMENT CONTROL PRACTICE.
  - UPON REMOVAL, GRADE AND STABILIZE THE AREA OCCUPIED BY TRAP.

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 G-1-2 STONE/RIPRAP OUTLET SEDIMENT TRAP ST-II	STANDARD SYMBOL
	ST-II

- CONSTRUCTION SPECIFICATIONS**
- CONSTRUCT TRAP IN SUCH A MANNER THAT EROSION AND WATER POLLUTION ARE AVOIDED.
  - CLEAR, GRUB, AND STRIP ANY VEGETATION AND ROOT MAT FROM THE AREA UNDER THE EMBANKMENT AND TRAP BOTTOM.
  - PERFORATE THE RISER WITH 1 INCH DIAMETER HOLES SPACED 6 INCHES ON CENTER WITH THE LOWEST PERFORATIONS AT THE NET STORAGE ELEVATION OR PROVIDE A HORIZONTAL OR VERTICAL DRAW-DOWN DEVICE PERFORATED ACCORDING TO APPROVED PLAN. DO NOT PERFORATE THE RISER WITHIN 6 INCHES OF THE TOP OF THE HORIZONTAL BARREL.
  - SET RISER/BARREL ASSEMBLY PRIOR TO EMBANKMENT CONSTRUCTION. MAKE ALL PIPE CONNECTIONS WATER-TIGHT. OFFSET RISER FROM EMBANKMENT TO ACCOMMODATE PLACEMENT OF THE TRASH RACK. ANCHOR THE RISER WITH EITHER A REINFORCED CONCRETE BASE OR STEEL PLATE BASE TO PREVENT FLOATION. MAKE CONCRETE BASES AT LEAST TWICE THE RISER DIAMETER AND 18 INCHES THICK WITH THE RISER EMBEDDED 9 INCHES.
  - USE FILL MATERIAL FREE OF ROOTS, WOODY VEGETATION, OVERSIZED STONES, ROCKS, ORGANIC MATERIAL, OR OTHER OBJECTIONABLE MATERIAL FOR THE EMBANKMENT.
  - HAND COMPACT IN 4 INCH LAYERS FILL MATERIAL AROUND THE PIPE SPILLWAY. PLACE A MINIMUM OF 2 FEET OF HAND COMPACTED BACKFILL AROUND THE PIPE SPILLWAY BEFORE CROSSING IT WITH CONSTRUCTION EQUIPMENT.
  - CONSTRUCT TOP OF EMBANKMENT 1 FOOT MINIMUM ABOVE RISER CREST. COMPACT THE EMBANKMENT BY TRAVERSING WITH EQUIPMENT WHILE IT IS BEING CONSTRUCTED.
  - MAKE ALL CUT AND FILL SLOPES 2:1 OR FLATTER.
  - WRAP THE RISER WITH 3/4 INCH GALVANIZED HARDWARE CLOTH. THEN WRAP WITH NONWOVEN GEOTEXTILE. DO NOT WRAP WITH MORE THAN ONE LAYER OF GEOTEXTILE. EXTEND HARDWARE CLOTH AND GEOTEXTILE AT LEAST 6 INCHES ABOVE THE HIGHEST PERFORATIONS AND AT LEAST 6 INCHES BELOW THE LOWEST PERFORATIONS. OVERLAP, FOLD AND FASTEN WHERE ENDS OF GEOTEXTILE COME TOGETHER TO PREVENT BYPASS. REPLACE GEOTEXTILE AS NECESSARY TO PREVENT GROWING.
  - USE STRAPS OR CONNECTING BANDS AT THE TOP AND BOTTOM OF THE GEOTEXTILE TO HOLD THE GEOTEXTILE AND HARDWARE CLOTH IN PLACE.
  - USE NONWOVEN GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS.
  - STABILIZE THE EMBANKMENT AND INTERIOR SLOPES WITH SEED AND MULCH. STABILIZE POINTS OF CONCENTRATED INFLOW AS SHOWN ON APPROVED PLAN.
  - CONSTRUCT AND MAINTAIN THE OUTLET ACCORDING TO THE APPROVED PLAN AND IN SUCH A MANNER THAT EROSION AT OR BELOW THE OUTLET DOES NOT OCCUR.
  - REMOVE SEDIMENT AND RESTORE TRAP TO ORIGINAL DIMENSIONS WHEN SEDIMENT HAS ACCUMULATED TO CLEANOUT ELEVATION (50% OF WET STORAGE DEPTH). DEPOSIT REMOVED SEDIMENT IN AN APPROVED AREA AND IN SUCH A MANNER THAT IT WILL NOT ERODE. KEEP POINTS OF INFLOW AND OUTFLOW AS WELL AS INTERIOR OF THE TRAP FREE FROM EROSION, AND REMOVE ACCUMULATED DEBRIS. MAINTAIN EMBANKMENTS TO CONTINUOUSLY MEET REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION. REMOVE ANY TREES, BRUSH, OR OTHER WOODY VEGETATION GROWING ON EMBANKMENT OR NEAR PRINCIPAL SPILLWAY. MAINTAIN LINE, GRADE, AND CROSS SECTION. MAINTAIN WATER TIGHT CONNECTIONS. REPLACE GEOTEXTILE AROUND PERFORATED RISER IF DRY STORAGE VOLUME DOES NOT DRAW DOWN WITHIN 10 HOURS.
  - WHEN DEWATERING TRAP, PASS REMOVED WATER THROUGH AN APPROVED SEDIMENT CONTROL PRACTICE.
  - UPON REMOVAL, GRADE AND STABILIZE THE AREA OCCUPIED BY TRAP.

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

**GLWGUTSCHICK LITTLE & WEBER, P.A.**  
CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS  
3909 NATIONAL DRIVE - SUITE 250 - BURTONSVILLE OFFICE PARK  
BURTONSVILLE, MARYLAND 20866  
TEL: 301-421-4024 BALT: 410-860-1820 DC/VA: 301-989-2524 FAX: 301-421-4186

DES. MJT	DRN. MJT	CHK. MJT

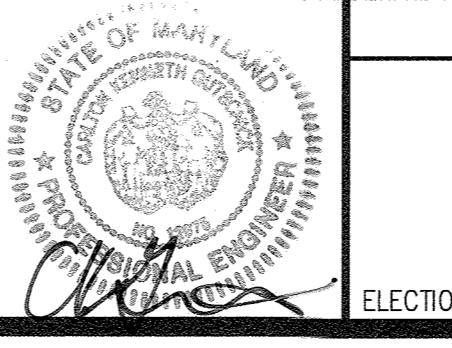
DATE	REVISION	BY	APPR.

PREPARED FOR:  
THE HOWARD HUGHES CORPORATION  
10480 LITTLE PATUXENT PARKWAY  
SUITE 400  
COLUMBIA, MD 21044  
ATTN: BOB JENKINS  
410-964-5443

**PROFESSIONAL CERTIFICATION**

I HEREBY CERTIFY THAT THESE PLANS 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. 12875  
EXPIRATION DATE: MAY 28, 2018

*Bob Jenkins*  
6/11/16



**SEDIMENT TRAP DETAILS**

**DOWNTOWN COLUMBIA CRESCENT NEIGHBORHOOD**  
PARCELS B THRU H, NON-BUILDABLE BULK PARCELS J THRU R,  
O.S. LOTS 1 THRU 8 AND  
MERRIWEATHER-SYMPHONY WOODS NEIGHBORHOOD O.S. LOT 1  
AND NON-BUILDABLE BULK PARCEL A

ELECTION DISTRICT No. 5

SCALE	ZONING	G. L. W. FILE NO.
1"=30'	NT	11071
DATE	TAX MAP - GRID	SHEET
JUNE, 2016	36 - 01	20 OF 102



HOWARD SOIL CONSERVATION DISTRICT (HSCD)

STANDARD SEDIMENT CONTROL NOTES

- 1. A PRE-CONSTRUCTION MEETING MUST OCCUR WITH THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS... 2. ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN... 3. FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE... 4. ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE... 5. ALL SEDIMENT CONTROL STRUCTURES ARE TO REMAIN IN PLACE... 6. SITE ANALYSIS:

Table with 2 columns: Description and Value. Includes: TOTAL AREA OF SITE: 31.2 Acres; AREA TO BE ROOFED OR PAVED: 16.4 Acres; AREA TO BE VEGETATIVELY STABILIZED: 13.8 Acres; TOTAL CUT: 13566 Cu. Yds; TOTAL FILL: 56872 Cu. Yds; OFF-SITE WASTE/BORROW AREA LOCATION: N/A

FILL MATERIAL TO BE TAKEN FROM WITHIN THE LIMITS OF THE CRESCENT NEIGHBORHOOD

- 7. ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY... 8. ADDITIONAL SEDIMENT CONTROL MUST BE PROVIDED, IF DETERMINED NECESSARY BY THE CID, THE SITE AND ALL CONTROLS SHALL BE INSPECTED BY THE CONTRACTOR WEEKLY...

- INSPECTION DATE:
INSPECTION TYPE (ROUTINE, PRE-STORM EVENT, DURING RAIN EVENT)
NAME AND TITLE OF INSPECTOR
WEATHER INFORMATION (CURRENT CONDITIONS AS WELL AS TIME AND AMOUNT OF LAST RECORDED PRECIPITATION)
BRIEF DESCRIPTION OF PROJECT'S STATUS (E.G., PERCENT COMPLETE) AND/OR CURRENT ACTIVITIES
EVIDENCE OF SEDIMENT DISCHARGES
IDENTIFICATION OF PLAN DEFICIENCIES
IDENTIFICATION OF SEDIMENT CONTROLS THAT REQUIRE MAINTENANCE
IDENTIFICATION OF MISSING OR IMPROPERLY INSTALLED SEDIMENT CONTROLS
COMPLIANCE STATUS REGARDING THE SEQUENCE OF CONSTRUCTION AND STABILIZATION REQUIREMENTS
PHOTOGRAPHS
MONITORING/SAMPLING
MAINTENANCE AND/OR CORRECTIVE ACTION PERFORMED
OTHER INSPECTION ITEMS AS REQUIRED BY THE "GENERAL PERMIT FOR STORMWATER ASSOCIATED WITH CONSTRUCTION ACTIVITIES" (NPDES, MDE)

- 9. TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THREE PIPE LENGTHS OR THAT WHICH CAN AND SHALL BE BACK-FILLED AND STABILIZED BY THE END OF EACH WORKDAY, WHICHEVER IS SHORTER.
10. ANY MAJOR CHANGES OR REVISIONS TO THE PLAN OR SEQUENCE OF CONSTRUCTION MUST BE REVIEWED AND APPROVED BY THE HSCD PRIOR TO PROCEEDING WITH CONSTRUCTION...
11. DISTURBANCE SHALL NOT OCCUR OUTSIDE THE LOD. A PROJECT IS TO BE SEQUENCED SO THAT GRADING ACTIVITIES BEGIN ON ONE GRADING UNIT...
12. WASH WATER FROM ANY EQUIPMENT, VEHICLES, WHEELS PAVEMENT, AND OTHER SOURCES MUST BE TREATED IN A SEDIMENT BASIN OR OTHER APPROVED WASHOUT STRUCTURE.
13. TOPSOIL SHALL BE STOCKPILED AND PRESERVED ON-SITE FOR REDISTRIBUTION ONTO FINAL GRADE.
14. ALL SILT FENCE AND SUPER SILT FENCE SHALL BE PLACED ON-THE-COUNTOR, AND BE IRRIGATED AT 25 MINIMUM INTERVALS, WITH LOWER ENDS CURLED UPHILL BY 2' IN ELEVATION.
15. STREAM CHANNELS MUST NOT BE DISTURBED DURING THE FOLLOWING RESTRICTED TIME PERIODS (INCLUSIVE):
USE II AND III MARCH 1 - JUNE 15
USE III AND III OCTOBER 1 - APRIL 30
USE IV MARCH 1 - MAY 31
16. A COPY OF THIS PLAN, THE "2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL," AND ASSOCIATED PERMITS SHALL BE ON-SITE AND AVAILABLE WHEN THE SITE IS ACTIVE.

PERMANENT SEEDING NOTES

Apply to graded or cleared area not subject to immediate further disturbance where a permanent long-lived vegetative cover is needed.

Seeded Preparation: Loosen upper three inches of soil by raking, discing or other acceptable means before seeding (unless previously loosened).

Soil Amendments: In lieu of soil test recommendations, use one of the following schedules:

- 1) Preferred - Apply 2 tons per acre dolomitic limestone (42 lbs/1000 square feet) and 6000 lbs per acre 10-10-10 fertilizer (14 lbs/1000 sq ft) before seeding...
2) Acceptable - Apply 2 tons per acre dolomitic limestone (42 lbs/1000 sq ft) and 1000 lbs per acre 10-10-10 fertilizer (23 lbs/1000 sq ft) before seeding...

Seeding: For the periods March 1 thru April 30, and August 1 thru October 15, seed with 60 lbs per acre (1.4 lbs/1000 sq ft) of Kentucky 31 Tall Fescue... For the period May 1 thru July 31, seed with 60 lbs Kentucky 31 Tall Fescue per acre and 2 lbs per acre (0.5 lbs/1000 sq ft) of creeping lovegrass... During the period of October 16 thru February 28, protect site by Option (1) 2 tons per acre of well anchored straw mulch and seed as soon as possible in the spring... Option (2) Use sod. Option (3) Seed with 60 lbs/acre Kentucky 31 Tall Fescue and mulch with 2 tons/acre well anchored straw.

Mulching: Apply 1-1/2 to 2 tons per acre (10 to 40 lbs/1000 sq ft) of unrotted small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 2lb gallons per acre (5 gal/1000 sq ft) of emulsified asphalt on flat areas. On slopes 8 feet or higher, use 34lb gallons per acre (8 gal/1000 sq ft) for anchoring.

Maintenance: Inspect all seeded areas and make needed repairs, replacements and reseedings.

TEMPORARY SEEDING NOTES

Apply to graded or cleared areas likely to be redisturbed where a short-term vegetative cover is needed.

Seeded Preparation: Loosen upper three inches of soil by raking, discing or other acceptable means before seeding (unless previously loosened).

Soil Amendments: Apply 600 lbs per acre 10-10-10 fertilizer (14 lbs/1000 sq ft).

Seeding: For periods March 1 thru April 30 and from August 15 thru November 15, seed with 2-1/2 bushel per acre of annual rye (3.2 lbs/1000 sq ft)... For the period May 1 thru August 14, seed with 3 lbs per acre of creeping lovegrass (0.7 lbs/1000 sq ft)... For the period November 16 thru February 28, protect site by applying 2 tons per acre of well anchored straw mulch and seed as soon as possible in the spring, or use sod.

Mulching: Apply 1-1/2 to 2 tons per acre (10 to 40 lbs/1000 sq ft) of unrotted small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 2lb gal per acre (5 gal/1000 sq ft) of emulsified asphalt on flat areas. On slopes, 8 ft or higher, use 34b gal per acre (8 gal/1000 sq ft) for anchoring.

Refer to the 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for rate and methods not covered.

STANDARD AND SPECIFICATIONS FOR TOPSOIL DEFINITION

Placement of topsoil over a prepared subsoil prior to establishment of permanent vegetation.

PURPOSE

To provide a suitable soil medium for vegetative growth. Soils of concern have low moisture content, low nutrient levels, low pH, materials toxic to plants, and/or unacceptable soil gradation.

CONDITIONS WHERE PRACTICE APPLIES

- I. This practice 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 supplied 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.
II. For the purpose of these Standards and Specifications, areas having slopes steeper than 2:1 require special consideration and design for adequate stabilization. Areas having slopes steeper than 2:1 shall have the appropriate stabilization shown on the plans.

CONSTRUCTION AND MATERIAL SPECIFICATIONS

- I. Topsoil salvaged from the existing site may be used provided that it meets the standards as set forth in these specifications... II. Topsoil specifications - soil to be used as topsoil must meet the following:
a. Topsoil shall be a loam, sandy loam, clay loam, silt loam, sandy clay loam, loamy sand...
b. Topsoil must be free of plant parts such as bermuda grass, quackgrass, johnsongrass, nutgrass, poison ivy, thistle, or others as specified.
c. Where the subsoil is either highly acidic or composed of heavy clay, ground limestone shall be spread at the rate of 4-8 tons/acre (200-400 pounds per 1,000 square feet) prior to the placement of topsoil...
III. For sites having disturbed areas under 5 acres:
a. Place topsoil (if required) and apply soil amendments as specified in 2.0 Vegetative Stabilization - Section 1 - Vegetative Stabilization Methods and Materials.
IV. For sites having disturbed areas over 5 acres:
a. On soil meeting Topsoil specifications, obtain test results dictating fertilizer and lime amendments required to bring the soil into compliance with the following:
1. pH for topsoil shall be between 6.0 and 7.5...
2. Organic content of topsoil shall be not less than 15 percent by weight.
3. Topsoil having soluble salt greater than 500 parts per million shall not be used.
4. No sod or seed shall be placed on soil which has been with soil sterilants or chemicals used for need control until sufficient time has elapsed (14 days min) to permit dissipation of photo-toxic materials.
Note: 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.
b. Place topsoil (if required) and apply soil amendments as specified in 2.0 Vegetative Stabilization - Section 1 - Vegetative Stabilization Methods and Materials.

SEQUENCE OF CONSTRUCTION

CRESCENT PROPERTY - PHASE I (P 15-106 AND CONT. #24-443-C)

SEQUENCE OF CONSTRUCTION (2015-08-07)

- 1. OBTAIN GRADING PERMIT. (1 DAY)
2. ARRANGE FOR AN ON-SITE PRE-CONSTRUCTION MEETING WITH THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR. (1 DAY)
PLEASE NOTE THAT WORK TO THE NORTH AND SOUTH OF THE BRIDGE NEAR CENTERLINE STATION 1+75 OF MERRIWEATHER DRIVE (FORMERLY ROAD 'A') CAN BE PERFORMED CONCURRENTLY, FOR ADDITIONAL SEQUENCING OF THE STREAM RESTORATION AND MITIGATION, SEE PLANS PROVIDED BY BIOHABITATS (SHEETS 65-105).

NORTH OF THE BRIDGE AT CENTERLINE STATION 1+75 (PHASE A) REFER TO SHEET IT FOR ITEMS I THROUGH II

- 1. INSTALL THE STONE CONSTRUCTION ENTRANCE, SUPER SILT FENCE AND DIVERSION FENCE. (1 WEEK)
2. CONSTRUCT SEDIMENT TRAP 4. (1 WEEK)
3. ONCE PERMISSION HAS BEEN OBTAINED FROM THE SEDIMENT CONTROL INSPECTOR, BEGIN MASS GRADING THE SITE. THE CONTRACTOR MUST IMPLEMENT DUST CONTROL MEASURES PER THE SPECIFICATIONS ON THIS SHEET. (2 WEEKS)
4. AS AREAS ARE PUT ON GRADE, INSTALL THE STORM DRAIN AS SHOWN ON THESE PLANS AND THE WATER AND SEWER MAINS AS SHOWN ON CONT. # 24-443-D. IF AT ANY TIME PONDING SHOULD OCCUR PRIOR TO AN INLET BEING CONSTRUCTED, THE CONTRACTOR IS TO "CUT IN" A SHALLE TO ALLOW THE RUNOFF TO DRAIN TO A PERIMETER DEVICE...
5. BEGIN FINE GRADING THE AREAS (1 MONTH)
6. INSTALL THE CURB AND GUTTER, SIDEWALKS AND PAVING. (2 WEEKS)
7. ONCE ACCESS TO THE BRIDGE HAS BEEN ESTABLISHED, BEGIN CONSTRUCTION OF THE BRIDGE. (4 MONTHS)
8. ONCE THE EXISTING ROADS FROM BROKEN LAND PARKWAY ARE NO LONGER NEEDED, AND ALTERNATIVE MEANS OF INGRESS AND EGRESS FOR MERRIWEATHER PAVILION PATRONS HAVE BEEN ESTABLISHED, THEY ARE TO BE REMOVED AS SHOWN ON SHEET IT. (2 WEEKS)
9. FLUSH THE STORM DRAIN SYSTEM. (1 DAY)
10. AS AREAS ARE STABILIZED AND PERMISSION IS OBTAINED FROM THE SEDIMENT CONTROL INSPECTOR, THE SEDIMENT CONTROL DEVICES CAN BE REMOVED. THE CONTRACTOR IS TO IMMEDIATELY STABILIZE ANY AREAS THAT ARE DISTURBED AS A RESULT. (1 WEEK)
11. WITH THE PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, BEGIN CONSTRUCTION OF THE MICRO BIO-RETENTION FACILITIES, SUPER SILT FENCE DOWNHILL OF THE FACILITY MUST STAY IN PLACE UNTIL THE CONSTRUCTION IS COMPLETE. (1 WEEK)

SOUTH OF THE BRIDGE AT CENTERLINE STATION 1+75 (PHASE A) REFER TO SHEET IB FOR ITEMS I2 THROUGH 20

- 12. INSTALL THE STONE CONSTRUCTION ENTRANCE, SUPER SILT FENCE, TEMPORARY BIRMINGHAM CURB, ASPHALT BERM AND CONSTRUCT THE CLEANWATER DIVERSION AS SHOWN ON SHEET IB. (1 WEEK)
13. CONSTRUCT TRAPS I THROUGH 3. CONSTRUCT THE E/8 TH DICES DRAINING TO THE TRAPS, BEGINNING AT THE DOWNSTREAM END AND WORKING UPHILL FROM THERE...
14. ONCE PERMISSION HAS BEEN OBTAINED FROM THE SEDIMENT CONTROL INSPECTOR, BEGIN MASS GRADING THE SITE. THE CONTRACTOR MUST IMPLEMENT DUST CONTROL MEASURES PER THE SPECIFICATIONS ON THIS SHEET. (2 WEEKS)
15. AS AREAS ARE PUT ON GRADE, INSTALL THE STORM DRAIN AS SHOWN ON THESE PLANS AND THE WATER AND SEWER MAINS AS SHOWN ON CONT. # 24-443-D. IF AT ANY TIME PONDING SHOULD OCCUR PRIOR TO AN INLET BEING CONSTRUCTED, THE CONTRACTOR IS TO "CUT IN" A SHALLE TO ALLOW THE RUNOFF TO DRAIN TO A PERIMETER DEVICE...
16. INSTALL THE CLEANWATER DIVERSIONS, SUPER SILT FENCE AND THE 36" DIVERSION PIPE IN THE AREA OF ARCH SPAN #2 AS SHOWN ON SHEET IB.
17. BEGIN CONSTRUCTION OF ARCH SPAN #2. THE CONTRACTOR IS TO FOLLOW THE PLANS, DETAILS, NOTES AND SPECIFICATIONS PROVIDED ON SHEETS 42 THROUGH 51. (3 MONTHS)
18. ONCE ACCESS TO THE BRIDGE HAS BEEN ESTABLISHED, BEGIN CONSTRUCTION OF THE BRIDGE. (4 MONTHS)
19. ONCE THE EXISTING ROADS IN THE AREA ARE NO LONGER NEEDED, AND ALTERNATIVE MEANS OF INGRESS AND EGRESS FOR MERRIWEATHER PAVILION PATRONS HAS BEEN ACHIEVED, THEY ARE TO BE REMOVED AS SHOWN ON SHEET IC. (1 MONTH)
20. STABILIZE THE DISTURBED AREAS IN ACCORDANCE WITH THE TEMPORARY SEEDING SPECIFICATIONS ON THIS SHEET. (1 DAY)

SOUTH OF THE BRIDGE AT CENTERLINE STATION 1+75 (PHASE B) REFER TO SHEET II FOR ITEMS 21 THROUGH 27

- 21. BEGIN FINE GRADING THE AREA. (1 MONTH)
22. INSTALL THE CURB AND GUTTER, SIDEWALKS AND PAVING. (2 WEEKS)
23. AS AREAS ARE STABILIZED AND PERMISSION IS OBTAINED FROM THE SEDIMENT CONTROL INSPECTOR, THE SEDIMENT CONTROL DEVICES CAN BE REMOVED. THE CONTRACTOR IS TO IMMEDIATELY STABILIZE ANY AREAS THAT ARE DISTURBED AS A RESULT...
24. FLUSH THE STORM DRAIN SYSTEM. (1 DAY)
25. AS AREAS ARE STABILIZED AND PERMISSION IS OBTAINED FROM THE SEDIMENT CONTROL INSPECTOR, THE SEDIMENT CONTROL DEVICES CAN BE REMOVED...
26. WITH THE PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, BEGIN CONSTRUCTION OF THE MICRO BIO-RETENTION FACILITIES...
27. WITH THE PERMISSION OF THE SEDIMENT CONTROL INSPECTOR BEGIN CONSTRUCTION OF THE PLANTERS. (2 WEEKS)

V. Topsoil Application

- a. When topsoiling, maintain needed erosion and sediment control practices such as diversion, Grade Stabilization Structures, Earth Dikes, Slope Silt Fence and Sediment Traps and Basins.
b. Grades on the areas to be topsoiled, which have been previously established, shall be maintained, albeit 4" - 8" higher in elevation.
c. Topsoil shall be uniformly distributed in a 4" - 8" layer and lightly compacted to a minimum thickness of 3". Spreading shall be performed in such a manner that sodding or seeding can proceed with a minimum of additional soil preparation and tillage...
d. Topsoil shall not be placed while the topsoil or subsoil is frozen or muddy condition, when the subsoil is excessively wet or in a condition that may otherwise be detrimental to proper grading and seeded preparation.

- VI. Alternative for Permanent Seeding - Instead of applying the full amounts of lime and commercial fertilizer, composted sludge and amendments may be applied as specified below:
a. Composted Sludge Material for use as a soil conditioner for sites having disturbed areas over 5 acres shall be tested to prescribe amendments and for sites having disturbed areas under 5 acres shall conform to the following requirements:
1. Composted sludge shall be supplied by, or originate from, a person or persons that are permitted (at the time of acquisition of the compost) by the Maryland Department of the Environment under COMAR 26.04.06.
2. Composted sludge shall contain at least 1 percent nitrogen, 15 percent phosphorus, and 0.2 percent potassium and have a Ph of 7.0 to 8.0. If compost does not meet these requirements, the appropriate prior to use.
3. Composted sludge shall be applied at a rate of 1 ton/1,000 square feet.
b. Composted sludge shall be amended with a potassium fertilizer applied at a rate of 4lb/1,000 square feet, and 1/3 the normal lime application rate.

References: Guideline Specifications, Soil Preparation and Sodding, MD-VA Pub. #1, Cooperative Extension Service, University of Maryland and Virginia Polytechnic Institutes, Revised 1973.

DUST CONTROL

Controlling dust blowing and movement on construction sites and roads.

Definition

To prevent blowing and movement of dust from exposed soil surfaces, reduce on and off-site damage, health hazards, and improve traffic safety.

Conditions Where Practice Applies

This practice is applicable to areas subject to dust blowing and movements where on and off-site damage is likely without treatment.

Specifications

- Temporary Methods
1. Mulches - See standards for vegetative stabilization with mulches only. Mulch should be crimped or tacked to prevent blowing.
2. Vegetative Cover - See standards for temporary vegetative cover.
3. Tillage - To roughen surface and bring clods to the surface...
4. Irrigation - This is generally done as an emergency treatment...
Permanent Methods
1. Permanent Vegetation - See standards for permanent vegetative cover, and permanent stabilization with sod...
2. Topsoiling - Covering with less erosive soil materials. See standards for topsoiling.
3. Stone - Cover surface with crushed stone or coarse gravel.

ENGINEER'S CERTIFICATE

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

Signature of Engineer: [Signature] DATE: 6/9/16

DEVELOPER'S/BUILDER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT FOR SEDIMENT AND EROSION CONTROL, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF 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/Builder: [Signature] DATE: 6/9/16

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS Chief, Bureau of Highways DATE: 7/12/2016

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING Chief, Division of Land Development DATE: 5-3-16
Chief, Development Engineering Division DATE: 7-26-16

This Development Plan is approved for Soil Erosion and Sediment Control by the Howard Soil Conservation District. Signature: John L. Roberts DATE: 6/29/16

GLWGUTSCHICK LITTLE & WEBER, P.A. CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS 3909 NATIONAL DRIVE - SUITE 250 - BURTONVILLE OFFICE PARK

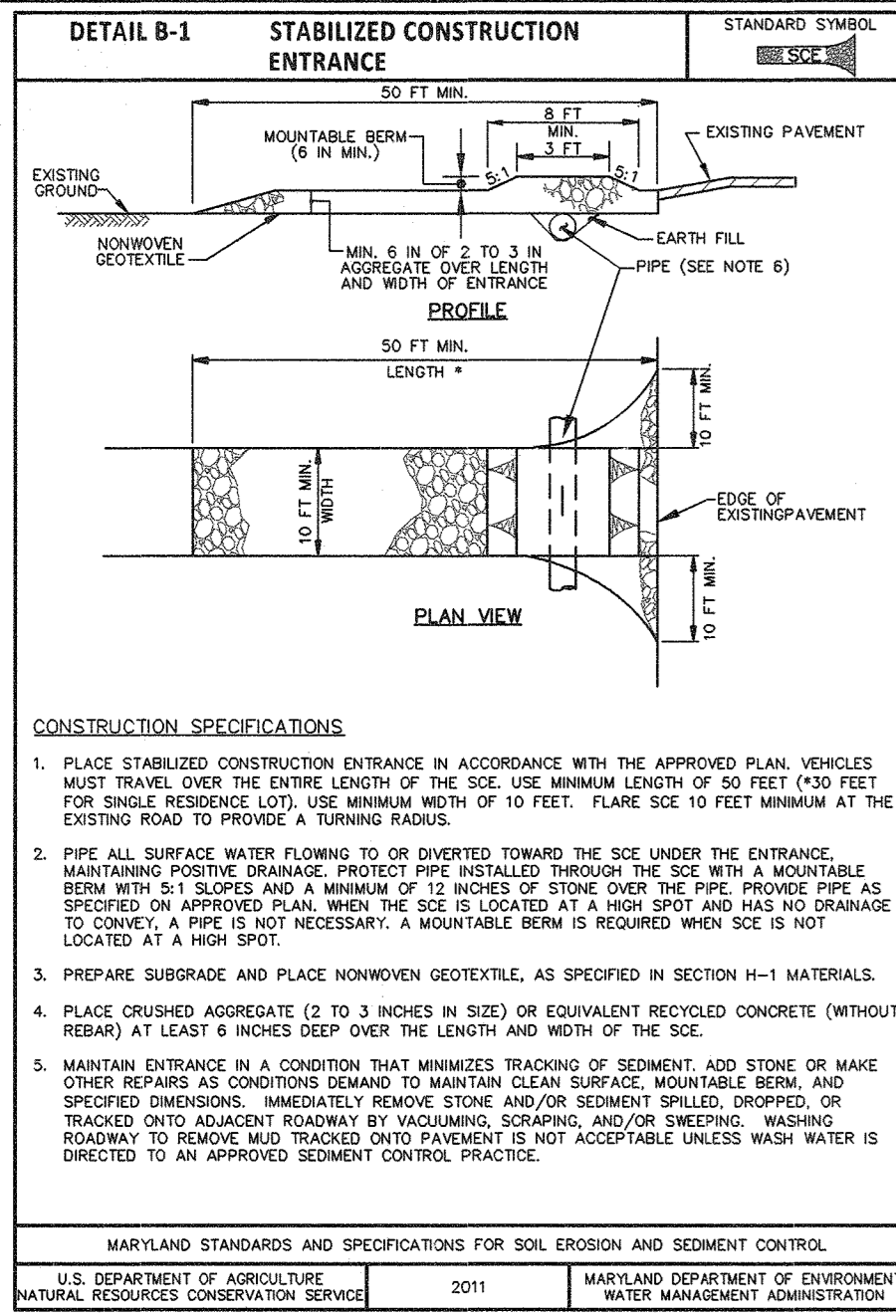
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PROFESSIONAL CERTIFICATION I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 12975 EXPIRATION DATE: MAY 26, 2018

SEDIMENT CONTROL NOTES AND DETAILS DOWNTOWN COLUMBIA CRESCENT NEIGHBORHOOD PARCELS B THRU H, NON-BUILDABLE BULK PARCELS I THRU R, O.S. LOTS 1 THRU 8 AND MERRIWEATHER-SYMPHONY WOODS NEIGHBORHOOD O.S. LOT 1 AND NON-BUILDABLE BULK PARCEL A

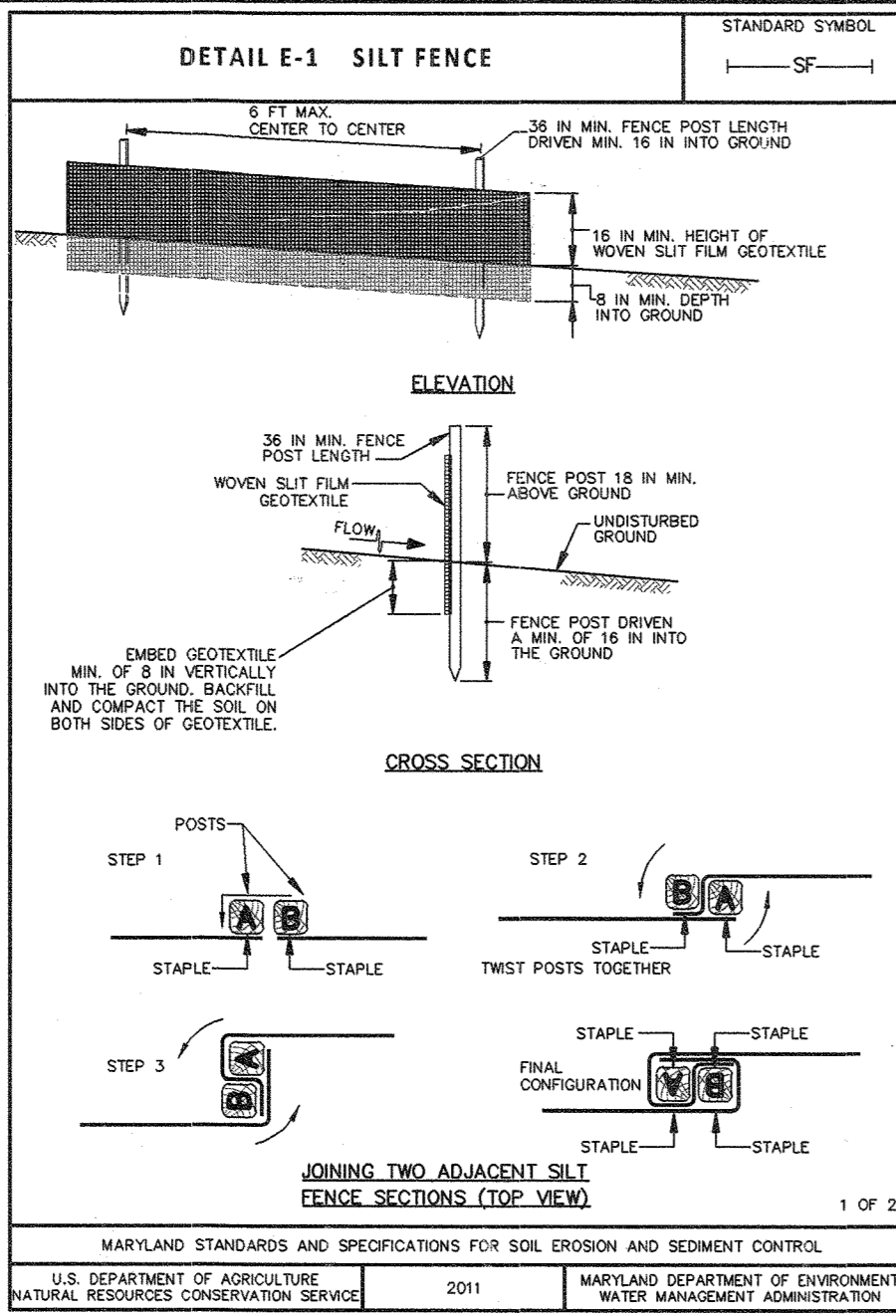
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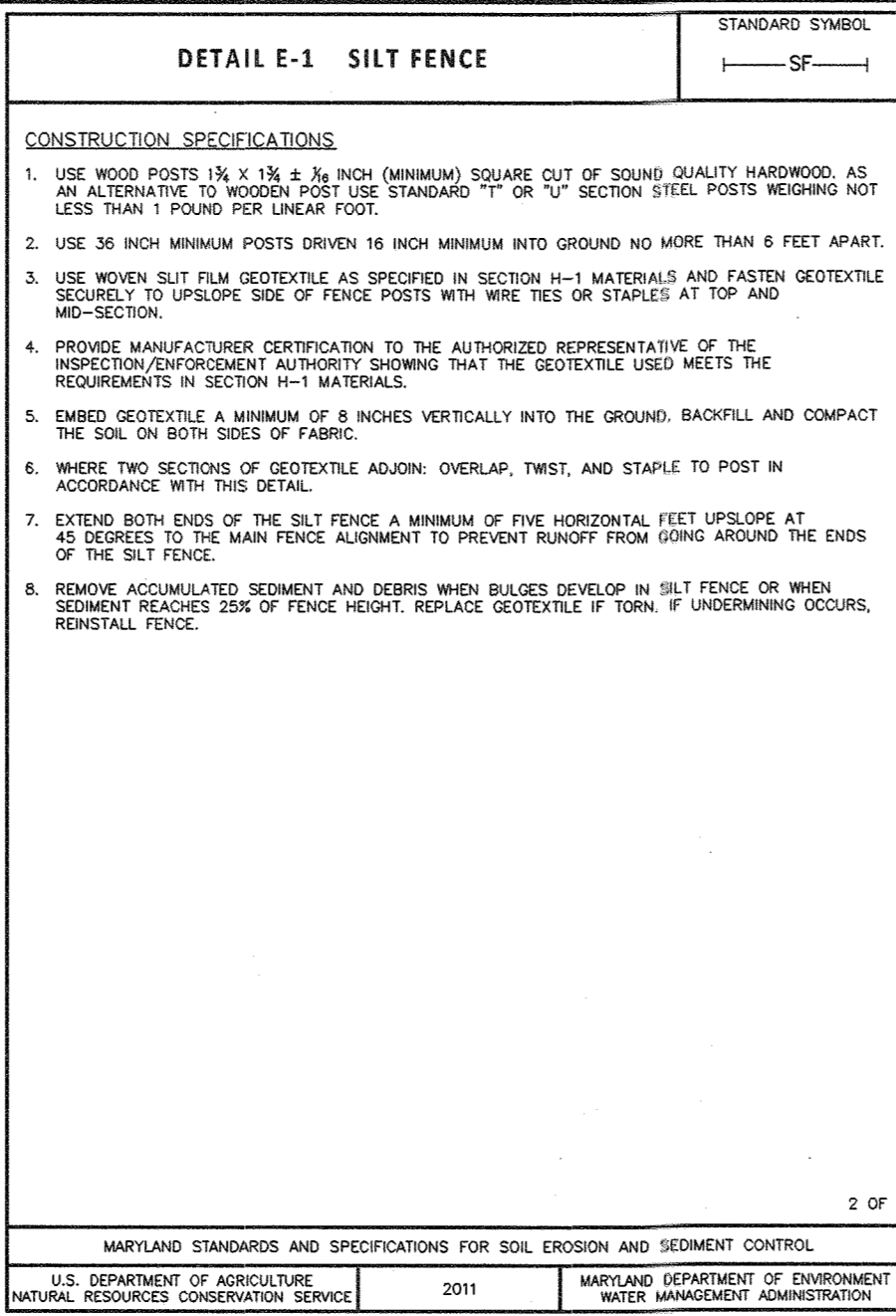
STANDARD SYMBOL: [Symbol]

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL. U.S. DEPARTMENT OF AGRICULTURE, NATURAL RESOURCES CONSERVATION SERVICE, 2011. MARYLAND DEPARTMENT OF ENVIRONMENT AND WATER MANAGEMENT ADMINISTRATION.



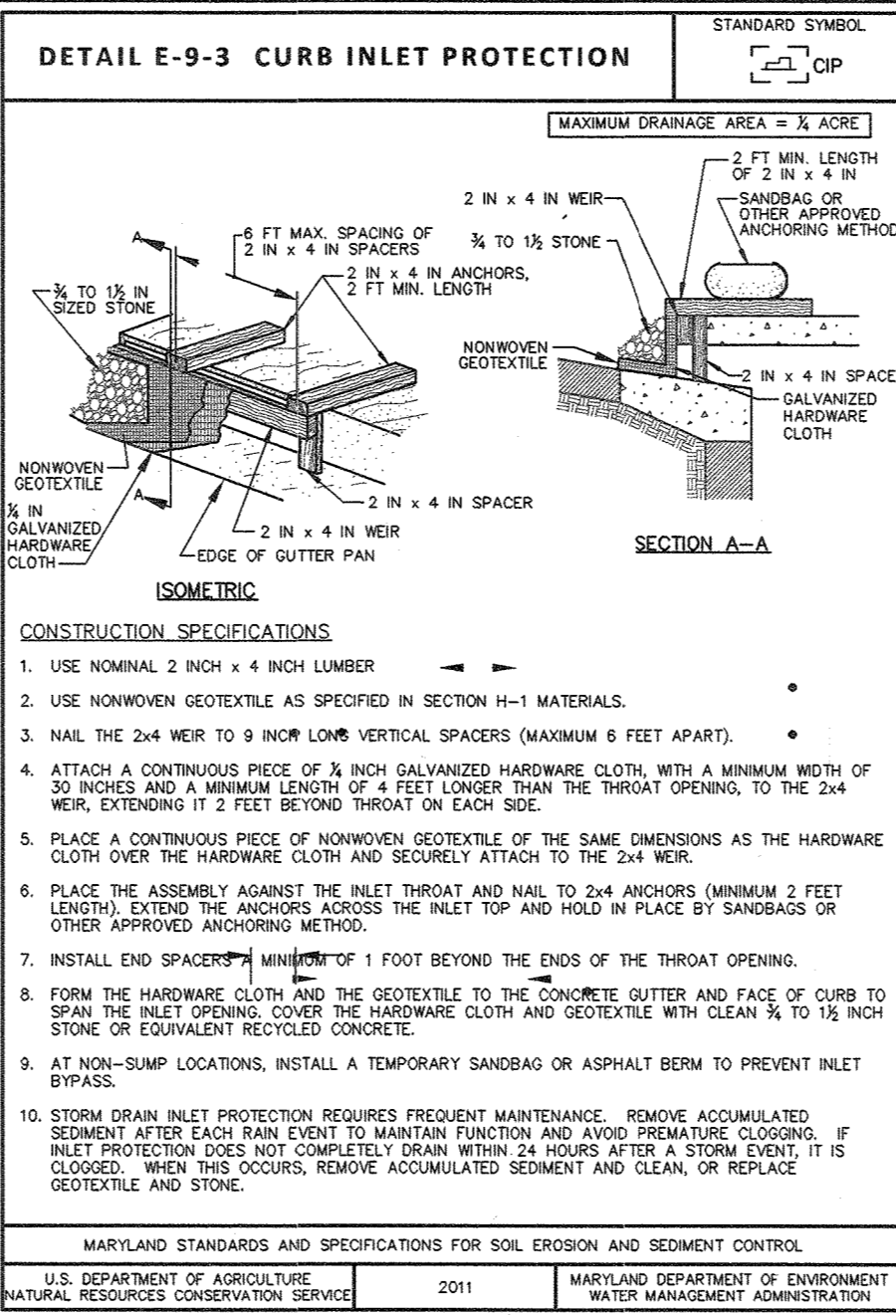
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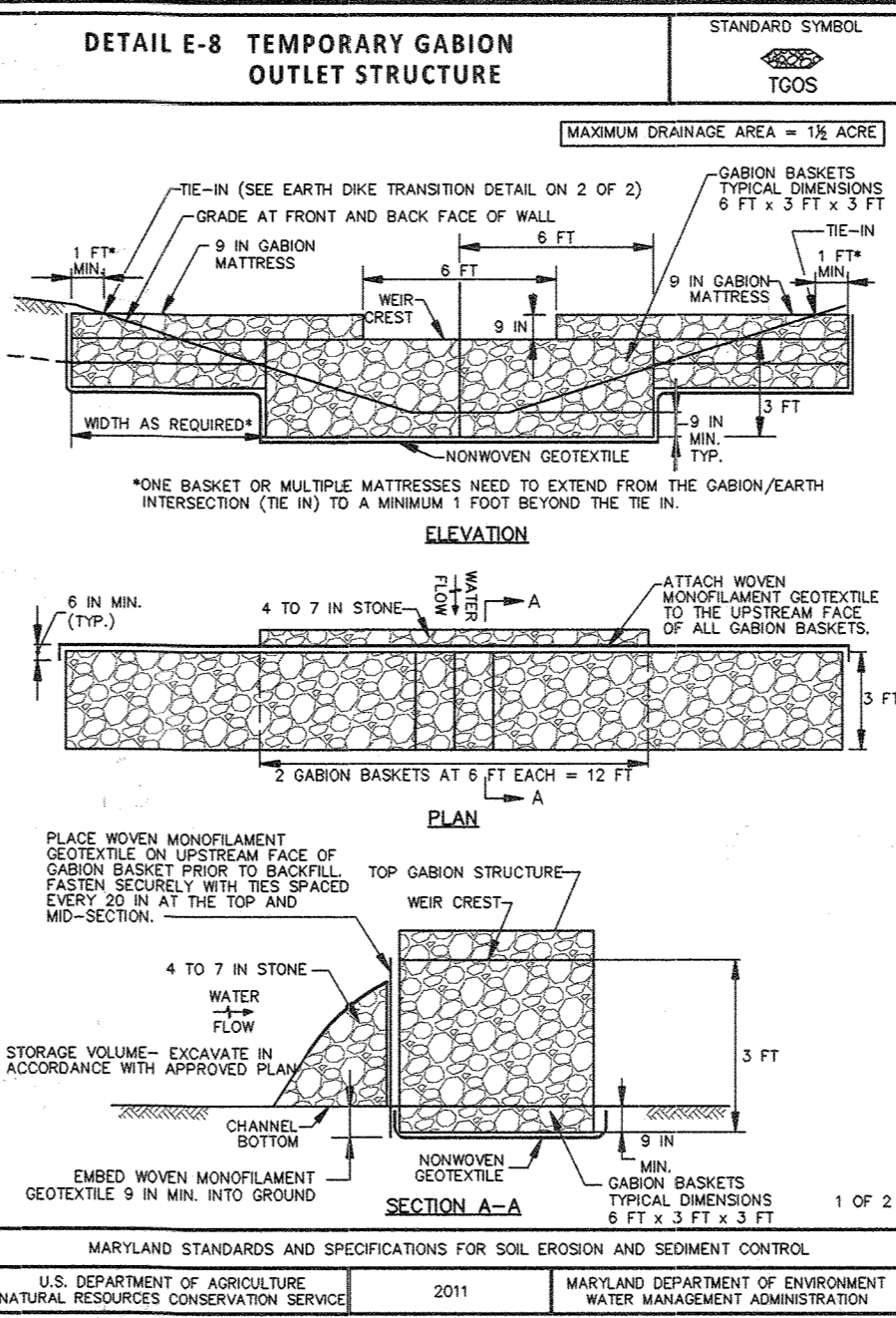
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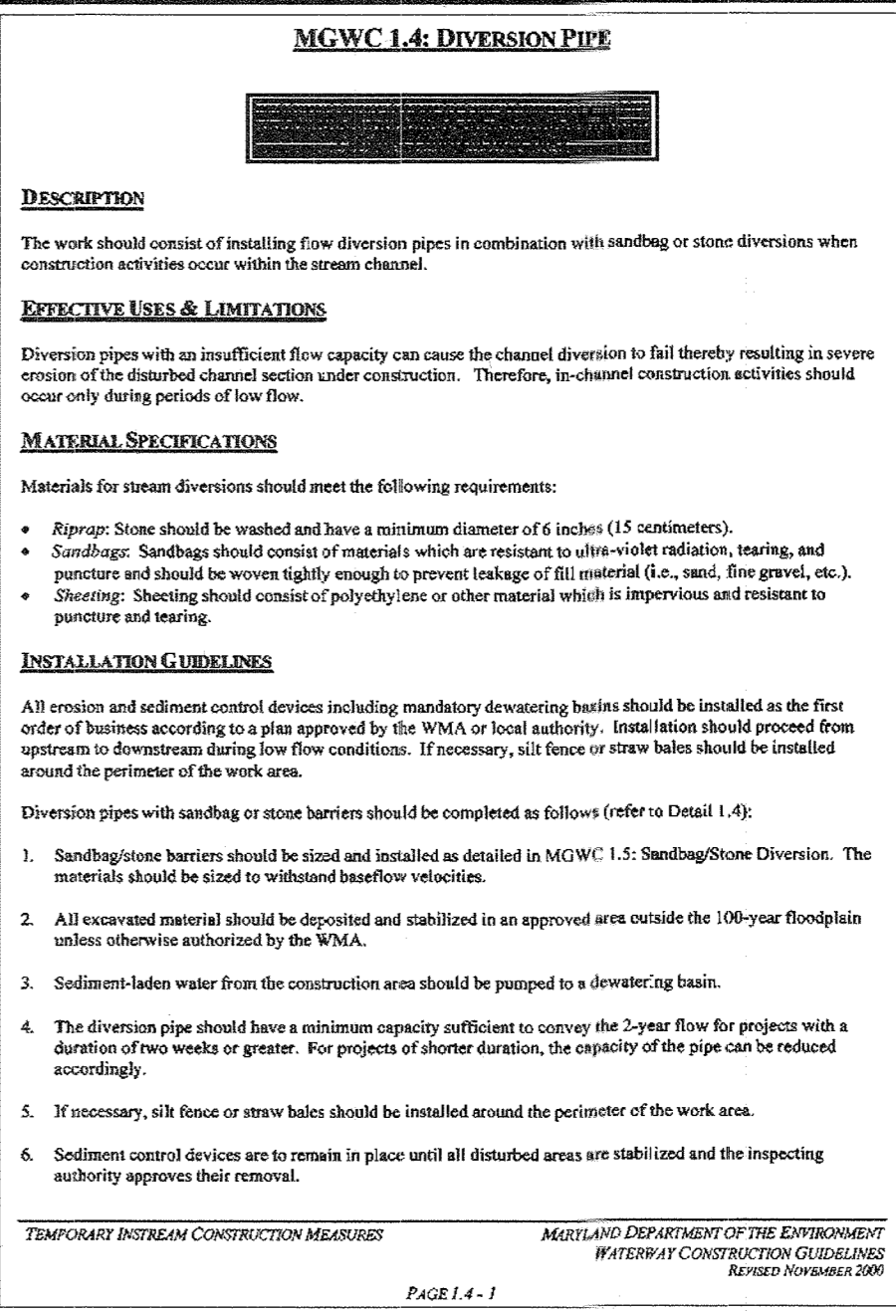
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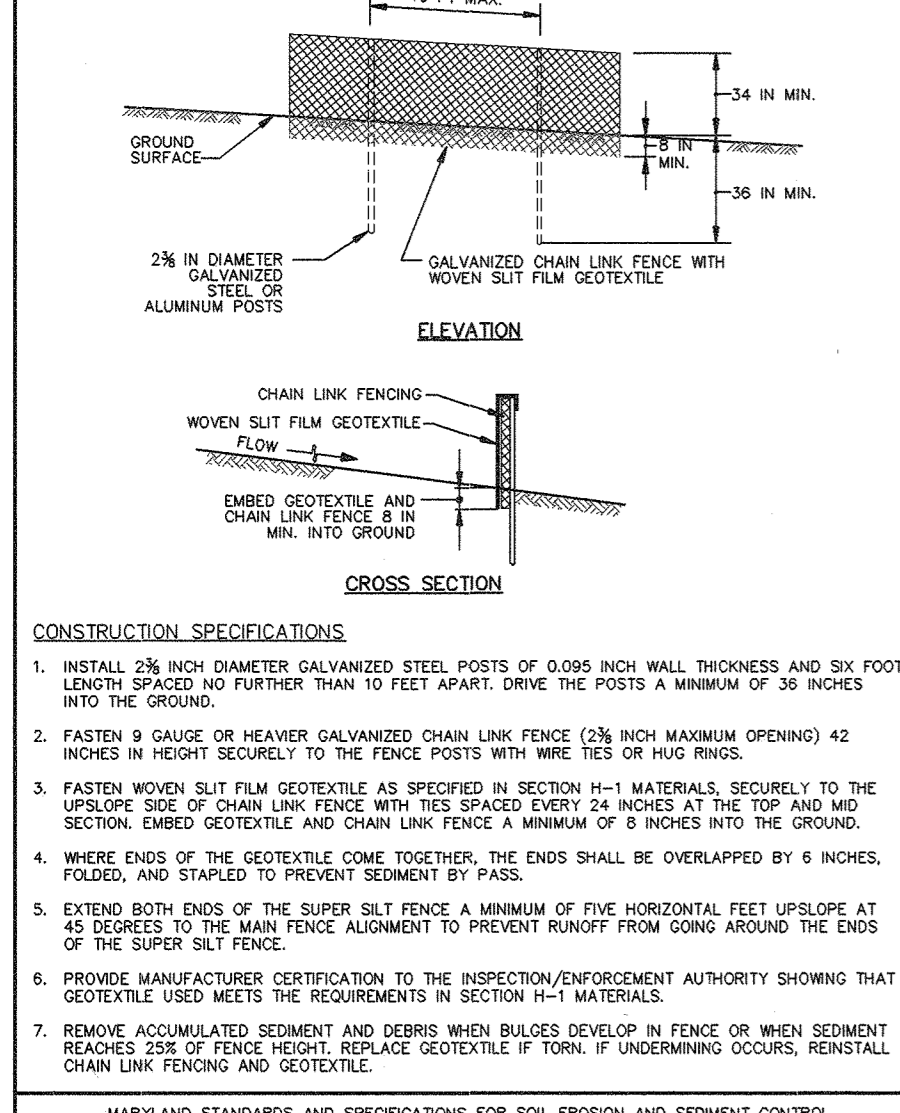
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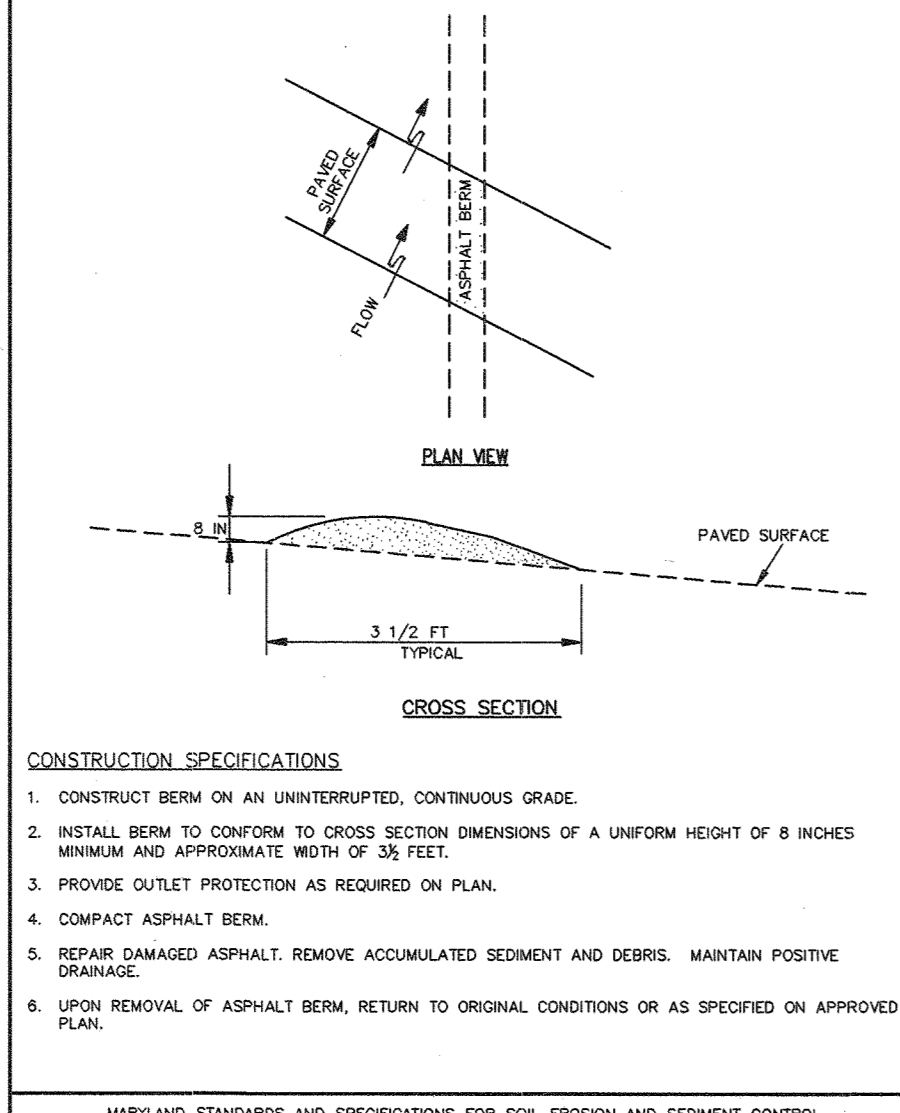
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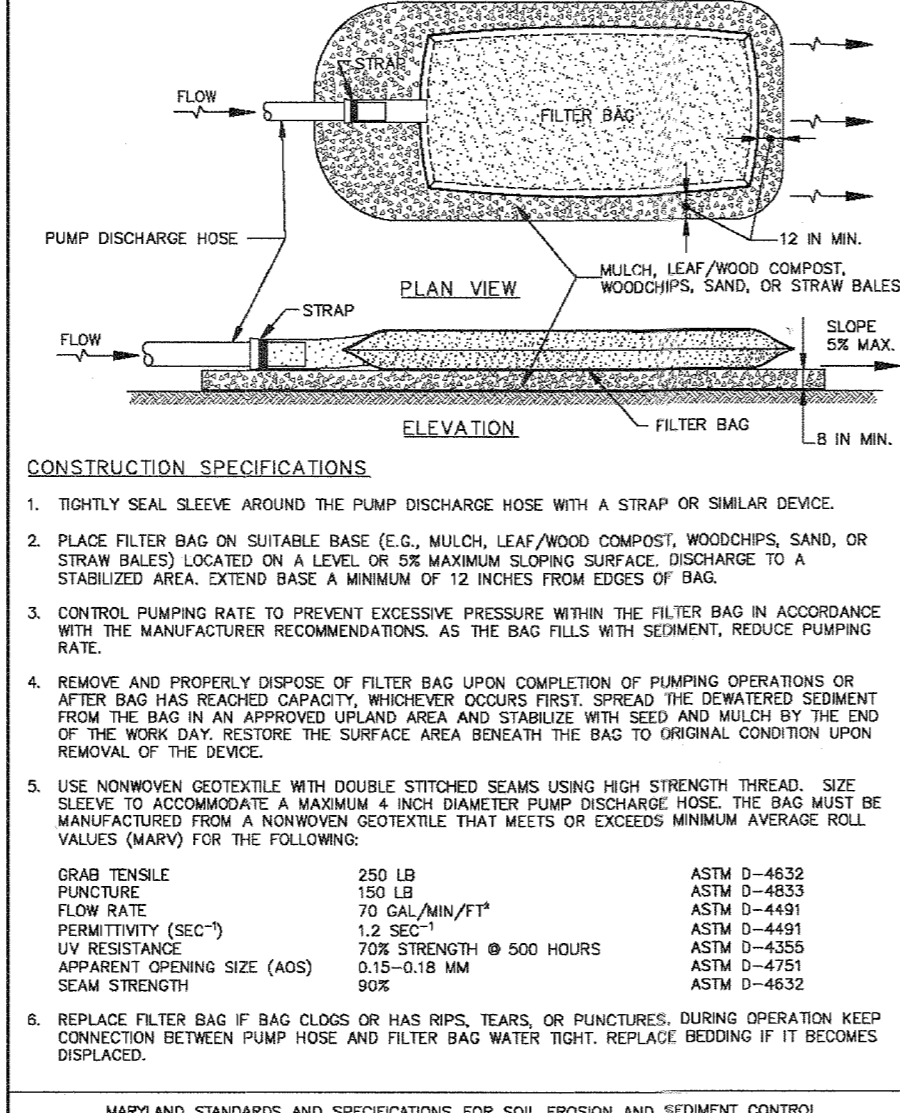
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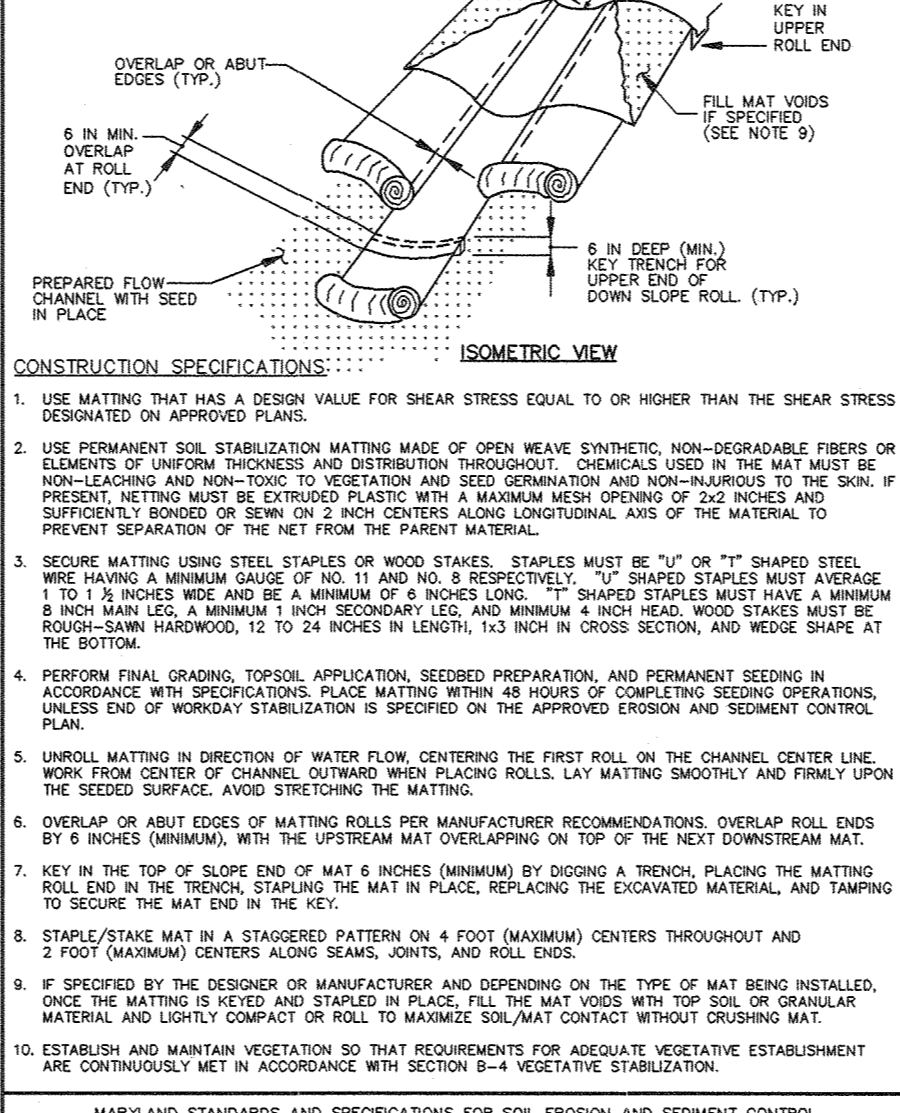
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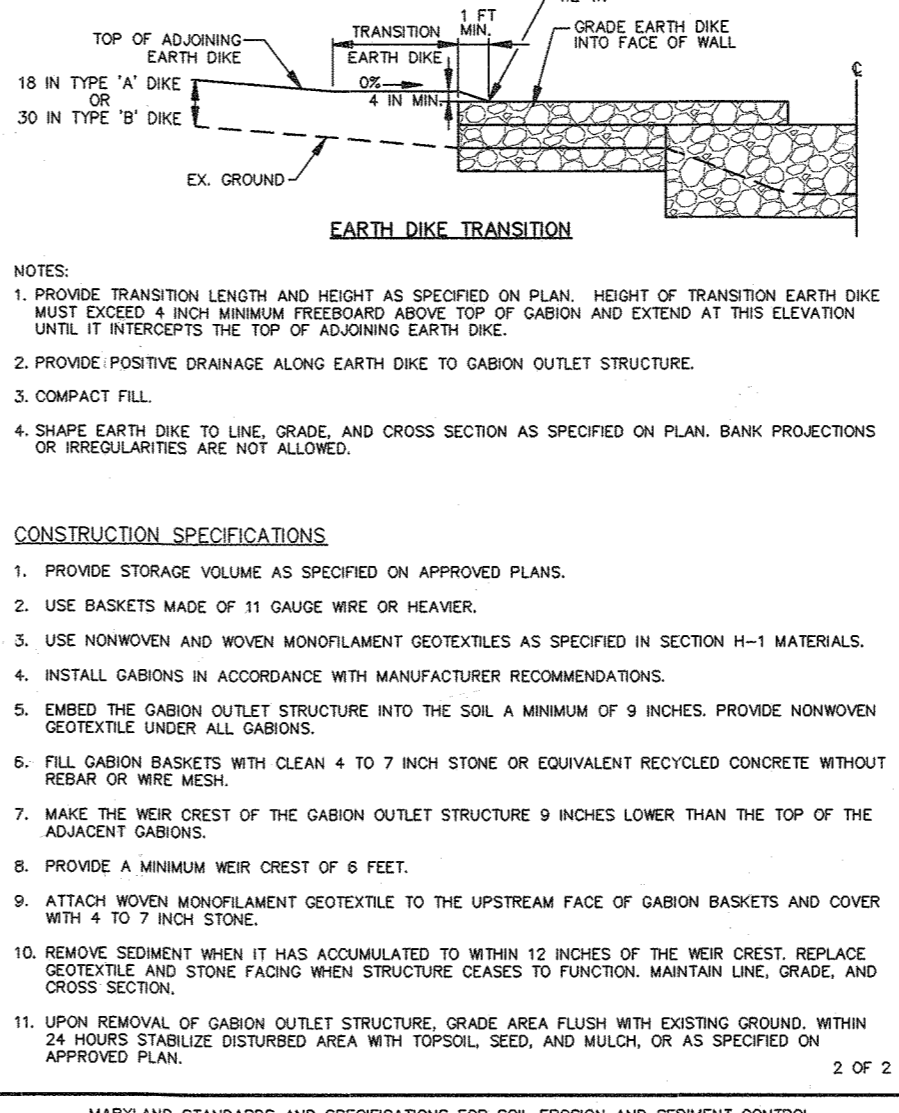
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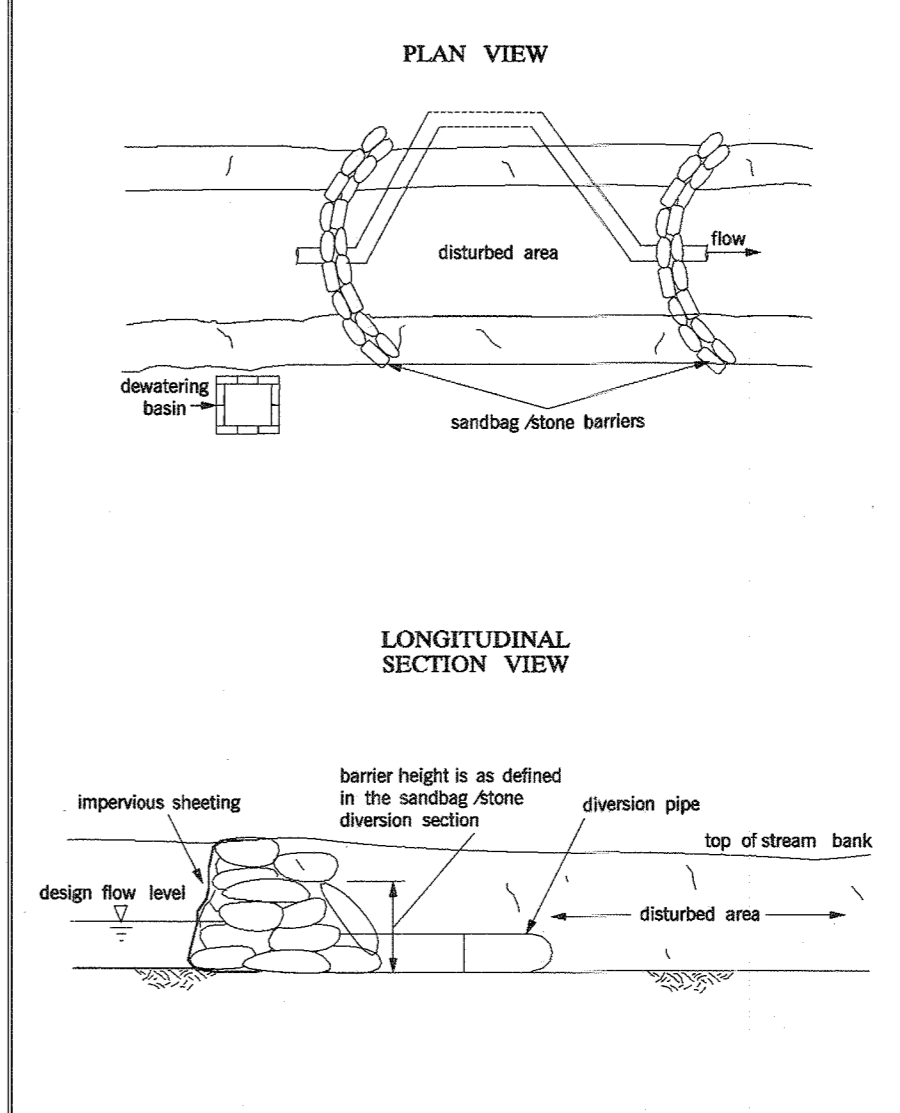
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STANDARD SYMBOL: [Symbol]

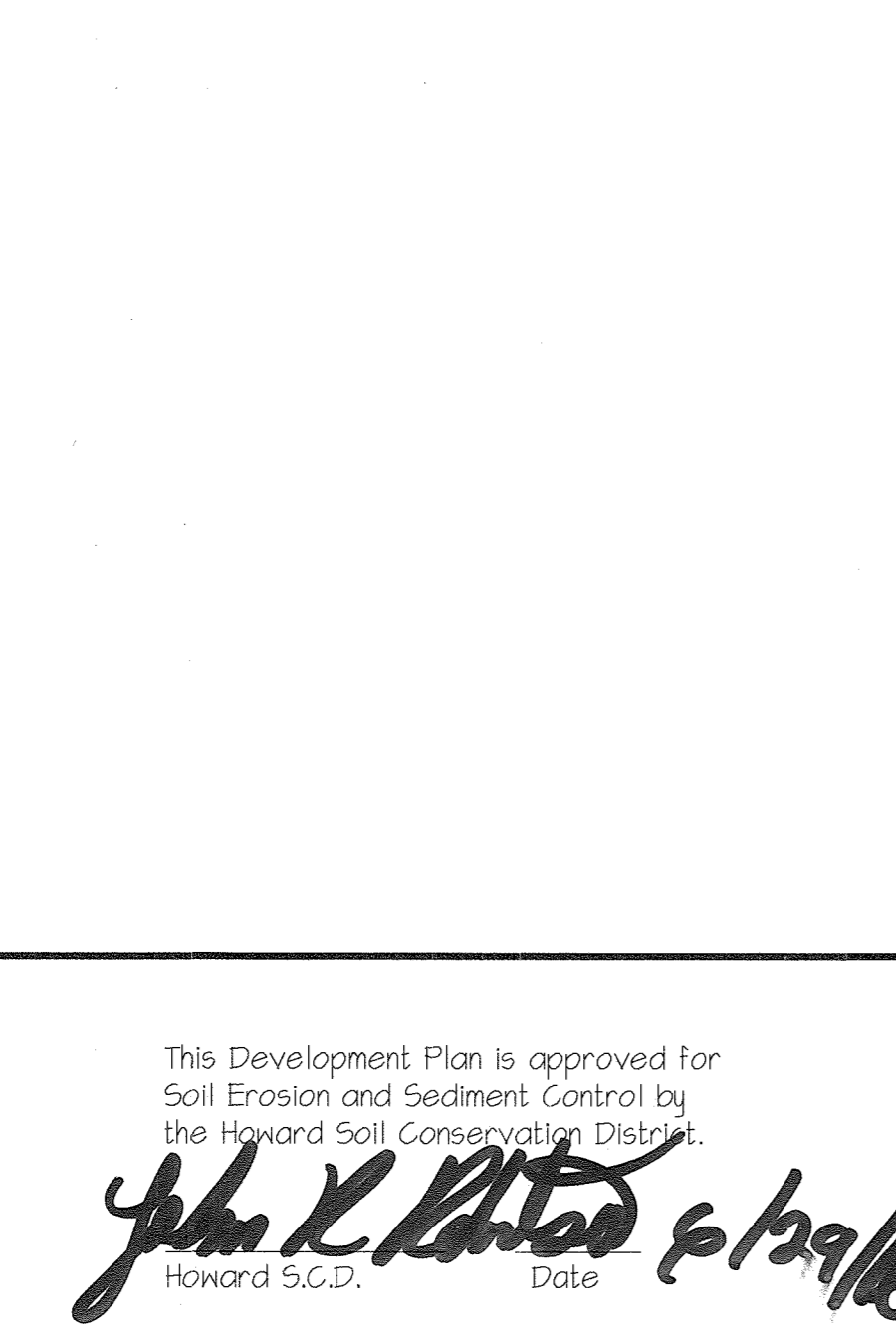
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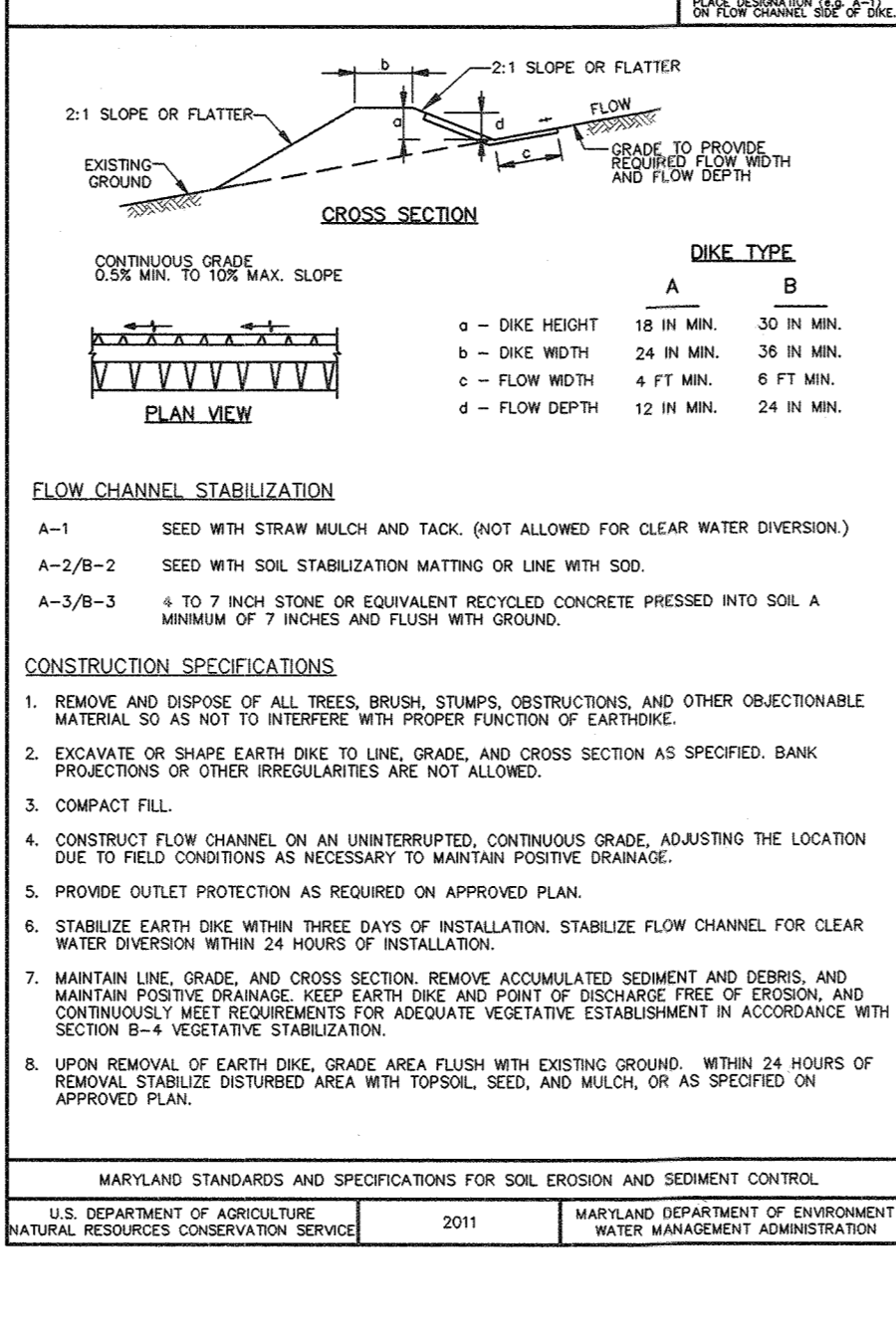
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**ENGINEER'S CERTIFICATE**  
 I HEREBY CERTIFY THAT THIS PLAN FOR SEDIMENT AND EROSION CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.  
 [Signature] 6/9/16  
 ENGINEER'S SIGNATURE DATE  
**DEVELOPER'S/BUILDER'S CERTIFICATE**  
 I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT FOR SEDIMENT AND EROSION CONTROL, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF 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] 6/9/16  
 SIGNATURE OF DEVELOPER/BUILDER DATE  
**APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS**  
 [Signature] 7/12/2016  
 Chief, Bureau of Highways Date  
**APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING**  
 [Signature] 6/30/16  
 Chief, Division of Land Development Date  
 [Signature] 7/26/16  
 Chief, Development Engineering Division Date



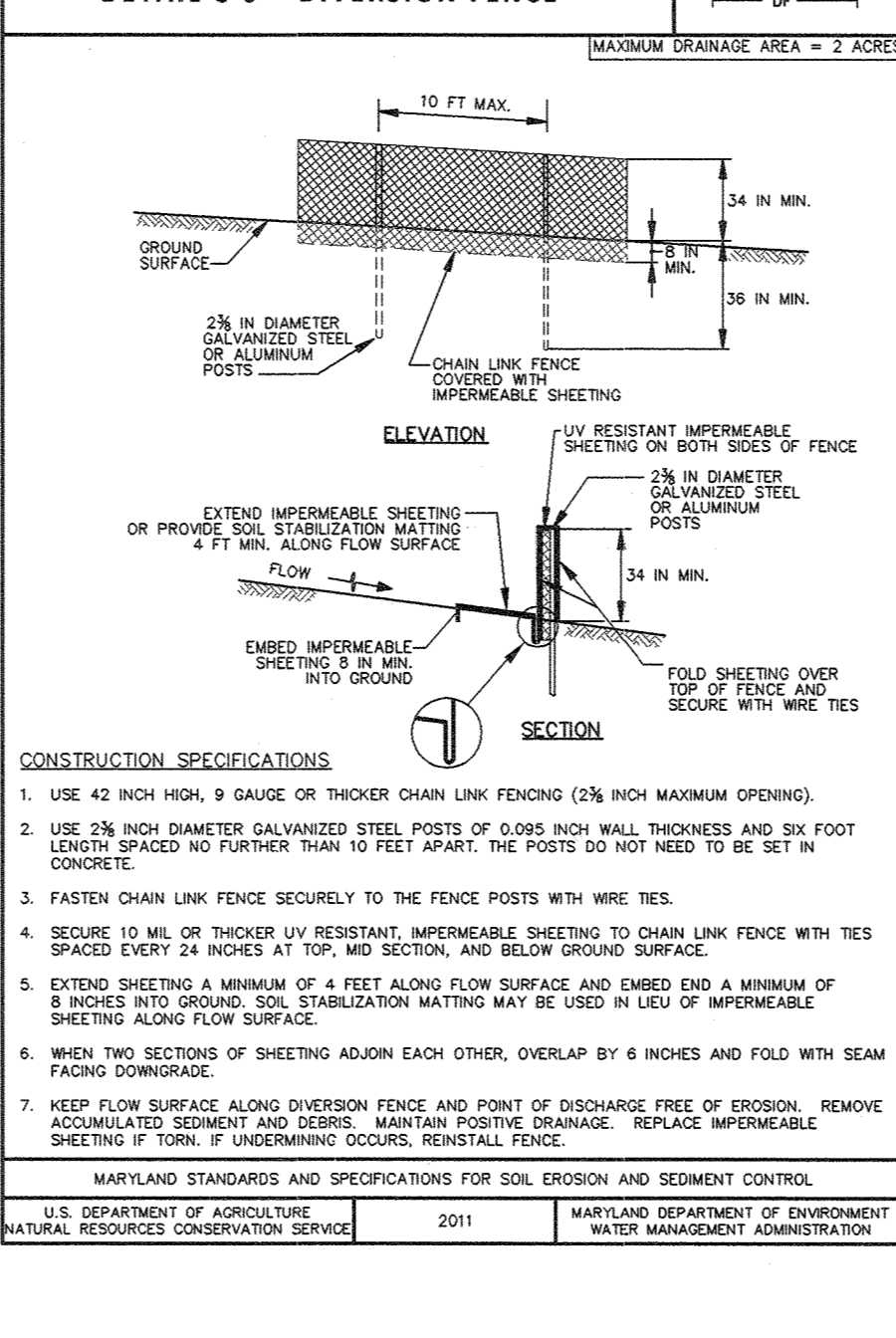
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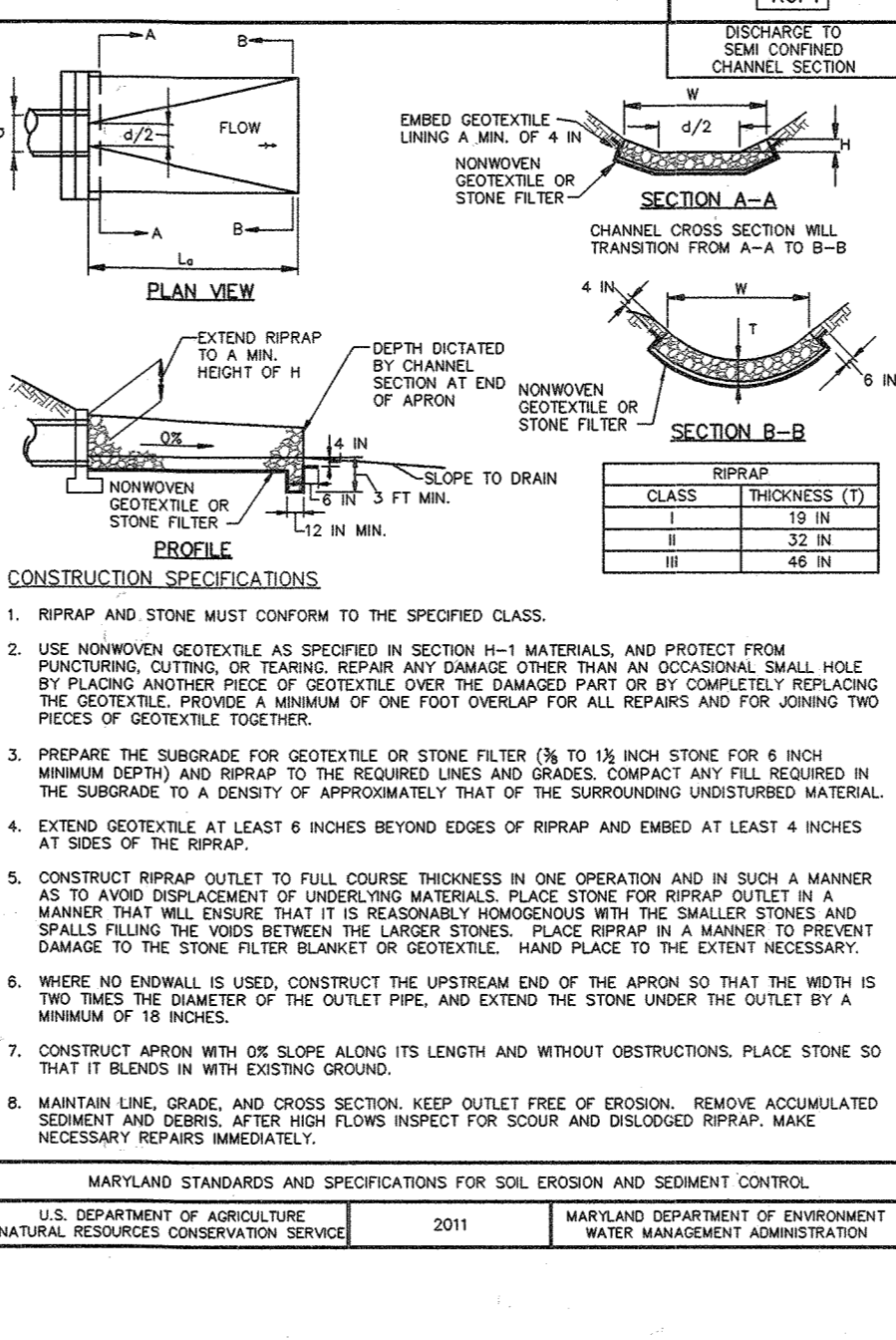
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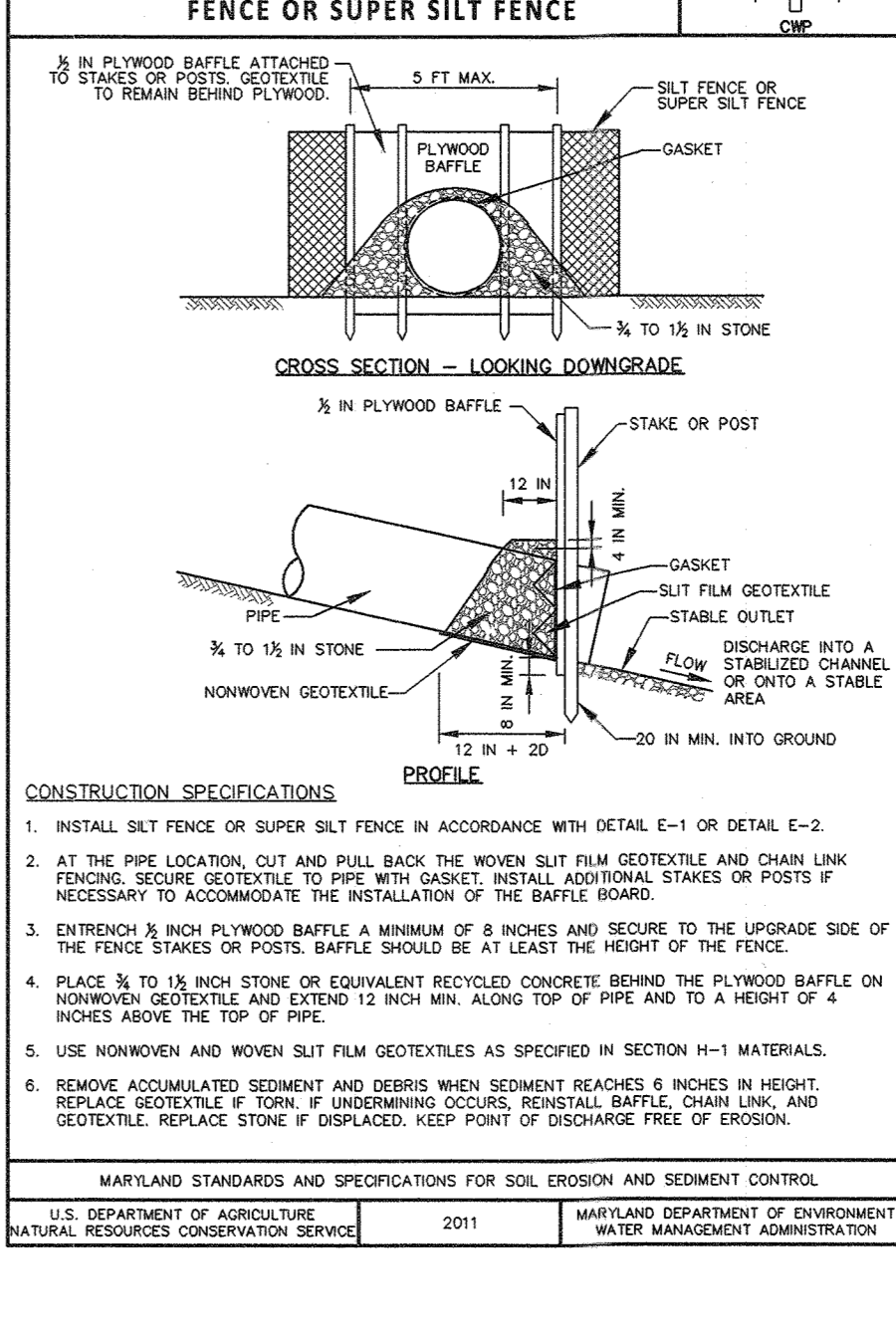
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**GLWGUTSCHICK LITTLE & WEBER, P.A.**  
 CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS  
 3909 NATIONAL DRIVE - SUITE 250 - BURTONSVILLE OFFICE PARK  
 BURTONSVILLE, MARYLAND 20866  
 TEL: 301-421-4024 BALT: 410-880-1820 DC/VA: 301-989-2524 FAX: 301-421-4186

PREPARED FOR:  
 THE HOWARD HUGHES CORPORATION  
 10480 LITTLE PATUXENT PARKWAY  
 SUITE 400  
 COLUMBIA, MD 21044  
 ATTN: BOB JENKINS  
 410-964-5443

**PROFESSIONAL CERTIFICATION**  
 I HEREBY CERTIFY THAT THESE PLANS 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. 20976  
 EXPIRATION DATE: MAY 25, 2018  
 [Signature] 6/9/16  
 ELECTION DISTRICT NO. 5

**SEDIMENT CONTROL NOTES AND DETAILS**  
**DOWNTOWN COLUMBIA CRESCENT NEIGHBORHOOD**  
 PARCELS B THRU H, NON-BUILDABLE BULK PARCELS J THRU R, O.S. LOTS 1 THRU 8 AND MERRIWEATHER-SYMPHONY WOODS NEIGHBORHOOD O.S. LOT 1 AND NON-BUILDABLE BULK PARCEL A  
 HOWARD COUNTY, MARYLAND

SCALE: AS SHOWN  
 ZONING: NT  
 G. L. W. FILE NO.: 11071  
 DATE: JUNE, 2016  
 TAX MAP - GRID: 36 - 01  
 SHEET: 22 OF 102

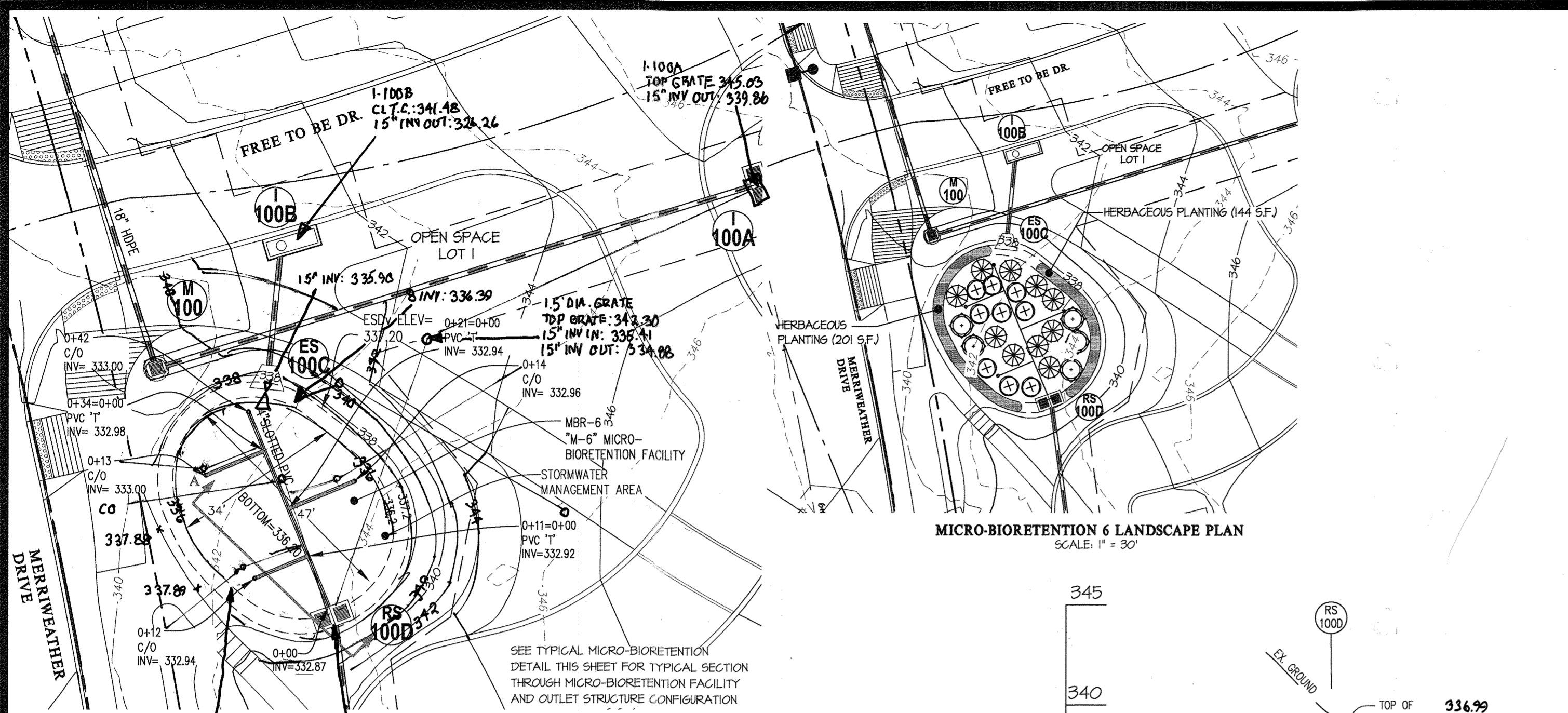
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 SHEET: 22 OF 102

DATE: JUNE, 2016  
 TAX MAP - GRID: 36 - 01  
 SHEET: 22 OF 102









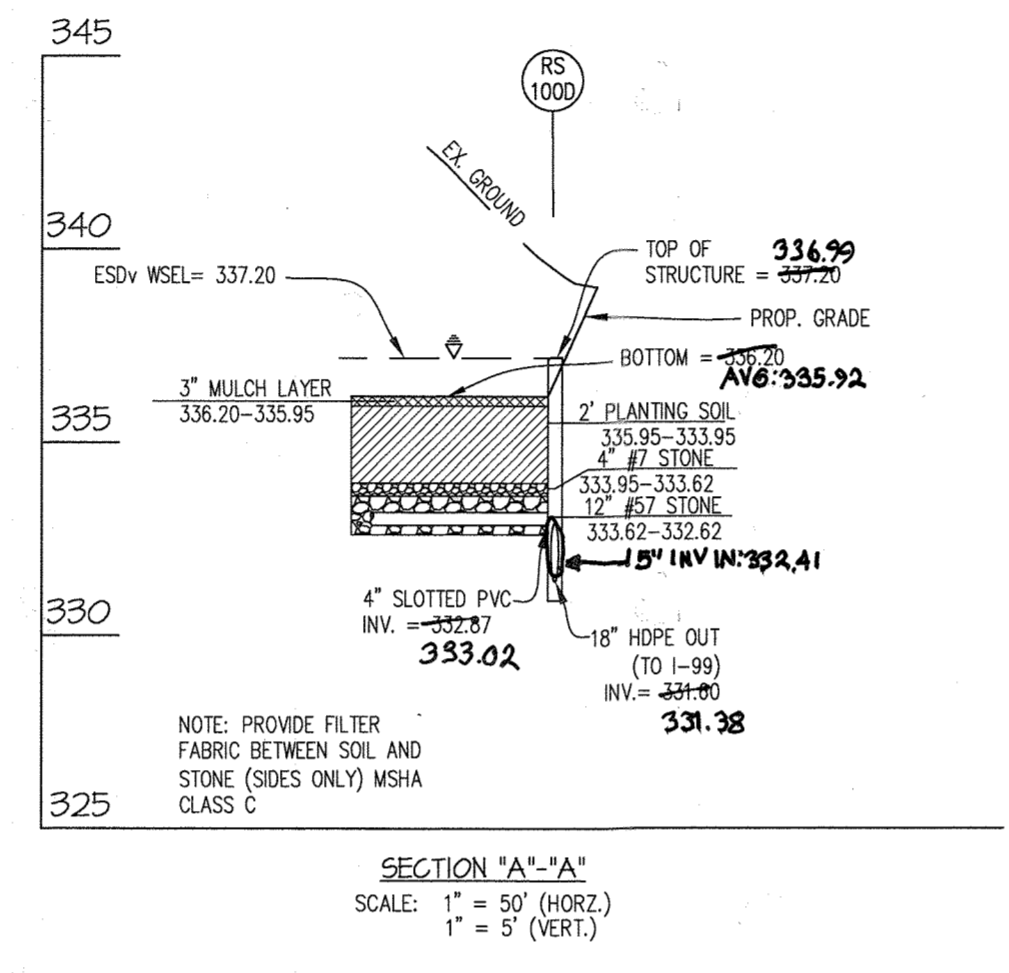
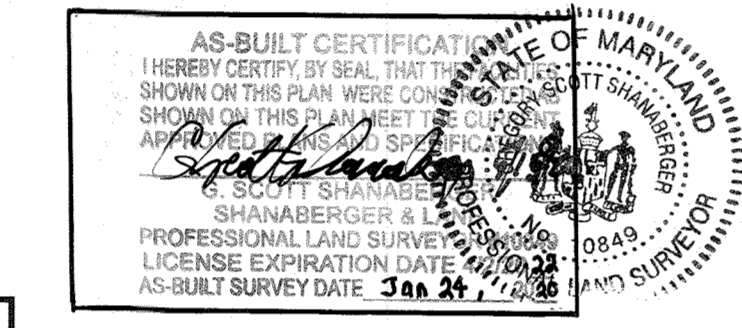
MICRO-BIORETENTION 6 LANDSCAPE PLAN  
SCALE: 1" = 20'

**MICRO-BIORETENTION 6**  
BOTTOM = EDGE MULCH II  
AVE. ELEV. 335.92

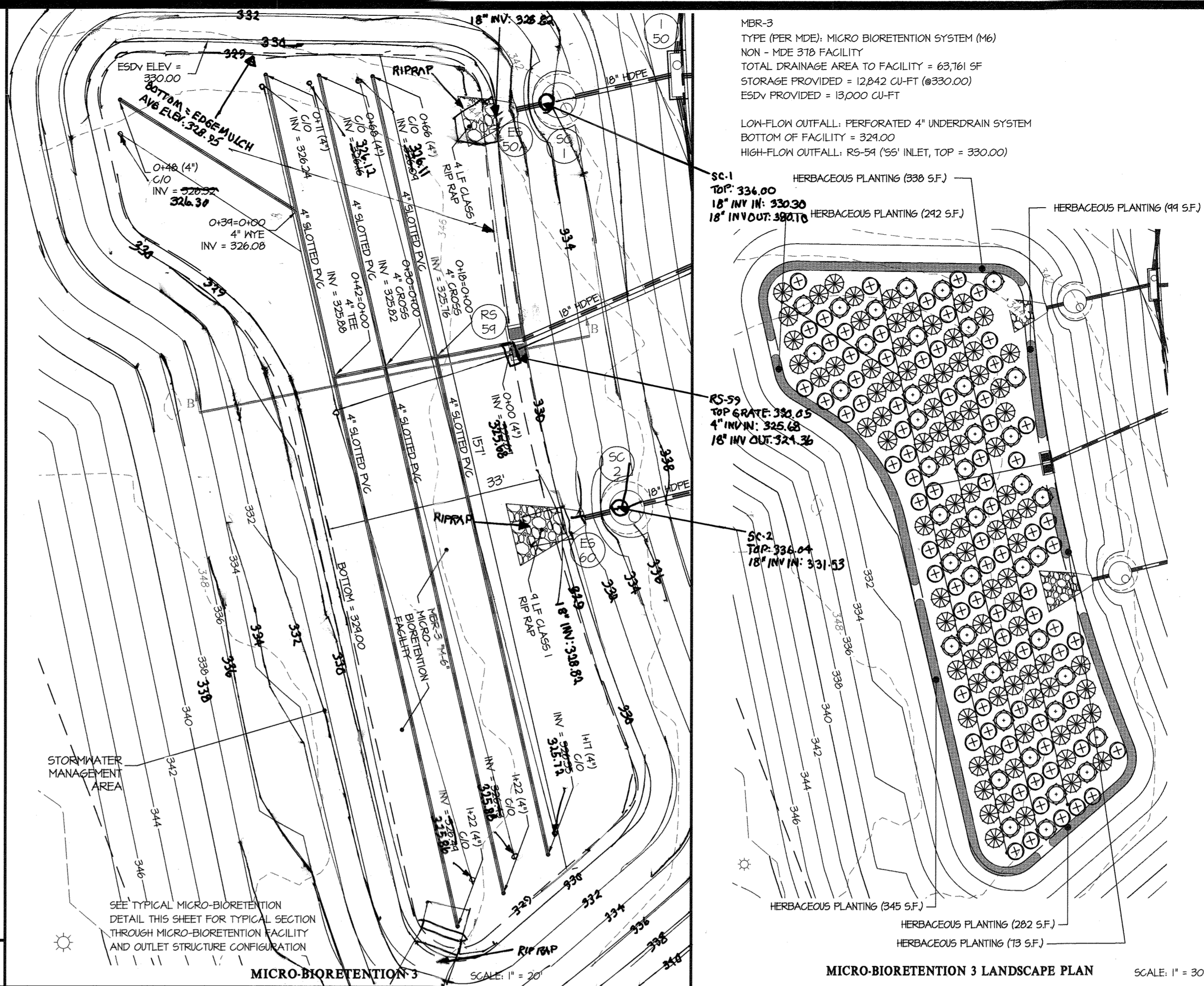
MBR-6  
TYPE (PER MDE): MICRO-BIORETENTION SYSTEM (M6)  
NON - MDE 310 FACILITY  
TOTAL DRAINAGE AREA TO FACILITY = 40,415 SF  
STORAGE PROVIDED = 1,646 CU-FT (6331.20)  
ESDV PROVIDED = 2145 CU-FT

LOW-FLOW OUTFALL: PERFORATED 4" UNDERDRAIN SYSTEM  
BOTTOM OF FACILITY = 332.60  
HIGH-FLOW OUTFALL: RS-100D (55" INLET, TOP = 331.20)

SEE TYPICAL MICRO-BIORETENTION  
DETAIL THIS SHEET FOR TYPICAL SECTION  
THROUGH MICRO-BIORETENTION FACILITY  
AND OUTLET STRUCTURE CONFIGURATION



MICRO-BIORETENTION 6 DETAILS  
SCALE: 1" = 5' (VERT.)

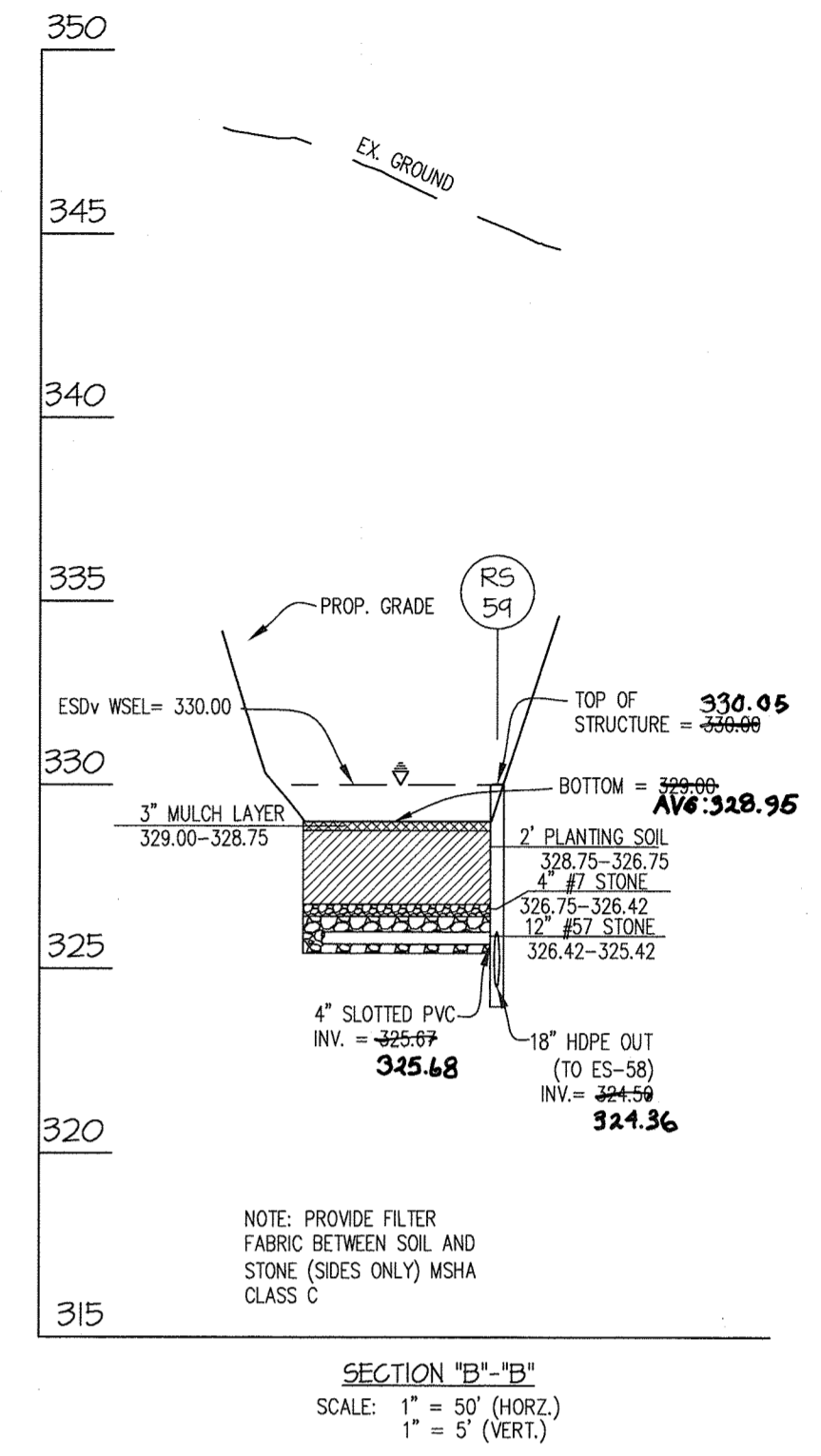


MICRO-BIORETENTION 3 LANDSCAPE PLAN  
SCALE: 1" = 20'

SEE TYPICAL MICRO-BIORETENTION  
DETAIL THIS SHEET FOR TYPICAL SECTION  
THROUGH MICRO-BIORETENTION FACILITY  
AND OUTLET STRUCTURE CONFIGURATION

MBR-3  
TYPE (PER MDE): MICRO-BIORETENTION SYSTEM (M6)  
NON - MDE 310 FACILITY  
TOTAL DRAINAGE AREA TO FACILITY = 63,761 SF  
STORAGE PROVIDED = 12,842 CU-FT (6330.00)  
ESDV PROVIDED = 13,000 CU-FT

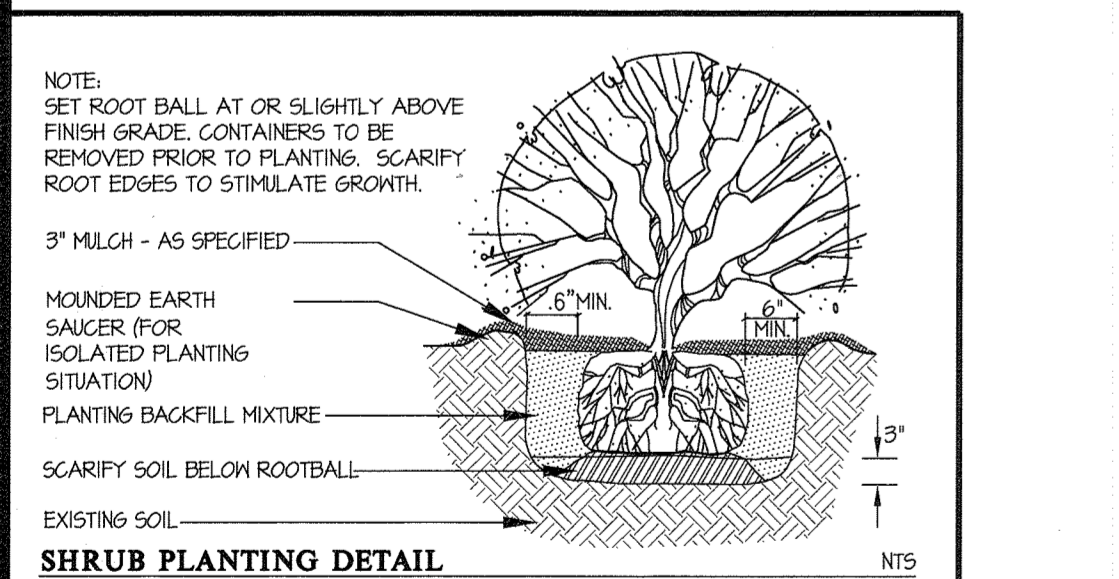
LOW-FLOW OUTFALL: PERFORATED 4" UNDERDRAIN SYSTEM  
BOTTOM OF FACILITY = 324.00  
HIGH-FLOW OUTFALL: RS-94 (55" INLET, TOP = 330.00)



SECTION "B-B"  
SCALE: 1" = 5' (VERT.)

MICRO-BIORETENTION PLANT LIST				
SYMBOL	QTY.	NAMES (BOTANICAL / SCIENTIFIC)	SIZE	ROOT/COMMENTS
<b>SHRUBS *</b>				
⊙	46	LINDIRA BENZOIN SPICEBUSH	18"-24" SFR.	CONTAINER
⊙	85	CORNUS SERICEA RUBY/ RUBY RED OSIER DOGWOOD	18"-24" SFR.	CONTAINER
⊙	85	ITEA VIRGINICA HENRY'S GARNET/ VIRGINIA SHEETSPIRE	18"-24" SFR.	CONTAINER
<b>HERBACEOUS *</b>				
⊙	1714 S.F.	CONTRACTOR TO CHOOSE HERBACEOUS PLANTING FROM: -HERMOCALLIS 'STRAWBERRY CANDY' DAYLILY -HERMOCALLIS 'JOAN SENIOR' DAYLILY -KALMIA ANGUSTIFOLIA/SHEEP LAUREL -HELECHARIS OVATA/COTSAUBLUNT SPIKE RUSH	18" O.C.	CONTAINER

S.D. PIPE SUMMARY TABLE PRIVATELY OWNED AND MAINTAINED			
SIZE (INCHES)	TYPE	QUANTITY (L.F.)	REMARKS
4	SLOTTED PVC	181	SCHEDULE 40



APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*[Signature]* 7/12/2016  
Chief, Bureau of Highways

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
*[Signature]* 8-3-16  
Chief, Division of Land Development

*[Signature]* 7-26-16  
Chief, Development Engineering Division

**GENERAL NOTES:**

1. MATERIAL SPECIFICATIONS:  
THE ALLOWABLE MATERIALS TO BE USED IN THESE MICRO-BIORETENTION PRACTICES ARE DETAILED IN TABLE B.A.1.

2. PLANTING SOIL:  
THE SOIL SHALL BE A UNIFORM MIX, FREE OF STONES, STUMPS, ROOTS OR OTHER SIMILAR OBJECTS LARGER THAN TWO INCHES. NO OTHER MATERIALS OR SUBSTANCES SHALL BE MIXED OR DUMPED WITHIN THE MICRO-BIORETENTION PRACTICE THAT MAY BE HARMFUL TO PLANT GROWTH OR PROVIDE AN OBSTACLE TO THE PLANTING OR MAINTENANCE OPERATIONS. THE PLANTING SOIL SHALL BE FREE OF BERMUDA GRASS, QUACKGRASS, JOHNSON GRASS, OR OTHER NOXIOUS WEEDS AS SPECIFIED UNDER COMAR 08.03.02.05.

SOIL COMPONENT - LOAMY SAND OR SANDY LOAM (05DA SOIL TEXTURAL CLASSIFICATION)  
ORGANIC CONTENT - MIN. 1.0% BY DRY WEIGHT (ASTM D 2974). IN GENERAL, THIS CAN BE MET WITH A MIXTURE OF LOAMY SAND (60-65%) AND COMPOST (35-40%) OR SANDY LOAM (30%), COARSE SAND (30%), AND COMPOST (40%).  
CLAY CONTENT - MEDIA SHALL HAVE A CLAY CONTENT OF LESS THAN 5%.  
PH RANGE - SHALL BE BETWEEN 5.5-7.0. AMENDMENTS (E.G., LIME, IRON SULFATE PLUS SULFUR) MAY BE MIXED INTO THE SOIL TO INCREASE OR DECREASE PH.

THERE SHALL BE AT LEAST ONE SOIL TEST PER PROJECT. EACH TEST SHALL CONSIST OF BOTH THE STANDARD SOIL TEST FOR PH AND ADDITIONAL TESTS OF ORGANIC MATTER, AND SOLUBLE SALTS. A TEXTURAL ANALYSIS SHALL BE PERFORMED FOR EACH LOCATION WHERE THE TOPSOIL WAS EXCAVATED.

3. COMPACTION:  
IT IS VERY IMPORTANT TO MINIMIZE COMPACTION OF BOTH THE BASE OF THE BIORETENTION PRACTICES AND THE REQUIRED BACKFILL. WHEN POSSIBLE USE EXCAVATION HOES TO REMOVE ORIGINAL SOIL. IF PRACTICES ARE EXCAVATED USING A LOADER, THE CONTRACTOR SHOULD USE WIDE TRACK OR MARSH TRACK EQUIPMENT, OR LIGHT EQUIPMENT WITH TURF TYPE TIRES. USE OF EQUIPMENT WITH NARROW TRACKS OR NARROW TIRES, RUBBER TIRES WITH LARGE LOGS, OR HIGH PRESSURE TIRES WILL CAUSE EXCESSIVE COMPACTION RESULTING IN REDUCED INFILTRATION RATES AND IS NOT ACCEPTABLE. COMPACTION WILL SIGNIFICANTLY CONTRIBUTE TO DESIGN FAILURE.

COMPACTION CAN BE ALLEVIATED AT THE BASE OF THE BIORETENTION FACILITY BY USING A PRIMARY TILLING OPERATION SUCH AS A CHISEL PLOU, RIPPER, OR SEEDLING. THESE TILLING OPERATIONS ARE TO REFRACATURE THE SOIL PROFILE THROUGH THE 12 INCH COMPACTION ZONE. SUBSTITUTE METHODS MUST BE APPROVED BY THE ENGINEER. ROTOTILLERS TYPICALLY DO NOT TILL DEEP ENOUGH TO REDUCE THE EFFECTS OF COMPACTION FROM HEAVY EQUIPMENT.

ROTOTILL 2 TO 3 INCHES OF SAND INTO THE BASE OF THE BIORETENTION FACILITY BEFORE BACKFILLING THE OPTIONAL SAND LAYER. PUMP ANY PONDED WATER BEFORE PREPARING (ROTOTILLING) BASE.

WHEN BACKFILLING THE TOPSOIL OVER THE SAND LAYER, FIRST PLACE 3 TO 4 INCHES OF TOPSOIL OVER THE SAND, THEN ROTOTILL THE SAND/TOPSOIL TO CREATE A GRADATION ZONE. BACKFILL THE REMAINDER OF THE TOPSOIL TO FINAL GRADE.

WHEN BACKFILLING THE BIORETENTION FACILITY, PLACE SOIL IN LIFTS 12" TO 18". DO NOT USE HEAVY EQUIPMENT WITHIN THE BIORETENTION BASIN. HEAVY EQUIPMENT CAN BE USED AROUND THE PERIMETER OF THE BASIN TO SUPPLY SOILS AND SAND. GRADE BIORETENTION MATERIALS WITH LIGHT EQUIPMENT SUCH AS A COMPACT LOADER OR A DOZER/LOADER WITH MARSH TRACKS.

4. PLANT MATERIAL:  
SEE PLANT LIST TABLES, SHEETS 24 AND 25.

5. PLANT INSTALLATION:  
MULCH SHOULD BE PLACED TO A UNIFORM THICKNESS OF 2" TO 3". SHREDDED HARDWOOD MULCH IS THE ONLY ACCEPTED MULCH. PINE MULCH AND WOOD CHIPS WILL FLOAT AND MOVE TO THE PERIMETER OF THE BIORETENTION AREA DURING A STORM EVENT AND ARE NOT ACCEPTABLE. SHREDDED MULCH MUST BE WELL ASHED (6 TO 12 MONTHS) FOR ACCEPTANCE.

ROOT STOCK OF THE PLANT MATERIAL SHALL BE KEPT MOIST DURING TRANSPORT AND ON-SITE STORAGE. THE PLANT ROOT BALL SHOULD BE PLANTED 50% OF THE BALL IS ABOVE FINAL GRADE SURFACE. THE DIAMETER OF THE PLANTING PIT SHALL BE AT LEAST SIX INCHES LARGER THAN THE DIAMETER OF THE PLANTING BALL. SET AND MAINTAIN THE PLANT STRAIGHT DURING THE ENTIRE PLANTING PROCESS. THROUGHOUT WATER GROUND BED COVER AFTER INSTALLATION.

TREES SHALL BE BRACED USING 2" BY 2" STAKES ONLY AS NECESSARY AND FOR THE FIRST GROWING SEASON ONLY. STAKES ARE TO BE EQUALLY SPACED ON THE OUTSIDE OF THE TREE BALL.

GRASSES AND LEGUME SEED SHOULD BE DRILLED INTO THE SOIL TO A DEPTH OF AT LEAST ONE INCH. GRASSES AND LEGUME PEGGS SHALL BE PLANTED FOLLOWING THE NON-GRASS GROUND COVER PLANTING SPECIFICATIONS.

THE TOPSOIL SPECIFICATIONS PROVIDE ENOUGH ORGANIC MATERIAL TO ADEQUATELY SUPPLY NUTRIENTS FROM NATURAL CYCLING. THE PRIMARY FUNCTION OF THE BIORETENTION STRUCTURE IS TO IMPROVE WATER QUALITY. ADDING FERTILIZERS DEFEATS, OR AT A MINIMUM, IMPEDES THIS GOAL. ONLY ADD FERTILIZER IF WOOD CHIPS OR MULCH ARE USED TO AMEND THE SOIL. ROTOTILL USEA FERTILIZER AT A RATE OF 2 POUNDS PER 1000 SQUARE FEET.

6. UNDERDRAINS:  
UNDERDRAINS ARE TO BE PLACED ON A 3'-0" WIDE SECTION OF FILTER CLOTH. PIPE IS PLACED NEXT, FOLLOWED BY THE GRAVEL BEDDING. THE ENDS OF UNDERDRAIN PIPES NOT TERMINATING IN AN OBSERVATION WELL SHALL BE CAPPED.

THE MAIN COLLECTOR PIPE FOR UNDERDRAIN SYSTEMS SHALL BE CONSTRUCTED AT A MINIMUM SLOPE OF 0.5%. OBSERVATION WELLS AND/OR CLEAN-OUT PIPES MUST BE PROVIDED (ONE MINIMUM PER EVERY 1000 SQUARE FEET OF SURFACE AREA).

**APPENDIX B.I.I. - SUPPLEMENTAL POND SPECIFICATIONS (NON-310)**  
SUPPLEMENTAL STORMWATER PONDS AND WETLAND SPECIFICATIONS (NON-310)

THESE NOTES AND SPECIFICATIONS ARE IN ADDITION TO THE MD-310 SPECIFICATIONS. IF THERE IS ANY QUESTION AS TO THE APPLICABILITY, THE MD-310 SPECIFICATIONS SUPERSEDE.

1. IT IS PREFERRED TO USE THE SAME MATERIAL IN THE EMBANKMENT AS IS BEING INSTALLED FOR THE CORE TRENCH. IF THIS IS NOT POSSIBLE BECAUSE THE APPROPRIATE MATERIAL IS NOT AVAILABLE, A DAM CORE WITH A SHALL MAY BE USED. THE CROSS-SECTION OF THE STORMWATER FACILITY SHOULD SHOW THE LIMITS OF THE DAM CORE UP TO 10-YEAR WATER SURFACE ELEVATION AS WELL AS THE ACCEPTABLE MATERIALS FOR THE SHELL. THE SHAPE OF THE DAM CORE AND THE MATERIAL TO BE USED IN THE SHELL SHOULD BE PROVIDED BY THE GEOTECHNICAL ENGINEER.

2. IF THE COMPACTION TESTS FOR THE SITE IMPROVEMENTS IS USING MODIFIED PROCTOR (AASHTO T-99), THEN TO MAINTAIN ON-SITE CONSISTENCY, THE MODIFIED PROCTOR MAY BE USED IN LIEU OF A STANDARD PROCTOR (AASHTO T-99). THE MINIMUM DENSITY USING THE MODIFIED PROCTOR TEST METHOD SHALL BE AT LEAST 92% OF THE MAXIMUM DRY DENSITY WITH A MOISTURE CONTENT OF 32% OF THE OPTIMUM. THE MINIMUM REQUIRED DENSITY USING THE STANDARD PROCTOR TEST METHOD SHALL BE AT LEAST 95% OF THE MAXIMUM DRY DENSITY WITH A MOISTURE CONTENT OF 32% OF THE OPTIMUM.

3. FOR ALL STORMWATER MANAGEMENT FACILITIES, A GEOTECHNICAL ENGINEER OR THEIR REPRESENTATIVE MUST BE PRESENT TO VERIFY COMPACTION IN ACCORDANCE WITH THE SELECTED TEST METHOD. THIS INFORMATION NEEDS TO BE PROVIDED IN A REPORT TO THE DESIGN ENGINEER, SO THAT CERTIFICATION OF THE CONSTRUCTION OF THE FACILITY, IN ACCORDANCE WITH MD-310 SPECIFICATIONS, CAN BE MADE.

4. A 4-INCH LAYER OF TOPSOIL SHALL BE PLACED ON ALL DISTURBED AREAS OF THE DAM EMBANKMENT. SEEDING, LIMING, FERTILIZING, MULCHING, ETC. SHALL BE IN ACCORDANCE WITH MARYLAND SOIL CONSERVATION SERVICE MD-342 OR THE 1994 MARSHLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, PERMANENT SEEDING, SECTION CHAPTER 30. THE PURPOSE OF THE TOPSOIL IS TO ESTABLISH A GOOD GROWTH OF GRASS, WHICH IS NOT ALWAYS POSSIBLE WITH SOME OF THE MATERIALS THAT MAY BE PLACED FOR THE EMBANKMENT FILL.

5. GEOTEXTILE PLACED BENEATH RIP-RAP SHALL BE CLASS "C" GEOTEXTILE OR BETTER (SEE SECTION 24.0, MATERIAL SPECIFICATIONS, 1994 STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL (MDE, 1994). SOME ACCEPTABLE GEOTEXTILES THAT MEET THE CLASS "C" CRITERIA INCLUDE:  
AMOCO 4552 CARTHAGE FX-105  
MIRAFI 180-N  
GEOLON N10  
HEBTEC N01

THIS IS ONLY A PARTIAL LISTING OF AVAILABLE GEOTEXTILES BASED ON INFORMATION PROVIDED BY THE MANUFACTURERS OF THE MDT SPECIFIERS GUIDE DATED DECEMBER 1996. IT IS THE RESPONSIBILITY OF THE ENGINEER TO VERIFY THE ADEQUACY OF THE MATERIAL, AS THERE ARE CHANGES IN THE MANUFACTURING PROCESS AND THE TYPE OF FABRIC USED, WHICH MAY AFFECT THE CONTINUED ACCEPTANCE.

6. A RULE OF THUMB TO DETERMINE WHEN AN EXCAVATED POND MAY NEED TO BE CONSIDERED AN EMBANKMENT POND IS AS FOLLOWS:  
PROVIDE CALCULATION OF 10' + 20 FEET ± L, WHERE H HEIGHT FROM POND BOTTOM TO TOP OF DAM. IF THE PROJECTION OF L DOWNSTREAM IS A HORIZONTAL LINE FROM THE UPSTREAM TOE OF SLOPE IS BELOW EXISTING GROUND, THE POND CAN BE CONSIDERED AN EXCAVATED POND. IN ADDITION, THE EXISTING GROUND SLOPE, DOWNSTREAM OF THE TOE, MUST BE LESS THAN 10%.

7. THE DESIGN ENGINEER AND GEOTECHNICAL ENGINEER SHOULD MAKE THE DETERMINATION THAT THE SETTLEMENT OF THE POND WILL NOT CAUSE EXCESSIVE JOINT EXTENSION. FOR FURTHER INFORMATION ON JOINT ANALYSIS, SEE MRCE PUBLICATION TR-16.

8. FILL PLACEMENT SHALL NOT EXCEED A MAXIMUM 8-INCH. EACH LIFT SHALL BE CONTINUOUS FOR THE ENTIRE LENGTH OF THE EMBANKMENT.

9. THE EMBANKMENT FILL SHALL NOT BE PLACED HIGHER THAN THE CENTERLINE OF THE PRINCIPAL SPILLWAY UNTIL AFTER THE PRINCIPAL SPILLWAY HAS BEEN INSTALLED. IF THE EMBANKMENT NEEDS TO BE EXCAVATED TO INSTALL THE PRINCIPAL SPILLWAY, THE SIDE SLOPE SHALL BE NO LESS THAN 2:1

10. THE SIDE SLOPES OF A CUT TO REPAIR A DAM, INSTALL A PRINCIPAL SPILLWAY FOR AN EXCAVATED POND, OR OTHER REPAIR WORK, SHALL BE NO LESS THAN 2:1.

**OPERATION AND MAINTENANCE SCHEDULE FOR MICRO-BIORETENTION (M-6)**

A. THE OWNER SHALL MAINTAIN THE PLANT MATERIAL, MULCH LAYER AND SOIL LAYER ANNUALLY. MAINTENANCE OF MULCH AND SOIL IS LIMITED TO CORRECTING AREAS OF EROSION OR WASH OUT. ANY MULCH REPLACEMENT SHALL BE DONE IN THE SPRING. PLANT MATERIAL SHALL BE CHECKED FOR DISEASE AND INSECT INFESTATION AND MAINTENANCE WILL ADDRESS DEAD MATERIAL AND PRUNING ACCEPTABLE REPLACEMENT PLANT MATERIAL IS LIMITED TO THE FOLLOWING: 2000 MARYLAND STORMWATER DESIGN MANUAL VOLUME II, TABLE A.4.1 AND 2.

B. THE OWNER SHALL PERFORM A PLANT INSPECTION IN THE SPRING AND IN THE FALL OF EACH YEAR. DURING THE INSPECTION, THE OWNER SHALL REMOVE DEAD AND DISEASED VEGETATION CONSIDERED BEYOND TREATMENT, REPLACE DEAD PLANT MATERIAL WITH ACCEPTABLE REPLACEMENT PLANT MATERIAL, TREAT DISEASED TREES AND SHRUBS, AND REPLACE ALL DEFICIENT STAKES AND WIRES.

C. THE OWNER SHALL INSPECT THE MULCH EACH SPRING. THE MULCH SHALL BE REPLACED EVERY TWO TO THREE YEARS. THE PREVIOUS MULCH LAYER SHALL BE REMOVED BEFORE THE NEW LAYER IS APPLIED.

D. THE OWNER SHALL CORRECT SOIL EROSION ON AN AS-BEING BASIS, WITH A MINIMUM OF ONCE PER MONTH AND AFTER EACH HEAVY STORM.

E. THE OWNER SHALL BE RESPONSIBLE FOR THE MAINTENANCE OF THE UNDERDRAINS WITHIN THE BIO-RETENTION LAYERS.

F. HOWARD COUNTY SHALL BE RESPONSIBLE FOR THE MAINTENANCE OF ALL STORM DRAIN PIPES AND STRUCTURES WITHIN PRIVATE EASEMENTS.

**OPERATION AND MAINTENANCE SCHEDULE FOR SURFACE STORMWATER FILTRATION SYSTEMS (F-1)**

A. THE OWNER SHALL INSPECT THE STORMWATER FACILITY ANNUALLY AND AFTER EVERY HEAVY STORM. INSPECTIONS SHALL BE PERFORMED DURING WET WEATHER TO DETERMINE IF THE FACILITY IS FUNCTIONING PROPERLY.

B. THE OWNER SHALL MOW THE TOP AND SIDE SLOPES OF THE EMBANKMENT A MINIMUM OF ONCE PER YEAR, WHEN VEGETATION REACHES 18" IN HEIGHT OR AS NEEDED.

C. THE OWNER SHALL MOW FILTERS THAT HAVE A GRASS COVER A MINIMUM OF THREE (3) TIMES PER GROWING SEASON TO MAINTAIN A MAXIMUM GRASS HEIGHT OF LESS THAN 12 INCHES.

D. THE OWNER SHALL REMOVE ANY DEBRIS AND LITTER FROM THE FACILITY.

E. THE OWNER SHALL REPAIR ANY EROSION IN THE FACILITY AS SOON AS IT IS NOTICED.

F. THE OWNER SHALL REMOVE SILT WHEN IT EXCEEDS FOUR (4) INCHES DEEP IN THE FOREBAY. HE BE RESPONSIBLE FOR THE MAINTENANCE OF THE RISER, OUTFALL PIPES, AND EMBANKMENT.

G. WHEN WATER PONDS ON THE SURFACE OF THE FILTER BED FOR MORE THAN SEVENTY-TWO (72) HOURS, THE OWNER SHALL REPLACE THE TOP FEW INCHES OF DISCOLORED MATERIAL WITH FRESH MATERIAL. PROPER CLEANING AND DISPOSAL OF THE REMOVED MATERIALS AND LIQUID MUST BE FOLLOWED BY THE OWNER.

H. THE OWNER SHALL MAINTAIN A LOG BOOK TO DETERMINE THE RATE AT WHICH THE FACILITY DRAINS.

I. THE MAINTENANCE LOG BOOK SHALL BE AVAILABLE TO HOWARD COUNTY FOR INSPECTION TO INSURE COMPLIANCE WITH OPERATION AND MAINTENANCE CRITERIA.

J. ONCE THE PERFORMANCE CHARACTERISTICS OF THE INFILTRATION SYSTEM HAVE BEEN VERIFIED, THE MAINTENANCE SCHEDULE CAN BE REDUCED TO AN ANNUAL BASIS UNLESS THE PERFORMANCE DATA INDICATES THAT A MORE FREQUENT SCHEDULE IS REQUIRED.

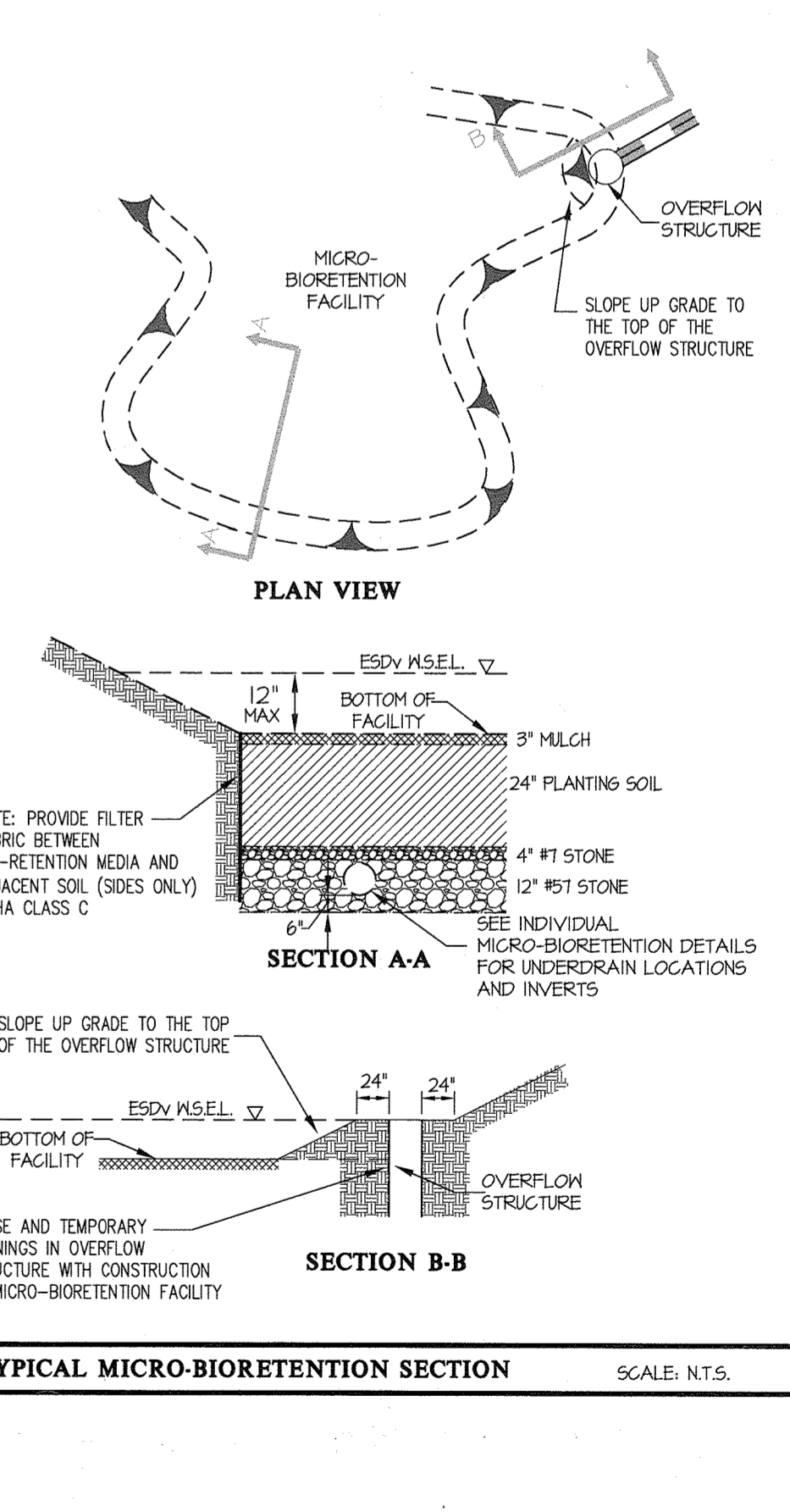
**OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED MICRO-BIORETENTION (M-6)**

ACTIVATION  
A. ACTIVATION OF THE FILTERTERRM™ UNIT IS PERFORMED ONLY BY THE SUPPLIER. PURCHASER IS RESPONSIBLE FOR FILTERTERRM™ UNIT PROTECTION AND SUBSEQUENT CLEAN OUT COST. THIS PROCESS CANNOT COMMENCE UNTIL THE PROJECT SITE IS FULLY STABILIZED AND CLEANED (FULL LANDSCAPING, GRASS COVER, FINAL PAVING AND STREET SWEEPING COMPLETED), NEGATING THE CHANGE OF CONSTRUCTION MATERIALS CONTAMINATING THE FILTERTERRM™ SYSTEM. CARE SHALL BE TAKEN DURING CONSTRUCTION NOT TO DAMAGE THE PROTECTIVE THROAT AND TOP PLATES. B. ACTIVATION INCLUDES INSTALLATION OF PLANTS(S) AND MULCH LAYERS AS NECESSARY.

MAINTENANCE  
A. EACH CORRECTLY INSTALLED FILTERTERRM™ UNIT IS TO BE MAINTAINED BY THE SUPPLIER, OR A SUPPLIER APPROVED CONTRACTOR FOR A MINIMUM PERIOD OF 1 YEAR. THE COST OF THIS SERVICE IS TO BE INCLUDED IN THE PRICE OF EACH FILTERTERRM™ UNIT. EXTENDED MAINTENANCE CONTRACTS ARE AVAILABLE AT EXTRA COST UPON REQUEST.

B. ANNUAL MAINTENANCE CONSISTS OF A MAXIMUM OF (2) SCHEDULED VISITS. THE VISITS ARE SCHEDULED SEASONALLY. THE SPRING VISIT AIMS TO CLEAN UP AFTER WINTER LOADS INCLUDING SALTS AND SANDS. THE FALL VISIT HELPS THE SYSTEM BY REMOVING EXCESSIVE LEAF LITTER.

C. EACH MAINTENANCE VISIT CONSISTS OF THE FOLLOWING ACTIVITIES AS NECESSARY:  
1. FILTERTERRM™ UNIT INSPECTION  
2. FOREIGN DEBRIS, SILT, MULCH & TRASH REMOVAL  
3. FILTER MEDIA EVALUATION AND RECHARGE AS NECESSARY  
4. PLANT HEALTH EVALUATION AND PRUNING OR REPLACEMENT AS NECESSARY  
5. REPLACEMENT OF MULCH  
6. DISPOSAL OF ALL MAINTENANCE REFUSALS. OWNERS MUST PROMPTLY NOTIFY THE SUPPLIER OF ANY DAMAGE TO THE PLANT(S), WHICH CONSTITUTES AN INTEGRAL PART OF THE BIORETENTION TECHNOLOGY.



TYPICAL MICRO-BIORETENTION SECTION  
SCALE: N.T.S.

**GLWGUTSCHICK LITTLE & WEBER, P.A.**  
CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS  
3909 NATIONAL DRIVE - SUITE 250 - BURTONSVILLE OFFICE PARK  
BURTONSVILLE, MARYLAND 20866  
TEL: 301-421-4024 BALT: 410-880-1820 DC/VA: 301-989-2524 FAX: 301-421-4186

DATE	REVISION	BY	APPR.

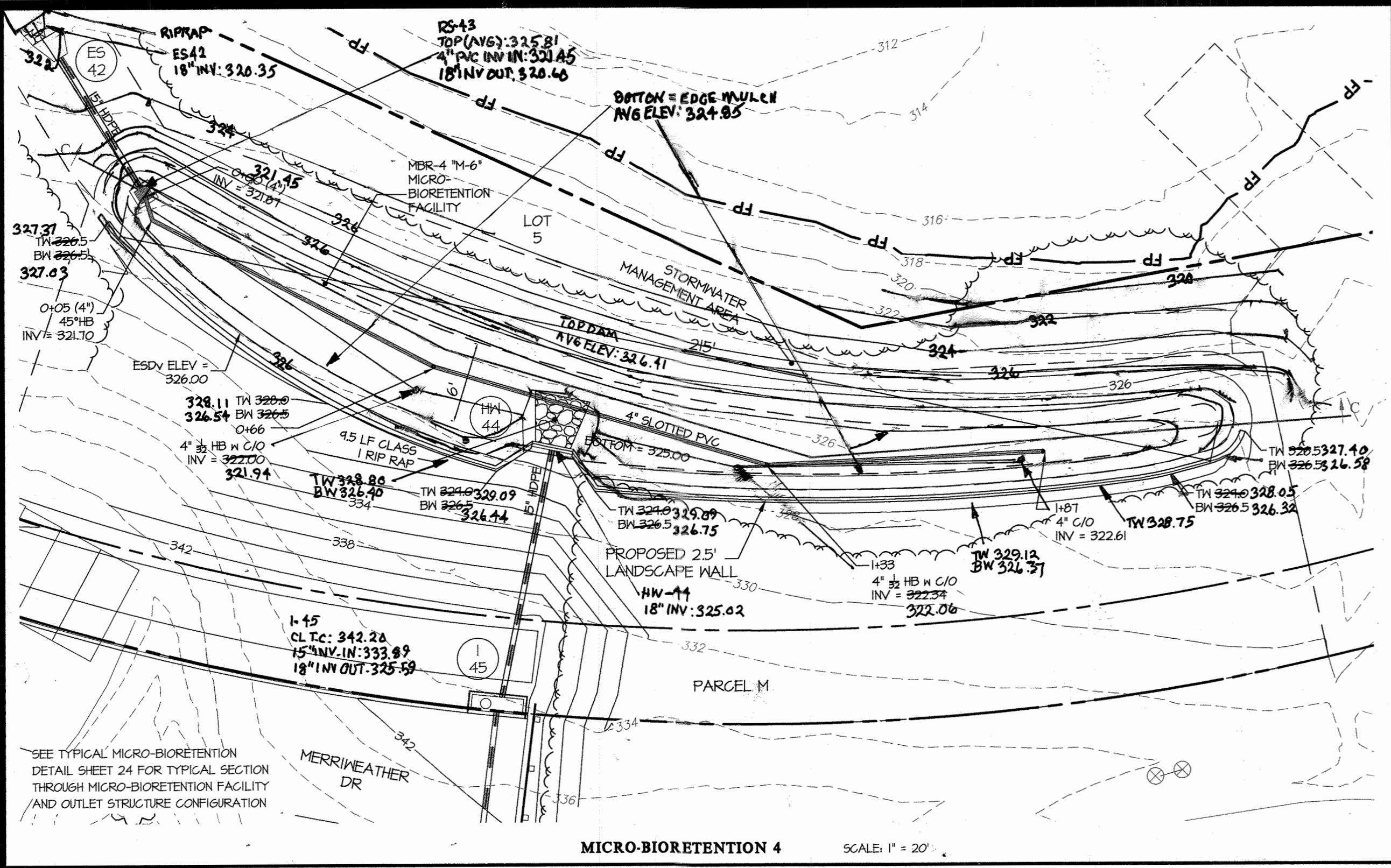
PREPARED FOR:  
THE HOWARD HUGHES CORPORATION  
10480 LITTLE PATUXENT PARKWAY  
SUITE 400  
COLUMBIA, MD 21044  
ATTN: BOB JENKINS  
410-964-5443

PROFESSIONAL CERTIFICATION  
I HEREBY CERTIFY THAT THESE PLANS 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. 12975  
EXPIRATION DATE: MAY 26, 2018  
*[Signature]* 6/16

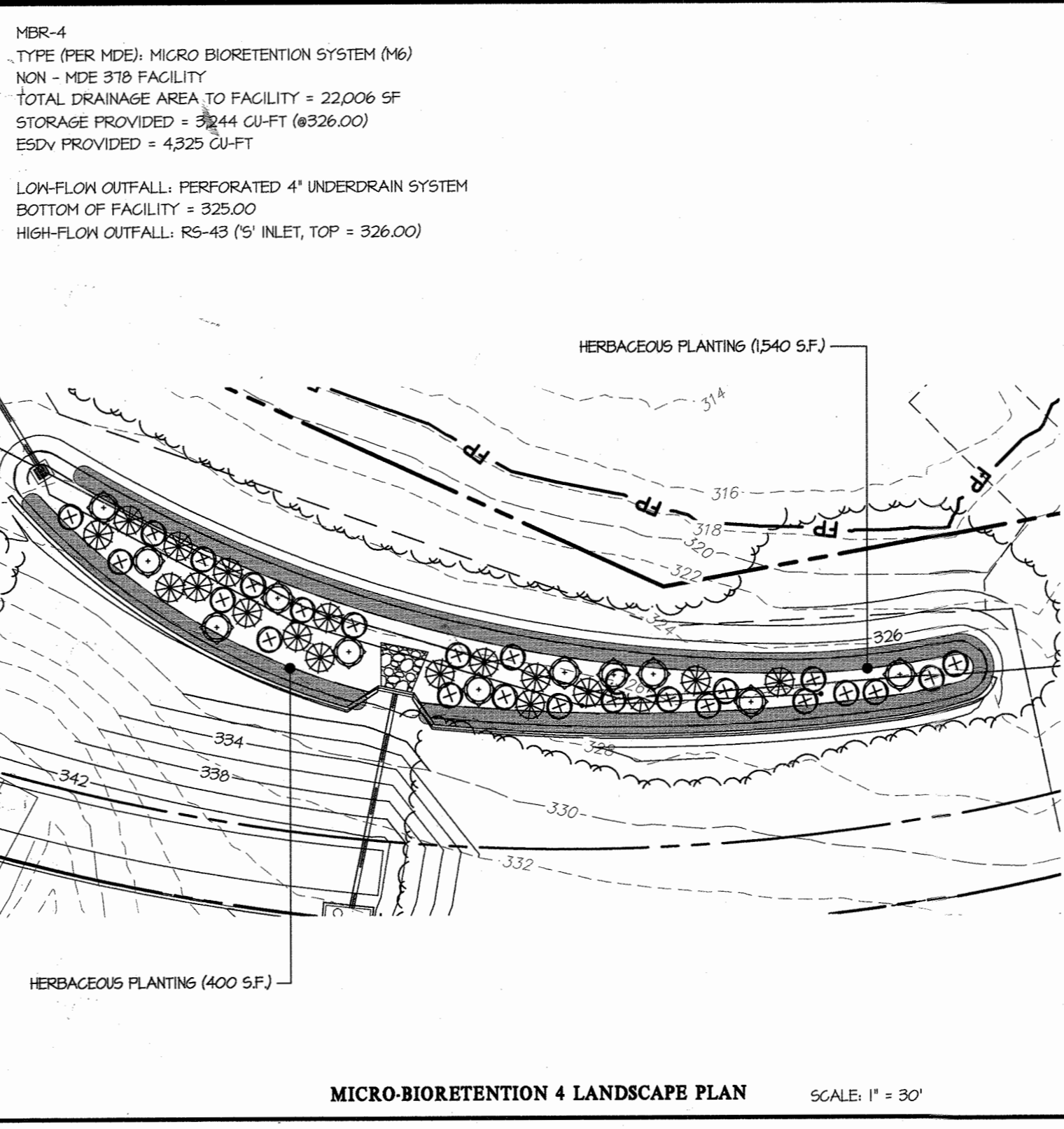
**ESD DETAILS**  
**DOWNTOWN COLUMBIA**  
**CRESCENT NEIGHBORHOOD**  
PARCELS B THRU H, NON-BUILDABLE BULK PARCELS J THRU R,  
O.S. LOTS 1 THRU 8 AND  
MERRIMETHER-SYMPHONY WOODS NEIGHBORHOOD O.S. LOT 1  
AND NON-BUILDABLE BULK PARCEL A  
HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	NT	11071
DATE	TAX MAP - GRID	SHEET
JUNE, 2016	36 - 01	24 OF 102

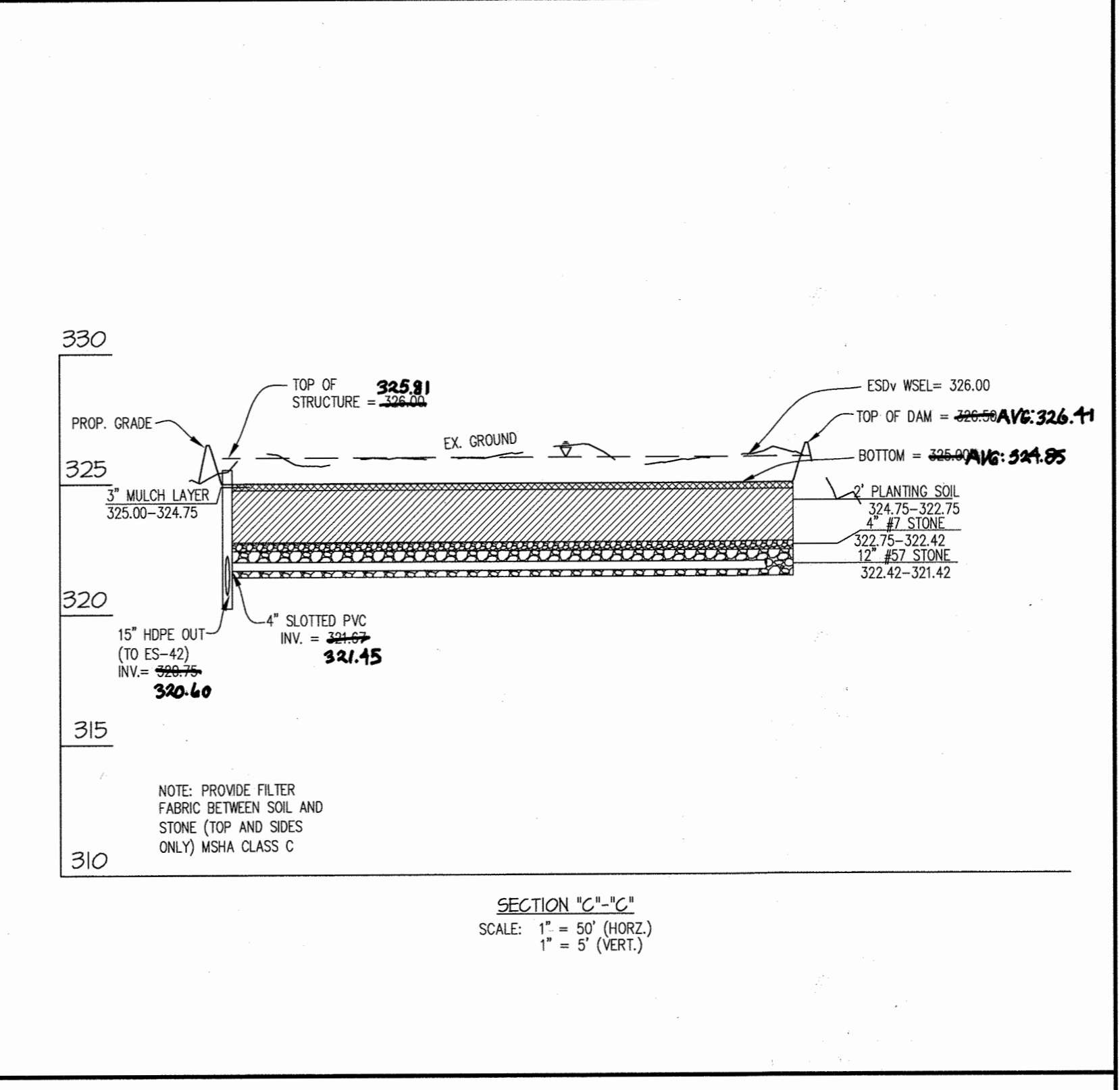




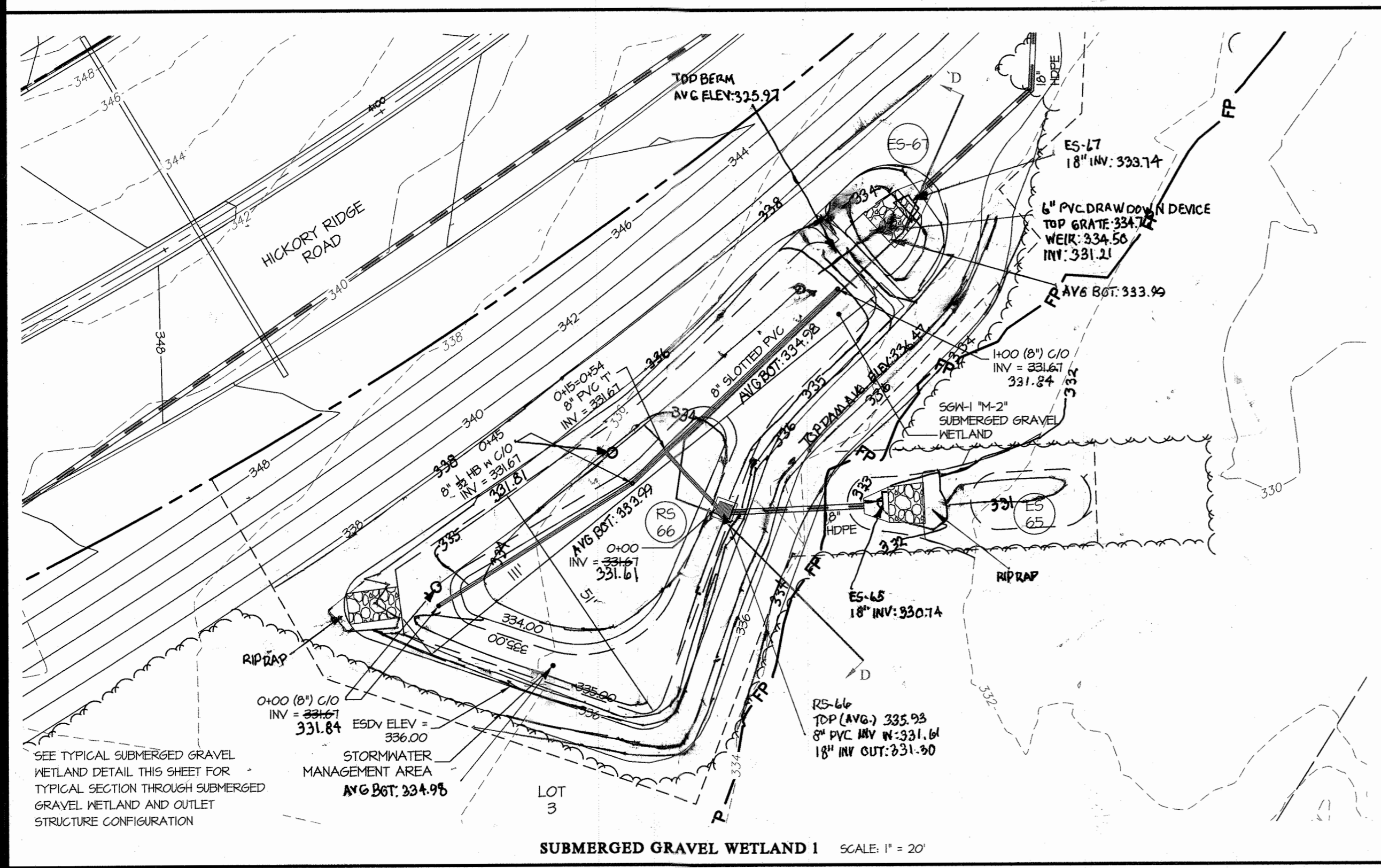
MICRO-BIORETENTION 4 SCALE: 1" = 20'



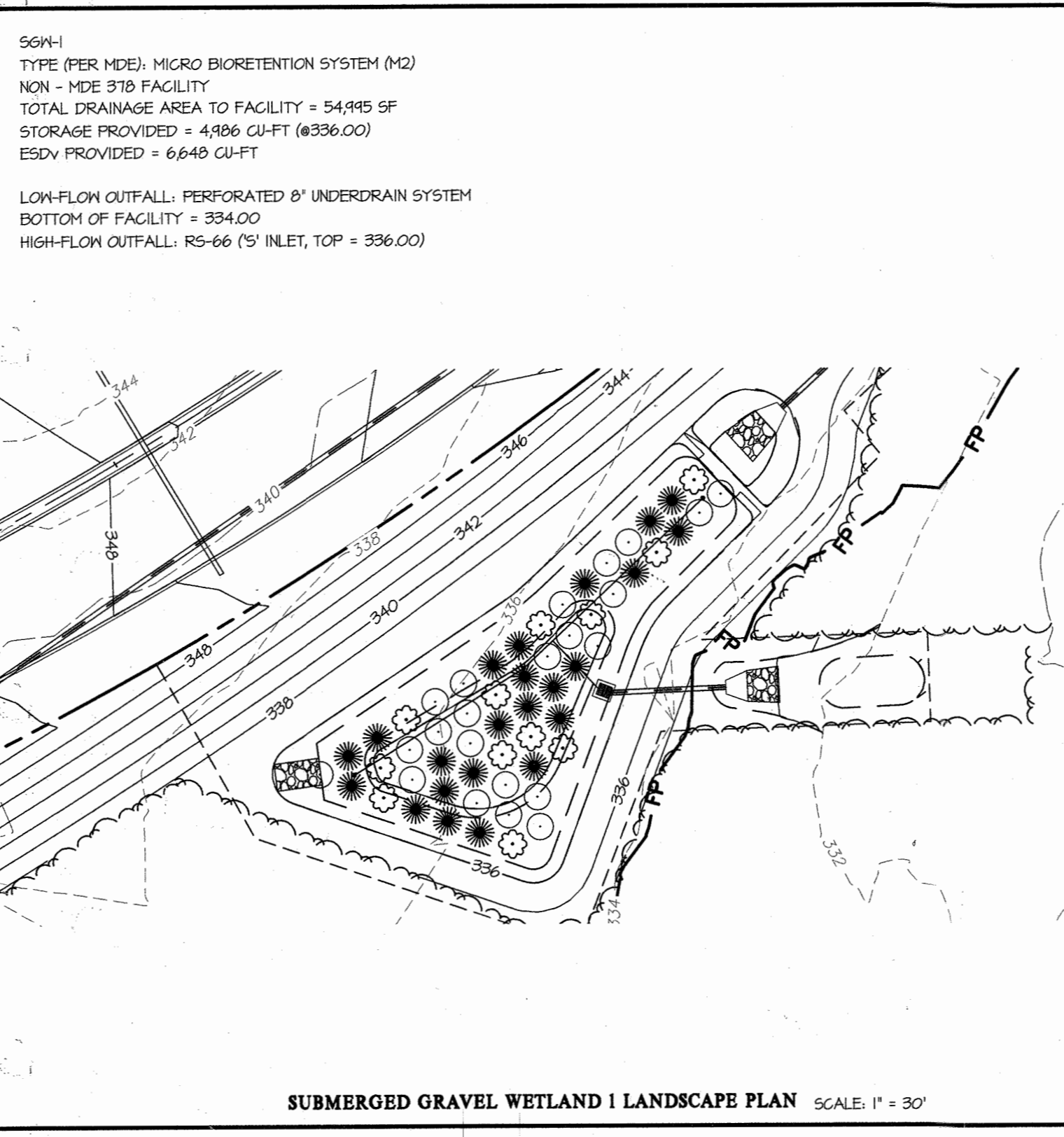
MICRO-BIORETENTION 4 LANDSCAPE PLAN SCALE: 1" = 30'



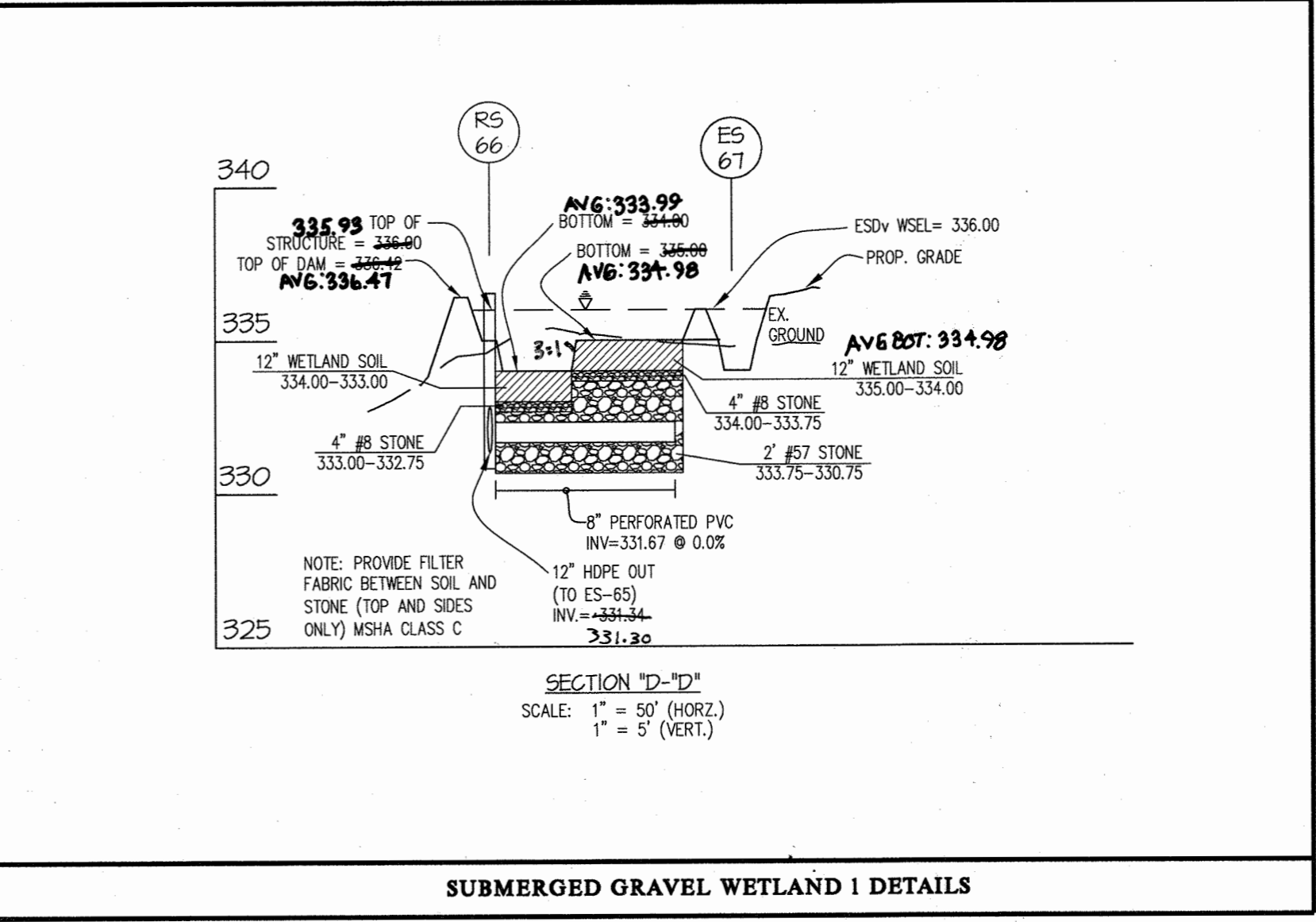
SECTION "C-C" SCALE: 1" = 50' (HORIZ.) 1" = 5' (VERT.)



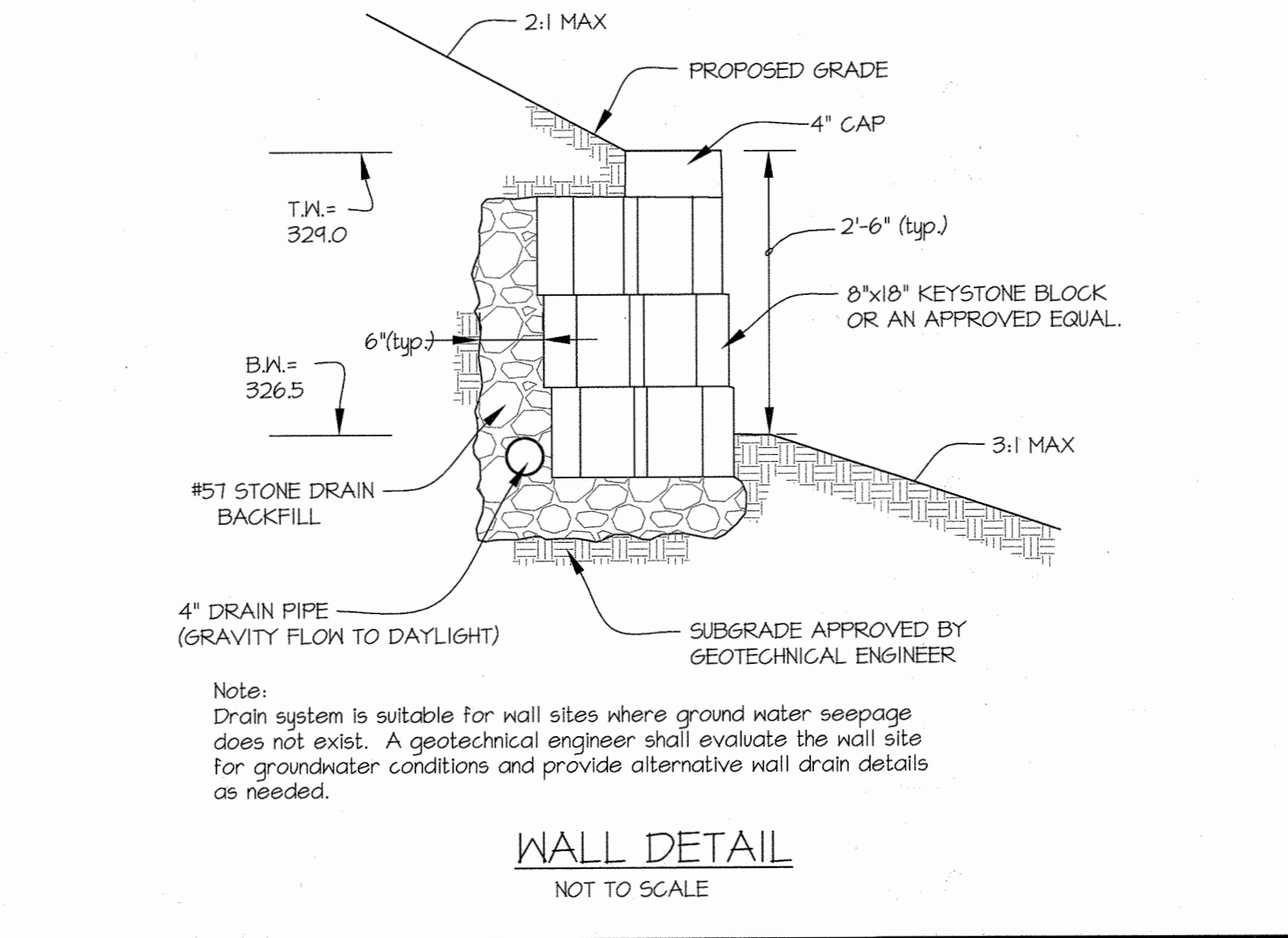
SUBMERGED GRAVEL WETLAND 1 SCALE: 1" = 20'



SUBMERGED GRAVEL WETLAND 1 LANDSCAPE PLAN SCALE: 1" = 30'



SECTION "D-D" SCALE: 1" = 50' (HORIZ.) 1" = 5' (VERT.)



WALL DETAIL NOT TO SCALE

NOTES:  
 \* SEE SHEET 24 FOR SHRUB DETAILS  
 SPECIES MAY VARY DEPENDING ON AVAILABILITY AT THE TIME OF CONSTRUCTION.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
 [Signature] 7/22/2016  
 Chief, Bureau of Highways

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
 [Signature] 9-3-16  
 Chief, Division of Land Development

[Signature] 7-26-16  
 Chief, Development Engineering Division

MICRO-BIORETENTION PLANT LIST				
SYMBOL	QTY.	NAMES (BOTANICAL / SCIENTIFIC)	SIZE	ROOT/COMMENTS
<b>SHRUBS *</b>				
⊙	11	LINDIRA BENZOIN SPICEBUSH	18"-24" SPR.	CONTAINER
⊙	25	CORNUS SERICEA RUBY/ RUBY RED OSIER DOGWOOD	18"-24" SPR.	CONTAINER
⊙	10	ITEA VIRGINICA HENRY'S GARNET/ VIRGINIA SHEETSPIRE	18"-24" SPR.	CONTAINER
<b>HERBACEOUS *</b>				
□	1440 SF	CONTRACTOR TO CHOOSE HERBACEOUS PLANTING FROM: -HERMEROCALLIS STRANBERRY CANDY DAYLILY -HERMEROCALLIS 'JOAN SENIOR' DAYLILY -SCALMIA ANGUSTIFOLIOLIA/SHEEP LAUREL -EILOCHARIS OVATA OBTUSIVALENT SPIKE RUSH	18" O.G.	CONTAINER

SUBMERGED GRAVEL WETLAND PLANT LIST				
SYMBOL	QTY.	NAMES (BOTANICAL / SCIENTIFIC)	SIZE	ROOT/COMMENTS
<b>EMERGENTS AND SUBMERGED AQUATICS</b>				
⊙	22	ALISMIA PLANTAGO-AQUATICA/ BROAD-LEAF WATER-PLANTAIN	8"-36" SPR.	CONTAINER
⊙	12	ELODEA CANADENSIS/ BROAD WATER-WEED	24" SPR.	CONTAINER
⊙	23	VALLISNERIA AMERICANA/ HILD CELERY	24" SPR.	CONTAINER

S.D. PIPE SUMMARY TABLE PRIVATELY OWNED AND MAINTAINED			
SIZE (INCHES)	TYPE	QUANTITY (L.F.)	REMARKS
4	SLOTTED PVC	187	SCHEDULE 40
8	SLOTTED PVC	154	SCHEDULE 40

STATE OF MARYLAND  
 PROFESSIONAL ENGINEER  
 BOB JENKINS  
 LICENSE NO. 10845  
 EXPIRATION DATE: MAY 26, 2018  
 6/1/16

**GLW GUTSCHICK LITTLE & WEBER, P.A.**  
 CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS  
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 TEL: 301-421-4024 BALT: 410-880-1820 DC/VA: 301-989-2524 FAX: 301-421-4186

DATE	REVISION	BY	APPR.

PREPARED FOR:  
 THE HOWARD HUGHES CORPORATION  
 10480 LITTLE PATUXENT PARKWAY  
 SUITE 400  
 COLUMBIA, MD 21044  
 ATTN: BOB JENKINS  
 410-964-5443

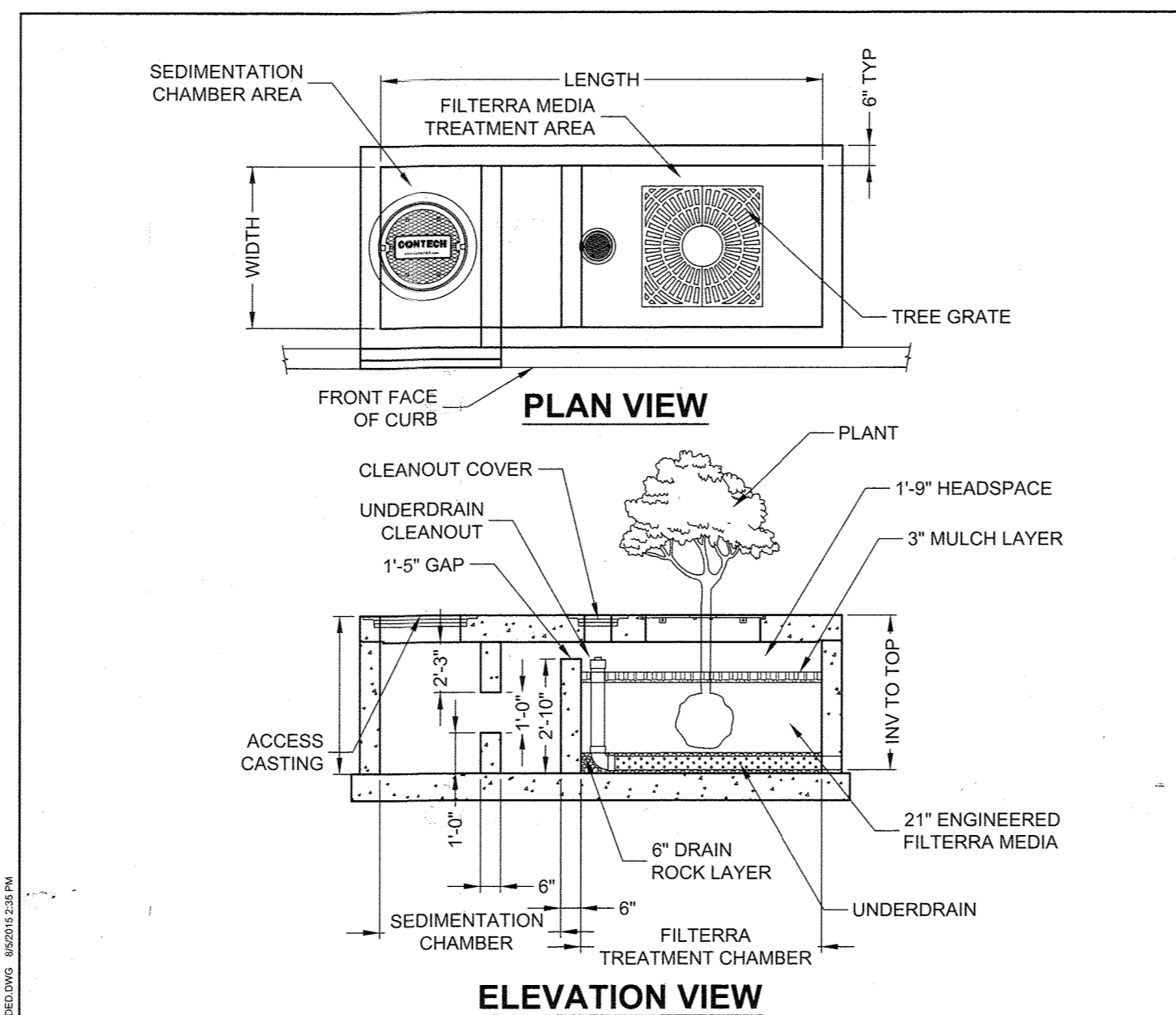
PROFESSIONAL CERTIFICATION  
 I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 12975  
 EXPIRATION DATE: MAY 26, 2018  
 6/1/16

**ESD DETAILS**  
**DOWNTOWN COLUMBIA**  
**CRESCENT NEIGHBORHOOD**  
 PARCELS B THRU H, NON-BUILDABLE BULK PARCELS J THRU R,  
 O.S. LOTS I THRU 8 AND  
 MERRIWEATHER-SYMPHONY WOODS NEIGHBORHOOD O.S. LOT 1  
 AND NON-BUILDABLE BULK PARCEL A  
 HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE NO.
AS SHOWN	NT	11071
DATE	TAX MAP - GRID	SHEET
JUNE, 2016	36 - 01	25 OF 102

L:\CAD\DRAWINGS\107\PLANS BY GUY\Phase 1\1071\_24-25\_ESD\_DETAILS.dwg





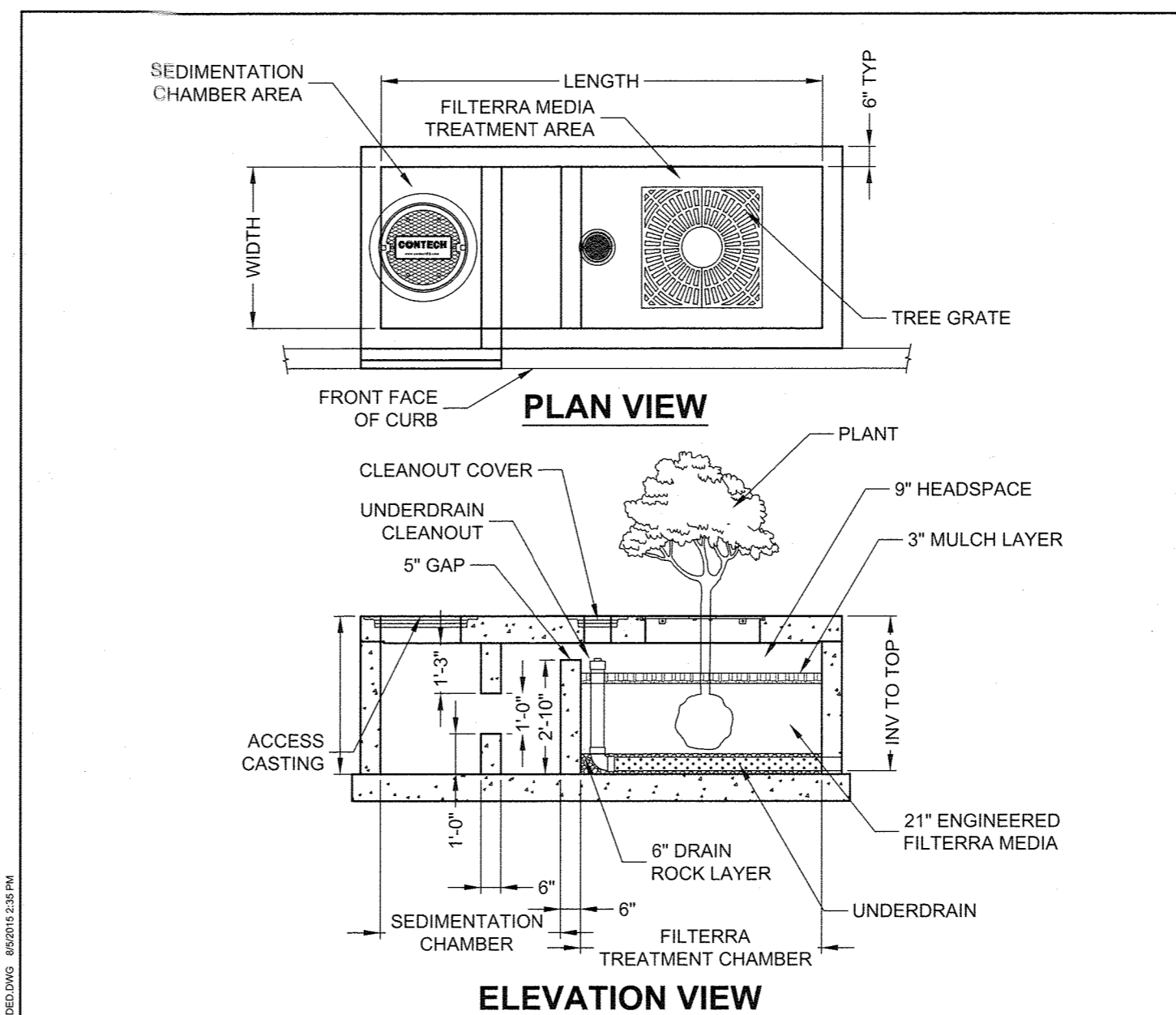
UNIT DESIGNATION	INSIDE VAULT DIMENSIONS	FILTERRA TREATMENT AREA	MAXIMUM DRAINAGE AREA TREATED (SF)	WQV STORAGE CAPACITY (CF)	WQV CREDIT PROVIDED (CF)
MODIFIED FTSC 8' x 6'	17' x 6' x 4.5'	8' x 6'	10,734	212	848

NOTE:  
 1. MAXIMUM DRAINAGE AREA TREATED ASSUMES 25% WQV AND FILTER SURFACE AREA REQUIREMENTS ARE BOTH MET.  
 2. STORAGE CAPACITY ASSUMES 40% VOIDS IN UNDERDRAIN STONE AND 30% VOIDS IN MULCH AND MEDIA.  
 3. ALL INFORMATION IS BASED ON STANDARD 3.85' RIM TO OUTLET DEPTH. CONTACT CONTECH FOR CUSTOM SIZING IF DEPTH IS NOT 3.85'. ACCEPTABLE DEPTH IS 3.33' MIN. TO 5.00' MAX. RIM TO INVERT OUT.

**CONTECH**  
 ENGINEERED SOLUTIONS LLC  
 www.contechES.com  
 605 Global Way, Suite 113, Linthicum, MD 21090  
 866-740-5318 OFFICE 866-376-8511 FAX

MODIFIED FILTERRA #6 WITH SEDIMENTATION CHAMBER

DATE: 3-6-15 SCALE: NONE PRODUCT NO.: FTSC DRAWN BY: BCL



UNIT DESIGNATION	INSIDE VAULT DIMENSIONS	FILTERRA TREATMENT AREA	MAXIMUM DRAINAGE AREA TREATED (SF)	WQV STORAGE CAPACITY (CF)	WQV CREDIT PROVIDED (CF)
FTSC 6' x 4'	12' x 4'	6' x 4'	5,216	103	412
FTSC 8' x 4'	16' x 4'	8' x 4'	7,141	141	564
FTSC 6' x 6'	12' x 6'	6' x 6'	7,847	155	620
FTSC 8' x 6'	16' x 6'	8' x 6'	10,734	212	848
FTSC 10' x 6'	19' x 6'	10' x 6'	12,638	250	1,000
FTSC 10' x 8'	20' x 8'	10' x 8'	18,178	360	1,440
FTSC 11' x 8'	22' x 8'	11' x 8'	20,000	398	1,592

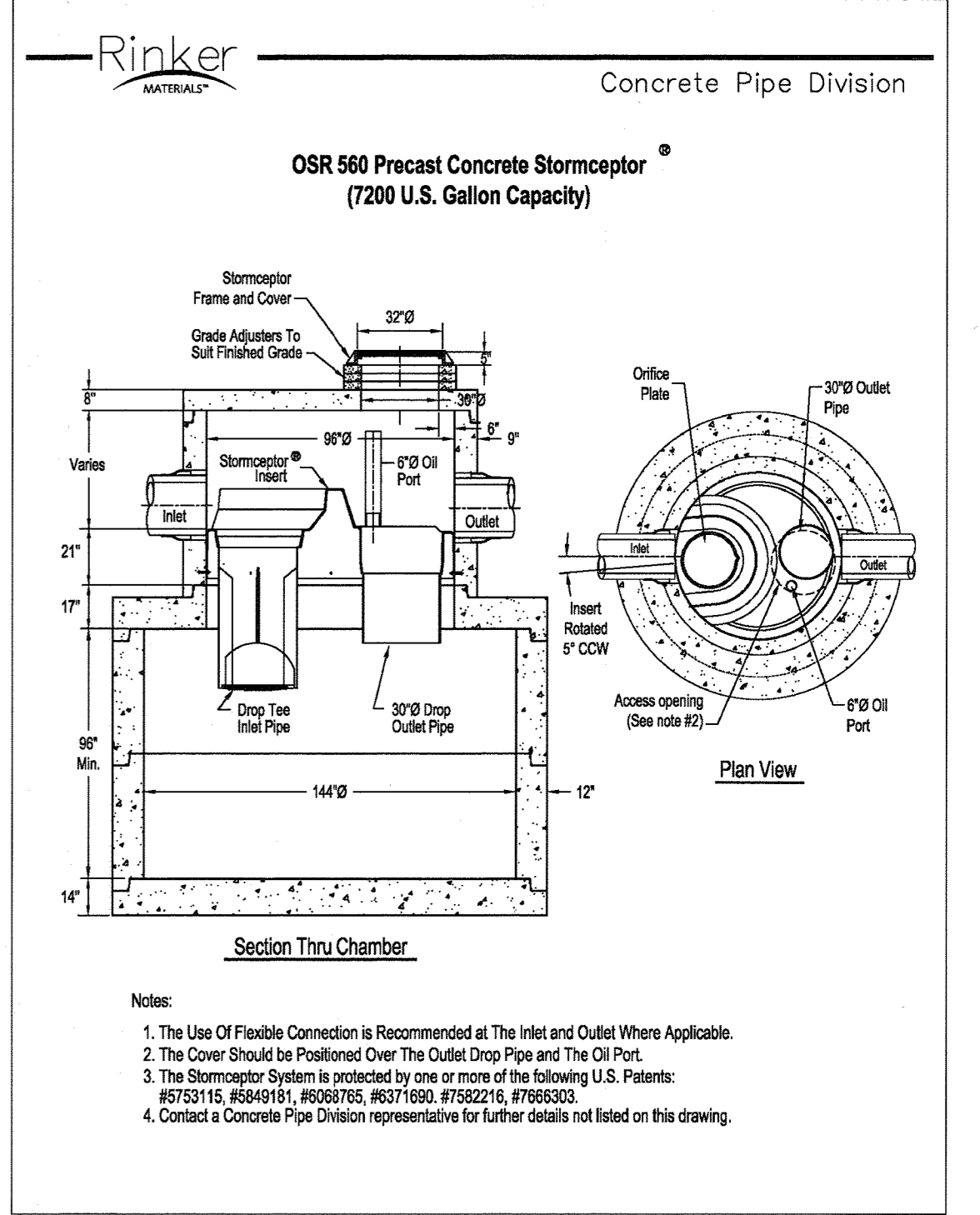
NOTE:  
 1. MAXIMUM DRAINAGE AREA TREATED ASSUMES 25% WQV AND FILTER SURFACE AREA REQUIREMENTS ARE BOTH MET.  
 2. STORAGE CAPACITY ASSUMES 40% VOIDS IN UNDERDRAIN STONE AND 30% VOIDS IN MULCH AND MEDIA.  
 3. ALL INFORMATION IS BASED ON STANDARD 3.85' RIM TO OUTLET DEPTH. CONTACT CONTECH FOR CUSTOM SIZING IF DEPTH IS NOT 3.85'. ACCEPTABLE DEPTH IS 3.33' MIN. TO 5.00' MAX. RIM TO INVERT OUT.

**CONTECH**  
 ENGINEERED SOLUTIONS LLC  
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 605 Global Way, Suite 113, Linthicum, MD 21090  
 866-740-5318 OFFICE 866-376-8511 FAX

FILTERRA® WITH SEDIMENTATION CHAMBER

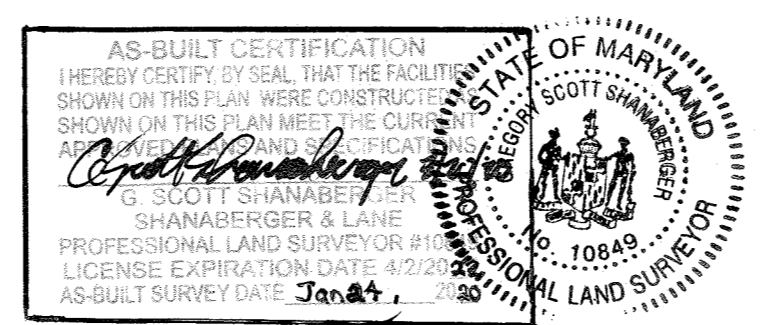
DATE: 3-6-15 SCALE: NONE PRODUCT NO.: FTSC DRAWN BY: BCL

FILTERRA UNIT	INSIDE VAULT DIM.	SEDIMENTATION CHAMBER	FTSC DESIGNATION	INVERT OUT
4	24' x 6' 25x7' OUTSIDE	14' x 6'	FTSC 10' x 6'	330.46
5	17.5' x 4' 18.5' x 5' OUTSIDE	4.5' x 4'	FTSC 6' x 4'	330.03
6	17' x 6' 18.5' x 7' OUTSIDE	9' x 6'	FTSC 6' x 6'	330.13
7	24' x 6' 25x7' OUTSIDE	14' x 6'	FTSC 10' x 6'	330.23



Notes:  
 1. The Use Of Flexible Connection is Recommended at The Inlet and Outlet Where Applicable.  
 2. The Cover Should be Positioned Over The Outlet Drop Pipe and The Oil Port.  
 3. The Stormceptor System is protected by one or more of the following U.S. Patents: #6751116, #6849181, #6808765, #6371690, #7522216, #7668503.  
 4. Contact Concrete Pipe Division representative for further details not listed on this drawing.

MODIFIED DETAIL FOR FILTERRA #6 NOT TO SCALE

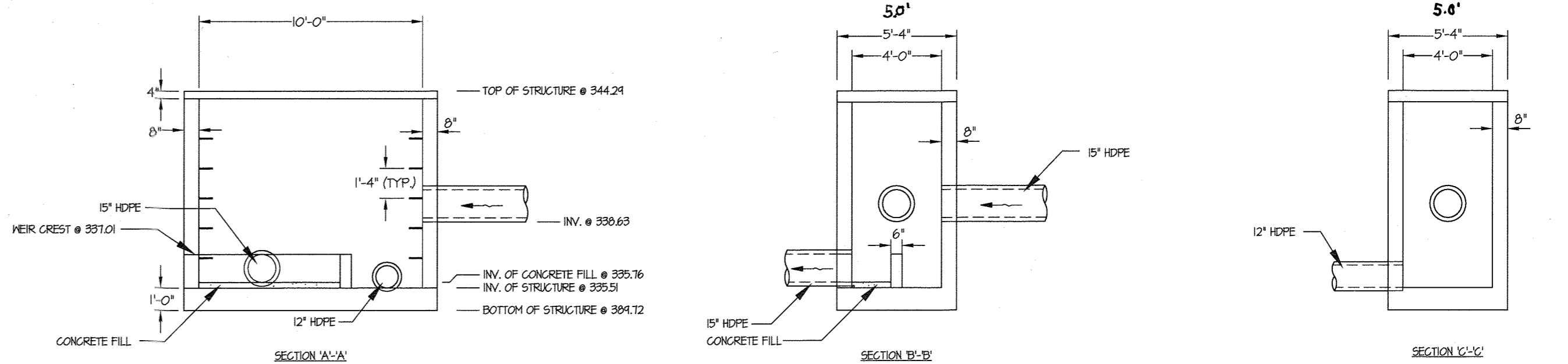


ESD FACILITY	ESD TYPE	DRAINAGE AREA (AC.)	IMPERVIOUS AREA (AC.)	PERVIOUS AREA (AC.)	P <sub>e</sub> PROVIDED (IN)	ESD <sub>v</sub> PROVIDED (CF)	P <sub>e</sub> REQUIRED (IN)	ESD <sub>v</sub> REQUIRED (CF)	WQV STORAGE CAPACITY (CF)	WQV CREDIT PROVIDED (CF)
PLANTER 1*	M-6	0.06	0.06	0.00	1.15	351	1.15	390	---	---
PLANTER 2*	M-6	0.10	0.10	0.00	1.07	360	1.15	443	---	---
PLANTER 3*	M-6	0.24	0.23	0.01	0.91	133	1.15	1577	---	---
PLANTER 4*	M-6	0.23	0.22	0.01	0.95	133	1.15	1511	---	---
PLANTER 5*	M-6	0.10	0.10	0.00	1.08	380	1.15	605	---	---
PLANTER 6*	M-6	0.07	0.07	0.00	1.40	351	1.15	440	---	---
MBR 1*	M-6	0.10	0.00	0.10	1.95	2,514	1.15	35	---	---
MBR 2*	M-6	0.68	0.67	0.01	2.60	6,013	1.15	4,510	---	---
MBR 3	M-6	0.80	0.80	0.00	2.60	13,000	1.15	9,150	---	---
MBR 4	M-6	0.51	0.50	0.01	2.50	4,825	1.15	3,365	---	---
MBR 6	M-6	0.43	0.43	0.00	2.05	2,145	1.15	2,083	---	---
SGN 1	M-2	1.26	1.25	0.01	1.54	6,648	1.15	8,404	---	---
PERMEABLE PAVEMENTS	A-2	0.27	0.27	0.00	1.15	4,006	1.15	1,914	---	---
FILTERRA #1 (FTSC 8'x4')	N/A	0.12	0.12	0.00	1.00	---	1.15	782	119	401
FILTERRA #2 (FTSC 8'x4')	N/A	0.12	0.12	0.00	1.00	---	1.15	827	119	424
FILTERRA #3 (FTSC 10'x6')	N/A	0.35	0.35	0.00	1.00	---	1.15	2,340	336	1,200
FILTERRA #4 (FTSC 10'x6')	N/A	0.28	0.27	0.01	1.00	---	1.15	1,844	213	948
FILTERRA #5 (FTSC 8'x4')	N/A	0.13	0.13	0.00	1.00	---	1.15	853	119	431
FILTERRA #6 (FTSC 8'x6')	N/A	0.24	0.24	0.00	1.00	---	1.15	1,618	213	830
FILTERRA #7 (FTSC 10'x6')	N/A	0.25	0.25	0.00	1.00	---	1.15	1,645	213	864
TOTALS						41,624	---	45,456	1,512	5,104

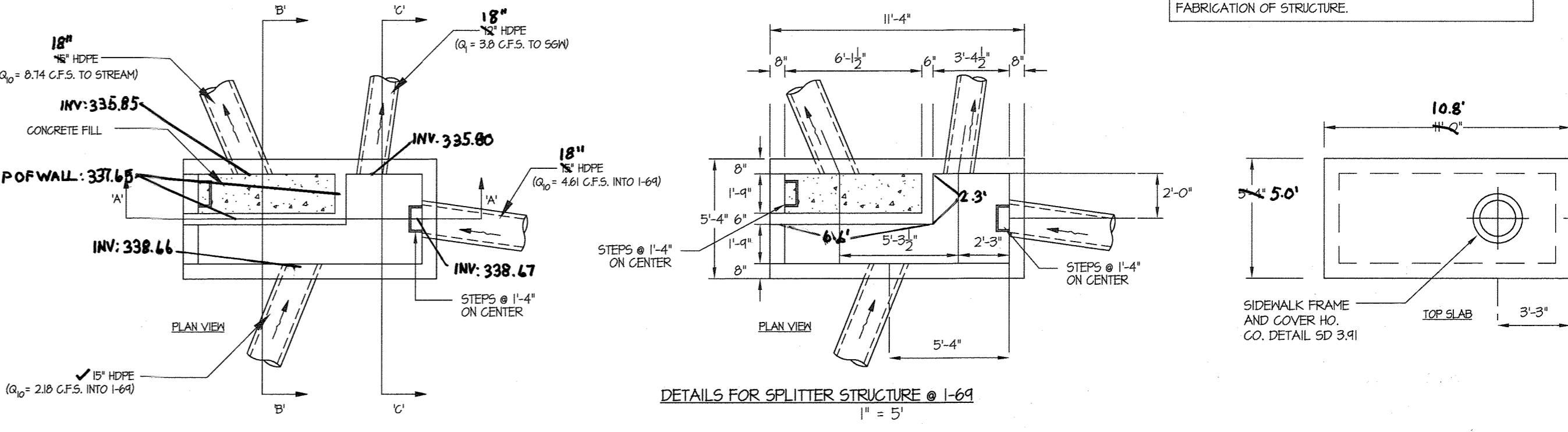
P<sub>e</sub> REQUIRED: 1.95'  
 TREATMENT REQUIRED FOR ENTIRE SITE: 45,456 CF  
 TREATMENT PROVIDED FOR ENTIRE SITE: 46,138 CF

TREATMENT REQUIRED FOR F-15-106: 32,943 CF  
 TREATMENT PROVIDED UNDER F-15-106: 33,258 CF

\*EXISTING STORMWATER MANAGEMENT FACILITY CONSTRUCTED UNDER F-15-048



REINFORCEMENT PROVIDED FOR THIS STRUCTURE WILL BE SIMILAR TO THAT SHOWN IN DETAIL D 403 (PRECAST A-10 INLET). CONTRACTOR IS TO PROVIDE SHOP DRAWINGS TO HOWARD COUNTY FOR REVIEW AND APPROVAL PRIOR TO FABRICATION OF STRUCTURE.



APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
 Chief, Bureau of Highways  
 Date: 7/12/2016

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
 Chief, Division of Land Development  
 Date: 8-3-16

Chief, Development Engineering Division

**GLW** GUTSCHICK LITTLE & WEBER, P.A.  
 CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS  
 3909 NATIONAL DRIVE - SUITE 250 - BURTONSVILLE OFFICE PARK  
 BURTONSVILLE, MARYLAND 20866  
 TEL: 301-421-4024 FAX: 301-421-4186

DATE	REVISION	BY	APP'R.

PREPARED FOR:  
 THE HOWARD HUGHES CORPORATION  
 10480 LITTLE PATUXENT PARKWAY  
 SUITE 400  
 COLUMBIA, MD 21044  
 ATTN: BOB JENKINS  
 410-964-5443

PROFESSIONAL CERTIFICATION  
 I HEREBY CERTIFY THAT THESE PLANS 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. 12975  
 EXPIRATION DATE: MAY 26, 2018  
 6/1/16

STORMWATER MANAGEMENT NOTES AND DETAILS  
**DOWNTOWN COLUMBIA**  
**CRESCENT NEIGHBORHOOD**  
 PARCELS B THRU H, NON-BUILDABLE BULK PARCELS J THRU R,  
 O.S. LOTS 1 THRU 8 AND  
 MERRIWEATHER-SYMPHONY WOODS NEIGHBORHOOD O.S. LOT 1  
 AND NON-BUILDABLE BULK PARCEL A  
 HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE NO.
AS SHOWN	NT	11071
DATE	TAX MAP - GRID	SHEET
JUNE, 2016	36 - 01	26 OF 102



**LEGEND**

- EXISTING TREE
- PROPOSED STREET TREE
- PROPOSED TREELINE
- EXISTING TREELINE
- EXISTING PAVEMENT
- EXISTING STREET LIGHT
- LED-100 MODERN POST-TOP FIXTURE MOUNTED ON A 14' BLACK FIBERGLASS POLE
- LED-150 MODERN POST-TOP FIXTURE MOUNTED ON A 14' BLACK FIBERGLASS POLE
- LED-250 COBRA FIXTURE MOUNTED AT 30' ON A BRONZE FIBERGLASS POLE USING A 6' ARM
- LED-200 COBRA FIXTURE MOUNTED AT 30' ON A BRONZE FIBERGLASS POLE USING A 6' ARM
- LED-150 COBRA FIXTURE MOUNTED AT 30' ON A BRONZE FIBERGLASS POLE USING A 6' ARM
- LED-200 COBRA FIXTURE MOUNTED AT 30' ON A BRONZE FIBERGLASS POLE USING A 12' ARM
- LED-250 COBRA FIXTURE MOUNTED AT 30' ON A BRONZE FIBERGLASS POLE USING A 12' ARM

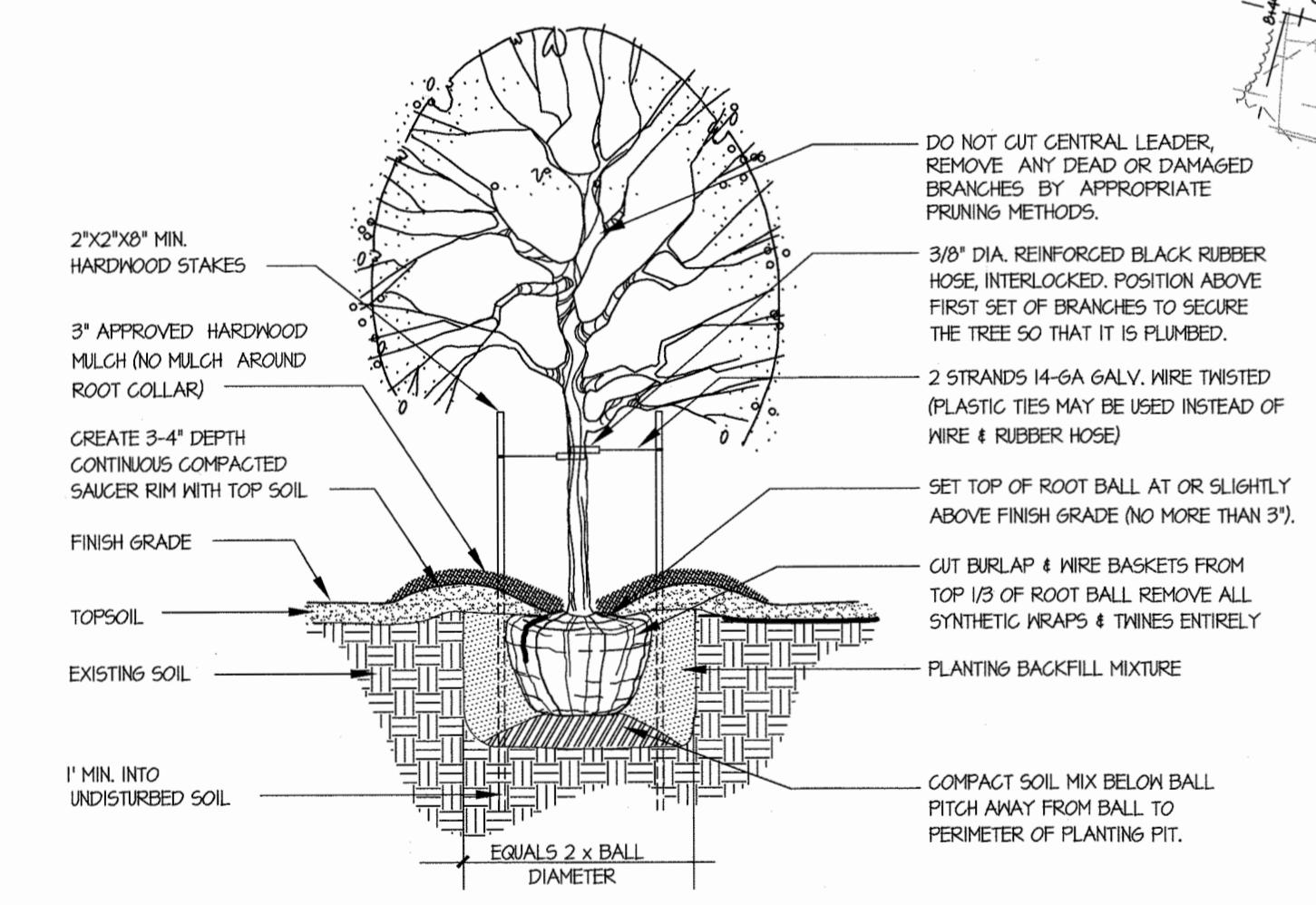
STREET LIGHT SCHEDULE		
LOCATION	TYPE	
§ STA. 5+26.5	MERRIWEATHER DR	21.05' LT. A
§ STA. 7+38.4	MERRIWEATHER DR	21.62' RT. D
§ STA. 8+00.2	MERRIWEATHER DR	21.21' LT. A
§ STA. 8+02.7	MERRIWEATHER DR	26.67' RT. A
§ STA. 8+66.5	MERRIWEATHER DR	26.71' LT. A
§ STA. 11+17.4	MERRIWEATHER DR	25.48' RT. D
§ STA. 11+17.8	MERRIWEATHER DR	26.00' LT. D
§ STA. 12+05.1	MERRIWEATHER DR	26.67' RT. A
§ STA. 12+00.0	MERRIWEATHER DR	28.24' LT. A
§ STA. 12+17.3	MERRIWEATHER DR	26.00' LT. B
§ STA. 13+24.4	MERRIWEATHER DR	26.79' RT. B
§ STA. 14+35.0	MERRIWEATHER DR	26.67' LT. A
§ STA. 15+15.0	MERRIWEATHER DR	26.67' RT. A
§ STA. 15+45.0	MERRIWEATHER DR	26.67' LT. A
§ STA. 16+81.1	MERRIWEATHER DR	26.67' RT. A
§ STA. 17+61.2	MERRIWEATHER DR	26.67' LT. A
§ STA. 18+55.0	MERRIWEATHER DR	26.67' RT. A
§ STA. 14+50.0	BROKEN LAND PKWY	10.70' RT. G
§ STA. 0+85.1	HICKORY RIDGE	56.40' LT. F
§ STA. 1+65.0	HICKORY RIDGE	55.61' LT. A
§ STA. 2+35.0	HICKORY RIDGE	32.67' RT. G
§ STA. 2+40.0	HICKORY RIDGE	55.67' LT. A
§ STA. 3+15.0	HICKORY RIDGE	43.78' LT. A
§ STA. 3+85.0	HICKORY RIDGE	32.67' RT. C
§ STA. 4+10.0	HICKORY RIDGE	43.78' LT. A
§ STA. 5+04.4	HICKORY RIDGE	43.21' LT. A
§ STA. 5+35.0	HICKORY RIDGE	32.67' RT. C
§ STA. 5+86.4	HICKORY RIDGE	34.08' LT. A
§ STA. 6+85.0	HICKORY RIDGE	32.67' RT. B
§ STA. 7+08.2	HICKORY RIDGE	28.67' LT. A
§ STA. 7+10.0	HICKORY RIDGE	28.82' LT. B

TYPES:  
 A) LED-100 MODERN POST-TOP FIXTURE MOUNTED ON A 14' BLACK FIBERGLASS POLE  
 B) LED-200 COBRA FIXTURE MOUNTED AT 30' ON A BRONZE FIBERGLASS POLE USING A 6' ARM  
 C) LED-200 COBRA FIXTURE MOUNTED AT 30' ON A BRONZE FIBERGLASS POLE USING A 12' ARM  
 D) LED-150 COBRA FIXTURE MOUNTED AT 30' ON A BRONZE FIBERGLASS POLE USING A 6' ARM  
 E) LED-150 MODERN POST-TOP FIXTURE MOUNTED ON A 14' BLACK FIBERGLASS POLE  
 F) LED-250 COBRA FIXTURE MOUNTED AT 30' ON A BRONZE FIBERGLASS POLE USING A 6' ARM  
 G) LED-250 COBRA FIXTURE MOUNTED AT 30' ON A BRONZE FIBERGLASS POLE USING A 12' ARM

**SURETY FOR STREET TREES:**  
 STREET TREES ARE TO BE BONDED WITH THE DPM COST ESTIMATE FOR ROAD CONSTRUCTION  
 (54) SHADE TREES X \$300 = \$16,200  
 TOTAL = \$16,200

PLANT LIST				
SYMBOL	QTY	TYPE	NAMES (BOTANICAL / SCIENTIFIC)	SIZE/COMMENTS
<b>SHADE TREES</b>				
	50	AR	ACER RUBRUM 'OCTOBER GLORY' / OCTOBER GLORY RED MAPLE	4" CAL. B&B
	4		ACER GINNALA 'AMUR MAPLE'	HEIGHT: 15'-25' AND SPREAD: 15'-25'
<b>TOTAL:</b>	<b>54</b>			

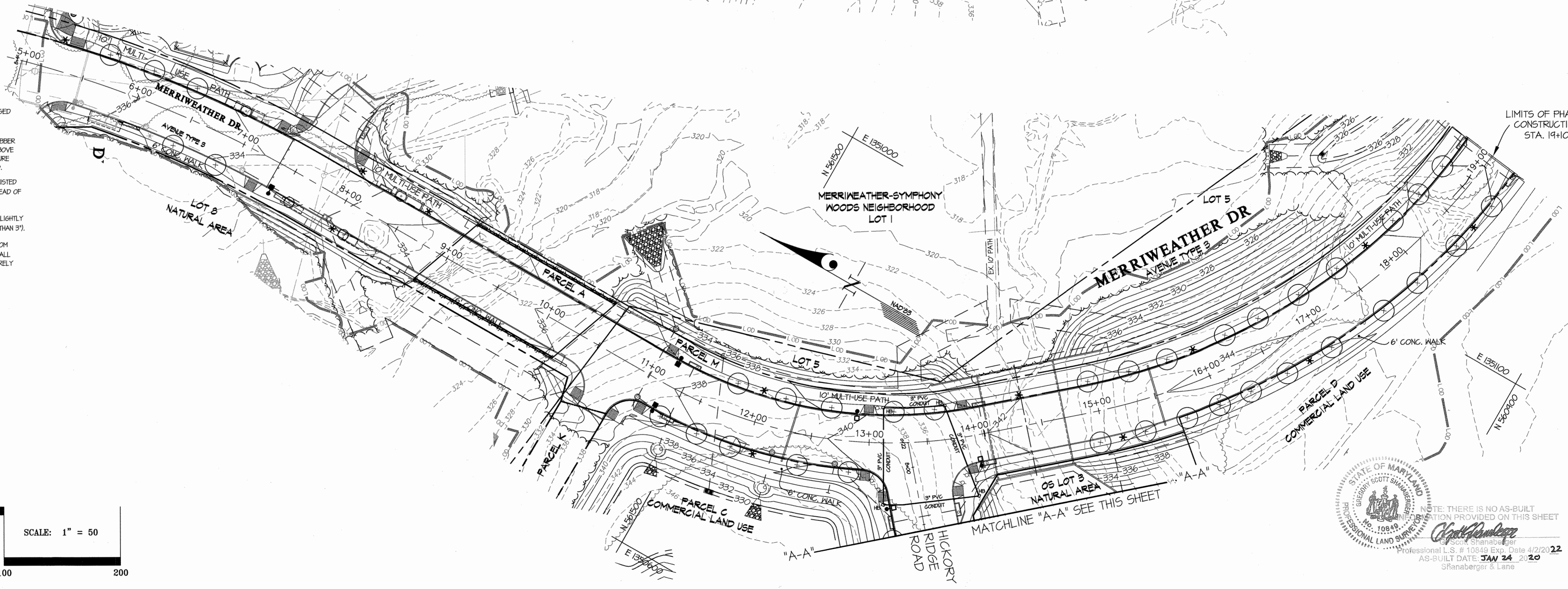
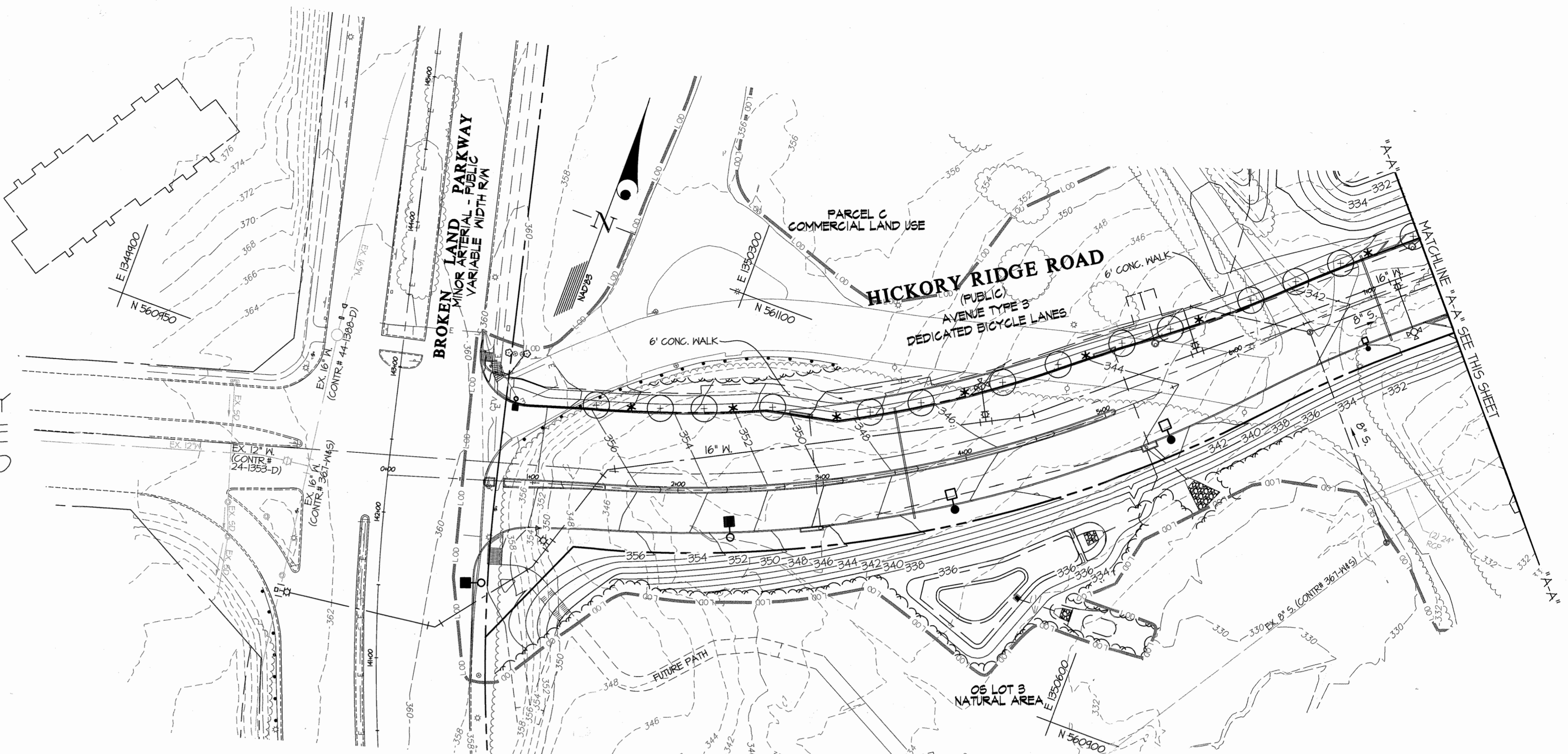
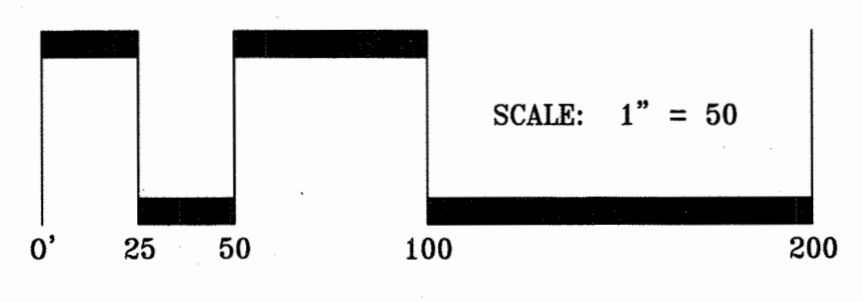
TOTAL LENGTH OF ROAD BEING CONSTRUCTED (R/W): 3820'  
 LENGTH OF ROAD R/W ADJACENT TO NATURAL AREAS (PARKS): 3045'  
 REMAINDER TO BE PLANTED PER NEIGHBORHOOD DESIGN GUIDELINES (NDG): 725'  
 NUMBER OF TREES REQUIRED (PER NDG) @ 1 PER 40 FEET: 19  
 NUMBER OF TREES PROVIDED: 54



NOTE: ALL SUPPORTING DEVICES (STAKES, WIRES, ETC.) SHALL BE REMOVED AFTER 2 GROWING SEASONS.

**DECIDUOUS TREE PLANTING DETAIL**  
 FOR PLANTING MATERIAL UP TO 3 1/2" CALIFER

**APPROVED:** HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
 Chief, Bureau of Highways  
**APPROVED:** HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
 Chief, Division of Land Development  
 Chief, Development Engineering Division

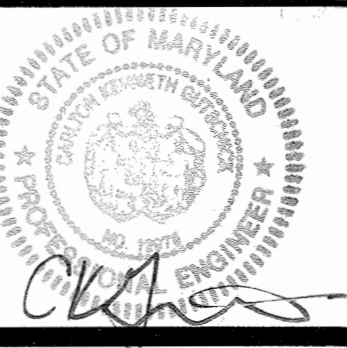


**GLWGUTSCHICK LITTLE & WEBER, P.A.**  
 CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS  
 3909 NATIONAL DRIVE - SUITE 250 - BURTONSVILLE OFFICE PARK  
 BURTONSVILLE, MARYLAND 20886  
 TEL: 301-421-4024 FAX: 410-880-1820 DC/VA: 301-989-2524 FAX: 301-421-4186

DATE	REVISION	BY	APPR.

PREPARED FOR:  
 THE HOWARD HUGHES CORPORATION  
 10480 LITTLE PATUXENT PARKWAY  
 SUITE 400  
 COLUMBIA, MD 21044  
 ATTN: BOB JENKINS  
 410-964-5443

**PROFESSIONAL CERTIFICATION**  
 I HEREBY CERTIFY THAT THESE PLANS 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. 12972  
 EXPIRATION DATE: MAY 26, 2018



**STREET TREE PLAN**  
**DOWNTOWN COLUMBIA**  
**CRESCENT NEIGHBORHOOD**  
 PARCELS B THRU H, NON-BUILDABLE BULK PARCELS J THRU R,  
 OS LOTS 1 THRU 8 AND  
 MERRIWEATHER-SYMPHONY WOODS NEIGHBORHOOD OS LOT 1  
 AND NON-BUILDABLE BULK PARCEL A  
 HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE NO.
1"=50'	NT	11071
DATE	TAX MAP - GRID	SHEET
JUNE, 2016	36 - 01	27 OF 102

L:\CAD\DRAWINGS\11071\PLANS BY G.W.F.\Phase 1\11071\_27-28\_STREET TREE.dwg  
 PLOTTED: 6/19/2016 8:28 AM, LAST SAVE: 6/16/2016 4:44 PM, PLOTTED BY: jay.hannon



Trees to be Removed:

Tree Number	Common Name	Scientific Name	D.B.H. (Inches)	Condition Rating
Removed by Crescent Roadway				
B48	White Oak	Quercus alba	25	Good
B49	Red Maple	Acer rubrum	20	Fair
Removed due to MPP PH I Parking Lot				
B53			26	
B54			20	
B40	White Oak	Quercus alba	26	Poor
B41	White Oak	Quercus alba	20	Fair
B43	Hickory	Carya spp.	11	Good
B44	Hickory	Carya spp.	11	Fair
B45	Hickory	Carya spp.	21	Fair
B61	White Oak	Quercus alba	22	Fair

Trees to Remain:

Tree Number	Common Name	Scientific Name	D.B.H. (Inches)	Condition Rating
Removed by Crescent Roadway				
B39	White Oak	Quercus alba	30	Fair
B42	Gottonwood	Populus spp.	14	Poor
B47	White Oak	Quercus alba	32	Good
B50	White Oak	Quercus alba	34	Good
B51	Hickory	Carya spp.	16	Good
B52	White Oak	Quercus alba	28	Poor
B53	Red Oak	Quercus rubra	27	Fair
B54	Sweetgum	Liquidambar styraciflua	4	Good
B55	Hickory	Carya spp.	14	Good
B56	White Oak	Quercus alba	28	Good
B57	White Oak	Quercus alba	23	Fair
B58	White Oak	Quercus alba	24	Fair
B59	American Beech	Fagus grandifolia	24	Good
B60	White Oak	Quercus alba	26	Good
B62	Hickory	Carya spp.	14	Good

AS-BUILT CERTIFICATION  
 I HEREBY CERTIFY BY SEAL THAT THE FACILITIES SHOWN ON THIS PLAN WERE CONSTRUCTED AS SHOWN ON THIS PLAN MEET THE CURRENT APPLICABLE CODES AND SPECIFICATIONS APPROVED BY THE STATE OF MARYLAND.  
 SHARABERGER & LANE  
 PROFESSIONAL LAND SURVEYOR #10849  
 LICENSE EXPIRATION DATE 4/20/18  
 AS-BUILT SURVEY DATE 09.24.10

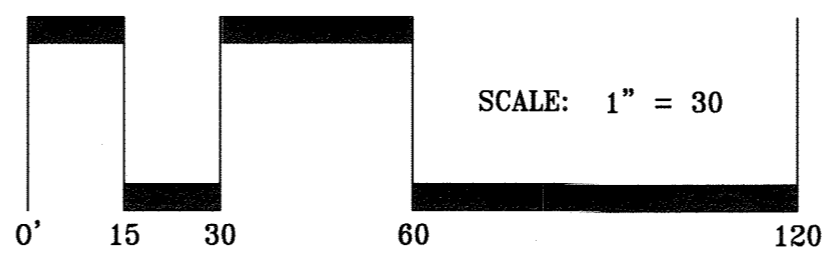


LEGEND (SEE DETAILS, SHEET 12)  
 P-3 PAVING  
 POROUS PAVER CROSSWALK  
 PERVIOUS ASPHALT  
 PERVIOUS PAVING (FLEXPAVE)  
 PARKING SPACE COAT

SEE SHEET 20 ON SDP 16-018 (HANDICAP ACCESSIBILITY PLAN, GRADING & PARKLAND PARKING PLAN) FOR HANDICAP ACCESSIBLE ADA ROUTES  
 SEE SDP-16-18 FOR HANDICAP ACCESSIBILITY DETAILS.  
 EXISTING PAVING IN PARKING AREAS TO BE REPAVED AND RESTRIPE  
 32 PARKING SPACES PROVIDED



GRADING AND PAVING PLAN



TREE CALCULATIONS  
 1. EXISTING TREES TO BE REMOVED: 10  
 NEW TREES PROVIDED: 20 (2:1 RATIO)

SURETY FOR TREE REPLACEMENT  
 OPEN SPACE LOT 1:  
 (20) SHADE TREES X \$300 = \$6,000  
 (0) ORNAMENTAL TREES X \$150 = \$0  
 (0) EVERGREEN TREES X \$150 = \$0  
 TOTAL = \$6,000

NOTES:  
 1. REFER TO SHEET 21 FOR ALL PLANTING DETAILS.  
 2. TREE INVENTORY ANALYSIS PROVIDED BY BIOHABITATS.  
 3. TREE REPLACEMENT IS BEING PERFORMED IN ACCORDANCE WITH THE MERRIWEATHER-SYMPHONY WOODS DESIGN GUIDELINES WHICH STATE THAT TREES REMOVED DUE TO DEVELOPMENT WITHIN SYMPHONY WOODS PARK MUST BE REPLACED AT A 2:1 RATIO.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
 Chief, Bureau of Highways  
 Date: 7/12/2016

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
 Chief, Division of Land Development  
 Date: 8-3-16

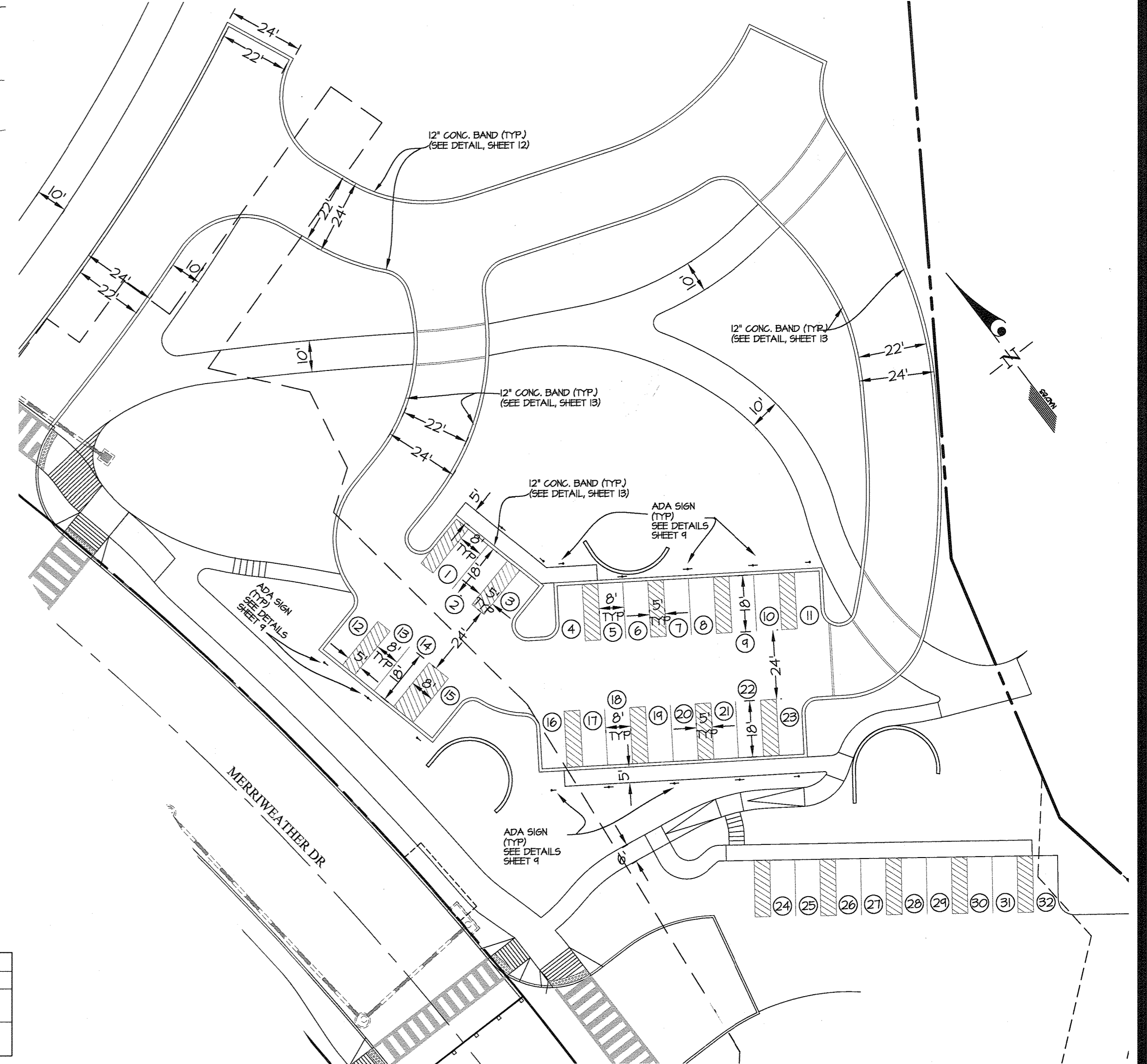
Chief, Development Engineering Division  
 Date: 7-26-16

TREE REPLACEMENT PLAN

TREE SCHEDULE - OPEN SPACE LOT 1

KEY	QTY.	BOTANICAL NAME	COMMON NAME	SIZE	CONT./B&B	COMMENTS
SHADE TREES						
CC	5	Carpinus caroliniana	Ironwood	4" Cal. MIN	B4B	Central Leader Full Crown
QR	15	Quercus rubra	Northern Red Oak	4" Cal. MIN	B4B	6' min. branching Ht., Single Stem, Matched, Central Leader w/ Full Crown

MERRIWEATHER POST PAVILION HANDICAP PARKING LOT LAYOUT



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 BURTONSVILLE, MARYLAND 20866  
 TEL: 301-421-4024 BAL: 410-880-1820 DC/VA: 301-989-2524 FAX: 301-421-4186

DATE	REVISION	BY	APP'R.

PREPARED FOR:  
 THE HOWARD HUGHES CORPORATION  
 10480 LITTLE PATUXENT PARKWAY  
 SUITE 400  
 COLUMBIA, MD 21044  
 ATTN: BOB JENKINS  
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PROFESSIONAL CERTIFICATION  
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 EXPIRATION DATE: MAY 28, 2018  
 6/9/16

PARKING LOT LAYOUT & TREE REPLACEMENT PLAN  
 DOWNTOWN COLUMBIA  
 CRESCENT NEIGHBORHOOD  
 PARCELS B THRU H, NON-BUILDABLE BULK PARCELS J THRU R,  
 O.S. LOTS 1 THRU 8 AND  
 MERRIWEATHER-SYMPHONY WOODS NEIGHBORHOOD O.S. LOT 1  
 AND NON-BUILDABLE BULK PARCEL A  
 HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
1" = 30'	NT	11071
DATE	TAX MAP - GRID	SHEET
JUNE, 2016	36 - 01	28 OF 102



**GENERAL NOTES**

**SPECIFICATIONS:** - HOWARD COUNTY DESIGN MANUAL: VOLUME IV - STANDARD SPECIFICATIONS & DETAILS FOR CONSTRUCTION, DATED OCTOBER, 1990.  
 - SHA SPECIFICATIONS DATED JULY, 2008  
 - REVISIONS THEREOF AND ADDITIONS THERETO AND SPECIAL PROVISIONS FOR MATERIALS AND CONSTRUCTION.

**DESIGN:** AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS DATED 2014 AND ALL INTERIMS THROUGH 2016.

**CONCRETE:** LOAD AND RESISTANCE FACTOR DESIGN METHOD. THE DESIGN COMPRESSIVE STRENGTH SHALL BE:  
 $f'_c = 3000$  PSI FOR ELEMENTS USING MIX NO. 3 CONCRETE AND  
 $f'_c = 4000$  PSI FOR ELEMENTS USING MIX NO. 6 CONCRETE.

**PRESTRESSED CONCRETE:** LOAD AND RESISTANCE FACTOR DESIGN METHOD. THE DESIGN COMPRESSIVE STRENGTH SHALL BE  $f'_c = 7000$  PSI. THE MINIMUM COMPRESSIVE STRENGTH AT TRANSFER OF PRESTRESS SHALL BE  $f'_{ci} = 5950$  PSI FOR DESIGN.

**REINFORCING STEEL:**  $f_y = 60000$  PSI.

**LOADING:** HL-93 WITH PROVISIONS FOR FUTURE 2" WEARING SURFACE AND 15 lbs/sq.ft. FOR USE OF STEEL BRIDGE DECK FORMS WHICH REMAIN IN PLACE.

**CONCRETE:** ALL CONCRETE FOR ABUTMENT BACKWALLS, EXPANSION JOINT CROSS BEAM(S), TOP PORTION OF EXPANSION JOINT CROSS BEAM SUPPORT COLUMN(S), PARAPETS AT WING WALLS & ENTIRE SUPERSTRUCTURE(S) SHALL BE MIX. NO. 6 (4500 PSI). ALL OTHER STRUCTURE CONCRETE EXCEPT PRESTRESSED GIRDERS SHALL BE MIX NO. 3 (3500 PSI).

**PRESTRESSED CONCRETE:** ALL CONCRETE FOR PRESTRESSED CONCRETE GIRDERS SHALL BE SELF CONSOLIDATING CONCRETE WITH A 28 DAY COMPRESSIVE STRENGTH OF  $f'_c = 8000$  PSI.

**REINFORCING STEEL:** REINFORCING STEEL SHALL CONFORM TO A615, GRADE 60. **ONLY GRADE 60 CAN BE USED ON THIS PROJECT.**

ALL SPLICES, NOT SHOWN, SHALL BE LAPPED AS PER BAR LAP CHART. MINIMUM COVER FOR ANY BAR SHALL BE 2" UNLESS OTHERWISE NOTED, WITH THE EXCEPTION OF BARS AT THE TOP OF PIERS AND BARS AT THE BOTTOM AND SIDES OF ALL FOOTINGS WHICH SHALL HAVE 3" MINIMUM COVER.

MINIMUM COVER FOR ANY BAR IN THE BOTTOM OF THE BOTTOM FLANGE IN PRESTRESSED CONCRETE GIRDERS SHALL BE 2 1/2" UNLESS OTHERWISE NOTED.

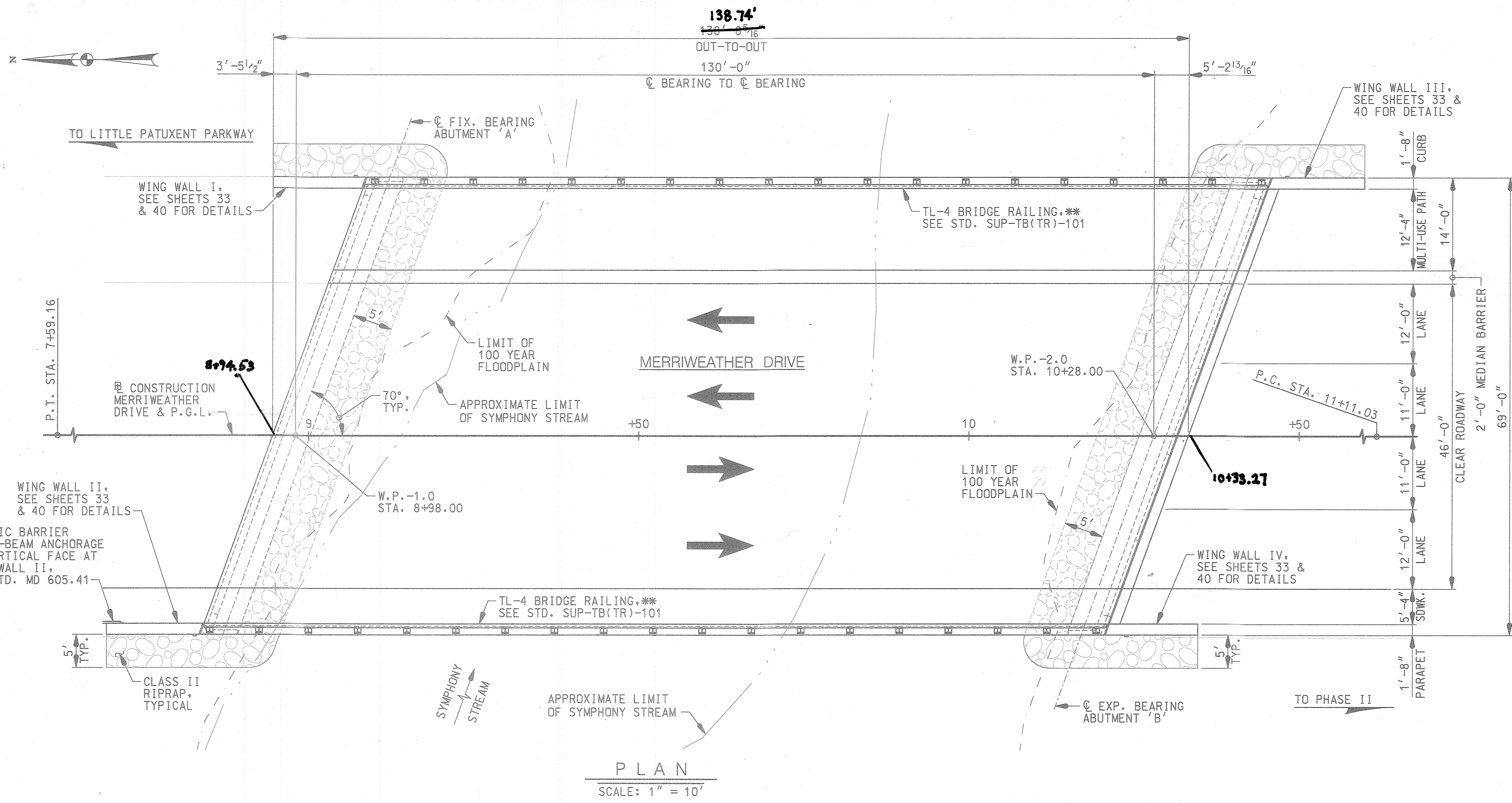
FOR TIES AND STIRRUPS: STANDARD ACI BENDING TOLERANCES ARE MODIFIED TO PLUS (+) ZERO INCHES, MINUS (-) NORMAL ACI BENDING TOLERANCES.

**REINFORCING STEEL IN THE FOLLOWING AREAS SHALL BE EPOXY COATED:**  
 - ENTIRE SUPERSTRUCTURE, INCLUDING PARAPETS  
 - ABUTMENT BACKWALLS  
 - ALL BEARING SEAT PADS  
 - ABUTMENT BRIDGE SEAT AREAS  
 - EXPANSION JOINT CROSS BEAM  
 - PORTIONS OF EXPANSION JOINT CROSS BEAM SUPPORT COLUMNS  
 - PARAPET PORTION OF WING WALLS  
 - EXPOSED FACE OF ABUTMENT STEMS THAT IS LESS THAN 10 FEET FROM THE EDGE OF PAVED SURFACES, INCLUDING SHOULDERS  
 - PRESTRESSED CONCRETE GIRDERS WITH THE EXCEPTION OF THE PRETENSIONING STEEL

**PRETENSIONING STEEL:** PRETENSIONING STEEL SHALL CONSIST OF 1/2" DIAMETER 7-WIRE BRIGHT LOW RELAXATION STRANDS CONFORMING TO THE REQUIREMENTS OF M203, GRADE 270. EACH 1/2" STRAND SHALL BE PRETENSIONED TO 31000 LB. (0.75 fpu), HAVE AN ULTIMATE STRENGTH OF 41300 LB. (fpu) AND A YIELD STRENGTH OF 37200 LB. (0.90 fpu).

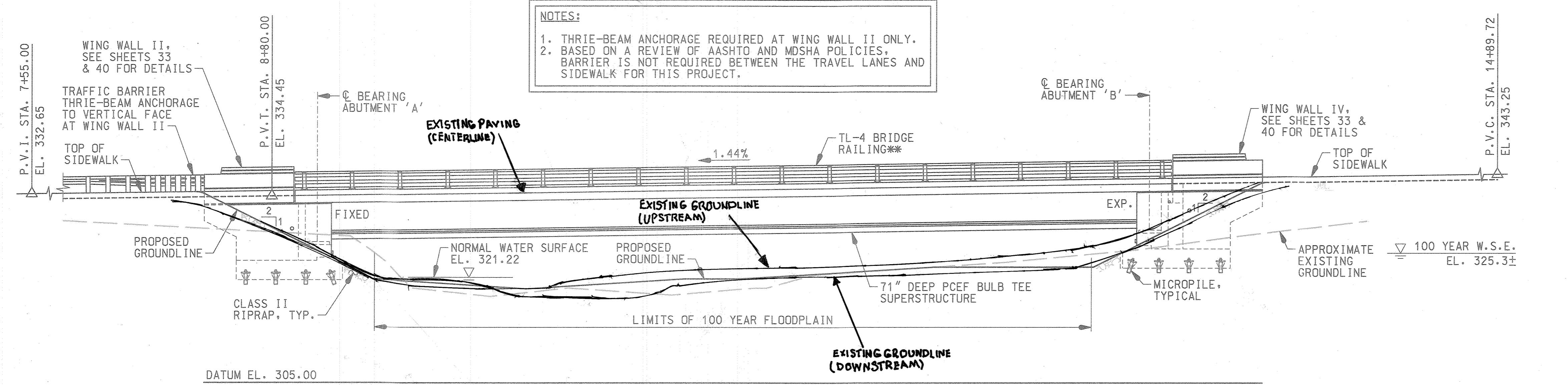
**KEYS:** ALL CONCRETE CONSTRUCTION KEYS ARE NOMINAL SIZE.

**RESTRICTIONS FOR PLACING AND USING STRUCTURE(S) ELEMENTS:** THERE ARE RESTRICTIONS ON PLACING EQUIPMENT ON EXISTING AND NEW STRUCTURE(S) ELEMENTS. THE LIMITATIONS BASICALLY RELATE TO LOADS THAT ARE BEYOND MARYLAND'S LEGAL VEHICLES AND/OR POSTED LOAD LIMITS (WHERE APPLICABLE) AND MATERIALS STOCKPILED ON/OVER AGAINST STRUCTURE'S OR STRUCTURES' ELEMENTS. FOR DETAILS OF SUCH RESTRICTIONS SEE TC6.14 TITLED "RESTRICTIONS FOR PLACING AND USING EQUIPMENT ON STRUCTURES, OR STORING MATERIALS ON/OVER AGAINST STRUCTURES" IN THE CONTRACT DOCUMENTS. IN ORDER TO COMPLY WITH THIS ARTICLE, THE CONTRACTOR SHALL READ TC6.14 PRIOR TO COMMENCING ANY WORK ON STRUCTURE(S) IN THIS CONTRACT.



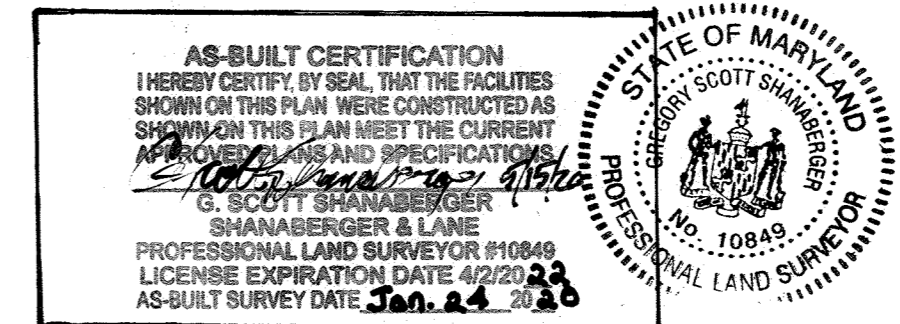
**PLAN**  
SCALE: 1" = 10'

**NOTES:**  
 1. THRIE-BEAM ANCHORAGE REQUIRED AT WING WALL II ONLY.  
 2. BASED ON A REVIEW OF AASHTO AND MSHA POLICIES, BARRIER IS NOT REQUIRED BETWEEN THE TRAVEL LANES AND SIDEWALK FOR THIS PROJECT.



**ELEVATION**  
SCALE: 1" = 10'

\*\* RAILING TO BE POWDER COATED. COLOR TO MATCH SPECTRACOAT COLOR 7016 (BRONZE) OR APPROVED EQUAL. COLOR TO BE CONFIRMED IN WRITING BY OWNER PRIOR TO FABRICATION.



- NOTES:**
- FOR ABUTMENT PLANS AND ELEVATIONS, SEE SHEETS 30 & 31.
  - FOR WING WALL ELEVATIONS, SEE SHEET 33.
  - FOR SUPERSTRUCTURE TYPICAL SECTION, SEE SHEET 35.
  - FOR FRAMING PLAN, SEE SHEET 36.
  - FOR BORINGS AND DRIVE TESTS, SEE SHEETS 37-39.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
 Chief, Bureau of Highways  
 Date: 7/12/2016

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
 Chief, Division of Land Development  
 Date: 8-3-16

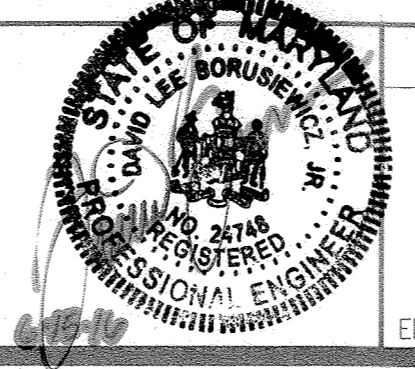
Chief, Development Engineering Division  
 Date: 7-26-16

**FOR PERMITTING - COMPLETE BRIDGE CONSTRUCTION PLANS UNDER SEPARATE SUBMITTAL.**

**WALLACE MONTGOMERY**  
 ENGINEERS-PLANNERS-SURVEYORS-CONSTRUCTION MANAGERS  
 10150 York Road, Suite 200  
 Hunt Valley, Maryland 21030  
 410.494.9000 Fax 410.657.0925  
 www.wallacemontgomery.com

PREPARED FOR:  
 THE HOWARD HUGHES CORPORATION  
 LITTLE PATUXENT PARKWAY  
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 ATTN: BOB JENKINS  
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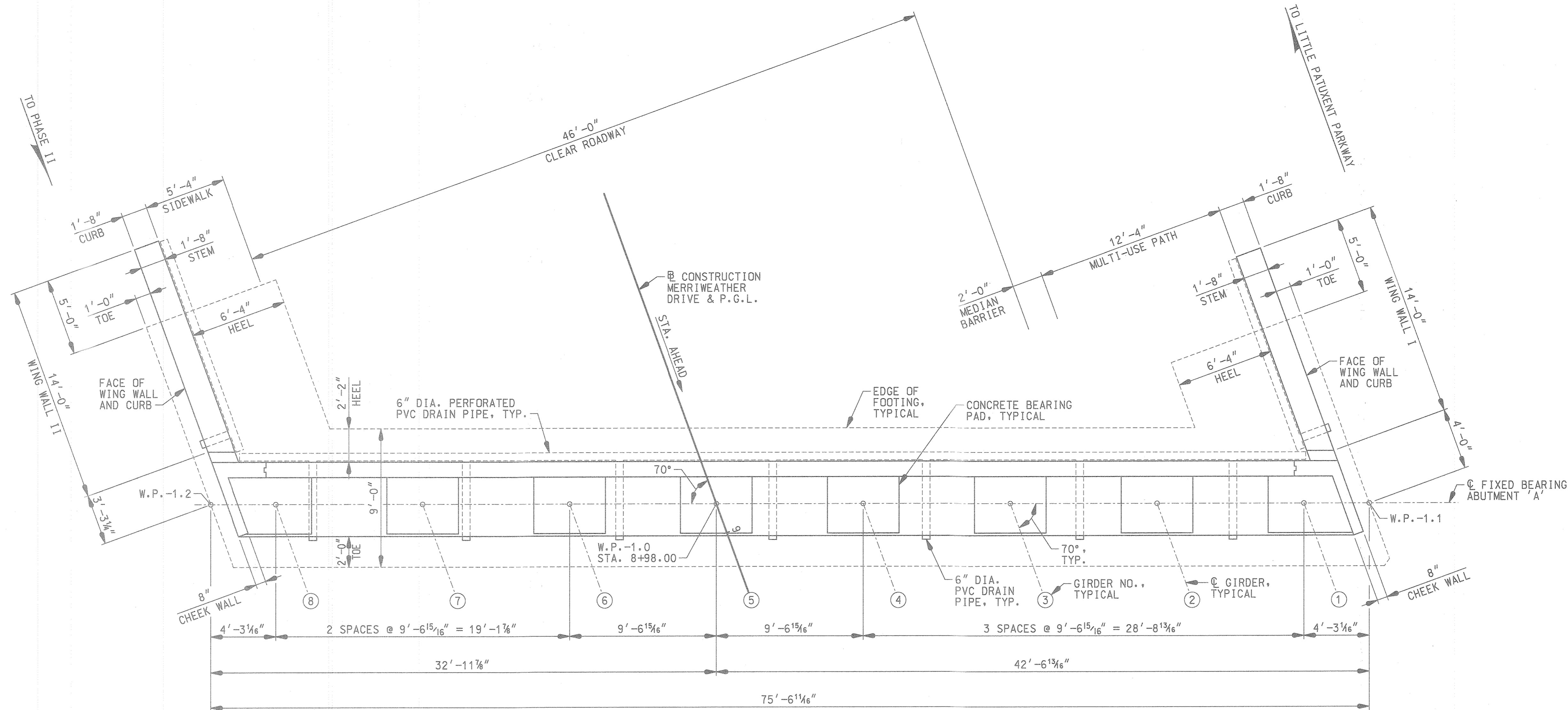
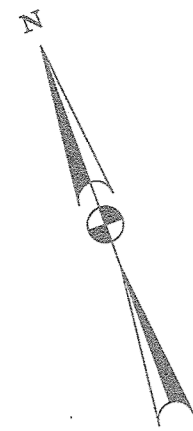
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 EXPIRATION DATE: 1-14-18



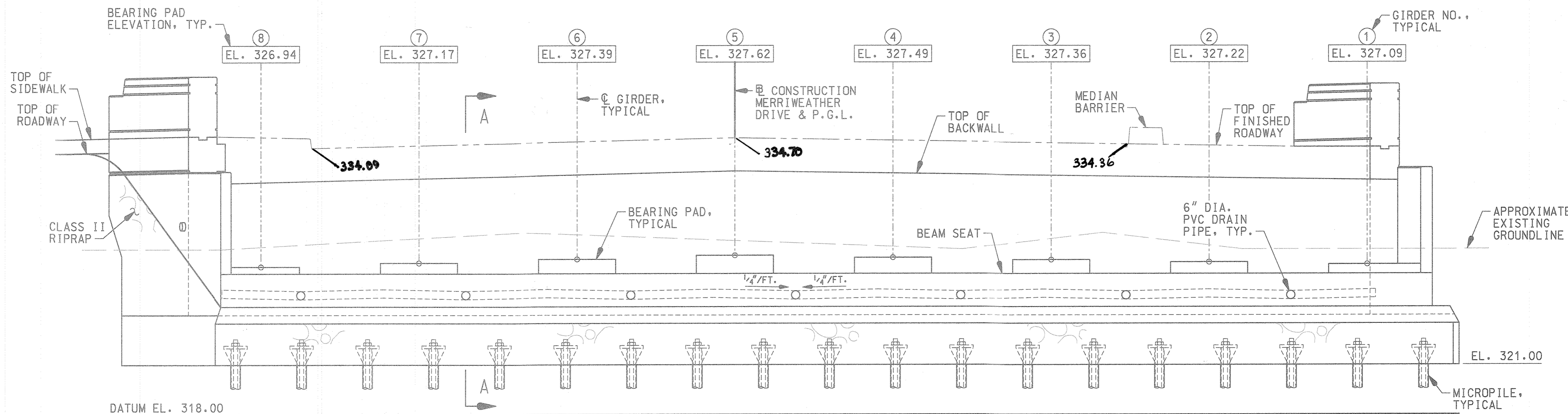
**GENERAL PLAN AND ELEVATION**  
**DOWNTOWN COLUMBIA**  
**CRESCENT NEIGHBORHOOD**  
 PARCELS B THRU H, NON-BUILDABLE BULK PARCELS J THRU R,  
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 HOWARD COUNTY, MARYLAND

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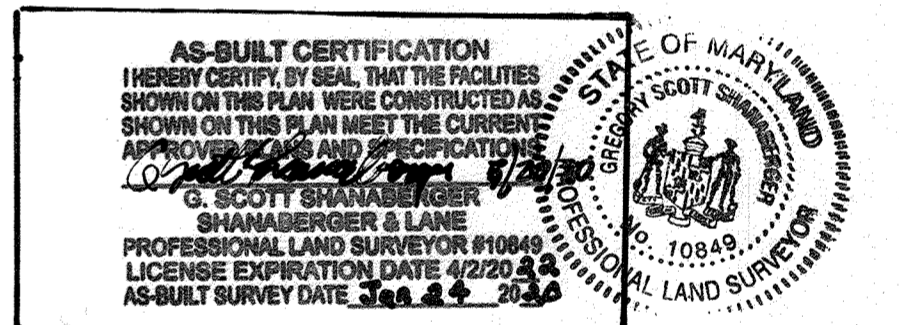




PLAN  
SCALE: 1/4" = 1'-0"



ELEVATION  
SCALE: 1/4" = 1'-0"



- NOTES:
1. FENCE NOT SHOWN FOR CLARITY.
  2. FOR SECTION A-A & TYPICAL BEARING PAD DETAIL, SEE SHEET 32.
  3. FOR WING WALL DETAILS, SEE SHEETS 33 & 34.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*Michael* 7/12/2016  
 Chief, Bureau of Highways

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
*Scott* 3.3.16  
 Chief, Division of Land Development  
*Chad* 7.26.16  
 Chief, Development Engineering Division

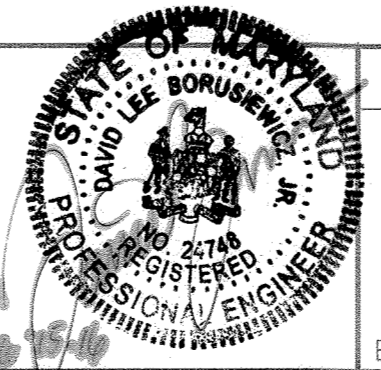
FOR PERMITTING - COMPLETE BRIDGE CONSTRUCTION  
 PLANS UNDER SEPARATE SUBMITTAL.

**WALLACE MONTGOMERY**  
 ENGINEERS-PLANNERS-SURVEYORS-CONSTRUCTION MANAGERS  
 10150 York Road, Suite 200  
 Hunt Valley, Maryland 21030  
 410.494.5053 Tel / 410.957.0925 Fax  
 www.wallacemontgomery.com

DATE	REVISION	BY	APPR.

PREPARED FOR:  
 THE HOWARD HUGHES CORPORATION  
 LITTLE PATUXENT PARKWAY  
 COLUMBIA, MARYLAND 21044  
 ATTN: BOB JENKINS  
 410-964-5443

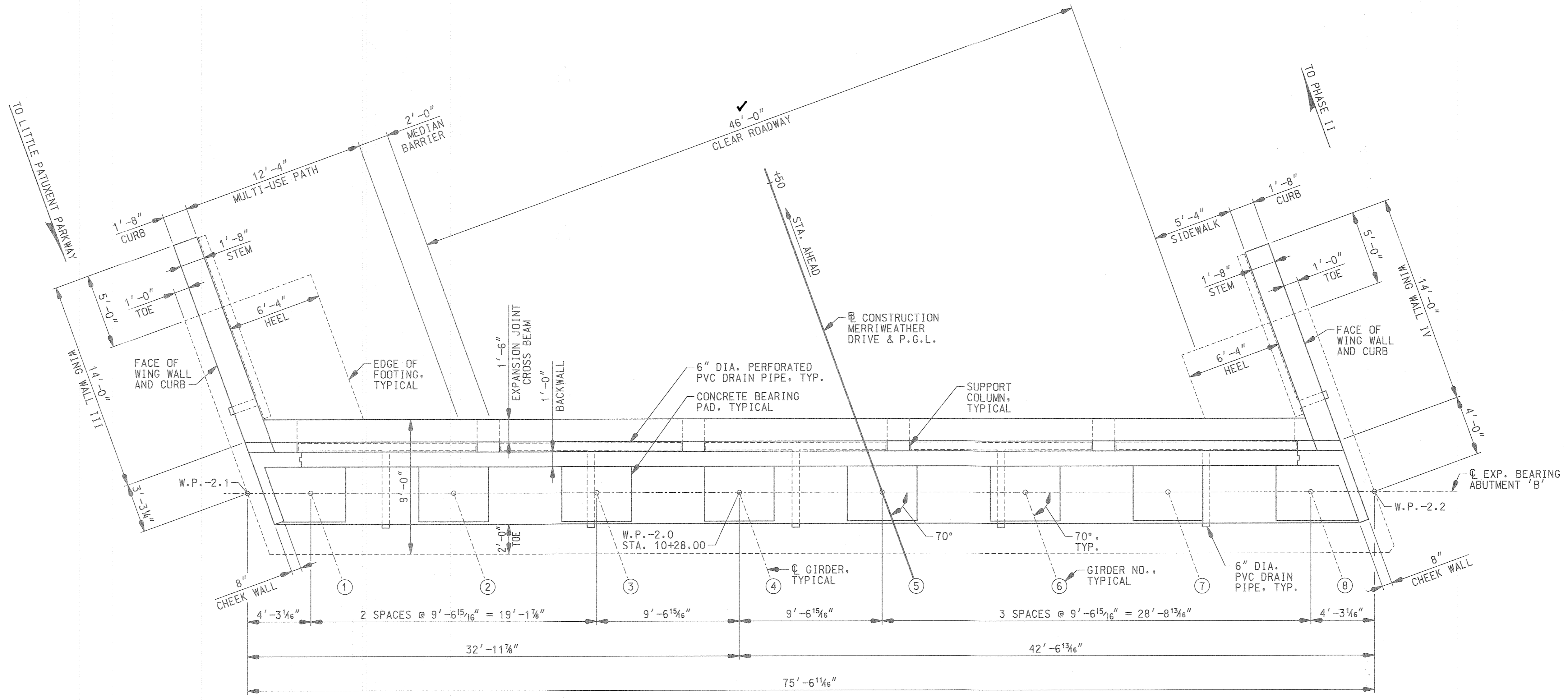
PROFESSIONAL CERTIFICATION  
 I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.  
 LICENSE NO. 24748  
 EXPIRATION DATE: 1-14-18



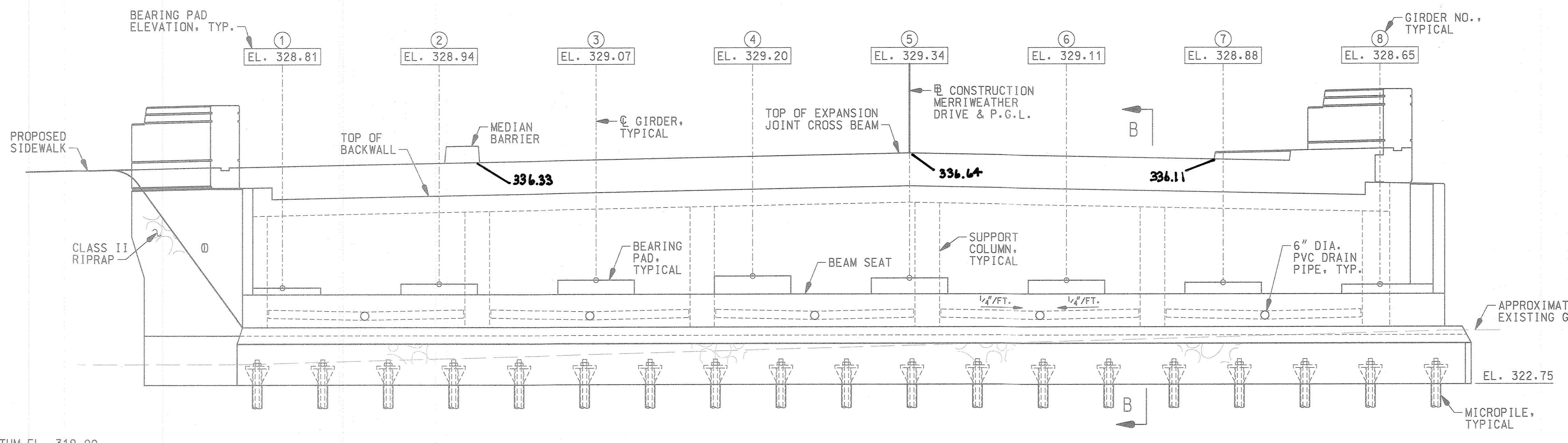
ABUTMENT 'A' PLAN AND ELEVATION  
**DOWNTOWN COLUMBIA**  
 CRESCENT NEIGHBORHOOD  
 PARCELS B THRU H, NON-BUILDABLE BULK PARCELS J THRU R,  
 O.S. LOTS 1 THRU 8 AND  
 MERRIWEATHER-SYMPHONY WOODS NEIGHBORHOOD O.S. LOT 1  
 AND NON-BUILDABLE BULK PARCEL A  
 HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	NT	11071
DATE	TAX MAP - GRID	SHEET
JUNE 2016	36 - 01	30 OF 102





PLAN  
SCALE: 1/4" = 1'-0"



ELEVATION  
SCALE: 1/4" = 1'-0"

AS-BUILT CERTIFICATION  
I HEREBY CERTIFY BY SEAL THAT THE FACILITIES SHOWN ON THIS PLAN WERE CONSTRUCTED IN ACCORDANCE WITH THE APPROVED PLANS AND SPECIFICATIONS OF THE PROJECT.  
G. SCOTT SHANABARGER, P.E.  
SHANABARGER & LANE  
PROFESSIONAL LAND SURVEYOR  
LICENSE EXPIRATION DATE 4/22/2014  
AS-BUILT SURVEY DATE Jan. 21, 2014

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*Ormeau* 2/12/2016  
Chief, Bureau of Highways

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
*Kestelove* 3-16  
Chief, Division of Land Development

*Chad E. Clark* 7-26-16  
Chief, Development Engineering Division

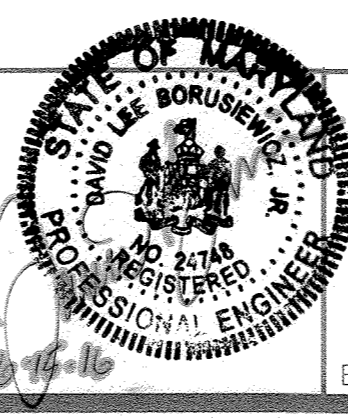
FOR PERMITTING - COMPLETE BRIDGE CONSTRUCTION  
PLANS UNDER SEPARATE SUBMITTAL.

**WALLACE MONTGOMERY**  
ENGINEERS-PLANNERS-SURVEYORS-CONSTRUCTION MANAGERS  
10150 York Road, Suite 200  
Hunt Valley, Maryland 21030  
410-994-5093 Tel / 410-997-0925 Fax  
www.wallacemontgomery.com

DATE	REVISION	BY	APP'R.

PREPARED FOR:  
THE HOWARD HUGHES CORPORATION  
LITTLE PATUXENT PARKWAY  
COLUMBIA, MARYLAND 21044  
ATTN: BOB JENKINS  
410-964-5443

PROFESSIONAL CERTIFICATION  
I HEREBY CERTIFY THAT THESE PLANS 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. 24748  
EXPIRATION DATE: 1-14-18

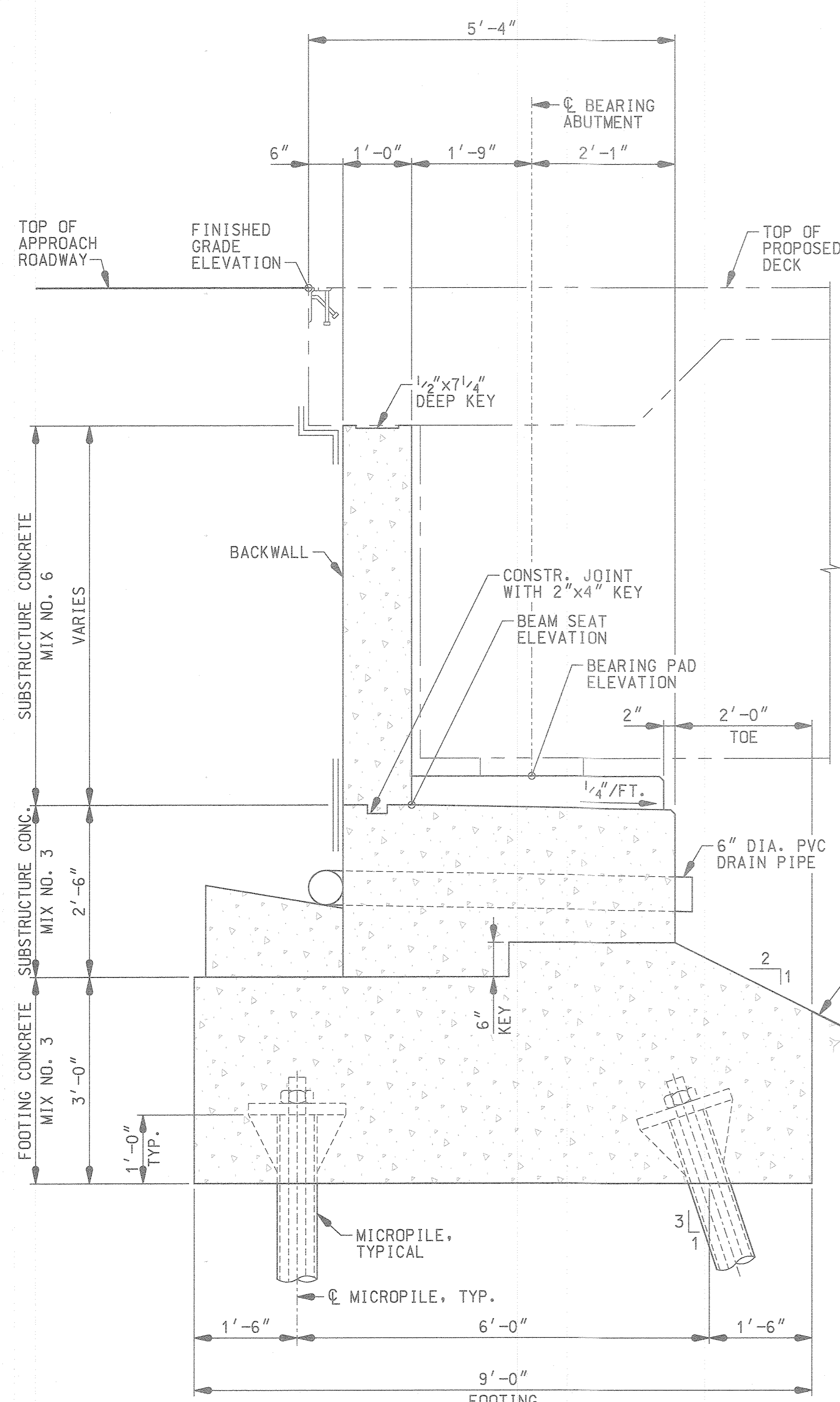


ABUTMENT 'B' PLAN AND ELEVATION  
DOWNTOWN COLUMBIA  
CRESCENT NEIGHBORHOOD  
PARCELS B THRU H, NON-BUILDABLE BULK PARCELS J THRU R,  
O.S. LOTS I THRU 8 AND  
MERRIWEATHER-SYMPHONY WOODS NEIGHBORHOOD O.S. LOT 1  
AND NON-BUILDABLE BULK PARCEL A

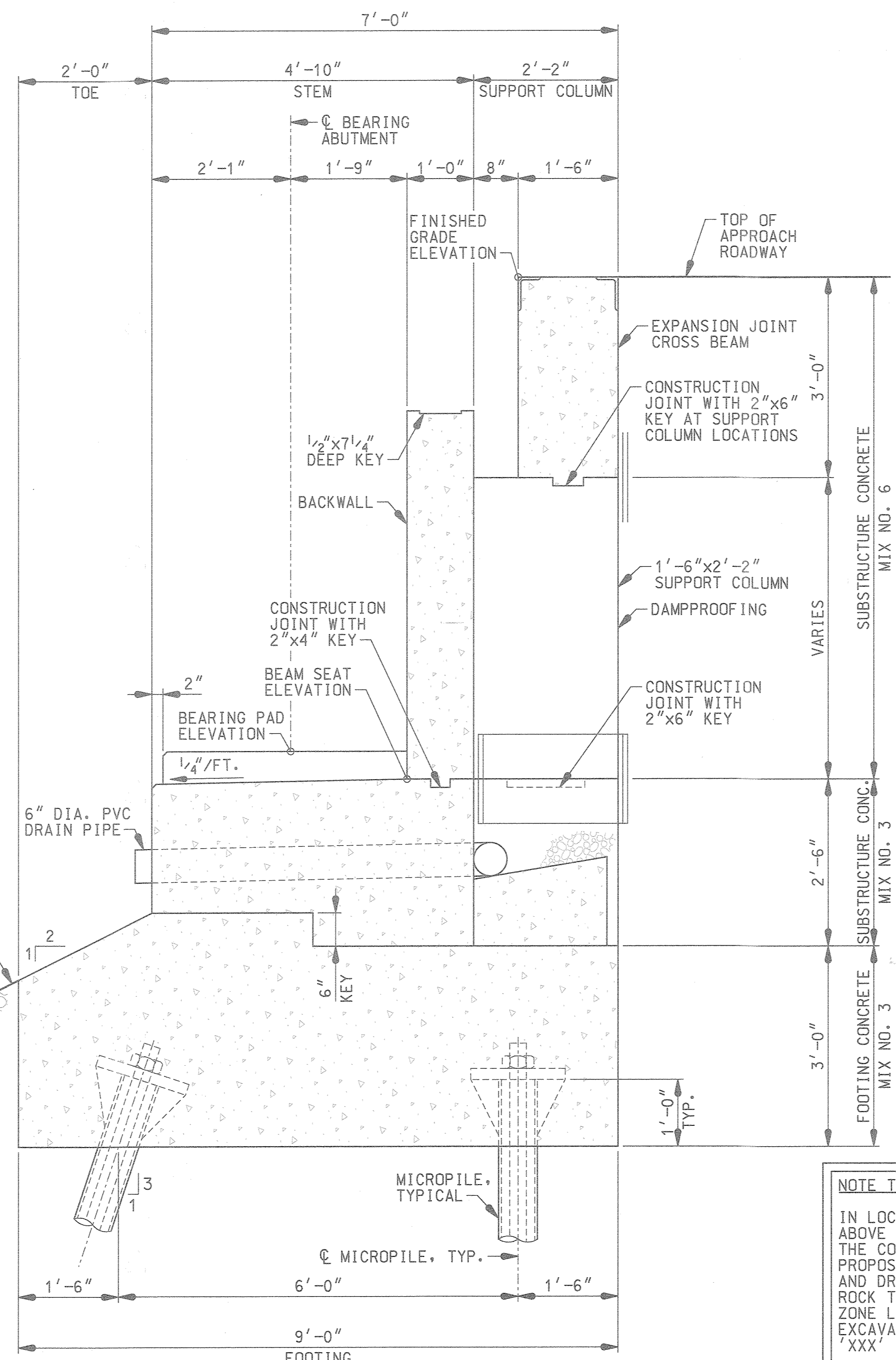
SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	NT	11071
DATE	TAX MAP - GRID	SHEET
JUNE 2016	36 - 01	31 OF 102

- NOTES:
- FOR SECTION B-B AND TYPICAL BEARING PAD DETAIL, SEE SHEET 32.
  - FOR WING WALL DETAILS, SEE SHEETS 33 & 34.

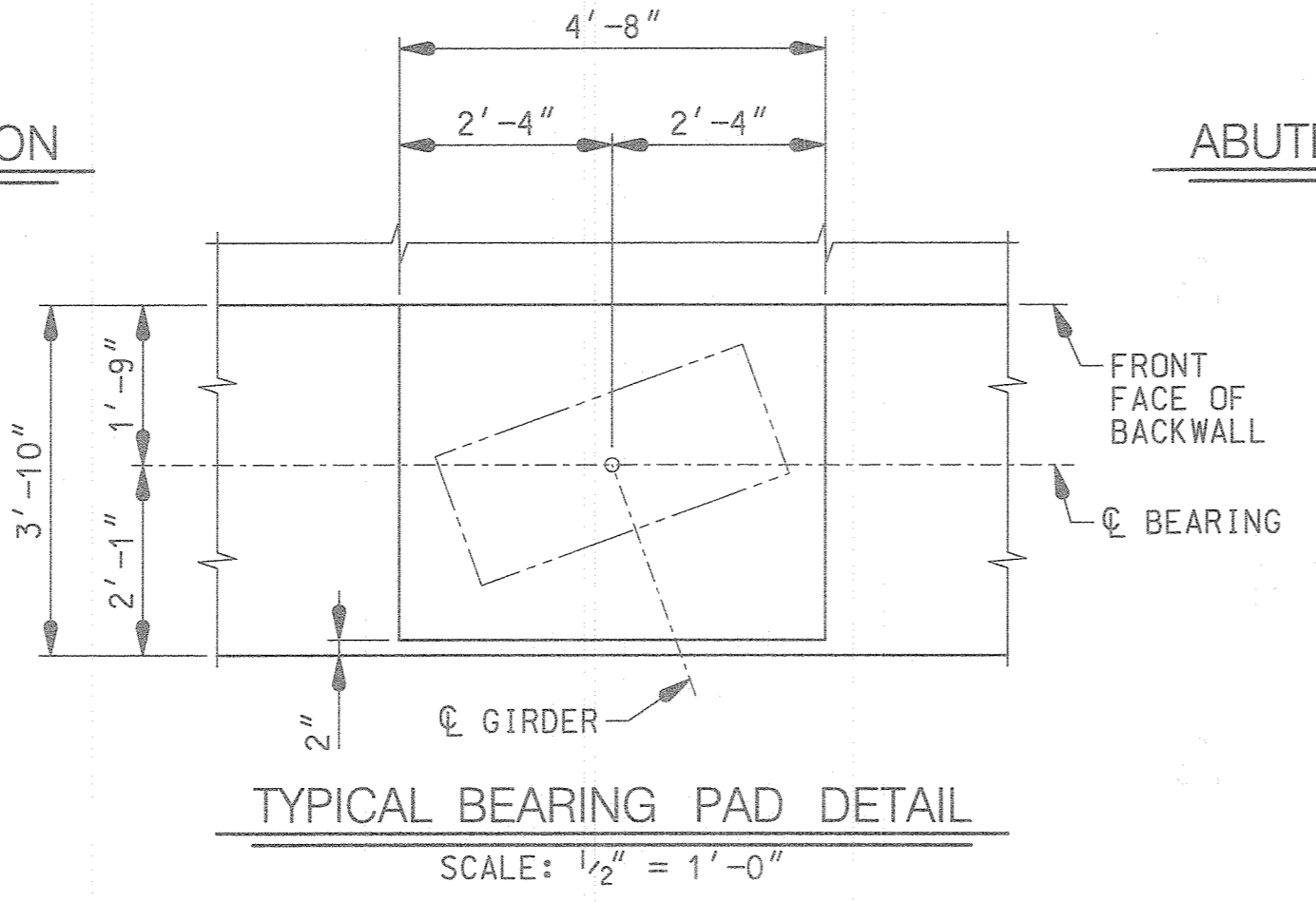




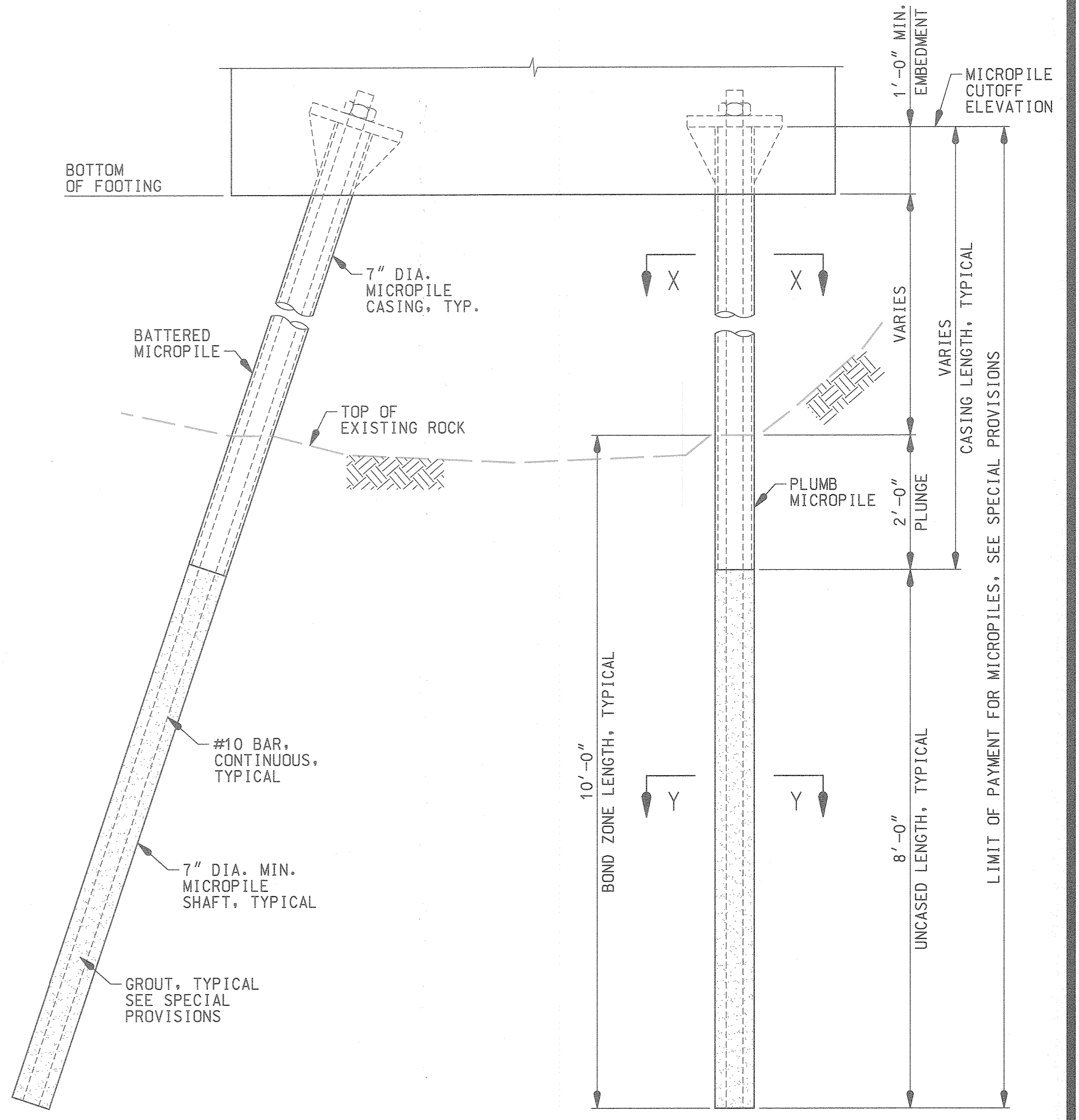
SECTION A-A  
 ABUTMENT 'A' TYPICAL SECTION  
 SCALE: 3/4" = 1'-0"



SECTION B-B  
 ABUTMENT 'B' TYPICAL SECTIONS  
 SCALE: 3/4" = 1'-0"

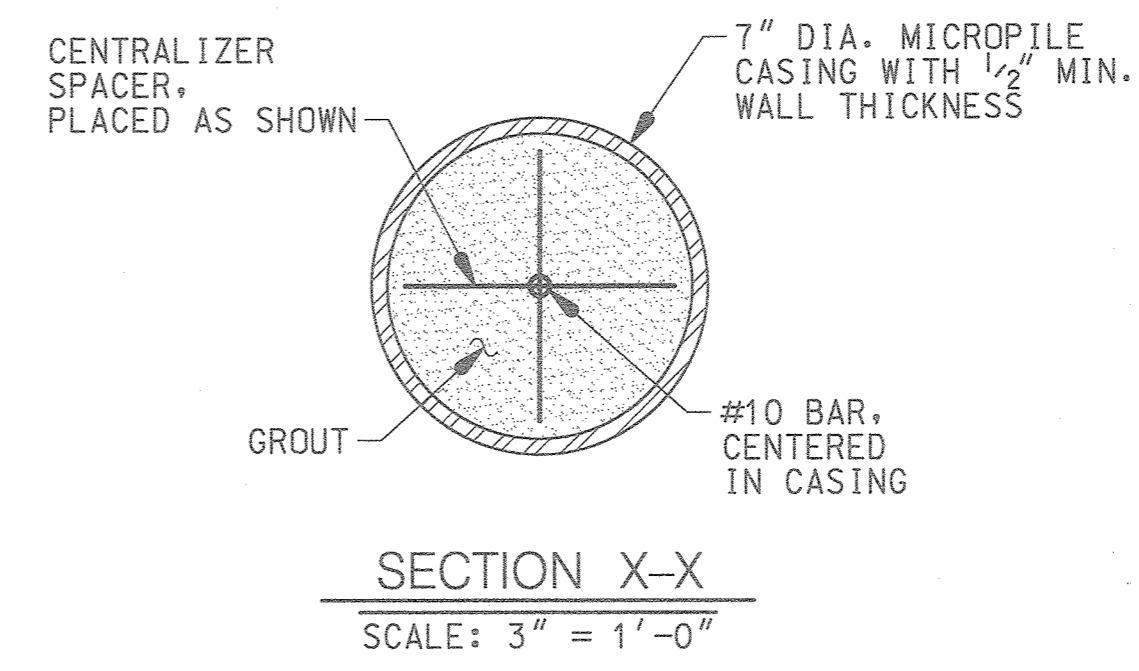


TYPICAL BEARING PAD DETAIL  
 SCALE: 1/2" = 1'-0"

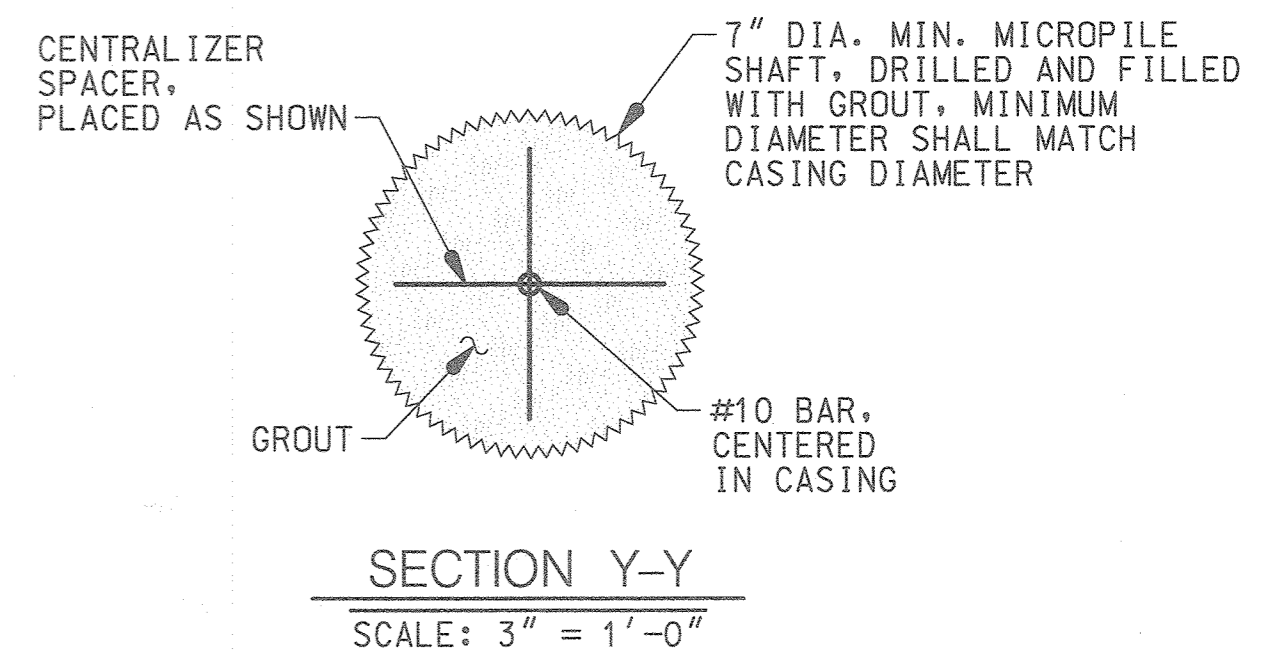


TYPICAL MICROPILE DETAIL  
 SCALE: 3/4" = 1'-0"

**NOTE TO CONTRACTOR:**  
 IN LOCATIONS WHERE ROCK IS ENCOUNTERED ABOVE THE PROPOSED BOTTOM OF FOOTING, THE CONTRACTOR SHALL EXCAVATE TO THE PROPOSED BOTTOM OF FOOTING ELEVATION AND DRILL 10'-0" MIN. INTO EXISTING ROCK TO ESTABLISH THE REQUIRED BOND ZONE LENGTH. COST TO PERFORM ROCK EXCAVATION SHALL BE INCLUDED IN THE 'XXX' PAY ITEM.



SECTION X-X  
 SCALE: 3" = 1'-0"



SECTION Y-Y  
 SCALE: 3" = 1'-0"

- NOTES:**
1. FOR LOCATION OF SECTION A-A, SEE SHEET 30.
  2. FOR LOCATION OF SECTION B-B, SEE SHEET 31.

STATE OF MARYLAND  
 PROFESSIONAL LAND SURVEYOR  
 Scott Shanabarger  
 Professional L.S. # 10949 Exp. Date 4/2/2022  
 AS-BUILT DATE: 3/21/2020

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
 Chief, Bureau of Highways  
 Date: 7/12/2016

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
 Chief, Division of Land Development  
 Date: 8-3-16

Chief, Development Engineering Division  
 Date: 7-26-16

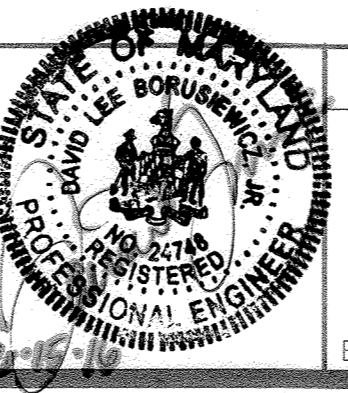
**FOR PERMITTING - COMPLETE BRIDGE CONSTRUCTION PLANS UNDER SEPARATE SUBMITTAL.**

WALLACE MONTGOMERY  
 ENGINEERS-PLANNERS-SURVEYORS-CONSTRUCTION MANAGERS  
 10150 York Road, Suite 200  
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 410-494-5093 Tel / 410-357-0925 Fax  
 www.wallacemontgomery.com

DATE	REVISION	BY	APPR.

PREPARED FOR:  
 THE HOWARD HUGHES CORPORATION  
 LITTLE PATUXENT PARKWAY  
 COLUMBIA, MARYLAND 21044  
 ATTN: BOB JENKINS  
 410-964-5443

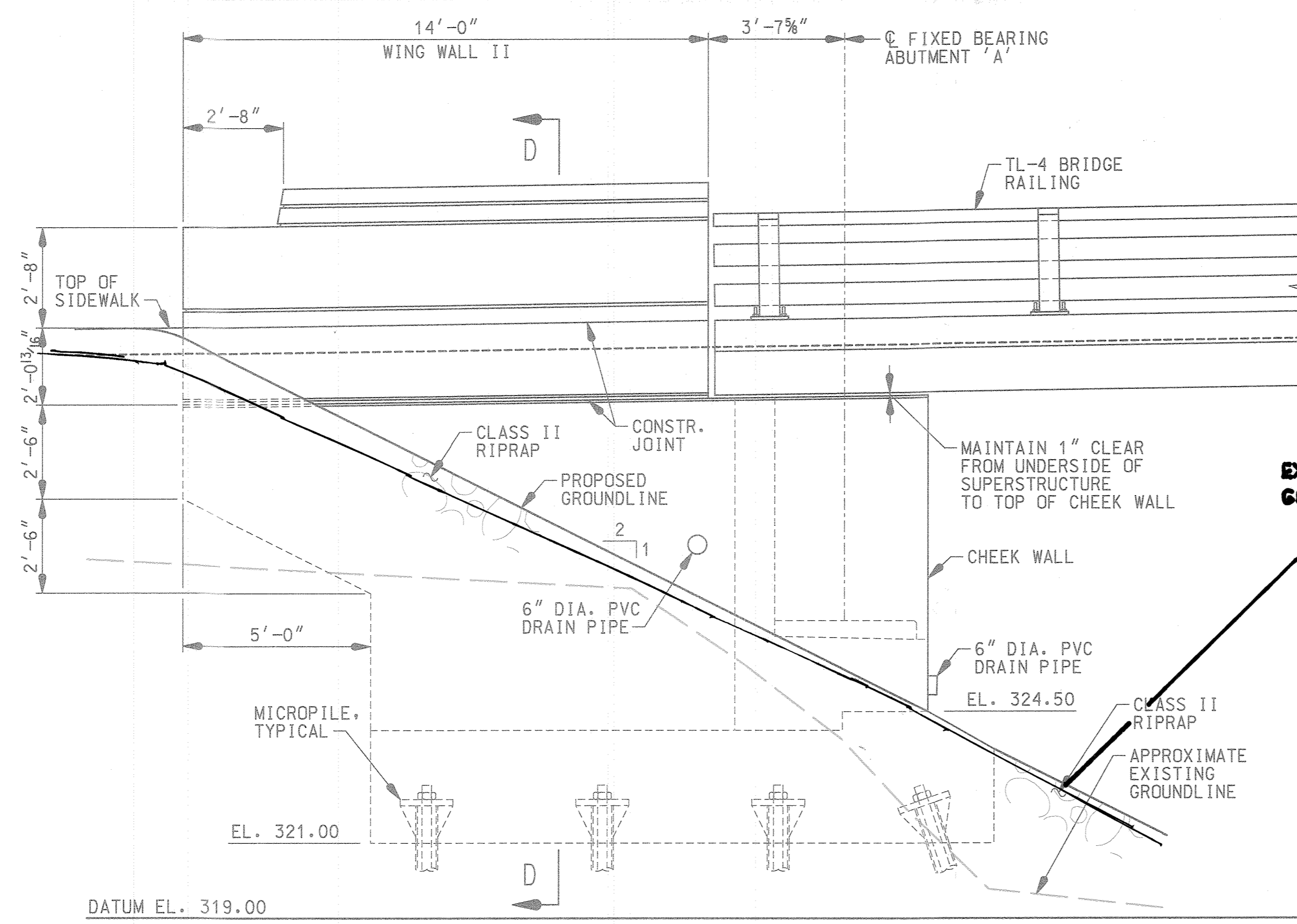
PROFESSIONAL CERTIFICATION  
 I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.  
 LICENSE NO. 24748  
 EXPIRATION DATE: 1-14-18



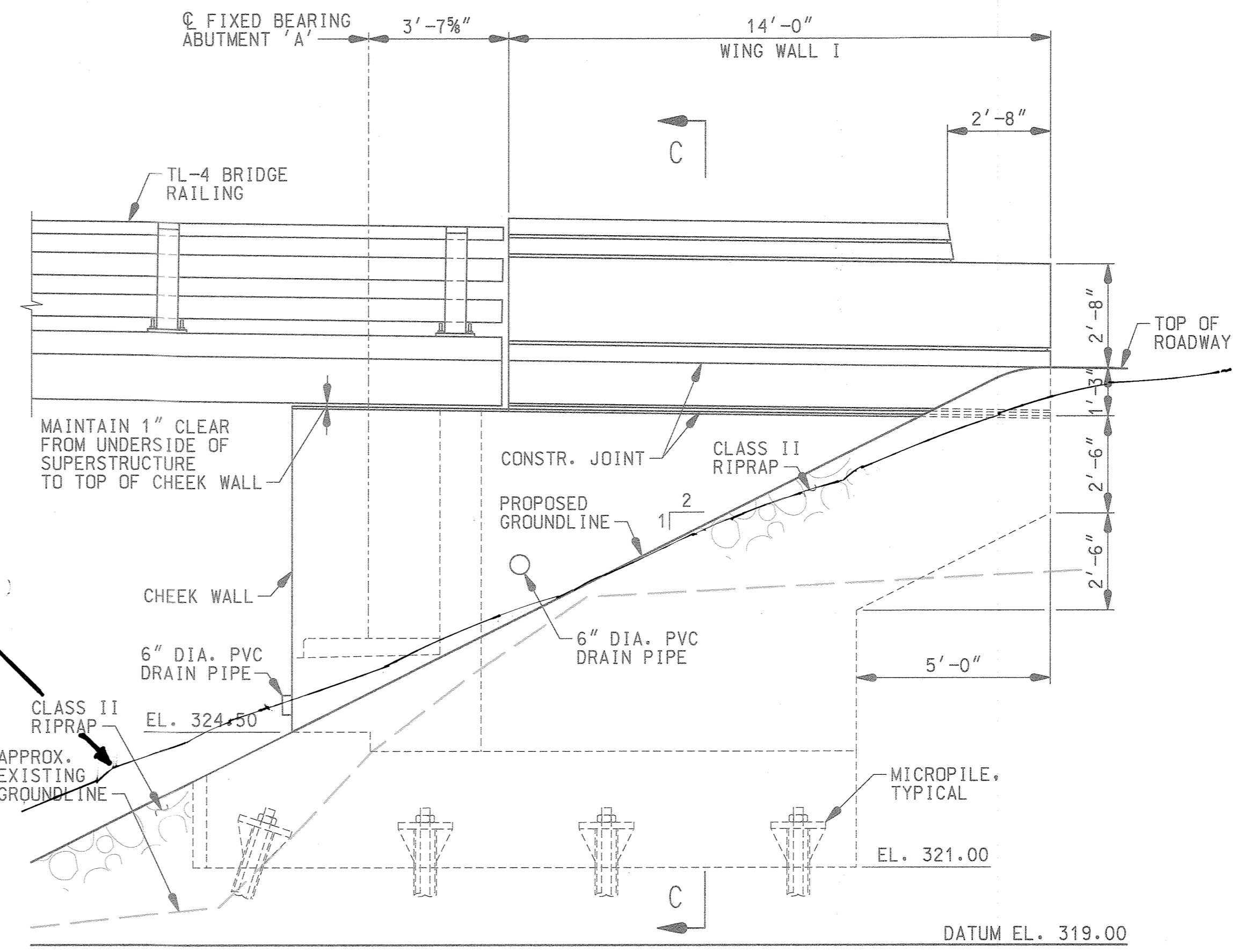
ABUTMENT TYPICAL SECTIONS  
 DOWNTOWN COLUMBIA  
 CRESCENT NEIGHBORHOOD  
 PARCELS B THRU H, NON-BUILDABLE BULK PARCELS J THRU R,  
 O.S. LOTS 1 THRU 8 AND  
 MERRIWEATHER-SYMPHONY WOODS NEIGHBORHOOD O.S. LOT 1  
 AND NON-BUILDABLE BULK PARCEL A  
 HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	NT	11071
DATE	TAX MAP - GRID	SHEET
JUNE 2016	36 - 01	32 OF 102

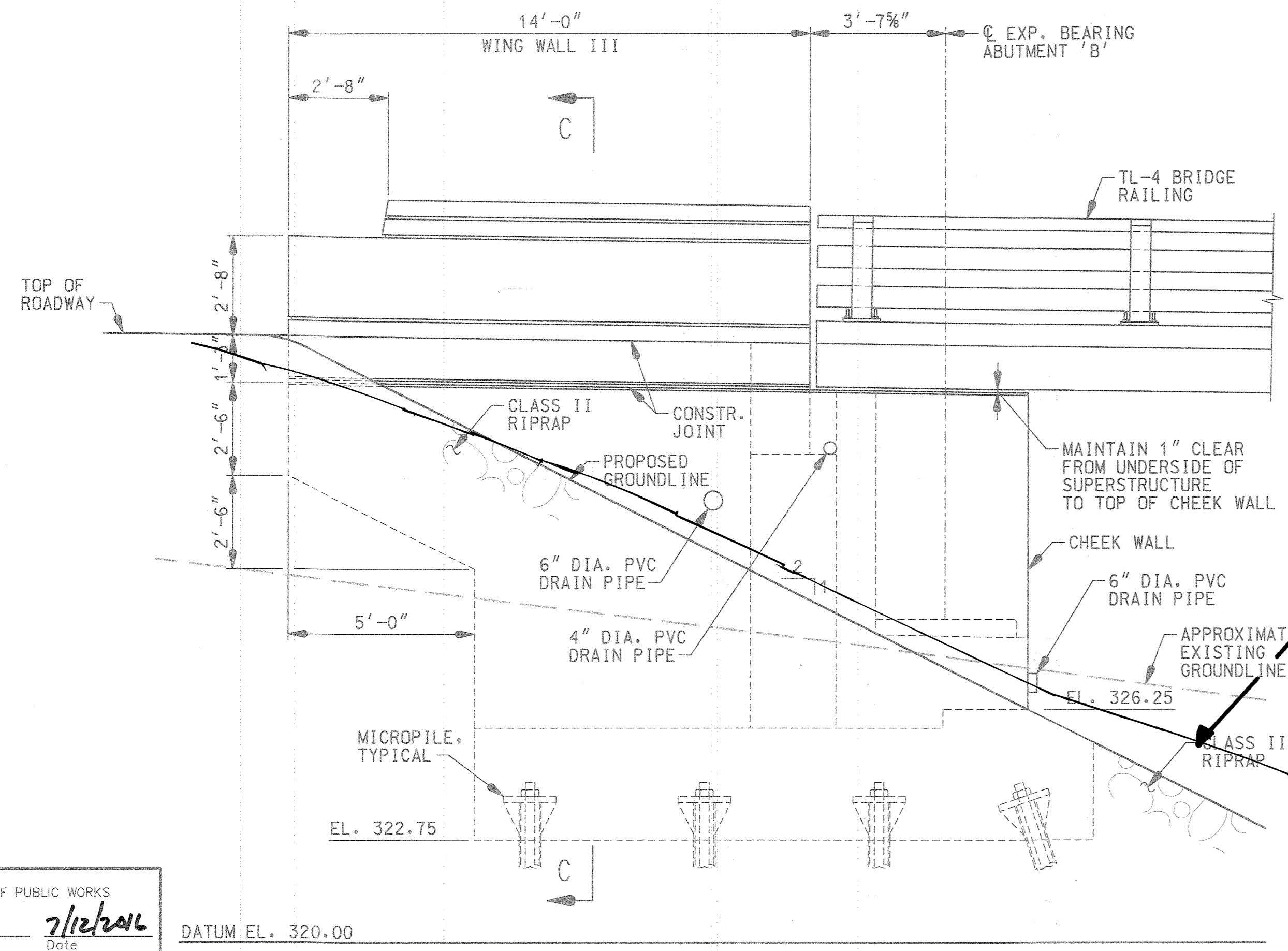




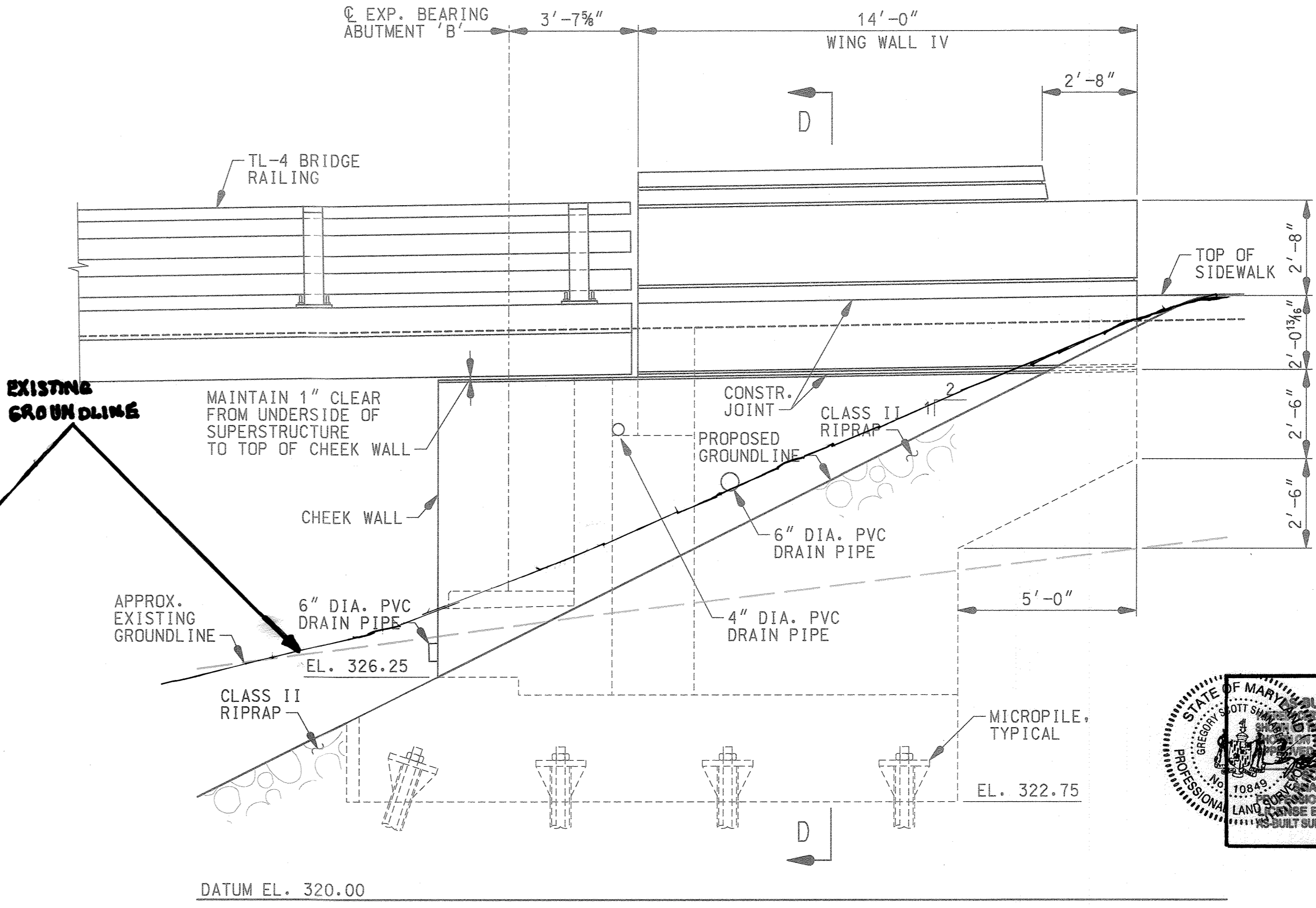
**WING WALL II**  
SCALE: 3/8" = 1'-0"



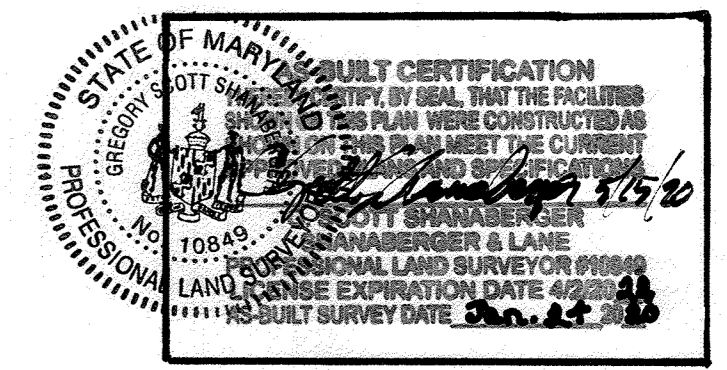
**WING WALL I**  
SCALE: 3/8" = 1'-0"



**WING WALL III**  
SCALE: 3/8" = 1'-0"



**WING WALL IV**  
SCALE: 3/8" = 1'-0"



APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*[Signature]* 7/12/2016  
Chief, Bureau of Highways Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
*[Signature]* 2-3-16  
Chief, Division of Land Development Date

*[Signature]* 7-26-16  
Chief, Development Engineering Division Date

**FOR PERMITTING - COMPLETE BRIDGE CONSTRUCTION PLANS UNDER SEPARATE SUBMITTAL.**

**WALLACE MONTGOMERY**  
ENGINEERS-PLANNERS-SURVEYORS-CONSTRUCTION MANAGERS  
10150 York Road, Suite 200  
Hunt Valley, Maryland 21030  
410.404.9083 Tel / 410.957.0825 Fax  
www.wallacemontgomery.com A Limited Liability Partnership

DATE	REVISION	BY	APP'R.

PREPARED FOR:  
THE HOWARD HUGHES CORPORATION  
LITTLE PATUXENT PARKWAY  
COLUMBIA, MARYLAND 21044  
ATTN: BOB JENKINS  
410-964-5443

PROFESSIONAL CERTIFICATION  
I HEREBY CERTIFY THAT THESE PLANS 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. 22748  
EXPIRATION DATE: 1-14-18

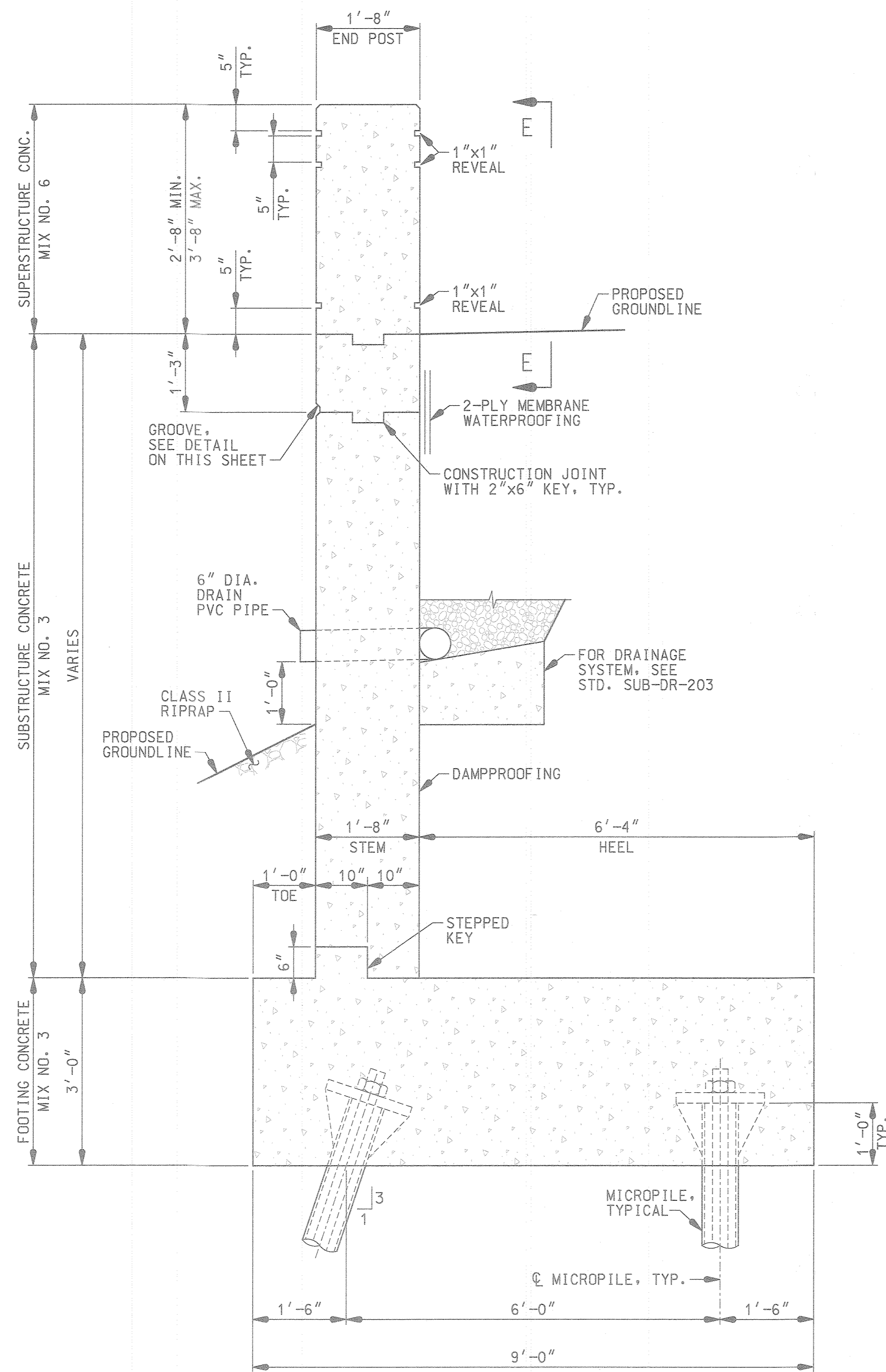


**WING WALL ELEVATIONS**  
**DOWNTOWN COLUMBIA**  
**CRESCENT NEIGHBORHOOD**  
PARCELS B THRU H, NON-BUILDABLE BULK PARCELS J THRU R,  
O.S. LOTS 1 THRU 8 AND  
MERRIWEATHER-SYMPHONY WOODS NEIGHBORHOOD O.S. LOT 1  
AND NON-BUILDABLE BULK PARCEL A  
ELECTION DISTRICT No. 5  
HOWARD COUNTY, MARYLAND

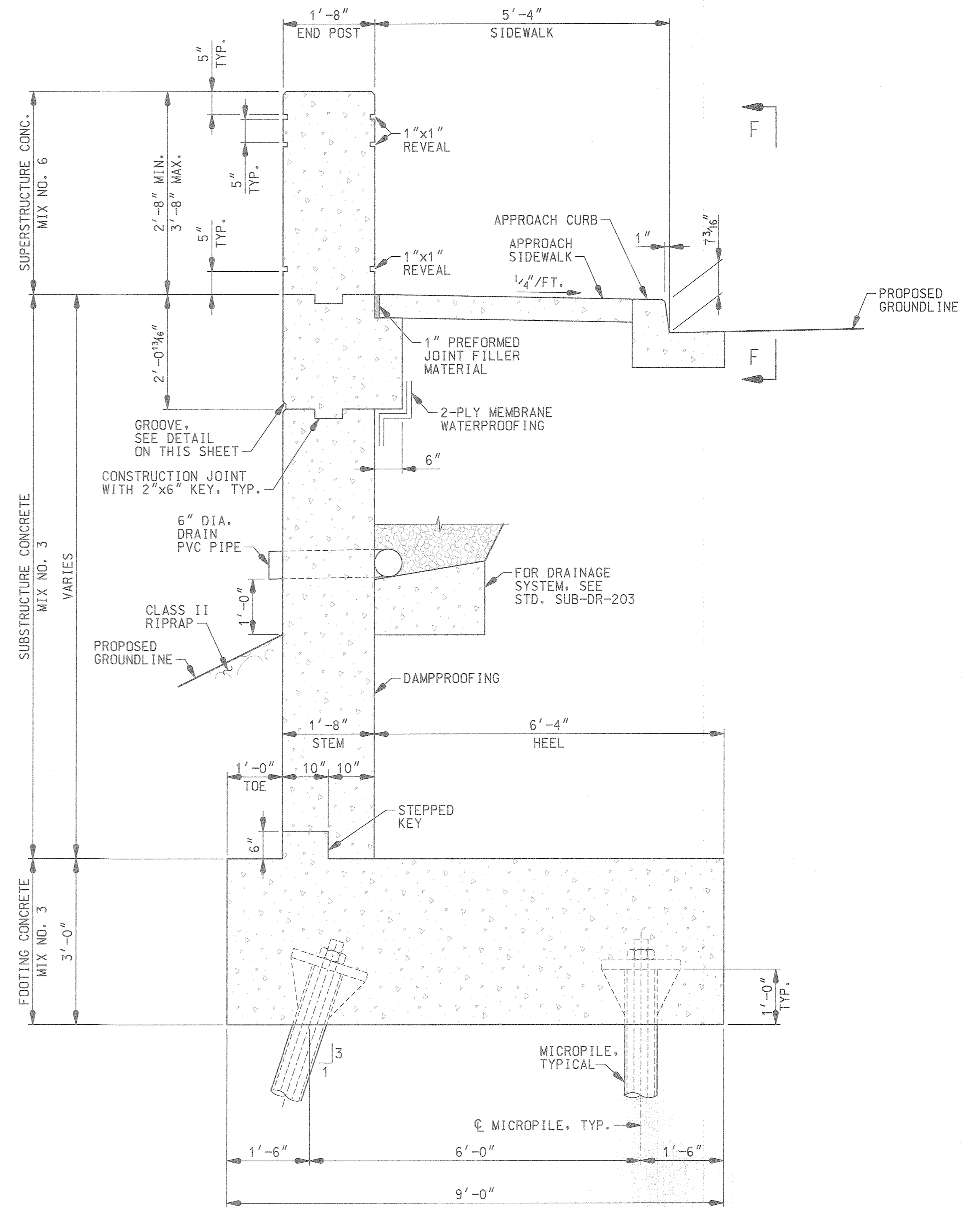
SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	NT	11071
DATE	TAX MAP - GRID	SHEET
JUNE 2016	36 - 01	33 OF 102

NOTE:  
FOR SECTIONS C-C & D-D, SEE SHEET 34.

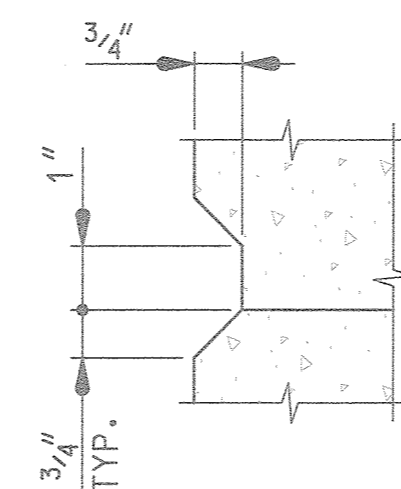




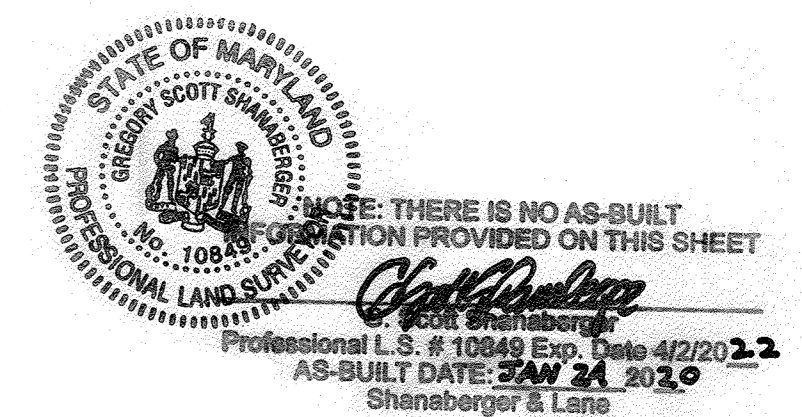
SECTION C-C  
SCALE: 3/4" = 1'-0"



SECTION D-D  
SCALE: 3/4" = 1'-0"



GROOVE DETAIL  
SCALE: 3" = 1'-0"



- NOTES:
- FOR LOCATION OF SECTION C-C AND SECTION D-D, SEE SHEET 33.
  - FOR VIEWS E-E AND F-F, SEE SHEET 40.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*Howard* 7/16/2016  
 Chief, Bureau of Highways Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
*Watt* 8-3-16  
 Chief, Division of Land Development Date  
*Ed* 7-26-16  
 Chief, Development Engineering Division Date

FOR PERMITTING - COMPLETE BRIDGE CONSTRUCTION  
 PLANS UNDER SEPARATE SUBMITTAL.



PREPARED FOR:  
 THE HOWARD HUGHES CORPORATION  
 LITTLE PATUXENT PARKWAY  
 COLUMBIA, MARYLAND 21044  
 ATTN: BOB JENKINS  
 410-964-5443

PROFESSIONAL CERTIFICATION  
 I HEREBY CERTIFY THAT THESE PLANS  
 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. 24748  
 EXPIRATION DATE: 1-14-18



WING WALL TYPICAL SECTIONS  
 DOWNTOWN COLUMBIA  
 CRESCENT NEIGHBORHOOD  
 PARCELS B THRU H, NON-BUILDABLE BULK PARCELS J THRU R,  
 O.S. LOTS 1 THRU 8 AND  
 MERRIWEATHER-SYMPHONY WOODS NEIGHBORHOOD O.S. LOT 1  
 AND NON-BUILDABLE BULK PARCEL A

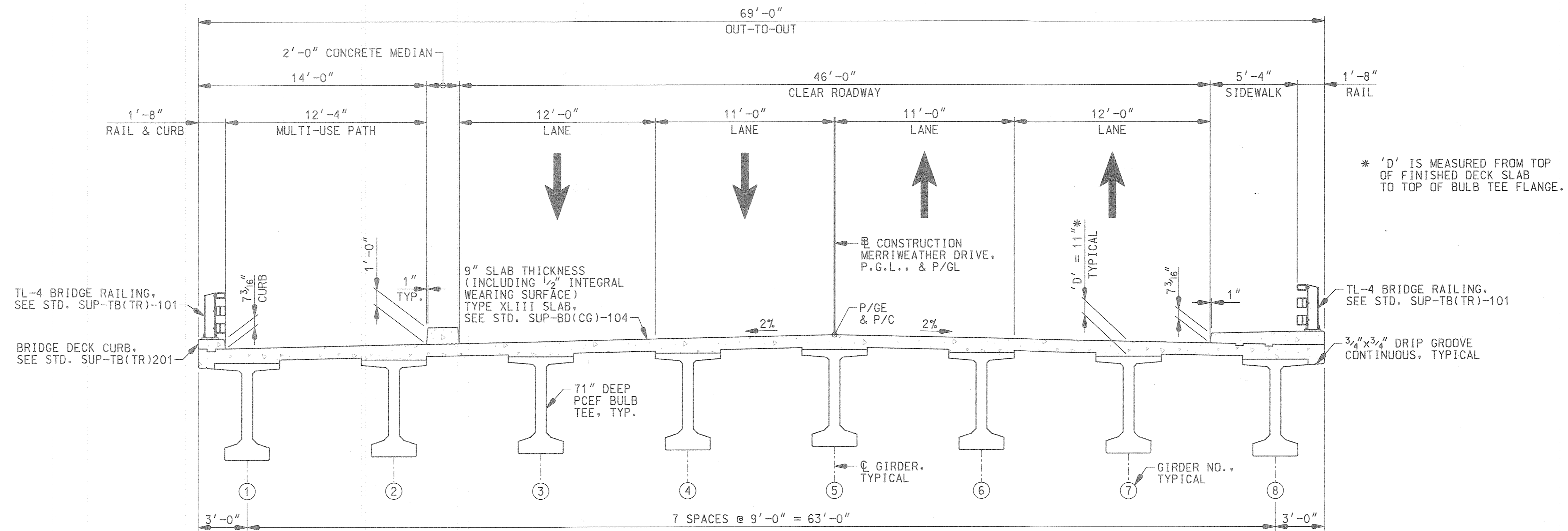
SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	NT	11071
DATE	TAX MAP - GRID	SHEET
JUNE 2016	36 - 01	34 OF 102

DES. GJC DRN. DED CHK. DATE REVISION BY APPR.

ELECTION DISTRICT No. 5

HOWARD COUNTY, MARYLAND

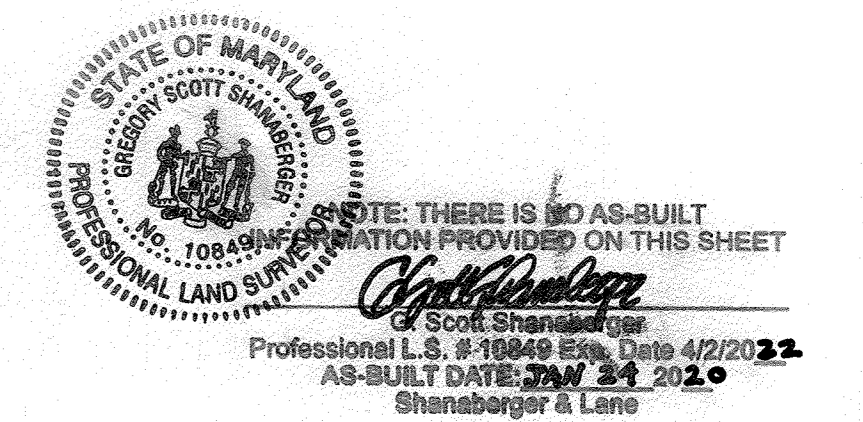




**SUPERSTRUCTURE TYPICAL SECTION**  
SCALE: 1/4" = 1'-0"

**NOTE:**

INTERMEDIATE CONCRETE DIAPHRAGM NOT SHOWN FOR CLARITY. FOR DETAILS, SEE STD. SUP-CG(DIA)-105.



NOTE: THERE IS NO AS-BUILT INFORMATION PROVIDED ON THIS SHEET  
Professional L.S. # 24748 Exp. Date 4/2/2022  
AS-BUILT DATE: 07/24/2020  
Shenabarger & Lane

NOTE:  
FOR FRAMING PLAN, SEE SHEET 36.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*M. Meunier* 7/12/2016  
Chief, Bureau of Highways Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
*V. Shalosh* 8-2-16  
Chief, Division of Land Development Date

*C. P. P.* 7-26-16  
Chief, Development Engineering Division Date

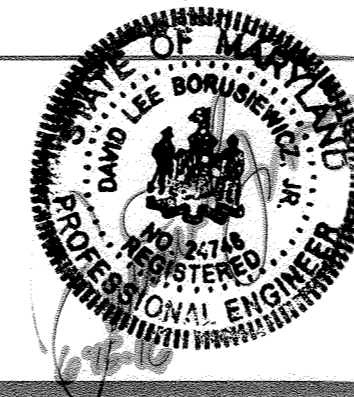
**FOR PERMITTING - COMPLETE BRIDGE CONSTRUCTION PLANS UNDER SEPARATE SUBMITTAL.**



DATE	REVISION	BY	APPR.

PREPARED FOR:  
THE HOWARD HUGHES CORPORATION  
LITTLE PATUXENT PARKWAY  
COLUMBIA, MARYLAND 21044  
ATTN: BOB JENKINS  
410-964-5443

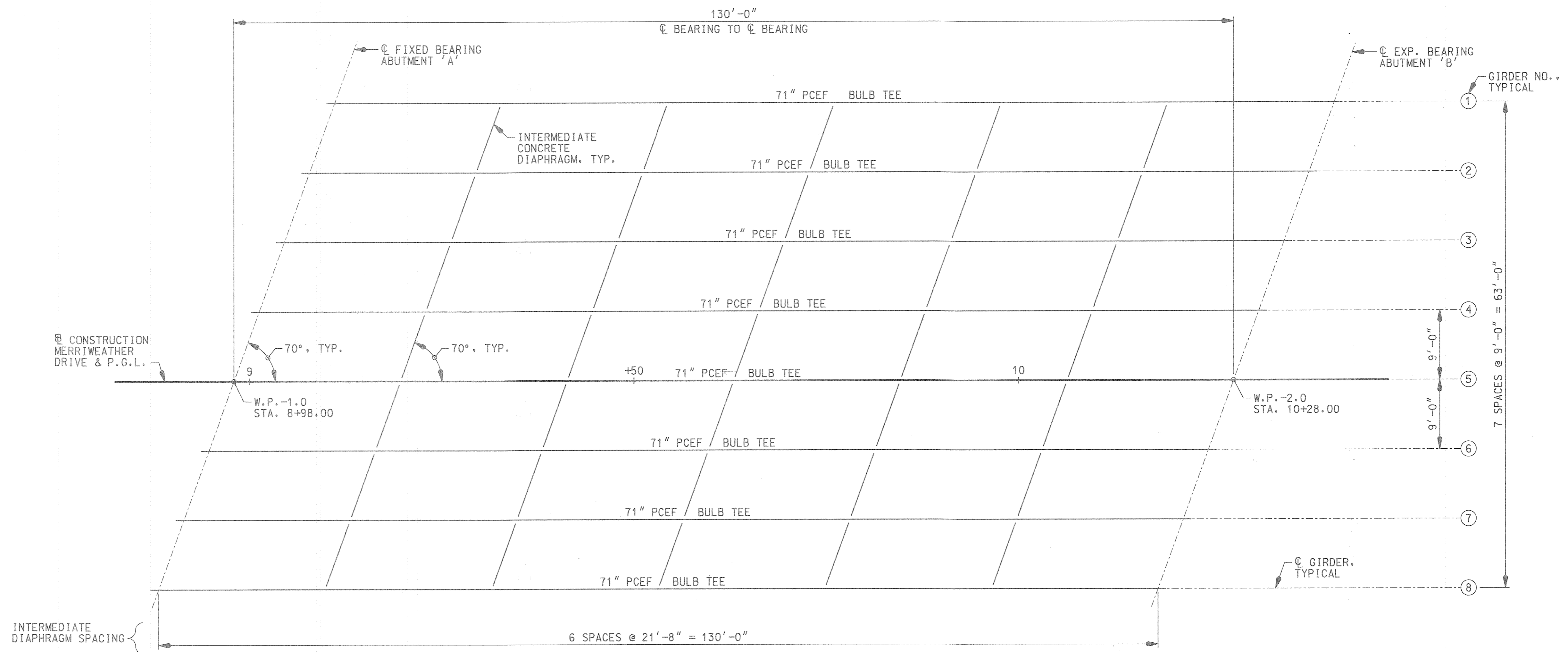
PROFESSIONAL CERTIFICATION  
I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 24748  
EXPIRATION DATE: 1-14-18



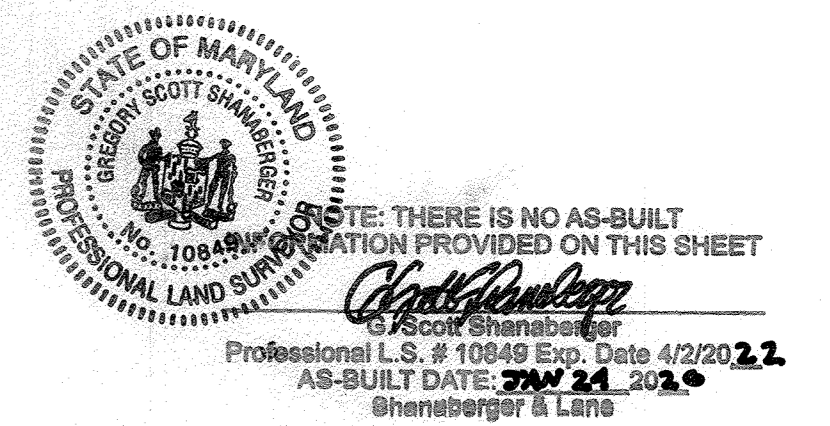
**SUPERSTRUCTURE TYPICAL SECTION**  
**DOWNTOWN COLUMBIA CRESCENT NEIGHBORHOOD**  
PARCELS B THRU H, NON-BUILDABLE BULK PARCELS J THRU R, O.S. LOTS 1 THRU 8 AND MERRIWEATHER-SYMPHONY WOODS NEIGHBORHOOD O.S. LOT 1 AND NON-BUILDABLE BULK PARCEL A  
HOWARD COUNTY, MARYLAND  
ELECTION DISTRICT No. 5

SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	NT	11071
DATE	TAX MAP - GRID	SHEET
JUNE 2016	36 - 01	35 OF 102





FRAMING PLAN  
SCALE: 1/8" = 1'-0"



- NOTES:
1. FOR SUPERSTRUCTURE TYPICAL SECTION, SEE SHEET 35.
  2. FOR INTERMEDIATE CONCRETE DIAPHRAGM, SEE STD. SUP-CG(DIA)-105.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*[Signature]* 7/12/2016  
Chief, Bureau of Highways

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
*[Signature]* 8.3.16  
Chief, Division of Land Development

*[Signature]* 7.26.16  
Chief, Development Engineering Division

FOR PERMITTING - COMPLETE BRIDGE CONSTRUCTION PLANS UNDER SEPARATE SUBMITTAL.

**WALLACE MONTGOMERY**  
ENGINEERS-PLANNERS-SURVEYORS-CONSTRUCTION MANAGERS  
10150 York Road, Suite 200  
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410-494-9083 Tel / 410-667-0825 Fax  
www.wallacemontgomery.com A Limited Liability Partnership

DATE	REVISION	BY	APP'R.

PREPARED FOR:  
THE HOWARD HUGHES CORPORATION  
LITTLE PATUXENT PARKWAY  
COLUMBIA, MARYLAND 21044  
ATTN: BOB JENKINS  
410-964-5443

PROFESSIONAL CERTIFICATION  
I HEREBY CERTIFY THAT THESE PLANS 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. 24748  
EXPIRATION DATE: 1-14-18



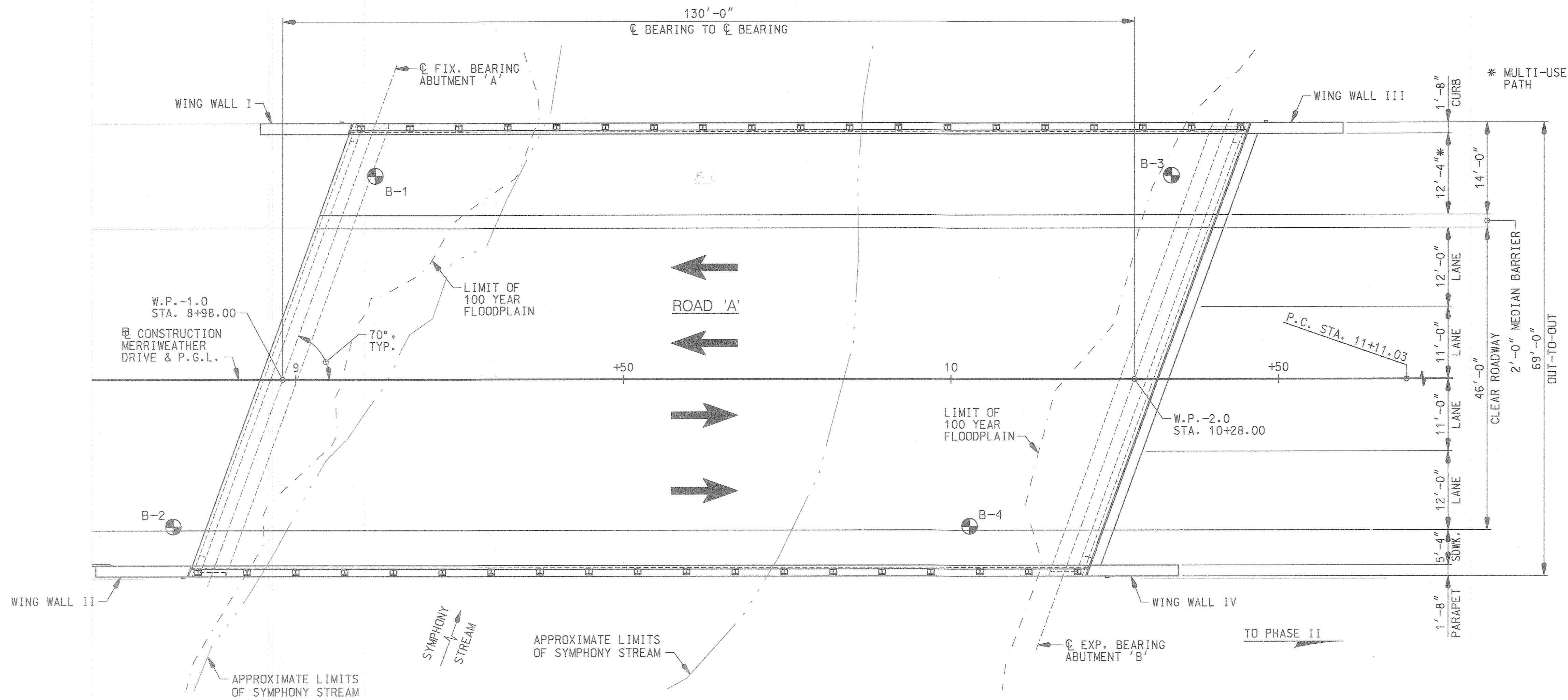
FRAMING PLAN  
DOWNTOWN COLUMBIA  
CRESCENT NEIGHBORHOOD  
PARCELS B THRU H, NON-BUILDABLE BULK PARCELS J THRU R,  
MERRIWEATHER-SYMPHONY WOODS NEIGHBORHOOD O.S. LOT 1  
AND NON-BUILDABLE BULK PARCEL A  
HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	NT	11071
DATE	TAX MAP -- GRID	SHEET
JUNE 2016	36 - 01	36 OF 102





TO LITTLE PATUXENT PARKWAY



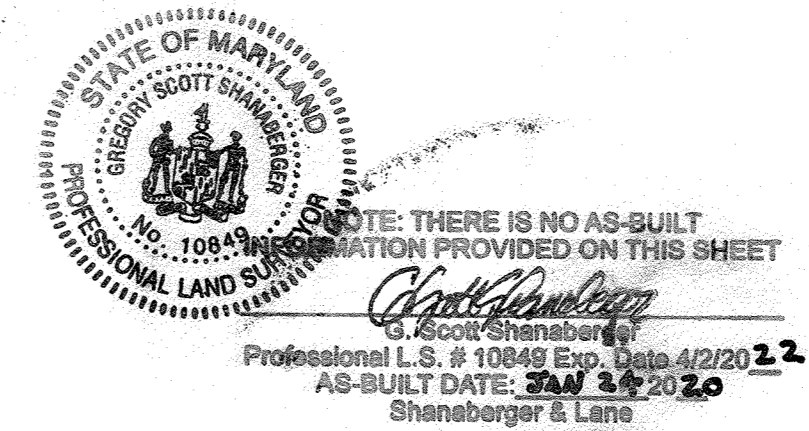
**BORING LOCATION PLAN**

SCALE: 1" = 10'

BORING LOCATIONS				
BORING NO.	STATION	OFFSET	NORTHING	EASTING
B-1	9+12.12	31.00' LT.	561,738.8641	1,350,767.3046
B-2	8+81.30	22.40' LT.	561,769.6922	1,350,713.9088
B-3	10+33.67	31.00' LT.	561,617.3171	1,350,767.3046
B-4	10+02.84	22.40' RT.	561,648.1452	1,350,713.9088

**NOTES:**

- BORINGS AND DRIVE TESTS TAKEN BY THE ROBERT B. BALTER COMPANY AS FOLLOWS:  
 B-1: 01/29/15 & 01/30/15  
 B-2: 01/29/15 & 01/30/15  
 B-3: 01/30/15  
 B-4: 01/30/15 & 02/02/15
- SPT = BLOWS ON SAMPLING SPOON BY 140 POUND WEIGHT FALLING 30" INDICATING SUCCESSIVE 6" INCREMENTS OF PENETRATION. PENETRATION LESS THAN 6" IS INDICATED BY ACTUAL LENGTH IN INCHES (INDICATED % = PERCENT ROCK CORE RECOVERY WITHIN RANGE INDICATED).
- ▽ INDICATES WATER TABLE LEVEL.
- ⊙ INDICATES BORING LOCATION.
- FOR BORINGS B-1 & B-2, SEE SHEET 38.
- FOR BORINGS B-3 & B-4, SEE SHEET 39.

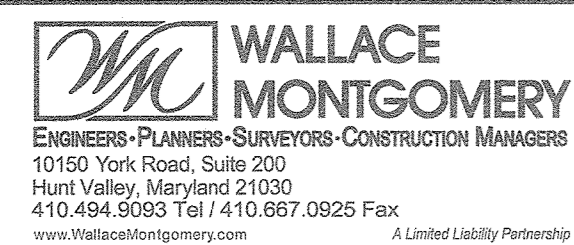


APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*[Signature]* 7/12/16  
 Chief, Bureau of Highways Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
*[Signature]* 8-2-16  
 Chief, Division of Land Development Date

*[Signature]* 7-26-16  
 Chief, Development Engineering Division Date

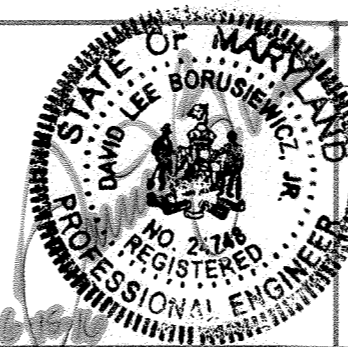
**FOR PERMITTING - COMPLETE BRIDGE CONSTRUCTION PLANS UNDER SEPARATE SUBMITTAL.**



PREPARED FOR:  
 THE HOWARD HUGHES CORPORATION  
 LITTLE PATUXENT PARKWAY  
 COLUMBIA, MARYLAND 21044  
 ATTN: BOB JENKINS  
 410-964-5443

**PROFESSIONAL CERTIFICATION**

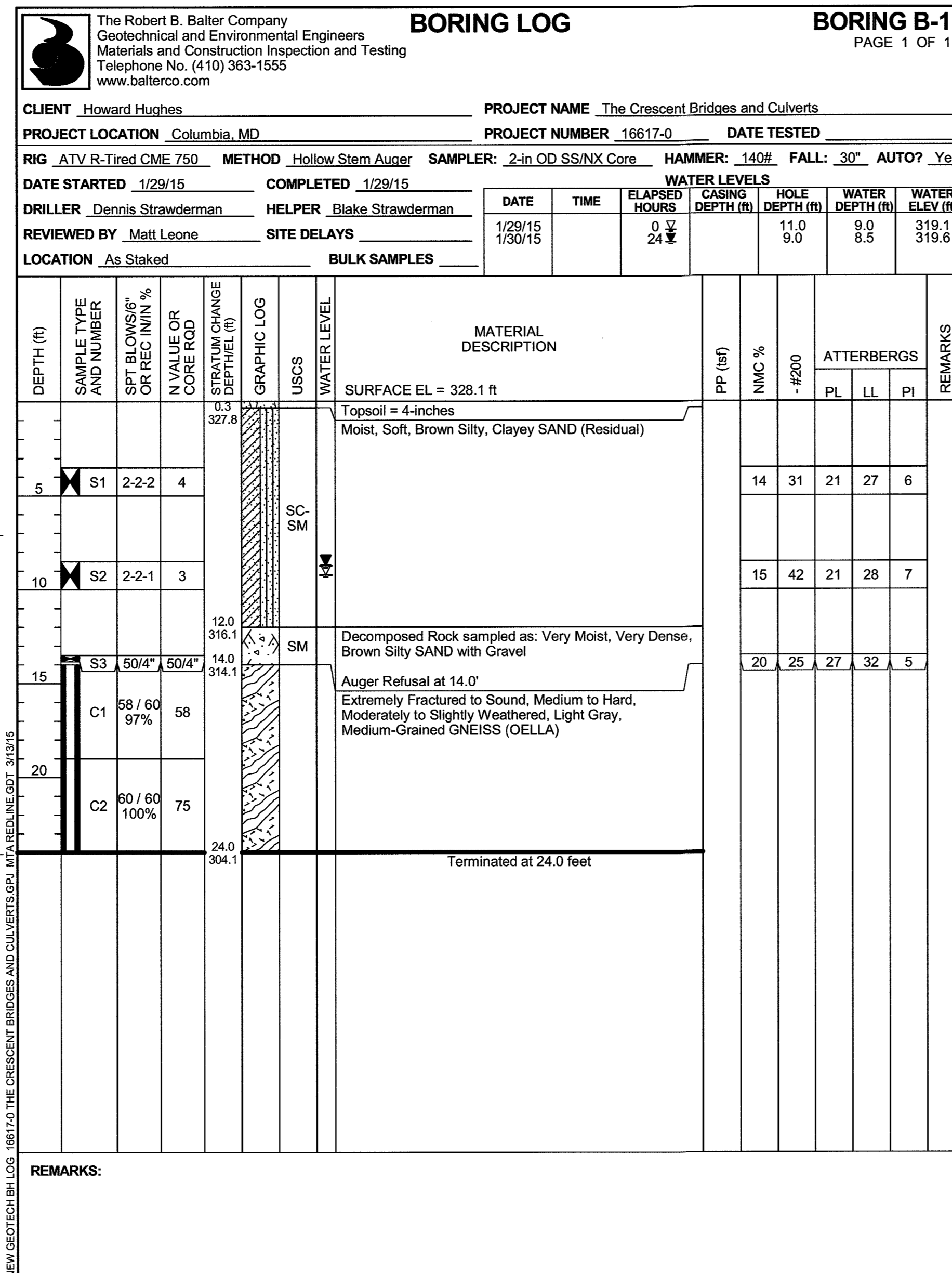
I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 24748  
 EXPIRATION DATE: 1-14-18



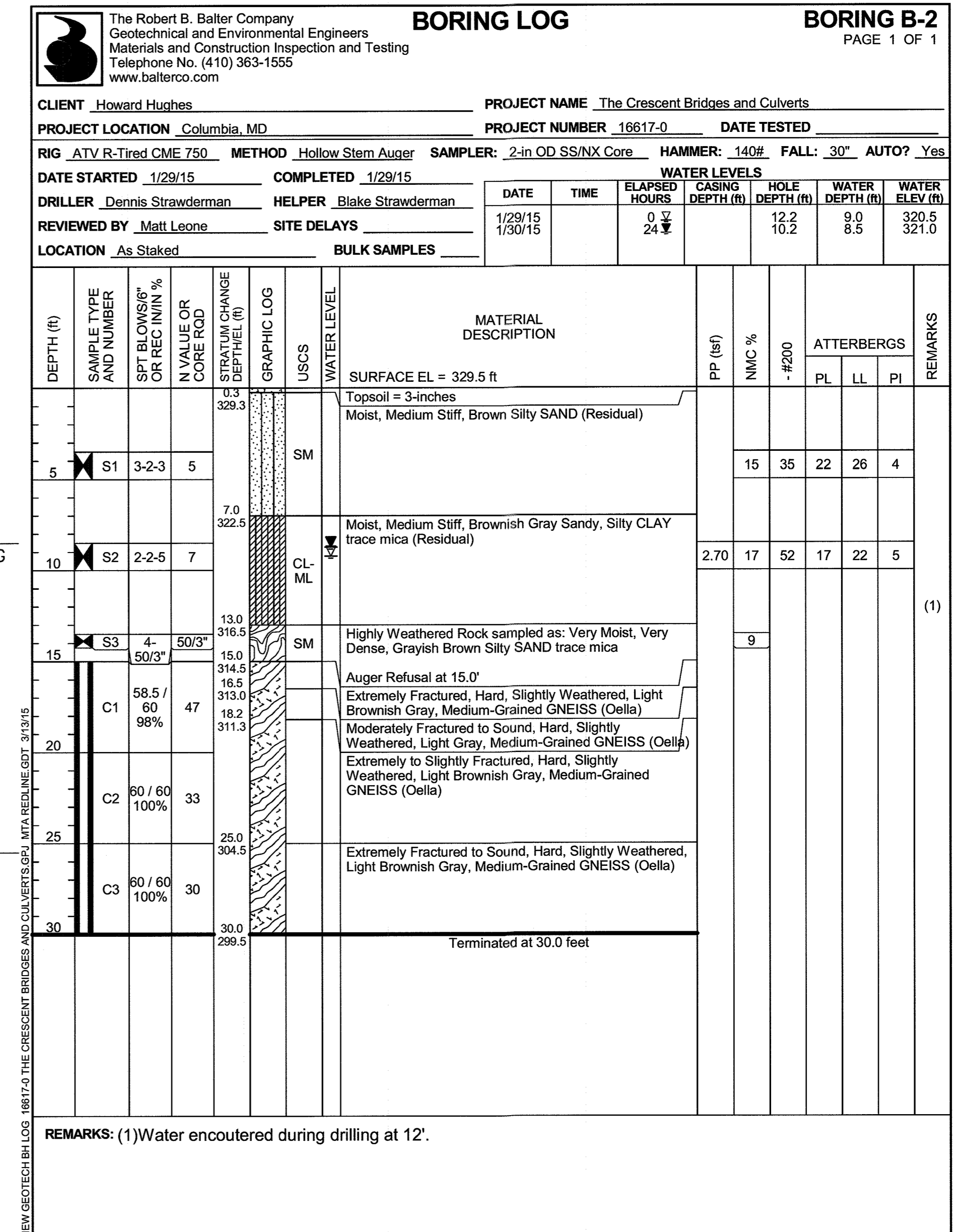
**BORING LOCATION PLAN**  
**DOWNTOWN COLUMBIA**  
**CRESCENT NEIGHBORHOOD**  
 PARCELS B THRU H, NON-BUILDABLE BULK PARCELS J THRU R,  
 O.S. LOTS 1 THRU 8 AND  
 MERRIWEATHER-SYMPHONY WOODS NEIGHBORHOOD O.S. LOT 1  
 AND NON-BUILDABLE BULK PARCEL A

SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	NT	11071
DATE	TAX MAP - GRID	SHEET
JUNE 2016	36 - 01	37 OF 102





BORING B-1



BORING B-2

DATUM EL. 270.00

DATUM EL. 270.00

BORINGS AND DRIVE TESTS

SCALE: 3/16" = 1'-0"

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
 Chief, Bureau of Highways \_\_\_\_\_ Date \_\_\_\_\_  
 APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
 Chief, Division of Land Development \_\_\_\_\_ Date \_\_\_\_\_  
 Chief, Development Engineering Division \_\_\_\_\_ Date \_\_\_\_\_

FOR PERMITTING - COMPLETE BRIDGE CONSTRUCTION  
 PLANS UNDER SEPARATE SUBMITTAL.

**WALLACE MONTGOMERY**  
 ENGINEERS-PLANNERS-SURVEYORS-CONSTRUCTION MANAGERS  
 10150 York Road, Suite 200  
 Hunt Valley, Maryland 21030  
 410-494-5093 Tel / 410-987-0925 Fax  
 www.wallacemontgomery.com A Limited Liability Partnership

DATE	REVISION	BY	APP'R.

PREPARED FOR:  
 THE HOWARD HUGHES CORPORATION  
 LITTLE PATUXENT PARKWAY  
 COLUMBIA, MARYLAND 21044  
 ATTN: BOB JENKINS  
 410-964-5443

PROFESSIONAL CERTIFICATION  
 I HEREBY CERTIFY THAT THESE PLANS  
 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. 24748  
 EXPIRATION DATE: 1-14-18

BORINGS AND DRIVE TESTS  
**DOWNTOWN COLUMBIA**  
**CRESCENT NEIGHBORHOOD**  
 PARCELS B THRU H, NON-BUILDABLE BULK PARCELS J THRU R,  
 O.S. LOTS 1 THRU 8 AND  
 MERRIWEATHER-SYMPHONY WOODS NEIGHBORHOOD O.S. LOT 1  
 AND NON-BUILDABLE BULK PARCEL A  
 HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	NT	11071
DATE	TAX MAP - GRID	SHEET
JUNE 2016	36 - 01	38 OF 102

NOTE:  
 FOR BORING LOCATION  
 PLAN, SEE SHEET 37.



**BORING LOG** **BORING B-3** PAGE 1 OF 1  
 The Robert B. Balter Company  
 Geotechnical and Environmental Engineers  
 Materials and Construction Inspection and Testing  
 Telephone No. (410) 363-1555  
 www.balterco.com

CLIENT Howard Hughes PROJECT NAME The Crescent Bridges and Culverts  
 PROJECT LOCATION Columbia, MD PROJECT NUMBER 16617-0 DATE TESTED \_\_\_\_\_  
 RIG ATV R-Tired CME 750 METHOD Hollow Stem Auger SAMPLER: 2-in OD SS/NX Core HAMMER: 140# FALL: 30" AUTO? Yes  
 DATE STARTED 1/30/15 COMPLETED 1/30/15 WATER LEVELS \_\_\_\_\_  
 DRILLER Dennis Strawderman HELPER Blake Strawderman DATE TIME ELAPSED CASING HOLE WATER WATER  
 1/30/15 0 0 6.9 2.4 321.8  
 REVIEWED BY Matt Leone SITE DELAYS \_\_\_\_\_  
 LOCATION As Staked BULK SAMPLES \_\_\_\_\_

DEPTH (ft)	SAMPLE TYPE AND NUMBER	SPT BLOWS/6" OR REC IN/IN %	N VALUE OR CORE RQD	STRATUM CHANGE DEPTH (ft)	GRAPHIC LOG	USCS	WATER LEVEL	MATERIAL DESCRIPTION	PP (pcf)	NMC %	#200	PL	LL	PI	REMARKS
0.4				323.8				SURFACE EL = 324.2 ft							
5	S1	2-5-14	19			SM		Topsoil = 4.5-inches Moist, Medium Dense, Yellowish Brown Silty SAND trace mica (Residual)	11	22	NP	NP	NP		
6.9	S2	50/0*	50/0*	7.0				No recovery at 7.0'							
10	C1	58 / 60 97%	80	317.3				Auger refusal at 7.0' Extremely Fractured to Sound, Hard, Slightly Weathered, Light Gray, Medium-Grained GNEISS (Oella)							
15	C2	60 / 60 100%	90	317.2											
17.0				307.2				Terminated at 17.0 feet							

REMARKS:

NEW GEOTECH BHL LOG 16617-0 THE CRESCENT BRIDGES AND CULVERTS.GPJ MTA REDLINE.GDT 3/13/15

EL. 322.75  
 BOTTOM OF FOOTING  
 ABUTMENT 'B'

EL. 306.00  
 ESTIMATED  
 PILE TIP

BORING B-3

**BORING LOG** **BORING B-4** PAGE 1 OF 1  
 The Robert B. Balter Company  
 Geotechnical and Environmental Engineers  
 Materials and Construction Inspection and Testing  
 Telephone No. (410) 363-1555  
 www.balterco.com

CLIENT Howard Hughes PROJECT NAME The Crescent Bridges and Culverts  
 PROJECT LOCATION Columbia, MD PROJECT NUMBER 16617-0 DATE TESTED \_\_\_\_\_  
 RIG ATV R-Tired CME 750 METHOD Hollow Stem Auger SAMPLER: 2-in OD SS/NX Core HAMMER: 140# FALL: 30" AUTO? Yes  
 DATE STARTED 1/30/15 COMPLETED 1/30/15 WATER LEVELS \_\_\_\_\_  
 DRILLER Dennis Strawderman HELPER Blake Strawderman DATE TIME ELAPSED CASING HOLE WATER WATER  
 1/30/15 0 0 14.6 4.2 320.2  
 2/2/15 72 14.6 4.2 320.2  
 REVIEWED BY Matt Leone SITE DELAYS \_\_\_\_\_  
 LOCATION 6' SE BULK SAMPLES \_\_\_\_\_

DEPTH (ft)	SAMPLE TYPE AND NUMBER	SPT BLOWS/6" OR REC IN/IN %	N VALUE OR CORE RQD	STRATUM CHANGE DEPTH (ft)	GRAPHIC LOG	USCS	WATER LEVEL	MATERIAL DESCRIPTION	PP (pcf)	NMC %	#200	PL	LL	PI	REMARKS
0.4				324.0				SURFACE EL = 324.4 ft							
5	S1	5-5-4	9			SM		Topsoil = 5-inches Moist, Loose, Yellowish Brown Silty SAND trace mica (Residual)	17	22	NP	NP	NP		
8.0	S2	50/1*	50/1*	8.5				Highly Weathered Rock sampled as: Moist, Very Dense, Pinkish Gray Silty SAND with Rock Fragments							
10	C1	80 / 60 100%	65	315.9				Auger Refusal at 8.5' Extremely Fractured to Sound, Hard, Slightly Weathered, Light Gray, Medium-Grained GNEISS (Oella)							
15	C2	59 / 60 98%	52	312.1				Moderately Fractured to Sound, Hard, Slightly Weathered, Light Pinkish Gray, Medium Grained GRANITE (Guilford Granite)							
15.5				308.9				Extremely Fractured to Sound, Hard, Slightly Weathered, Light Brownish and Pinkish Gray, Fine to Medium-Grained GNEISS (Oella)							
16.5				307.9				Extremely to Moderately Fractured, Moderately Hard, Moderately to Highly Weathered, Light Brownish Gray, Medium-Grained GNEISS (Oella)							
18.5				305.9				Extremely to Slightly Fractured, Hard, Slightly Weathered, Light Gray, Medium-Grained GNEISS (Oella)							
								Terminated at 18.5 feet							

REMARKS:

NEW GEOTECH BHL LOG 16617-0 THE CRESCENT BRIDGES AND CULVERTS.GPJ MTA REDLINE.GDT 3/13/15

EL. 322.75  
 BOTTOM OF FOOTING  
 ABUTMENT 'B'

EL. 306.00  
 ESTIMATED  
 PILE TIP

BORING B-4

DATUM EL. 260.00

**BORINGS AND DRIVE TESTS**  
 SCALE: 3/16" = 1'-0"

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
 Chief, Bureau of Highways  
 Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
 Chief, Division of Land Development  
 Date

Chief, Development Engineering Division  
 Date

**FOR PERMITTING - COMPLETE BRIDGE CONSTRUCTION PLANS UNDER SEPARATE SUBMITTAL.**

**WALLACE MONTGOMERY**  
 ENGINEERS-PLANNERS-SURVEYORS-CONSTRUCTION MANAGERS  
 10150 York Road, Suite 200  
 Hunt Valley, Maryland 21030  
 410.494.5093 Tel / 410.667.0925 Fax  
 www.wallacemontgomery.com  
 A Limited Liability Partnership

PREPARED FOR:  
 THE HOWARD HUGHES CORPORATION  
 LITTLE PATUXENT PARKWAY  
 COLUMBIA, MARYLAND 21044  
 ATTN: BOB JENKINS  
 410-964-5443

PROFESSIONAL CERTIFICATION  
 I HEREBY CERTIFY THAT THESE PLANS 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. 24748  
 EXPIRATION DATE: 1-14-18

**BORINGS AND DRIVE TESTS**  
**DOWNTOWN COLUMBIA**  
**CRESCENT NEIGHBORHOOD**  
 PARCELS B THRU H, NON-BUILDABLE BULK PARCELS J THRU R,  
 O.S. LOTS 1 THRU 8 AND  
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SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	NT	11071
DATE	TAX MAP - GRID	SHEET
JUNE 2016	36 - 01	39 OF 102

NOTE:  
 FOR BORING LOCATION PLAN, SEE SHEET 37.

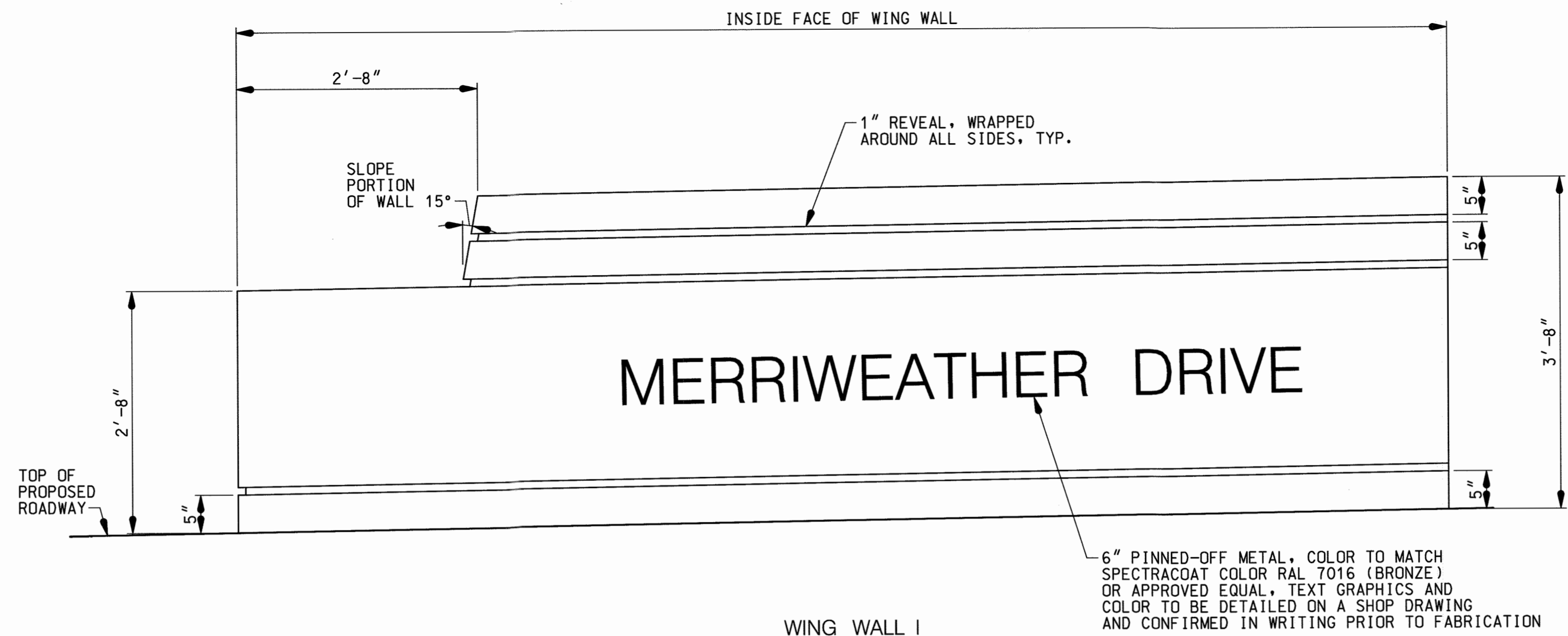
DES. GJG DRN. DED CHK.

DATE	REVISION	BY	APPR.

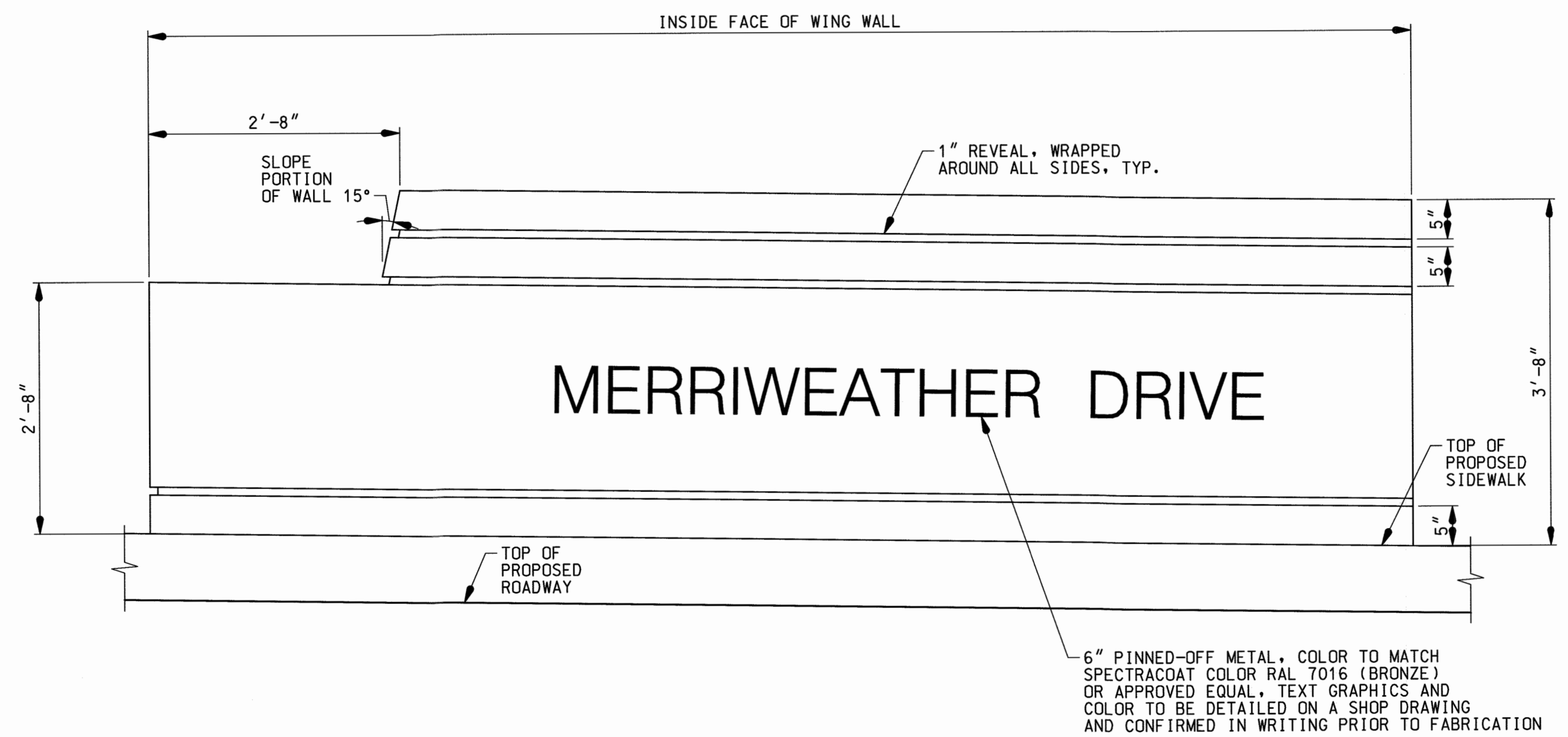
ELECTION DISTRICT No. 5

HOWARD COUNTY, MARYLAND





WING WALL I  
VIEW E-E  
SCALE: 1" = 1'-0"



WING WALL IV  
VIEW F-F  
SCALE: 1" = 1'-0"

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
Chief, Bureau of Highways Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
Chief, Division of Land Development Date  
Chief, Development Engineering Division Date

FOR PERMITTING - COMPLETE BRIDGE CONSTRUCTION PLANS UNDER SEPARATE SUBMITTAL.

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EXPIRATION DATE: 1-14-18

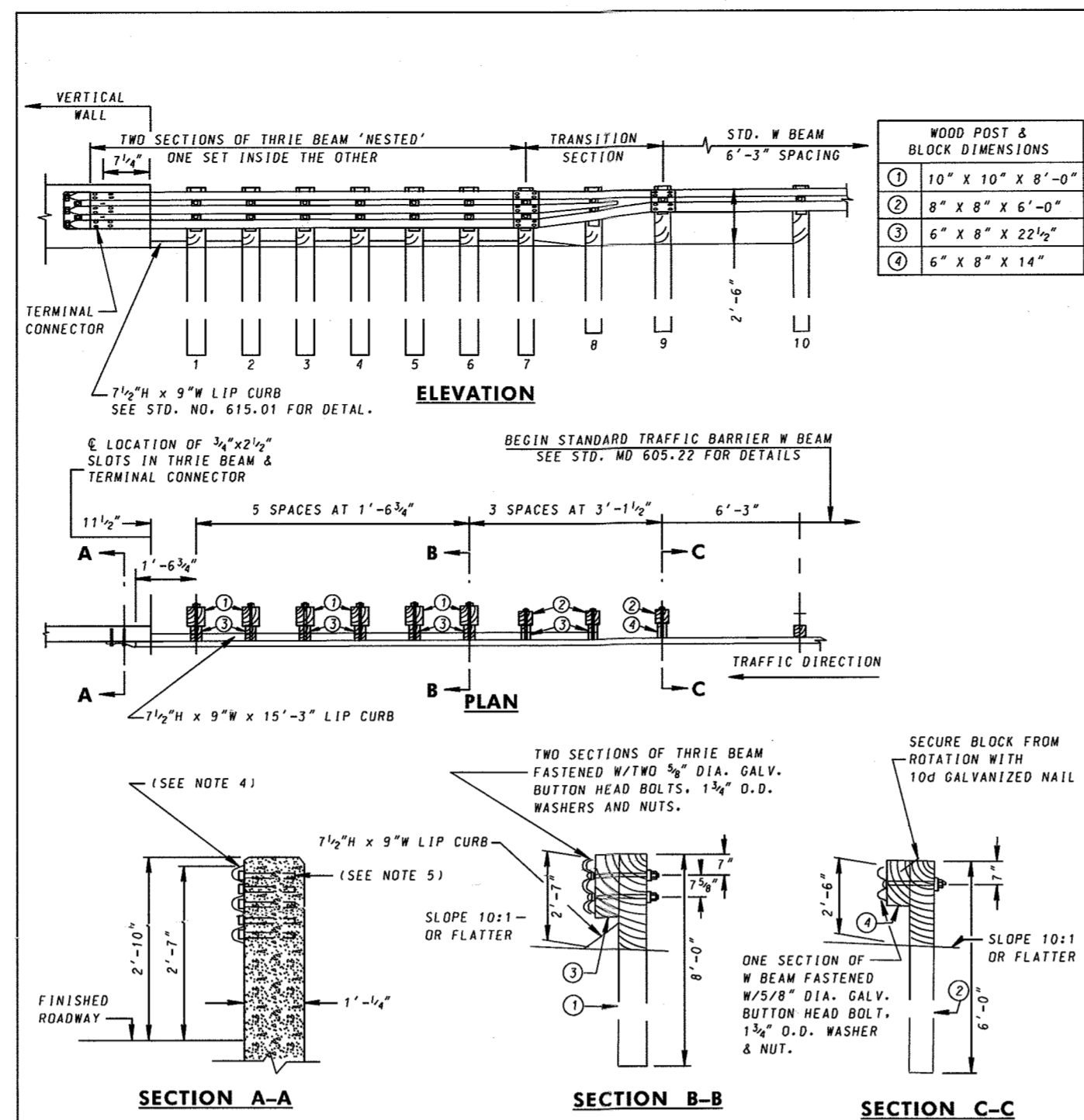


MISCELLANEOUS DETAILS  
DOWNTOWN COLUMBIA  
CRESCENT NEIGHBORHOOD  
PARCELS B THRU H, NON-BUILDABLE BULK PARCELS J THRU R,  
O.S. LOTS 1 THRU 8 AND  
MERRIWEATHER-SYMPHONY WOODS NEIGHBORHOOD O.S. LOT 1  
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SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	NT	11071
DATE	TAX MAP - GRID	SHEET
JUNE 2016	36 - 01	40 OF 102

NOTE:  
FOR LOCATIONS OF VIEWS E-E AND F-F, SEE SHEET 34.



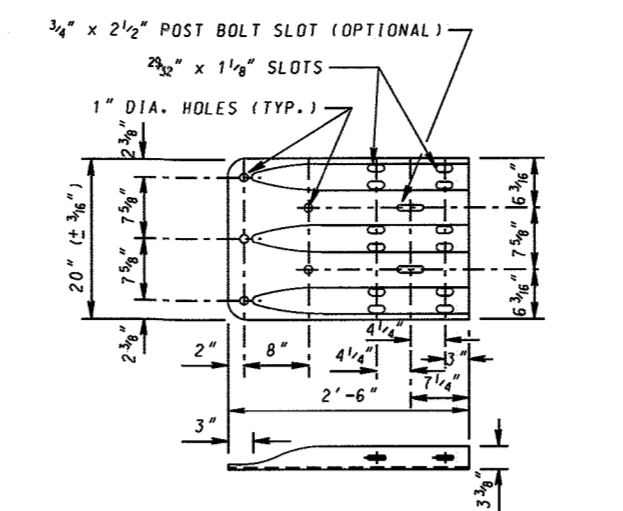


**NOTES**

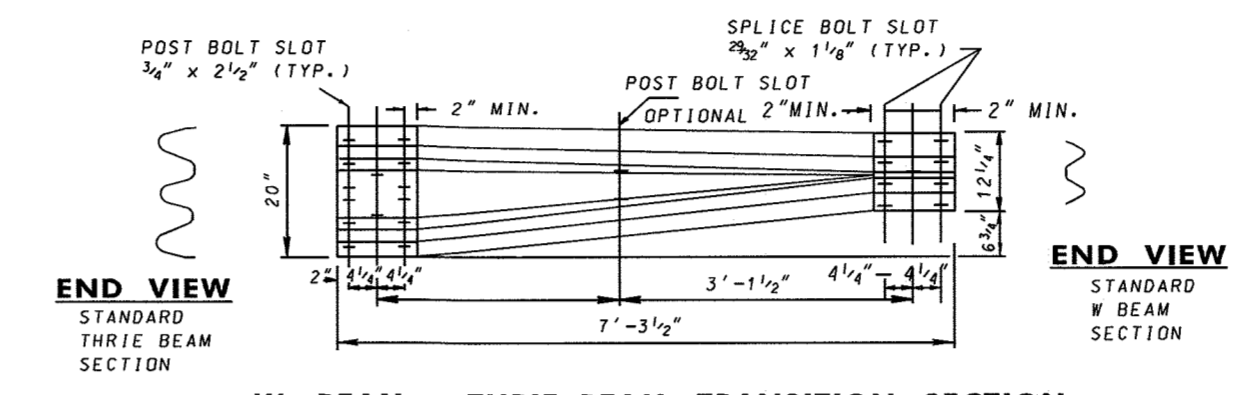
- THRIE BEAM TERMINAL CONNECTOR, THRIE BEAM SECTIONS AND W BEAM SECTIONS SHALL BE LAPPED IN THE DIRECTION OF TRAFFIC.
- THE WOOD POSTS AND BLOCKS SHALL HAVE A STRESS GRADE OF 1200 PSI OR MORE.
- SEE STD'S. MD 605.29 & MD 605.41-02 FOR DETAILS OF THRIE BEAM, SPLICE, TERMINAL CONNECTOR, TRANSITION SECTION, AND RECTANGULAR PLATE WASHERS.
- THE CONTRACTOR SHALL FURNISH AND INSTALL FIVE (5) 1/2" DIA. HEAVY DUTY GALV. THREADED ANCHOR RODS WITH HEX HEAD RECESSED NUTS AND RECTANGULAR PLATE WASHERS. ANCHOR RODS SHALL BE ANCHORED WITH EPOXY GROUT AS SPECIFIED IN SPEC. 902.
- ALTERNATE ANCHORAGE METHOD "CAST IN CONCRETE" SHOWN ON STD. MD 605.44.

SPECIFICATION	605	CATEGORY CODE ITEMS	
APPROVED	<i>[Signature]</i>	DIRECTOR - OFFICE OF HIGHWAY DEVELOPMENT	
APPROVAL	4-27-89	APPROVAL - SHA	
REVISION	11-7-13	REVISION - FEDERAL HIGHWAY ADMINISTRATION	
APPROVAL	5-5-89	APPROVAL - FEDERAL HIGHWAY ADMINISTRATION	
REVISION	8-13-12	REVISION - FEDERAL HIGHWAY ADMINISTRATION	

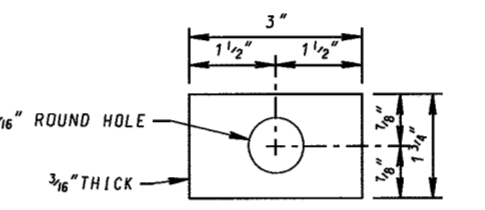
**Maryland Department of Transportation  
STATE HIGHWAY ADMINISTRATION**  
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES  
**TRAFFIC BARRIER THRIE BEAM  
ANCHORAGE TO VERTICAL FACE  
(WOOD POST)**  
STANDARD NO. MD 605.41



**THRIE BEAM TERMINAL CONNECTOR**



**W BEAM - THRIE BEAM TRANSITION SECTION**



**RECTANGULAR PLATE WASHER**

**NOTE**  
THE RECTANGULAR PLATE WASHER SHALL BE MADE OF STEEL MEETING THE REQUIREMENTS OF ASTM A 36 AND SHALL BE GALVANIZED IN ACCORDANCE WITH THE REQUIREMENTS OF ASTM A 123. HOLE MAY BE PUNCHED OR DRILLED.

SPECIFICATION	605	CATEGORY CODE ITEMS	
APPROVED	<i>[Signature]</i>	DIRECTOR - OFFICE OF HIGHWAY DEVELOPMENT	
APPROVAL	4-27-89	APPROVAL - SHA	
REVISION	8-13-12	REVISION - FEDERAL HIGHWAY ADMINISTRATION	
APPROVAL	5-5-89	APPROVAL - FEDERAL HIGHWAY ADMINISTRATION	
REVISION	8-13-12	REVISION - FEDERAL HIGHWAY ADMINISTRATION	

**Maryland Department of Transportation  
STATE HIGHWAY ADMINISTRATION**  
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES  
**TRAFFIC BARRIER W BEAM-THRIE BEAM  
TRANSITION SECTION**  
STANDARD NO. MD 605.41-02

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*[Signature]*  
Chief, Bureau of Highways Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
*[Signature]*  
Chief, Division of Land Development Date  
*[Signature]*  
Chief, Development Engineering Division Date

**FOR PERMITTING - COMPLETE BRIDGE CONSTRUCTION  
PLANS UNDER SEPARATE SUBMITTAL.**

**WALLACE MONTGOMERY**  
ENGINEERS-PLANNERS-SURVEYORS-CONSTRUCTION MANAGERS  
10150 York Road, Suite 200  
Hunt Valley, Maryland 21030  
410.494.5000 Fax 410.687.0925  
www.wallacemontgomery.com A Limited Liability Partnership

DATE	REVISION	BY	APPR.

PREPARED FOR:  
THE HOWARD HUGHES CORPORATION  
LITTLE PATUXENT PARKWAY  
COLUMBIA, MARYLAND 21044  
ATTN: BOB JENKINS  
410-964-5443

PROFESSIONAL CERTIFICATION  
I HEREBY CERTIFY THAT THESE PLANS  
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ME, AND THAT I AM A DULY LICENSED  
PROFESSIONAL ENGINEER UNDER THE  
LAWS OF THE STATE OF MARYLAND,  
LICENSE NO. 24748  
EXPIRATION DATE: 1-14-18



MISCELLANEOUS DETAILS  
**DOWNTOWN COLUMBIA  
CRESCENT NEIGHBORHOOD**  
PARCELS B THRU H, NON-BUILDABLE BULK PARCELS J THRU R,  
O.S. LOTS 1 THRU 8 AND  
MERRIWEATHER-SYMPHONY WOODS NEIGHBORHOOD O.S. LOT 1  
AND NON-BUILDABLE BULK PARCEL A  
HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE NO.
AS SHOWN	NT	11071
DATE	TAX MAP - GRID	SHEET
JUNE 2016	36 - 01	41 OF 102



**NOTES**

**GENERAL NOTES:**

1. THIS BRIDGE HAS BEEN DESIGNED FOR GENERAL SITE CONDITIONS. THE PROJECT ENGINEER SHALL BE RESPONSIBLE FOR THE STRUCTURE'S SUITABILITY TO THE EXISTING SITE CONDITIONS AND FOR THE HYDRAULIC EVALUATION -- INCLUDING SCOUR AND CONFIRMATION OF SOIL CONDITIONS.
2. PRIOR TO CONSTRUCTION, CONTRACTOR MUST VERIFY ALL ELEVATIONS SHOWN THROUGH THE ENGINEER.
3. ONLY CONTECH ENGINEERED SOLUTIONS LLC, THE CON/SPAN® APPROVED PRECASTER IN MARYLAND MAY PROVIDE THE STRUCTURE DESIGNED IN ACCORDANCE WITH THESE PLANS.
4. THE USE OF ANOTHER PRECAST STRUCTURE WITH THE DESIGN ASSUMPTIONS USED FOR THE CON/SPAN® STRUCTURE MAY LEAD TO SERIOUS DESIGN ERRORS. USE OF ANY OTHER PRECAST STRUCTURE WITH THIS DESIGN AND DRAWINGS VOIDS ANY CERTIFICATION OF THIS DESIGN AND WARRANTY. CONTECH ENGINEERED SOLUTIONS LLC ASSUMES NO LIABILITY FOR DESIGN OF ANY ALTERNATE OR SIMILAR TYPE STRUCTURES.
5. ALTERNATE STRUCTURES MAY BE CONSIDERED, PROVIDED THAT DRAWINGS AND CALCULATIONS SIGNED AND SEALED BY A PROFESSIONAL ENGINEER, REGISTERED IN THE STATE OF MARYLAND, EMPLOYED BY THE PRECAST CONCRETE BRIDGE SUPPLIER, ARE SUBMITTED TO THE ENGINEER 2 WEEKS PRIOR TO THE BID DATE FOR REVIEW AND APPROVAL.
6. ALTERNATE STRUCTURES MAY BE CONSIDERED, PROVIDED THAT THE ALTERNATE DESIGN DOES NOT REDUCE THE HYDRAULIC OPENING OF THE STRUCTURE AS SHOWN ON THE DRAWINGS. AT A MINIMUM THE ALTERNATE STRUCTURE MUST PROVIDE THE SAME OR LARGER SPAN AND RISE AS THE STRUCTURE SHOWN ON THE DRAWINGS.
7. THE PRECAST ARCH SUPPLIER MUST ATTEND THE PRE-BID MEETING, IF ONE IS HELD.
8. SUPPLIER OF PROPOSED ALTERNATES TO A CON/SPAN® BRIDGE SYSTEM MUST SUBMIT AT LEAST TWO (2) INDEPENDENTLY VERIFIED FULL SCALE LOAD TESTS THAT CONFIRM THE PROPOSED DESIGN METHODOLOGY OF THE THREE SIDED/ARCH STRUCTURE(S). THE PROPOSED ALTERNATE, UPON SATISFACTORY CONFIRMATION OF DESIGN METHODOLOGY, MAY BE CONSIDERED AN ACCEPTABLE ALTERNATE.
9. PROPOSED ALTERNATE STRUCTURES MAY BE CONSIDERED, PROVIDED THAT THE PRECAST CONCRETE BRIDGE STRUCTURES ARE PROVIDED BY A SUPPLIER THAT HAS A MINIMUM OF TWO (2) REGISTERED PROFESSIONAL ENGINEERS ON STAFF THAT ARE DEDICATED TO THE DESIGN OF THESE TYPES OF STRUCTURES. SUPPLIER MUST PROVIDE THESE NAMES, P.E. LICENSE NUMBERS AND DATES OF HIRE AT TIME OF ALTERNATE SUBMITTAL.

# DOWNTOWN COLUMBIA CRESCENT NEIGHBORHOOD MERRIWEATHER DRIVE CROSSING HOWARD COUNTY, MARYLAND

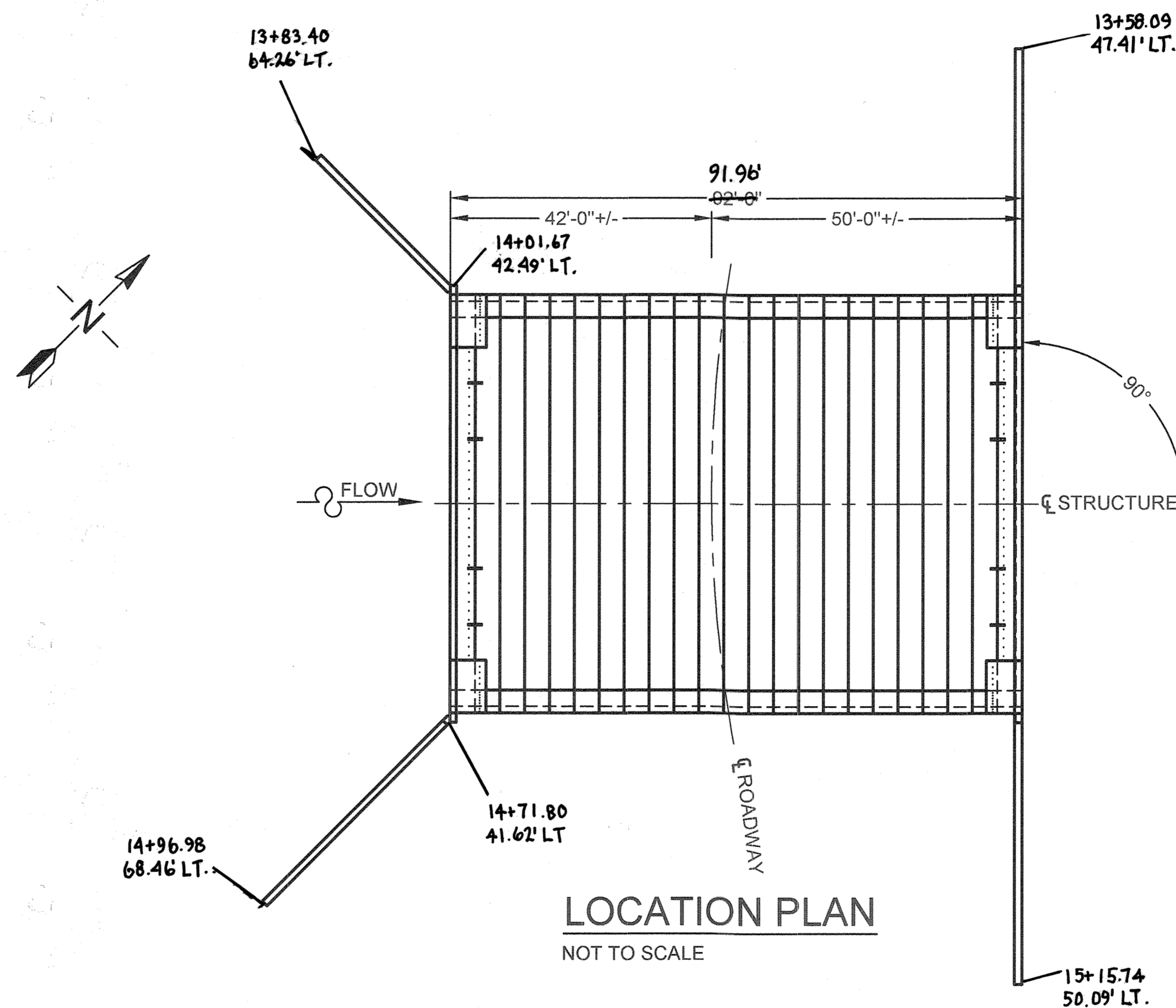
**DESIGN DATA**

DESIGN LOADING:  
 BRIDGE UNITS: HL-93  
 HEADWALLS: EARTH PRESSURE + LIVE LOAD SURCHARGE  
 WINGWALLS: EARTH PRESSURE + LIVE LOAD SURCHARGE  
 DESIGN FILL HEIGHT: 5'-0" MIN. TO 7'-0" MAX.  
 FROM TOP OF CROWN TO TOP OF PAVEMENT.  
 DESIGN METHOD: LOAD RESISTANCE FACTOR DESIGN PER AASHTO LRFD SPECIFICATION  
 FACTORED BEARING RESISTANCE: 12000PSF\*

\*FOUNDATION EXCAVATION AND SUBGRADE PREPARATION SHALL BE IN ACCORDANCE WITH THE GEOTECHNICAL REPORT FOR THIS PROJECT PREPARED BY ROBERT B BALTER COMPANY DATED APRIL 2, 2015 WITH UPDATED FACTORED BEARING RESISTANCE PROVIDED BY EMAIL ON JUNE 2, 2015

**MATERIALS**

PRECAST UNITS SHALL BE CONSTRUCTED AND INSTALLED IN ACCORDANCE WITH CON/SPAN® SPECIFICATIONS. CONCRETE FOR FOOTINGS SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3500 PSI (MSHA MIX NO. 3). REINFORCING STEEL FOR FOOTINGS SHALL CONFORM TO ASTM A615 OR A996-GRADE 60.



APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*[Signature]* 7/12/16  
 Chief, Bureau of Highways

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
*[Signature]* 8-3-16  
 Chief, Division of Land Development

*[Signature]* 7-26-16  
 Chief, Development Engineering Division



DES.	JMF	DRN.	ACR	CHK.	DN	DATE	REVISION	BY	APPR.

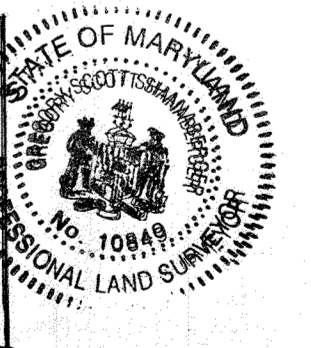
PREPARED FOR:  
 THE HOWARD HUGHES CORPORATION  
 10480 LITTLE PATUXENT PARKWAY  
 SUITE 400  
 COLUMBIA, MD 21044  
 ATTN: BOB JENKINS  
 410-964-5443

PROFESSIONAL CERTIFICATION  
 I HEREBY CERTIFY THAT THESE PLANS 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. 38225  
 EXPIRATION DATE: 8/19/2016.  
 6/10/16

LOCATION PLAN, GENERAL NOTES, DESIGN DATA  
**DOWNTOWN COLUMBIA  
 CRESCENT NEIGHBORHOOD**  
 PARCELS B THRU H, NON-BUILDABLE BULK PARCELS I THRU R,  
 O.S. LOTS 1 THRU 8 AND  
 MERRIWEATHER-SYMPHONY WOODS NEIGHBORHOOD O.S. LOT 1  
 AND NON-BUILDABLE BULK PARCEL A  
 HOWARD COUNTY, MARYLAND

SCALE	ZONING	DATE	TAXITILE	SHEET
AS NOTED	NT	JUNE, 2016	36 - 01	42 OF 102

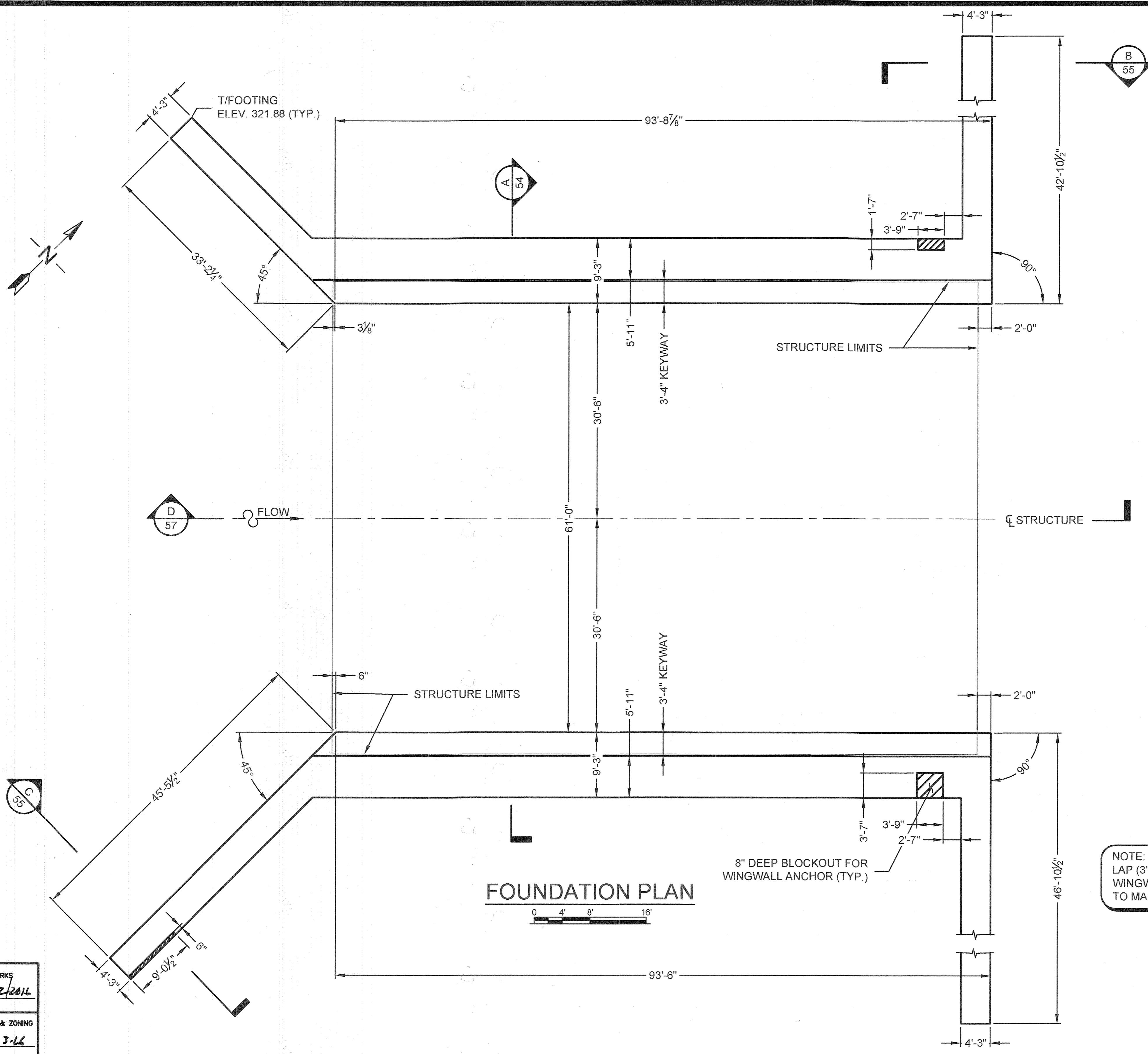
AS-BUILT CERTIFICATION  
 I HEREBY CERTIFY BY SEAL THAT THE FACILITIES SHOWN ON THIS PLAN WERE CONSTRUCTED AS SHOWN ON THIS PLAN MEET THE CURRENT APPROVED PLANS AND SPECIFICATIONS.  
 SCOTT SPERRY BERGER  
 SHANABERGER & LANE  
 PROFESSIONAL LAND SURVEYOR #10848  
 LICENSE EXPIRATION DATE: 4/29/22  
 AS-BUILT SURVEY DATE: Jan. 24, 2020





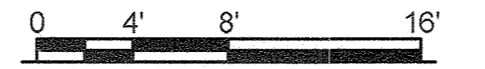






NOTE:  
LAP (3'-0") #6 LONGITUDINAL BARS IN  
WINGWALL AND BRIDGE FOOTINGS  
TO MAKE CONTINUOUS

**FOUNDATION PLAN**



APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*[Signature]* 7/12/2014  
 Chief, Bureau of Highways Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
*[Signature]* 8-3-16  
 Chief, Division of Land Development Date

*[Signature]* 7-26-16  
 Chief, Development Engineering Division Date

**CONTECH**  
 ENGINEERED SOLUTIONS LLC  
 2016 BOWRING QUATE COURT  
 NEW MARKET, MARYLAND 21774  
 410-497-0207

DES.	JMF	DRN.	ACR	CHK.	DN	DATE	REVISION	BY	APPR.

PREPARED FOR:  
 THE HOWARD HUGHES CORPORATION  
 10480 LITTLE PATUXENT PARKWAY  
 SUITE 400  
 COLUMBIA, MD 21044  
 ATTN: BOB JENKINS  
 410-964-5443

PROFESSIONAL CERTIFICATION  
 I HEREBY CERTIFY THAT THESE PLANS  
 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. 36225,  
 EXPIRATION DATE: 8/19/2016.  
 6/10/16

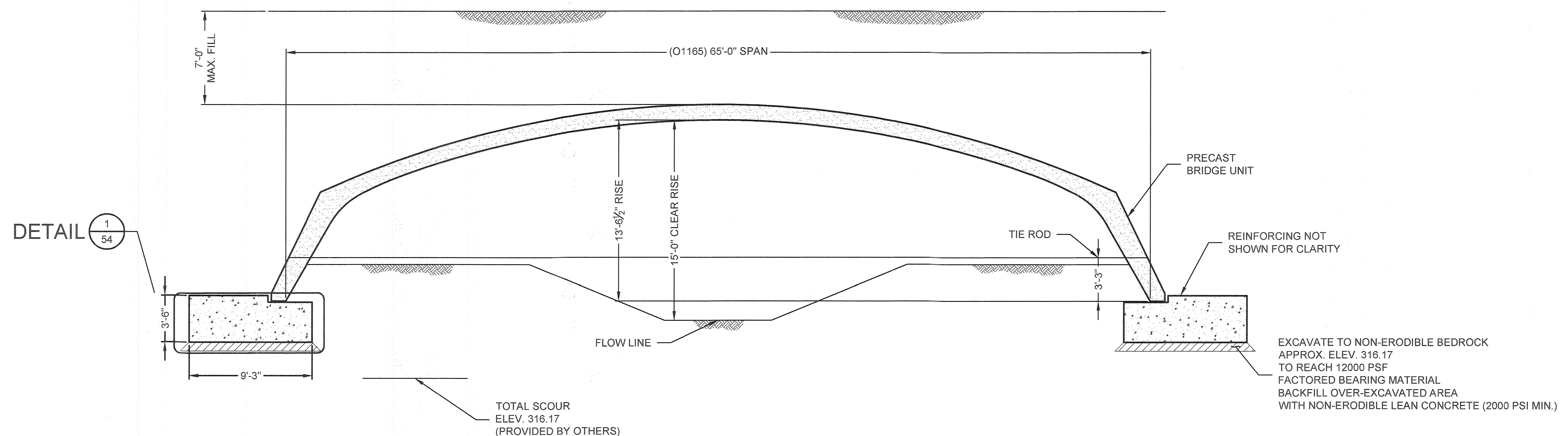
FOUNDATION PLAN  
**DOWNTOWN COLUMBIA  
 CRESCENT NEIGHBORHOOD**  
 PARCELS B THRU H, NON-BUILDABLE BULK PARCELS J THRU R,  
 O.S. LOTS 1 THRU 8 AND  
 MERRIWEATHER-SYMPHONY WOODS NEIGHBORHOOD O.S. LOT 1  
 AND NON-BUILDABLE BULK PARCEL A  
 ELECTION DISTRICT No. 3 HOWARD COUNTY, MARYLAND

SCALE	ZONING	DATE	TAXTITLE	SHEET
AS NOTED	NT	JUNE, 2016	36 - 01	44 OF 102



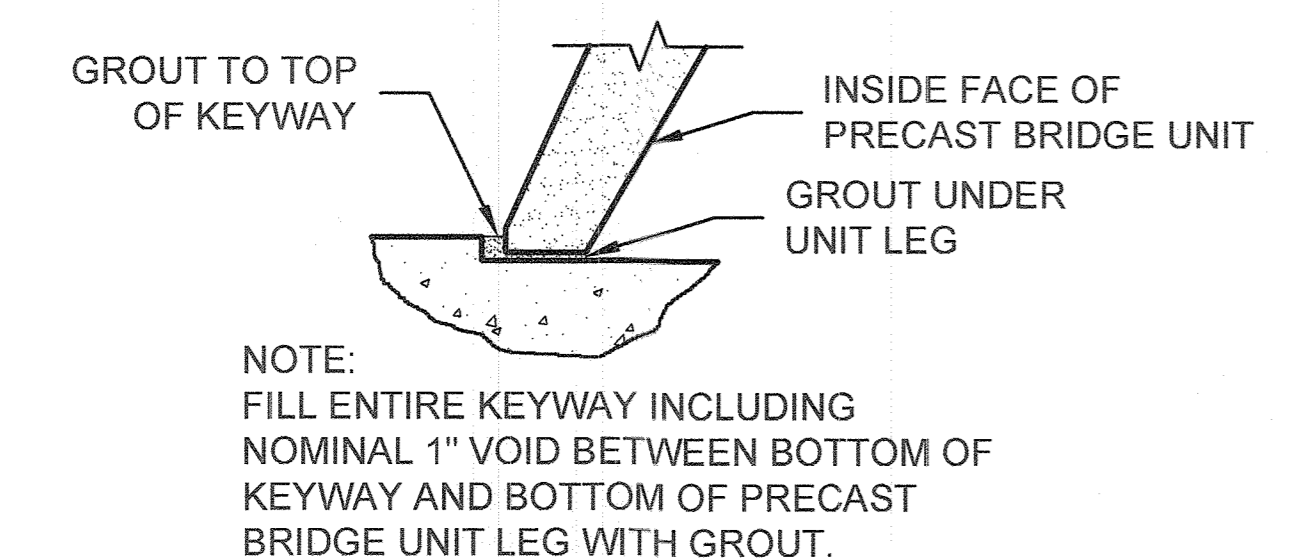
NOTE: THERE IS NO AS-BUILT  
 INFORMATION PROVIDED ON THIS SHEET  
*[Signature]*  
 Scott Shenabarger  
 Professional L.S. # 10849 Exp. Date 4/2/2022  
 AS-BUILT DATE: JAN 24 2020  
 Shenabarger & Lane



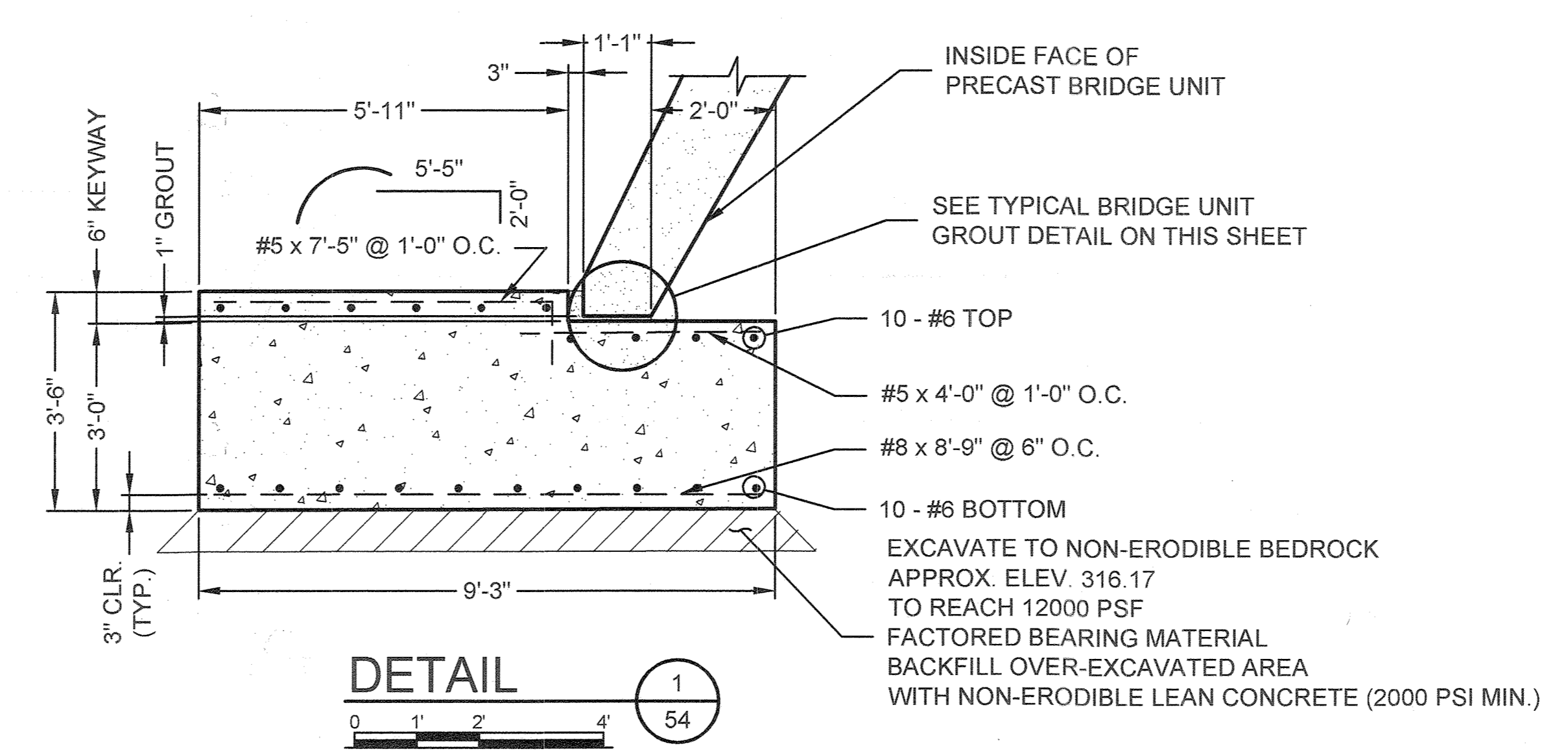


DETAIL 1/54

SECTION A  
0 2 4 8 52



TYPICAL BRIDGE UNIT GROUT DETAIL  
NOT TO SCALE



DETAIL 1/54  
0 1 2 4 54

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*[Signature]* 7/12/2016  
 Chief, Bureau of Highways

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
*[Signature]* 7/26/16  
 Chief, Division of Land Development

*[Signature]* 7/26/16  
 Chief, Development Engineering Division

STATE OF MARYLAND  
 PROFESSIONAL LAND SURVEYOR  
 No. 19849  
 Scott Shanaberger  
 AS-BUILT DATE: 7/14/2016  
 Shanaberger & Lane

NOTE: THERE IS NO AS-BUILT INFORMATION PROVIDED ON THIS SHEET

**CONTECH**  
 ENGINEERED SOLUTIONS LLC  
 2014 MERRIWEATHER DRIVE, SUITE 200  
 NEW MARKET, MARYLAND 21774  
 443-487-1007

DES.	JMF	DRN.	ACR	CHK.	DN	DATE	REVISION	BY	APPR.

PREPARED FOR:  
 THE HOWARD HUGHES CORPORATION  
 10480 LITTLE PATUXENT PARKWAY  
 SUITE 400  
 COLUMBIA, MD 21044  
 ATTN: BOB JENKINS  
 410-964-5443

PROFESSIONAL CERTIFICATION  
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 WERE PREPARED OR APPROVED BY  
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 PROFESSIONAL ENGINEER UNDER THE  
 LAWS OF THE STATE OF MARYLAND.  
 LICENSE NO. 38225  
 EXPIRATION DATE: 6/19/2016.  
 6/10/16

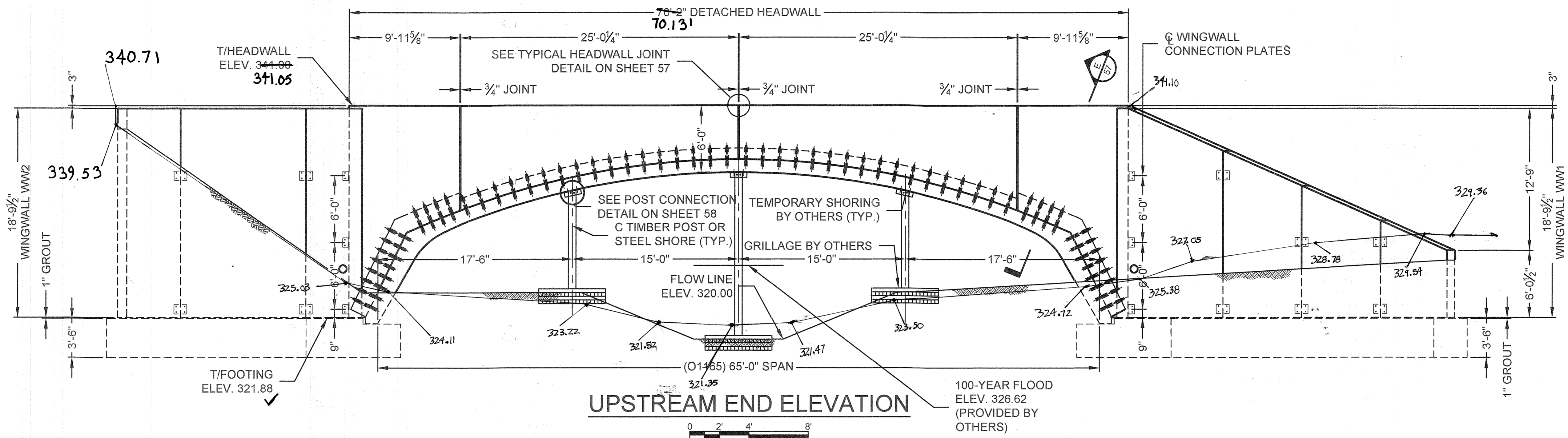
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**DOWNTOWN COLUMBIA  
 CRESCENT NEIGHBORHOOD**  
 PARCELS B THRU H, NON-BUILDABLE BULK PARCELS J THRU R,  
 O.S. LOTS 1 THRU 8 AND  
 MERRIWEATHER-SYMPHONY WOODS NEIGHBORHOOD O.S. LOT 1  
 AND NON-BUILDABLE BULK PARCEL A  
 ELECTION DISTRICT No. 5 HOWARD COUNTY, MARYLAND

SCALE	ZONING	DATE	TAXITLE	SHEET
AS NOTED	NT	JUNE, 2016	36 - 01	45 OF 102

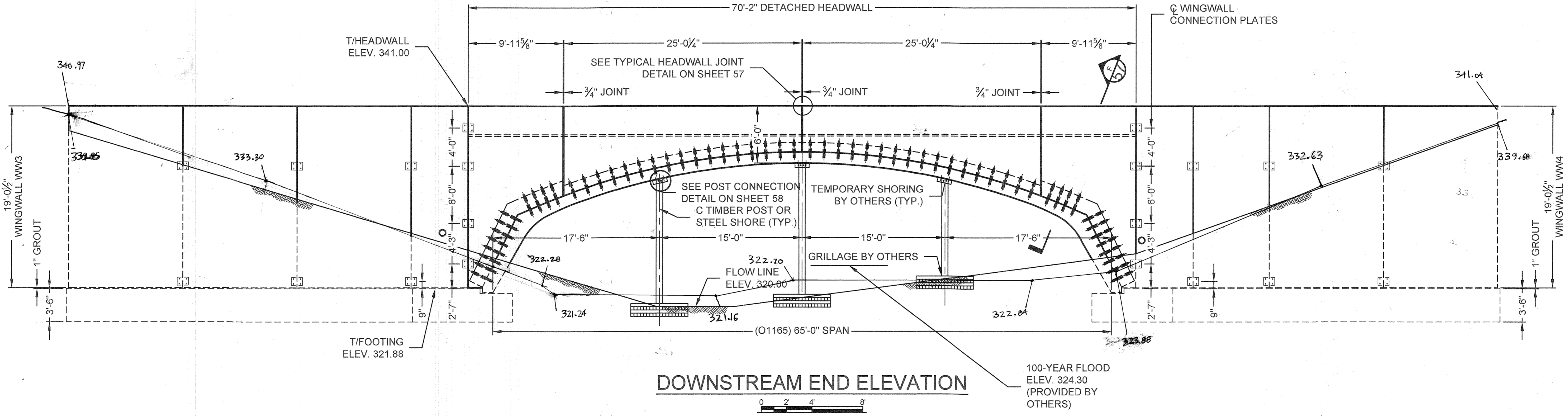
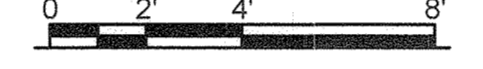








**UPSTREAM END ELEVATION**



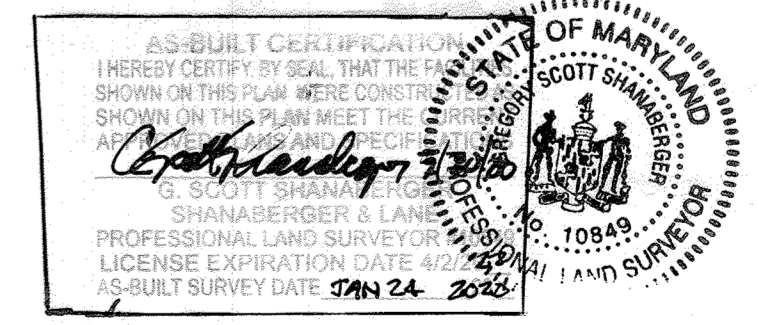
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APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*[Signature]* 7/12/16  
 Chief, Bureau of Highways  
 Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
*[Signature]* 8-3-16  
 Chief, Division of Land Development  
 Date

*[Signature]* 7-26-16  
 Chief, Development Engineering Division  
 Date



**CONTECH**  
 ENGINEERED SOLUTIONS LLC  
 1000 ANDRINETTE GATE COURT  
 NEW MARKET, MARYLAND 21774  
 443-451-1507

DES. JMF	DRN. ACR	CHK. DN	DATE	REVISION	BY	APPR.


PREPARED FOR:  
 THE HOWARD HUGHES CORPORATION  
 10480 LITTLE PATUXENT PARKWAY  
 SUITE 400  
 COLUMBIA, MD 21044  
 ATTN: BOB JENKINS  
 410-964-5443

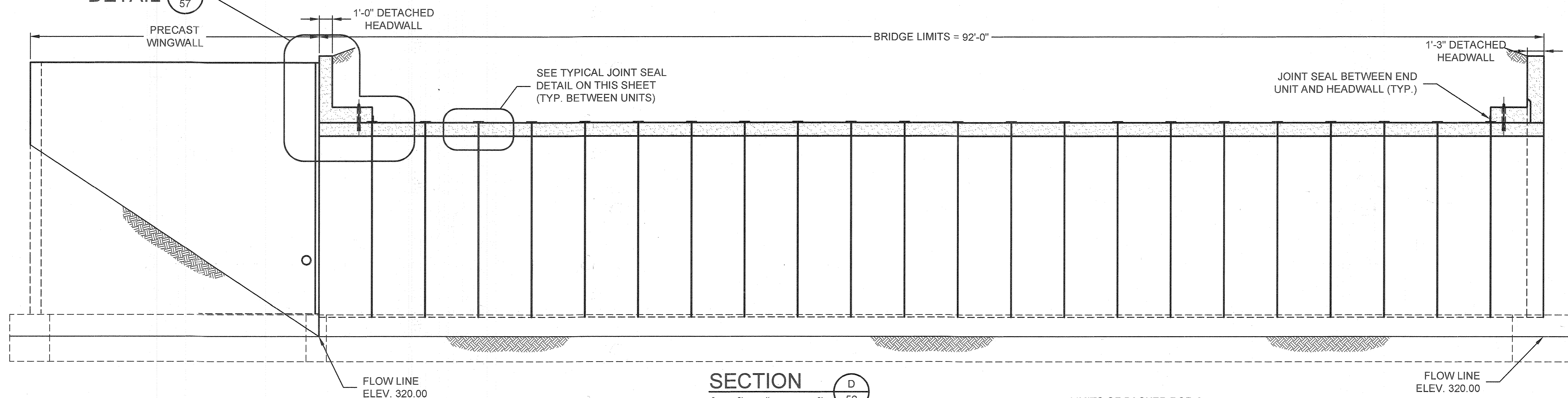
PROFESSIONAL CERTIFICATION  
 I HEREBY CERTIFY THAT THESE PLANS  
 WERE PREPARED OR APPROVED BY  
 ME, AND THAT I AM A DULY LICENSED  
 PROFESSIONAL ENGINEER UNDER THE  
 LAWS OF THE STATE OF MARYLAND,  
 LICENSE NO. 10843,  
 EXPIRATION DATE: 8/19/2018.  
 6/10/16

END ELEVATIONS  
**DOWNTOWN COLUMBIA  
 CRESCENT NEIGHBORHOOD**  
 PARCELS B THRU H, NON-BUILDABLE BULK PARCELS J THRU R,  
 O.S. LOTS 1 THRU 8 AND  
 MERRIWEATHER-SYMPHONY WOODS NEIGHBORHOOD O.S. LOT 1  
 AND NON-BUILDABLE BULK PARCEL A  
 ELECTION DISTRICT No. 3 HOWARD COUNTY, MARYLAND

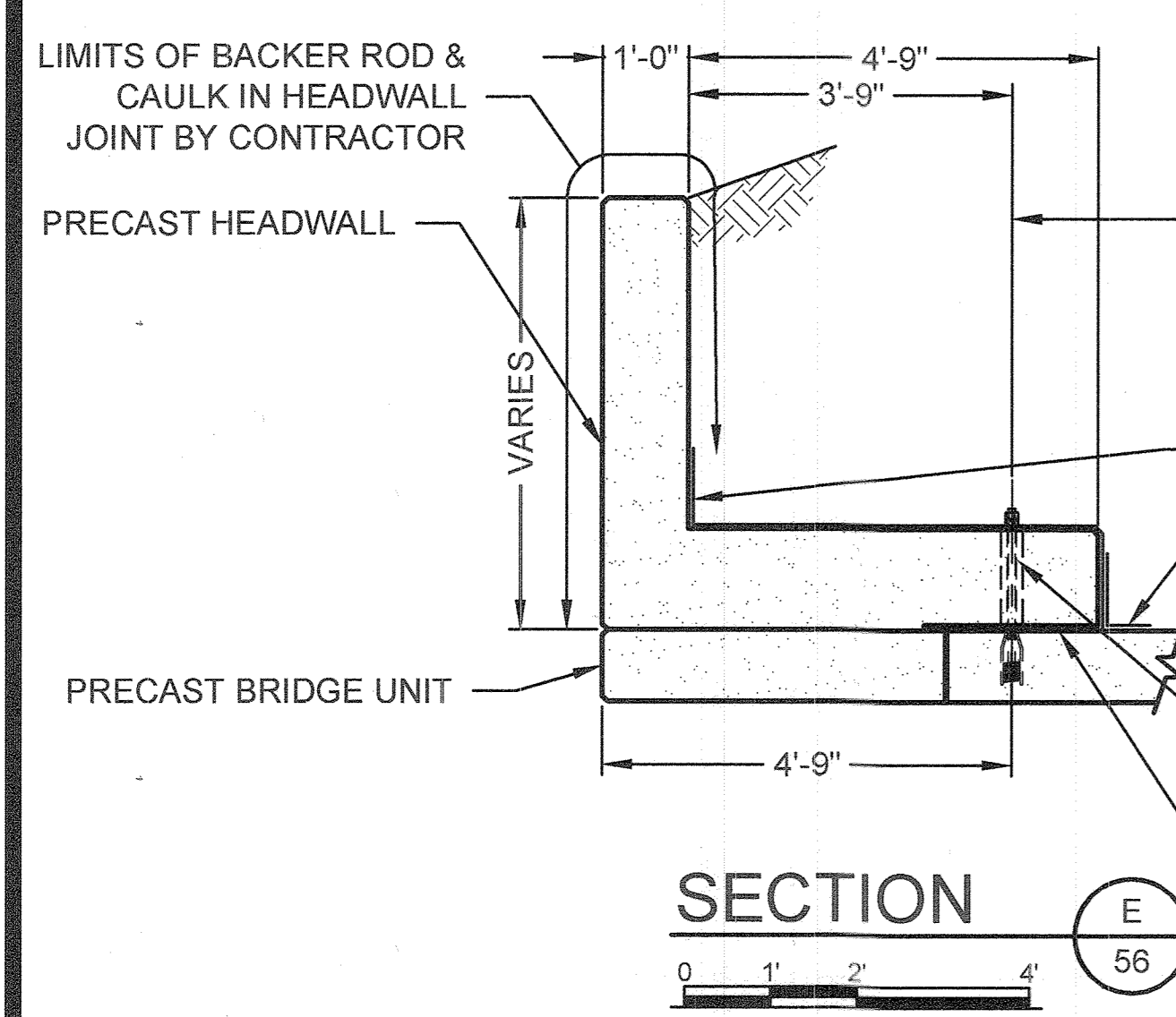
SCALE	ZONING	
AS NOTED	NT	
DATE	TAXTITLE	SHEET
JUNE, 2016	36 - 01	47 OF 102



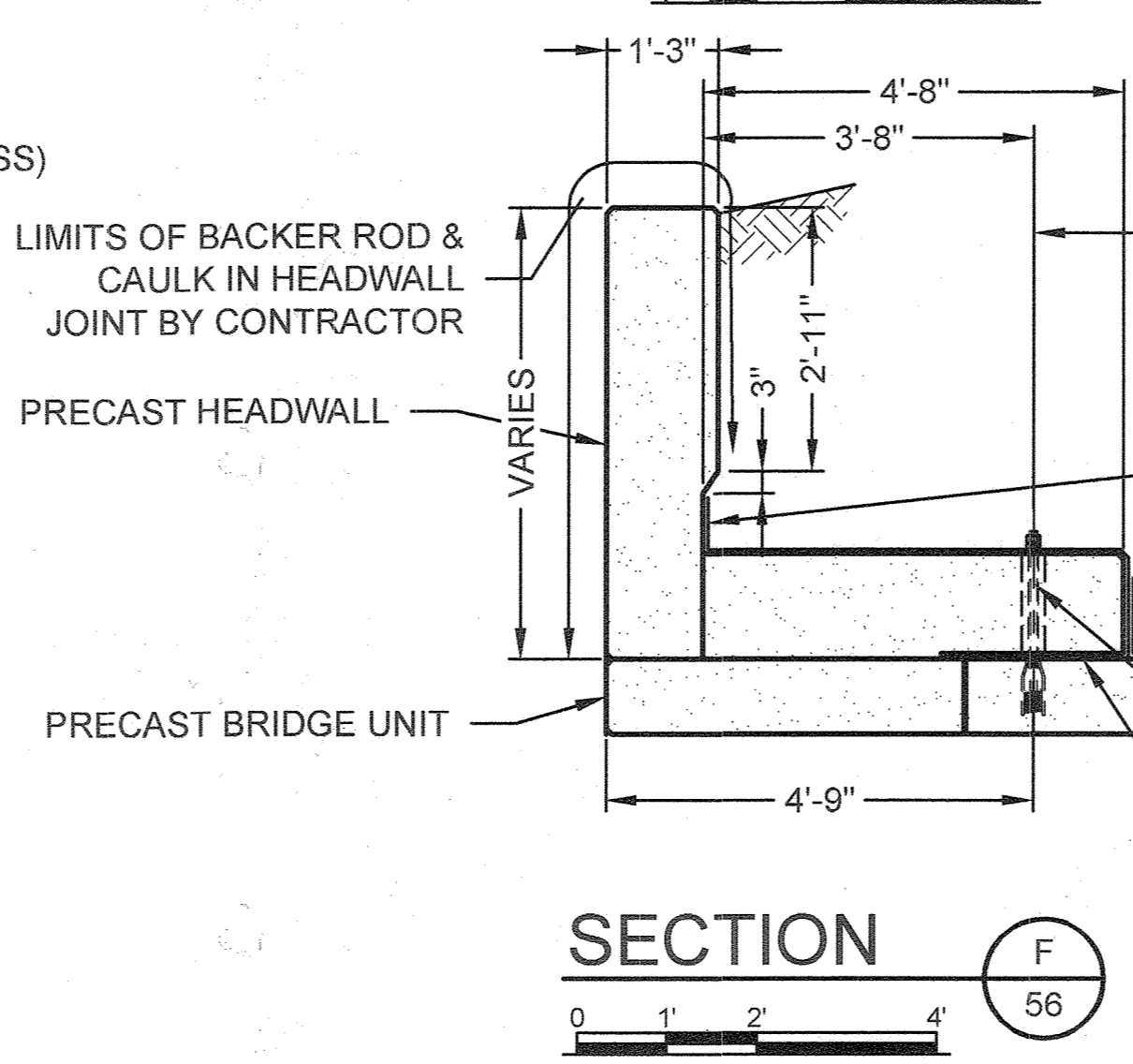
DETAIL 2/57



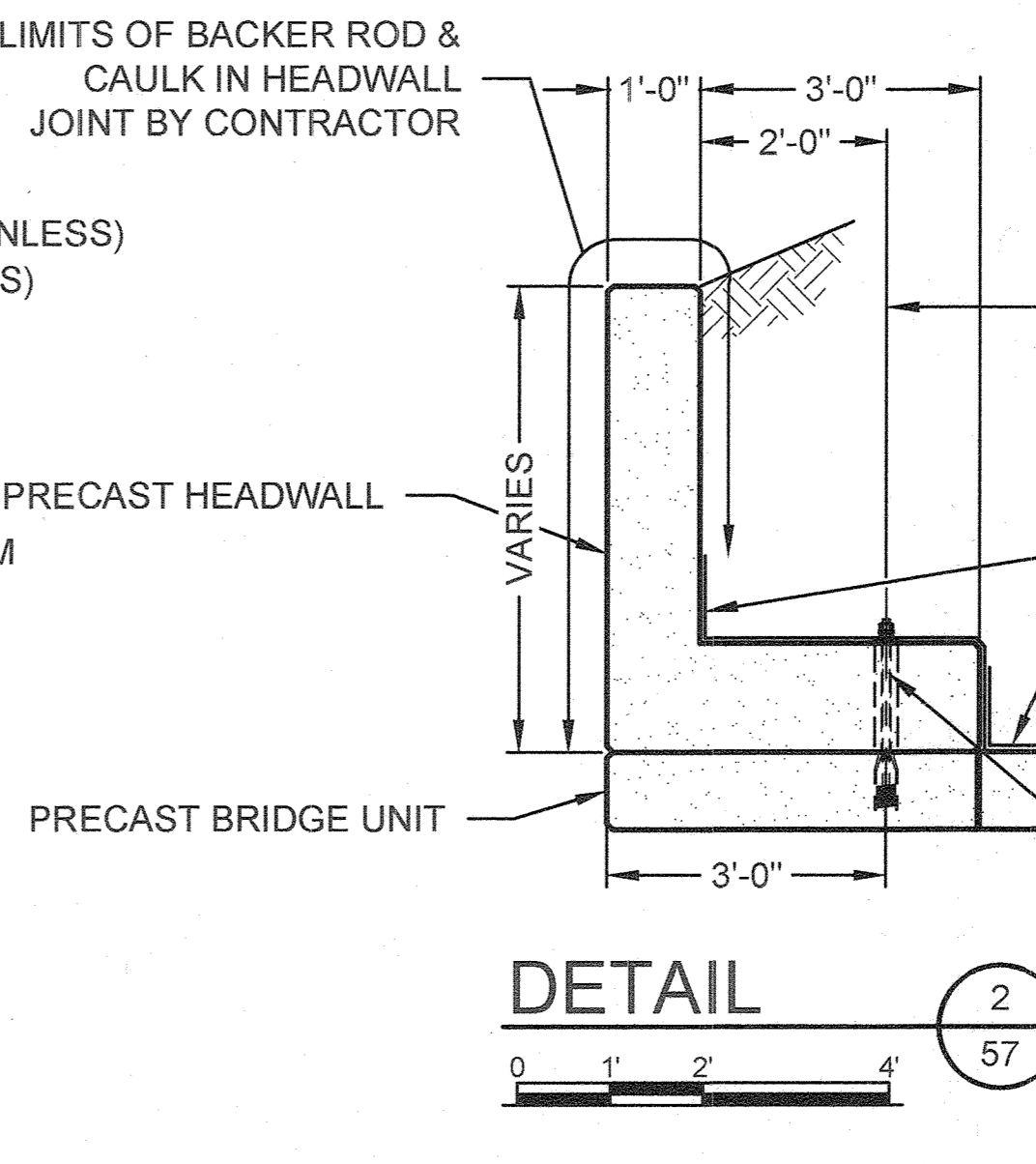
SECTION D 52



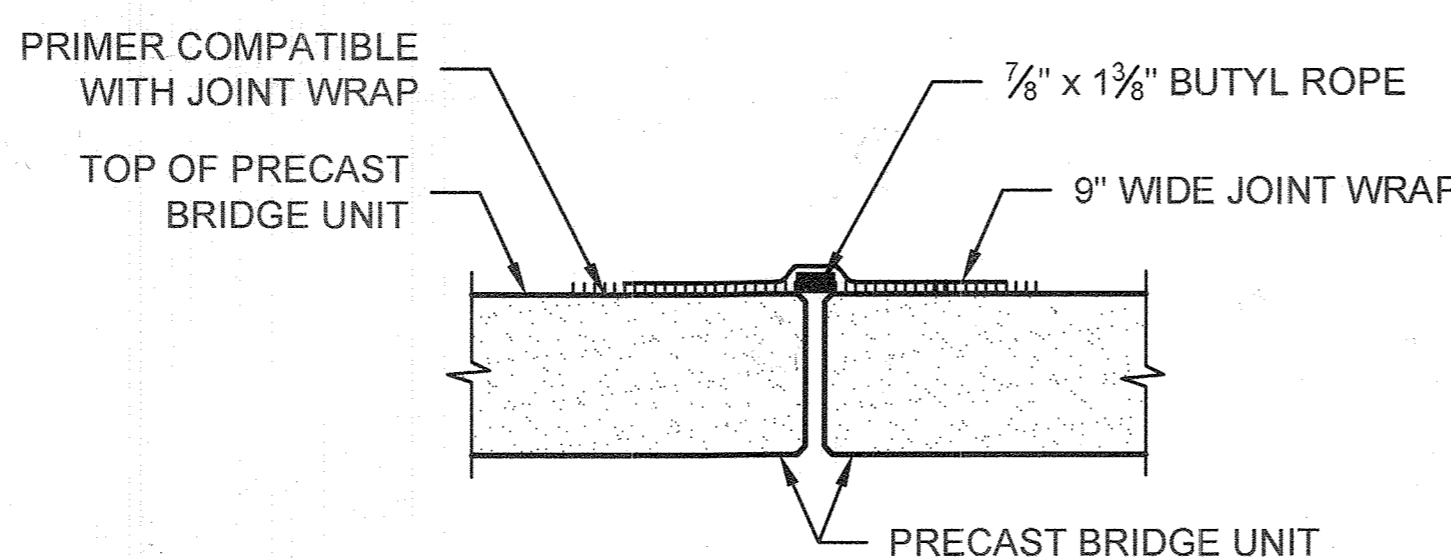
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 1/4" DIA x 1-6" COIL ROD (STAINLESS)  
 W/ DOUBLE NUT (STAINLESS)  
 WASHER (GALVANIZED)  
 SPACING TO BE DETERMINED  
 AT SHOP DRAWING STAGE  
 9" WIDE SEALWRAP OR EZ-WRAP  
 RUBBER AT HEADWALL JOINT FROM  
 TOP OF ARCH TO FINISH GRADE  
 JOINT WRAP W/PRIMER  
 3" HOLE GROUT SOLID AFTER  
 INSTALLATION OF COIL ROD  
 3/4" BLOCKOUT GROUT SOLID  
 AFTER INSTALLATION OF COIL  
 ROD



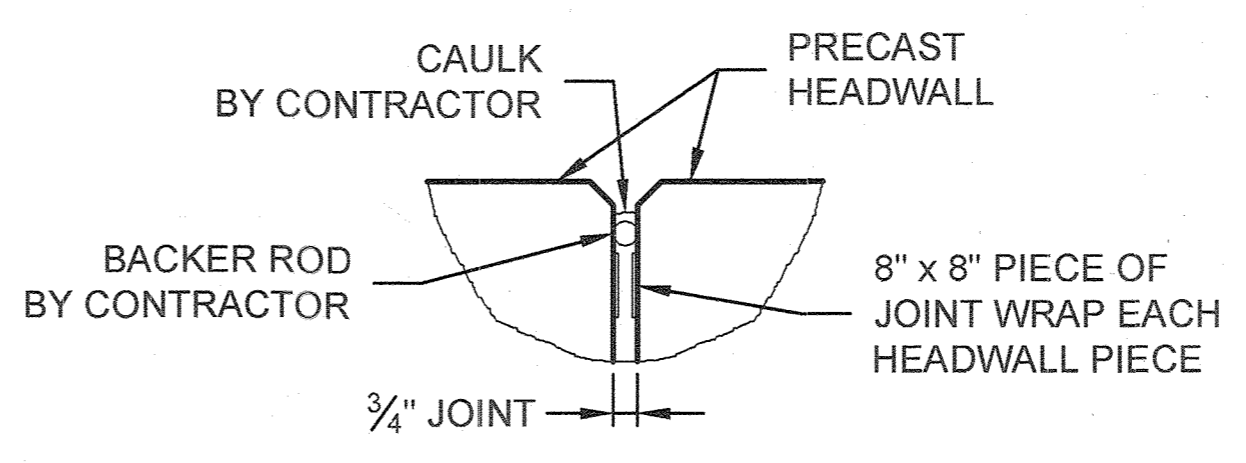
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 3" HOLE GROUT SOLID AFTER  
 INSTALLATION OF COIL ROD  
 3/4" BLOCKOUT GROUT SOLID  
 AFTER INSTALLATION OF COIL  
 ROD



TYPICAL JOINT SEAL DETAIL  
 NOT TO SCALE



TYPICAL HEADWALL JOINT DETAIL  
 NOT TO SCALE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
 Chief, Bureau of Highways  
 Date: 7/12/2016

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
 Chief, Division of Land Development  
 Date: 8-3-16

Chief, Development Engineering Division  
 Date: 7-26-16

STATE OF MARYLAND  
 PROFESSIONAL LAND SURVEYOR  
 Scott Shamberger  
 License No. 10849  
 AS-BUILT DATE: JAW 21-20-20  
 Shamberger & Lane  
 THERE IS NO AS-BUILT INFORMATION PROVIDED ON THIS SHEET

CONTECH ENGINEERED SOLUTIONS LLC  
 2024 SPOONWINE CANYE COURT  
 NEW MARKET, MARYLAND 21774  
 410-547-1957

DES.	JMF	DRN.	ACR	CHK.	DN	DATE	REVISION	BY	APPR.

PREPARED FOR:  
 THE HOWARD HUGHES CORPORATION  
 10480 LITTLE PATUXENT PARKWAY  
 SUITE 400  
 COLUMBIA, MD 21044  
 ATTN: BOB JENKINS  
 410-964-5443

PROFESSIONAL CERTIFICATION  
 I HEREBY CERTIFY THAT THESE PLANS 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. 38225  
 EXPIRATION DATE: 8/19/2016  
 6/10/16

LONGITUDINAL SECTION, HEADWALL DETAILS  
**DOWNTOWN COLUMBIA CRESCENT NEIGHBORHOOD**  
 PARCELS B THRU H, NON-BUILDABLE BULK PARCELS J THRU R, OS. LOTS 1 THRU 8 AND MERRIWEATHER-SYMPHONY WOODS NEIGHBORHOOD OS. LOT 1 AND NON-BUILDABLE BULK PARCEL A  
 ELECTION DISTRICT No. 5  
 HOWARD COUNTY, MARYLAND

SCALE	ZONING	DATE	TAXITLE	SHEET
AS NOTED	NT	JUNE, 2016	36 - 01	48 OF 102











# SPECIFICATIONS FOR MANUFACTURE AND INSTALLATION OF CON/SPAN® BRIDGE SYSTEMS (CONT'D)

- 11. MARKING**  
EACH BRIDGE UNIT SHALL BE CLEARLY MARKED BY WATERPROOF PAINT. THE FOLLOWING SHALL BE SHOWN ON THE INSIDE OF THE VERTICAL LEG OF THE BRIDGE SECTION:  
BRIDGE SPAN x BRIDGE RISE  
DATE OF MANUFACTURE  
NAME OR TRADEMARK OF THE MANUFACTURER
- 12. INSTALLATION PREPARATION**  
TO ENSURE CORRECT INSTALLATION OF THE PRECAST CONCRETE BRIDGE SYSTEM, CARE AND CAUTION MUST BE EXERCISED IN FORMING THE SUPPORT AREAS FOR BRIDGE UNITS, HEADWALL, AND WINGWALL ELEMENTS. EXERCISING SPECIAL CARE WILL FACILITATE THE RAPID INSTALLATION OF THE PRECAST COMPONENTS.
- 12.1. FOOTINGS**  
DO NOT OVER EXCAVATE FOUNDATIONS UNLESS DIRECTED BY SITE SOIL ENGINEER TO REMOVE UNSUITABLE SOIL.

THE SITE SOILS ENGINEER SHALL CERTIFY THAT THE BEARING CAPACITY MEETS OR EXCEEDS THE FOOTING DESIGN REQUIREMENTS, PRIOR TO THE CONTRACTOR POURING OF THE FOOTINGS.

THE BRIDGE UNITS AND WINGWALLS SHALL BE INSTALLED ON EITHER PRECAST OR CAST-IN-PLACE CONCRETE FOOTINGS. THE SIZE AND ELEVATION OF THE FOOTINGS SHALL BE AS DESIGNED BY THE ENGINEER. A KEYWAY SHALL BE FORMED IN THE TOP SURFACE OF THE BRIDGE FOOTING AS SPECIFIED ON THE PLANS. NO KEYWAY IS REQUIRED IN THE WINGWALL FOOTINGS, UNLESS OTHERWISE SPECIFIED ON THE PLANS.

THE FOOTINGS SHALL BE GIVEN A SMOOTH FLOAT FINISH AND SHALL REACH A COMPRESSIVE STRENGTH OF 2,000 PSI BEFORE PLACEMENT OF THE BRIDGE AND WINGWALL ELEMENTS. BACKFILLING SHALL NOT BEGIN UNTIL THE FOOTING HAS REACHED THE FULL DESIGN COMPRESSIVE STRENGTH.

THE FOOTING SURFACE SHALL BE CONSTRUCTED IN ACCORDANCE WITH GRADES SHOWN ON THE PLANS. WHEN TESTED WITH A 10'-0" STRAIGHT EDGE, THE SURFACE SHALL NOT VARY MORE THAN 1/4" IN 10'-0".

IF A PRECAST CONCRETE FOOTING IS USED, THE CONTRACTOR SHALL PREPARE A 4" THICK BASE LAYER OF COMPACTED GRANULAR MATERIAL THE FULL WIDTH OF THE FOOTING PRIOR TO PLACING THE PRECAST FOOTING.

THE FOUNDATIONS FOR PRECAST CONCRETE BRIDGE ELEMENTS AND WINGWALLS MUST BE CONNECTED BY REINFORCEMENT TO FORM ONE MONOLITHIC BODY. EXPANSION JOINTS SHALL NOT BE USED.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CONSTRUCTION OF THE FOUNDATIONS PER THE PLANS AND SPECIFICATIONS.

- 13. INSTALLATION**
- 13.1. GENERAL** - THE INSTALLATION OF THE PRECAST CONCRETE ELEMENTS SHALL BE AS EXPLAINED IN THE PUBLICATION CON/SPAN BRIDGE SYSTEMS INSTALLATION HANDBOOK.
- 13.1.1. LIFTING** - IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE THAT A CRANE OF THE CORRECT LIFTING CAPACITY IS AVAILABLE TO HANDLE THE PRECAST CONCRETE UNITS. THIS CAN BE ACCOMPLISHED BY USING THE WEIGHTS GIVEN FOR THE PRECAST CONCRETE COMPONENTS AND BY DETERMINING THE LIFTING REACH FOR EACH CRANE UNIT. SITE CONDITIONS MUST BE CHECKED WELL IN ADVANCE OF SHIPPING TO ENSURE PROPER CRANE LOCATION AND TO AVOID ANY LIFTING RESTRICTIONS. THE LIFT ANCHORS OR HOLES PROVIDED IN EACH UNIT ARE THE ONLY

### ACCEPTABLE SOILS FOR USE IN ZONE B BACKFILL

TYPICAL USCS MATERIALS	AASHTO GROUP	AASHTO SUBGROUP	PERCENT PASSING US SIEVE NO.			CHARACTER OF FRACTION PASSING NO. 40 SIEVE		SOIL DESCRIPTION
			#10	#40	#200	LIQUID LIMIT	PLASTICITY INDEX	
GW, GP, SP	A1	A-1a	50 MAX	30 MAX	15 MAX		6 MAX	LARGELY GRAVEL BUT CAN INCLUDE SAND AND FINES
GM, SW, SP, SM		A-1b		50 MAX	25 MAX		6 MAX	GRAVELLY SAND OR GRADED SAND, MAY INCLUDE FINES
GM, SM, ML, SP, GP	A2	A-2-4			35 MAX	40 MAX	10 MAX	SANDS, GRAVELS WITH LOW-PLASTICITY SILT FINES
SC, GC, GM		A-2-5			35 MAX	41 MIN	10 MAX	SANDS, GRAVELS WITH PLASTIC SILT FINES
SP, SM, SW	A3			51 MIN	10 MAX		NON-PLASTIC	FINE SANDS
ML, SM, SC	A4				36 MIN	40 MAX	10 MAX	LOW-COMPRESSIBILITY SILTS

MEANS TO BE USED TO LIFT THE ELEMENTS. THE PRECAST CONCRETE ELEMENTS MUST NOT BE SUPPORTED OR RAISED BY OTHER MEANS THAN THOSE GIVEN IN THE MANUALS AND DRAWINGS WITHOUT WRITTEN APPROVAL FROM CONTECH® ENGINEERED SOLUTIONS.

- 13.1.2. CONSTRUCTION EQUIPMENT WEIGHT RESTRICTIONS** - IN NO CASE SHALL EQUIPMENT OPERATING IN EXCESS OF THE DESIGN LOAD (HL-93) BE PERMITTED OVER THE BRIDGE UNITS UNLESS APPROVED BY CONTECH® ENGINEERED SOLUTIONS.

**13.1.2.1. IN THE IMMEDIATE AREA OF THE BRIDGE UNITS, THE FOLLOWING RESTRICTIONS FOR THE USE OF HEAVY CONSTRUCTION MACHINERY DURING BACKFILLING OPERATIONS APPLY:**  
NO CONSTRUCTION EQUIPMENT SHALL CROSS THE BARE PRECAST CONCRETE BRIDGE UNIT.  
AFTER THE COMPACTED FILL LEVEL HAS REACHED A MINIMUM OF 4" OVER THE CROWN OF THE BRIDGE, CONSTRUCTION EQUIPMENT WITH A WEIGHT OF LESS THAN 10 TONS MAY CROSS THE BRIDGE. AFTER THE COMPACTED FILL LEVEL HAS REACHED A MINIMUM OF 1'-0" OVER THE CROWN OF THE BRIDGE, CONSTRUCTION EQUIPMENT WITH A WEIGHT OF LESS THAN 30 TONS MAY CROSS THE BRIDGE.  
AFTER THE COMPACTED FILL LEVEL HAS REACHED THE DESIGN COVER, OR 2'-0" MINIMUM, OVER THE CROWN OF THE PRECAST CONCRETE BRIDGE, CONSTRUCTION EQUIPMENT WITHIN THE DESIGN LOAD LIMITS FOR THE ROAD MAY CROSS THE PRECAST CONCRETE BRIDGE.

**13.2. LEVELING PADS/SHIMS** - THE BRIDGE UNITS AND WINGWALLS SHALL BE SET ON HARDBOARD SHIMS CONFORMING TO ASTM D1037 OR PLASTIC SHIMS (DAYTON SUPERIOR P-80, P-81 OR APPROVED EQUAL) MEASURING 5" x 5". MINIMUM, UNLESS SHOWN OTHERWISE ON THE PLANS. A MINIMUM GAP OF 1/2" SHALL BE PROVIDED BETWEEN THE FOOTING AND THE BOTTOM OF THE BRIDGE'S VERTICAL LEGS OR THE BOTTOM OF THE WINGWALL. ALSO, A SUPPLY OF 1/2", 3/4", AND 1" THICK HARDBOARD OR PLASTIC SHIMS FOR VARIOUS SHIMMING PURPOSES SHALL BE ON SITE.

**13.3. PLACEMENT OF BRIDGE UNITS** - THE BRIDGE UNITS SHALL BE PLACED AS SHOWN ON THE ENGINEER'S PLAN DRAWINGS. SPECIAL CARE SHALL BE TAKEN IN SETTING THE ELEMENTS TO THE TRUE LINE AND GRADE. THE JOINT WIDTH BETWEEN ADJACENT PRECAST UNITS SHALL NOT EXCEED 1/4".

**13.4. IT IS THE CONTRACTOR'S RESPONSIBILITY TO MAINTAIN THE STRUCTURE SPAN DURING ALL PHASES OF INSTALLATION.** DUE TO THE ARCH SHAPE, BRIDGE ELEMENTS WILL TEND TO SPREAD UNDER SELF-WEIGHT. IT IS IMPERATIVE THAT ANY LATERAL SPREADING OF THE BRIDGE ELEMENTS BE AVOIDED DURING AND AFTER THEIR PLACEMENT. GENERALLY, HORIZONTAL CABLE TIES OR TIE RODS ARE SHIPPED IN THE LARGER BRIDGE ELEMENTS TO ASSIST IN PREVENTING THIS SPREADING. CABLE TIES/TIE RODS SHALL NOT BE REMOVED UNTIL BRIDGE UNITS ARE GROUTED AND GROUT HAS CURED. IT IS RECOMMENDED THAT TEMPORARY HARDWOOD BLOCKS BE USED IN CONJUNCTION WITH THE CABLE TIES/TIE RODS TO MAINTAIN SPAN. IF, HOWEVER, DUE TO SITE RESTRICTIONS, THESE CABLE TIES/TIE RODS MUST BE REMOVED PRIOR TO PLACEMENT OF THE BRIDGE ELEMENTS, THE CONTRACTOR MUST NOTIFY CONTECH (MANUFACTURER) AND REQUEST A SUGGESTED INSTALLATION PROCEDURE.

IN ADDITION, IF THE CABLE TIES/TIE RODS MUST BE REMOVED PRIOR TO SETTING ARCH UNITS, THE FOLLOWING QUALITY CONTROL PROCEDURE MUST BE FOLLOWED:

- FIND "MEASURED SPAN" UPON ARCH UNITS' DELIVERY TO SITE, PRIOR TO LIFTING FROM TRUCK AND REMOVING CABLE TIES/TIE RODS. "MEASURED SPAN" SHALL BE THE AVERAGE OF (3) SPAN MEASUREMENTS ALONG THE LENGTH OF THE ARCH UNIT.
- AFTER SETTING OF BRIDGE UNIT ON THE FOUNDATION,

VERIFY THE SPAN. THIS "INSTALLED SPAN MEASUREMENT" SHALL NOT EXCEED THE MAXIMUM OF:

- THE NOMINAL SPAN +/-" OR
- THE "MEASURED SPAN"

IF THE "INSTALLED SPAN MEASUREMENT" EXCEEDS THIS AMOUNT, THE ARCH UNIT SHALL BE LIFTED AND RE-SET UNTIL THE "INSTALLED SPAN MEASUREMENT" MEETS THE LIMITS.

**13.5. PLACEMENT OF WINGWALLS, HEADWALLS AND FOUNDATION UNITS** - THE WINGWALLS, HEADWALLS AND FOUNDATIONS SHALL BE PLACED AS SHOWN ON THE PLAN DRAWINGS. SPECIAL CARE SHALL BE TAKEN IN SETTING THE ELEMENTS TO THE TRUE LINE AND GRADE.

**13.6. WATERPROOFING/Joint PROTECTION AND SUBSURFACE DRAINAGE**

**13.6.1. EXTERNAL PROTECTION OF JOINTS** - THE BUTT JOINT MADE BY TWO ADJOINING BRIDGE UNITS SHALL BE COVERED WITH A 1/2" x 1 1/2" PREFORMED BITUMINOUS JOINT SEALANT AND A MINIMUM OF A 9" WIDE JOINT WRAP. THE SURFACE SHALL BE FREE OF DIRT BEFORE APPLYING THE JOINT MATERIAL. A PRIMER COMPATIBLE WITH THE JOINT WRAP TO BE USED SHALL BE APPLIED FOR A MINIMUM WIDTH OF 9" ON EACH SIDE OF THE JOINT. THE EXTERNAL WRAP SHALL BE CS212 BY CONCRETE SEALANTS INC., EZ-WRAP RUBBER BY PRESS-SEAL GASKET CORPORATION, SEAL WRAP BY MAR MAC MANUFACTURING CO. INC. OR APPROVED EQUAL. THE JOINT SHALL BE COVERED CONTINUOUSLY FROM THE BOTTOM OF ONE BRIDGE SECTION LEG, ACROSS THE TOP OF THE BRIDGE AND TO THE OPPOSITE BRIDGE SECTION LEG. ANY LAPS THAT RESULT IN THE JOINT WRAP SHALL BE A MINIMUM OF 6" LONG WITH THE OVERLAP RUNNING DOWNHILL.

**13.6.2. IN ADDITION TO THE JOINTS BETWEEN BRIDGE UNITS, THE JOINT BETWEEN THE END BRIDGE UNIT AND THE HEADWALL SHALL ALSO BE SEALED AS DESCRIBED ABOVE. IF PRECAST WINGWALLS ARE USED, THE JOINT BETWEEN THE END BRIDGE UNIT AND THE WINGWALL SHALL BE SEALED WITH A 2'-0" STRIP OF FILTER FABRIC. ALSO, IF LIFT HOLES ARE FORMED IN THE BRIDGE UNITS, THEY SHALL BE PRIMED AND COVERED WITH A 9" x 9" SQUARE OF JOINT WRAP.**

**13.6.3. DURING THE BACKFILLING OPERATION, CARE SHALL BE TAKEN TO KEEP THE JOINT WRAP IN ITS PROPER LOCATION OVER THE JOINT.**

**13.6.4. SUBSOIL DRAINAGE SHALL BE AS DIRECTED BY THE ENGINEER.**

### 13.7. GROUTING

**13.7.1. GROUTING SHALL NOT BE PERFORMED WHEN TEMPERATURES ARE EXPECTED TO GO BELOW 35° FOR A PERIOD OF 72 HOURS.** FILL THE BRIDGE-FOUNDATION KEYWAY WITH CEMENT GROUT (PORTLAND CEMENT AND WATER OR CEMENT MORTAR COMPOSED OF PORTLAND CEMENT, SAND AND WATER) WITH A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 3000 PSI. VIBRATE AS REQUIRED TO ENSURE THAT THE ENTIRE KEY AROUND THE BRIDGE ELEMENT IS COMPLETELY FILLED. IF BRIDGE ELEMENTS HAVE BEEN SET WITH TEMPORARY TIES (CABLES, BARS, ETC.) GROUT MUST ATTAIN A MINIMUM COMPRESSIVE STRENGTH OF 1500 PSI BEFORE TIES MAY BE REMOVED.

**13.7.2. ALL GROUT SHALL HAVE A MAXIMUM AGGREGATE SIZE OF 1/4".**

**13.7.3. LIFTING AND ERECTION ANCHOR RECESSES SHALL BE FILLED WITH GROUT.**

**13.7.4. AFTER GROUT HAS REACHED ITS DESIGN STRENGTH THE TEMPORARY HARDWOOD WEDGES SHALL BE REMOVED AND THEIR HOLES FILLED WITH GROUT.**

### 13.8. BACKFILL

**13.8.1. DO NOT PERFORM BACKFILLING DURING WET OR FREEZING WEATHER.**

**13.8.2. NO BACKFILL SHALL BE PLACED AGAINST ANY STRUCTURAL ELEMENTS UNTIL THEY HAVE BEEN APPROVED BY THE ENGINEER.**

**13.8.3. BACKFILL SHALL BE CONSIDERED AS ALL REPLACED FINISHED GRADE**

EXCAVATION AND NEW EMBANKMENT ADJACENT TO THE PRECAST CONCRETE ELEMENTS. THE PROJECT CONSTRUCTION AND MATERIAL SPECIFICATIONS, WHICH INCLUDE THE SPECIFICATIONS FOR EXCAVATION FOR STRUCTURES AND ROADWAY EXCAVATION AND EMBANKMENT CONSTRUCTION, SHALL APPLY EXCEPT AS MODIFIED IN THIS SECTION.

### 13.8.4. BACKFILL ZONES:

IN-SITU SOIL  
ZONE A: CONSTRUCTED EMBANKMENT OR OVERFILL  
ZONE B: FILL THAT IS DIRECTLY ASSOCIATED WITH PRECAST CONCRETE BRIDGE INSTALLATION.  
ZONE C: ROAD STRUCTURE.

### 13.8.5. REQUIRED BACKFILL PROPERTIES

**13.8.5.1. IN-SITU SOIL** - NATURAL GROUND IS TO BE SUFFICIENTLY STABLE TO ALLOW EFFECTIVE SUPPORT TO THE PRECAST CONCRETE BRIDGE UNITS. AS A GUIDE, THE EXISTING NATURAL GROUND SHOULD BE OF SIMILAR QUALITY AND DENSITY TO ZONE B MATERIAL FOR MINIMUM LATERAL DIMENSION OF ONE BRIDGE SPAN OUTSIDE OF THE BRIDGE FOOTING.

**13.8.5.2. ZONE A** - ZONE A REQUIRES FILL MATERIAL WITH SPECIFICATIONS AND COMPACTING PROCEDURES EQUAL TO THAT FOR NORMAL ROAD EMBANKMENTS.

**13.8.5.3. ZONE B** - GENERALLY, SOILS SHALL BE REASONABLY FREE OF ORGANIC MATTER, AND, NEAR CONCRETE SURFACES, FREE OF STONES LARGER THAN 3" IN DIAMETER. SEE CHARTS FOR DETAILED DESCRIPTIONS OF ACCEPTABLE SOILS.

**13.8.5.4. ZONE C** - ZONE C IS THE ROAD SECTION OF GRAVEL, ASPHALT OR CONCRETE BUILT IN COMPLIANCE WITH LOCAL ENGINEERING PRACTICES.

**13.8.5.5. GEOTECHNICAL ENGINEER SHALL REVIEW GRADATIONS OF ALL INTERFACING MATERIALS AND, IF NECESSARY, RECOMMEND GEOTEXTILE FILTER FABRIC (PROVIDED BY CONTRACTOR)**

**13.8.6. PLACING AND COMPACTING BACKFILL** DUMPING FOR BACKFILLING IS NOT ALLOWED ANY NEARER THAN 3'-0" FROM THE BRIDGE LEG.

THE FILL MUST BE PLACED AND COMPACTED IN LAYERS NOT EXCEEDING 8". THE MAXIMUM DIFFERENCE IN THE SURFACE LEVELS OF THE FILL ON OPPOSITE SIDES OF THE BRIDGE MUST NOT EXCEED 2'-0".

THE FILL BEHIND WINGWALLS MUST BE PLACED AT THE SAME TIME AS THAT OF THE BRIDGE FILL. IT MUST BE PLACED IN PROGRESSIVELY PLACED HORIZONTAL LAYERS NOT EXCEEDING 8" PER LAYER.

THE BACKFILL OF ZONE B SHALL BE COMPACTED TO A MINIMUM DENSITY OF 95% OF THE STANDARD PROCTOR, AS REQUIRED BY AASHTO T-99.

SOIL WITHIN 1'-0" OF CONCRETE SURFACES SHALL BE HAND-COMPACTED. ELSEWHERE, USE OF ROLLERS IS ACCEPTABLE. IF VIBRATING ROLLER-COMPACTORS ARE USED, THEY SHALL NOT BE STARTED OR STOPPED WITHIN ZONE B AND THE VIBRATION FREQUENCY SHOULD BE AT LEAST 30 REVOLUTIONS PER SECOND.

THE BACKFILL MATERIAL AND COMPACTING BEHIND WINGWALLS SHALL SATISFY THE CRITERIA FOR THE BRIDGE BACKFILL, ZONE B.

BACKFILL AGAINST A WATERPROOFED SURFACE SHALL BE PLACED CAREFULLY TO AVOID DAMAGE TO THE WATERPROOFING MATERIAL.

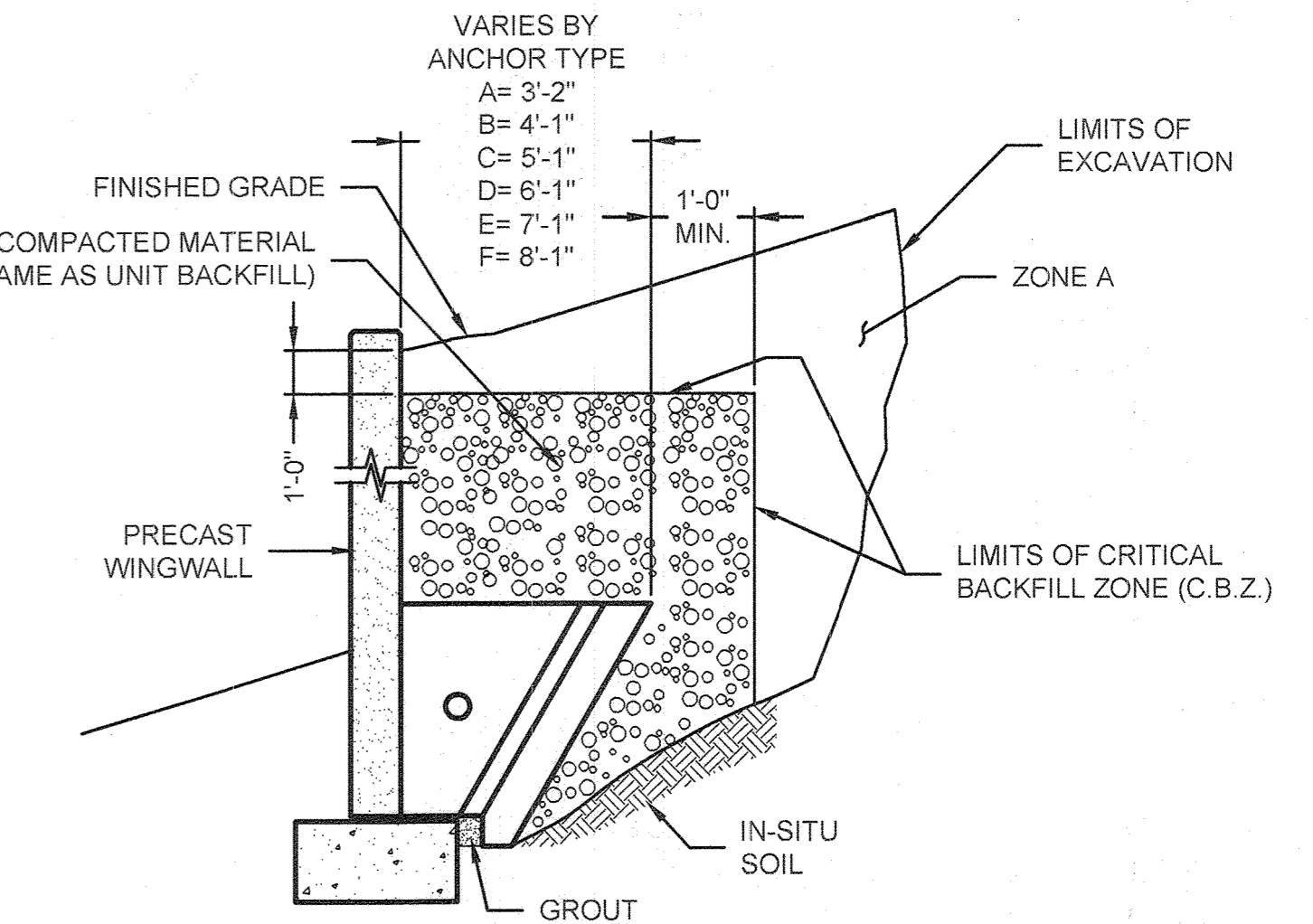
### 13.8.7. BRIDGE UNITS

FOR FILL HEIGHTS OVER 12 FEET (AS MEASURED FROM TOP CROWN OF BRIDGE TO FINISHED GRADE), NO BACKFILLING MAY BEGIN UNTIL A BACKFILL COMPACTION TESTING PLAN HAS BEEN COORDINATED WITH AND APPROVED BY CONTECH® ENGINEERED SOLUTIONS.

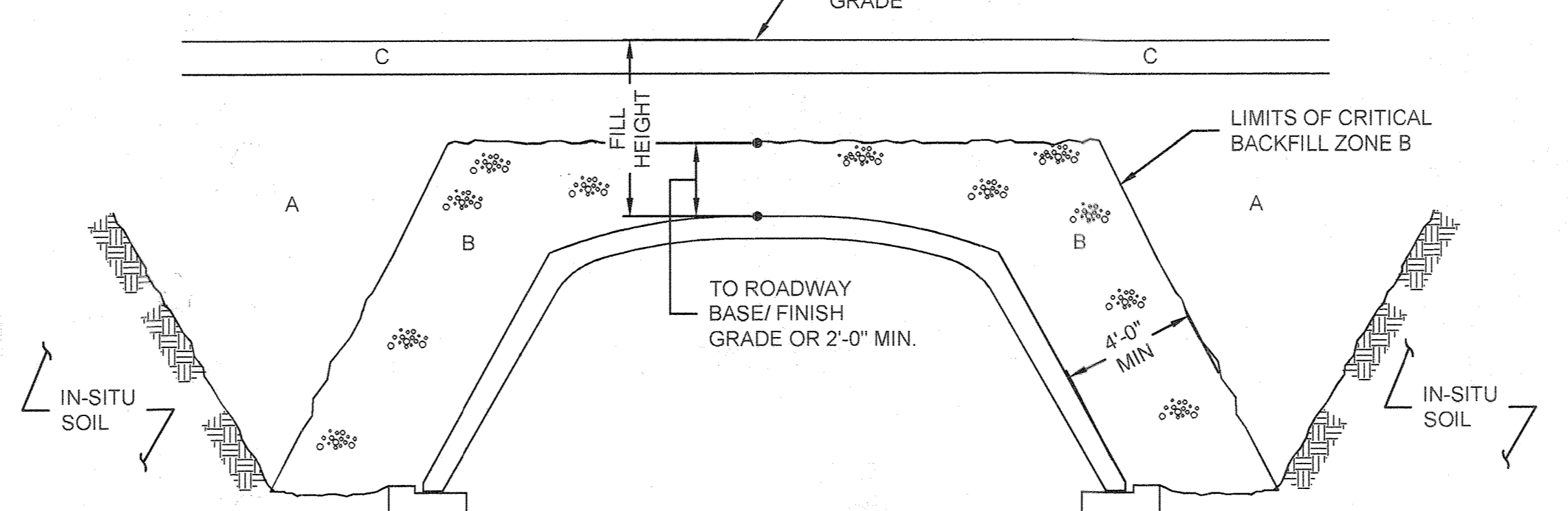
**13.8.8. WINGWALLS**  
BACKFILL IN FRONT OF WINGWALLS SHALL BE CARRIED TO GROUND LINES SHOWN IN THE PLANS.

**13.8.9. MONITORING**  
THE CONTRACTOR SHALL CHECK SETTLEMENTS AND HORIZONTAL DISPLACEMENT OF FOUNDATION TO ENSURE THAT THEY ARE WITHIN THE ALLOWABLE LIMIT PROVIDED BY THE ENGINEER. THESE MEASUREMENTS SHOULD GIVE AN INDICATION OF THE SETTLEMENTS AND DEFORMATIONS ALONG THE LENGTH OF THE FOUNDATIONS.

THE FIRST MEASUREMENT SHOULD TAKE PLACE AFTER THE ERECTION OF ALL PRECAST BRIDGE SYSTEM ELEMENTS, A SECOND AFTER COMPLETION OF BACKFILLING, AND A THIRD BEFORE OPENING OF THE BRIDGE TO TRAFFIC. FURTHER MEASUREMENTS MAY BE MADE ACCORDING TO LOCAL CONDITIONS.

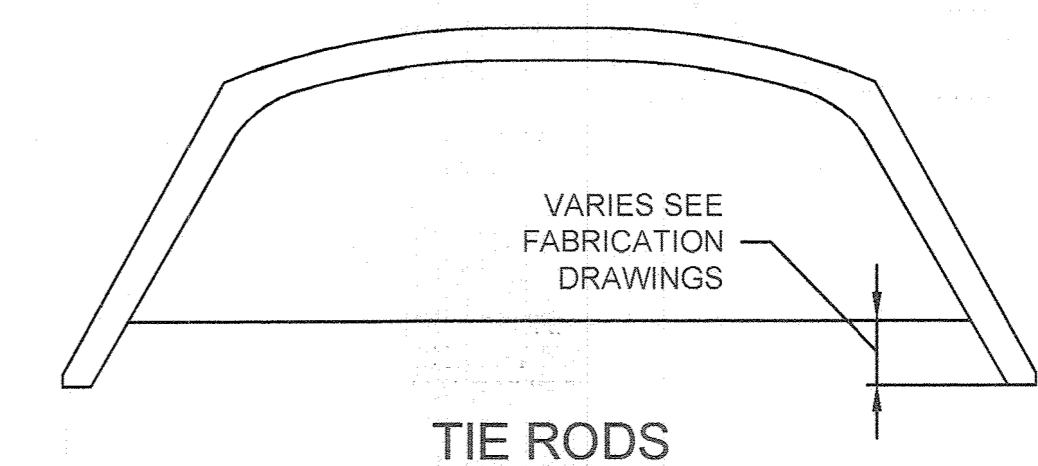


**WALL BACKFILL REQUIREMENTS**



SPAN	FILL HEIGHT	ACCEPTABLE MATERIAL INSIDE ZONE B
≤ 24'-0"	≥ 12'-0"	A1, A3
≤ 24'-0"	< 12'-0"	A1, A2, A3, A4
> 24'-0"	ALL	A1, A3

**BACKFILL REQUIREMENTS**



**TIE RODS**

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*Michael*  
 Chief, Bureau of Highways  
 Date: 7/16/16

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
*Scott Shanberger*  
 Chief, Division of Land Development  
 Date: 8-3-16

*Chad*  
 Chief, Development Engineering Division  
 Date: 7-26-16

STATE OF MARYLAND  
 GREEN SCOTT SHANBERGER  
 PROFESSIONAL LAND SURVEYOR  
 LICENSE NO. 10986  
 AS-BUILT DATE: JAN 24, 2020  
 SHANBERGER & LANS

THERE IS NO AS-BUILT INFORMATION PROVIDED ON THIS SHEET

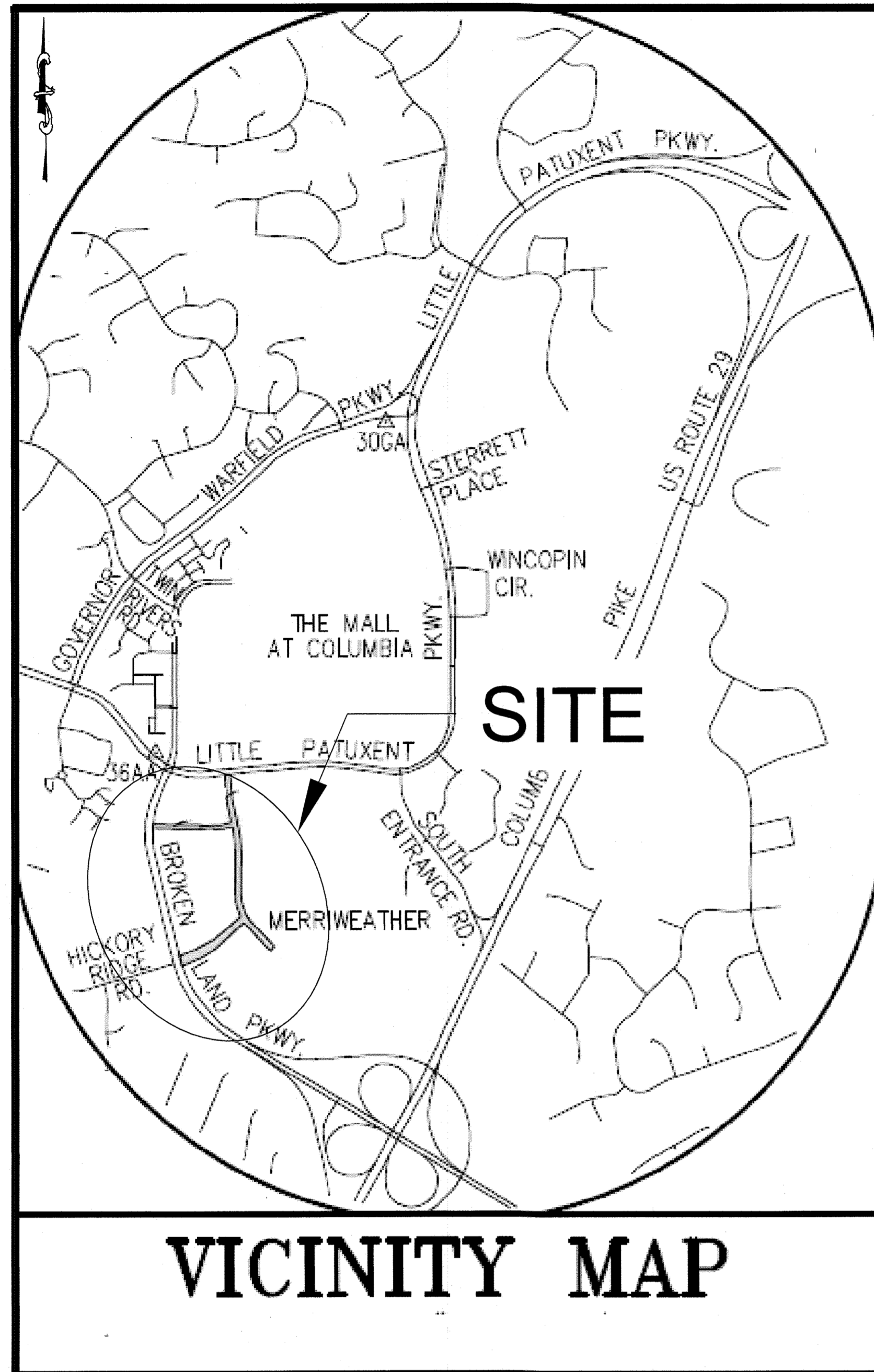
Professional L.S. # 10986 Exp. Date 4/20/22  
 AS-BUILT DATE: JAN 24, 2020  
 SHANBERGER & LANS

	DES: JMF	DRN: ACR	CHK: DN	DATE	REVISION	BY	APPR.	PREPARED FOR: THE HOWARD HUGHES CORPORATION 10480 LITTLE PATUXENT PARKWAY SUITE 400 COLUMBIA, MD 21044 ATTN: BOB JENKINS 410-964-5443	PROFESSIONAL CERTIFICATION I HEREBY CERTIFY THAT THESE PLANS 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. 36225 EXPIRATION DATE: 8/19/2016. 8/10/16	SPECIFICATIONS FOR MANUFACTURE & INSTALLATION (2) <b>DOWNTOWN COLUMBIA                  CRESCENT NEIGHBORHOOD</b> PARCELS B THRU H, NON-BUILDABLE BULK PARCELS J THRU R, O.S. LOTS 1 THRU 8 AND MERRIWEATHER-SYMPHONY WOODS NEIGHBORHOOD O.S. LOT 1 AND NON-BUILDABLE BULK PARCEL A	SCALE AS NOTED	ZONING NT	DATE JUNE, 2016	TAXTITLE 36 - 01	SHEET 51 OF 102
									ELECTION DISTRICT No. 5 HOWARD COUNTY, MARYLAND						



## TRAFFIC CONTROL NOTES

## FLAGGING OPERATION



1. ALL TEMPORARY TRAFFIC SIGNS, BARRICADES AND OTHER TRAFFIC CONTROL DEVICES USED FOR MAINTENANCE OF TRAFFIC SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MARYLAND MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, AND THE MARYLAND STATE HIGHWAY ADMINISTRATION (MDSHA) BOOK OF STANDARDS AND SPECIFICATIONS.
2. ALL TEMPORARY TRAFFIC SIGNS SHALL BE INSTALLED IN ACCORDANCE TO MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION ON MATERIALS, SECTION 104.08
3. WARNING SIGNS SHALL BE PLACED SO THAT THEY DO NOT OBSTRUCT EXISTING TRAFFIC CONTROL DEVICES.
4. ANY CORRECTIONS, MODIFICATIONS, OR ADDITIONS TO THE PLAN SHALL BE APPROVED BY HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS, TRAFFIC DIVISION.
5. MISS UTILITY SHALL BE NOTIFIED PRIOR TO PLACEMENT OF SIGNING, IF MOUNTING ON POSTS.
6. HOWARD COUNTY BUREAU OF ENGINEERING/TRANSPORTATION PROJECTS DIVISION (410-313-2014) SHALL BE NOTIFIED 24 HOURS PRIOR TO ANY WORK.
7. THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS TRAFFIC DIVISION RESERVES THE RIGHT TO MODIFY OR ADJUST THE PLAN TO FIT SITE CONDITIONS AT ANY TIME.
8. SIGN INSTALLATION SHALL NOT LAST ANY LONGER THAN 15 MINUTES PER LOCATION. IF LONGER THAN 15 MINUTES APPROPRIATE TRAFFIC CONTROL AND PERMITS SHALL BE USED.
9. ALL SIGNS SHALL CONFORM TO CURRENT MDSHA MATERIAL AND REFLECTIVITY REQUIREMENTS.
10. ACCESS SHALL BE MAINTAINED TO ALL DRIVEWAYS UNLESS PERMISSION FOR CLOSURE IS GRANTED BY THE PROPERTY OWNER/MANAGER. HOWEVER, ACCESSIBILITY FOR EMERGENCY VEHICLES SHALL BE MAINTAINED AT ALL TIMES.
11. ALL FLAGGERS SHALL BE CERTIFIED BY THE AMERICAN TRAFFIC SAFETY SERVICES ASSOCIATION.
12. ALL TRAFFIC CONTROL DEVICES SHALL BE REMOVED FROM VIEW TO ONCOMING TRAFFIC WHEN NOT IN USE.
13. NO HAZARDOUS MATERIALS SHALL BE STORED WITHIN THE PUBLIC RIGHT-OF-WAY.
14. ANY TEMPORARY TRAFFIC SIGNING AND MARKINGS THAT MAY CONFLICT WITH NORMAL TRAFFIC FLOW SHALL BE REMOVED OR COVERED AT THE END OF EACH DAY DURING CONSTRUCTION ON THIS PROJECT.
15. ALL EXISTING TRAFFIC CONTROL DEVICES THAT MUST BE REMOVED SHALL BE REPLACED IN THEIR PROPER LOCATION PRIOR TO THE COMPLETION OF THE PROJECT. COST FOR THE REPLACEMENT AND/OR REPAIR OF DEVICES DAMAGED AS A RESULT OF THE PROJECT SHALL BE ASSESSED TO THE CONTRACTOR.
16. AT THE COMPLETION OF THE PERMITTED WORK ACTIVITY, CONDITIONS WITHIN THE PUBLIC SPACE SHALL BE FULLY RESTORED TO THOSE WHICH EXISTED PRIOR TO THE WORK ACTIVITY.
17. WHEN PAVEMENT MARKINGS HAVE BEEN OBLITERATED BY THE WORK ACTIVITY, THE CONTRACTOR SHALL INSTALL ANY CRITICAL INTERIM PAVEMENT MARKING PRIOR TO THE END OF THE WORK DAY.
18. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING ALL TRAFFIC CONTROL DEVICES. AT ANYTIME THE CONTRACTOR DOES NOT MAKE NECESSARY REPAIRS WITHIN 24 HOURS OF NOTIFICATION, APPROXIMATE WORK TIME REDUCTION AND/OR FINES MAY APPLY.
19. ALL WORK WITHIN PUBLIC RIGHT OF WAY AND/OR LANE CLOSURE MUST ONLY BE PERFORMED DURING THE HOURS OF 9AM TO 3PM.
20. NO LANE CLOSURES PERMITTED DURING SPECIAL MERRIWEATHER EVENTS AND CONCERTS AND MAJOR HOLIDAYS.
21. THE CONTRACTOR AND/OR THE DEVELOPER MUST COORDINATE WITH MERRIWEATHER POST PAVILION DURING SPECIAL EVENTS AND CONCERTS. WORK MUST BE RESTRICTED TO AVOID CONFLICTS DURING THESE TIMES, AS DETERMINED BY HOWARD COUNTY TRAFFIC DIVISION.

1. FLAGGING OPERATIONS SHALL BE LIMITED TO ASSIST PEDESTRIANS IN CROSSING BROKEN LAND PARKWAY AT HICKORY RIDGE ROAD DURING CONSTRUCTION OF THE LEFT-TURN LANE.
2. FLAGGING OPERATIONS SHALL BE UTILIZED IN ACCORDANCE WITH MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS AND MATERIALS, SECTION 104.31-01 AND SECTION 9.0 ON MARYLAND STANDARD MD 104.00-11 AND MD 104.00-12.

### VICINITY MAP

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*[Signature]* 7/12/2016  
 Chief, Bureau of Highways Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
*[Signature]* 8-3-16  
 Chief, Division of Land Development Date

*[Signature]* 7-26-16  
 Chief, Development Engineering Division Date

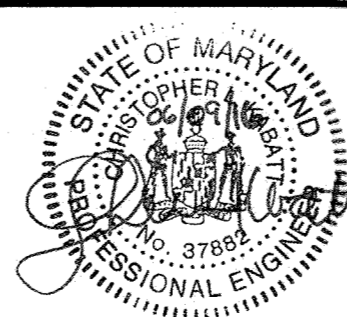
STATE OF MARYLAND  
 DESIGN PROFESSIONALS BOARD  
 PROFESSIONAL ENGINEER  
 No. 10849 Exp. Date 4/2/20 22  
 AS-BUILT DATE: 5/14/2020  
 Shanabarger & Lane

**WELLS + ASSOCIATES, INC**  
 1420 Spring Hill Road, Suite 610, Tysons, Virginia 22102  
 Phone: 703/917-6820 Facsimile: 703/917-0739

DES.	DRN.	CHK.	DATE	REVISION	BY	APP'R.

PREPARED FOR:  
 THE HOWARD HUGHES CORPORATION  
 10480 LITTLE PATUXENT PARKWAY  
 SUITE 400  
 COLUMBIA, MD 21044  
 ATTN: BOB JENKINS  
 410-964-5443

PROFESSIONAL CERTIFICATION  
 I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 37882, EXPIRATION DATE: 10/15/2017.



TEMPORARY TRAFFIC CONTROL PLAN (TTC) GENERAL NOTES

DOWNTOWN COLUMBIA  
 CRESCENT NEIGHBORHOOD  
 PARCELS B THRU H, NON-BUILDABLE BULK PARCELS J THRU R,  
 O.S. LOTS 1 THRU 8 AND  
 MERRIWEATHER-SYMPHONY WOODS NEIGHBORHOOD O.S. LOT 1  
 AND NON-BUILDABLE BULK PARCEL A  
 ELECTION DISTRICT No. 5 HOWARD COUNTY, MARYLAND

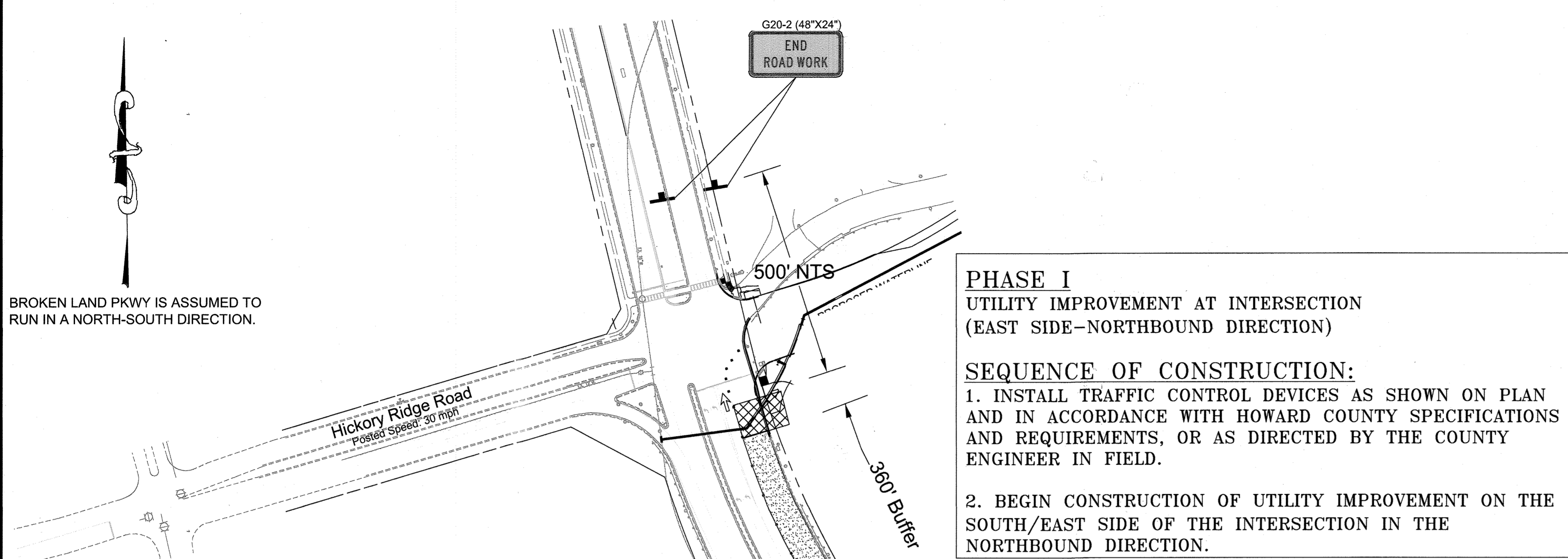
SCALE	ZONING	SHEET
NTS	NT	11071
DATE		
JUNE, 2016	36 - 01	52 OF 102



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 UNDER GROUND FACILITIES IN THE AREA OF PROPOSED EXCAVATION AND HAVE THOSE FACILITIES LOCATED BY THE UTILITY COMPANIES PRIOR TO COMMENCING EXCAVATION. THE EXCAVATOR IS RESPONSIBLE FOR COMPLIANCE WITH REQUIREMENTS OF THE HOWARD COUNTY CODE.



BROKEN LAND PKWY IS ASSUMED TO RUN IN A NORTH-SOUTH DIRECTION.



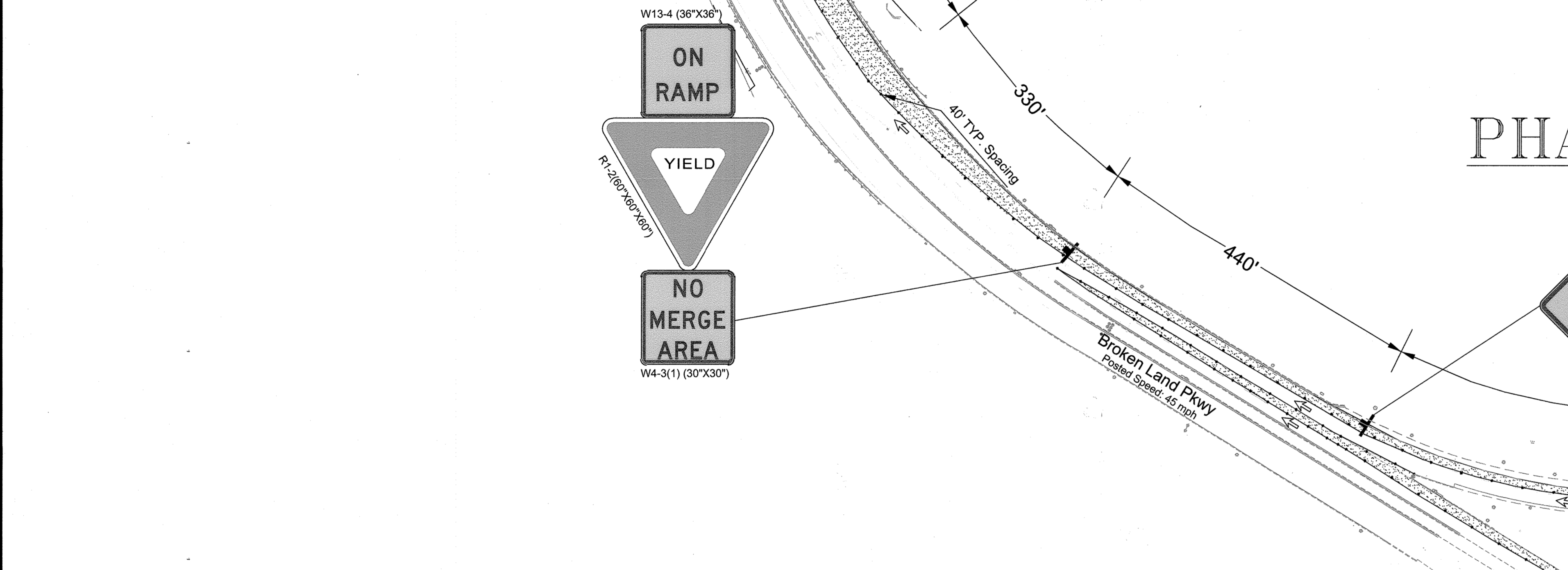
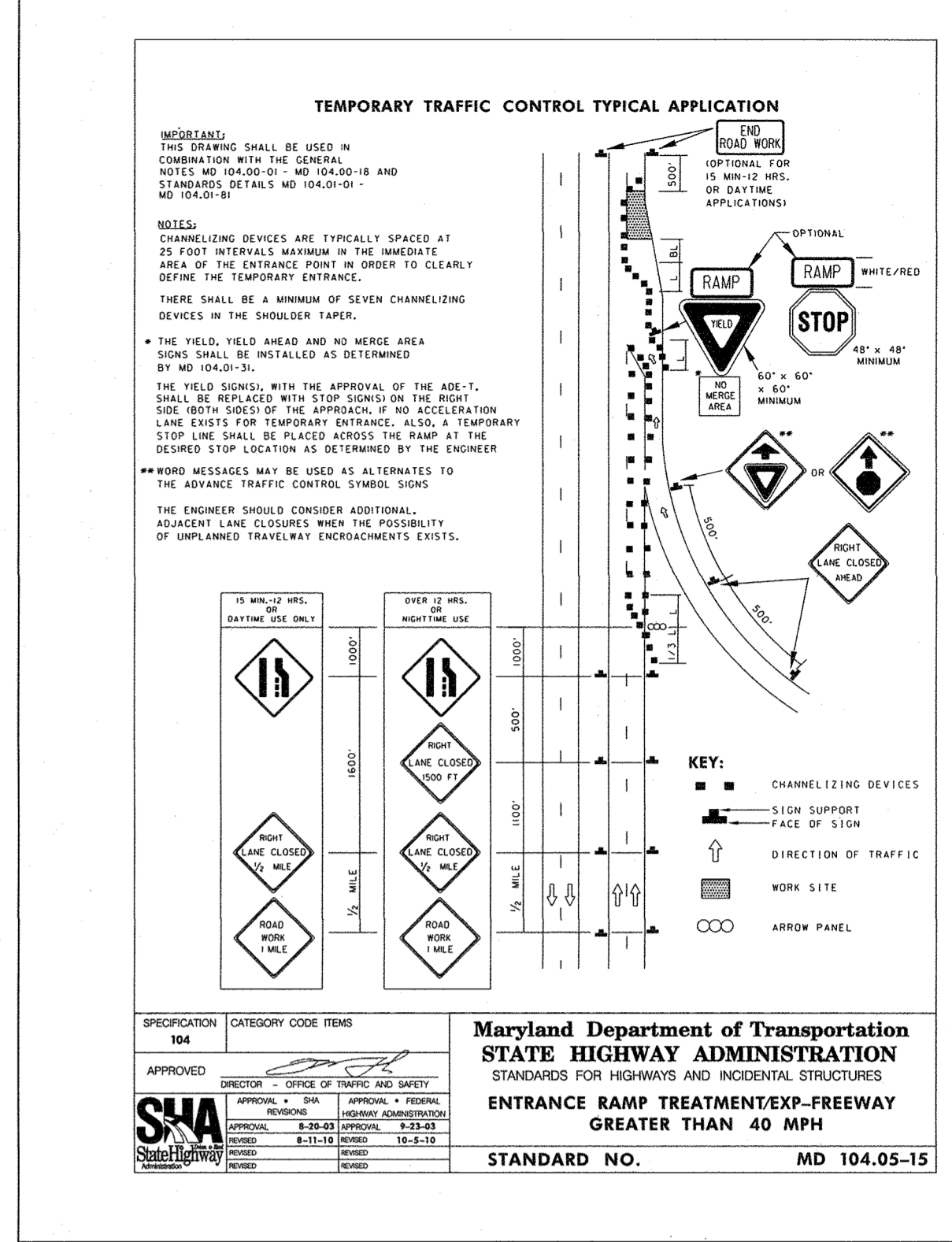
**PHASE I**  
UTILITY IMPROVEMENT AT INTERSECTION  
(EAST SIDE-NORTHBOUND DIRECTION)

- SEQUENCE OF CONSTRUCTION:**
1. INSTALL TRAFFIC CONTROL DEVICES AS SHOWN ON PLAN AND IN ACCORDANCE WITH HOWARD COUNTY SPECIFICATIONS AND REQUIREMENTS, OR AS DIRECTED BY THE COUNTY ENGINEER IN FIELD.
  2. BEGIN CONSTRUCTION OF UTILITY IMPROVEMENT ON THE SOUTH/EAST SIDE OF THE INTERSECTION IN THE NORTHBOUND DIRECTION.

**TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION**

SPEED IN MPH	MIN. MERGING TAPER (L) (LENGTH/ # DEVICES)				BUFFER (BL) (LENGTH/ # DEVICES)
	9	10	11	12	
30	135	150	165	180	200
35	184	205	225	245	250
40	240	267	294	320	305
45	405	450	495	540	360
50	450	500	550	600	425
55	495	550	605	660	495
60	1000		26		570
65	1000		26		645
70	1000		26		730
75	1000		26		820

DEVICES = (LENGTH / DEVICE SPACING) + 1  
SHOULDER TAPER = 1/3L  
MINIMUM 1 DEVICES



**PHASE I**

48 Hours  
Before You Dig  
Call  
"MISS UTILITY"  
Service Protection Center

CALL TOLL FREE  
1-800-257-7777

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 UNDER GROUND FACILITIES IN THE AREA OF PROPOSED EXCAVATION AND HAVE THOSE FACILITIES LOCATED BY THE UTILITY COMPANIES PRIOR TO COMMENCING EXCAVATION. THE EXCAVATOR IS RESPONSIBLE FOR COMPLIANCE WITH REQUIREMENTS OF THE HOWARD COUNTY CODE.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*John Meunier* 7/12/2016  
Chief, Bureau of Highways

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
*Kentel DeLoach* 8-3-16  
Chief, Division of Land Development

*Chad Eshelman* 7-26-16  
Chief, Development Engineering Division

Professional L.S. # 10849 Exp. Date 4/2/2022  
AS-BUILT DATE: JAN 24 2020  
Shamabarger & Lane

**LEGEND**

- CHANNELIZING DEVICES
- ⊥ SIGN SUPPORT FACE OF SIGN
- ← DIRECTION OF TRAFFIC
- ▨ WORK SITE
- ○ ARROW PANEL
- ▨ LANE CLOSURE

PREPARED FOR:  
THE HOWARD HUGHES CORPORATION  
10480 LITTLE PATUXENT PARKWAY  
SUITE 400  
COLUMBIA, MD 21044  
ATTN: BOB JENKINS  
410-964-5443

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 37882  
EXPIRATION DATE: 10/16/2017

TEMPORARY TRAFFIC CONTROL PLAN (TTC) PHASE I  
DOWNTOWN COLUMBIA  
CRESCENT NEIGHBORHOOD  
PARCELS B THRU H, NON-BUILDABLE BULK PARCELS J THRU R,  
O.S. LOTS 1 THRU 8 AND  
MERRIWEATHER-SYMPHONY WOODS NEIGHBORHOOD O.S. LOT 1  
AND NON-BUILDABLE BULK PARCEL A

ELECTION DISTRICT No. 5

SCALE 1"=100'	ZONING NT	11071
DATE JUNE, 2016	36 - 01	SHEET 53 OF 102

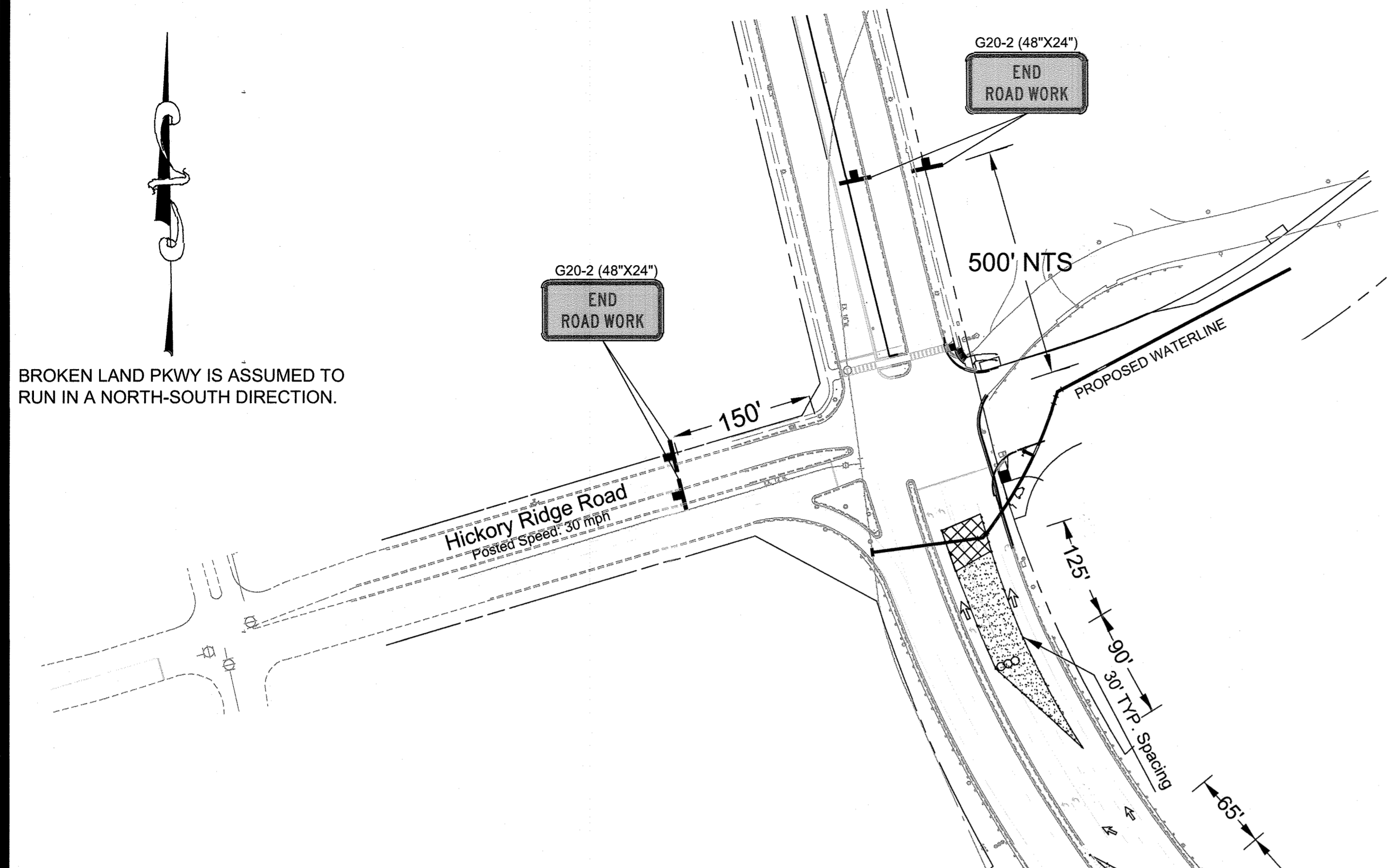
**WELLS + ASSOCIATES, INC**

1420 Spring Hill Road, Suite 610, Tysons, Virginia 22102  
Phone: 703/917-6620 Facsimile: 703/917-0739

DES.	DRN.	CHK.	DATE	REVISION	BY	APP'R.



BROKEN LAND PKWY IS ASSUMED TO RUN IN A NORTH-SOUTH DIRECTION.



# PHASE II

## PHASE II UTILITY IMPROVEMENT AT INTERSECTION (MIDDLE SECTION NORTHBOUND DIRECTION)

### SEQUENCE OF CONSTRUCTION:

1. INSTALL TRAFFIC CONTROL DEVICES AS SHOWN ON PLAN AND IN ACCORDANCE WITH HOWARD COUNTY SPECIFICATIONS AND REQUIREMENTS, OR AS DIRECTED BY THE COUNTY ENGINEER IN FIELD.
2. CONTINUE CONSTRUCTION OF UTILITY IMPROVEMENTS ON THE MIDDLE/SOUTH SIDE OF THE INTERSECTION IN THE NORTHBOUND DIRECTION.

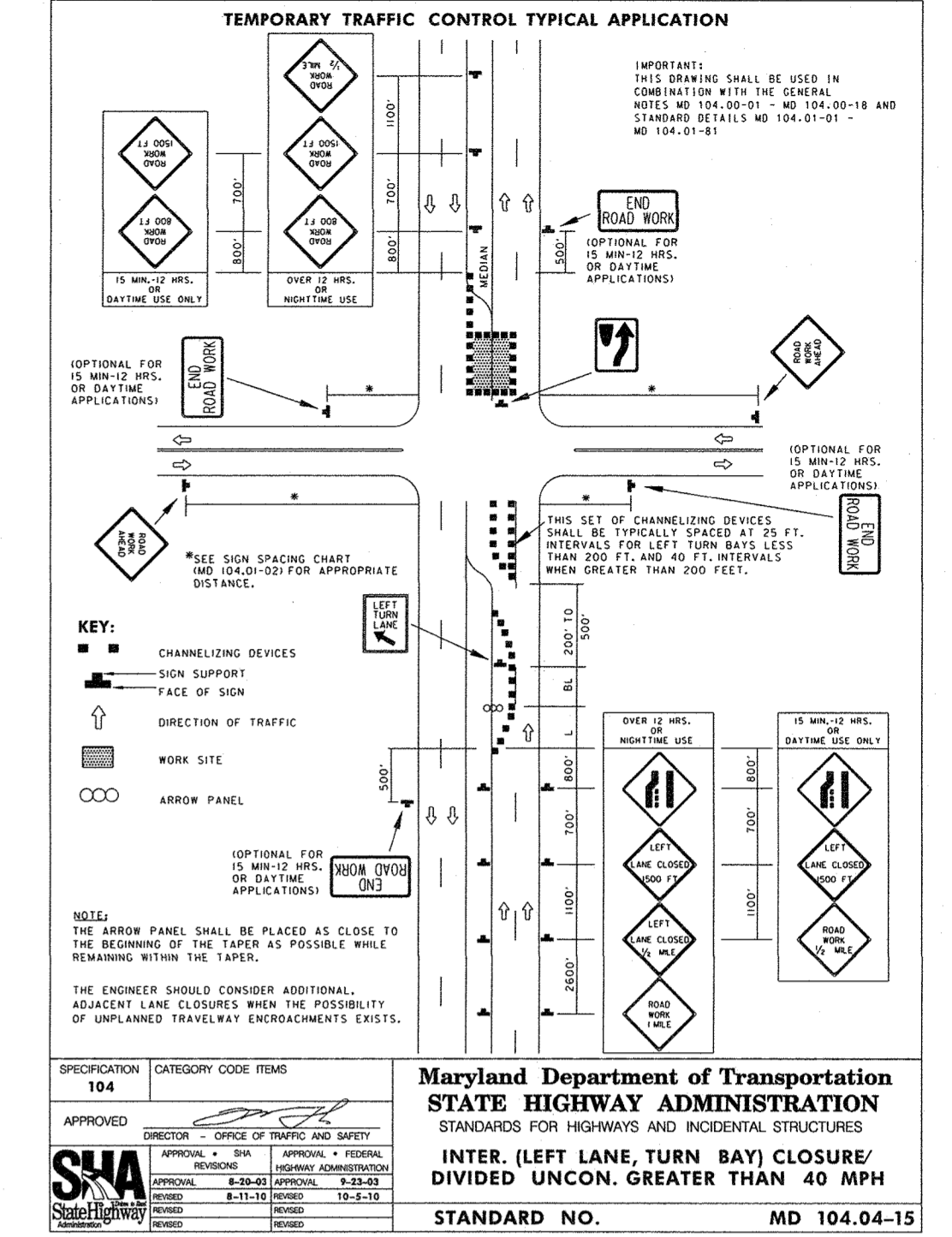
### LEGEND

- CHANNELIZING DEVICES
- SIGN SUPPORT FACE OF SIGN
- DIRECTION OF TRAFFIC
- WORK SITE
- ARROW PANEL
- LANE CLOSURE

### TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

SPEED IN MPH	MIN. MERGING TAPER (L) (LENGTH * W (FT))				BUFFER (BL) (LENGTH * DEVICES)
	9	10	11	12	
30	135	150	165	180	200
35	184	205	225	245	250
40	240	267	294	320	305
45	405	450	495	540	360
50	450	500	550	600	425
55	495	550	605	660	495
60	1000		26		570
65	1000		26		645
70	1000		26		730
75	1000		26		820

\* DEVICES = (LENGTH / DEVICE SPACING) + 1  
SHOULDER TAPER = 1/3L  
MINIMUM 7 DEVICES



48 Hours  
Before You Dig  
Call  
"MISS UTILITY"  
Service Protection Center

MEMBER  
CALL TOLL FREE  
1-800-257-7777

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 UNDER GROUND FACILITIES IN THE AREA OF PROPOSED EXCAVATION AND HAVE THOSE FACILITIES LOCATED BY THE UTILITY COMPANIES PRIOR TO COMMENCING EXCAVATION. THE EXCAVATOR IS RESPONSIBLE FOR COMPLIANCE WITH REQUIREMENTS OF THE HOWARD COUNTY CODE.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*J. Mennin* 7/12/2016  
Chief, Bureau of Highways Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
*Katzel* 8-3-16  
Chief, Division of Land Development Date

*Chad Johnson* 7-26-16  
Chief, Development Engineering Division Date

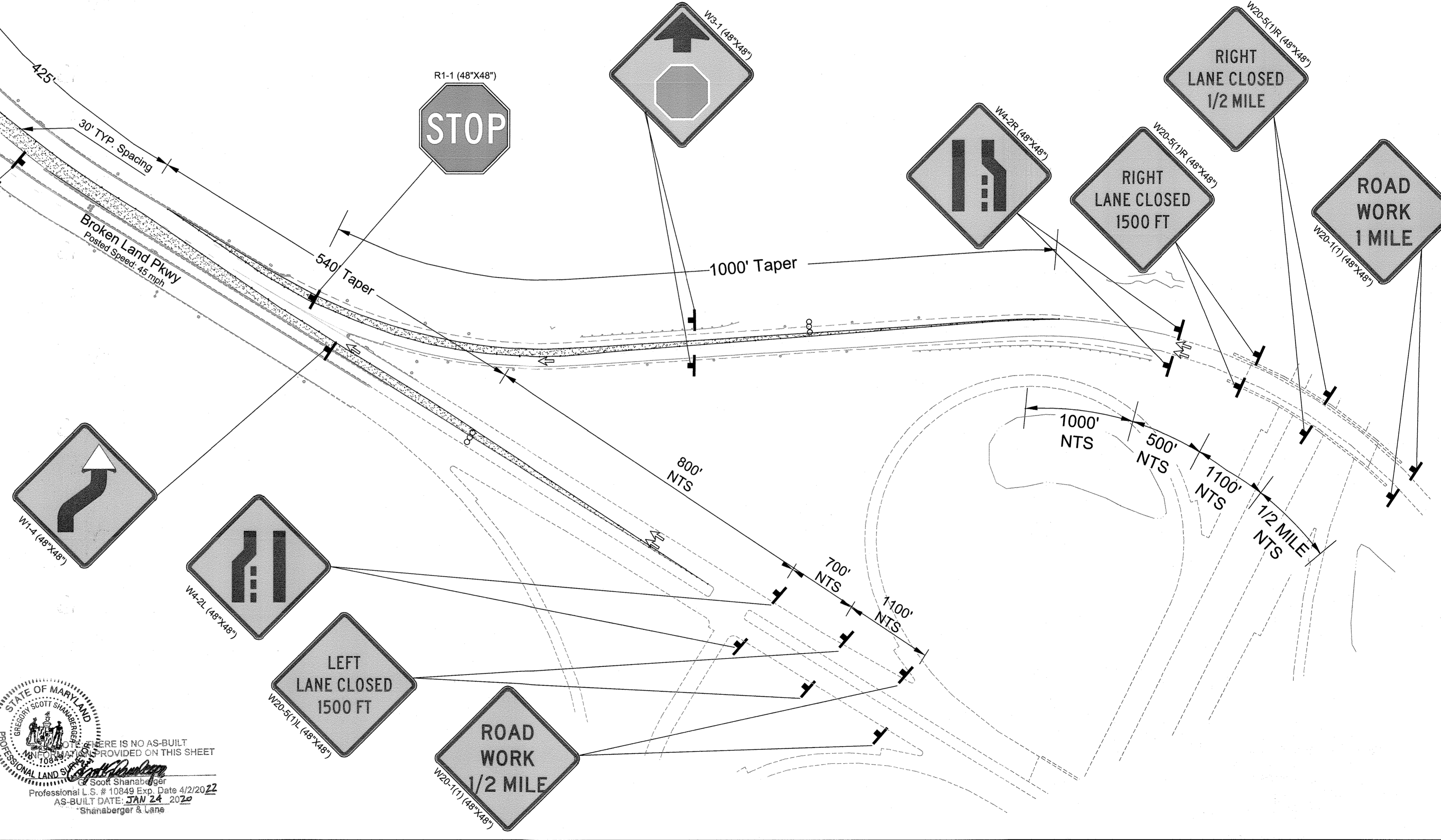
**WELLS + ASSOCIATES, INC**  
1420 Spring Hill Road, Suite 610, Tysons, Virginia 22102  
Phone: 703/917-6620 Facsimile: 703/917-0739

DES.	DRN.	CHK.	DATE	REVISION	BY	APPR.

PREPARED FOR:  
THE HOWARD HUGHES CORPORATION  
10480 LITTLE PATUXENT PARKWAY  
SUITE 400  
COLUMBIA, MD 21044  
ATTN: BOB JENKINS  
410-964-5443

PROFESSIONAL CERTIFICATION  
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 37882  
EXPIRATION DATE: 10/16/2017

STATE OF MARYLAND  
PROFESSIONAL LAND SURVEYOR  
*Scott Shanabarger*  
Professional L.S. # 10849 Exp. Date 4/2/2022  
AS-BUILT DATE: JAN 24, 2022  
Shanabarger & Lane



TEMPORARY TRAFFIC CONTROL PLAN (TTC) PHASE II  
DOWNTOWN COLUMBIA  
CRESCENT NEIGHBORHOOD  
PARCELS B THRU H, NON-BUILDABLE BULK PARCELS J THRU R,  
O.S. LOTS 1 THRU 8 AND  
MERRIWEATHER-SYMPHONY WOODS NEIGHBORHOOD O.S. LOT 1  
AND NON-BUILDABLE BULK PARCEL A  
ELECTION DISTRICT No. 5 HOWARD COUNTY, MARYLAND

SCALE 1"=100'	ZONING NT	11071
DATE JUNE, 2016	36 - 01	SHEET 54 OF 102



# PHASE III

BROKEN LAND PKWY IS ASSUMED TO RUN IN A NORTH-SOUTH DIRECTION.

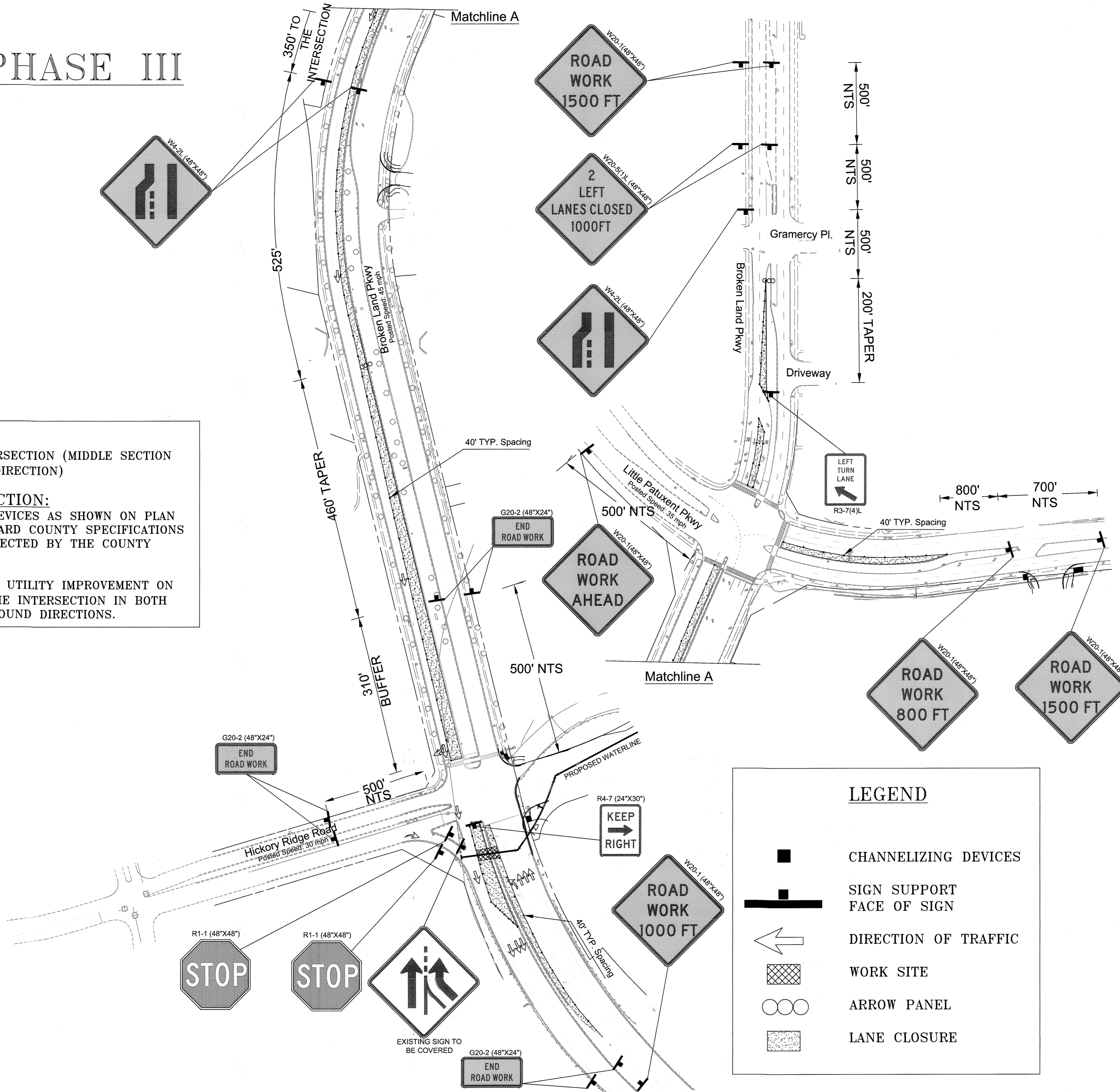
## PHASE III

UTILITY IMPROVEMENT AT INTERSECTION (MIDDLE SECTION NORTHBOUND & SOUTHBOUND DIRECTION)

### SEQUENCE OF CONSTRUCTION:

1. INSTALL TRAFFIC CONTROL DEVICES AS SHOWN ON PLAN AND IN ACCORDANCE WITH HOWARD COUNTY SPECIFICATIONS AND REQUIREMENTS, OR AS DIRECTED BY THE COUNTY ENGINEER IN FIELD.

2. CONTINUE CONSTRUCTION OF UTILITY IMPROVEMENT ON THE MIDDLE/SOUTH SIDE OF THE INTERSECTION IN BOTH THE NORTHBOUND AND SOUTHBOUND DIRECTIONS.



### LEGEND

- CHANNELIZING DEVICES
- SIGN SUPPORT FACE OF SIGN
- DIRECTION OF TRAFFIC
- WORK SITE
- ARROW PANEL
- LANE CLOSURE

### TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

IMPORTANT: THIS DRAWING SHALL BE USED IN CONJUNCTION WITH THE GENERAL NOTES MD 104.00-01 - MD 104.00-18 AND CHANNELIZING DETAILS MD 104.01-01 - MD 104.01-01.

NOTE: FOR THE TYPICAL 2 LEFT LANES CLOSURE, THE CHANNELIZING DEVICES SHALL BE SET UP CHANNELIZING TO THE 2 RIGHT LANES CLOSURE. SET UP AND SIGNING SHALL REFLECT THE 2 LEFT LANES CLOSURE. THERE SHALL BE A MINIMUM OF SEVEN CHANNELIZING DEVICES IN THE SHOULDER TAPER. THE ENGINEER SHOULD CONSIDER ADDITIONAL ADJACENT LANE CLOSURES WHEN THE POSSIBILITY OF IMPAIRED FRACTIONAL ENDECHMENTS EXISTS.

KEY:

- CHANNELIZING DEVICES
- SIGN SUPPORT FACE OF SIGN
- DIRECTION OF TRAFFIC
- WORK SITE
- ARROW PANEL

Maryland Department of Transportation  
STATE HIGHWAY ADMINISTRATION  
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES  
2 RIGHT (LEFT) LANES CLOSURE/  
DIVIDED UNCON./EQ/LESS THAN 40 MPH  
STANDARD NO. MD 104.04-10

### TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

SPEED IN MPH	MIN. MERGING TAPER (L) (LENGTH * DEVICES)				BUFFER (BL) (LENGTH * DEVICES)	
	9	10	11	12	ALL WIDTHS	ALL WIDTHS
30	135	150	165	180	200	5
35	184	205	225	245	250	5
40	240	267	294	320	305	5
45	405	450	495	540	360	6
50	450	500	550	600	425	6
55	495	550	605	660	495	7
60	1000				570	8
65	1000				645	9
70	1000				730	10
75	1000				820	11

\* DEVICES = (LENGTH / DEVICE SPACING) + 1  
SHOULDER TAPER = 1/3L  
MINIMUM 1 DEVICES

Maryland Department of Transportation  
STATE HIGHWAY ADMINISTRATION  
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES  
CHANNELIZATION DEVICE USAGE  
CRITERIA TABLE  
STANDARD NO. MD 104.01-30 D

48 Hours  
Before You Dig  
Call  
"MISS UTILITY"  
Service Protection Center

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 UNDER GROUND FACILITIES IN THE AREA OF PROPOSED EXCAVATION AND HAVE THOSE FACILITIES LOCATED BY THE UTILITY COMPANIES PRIOR TO COMMENCING EXCAVATION. THE EXCAVATOR IS RESPONSIBLE FOR COMPLIANCE WITH REQUIREMENTS OF THE HOWARD COUNTY CODE.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*[Signature]* 7/12/2016  
Chief, Bureau of Highways

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
*[Signature]* 8.3.16  
Chief, Division of Land Development

*[Signature]* 7-26-16  
Chief, Development Engineering Division

**WELLS + ASSOCIATES, INC**  
1420 Spring Hill Road, Suite 610, Tysons, Virginia 22102  
Phone: 703/917-6620 Facsimile: 703/917-0739

DES.	DRN.	CHK.	DATE	REVISION	BY	APPR.

PREPARED FOR:  
THE HOWARD HUGHES CORPORATION  
10480 LITTLE PATUXENT PARKWAY  
SUITE 400  
COLUMBIA, MD 21044  
ATTN: BOB JENKINS  
410-964-5443

PROFESSIONAL CERTIFICATION  
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 37882  
EXPIRATION DATE: 10/15/2017

*[Professional Engineer Seal]*

TEMPORARY TRAFFIC CONTROL PLAN (TTC) PHASE III  
DOWNTOWN COLUMBIA  
CRESCENT NEIGHBORHOOD  
PARCELS B THRU H, NON-BUILDABLE BULK PARCELS J THRU R,  
O.S. LOTS 1 THRU 8 AND  
MERRIWEATHER-SYMPHONY WOODS NEIGHBORHOOD O.S. LOT 1  
AND NON-BUILDABLE BULK PARCEL A  
ELECTION DISTRICT No. 5

SCALE 1"=100'  
ZONING NT  
SHEET 11071

DATE JUNE, 2016  
36 - 01  
55 OF 102

HOWARD COUNTY, MARYLAND

C:\PROJECTS\6001-6500\6489 HICKORY RIDGE RD SIGNAL MODIFICATION\DRAWINGS\DESIGN PLANS\6489 - HICKORY RIDGE RD - BROKEN LAND PKWY MOT PLAN\_JUNE 2016\_2.DWG



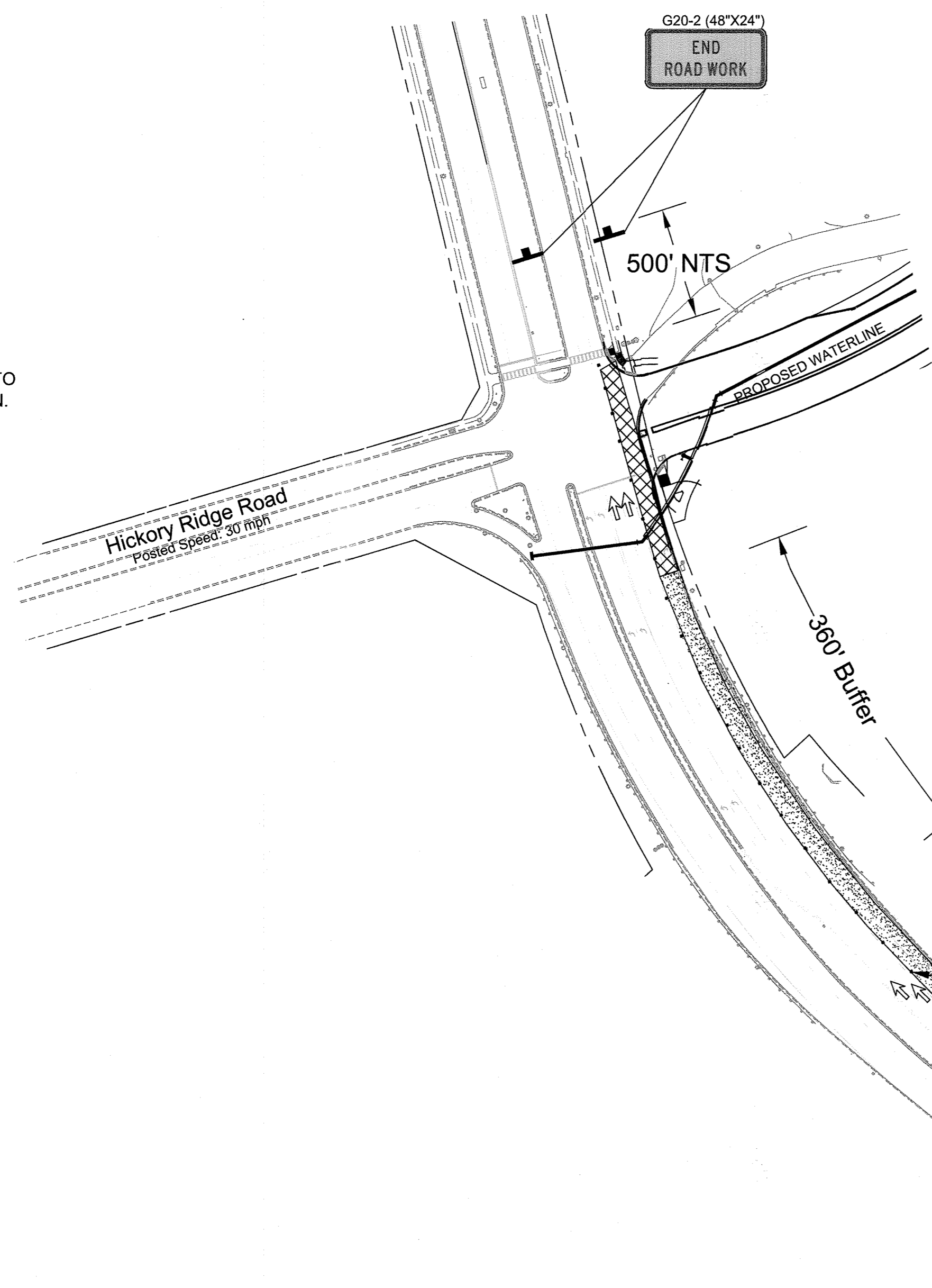








BROKEN LAND PKWY IS ASSUMED TO RUN IN A NORTH-SOUTH DIRECTION.



# PHASE VI

**PHASE VI**  
ROAD GEOMETRY IMPROVEMENT TO ACCOMMODATE TIE IN OF PROPOSED HICKORY RIDGE ROAD AT BROKEN LAND PKWY INTERSECTION.

**SEQUENCE OF CONSTRUCTION:**  
1. INSTALL TRAFFIC CONTROL DEVICES AS SHOWN ON PLAN AND IN ACCORDANCE WITH HOWARD COUNTY SPECIFICATIONS AND REQUIREMENTS, OR AS DIRECTED BY THE COUNTY ENGINEER IN FIELD.

2. CONSTRUCT ROAD GEOMETRY IMPROVEMENT ON THE EAST SIDE OF THE INTERSECTION.

**TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION**

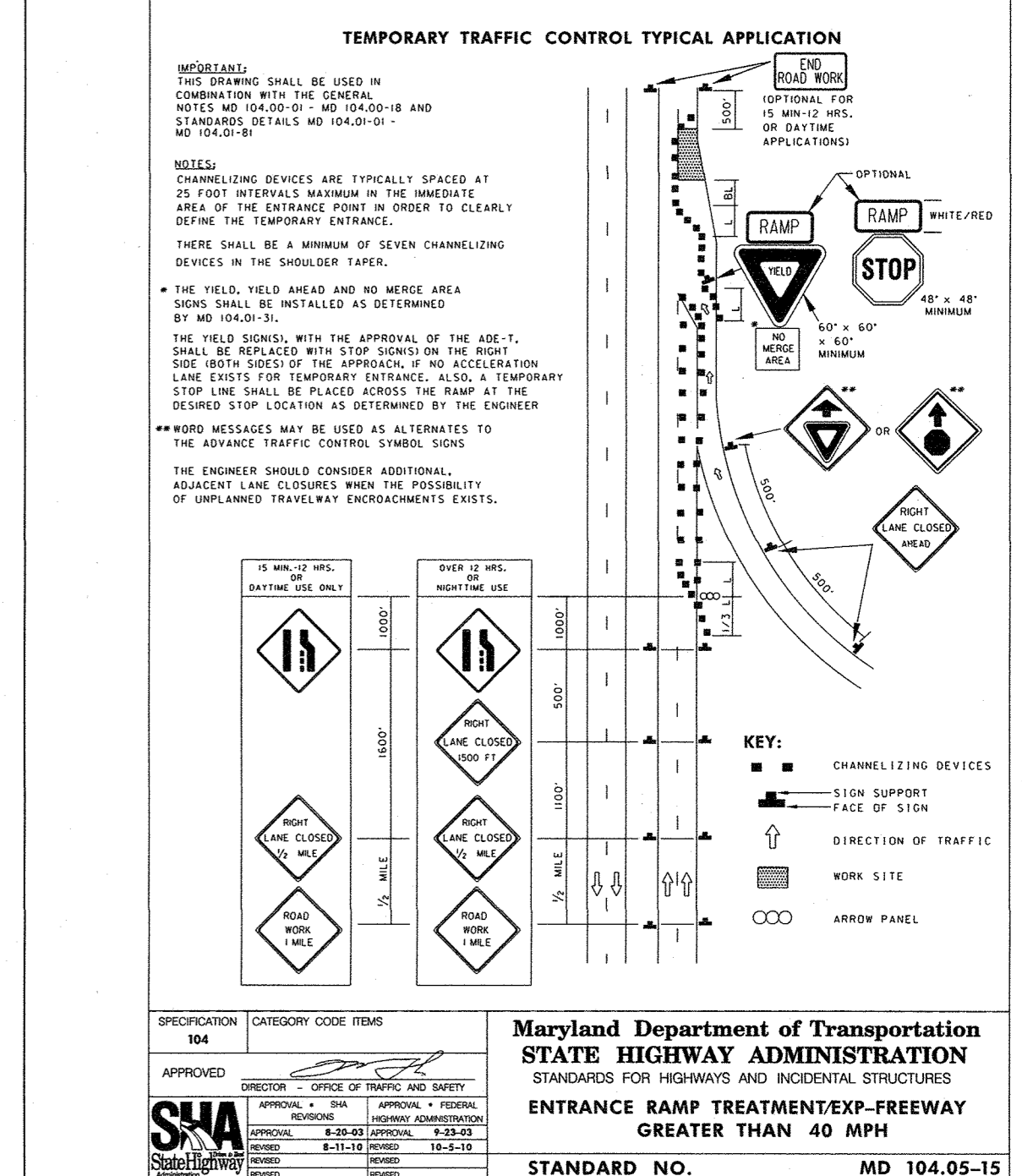
SPEED IN MPH	MIN. MERGING TAPER (L) (LENGTH/* DEVICES)				BUFFER (BL) (LENGTH/* DEVICES)	
	9	10	11	12	ALL WIDTHS	
30	135	150	165	180	200	5
35	180	205	225	245	250	5
40	240	267	294	320	305	5
45	405	450	495	540	360	6
50	450	500	550	600	425	6
55	495	550	605	660	495	7
60	1000			26	570	8
65	1000			26	645	9
70	1000			26	730	10
75	1000			26	820	11

\* DEVICES = (LENGTH / DEVICE SPACING) + 1

SHOULDER TAPER = 1/3L  
MINIMUM 7 DEVICES

WORK AREA

APPROVED: [Signature] **Maryland Department of Transportation STATE HIGHWAY ADMINISTRATION**  
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES  
CHANNELIZATION DEVICE USAGE CRITERIA TABLE  
STANDARD NO. MD 104.01-30 D



48 Hours  
Before You Dig  
Call  
"MISS UTILITY"  
Service Protection Center

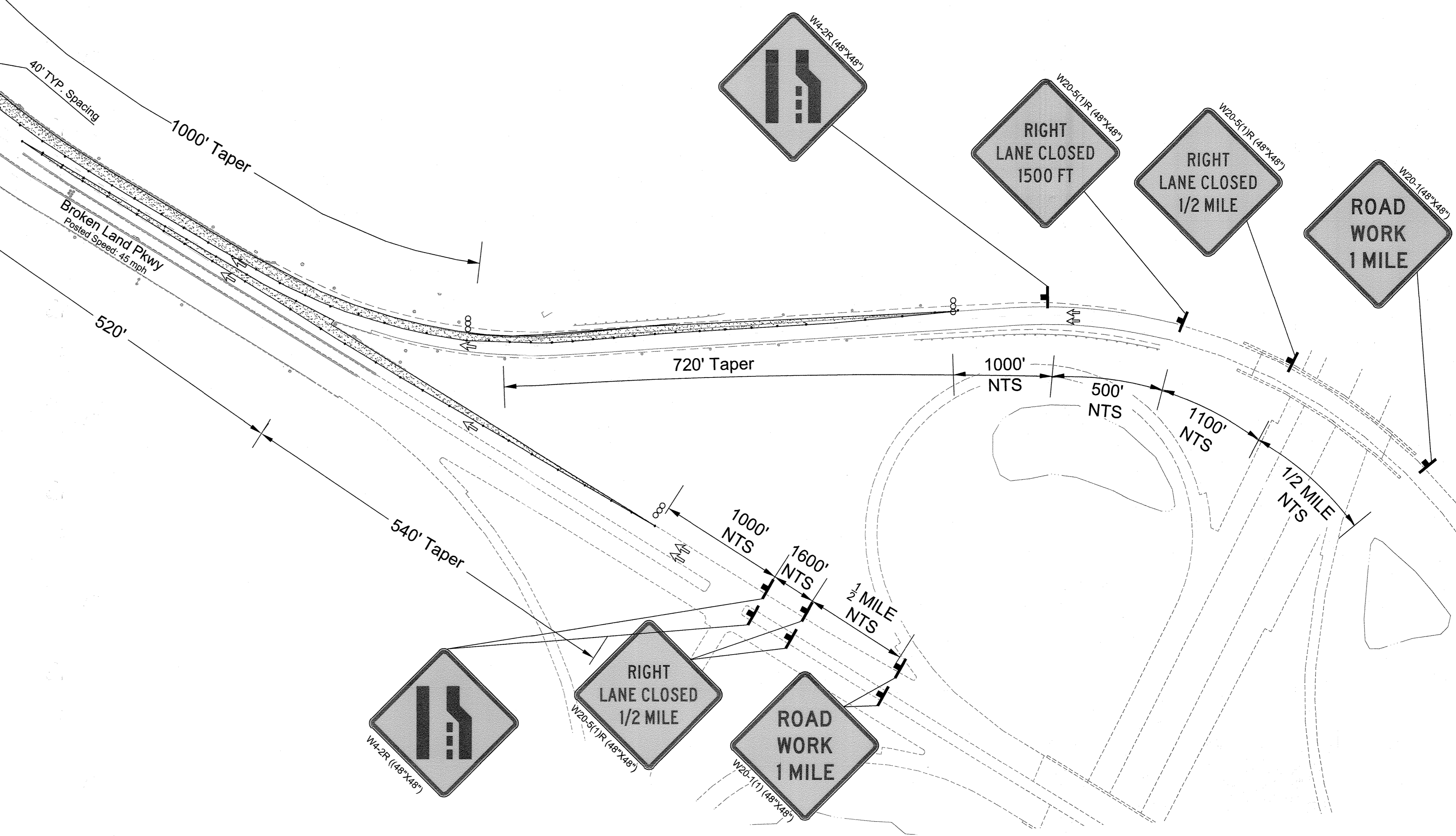
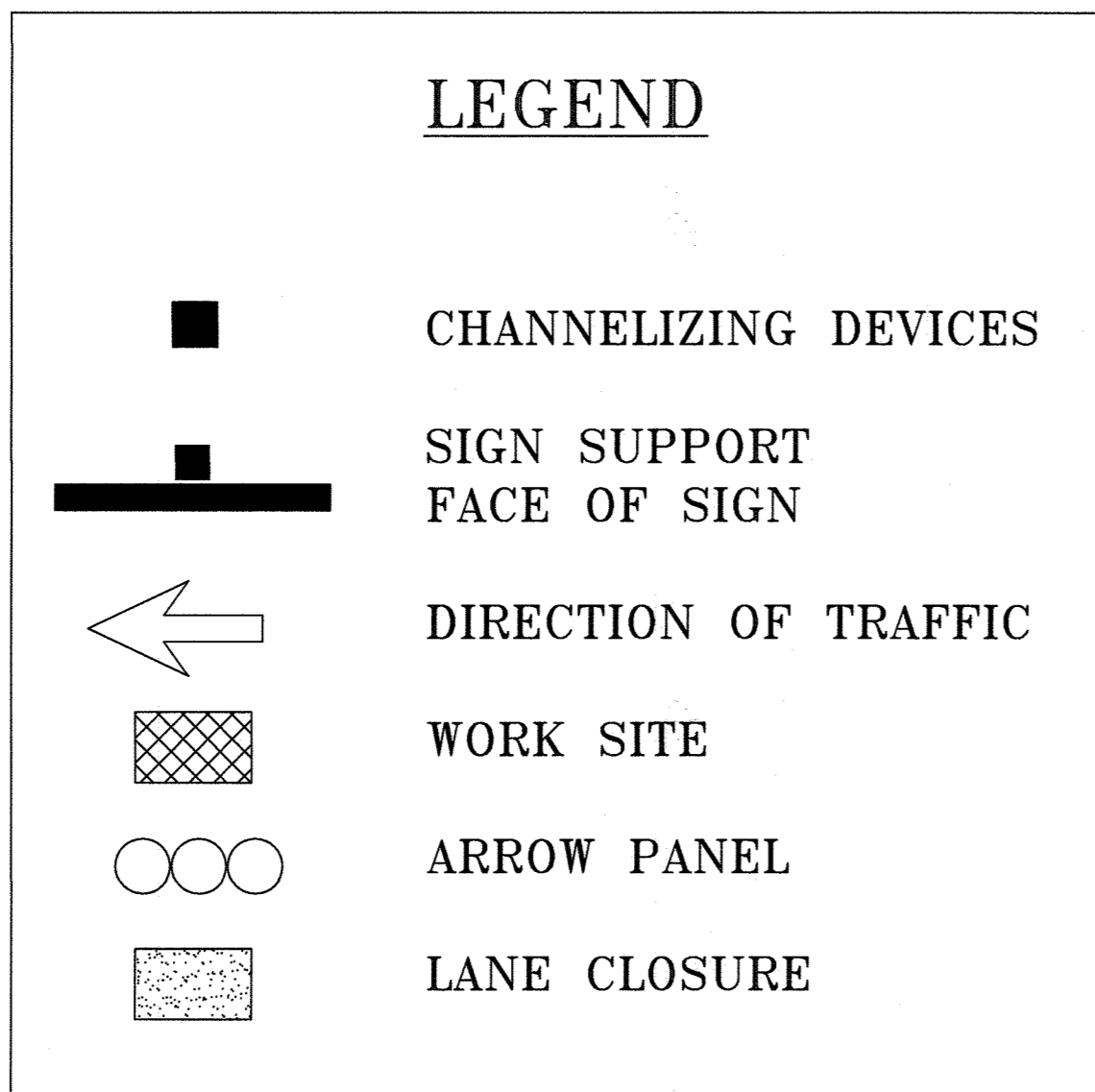
CALL "MISS UTILITY" AT 1-800-257-7777, 48 HOURS PRIOR TO THE START OF WORK. THE EXCAVATOR MUST NOTIFY ALL PUBLIC UTILITY COMPANIES WITH UNDER GROUND FACILITIES IN THE AREA OF PROPOSED EXCAVATION AND HAVE THOSE FACILITIES LOCATED BY THE UTILITY COMPANIES PRIOR TO COMMENCING EXCAVATION. THE EXCAVATOR IS RESPONSIBLE FOR COMPLIANCE WITH REQUIREMENTS OF THE HOWARD COUNTY CODE.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
[Signature] 7/12/2016  
Chief, Bureau of Highways Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
[Signature] 8-3-16  
Chief, Division of Land Development Date

[Signature] 7-26-16  
Chief, Development Engineering Division Date

STATE OF MARYLAND  
BREITENBERG SCOTT SHANABERGER  
PROFESSIONAL LAND SURVEYOR  
No. 10849 Exp. Date 4/2/2022  
Professional L.S. # 10849 Exp. Date 4/2/2022  
AS-BUILT DATE: JAN 24, 2020  
Shanaberger & Lane



**WELLS + ASSOCIATES, INC**  
1420 Spring Hill Road, Suite 610, Tysons, Virginia 22102  
Phone: 703/917-6620 Facsimile: 703/917-0739

DES.	DRN.	CHK.	DATE	REVISION	BY	APPR.

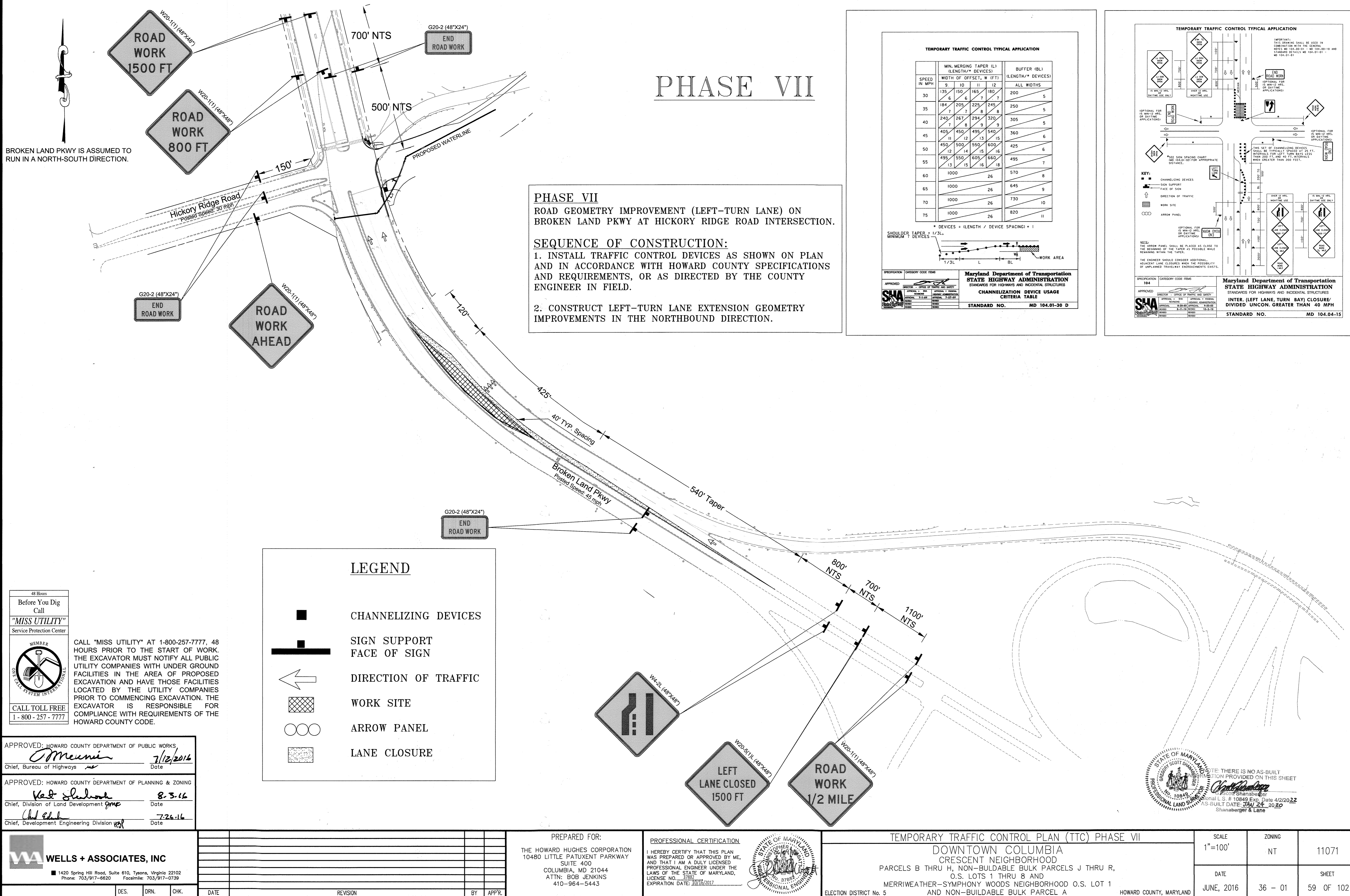
PREPARED FOR:  
THE HOWARD HUGHES CORPORATION  
10480 LITTLE PATUXENT PARKWAY  
SUITE 400  
COLUMBIA, MD 21044  
ATTN: BOB JENKINS  
410-964-5443

**PROFESSIONAL CERTIFICATION**  
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.  
LICENSE NO. 37882  
EXPIRATION DATE: 10/16/2017

**TEMPORARY TRAFFIC CONTROL PLAN (TTC) PHASE VI**  
DOWNTOWN COLUMBIA  
CRESCENT NEIGHBORHOOD  
PARCELS B THRU H, NON-BUILDABLE BULK PARCELS J THRU R,  
O.S. LOTS 1 THRU 8 AND  
MERRIWEATHER-SYMPHONY WOODS NEIGHBORHOOD O.S. LOT 1  
AND NON-BUILDABLE BULK PARCEL A  
ELECTION DISTRICT No. 5  
HOWARD COUNTY, MARYLAND

SCALE	ZONING	SHEET
1"=100'	NT	11071
DATE	DATE	SHEET
JUNE, 2016	36 - 01	58 OF 102





# PHASE VII

**PHASE VII**  
 ROAD GEOMETRY IMPROVEMENT (LEFT-TURN LANE) ON  
 BROKEN LAND PKWY AT HICKORY RIDGE ROAD INTERSECTION.

**SEQUENCE OF CONSTRUCTION:**

1. INSTALL TRAFFIC CONTROL DEVICES AS SHOWN ON PLAN AND IN ACCORDANCE WITH HOWARD COUNTY SPECIFICATIONS AND REQUIREMENTS, OR AS DIRECTED BY THE COUNTY ENGINEER IN FIELD.
2. CONSTRUCT LEFT-TURN LANE EXTENSION GEOMETRY IMPROVEMENTS IN THE NORTHBOUND DIRECTION.

**TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION**

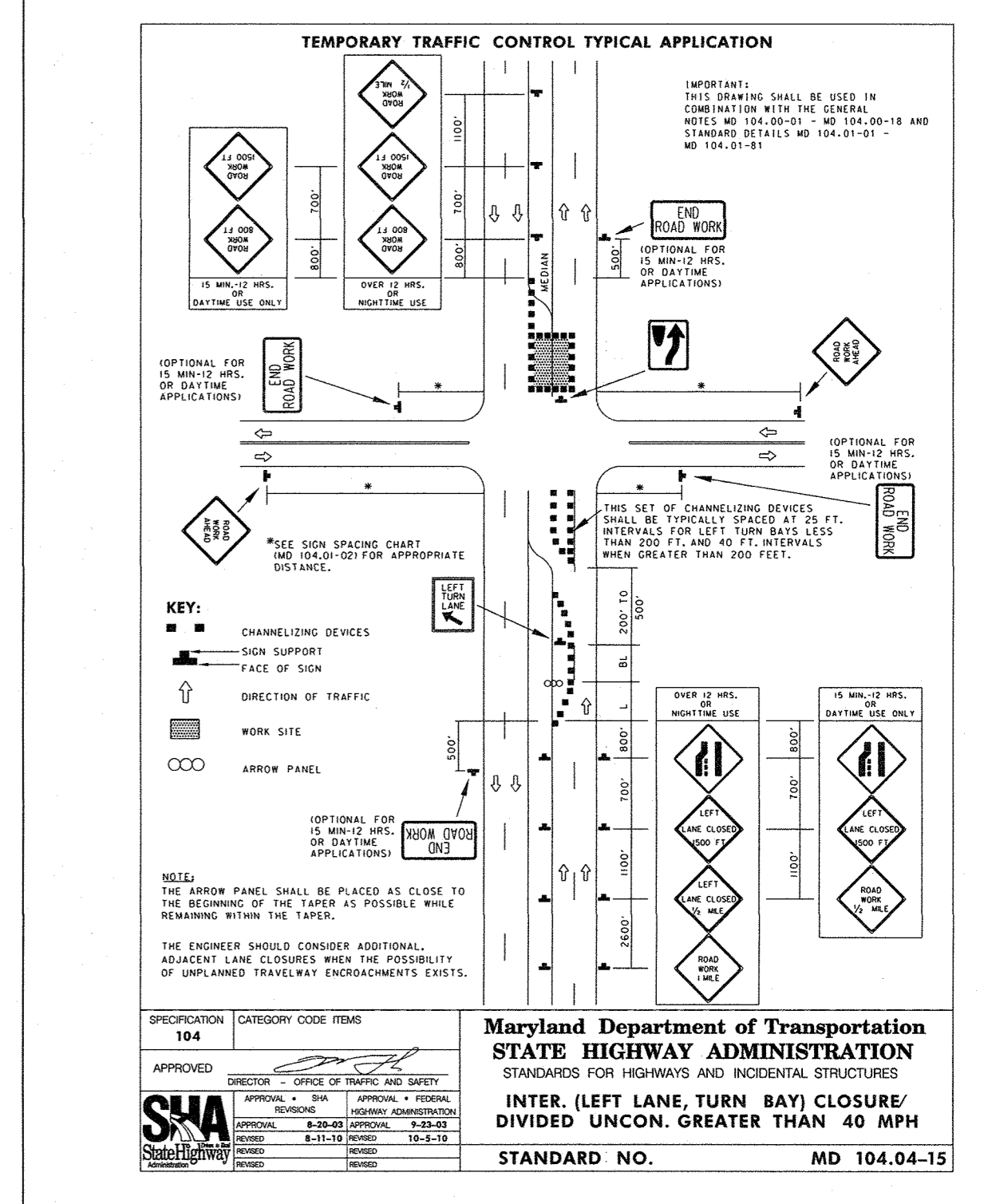
SPEED IN MPH	MIN. MERGING TAPER (L) (LENGTH/* DEVICES)				BUFFER (BL) (LENGTH/* DEVICES)	
	9	10	11	12	ALL WIDTHS	
30	135	150	165	180	200	5
35	184	205	225	245	250	5
40	240	267	294	320	305	5
45	405	450	495	540	360	6
50	450	500	550	600	425	6
55	495	550	605	660	495	7
60	1000			26	570	8
65	1000			26	645	9
70	1000			26	730	10
75	1000			26	820	11

\* DEVICES = (LENGTH / DEVICE SPACING) + 1

SHOULDER TAPER MINIMUM 7 DEVICES 1/3L

WORK AREA

APPROVED: *[Signature]* Maryland Department of Transportation  
 STATE HIGHWAY ADMINISTRATION  
 STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES  
**CHANNELIZATION DEVICE USAGE CRITERIA TABLE**  
 STANDARD NO. MD 104.01-30 D



**LEGEND**

- CHANNELIZING DEVICES
- SIGN SUPPORT FACE OF SIGN
- ← DIRECTION OF TRAFFIC
- ▨ WORK SITE
- ○ ○ ARROW PANEL
- ▨ LANE CLOSURE

48 Hours  
 Before You Dig  
 Call  
 "MISS UTILITY"  
 Service Protection Center

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 UNDER GROUND FACILITIES IN THE AREA OF PROPOSED EXCAVATION AND HAVE THOSE FACILITIES LOCATED BY THE UTILITY COMPANIES PRIOR TO COMMENCING EXCAVATION. THE EXCAVATOR IS RESPONSIBLE FOR COMPLIANCE WITH REQUIREMENTS OF THE HOWARD COUNTY CODE.

CALL TOLL FREE  
 1-800-257-7777

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*[Signature]* 7/12/2016  
 Chief, Bureau of Highways

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
*[Signature]* 8-3-16  
 Chief, Division of Land Development

*[Signature]* 7-26-16  
 Chief, Development Engineering Division

**WELLS + ASSOCIATES, INC**  
 1420 Spring Hill Road, Suite 610, Tysons, Virginia 22102  
 Phone: 703/917-6620 Facsimile: 703/917-0739

DES.	DRN.	CHK.	DATE	REVISION	BY	APPR.

PREPARED FOR:  
 THE HOWARD HUGHES CORPORATION  
 10480 LITTLE PATUXENT PARKWAY  
 SUITE 400  
 COLUMBIA, MD 21044  
 ATTN: BOB JENKINS  
 410-964-5443

PROFESSIONAL CERTIFICATION  
 I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.  
 LICENSE NO. 37892  
 EXPIRATION DATE: 10/16/2017

*[Signature]*  
 PROFESSIONAL ENGINEER

TEMPORARY TRAFFIC CONTROL PLAN (TTC) PHASE VII  
 DOWNTOWN COLUMBIA  
 CRESCENT NEIGHBORHOOD  
 PARCELS B THRU H, NON-BUILDABLE BULK PARCELS J THRU R,  
 O.S. LOTS 1 THRU 8 AND  
 MERRIWEATHER-SYMPHONY WOODS NEIGHBORHOOD O.S. LOT 1  
 AND NON-BUILDABLE BULK PARCEL A

SCALE 1"=100'  
 ZONING NT 11071  
 DATE JUNE, 2016  
 SHEET 59 OF 102

ELECTION DISTRICT No. 5 HOWARD COUNTY, MARYLAND



### PAVEMENT MARKINGS NOTES

1. ALL LONG LINES MARKINGS TO BE APPLIED USING THERMOPLASTIC MATERIAL.
2. THE CROSSWALK AND ARROWS TO BE INSTALLED USING PREFORMED HEAT APPLIED TAPE OR THERMOPLASTIC.
3. ALL PAVEMENT MARKINGS ARE TO BE LOCATED OR APPROVED BY THE TRAFFIC DIVISION PRIOR TO THE PLACEMENT OF ANY MARKINGS.
4. ALL EXISTING PAVEMENT MARKING IN CONFLICT WITH THE PROPOSED PAVEMENT MARKINGS ARE TO BE REMOVED BY GRINDING ONLY. HOWARD COUNTY TRAFFIC (410-313-5752) WILL DETERMINE WHICH EXISTING MARKINGS SHALL BE REMOVED.

### SIGNING NOTES

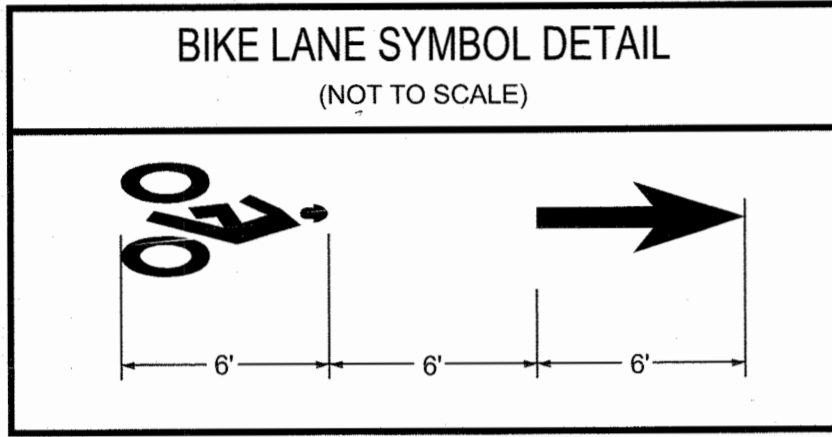
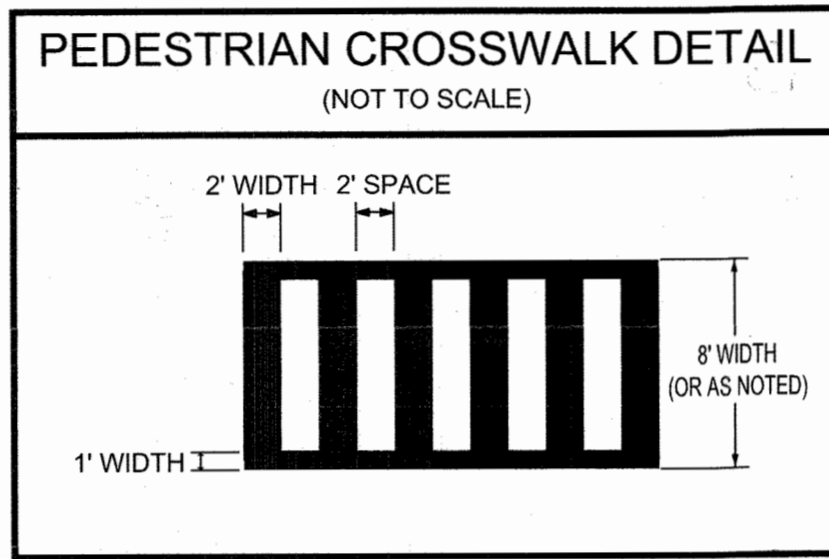
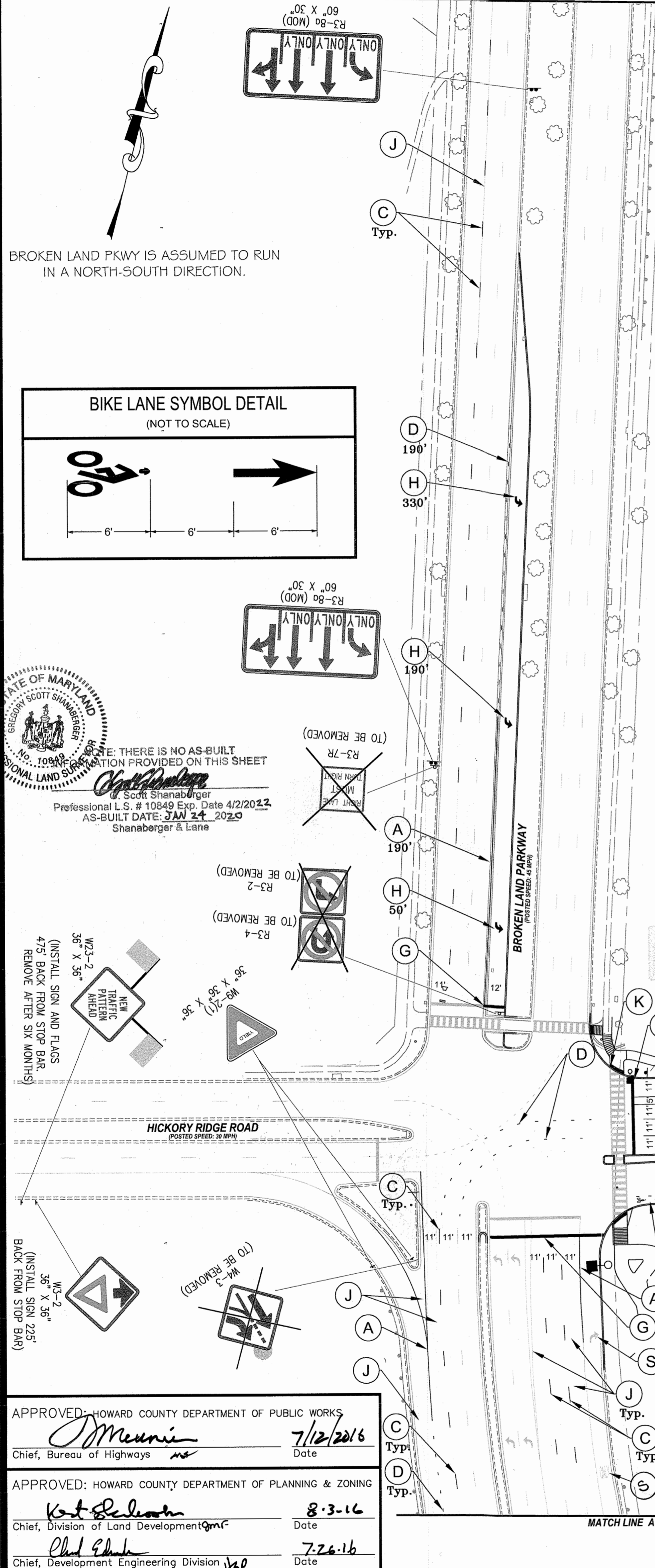
1. ALL SIGN POSTS USED FOR TRAFFIC CONTROL SIGNS INSTALLED IN THE COUNTY RIGHT-OF-WAY SHALL BE MOUNTED ON A 2" GALVANIZED STEEL, PERFORATED, SQUARE TUBE POST (1/4 GAUGE) INSERTED INTO A 2-1/2" GALVANIZED STEEL, PERFORATED, SQUARE TUBE SLEEVE (1/2 GAUGE) - 3' LONG. A GALVANIZED STEEL POLE SHALL BE MOUNTED ON TOP OF EACH POST. THE ANCHOR SHALL NOT EXTEND MORE THAN TWO QUICK PUNCH HOLES ABOVE THE GROUND.
2. ALL SIGNS LOCATIONS WITHIN THE PUBLIC RIGHT OF WAY SHALL BE APPROVED BY THE HOWARD COUNTY TRAFFIC DIVISION (410-313-5752) PRIOR TO INSTALLATION.

### PAVEMENT MARKING INSTALLATION NOTES

- A INSTALL 5' WHITE PAVEMENT MARKING.
- B INSTALL 5' YELLOW PAVEMENT MARKING.
- C INSTALL 5' WHITE PAVEMENT MARKING. (10' SKIP, 30' SPACING).
- D INSTALL 5' WHITE PAVEMENT MARKING. (3' SKIP, 9' SPACING)
- E INSTALL 5" DOUBLE YELLOW PAVEMENT MARKING. (CENTERLINE)
- F INSTALL 12" YELLOW PAVEMENT MARKING (45°, 20' SPACING).
- G INSTALL 24" WHITE PAVEMENT MARKING. (STOP BAR)
- H INSTALL WHITE PAVEMENT LEGEND AS SHOWN.
- I INSTALL 5' WHITE PAVEMENT MARKING. (2' SKIP, 6' SPACING)
- J ERADICATE EXISTING PAVEMENT MARKING AS SHOWN.
- K INSTALL PEDESTRIAN CROSSING PAVEMENT MARKING PER CROSSWALK DETAIL AS SHOWN.
- M INSTALL BIKE LANE SYMBOL AS SHOWN.
- N INSTALL 12" WIDE PEDESTRIAN CROSSING PAVEMENT MARKING PER CROSSWALK DETAIL AS SHOWN.
- P INSTALL 10' WIDE PEDESTRIAN CROSSING PAVEMENT MARKING PER CROSSWALK DETAIL AS SHOWN.
- R INSTALL 12" YELLOW PAVEMENT MARKING (45°, 10' SPACING).
- S REPAINT EXISTING PAVEMENT MARKING LEGEND.
- T INSTALL 4" SOLID 4" YELLOW PAVEMENT MARKING. (3' SKIP, 4' SPACING)
- U INSTALL 4" YELLOW PAVEMENT MARKING. (3' SKIP, 4' SPACING)
- V INSTALL (3) WHITE RUMBLE STRIPS 24" ON CENTER 12" THICK
- W INSTALL 4" HEIGHT WHITE LETTERS WITH 5" VERTICAL SPACING WIDTH OF PATH

### STREETLIGHT LEGEND

- \* EXISTING STREET LIGHT
- \* LED-100 MODERN POST-TOP FIXTURE MOUNTED ON A 14' BLACK FIBERGLASS POLE
- \* LED-250 COBRA FIXTURE MOUNTED AT 30' ON A BRONZE FIBERGLASS POLE USING A 6' ARM
- \* LED-200 COBRA FIXTURE MOUNTED AT 30' ON A BRONZE FIBERGLASS POLE USING A 6' ARM
- \* LED-150 COBRA FIXTURE MOUNTED AT 30' ON A BRONZE FIBERGLASS POLE USING A 6' ARM
- \* LED-200 COBRA FIXTURE MOUNTED AT 30' ON A BRONZE FIBERGLASS POLE USING A 12' ARM
- \* LED-250 COBRA FIXTURE MOUNTED AT 30' ON A BRONZE FIBERGLASS POLE USING A 12' ARM



STREET LIGHT SCHEDULE			STREET LIGHT SCHEDULE		
LOCATION	TYPE	TYPE	LOCATION	TYPE	TYPE
STA. 141+50.0 BROKEN LAND PKWY.	70.70' RT. G	27.05' LT. A	STA. 5+28.5 MERRIWEATHER DR.	27.05' LT. A	
STA. 0+85.7 HICKORY RIDGE	56.90' LT. F	27.62' RT. D	STA. 7+38.4 MERRIWEATHER DR.	27.62' RT. D	
STA. 1+65.0 HICKORY RIDGE	55.67' LT. A	29.21' LT. A	STA. 8+00.2 MERRIWEATHER DR.	29.21' LT. A	
STA. 2+35.0 HICKORY RIDGE	32.67' RT. G	26.67' LT. A	STA. 8+49.7 MERRIWEATHER DR.	26.67' LT. A	
STA. 2+40.0 HICKORY RIDGE	56.67' LT. A	26.71' LT. A	STA. 8+48.5 MERRIWEATHER DR.	26.71' LT. A	
STA. 3+15.0 HICKORY RIDGE	43.78' LT. A	25.96' RT. D	STA. 11+17.4 MERRIWEATHER DR.	25.96' RT. D	
STA. 3+85.0 HICKORY RIDGE	32.67' RT. C	26.00' LT. D	STA. 11+17.8 MERRIWEATHER DR.	26.00' LT. D	
STA. 4+10.0 HICKORY RIDGE	43.78' LT. A	26.67' RT. A	STA. 12+05.7 MERRIWEATHER DR.	26.67' RT. A	
STA. 5+04.4 HICKORY RIDGE	43.21' LT. A	26.24' LT. A	STA. 12+04.0 MERRIWEATHER DR.	26.24' LT. A	
STA. 5+35.0 HICKORY RIDGE	32.67' RT. C	26.00' LT. B	STA. 12+49.7 MERRIWEATHER DR.	26.00' LT. B	
STA. 5+88.9 HICKORY RIDGE	34.08' LT. A	26.78' RT. B	STA. 13+92.4 MERRIWEATHER DR.	26.78' RT. B	
STA. 6+85.0 HICKORY RIDGE	32.67' RT. B	26.67' LT. A	STA. 14+35.0 MERRIWEATHER DR.	26.67' LT. A	
STA. 7+08.2 HICKORY RIDGE	28.67' LT. A	26.67' RT. A	STA. 15+15.0 MERRIWEATHER DR.	26.67' RT. A	
STA. 7+70.0 HICKORY RIDGE	28.67' LT. B	26.67' LT. A	STA. 15+55.0 MERRIWEATHER DR.	26.67' LT. A	
			STA. 16+81.1 MERRIWEATHER DR.	26.67' RT. A	
			STA. 17+67.2 MERRIWEATHER DR.	26.67' LT. A	
			STA. 18+55.0 MERRIWEATHER DR.	26.67' RT. A	

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
 Chief, Bureau of Highways  
 Date: 7/12/2016

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
 Chief, Division of Land Development  
 Date: 8-3-16

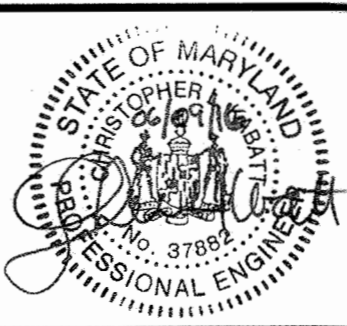
Chief, Development Engineering Division  
 Date: 7-26-16

PROFESSIONAL CERTIFICATION  
 (FOR REVISION)  
 I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE # 12215  
 EXPIRATION DATE: 09-16-2018  
 9/22/17

**WELLS + ASSOCIATES, INC**  
 1420 Spring Hill Road, Suite 610, Tysons, Virginia 22102  
 Phone: 703/917-6620 Fax: 703/917-0739

PREPARED FOR:  
 THE HOWARD HUGHES CORPORATION  
 10480 LITTLE PATUXENT PARKWAY  
 SUITE 400  
 COLUMBIA, MD 21044  
 ATTN: BOB JENKINS  
 410-964-5443

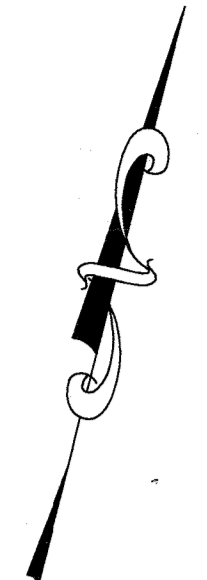
PROFESSIONAL CERTIFICATION  
 I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 37884  
 EXPIRATION DATE: 10/15/2017



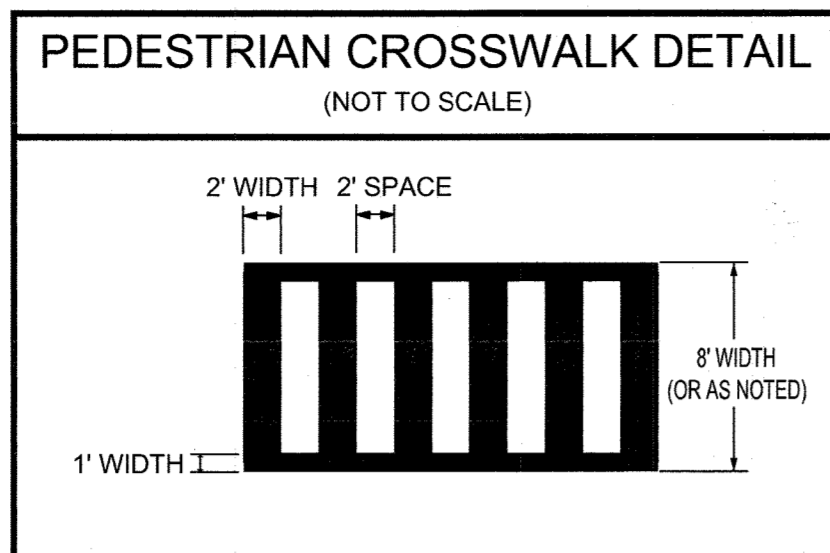
SIGNING AND STRIPING PLAN 1 OF 2  
**DOWNTOWN COLUMBIA**  
 CRESCENT NEIGHBORHOOD  
 PARCELS B THRU H, NON-BUILDABLE BULK PARCELS J THRU R,  
 O.S. LOTS 1 THRU 8 AND  
 MERRIWEATHER-SYMPHONY WOODS NEIGHBORHOOD O.S. LOT 1  
 AND NON-BUILDABLE BULK PARCEL A  
 HOWARD COUNTY, MARYLAND

SCALE 1"=50'	ZONING NT	11071
DATE JUNE, 2016	36 - 01	SHEET 60 OF 102





BROKEN LAND PKWY IS ASSUMED TO RUN IN A NORTH-SOUTH DIRECTION.



### PAVEMENT MARKING INSTALLATION NOTES

- (A) INSTALL 5" WHITE PAVEMENT MARKING.
- (B) INSTALL 5" YELLOW PAVEMENT MARKING.
- (C) INSTALL 5" WHITE PAVEMENT MARKING. (1' SKIP, 30' SPACING).
- (D) INSTALL 5" WHITE PAVEMENT MARKING. (3' SKIP, 9' SPACING)
- (E) INSTALL 5" DOUBLE YELLOW PAVEMENT MARKING. (CENTERLINE)
- (F) INSTALL 12" YELLOW PAVEMENT MARKING (45°, 20' SPACING).
- (G) INSTALL 24" WHITE PAVEMENT MARKING. (STOP BAR)
- (H) INSTALL WHITE PAVEMENT LEGEND AS SHOWN.
- (I) INSTALL 5" WHITE PAVEMENT MARKING. (2' SKIP, 6' SPACING)
- (J) ERADICATE EXISTING PAVEMENT MARKING AS SHOWN.
- (K) INSTALL PEDESTRIAN CROSSING PAVEMENT MARKING PER CROSSWALK DETAIL AS SHOWN.
- (M) INSTALL BIKE LANE SYMBOL AS SHOWN.
- (N) INSTALL 12" WIDE PEDESTRIAN CROSSING PAVEMENT MARKING PER CROSSWALK DETAIL AS SHOWN.
- (P) INSTALL 10" WIDE PEDESTRIAN CROSSING PAVEMENT MARKING PER CROSSWALK DETAIL AS SHOWN.
- (R) INSTALL 12" YELLOW PAVEMENT MARKING (45°, 10' SPACING).
- (S) REPAINT EXISTING PAVEMENT MARKING LEGEND.

\* ALL ARROWS  
\*\* INSTALL AT BEGINNING OF BIKE LANE

- (T) INSTALL SOLID 4" YELLOW PAVEMENT MARKING.
- (U) INSTALL 4" YELLOW PAVEMENT MARKING (3' SKIP, 4' SPACING).
- (V) INSTALL (3) WHITE RUMBLE STRIPS 24" ON CENTER, 12" THICK.
- (W) INSTALL 4" HEIGHT WHITE LETTERS WITH 5" VERTICAL SPACING WIDTH OF PATH.

48 Hours  
Before You Dig  
Call  
"MISS UTILITY"  
Service Protection Center

MEMBER  
MISS UTILITY  
CALL SYSTEM INTERMEDIATE

CALL TOLL FREE  
1-800-257-7777

PROFESSIONAL CERTIFICATION  
(FOR REVISION)

I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.  
LICENSE # 12916  
EXPIRATION DATE: 09-20-2018

9/22/17

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 UNDER GROUND FACILITIES IN THE AREA OF PROPOSED EXCAVATION AND HAVE THOSE FACILITIES LOCATED BY THE UTILITY COMPANIES PRIOR TO COMMENCING EXCAVATION. THE EXCAVATOR IS RESPONSIBLE FOR COMPLIANCE WITH REQUIREMENTS OF THE HOWARD COUNTY CODE.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*[Signature]* 7/12/2016  
Chief, Bureau of Highways

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
*[Signature]* 8-3-16  
Chief, Division of Land Development

*[Signature]* 7-22-16  
Chief, Development Engineering Division

STREET LIGHT SCHEDULE			STREET LIGHT SCHEDULE		
LOCATION	TYPE	TYPE	LOCATION	TYPE	TYPE
STA. 141+50.0 BROKEN LAND PKWY.	G	LED-100 MODERN POST-TOP FIXTURE MOUNTED ON A 14" BLACK FIBERGLASS POLE	STA. 54+26.5 MERRIWEATHER DR	27.05' LT.	A
STA. 0+85.7 HICKORY RIDGE	F	LED-250 COBRA FIXTURE MOUNTED AT 30' ON A BRONZE FIBERGLASS POLE USING A 6' ARM	STA. 74+38.4 MERRIWEATHER DR	27.82' RT.	D
STA. 1+85.0 HICKORY RIDGE	A	LED-250 COBRA FIXTURE MOUNTED AT 30' ON A BRONZE FIBERGLASS POLE USING A 6' ARM	STA. 84+00.2 MERRIWEATHER DR	28.21' LT.	A
STA. 2+35.0 HICKORY RIDGE	G	LED-250 COBRA FIXTURE MOUNTED AT 30' ON A BRONZE FIBERGLASS POLE USING A 6' ARM	STA. 84+01.7 MERRIWEATHER DR	28.67' RT.	A
STA. 3+40.0 HICKORY RIDGE	A	LED-250 COBRA FIXTURE MOUNTED AT 30' ON A BRONZE FIBERGLASS POLE USING A 6' ARM	STA. 84+85.5 MERRIWEATHER DR	28.71' LT.	A
STA. 3+15.0 HICKORY RIDGE	A	LED-250 COBRA FIXTURE MOUNTED AT 30' ON A BRONZE FIBERGLASS POLE USING A 6' ARM	STA. 114+17.4 MERRIWEATHER DR	25.98' RT.	D
STA. 3+85.0 HICKORY RIDGE	C	LED-250 COBRA FIXTURE MOUNTED AT 30' ON A BRONZE FIBERGLASS POLE USING A 6' ARM	STA. 114+17.8 MERRIWEATHER DR	26.00' LT.	D
STA. 4+10.0 HICKORY RIDGE	A	LED-250 COBRA FIXTURE MOUNTED AT 30' ON A BRONZE FIBERGLASS POLE USING A 6' ARM	STA. 124+65.7 MERRIWEATHER DR	26.67' RT.	A
STA. 5+04.4 HICKORY RIDGE	A	LED-250 COBRA FIXTURE MOUNTED AT 30' ON A BRONZE FIBERGLASS POLE USING A 6' ARM	STA. 124+65.0 MERRIWEATHER DR	26.24' LT.	A
STA. 5+35.0 HICKORY RIDGE	C	LED-250 COBRA FIXTURE MOUNTED AT 30' ON A BRONZE FIBERGLASS POLE USING A 6' ARM	STA. 124+87.8 MERRIWEATHER DR	26.00' LT.	B
STA. 5+86.9 HICKORY RIDGE	A	LED-250 COBRA FIXTURE MOUNTED AT 30' ON A BRONZE FIBERGLASS POLE USING A 6' ARM	STA. 134+92.4 MERRIWEATHER DR	26.78' RT.	B
STA. 6+85.0 HICKORY RIDGE	B	LED-250 COBRA FIXTURE MOUNTED AT 30' ON A BRONZE FIBERGLASS POLE USING A 6' ARM	STA. 144+35.0 MERRIWEATHER DR	26.67' RT.	A
STA. 7+08.2 HICKORY RIDGE	A	LED-250 COBRA FIXTURE MOUNTED AT 30' ON A BRONZE FIBERGLASS POLE USING A 6' ARM	STA. 154+15.0 MERRIWEATHER DR	26.67' RT.	A
STA. 7+70.0 HICKORY RIDGE	B	LED-250 COBRA FIXTURE MOUNTED AT 30' ON A BRONZE FIBERGLASS POLE USING A 6' ARM	STA. 154+95.0 MERRIWEATHER DR	26.67' LT.	A
			STA. 164+81.1 MERRIWEATHER DR	26.67' RT.	A
			STA. 174+87.2 MERRIWEATHER DR	26.67' LT.	A
			STA. 184+50.0 MERRIWEATHER DR	26.67' RT.	A

TYPES:

- A) LED-100 MODERN POST-TOP FIXTURE MOUNTED ON A 14" BLACK FIBERGLASS POLE
- B) LED-250 COBRA FIXTURE MOUNTED AT 30' ON A BRONZE FIBERGLASS POLE USING A 6' ARM
- C) LED-200 COBRA FIXTURE MOUNTED AT 30' ON A BRONZE FIBERGLASS POLE USING A 12' ARM
- D) LED-150 COBRA FIXTURE MOUNTED AT 30' ON A BRONZE FIBERGLASS POLE USING A 6' ARM
- F) LED-250 COBRA FIXTURE MOUNTED AT 30' ON A BRONZE FIBERGLASS POLE USING A 6' ARM
- G) LED-250 COBRA FIXTURE MOUNTED AT 30' ON A BRONZE FIBERGLASS POLE USING A 12' ARM

STATE OF MARYLAND  
PROFESSIONAL ENGINEER  
No. 10849  
Shanabager  
Professional L.S. # 10849 Exp. Date 4/2/2022  
AG-BUILT DATE: JAN 24 2020  
Shanabager & Lane

NOTE: THERE IS NO AS-BUILT INFORMATION PROVIDED ON THIS SHEET

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.  
LICENSE NO. 37882  
EXPIRATION DATE: 10/15/2017

PREPARED FOR:  
THE HOWARD HUGHES CORPORATION  
10480 LITTLE PATUXENT PARKWAY  
SUITE 400  
COLUMBIA, MD 21044  
ATTN: BOB JENKINS  
410-964-5443

### SIGNING AND STRIPING PLAN 2 OF 2

DOWNTOWN COLUMBIA  
CRESCENT NEIGHBORHOOD  
PARCELS B THRU H, NON-BUILDABLE BULK PARCELS J THRU R,  
O.S. LOTS 1 THRU 8 AND  
MERRIWEATHER-SYMPHONY WOODS NEIGHBORHOOD O.S. LOT 1  
AND NON-BUILDABLE BULK PARCEL A

ELECTION DISTRICT No. 5

SCALE 1"=50'	ZONING NT	11071
DATE JUNE, 2016	36 - 01	61 OF 102

LEFT-TURN LANE MARKINGS TO BE INSTALLED UNDER A SEPARATE SIGNING AND STRIPING PLAN IN CONJUNCTION WITH REDLINED CIVIL PLANS

### STREETLIGHT LEGEND

- EXISTING STREET LIGHT
- LED-100 MODERN POST-TOP FIXTURE MOUNTED ON A 14" BLACK FIBERGLASS POLE
- LED-250 COBRA FIXTURE MOUNTED AT 30' ON A BRONZE FIBERGLASS POLE USING A 6' ARM
- LED-200 COBRA FIXTURE MOUNTED AT 30' ON A BRONZE FIBERGLASS POLE USING A 12' ARM
- LED-150 COBRA FIXTURE MOUNTED AT 30' ON A BRONZE FIBERGLASS POLE USING A 6' ARM
- LED-200 COBRA FIXTURE MOUNTED AT 30' ON A BRONZE FIBERGLASS POLE USING A 12' ARM
- LED-250 COBRA FIXTURE MOUNTED AT 30' ON A BRONZE FIBERGLASS POLE USING A 12' ARM

### PAVEMENT MARKINGS NOTES

- ALL LONG LINES MARKINGS TO BE APPLIED USING THERMOPLASTIC MATERIAL.
- THE CROSSWALK AND ARROWS TO BE INSTALLED USING PREFORMED HEAT APPLIED TAPE OR THERMOPLASTIC.
- ALL PAVEMENT MARKINGS ARE TO BE LOCATED OR APPROVED BY THE TRAFFIC DIVISION PRIOR TO THE PLACEMENT OF ANY MARKINGS.
- ALL EXISTING PAVEMENT MARKING IN CONFLICT WITH THE PROPOSED PAVEMENT MARKINGS ARE TO BE REMOVED BY GRINDING ONLY. HOWARD COUNTY TRAFFIC (410-313-5752) WILL DETERMINE WHICH EXISTING MARKINGS SHALL BE REMOVED.

### SIGNING NOTES

- ALL SIGN POSTS USED FOR TRAFFIC CONTROL SIGNS INSTALLED IN THE COUNTY RIGHT-OF-WAY SHALL BE MOUNTED ON A 2" GALVANIZED STEEL, PERFORATED, SQUARE TUBE POST (1/4 GAUGE) INSERTED INTO A 2-1/2" GALVANIZED STEEL, PERFORATED, SQUARE TUBE SLEEVE (1/2 GAUGE) - 3' LONG. A GALVANIZED STEEL POLE SHALL BE MOUNTED ON TOP OF EACH POST. THE ANCHOR SHALL NOT EXTEND MORE THAN TWO QUICK PUNCH HOLES ABOVE THE GROUND.
- ALL SIGNS LOCATIONS WITHIN THE PUBLIC RIGHT OF WAY SHALL BE APPROVED BY THE HOWARD COUNTY TRAFFIC DIVISION (410-313-5752) PRIOR TO INSTALLATION.



# STREAM AND WETLAND RESTORATION AND MITIGATION

## STREAM & WETLAND RESTORATION LEGEND

EXISTING	PROPOSED
MAJOR CONTOUR	MAJOR CONTOUR
MINOR CONTOUR	MINOR CONTOUR
STREAM CENTERLINE	THALWEG
100-YR EX 100 - YEAR FLOODPLAIN	100YR 100 - YEAR FLOODPLAIN
WETLAND	LOD LIMIT OF DISTURBANCE
WB WETLAND BUFFER	LVM LIMIT OF VEGETATION MANAGEMENT
SB STREAM BUFFER	SSF SUPER SILT FENCE
SS SANITARY SEWER	BOF BLAZE ORANGE FENCE
SD STORM DRAIN	ROAD
W WATER SUPPLY	TRAIL
TREELINE	COBBLE RIFFLE
PROPERTY LINE	BOULDER RIFFLE
TREE	BURIED SILL
TRVERSE POINT	STORMWATER SEEPAGE BERM
TRFP TRAFFIC POLE	LARGE WOODY DEBRIS
EJB ELECTRIC JUNCTION BOX	STANDING SNAG
STORMDRAIN MANHOLE	TREE REMOVAL
GAS METER	STAGING AND STOCKPILING AREA
GAS VALVE	MULCH ACCESS ROAD
WATER METER	STABILIZED CONSTRUCTION ENTRANCE
WATER VALVE	SANDBAGS
FIRE HYDRANT	DIRTBAG OR OTHER APPROVED SEC DEVICE
SEWER MANHOLE	DEWATERING DEVICE
SEWER CLEAN OUT	PUMP AROUND PIPE
TELCO MANHOLE	
TELCO RISER	
SIGN	
LIGHT POLE	
UTILITY POLE	
GUY WIRE	
ELECTRIC MANHOLE	
TRANSFORMER	
CONCRETE SIDEWALK	
ASPHALT WALK/PATH	

NOTE: LEGEND APPLIES TO SHEETS 63 THROUGH 102

## SPECIAL CONTRACTOR NOTES

- UPON COMPLETION OF THE WORK, BUT PRIOR TO DE-MOBILIZATION, THE CONTRACTOR SHALL RESTORE ALL DISTURBED AREAS TO A CONDITION EQUAL TO OR BETTER THAN THE PRE-CONSTRUCTION CONDITIONS.
- PRIOR TO BEGINNING ANY CONSTRUCTION ACTIVITIES, PHOTOGRAPHS OF THE PROPOSED WORK AREA AND ACCESS SHALL BE TAKEN.

## NOTES

- THE PROPERTY IS ZONED NT PER THE OCTOBER 6, 2013 COMPREHENSIVE ZONING PLAN.
- THIS PLAN COMPLIES WITH THE REQUIREMENTS OF SECTION 16.124 OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS AND THE LANDSCAPE MANUAL BY ALTERNATIVE COMPLIANCE, RESULTING IN IMPROVED ENVIRONMENTAL QUALITY.
- THERE ARE NO BURIAL GROUNDS OR CEMETERY SITES LOCATED ON THE PROJECT SITE.
- THIS PLAN IS EXEMPT FROM THE REQUIREMENTS OF THE FOREST CONSERVATION REGULATIONS IN ACCORDANCE WITH SUBSECTION 16.1202(B)(1)(IV) SINCE IT IS LOCATED WITHIN A PLANNED UNIT DEVELOPMENT WHICH HAD PRELIMINARY PLAN APPROVAL AND 50% OR MORE OF THE LAND WAS RECORDED AND SUBSTANTIALLY DEVELOPED BEFORE DECEMBER 31, 1992.
- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY CONTAINED HEREIN PLUS MSHA STANDARDS AND SPECIFICATIONS, IF APPLICABLE.
- THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS, BUREAU OF ENGINEERING/CONSTRUCTION INSPECTION DIVISION AT (410) 313-1880 24 HOURS IN ADVANCE OF ANY WORK BEING DONE.
- THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.
- THE COORDINATES SHOWN HEREIN ARE BASED ON HOWARD COUNTY GEODETIC CONTROL, WHICH IS BASED UPON THE MARYLAND STATE PLANE COORDINATE SYSTEM. HOWARD COUNTY MONUMENTS NUMBER 36AA AND 30GA WERE USED FOR THIS SITE.
- WATER IS PUBLIC.
- SEWER IS PUBLIC.
- STORMWATER MANAGEMENT IS NOT REQUIRED FOR STREAM AND WETLAND RESTORATION.
- EXISTING UTILITIES ARE BASED ON FIELD SURVEYS AND AVAILABLE RECORD DRAWINGS.
- THE TOPOGRAPHIC AERIAL SURVEY WAS PERFORMED ON MARCH 2007 BY MCKENZIE SNYDER AND TOPOGRAPHIC FIELD SURVEY IN AUGUST 2011 BY GUTSHICK, LITTLE AND WEBER.
- NO TRAFFIC STUDY IS REQUIRED FOR THIS PROJECT.
- OBSTRUCTIONS SHOWN ON THIS DRAWING ARE FOR THE CONVENIENCE OF THE CONTRACTOR ONLY, AND BIOHABITATS, INC. DOES NOT WARRANT OR GUARANTEE THE CORRECTNESS OR COMPLETENESS OF THE INFORMATION GIVEN. SHOULD THE CONTRACTOR DISCOVER ANY DISCREPANCIES BETWEEN THE PLANS AND THE FIELD CONDITIONS, THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY TO RESOLVE THE SITUATION. SHOULD THE CONTRACTOR MAKE FIELD CORRECTIONS OR ADJUSTMENTS WITHOUT NOTIFYING THE ENGINEER, THE CONTRACTOR ASSUMES ALL RESPONSIBILITY FOR THOSE CHANGES.
- THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THE EXISTING UTILITIES AND MAINTAIN UNINTERRUPTED SERVICE. ANY DAMAGE INCURRED DUE TO THE CONTRACTOR'S OPERATION SHALL BE REPAIRED IMMEDIATELY AT THE CONTRACTOR'S EXPENSE.
- SOILS DATA WAS ACQUIRED USING HOWARD COUNTY GIS.
- THE TRIGGER FOR RESTORATION AREA 3 IS PRIOR TO ISSUANCE OF USE AND OCCUPANCY CERTIFICATE FOR BUILDING IN AREA 3. THE TRIGGER FOR RESTORATION AREA 5 IS PRIOR TO ISSUANCE OF USE AND OCCUPANCY CERTIFICATE FOR BUILDING IN AREA 1 AND 2. THE TRIGGER FOR RESTORATION AREA 6 IS PRIOR TO ISSUANCE OF USE AND OCCUPANCY CERTIFICATE FOR BUILDING IN AREA 1 AND 2. REFER TO F-16-107 FOR DETAILS ON RESTORATION AREA 7.

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66	EXISTING CONDITIONS & GEOMETRY
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70	WETLAND MITIGATION PLAN
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75	GRADING & EROSION AND SEDIMENT CONTROL
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94	EROSION AND SEDIMENT CONTROL DETAILS
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96	PLANTING PLAN
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100	PLANTING PLAN
101	PLANTING DETAILS & SCHEDULES
102	PLANTING SCHEDULES

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
  
 Chief, Bureau of Highways Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
  
 Chief, Division of Land Development Date: 8-3-16  
  
 Chief, Development Engineering Division Date: 7-26-16

This development plan is approved for soil erosion and sediment control by the HOWARD SOIL CONSERVATION DISTRICT  
  
 Howard SCD

STATE OF MARYLAND  
 PROFESSIONAL LAND SURVEYOR  
 No. 10849  
 DATE: 4/2/2022  
 AS-BUILT DATE: 8/14/2020  
 Shambarger & Lane

**Biohabitats**  
 The Stables Building, 2081 Clippert Park Road  
 Baltimore, MD 21211 / ph: 410-554-0156  
 fx: 410-554-0168 / www.biohabitats.com  
 Restore the Earth & Inspire Ecological Stewardship

DES.	DRN.	CHK.	DATE	REVISION	BY	APP'R.

PREPARED FOR:  
 THE HOWARD HUGHES CORPORATION  
 10480 LITTLE PATUXENT PARKWAY  
 SUITE 400  
 COLUMBIA, MD 21044  
 ATTN: BOB JENKINS  
 410-964-5443

PROFESSIONAL CERTIFICATION  
  
 I HEREBY CERTIFY THAT THESE PLANS 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. 26980, EXPIRATION DATE: FEBRUARY 2018.

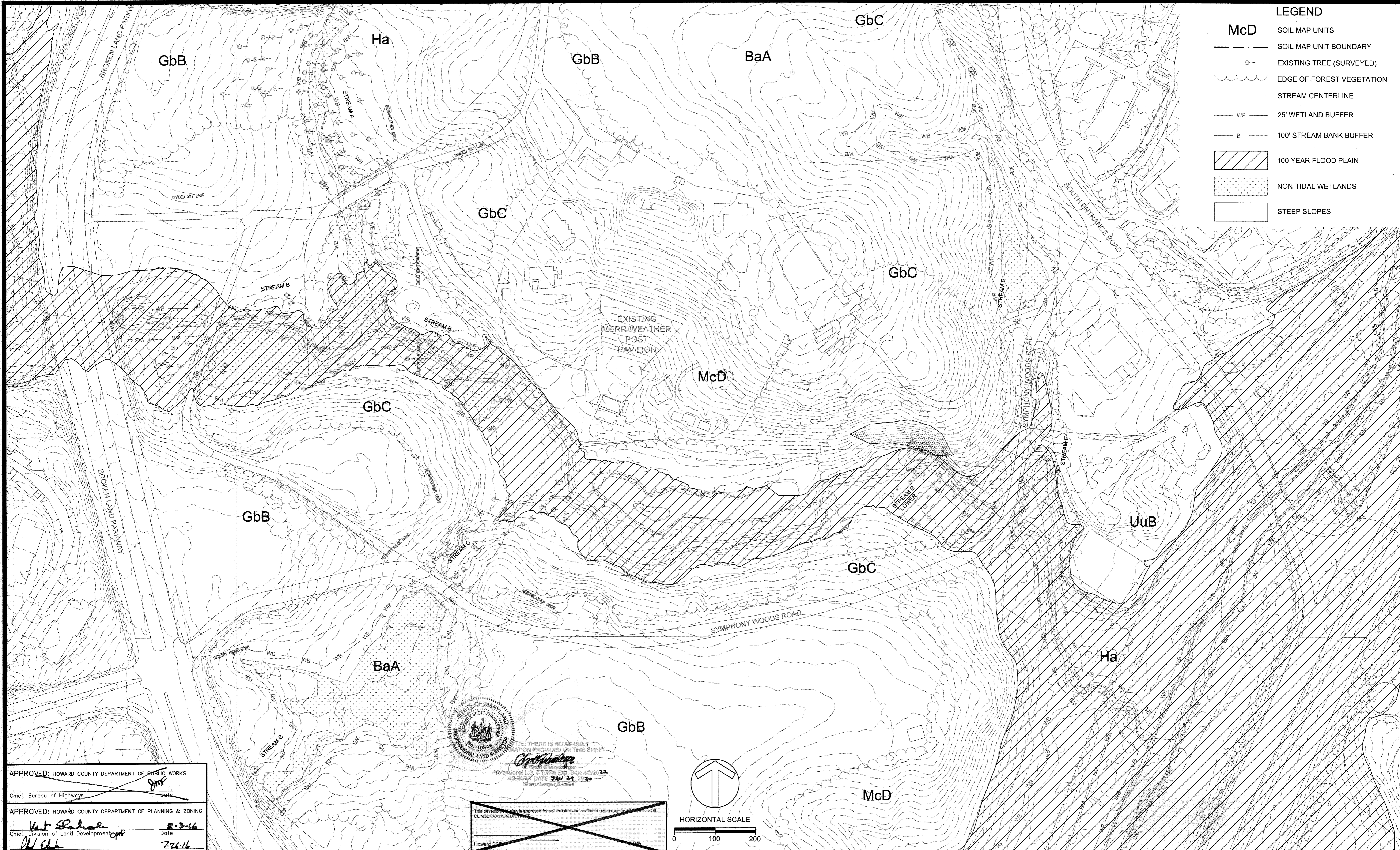
GENERAL NOTES  
 DOWNTOWN COLUMBIA  
 CRESCENT NEIGHBORHOOD  
 PARCELS B THRU H, NON-BUILDABLE BULK PARCELS J THRU R,  
 O.S. LOTS 1 THRU 8 AND  
 MERRIWEATHER-SYMPHONY WOODS NEIGHBORHOOD O.S. LOT 1  
 AND NON-BUILDABLE BULK PARCEL A  
 ELECTION DISTRICT No. 5 HOWARD COUNTY, MARYLAND

SCALE	ZONING	SHEET
AS SHOWN	NT	11071
DATE	TAXTITLE	SHEET
JUNE, 2016	36 - 01	62 OF 102









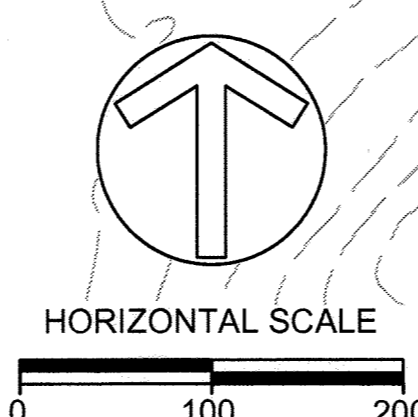
**LEGEND**

<b>McD</b>	SOIL MAP UNITS
---	SOIL MAP UNIT BOUNDARY
⊙	EXISTING TREE (SURVEYED)
~~~~~	EDGE OF FOREST VEGETATION
---	STREAM CENTERLINE
WB	25' WETLAND BUFFER
B	100' STREAM BANK BUFFER
[Hatched Box]	100 YEAR FLOOD PLAIN
[Dotted Box]	NON-TIDAL WETLANDS
[Stippled Box]	STEEP SLOPES

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
 Chief, Bureau of Highways  
 Date: 8-3-16

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
 Chief, Division of Land Development  
 Date: 7-22-16

STATE OF MARYLAND  
 PROFESSIONAL LAND SURVEYOR  
 No. 10849  
 Scott S. Gansberger  
 DATE: THERE IS NO AS-BUILT INFORMATION PROVIDED ON THIS SHEET  
 PROFESSIONAL L.S. # 10849 Exp. Date 4/2022  
 AS-BUILT DATE: JAN 24 2020  
 Gansberger & Co.



**Biohabitats**  
 The Stokes Building, 2081 Clipper Park Road  
 Baltimore, MD 21211 / ph: 410.554.0156  
 fx: 410.554.0168 / www.biohabitats.com  
 Restore the Earth • Inspire Ecological Stewardship

DES.	DRN.	CHK.	DATE	REVISION	BY	APPR.

PREPARED FOR:  
 THE HOWARD HUGHES CORPORATION  
 10480 LITTLE PATUXENT PARKWAY  
 SUITE 400  
 COLUMBIA, MD 21044  
 ATTN: BOB JENKINS  
 410-964-5443

PROFESSIONAL CERTIFICATION  
 I HEREBY CERTIFY THAT THESE PLANS 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. 26980, EXPIRATION DATE: FEBRUARY 2018.

DELINEATION PLAN  
 DOWNTOWN COLUMBIA  
 CRESCENT NEIGHBORHOOD  
 PARCELS B THRU H, NON-BUILDABLE BULK PARCELS J THRU R,  
 O.S. LOTS 1 THRU 8 AND  
 MERRIWEATHER-SYMPHONY WOODS NEIGHBORHOOD O.S. LOT 1  
 AND NON-BUILDABLE BULK PARCEL A  
 HOWARD COUNTY, MARYLAND

SCALE	ZONING	11071
1" = 100'	NT	
DATE	TAXITLE	SHEET
JUNE, 2016	36 - 01	64 OF 102



GEOMETRY TABLE		
LINE #	LENGTH	DIRECTION
L45	85.7	S31° 04' 22"E
L46	15.0	S29° 20' 09"E
L47	18.9	S39° 24' 30"E
L48	13.0	S12° 48' 03"E
L49	15.0	S27° 44' 14"E
L50	12.6	S30° 52' 14"E
L51	15.4	S12° 54' 14"E
L52	9.5	S07° 27' 15"W
L53	15.0	S07° 27' 06"W
L54	22.8	S16° 53' 29"W
L55	18.9	S01° 27' 34"W
L56	24.8	S29° 29' 54"E
L57	15.0	S16° 59' 14"E
L58	13.1	S11° 38' 02"E
L59	15.5	S02° 20' 17"W
L60	15.0	S04° 51' 26"W
L61	19.1	S04° 03' 37"W
L62	15.0	S10° 18' 50"W
L63	20.1	S17° 53' 34"W
L64	15.0	S19° 38' 37"W
L65	24.9	S24° 12' 47"W
L66	15.0	S32° 16' 21"W
L67	18.6	S02° 05' 47"W
L68	30.8	S08° 08' 33"W



APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
 Chief, Bureau of Highways  
 Date: *8-3-16*

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
 Chief, Division of Land Development  
 Date: *7-26-16*

Chief, Development Engineering Division

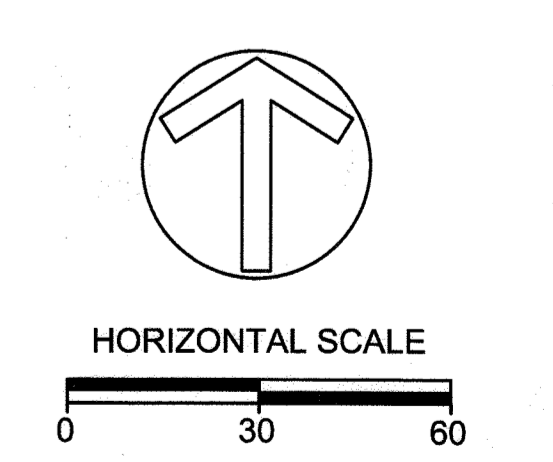
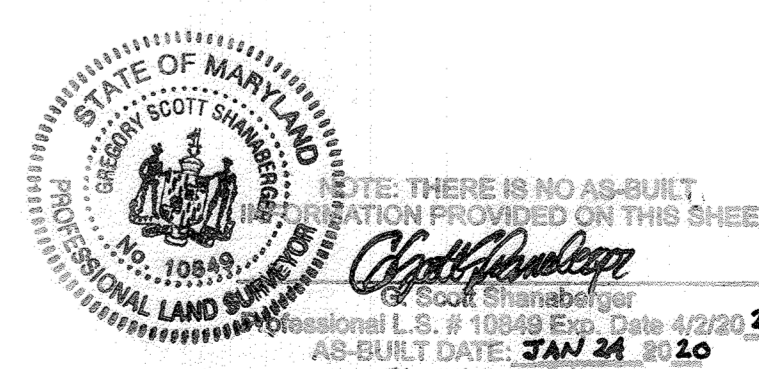
DES.	DRN.	CHK.	DATE	REVISION	BY	APPR.

PREPARED FOR:  
 THE HOWARD HUGHES CORPORATION  
 10480 LITTLE PATUXENT PARKWAY  
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 ATTN: BOB JENKINS  
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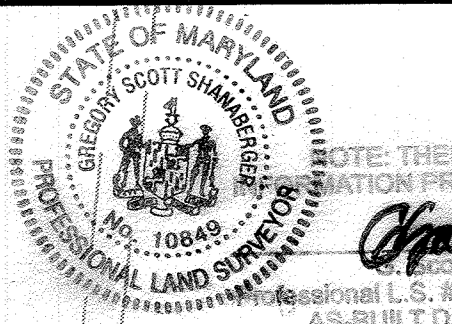
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EXISTING CONDITIONS & GEOMETRY  
 DOWNTOWN COLUMBIA  
 CRESCENT NEIGHBORHOOD  
 PARCELS B THRU H, NON-BUILDABLE BULK PARCELS J THRU R,  
 O.S. LOTS 1 THRU 8 AND  
 MERRIWEATHER-SYMPHONY WOODS NEIGHBORHOOD O.S. LOT 1  
 AND NON-BUILDABLE BULK PARCEL A  
 HOWARD COUNTY, MARYLAND

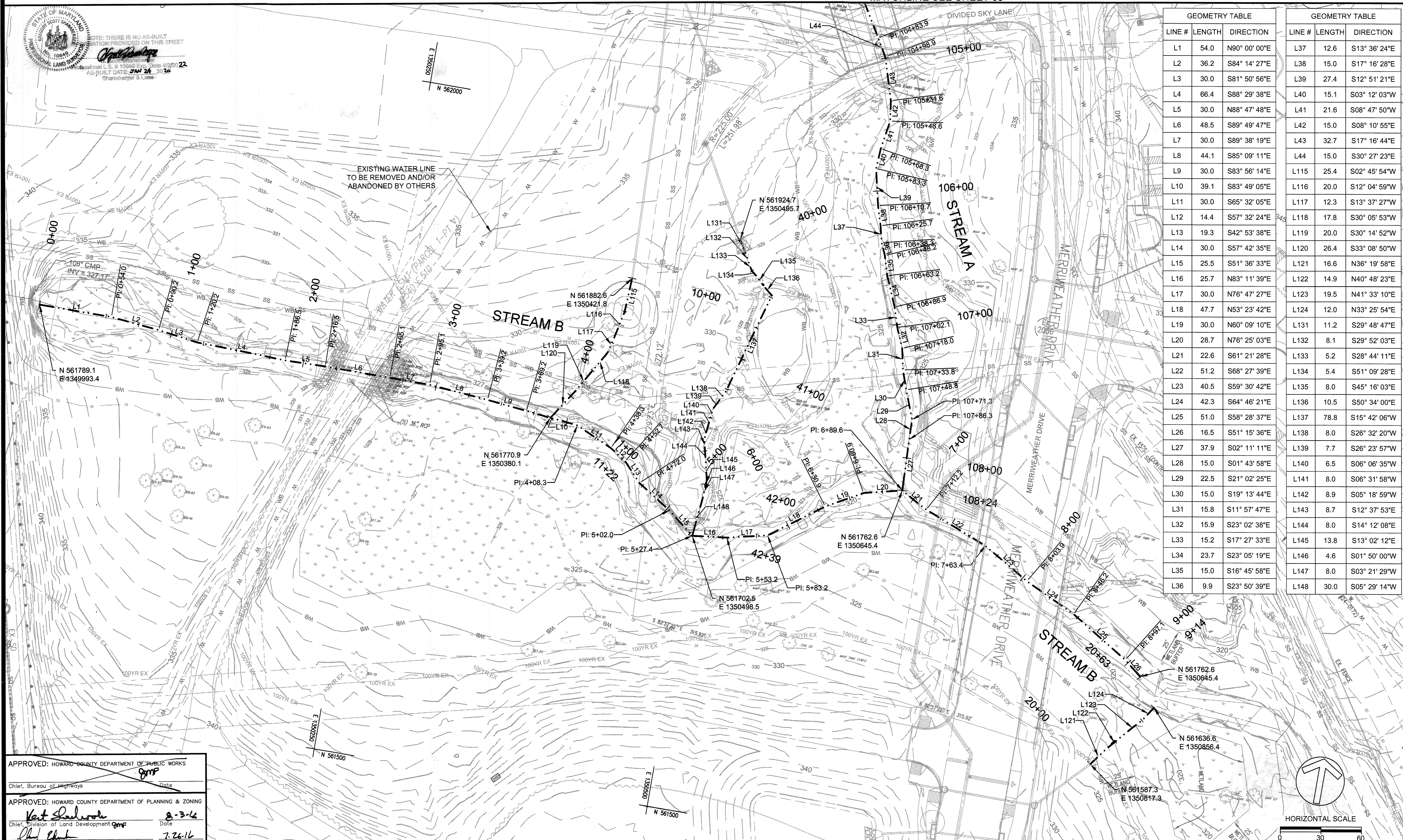
SCALE	ZONING	SHEET
1" = 30'	NT	11071
DATE	TAXITLE	SHEET
JUNE, 2016	36 - 01	65 OF 102







NOTE: THERE IS NO AS-BUILT INFORMATION PROVIDED ON THIS SHEET  
 PROFESSIONAL L.S. # 10949 Exp. Date 4/2/2022  
 AS-BUILT DATE: JAN 24 2022  
 Shaberger & Lane



GEOMETRY TABLE			GEOMETRY TABLE		
LINE #	LENGTH	DIRECTION	LINE #	LENGTH	DIRECTION
L1	54.0	N90° 00' 00"E	L37	12.6	S13° 36' 24"E
L2	36.2	S84° 14' 27"E	L38	15.0	S17° 16' 28"E
L3	30.0	S81° 50' 56"E	L39	27.4	S12° 51' 21"E
L4	66.4	S88° 29' 38"E	L40	15.1	S03° 12' 03"W
L5	30.0	N88° 47' 48"E	L41	21.6	S08° 47' 50"W
L6	48.5	S89° 49' 47"E	L42	15.0	S08° 10' 55"E
L7	30.0	S89° 38' 19"E	L43	32.7	S17° 16' 44"E
L8	44.1	S85° 09' 11"E	L44	15.0	S30° 27' 23"E
L9	30.0	S83° 56' 14"E	L115	25.4	S02° 45' 54"W
L10	39.1	S83° 49' 05"E	L116	20.0	S12° 04' 59"W
L11	30.0	S65° 32' 05"E	L117	12.3	S13° 37' 27"W
L12	14.4	S57° 32' 24"E	L118	17.8	S30° 05' 53"W
L13	19.3	S42° 53' 38"E	L119	20.0	S30° 14' 52"W
L14	30.0	S57° 42' 35"E	L120	26.4	S33° 08' 50"W
L15	25.5	S51° 36' 33"E	L121	16.6	N36° 19' 58"E
L16	25.7	N83° 11' 39"E	L122	14.9	N40° 48' 23"E
L17	30.0	N76° 47' 27"E	L123	19.5	N41° 33' 10"E
L18	47.7	N53° 23' 42"E	L124	12.0	N33° 25' 54"E
L19	30.0	N60° 09' 10"E	L131	11.2	S29° 48' 47"E
L20	28.7	N76° 25' 03"E	L132	8.1	S29° 52' 03"E
L21	22.6	S61° 21' 28"E	L133	5.2	S28° 44' 11"E
L22	51.2	S68° 27' 39"E	L134	5.4	S51° 09' 28"E
L23	40.5	S59° 30' 42"E	L135	8.0	S45° 16' 03"E
L24	42.3	S64° 46' 21"E	L136	10.5	S50° 34' 00"E
L25	51.0	S58° 28' 37"E	L137	78.8	S15° 42' 06"W
L26	16.5	S51° 15' 36"E	L138	8.0	S26° 32' 20"W
L27	37.9	S02° 11' 11"E	L139	7.7	S26° 23' 57"W
L28	15.0	S01° 43' 58"E	L140	6.5	S06° 06' 35"W
L29	22.5	S21° 02' 25"E	L141	8.0	S06° 31' 58"W
L30	15.0	S19° 13' 44"E	L142	8.9	S05° 18' 59"W
L31	15.8	S11° 57' 47"E	L143	8.7	S12° 37' 53"E
L32	15.9	S23° 02' 38"E	L144	8.0	S14° 12' 08"E
L33	15.2	S17° 27' 33"E	L145	13.8	S13° 02' 12"E
L34	23.7	S23° 05' 19"E	L146	4.6	S01° 50' 00"W
L35	15.0	S16° 45' 58"E	L147	8.0	S03° 21' 29"W
L36	9.9	S23° 50' 39"E	L148	30.0	S05° 29' 14"W

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
 Chief, Bureau of Highways  
 Date  
 APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
 Chief, Division of Land Development  
 Date  
 Chief, Development Engineering Division

DES.	DRN.	CHK.	DATE	REVISION	BY	APPR.

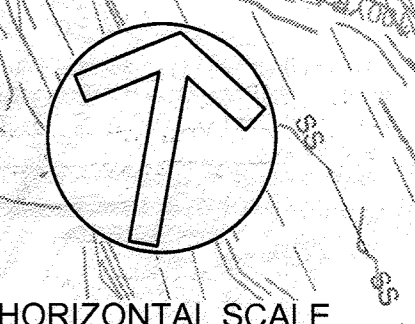
DES.	DRN.	CHK.	DATE	REVISION	BY	APPR.

PREPARED FOR:  
 THE HOWARD HUGHES CORPORATION  
 10480 LITTLE PATUXENT PARKWAY  
 SUITE 400  
 COLUMBIA, MD 21044  
 ATTN: BOB JENKINS  
 410-964-5443

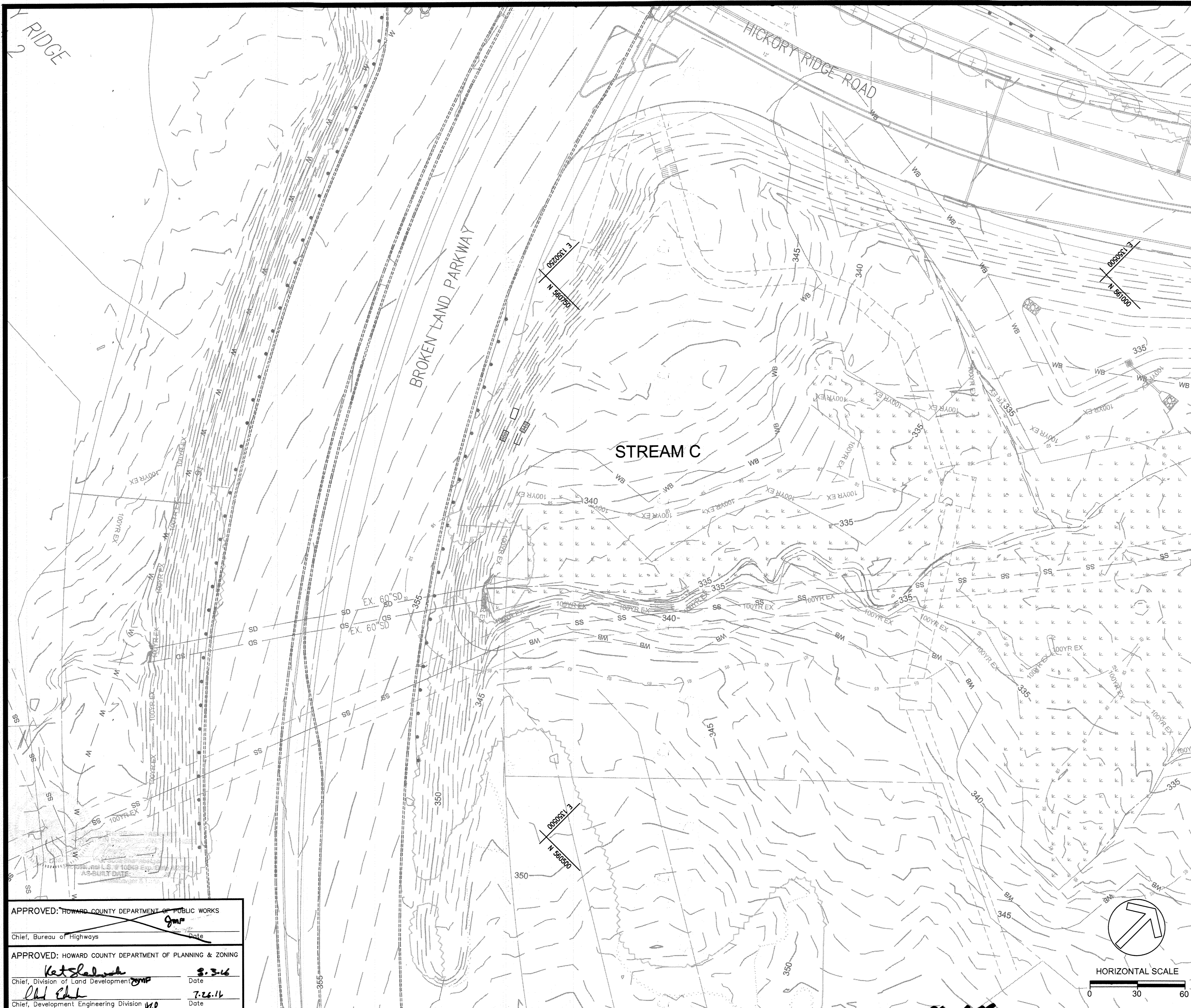
PROFESSIONAL CERTIFICATION  
 I HEREBY CERTIFY THAT THESE PLANS  
 WERE PREPARED OR APPROVED BY  
 ME, AND THAT I AM A DULY LICENSED  
 PROFESSIONAL ENGINEER UNDER THE  
 LAWS OF THE STATE OF MARYLAND,  
 LICENSE NO. 26980  
 EXPIRATION DATE: FEBRUARY 2018.

EXISTING CONDITIONS & GEOMETRY  
 DOWNTOWN COLUMBIA  
 CRESCENT NEIGHBORHOOD  
 PARCELS B THRU H, NON-BUILDABLE BULK PARCELS J THRU R,  
 O.S. LOTS 1 THRU 8 AND  
 MERRIVETHER-SYMPHONY WOODS NEIGHBORHOOD O.S. LOT 1  
 AND NON-BUILDABLE BULK PARCEL A  
 ELECTION DISTRICT No. 5  
 HOWARD COUNTY, MARYLAND

SCALE	ZONING	SHEET
1" = 30'	NT	11071
DATE	TAXITILE	SHEET
JUNE, 2016	36 - 01	66 OF 102







MATCHLINE SEE SHEET 68

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
 Chief, Bureau of Highways  
 Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
 Chief, Division of Land Development  
 Date

Chief, Development Engineering Division  
 Date

**Biohabitats**  
 The Stubbs Building 2081 Clipper Park Road  
 Baltimore, MD 21211 / ph: 410.554.0156  
 fx: 410.554.0168 / www.biohabitats.com  
 Restore the Earth • Inspire Ecological Stewardship

DES.	DRN.	CHK.	DATE	REVISION	BY	APPR.

DES.	DRN.	CHK.	DATE	REVISION	BY	APPR.

PREPARED FOR:  
 THE HOWARD HUGHES CORPORATION  
 10480 LITTLE PATUXENT PARKWAY  
 SUITE 400  
 COLUMBIA, MD 21044  
 ATTN: BOB JENKINS  
 410-964-5443

PROFESSIONAL CERTIFICATION  
 I HEREBY CERTIFY THAT THESE PLANS  
 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. 26980  
 EXPIRATION DATE: FEBRUARY 2018

EXISTING CONDITIONS & GEOMETRY  
 DOWNTOWN COLUMBIA  
 CRESCENT NEIGHBORHOOD  
 PARCELS B THRU H, NON-BUILDABLE BULK PARCELS J THRU R,  
 O.S. LOTS 1 THRU 8 AND  
 MERRIWEATHER-SYMPHONY WOODS NEIGHBORHOOD O.S. LOT 1  
 AND NON-BUILDABLE BULK PARCEL A  
 ELECTION DISTRICT No. 5  
 HOWARD COUNTY, MARYLAND

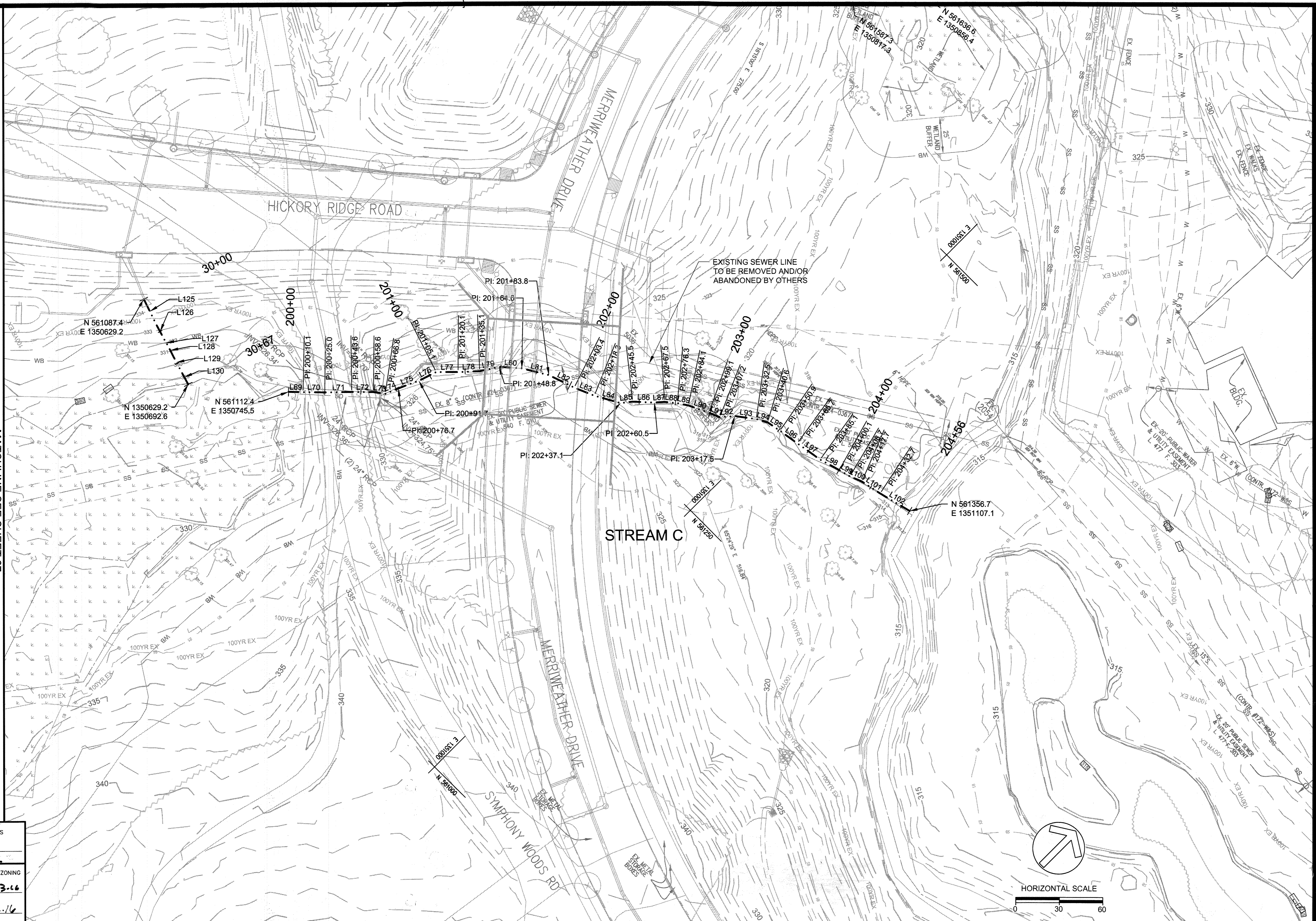
SCALE	ZONING	
1" = 30'	NT	11071
DATE	TAXITLE	SHEET
JUNE, 2016	36 - 01	67 OF 102

NOTE: THERE IS NO AS-BUILT  
 INFORMATION PROVIDED ON THIS SHEET  
 AS-BUILT DATE: JAN 24 2016  
 Shandley & Lane



LINE #	LENGTH	DIRECTION
L69	10.1	N46° 10' 51"E
L70	14.9	N45° 49' 01"E
L71	18.6	N44° 11' 29"E
L72	15.0	N45° 35' 05"E
L73	8.2	N53° 38' 24"E
L74	9.9	N22° 40' 34"E
L75	15.0	N24° 59' 07"E
L76	13.4	N18° 11' 12"E
L77	15.0	N45° 29' 00"E
L78	15.0	N42° 47' 39"E
L79	13.7	N32° 38' 37"E
L80	15.8	N48° 49' 12"E
L81	19.2	N59° 06' 32"E
L82	19.5	N71° 33' 08"E
L83	14.9	N66° 56' 21"E
L84	18.8	N60° 39' 29"E
L85	8.5	N38° 33' 27"E
L86	15.0	N47° 23' 17"E
L87	7.0	N41° 29' 27"E
L88	8.8	N50° 33' 40"E
L89	7.8	N56° 46' 00"E
L90	15.0	N64° 35' 31"E
L91	8.0	N66° 12' 58"E
L92	10.3	N40° 51' 30"E
L93	15.0	N53° 03' 00"E
L94	8.1	N61° 24' 10"E
L95	10.3	N79° 25' 39"E
L96	14.8	N80° 59' 31"E
L97	19.5	N80° 29' 00"E
L98	15.0	N74° 06' 14"E
L99	8.6	N75° 35' 28"E
L100	9.0	N68° 15' 09"E
L101	15.0	N78° 14' 22"E
L102	23.7	N75° 42' 28"E
L125	19.1	S71° 03' 28"E
L126	12.0	S73° 18' 12"E
L127	5.6	S74° 28' 44"E
L128	6.6	S71° 31' 27"E
L129	12.0	S72° 21' 34"E
L130	11.4	S73° 03' 36"E

MATCHLINE SEE SHEET 67



STATE OF MARYLAND  
 PROFESSIONAL LAND SURVEYOR  
 No. 10849  
 AS-BUILT DATE: **20 20**  
 Chemebayger & Lane

NOTE: THERE IS NO AS-BUILT INFORMATION PROVIDED ON THIS SHEET

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
 Chief, Bureau of Highways

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
 Chief, Division of Land Development  
 Chief, Development Engineering Division

**Biohabitats**  
 The Stubbs Building, 2081 Clippes Park Road  
 Baltimore, MD 21211 / ph: 410.524.0156  
 fx: 410.524.0168 / www.biohabitats.com  
 Restore the Earth & Inspire Ecological Stewardship

DES.	DRN.	CHK.	DATE	REVISION	BY	APPR.

DES.	DRN.	CHK.	DATE	REVISION	BY	APPR.

PREPARED FOR:  
 THE HOWARD HUGHES CORPORATION  
 10480 LITTLE PATUXENT PARKWAY  
 SUITE 400  
 COLUMBIA, MD 21044  
 ATTN: BOB JENKINS  
 410-964-5443

PROFESSIONAL CERTIFICATION  
 I HEREBY CERTIFY THAT THESE PLANS 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. 26980  
 EXPIRATION DATE: FEBRUARY 2018.

EXISTING CONDITIONS & GEOMETRY  
 DOWNTOWN COLUMBIA  
 CRESCENT NEIGHBORHOOD  
 PARCELS B THRU H, NON-BUILDABLE BULK PARCELS J THRU R,  
 O.S. LOTS 1 THRU 8 AND  
 MERRIMEATHER-SYMPHONY WOODS NEIGHBORHOOD O.S. LOT 1  
 AND NON-BUILDABLE BULK PARCEL A  
 ELECTION DISTRICT No. 5  
 HOWARD COUNTY, MARYLAND

SCALE	ZONING	SHEET
1" = 30'	NT	11071
DATE	TAXITILE	SHEET
JUNE, 2016	36 - 01	68 OF 102



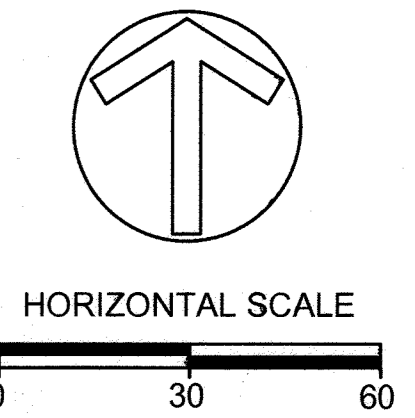






Wetland Mitigation Areas		
Site	Type	Area (SF)
A-1	PFO	820
A-2	PFO	243
A-3	PFO	658
A-4	PFO	49
A-5	PFO	518

- WETLAND MITIGATION LEGEND**
- PFO WETLAND CREATION
  - PFO WETLAND ENHANCEMENT
  - PEM WETLAND CREATION
  - CULVERT REMOVAL & RESTORATION
  - PFO WETLAND CREATION WITH STORMWATER AUGMENTATION
  - ADDITIONAL PFO WETLAND CREATION
  - ADDITIONAL PEM WETLAND CREATION
  - EXISTING WETLAND
  - STREAM CROSS SECTION
  - GROUNDWATER WELL
  - FLOW LOGGER



APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
 Chief, Bureau of Highways  
 Date: \_\_\_\_\_

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
 Chief, Division of Land Development  
 Date: 8.3.16

Chief, Development Engineering Division  
 Date: 7.26.16

NOTE: THERE IS NO AS-BUILT INFORMATION PROVIDED ON THIS SHEET.  
 PROFESSIONAL LAND SURVEYOR  
 License No. 10949  
 Date: JAN 24 2022

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

Signature: Jennifer Zielinski-Missett  
 DATE: 6/1/16

Howard SCD  
 DATE: \_\_\_\_\_

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

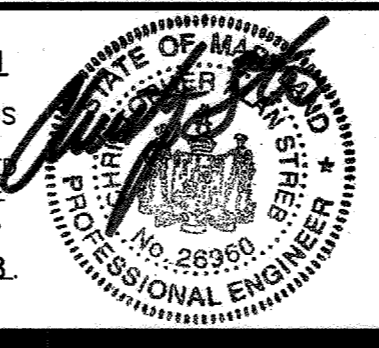
Signature: William T. Rowe  
 DATE: 6/17/16

DES.	DRN.	CHK.	DATE	REVISION	BY	APPR.

DES.	DRN.	CHK.	DATE	REVISION	BY	APPR.

PREPARED FOR:  
 THE HOWARD HUGHES CORPORATION  
 10480 LITTLE PATUXENT PARKWAY  
 SUITE 400  
 COLUMBIA, MD 21044  
 ATTN: BOB JENKINS  
 410-964-5443

PROFESSIONAL CERTIFICATION  
 I HEREBY CERTIFY THAT THESE PLANS 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. 28900  
 EXPIRATION DATE: FEBRUARY 2018



WETLAND MITIGATION PLAN  
 DOWNTOWN COLUMBIA  
 CRESCENT NEIGHBORHOOD  
 PARCELS B THRU H, NON-BUILDABLE BULK PARCELS J THRU R,  
 O.S. LOTS 1 THRU 8 AND  
 MERRIWEATHER-SYMPHONY WOODS NEIGHBORHOOD O.S. LOT 1  
 AND NON-BUILDABLE BULK PARCEL A  
 ELECTION DISTRICT No. 5  
 HOWARD COUNTY, MARYLAND

SCALE	ZONING	SHEET
1" = 30'	NT	11071
DATE	TAXITILE	SHEET
JUNE, 2016	36 - 01	70 OF 102



ENGINEERS CERTIFICATE

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

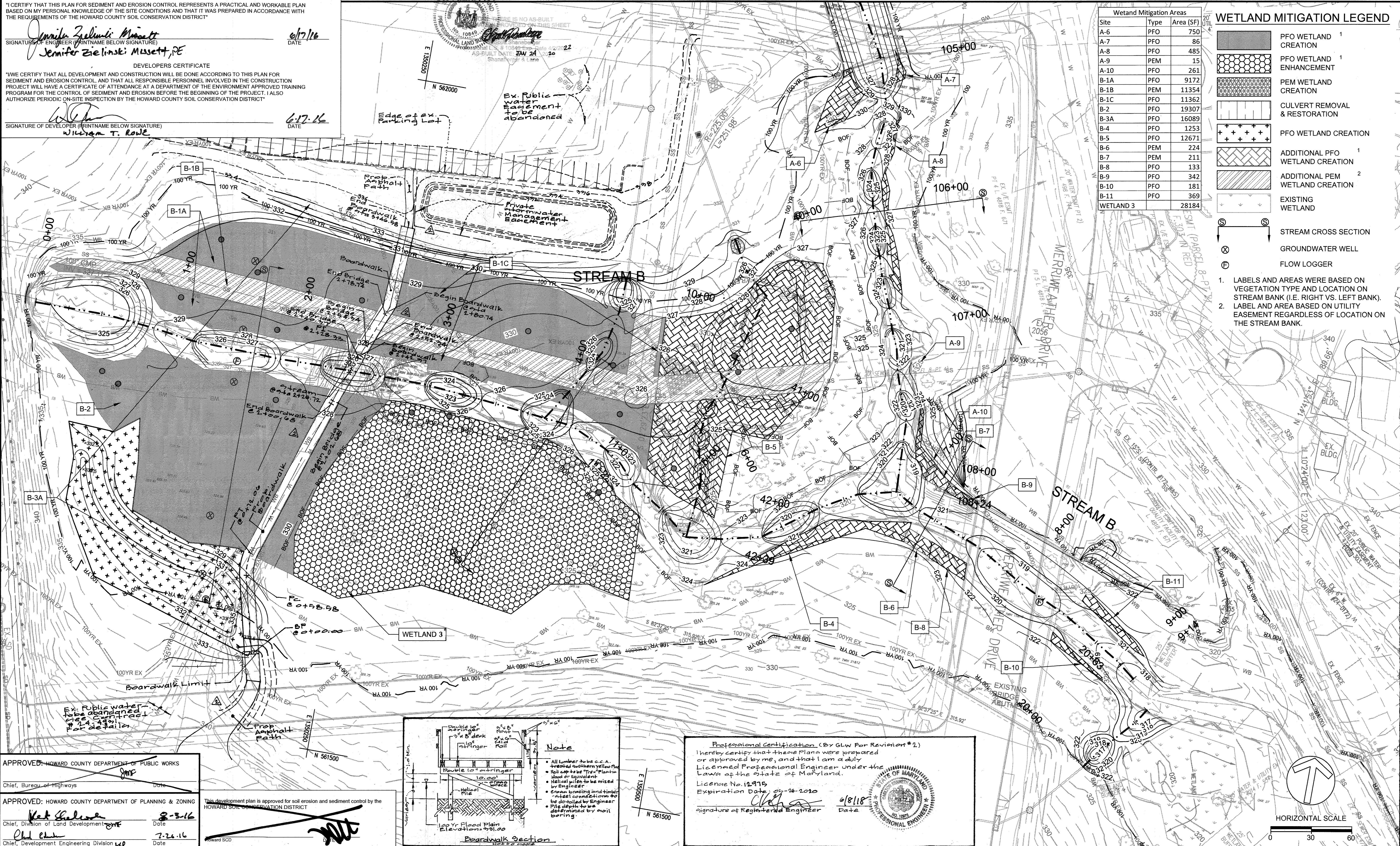
Signature of Engineer (PRINT NAME BELOW SIGNATURE)  
 Jennifer Zielinski Mussett, PE  
 DATE: 6/17/16

DEVELOPERS CERTIFICATE

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

Signature of Developer (PRINT NAME BELOW SIGNATURE)  
 William T. Rowle  
 DATE: 6-17-16

MATCHLINE SEE SHEET 70



Site	Type	Area (SF)
A-6	PFO	750
A-7	PFO	86
A-8	PFO	485
A-9	PEM	15
A-10	PFO	261
B-1A	PFO	9172
B-1B	PEM	11354
B-1C	PFO	11362
B-2	PFO	19307
B-3A	PFO	16089
B-4	PFO	1253
B-5	PFO	12671
B-6	PEM	224
B-7	PEM	211
B-8	PFO	133
B-9	PFO	342
B-10	PFO	181
B-11	PFO	369
WETLAND 3		28184

WETLAND MITIGATION LEGEND

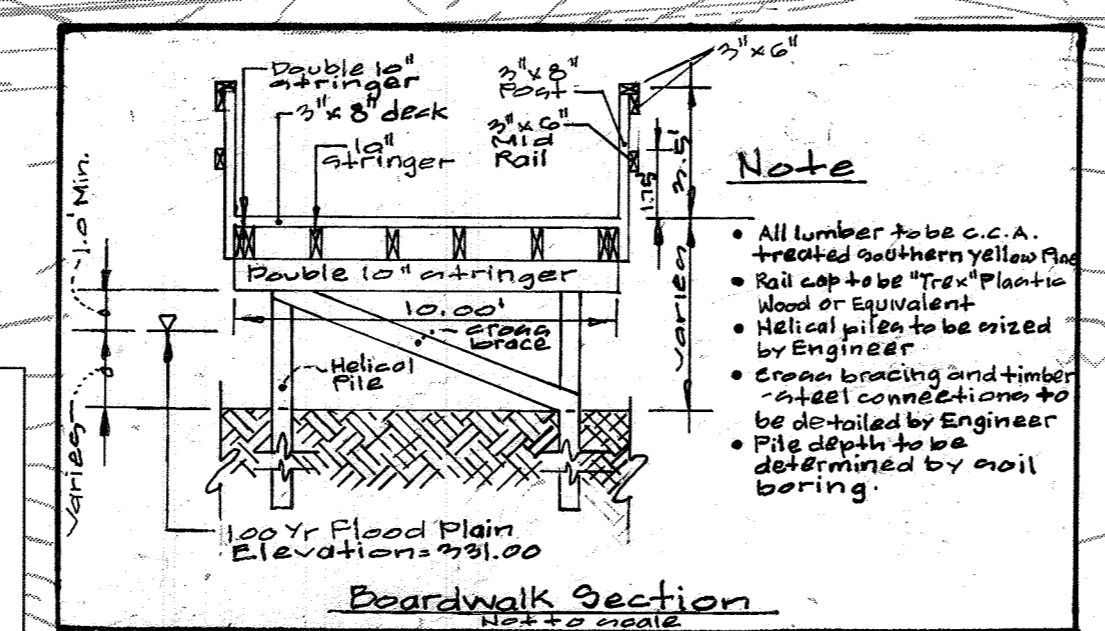
- PFO WETLAND CREATION
- PFO WETLAND ENHANCEMENT
- PEM WETLAND CREATION
- CULVERT REMOVAL & RESTORATION
- PFO WETLAND CREATION
- ADDITIONAL PFO WETLAND CREATION
- ADDITIONAL PEM WETLAND CREATION
- EXISTING WETLAND
- STREAM CROSS SECTION
- GROUNDWATER WELL
- FLOW LOGGER

- LABELS AND AREAS WERE BASED ON VEGETATION TYPE AND LOCATION ON STREAM BANK (I.E. RIGHT VS. LEFT BANK).
- LABEL AND AREA BASED ON UTILITY EASEMENT REGARDLESS OF LOCATION ON THE STREAM BANK.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
 Chief, Bureau of Highways

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
 Chief, Division of Land Development  
 Chief, Development Engineering Division

This development plan is approved for soil erosion and sediment control by the HOWARD SOIL CONSERVATION DISTRICT



Professional Certification (By GLW For Revision #2)  
 I hereby certify that these Plans 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. 12975  
 Expiration Date: 02-18-2020  
 Signature of Registered Engineer  
 Date: 6/8/18

**Biohabitats**  
 The Stables Building, 2081 Clippor Park Road  
 Baltimore, MD 21211 / ph: 410-554-0156  
 Fax: 410-554-0168 / www.biohabitats.com  
 Restore the Earth or Sustain Ecological Knowledge

DES.	DRN.	CHK.	DATE	REVISION	BY	APPR.
			4-27-18	Add boardwalk/Path + update background	3+ DEV	

PREPARED FOR:  
 THE HOWARD HUGHES CORPORATION  
 10480 LITTLE PATUXENT PARKWAY  
 SUITE 400  
 COLUMBIA, MD 21044  
 ATTN: BOB JENKINS  
 410-964-5443

PROFESSIONAL CERTIFICATION  
 I HEREBY CERTIFY THAT THESE PLANS 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. 26980  
 EXPIRATION DATE: FEBRUARY 2018.

WETLAND MITIGATION PLAN  
 DOWNTOWN COLUMBIA  
 CRESCENT NEIGHBORHOOD  
 PARCELS B THRU H, NON-BUILDABLE BULK PARCELS J THRU R,  
 O.S. LOTS 1 THRU 8 AND  
 MERRIWEATHER-SYMPHONY WOODS NEIGHBORHOOD O.S. LOT 1  
 AND NON-BUILDABLE BULK PARCEL A  
 HOWARD COUNTY, MARYLAND

SCALE	ZONING	SHEET
1" = 30'	NT	11071
DATE	TAXITILE	SHEET
JUNE, 2016	36 - 01	71 OF 102



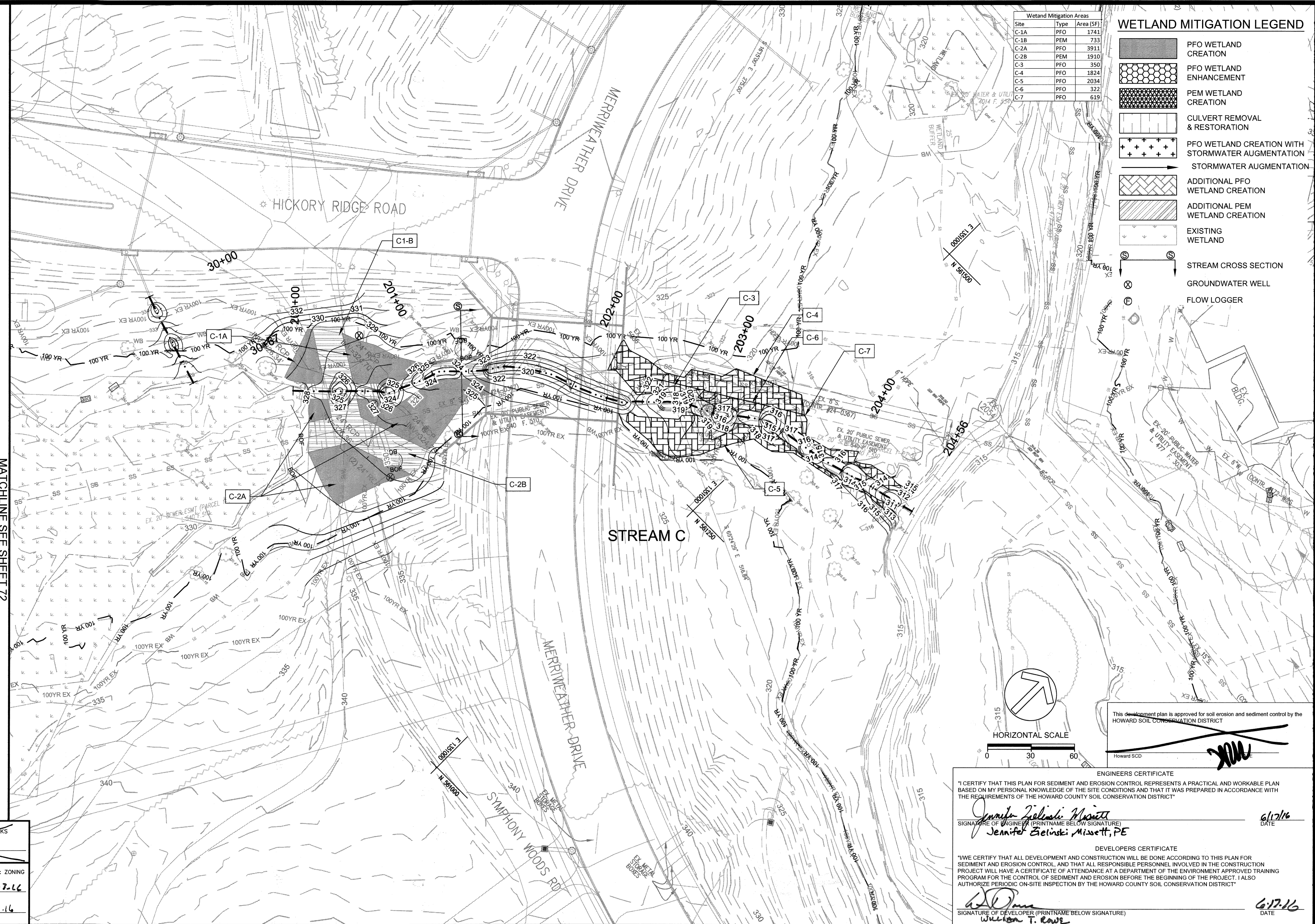




Site	Type	Area (SF)
C-1A	PFO	1741
C-1B	PEM	733
C-2A	PFO	3911
C-2B	PEM	1910
C-3	PFO	350
C-4	PFO	1824
C-5	PFO	2034
C-6	PFO	322
C-7	PFO	619

**WETLAND MITIGATION LEGEND**

- PFO WETLAND CREATION
- PFO WETLAND ENHANCEMENT
- PEM WETLAND CREATION
- CULVERT REMOVAL & RESTORATION
- PFO WETLAND CREATION WITH STORMWATER AUGMENTATION
- STORMWATER AUGMENTATION
- ADDITIONAL PFO WETLAND CREATION
- ADDITIONAL PEM WETLAND CREATION
- EXISTING WETLAND
- STREAM CROSS SECTION
- GROUNDWATER WELL
- FLOW LOGGER



This development plan is approved for soil erosion and sediment control by the HOWARD SOIL CONSERVATION DISTRICT

Howard SCD *[Signature]*

**ENGINEERS CERTIFICATE**

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

*Jennifer Zelinski Missett*  
SIGNATURE OF ENGINEER (PRINTNAME BELOW SIGNATURE)  
Jennifer Zelinski Missett, PE  
DATE: 6/7/16

**DEVELOPERS CERTIFICATE**

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

*William T. Lowe*  
SIGNATURE OF DEVELOPER (PRINTNAME BELOW SIGNATURE)  
DATE: 6/7/16

STATE OF MARYLAND  
BRIGID SCOTT SHARNSBERGER  
PROFESSIONAL LAND SURVEYOR  
No. 19849  
AS-BUILT DATE: JUN 24, 2016  
Sharnsberger & Lane

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
Chief, Bureau of Highways *[Signature]* Date: \_\_\_\_\_

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
Chief, Division of Land Development *[Signature]* Date: 8-7-16  
Chief, Development Engineering Division *[Signature]* Date: 7-26-16

DES.	DRN.	CHK.	DATE	REVISION	BY	APPR.

DES.	DRN.	CHK.	DATE	REVISION	BY	APPR.

PREPARED FOR:  
THE HOWARD HUGHES CORPORATION  
10480 LITTLE PATUXENT PARKWAY  
SUITE 400  
COLUMBIA, MD 21044  
ATTN: BOB JENKINS  
410-964-5443

**PROFESSIONAL CERTIFICATION**

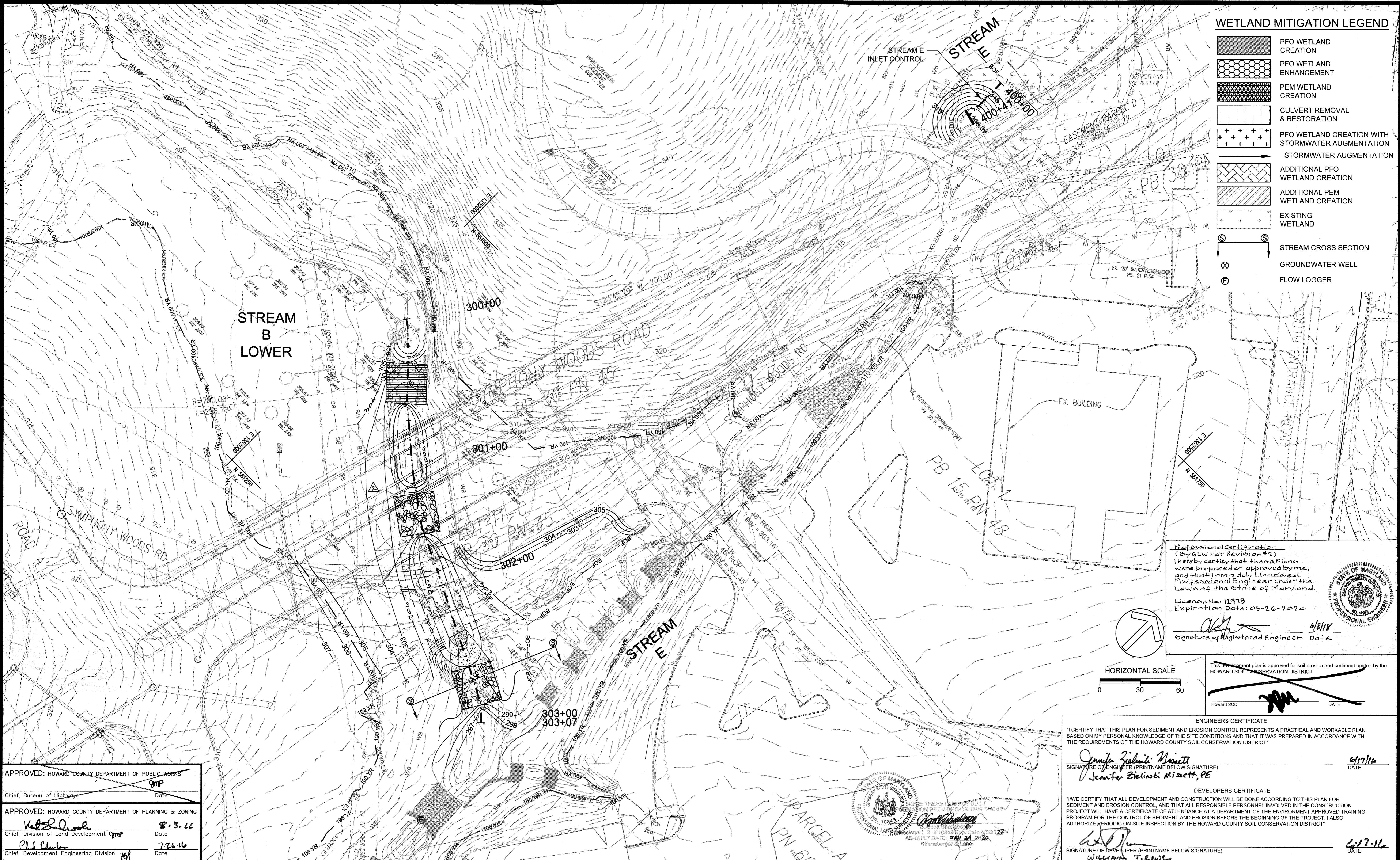
I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 26980, EXPIRATION DATE: FEBRUARY 2018.

*[Signature]*  
PROFESSIONAL ENGINEER

**WETLAND MITIGATION PLAN**  
DOWNTOWN COLUMBIA  
CRESCENT NEIGHBORHOOD  
PARCELS B THRU H, NON-BUILDABLE BULK PARCELS J THRU R,  
O.S. LOTS 1 THRU 8 AND  
MERRIWEATHER-SYMPHONY WOODS NEIGHBORHOOD O.S. LOT 1  
AND NON-BUILDABLE BULK PARCEL A  
ELECTION DISTRICT No. 5  
HOWARD COUNTY, MARYLAND

SCALE	ZONING	SHEET
1" = 30'	NT	11071
DATE	TAXITILE	SHEET
JUNE, 2016	36 - 01	73 OF 102

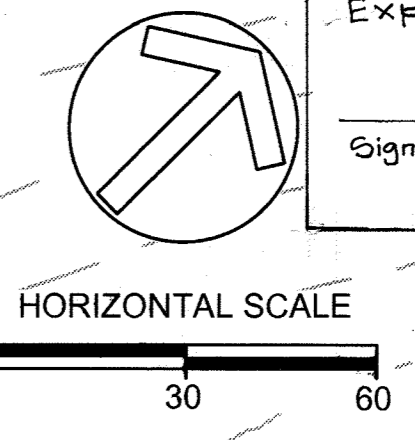




**WETLAND MITIGATION LEGEND**

- PFO WETLAND CREATION
- PFO WETLAND ENHANCEMENT
- PEM WETLAND CREATION
- CULVERT REMOVAL & RESTORATION
- PFO WETLAND CREATION WITH STORMWATER AUGMENTATION
- STORMWATER AUGMENTATION
- ADDITIONAL PFO WETLAND CREATION
- ADDITIONAL PEM WETLAND CREATION
- EXISTING WETLAND
- STREAM CROSS SECTION
- GROUNDWATER WELL
- FLOW LOGGER

Professional Certification  
 I hereby certify that these Plans 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: 12975  
 Expiration Date: 05-26-2020  
 Signature of Registered Engineer: *[Signature]* Date: 6/8/18



This development plan is approved for soil erosion and sediment control by the HOWARD SOIL CONSERVATION DISTRICT.  
 Howard SCD *[Signature]* DATE

ENGINEERS CERTIFICATE  
 I CERTIFY THAT THIS PLAN FOR SEDIMENT AND EROSION CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD COUNTY SOIL CONSERVATION DISTRICT.  
 Signature of Engineer (PRINTNAME BELOW SIGNATURE): *Jennifer Elinisk Missett* DATE: 6/17/16

DEVELOPERS CERTIFICATE  
 I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN FOR SEDIMENT AND EROSION CONTROL, AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE THE BEGINNING OF THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD COUNTY SOIL CONSERVATION DISTRICT.  
 Signature of Developer (PRINTNAME BELOW SIGNATURE): *William T. Rowe* DATE: 6/17/16

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
 Chief, Bureau of Highways  
 Date: *[Signature]*  
 APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
 Chief, Division of Land Development  
 Date: 8-3-16  
 Chief, Development Engineering Division  
 Date: 7-26-16

DES.	DRN.	CHK.
1-26-18	Revised grading rip-rap	3+ DEV
DATE	REVISION	BY APPR.

PREPARED FOR:	PROFESSIONAL CERTIFICATION
THE HOWARD HUGHES CORPORATION 10480 LITTLE PATUXENT PARKWAY SUITE 400 COLUMBIA, MD 21044 ATTN: BOB JENKINS 410-964-5443	I HEREBY CERTIFY THAT THESE PLANS 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. 26950, EXPIRATION DATE: FEBRUARY 2018.

WETLAND MITIGATION PLAN  
 DOWNTOWN COLUMBIA  
 CRESCENT NEIGHBORHOOD  
 PARCELS B THRU H, NON-BUILDABLE BULK PARCELS J THRU R,  
 O.S. LOTS 1 THRU 8 AND  
 MERRIWEATHER-SYMPHONY WOODS NEIGHBORHOOD O.S. LOT 1  
 AND NON-BUILDABLE BULK PARCEL A  
 ELECTION DISTRICT No. 5 HOWARD COUNTY, MARYLAND

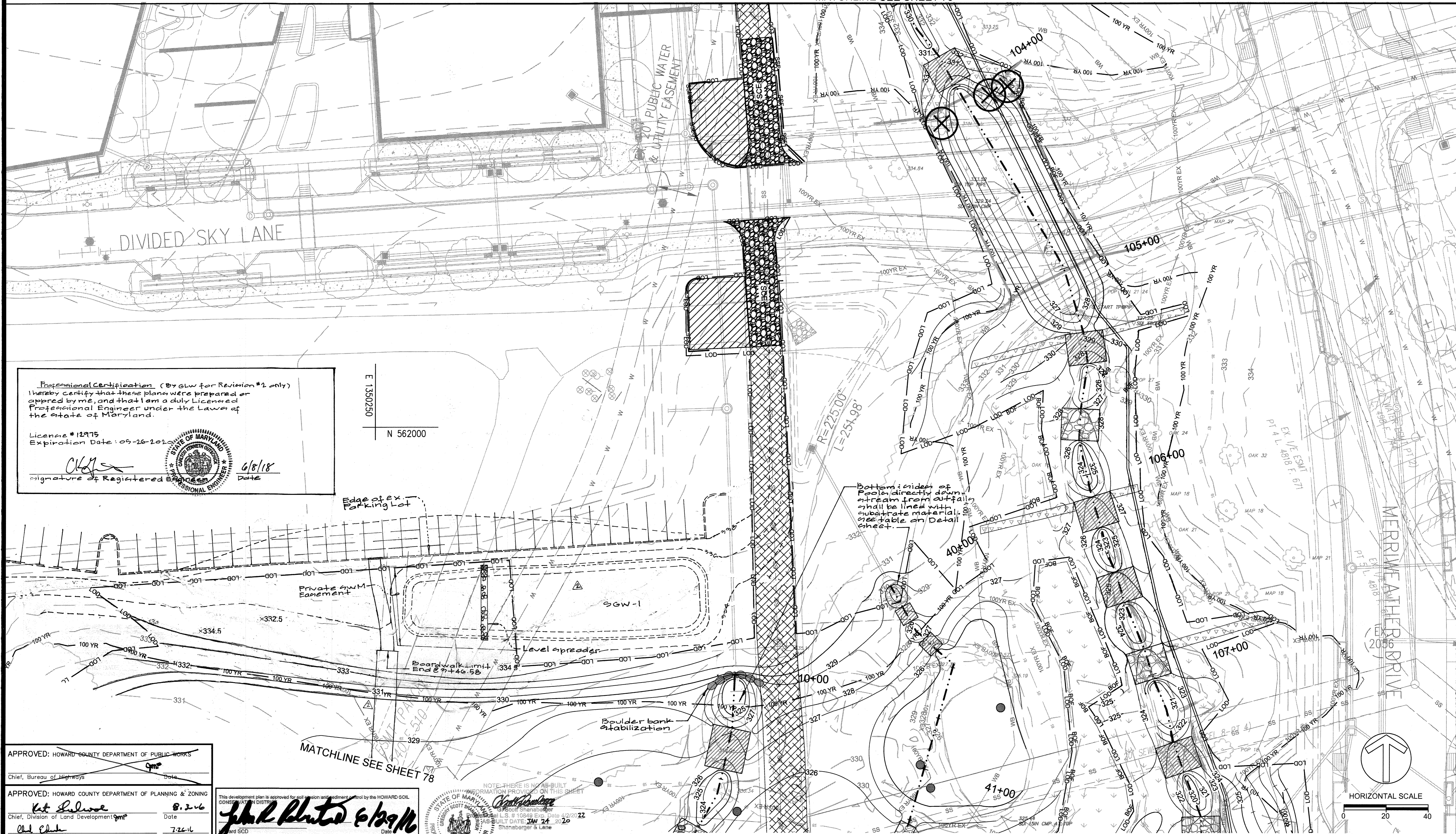
SCALE	ZONING	11071
1" = 30'	NT	
DATE	TAXITILE	SHEET
JUNE, 2016	36 - 01	74 OF 102







MATCHLINE SEE SHEET 75



**Professional Certification (By glw for Revision #2 only)**  
 I hereby certify that these plans were prepared or approved by me, and that I am a duly Licensed Professional Engineer under the Laws of the State of Maryland.

License # 12975  
 Expiration Date: 09-26-2021

*Signature*  
 Signature of Registered Professional Engineer

*6/8/18*  
 Date



E 1350250  
 N 562000

Bottom: sides of  
 Poles directly down  
 stream from outfall  
 shall be lined with  
 substrate material.  
 See table on Detail  
 sheet.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
 Chief, Bureau of Highways

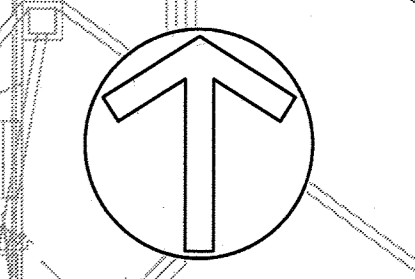
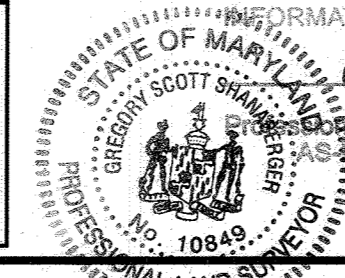
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
 Chief, Division of Land Development

APPROVED: HOWARD COUNTY DEPARTMENT OF ENVIRONMENTAL & NATURAL RESOURCES  
 Chief, Development Engineering, Division

NOTE: THERE IS NO AS-BUILT INFORMATION PROVIDED ON THIS SHEET

This development plan is approved for final review and permit control by the HOWARD SOIL CONSERVATION DISTRICT

*Signature*  
 Date

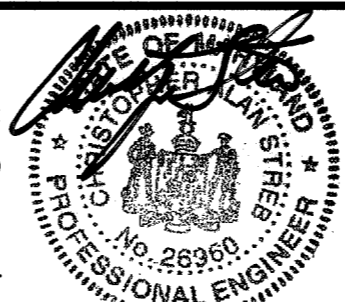


DES.	DRN.	CHK.

DATE	REVISION	BY	APP.
4-16-18	Add boardwalk/Path & Update background location for Micro-Bio	glw	DEV.

PREPARED FOR:  
 THE HOWARD HUGHES CORPORATION  
 10480 LITTLE PATUXENT PARKWAY  
 SUITE 400  
 COLUMBIA, MD 21044  
 ATTN: BOB JENKINS  
 410-964-5443

**PROFESSIONAL CERTIFICATION**  
 I HEREBY CERTIFY THAT THESE PLANS 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. 26890  
 EXPIRATION DATE: FEBRUARY 2018.



GRADING & EROSION AND SEDIMENT CONTROL  
 DOWNTOWN COLUMBIA  
 CRESCENT NEIGHBORHOOD  
 PARCELS B THRU H, NON-BUILDABLE BULK PARCELS J THRU R,  
 O.S. LOTS 1 THRU 8 AND  
 MERRIWEATHER-SYMPHONY WOODS NEIGHBORHOOD O.S. LOT 1  
 AND NON-BUILDABLE BULK PARCEL A  
 ELECTION DISTRICT No. 5  
 HOWARD COUNTY, MARYLAND

SCALE	ZONING	SHEET
1" = 20'	NT	11071
DATE	TAXITILE	SHEET
JUNE, 2016	36 - 01	76 OF 102









**Professional Certification** (By OLV For Revision 2 only)  
 I hereby certify that these plans 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.: 12975  
 Expiration Date: 05-26-2020  
 Signature of Registered Engineer: *[Signature]*  
 Date: 4/8/18



APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
 Bureau of Highways  
 APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
 Division of Land Development  
 Date: 8-3-16  
 Date: 7-26-16  
**Biohabitats**  
 The Stables Building, 2081 Clipping Park Road  
 Baltimore, MD 21211 / Tel: 410-554-0168 / www.biohabitats.com  
 Bureau of Forest & Invertebrate Ecological Science

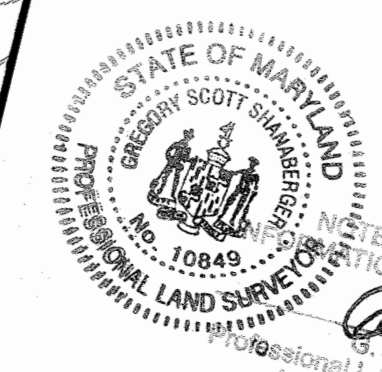
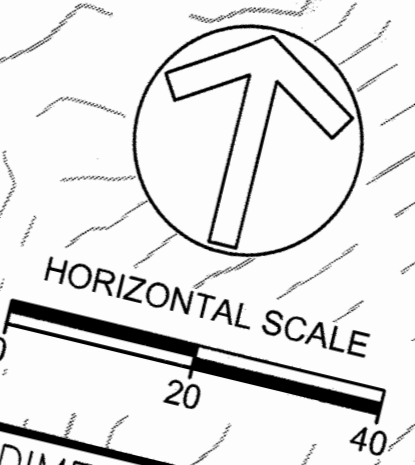
DES.	DRN.	CHK.	DATE	REVISION
			4-25-18	Add boardwalk/Path

PREPARED FOR:  
 THE HOWARD HUGHES CORPORATION  
 10480 LITTLE PATUXENT PARKWAY  
 SUITE 400  
 COLUMBIA, MD 21044  
 ATTN: BOB JENKINS  
 410-964-5443

**PROFESSIONAL CERTIFICATION**  
 I HEREBY CERTIFY THAT THESE PLANS 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. 26980  
 EXPIRATION DATE: FEBRUARY 2018.



GRADING & EROSION AND SEDIMENT CONTROL  
 DOWNTOWN COLUMBIA  
 CRESCENT NEIGHBORHOOD  
 PARCELS B THRU H, NON-RESIDENTIAL  
 ELECTION DISTRICT MERRIMAN



NOTE: THERE IS NO AS-BUILT INFORMATION PROVIDED ON THIS SHEET.  
 Professional L.S. # 10849 Exp. Date 07/21/22  
 AS-BUILT DATE: JAN 21, 2020  
 Shanabarger & Lane

This development plan is approved for soil erosion and sediment control by the HCU...  
*[Signature]*



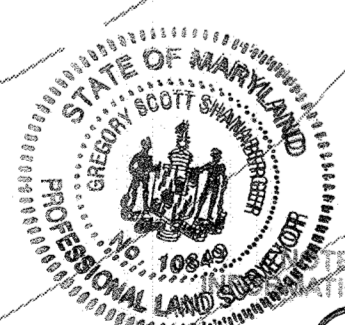


BOTTOM AND SIDES OF POOLS DIRECTLY DOWNSTREAM FROM OUTFALLS SHALL BE LINED WITH SUBSTRATE MATERIAL. SEE TABLE ON DETAIL SHEET.

MICROTOPOGRAPHY SHALL BE CREATED WITHIN THE FLOODPLAIN +/- 0.5 FEET FROM PROPOSED GRADE

SANDBAG TOP ELEV. = 329.0

SANDBAG TOP ELEV. = 314.0



APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
 Chief, Bureau of Highways  
 Date: \_\_\_\_\_

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
 Chief, Division of Land Development  
 Date: 2-3-16  
 Chief, Development Engineering Division  
 Date: 7-26-16

THIS DEVELOPMENT PLAN IS APPROVED FOR USE AND CONTROL BY THE HOWARD COUNTY CONSERVATION DISTRICT  
 Date: 2/3/16

**Biohabitats**  
 The Stables Building, 2081 Clipper Park Road  
 Baltimore, MD 21211 / ph: 410.554.0156  
 fx: 410.554.0169 / www.biohabitats.com  
 Restoring the Earth to Inspire Ecological Stewardship

DES.	DRN.	CHK.	DATE	REVISION	BY	APP'R.

DES.	DRN.	CHK.	DATE	REVISION	BY	APP'R.

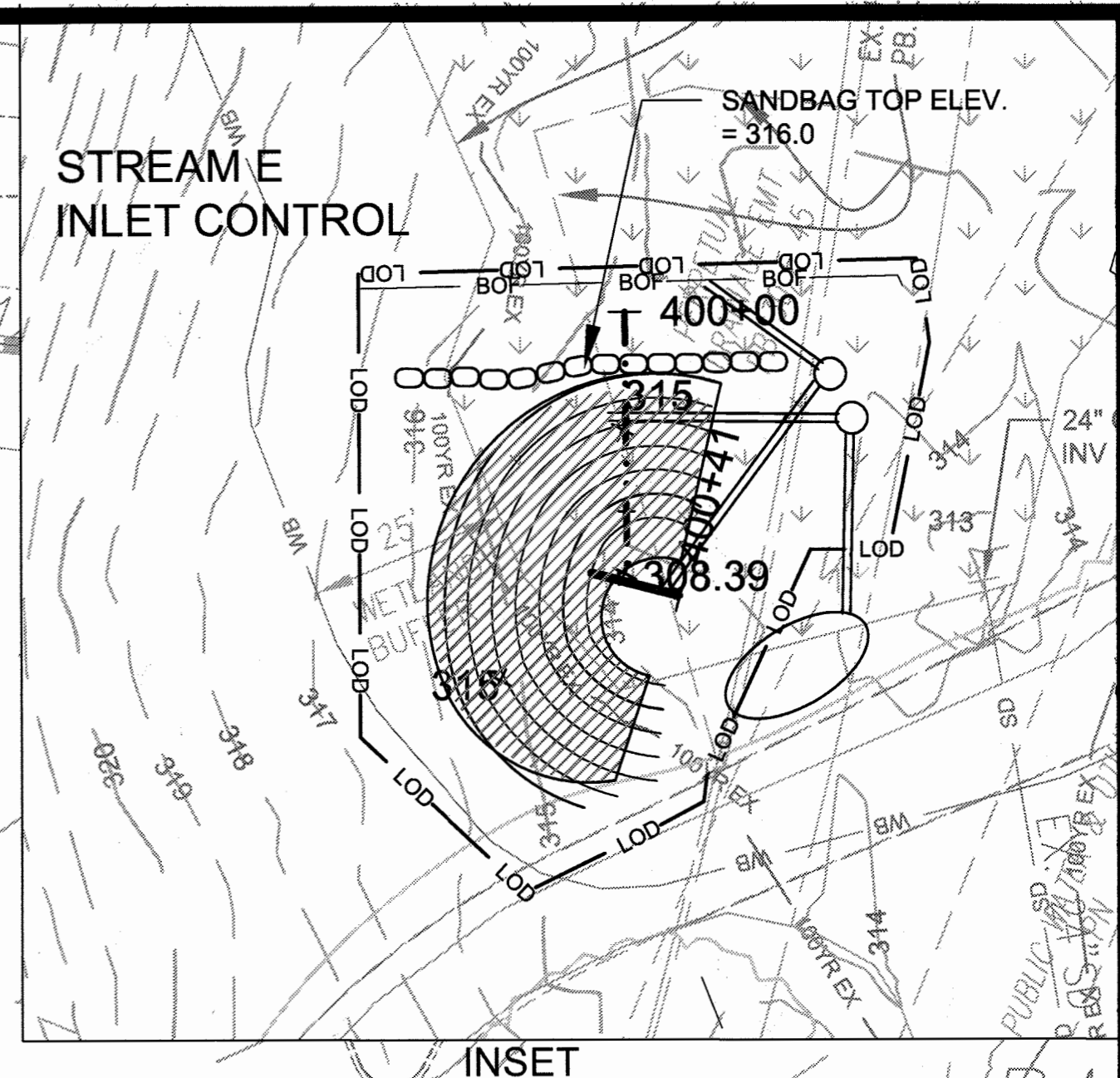
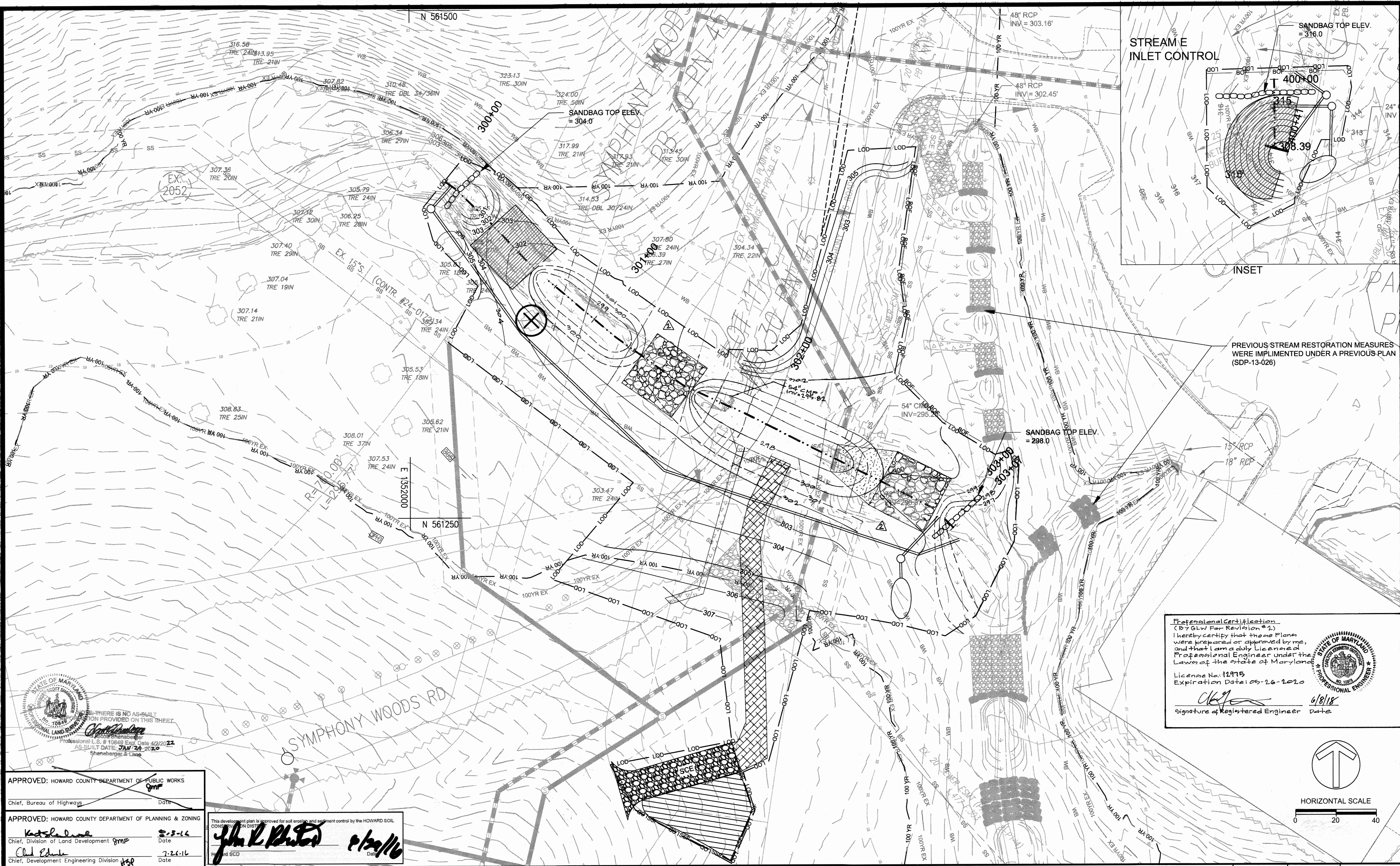
PREPARED FOR:  
 THE HOWARD HUGHES CORPORATION  
 10480 LITTLE PATUXENT PARKWAY  
 SUITE 400  
 COLUMBIA, MD 21044  
 ATTN: BOB JENKINS  
 410-964-5443

PROFESSIONAL CERTIFICATION  
 I HEREBY CERTIFY THAT THESE PLANS 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. 26980, EXPIRATION DATE: FEBRUARY 2018.

GRADING & EROSION AND SEDIMENT CONTROL  
 DOWNTOWN COLUMBIA  
 CRESCENT NEIGHBORHOOD  
 PARCELS B THRU H, NON-BUILDABLE BULK PARCELS J THRU R,  
 O.S. LOTS 1 THRU 8 AND  
 MERRIWEATHER-SYMPHONY WOODS NEIGHBORHOOD O.S. LOT 1  
 AND NON-BUILDABLE BULK PARCEL A  
 ELECTION DISTRICT No. 5  
 HOWARD COUNTY, MARYLAND

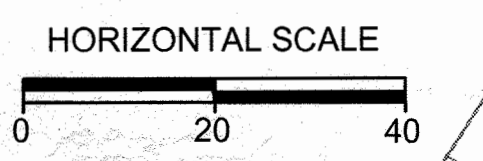
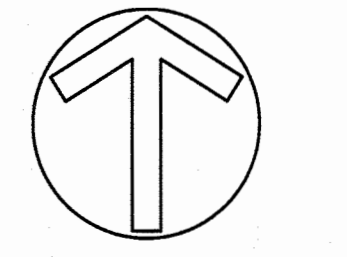
SCALE	ZONING	SHEET
1" = 20'	NT	11071
DATE	TAXITILE	SHEET
JUNE, 2016	36 - 01	79 OF 102





PREVIOUS STREAM RESTORATION MEASURES WERE IMPLEMENTED UNDER A PREVIOUS PLAN (SDP-13-026)

**Professional Certification**  
 (By Gary For Revision #1)  
 I hereby certify that these Plans 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: 12975  
 Expiration Date: 05-16-2020  
 Signature of Registered Engineer: *[Signature]* Date: 6/8/18



STATE OF MARYLAND  
 PROFESSIONAL LAND SURVEYOR  
 THERE IS NO AS-BUILT INFORMATION PROVIDED ON THIS SHEET.  
 AS-BUILT DATE: JAN 24 2020  
 Shenaberger & Lane

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
 Chief, Bureau of Highways  
 Date: 5-3-16

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
 Chief, Division of Land Development  
 Date: 7-24-16

This development plan is approved for soil erosion and sediment control by the HOWARD SOIL CONSERVATION DISTRICT.  
 John R. Blunt  
 Date: 6/24/16

**Biohabitats**  
 The Stubbs Building, 2081 Clipper Park Road  
 Baltimore, MD 21211 / ph: 410.554.0156  
 www.biohabitats.com

DES.	DRN.	CHK.	DATE	REVISION	BY	APPR.
			4-27-18	Revised Grading & Rip-Rap	JA	DEV.

PREPARED FOR:  
 THE HOWARD HUGHES CORPORATION  
 10480 LITTLE PATUXENT PARKWAY  
 SUITE 400  
 COLUMBIA, MD 21044  
 ATTN: BOB JENKINS  
 410-964-5443

**PROFESSIONAL CERTIFICATION**  
 I HEREBY CERTIFY THAT THESE PLANS 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. 26980.  
 EXPIRATION DATE: FEBRUARY 2018.

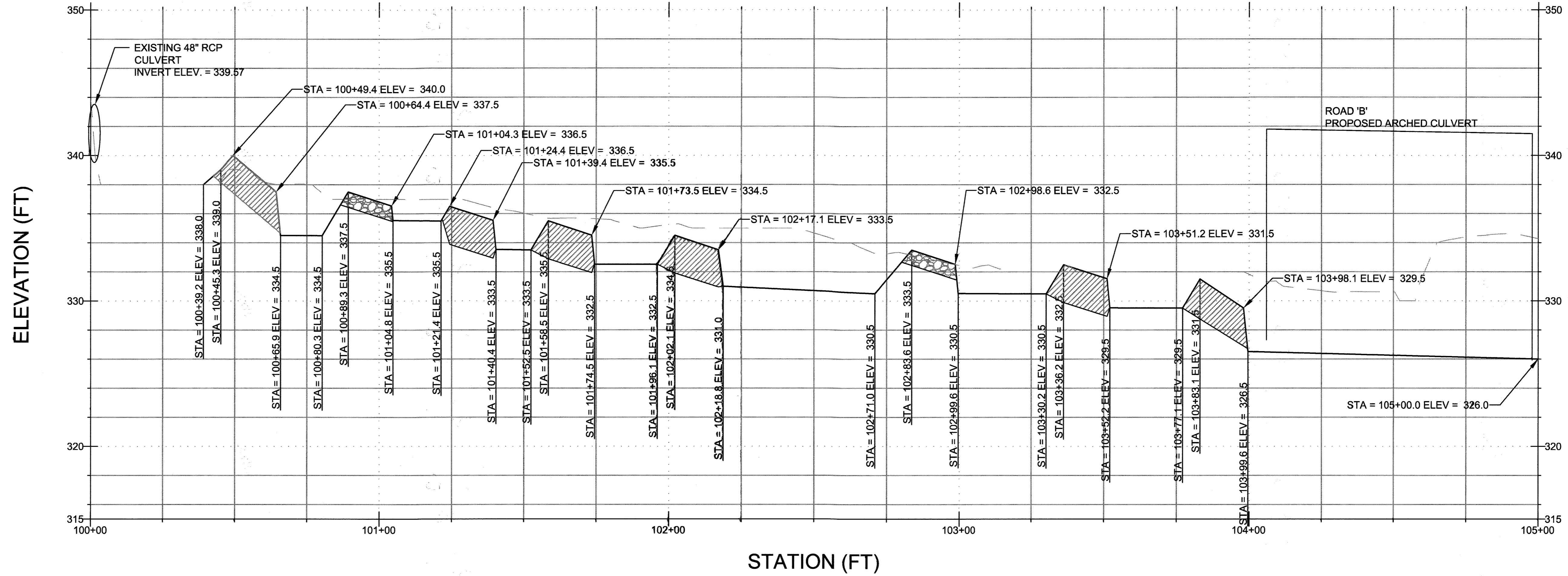


**GRADING & EROSION AND SEDIMENT CONTROL**  
 DOWNTOWN COLUMBIA  
 CRESCENT NEIGHBORHOOD  
 PARCELS B THRU H, NON-BUILDABLE BULK PARCELS J THRU R,  
 O.S. LOTS 1 THRU 8 AND  
 MERRIWEATHER-SYMPHONY WOODS NEIGHBORHOOD O.S. LOT 1  
 AND NON-BUILDABLE BULK PARCEL A  
 ELECTION DISTRICT No. 5  
 HOWARD COUNTY, MARYLAND

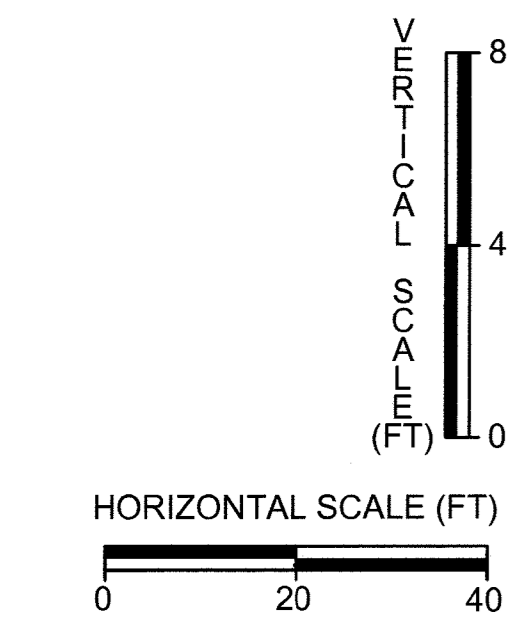
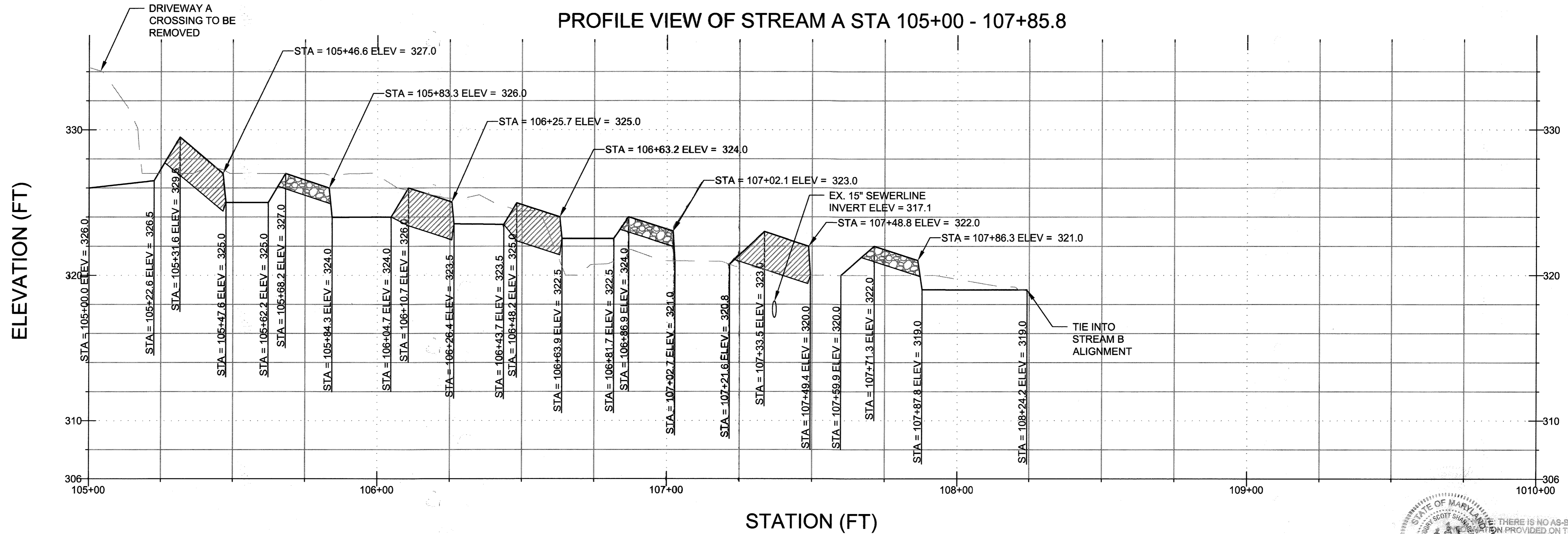
SCALE	ZONING	SHEET
1" = 20'	NT	11071
DATE	TAXITLE	SHEET
JUNE, 2016	36 - 01	80 OF 102



PROFILE VIEW OF STREAM A STA 100+00 - 105+00



PROFILE VIEW OF STREAM A STA 105+00 - 107+85.8



PROFILE LEGEND

- EXISTING GROUND
- PROPOSED GRADE
- BOULDER RIFFLE
- COBBLE RIFFLE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
 Chief, Bureau of Highways  
 Date: 8-3-16

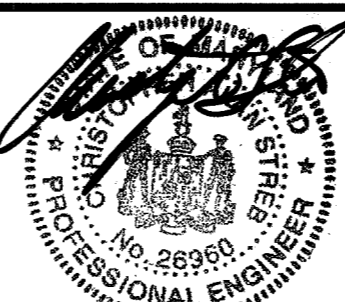
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
 Chief, Division of Land Development  
 Date: 7-26-16

DES.	DRN.	CHK.	DATE	REVISION	BY	APPR.

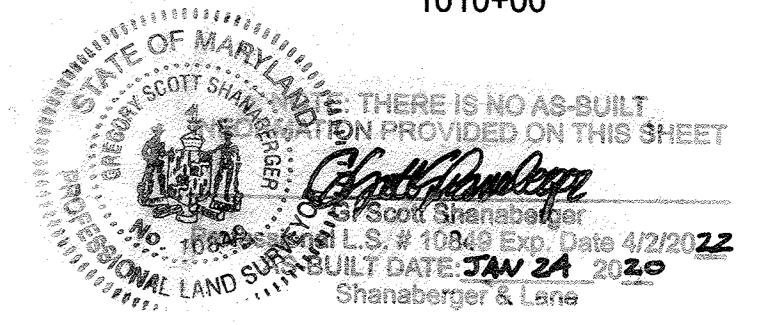
DES.	DRN.	CHK.	DATE	REVISION	BY	APPR.

PREPARED FOR:  
 THE HOWARD HUGHES CORPORATION  
 10480 LITTLE PATUXENT PARKWAY  
 SUITE 400  
 COLUMBIA, MD 21044  
 ATTN: BOB JENKINS  
 410-964-5443

PROFESSIONAL CERTIFICATION  
 I HEREBY CERTIFY THAT THESE PLANS 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. 26980  
 EXPIRATION DATE: FEBRUARY 2018.



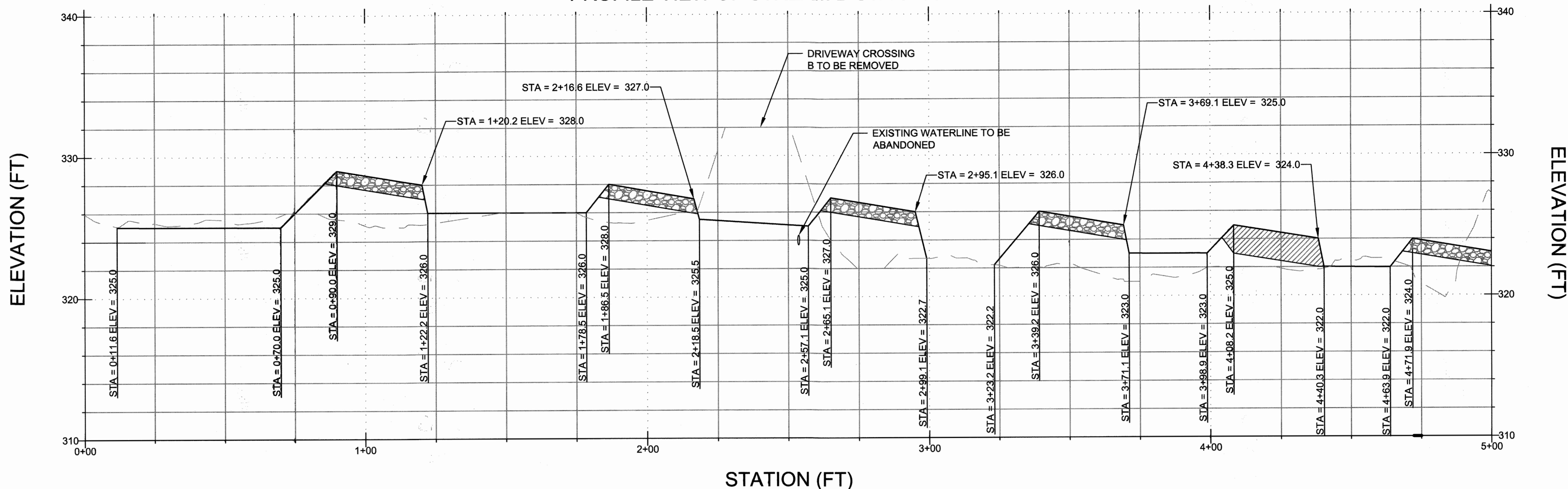
PROFILE  
 DOWNTOWN COLUMBIA  
 CRESCENT NEIGHBORHOOD  
 PARCELS B THRU H, NON-BUILDABLE BULK PARCELS J THRU R,  
 O.S. LOTS 1 THRU 8 AND  
 MERRIWEATHER-SYMPHONY WOODS NEIGHBORHOOD O.S. LOT 1  
 AND NON-BUILDABLE BULK PARCEL A  
 HOWARD COUNTY, MARYLAND



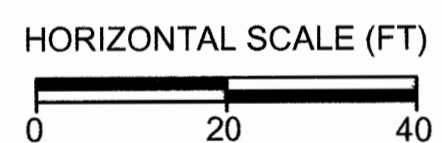
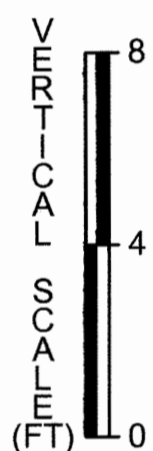
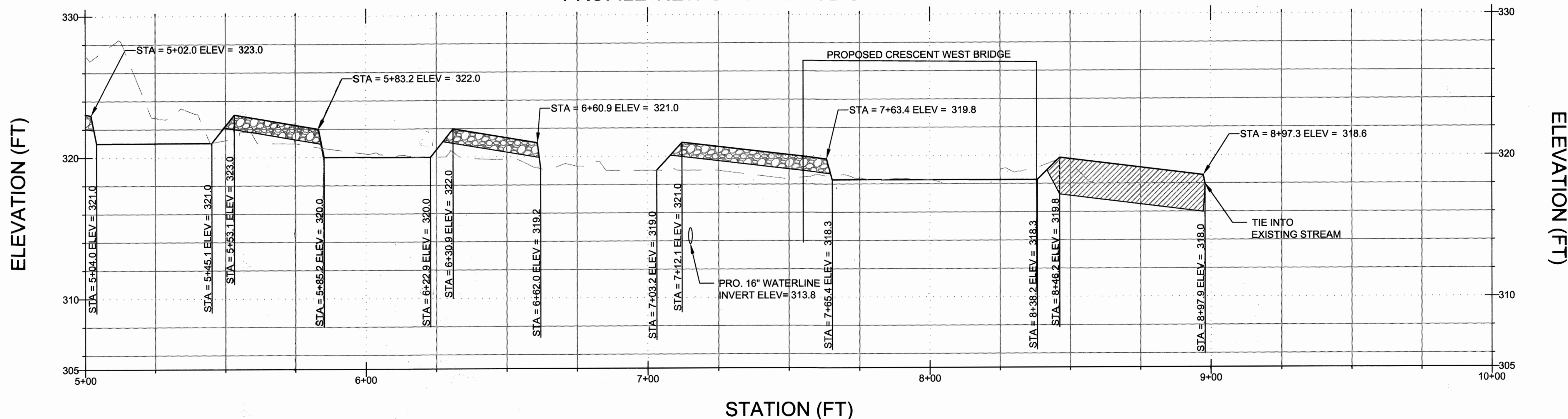
SCALE	ZONING	
AS SHOWN	NT	11071
DATE	TAXITITLE	SHEET
JUNE, 2016	36 - 01	81 OF 102



PROFILE VIEW OF STREAM B STA 0+00 - 5+00



PROFILE VIEW OF STREAM B STA 5+00 - 8+84.8

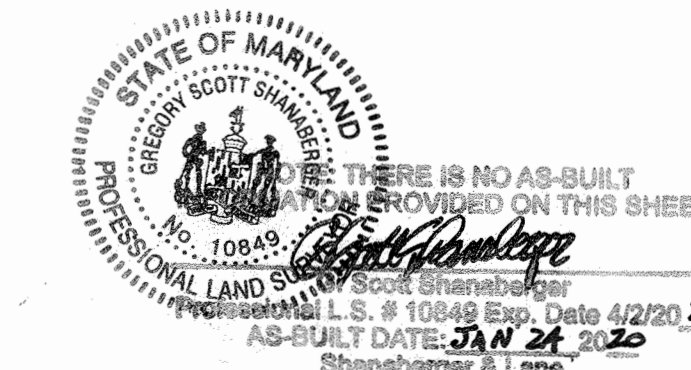


PROFILE LEGEND

- EXISTING GROUND
- PROPOSED GRADE
- BOULDER RIFFLE
- COBBLE RIFFLE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
 Chief, Bureau of Highways  
 Date: 8-3-16

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
 Chief, Division of Land Development  
 Date: 7-26-16



DES.	DRN.	CHK.	DATE	REVISION	BY	APP'R.

DES.	DRN.	CHK.	DATE	REVISION	BY	APP'R.

PREPARED FOR:  
 THE HOWARD HUGHES CORPORATION  
 10480 LITTLE PATUXENT PARKWAY  
 SUITE 400  
 COLUMBIA, MD 21044  
 ATTN: BOB JENKINS  
 410-964-5443

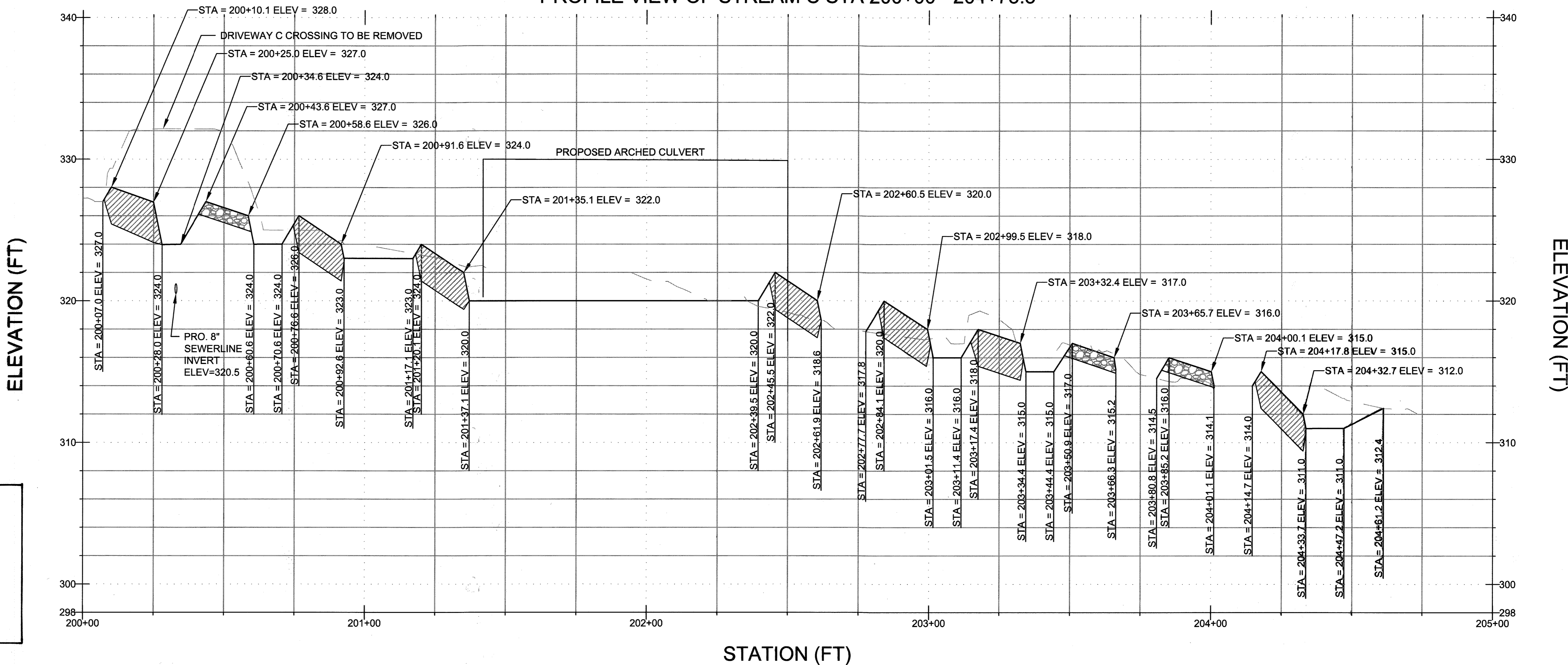
PROFESSIONAL CERTIFICATION  
 I HEREBY CERTIFY THAT THESE PLANS  
 WERE PREPARED OR APPROVED BY  
 ME, AND THAT I AM A DULY LICENSED  
 PROFESSIONAL ENGINEER UNDER THE  
 LAWS OF THE STATE OF MARYLAND,  
 LICENSE NO. 26980  
 EXPIRATION DATE: FEBRUARY 2018.

PROFILE  
 DOWNTOWN COLUMBIA  
 CRESCENT NEIGHBORHOOD  
 PARCELS B THRU H, NON-BUILDABLE BULK PARCELS J THRU R,  
 O.S. LOTS 1 THRU 8 AND  
 MERRIWEATHER-SYMPHONY WOODS NEIGHBORHOOD O.S. LOT 1  
 AND NON-BUILDABLE BULK PARCEL A  
 HOWARD COUNTY, MARYLAND

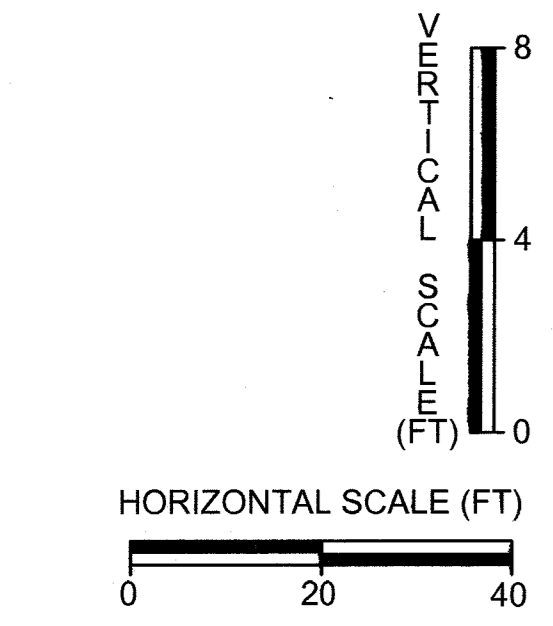
SCALE	ZONING	
AS SHOWN	NT	11071
DATE	TAXITILE	SHEET
JUNE, 2016	36 - 01	82 OF 102



PROFILE VIEW OF STREAM C STA 200+00 - 204+73.5



**Professional Certification**  
 (By E/W For Revision #2)  
 I hereby certify that these Plans 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: 11975  
 Expiration Date: 05-26-2020  
 Signature of Registered Engineer: [Signature] Date: 6/8/18

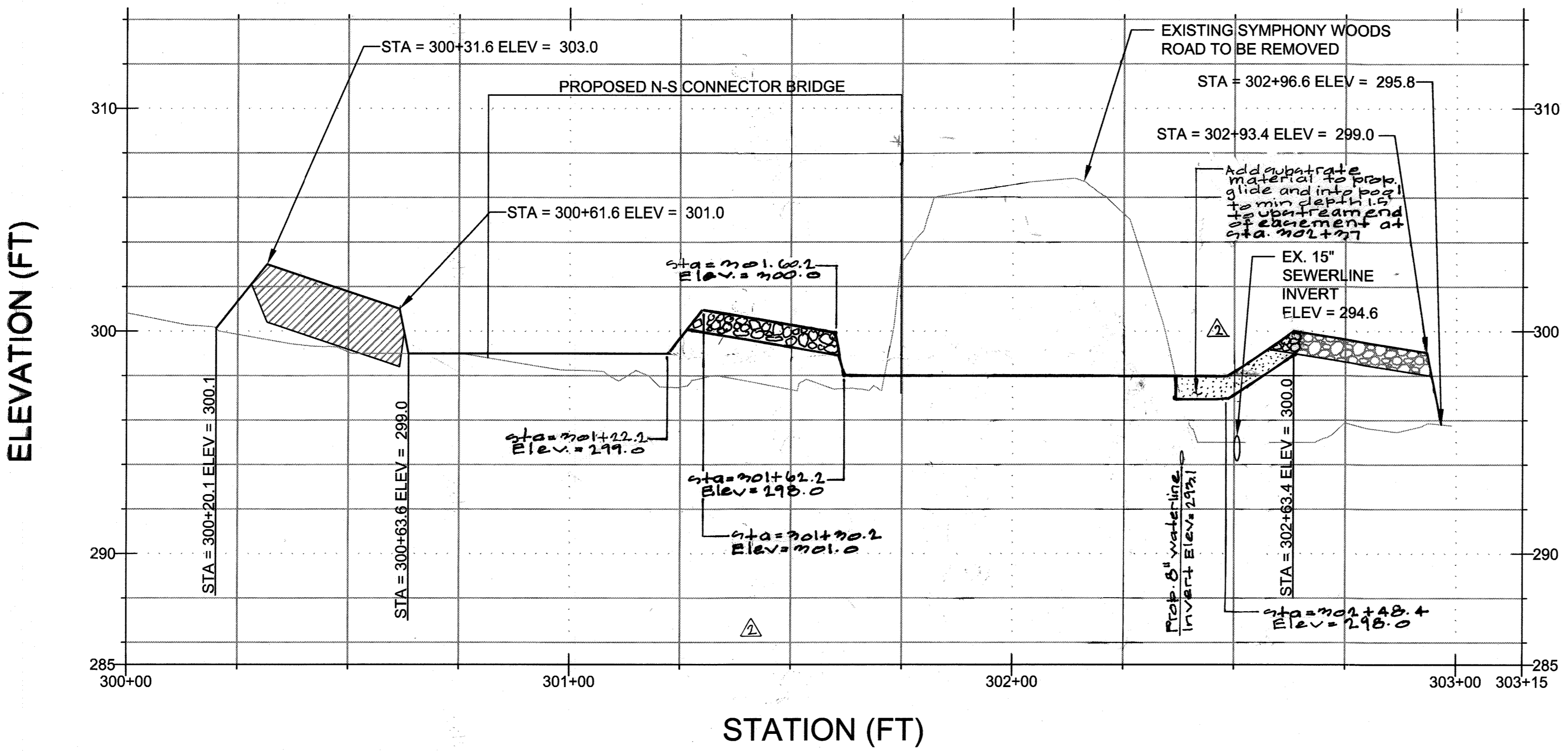


**PROFILE LEGEND**

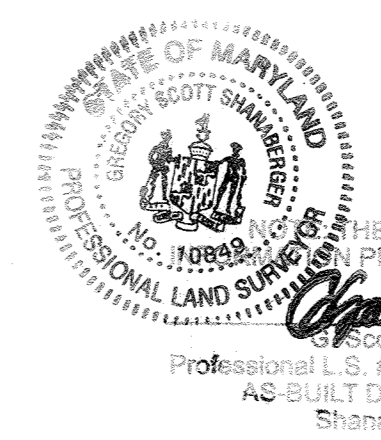
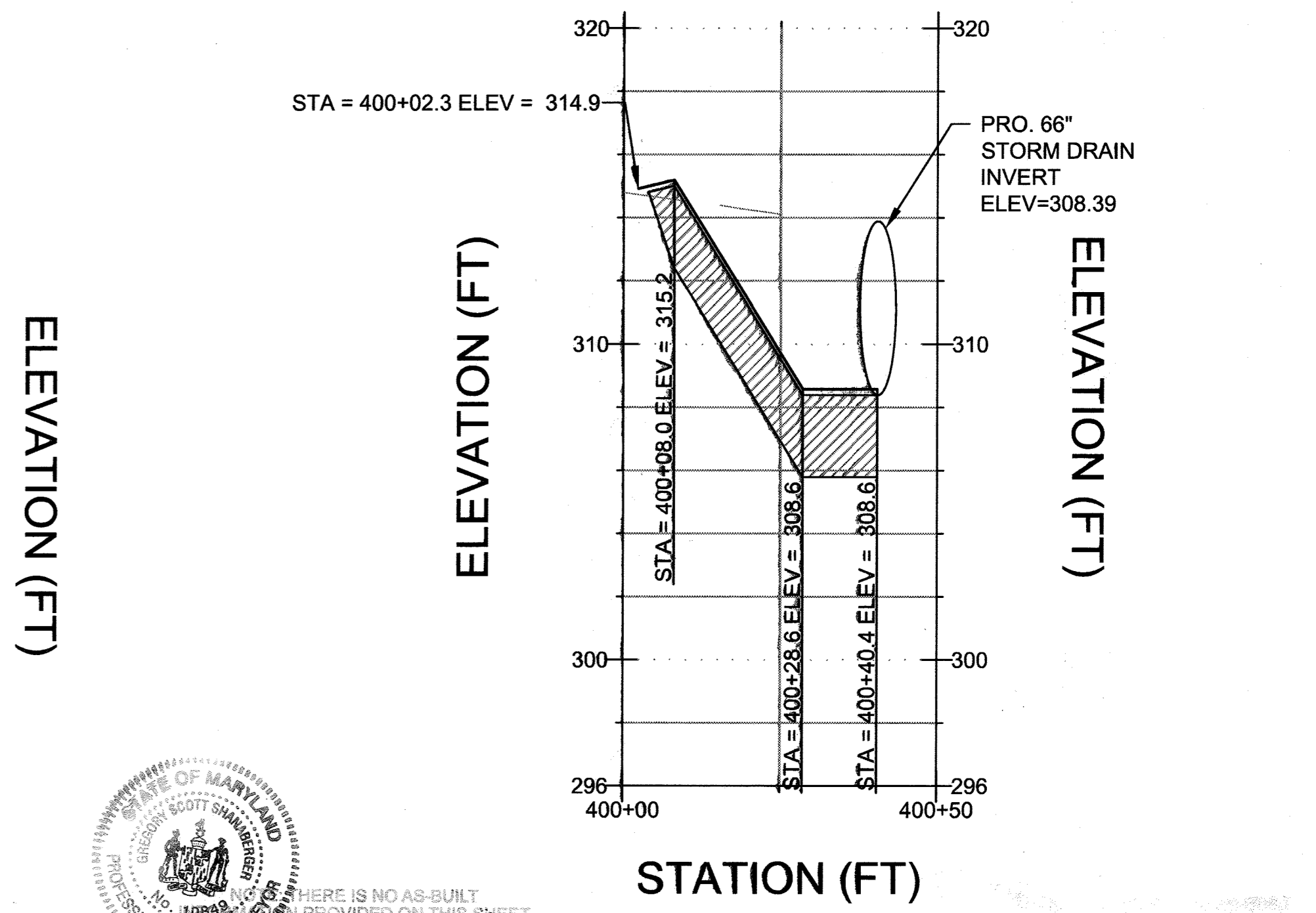
- EXISTING GROUND
- PROPOSED GRADE
- BOULDER RIFFLE
- COBBLE RIFFLE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
 Chief, Bureau of Highways: [Signature] Date: [Date]  
 APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
 Chief, Division of Land Development: [Signature] Date: 8-3-16  
 Chief, Development Engineering Division: [Signature] Date: 7-26-16

PROFILE VIEW OF PV - STREAM B LOWER STA 300+00 - 302+96.6



PROFILE VIEW OF STREAM E STA 400+00 - 400+40

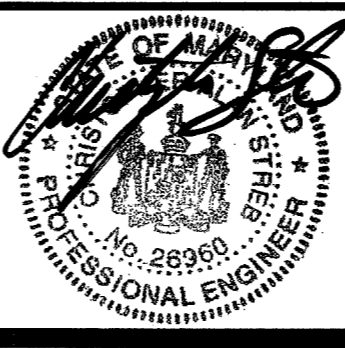


**Biohabitats**  
 The Stables Building, 2081 Clipper Park Road  
 Baltimore, MD 21211 / ph: 410.554.0156  
 fx: 410.554.0168 / www.biohabitats.com  
 Return the Earth to Its Original Ecological Stewardship

DES.	DRN.	CHK.	DATE	REVISION	BY	APPR.
			4-15-18	Revised Profile Grade	ST	DEV.

PREPARED FOR:  
 THE HOWARD HUGHES CORPORATION  
 10480 LITTLE PATUXENT PARKWAY  
 SUITE 400  
 COLUMBIA, MD 21044  
 ATTN: BOB JENKINS  
 410-964-5443

**PROFESSIONAL CERTIFICATION**  
 I HEREBY CERTIFY THAT THESE PLANS 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. 28980  
 EXPIRATION DATE: FEBRUARY 2018.

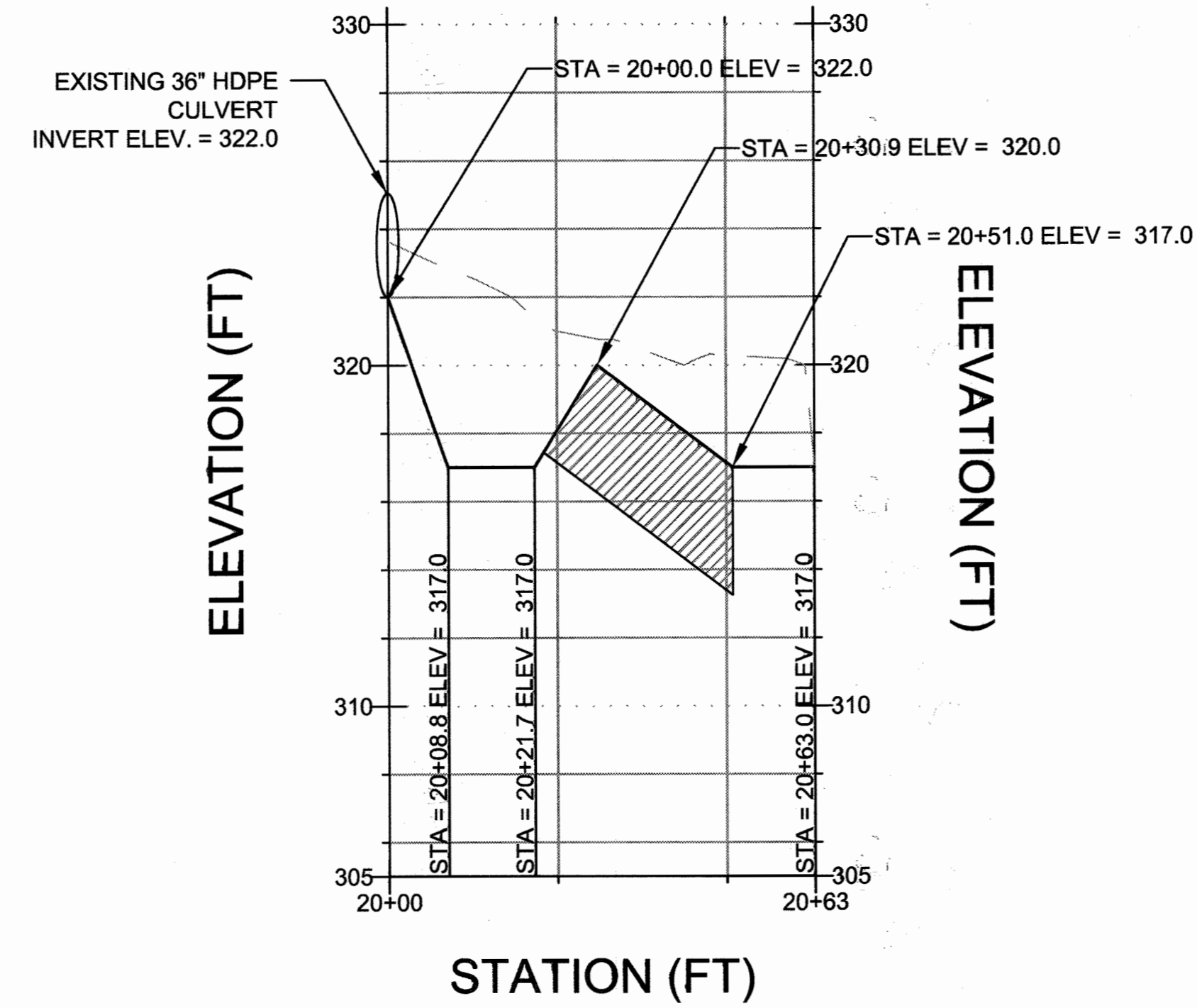


PROFILE  
 DOWNTOWN COLUMBIA  
 CRESCENT NEIGHBORHOOD  
 PARCELS B THRU H, NON-BUILDABLE BULK PARCELS J THRU R,  
 O.S. LOTS 1 THRU 8 AND  
 MERRIWEATHER-SYMPHONY WOODS NEIGHBORHOOD O.S. LOT 1  
 AND NON-BUILDABLE BULK PARCEL A  
 HOWARD COUNTY, MARYLAND

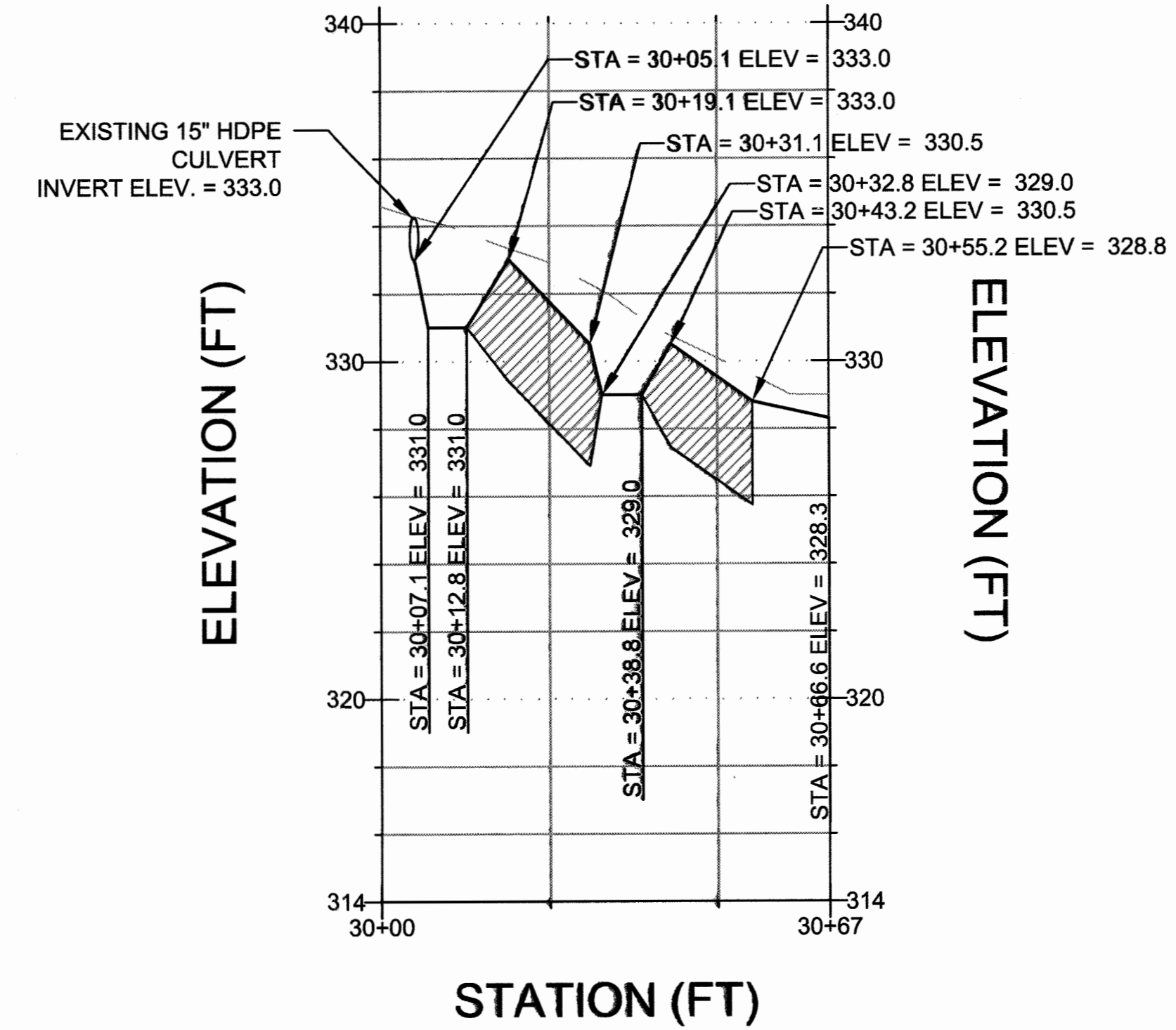
SCALE	ZONING	
AS SHOWN	NT	11071
DATE	TAXITILE	SHEET
JUNE, 2016	36 - 01	83 OF 102



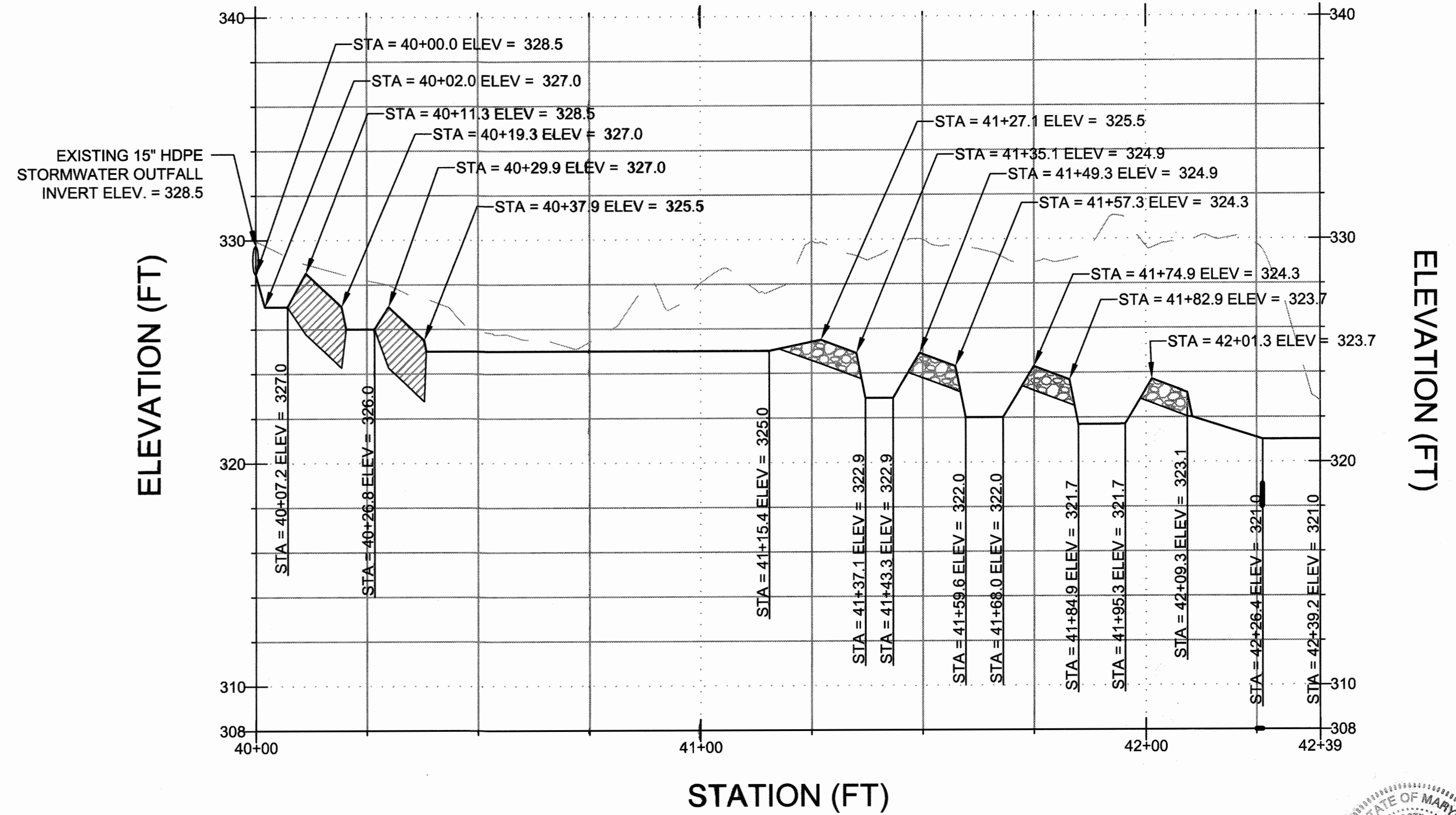
PROFILE VIEW OF OUTFALL 47 STA 20+00 TO 20+63



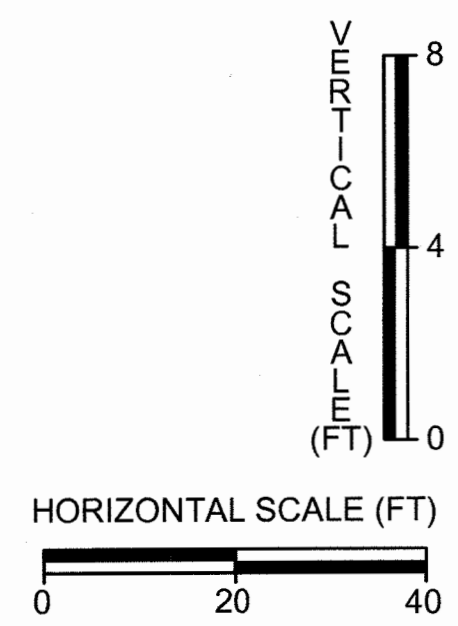
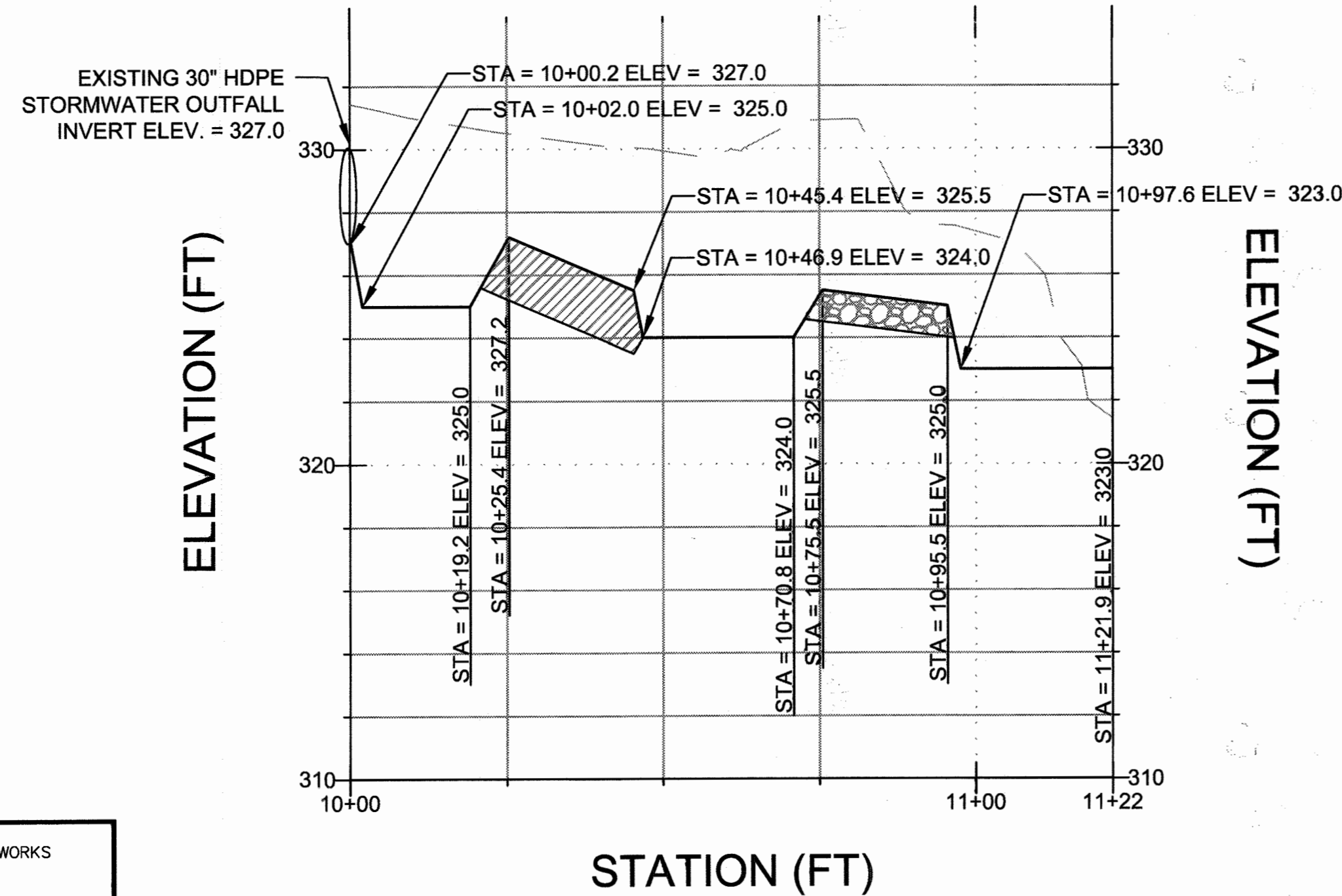
PROFILE VIEW OF OUTFALL 68 STA 30+00 TO 30+67



PROFILE VIEW OF OUTFALL 80 STA 40+00 TO 42+39



PROFILE VIEW OF OUTFALL 73 STA 10+00 TO 11+22



PROFILE LEGEND

- EXISTING GROUND
- PROPOSED GRADE
- BOULDER RIFFLE
- COBBLE RIFFLE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
 Chief, Bureau of Highways Date  
 APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
 Chief, Division of Land Development Date  
 Chief, Development Engineering Division Date

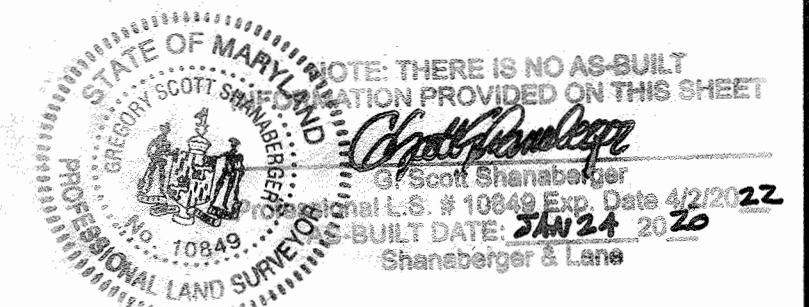
DES.	DRN.	CHK.	DATE	REVISION	BY	APP'R.

PREPARED FOR:  
 THE HOWARD HUGHES CORPORATION  
 10480 LITTLE PATUXENT PARKWAY  
 SUITE 400  
 COLUMBIA, MD 21044  
 ATTN: BOB JENKINS  
 410-964-5443

PROFESSIONAL CERTIFICATION  
 I HEREBY CERTIFY THAT THESE PLANS 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. 26980, EXPIRATION DATE: FEBRUARY 2018.



PROFILE  
 DOWNTOWN COLUMBIA  
 CRESCENT NEIGHBORHOOD  
 PARCELS B THRU H, NON-BUILDABLE BULK PARCELS J THRU R,  
 O.S. LOTS 1 THRU 8 AND  
 MERRIWEATHER-SYMPHONY WOODS NEIGHBORHOOD O.S. LOT 1  
 AND NON-BUILDABLE BULK PARCEL A  
 HOWARD COUNTY, MARYLAND

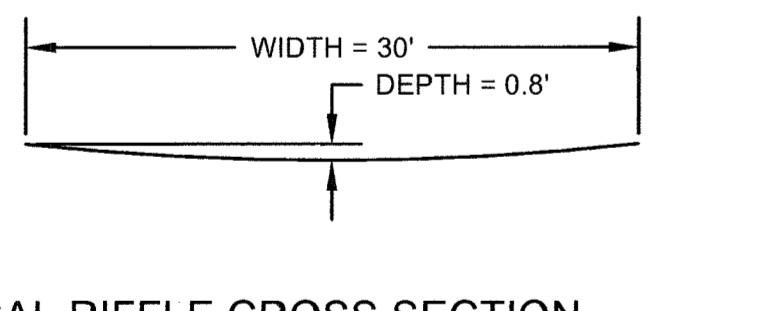


SCALE	ZONING	
AS SHOWN	NT	11071
DATE	TAXITILE	SHEET
JUNE, 2016	36 - 01	84 OF 102



STREAM B STATION 0+00 TO 8+97.9 STRUCTURE TABLE BOULDER RIFFLES

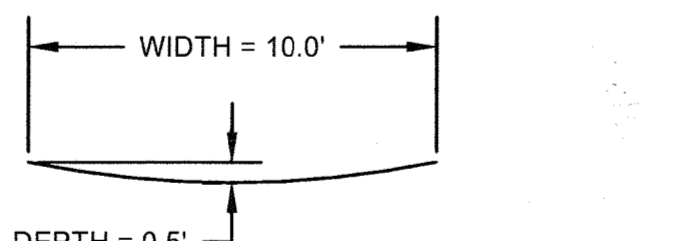
Station	Node	Easting	Northing	Elevation	
4+08.2	USR	1350394.4155'	561755.1470'	325.8'	
	USC	1350400.6020'	561768.6833'	325.0'	
	USL	1350406.7885'	561782.2196'	325.8'	
	DSR	1350421.7219'	561742.7227'	324.8'	
	DSC	1350427.9083'	561756.2590'	324.0'	
8+46.2	DSL	1350434.0948'	561769.7953'	324.8'	
	USR	1350778.1181'	561681.7339'	320.6'	
	USC	1350786.0850'	561694.3533'	319.8'	
	USL	1350793.9843'	561707.0160'	320.6'	
	DSR	1350821.5916'	561655.0682'	319.4'	
0+90	DSC	1350829.5507'	561667.7281'	318.6'	
	DSL	1350837.4578'	561680.3504'	319.4'	
	COBBLE RIFFLES				
	USR	1350081.0148'	561770.6829'	329.8'	
	USC	1350083.3777'	561785.4910'	329.0'	
1+86.5	USL	1350085.7407'	561800.2992'	329.8'	
	DSR	1350110.7117'	561766.4293'	328.8'	
	DSC	1350113.0747'	561781.2375'	328.0'	
	DSL	1350115.4376'	561796.0456'	328.8'	
	USR	1350179.7488'	561764.4724'	328.8'	
2+65.1	USC	1350179.4197'	561779.4932'	328.0'	
	USL	1350179.0907'	561794.5139'	328.8'	
	DSR	1350209.7422'	561765.1024'	327.8'	
	DSC	1350209.4131'	561780.1232'	327.0'	
	DSL	1350209.0840'	561795.1439'	327.8'	
3+39.2	USR	1350257.9421'	561764.8965'	327.0'	
	USC	1350257.9484'	561779.9788'	327.0'	
	USL	1350257.9548'	561795.0612'	327.8'	
	DSR	1350287.9415'	561764.7073'	326.8'	
	DSC	1350287.9478'	561779.7896'	326.0'	
4+71.9	DSL	1350287.9542'	561794.8720'	326.8'	
	USR	1350330.2461'	561761.0964'	326.8'	
	USC	1350331.8816'	561776.0641'	326.0'	
	USL	1350333.5170'	561791.0317'	326.8'	
	DSR	1350360.0783'	561757.9279'	325.8'	
5+53.1	DSC	1350361.7138'	561772.8955'	325.0'	
	DSL	1350363.3492'	561787.8632'	325.8'	
	USR	1350444.3662'	561722.4174'	324.8'	
	USC	1350452.8728'	561734.4619'	324.0'	
	USL	1350461.6201'	561746.8288'	324.8'	
6+30.9	DSR	1350468.6148'	561704.7538'	323.8'	
	DSC	1350478.5429'	561718.4026'	323.0'	
	DSL	1350485.8687'	561729.1652'	323.8'	
	USR	1350527.6029'	561690.8872'	323.8'	
	USC	1350524.0472'	561705.5936'	323.0'	
7+12.1	USL	1350520.5278'	561720.1943'	323.8'	
	DSR	1350556.7729'	561697.8481'	322.8'	
	DSC	1350553.2535'	561712.4488'	322.0'	
	DSL	1350549.7340'	561727.0495'	322.8'	
	USR	1350598.5555'	561727.7800'	322.8'	



TYPICAL RIFFLE CROSS SECTION  
STREAM B  
STA. 0+00 TO 8+97.9

STREAM C STATION 200+00 TO 204+73.5 STRUCTURE TABLE BOULDER RIFFLES

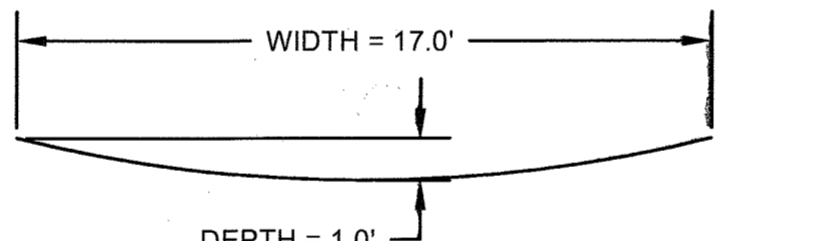
Station	Node	Easting	Northing	Elevation
200+10.1	USR	1350756.0645'	561115.6266'	328.5'
	USC	1350752.6869'	561119.4979'	328.0'
	USL	1350749.3100'	561123.0334'	328.5'
	DSR	1350766.9097'	561125.9892'	327.5'
	DSC	1350763.3530'	561129.9530'	327.0'
200+76.6	DSL	1350760.1551'	561133.3961'	327.5'
	USR	1350802.0415'	561165.4034'	326.6'
	USC	1350797.5166'	561167.6193'	326.0'
	USL	1350793.0273'	561169.7980'	326.5'
	DSR	1350808.4954'	561178.9441'	324.5'
201+20.1	DSC	1350803.8751'	561181.2049'	324.0'
	DSL	1350799.4811'	561183.3387'	324.5'
	USR	1350822.3507'	561200.9074'	324.5'
	USC	1350818.6680'	561204.4372'	324.0'
	USL	1350815.1280'	561207.8592'	324.5'
202+45.5	DSR	1350832.5370'	561211.9183'	322.5'
	DSC	1350828.9256'	561215.3942'	322.0'
	DSL	1350825.3143'	561218.8701'	322.5'
	USR	1350922.0269'	561271.4182'	322.5'
	USC	1350918.3171'	561275.2244'	322.0'
202+84.1	USL	1350915.2168'	561278.7772'	322.5'
	DSR	1350932.9347'	561281.7149'	320.5'
	DSC	1350929.5296'	561285.3944'	320.0'
	DSL	1350926.1246'	561289.0739'	320.5'
	USR	1350949.4523'	561295.7578'	320.5'
203+17.4	USC	1350947.4979'	561300.3575'	320.0'
	USL	1350945.5435'	561304.9573'	320.5'
	DSR	1350963.2079'	561301.7397'	318.5'
	DSC	1350961.2536'	561306.3394'	318.0'
	DSL	1350959.2992'	561310.9392'	318.5'
203+14.7	USR	1350978.2228'	561313.9491'	318.5'
	USC	1350975.2866'	561317.8921'	318.0'
	USL	1350972.3112'	561321.9048'	318.5'
	DSR	1350990.2396'	561322.8833'	317.5'
	DSC	1350987.2692'	561326.9025'	317.0'
204+14.7	DSL	1350984.2987'	561330.9216'	317.5'
	USR	1351070.3820'	561342.8771'	315.4'
	USC	1351069.4454'	561347.9194'	315.0'
	USL	1351068.5212'	561352.7279'	315.5'
	DSR	1351085.0672'	561345.9345'	312.5'
200+43.6	DSC	1351084.1368'	561350.8599'	312.0'
	DSL	1351083.2064'	561355.7853'	312.5'
	USR	1350779.8430'	561139.4823'	327.5'
	USC	1350776.3444'	561143.0544'	327.0'
	USL	1350773.0757'	561146.8783'	327.5'
203+50.9	DSR	1350790.5574'	561149.9802'	326.5'
	DSC	1350787.2098'	561153.6763'	326.0'
	DSL	1350783.7901'	561157.3761'	326.5'
	USR	1351005.5425'	561327.7713'	317.5'
	USC	1351004.5546'	561332.6877'	317.0'
203+85.2	USL	1351003.5667'	561337.6042'	317.5'
	DSR	1351020.2277'	561330.8287'	316.5'
	DSC	1351019.2398'	561335.7451'	324.0'
	DSL	1351018.2519'	561340.6615'	316.5'
	USR	1351039.6367'	561333.2347'	316.5'



TYPICAL RIFFLE CROSS SECTION  
STREAM C  
STA. 200+00 TO 204+73.5

STREAM A STATION 100+00 TO 105+00 STRUCTURE TABLE BOULDER RIFFLES

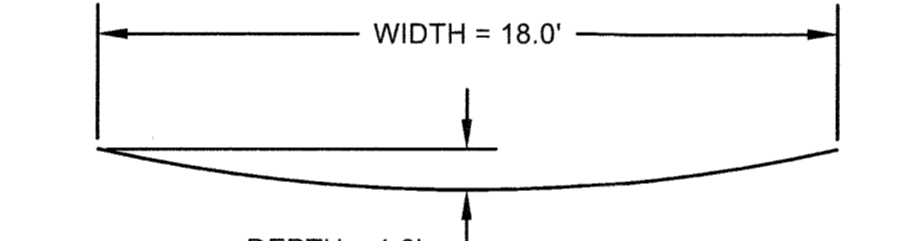
Station	Node	Easting	Northing	Elevation
100+49.4	USR	1350505.8585'	562493.4042'	341.0'
	USC	1350511.4404'	562490.0568'	340.0'
	USL	1350520.2152'	562484.2992'	341.0'
	DSR	1350497.8493'	562480.7214'	338.5'
	DSC	1350505.0276'	562476.1689'	337.5'
101+24.4	DSL	1350512.2059'	562471.6164'	338.5'
	USR	1350475.2150'	562421.5722'	337.5'
	USC	1350483.6073'	562420.2361'	336.5'
	USL	1350491.9997'	562418.9000'	337.5'
	DSR	1350472.5293'	562406.8145'	336.5'
101+58.5	DSC	1350480.9217'	562405.4784'	335.5'
	DSL	1350489.3141'	562404.1423'	336.5'
	USR	1350471.0981'	562387.1004'	336.5'
	USC	1350479.5672'	562386.3958'	335.5'
	USL	1350488.0362'	562385.6912'	336.5'
102+02.1	DSR	1350469.8280'	562372.1542'	335.5'
	DSC	1350478.2971'	562371.4496'	334.5'
	DSL	1350486.7661'	562370.7450'	335.5'
	USR	1350472.1961'	562340.5322'	335.5'
	USC	1350480.3138'	562343.0969'	334.5'
103+36.2	USL	1350488.4167'	562345.6575'	335.5'
	DSR	1350476.5934'	562326.1906'	334.5'
	DSC	1350484.6963'	562328.7513'	333.5'
	DSL	1350492.7991'	562331.3119'	334.5'
	USR	1350489.0353'	562212.3207'	333.5'
103+83.1	USC	1350496.5391'	562216.3118'	332.5'
	USL	1350504.0428'	562220.3028'	333.5'
	DSR	1350496.0166'	562199.0443'	332.5'
	DSC	1350503.5203'	562203.0353'	331.5'
	DSL	1350511.0241'	562207.0263'	332.5'
100+89.3	USR	1350511.0212'	562171.5250'	332.5'
	USC	1350518.4312'	562175.6894'	331.5'
	USL	1350525.9460'	562179.7589'	332.5'
	DSR	1350518.3701'	562158.4486'	330.5'
	DSC	1350525.7801'	562162.6129'	329.5'
102+83.6	DSL	1350533.1901'	562166.7773'	330.5'
	USR	1350486.7662'	562456.1920'	338.5'
	USC	1350494.8147'	562453.4580'	337.5'
	USL	1350502.8633'	562450.7240'	338.5'
	DSR	1350481.7236'	562442.0649'	337.5'



TYPICAL RIFFLE CROSS SECTION  
STREAM A  
STA. 100+00 TO 105+00

STREAM A STATION 105+00 TO 108+24.2 STRUCTURE TABLE BOULDER RIFFLES

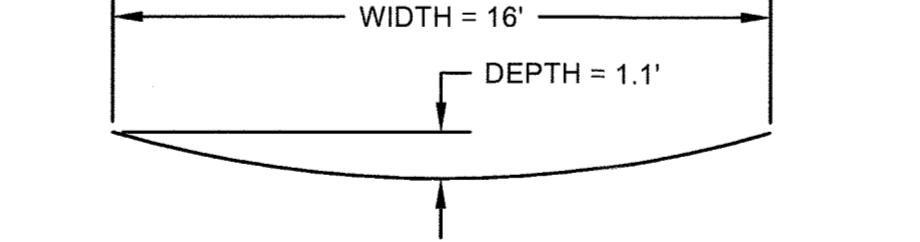
Station	Node	Easting	Northing	Elevation
105+31.6	USR	1350578.5794'	562043.8134'	330.5'
	USC	1350587.3821'	562045.0254'	329.5'
	USL	1350596.4199'	562046.2041'	330.5'
	DSR	1350580.5716'	562028.9463'	328.0'
	DSC	1350589.4111'	562030.1140'	327.0'
106+10.7	DSL	1350598.4121'	562031.3370'	328.0'
	USR	1350582.8424'	561964.3626'	327.0'
	USC	1350591.6068'	561969.0065'	326.0'
	USL	1350600.0346'	561969.6554'	327.0'
	DSR	1350587.1418'	561950.1786'	326.0'
106+48.2	DSC	1350595.9212'	561952.6561'	325.0'
	DSL	1350604.4726'	561955.3270'	326.0'
	USR	1350594.0360'	561928.6411'	326.0'
	USC	1350602.7414'	561931.4715'	325.0'
	USL	1350611.2035'	561934.0517'	326.0'
107+33.5	DSR	1350598.5617'	561914.4213'	325.0'
	DSC	1350607.1754'	561917.0561'	324.0'
	DSL	1350615.8110'	561919.8237'	325.0'
	USR	1350622.0299'	561847.6747'	324.0'
	USC	1350630.5403'	561850.7200'	323.0'
105+68.2	USL	1350639.0307'	561853.5883'	324.0'
	DSR	1350676.5583'	561994.1485'	328.0'
	DSC	1350585.3386'	561993.7674'	326.0'
	DSL	1350594.5423'	561993.3901'	327.0'
	USR	1350607.9703'	561892.3470'	325.0'
106+86.9	USC	1350616.5850'	561895.0273'	324.0'
	USL	1350625.1535'	561897.7078'	325.0'
	DSR	1350612.4637'	561878.0307'	324.0'
	DSC	1350621.0293'	561880.7081'	323.0'
	DSL	1350629.6117'	561883.4255'	324.0'
107+71.3	USR	1350634.5165'	561815.1730'	323.0'
	USC	1350643.5481'	561815.4695'	322.0'
	USL	1350652.5073'	561815.7482'	323.0'
	DSR	1350634.9958'	561800.1807'	322.0'
	DSC	1350643.9912'	561800.4683'	321.0'
	DSL	1350652.9866'	561800.7558'	322.0'



TYPICAL RIFFLE CROSS SECTION  
STREAM A  
STA. 105+00 TO 108+24.2

OUTFALL 47 STATION 20+00 TO 20+63 STRUCTURE TABLE BOULDER RIFFLES

Station	Node	Easting	Northing	Elevation
20+30.9	USR	1350842.2800'	561606.3195'	321.1'
	USC	1350836.2609'	561611.5625'	320.0'
	USL	1350830.4219'	561617.0613'	321.1'
	DSR	1350855.7072'	561621.1422'	318.1'
	DSC	1350849.7781'	561626.5130'	317.0'
	DSL	1350843.8491'	561631.8839'	318.1'



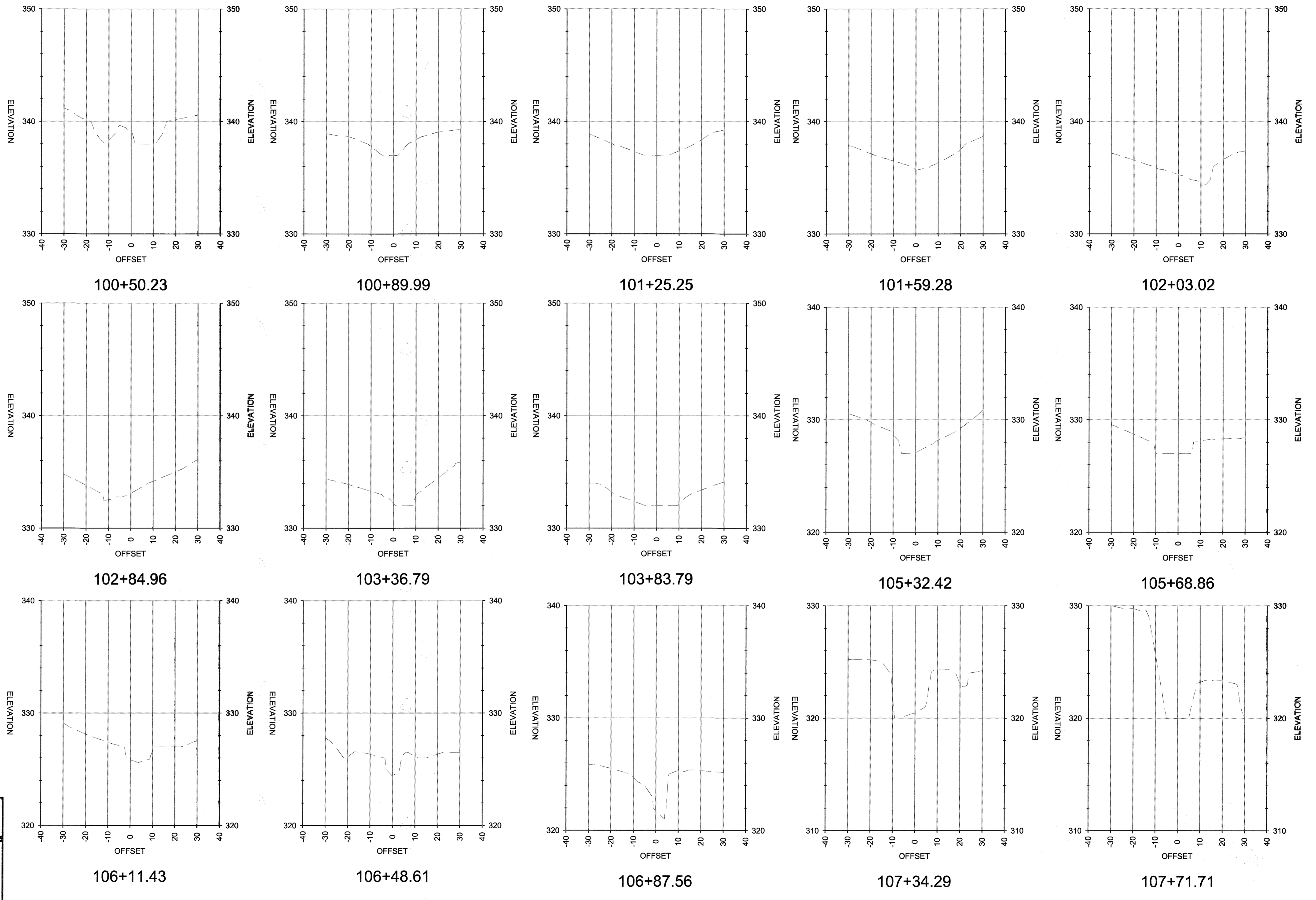
TYPICAL RIFFLE CROSS SECTION  
OUTFALL 47  
STA. 20+00 TO 20+63

STREAM B LOWER STATION 300+00 TO 302+96.6 STRUCTURE TABLE BOULDER RIFFLES

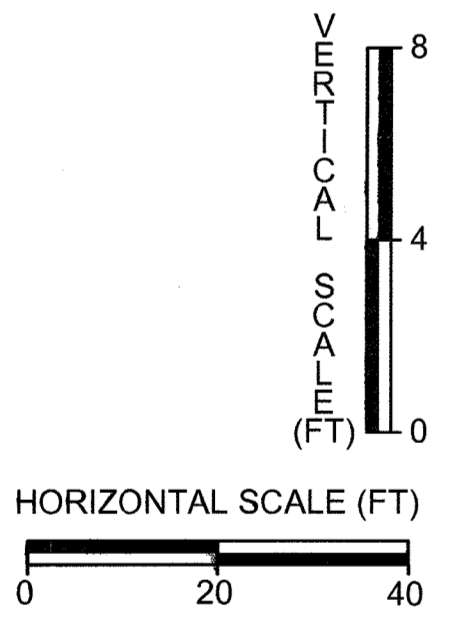
Station	Node	Easting	Northing	Elevation	
300+31.6	USR	1352030.1288'	561384.1794'	304.0'	
	USC	1352041.3296'	561394.1051'	303.0'	
	USL	1352052.5303'	561404.0308'	304.0'	
	DSR	1352050.7668'	561362.4382'	302.0'	
	DSC	1352061.9974'	561372.4033'	301.0'	
301+92.2	DSL	1352073.2221'	561382.3486'	302.0'	
	COBBLE RIFFLES				
	USR	1352162.1272'	561286.1		



CROSS SECTIONS AT STREAM A



STATE OF MARYLAND  
 PROFESSIONAL LAND SURVEYOR  
 No. 10849  
 AS-BUILT DATE: JAN 24, 2020  
 Shanabarger & Lane



SECTION LEGEND

- EXISTING GROUND
- \_\_\_ PROPOSED GRADE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
 Chief, Bureau of Highways  
 Date: 8-13-16

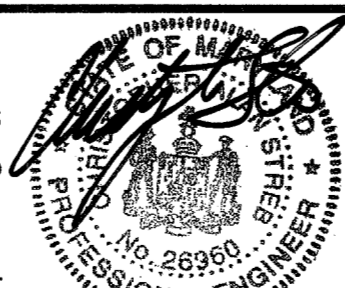
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
 Chief, Division of Land Development  
 Date: 7-26-16

**Biohabitats**  
 The Stables Building, 2081 Clippert Park Road  
 Baltimore, MD 21211 / ph: 410.554.0156  
 fx: 410.554.0169 / www.biohabitats.com  
 Restoring the Earth to Inspire Ecological Stewardship

DES.	DRN.	CHK.	DATE	REVISION	BY	APPR.

PREPARED FOR:  
 THE HOWARD HUGHES CORPORATION  
 10480 LITTLE PATUXENT PARKWAY  
 SUITE 400  
 COLUMBIA, MD 21044  
 ATTN: BOB JENKINS  
 410-964-5443

PROFESSIONAL CERTIFICATION  
 I HEREBY CERTIFY THAT THESE PLANS  
 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. 26950  
 EXPIRATION DATE: FEBRUARY 2018.

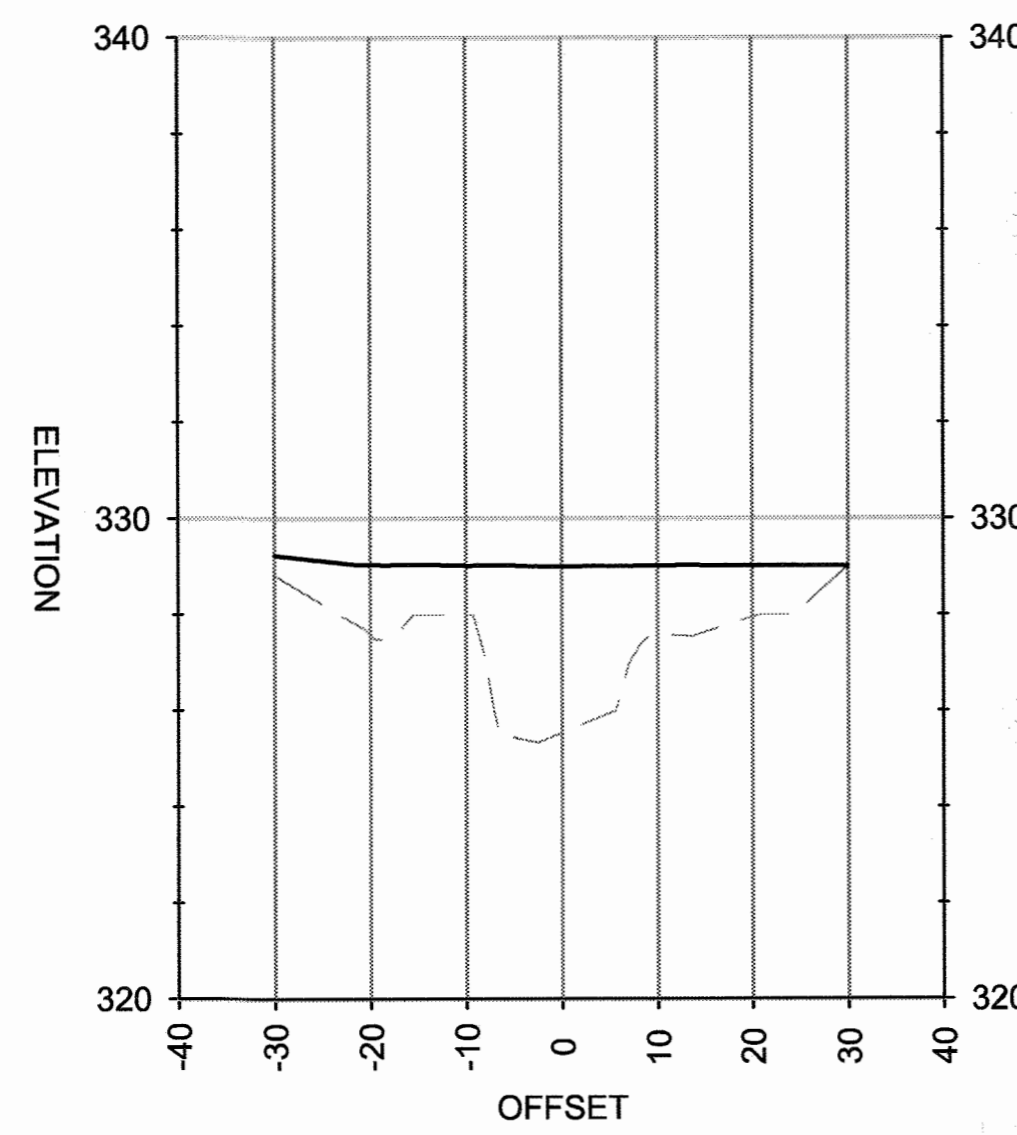


CROSS SECTIONS  
 DOWNTOWN COLUMBIA  
 CRESCENT NEIGHBORHOOD  
 PARCELS B THRU H, NON-BUILDABLE BULK PARCELS J THRU R,  
 O.S. LOTS 1 THRU 8 AND  
 MERRIWEATHER-SYMPHONY WOODS NEIGHBORHOOD O.S. LOT 1  
 AND NON-BUILDABLE BULK PARCEL A  
 HOWARD COUNTY, MARYLAND

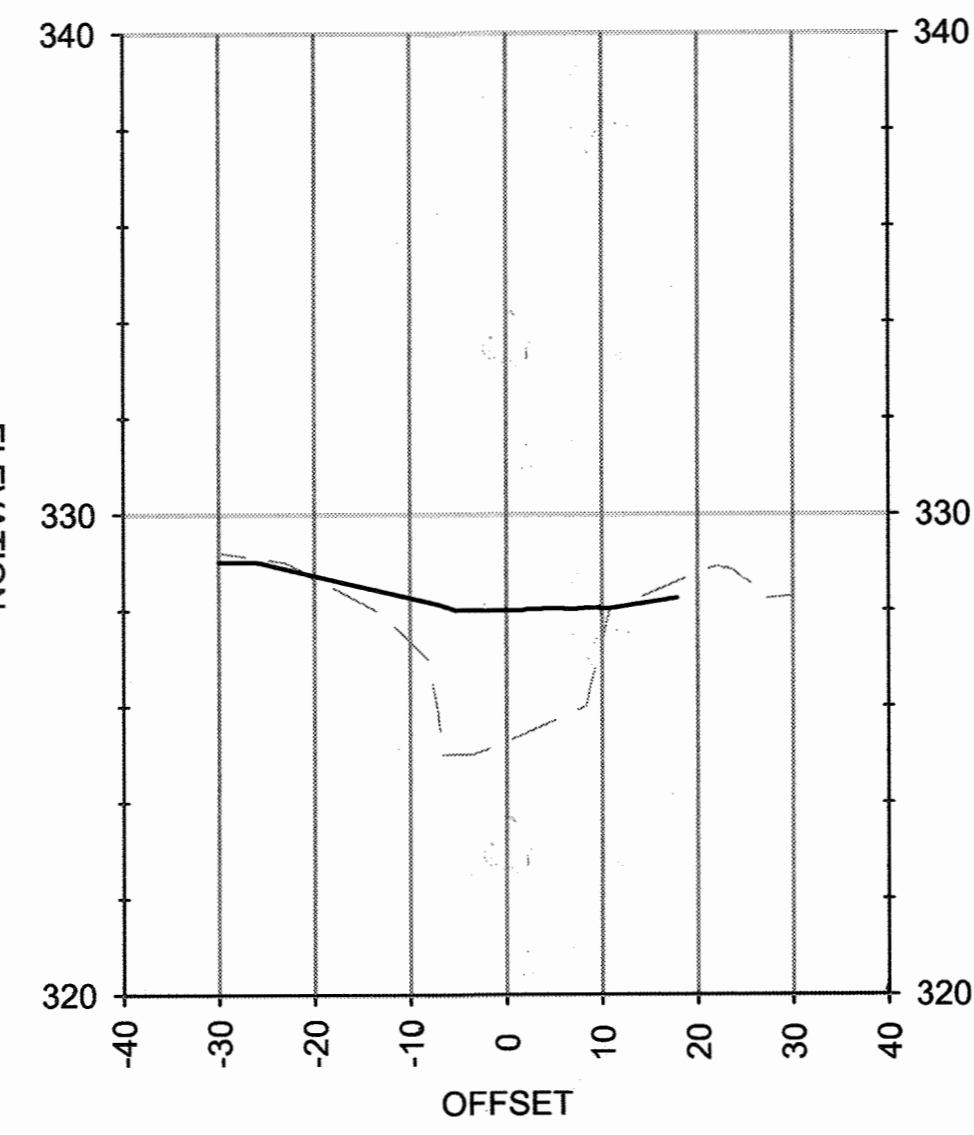
SCALE	ZONING	
VALUE	NT	11071
DATE	TAXITILE	SHEET
JUNE, 2016	36 - 01	86 OF 102



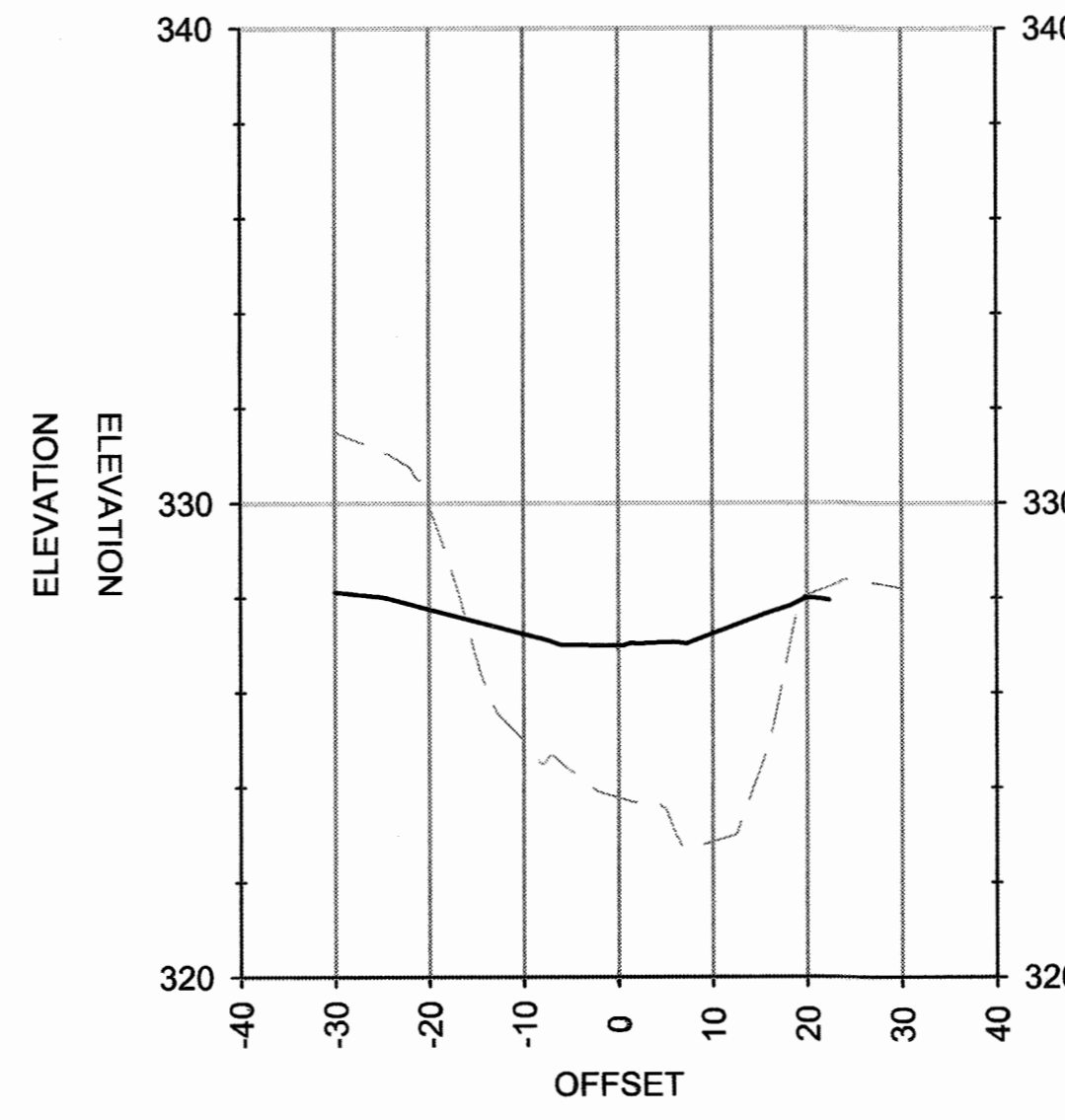
CROSS SECTIONS AT STREAM B



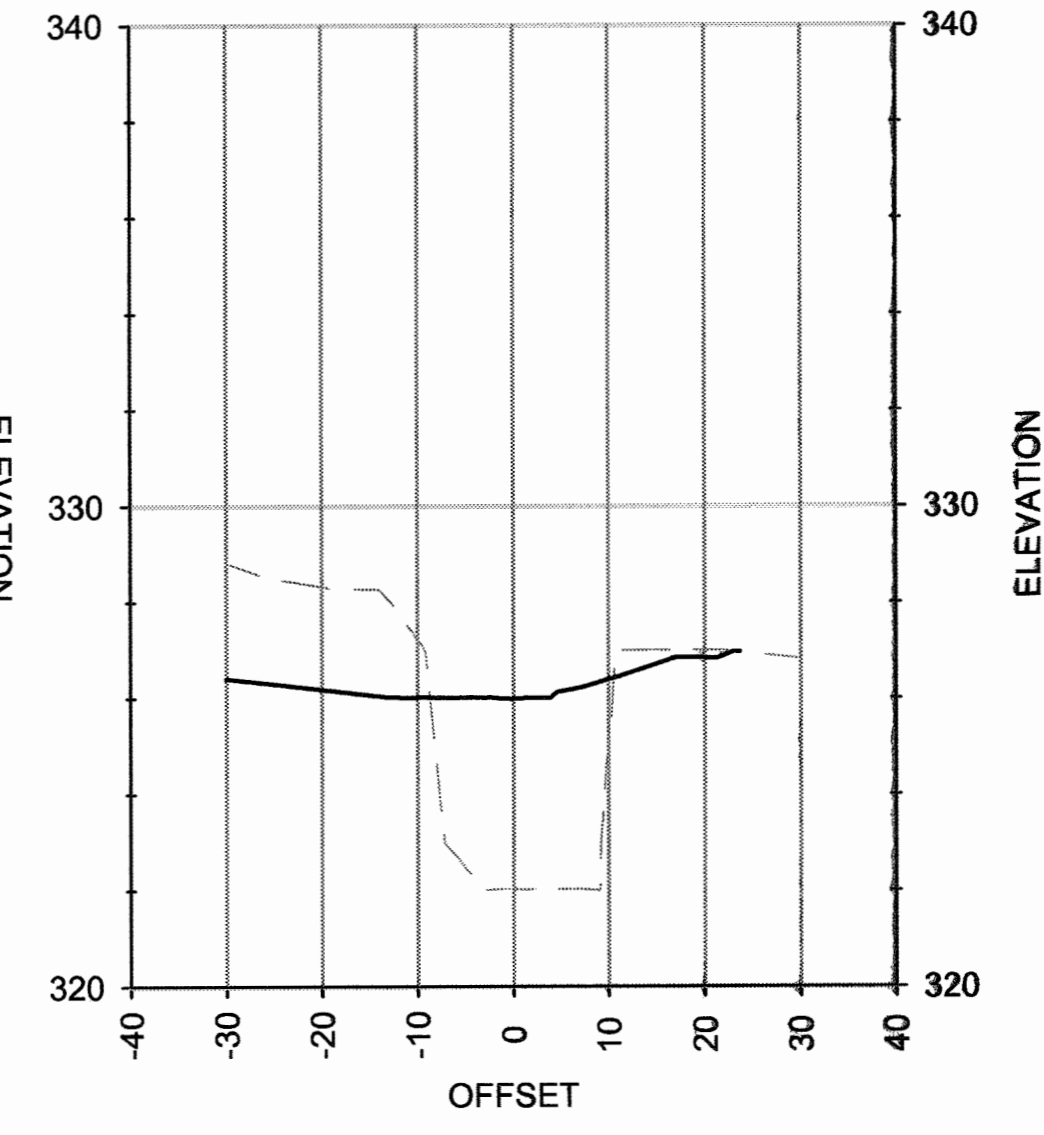
0+91.51



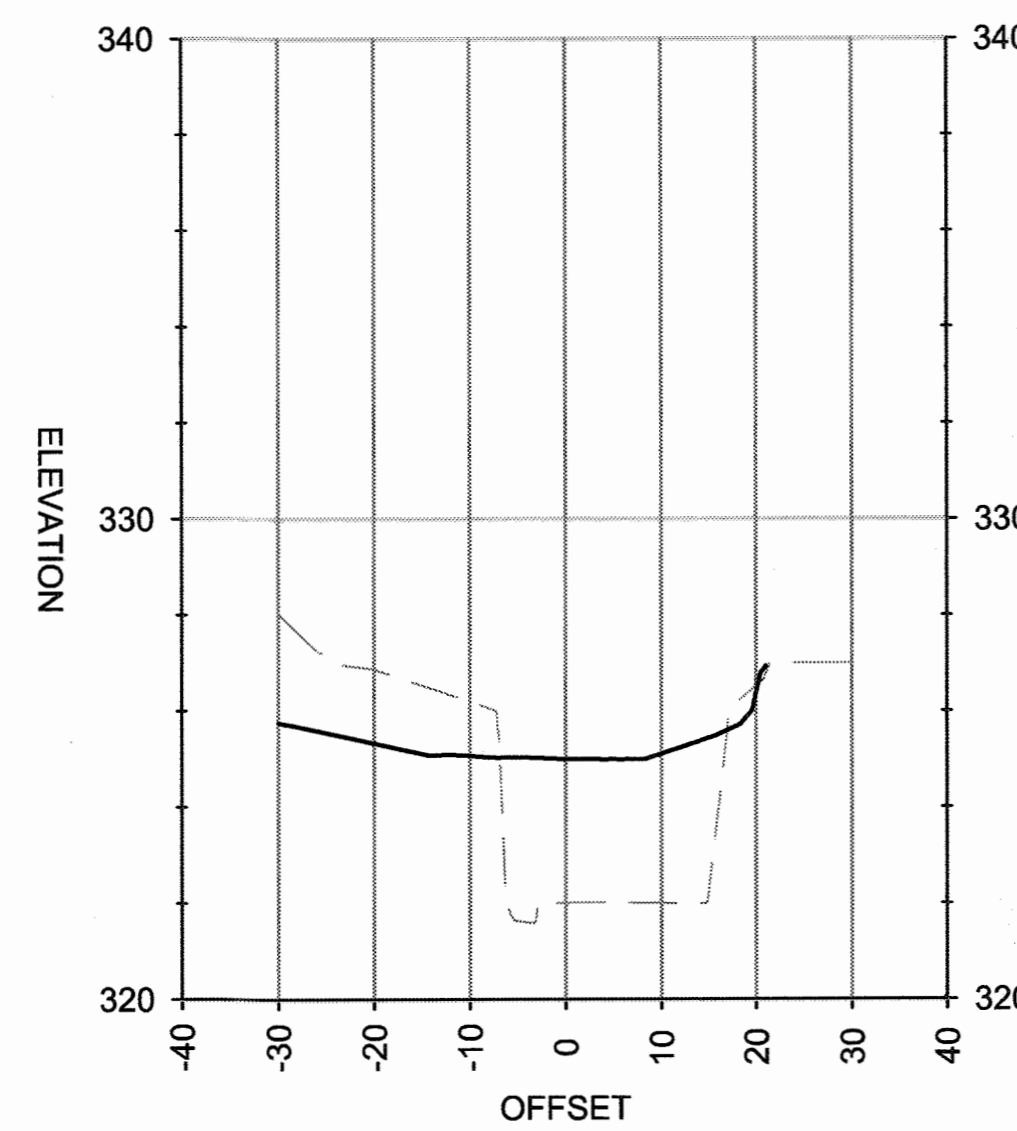
1+87.64



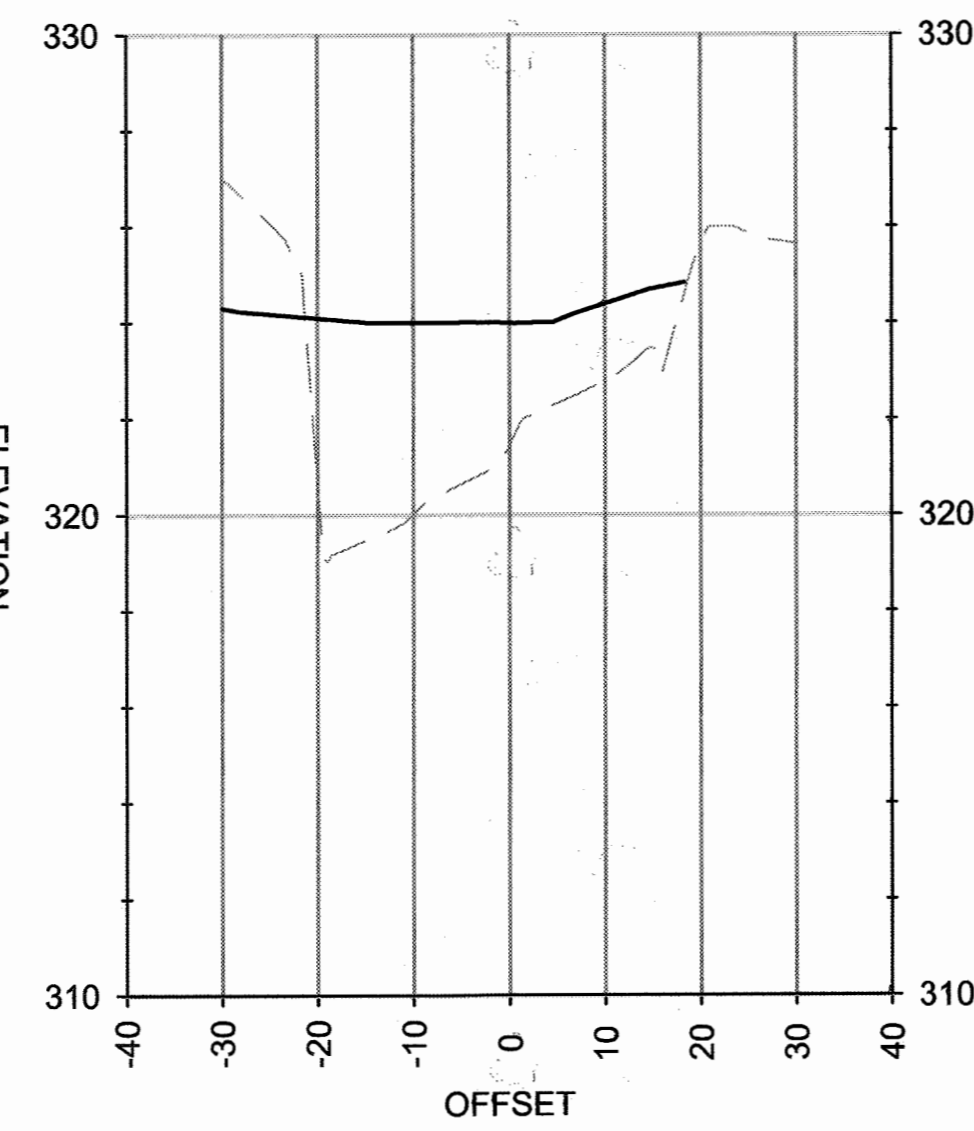
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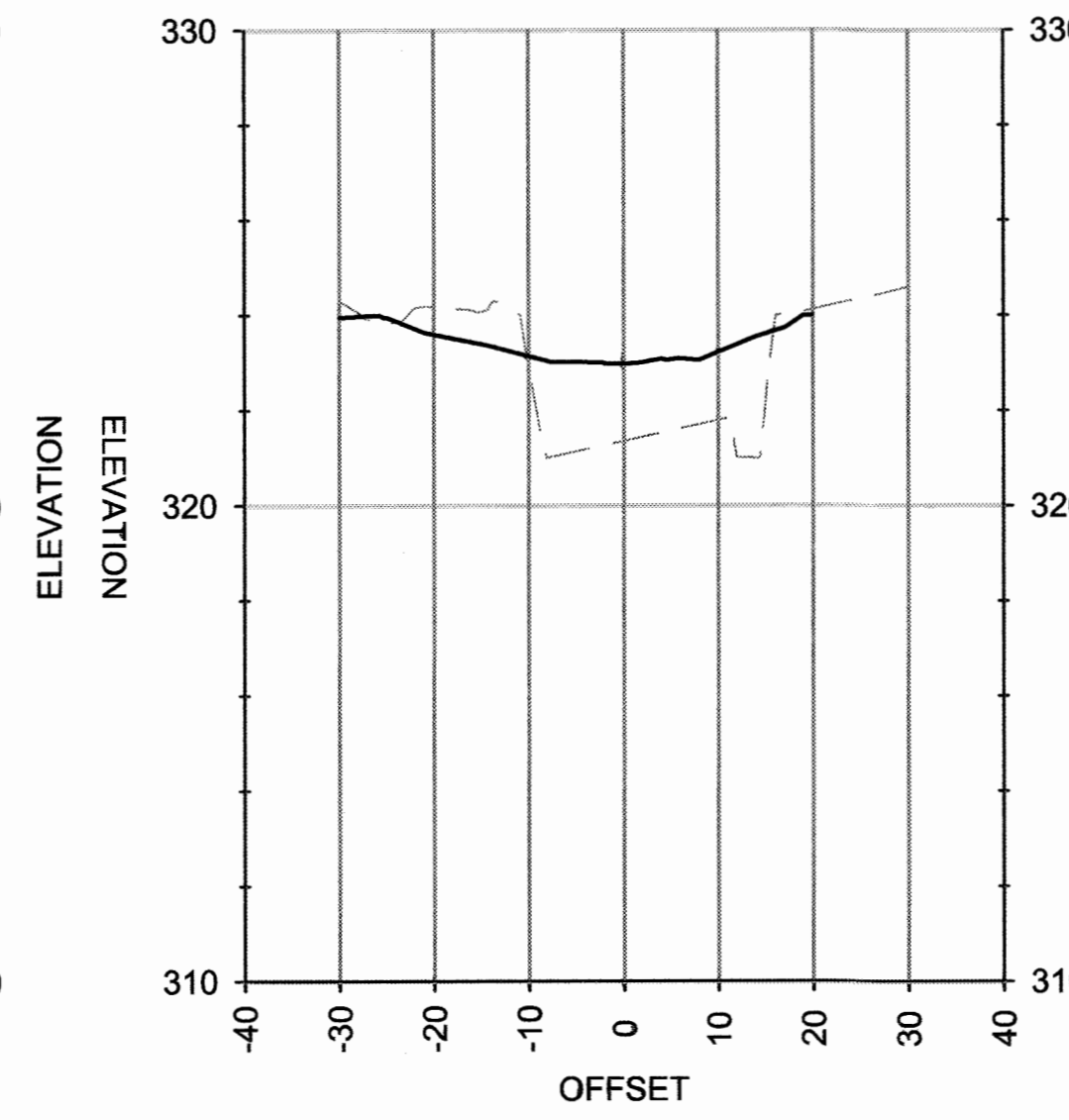
3+40.00



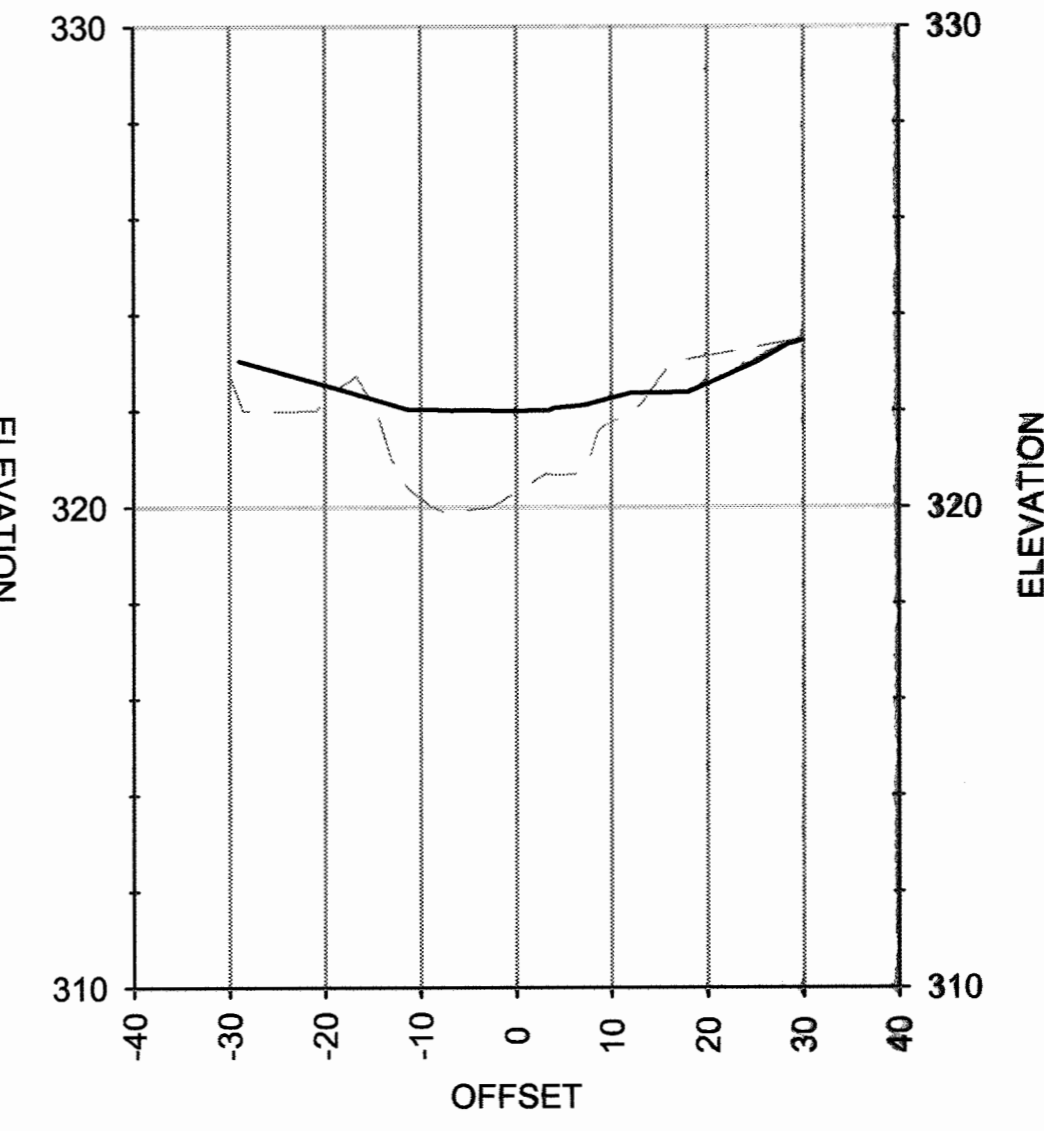
4+09.21



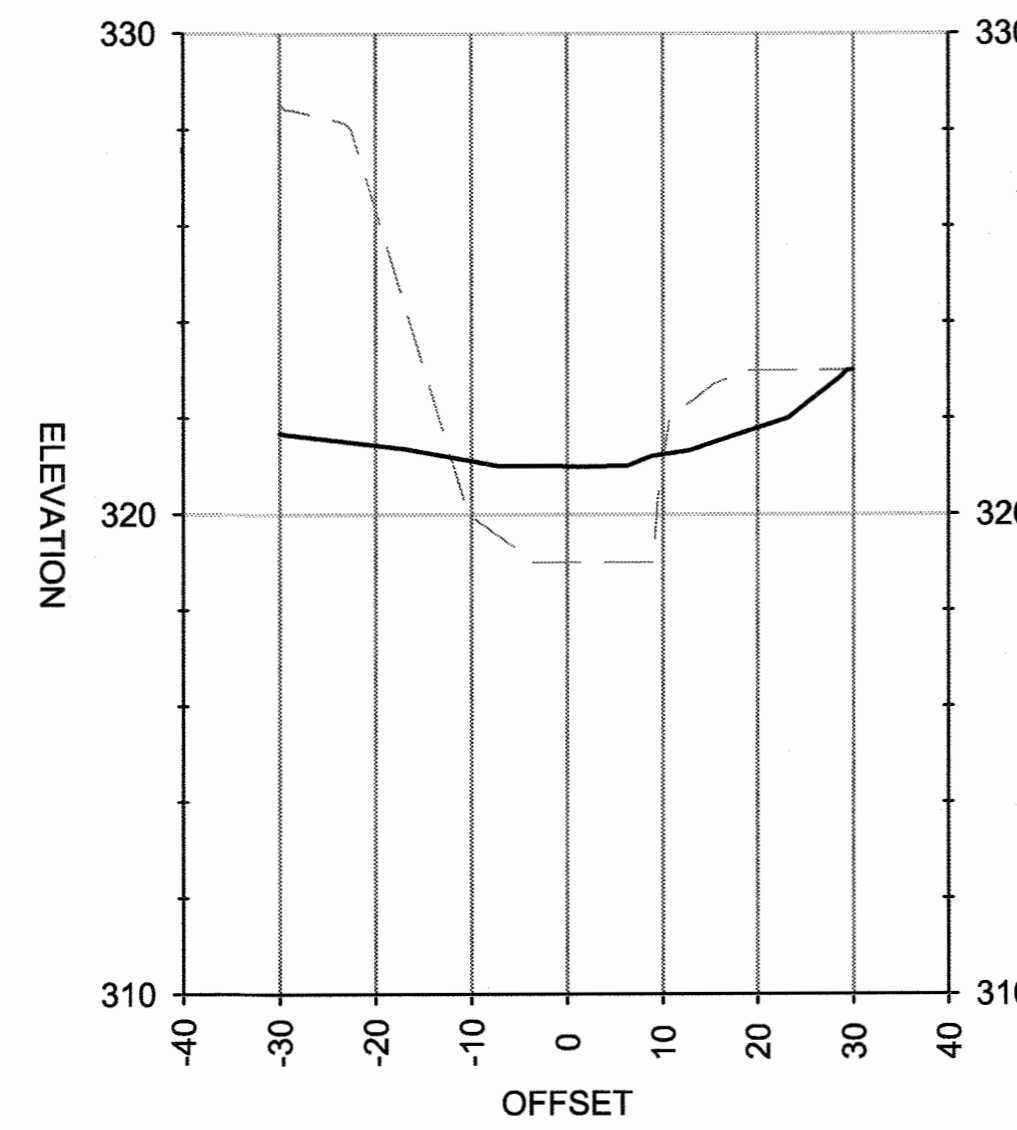
4+73.06



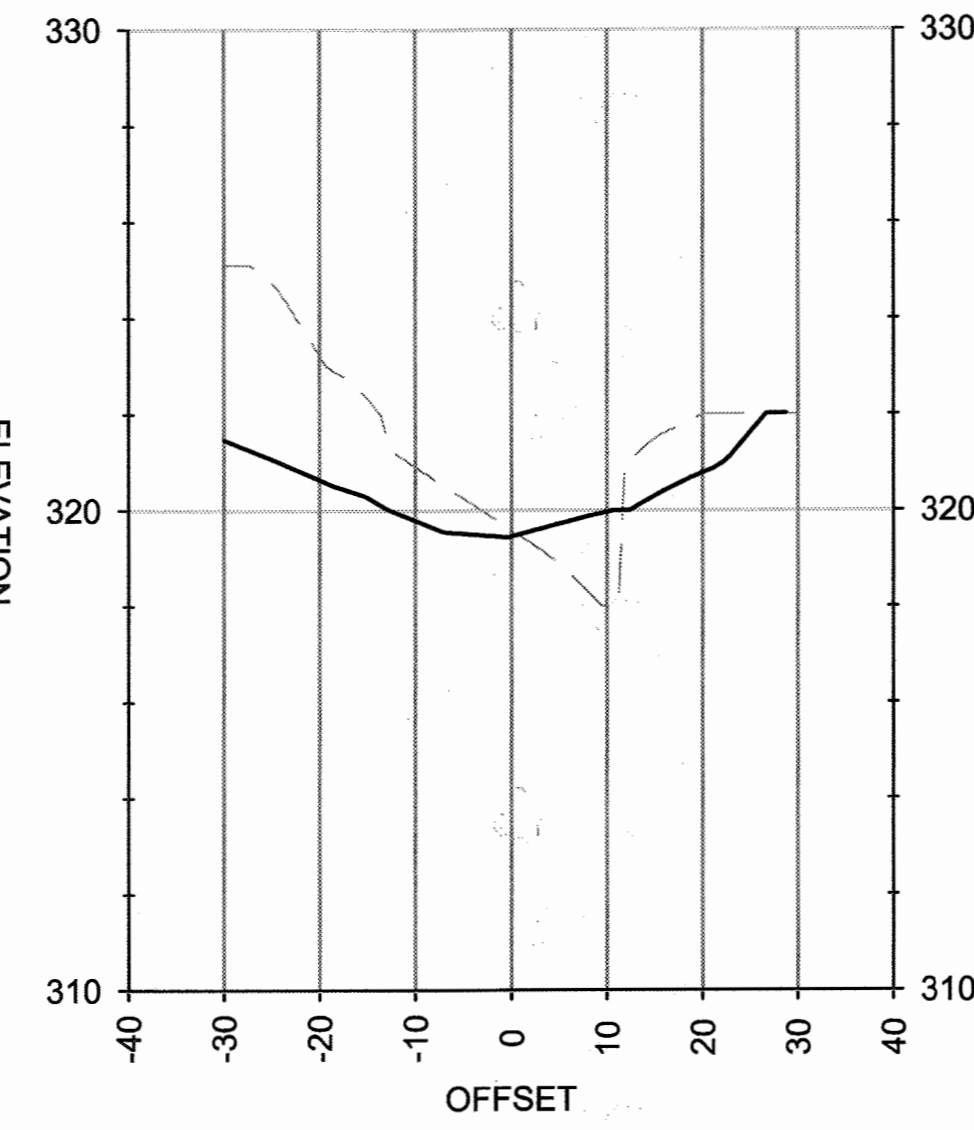
5+54.29



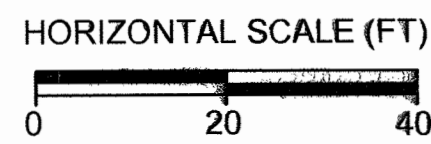
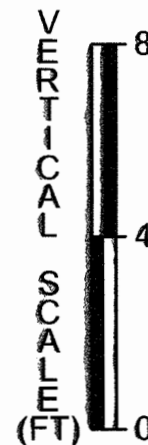
6+31.94



7+13.14



8+46.93



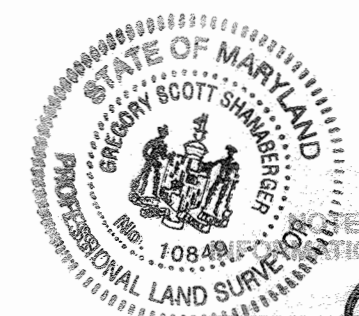
SECTION LEGEND

- EXISTING GROUND
- PROPOSED GRADE

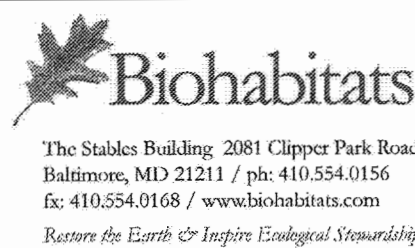
APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
 Chief, Bureau of Highways Date *8-3-16*

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
 Chief, Division of Land Development Date *7-26-16*

Chief, Development Engineering Division Date *7-26-16*



NOTE: THERE IS NO AS-BUILT INFORMATION PROVIDED ON THIS SHEET  
 Professional L.S. #10848 Exp. Date 4/2/2022  
 AS-BUILT DATE: **3/17/20**  
 Shierberg & Lane



DES.	DRN.	CHK.	DATE	REVISION	BY	APP'R.

PREPARED FOR:  
 THE HOWARD HUGHES CORPORATION  
 10480 LITTLE PATUXENT PARKWAY  
 SUITE 400  
 COLUMBIA, MD 21044  
 ATTN: BOB JENKINS  
 410-964-5443

PROFESSIONAL CERTIFICATION  
 I HEREBY CERTIFY THAT THESE PLANS 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. 26980  
 EXPIRATION DATE: FEBRUARY 2018

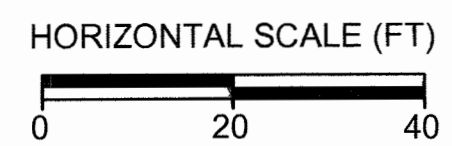
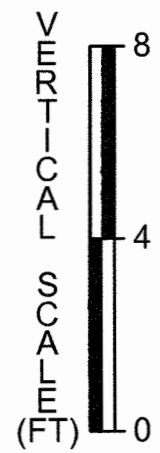
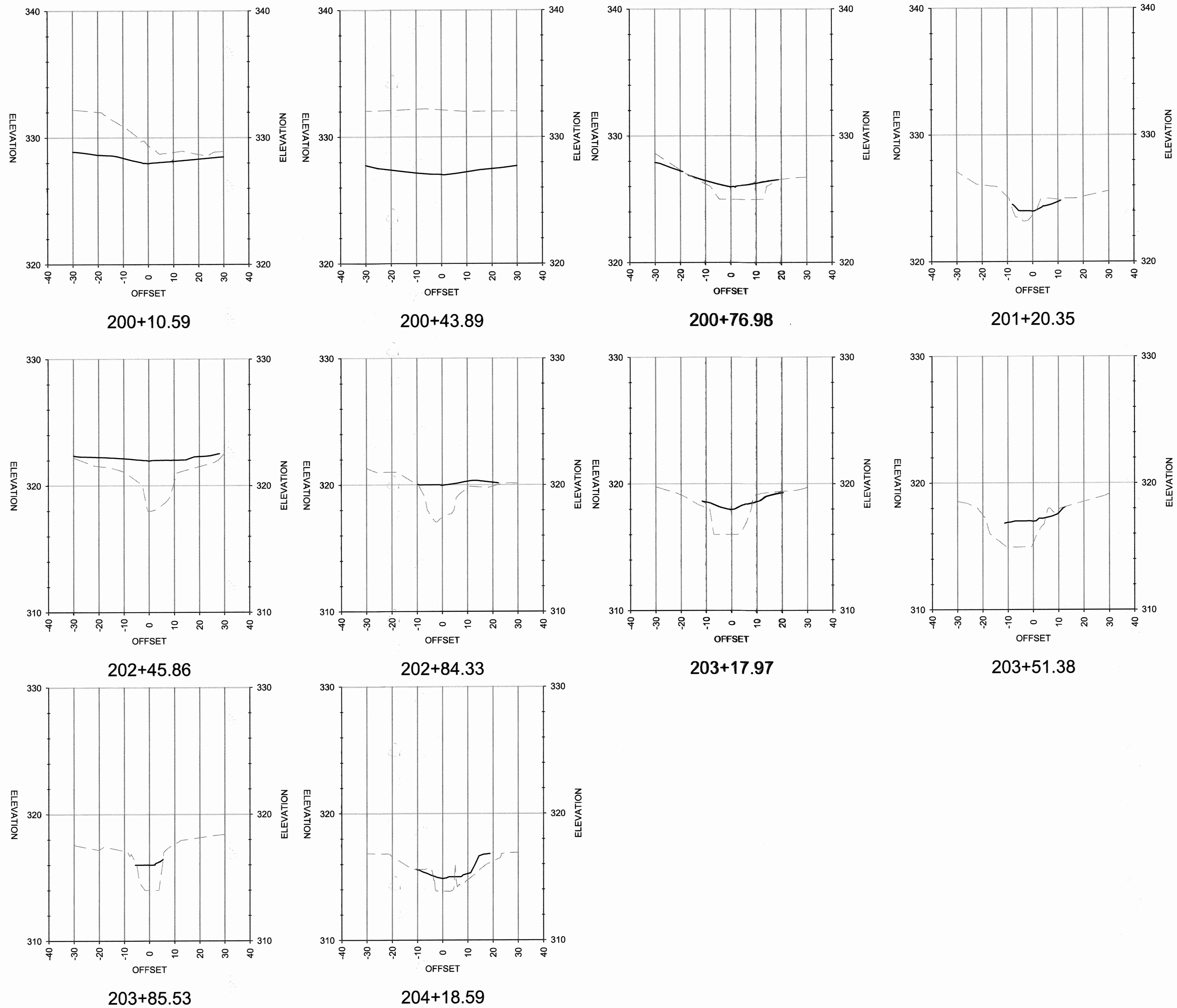


CROSS SECTIONS  
 DOWNTOWN COLUMBIA  
 CRESCENT NEIGHBORHOOD  
 PARCELS B THRU H, NON-BUILDABLE BULK PARCELS J THRU R,  
 O.S. LOTS 1 THRU 8 AND  
 MERRIWEATHER-SYMPHONY WOODS NEIGHBORHOOD O.S. LOT 1  
 AND NON-BUILDABLE BULK PARCEL A  
 ELECTION DISTRICT No. 5 HOWARD COUNTY, MARYLAND

SCALE	ZONING	VALUE
	NT	11071
DATE	TAXITILE	SHEET
JUNE, 2016	36 - 01	87 OF 102



CROSS SECTIONS AT STREAM C



SECTION LEGEND

--- EXISTING GROUND  
 — PROPOSED GRADE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
 Chief, Bureau of Highways  
 Date: *8-3-16*

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
 Chief, Division of Land Development  
 Date: *7-26-16*

Chief, Development Engineering Division

STATE OF MARYLAND  
 PROFESSIONAL LAND SURVEYOR  
 THERE IS NO AS-BUILT PROVIDED ON THIS SHEET  
 AS-BUILT DATE: *JAN 24 2022*  
 Shesberger & Lane

**Biohabitats**  
 The Stables Building, 2081 Clipper Park Road  
 Baltimore, MD 21211 / ph: 410.554.0156  
 fx: 410.554.0168 / www.biohabitats.com  
 Restore the Earth • Enhance Ecological Stewardship

DES.	DRN.	CHK.	DATE	REVISION	BY	APPR.

PREPARED FOR:  
 THE HOWARD HUGHES CORPORATION  
 10480 LITTLE PATUXENT PARKWAY  
 SUITE 400  
 COLUMBIA, MD 21044  
 ATTN: BOB JENKINS  
 410-964-5443

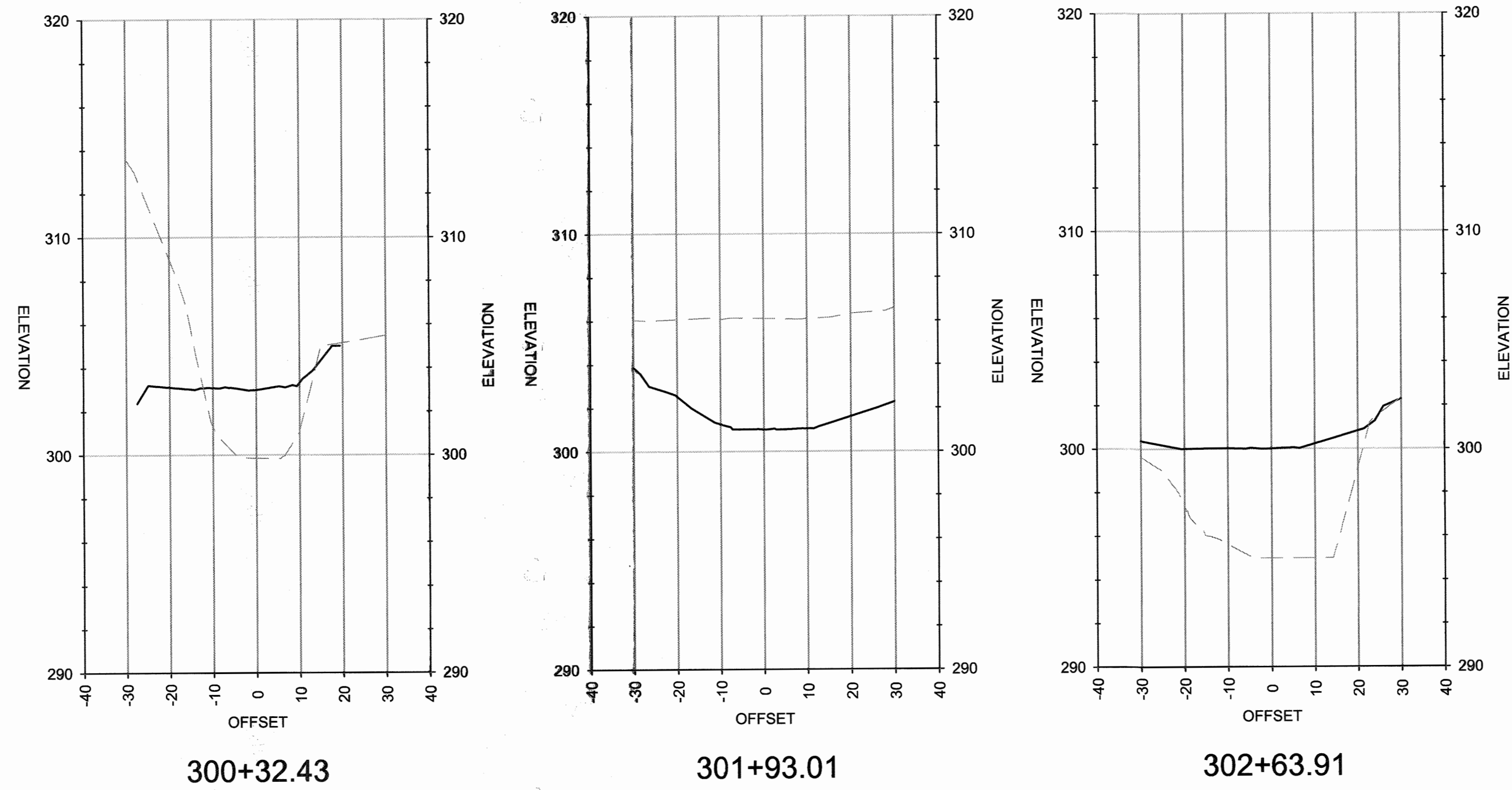
PROFESSIONAL CERTIFICATION  
 I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 26980, EXPIRATION DATE: FEBRUARY 2018.

CROSS SECTIONS  
 DOWNTOWN COLUMBIA  
 CRESCENT NEIGHBORHOOD  
 PARCELS B THRU H, NON-BUILDABLE BULK PARCELS J THRU R,  
 O.S. LOTS 1 THRU 8 AND  
 MERRIWEATHER-SYMPHONY WOODS NEIGHBORHOOD O.S. LOT 1  
 AND NON-BUILDABLE BULK PARCEL A  
 ELECTION DISTRICT No. 5  
 HOWARD COUNTY, MARYLAND

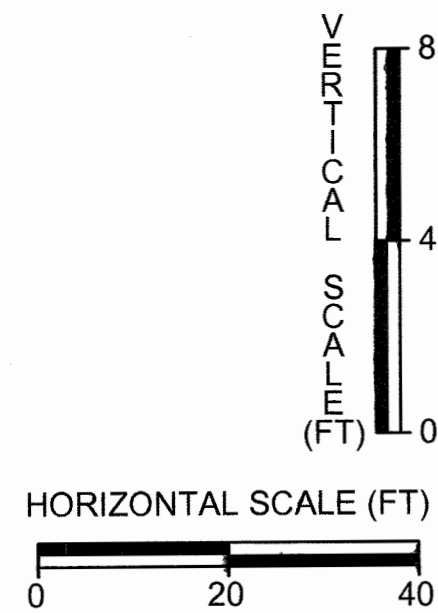
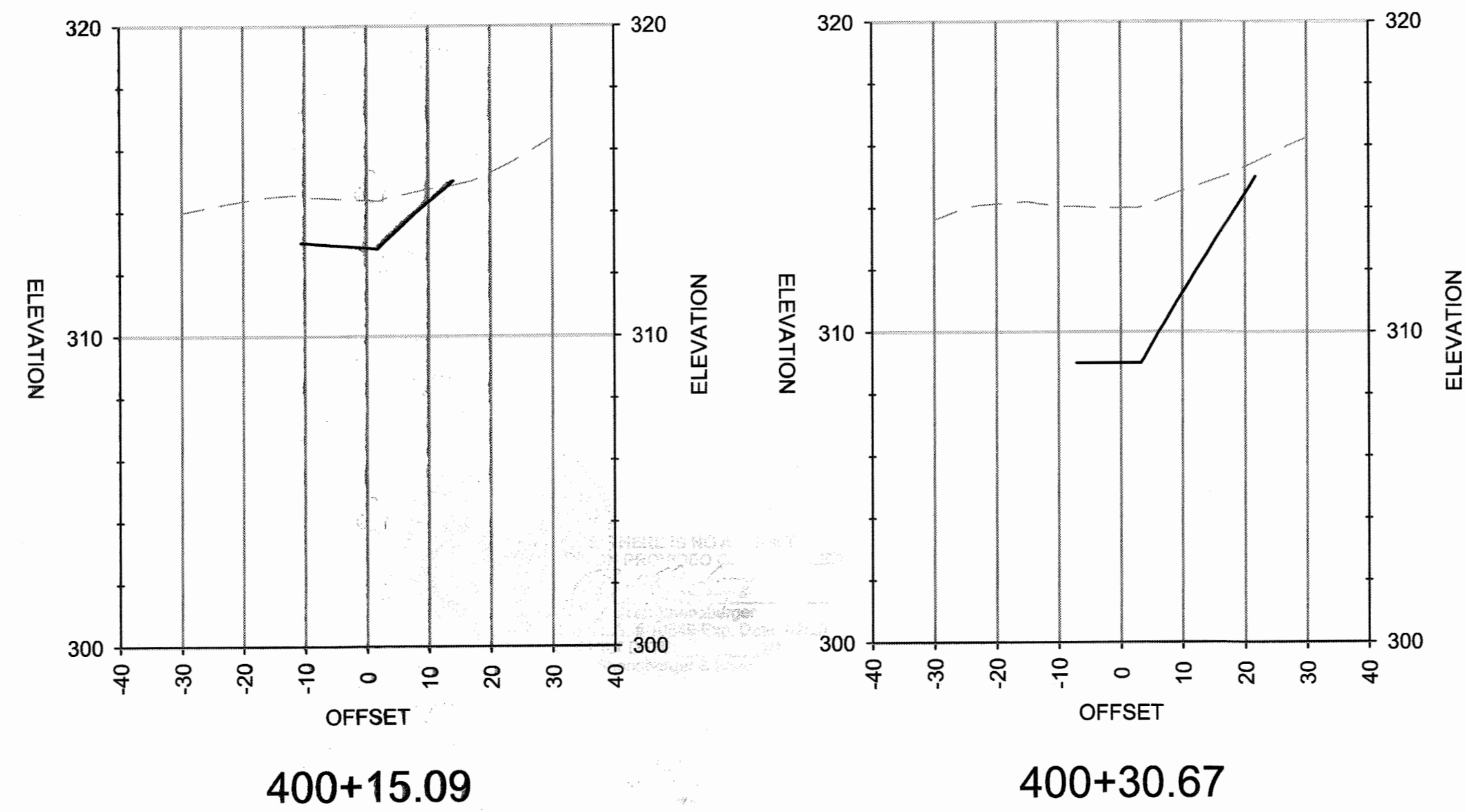
SCALE	ZONING	VALUE	DATE	TAXTITLE	SHEET
	NT	11071	JUNE, 2016	36 - 01	88 OF 102



CROSS SECTIONS AT STREAM B LOWER



CROSS SECTIONS AT STREAM E



SECTION LEGEND

- EXISTING GROUND
- PROPOSED GRADE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
 Chief, Bureau of Highways                      Date  
 APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
 Chief, Division of Land Development                      Date  
 Chief, Development Engineering Division                      Date

STATE OF MARYLAND  
 PROFESSIONAL ENGINEER  
 THERE IS NO AS-BUILT INFORMATION PROVIDED ON THIS SHEET  
 AS-BUILT DATE: JAN 24, 2020

**Biohabitats**  
 The Steeles Building 2081 Clippert Park Road  
 Baltimore, MD 21211 / ph: 410.554.0156  
 fx: 410.554.0168 / www.biohabitats.com  
 Restore the Earth or Improve Ecological Stewardship

DES.	DRN.	CHK.	DATE	REVISION	BY	APPR.

DES.	DRN.	CHK.	DATE	REVISION	BY	APPR.

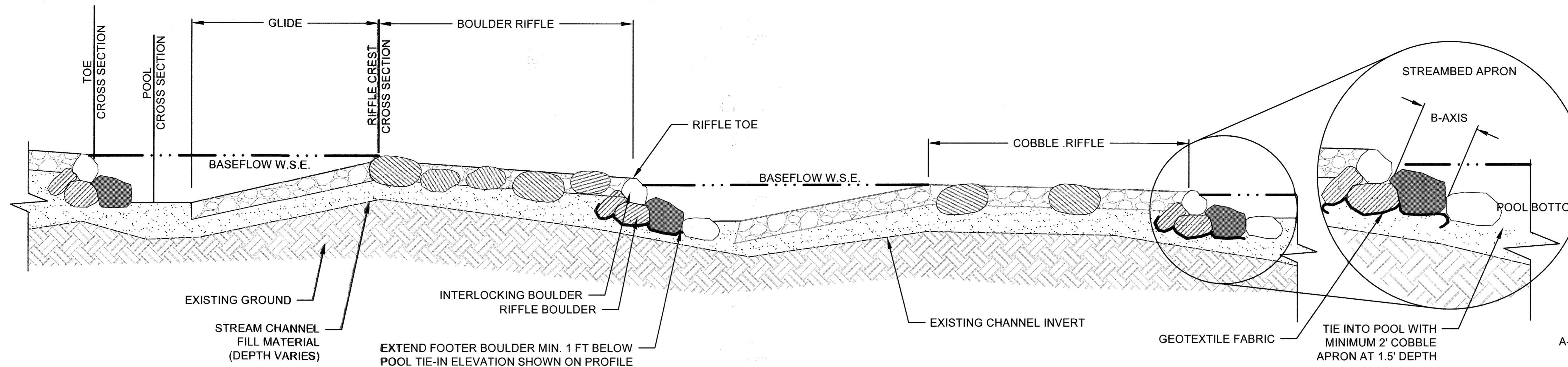
PREPARED FOR:  
 THE HOWARD HUGHES CORPORATION  
 10480 LITTLE PATUXENT PARKWAY  
 SUITE 400  
 COLUMBIA, MD 21044  
 ATTN: BOB JENKINS  
 410-964-5443

PROFESSIONAL CERTIFICATION  
 I HEREBY CERTIFY THAT THESE PLANS  
 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. 26980  
 EXPIRATION DATE: FEBRUARY 2018.

CROSS SECTIONS  
 DOWNTOWN COLUMBIA  
 CRESCENT NEIGHBORHOOD  
 PARCELS B THRU H, NON-BUILDABLE BULK PARCELS J THRU R,  
 O.S. LOTS 1 THRU 8 AND  
 MERRIWEATHER-SYMPHONY WOODS NEIGHBORHOOD O.S. LOT 1  
 AND NON-BUILDABLE BULK PARCEL A  
 ELECTION DISTRICT No. 5                      HOWARD COUNTY, MARYLAND

SCALE	ZONING	VALUE
JUNE, 2016	NT	11071
DATE	TAXITLE	SHEET
JUNE, 2016	36 - 01	89 OF 102





**BOULDER RIFFLE - COBBLE RIFFLE**  
**PROFILE INDEX**

NOT TO SCALE

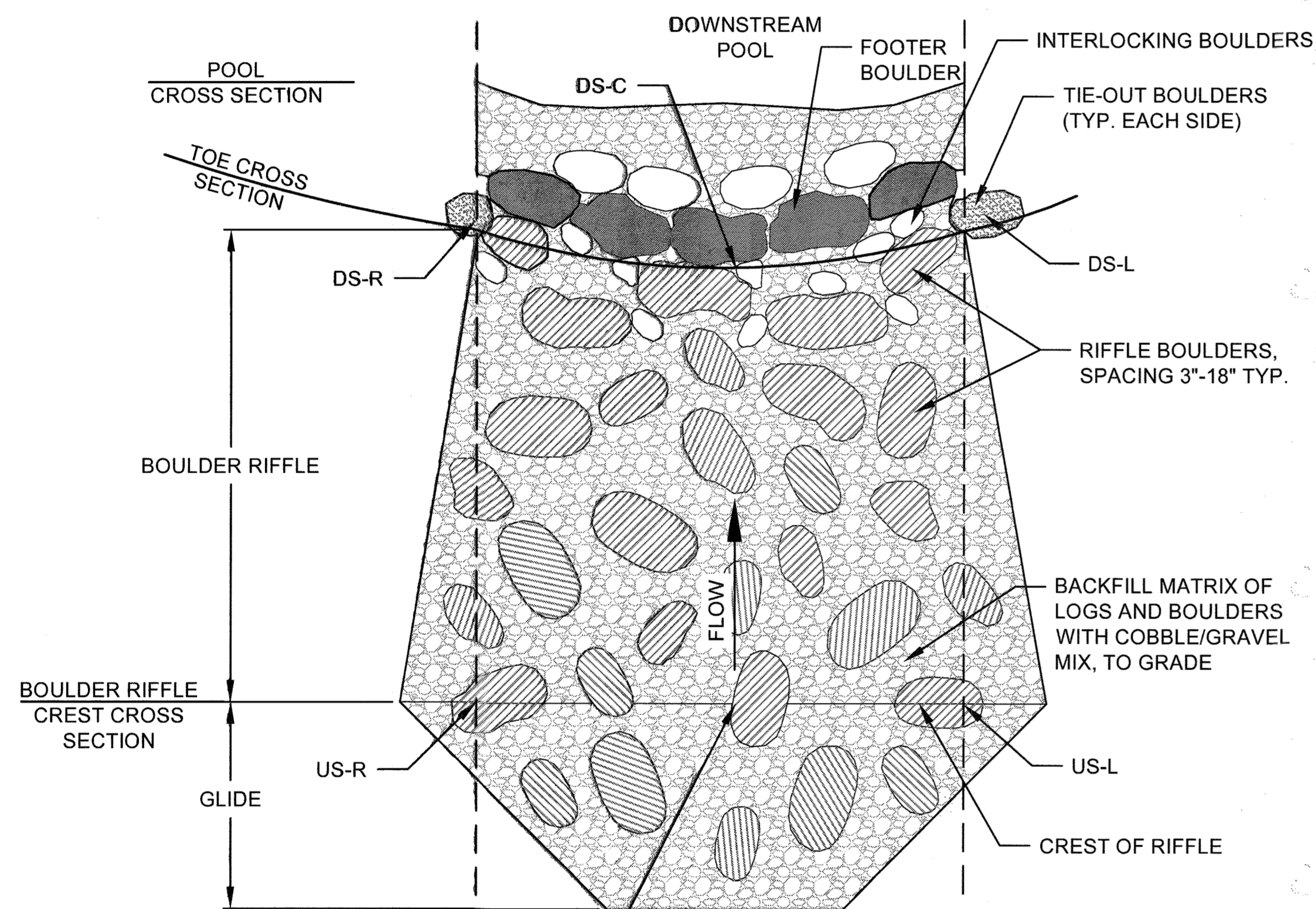
**BOULDER RIFFLE**  
**BOULDER AXIS**

NOT TO SCALE

BOULDER DIMENSIONS (FT) - BOULDER RIFFLE			
BOULDER TYPE	A-AXIS	B-AXIS	C-AXIS
RIFFLE	3.5-4.5	2.5-3.5	1.6-2.0
FOOTER	3.5-4.5	2.5-3.5	1.6-2.0
TIE-OUT	3.0-4.0	2.5-3.5	1.6-2.0
INTERLOCKING	2.0-3.0	1.5-2.0	1.2-1.5

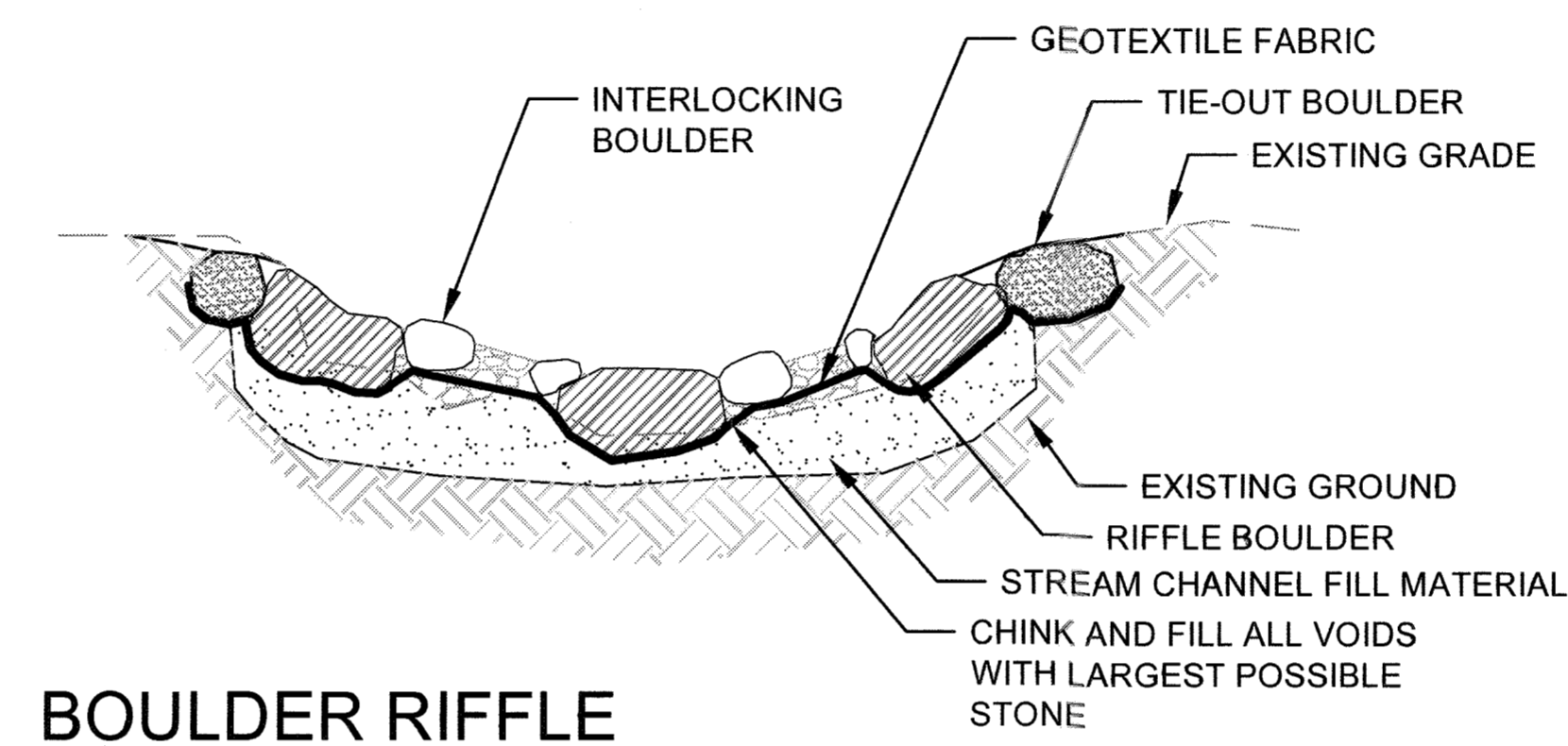
BOULDER RIFFLE MATERIAL GRADATION TABLE

CUMULATIVE % FINER	COBBLE SIZE (IN)
100	16
84	13
50	6
16	3
0	1



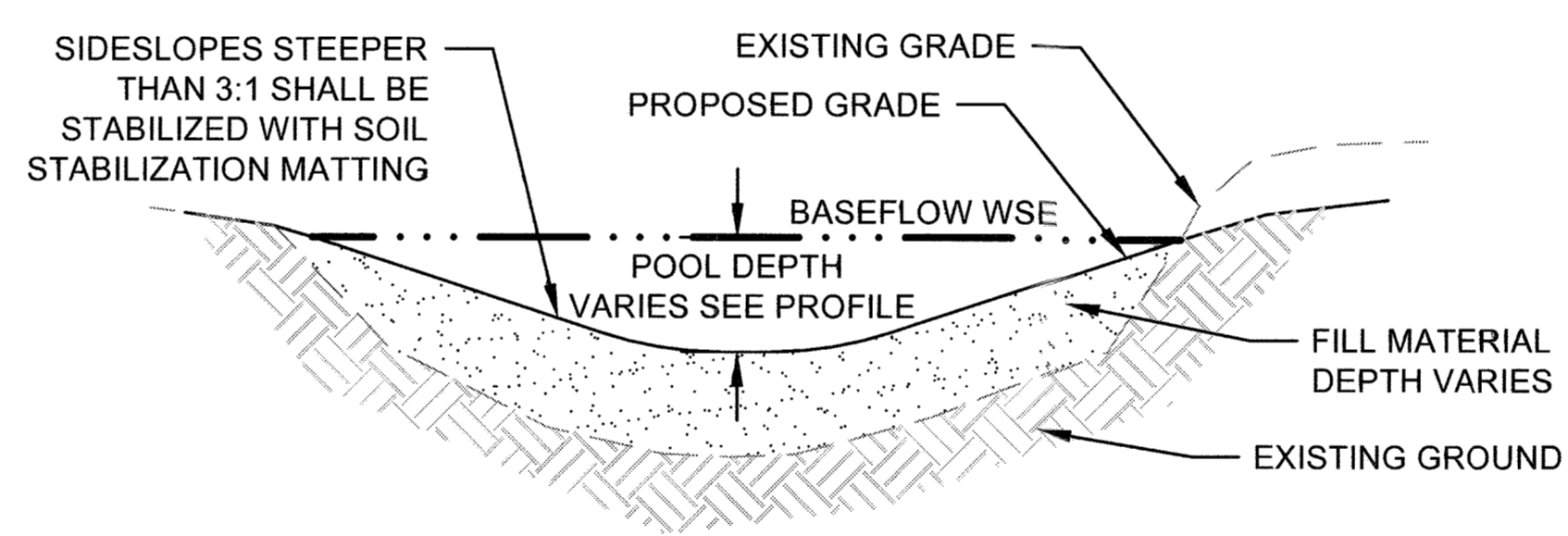
**BOULDER RIFFLE**  
**PLAN VIEW**

NOT TO SCALE



**BOULDER RIFFLE**  
**TOE CROSS SECTION**

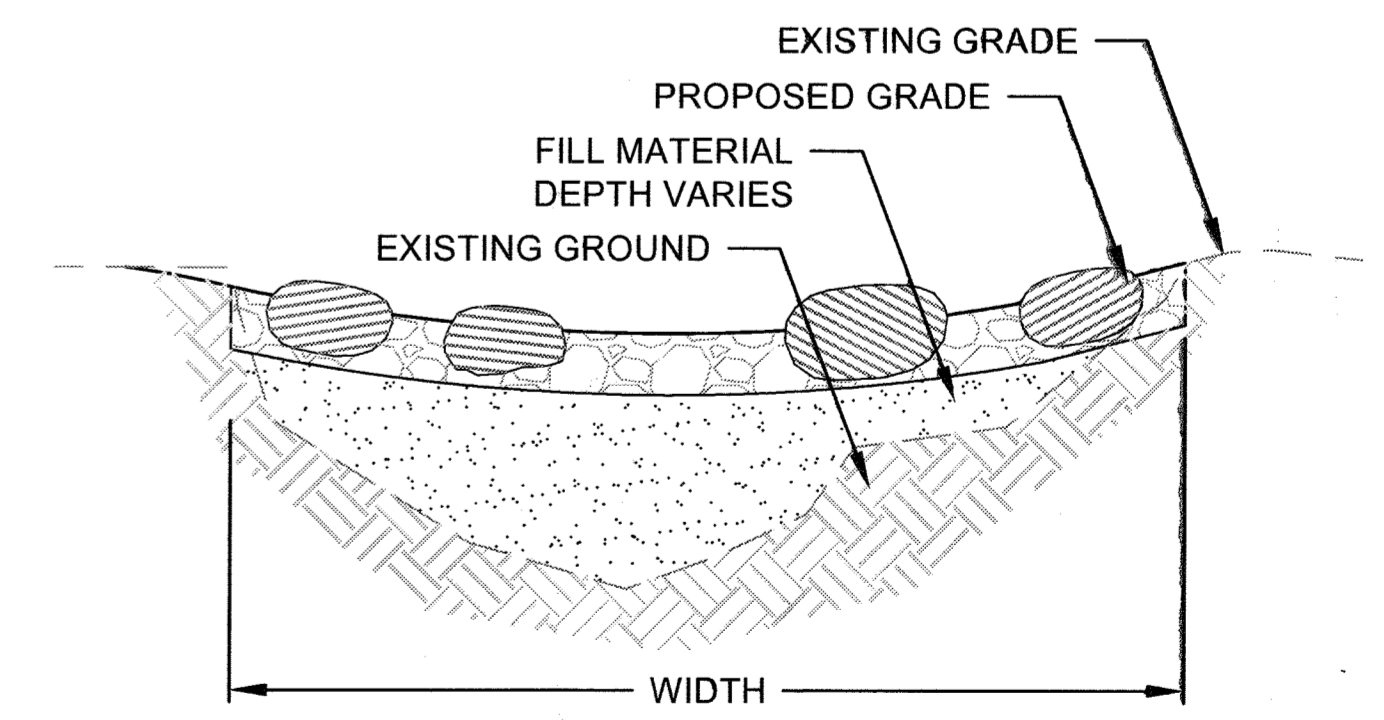
NOT TO SCALE



**BOULDER RIFFLE**  
**POOL CROSS SECTION**

NOT TO SCALE

- BOULDER RIFFLE NOTES:**  
IN AREAS OF CUT, STREAM CHANNEL FILL MATERIAL UNDER BOULDER RIFFLE IS NOT NEEDED. IN AREAS OF FILL, EXISTING STREAM CHANNEL TO BE FILLED IN 8" LIFTS TO ELEVATION SPECIFIED ON PROFILE.
- TIE-OUT BOULDER SHALL EXTEND PAST THE CORNER NODES DS-R & DS-L A MINIMUM OF ONE BOULDER LENGTH (B-AXIS) INTO EXISTING BANK. WHERE THIS CONFLICTS WITH EXISTING TREE ROOTS, BEDROCK OR UTILITIES, TIE-OUT BOULDER MAY BE ELIMINATED OR ADJUSTED AT DIRECTION OF ENGINEER. SEE GRADING PLAN FOR STRUCTURE TABLES WITH NODE LOCATIONS AND ELEVATIONS DEFINING FOOTPRINT OF BOULDER RIFFLE. GLIDE LIMITS ARE SHOWN ON PROFILE.
  - W.S.E. = WATER SURFACE ELEVATION



**BOULDER RIFFLE**  
**RIFFLE CREST CROSS SECTION**

NOTE: SEE CROSS SECTION TABLE SHEET 16  
NOT TO SCALE

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

Signature: Jennifer Ziellink Missett, PE  
DATE: 6/17/16

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

Signature: William T. Rowe  
DATE: 6-22-16

STATE OF MARYLAND  
PROFESSIONAL LAND SURVEYOR  
Scott Shanabarger  
Professional L.S. # 10840  
AS-BUILT DATE: 2/24/20  
Shanabarger & Lane

This development plan is approved for soil erosion and sediment control by the HOWARD COUNTY CONSERVATION DISTRICT

Signature: [Handwritten Signature]  
Howard County

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
Chief, Bureau of Highways  
Date: 8-3-16

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
Chief, Division of Land Development  
Date: 7-26-16

**Biohabitats**  
The Stables Building, 2081 Clipper Park Road  
Baltimore, MD 21211 / ph: 410.554.0156  
fx: 410.554.0168 / www.biohabitats.com  
Restore the Earth or Inspire Ecological Stewardship

DES.	DRN.	CHK.	DATE	REVISION	BY	APPR.

PREPARED FOR:  
THE HOWARD HUGHES CORPORATION  
10480 LITTLE PATUXENT PARKWAY  
SUITE 400  
COLUMBIA, MD 21044  
ATTN: BOB JENKINS  
410-964-5443

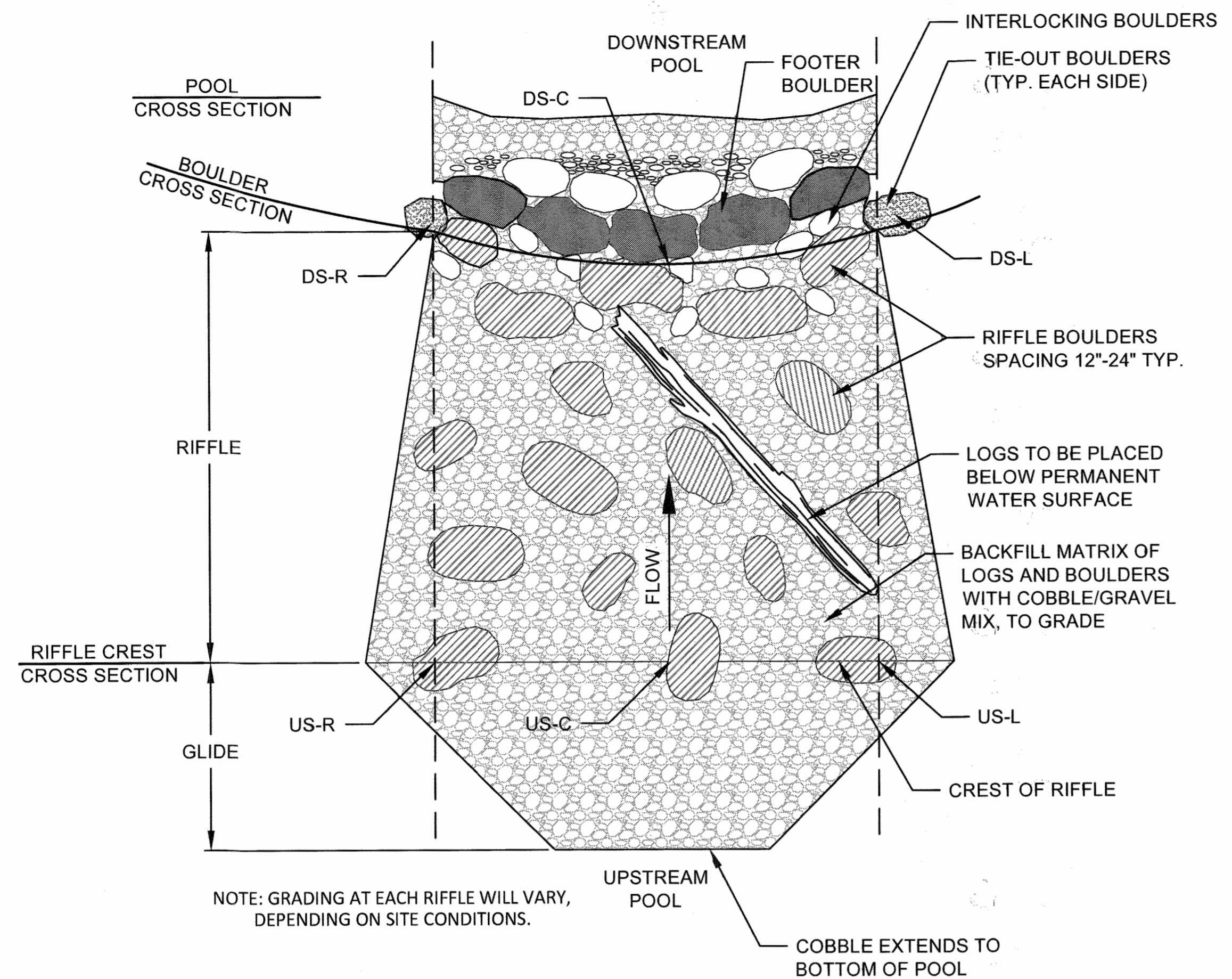
**PROFESSIONAL CERTIFICATION**  
I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 26980  
EXPIRATION DATE: FEBRUARY 2018

Signature: [Handwritten Signature]  
Professional Engineer

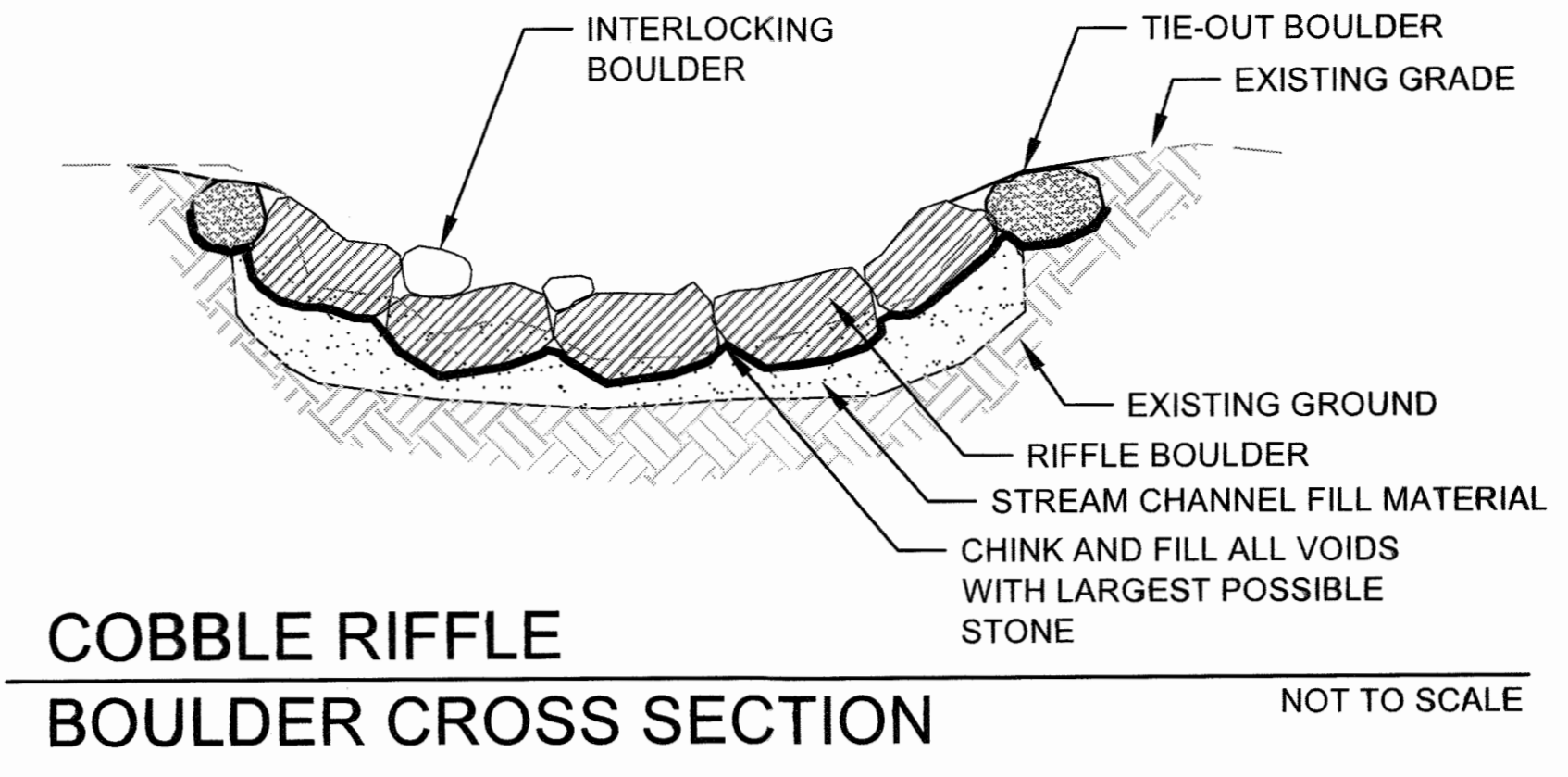
**DETAILS**  
DOWNTOWN COLUMBIA  
CRESCENT NEIGHBORHOOD  
PARCELS B THRU H, NON-BUILDABLE BULK PARCELS J THRU R,  
O.S. LOTS 1 THRU 8 AND  
MERRIWEATHER-SYMPHONY WOODS NEIGHBORHOOD O.S. LOT 1  
AND NON-BUILDABLE BULK PARCEL A  
HOWARD COUNTY, MARYLAND

SCALE	ZONING	SHEET
N.T.S.	NT	11071
DATE	TAXITILE	SHEET
JUNE, 2016	36 - 01	90 OF 102

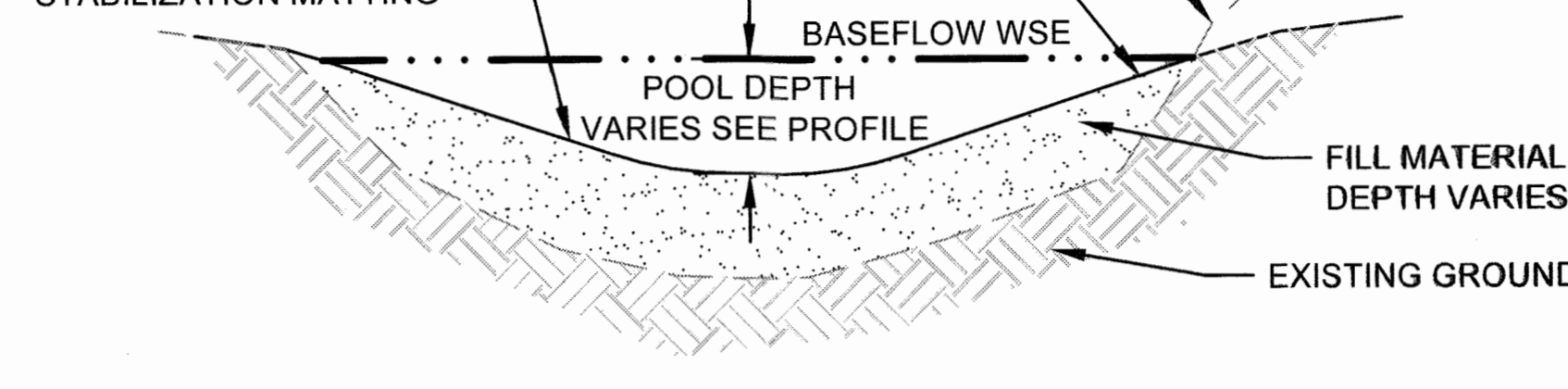




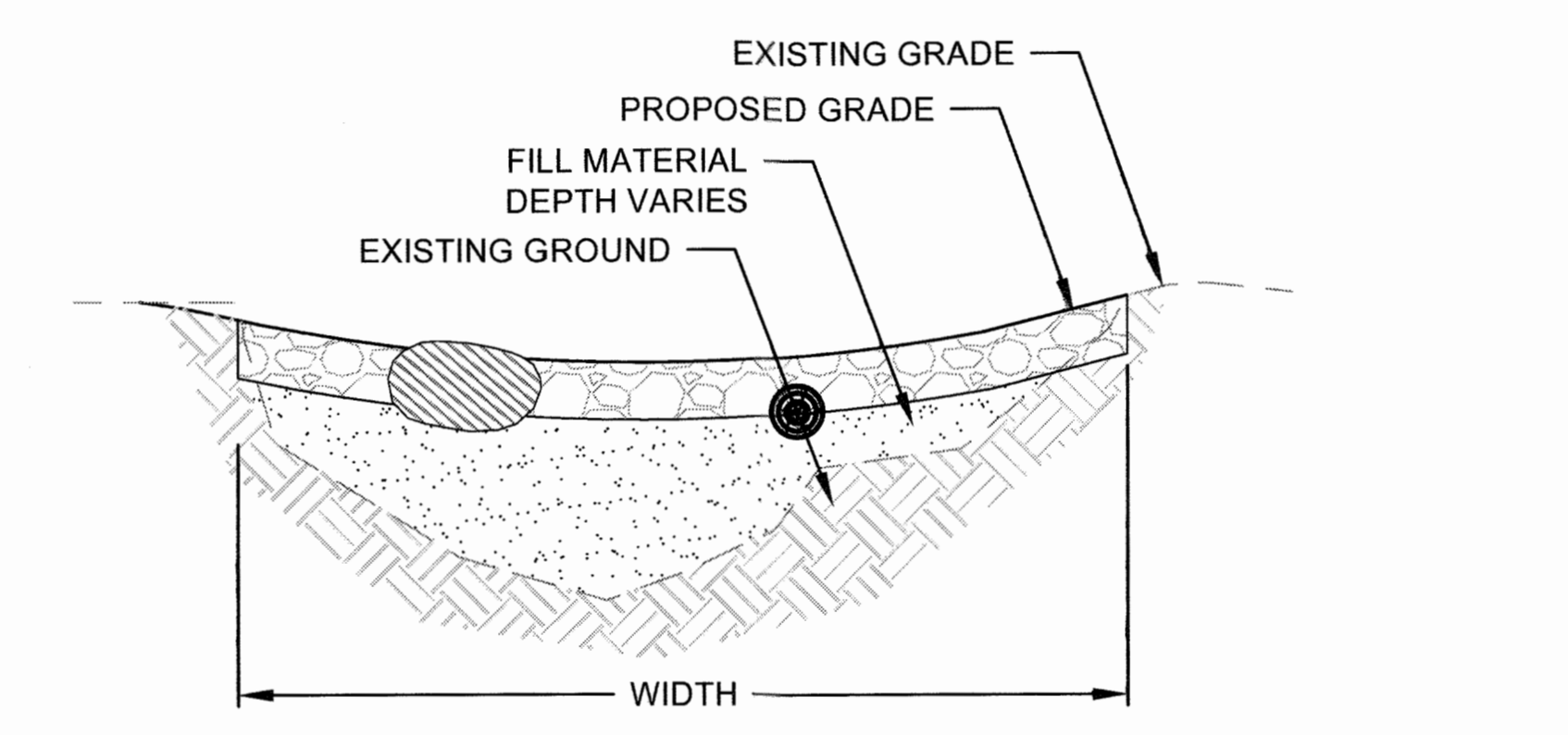
**COBBLE RIFFLE PLAN VIEW** NOT TO SCALE



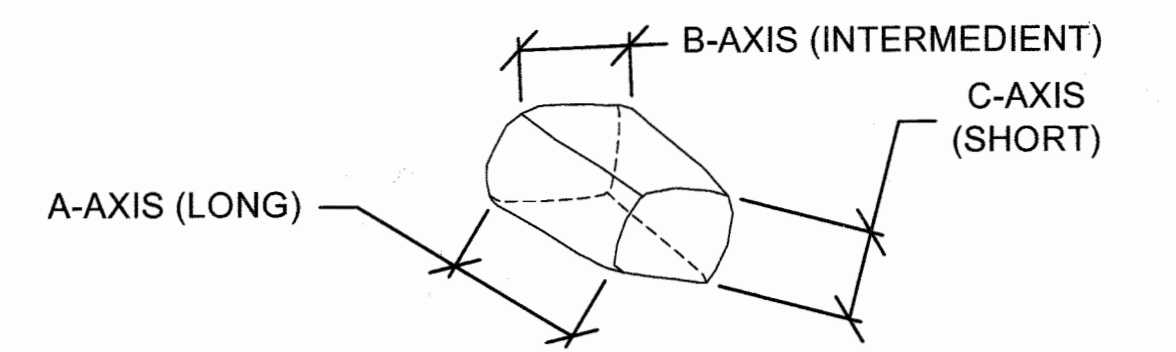
**COBBLE RIFFLE BOULDER CROSS SECTION** NOT TO SCALE



**COBBLE RIFFLE POOL CROSS SECTION** NOT TO SCALE



**COBBLE RIFFLE RIFFLE CREST CROSS SECTION** NOT TO SCALE



**COBBLE RIFFLE BOULDER AXIS** NOT TO SCALE

BOULDER DIMENSIONS (FT)			
COBBLE RIFFLE, ROCK TOE PROTECTION AND OUTFALL PROTECTION			
BOULDER TYPE	A-AXIS	B-AXIS	C-AXIS
RIFFLE	3.0-4.0	2.0-3.0	1.6-2.0
TOP	3.0-4.0	2.0-3.0	1.6-2.0
FOOTER	3.0-4.0	2.0-3.0	1.6-2.0
TIE-OUT	3.0-4.0	2.0-3.0	1.6-2.0
INTERLOCKING	2.0-3.0	1.5-2.0	1.2-1.5

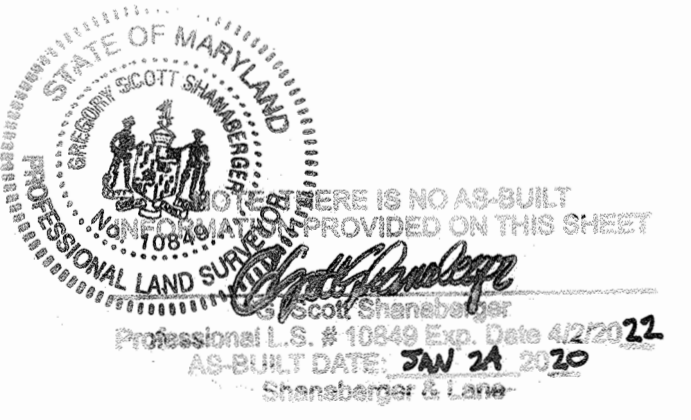
**COBBLE RIFFLE MATERIAL GRADATION TABLE**

CUMULATIVE % FINER	COBBLE SIZE (IN)
100	12
84	9
50	4
16	2
0	1

- COBBLE RIFFLE NOTES:**
1. IN AREAS OF CUT, STREAM CHANNEL FILL MATERIAL UNDER RIFFLE IS NOT NEEDED. IN AREAS OF FILL, EXISTING STREAM CHANNEL TO BE FILLED IN 8" LIFTS TO ELEVATION SPECIFIED ON PROFILE.
  2. TIE-OUT BOULDER SHALL EXTEND PAST THE CORNER NODES DS-R & DS-L A MINIMUM OF ONE BOULDER LENGTH (B-AXIS) INTO EXISTING BANK. WHERE THIS CONFLICTS WITH EXISTING TREE ROOTS, BEDROCK OR UTILITIES, TIE-OUT BOULDER MAY BE ELIMINATED OR ADJUSTED AT DIRECTION OF ENGINEER.
  3. SEE GRADING PLAN FOR STRUCTURE TABLES WITH NODE LOCATIONS AND ELEVATIONS DEFINING FOOTPRINT OF RIFFLE. GLIDE LIMITS ARE SHOWN ON PROFILE.
  4. LARGE WOODY DEBRIS SHALL BE INSTALLED IN POOLS AS SHOWN ON GRADING PLAN, OR AS DIRECTED BY THE ENGINEER.
  5. W.S.E. = WATER SURFACE ELEVATION

NOTE: GRADING AT EACH RIFFLE WILL VARY, DEPENDING ON SITE CONDITIONS.

COBBLE EXTENDS TO BOTTOM OF POOL



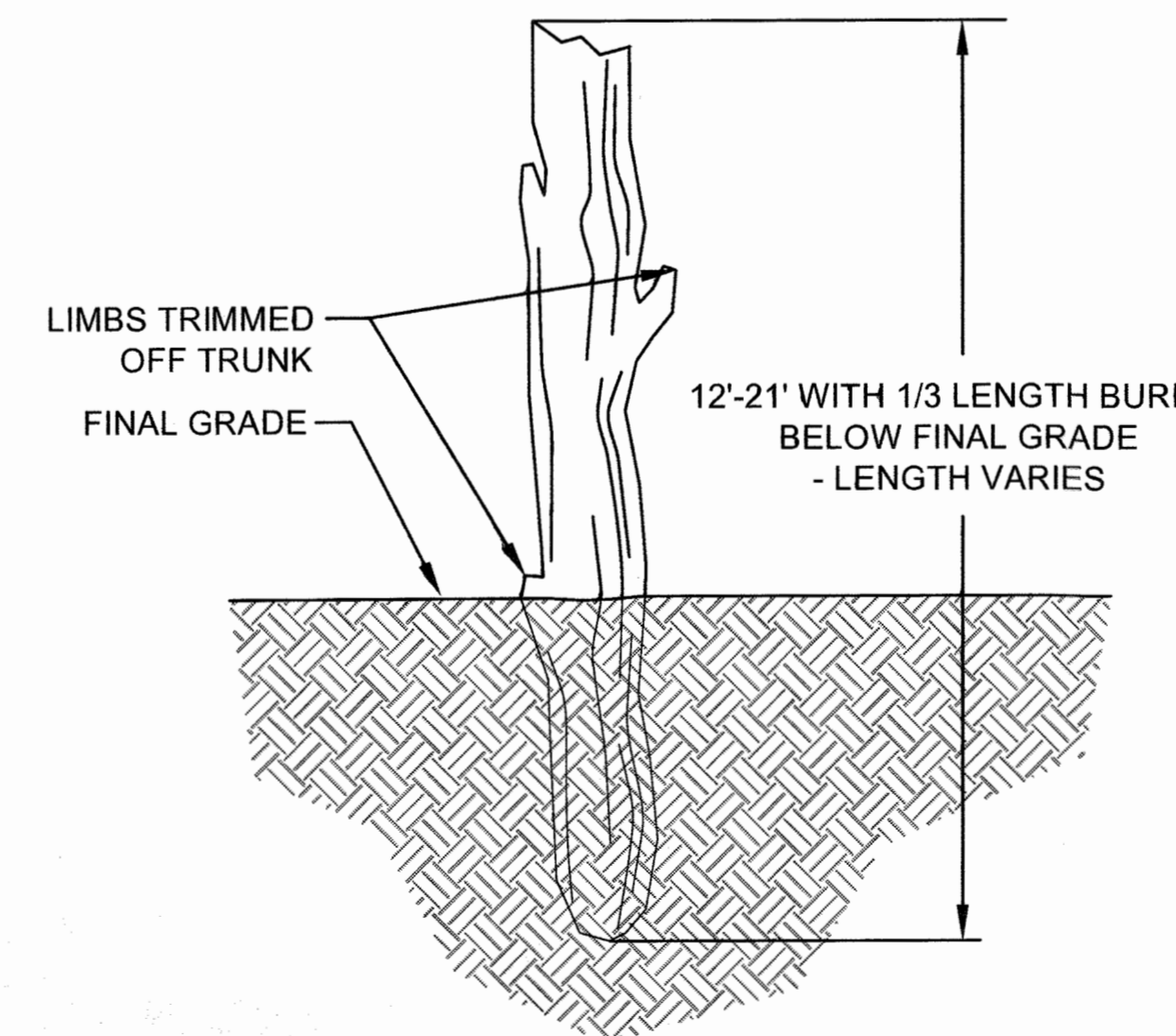
Howard County Department of Public Works  
 Chief, Bureau of Highways  
 Date: 6/17/16

Howard County Department of Planning & Zoning  
 Chief, Division of Land Development  
 Date: 8-3-16

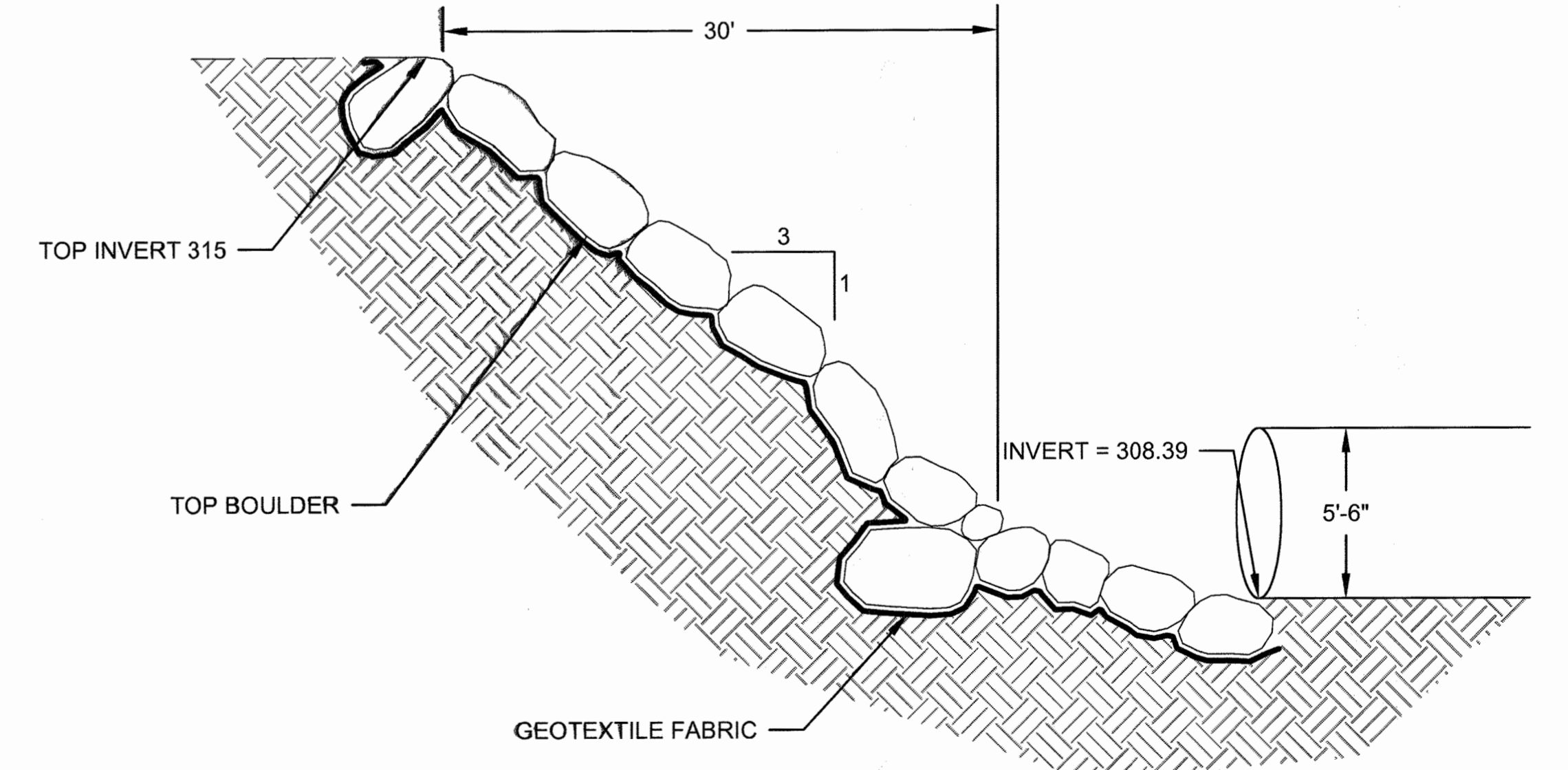
Howard County Department of Planning & Zoning  
 Chief, Development Engineering Division  
 Date: 7-22-16

**ENGINEERS CERTIFICATE**  
 I CERTIFY THAT THIS PLAN FOR SEDIMENT AND EROSION CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD COUNTY SOIL CONSERVATION DISTRICT.  
 Signature: Jennifer Bielinski, PE  
 Date: 6/17/16

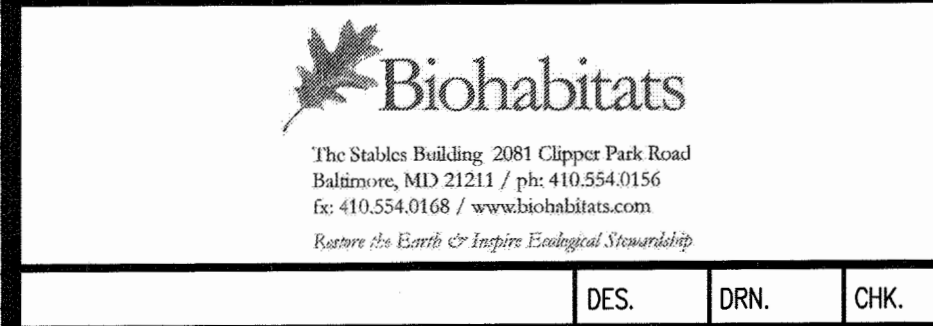
**DEVELOPERS CERTIFICATE**  
 I HEREBY CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN FOR SEDIMENT AND EROSION CONTROL, AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE THE BEGINNING OF THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD COUNTY SOIL CONSERVATION DISTRICT.  
 Signature: William P. Lowe  
 Date: 6-17-16



**STANDING SNAG SECTION VIEW-TYPICAL** NOT TO SCALE



**STREAM E INLET CONTROL** NOT TO SCALE



DES.	DRN.	CHK.	DATE	REVISION	BY	APP'R.

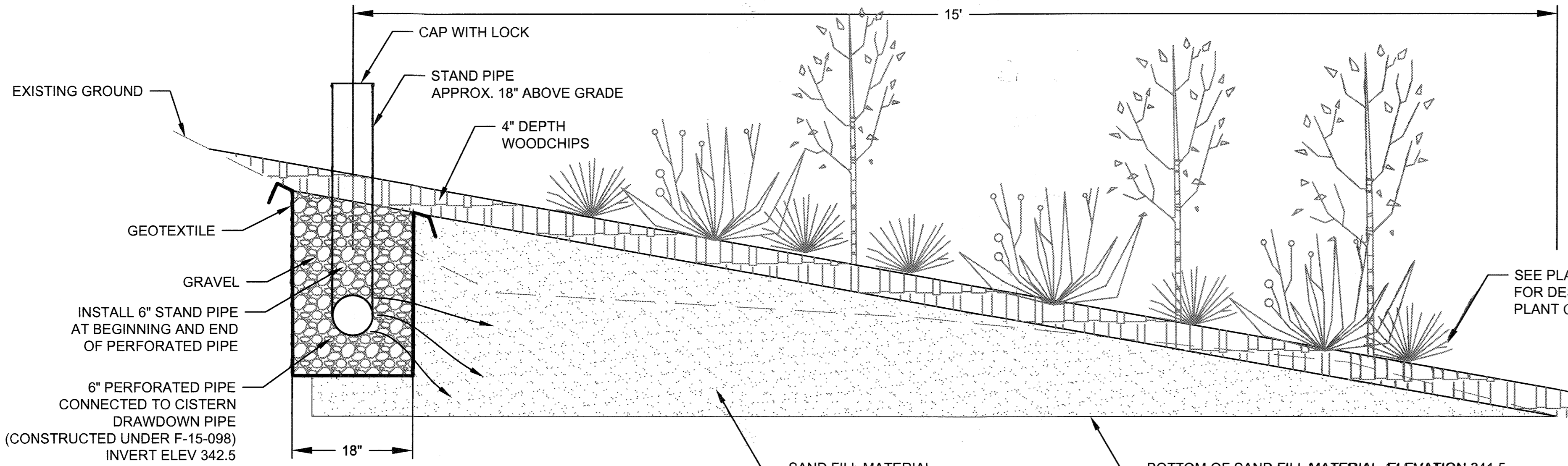
**PREPARED FOR:**  
 THE HOWARD HUGHES CORPORATION  
 10480 LITTLE PATUXENT PARKWAY  
 SUITE 400  
 COLUMBIA, MD 21044  
 ATTN: BOB JENKINS  
 410-964-5443



**DETAILS**  
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 HOWARD COUNTY, MARYLAND

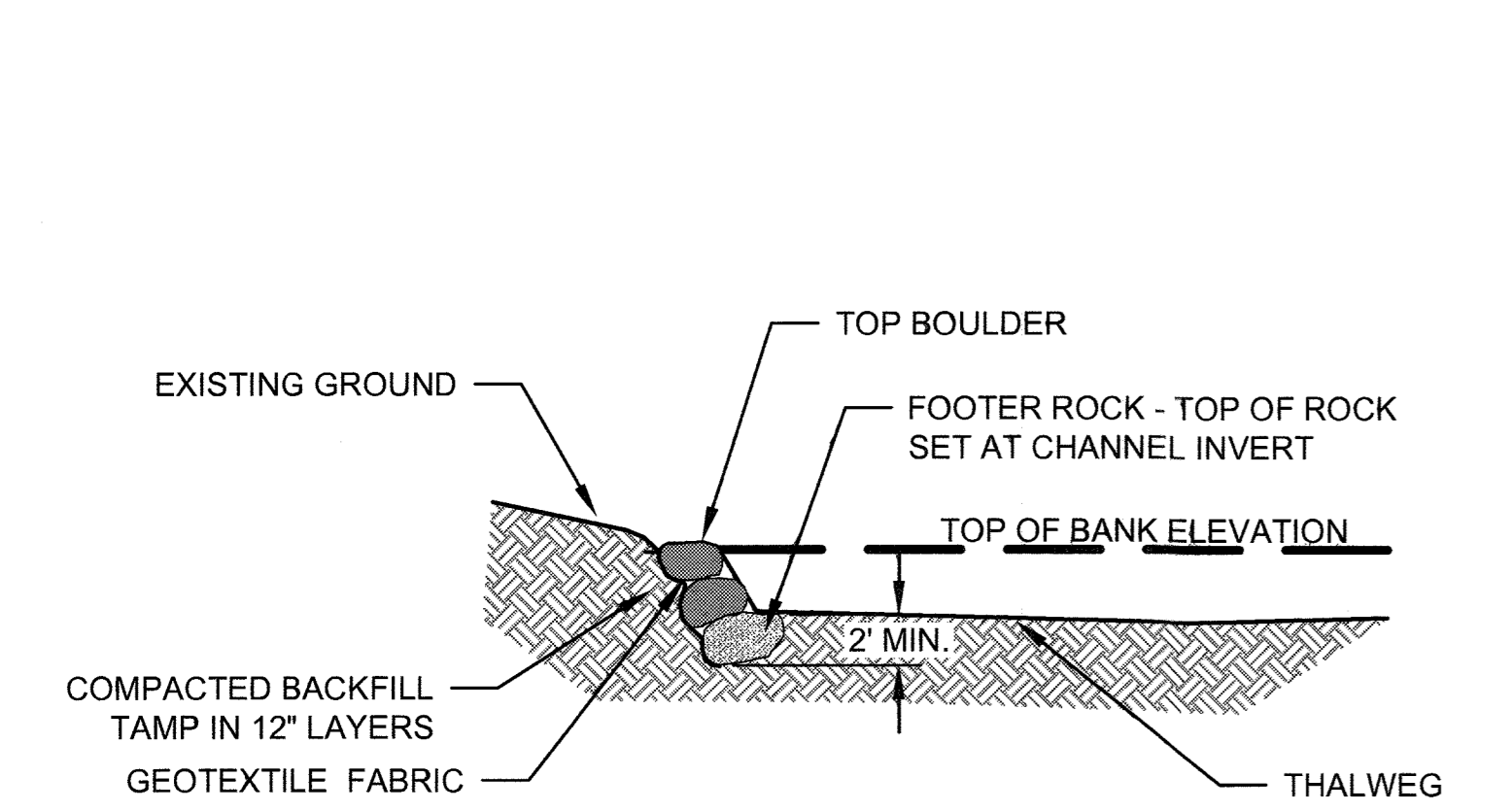
SCALE	ZONING	
N.T.S.	NT	11071
DATE	TAXITILE	SHEET
JUNE, 2016	36 - 01	91 OF 102



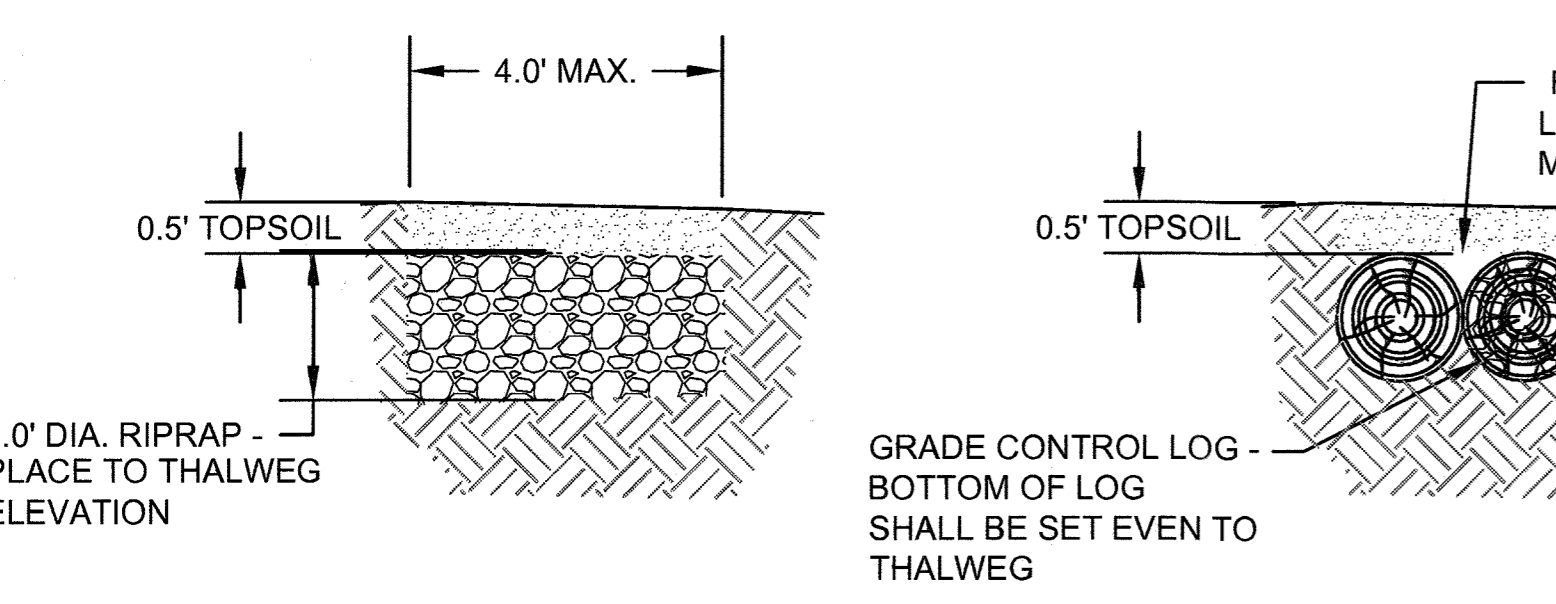


- MATERIALS:**
- SAND - SAND SHALL MEET THE REQUIREMENTS OF CLEAN AASHTO M-6 OR ASTM C-33 CONCRETE SAND, 0.02 INCHES TO 0.04 INCHES IN SIZE. SAND SUBSTITUTIONS SUCH AS DIABASE AND GRAYSTONE (AASHTO) #10 ARE NOT ACCEPTABLE. NO CALCIUM CARBONATED OR DOLOMITIC SAND SUBSTITUTIONS ARE ACCEPTABLE. NO "ROCK DUST" CAN BE USED FOR SAND.
  - GRAVEL - GRAVEL SHALL MEET THE REQUIREMENTS OF AASHTO M43 SIZE, #57, 0.25 INCHES TO 0.75 INCHES IN SIZE.
  - WOOD CHIPS AND MULCH - SHREDDED HARDWOOD MULCH (SHM) SHALL CONSIST OF NATURAL WOOD AND BARK FROM HARDWOOD TREES THAT HAVE BEEN MILLED TO A MAXIMUM 4 IN. PARTICLE SIZE. SHM SHALL CONTAIN NO MORE THAN 20% HARDWOOD SAWDUST AND NEGLIGIBLE AMOUNTS OF OTHER WOODY MATERIALS.

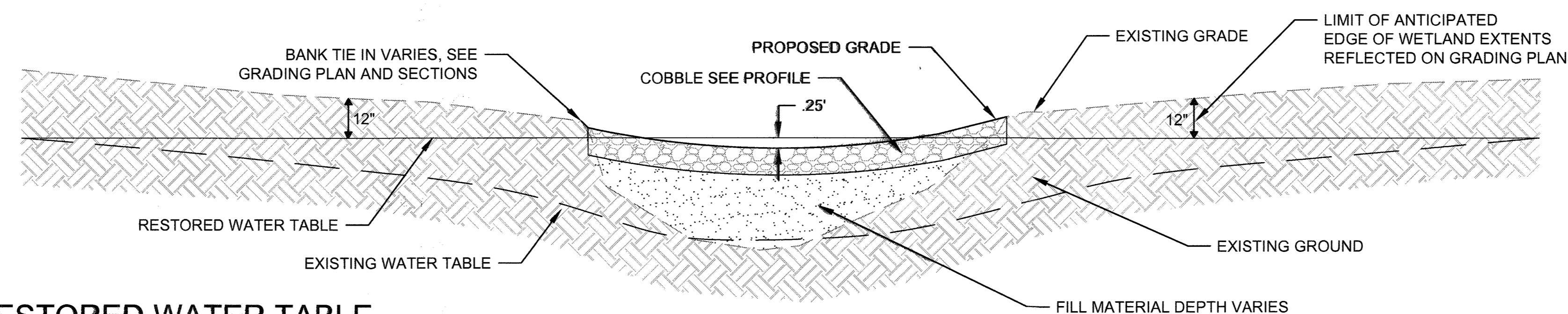
**SEEPAGE WETLAND AT REACH A  
CROSS SECTION**



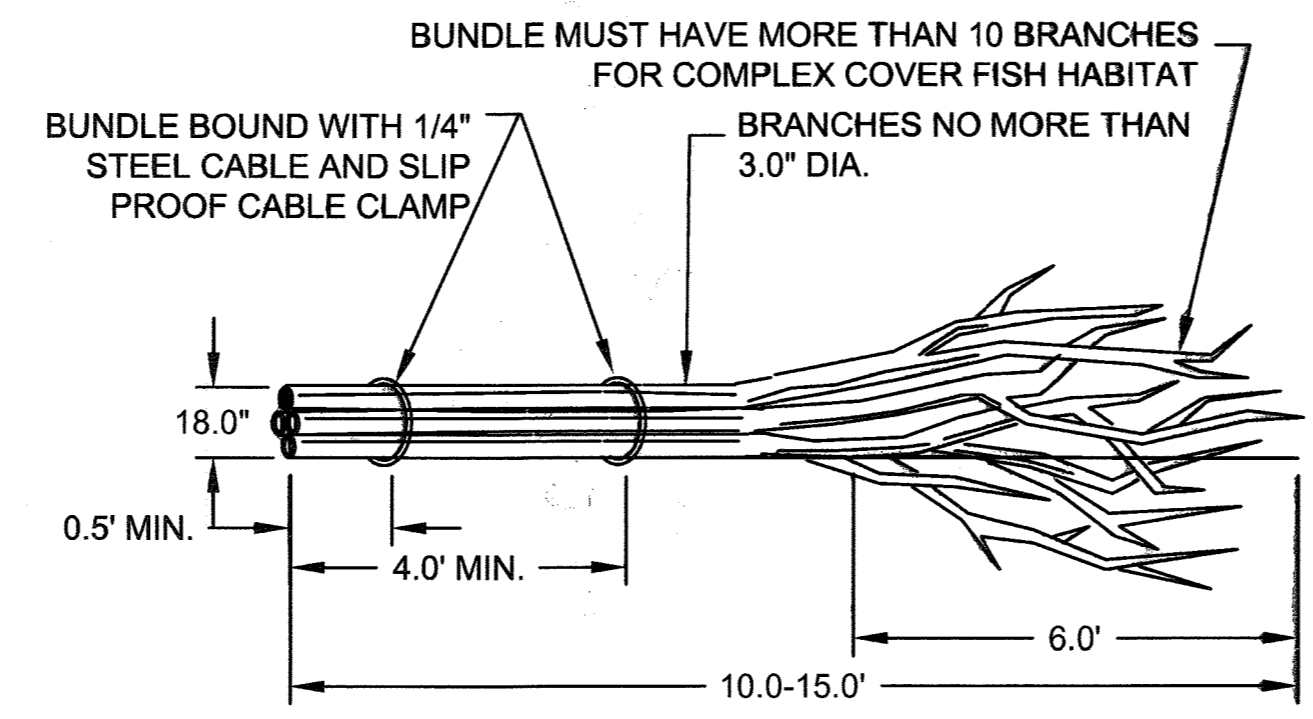
**BOULDER TOE PROTECTION  
CROSS SECTION**



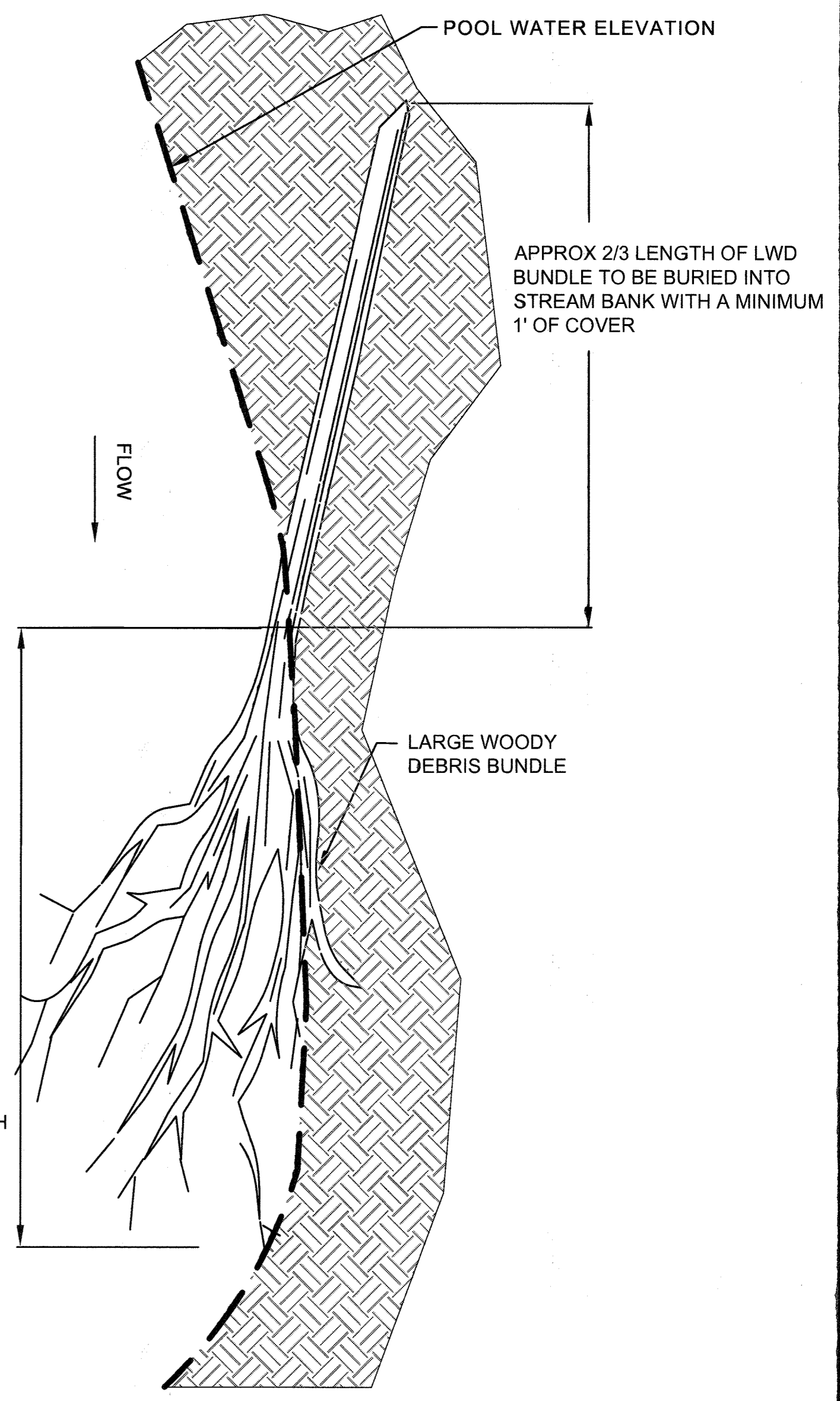
**BURIED SILL  
SECTION**



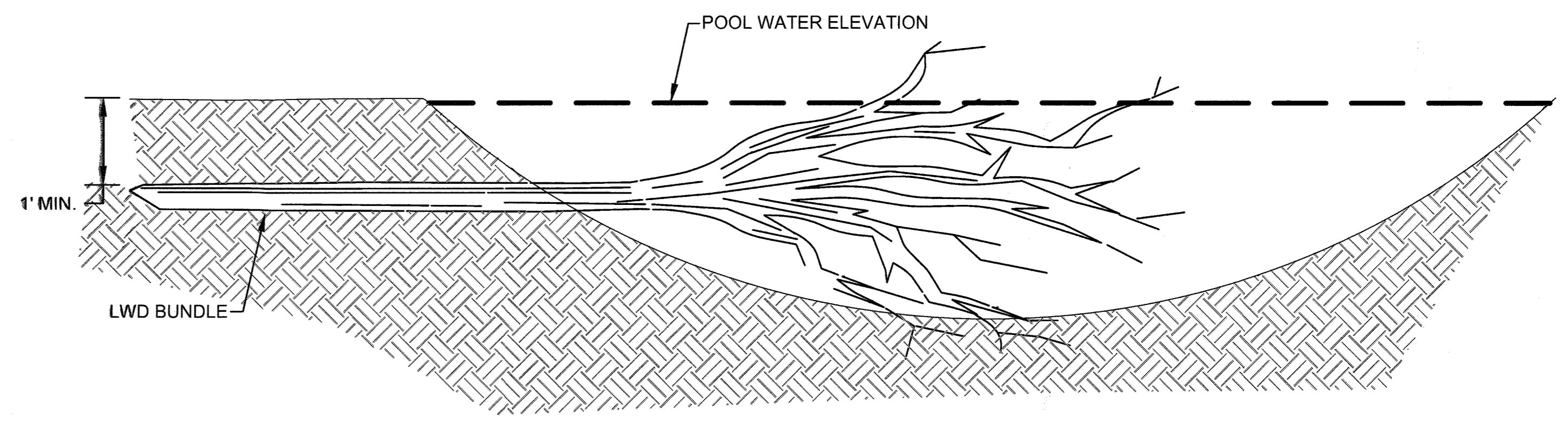
**RESTORED WATER TABLE  
WETLAND CREATION & ENHANCEMENT**



**INSTREAM LARGE WOODY DEBRIS (LWD)  
LARGE WOODY DEBRIS BUNDLE**



**INSTREAM LARGE WOODY DEBRIS (LWD)  
PLAN VIEW-TYPICAL**



**INSTREAM LARGE WOODY DEBRIS (LWD)  
CROSS SECTION**

This development plan is approved for soil erosion and sediment control by the HOWARD COUNTY SOIL CONSERVATION DISTRICT.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
Chief, Bureau of Highways

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
Chief, Division of Land Development  
Chief, Development Engineering Division

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

Signature: Jennifer Zeleni Missett  
Date: 6/17/16

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

Signature: William F. Rose  
Date: 6/17/16

PROFESSIONAL CERTIFICATION  
I HEREBY CERTIFY THAT THESE PLANS 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. 26990.  
EXPIRATION DATE: FEBRUARY 2018.

**Biohabitats**  
The Stables Building, 2081 Clipper Park Road  
Baltimore, MD 21211 / ph: 410-554-0156  
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Restoring the Earth to Inspire Ecological Stewardship

DES.	DRN.	CHK.	DATE	REVISION	BY	APPR.

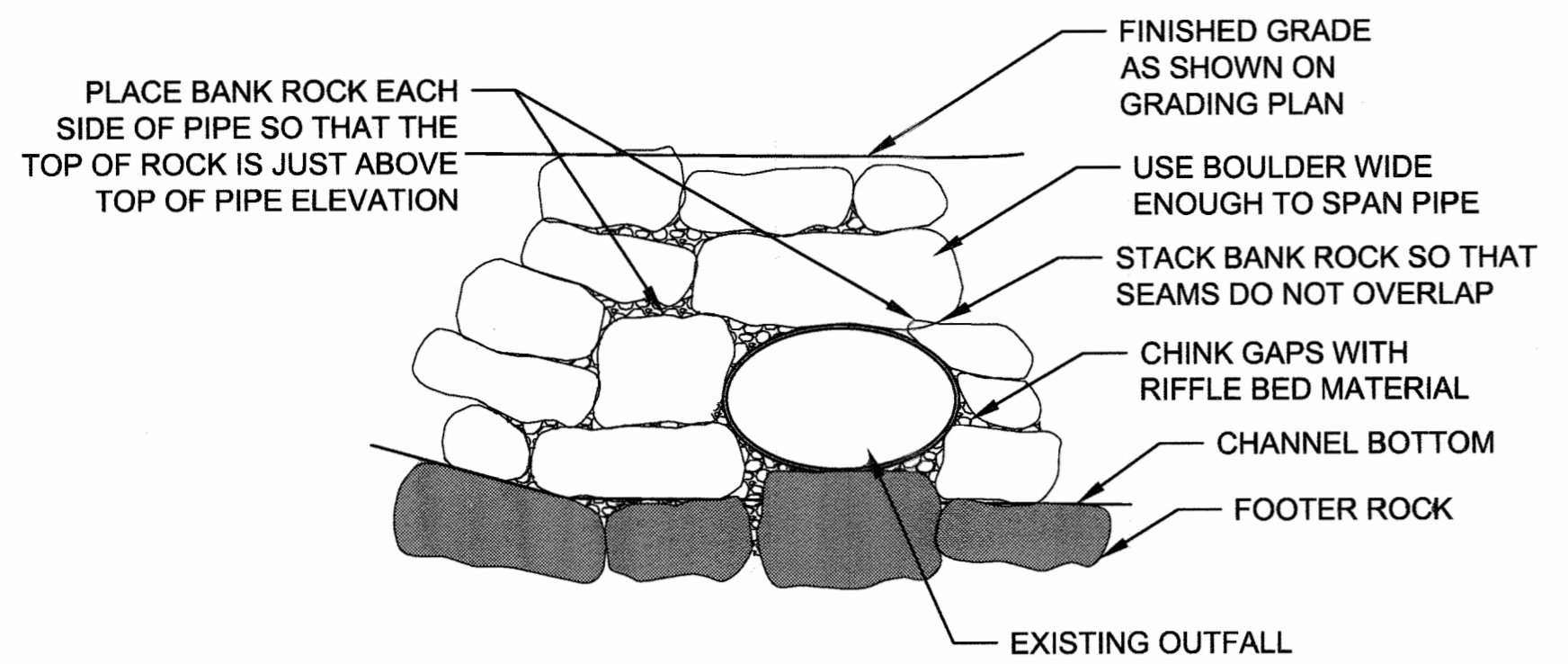
PREPARED FOR:  
THE HOWARD HUGHES CORPORATION  
10480 LITTLE PATUXENT PARKWAY  
SUITE 400  
COLUMBIA, MD 21044  
ATTN: BOB JENKINS  
410-964-5443

PROFESSIONAL CERTIFICATION  
I HEREBY CERTIFY THAT THESE PLANS 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. 26990.  
EXPIRATION DATE: FEBRUARY 2018.

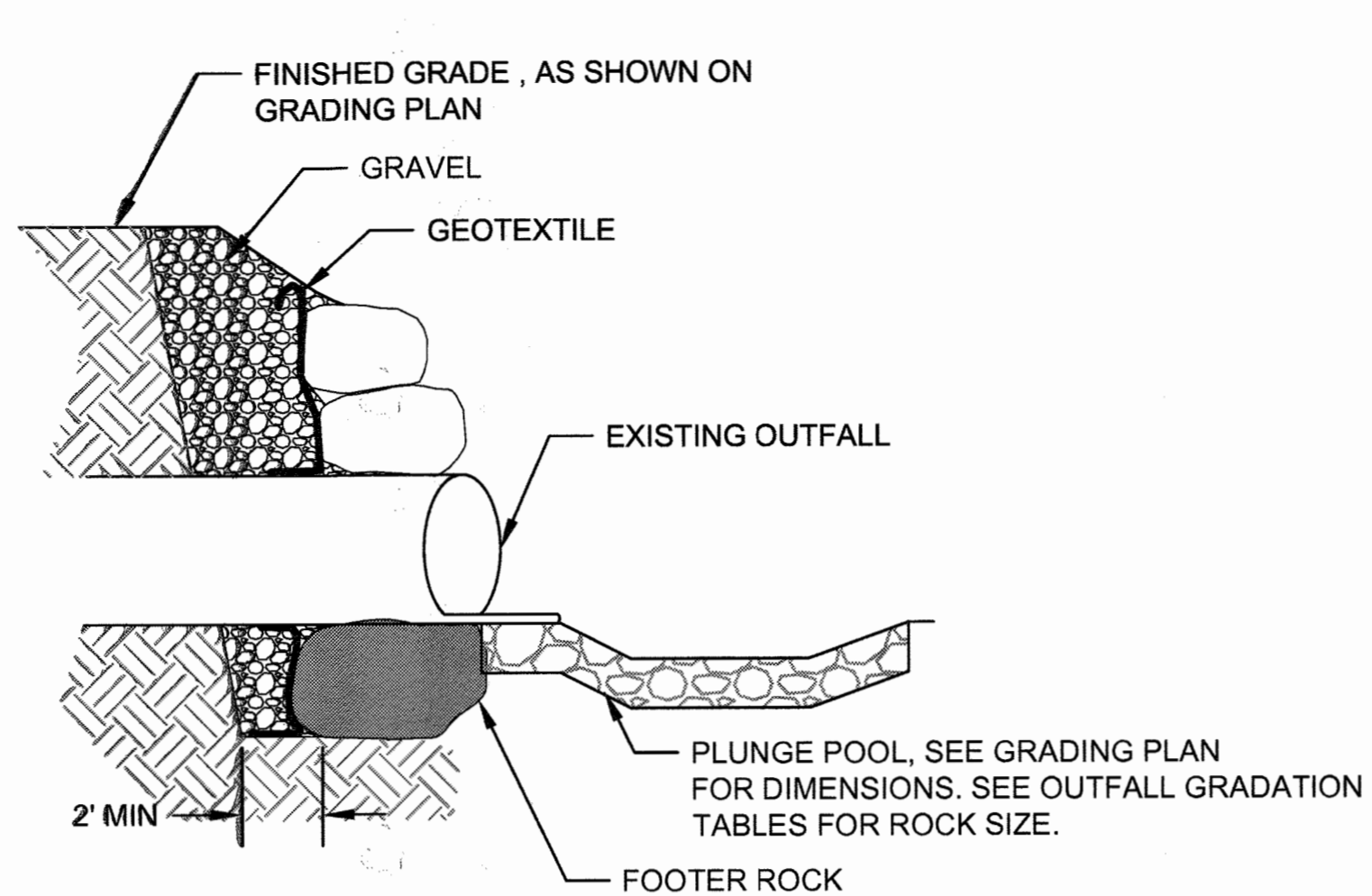
**DETAILS**  
DOWNTOWN COLUMBIA  
CRESCENT NEIGHBORHOOD  
PARCELS B THRU H, NON-BUILDABLE BULK PARCELS J THRU R,  
O.S. LOTS 1 THRU 8 AND  
MERRIWEATHER-SYMPHONY WOODS NEIGHBORHOOD O.S. LOT 1  
AND NON-BUILDABLE BULK PARCEL A  
HOWARD COUNTY, MARYLAND

SCALE	ZONING	SHEET
N.T.S.	NT	11071
DATE	TAXITITLE	SHEET
JUNE, 2016	36 - 01	92 OF 102





**BOULDER BANK STABILIZATION OUTFALL PROTECTION CROSS SECTION** NOT TO SCALE



**BOULDER BANK STABILIZATION OUTFALL PROTECTION PROFILE** NOT TO SCALE

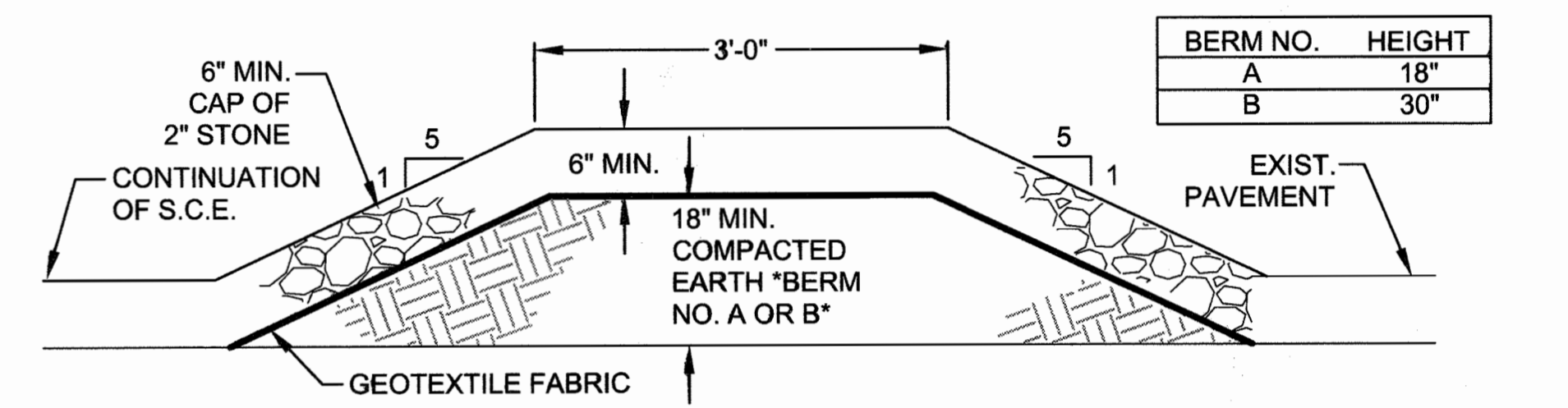
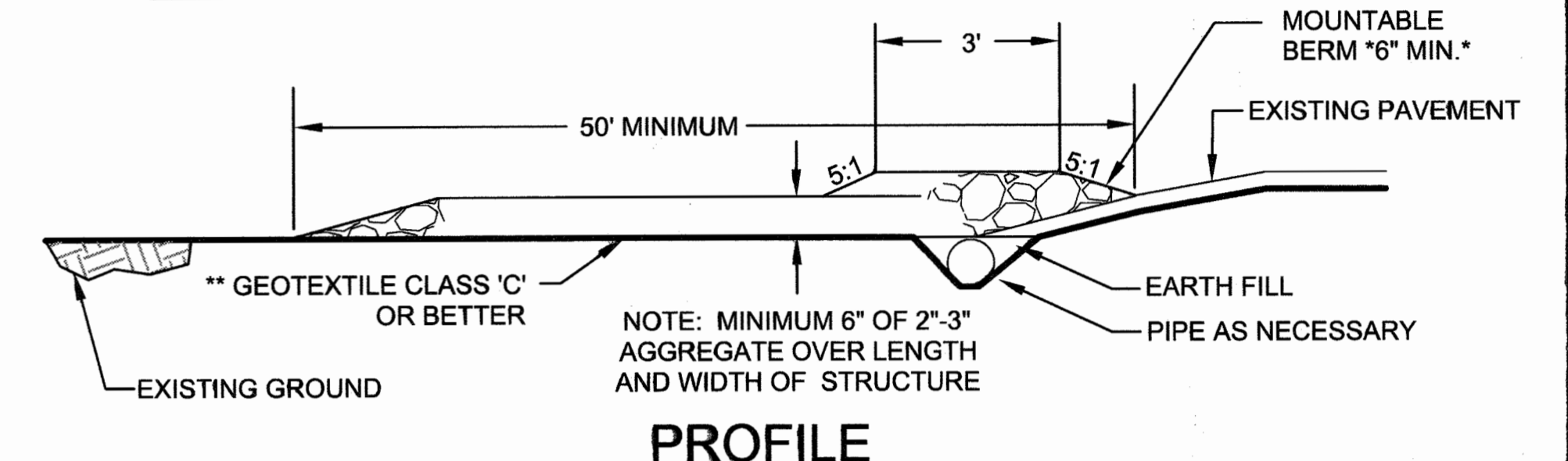
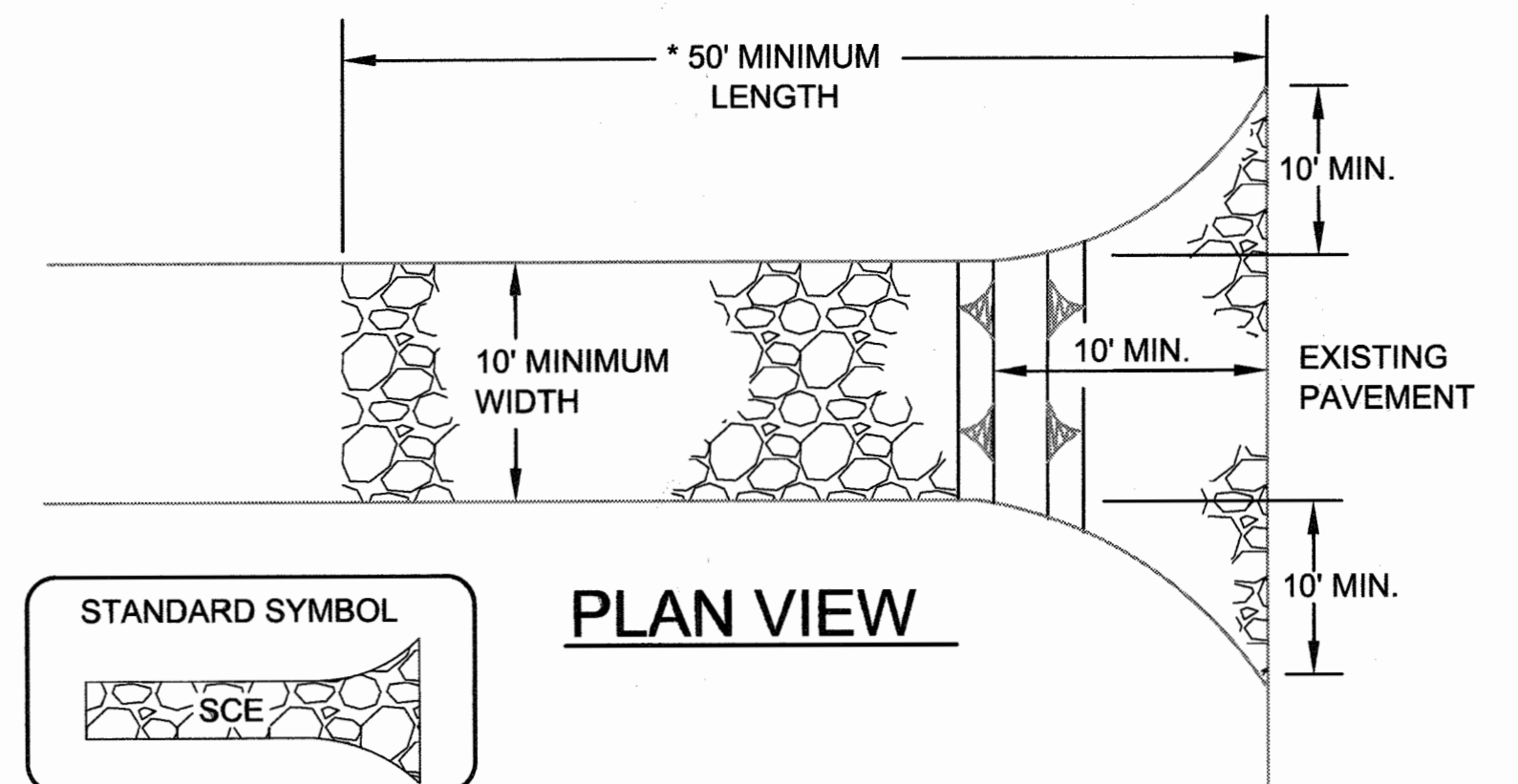
OUTFALL 47 COBBLE GRADATION TABLE

CUMULATIVE % FINER	COBBLE SIZE (IN)
100	36
84	20
50	8
16	2
0	1

OUTFALL 68 COBBLE GRADATION TABLE

CUMULATIVE % FINER	COBBLE SIZE (IN)
100	30
84	15
50	6
16	2
0	1

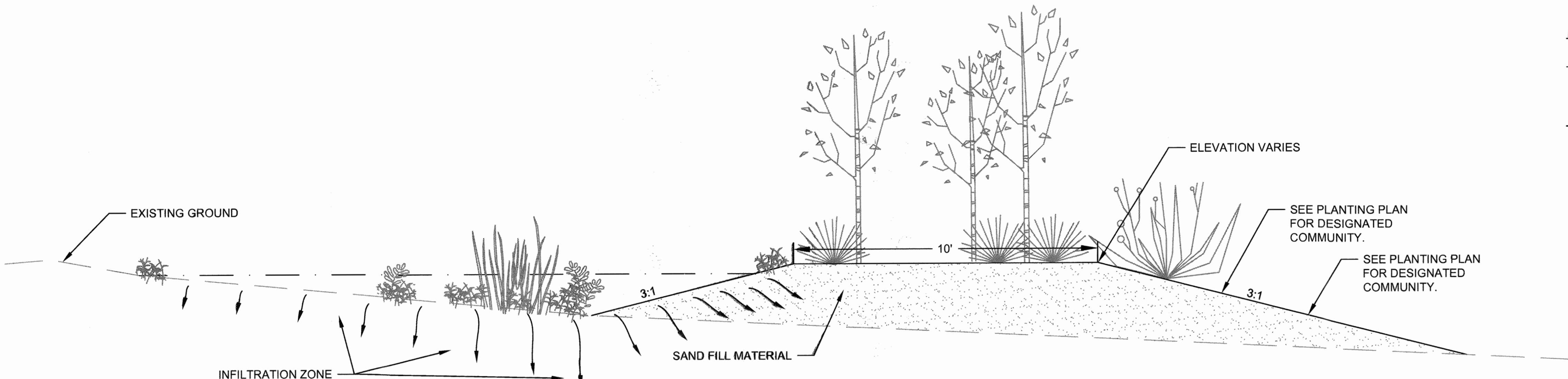
FOR OUTFALLS 73 AND 80, USE COBBLE RIFFLE GRADATION TABLE



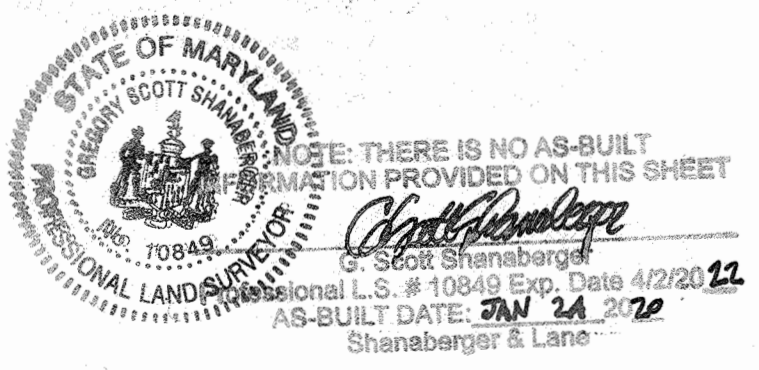
**HEAVY DUTY STABILIZED CONSTRUCTION ENTRANCE** NOT TO SCALE

CONSTRUCTION SPECIFICATION - HEAVY DUTY STABILIZED CONSTRUCTION ENTRANCE

- LENGTH - MINIMUM OF 50' \*30' FOR SINGLE RESIDENCE LOT.
- WIDTH - 10' MINIMUM, SHOULD BE FLARED AT THE EXISTING ROAD TO PROVIDE A TURNING RADIUS.
- GEOTEXTILE FABRIC "FILTER CLOTH" SHALL BE PLACED OVER THE EXISTING GROUND PRIOR TO PLACING STONE. \*\*THE PLAN APPROVAL AUTHORITY MAY NOT REQUIRE SINGLE FAMILY RESIDENCES TO USE GEOTEXTILE.
- STONE - CRUSHED AGGREGATE "2" TO 3" OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT SHALL BE PLACED AT LEAST 6" DEEP OVER THE LENGTH AND WIDTH OF THE ENTRANCE.
- SURFACE WATER - ALL SURFACE WATER FLOWING TO OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED THROUGH THE ENTRANCE, MAINTAINING POSITIVE DRAINAGE. PIPE INSTALLED THROUGH THE STABILIZED CONSTRUCTION ENTRANCE SHALL BE PROTECTED WITH A MOUNTABLE BERM WITH 5:1 SLOPES AND A MINIMUM OF 6" OF STONE OVER THE PIPE. PIPE HAS TO BE SIZED ACCORDING TO THE DRAINAGE. WHEN THE SCE IS LOCATED AT A HIGH SPOT AND HAS NO DRAINAGE TO CONVEY A PIPE WILL NOT BE NECESSARY. PIPE SHOULD BE SIZED ACCORDING TO THE AMOUNT OF RUNOFF TO BE CONVEYED. A 6" MINIMUM WILL BE REQUIRED.
- LOCATION - A STABILIZED CONSTRUCTION ENTRANCE SHALL BE LOCATED AT EVERY POINT WHERE CONSTRUCTION TRAFFIC ENTERS OR LEAVES A CONSTRUCTION SITE. VEHICLES LEAVING THE SITE MUST TRAVEL OVER THE ENTIRE LENGTH OF THE STABILIZED CONSTRUCTION ENTRANCE.



**SEEPAGE WETLAND BERM AT REACH B CROSS SECTION** NOT TO SCALE



ENGINEERS CERTIFICATE

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

Signature: Jennifer Zielinski Missett, PE  
DATE: 6/17/16

DEVELOPERS CERTIFICATE

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

Signature: William T. Rowe  
DATE: 6-17-16

This development plan is approved for soil erosion and sediment control by the HOWARD COUNTY SOIL CONSERVATION DISTRICT

Signature: [Handwritten]  
Howard SCD

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
Chief, Bureau of Highways  
Date: 6-3-16

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
Chief, Division of Land Development  
Date: 7-26-16

- MATERIALS:
- SAND - SAND SHALL MEET THE REQUIREMENTS OF CLEAN AASHTO M-6 OR ASTM C-33 CONCRETE SAND, 0.02 INCHES TO 0.04 INCHES IN SIZE. SAND SUBSTITUTIONS SUCH AS DIABASE AND GRAYSTONE (AASHTO) #10 ARE NOT ACCEPTABLE. NO CALCIUM CARBONATED OR DOLOMITIC SAND SUBSTITUTIONS ARE ACCEPTABLE. NO "ROCK DUST" CAN BE USED FOR SAND.
  - GRAVEL - GRAVEL SHALL MEET THE REQUIREMENTS OF AASHTO M43 SIZE, #57, 0.25 INCHES TO 0.75 INCHES IN SIZE.
  - WOOD CHIPS AND MULCH - SHREDDED HARDWOOD MULCH (SHM) SHALL CONSIST OF NATURAL WOOD AND BARK FROM HARDWOOD TREES THAT HAVE BEEN MILLED TO A MAXIMUM 4 IN. PARTICLE SIZE. SHM SHALL CONTAIN NO MORE THAN 20% HARDWOOD SAWDUST AND NEGLIGIBLE AMOUNTS OF OTHER WOODY MATERIALS.

**Biohabitats**  
The Stable Building 2081 Clippo Park Road  
Baltimore, MD 21211 / ph: 410.554.0156  
fx: 410.554.0168 / www.biohabitats.com  
Restore the Earth & Angles Ecological Stewardship

DES.	DRN.	CHK.	DATE	REVISION	BY	APP'R.

PREPARED FOR:  
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ATTN: BOB JENKINS  
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PROFESSIONAL CERTIFICATION  
I HEREBY CERTIFY THAT THESE PLANS 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. 26990  
EXPIRATION DATE: FEBRUARY 2018

Signature: [Handwritten]  
Professional Engineer

DETAILS  
DOWNTOWN COLUMBIA  
CRESCENT NEIGHBORHOOD  
PARCELS B THRU H, NON-BUILDABLE BULK PARCELS J THRU R,  
O.S. LOTS 1 THRU 8 AND  
MERRIWEATHER-SYMPHONY WOODS NEIGHBORHOOD O.S. LOT 1  
ELECTION DISTRICT No. 5 AND NON-BUILDABLE BULK PARCEL A  
HOWARD COUNTY, MARYLAND

SCALE	ZONING	SHEET
N.T.S.	NT	11071
DATE	TAXITILE	SHEET
JUNE, 2016	36 - 01	93 OF 102



# HOWARD SOIL CONSERVATION DISTRICT STANDARD SEDIMENT CONTROL NOTES

1. A MINIMUM OF 48 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY DEPARTMENT OF INSPECTIONS, LICENSES AND PERMITS, SEDIMENT CONTROL DIVISION PRIOR TO THE START OF ANY CONSTRUCTION (313-1855).
2. ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE MOST CURRENT MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL AND REVISIONS THERETO.
3. FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN: A) 3 CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DIKES, PERIMETER SLOPES AND ALL SLOPES GREATER THAN 3:1, B) 7 DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.
4. ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR PERMANENT SEEDING (SEC. B-4-5), TEMPORARY SEEDING (SEC. B-4-4) AND MULCHING (SEC. B-4-3). TEMPORARY STABILIZATION WITH MULCH ALONE CAN ONLY BE DONE WHEN RECOMMENDED SEEDING DATES DO NOT ALLOW FOR PROPER GERMINATION AND ESTABLISHMENT OF GRASSES.
5. ALL SEDIMENT CONTROL STRUCTURES ARE TO REMAIN IN PLACE AND ARE TO BE MAINTAINED IN OPERATIVE CONDITION UNTIL PERMISSION FOR THEIR REMOVAL HAS BEEN OBTAINED FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
6. SITE ANALYSIS:
 

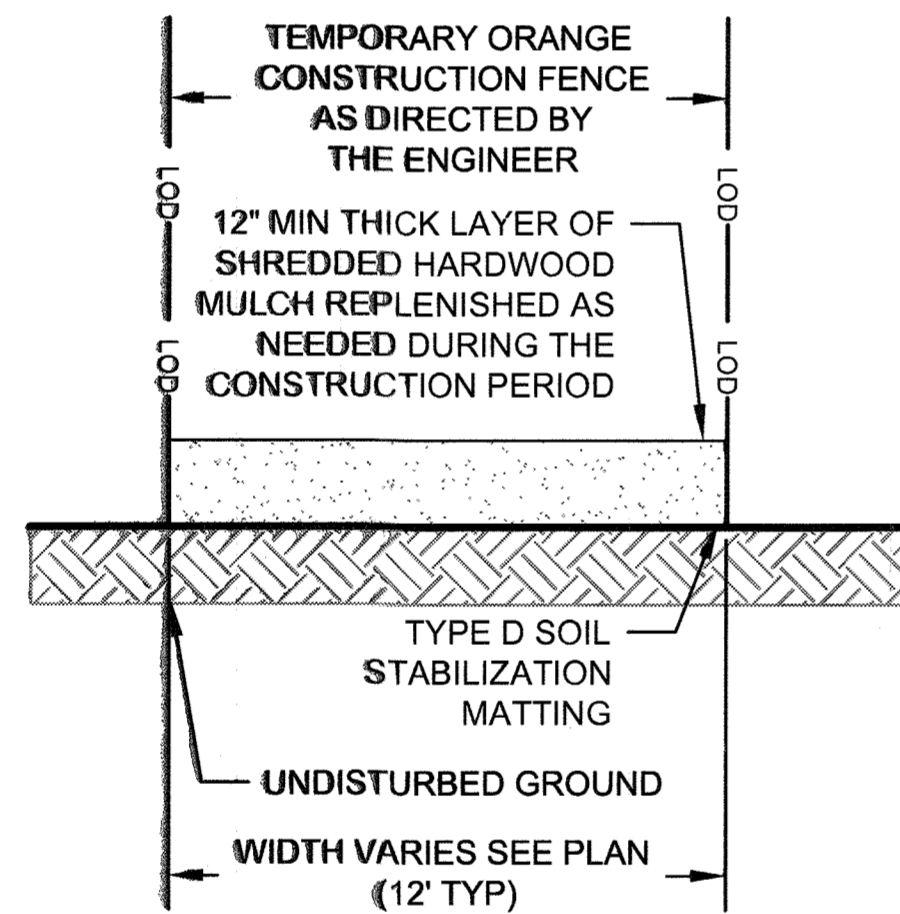
TOTAL AREA OF SITE	6.44 ACRES
AREA DISTURBED	6.44 ACRES
AREA TO BE ROOFED OR PAVED	0.00 ACRES
AREA TO BE STABILIZED WITH VEGETATION	4.75 ACRES
TOTAL CUT	34262 CU. YDS.
TOTAL FILL	5974 CU. YDS.
OFFSITE WASTE/BORROW AREA LOCATION	MOST OF THE MATERIAL COMING FROM OFF SITE WILL BE COBBLE FROM AN APPROVED QUARRY OR SAND FROM AN APPROVED SOURCE
7. ANY SEDIMENT CONTROL PRACTICE THAT IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.
8. ADDITIONAL SEDIMENT CONTROL MUST BE PROVIDED, IF DEEMED NECESSARY BY THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
9. ON ALL SITES WITH DISTURBED AREAS IN EXCESS OF 2 ACRES, APPROVAL OF THE INSPECTION AGENCY SHALL BE REQUESTED UPON COMPLETION OF INSTALLATION OF PERIMETER EROSION AND SEDIMENT CONTROLS, BUT BEFORE PROCEEDING WITH ANY OTHER EARTH DISTURBANCE OR GRADING. OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THIS INITIAL APPROVAL BY THE INSPECTION AGENCY IS MADE.
10. TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THREE PIPE LENGTHS OR THAT WHICH SHALL BE BACK-FILLED AND STABILIZED BY THE END OF EACH WORKDAY, WHICHEVER IS SHORTER.
11. ANY CHANGES OR REVISIONS TO THE SEQUENCE OF CONSTRUCTION MUST BE REVIEWED AND APPROVED BY THE PLAN APPROVAL AUTHORITY PRIOR TO PROCEEDING WITH CONSTRUCTION.
12. A PROJECT IS TO BE SEQUENCED SO THAT GRADING ACTIVITIES BEGIN ON ONE GRADING UNIT (MAXIMUM ACREAGE OF 20 AC. PER GRADING UNIT) AT A TIME. WORK MAY PROCEED TO A SUBSEQUENT GRADING UNIT WHEN AT LEAST 50 PERCENT OF THE DISTURBED AREA IN THE PRECEDING GRADING UNIT HAS BEEN STABILIZED AND APPROVED BY THE ENFORCEMENT AUTHORITY. UNLESS OTHERWISE SPECIFIED AND APPROVED BY THE APPROVAL AUTHORITY, NO MORE THAN 30 ACRES CUMULATIVELY MAY BE DISTURBED AT A GIVEN TIME.

*\*Please see sheet 21 for current Howard SCD Standard Notes to be used*

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

### MITIGATION PLAN NOTES:

1. TOPSOIL SHOULD BE SALVAGED AND REPLACED WHENEVER POSSIBLE TO A DEPTH OF AT LEAST 6 INCHES. SITE SHOULD BE GRADED TO BELOW 6 INCHES OF FINAL GRADE, THEN 6 INCHES TOPSOIL SPREAD OVER SITE.
2. A MINIMUM OF 60 CUBIC YARDS OF ORGANIC MATTER AND THREE DUMP TRUCK LOADS OF SUPPLEMENTAL LARGE WOODY DEBRIS IS REQUIRED PER ACRE IN WETLAND MITIGATION AREA.
3. SURFACE OF THE SOIL SHALL NOT BE COMPACTED TO THE EXTENT THAT IT LIMITS PLANT ESTABLISHMENT AND MICROBIAL ACTIVITY. UPON COMPLETION OF INITIAL GRADING, THE SOIL MUST BE DISKED OR CHISEL PLOWED TO A DEPTH OF 8 INCHES.
4. ALL BOULDERS AND COBBLE IS ANTICIPATED TO BE SUPPLIED BY SAVAGE QUARRY IN SAVAGE, MARYLAND.

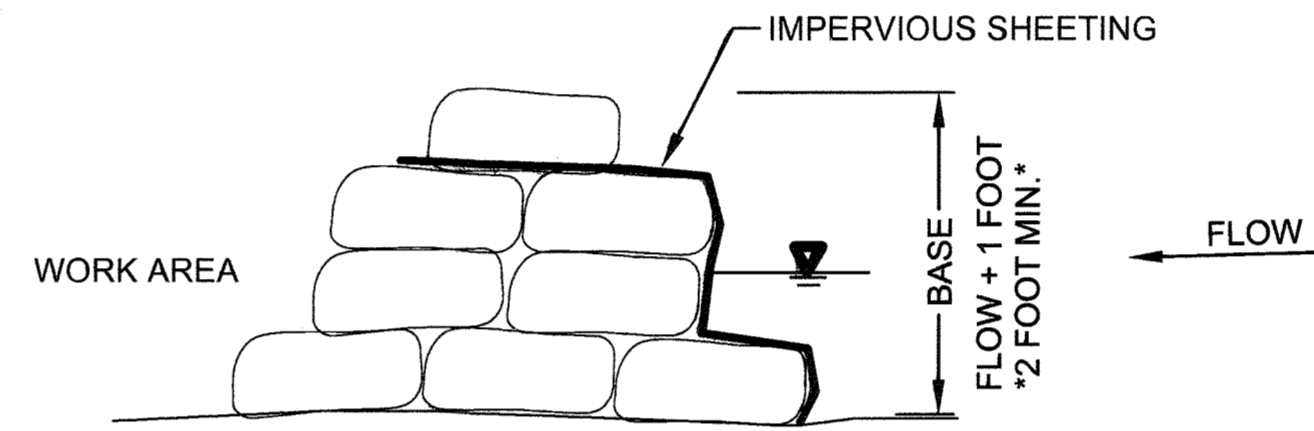
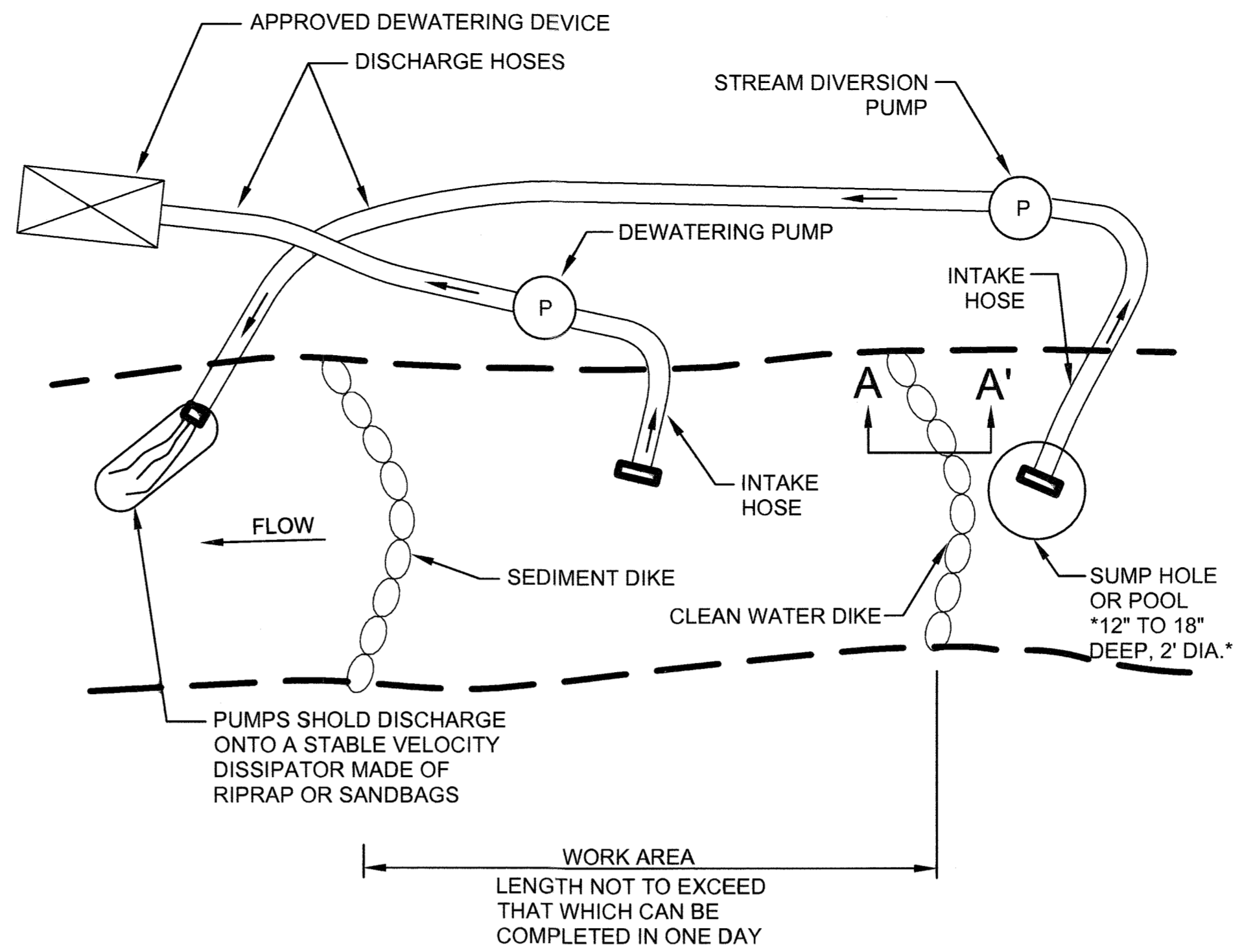


**MULCH ACCESS ROAD**

### NOTES:

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

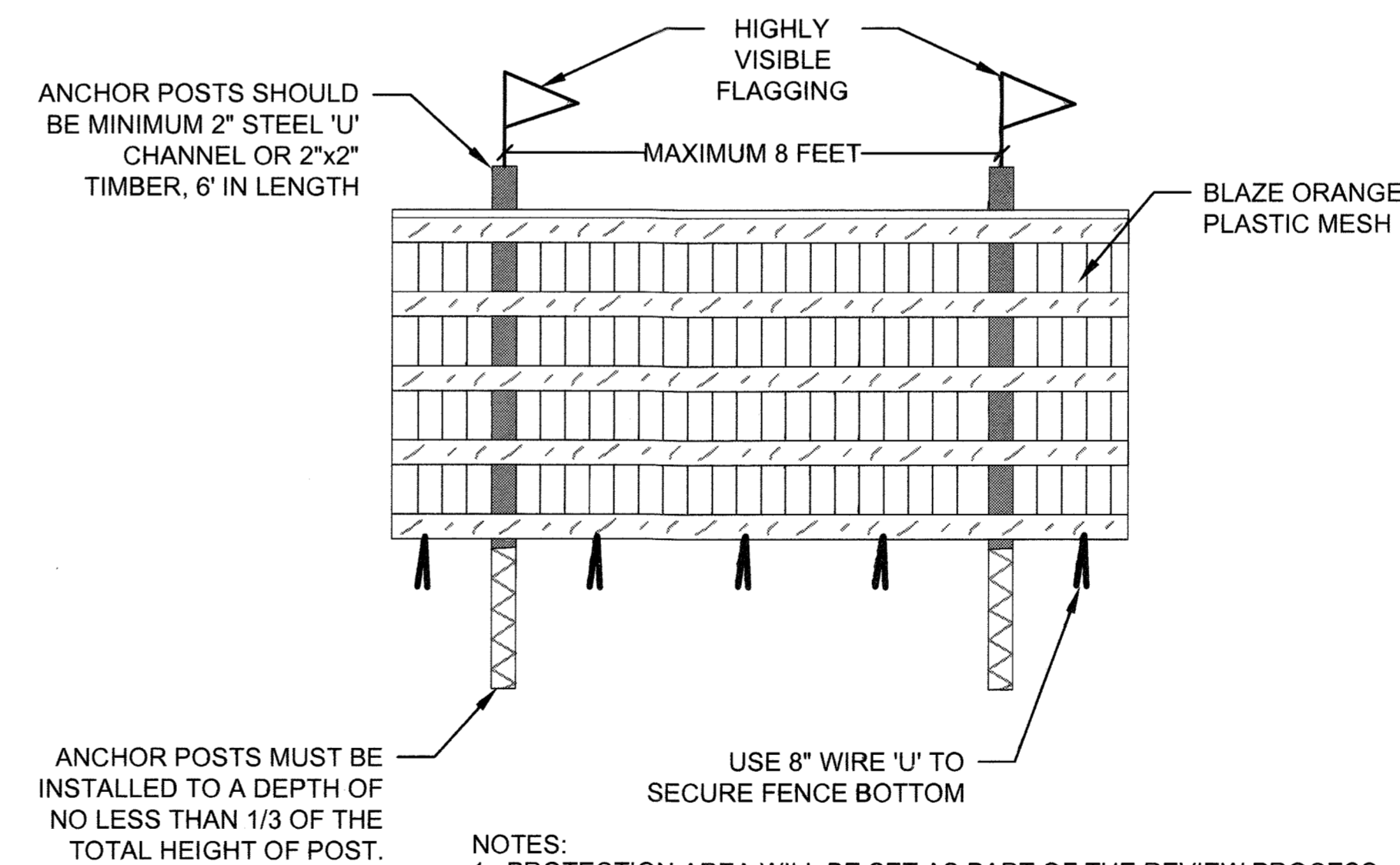
NOT TO SCALE



**SECTION A-A'**

## PUMP AROUND

NOT TO SCALE



ANCHOR POSTS SHOULD BE MINIMUM 2" STEEL 'U' CHANNEL OR 2"x2" TIMBER, 6" IN LENGTH

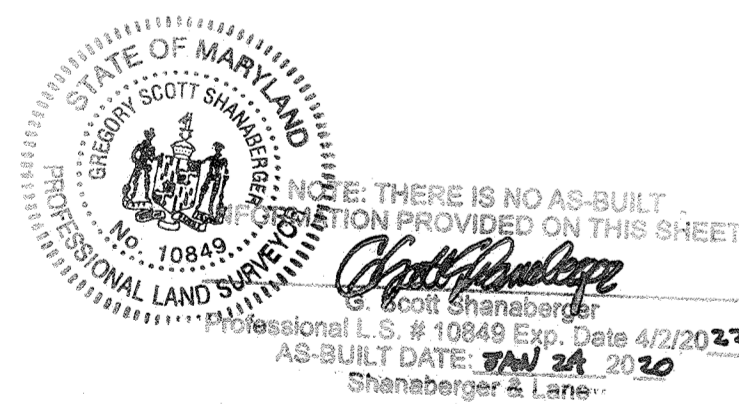
- ANCHOR POSTS MUST BE INSTALLED TO A DEPTH OF NO LESS THAN 1/3 OF THE TOTAL HEIGHT OF POST.
- NOTES:
1. PROTECTION AREA WILL BE SET AS PART OF THE REVIEW PROCESS.
  2. BOUNDARIES OF PROTECTION AREA SHOULD BE STAKED AND FLAGGED PRIOR TO INSTALLING DEVICES.
  3. DEVICE SHOULD BE MAINTAINED THROUGHOUT CONSTRUCTION.

## TREE PROTECTION BLAZE ORANGE PLASTIC FENCE

NOT TO SCALE

<b>DETAIL F-4 FILTER BAG</b>		STANDARD SYMBOL																					
		☒FB																					
<b>CONSTRUCTION SPECIFICATIONS</b>																							
<ol style="list-style-type: none"> <li>1. TIGHTLY SEAL SLEEVE AROUND THE PUMP DISCHARGE HOSE WITH A STRAP OR SIMILAR DEVICE.</li> <li>2. PLACE FILTER BAG ON SUITABLE BASE (E.G., MULCH, LEAF/WOOD COMPOST, WOODCHIPS, SAND, OR STRAW BALES) LOCATED ON A LEVEL OR 5% MAXIMUM SLOPING SURFACE. DISCHARGE TO A STABILIZED AREA. EXTEND BASE A MINIMUM OF 12 INCHES FROM EDGES OF BAG.</li> <li>3. CONTROL PUMPING RATE TO PREVENT EXCESSIVE PRESSURE WITHIN THE FILTER BAG IN ACCORDANCE WITH THE MANUFACTURER RECOMMENDATIONS. AS THE BAG FILLS WITH SEDIMENT, REDUCE PUMPING RATE.</li> <li>4. REMOVE AND PROPERLY DISPOSE OF FILTER BAG UPON COMPLETION OF PUMPING OPERATIONS OR AFTER BAG HAS REACHED CAPACITY, WHICHEVER OCCURS FIRST. SPREAD THE DEWATERED SEDIMENT FROM THE BAG IN AN APPROVED UPLAND AREA AND STABILIZE WITH SEED AND MULCH BY THE END OF THE WORK DAY. RESTORE THE SURFACE AREA BENEATH THE BAG TO ORIGINAL CONDITION UPON REMOVAL OF THE DEVICE.</li> <li>5. USE NONWOVEN GEOTEXTILE WITH DOUBLE STITCHED SEAMS USING HIGH STRENGTH THREAD. SIZE SLEEVE TO ACCOMMODATE A MAXIMUM 4 INCH DIAMETER PUMP DISCHARGE HOSE. THE BAG MUST BE MANUFACTURED FROM A NONWOVEN GEOTEXTILE THAT MEETS OR EXCEEDS MINIMUM AVERAGE ROLL VALUES (MARV) FOR THE FOLLOWING:                     <table border="1"> <tr> <td>GRAB TENSILE</td> <td>250 LB</td> <td>ASTM D-4632</td> </tr> <tr> <td>PUNCTURE</td> <td>150 LB</td> <td>ASTM D-4833</td> </tr> <tr> <td>FLOW RATE</td> <td>70 GAL/MIN/FT<sup>2</sup></td> <td>ASTM D-4491</td> </tr> <tr> <td>PERMEABILITY (SEC<sup>-1</sup>)</td> <td>1.2 SEC<sup>-1</sup></td> <td>ASTM D-4491</td> </tr> <tr> <td>UV RESISTANCE</td> <td>70% STRENGTH @ 500 HOURS</td> <td>ASTM D-4355</td> </tr> <tr> <td>APPARENT OPENING SIZE (AOS)</td> <td>0.15-0.18 MM</td> <td>ASTM D-4751</td> </tr> <tr> <td>SEAM STRENGTH</td> <td>90%</td> <td>ASTM D-4632</td> </tr> </table> </li> <li>6. REPLACE FILTER BAG IF BAG CLOSURES OR HAS RIPS, TEARS, OR PUNCTURES. DURING OPERATION KEEP CONNECTION BETWEEN PUMP HOSE AND FILTER BAG WATER TIGHT. REPLACE BEDDING IF IT BECOMES DISPLACED.</li> </ol>			GRAB TENSILE	250 LB	ASTM D-4632	PUNCTURE	150 LB	ASTM D-4833	FLOW RATE	70 GAL/MIN/FT <sup>2</sup>	ASTM D-4491	PERMEABILITY (SEC <sup>-1</sup> )	1.2 SEC <sup>-1</sup>	ASTM D-4491	UV RESISTANCE	70% STRENGTH @ 500 HOURS	ASTM D-4355	APPARENT OPENING SIZE (AOS)	0.15-0.18 MM	ASTM D-4751	SEAM STRENGTH	90%	ASTM D-4632
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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																					
E-9																							

<b>DETAIL E-3 SUPER SILT FENCE</b>		STANDARD SYMBOL
		SSF
<b>CONSTRUCTION SPECIFICATIONS</b>		
<ol style="list-style-type: none"> <li>1. INSTALL 2 1/2 INCH DIAMETER GALVANIZED STEEL POSTS OF 0.095 INCH WALL THICKNESS AND SIX FOOT LENGTH SPACED NO FURTHER THAN 10 FEET APART. DRIVE THE POSTS A MINIMUM OF 36 INCHES INTO THE GROUND.</li> <li>2. FASTEN 9 GAUGE OR HEAVIER GALVANIZED CHAIN LINK FENCE (2 1/2 INCH MAXIMUM OPENING) 42 INCHES IN HEIGHT SECURELY TO THE FENCE POSTS WITH WIRE TIES OR HUG RINGS.</li> <li>3. FASTEN WOVEN SILT FILM GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS, SECURELY TO THE UPSLOPE SIDE OF CHAIN LINK FENCE WITH TIES SPACED EVERY 24 INCHES AT THE TOP AND MID SECTION. EMBED GEOTEXTILE AND CHAIN LINK FENCE A MINIMUM OF 8 INCHES INTO THE GROUND.</li> <li>4. WHERE ENDS OF THE GEOTEXTILE COME TOGETHER, THE ENDS SHALL BE OVERLAPPED BY 6 INCHES, FOLDED, AND STAPLED TO PREVENT SEDIMENT BY PASS.</li> <li>5. EXTEND BOTH ENDS OF THE SUPER 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 SUPER SILT FENCE.</li> <li>6. PROVIDE MANUFACTURER CERTIFICATION TO THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION H-1 MATERIALS.</li> <li>7. REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BULGES DEVELOP IN FENCE OR WHEN SEDIMENT REACHES 25% OF FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN. IF UNDERMINING OCCURS, REINSTALL CHAIN LINK FENCING AND GEOTEXTILE.</li> </ol>		
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
E-7		



This development plan is approved for soil erosion and sediment control by the HOWARD SOIL CONSERVATION DISTRICT.

*John P. Shaneberger* 6/29/16  
Chief, SCD

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

*[Signature]*  
Chief, Bureau of Highways

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

*[Signature]* 8-3-16  
Chief, Division of Land Development

*[Signature]* 7-26-16  
Chief, Development Engineering Division

**ENGINEERS CERTIFICATE**

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

*Jennifer Zielinski Missett* 6/17/16  
SIGNATURE OF ENGINEER (PRINTNAME BELOW SIGNATURE) DATE

*Jennifer Zielinski Missett, PE*

**DEVELOPERS CERTIFICATE**

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

*William T. Rowe* 6/17/16  
SIGNATURE OF DEVELOPER (PRINTNAME BELOW SIGNATURE) DATE

**Biohabitats**

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

DES.	DRN.	CHK.	DATE	REVISION	BY	APPR.

PREPARED FOR:

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410-964-5443

**PROFESSIONAL CERTIFICATION**

I HEREBY CERTIFY THAT THESE PLANS 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. 26990, EXPIRATION DATE: FEBRUARY 2018.

*[Signature]*  
PROFESSIONAL ENGINEER

EROSION AND SEDIMENT CONTROL DETAILS

DOWNTOWN COLUMBIA  
CRESCENT NEIGHBORHOOD  
PARCELS B THRU H, NON-BUILDABLE BULK PARCELS J THRU R,  
O.S. LOTS 1 THRU 8 AND  
MERRIWEATHER-SYMPHONY WOODS NEIGHBORHOOD O.S. LOT 1  
AND NON-BUILDABLE BULK PARCEL A

ELECTION DISTRICT No. 5

SCALE	ZONING	SHEET
N.T.S.	NT	11071
DATE	TAXITILE	SHEET
JUNE, 2016	36 - 01	94 OF 102



# SEQUENCE OF CONSTRUCTION

- CONDUCT ON-SITE PRE-CONSTRUCTION MEETING AND OBTAIN GRADING AND ALL NECESSARY PERMITS FOR CONSTRUCTION FROM THE COUNTY PRIOR TO START OF WORK.
- NOTIFY THE DEPARTMENT OF PUBLIC WORKS, BUREAU OF ENGINEERING/CONSTRUCTION INSPECTION DIVISION AT LEAST 48 HOURS BEFORE COMMENCING WORK AT (410)-313-1880. WORK MAY NOT COMMENCE UNTIL THE PERMITTEE OR THE RESPONSIBLE PE HAVE MET ON SITE WITH THE SEDIMENT AND EROSION CONTROL INSPECTOR TO REVIEW THE APPROVED PLANS.
- A MINIMUM OF 48 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY DEPARTMENT OF INSPECTIONS, LICENCES AND PERMITS, SEDIMENT CONTROL DIVISION PRIOR TO THE START OF ANY CONSTRUCTION (410)-313-1855.
- NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.
- CONSTRUCTION ACTIVITIES INCLUDING THE INSTALLATION OF EROSION AND SEDIMENT CONTROL MEASURES SHALL NOT BEGIN UNTIL ALL REQUIRED EASEMENTS AND RIGHT-OF-WAYS HAVE BEEN OBTAINED. CONSTRUCTION SHALL NOT BEGIN UNTIL ALL SEDIMENT AND EROSION CONTROL MEASURES HAVE BEEN INSTALLED AND APPROVED BY THE ENGINEER AND SEDIMENT CONTROL INSPECTOR. THE CONTRACTOR SHALL STAY WITHIN THE LIMIT OF DISTURBANCE AS SHOWN ON THE PLANS AND MINIMIZE DISTURBANCE WITHIN THE WORKING AREA WHENEVER POSSIBLE.
- CONTRACTOR SHALL TAKE EXTRA PRECAUTION FOR TRANSPORTING MATERIALS FROM THE STORAGE AREA TO THE CONSTRUCTION SITE. CONTRACTOR SHALL MINIMIZE THE IMPACT ON EXISTING TREES, WETLANDS, U.S. WATERS, EXISTING UTILITY AND OTHER EXISTING FEATURES.
- CONTRACTOR SHALL CAUTION THE TRUCK DRIVERS TO TAKE EXTRA PRECAUTION WHILE DRIVING ON ALL TEMPORARY ACCESS WAYS TO MINIMIZE THE IMPACTS ON STREAMBEDS, SIDE SLOPES, SIDE SLOPES, EXISTING TRESS, U.S. WATERS, AND ANY EXISTING FEATURES.
- ALL WETLAND AND IN STREAM WORK SHALL BE DONE IN STRICT ACCORDANCE WITH THE PUMP AROUND CRITERIA.
- EROSION AND SEDIMENT CONTROL SETUP (1 WEEK)
- CONTRACTOR SHALL STAKE OUT THE LIMITS OF DISTURBANCE, PROPOSED CHANNEL BASELINE STATIONING AS SHOWN ON THE GEOMETRY PLAN, AND STRUCTURE LOCATIONS PER COORDINATE LOCATIONS SHOWN ON THE GRADING PLANS.
- CONTRACTOR SHALL FLAG ALL TREES WITHIN THE LIMIT OF DISTURBANCE WHICH WILL BE REMOVED FOR CONSTRUCTION ACCESS AND GRADING. NO TREES SHALL BE REMOVED WITHIN THE LIMITS OF DISTURBANCE WITHOUT APPROVAL FROM THE PROJECT ENGINEER OR CONSTRUCTION SUPERVISOR.
- CONTRACTOR SHALL CONDUCT A PRE-CONSTRUCTION MEETING ONSITE WITH THE PROJECT ENGINEER, CONSTRUCTION SUPERVISOR, AND APPROPRIATE AGENCY PERSONNEL TO REVIEW THE EROSION AND SEDIMENT CONTROL REQUIREMENTS, SEQUENCE OF CONSTRUCTION, LIMITS OF DISTURBANCE, PROJECT LAYOUT, AND TREE IMPACT BEFORE WORK BEGINS.
- CONTRACTOR SHALL INSTALL THE STABILIZED CONSTRUCTION ENTRANCES, MULCH ACCESS PATHWAYS, BLAZE ORANGE FENCE, AND TREE PROTECTION AREAS AS SHOWN ON THE GRADING PLANS OR AS DIRECTED BY THE ENGINEER. (SOME STABILIZED CONSTRUCTION ENTRANCES CANNOT BE INSTALLED UNTIL PROPOSED ROADS ARE INSTALLED. SEE PHASING BELOW.)
- CONTRACTOR SHALL ESTABLISH THE TEMPORARY STOCKPILE AREA IN THE LOCATION INDICATED ON GRADING PLAN (NOTE: INSTALL SILT FENCE AROUND STOCKPILE AREA AS INDICATED ON PLANS).
- MATERIALS FOR PUMPING STATION AND FILTER BAG SHALL BE LOCATED ON SITE.
- CONTRACTOR SHALL INSTALL A CLEAR WATER DIVERSION, OR PUMPING STATION AND FILTER BAG DEWATERING DEVICE AS NECESSARY TO DIVERT STORM AND STREAM FLOW AROUND THE WORK AREA. SEDIMENT SHALL NOT BE RELEASED INTO THE STREAM AND FLOODPLAIN. SEDIMENT LADEN WATER IS TO BE PUMPED INTO A SEDIMENT FILTERING BAG. CLEAN WATER ONLY IS TO BE DISCHARGED INTO THE STREAM AND FLOODPLAIN. NO WORK SHALL BE CONDUCTED IN THE STREAM CHANNEL, OR FLOODPLAIN DURING RAIN EVENTS.
- INSTALL REMAINING EROSION AND SEDIMENT CONTROL DEVICES SHOWN ON THE PLANS.
- CONTRACTOR SHALL CLEAR AND GRUB AS NECESSARY TO INSTALL SEDIMENT EROSION CONTROLS AND STAGING AREAS. WITH APPROVAL OF THE SEDIMENT AND EROSION CONTROL INSPECTOR, THE CONTRACTOR MAY BEGIN GRADING OPERATIONS.
- PERMANENT OR TEMPORARY STABILIZATION MUST BE COMPLETED WITHIN THREE (3) CALENDAR DAYS AS TO THE SURFACE OF ALL PERIMETER DIKES, SWALES, DITCHES, PERIMETER SLOPES, AND ALL SLOPES STEEPER THAN 3 HORIZONTAL TO 1 VERTICAL (3:1); AND SEVEN (7) CALENDAR DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE NOT UNDER ACTIVE GRADING.
- ANY SEDIMENT CONTROL PRACTICE THAT IS DISTURBED BY GRADING ACTIVITY MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.
- ADDITIONAL SEDIMENT CONTROL MUST BE PROVIDED, IF DEEMED NECESSARY BY THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.

STREAM CONSTRUCTION  
NOTE: CONSTRUCTION OF ROADS AND STREAM RESTORATION SHOULD BE DONE CONCURRENTLY. THIS IS TO UTILIZE MATERIALS, BOTH FILL AND WOODY MATERIAL, AVAILABLE FROM ROAD CONSTRUCTION. ALL EXISTING ROADS ON SITE SHOULD REMAIN IN PLACE FOR AS LONG AS FEASIBLE TO PROVIDE ADDITIONAL SITE ACCESS.

- PHASE I - STREAM 'A' FROM STA 100+00 TO 105+00 (2 WEEKS)
- CRESCENT WEST ROAD WILL BE CONSTRUCTED FIRST INCLUDING ARCH CULVERTS OVER STREAM 'A' AND STREAM 'C' AND THE SPAN OVER STREAM 'B'.  
NOTE: THIS WILL ALLOW FOR APPROPRIATE CONSTRUCTION EQUIPMENT ACCESS TO THE STREAM RESTORATION AREAS AS WELL AS ENSURE NO DISTURBANCE TO COMPLETED STREAM RESTORATION WORK.
  - AFTER THE ARCH CULVERT OVER STREAM 'A' IS IN PLACE, INSTALL STABILIZED CONSTRUCTION ENTRANCE ON THE NORTH SIDE OF NEW ROAD WEST OF STREAM 'A' AND INSTALL MULCH ACCESS ROAD ALONG SANITARY SEWER LINE TO THE UPSTREAM END OF STREAM 'A'.
  - DEWATER WORK AREA BEFORE BEGINNING WORK. PUMP AROUND SHOULD OCCUR UPSTREAM TO DOWNSTREAM. SANDBAG DIKES SHOULD BE SITUATED AT UPSTREAM AND DOWNSTREAM ENDS OF WORK AND PUMP SHOULD DISCHARGE ONTO A STABLE VELOCITY DISSIPATOR. WATER FROM WORK AREA SHOULD BE PUMPED TO A SEDIMENT FILTERING MEASURE SUCH AS A FILTER BAG AND SHOULD DRAIN BACK INTO THE CHANNEL BELOW THE DOWNSTREAM SANDBAG DIKE.
  - PLACE FILL MATERIAL, CHANNEL STRUCTURES AND PERFORM GRADING AS DETAILED ON PLANS, WORKING UPSTREAM TO DOWNSTREAM. ONLY INSTALL AS MANY STRUCTURES AS CAN BE COMPLETED AND STABILIZED IN ONE DAY. ALL FINISHED GRADING MUST BE PERMANENTLY STABILIZED AT THE END OF EACH DAY. OTHERWISE TEMPORARILY STABILIZE ALL DISTURBED AREAS AT THE END OF EACH WORKING DAY.
  - UPON COMPLETION OF INSTALLATION, STABILIZE REMAINING DISTURBED AREAS AND SECURE PUMP AROUND DEVICES AT THE END OF EACH DAY.
  - A STABLE CHANNEL MUST BE OPERABLE AT THE END OF EACH DAY SUCH THAT ANY BASE FLOW OR STORM FLOW CAN BE SAFELY CONVEYED. THE CHANNEL SHALL BE THE EXISTING CHANNEL, THE PROPOSED CHANNEL, OR A COMBINATION OF THE TWO.
  - TIE STREAM RESTORATION GRADING INTO UPSTREAM END OF ARCH CULVERT.

- PHASE II - STREAM 'A' FROM STA 105+00 TO 108+00 (1 WEEK)
- INSTALL STABILIZED CONSTRUCTION ENTRANCE ON THE SOUTH SIDE OF NEW ROAD WEST OF STREAM 'A' AND INSTALL MULCH ACCESS ROAD ALONG THE SANITARY SEWER LINE TO STREAM 'B'.
  - DEWATER WORK AREA BEFORE BEGINNING WORK. PUMP AROUND SHOULD OCCUR UPSTREAM TO DOWNSTREAM. SANDBAG DIKES SHOULD BE SITUATED AT UPSTREAM AND DOWNSTREAM ENDS OF WORK AND PUMP SHOULD DISCHARGE ONTO A STABLE VELOCITY DISSIPATOR. WATER FROM WORK AREA SHOULD BE PUMPED TO A SEDIMENT FILTERING MEASURE SUCH AS A FILTER BAG AND SHOULD DRAIN BACK INTO THE CHANNEL BELOW THE DOWNSTREAM SANDBAG DIKE.
  - PLACE FILL MATERIAL, CHANNEL STRUCTURES AND PERFORM GRADING AS DETAILED ON PLANS, WORKING UPSTREAM TO DOWNSTREAM. ONLY INSTALL AS MANY STRUCTURES AS CAN BE COMPLETED AND STABILIZED IN ONE DAY. ALL FINISHED GRADING MUST BE PERMANENTLY STABILIZED AT THE END OF EACH DAY. OTHERWISE TEMPORARILY STABILIZE ALL DISTURBED AREAS AT THE END OF EACH WORKING DAY.
  - UPON COMPLETION OF INSTALLATION, STABILIZE REMAINING DISTURBED AREAS AND SECURE PUMP AROUND DEVICES AT THE END OF EACH DAY.
  - A STABLE CHANNEL MUST BE OPERABLE AT THE END OF EACH DAY SUCH THAT ANY BASE FLOW OR STORM FLOW CAN BE SAFELY CONVEYED. THE CHANNEL SHALL BE THE EXISTING CHANNEL, THE PROPOSED CHANNEL, OR A COMBINATION OF THE TWO.
  - TIE STREAM RESTORATION GRADING INTO EXISTING STREAM 'B'.

- PHASE III - STREAM "B" FROM STA 0+00 TO 9+14 (3 WEEKS)  
NOTE: PROPOSED WATERLINE CROSSING STREAM 'B' AND CRESCENT WEST ROAD SPAN MUST BE IN PLACE BEFORE BEGINNING THIS PHASE.
- UTILIZE SAME STABILIZED CONSTRUCTION ENTRANCE FROM PHASE II. REMOVING EXISTING PIPE CULVERTS FROM STREAM 'B' UTILIZE EXISTING ROAD TO ACCESS GRADING AREA IN SOUTHWEST CORNER OF PHASE III. PERFORM THIS GRADING IN ONE DAY AND PERMANENTLY STABILIZE.
  - DEWATER WORK AREA BEFORE BEGINNING WORK. PUMP AROUND SHOULD OCCUR UPSTREAM TO DOWNSTREAM. SANDBAG DIKES SHOULD BE SITUATED AT UPSTREAM AND DOWNSTREAM ENDS OF WORK AND PUMP SHOULD DISCHARGE ONTO A STABLE VELOCITY DISSIPATOR. WATER FROM WORK AREA SHOULD BE PUMPED TO A SEDIMENT FILTERING MEASURE SUCH AS A FILTER BAG AND SHOULD DRAIN BACK INTO THE CHANNEL BELOW THE DOWNSTREAM SANDBAG DIKE.
  - STARTING AT UPSTREAM END PLACE FILL MATERIAL, CHANNEL STRUCTURES AND PERFORM GRADING AS DETAILED ON PLANS, WORKING UPSTREAM TO DOWNSTREAM. ONLY INSTALL AS MANY STRUCTURES AS CAN BE COMPLETED AND STABILIZED IN ONE DAY. ALL FINISHED GRADING MUST BE PERMANENTLY STABILIZED AT THE END OF EACH DAY. OTHERWISE TEMPORARILY STABILIZE ALL DISTURBED AREAS AT THE END OF EACH WORKING DAY.
  - DO NOT REMOVE EXISTING PIPE CULVERTS UNTIL THAT SECTION OF STREAM CHANNEL IS TO BE RESTORED. WHEN RESTORATION WORK REACHES THE CONFLUENCE WITH STREAM 'A' TIE GRADING INTO DOWNSTREAM END OF RESTORED STREAM 'A'.
  - UPON COMPLETION OF INSTALLATION, STABILIZE REMAINING DISTURBED AREAS AND SECURE PUMP AROUND DEVICES AT THE END OF EACH DAY.
  - A STABLE CHANNEL MUST BE OPERABLE AT THE END OF EACH DAY SUCH THAT ANY BASE FLOW OR STORM FLOW CAN BE SAFELY CONVEYED. THE CHANNEL SHALL BE THE EXISTING CHANNEL, THE PROPOSED CHANNEL, OR A COMBINATION OF THE TWO.
  - TIE STREAM RESTORATION GRADING INTO EXISTING STREAM 'B' CHANNEL AT STA 9+14.

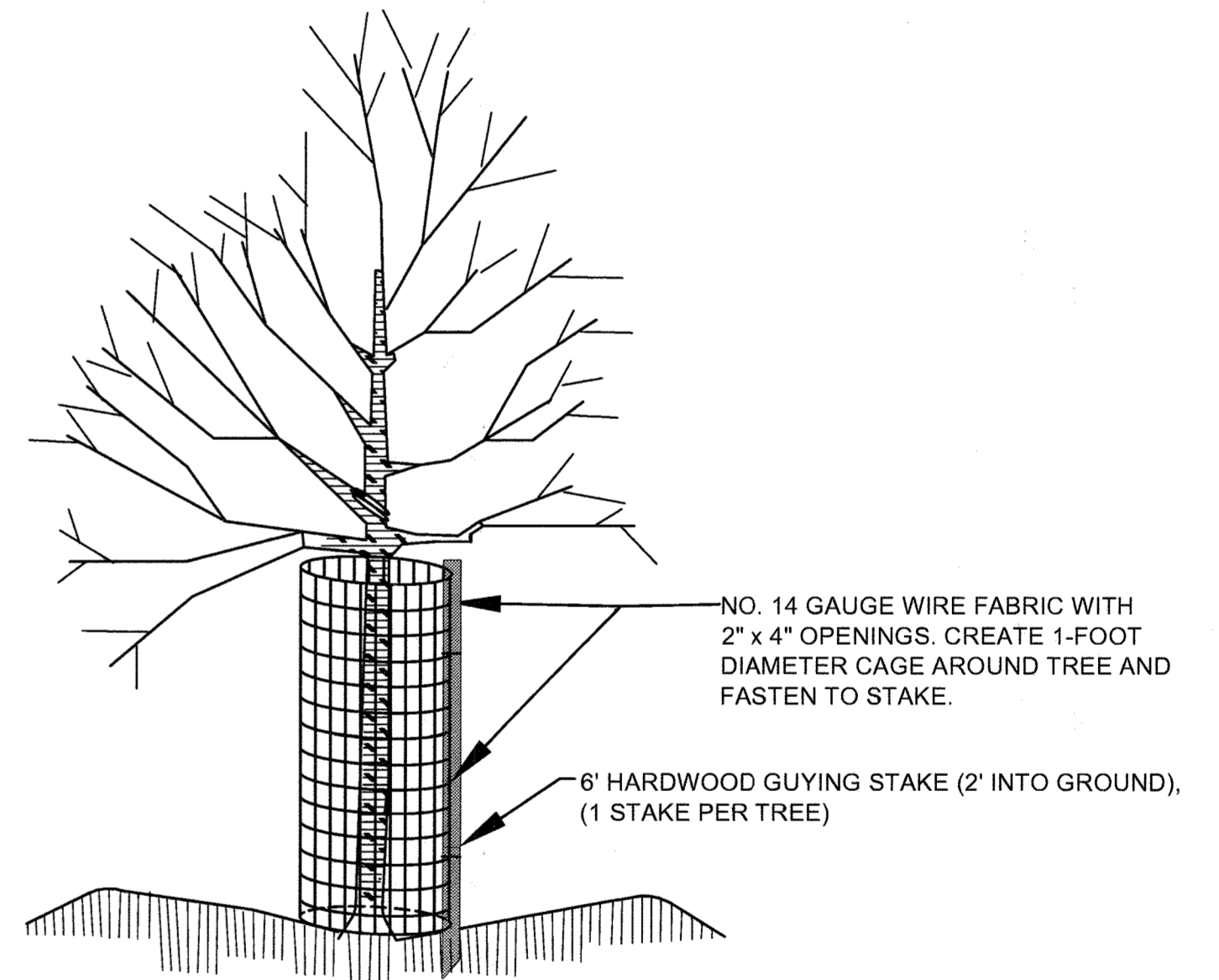
- PHASE IV - STREAM 'C' FROM STA 200+00 TO 204+56 (2 WEEKS)  
NOTE: PROPOSED SANITARY SEWER LINE CROSSING STREAM 'C' MUST BE IN PLACE BEFORE BEGINNING THIS PHASE; HOWEVER THE STREAM RESTORATION MUST BE COMPLETED BEFORE THE ARCH CULVERT FOR STREAM 'C' IS INSTALLED.
- INSTALL STABILIZED CONSTRUCTION ENTRANCE ON THE WEST SIDE OF CRESCENT WEST ROAD SOUTH OF STREAM 'C' AND INSTALL MULCH ACCESS ROAD.
  - DEWATER WORK AREA BEFORE BEGINNING WORK. PUMP AROUND SHOULD OCCUR UPSTREAM TO DOWNSTREAM. SANDBAG DIKES SHOULD BE SITUATED AT UPSTREAM AND DOWNSTREAM ENDS OF WORK AND PUMP SHOULD DISCHARGE ONTO A STABLE VELOCITY DISSIPATOR. WATER FROM WORK AREA SHOULD BE PUMPED TO A SEDIMENT FILTERING MEASURE SUCH AS A FILTER BAG AND SHOULD DRAIN BACK INTO THE CHANNEL BELOW THE DOWNSTREAM SANDBAG DIKE.
  - PLACE FILL MATERIAL, CHANNEL STRUCTURES AND PERFORM GRADING AS DETAILED ON PLANS, WORKING UPSTREAM TO DOWNSTREAM. ONLY INSTALL AS MANY STRUCTURES AS CAN BE COMPLETED AND STABILIZED IN ONE DAY. ALL FINISHED GRADING MUST BE PERMANENTLY STABILIZED AT THE END OF EACH DAY. OTHERWISE TEMPORARILY STABILIZE ALL DISTURBED AREAS AT THE END OF EACH WORKING DAY.
  - UPON COMPLETION OF INSTALLATION, STABILIZE REMAINING DISTURBED AREAS AND SECURE PUMP AROUND DEVICES AT THE END OF EACH DAY.
  - A STABLE CHANNEL MUST BE OPERABLE AT THE END OF EACH DAY SUCH THAT ANY BASE FLOW OR STORM FLOW CAN BE SAFELY CONVEYED. THE CHANNEL SHALL BE THE EXISTING CHANNEL, THE PROPOSED CHANNEL, OR A COMBINATION OF THE TWO.
  - TIE STREAM RESTORATION GRADING INTO EXISTING STREAM 'B' CHANNEL.

- PHASE V - STREAM "B" FROM STA 300+00 TO 303+07 (1 WEEK)  
NOTE: PROPOSED SANITARY SEWER LINE TIE-INS TO EXISTING SANITARY SEWERLINE CROSSING AND PROPOSED WATERLINE CROSSING STREAM 'B' AND NORTH SOUTH CONNECTOR SPAN MUST BE IN PLACE BEFORE BEGINNING THIS PHASE.
- INSTALL STABILIZED CONSTRUCTION ENTRANCE AND MULCH ACCESS ROAD.
  - DEWATER WORK AREA BEFORE BEGINNING WORK. PUMP AROUND SHOULD OCCUR UPSTREAM TO DOWNSTREAM. SANDBAG DIKES SHOULD BE SITUATED AT UPSTREAM AND DOWNSTREAM ENDS OF WORK AND PUMP SHOULD DISCHARGE ONTO A STABLE VELOCITY DISSIPATOR. WATER FROM WORK AREA SHOULD BE PUMPED TO A SEDIMENT FILTERING MEASURE SUCH AS A FILTER BAG AND SHOULD DRAIN BACK INTO THE CHANNEL BELOW THE DOWNSTREAM SANDBAG DIKE.
  - STARTING AT UPSTREAM END TIE RESTORATION GRADING INTO EXISTING STREAM 'B' CHANNEL. PLACE FILL MATERIAL, CHANNEL STRUCTURES AND PERFORM GRADING AS DETAILED ON PLANS, WORKING UPSTREAM TO DOWNSTREAM. ONLY INSTALL AS MANY STRUCTURES AS CAN BE COMPLETED AND STABILIZED IN ONE DAY. ALL FINISHED GRADING MUST BE PERMANENTLY STABILIZED AT THE END OF EACH DAY. OTHERWISE TEMPORARILY STABILIZE ALL DISTURBED AREAS AT THE END OF EACH WORKING DAY.
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  - A STABLE CHANNEL MUST BE OPERABLE AT THE END OF EACH DAY SUCH THAT ANY BASE FLOW OR STORM FLOW CAN BE SAFELY CONVEYED. THE CHANNEL SHALL BE THE EXISTING CHANNEL, THE PROPOSED CHANNEL, OR A COMBINATION OF THE TWO.
  - TIE STREAM RESTORATION GRADING INTO EXISTING STREAM 'B' CHANNEL AT STA 303+07.

- PHASE VI - PLANTING AND DEMOBILIZATION (2 WEEKS)
- PLANT STREAM AND WETLAND AREAS ACCORDING TO THE PLANTING PLAN.
  - PLANTING TREES AND SHRUBS SHALL BE CONDUCTED BETWEEN NOVEMBER 1 AND APRIL 1 WHEN THE TEMPERATURE IS NOT BELOW 35°F AND THE GROUND IS NOT FROZEN.
  - PERMANENT SEEDING SHALL BE PERFORMED FROM MARCH 1 THROUGH NOVEMBER 30. NO SEEDING SHALL BE PERFORMED ON FROZEN GROUND OR WHEN THE TEMPERATURE IS 32°F/0°C OR LOWER.
  - WITH THE APPROVAL OF THE SEDIMENT CONTROL INSPECTOR, REMOVE THE SEDIMENT CONTROL DEVICES INCLUDING ALL SILT FENCE ASSOCIATED WITH STREAM AND WETLAND GRADING. STABILIZE ANY AREAS DISTURBED BY SEDIMENT CONTROL REMOVAL.

# 2011 MD STANDARDS & SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL B-4-8 STOCKPILE AREA

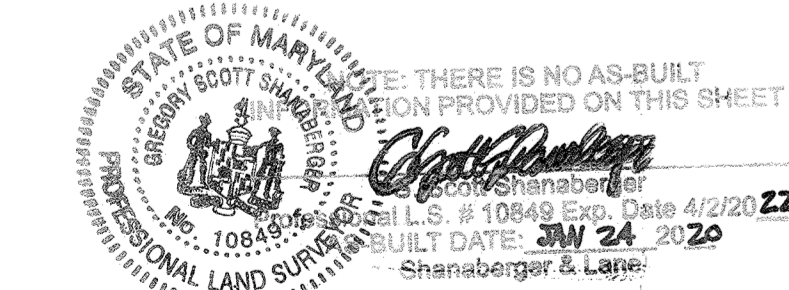
DEFINITION - A MOUND OR PILE OF SOIL PROTECTED BY APPROPRIATELY DESIGNED EROSION AND SEDIMENT CONTROL MEASURES.  
PURPOSE - TO PROVIDE A DESIGNATED LOCATION FOR THE TEMPORARY STORAGE OF SOIL THAT CONTROLS THE POTENTIAL FOR EROSION, SEDIMENTATION, AND CHANGES TO DRAINAGE PATTERNS.  
CONDITIONS WHERE PRACTICE APPLIES - STOCKPILE AREAS ARE UTILIZED WHEN IT IS NECESSARY TO SALVAGE AND STORE SOIL FOR LATER USE.  
CRITERIA:  
1. THE STOCKPILE LOCATION AND ALL RELATED SEDIMENT CONTROL PRACTICES MUST BE CLEARLY INDICATED ON THE EROSION AND SEDIMENT CONTROL PLAN.  
2. THE FOOTPRINT OF THE STOCKPILE MUST BE SIZED TO ACCOMMODATE THE ANTICIPATED VOLUME OF MATERIAL AND BASED ON A SIDE SLOPE RATIO NO STEEPER THAN 2:1. BENCHING MUST BE PROVIDED IN ACCORDANCE WITH SECTION B-3 LAND GRADING.  
3. RUNOFF FROM THE STOCKPILE AREA MUST DRAIN TO A SUITABLE SEDIMENT CONTROL PRACTICE.  
4. ACCESS THE STOCKPILE AREA FROM THE UPGRADE SIDE.  
5. CLEAR WATER RUNOFF INTO THE STOCKPILE AREA MUST BE MINIMIZED BY USE OF A DIVERSION DEVICE SUCH AS AN EARTH DIKE, TEMPORARY SWALE OR DIVERSION FENCE. PROVISIONS MUST BE MADE FOR DISCHARGING CONCENTRATED FLOW IN A NON-EROSIVE MANNER.  
6. WHERE RUNOFF CONCENTRATES ALONG THE TOE OF THE STOCKPILE FILL, AN APPROPRIATE EROSION/SEDIMENT CONTROL PRACTICE MUST BE USED TO INTERCEPT THE DISCHARGE.  
7. STOCKPILES MUST BE STABILIZED IN ACCORDANCE WITH THE 3/7 DAY STABILIZATION REQUIREMENT AS WELL AS STANDARD B-4-1 INCREMENTAL STABILIZATION AND STANDARD B-4-4 TEMPORARY STABILIZATION.  
8. IF THE STOCKPILE IS LOCATED ON AN IMPERVIOUS SURFACE, A LINER SHOULD BE PROVIDED BELOW THE STOCKPILE TO FACILITATE CLEANUP. STOCKPILES CONTAINING CONTAMINATED MATERIAL MUST BE COVERED WITH IMPERMEABLE SHEETING.  
MAINTENANCE:  
THE STOCKPILE AREA MUST CONTINUOUSLY MEET THE REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION. SIDE SLOPES MUST BE MAINTAINED AT NO STEEPER THAN A 2:1 RATIO. THE STOCKPILE AREA MUST BE KEPT FREE OF EROSION. IF THE VERTICAL HEIGHT OF A STOCKPILE EXCEEDS 20 FEET FOR 2:1 SLOPES, 30 FEET FOR 3:1 SLOPES, OR 40 FEET FOR 4:1 SLOPES, BENCHING MUST BE PROVIDED IN ACCORDANCE WITH SECTION B-3 LAND GRADING.



- NOTES:  
1. HEIGHT OF CAGE SHALL BE 4-FEET (MIN.)  
2. CAGE SHALL BE FASTENED TO STAKE WITH TWO (MIN.) 11-INCH RELEASABLE CABLE TIES (ONE AT TOP AND ONE 6\"/>

## DEER PROTECTION CAGE

NOT TO SCALE



ENGINEERS CERTIFICATE  
"I CERTIFY THAT THIS PLAN FOR SEDIMENT AND EROSION CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD COUNTY SOIL CONSERVATION DISTRICT"  
Signature: Jennifer Zielinski, M. Sc. E. P.E.  
Date: 6/17/16

DEVELOPERS CERTIFICATE  
"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN FOR SEDIMENT AND EROSION CONTROL, AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE THE BEGINNING OF THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD COUNTY SOIL CONSERVATION DISTRICT"  
Signature: William T. Rowe  
Date: 6/17/16

This development plan is approved for soil erosion and sediment control by the HOWARD COUNTY SOIL CONSERVATION DISTRICT.  
Signature: John K. Rhoads  
Date: 6/17/16

PREPARED FOR:  
THE HOWARD HUGHES CORPORATION  
10480 LITTLE PATUXENT PARKWAY  
SUITE 400  
COLUMBIA, MD 21044  
ATTN: BOB JENKINS  
410-964-5443

PROFESSIONAL CERTIFICATION  
I HEREBY CERTIFY THAT THESE PLANS 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. 28990, EXPIRATION DATE: FEBRUARY 2018.



EROSION AND SEDIMENT CONTROL DETAILS  
DOWNTOWN COLUMBIA  
CRESCENT NEIGHBORHOOD  
PARCELS B THRU H, NON-BUILDABLE BULK PARCELS J THRU R,  
O.S. LOTS 1 THRU 8 AND  
MERRIWEATHER-SYMPHONY WOODS NEIGHBORHOOD O.S. LOT 1  
AND NON-BUILDABLE BULK PARCEL A  
ELECTION DISTRICT No. 5  
HOWARD COUNTY, MARYLAND

SCALE	ZONING	
N.T.S.	NT	11071
DATE	TAXITILE	SHEET
JUNE, 2016	36 - 01	95 OF 102

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
Chief, Bureau of Highways  
Date: 6/17/16

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
Chief, Division of Land Development  
Date: 6/17/16

Chief, Development Engineering Division  
Date: 6/17/16

Biohabitats  
The Stables Building, 2081 Clipper Park Road  
Baltimore, MD 21211 / ph: 410.554.0156  
fx: 410.554.0168 / www.biohabitats.com  
Restoring the Earth to Inspire Ecological Stewardship

DES.	DRN.	CHK.	DATE	REVISION	BY	APPR.





- LEGEND**
- LOD — STREAM RESTORATION LIMIT OF DISTURBANCE
  - LVM — LIMIT OF VEGETATION MANAGEMENT (INCLUDES INVASIVES REMOVAL)
  - [Hatched pattern] ZONE 1 - MESIC MEADOW SEEDING
  - [Dotted pattern] ZONE 2 - FLOODPLAIN FOREST REFORESTATION
  - [Cross-hatched pattern] ZONE 3 - UPLAND FOREST REFORESTATION
  - [Diagonal lines] ZONE 4 - SUPPLEMENTAL MESIC MEADOW & INVASIVES TREATMENT
  - [Horizontal lines] ZONE 5 - SUPPLEMENTAL FLOODPLAIN FOREST REFORESTATION & INVASIVES TREATMENT
  - [Vertical lines] ZONE 6 - SUPPLEMENTAL UPLAND REFORESTATION & INVASIVES TREATMENT
  - [Circle with cross] FOREST RETENTION AREA SIGNAGE
  - [Stippled pattern] COBBLE RIFFLE
  - [Diagonal lines] BOULDER RIFFLE

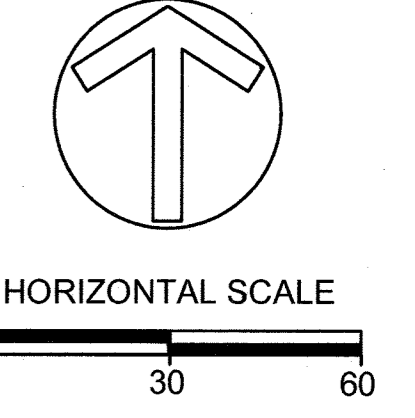
APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
 Chief, Bureau of Highways  
 Date: *9/16/16*

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
 Chief, Division of Land Development  
 Date: *8-3-16*

Chief, Development Engineering Division  
 Date: *7-26-16*

This development plan is approved for soil erosion and sediment control by the HOWARD SOIL CONSERVATION DISTRICT  
 Howard SCD  
 Date: *7/26/16*

STATE OF MARYLAND  
 PROFESSIONAL LAND SURVEYOR  
 I HEREBY CERTIFY THAT THERE IS NO AS-BUILT INFORMATION PROVIDED ON THIS SHEET  
 DATE: *7/24/20*



<b>Biohabitats</b>		
The Stables Building, 2081 Clipper Park Road, Baltimore, MD 21211 / ph: 410-554-0156 / fx: 410-554-0169 / www.biohabitats.com		
DES.	DRN.	CHK.
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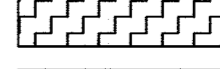
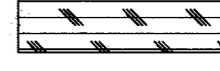
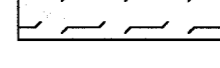
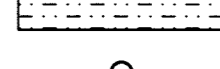



PROFESSIONAL CERTIFICATION  
 I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 26980  
 EXPIRATION DATE: FEBRUARY 2018.

PLANTING PLAN  
 DOWNTOWN COLUMBIA  
 CRESCENT NEIGHBORHOOD  
 PARCELS B THRU H, NON-BUILDABLE BULK PARCELS J THRU R,  
 O.S. LOTS 1 THRU 8 AND  
 MERRIWEATHER-SYMPHONY WOODS NEIGHBORHOOD O.S. LOT 1  
 AND NON-BUILDABLE BULK PARCEL A  
 ELECTION DISTRICT No. 5 HOWARD COUNTY, MARYLAND

SCALE	ZONING	
1" = 30'	NT	11071
DATE	TAXITILE	SHEET
JUNE, 2016	36 - 01	96 OF 102



LEGEND

- LOD — STREAM RESTORATION LIMIT OF DISTURBANCE
- LVM — LIMIT OF VEGETATION MANAGEMENT (INCLUDES INVASIVES REMOVAL)
-  ZONE 1 - MESIC MEADOW SEEDING
-  ZONE 2 - FLOODPLAIN FOREST REFORESTATION
-  ZONE 3 - UPLAND FOREST REFORESTATION
-  ZONE 4 - SUPPLEMENTAL MESIC MEADOW & INVASIVES TREATMENT
-  ZONE 5 - SUPPLEMENTAL FLOODPLAIN FOREST REFORESTATION & INVASIVES TREATMENT
-  ZONE 6 - SUPPLEMENTAL UPLAND REFORESTATION & INVASIVES TREATMENT
-  FOREST RETENTION AREA SIGNAGE
-  COBBLE RIFFLE
-  BOULDER RIFFLE



APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
 Chief, Bureau of Highways  
 Date: *[Signature]*

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
 Chief, Division of Land Development  
 Date: 7.26.16

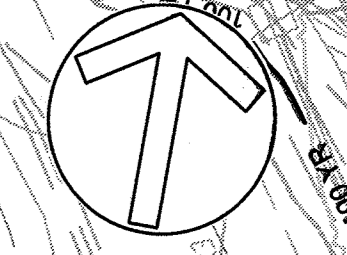
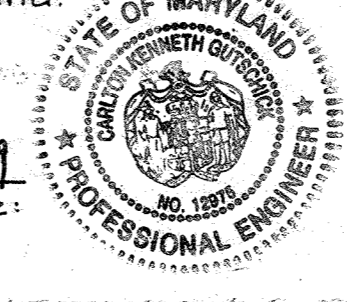
Chief, Development Engineering Division  
 Date: *[Signature]*

This development plan is approved for soil erosion and sediment control by the HOWARD SOIL CONSERVATION DISTRICT  
 Howard SCD  
*[Signature]*



NOTE: THERE IS NO AS-BUILT INFORMATION PROVIDED ON THIS SHEET  
 Robert J. Shansberger  
 License No. 28924  
 State of Maryland  
 PROFESSIONAL ENGINEER  
 EXPIRES: 2/28/2022  
 SHANSBERGER & LAKE

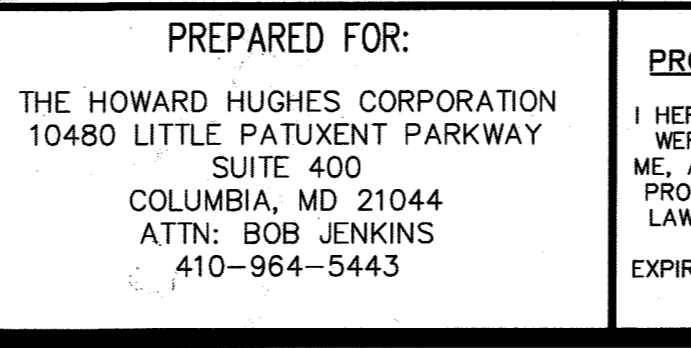
Professional Certification (By GLW for Rev #2 only)  
 I hereby certify that these plans were prepared or approved by me, and that I am a duly Licensed Professional Engineer under the Laws of the State of Maryland.  
 License No. 12915  
 Expiration Date: 05-16-2020  
 Signature of Registered Engineer: *[Signature]* Date: 6/8/19



HORIZONTAL SCALE  
 0 30 60

Biohabitats		
The Stables Building 2081 Clapper Park Road Baltimore, MD 21211 / ph: 410.554.0156 fx: 410.554.0168 / www.biohabitats.com Restore the Earth • Inspire Ecological Stewardship		
DES.	DRN.	CHK.
4-24-16	AK	AK
DATE	REVISION	BY
	show boardwalk path	AK
		DEV
		APP'R

PREPARED FOR:	PROFESSIONAL CERTIFICATION
THE HOWARD HUGHES CORPORATION 10480 LITTLE PATUXENT PARKWAY SUITE 400 COLUMBIA, MD 21044 ATTN: BOB JENKINS 410-964-5443	I HEREBY CERTIFY THAT THESE PLANS 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. 28924 EXPIRATION DATE: FEBRUARY 2018.



PLANTING PLAN  
 DOWNTOWN COLUMBIA  
 CRESCENT NEIGHBORHOOD  
 PARCELS B THRU H, NON-BUILDABLE BULK PARCELS J THRU R,  
 O.S. LOTS 1 THRU 8 AND  
 MERRIWEATHER-SYMPHONY WOODS NEIGHBORHOOD O.S. LOT 1  
 AND NON-BUILDABLE BULK PARCEL A  
 ELECTION DISTRICT No. 5  
 HOWARD COUNTY, MARYLAND

SCALE	ZONING	
1" = 30'	NT	11071
DATE	TAXITILE	SHEET
JUNE, 2016	36 - 01	97 OF 102





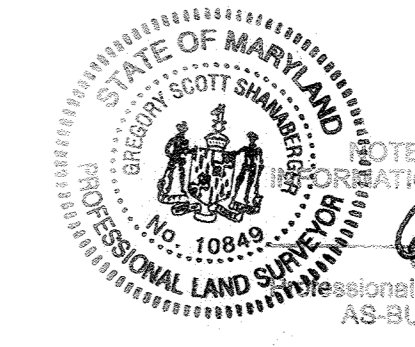
**LEGEND**

- LOD — STREAM RESTORATION LIMIT OF DISTURBANCE
- LVM — LIMIT OF VEGETATION MANAGEMENT (INCLUDES INVASIVES REMOVAL)
- ZONE 1 - MESIC MEADOW SEEDING
- ZONE 2 - FLOODPLAIN FOREST REFORESTATION
- ZONE 3 - UPLAND FOREST REFORESTATION
- ZONE 4 - SUPPLEMENTAL MESIC MEADOW & INVASIVES TREATMENT
- ZONE 5 - SUPPLEMENTAL FLOODPLAIN FOREST REFORESTATION & INVASIVES TREATMENT
- ZONE 6 - SUPPLEMENTAL UPLAND REFORESTATION & INVASIVES TREATMENT
- FOREST RETENTION AREA SIGNAGE
- COBBLE RIFFLE
- BOULDER RIFFLE

MATCHLINE SEE SHEET 99

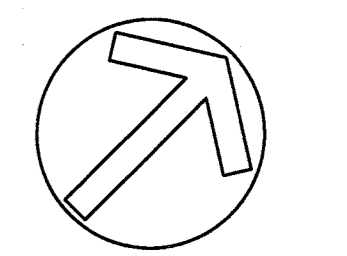
APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
 Chief, Bureau of Highways \_\_\_\_\_ Date \_\_\_\_\_

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
 Chief, Division of Land Development *[Signature]* Date *8-3-16*  
 Chief, Development Engineering Division *[Signature]* Date *7-26-16*



DATE: THERE IS NO AS-BUILT INFORMATION PROVIDED ON THIS SHEET  
 AS-BUILT DATE: *JUN 24 2022*  
 Shanaberger & Lane

This development plan is approved for soil erosion and sediment control by the HOWARD SOIL CONSERVATION DISTRICT.  
*[Signature]*



HORIZONTAL SCALE  
 0 30 60

Biohabitats	
The Stables Building, 2081 Clipse Park Road, Baltimore, MD 21211 / ph: 410-554-0156 / www.biohabitats.com	
DES.	DRN.
CHK.	DATE
REVISION	BY
APP'R.	


PREPARED FOR:  
 THE HOWARD HUGHES CORPORATION  
 10480 LITTLE PATUXENT PARKWAY  
 SUITE 400  
 COLUMBIA, MD 21044  
 ATTN: BOB JENKINS  
 410-964-5443

PROFESSIONAL CERTIFICATION  
 I HEREBY CERTIFY THAT THESE PLANS 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. 26990, EXPIRATION DATE: FEBRUARY 2018.



PLANTING PLAN  
 DOWNTOWN COLUMBIA  
 CRESCENT NEIGHBORHOOD  
 PARCELS B THRU H, NON-BUILDABLE BULK PARCELS J THRU R,  
 O.S. LOTS 1 THRU 8 AND  
 MERRIWEATHER-SYMPHONY WOODS NEIGHBORHOOD O.S. LOT 1  
 AND NON-BUILDABLE BULK PARCEL A  
 ELECTION DISTRICT No. 5 HOWARD COUNTY, MARYLAND

SCALE	ZONING	
1" = 30'	NT	11071
DATE	TAXITITLE	SHEET
JUNE, 2016	36 - 01	98 OF 102



**LEGEND**

- LOD — STREAM RESTORATION LIMIT OF DISTURBANCE
- LVM — LIMIT OF VEGETATION MANAGEMENT (INCLUDES INVASIVES REMOVAL)
- [Hatched Pattern] ZONE 1 - MESIC MEADOW SEEDING
- [Dotted Pattern] ZONE 2 - FLOODPLAIN FOREST REFORESTATION
- [Cross-hatched Pattern] ZONE 3 - UPLAND FOREST REFORESTATION
- [Diagonal Line Pattern] ZONE 4 - SUPPLEMENTAL MESIC MEADOW & INVASIVES TREATMENT
- [Wavy Line Pattern] ZONE 5 - SUPPLEMENTAL FLOODPLAIN FOREST REFORESTATION & INVASIVES TREATMENT
- [Horizontal Line Pattern] ZONE 6 - SUPPLEMENTAL UPLAND REFORESTATION & INVASIVES TREATMENT
- [Circle with 'R'] FOREST RETENTION AREA SIGNAGE
- [Circles] COBBLE RIFFLE
- [Rectangles] BOULDER RIFFLE



MATCHLINE SEE SHEET 98

STATE OF MARYLAND  
 PROFESSIONAL LAND SURVEYOR  
 No. 10844  
 AS-BUILT DATE: 7/26/16  
 Chaneberger & Latta

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
 Chief, Bureau of Highways  
 Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
 Chief, Division of Land Development  
 Date 8-3-16

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
 Chief, Development Engineering Division  
 Date 7-26-16

development plan is approved for soil erosion and sediment control by the HOWARD SOIL CONSERVATION DISTRICT  
 Date

**Biohabitats**  
 The Stables Building 2081 Clippert Park Road  
 Baltimore, MD 21211 / ph: 410.554.0156  
 fx: 410.554.0168 / www.biohabitats.com  
 Restores the Earth Or Enriches Ecological Stewardship

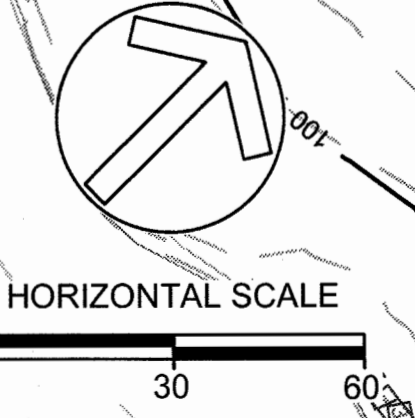
DES.	DRN.	CHK.	DATE	REVISION	BY	APP'R.

PREPARED FOR:  
 THE HOWARD HUGHES CORPORATION  
 10480 LITTLE PATUXENT PARKWAY  
 SUITE 400  
 COLUMBIA, MD 21044  
 ATTN: BOB JENKINS  
 410-964-5443

PROFESSIONAL CERTIFICATION  
 I HEREBY CERTIFY THAT THESE PLANS 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. 28990.  
 EXPIRATION DATE: FEBRUARY 2018.




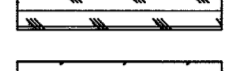
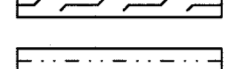
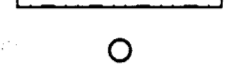

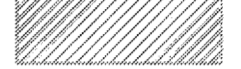

PLANTING PLAN  
 DOWNTOWN COLUMBIA  
 CRESCENT NEIGHBORHOOD  
 PARCELS B THRU H, NON-BUILDABLE BULK PARCELS J THRU R,  
 O.S. LOTS 1 THRU 8 AND  
 MERRIMWEATHER-SYMPHONY WOODS NEIGHBORHOOD O.S. LOT 1  
 AND NON-BUILDABLE BULK PARCEL A  
 HOWARD COUNTY, MARYLAND

SCALE	ZONING	SHEET
1" = 30'	NT	11071
DATE	TAXITILE	SHEET
JUNE, 2016	36 - 01	99 OF 102






**LEGEND**

- LOD — STREAM RESTORATION LIMIT OF DISTURBANCE
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-  ZONE 1 - MESIC MEADOW SEEDING
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-  FOREST RETENTION AREA SIGNAGE
-  COBBLE RIFFLE
-  BOULDER RIFFLE



Professional Certification  
 (By GLW For Revision #2)  
 I hereby certify that these Plans 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: 12975  
 Expiration Date: 05-26-2020  
  
 Signature of Registered Engineer Date: 6/8/18



STATE OF MARYLAND  
 PROFESSIONAL LAND SURVEYOR  
 No. 10849  
 Charles Berger & Lane  
 Professional L.S. # 10849 Exp. Date 4/2/2022  
 AS-BUILT DATE: JAN 24 2020

Howard SCD  
 This development plan is approved for soil erosion and sediment control by the HOWARD SOIL CONSERVATION DISTRICT

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
 Chief, Bureau of Highways Date

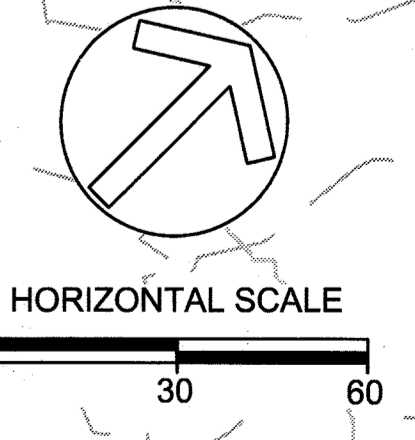
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
 Chief, Division of Land Development Date: 8-3-16  
 Chief, Development Engineering Division Date: 7-26-16

Biohabitats		
The Stables Building, 2081 Clipper Park Road, Baltimore, MD 21211 / ph: 410.554.0156 / fx: 410.554.0166 / www.biohabitats.com		
DES.	DRN.	CHK.
4-25-18	Revised Planting Limits & Rip Rap	JL DEV
DATE	REVISION	BY APPR.

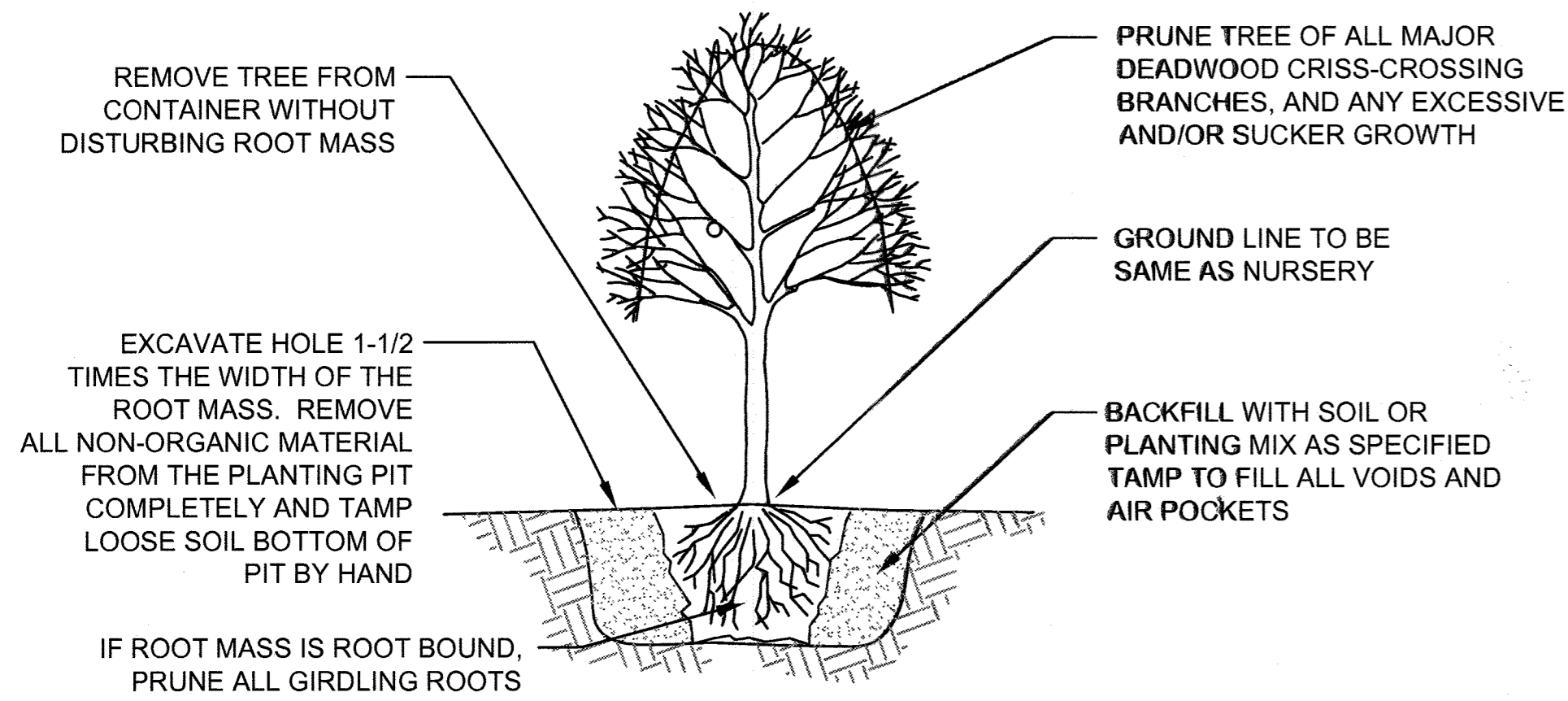
PREPARED FOR:	PROFESSIONAL CERTIFICATION
THE HOWARD HUGHES CORPORATION 10480 LITTLE PATUXENT PARKWAY SUITE 400 COLUMBIA, MD 21044 ATTN: BOB JENKINS 410-964-5443	I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 26880, EXPIRATION DATE: FEBRUARY 2018.

PLANTING PLAN  
 DOWNTOWN COLUMBIA  
 CRESCENT NEIGHBORHOOD  
 PARCELS B THRU H, NON-BUILDABLE BULK PARCELS J THRU R,  
 O.S. LOTS 1 THRU 8 AND  
 MERRIWEATHER-SYMPHONY WOODS NEIGHBORHOOD O.S. LOT 1  
 AND NON-BUILDABLE BULK PARCEL A  
 HOWARD COUNTY, MARYLAND

SCALE	ZONING	
1" = 30'	NT	11071
DATE	TAXITILE	SHEET
JUNE, 2016	36 - 01	100 OF 102

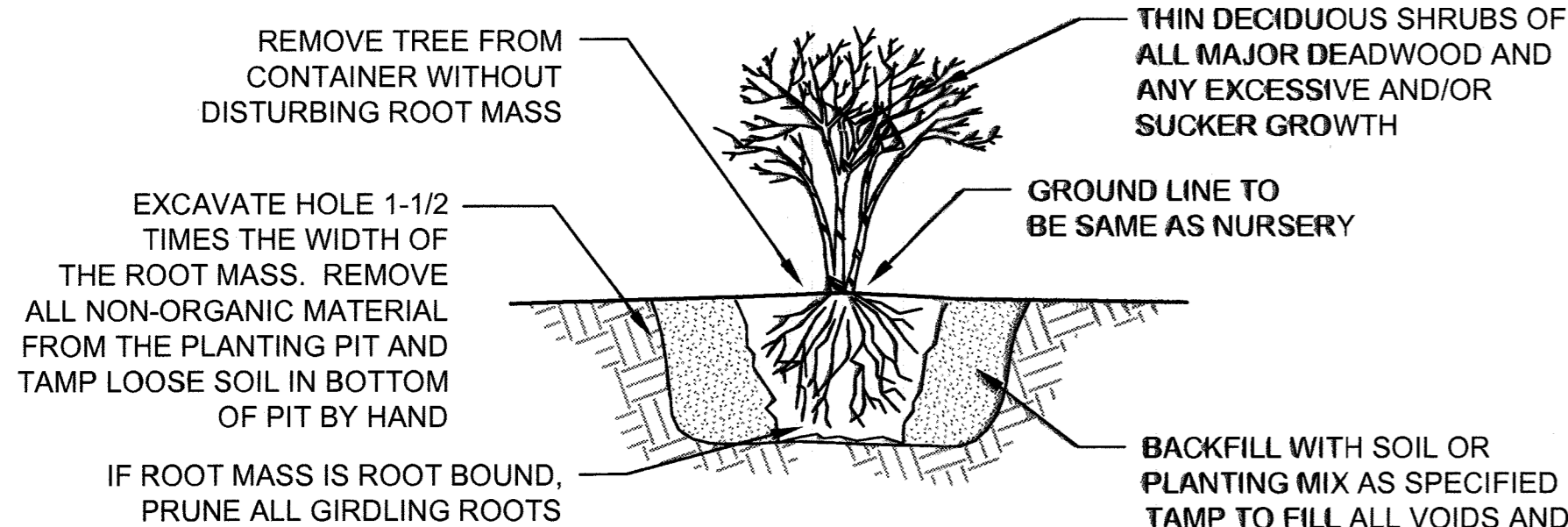






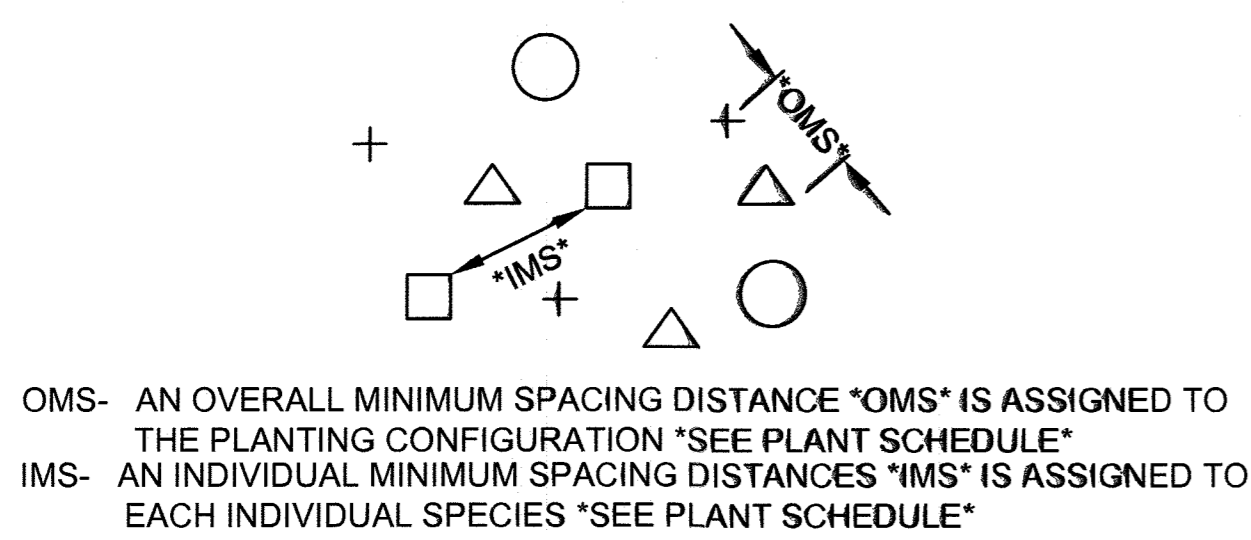
**TREE PLANTING - CONTAINER GROWN**

NOT TO SCALE



**SHRUB PLANTING - CONTAINER GROWN**

NOT TO SCALE



**PLANT SPACING - RANDOM**

NOTE: EACH SYMBOL INDICATES A DIFFERENT SPECIES

**PLAN VIEW**

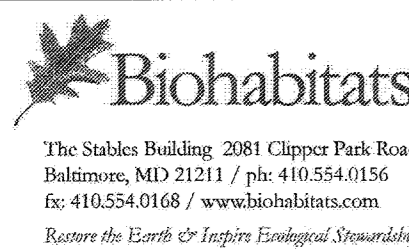
NOT TO SCALE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
 Chief, Bureau of Highways \_\_\_\_\_ Date \_\_\_\_\_

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
 Chief, Division of Land Development \_\_\_\_\_ Date 8-3-16

Chief, Development Engineering Division \_\_\_\_\_ Date 7-26-16

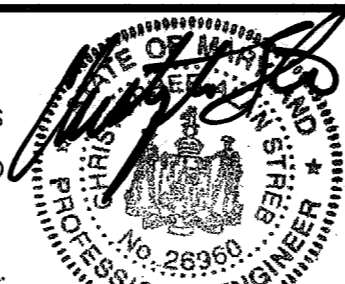
The development plan is approved for soil erosion and sediment control by the HOWARD COUNTY COMMISSION DISTRICT  
 \_\_\_\_\_ Date \_\_\_\_\_



DES.	DRN.	CHK.	DATE	REVISION	BY	APP'R.

PREPARED FOR:  
 THE HOWARD HUGHES CORPORATION  
 10480 LITTLE PATUXENT PARKWAY  
 SUITE 400  
 COLUMBIA, MD 21044  
 ATTN: BOB JENKINS  
 410-964-5443

PROFESSIONAL CERTIFICATION  
 I HEREBY CERTIFY THAT THESE PLANS 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. 26990, EXPIRATION DATE: FEBRUARY 2018.



**PLANT COMPOSITION SCHEDULE**

**ZONE 1 - Mesic Meadow Seeding**

Size (acres): 0.91

Wetland Indicator Status	Quantity per acre	Frequency (%)	Species Quantity	Vegetation Strata/ Species Name	Common Name	Unit	Spacing Type	Size	Individual Minimum Spacing (ft.)
HERBACEOUS SEED (ERNMX-723 MD Lower Midland FACW Meadow Mix)									
FACW	15	30	4.1	<i>Panicum rigidulum</i>	Redtop panicgrass	SEED	LB of P.L.S.	76%	N/A
OBL	12	1.6	2.1	<i>Elymus virginicus</i>	Virginia wildrye	SEED	LB of P.L.S.	76%	N/A
OBL	7	1	1.6	<i>Carex lurida</i>	Lund sedge	SEED	LB of P.L.S.	76%	N/A
OBL	7	1	1	<i>Carex lupulina</i>	Hop sedge	SEED	LB of P.L.S.	76%	N/A
FACW	5	0.7	0.8	<i>Scirpus atrovirens</i>	Green bulrush	SEED	LB of P.L.S.	76%	N/A
FACW	3	0.4	0.4	<i>Carex scoparia</i>	Blunt broom sedge	SEED	LB of P.L.S.	76%	N/A
FACW	3	0.4	0.4	<i>Juncus effusus</i>	Soft rush	SEED	LB of P.L.S.	76%	N/A
FACW	2	0.3	0.3	<i>Eupatorium perfoliatum</i>	Boneset	SEED	LB of P.L.S.	76%	N/A
FACW	2	0.3	0.3	<i>Helenium autumnale</i>	Common sneezeweed	SEED	LB of P.L.S.	76%	N/A
FACW	2	0.3	0.3	<i>Eupatorium maculatum</i>	Spotted joe-pye weed	SEED	LB of P.L.S.	76%	N/A
FACW	2	0.3	0.3	<i>Verbena hastata</i>	Blue vervain	SEED	LB of P.L.S.	76%	N/A
FACW	2	0.3	0.3	<i>Scirpus cyperinus</i>	Woolgrass	SEED	LB of P.L.S.	76%	N/A
FACW	2	0.3	0.3	<i>Onoclea sensibilis</i>	Sensitive fern	SEED	LB of P.L.S.	76%	N/A
OBL	2	0.3	0.3	<i>Bidens cernua</i>	Nodding bur marigold	SEED	LB of P.L.S.	76%	N/A
OBL	1	0.1	0.1	<i>Eupatorium coelestinum</i>	Mistflower	SEED	LB of P.L.S.	76%	N/A
OBL	1	0.1	0.1	<i>Carex crinita</i>	Fringed sedge	SEED	LB of P.L.S.	76%	N/A
OBL	1	0.1	0.1	<i>Asclepias incarnata</i>	Swamp milkweed	SEED	LB of P.L.S.	76%	N/A
FACW	1	0.1	0.1	<i>Vernonia noveboracensis</i>	New York ironweed	SEED	LB of P.L.S.	76%	N/A
OBL	1	0.1	0.1	<i>Glyceria canadensis</i>	Rattlesnake grass	SEED	LB of P.L.S.	76%	N/A
OBL	1	0.1	0.1	<i>Mimulus ringens</i>	Square stemmed monkeyflower	SEED	LB of P.L.S.	76%	N/A
FACW	0.5	0.1	0.1	<i>Aster puniceus</i>	Purplestem aster	SEED	LB of P.L.S.	76%	N/A
FACW	0.5	0.1	0.1	<i>Ludwigia alternifolia</i>	Seedbox	SEED	LB of P.L.S.	76%	N/A
FACW	0.5	0.1	0.1	<i>Lobelia siphilitica</i>	Great blue lobelia	SEED	LB of P.L.S.	76%	N/A
OBL	0.5	0.1	0.1	<i>Iris versicolor</i>	Blueflag	SEED	LB of P.L.S.	76%	N/A
	100		13.8						

P.L.S. = Pure Live Seed

**PLANT COMPOSITION SCHEDULE**

**ZONE 2 - Floodplain Forest Reforestation**

Size (acres): 2.86

Overall Minimum Spacing (ft.)	Quantity per acre	Frequency (%)	Species Quantity	Wetland Indicator Status	Vegetation Strata/ Species Name	Common Name	Unit	Spacing Type	Size	Individual Minimum Spacing (ft.)
TREES										
	109			FAC	<i>Acer rubrum</i>	Red maple	CONT	Random	2" CAL	45
		20	62	FACW	<i>Quercus palustris</i>	Pin oak	CONT	Random	1.25" CAL	63
		15	47	FACW	<i>Quercus bicolor</i>	Swamp white oak	CONT	Random	1.25" CAL	51
		5	16	OBL	<i>Salix nigra</i>	Black willow	CONT	Random	2" CAL	88
		5	16	FAC	<i>Quercus phellos</i>	Willow oak	CONT	Random	2" CAL	88
		25	78	FACW	<i>Platanus occidentalis</i>	American sycamore	CONT	Random	2" CAL	40
		10	31	FAC	<i>Nyssa sylvatica</i>	Black gum	CONT	Random	1.25" CAL	63
			281		= total					
MIDSTORY TREES										
		5	16	FACW	<i>Betula nigra</i>	River birch	CONT	Random	1.5" CAL	88
		5	16	FAC	<i>Carpinus caroliniana</i>	Ironwood	CONT	Random	1.25" CAL	88
		100	32		= total					
SHRUB										
	303			FACW	<i>Cornus amomum</i>	Silky dogwood	CONT	Random	3 GAL	27
		15	130	OBL	<i>Alnus serrulata</i>	Smooth alder	CONT	Random	2 GAL	31
		30	260	FAC	<i>Lindera benzoin</i>	Common spicebush	CONT	Random	2 GAL	22
		15	130	FACW	<i>Cornus sericea</i>	Red osier dogwood	CONT	Random	3 GAL	31
		20	173	FAC	<i>Viburnum dentatum</i>	Southern arrowwood	CONT	Random	3 GAL	27
		100	866		= total					
HERBACEOUS SEED										
	N/A			FACW	<i>Scirpus cyperinus</i>	Wool grass	SEED	LB of P.L.S.	76%	N/A
		10	10	FACW	<i>Elymus riparius</i>	Riverbank wild rye	SEED	LB of P.L.S.	76%	N/A
		25	25	FACW	<i>Elymus virginicus</i>	Virginia wild rye	SEED	LB of P.L.S.	76%	N/A
		25	25	OBL	<i>Calamagrostis canadensis</i>	Bluejoint reedgrass	SEED	LB of P.L.S.	76%	N/A
		15	15	FAC	<i>Dichanthelium clandestinum</i>	Deertongue	SEED	LB of P.L.S.	76%	N/A
		100	100		= total					

CON = Containerized

P.L.S. = Pure Live Seed

**PLANT COMPOSITION SCHEDULE**

**ZONE 3 - Upland Forest Reforestation**

Size (acres): 1.90

Overall Minimum Spacing (ft.)	Quantity per acre	Frequency (%)	Species Quantity	Wetland Indicator Status	Vegetation Strata/ Species Name	Common Name	Unit	Spacing Type	Size	Individual Minimum Spacing (ft.)
TREES										
	109			FACU	<i>Liriodendron tulipifera</i>	Tulip poplar	CONT	Random	2" CAL	63
		10	21	FACU	<i>Fagus grandifolia</i>	American beech	CONT	Random	1.25" CAL	63
		20	41	FACU	<i>Quercus falcata</i>	Southern red oak	CONT	Random	2" CAL	45
		25	52	FACU	<i>Quercus velutina</i>	Black oak	CONT	Random	2" CAL	40
		5	10	FACU	<i>Quercus alba</i>	White oak	CONT	Random	1.25" CAL	91
		5	10	FACU	<i>Quercus rubra</i>	Red oak	CONT	Random	1.25" CAL	91
		10	21	FAC	<i>Nyssa sylvatica</i>	Black Gum	CONT	Random	2" CAL	63
			176		= total					
MIDSTORY TREES										
		5	10	FACU	<i>Cornus florida</i>	Flowering dogwood	CONT	Random	1.25" CAL	91
		10	21	FAC	<i>Amelanchier canadensis</i>	Serviceberry	CONT	Random	1.25" CAL	63
		100	31		= total					
SHRUB										
	48			UPL	<i>Viburnum acerifolium</i>	Maple-leaf viburnum	CONT	Random	2 GAL	55
		15	14	FAC	<i>Viburnum dentatum</i>	Southern arrowwood	CONT	Random	3 GAL	77
		10	9	FAC	<i>Vaccinium pallidum</i>	Lowbush blueberry	CONT	Random	2 GAL	96
		25	23	FACU	<i>Hammamelis virginiana</i>	Witchhazel	CONT	Random	3 GAL	60
		20	18	FACU	<i>Cercis canadensis</i>	Redbud	CONT	Random	2 GAL	68
		100	91		= total					
HERBACEOUS										
	70			FACU	<i>Athyrium filix-femina</i>	Common lady fern	CONT	Random	QUART	39
		40	53	FACU	<i>Polystichum acrostichoides</i>	Christmas Fern	CONT	Random	QUART	39
		20	27	FACU	<i>Eurybia divaricata</i>	White wood aster	CONT	Random	QUART	55
		100	133		= total					
HERBACEOUS SEED										
	N/A			UPL	<i>Carex pensylvanica</i>	Pennsylvania sedge	SEED	LB of P.L.S.	76%	N/A
		25	16.6	UPL	<i>Elymus hystrix</i>	Bottlebrush grass	SEED	LB of P.L.S.	76%	N/A
		25	16.6	FACW	<i>Elymus virginicus</i>	Virginia wild rye	SEED	LB of P.L.S.	76%	N/A
		25	16.6	FACU	<i>Tridens flavus</i>	Purpletop	SEED	LB of P.L.S.	76%	N/A
		15	10	FAC	<i>Dichanthelium clandestinum</i>	Deertongue	SEED	LB of P.L.S.	76%	N/A
		100	66.4		= total					

CON = Containerized

P.L.S. = Pure Live Seed

**PLANTING DETAILS & SCHEDULES**

DOWNTOWN COLUMBIA  
 CRESCENT NEIGHBORHOOD  
 PARCELS B THRU H, NON-BUILDABLE BULK PARCELS J THRU R,  
 O.S. LOTS 1 THRU 8 AND  
 MERRIWEATHER-SYMPHONY WOODS NEIGHBORHOOD O.S. LOT 1  
 AND NON-BUILDABLE BULK PARCEL A

SCALE	ZONING	SHEET
N.T.S.	NT	11071
DATE	TAXITILE	SHEET
JUNE, 2016	36 - 01	101 OF 102



PLANT COMPOSITION SCHEDULE

ZONE 4 - Supplemental Mesic Meadow Seeding										Size (acres): 0.42	
Wetland Indicator Status	Quantity per acre	Frequency (%)	Species Quantity	Vegetation Strata/ Species Name	Common Name	Unit	Spacing Type	Size	Individual Minimum Spacing (ft.)		
HERBACEOUS SEED (ERNMX-723 MD Lower Midland FACW Meadow Mix)											
	8										
		30	1	<i>Panicum rigidulum</i>	Redtop panicgrass	SEED	LB of P.L.S.	76%	N/A	N/A	
FACW		15	0.5	<i>Elymus virginicus</i>	Virginia wildrye	SEED	LB of P.L.S.	76%	N/A	N/A	
OBL		12	0.4	<i>Carex lurida</i>	Lund sedge	SEED	LB of P.L.S.	76%	N/A	N/A	
OBL		7	0.2	<i>Carex lupulina</i>	Hop sedge	SEED	LB of P.L.S.	76%	N/A	N/A	
OBL		6	0.2	<i>Scirpus atrovirens</i>	Green bulrush	SEED	LB of P.L.S.	76%	N/A	N/A	
FACW		5	0.2	<i>Carex scoparia</i>	Blunt broom sedge	SEED	LB of P.L.S.	76%	N/A	N/A	
FACW		3	0.1	<i>Juncus effusus</i>	Soft rush	SEED	LB of P.L.S.	76%	N/A	N/A	
FACW		2	0.1	<i>Eupatorium perfoliatum</i>	Boneset	SEED	LB of P.L.S.	76%	N/A	N/A	
FACW		2	0.1	<i>Helenium autumnale</i>	Common sneezeweed	SEED	LB of P.L.S.	76%	N/A	N/A	
FACW		2	0.1	<i>Eupatorium maculatum</i>	Spotted joe-pye weed	SEED	LB of P.L.S.	76%	N/A	N/A	
FACW		2	0.1	<i>Verbena hastata</i>	Blue vervain	SEED	LB of P.L.S.	76%	N/A	N/A	
FACW		2	0.1	<i>Scirpus cyperinus</i>	Woolgrass	SEED	LB of P.L.S.	76%	N/A	N/A	
FACW		2	0.1	<i>Onoclea sensibilis</i>	Sensitive fern	SEED	LB of P.L.S.	76%	N/A	N/A	
OBL		2	0.1	<i>Bidens cernua</i>	Nodding bur marigold	SEED	LB of P.L.S.	76%	N/A	N/A	
OBL		1	0	<i>Eupatorium coelestinum</i>	Mistflower	SEED	LB of P.L.S.	76%	N/A	N/A	
OBL		1	0	<i>Carex crinita</i>	Fringed sedge	SEED	LB of P.L.S.	76%	N/A	N/A	
OBL		1	0	<i>Asclepias incarnata</i>	Swamp milkweed	SEED	LB of P.L.S.	76%	N/A	N/A	
FACW		1	0	<i>Veronica noveboracensis</i>	New York ironweed	SEED	LB of P.L.S.	76%	N/A	N/A	
OBL		1	0	<i>Glyceria canadensis</i>	Rattlesnake grass	SEED	LB of P.L.S.	76%	N/A	N/A	
OBL		1	0	<i>Mimulus ringens</i>	Square stemmed monkeyflower	SEED	LB of P.L.S.	76%	N/A	N/A	
		0.5	0	<i>Aster puniceus</i>	Purplestem aster	SEED	LB of P.L.S.	76%	N/A	N/A	
FACW		0.5	0	<i>Ludwigia alternifolia</i>	Seedbox	SEED	LB of P.L.S.	76%	N/A	N/A	
FACW		0.5	0	<i>Lobelia siphilitica</i>	Great blue lobelia	SEED	LB of P.L.S.	76%	N/A	N/A	
OBL		0.5	0	<i>Iris versicolor</i>	Blueflag	SEED	LB of P.L.S.	76%	N/A	N/A	
		100	3.3								

P.L.S. = Pure Live Seed

PLANT COMPOSITION SCHEDULE

ZONE 5 - Supplemental Floodplain Forest Reforestation										Size (acres): 5.06	
Overall Minimum Spacing (ft.)	Quantity per acre	Frequency (%)	Species Quantity	Vegetation Strata/ Species Name	Common Name	Unit	Spacing Type	Size	Individual Minimum Spacing (ft.)		
TREES											
25	70										
		20	71	<i>Acer rubrum</i>	Red maple	CONT	Random	2" CAL	56		
		10	35	<i>Quercus palustris</i>	Pin oak	CONT	Random	1.25" CAL	79		
		15	53	<i>Quercus bicolor</i>	Swamp white oak	CONT	Random	1.25" CAL	64		
		5	18	<i>Quercus phellos</i>	Willow oak	CONT	Random	1.25" CAL	111		
		5	18	<i>Salix nigra</i>	Black willow	CONT	Random	2" CAL	111		
		25	89	<i>Platanus occidentalis</i>	American sycamore	CONT	Random	2" CAL	50		
		10	35	<i>Nyssa sylvatica</i>	Black gum	CONT	Random	1.25" CAL	79		
			319	= total							
MIDSTORY TREES											
25	70										
		5	18	<i>Betula nigra</i>	River birch	CONT	Random	1.5" CAL	111		
		5	18	<i>Acer negundo</i>	Boxelder	CONT	Random	1.25" CAL	111		
		100	36	= total							
SHRUB											
12	303										
		20	307	<i>Cornus amomum</i>	Silky dogwood	CONT	Random	3 GAL	27		
		15	230	<i>Alnus serrulata</i>	Smooth alder	CONT	Random	2 GAL	31		
		30	460	<i>Lindera benzoin</i>	Common spicebush	CONT	Random	3 GAL	22		
		15	230	<i>Cornus sericea</i>	Red osier dogwood	CONT	Random	2 GAL	31		
		20	307	<i>Viburnum dentatum</i>	Southern arrowwood	CONT	Random	2 GAL	27		
		100	1534	= total							

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

PLANT COMPOSITION SCHEDULE

ZONE 6 - Supplemental Upland Forest Reforestation										Size (acres): 2.63	
Overall Minimum Spacing (ft.)	Quantity per acre	Frequency (%)	Species Quantity	Wetland Indicator Status	Vegetation Strata/ Species Name	Common Name	Unit	Spacing Type	Size	Individual Minimum Spacing (ft.)	
TREES											
20	108										
		10	29	FACU	<i>Liriodendron tulipifera</i>	Tulip poplar	CONT	Random	2" CAL	63	
		10	29	FACU	<i>Fagus grandifolia</i>	American beech	CONT	Random	1.25" CAL	63	
		20	57	FACU	<i>Quercus falcata</i>	Southern red oak	CONT	Random	2" CAL	45	
		25	72	FACU	<i>Quercus velutina</i>	Black oak	CONT	Random	2" CAL	40	
		5	14	FACU	<i>Quercus alba</i>	White oak	CONT	Random	1.25" CAL	90	
		5	14	FACU	<i>Quercus rubra</i>	Red oak	CONT	Random	1.25" CAL	90	
		10	29	FACU	<i>Nyssa sylvatica</i>	Black Gum	CONT	Random	2" CAL	63	
			244		= total						
MIDSTORY TREES											
		5	14	FACU	<i>Cornus florida</i>	Flowering dogwood	CONT	Random	1.25" CAL	90	
		10	29	FACU	<i>Amelanchier canadensis</i>	Serviceberry	CONT	Random	1.25" CAL	63	
		100	43		= total						
SHRUB											
30	48										
		30	38	UPL	<i>Viburnum acerifolium</i>	Maple-leaf viburnum	CONT	Random	2 GAL	55	
		15	19	FACU	<i>Viburnum dentatum</i>	Southern arrowwood	CONT	Random	3 GAL	78	
		10	13	FACU	<i>Vaccinium pallidum</i>	Lowbush blueberry	CONT	Random	2 GAL	94	
		25	32	FACU	<i>Hammamelis virginiana</i>	Witchhazel	CONT	Random	3 GAL	60	
		20	25	FACU	<i>Cercis canadensis</i>	Redbud	CONT	Random	2 GAL	68	
		100	127		= total						
HERBACEOUS											
25	70										
		40	74	FACU	<i>Athyrium filix-femina</i>	Common lady fern	CONT	Random	QUART	39	
		40	74	FACU	<i>Polystichum acrostichoides</i>	Christmas Fern	CONT	Random	QUART	39	
		20	37	FACU	<i>Eurybia divaricata</i>	White wood aster	CONT	Random	QUART	56	
		100	185		= total						
HERBACEOUS SEED											
N/A	35										
		10	9.2	UPL	<i>Carex pennsylvanica</i>	Pennsylvania sedge	SEED	LB of P.L.S.	76%	N/A	N/A
		25	23	UPL	<i>Elymus hystrix</i>	Bottlebrush grass	SEED	LB of P.L.S.	76%	N/A	N/A
		25	23	FACW	<i>Elymus virginicus</i>	Virginia wild rye	SEED	LB of P.L.S.	76%	N/A	N/A
		25	23	FACU	<i>Tridens flavus</i>	Purpletop	SEED	LB of P.L.S.	76%	N/A	N/A
		15	13.8	FACU	<i>Dichanthium clandestinum</i>	Deertongue	SEED	LB of P.L.S.	76%	N/A	N/A
		100	82		= total						

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

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
Chief, Bureau of Highways Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
Chief, Division of Land Development Date  
Chief, Development Engineering Division Date

This development plan is approved for soil erosion and sediment control by the HOWARD SOIL CONSERVATION DISTRICT  
Howard Soil Conservation District Date

STATE OF MARYLAND  
PROFESSIONAL LAND SURVEYOR  
No. 10848  
Professional L.S. # 10848 Exp. Date 4/22/22  
AS-BUILT DATE: 04/24/2020  
Shansberger & Lane

Biohabitats  
The Stables Building 2081 Clipse Park Road  
Baltimore, MD 21211 / ph: 410.554.0156  
fx: 410.554.0168 / www.biohabitats.com  
Restore the Earth & Inspire Ecological Stewardship

DES.	DRN.	CHK.	DATE	REVISION	BY	APP'R.

PREPARED FOR:  
THE HOWARD HUGHES CORPORATION  
10480 LITTLE PATUXENT PARKWAY  
SUITE 400  
COLUMBIA, MD 21044  
ATTN: BOB JENKINS  
410-964-5443

PROFESSIONAL CERTIFICATION  
I HEREBY CERTIFY THAT THESE PLANS 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. 26980  
EXPIRATION DATE: FEBRUARY 2018.

PLANTING SCHEDULES  
DOWNTOWN COLUMBIA  
CRESCENT NEIGHBORHOOD  
PARCELS B THRU H, NON-BUILDABLE BULK PARCELS J THRU R,  
O.S. LOTS 1 THRU 8 AND  
MERRIWEATHER-SYMPHONY WOODS NEIGHBORHOOD O.S. LOT 1  
AND NON-BUILDABLE BULK PARCEL A  
ELECTION DISTRICT No. 5 HOWARD COUNTY, MARYLAND

SCALE	ZONING	
N.T.S.	NT	11071
DATE	TAXITILE	SHEET
JUNE, 2016	36 - 01	102 OF 102