			T	RESC
<u>GENERAL NOTES:</u> I. The property is zoned NT per the October 3, 2013 Comprehensive Zoning				
 Applicable DPZ File References: FDP DC Crescent-I, ECP 15-074, SDP 1. The following permits and tracking numbers have been assigned to this pro agencies: 	5-068, ECP 15-083.	PARCELS A	A-1 THF	RU A-3,]
For the Maryland Department of the Environment: 14-NT-3189/201461063 For the Army Corps of Engineers: CENAB-PP-RMN-2014-61063-M36 4. Site Analysis: Total Area of Site: 7.86 Acres	8	& 9 AND N	AERRI	VEATHI
Area of 100 Year Floodplain:0.92 AcresArea of Steep Slopes (outside of floodplain):0.00 AcresArea of Proposed Road Right-of-Way:1.27 Acres				
Total Number of Parcels: 3 Area of Parcels: 4.09 Acres Approximate Limit of Disturbance: 10.4 Acres (9.9 Acres) Approximate Limit of Disturbance: 10.4 Acres (9.9 Acres)	es within Crescent Neighborhood		REV	ISED
 and 0.5 Acres within Merriweather-Symphony Woods Neighborhood) 5. All construction shall be in accordance with the latest standards and specifications if applicable, 6. The contractor shall notify the Department of Public Works/ Bureau of Eng 				
 Division at (410) 313-1880 at least five (5) working days prior to the start The contractor shall notify "Miss Utility" at 1-800-257-7777 at least 48 hou being done. 	of work.		LOT 2	
8. Street light placement and the type of fixtures and poles shall be in acco Design Manual, Volume III (2006), Section 5.5.A. A minimum of 20' shall be light and any tree.	maintained between any street		COLUMBIA TOWN SECTION 3 ARE PLAT NO. 107	BA 2 📉 🔨 COL
9. Traffic Control Devices: a) The RI-I (STOP) signs and the street name sign development must be installed before the base paving is completed. b) The shown on the plans are approximate and must be field approved by Howar (110, 212, 2120).	he traffic control device locations rd County traffic division			
(410-313-2430) prior to the installation of any traffic control devices. c) their locations shall be in accordance with the latest edition of the "Maryle Control Devices" (MdMUTCD). d) All sign posts used for traffic control sign Right of Jagu shall be manufed on a 2 th and traffic devices (10.14)	and Manual on Uniform Traffic ns installed in the County		PARCEL A	
Right-of-Way shall be mounted on a 2" galvanized steel, perforated ("Quich guage) inserted into a 2-1/2" galvanized steel, perforated square tube sle anchor shall not extend more than two "Quick Punch" holes above ground le shall be mounted on top of each post.	eeve (12quage) - 3' long. the		COLUMBIA TOWN CEI SECTION 3 AREA PLAT NO. 9749	
 IO. 95% compaction in fill areas shall meet AASHTO T-180 requirements. II. This project is in conformance with the latest Howard County standards unit Traffic Impact Study and Traffic Signal Warrant Analysis submitted and app 			LOT 1 COLUMBIA TOWN CER	JTER
Development Plan (FDP-DC-Crescent-I) by Wells and Associates. 12. Boundary information is from boundary surveys by Gutschick, Little, and Web 13. Horizontal and vertical datum is based on Howard County Control Stations:	30GA, 36AA.		SECTION 3 AREA Plat no. 9749	
 Aerial topography by McKenzie Snyder, Inc. on March, 2007 and Gutschick, Topography north and west of Broken Land Parkway provided by Howard of 15. No grading, removal of vegetative cover or trees, or placement of new st wetlands, streams, their required buffers, and 100 year floodplain areas ur 	County GIS. tructures is permitted within	VILLA	LOT 3 GE OF HICKORY RID(ael .
 of Planning and Zoning as necessary disturbances or waivers have been ap 16. Vehicular ingresses & egresses to Broken Land Parkway and Little Patuxe as approved by Howard County Department of Planning and Zoning. 	pproved.	P	SECTION 5 AREA 2 LAT NO.S 6324 & 6	325
 The Cemetery Inventory Maps do not show any cemeteries within the projection The Scenic Roads Map does not indicate any scenic roads within or adjace Existing utilities are based on available Howard County records. 	ct limits. ent to the project limits.			Ž.,
 This property is within the Metropolitan District. Water and Sewer are Public per Contract No. 24-4928-D and are within the 21. This subdivision is exempt from the requirements of Section 16.1202(b)(1)(iv) of the Ho Conservation because the subject property is part of a Planned Unit development within the conservation because the subject property is part of a Planned Unit development within the conservation because the subject property is part of a Planned Unit development within the conservation because the subject property is part of a Planned Unit development within the conservation because the subject property is part of a Planned Unit development within the conservation because the subject property is part of a Planned Unit development within the conservation because the subject property is part of a Planned Unit development within the conservation because the subject property is part of a Planned Unit development within the conservation because the subject property is part of a Planned Unit development within the conservation because the subject property is part of a Planned Unit development within the conservation because the subject property is part of a Planned Unit development within the conservation because the subject property is part of a Planned Unit development within the conservation because the subject property is part of a Planned Unit development within the conservation because the subject property is part of a Planned Unit development within the conservation because the subject property is part of a Planned Unit development within the conservation because the subject property is part of a Planned Unit development within the conservation because the subject property is part of a Planned Unit development within the conservation because the subject property is part of a Planned Unit development within the conservation because the subject property is part of a Planned Unit development within the conservation because the subject property is part of a Planned Unit develop	ward County Code for forest	٨	PARCEL VILLAGE OF HICKORY SECTION 5 ARE	RIDGE -
Conservation because the subject property is part of a Planned Unit development will approval and 50% or more of the land is recorded and substantially developed bef 22. This site is subject to the Crescent Final Development Plan recorded as p the Crescent Neighborhood Concept Plan (NCP) recorded as plat numbers	fore December 31, 1992, Dat numbers 23403 thru 23409,		PLAT NO. 65	
Neighborhood Specific Design Guidelines (NSDG) recorded as Liber 16305 Neighborhood Specific Implementation Plan (NSIP) recorded as Liber 16306 23. There are no known existing dedicated bicycle lanes or sharrow bicycle an	Folio 415 and the Crescent 5 Folio I.			
there is the Downtown Multiuse Path along the road frontage of this prope 24. For information on the potential transit route circulation, see the Crescent Implementation Plan pages 16 and 17.	erty with Little Patuxent Parkway. t Neighborhood Specific			
25. Street tree and landscape plans have been prepared by a Registered La certified to conform with the Crescent Neighborhood Design Guidelines rec Howard County in Liber 16305, Folio 415 thru 511 and in Liber 16306, Folio 0	corded in the Land Records of 001 thru 192.			
 A landscape surety in the amount of \$5,700 for 19 street trees not within n privately maintained and provided with the Developer's Agreement. There are no existing structures, historic structures on site. A separate final plan (F-15-106) will be submitted to complete Merriweathe 				
Crescent Road network. 29. The on-street parking on Divided Sky Lane along the frontage of Parcels toward the parking requirements for Parcels A-1 and A-2. Parcel A-3 has	A-2 and A-3 are being counted s the parking structure on it.			
30. Stormwater management for this site is provided in accordance with Chapt Manangement Design Manual, Volumes I and 2. Throughout the site, Micro B have been used. All of the stormwater management devices shown on the	Bio-Retention (M-6) and Filterras se plans have been designed to			
treat the stormwater run-off from the public roads. The Micro Bio-Retentiand jointly maintained; DPW will maintain the inlets, and the plantings, etc. will Filterras will be privately owned and maintained. 31. For information on the locations of primary and secondary pedestrian route	Il be privately maintained. The			
 Chapter 3 of the Crescent Neighborhood Specific Guidelines. For informat changes, see Chapter 3 of the Crescent Neighborhood Specific Guidelines. 32. Public water and sewer allocations will be granted at the time of issuance 	tion on the Street Framework			
available at that time. 33. See Sheet 21 for the Stormwater Management Practice Chart. 34. A Reciprocal Easement Agreement between The Columbia Association, Mer	rriweather Business Trust and The	•	366	EXISTING CONTOUR
Howard Research and Development Corporation was recorded on May 27, 35. A determination has been made by the Department of Planning and Zoning i features (including steep slopes, streams, wetlands, stream buffers and wet public and private roads, utilities, or stormwater management as shown on t	that the impacts to environmental tland buffers) for construction of		<u> </u>	PROPOSED CONTOUR EXISTING TREELINE (DOES NOT
necessary for the reasonable development of this property and the fulfillm Plan. 36. Stockpile and construction staging south of Divided Sky Lane must be remo	nent of the Downtown Columbia			MEET CRITERIA FOR A FORES
2016 concert season; otherwise a revised redline must be submitted to DP. the relocation of 250 displaced Merriweather Post Pavilion parking space mitigation requirement per FDP-DC-Crescent-1.	Z by February 29, 2016 to indicate		EX. 8"9	LIMIT OF ULTIMATE FOREST EXISTING SANITARY SEWER
			8"S. EX, 8"W.	PROPOSED SANITARY SEWER
		STATE OF MARY		EXISTING WATERLINE PROPOSED WATERLINE
PPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS		Contraction of the second s	EX. S.D.	- PROPOSED FIRE HYDRANT
nief, Bureau of Highways	NATA THE REAGANCE INFORMATION PRESS INFORMATION PRESS	HIS STR. 9. 10849	S.D.	EXISTING STORM DRAIN PROPOSED STORM DRAIN
PPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING	G. SCOTT SHANABER SHANABERGER & LAN	A U	ana	SOIL TYPE BOUNDARY
nief, Division of Land Development gmp Date	Professional L.S. #1084 AS-BUILT DATE 12-1			SOIL TYPE / SOIL GROUP
Uhud Elundry 11-19.15 nief, Development Engineering Division KSP Date		andar mandala finansa kana kana kana kana kana kana kana	a ta da ca a su	
GLWGUTSCHICK LITTLE & WEBER, P.A.			*****	

CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS

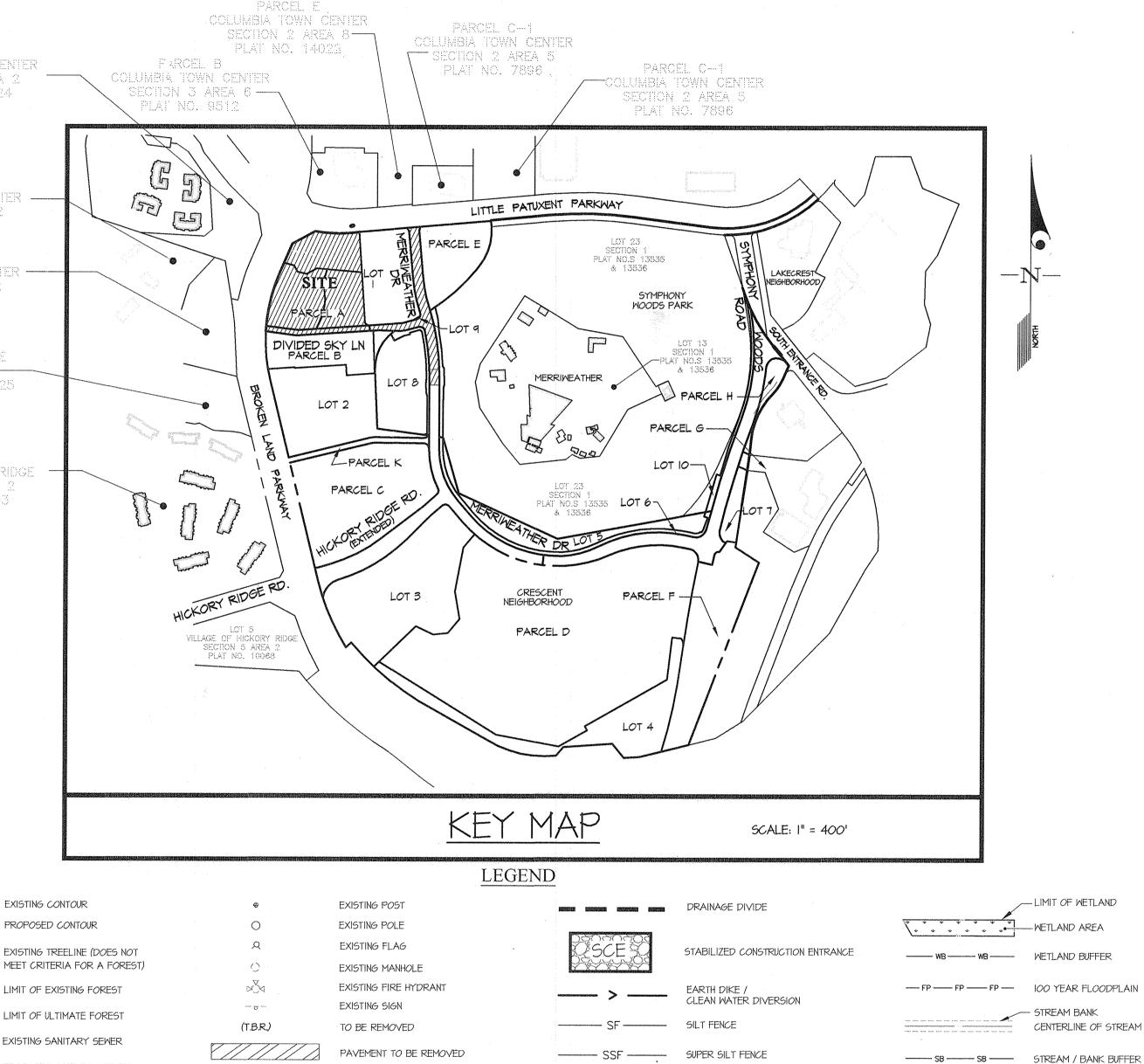
3909 NATIONAL DRIVE - SUITE 250 - BURTONSVILLE OFFICE PARK

: 301-421-4024 BALT: 410-880-1820 DC/VA: 301-989-2524 FAX: 301-421-4186

L:\CADD\ORAWINGS\11071\PLANS BY GLW\Finds\PARCEL A\11071_01_COVER SHEET.dwg DES. MJT DRN. WSJ CHK. MJT DATE

BURTONSVILLE, MARYLAND 20866

NTOWN COLUMBIA ESCENT NEIGHBORHOOD U A-3, E, NON-BUILDABLE BULK PARCEL L, OPEN SPACE LOTS 1, 'EATHER-SYMPHONY WOODS NEIGHBORHOOD OPEN SPACE LOT 1 ISED ROAD CONSTRUCTION PLANS



CIP

AGIP

505

605

_AB

FB

EXISTING CURB AND GUTTER

EXISTING EDGE OF PAVEMENT

REVISION

PROPOSED CURB AND GUTTER

CONCRETE SIDEWALK

PROPOSED REVERSE CURB AND GUTTER

PROPOSED MULTI-PURPOSE PATH

MBR-# MICRO BIO-RETENTION FACILITY (M-6) . TYPE / SOIL GROUP PROPOSED STREET LIGHT LIMIT OF DISTURBANCE × × ? ? ? SI# SEDIMENT TRAP THE PLANS IN THIS REVISED ROAD CONSTRUCTION SET SUPERCEDE PLANS DATED 10/13/2015 PREPARED FOR: PROFESSIONAL CERTIFICATION THE HOWARD HUGHES CORPORATION HEREBY CERTIFY THAT THESE PLANS DO 10480 LITTLE PATUXENT PARKWAY WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED SUITE 400 PROFESSIONAL ENGINEER UNDER THE COLUMBIA, MD 21044 CRESCENT NEIGHBORHOOD PA LAWS OF THE STATE OF MARYLAND, LICENSE NO. 12975 EXPIRATION DATE: MAY 26, 2016 ATTN: BOB JENKINS SPACE LOTS 1, 8 & 9 AND MERRIW 410-964-5443 CHASS 11-12-15 BY APP'R LECTION DISTRICT No. 5

CURB INLET PROTECTION

STONE OUTLET STRUCTURE

GABION OUTLET STRUCTURE

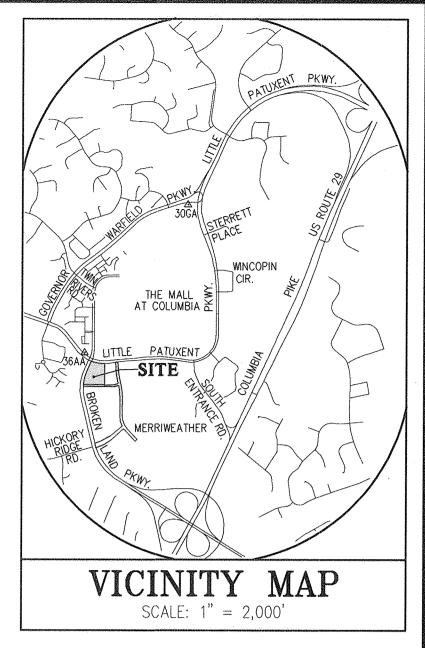
GABION OUTLET STRUCTURE

FILTER BAG

AT GRADE INLET PROTECTION

HOWARD COUNTY CONTROL STATIONS 30GA NORTHING: 566,053.5979 EASTING: 1,352,177.5307 ELEVATION: 339.878 (LATEST ADJ. NOV. 2008)

36AA NORTHING: 562,804.8537 EASTING: 1,349,906.1701 ELEVATION: 359.151 (LATEST ADJ. NOV. 2008)



SHEET INDEX



2 - LIMITS OF WORK

- 3 DIVIDED SKY LANE PLAN and PROFILE
- 4 MERRIWEATHER DRIVE PLAN and PROFILE
- 5 SIGNING, STREET TREE AND LIGHTING FLAN
- 6 TYPICAL ROAD SECTION AND CURB DETAILS
- 7 ADA RAMPS
- 8 DEMOLITION PLAN
- 9 GRADING PLAN
- 10 MASS GRADING AND SEDIMENT CONTROL PLAN
- II MASS GRADING AND SEDIMENT CONTROL PLAN
- 12 SEDIMENT TRAP DETAILS
- 13 SEDIMENT CONTROL NOTES AND DETAILS
- 14 SEDIMENT CONTROL NOTES AND DETAILS
- 15 STORM DRAIN DRAINAGE AREA MAP
- 16 STORM DRAIN PROFILES
- 17 STORM DRAIN PROFILES
- 18 STORMWATER MANAGEMENT DRAINAGE AREA MAP
- 19 STORMWATER MANAGEMENT ESD DETAILS
- 20 STORMWATER MANAGEMENT NOTES AND DETAILS
- 21 STORMWATER MANAGEMENT NOTES AND DETAILS
- <u>ARCH SPAN</u>
- 22 LOCATION PLAN, GENERAL NOTES, DESIGN DATA
- 23 BRIDGE PLAN
- 24 FOUNDATION PLAN
- 25 TYPICAL BRIDGE SECTION, FOUNDATION DETAILS
- 26 WINGWALL SECTIONS
- 27 END ELEVATIONS
- 28 LONGITUDINAL SECTION, HEADWALL DETAILS
- 29 WINGWALL DETAILS
- - 30 SPECIFICATIONS FOR MANUFACTURE & INSTALLATION (I) 31 - SPECIFICATIONS FOR MANUFACTURE & INSTALLATION (2)

----- FLOODPLAIN CROSS SECTION

EXISTING TREE

###

-17

PROPOSED STREET TREE

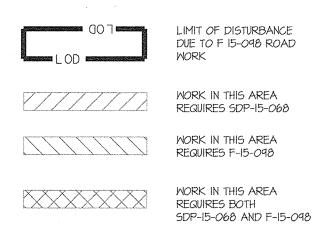
SOIL BORING LOCATION

EXISTING STREET LIGHT

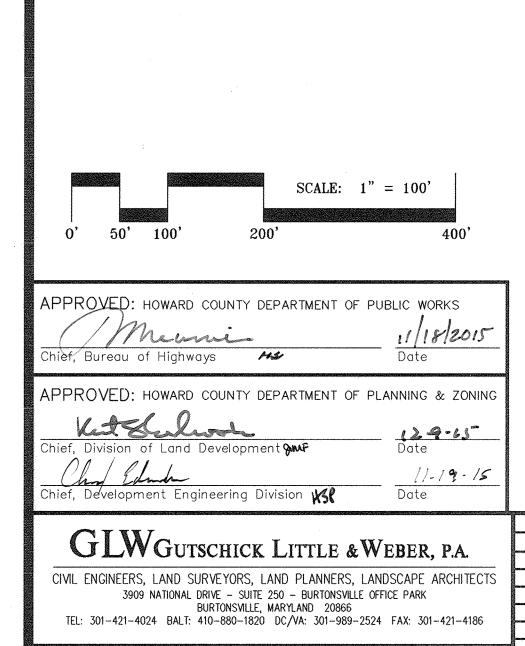
THE PURPOSE OF THESE REPLACEMENT SHEETS IS TO REMOVE A PORTION OF THE ROAD CONSTRUCTION PLANS PREVIOUSLY SHOWN ON THE F 15-106 PLANS AND INCLUDE THEM IN THIS PLAN SET

COVER SHEET	SCALE ZONING G. L. W				
OWNTOWN COLUMBIA	AS SHOWN	NT	11071		
ARCELS A-1 THRU A-3, E, NON-BUILDABLE BULK PARCEL L, OPEN WEATHER-SYMPHONY WOODS NEIGHBORHOOD OPEN SPACE LOT 1	DATE	TAX MAP - GRID	SHEET		
HOWARD COUNTY, MARYLAND	NOV., 2015	36 - 01	1 OF 31		

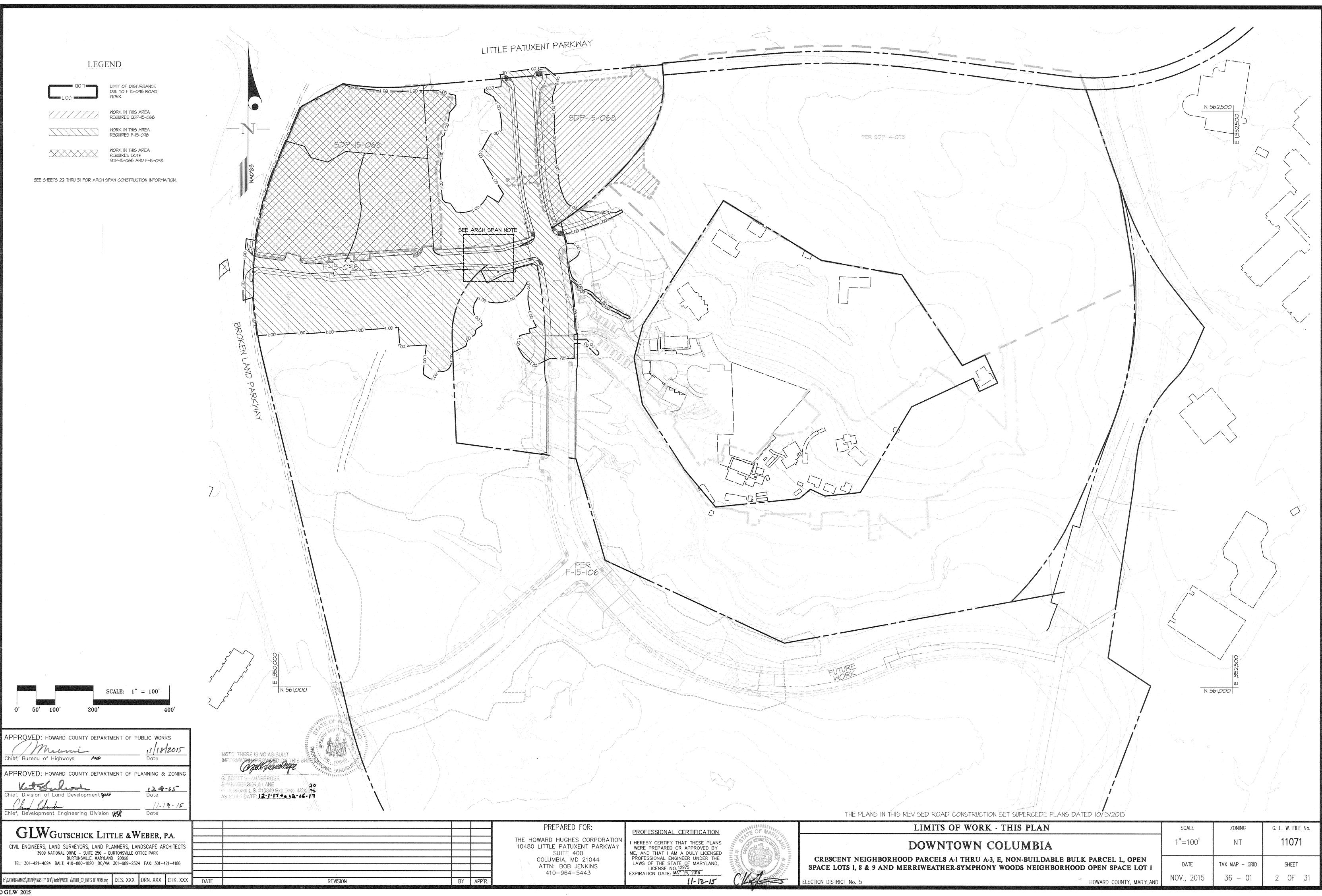




SEE SHEETS 22 THRU 31 FOR ARCH SPAN CONSTRUCTION INFORMATION.



© GLW 2015



MITS OF WORK - THIS PLAN	SCALE	ZONING	G. L. W. FILE No.
WNTOWN COLUMBIA	1"=100'	NT	11071
RCELS A-1 THRU A-3, E, NON-BUILDABLE BULK PARCEL L, OPEN /EATHER-SYMPHONY WOODS NEIGHBORHOOD OPEN SPACE LOT 1	DATE	TAX MAP - GRID	SHEET
HOWARD COUNTY, MARYLAND	NOV., 2015	36 - 01	2 OF 31

LEGEND		
	EXISTING PAVING	
	CONCRETE WALKS	3
	ASPHALT MULTI-USE PATH D.B.O. (DESIGNED BY OTHERS)	
	TEMPORARY ASPHALT PATH	
SB	50' STREAM / BANK BUFFER	\mathbf{G}
WB	25' WETLAND BUFFER	NT
\$	EXISTING STREET LIGHT	
*	LED-100 MODERN POST-TOP FIXTURE MOUNTED ON A 14' BLACK FIBERGLASS PO	LE
*	LED-150 MODERN POST-TOP FIXTURE MOUNTED ON A 14' BLACK FIBERGLASS POL	E INNON
0	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	

				٦
-	DIVIDED S			
	LOW LINE E		T	-
PT. NO	STATION	OFFSET	ELEV.	-
\rightarrow	0+51.72	46.5' L	344.19	-
(2)	0+89.71	12.0' L	344.12	-
(3)	1+45.99	12.0' L	345.45	
	1+55.87	20.5' L	345.89	
	1+57.88	33.6' L	346.00	
<u>(6)</u>	1+95.24	23.5' L	345.95	
$\langle 1 \rangle$	1+95.91	27.9'L	346.00	-
$\langle 8 \rangle$	2+05.14	12.0' L	345.65	
(9)	2+16.41	12.0' L	345.49	
$\langle 0 \rangle$	2+30.98	12.0' L	345.21	
$\langle \rangle$	2+85.04	12.0' L	344.17	
$\langle 2 \rangle$	2+85.04	20.0' L	343.99	
(13)	3+29.04	20.0' L	343.15	
$\langle 4 \rangle$	3+29.04	12.0' L	343.33	
$\langle 15 \rangle$	3+84.96	12.0' L	342.25	
$\langle 16 \rangle$	3+84.96	20.0' L	342.07	
(17)	4+94.96	20.0' L	341.83]
(18)	4+94.96	12.0' L	342.01	1
(19)	4+96.96	12.0' L	342.01	1
20	5+13.96	18.7' L	342.22	1
(21)	5+21.96	37.0'L	341.99	1
22	5+45.96	37.0' L	342.26	1
(23)	5+70.96	12.0' L	342.78	1
24>	5+70.96	12.0' R	342.78	1
(25)	4+94.96	12.0' R	342.01	1
26	4+94.96	20.0' R	341.83	1
	3+84.96	20.0' R	342.07	1
27) 28)	3+84.95	12.0' R	342.25	1
69	3+29.04	12.0' R	343.15	
60	3+29.04	20.0' R	343.16	1
(31)	2+85.04	20.0' R	344.01	
32	2+85.04	12.0' R	344.17	
33	2+30.98	12.0' R	345.21	
34	2+16.41	12.0' R	345.49	
35	0+92.71	12.0' R	344.34	
36	0+57.94	51.0' R	342.69	
37	153+53.31	53.1' R	341.89	(BL
38	7+33.23	12.00' L.		100
(39)	8+00.36	12.00 L.		
40	8+18.39	19.68' L.		
41	8+25.34	38.00' L.		
42	8+25.26	49.08' R.		-
(43)	8+18.34		337.46	
44	8+00.29	30.71' R.		
45	7+33.12	23.00' R.		
46	7+18.97	23.00' R.	342.05	
(47)		23.00' R.	343.35	
<u><u> </u></u>	6+18.97	12.00' R.	545.55	ļ

USING A 6' ARM

NOTES:

I. FOR LIMITS OF WORK, SEE SHEET 2: "LIMITS OF WORK - THIS PLAN"

PAL

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LA BREDIA

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BROKE

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340

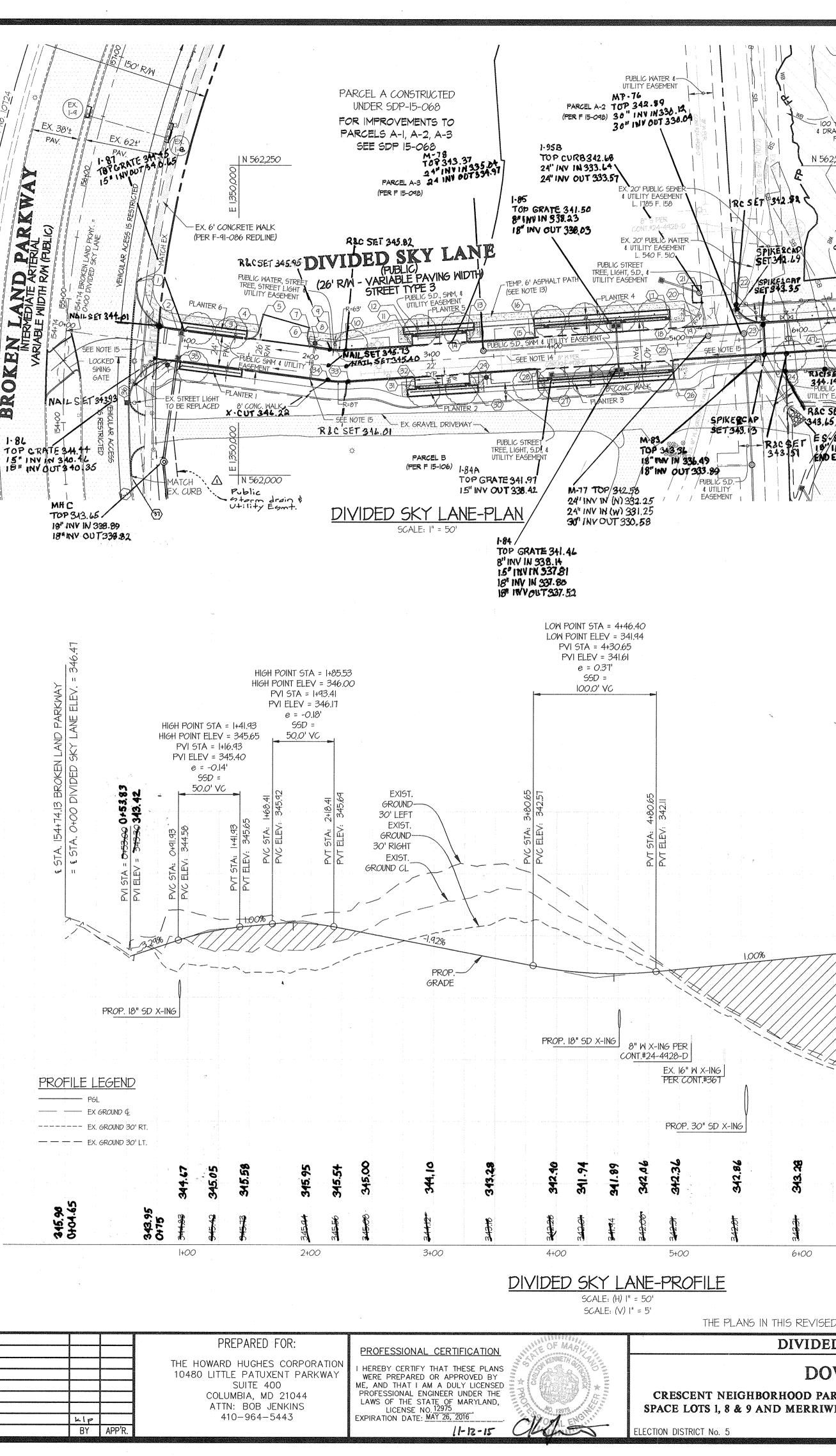
330

- 2. FOR PAVING DETAILS SEE SHEET 6.
- 3. FOR ROAD TYPICAL SECTION DETAILS SEE SHEET 6.
- 4. FOR CURB DETAILS SEE SHEET 6.
- 5. FOR FLOODPLAIN CROSS SECTION AND WSEL SEE SHEETS 9.
- 6. FOR EXISTING ITEMS TO BE REMOVED AND BEARINGS AND DISTANCES SEE SHEETS 8.
- 7. PROPOSED SIDEWALK RAMPS ARE HOWARD COUNTY TYPE B R-4.03 RAMPS UNLESS OTHERWISE NOTED.
- 8. THE PURPOSE OF THE MEDIAN BREAK IN BROKEN LAND PARKWAY IS TO ASSIST PATRONS OF MERRIWEATHER POST PAVILION EVENTS IN LEAVING THE VENUE. ONLY HOWARD COUNTY POLICE PERSONNEL MAY OPEN THE GATE AND DIRECT TRAFFIC DURING THE TIME IN WHICH THE MEDIAN BREAK IS UTILIZED BY PATRONS.
- 9. PARALLEL PARKING COUNT: 14 SPACES (22'x8')
- IC. ALL PLANTERS SHOWN (I THRU 6) WILL BE CONSTRUCTED UNDER THESE PLANS.
- II. ALL STORM DRAIN SHOWN WILL BE PUBLICLY MAINTAINED. FOR STORM DRAIN INFORMATION SEE SHEETS 16-17.
- 12. DETAILS FOR GRATES IN THE PLANTER STEP OFF AREA ARE SHOWN ON SHEET 21.
- 13. A SIDEWALK IS BEING CONSTRUCTED NORTH OF THE PLANTERS ON THE NORTH SIDE OF DIVIDED SKY LANE WITH SDP 15-068. THE ASPHALT PATH SHOWN ON THESE PLANS WILL ONLY BE CONSTRUCTED IF A PEDESTRIAN ROUTE IS NEEDED PRIOR TO THE COMPLETION OF THE WORK UNDER SDP 15-068.
- 14. THE CROSSWALK WILL BE DESIGNED AND CONSTRUCTED WITH THE PARCEL 'B' SITE PLAN SUBMISSION.
- 15. CONTRACTOR IS TO INSTALL 2-4" PVC CONDUITS AT A DEPTH OF 36".
- 31 P) 16. ALL STREET LIGHTS SHOWN WILL BE PUBLIC AND WILL BE WITHIN A PUBLIC STREET LIGHT AND UTILITY EASEMENT. FOR STREET TREES AND STREET LIGHTS INFORMATION SEE SHEETS 5.
- 17. FROM POINT 19 TO POINT 23 THERE WILL BE NO CURB AND GUTTER INSTALLED, ONLY PAVEMENT.
- 18. TRAFFIC BARRIER DETAILS OVER THE CULVERT PROVIDED ON SHEET 6.

CURVE DATA CHART										
CURVE	STREET NAME	PC STA.	PT STA.	RADIUS	TANGENT	ARC	CHORD	BEARING	DELTA	
C7	DIVIDED SKY LANE	2+16.41	2+30.98	75.00'	7.31'	14.58'	14.55'	588°15'31"E	11°08'07"	

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS Mennie Chief, Bureau of Highways		
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING		
Vert Sheline13-9-65'Chief, Division of Land Development & TDateImage: Chief, Development Engineering Division 168I/1./9.15DateDate	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	
GLWG UTSCHICK 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		
L:\CADD\DRAWINGS\11071\PLANS BY Q.W\Finds\PARCEL A\11071_03-04_R0ADS.dwg DES. MJT DRN. WSJ CHK. MJT	DATE REVISION	ni politika ina na manana ana a na ana ana ana ana ana ana a

© GLW 2014



Lick Point SDA + 0.00B Miles Point SDA + 0.00B Miles Point SDA + 0.00B Miles Point SDA + 0.00B So - 01 So - 01 So - 01 So - 01 So - 01 So - 01 So - 01 So - 01 So - 01 So - 01 So - 01 So - 01 So - 01 <th>PR FLOODFLAIN PRAINAGE EASEMENT of PD 30 P 45 PD 40 PD 40</th> <th></th> <th>BLE CURE $15FL$ RR 0 $16FL$ SS 0 $10FL$ TT 2 $00FL$ TT 2 $02FL$ UU 2 $02FL$ VV 2 $02FL$ WW 2 $00FL$ YY 3 $30FL$ IA 3 $53FL$ IB 3 $27FL$ IC 4 $01FL$ IP 4 $01FL$ IP 5 $01FL$ IF 5 $01FL$ II 6</th> <th>NUDED SKY LANE AS BUILT TOP/FLOWLINE TABLE 158.69 49.2'R 342.90 FL 199.59 12.3'R 344.36 FL 102.41 12.5'R 345.70 FL 142.0.65 11.8'R 345.53 FL 154.41 11.9'R 344.79 FL 154.41 11.9'R 344.79 FL 152.94 12.0'R 344.23 FL 145.04 19.9'R 343.30 FL 131.04 12.1'R 343.30 FL 145.10 20.2'R 342.36 FL 145.10 20.2'R 342.94 FL 145.14 11.9'R 342.82 FL 145.14 11.9'R 342.94 FL 131.2 12.1'R 343.20 FL 191.55 20.1'R 342.94 FL 132.13 23.0'R 341.39 FL</th>	PR FLOODFLAIN PRAINAGE EASEMENT of PD 30 P 45 PD 40 PD 40		BLE CURE $15FL$ RR 0 $16FL$ SS 0 $10FL$ TT 2 $00FL$ TT 2 $02FL$ UU 2 $02FL$ VV 2 $02FL$ WW 2 $00FL$ YY 3 $30FL$ IA 3 $53FL$ IB 3 $27FL$ IC 4 $01FL$ IP 4 $01FL$ IP 5 $01FL$ IF 5 $01FL$ II 6	NUDED SKY LANE AS BUILT TOP/FLOWLINE TABLE 158.69 49.2'R 342.90 FL 199.59 12.3'R 344.36 FL 102.41 12.5'R 345.70 FL 142.0.65 11.8'R 345.53 FL 154.41 11.9'R 344.79 FL 154.41 11.9'R 344.79 FL 152.94 12.0'R 344.23 FL 145.04 19.9'R 343.30 FL 131.04 12.1'R 343.30 FL 145.10 20.2'R 342.36 FL 145.10 20.2'R 342.94 FL 145.14 11.9'R 342.82 FL 145.14 11.9'R 342.94 FL 131.2 12.1'R 343.20 FL 191.55 20.1'R 342.94 FL 132.13 23.0'R 341.39 FL
BEER FROPOSED BEER SE	HIGH POINT STA = $6+57.04$ HIGH POINT STA = 50.0° VC HIGH	= 8746.335.17 = 8449.30 [5TA, 8+49.02 DIVIDED SKY LANE V = 558.32 = 1 5TA, 4+95.69 MERRIMEATHER DR 338.19 338.19	EREBY CERTIFY, BY SEAL OWN ON THIS PLAN WERE OWN ON THIS PLAN WERE PROVED PLANS AND SPEC SCOTT SHANABERGEA NABERGER & LANE OFESSIONAL LANDS URV ENSE EXPIRATION DATES BUILT SURVEY DATES 12	THAT THE FACILITIES E CONSTRUCTED AS THE CURRENT CIFICATIONS MULTICATIONS EVOR #10849
ED ROAD CONSTRUCTION SET SUPERCEDE PLANS DATED 10/13/2015 ED SKY LANE PLAN and PROFILE SCALE ZONING G. L. W. FILE	BEE PROPOSED H SP PR	PROP. 16" W X-ING PROP. 30" SD X-ING CH	330 	ZONING G. L. W. FILE No.

ED SKY LANE PLAN and PROFILE	SCALE	ZONING	G. L. W. FILE No.
WNTOWN COLUMBIA	1' = 50'	NT	11071
ARCELS A-1 THRU A-3, E, NON-BUILDABLE BULK PARCEL L, OPEN WEATHER-SYMPHONY WOODS NEIGHBORHOOD OPEN SPACE LOT 1	DATE	TAX MAP - GRID	SHEET
HOWARD COUNTY, MARYLAND	NOV., 2015	36 - 01	3 OF 31

F 15-098

LEGEND			
	EXISTING PAVING		× N
	CONCRETE WALKS		KW
	ASPHALT MULTI-USE PATH - SEE NOTE 12		220400
SB	50' STREAM / BANK BUFFER	E 1,350,750	
WB	25' WETLAND BUFFER	562,15(
*	EXISTING STREET LIGHT		
*	LED-100 MODERN POST-TOP FIXTURE MOUNTED ON A 14' BLACK FIBERGLASS POLE	O. 199	IUXENT
*	LED-150 MODERN POST-TOP FIXTURE MOUNTED ON A 14' BLACK FIBERGLASS POLE	AT NON AT	E
	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		
		MBIA AREA 14022	EX. LIGHT

<u>0</u>

HUBL MAL MAL

ARTER

X CUT ON

HC STRIP

TO BE

REMOVED X-CUT

\$356.50

370

360

350

340

330

NOTES:

LEGEND

I. FOR LIMITS OF WORK, SEE SHEET 2: "LIMITS OF WORK - THIS PLAN"

2. FOR PAVING DETAILS SEE SHEET 6.

3. FOR ROAD TYPICAL SECTION DETAILS SEE SHEET 6.

4. FOR CURB DETAILS SEE SHEET 6.

- 5. FOR FLOODPLAIN CROSS SECTION AND WSEL SEE SHEETS 9.
- 6. FOR EXISTING ITEMS TO BE REMOVED AND BEARINGS AND DISTANCES SEE SHEETS 8.
- 7. PROPOSED SIDEWALK RAMPS ARE HOWARD COUNTY TYPE B R-4.03 RAMPS UNLESS OTHERWISE NOTED.

8. ALL FILTERRAS SHOWN (1-2) WILL BE CONSTRUCTED UNDER THESE PLANS.

9. ALL STORM DRAIN SHOWN WILL BE PUBLICLY MAINTAINED. FOR STORM DRAIN INFORMATION SEE SHEETS 16-17.

IO. DETAILS FOR GRATES IN THE PLANTER STEP OFF AREA ARE SHOWN ON SHEET 21.

II. ALL STREET LIGHTS SHOWN WILL BE PUBLIC AND WILL BE WITHIN A PUBLIC STREET LIGHT AND UTILITY EASEMENT. FOR STREET TREES AND STREET LIGHTS INFORMATION SEE SHEETS 5.

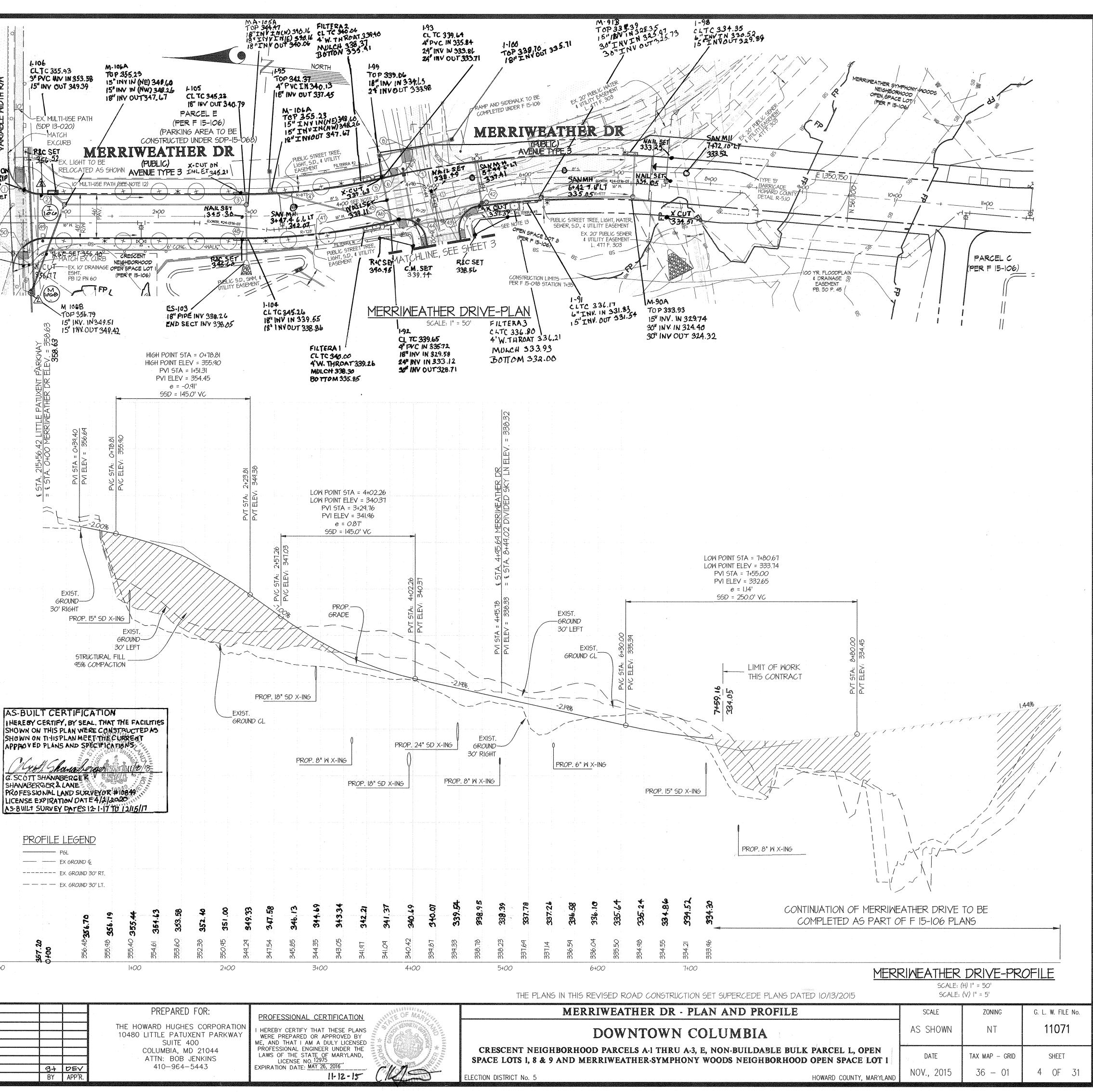
12. ASPHALT MULTI-USE PATH HAS BEEN SHOWN FOR INFORMATIONAL PURPOSES, REFER TO F-15-106 FOR DETAILS AND SPECIFICATIONS

13. DEVELOPER WILL BE RESPONSIBLE TO INSTALL STREET LIGHT CONDUIT AND HAND BOXES TO CONNECT PATHWAY LIGHTING SYSTEM ACROSS NEW PUBLIC ROADWAY AND ACROSS PRIVATE DRIVEWAY GOING INTO SITE FROM LPP FOR SDP-15-068.

	NEATHER OW LINE EL		ABLE		VEATHER OW LINE EL	DR EVATION T	ABLE			
PT. NO	STATION	OFFSET	ELEV.	PT. NO	STATION	OFFSET	ELEV.	-		
$\langle 1 \rangle$	0+48.11	32.85' L.	356.58	(39)	+ .03	23.00' R.	337.30			
$\langle 2 \rangle$	0+72.44	23.00' L.	355.55	40	7+59.16	23.00' R.	333.29			
3	2+90.11	23.00' L.	343.70	(41)	6+49.79	23.00' R.	334.50			
$\langle 4 \rangle$	3+68.15	23.00' L.	340.66	(42)	5+45.83	23.00' R.	336.74			
$\langle 5 \rangle$	4+47.80	23.00' L.	338.92	(43)	5+27.22	30.58' R.	337.46			
$\langle 6 \rangle$	4+61.45	23.00' L.	338.59	(44)	4+75.24	30.57' R.	338.55			
$\langle 7 \rangle$	4+78.13	29.94' L.	338.96	45	4+56.67	23.00' R.	338.70			
<u> </u>	4+85.33	46.82' L.	339.33	(46)	4+46.91	23.00' R.	338.93			
				(47)	3+68.15	23.00' R.	340.66			
	· · · · · · · · · · · · · · · · · · ·			48	2+89.39	23.00' R.	343.73	MERI	RIWEATHE	R DRIV
				(49)	0+77.66	23.00' R.			AS-BUILT	
				50	0+52.35	33.83' R.	355.64	CURB	TOP/FLOWLIN	IE TABLE
				·	(L.,			
(14)	6+25.91	23.00' L.	<u>∲</u>	-	MERR	WEATH	·	NE A 0+3	6.93 61.0'L	357.93 Fl
(15)	7+24.43	23.00' L.	333.53			AS-BUILT			1.94 23.0'L	
(16)	7+37.93	28.71' L.	333.76		CURBTO	op/flowl	INE TAB		10.92 23.1'L	
(10)					P 0+42	29 54.81	2 256 ME		7.42 23.1'L	
(18)	7+43.84	58.58' L.	333.99			.71 22.9'			-	340,26T
(19)	7+46.18	74.04' L.	334.05		· · ·	92 23.01				
20	7+52.43	87.04' L.	334.18			92 22.9'1			16.33 56.9'L	
21	7+84.55	79.86' L.	331.83		1	06 22.8'1				
22 23	7+82.94	64.92' L.	331.80			89 23.01		FL J 5+3		337.15 F
	7+82.94	53.00' L.	331.80			.78 47.61		FL K 5+4		337.06 F
24	7+91.73	31.79' L.	332.57			06 47.3'			9.62 23.2'L	334:467
25	8+12.94	23.00' L.	333.33		X 5+44.		R 337.01			334.237
<i>26</i>	+ .03	23.00' L.	337.30		Z 7435.	.03 23.2'1		3FL 0 71	9.13 23.0'L	333.57 F

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				્ દા	JRVE DATA	A CHART	· · · · · · · · · · · · · · · · · · ·	· · · ·				
	CURVE	STREET NAME	PC STA.	PT STA.	RADIUS	TANGENT	ARC	CHORD	BEARING	DELTA		
	CI	MERRIWEATHER DRIVE	2+89.39	4+46.91	699.54'	79.09'	157.51'	157.18'	SII°26'25"E	12°54'04"		320
	62	MERRIWEATHER DRIVE	4+46.91	7+59.16	1000.001	157.41'	312.25'	310.99'	58°56'44"E	17°53'27"		
Chi AF	ef, Bureau PROVED ef, Division	HOWARD COUNTY DEPAR Munic of Highways AS HOWARD COUNTY DEPAR County DEPAR County Depart County County Depart County County Depart County County County Depart County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County Count	RTMENT OF	PLANNING	& ZONING 4 - 1.5 19-15			RAPHIC SC. 0 25 1 inch =	50	100		-0+50
- C	IVIL ENGINEE	WGUTSCHICK LI RS, LAND SURVEYORS, LAND 1909 NATIONAL DRIVE - SUITE 250 BURTONSVILLE, MARY -4024 BALT: 410-880-1820 DC/	PLANNERS, BURTONSVILLE AND 20866	ANDSCAPE OFFICE PARK	ARCHITECTS		2 /2 F	cev.est	erm dra	ines to r	eflect Ex. dry uti	litiea
L:\CAD	D\DRAMINGS\11071\Pl	ANS BY CLW\Finds\PARCEL A\11071_03-04_ROADS.d	ng DÉS. MJ	DRN. Ws	Ј СНК. МЈТ						REVISION	

© GLW 2014



9+ DEV

F 15-098

			-	
		NT LIST		
SYMBOL	QTY.	TYPE	NAMES (BOTANICAL / SCIENTIFIC).	SIZE/COMMENTS
(\mathbf{x})	SHA	DE TR	EES	
	14	AR	ACER RUBRUM 'OCTOBER GLORY'/ OCTOBER GLORY RED MAPLE	4" CAL. B≬B
	21	TG	THORNLESS HONEYLOCUST GLEDETZIA	3" CAL. B≰B
$\mathbf{\bullet}$	3		ACER GINNALA 'AMUR MAPLE'	HEIGHT: 15'-25'; SPREAD: 15'-25'
TOTAL:	38			

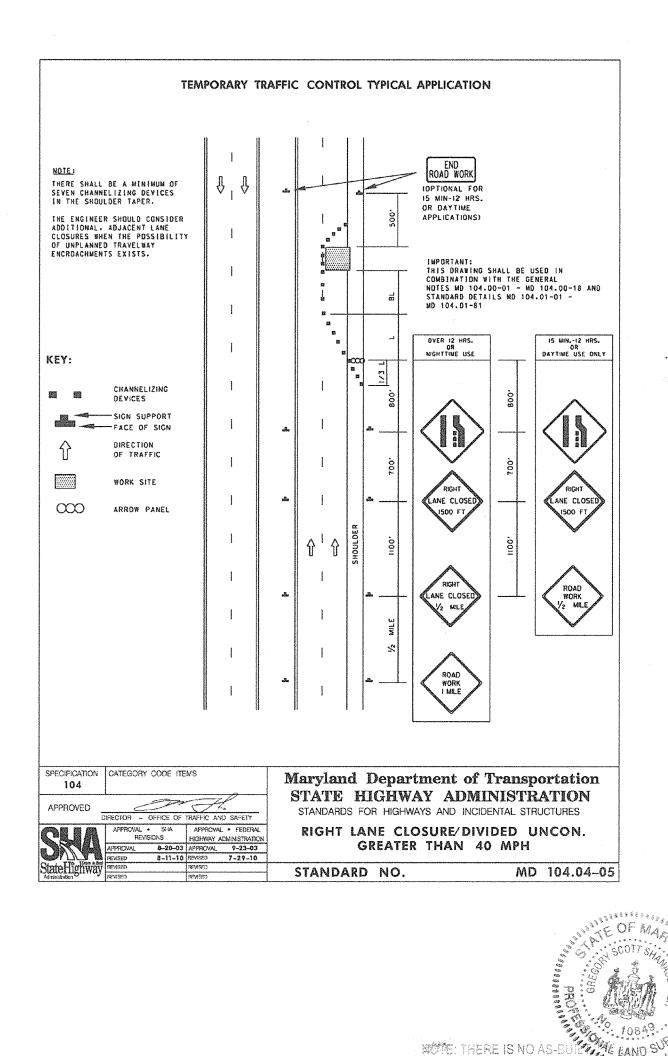
STREET TREE NOTES: I) REFER TO SHEET 21 FOR STREET TREE DETAILS.

2) LENGTH OF ROAD RIGHT-OF-WAY NOT ADJACENT TO OPEN SPACE (PARK) = 1491'

3) REQUIRED NUMBER OF TREES @ I PER 40 FEET = 38

 ∞ INDICATES TREE MUST BE INSPECTED BY THE LANDSCAPE INSPECTOR PRIOR TO THE RELEASE OF THE SURETY.

SIGN SCHEDULE					
TYPE	SIZE		STATION	OFFSET	
R6-1	12" X 36"	0+00 DIV	IDED SKY LANE	NO OFFSET	
R5-1	36" X 36"	0+14 DIV	IDED SKY LANE	53.0' R.T.	
R5-1	36" X 36"	0+63 DIV	IDED SKY LANE	47.6' R.T.	
RI-I	30" X 30"	0+79 DIV	IDED SKY LANE	16.1' L.T.	
R3-5(1)	30" X 36"	0+79 DIV	IDED SKY LANE	16.1' L.T.	
R2-1	24" X 30"	2+65 DIV	IDED SKY LANE	17.8' R.T.	
SPECIAL	30" X 30"	7+27 DIV	IDED SKY LANE	26.9' R.T.	
R2-1	24" X 30"	7+57 DIV	IDED SKY LANE	15.9' L.T.	
RI-I	30" X 30"	8+11 DIV	IDED SKY LANE	27.0' R.T.	
WIG-8aP	24" X 48"	151+95 BR0	OKEN LAND PKWY.	57.4' R.T.	



B. INSTALL 5" YELLOW PAVEMENT MARKING. F. INSTALL WHITE PAVEMENT LEGEND AS SHOWN.

SIGNING NOTES PAVEMENT MARKING NOTES

- ALL LONG LINES MARKINGS TO BE APPLIED USING THERMOPLACTIC MATERIAL. INSERTED INTO A 2-1/2" GALVANIZED STEEL, USING PREFORMED HEAT APPLIED TAPE OR THERMOPLASTIC. SHALL NOT EXTEND MORE THAN TWO QUICK OR APPROVED BY THE TRAFFIC DIVISION PRIOR PUNCH HOLES ABOVE THE GROUND.
- 2. THE CROSSWALK AND ARROWS TO BE INSTALLED 3. ALL PAVEMENT MARKINGS ARE TO BE LOCATED
- 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.

STREE	STREET LIGHT SCHEDULE					
	LOCATION	*******	TYPE			
& STA. 0+62.57	DIVIDED SKY LANE	50.47' RT.	F			
€ STA. 0+85.40	DIVIDED SKY LANE	16.79' RT.	A			
€ STA. 2+02.19	DIVIDED SKY LANE	16.12' L.T.	A			
€ STA. 3+43.04	DIVIDED SKY LANE	16.62' RT.	A			
€ STA. 5+10.85	DIVIDED SKY LANE	15.94' L.T.	A			
€ STA. 6+57.00	DIVIDED SKY LANE	15.20' RT.	A			
€ STA. 7+50.00	DIVIDED SKY LANE	15.20' LT.	A			
€ STA. 0+56.46	MERRIWEATHER DR	68.86' LT.	A			
€ STA. 0+75.00	MERRIWEATHER DR	26.67' RT.	D			
€ STA. 1+41.94	MERRIWEATHER DR	26.67' RT.	A			
€ STA. 2+20.90	MERRIWEATHER DR	26.67' LT.	A			
€ STA. 3+15.00	MERRIWEATHER DR	26.67' RT.	A			
€ STA. 4+02.26	MERRIWEATHER DR	26.67' LT.	A			
& STA. 4+71.80	MERRIWEATHER DR	28.77' LT.	В			
€ STA. 4+73.04	MERRIWEATHER DR	32.69' RT.	В			
€ STA. 5+50.00	MERRIWEATHER DR	26.67' RT.	В			
€ STA. 6+22.00	MERRIWEATHER DR	26.67' RT.	A			
€ STA. 7+06.41	MERRIWEATHER DR	26.64' LT.	A			

- STREET LIGHT 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
- 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

O' ANT SIGNALLAT

50

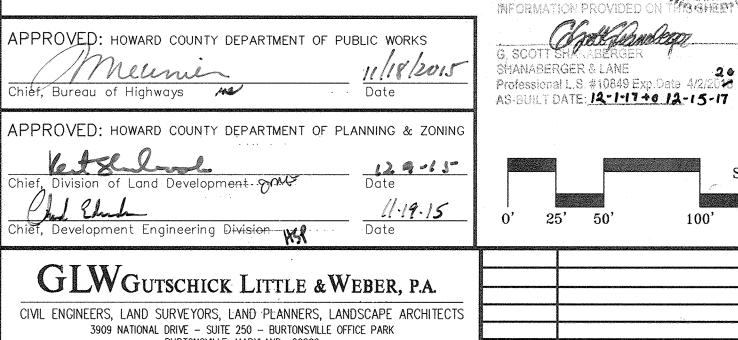
100'

STREET LIGHT NOTES: . STREET LIGHTS TO BE CONSISTENT THROUGHOUT DOWNTOWN.

1" = 50'

REVISION

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3909 NATIONAL DRIVE – SUITE 250 – BURTONSVILLE OFFICE PARK BURTONSVILLE, MARYLAND 20866				
TEL: 301-421-4024 BALT: 410-880-1820 DC/VA:		4 FAX: 301-4	21-4186	
L:\CAED\DRAMMCS\11071\PLANS BY GLW\Finds\PARGEL A\11071_05_SIGN-STRIPE-LIGHTING.dwg	1			DATE

SIGN SCHEDULE						
TYPE	SIZE	STATION	OFFSET			
RI-I	30" X 30"	0+61 MERRIWEATHER DRIVE	26.9' L.T.			
R2-1	24" X 30"	1+18 MERRIWEATHER DRIVE	27.2' R.T.			
R3-7R	30" X 30"	1+78 MERRIWEATHER DRIVE	26.2' L.T.			
W4-2L	30" X 30"	3+62 MERRIWEATHER DRIVE	26.9' L.T.			
WII-2	30" X 30"	4+55 MERRIWEATHER DRIVE	27.8' L.T.			
WI6-7P(L)	24" X I2"	4+55 MERRIWEATHER DRIVE	27.8' L.T.			
WII-2	30" X 30"	4+68 MERRIWEATHER DRIVE	30.0' R.T.			
WIG-7P(1)	24" X 12"	4+68 MERRIWEATHER DRIVE	300'RT			

C. INSTALL 5" WHITE PAVEMENT MARKING. (10' SKIP, 30' SPACING).

D. INSTALL 24" WHITE PAVEMENT MARKING. (STOP BAR)

E. INSTALL 5" DOUBLE YELLOW PAVEMENT MARKING. (CENTERLINE)

G. INSTALL GROUND MOUNTED SIGN.

H. INSTALL 12" YELLOW PAVEMENT MARKING (45°, 20' SPACING).

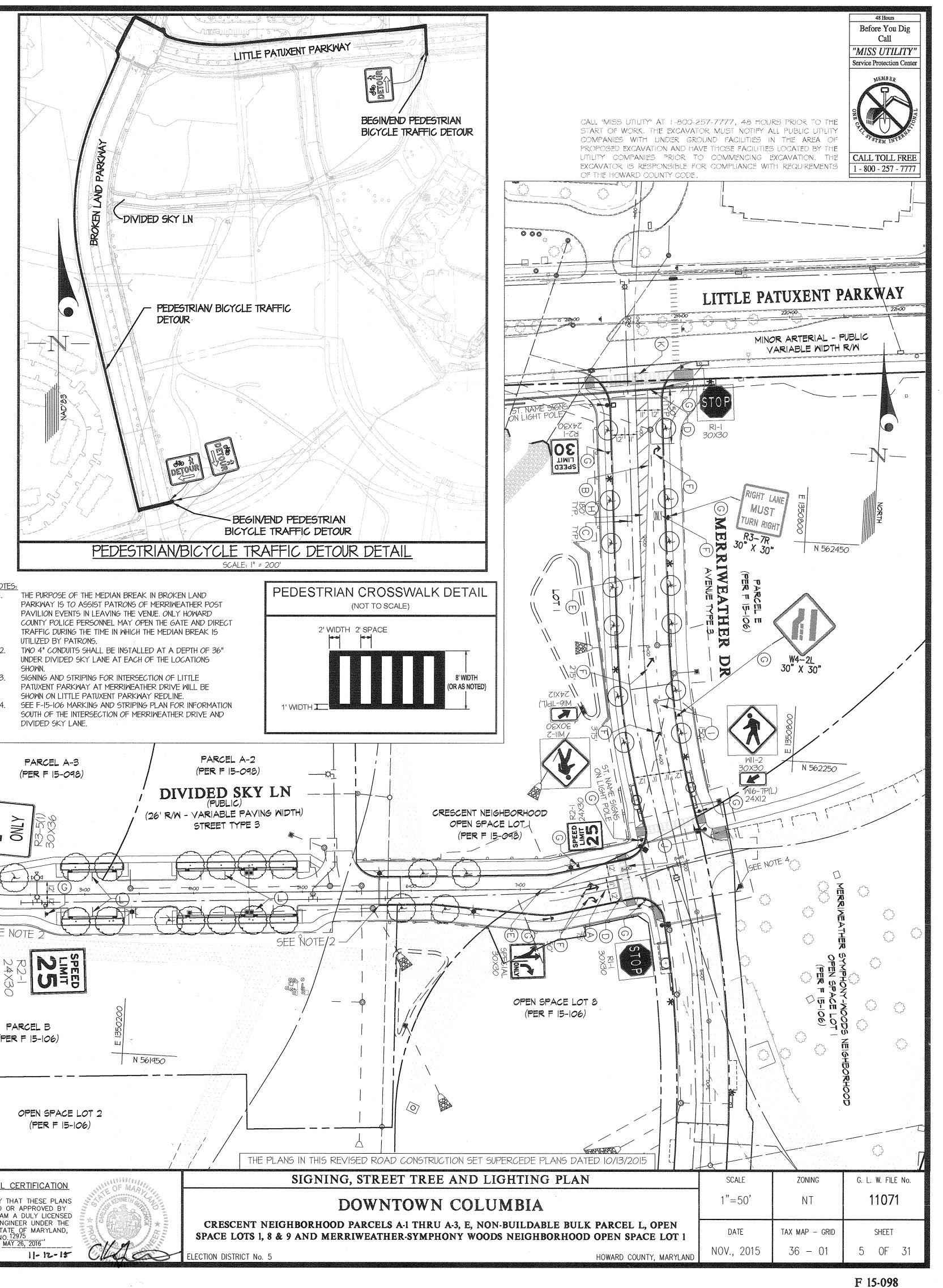
I. INSTALL 5" WHITE PAVEMENT MARKING. (2' SKIP, 6' SPACING)

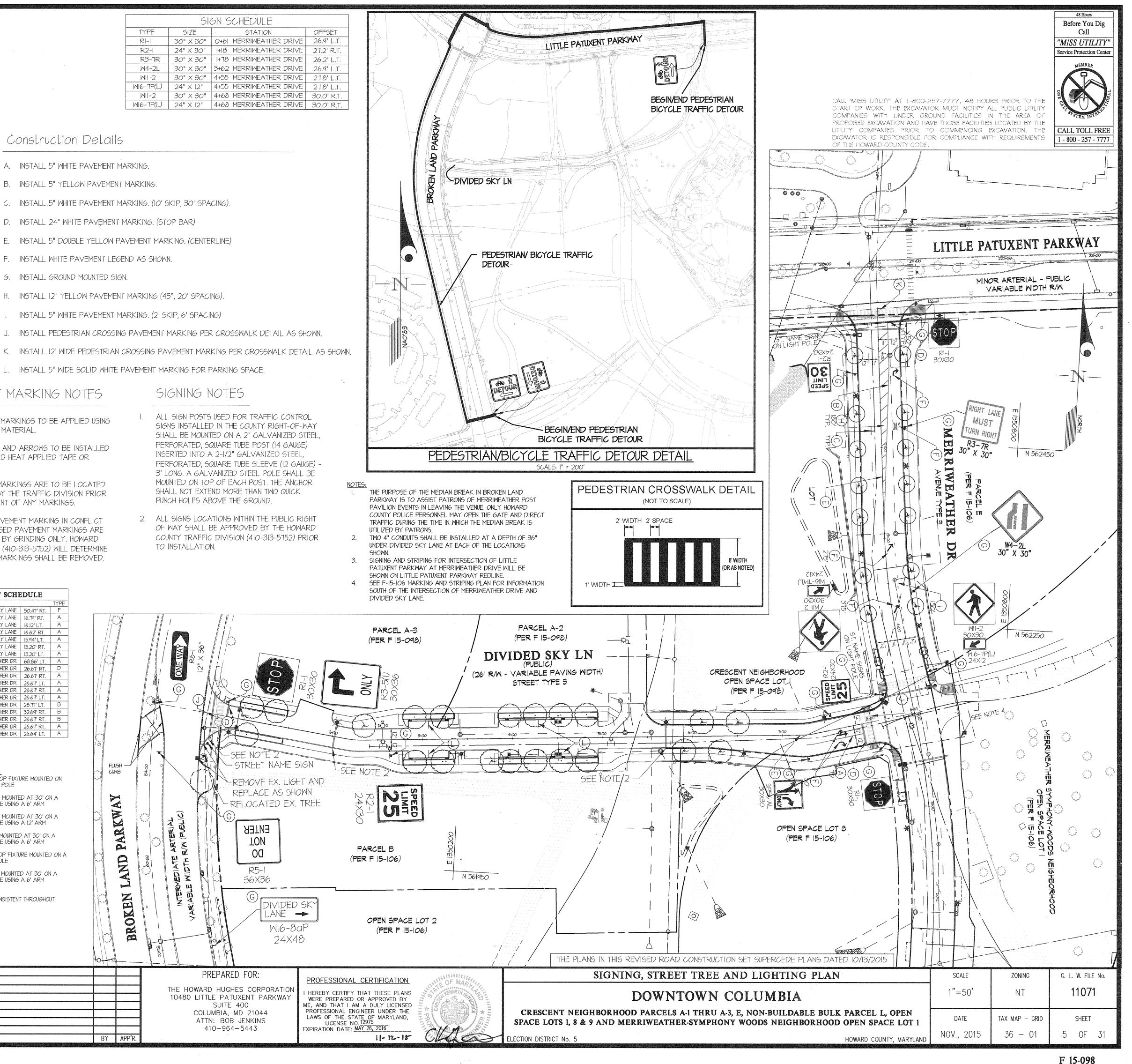
J. INSTALL PEDESTRIAN CROSSING PAVEMENT MARKING PER CROSSWALK DETAIL AS SHOWN.

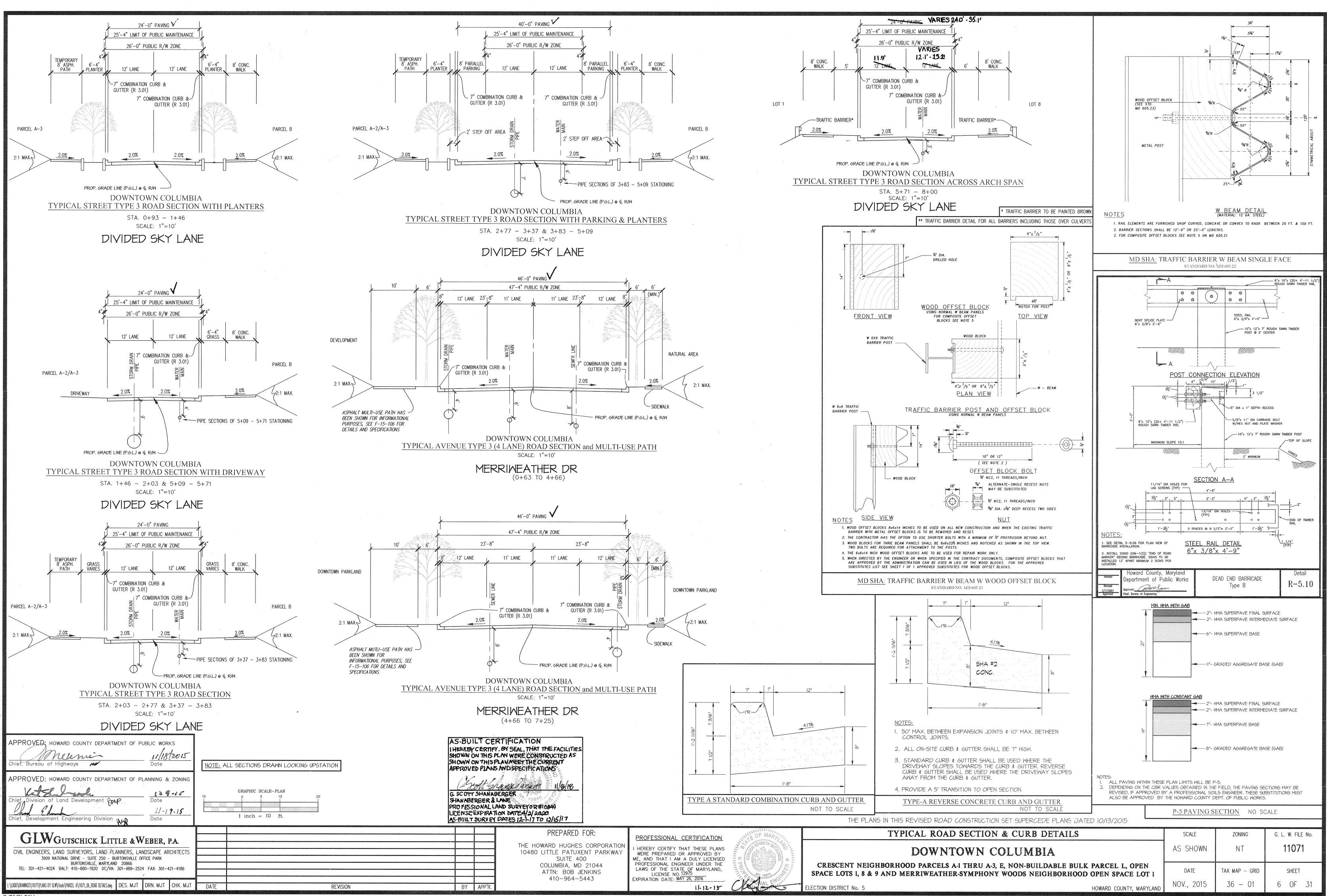
K. INSTALL 12' WIDE PEDESTRIAN CROSSING PAVEMENT MARKING PER CROSSWALK DETAIL AS SHOWN.

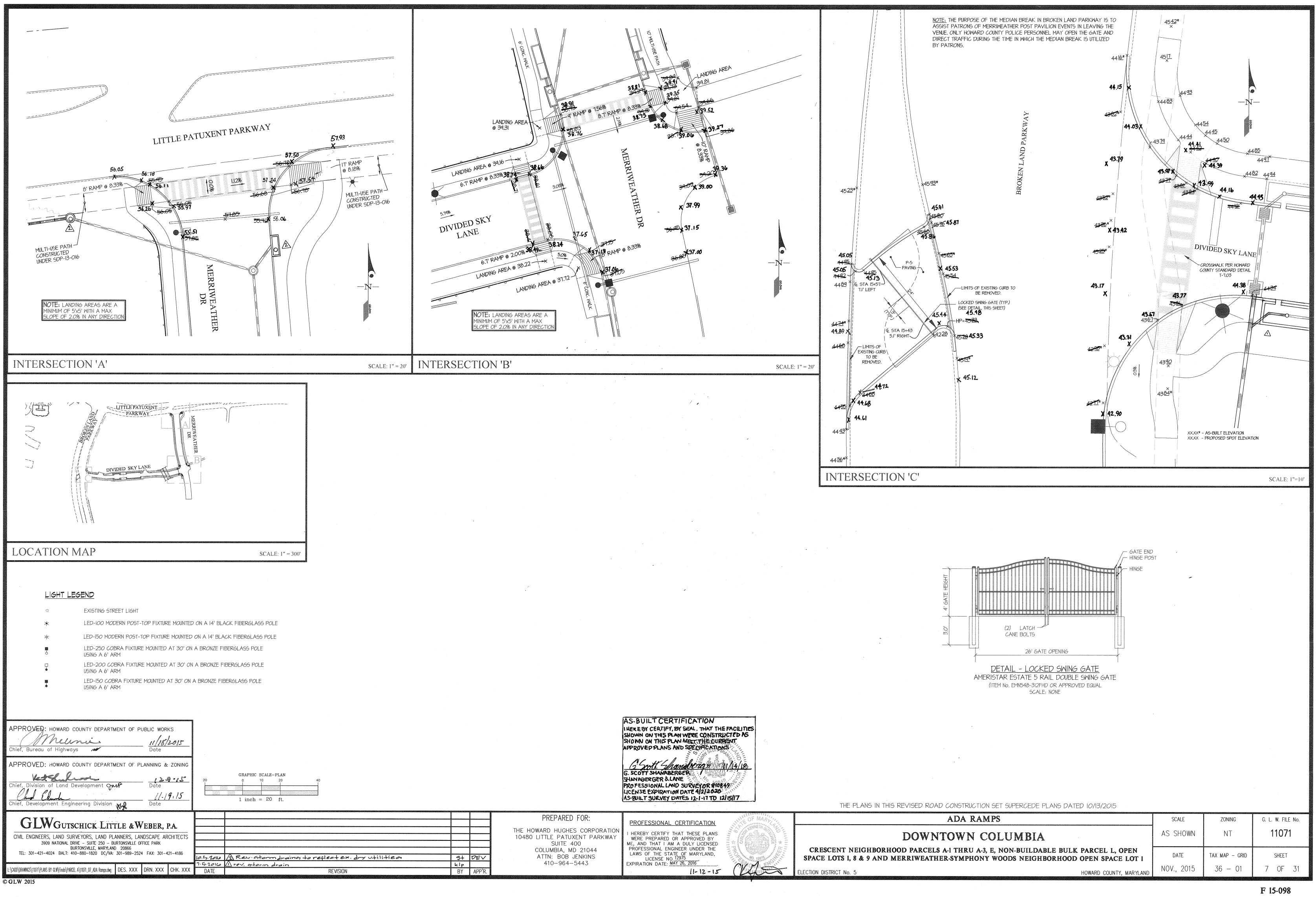
L. INSTALL 5" WIDE SOLID WHITE PAVEMENT MARKING FOR PARKING SPACE.

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.

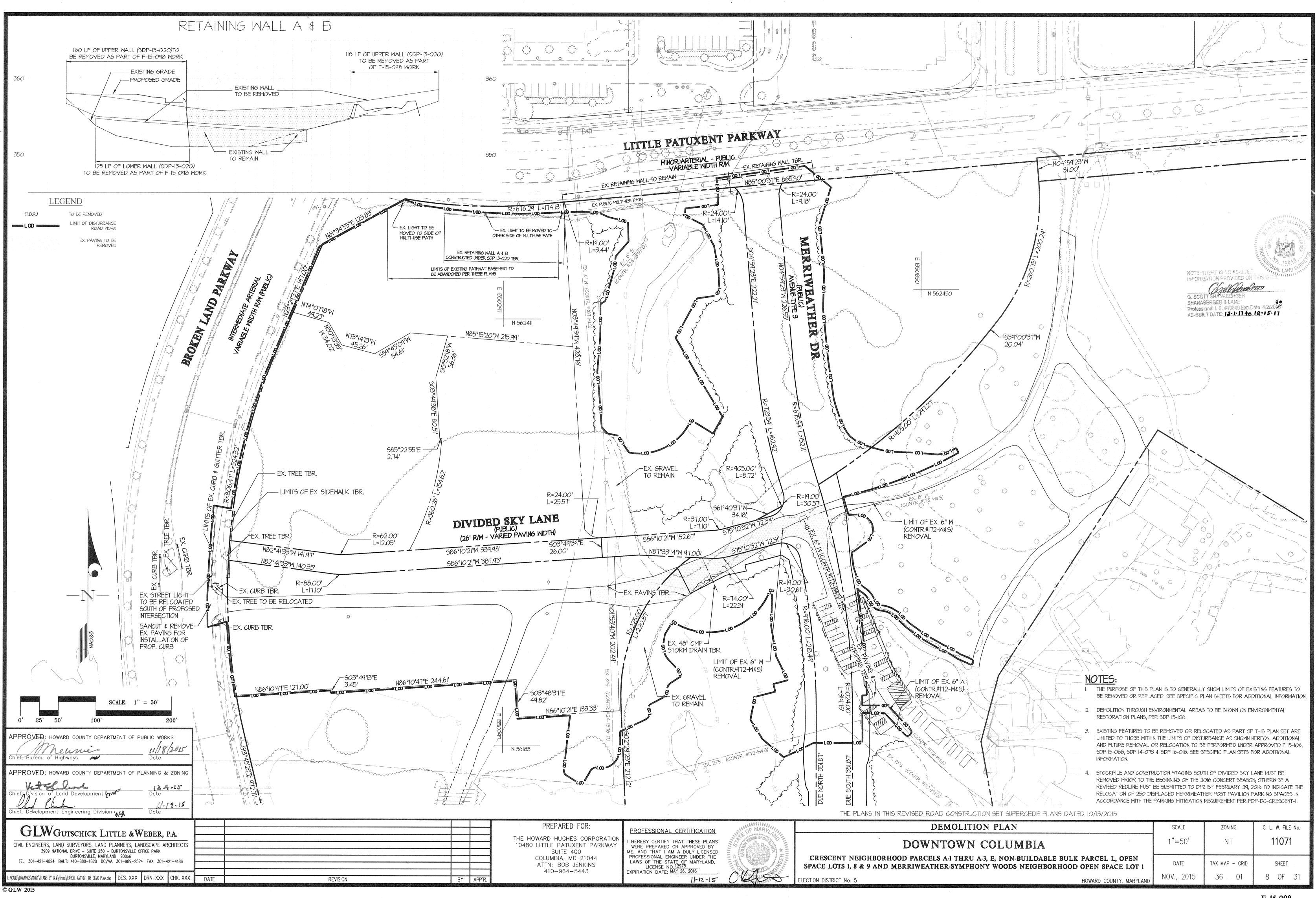








ADA RAMPS	SCALE	ZONING	G. L. W. FILE No.
OWNTOWN COLUMBIA	AS SHOWN	NT	11071
ARCELS A-1 THRU A-3, E, NON-BUILDABLE BULK PARCEL L, OPEN WEATHER-SYMPHONY WOODS NEIGHBORHOOD OPEN SPACE LOT 1	DATE	TAX MAP - GRID	SHEET
HOWARD COUNTY, MARYLAND	NOV., 2015	36 - 01	7 OF 31

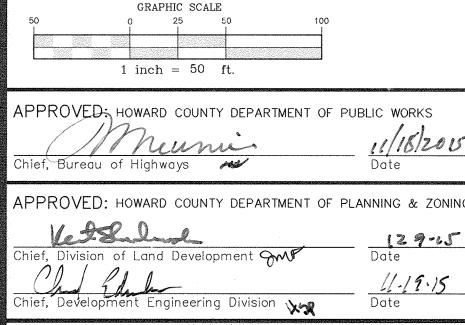


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RIVER STATION	WSEL
34+96.69	332.33
34+19.67	331.83
33+22.41	330.57
32+32.74	328.97
32+01.77	
31+68.30	328.62
31+00.39	327.38
30+31.84	326.89
29+23.68	326.47
28+44.01	326.20
27+55.21	325.59
26+76.50	AT CULVERT
26+18.65	322.80
25+79.30	322.18
25+61.75	322.29
25+49.07	322.01
25+33.64	322.01
24+93.75	321.82
100+58.78	326.08
100+96.91	326.29
101+43.82	326.95
101+82.80	328.41
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	337.29
106+01.37	337.73
106+47.17	338.02
106+94.26	339.23
107+28.60	339.96
107+63.19	341.06
108+03.63	342.88
108+31.44	343.49

LEGEND

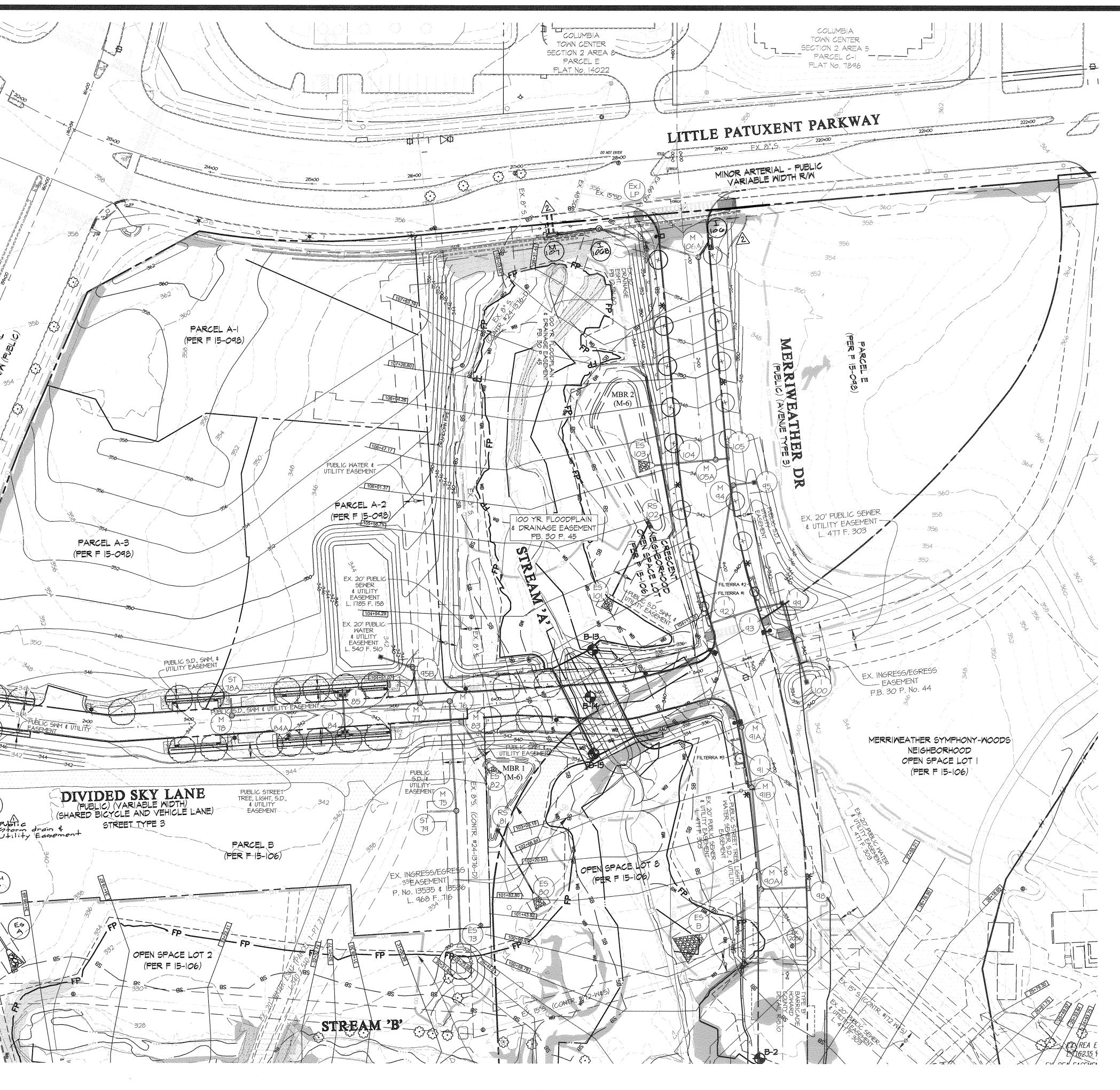
GRADING NOTES:

- I) LIMITS OF DISTURBANCE LOD IS SHOWN OFFSET FOR LOD SHALL NOT EXTEND BEYOND THE SEDIMENT CONTROL LINE BOUNDARIES OR OTHER ENVIRONMENTAL CONSTRAINTS
- 2) WETLAND PERMIT CONSTRUCTION WITHIN THE LIMITS O WETLANDS CANNOT BEGIN UNTIL PROPER PERMITS & APPRO OBTAINED.
- 3) ACCESS ROAD EXISTING GRAVEL ACCESS ROAD RUNN AND PARALLEL WITH DIVIDED SKY LANE IS TO REMAIN OPE LONG AS CONSTRUCTION WILL ALLOW TO PROVIDE CROSS DIVIDED SKY LANE CAN BE COMPLETED.
- 3) LIMITS OF WORK FOR LIMITS OF WORK SEE SHEET 2.
- 4) SOIL BORINGS FOR SOIL BORING LOGS SEE SHEET II.



GLWGUTSCHICK LITTLE & WEBER, P.A.

34+96.69	332.33	EAT SCOTT SHE GALL THE
34+19.67	331.83	NOMENTAL US NO ASSAULT INPORTAL ON PREVIDE DO NERRO SHEPTE
33+22.41	330.57	(And Bendlept 30 Mar 5)
32+32.74	328.97	G. SCOTT SHAVABERGER
32+01.77		SHANAEERGER & LANE 20 Professional L.S. #10649 Exp. Dato 4/2/2018 AS-BUILT DATE: 12-1-17 to 12-15-17
31+68.30	328.62	AS-BUILT DATE: D'I'II TE IZ' IS'I'
31+00.39	327.38	
30+31.84	326.89	
29+23.68	326.47	
28+44.01	326.20	
27+55.21	325.59	XXX III III III
	AT CULVERT	
		$\vec{\sigma} \approx \vec{\gamma} \cdot \vec{\gamma} \cdot \vec{\gamma} = \vec{\gamma} \cdot $
26+18.65	322.80	5542 / / / / ////
25+79.30	322.18	
25+61.75	322.29	
25+49.07	322.01	
25+33.64	322.01	
24+93.75	321.82	302
100+58.78	326.08	MILLIN CONTRACTOR OF THE WILL AND LAND PARTY AND LAND LAND PARTY AND LAND PARTY A
100+96.91	326.29	
101+43.82	326.95	
101+82.80	328.41	A THE WORLD'S ST.
102+66.84	330.82	
103+09.19	332.46	
104+13.35	AT CULVERT	1 1 1 1 1 X X X X X X X X X X X X X X X
104+51.07	335.56	A LE WILLING
104+94.29	335.86	MARCHAR STRAT
105+58.75	337.29	(.) (.) (.) (.) (.) (.) (.) (.) (.) (.)
106+01.37	337.73	
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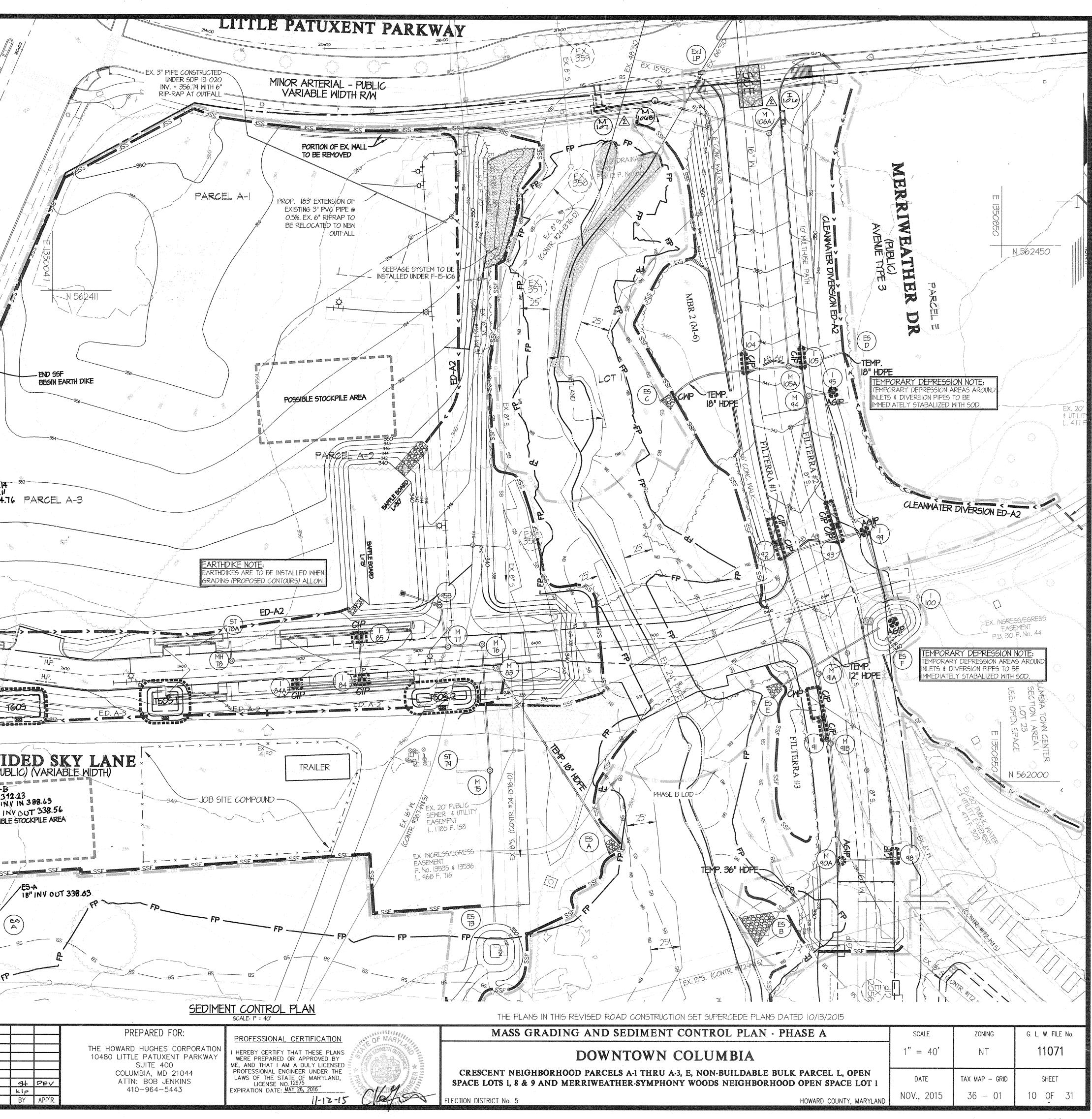


PREPARED FOR: THE HOWARD HUGHES CORPORATION 10480 LITTLE PATUXENT PARKWAY SUITE 400 COLUMBIA, MD 21044 ATTN: BOB JENKINS 410-964-5443	PROFESSIONAL CERTIFICATION I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 12975 EXPIRATION DATE: MAY 26, 2016' //-1Z-15	DO CRESCENT NEIGHBORHOOD PAT SPACE LOTS 1, 8 & 9 AND MERRIW ELECTION DISTRICT No. 5
	THE HOWARD HUGHES CORPORATION 10480 LITTLE PATUXENT PARKWAY SUITE 400 COLUMBIA, MD 21044 ATTN: BOB JENKINS	THE HOWARD HUGHES CORPORATION 10480 LITTLE PATUXENT PARKWAY SUITE 400 COLUMBIA, MD 21044 ATTN: BOB JENKINS 410-964-5443PROFESSIONAL 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 26, 2016'

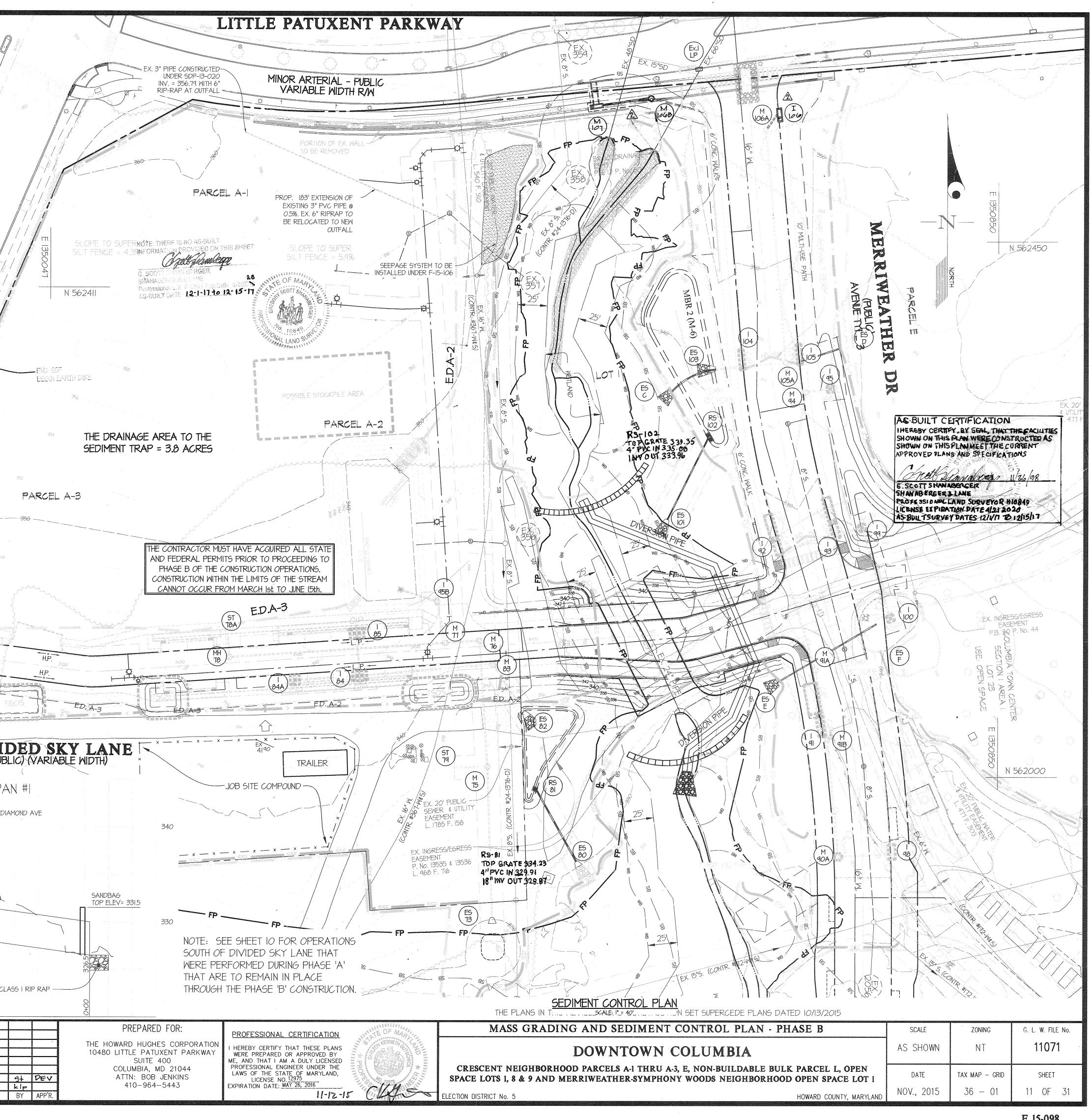
THE PLANS IN THIS REVISED ROAD CONSTRUCTION SET SUPERCEDE PLANS DATED 10/13/2015

GRADING PLAN	SCALE	ZONING	G. L. W. FILE No.
OWNTOWN COLUMBIA	1" = 50'	NT	11071
ARCELS A-1 THRU A-3, E, NON-BUILDABLE BULK PARCEL L, OPEN WEATHER-SYMPHONY WOODS NEIGHBORHOOD OPEN SPACE LOT 1	DATE	TAX MAP - GRID	SHEET
HOWARD COUNTY, MARYLAND	NOV., 2015	36 – 01	9 OF 31

H.P. H.P. X TGOS 	
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Chief, Development Engineering Division 350 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	1 inch = 40 ft.
TEL: 301-421-4024 BALT: 410-880-1820 DC/VA: 301-989-2524 FAX: 301-421-4186 L:\cadd\prawmas\ino71\Plans BY QLW\Finds\PARCEL A\11071_10_SC PLAN_Phase Adwg DES. MJT DRN. WSJ CHK. MJT	DATE Rev. atorm draing to reflect ex. dry utilities Rev. atorm drain REVISION



SEDIMENT CONTROL DESIGN INFORMATION	TRAPI
TYPE OF TRAP	PIPE OUTLET
PRE-DEVELOPMENT DRAINAGE AREA	3.8 ACRES
TOTAL STORAGE REQUIRED (WET AND DRY VOLUME)	3.8 ACRES 22,028 C.F.
TOTAL STORAGE PROVIDED	23,668 C.F.
WET STORAGE REQUIRED	6840 C.F.
WET STORAGE PROVIDED DRY STORAGE REQUIRED	7,174 C.F.
DRY STORAGE PROVIDED	15,188 C.F. 16,494 C.F.
EXISTING GROUND ELEV. AT OUTLET (WET STORAGE ELEV.)	340.20
TRAP BOTTOM ELEVATION	-339.00 48'x114' 342.50
TRAP BOTTOM DIMENSIONS WEIR LENGTH	
WEIR CREST (DRY STORAGE) ELEVATION	342.50 Sm VS
CLEANOUT ELEVATION	$ \begin{array}{c} 339.60 \\ 344.00 \\ \hline 2:1 \\ 4' \end{array} $
TOP OF EMBANKMENT ELEVATION	344.00 2:1 × × ×
SIDE SLOPE EMBANKMENT TOP WIDTH	$\frac{2:1}{4'} \overrightarrow{S} \overrightarrow$
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This Development Plan is approved for Soil Erosion and Sediment Control by the Howard Soil Conservation District. Joward S.C.D. Date	EARTH DIKE IN THE AREA OF THE SCE IS TO BE CHANGED TO A MACADAM BERM AT THE DIRECTION OF THE GEDIMENT CONTROL INSPECTOR. (1) (1) (1) (1) (1) (1) (1) (1) (1) (1)
ENGINEER'S SIGNATURE DATE	1 inch = 40 ft. DIVERSION PIPE AT ARCH SP
DEVELOPER'S/BUILDER'S CERTIFICATE	PROP. GRADE
"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 ENVIORNMENT 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."	340 SANDBAG TOP ELEV= 337.0 EX. GROUND
Abut Jenli 11-12-15 SIGNATURE OF DEVELOGER/BUILDER DATE	2 18" M.
APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS	2, 48" PIPES @ 1.36%
Chief, Bureau of Highways me Date	
	Q = 172 cfs Q (CAPACITY) = 254.8 cfs (127.4 cfs per pipe)
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING	
Chief, Division of Land Development mut Date	SCALE:
Date	0 " = 5' VERT. 20 LF C " = 50' HORIZ.
Chief, Development Engineering Division 1249	
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	10.5.2016 & Revistorm drains to reflect exidry utilities
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E \CADD\DRANNCS\11071\PLANS BY GLW\Findls\PARCEL A\11071_11_SC PLAN_Phose B.dwg DES. MJT DRN. Wsj CHK. MJT	DATE REVISION
- 11	



SEDIMENT CONTROL NOTES

- A minimum of 24 hours notice must be given to the Howard County Office of Inspection and Permits prior to the start of any construction. (410) 313-1855
- All vegetative and structural practices are to be installed according to the rovisions of this plan and are to be in conformance with the 1994 MÁRYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL
- Following initial soil disturbance or redisturbance, permanent or temporary stabilization shall be completed within: a) 3 calendar days for all perimeter sediment control structures, dikes and perimeter slopes and all slopes greater than 3:1, b) 7 days as to all other disturbed or graded areas on the project site.
- . All sediment traps/basins shown must be fenced and warning signs posted around their perimeter in accordance with Vol. 1, Chapter 12, of the HOWARD COUNTY DESIGN MANUAL, Storm Drainage.
- All disturbed areas must be stabilized within the time period specified above in accordance with the 1983 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for permanent seedings (Sec. 51), sod (Sec. 54), temporary seedings (Sec. 50) and mulching (Sec. 52). Temporary stabilization, with mulch alone, can only be done when recommended seeding dates do not allow for proper germination and establishment of grasses.
- All sediment control structures are to remain in place and are to be maintained in operative condition until permission for their removal has been obtained from the Howard County Sediment Control Inspector.
- Site Analysis:
- Total Area of Site : 7.86 Acres Acres Area Disturbed : 10.4 Acres
- Area to be roofed or paved : 1.66 Acres Area to be vegetatively stabilized : 8.74 Acres

County DPW Sediment Control Inspector.

- Total Cut : 13,276 Cu. Yds. Total Fill: 27,114 Cu. Yds.
- Il material to be taken from within the Merriweather Post Pavilion site.
- . Any sediment control practice which is disturbed by grading activity for placement of utilities must be repaired on the same day of disturbance.
- Additional sediment control must be provided, if deemed necessary by the Howard
- D. 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 sédimént controls, but before proceeding with any other earth disturbance or grading. Other building or grading inspection approvals may not be authorized until
- this initial approval by the inspection agency is made. Trenches for the construction of utilities is limited to 3 pipe lengths or that which shall be backfilled and stabilized within one working day whichever is shorter.

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
- 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.
- 11. 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

- Topsoil salvaged from the existing site may be used provided that it meets the standards as set forth in these specifications. Typically, the depth of topsoil to be salvaged for a given soil tupe can be found in the respective soil profile section in the Soil Survey published by USDA-SCS in cooperation with Maryland Agricultural Experimental Station.
- 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. Other soils may be used if recommended by a agronomist or soil scientist and approved by the appropriate approval authority. Regardless topsoil shall not be a mixture of contrasting textured subsoils and shall contain less than 5% by volume of cinders, stones, slaq, coarse fragments, gravel, sticks, roots, trash, or other materials larger than 1 1/2" in diameter.Materials.

ENGINEER'S CERTIFICATE

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."

CONSERVATION DISTRICT.

© GLW 2014

11-12-15 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 ENVIORNMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL

SIGNATURE OF DEVELOPER/BODDER	11/12/15 DATE
APPROVED: HOWARD COUNTY DEPARTMENT OF PU Meunic Chief, Bureau of Highways	JBLIC WORKS
APPROVED: HOWARD COUNTY DEPARTMENT OF PL Chief, Division of Land Development SMP Chief, Development Engineering Division	ANNING & ZONING Date <u> <u> </u> <u> </u></u>
GLWGUTSCHICK LITTLE & W CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LAN	

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

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- STANDARD AND SPECIFICATIONS FOR TOPSOIL DEFINITION CONSTRUCTION AND MATERIAL SPECIFICATIONS con't
- b. Topsoil must be free of plant parts such as bermuda grass, quackgrass, Johnsongrass, nutsedge, poison ivy, thistle, or others as specified. c. Where the subsoil is either highly acidic or composed of heavy clays, ground limestone shall be spread at the rate if 4-8 tons/acre (200-400 pounds per 1,000 square feet) prior to the placement of topsoil. Line shall be distributed uniformly over designated areas and worked into the soil in conjunction with tillage operations as described in the following procedures.
- III. For sites having disturbed areas under 5 acres:
- a. Place topsoil (if required) and apply soil amendments as specified in 20.0 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: I. pH for topsoil shall be between 6.0 and 7.5. If the tested soil demonstrates a pH of less than 6.0, sufficient lime shall be prescribed to raise the pH to 6.5 or higher.
- 2. Organic content of topsoil shall be not less than 1.5 percent by weight.
- 3. Topsoil having soluble salt greater than 500 parts per mill shall not be used.
- 4. No sod or seed shall be placed on soil which has been with soil sterilants or chemicals used for weed 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.
- V. Topsoil Application
- a. When topsoilling, 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 4". Spreading shall be performed in such a manner that sodding or seeding can proceed with a minimum of additional soil preparation and tillage. Any irregularities in the surface resulting from topsoilling or other operations shall be corrected in order to prevent the formation of depressions or water
- 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 seedbed 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 I percent nitrogen, 1.5 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 41b/1,000 square feet, and 1/3 the normal lime application rate.

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

DUST CONTROL

Controlling dust blowing and movement on construction sites and roads.

- Purpose to prevent blowing and movement of dust from exposes soil surfaces, reduce on and off-site damage, health hazards, and improve traffic safety.
- Conditions Where Practice Applies nis practice is applicable to areas subject to dust blowing and movements where on and off-site damage is likely without treatment.

Specifications

- <u> Temporary Methods</u>
- . 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. This is an emergency measure which should be used before soil blowing starts. Begin plowing on windward side of site. Chisel-type plows spaces about 12" apart, spring-toothed harrows, and similar plows are examples of equipment which may produce the desired effect.
- 4. Irrigation This is generally done as an emergency treatment. Site is sprinkled with water until the surface is moist. Repeat as needed. At no time should the site be irrigated to the point that runoff begins to flow.
- 5. Barriers Solid board fences, silt fences, burlap fences, straw bales, and similar material can be used to control air currents and soil blowing. Barriers placed at riaht anales to prevailing currents at intervals of about 10 times their height are effective in controlling soil blowing.
- 6. Calcium Chloride Apply at rates that will keep surface moist. May need retreatment.

Permanent Methods

. Permanent Vegetation - See standards for permanent vegetative cover, and permanent stabilization with sod. Existing trees or large shrubs may afford valuable protection if left in place.

- 2. Topsoiling Covering with less erosive soil materials. See standards for topsoiling. 3. Stone - Cover surface with crushed stone or coarse gravel.
 - This Development Plan is approved for Soil Erosion and Sediment Control by the Howard Soil Conservation District

REVISION

Conditions Where Practice Applies

<u>Criteria</u> A. Soil Preparation

- I. Temporary Stabilization
- the contour of the slope.
- other suitable means. 2. Permanent Stabilization

III. Soil contains less than 40 percent clay but enough fine grained material (greater than 30 percent silt plus clay) to provide the capacity to hold a moderate amount of moisture. An excéption: if lovegrass will be planted, then a sandy soil (less than 30 percent silt plus clay) would be acceptable.

v. Soil contains sufficient pore space to permit adequate root penetration. b. Application of amendments or topsoil is required if on-site soils do not meet the above conditions.

- inches.
- results of a soil test.

B. Topsoiling

vegetative growth.

6. Topsoil Application

B-4-2 STANDARDS AND SPECIFICATIONS FOR SOIL PREPARATION, TOPSOILING, AND SOIL AMENDMENTS

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

to provide a suitable soil medium for vegetative growth.

Where vegetative stabilization is to be established

a. Seedbed preparation consists of loosening soil to a depth of 3 to 5 inches by means of suitable agricultural or construction equipment, such as disc harrows or chisel plows or rippers mounted on construction equipment. After the soil is loosened, it must not be rolled or dragged smooth but left in the roughened condition. Slopes 3:1 or flatter are to be tracked with ridges running parallel to

b. Apply fertilizer and lime as prescribed on the plans.

c. Incorporate lime and fertilizer into the top 3 to 5 inches of soil by disking or

a. A soil test is required for any earth disturbance of 5 acres or more. The minimum soil conditions réquired for permanent vegetative establishment are:

i. Soil pH between 6.0 and 7.0.

ii. Soluble salts less than 500 parts per million (ppm).

iv. Soil contains 1.5 percent minimum organic matter by weight.

c. Graded areas must be maintained in a true and even grade as specified on the approved plan, then scarified or otherwise loosened to a depth of 3 to 5

d. Apply soil amendments as specified on the approved plan or as indicated by the

e. Mix soil amendments into the top 3 to 5 inches of soil by disking or other suitable means. Rake lawn areas to smooth the surface, remove large objects like stones and branches, and ready the area for seed application. Loosen surface soil by dragging with a heavy chain or other equipment to roughen the surface where site conditions will not permit normal seedbed preparation. Track slopes 3:1 or flatter with tracked equipment leaving the soil in an irregular condition with ridges running parallel to the contour of the slope. Leave the top 1 to 3 inches of soil loose and friable. Seedbed loosening may be unnecessary on newly disturbed areas.

. Topsoil is placed over prepared subsoil prior to establishment of permanent vegetation. The purpose is to provide a suitable soil medium for vegetative arowth. Soils of concern have low moisture content, low nutrient levels, low pH, materials toxic to plants, and/or unacceptable soil gradation.

2. Topsoil salvaged from an existing site may be used provided it meets the standards as set forth in these specifications. Typically, the depth of topsoil to be salvaged for a given soil type can be found in the representative soil profile section in the Soil Survey published by USDA-NRCS.

3. Topsoiling is limited to areas having 2:1 or flatter slopes where:

a. The texture of the exposed subsoil/parent material is not adequate to produce

b. The soil material is so shallow that the rooting zone is not deep enough to support plants or furnish continuing supplies of moisture and plant nutrients.

c. The original soil to be vegetated contains material toxic to plant growth.

d. The soil is so acidic that treatment with limestone is not feasible.

5. Topsoil Specifications: Soil to be used as topsoil must meet the following criteria:

4. Areas having slopes steeper than 2:1 require special consideration and design.

a. Topsoil must be a loam, sandy loam, clay loam, silt loam, sandy clay loam, or loamy sand. Other soils may be used if recommended by an agronomist or soil scientist and approved by the appropriate approval authority. Topsoil must not be a mixture of contrasting textured subsoils and must contain less than 5 percent by volume of cinders, stones, slag, coarse fragments, gravel, sticks, roots, trash, or other materials larger than 1½ inches in diameter.

b. Topsoil must be free of noxious plants or plant parts such as Bermuda grass, quack grass, Johnson grass, nut sedge, poison ivy, thistle, or others as specified.

c. Topsoil substitutes or amendments, as recommended by a qualified agronomist or soil scientist and approved by the appropriate approval authority, may be used in lieu of natural topsoil.

a. Erosion and sediment control practices must be maintained when applying topsoil. b. Uniformly distribute topsoil in a 5 to 8 inch layer and lightly compact to a minimum thickness of 4 inches. Spreading is to be performed in such a manner that sodding or seeding can proceed with a minimum of additional soil preparation and tillage. Any irregularities in the surface resulting from topsoiling or other operations must be corrected in order to prevent the formation of depressions or water pockets.

c. Topsoil must not be placed if the topsoil or subsoil is in a frozen or muddy condition, when the subsoil is excessively wet or in a condition that may otherwise be detrimental to proper grading and seedbed preparation.

C. Soil Amendments (Fertilizer and Lime Specifications)

BY APP'R.

1. Soil tests must be performed to determine the exact ratios and application rates for both lime and fertilizer on sites having disturbed areas of 5 acres or more. Soil analysis may be performed by a recognized private or commercial laboratory. Soil samples taken for engineering purposés may also be used for chemical analyses.

2. Fertilizers must be uniform in composition, free flowing and suitable for accurate application by appropriate equipment. Manure may be substituted for fertilizer with prior approval from the appropriate approval authority. Fertilizers must all be delivered to the site fully labeled according to the applicable laws and must bear the name, trade name or trademark and warranty of the producer.

3. Line materials must be ground limestone (hydrated or burnt lime may be substituted except when hydroseeding) which contains at least 50 percent total oxides (calcium oxide plus magnesium oxide). Limestone must be ground to such fineness that at least 50 percent will pass through a #100 mesh sieve and 98 to 100 percent will pass through a #20 mesh sieve.

4. Lime and fertilizer are to be evenly distributed and incorporated into the top 3 to 5 inches of soil by disking or other suitable means.

5. Where the subsoil is either highly acidic or composed of heavy clays, spread ground limestone at the rate of 4 to 8 tons/acre (200-400 pounds per 1,000 square feet) prior to the placement of topsoil.

PREPARED FOR:

THE HOWARD HUGHES CORPORATION

10480 LITTLE PATUXENT PARKWAY

SUITE 400

COLUMBIA, MD 21044

ATTN: BOB JENKINS

410-964-5443

B-4-3 STANDARDS AND SPECIFICATIONS FOR SEEDING AND MULCHING

Definition The application of seed and mulch to establish vegetative cover.

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

Conditions Where Practice Applies

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

<u>Criteria</u>

A. Seeding I. Specifications

- a. All seed must meet the requirements of the Maryland State Seed Law. All seed must be subject to re-testing by a recognized seed laboratory. All seed used must have been tested within the 6 months immediately preceding the date of sowing such material on any project. Refer to Table B.4 regarding the quality of seed. Seed tags must be available upon request to the inspector to verify type of seed and seeding rate.
- b. Mulch alone may be applied between the fall and spring seeding dates only if the ground is frozen. The appropriate seeding mixture must be applied when the áround thaws.
- c. Inoculants: The inoculant for treating legume seed in the seed mixtures must be a pure culture of nitrogen fixing bacteria prepared specifically for the species. Inoculants must not be used later than the date indicated on the container. Add fresh inoculants as directed on the package. Use four times the recommended rate when hydroseeding. Note: It is very important to keep inoculant as cool as possible until used. Temperatures above 75 to 80 degrees Fahrenheit can weaken bacteria and make the inoculant less effective.
- d. Sod or seed must not be placed on soil which has been treated with soil sterilants or chemicals used for weed control until sufficient time has elapsed (14 days min.) to permit dissipation of phyto-toxic materials.

2. Application

fertilizer)

- a. Dry Seeding: This includes use of conventional drop or broadcast spreaders.
- i. Incorporate seed into the subsoil at the rates prescribed on Temporary Seeding Table B.I., Permanent Seeding Table B.3, or site-specific seeding summaries.
- ii. Apply seed in two directions, perpendicular to each other. Apply half the seeding rate in each direction. Roll the seeded area with a weighted roller to providé good seed to soil contact.
- b. Drill or Cultipacker Seeding: Mechanized seeders that apply and cover seed with
- i. Cultipacking seeders are required to bury the seed in such a fashion as to provide at least 1/4 inch of soll covering. Seedbed must be firm after planting. ii. Apply seed in two directions, perpendicular to each other. Apply half the
- seeding rate in each direction. c. Hydroseeding: Apply seed uniformly with hydroseeder (slurry includes seed and
- i. If fertilizer is being applied at the time of seeding, the application rates should not exceed the following: nitrogen, 100 pounds per acre total of soluble nitrogen; P205 (phosphorous), 200 pounds per acre; K20 (potassium), 200 pounds per acre.
- ii. Lime: Use only ground agricultural limestone (up to 3 tons per acre may be applied by hydroseeding). Normally, not more than 2 tons are applied by hydroseeding at any one time. Do not use burnt or hydrated lime when hudroseedina
- iii. Mix seed and fertilizer on site and seed immediately and without interruption. iv. When hydroseeding do not incorporate seed into the soil.

B. Mulching

1. Mulch Materials (in order of preference)

- a. Straw consisting of thoroughly threshed wheat, rue, oat, or barley and reasonably bright in color. Straw is to be free of noxious weed seeds as specified in the Maryland Seed Law and not musty, moldy, caked, decayed, or excessively dustu Noté: Use only sterile straw mulch in aréas where one species of grass is desired.
- b. Wood Cellulose Fiber Mulch (WCFM) consisting of specially prepared wood cellulose processed into a uniform fibrous physical state.
- i. WCFM is to be dued green or contain a green due in the package that will provide an appropriate color to facilitate visual inspection of the uniformly spread slurry.
- II. WCFM, including dye, must contain no germination or growth inhibiting factors.
- iii. WCFM materials are to be manufactured and processed in such a manner that the wood cellulose fiber mulch will remain in uniform suspension in water under aaitation and will blend with seed, fertilizer and other additives to form a homogeneous slurry. The mulch material must form a blotter-like ground cover, on application, having moisture absorption and percolation properties and must cover and hold grass seed in contact with the soil without inhibiting the growth of the grass seedlings.
- iv. WCFM material must not contain elements or compounds at concentration levels that will be phyto-toxic.
- v. WCFM must conform to the following physical requirements: fiber length of approximately 10 millimeters, diaméter approximately 1 millimeter, pH range of 4.0 to 8.5, ash content of 1.6 percent maximum and water holding capacity of 90 percènt minimum.

2. Application

a. Apply mulch to all seeded areas immediately after seeding.

- b. When straw mulch is used, spread it over all seeded areas at the rate of 2 tons per acre to a uniform loose depth of 1 to 2 inches. Apply mulch to achieve a uniform distribution and depth so that the soil surface is not exposed. When using a mulch anchoring tool, increase the application rate to 2.5 tons per acre.
- c. Wood cellulose fiber used as mulch must be applied at a net dry weight of 1500 pounds per acre. Mix the wood cellulose fiber with water to attain a mixture with a maximum of 50 pounds of wood cellulose fiber per 100 gallons of water.

3. Anchoring

- a. Perform mulch anchoring immediately following application of mulch to minimize loss by wind or water. This may be done by one of the following methods (listed by preference), depending upon the size of the area and erosion hazard:
- i. A mulch anchoring tool is a tractor drawn implement designed to punch and anchor mulch into the soil surface a minimum of 2 inches. This practice is most effective on large areas, but is limited to flatter slopes where equipment can operate safely. If used on sloping land, this practice should follow the contour.
- ii. Wood cellulose fiber may be used for anchoring straw. Apply the fiber binder at a net dry weight of 750 pounds per acre. Mix the wood cellulose fiber with water at a maximum of 50 pounds of wood cellulose fiber per 100 gallons of
- iii. Synthetic binders such as Acrylic DLR (Agro-Tack), DCA-70, Petroset, Terra Tax If, Terra Tack AR or other approved equal may be used. Follow application rates as specified by the manufacturer. Application of liquid binders needs to be heavier at the edges where wind catches mulch, such as in valleys and on crests of banks. Use of asphalt binders is strictly prohibited.
- iv. Lightweight plastic netting may be stapled over the mulch according to manufacturer recommendations. Netting is usually available in rolls 4 to 15 feet wide and 300 to 3,000 feet long.

11-12-15

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 26, 2016

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

<u>Purpose</u> To use fast growing vegetation that provides cover on disturbed soils. Conditions Where Practice Applies

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

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

- 2. For sites having soil tests performed, use and show the recommended rates by the testing agency. Soil tests are not required for Temporary Seeding.
- 3. When stabilization is required outside of a seeding season, apply seed and mulch or straw mulch alone as prescribed in Section B-4-3.A.I.b and maintain until the next seeding season.

				0 001 11 11		
	ness Zone (fr Mixture (fron	om Figure B.3): 1 n Table B.1):	ób		Fertilizer Rate	Line Date
No.	Species	Application Rate (Ib/ac)	Seeding Dates	Seeding Depths	(10-20-20)	Lime Rate
I	ANNUAL RYEGRASS	40 lb/ac	Mar.1 to May 15. Aug. 1 to Oct. 15	0.5 inches	436 lb/ac	2 tons/ac
2	PEARL MILLET	20 lb/ac	MAY 16 to JULY 31	0.5 inches	(10 lb/1000 sf)	(90 lb/1000 sf)

TEMPORARY SEEDING NOTES

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

Apply 1-1/2 to 2 tons per acre (70 to 90 lbs/1000 sq ft) of unrotted small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 218 gal per acre (5 gal/1000 sq ft) of emulsified asphalt on flat areas. On slopes, 8 ft or higher, use 348 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.

B-4-5 STANDARDS AND SPECIFICATIONS FOR PERMANENT STABILIZATION

To stabilize disturbed soils with permanent vegetation.

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

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

Criteria

A. Seed Mixtures 1. General Use

agency.

2. Turfqrass Mixtures

blended

ELECTION DISTRICT No. 5

Permanent Seeding Summary.

a. Select one or more of the species or mixtures listed in Table B.3 for the appropriate Plant Hardiness Zone (from Figure B.3) and based on the site condition or purpose found on Table B.2. Enter selected mixture(s), application rates, and seeding dates in the Permanent Seeding Summary. The Summary is to be placed on the plan.

receive a medium to high level of maintenance.

to 35 percent of the total mixture by weight.

Rate: 1 2 to 3 pounds per 1000 square feet.

c. Ideal Times of Seeding for Turf Grass Mixtures

summary is to be placed on the plan.

TEMPORARY SEEDING SUMMARY

For periods March I thru April 30 and from August 15 thru November 15, seed with 2-1/2 bushel per acre of annual rue (3.2 lbs./1000 sq.ft.). For the period May I thru August 14, seed with 3 lbs per acre of weeping lovegrass (.07 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.

b. Additional planting specifications for exceptional sites such as shorelines, stream banks, or dunes or for

special purposes such as wildlife or aesthetic treatment may be found in USDA-NRCS Technical Field Office Guide, Section 342 - Critical Area Planting.

c. For sites having disturbed area over 5 acres, use and show the rates recommended by the soil testing

d. For areas receiving low maintenance, apply urea form fertilizer (46-0-0) at 3 pounds per 1000 square feet (150 pounds per acre) at the time of seeding in addition to the soil amendments shown in the

a. Areas where turfgrass may be desired include lawns, parks, playgrounds, and commercial sites which will

b. Select one or more of the species or mixtures listed below based on the site conditions or purpose. Enter selected mixture(s), application rates, and seeding dates in the Permanent Seeding Summary. The

i. Kentucky Bluegrass: Full Sun Mixture: For use in areas that receive intensive management. Irrigation required in the areas of central Maryland and Eastern Shore. Recommended Certified Kentucky Bluegrass Cultivars Seeding Rate: 1.5 to 2.0 pounds per 1000 square feet. Choose a minimum óf three Kentucky bluegrass cultivars with each ranging from 10 to 35 percent of the total mixture by

ii. Kentucky Bluegrass/Perennial Rye: Full Sun Mixture: For use in full sun areas where rapid establishment is necessary and when turf will receive medium to intensive management. Certified Perennial Ryegrass Cultivars/Certified Kentucky Bluegrass Seeding Rate: 2 pounds mixture per 1000 square feet. Choose a minimum of three Kentucky bluegrass cultivars with each ranging from 10

iii. Tall Fescue/Kentucky Bluegrass: Full Sun Mixture: For use in drought prone areas and/or for areas receiving low to medium management in full sun to medium shade. Recommended mixture includes; Certified Tall Fescue Cultivars 95 to 100 percent, Certified Kentucky Bluegrass Cultivars 0 to 5 percent. Seeding Rate: 5 to 8 pounds per 1000 square feet. One or more cultivars may be

iv. Kentucky Bluegrass/Fine Fescue: Shade Mixture: For use in areas with shade in Bluegrass lawns. For establishment in high quality, intensively managed turf area. Mixture includes, Certified Kentucky Bluegrass Cultivars 30 to 40 percent and Certified Fine Fescue and 60 to 70 percent. Seeding

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

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

<u>Mestern MD</u>: March 15 to June I, August I to October I (Hardiness Zones: 5b, 6a)

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

Southern MD, Eastern Shore: March I to May 15, August 15 to October 15 (Hardiness Zones: Ta, 7b)

THE PLANS IN THIS REVISED ROAD CONSTRUCTION SET SUPERCEDE PLANS DATED 10/13/2015

DOWNTOWN COLUMBIA

SEDIMENT CONTROL NOTES AND DETAILS

CRESCENT NEIGHBORHOOD PARCELS A-1 THRU A-3, E, NON-BUILDABLE BULK PARCEL L, OPEN SPACE LOTS 1, 8 & 9 AND MERRIWEATHER-SYMPHONY WOODS NEIGHBORHOOD OPEN SPACE LOT 1

B-4-4 STANDARDS AND SPECIFICATIONS FOR TEMPORARY STABILIZATION B-4-5 STANDARDS AND SPECIFICATIONS FOR PERMANENT STABILIZATION CON'L

- d. Till areas to receive seed by disking or other approved methods to a depth of 2 to 4 inches, level and rake the areas to prepare a proper seedbed. Remove stones and debris over 1 j inches in diameter. The resulting seedbed must be in such condition that future mowing of grasses will pose no difficulty.
- e. If soil moisture is deficient, supply new seedings with adequate water for plant growth ($\frac{1}{2}$ to 1 inch every 3 to 4 days depending on soil texturé) until they are firmly established. This is especially true when seedings are made late in the planting season, in abnormally dry or hot seasons, or on adverse sites.

PERMANENT SEEDING SUMMARY

	Iness Zone (from Figure B d Mixture (from Table B.3)		/ Kentucky E	Bluegrass)		rtilizer Rat 10-20-20)	-	Lime Rate	
No.	Species	Application Rate (lb/ac)	Seeding Dates	Seeding Depths	N	P ₂ O ₅	K ₂ O	LIME ROLE	
9	*CERTIFIED TALL FESCIE BLEND (95% BY WEIGHT: FALCON IV, PENN 1901 & REBEL EXEDAJ AND CERTIFIED KENTUCKY BLUEGRASS BLEND (5% BY WEIGHT: COURTYARD, RAVEN & TANKEE)	6-8 LB/10,005F	Mar. 1 to May15. Aug. 15 to	$\frac{1}{4} - \frac{1}{2}$ in $\frac{1}{4} - \frac{1}{2}$ in $\frac{1}{4} - \frac{1}{2}$ in	45 pounds per acre (1.0 lb/ 1000 sf)	(2 lb/	90 lb/ac (2 lb/ 1000 sf)	2 tons/ac (90 lb/ 1000 sf)	

* OTHER CULTIVARS LISTED AS "PROVEN" IN THE MOST CURRENT UMD TT-77 MAY ALSO BE USED. B. Sod: To provide quick cover on disturbed areas (2:1 grade or flatter)

I. General Specifications

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

PERMANENT SEEDING NOTES

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

Seedbed 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

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

- Preferred Apply 2 tons per acre dolomitic limestone (92 lbs/1000 square feet) and 600 lbs per acre 10-10-10 fertilizer (14 lbs/1000 sq ft) before seeding. Harrow or disc into upper three inches of soil. At time of seeding, apply 400 lbs per acre 30-0-0 unreaform fertilizer (9 lbs/1000 sq ft).
- 2) Acceptable Apply 2 tons per acre dolomitic limestone (92 lbs/1000 sq ft) and 1000 lbs per acre 10-10-10 fertilizer (23 lbs/1000 sq ft) before seeding. Harrow or disc into upper three inches of soil.

For the periods March I thru April 30, and August I 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 Ibs per acre (.05 lbs/1000 sq ft) of weeping 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) Usé sold. Option (3) Séed with 60 lbs/acre Kentucky 31 Tall Fescue and mulch with 2 tons/acre well anchored straw.

Apply 1-172 to 2 tons per acre (70 to 90 lbs/1000 sq ft) of unrotted small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 218 gallons per acre (5 gal/1000 sq ft) of emulsified asphalt on flat areas. On slopes 8 feet or higher, use 348 gallons per acre (8 gal/1000 sq ft) for anchoring.

Maintenance

SMANABERGER & LANE

F 15-098

G. L. W. FILE No.

11071

SHEET

12 OF 31





ZONING

NT

TAX MAP - GRID

36 - 01

Professional L.S. #10849 Exp Date 4/2/2018 AS-SUILT DATE: 12-1-17 to 12-15-17

NOTE: THERE IS NO AS-BUILT

SCALE

AS SHOWN

DATE

NOV., 2015

HOWARD COUNTY, MARYLAND

B-4-8 STANDARDS AND

SPECIFICATIONS FOR STOCKPILE AREA

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

urpose

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.

<u>Criteria</u>

I. 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 Gradina.
- 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 discharae.
- 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.

1aintenance

335

330

SOIL CONSERVATION DISTRICT.

CONSERVATION DISTRICT."

The stockpile area must continuously meet the requirements for Adequate legetative 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.

MERRIWEATHER DR

R/W

-PROP. GRADE

TEMP. 12" HDPE

36 LF @ 0.8%

ENGINEER'S CERTIFICATE

HEREBY CERTIFY THAT THIS PLAN FOR SEDIMENT AND EROSION

DEVELOPER'S/BUILDER'S CERTIFICATE

neune

hief, Development Engineering Division

hief, Bureau of Highways 🛛 🚧 🎜

CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON

PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD

Y PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE

CONTROL, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE

DEPARTMENT OF ENVIORNMENT APPROVED TRAINING PROGRAM FOR THE

LSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL

ACCORDING TO THIS PLAN OF DEVELOPMENT FOR SEDIMENT AND EROSION,

CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A

CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Land Development Ome

-EX. GRADE

-IO LF CLI RIP RAP

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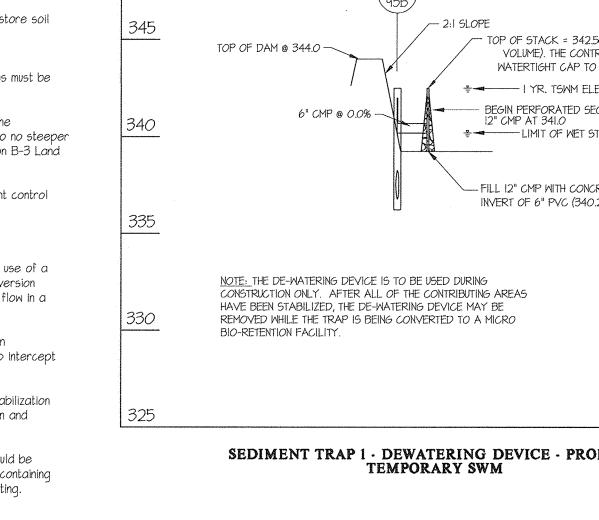
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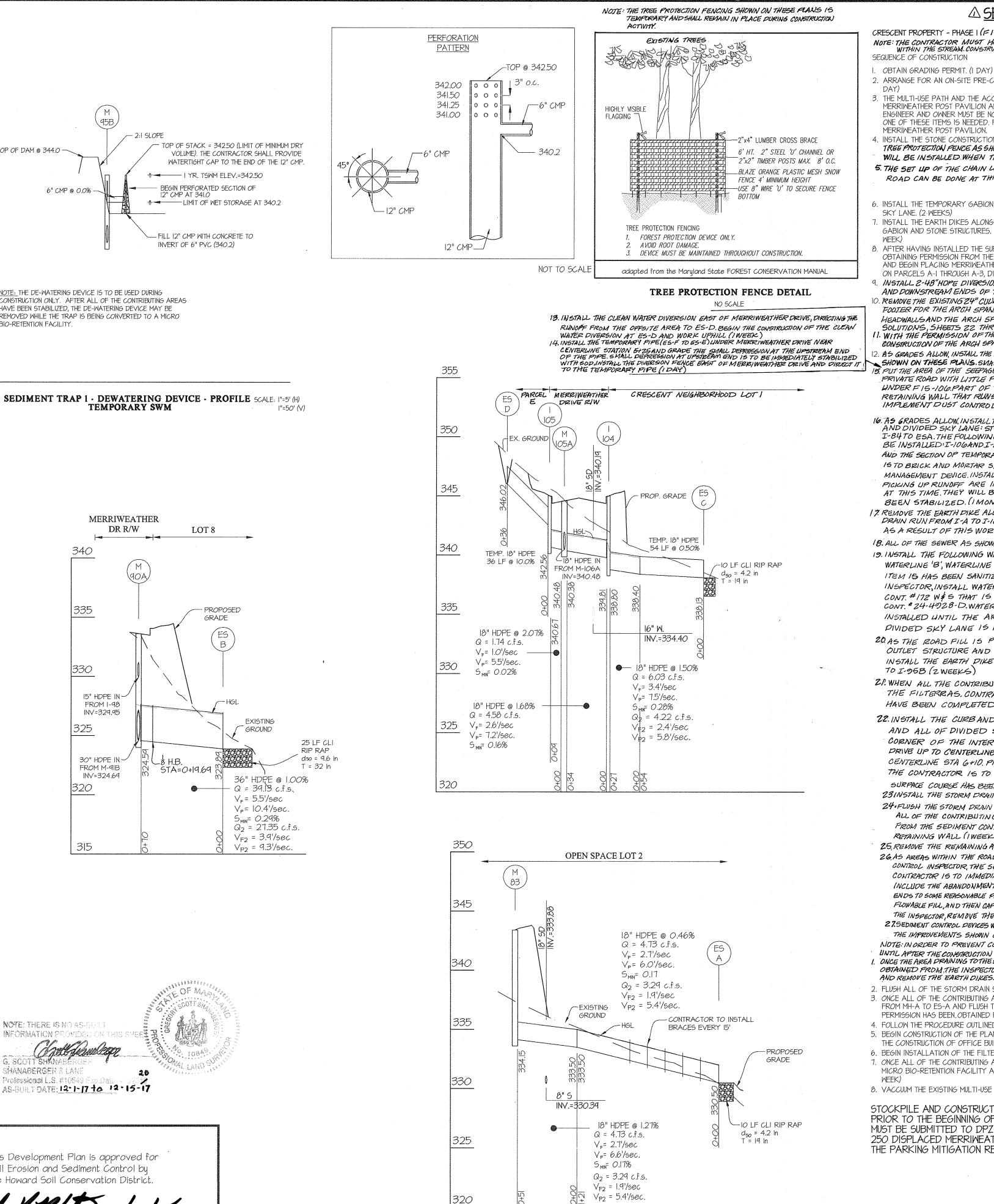
DATE

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355

350



PREPARED FOR:

THE HOWARD HUGHES CORPORATION

10480 LITTLE PATUXENT PARKWAY

SUITE 400

COLUMBIA, MD 21044

ATTN: BOB JENKINS

410-964-5443

IKJ |

BY APP'R

PROFESSIONAL CERTIFICATION

HEREBY CERTIFY THAT THESE PLANS

WERE PREPARED OR APPROVED BY

WE, AND THAT I AM A DULY LICENSED

PROFESSIONAL ENGINEER UNDER THE

LAWS OF THE STATE OF MARYLAND, LICENSE NO. 12975 EXPIRATION DATE: MAY 26, 2016

11-12-15



Soil Erosion and Sediment Control by the Howard Soil Conservation District.

DATE

REVISION

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

1:\cADD\DRAMMES\11071\PLANS BY GLW\Finds\PARCEL A\11071_12-14_SC NOTES.dwg DES. WSJ DRN. WSJ CHK. MJ

© GLW 2014

CRESCENT PROPERTY - PHASE I (F15098 AND CONT. #24-4931-D)

- SEQUENCE OF CONSTRUCTION
- ARRANGE FOR AN ON-SITE PRE-CONSTRUCTION MEETING WITH THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR (
- ONE OF THESE ITEMS IS NEEDED. PROVISIONS MUST BE MADE AT THE END OF EACH WORKING DAY TO ALLOW ACCESS TO
- ROAD CAN BE DONE AT THIS TIME (I WEEK)
- SKY LANE. (2 WEEKS) . INSTALL THE EARTH DIKES ALONG BROKEN LAND PARKWAY AND DIVIDED SKY LANE, DIRECTING THE RUNOFF TO THE
- 8. AFTER HAVING INSTALLED THE SUPER SILT FENCE TO THE WEST OF MERRIWEATHER DRIVE UNDER ITEM #4 ABOVE, AND
- ON PARCELS A-I THROUGH A-3, DIRECTING RUNOFF TO THE SEDIMENT TRAP. (I MONTH
- SOLUTIONS, SHEETS 22 THROUGH 31. WITH THE PERMISSION OF THE GEOTECHNICAL ENGINEER AND THE SEDIMENT CONTROL INSPECTOR, BEGIN
- IMPLEMENT DUST CONTROL MEASURES PER THE SPECIFICATIONS (2 WEEKS)
- BEEN STABILIZED. (IMONTH).
- AS A RESULT OF THIS WORK. (3DAYS)
- PIVIDED SKY LANG IS PUT ON GRADE. (2 WEEKS).
- TO I-95B (ZWEEKS)
- HAVE BEEN COMPLETED. (IWEEK).
- SURPACE COURSE HAS BEEN PLACED. (Z WEEKS) 23INSTALL THE STORM DRAIN RUN I-91 TO MH-91B (1DAY)
- RETAINING WALL (IWEEK).
- FLOWABLE FILL, AND THEN CAP THE UPSTREAM END. MAKE REPAIRS TOTHE SLOPE AND STABILIZE. WITH PERMISSION OF THE INSPECTOR, REMOVE THE SANDBAGS. (IWEEK)
- THE IMPROVEMENTS SHOWN ON THOSE PLANS (I WEEK) UNTIL AFTER THE CONFIRUCTION OF BUILDING'A' AND THE PARKEING GARAGE ARE COMPLETE.
- AND REMOVE THE EARTH DIRES. CONTRACTOR TO IMMEDIATELY STABILIZE ANY AREAS DISTURBED AS A RESULT (IWEER) 2. FLUSH ALL OF THE STORM DRAIN SYSTEMS, (2 DAYS)
- PERMISSION HAS BEEN. OBTAINED FROM THE SEDIMENT CONTROL INSPECTOR, CONSTRUCT MBR-1. (I WEEK)
- 4. FOLLOW THE PROCEDURE OUTLINED IN ITEM #3 FOR THE CONSTRUCTION OF MBR-2. (I WEEK) 5. BEGIN CONSTRUCTION OF THE PLANTERS. THE PLANTINGS WITHIN THE ROAD SIDE PLANTERS CANNOT BE INSTALLED UNTIL
- 6. BEGIN INSTALLATION OF THE FILTERRAS. (I WEEK) 7. ONCE ALL OF THE CONTRIBUTING AREAS HAVE BEEN STABILIZED, REMOVE THE SUPER SILT FENCE IN THE AREA OF THE
- 8. VACCUUM THE EXISTING MULTI-USE PATH ALONG LITTLE PATUXENT PARKWAY. (I DAY)

STOCKPILE AND CONSTRUCTION STAGING SOUTH OF DIVIDED SKY LANE MUST BE REMOVED PRIOR TO THE BEGINNING OF THE 2016 CONCERT SEASON; OTHERWISE A REVISED REDLINE MUST BE SUBMITTED TO DPZ BY FEBRUARY 29, 2016 TO INDICATE THE RELOCATION OF THE 250 DISPLACED MERRIWEATHER POST PAVILLION PARKING SPACES IN ACCORDANCE WITH THE PARKING MITIGATION REQUIREMENT PER FDP-DC-CRESCENT-I.

THE PLANS IN THIS REVISED ROAD CONSTRUCTION SET SUPERCEDE PLANS DATED 10/13/2015

SEDIMEN'

DO CRESCENT NEIGHBORHOOD PAR SPACE LOTS 1, 8 & 9 AND MERRIW

LECTION DISTRICT No. 5

298

NOTE: THE CONTRACTOR MUST HAVE ACQUIRED ALL STATE AND FEDERAL PERMITS PRIOR TO CONDUCTING ANY WORK WITHIN THE STREAM. CONSTRUCTION WITHIN THE LIMITS OF THE STREAM CANNOT OCCUR FROM MARCH IST TO JUNE 15TH.

3. THE MULTI-USE PATH AND THE ACCESS ROAD FROM BROKEN LAND PARKWAY AND LITTLE PATUXENT PARKWAY TO MERRIWEATHER POST PAVILION ARE TO REMAIN OPEN WHILE THIS SEQUENCE OF CONSTRUCTION IS IMPLEMENTED. THE ENGINEER AND OWNER MUST BE NOTIFIED IF THE CONTRACTOR BELIEVES A CLOSURE LONGER THAN I DAY TO THE EITHER

. INSTALL THE STONE CONSTRUCTION ENTRANCE AT DIVIDED SKY LANE, SUPER SULT FENCE, ORANGE SAFET! FENCE, AND THE TREE PROTECTION PENCE AS SHOWN ON SHEET TO THE STONE CONSTRUCTION ENTRANCE AT LITTLE PATUXENT PARKWAY WILL BE INSTALLED WHEN THE CURB CUT AT LITTLE PATUXENT PARKWAY IS MADE (I WEEK) 5. THE SET UP OF THE CHAIN LINK FENCE AND TRAILER ON THE SOUTH SIDE OF THE EXISTING GRAVEL

6. INSTALL THE TEMPORARY GABION OUTLET STRUCTURE AND THE TEMPORARY STONE OUTLET STRUCTURES ALONG DIVIDED

GABION AND STONE STRUCTURES. BEGIN THE CONSTRUCTION OF THE EARTH DIKES AT EACH DEVICE AND WORK UPHILL. (1

OBTAINING PERMISSION FROM THE SEDIMENT CONTROL INSPECTOR, BEGIN MASS GRADING ON PARCELS A-I THROUGH A-3 AND BEGIN PLACING MERRIWEATHER DRIVE ON GRADE. AS GRADING ALLOWS INSTALL EARTH DIKES AND SEDIMENT TRAP

INSTALL 2-48"HOPE DIVERSION PIPES AS SHOWN IN PLAN AND PROFILE ON SHEET II. SECURE THE UPSTREAM AND DOWNSTREAM ENDS OF THE PIPES WITH SAND BAGS UP TO THE ELEVATIONS SHOWN IN THE PROPILE O. REMOVE THE EXISTING 24" CULVERT PIPE AND ENDUGH OF THE EXISTING ACCESS ROAD TO CONSTRUCT THE FOOTER FOR THE ARCH SPAN, FOR STANDARDS AND SPECIFICATIONS RELATED TO THE INSTALLATION OF THE HEADWALLS AND THE ARCH SPAN, SEE THE PORTION OF THIS PLAN SET PREPARED BY CONTECH ENGINEERED

CONSTRUCTION OF THE ARCH SPAN, AGAIN SEE SHEET 22 THROUGH 31 POR THE CONSTRUCTION SPECIFICATIONS (IMONTH) AS GRADES ALLOW, INSTALL THE STORM DRAIN RUN ES-D TO ESID 3 AND THE SECTION OF TEMPORARY PIPE TO ES-C. AS SHOWN ON THESE PLANS. SMALL DEPRESSION AT UPSTREAM END IS TO BE IMMEDIATELY STABILIZED WITH SOD IWEEK PUT THE AREA OF THE SEEPAGE BERM (LOCATED IN THE SOUTHEAST CORNER OF THE INTERSECTION OF THE PRIVATE ROAD WITH LITTLE PATUXENT PARKWAY) ON GRADE. THE SEEPAGE BERM WILL BE CONSTRUCTED UNDER F 15-106 PART OF THIS OPERATION WILL BE THE REMOVAL OF A PORTION OF THE EXISTING RETAINING WALL THAT RUNG PARALLEL TO LITTLE PATUXENT PARKWAY. THE CONTRACTOR MUST

16. AS GRADES ALLOW, IN STALL THE POLLOWING STORM DRAIN RUNS IN THE AREAS OF BROKEN LAND PARKWAY AND DIVIDED SKY LANE: 57-78A TO ES-73, I-95B TO MH-77, ST-79 TO MH-76, I-84 AND I-84A TO I-84 I-84 TO ESA. THE FOLLOWING STORM DRAIN RUNS IN THE AREA OF MERRIWEATHER DRIVE CAN ALSO BE INSTALLED: I-10GANDI-107. TO MH-10G, I-95 AND I-100 TO I-92, I-92 AND I-98 TO MH 90A, AND THE AND THE SECTION OF TEMPORARY PIPE FROM MH-90A TO ES-BAS SHOWN ON THESE PLANS. THE CONTRACTOR IS TO BRICK AND MORTAR SHUT ANY STORM DRAIN PIPE THAT DRAINS TO A STORMWATER MANAGEMENT DEVICE. INSTALL THE CURB INLET PROTECTION IMMEDIATELY AFTER THE STRUCTURES PICKING UP RUNDEF ARE INSTALLED. (I MONTH) NOTE: THE FILTERRAS ARE NOT TO BE INSTALLED AT THIS TIME. THEY WILL BE INSTALLED ONCE THE CONTRIBUTING AREAS TO THE DEVICES HAVE

7. REMOVE THE EARTH DIKE ALONG THE EAST SIDE OF MERRIWEATHER DRIVE AND REMOVE THE STORM DRAIN RUN FROM I-A TO I-105. CONTRACTOR IS TO IMMEDIATELY STABILIZE ANY DISTURBED AREAS

18. ALL OF THE SEWER AS SHOWN ON CONT. 24-4928-D MAY BE CONSTRUCTED AT THIS TIME (2 WEEKS) 19. INSTALL THE FOLLOWING WATER MAINS AS SHOWN ON CONT. #24-4928-D: WATERLINE'A? WATERLINE 'B', WATERLINE 'C', AND WATERLINE 'E'. ONCE THESE WATERLINES CONSTRUCTED HNDER ITEM 15 HAS BEEN SANITIZED, TESTED, AND FOUND TO BE ACCEPTABLE BY THE HOWARD COUNTY INSPECTOR, INSTALL WATERLINE 'F' AND ABANDON THE PORTION OF 8"W CONSTRUCTED UNDER CONT. #172 W&S THAT IS BEING REPLACED BY THE CONSTRUCTION OF WATERLINES SHOWN ON CONT. # 24-4928-D.WATERLINE 'B' FROM WATERLINE STA. 3+00 TO STA. 5+43 CANNOT BE INSTALLED UNTIL THE ARCH SPAN HAS BEEN CONSTRUCTED AND THE REMAINDER OF

20 AS THE ROAD FILL IS PLACED ALONG DIVIDED SKY LANE AND THE TEMPORARY GABION OUTLET STRUCTURE AND TEMPORARY STONE OUTLET STRUCTURES ARE NO LONGER FUNCTIONAL INSTALL THE EARTH DIKES AND PIPE OUTLET SEDIMENT TRAP. CONNECT THE RISER STRUCTURE

21. WHEN ALL THE CONTRIBUTING AREAS TO THE FILTERRAS HAVE BEEN STABILIZED, INSTALL THE FILTERRAS. CONTRACTOR IS TO BLOCK THE STRUCTURES UNTIL THE PAVING OPERATIONS

22. INSTALL THE CURBAND GUTTER UP TO CENTERLINE STA. 4+55 OF MERRIWEATHER DRIVE AND ALL OF DIVIDED SKY LANE INCLUDING THE CURB FILLET IN THE SOUTHWEST

CORNER OF THE INTERSECTION PROVIDE BASE AND SUBFACE COURSE PAVING ALONG MERRIWEATHER DRIVE UP TO CENTERLINE STA. 5+50 AND ONLY INSTALL BASE PAVING FROM THAT POINT TO CENTERLINE STA 6+10. PROVIDE BASE AND SURFACE COURSE ALONG ALL OF DIVIDED SKY LANE. THE CONTRACTOR IS TO INSTALL ASPHALT BERMS TO DIRECT RUNOPF TO THE INLETS LINTIL THE

24.FLUSH THE STORM DRAIN SYSTEM THAT DRAINS TO THE MICRO BID-RETENSION FACILITY MBR-Z. ONCE ALL OF THE CONTRIBUTING AREAS HAVE BEEN STABILIZED AND PERMISSION HAS BEEN OBTAINED FROM THE SEDIMENT CONTROL INSPECTOR, CONSTRUCT MBR-2, INCLUDING THE CONSTRUCTION OF THE,

25 REMOVE THE REMAINING ACCESS ROAD WEST OF THE ARCH SPAN TO THE LIMITS SHOWN ON THESE PLANS (2DAYS 26 AS AREAS WITHIN THE ROAD RIW ARE STABILIZED AND PERMISSION HAS BEEN OBTAINED FROM THE SEDIMENT CONTROL INSPECTOR, THE SEDIMENT CONTROL DEVICES WITHIN THE ROAD RIW CAN BE REMOVED THE

CONTRACTOR IS TO IMMEDIATELY STABILIZE ANY AREAS THAT ARE DISTURBED AS A RESULT. THIS WILL INCLUDE THE ABANDONMENT OF THE 48" DIVERSION PIPES. THE CONTRACTOR IS TO CUT BACK THE PIPES AT BOTH ENDS TO SOME REASONABLE POINT WITHIN THE FILL SLOPES AND CAP THE DOWNSTREAM END, FILL THE PIPE WITH

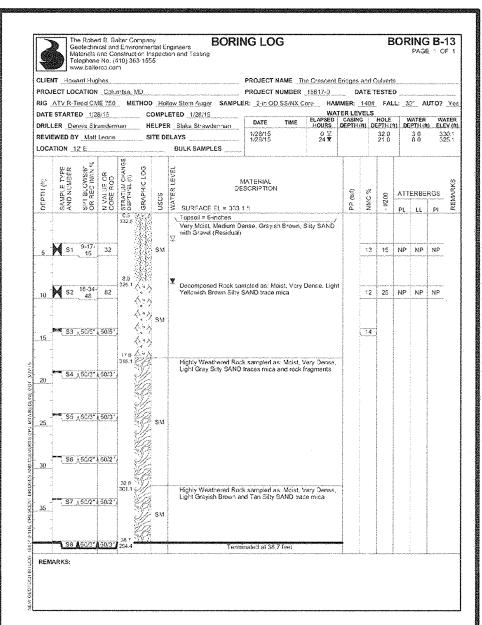
27. SEDIMENT CONTROL DEVICES WITHIN THE LIMITS OF SDP-15068 (PARCELS A-1 THROUGH A-3) WILL REMAIN AND BE USED FOR

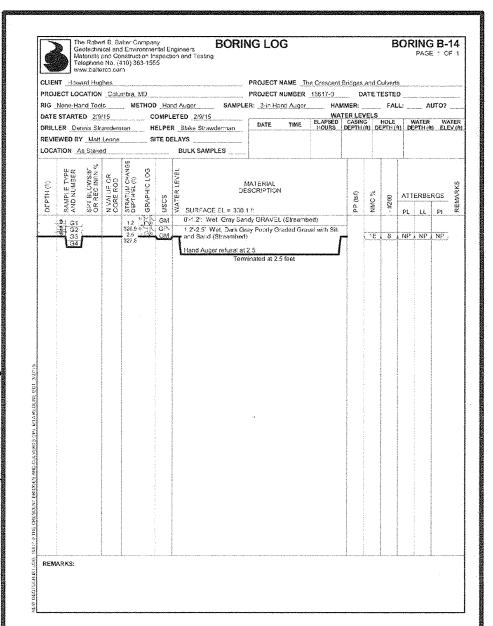
NOTE: IN ORDER TO PREVENT CONTAMINATION OF THE STORMWATER DEVICES, THE FOLLOWING ITEMS CANNOT BE PERFORMED I. ONCE THE AREA DRAINING TO THE SEDIMENTT RAPAND EARTH DIKES HAVE BEEN STABILIZED, AND PERMISSION HAS BEEN OBTAINED PROMITHE INSPECTOR, BACKFILL THE SEDIMENT TRAP TO THE INTERM GRADING SHOWN ON SDP. 15068

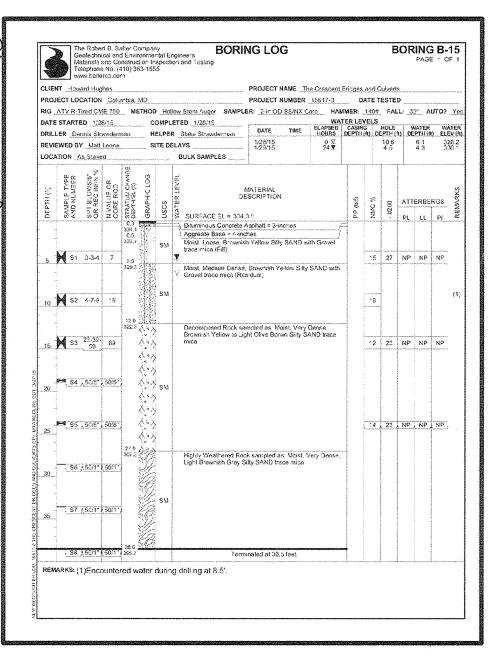
3. ONCE ALL OF THE CONTRIBUTING AREAS DRAINING TO MBR-I HAVE BEEN STABILIZED, REMOVE THE SORM DRAIN SYSTEM FROM MH-A TO ES-A AND FLUSH THE STORM DRAIN SYTEM THAT WILL CONVEY RUNOFF TO THE FACILITY. ONCE

THE CONSTRUCTION OF OFFICE BUILDING I AND THE PARKING GARAGE ON SDP 15-068 HAS BEEN COMPLETED. (I WEEK)

MICRO BIO-RETENTION FACILITY AND REMOVE BLOCKING FROM 1-84 AND CONSTRUCT THE PLUNGE POOL AT ES-73. (1

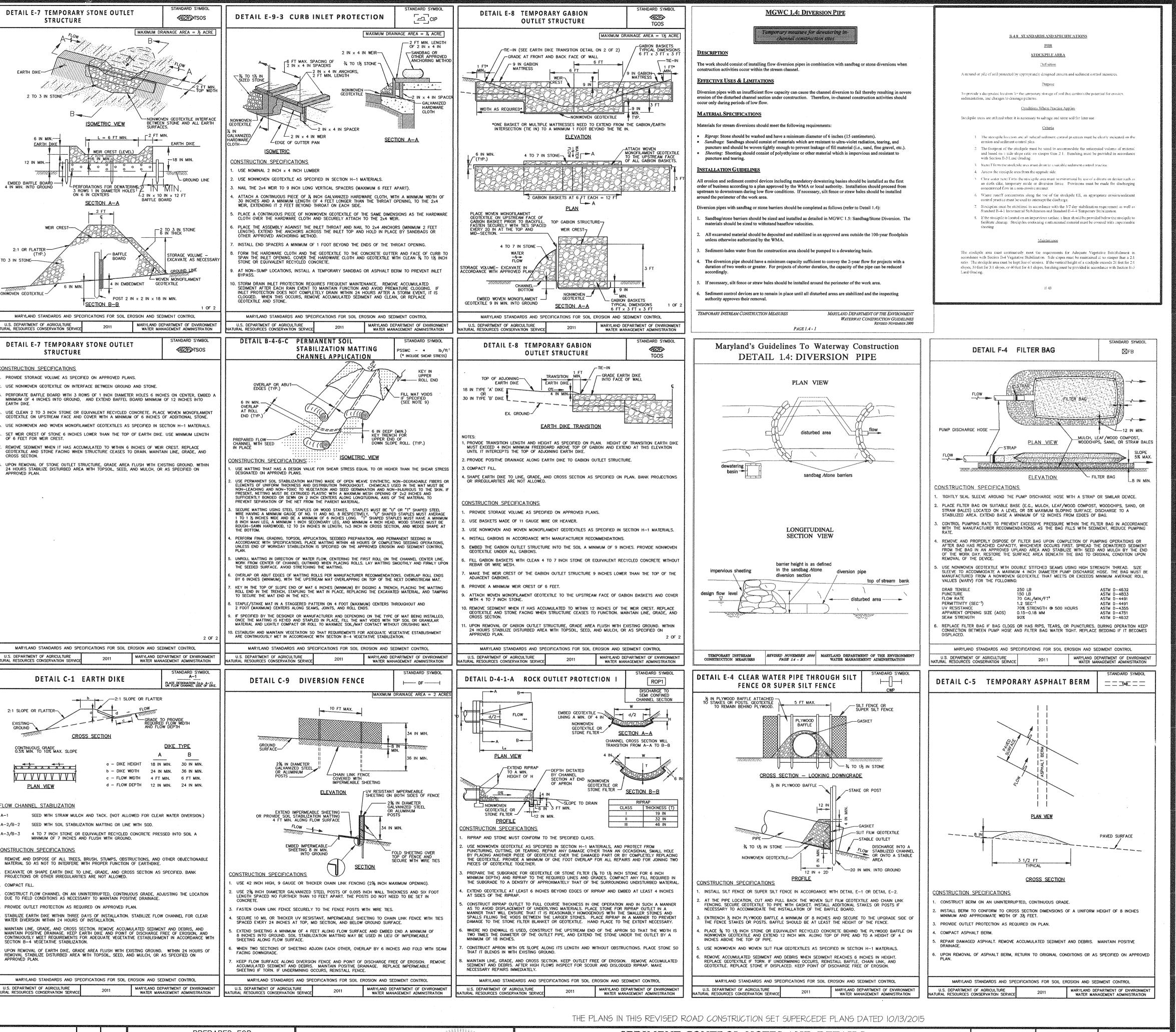






NT CONTROL NOTES AND DETAILS	SCALE	ZONING	G. L. W. FILE No.
WNTOWN COLUMBIA	AS SHOWN	NT	11071
RCELS A-1 THRU A-3, E, NON-BUILDABLE BULK PARCEL L, OPEN WEATHER-SYMPHONY WOODS NEIGHBORHOOD OPEN SPACE LOT 1	DATE	TAX MAP – GRID	SHEET
HOWARD COUNTY, MARYLAND	NOV., 2015	36 - 01	13 OF 31

DETAIL B-1 STABILIZED CONSTRUCTION **DETAIL E-7 TEMPORARY STONE OUTLET** SCE DETAIL E-1 SILT FENCE ENTRANCE ⊢-----SF------STRUCTURE -36 IN MIN. FENCE POST LENGTH DRIVEN MIN. 16 IN INTO GROUND CENTER TO CENTER - EXISTING PAVEMENT IOUNTABLE BERM-(6 IN MIN.) -EARTH FIL "16 IN MIN. HEIGHT OF WOVEN SLIT FILM GEOTEXTILE NONWOVEN GEOTEXTILE -MIN. 6 IN OF 2 TO 3 IN AGGREGATE OVER LENGTH AND WIDTH OF ENTRANCE -PIPE (SEE NOTE 6) EARTH DIKE-L8 IN MIN. DEPTH INTO GROUND PROFILE 50 FT MIN LENGTH 2 TO 3 IN STONE ELEVATION 36 IN MIN. FENCE В-FENCE POST 18 IN MIN. - ABOVE GROUND WOVEN SLIT FILM-STINGPAVEMEN 6 IN MIN. XXXXX EARTH DIK PLAN VIEW 12 IN MIN.-EMBED GEOTEXTILE. MIN. OF 8 IN VERTICALLY INTO THE GROUND. BACKFILL AND COMPACT THE SOIL ON BOTH SIDES OF GEOTEXTILE. CONSTRUCTION SPECIFICATIONS CROSS SECTION PLACE STABILIZED CONSTRUCTION ENTRANCE IN ACCORDANCE WITH THE APPROVED PLAN. VEHICLES MUST TRAVEL OVER THE ENTIRE LENGTH OF THE SCE. USE MINIMUM LENGTH OF 50 FEET (*30 FEET FOR SINGLE RESIDENCE LOT). USE MINIMUM WIDTH OF 10 FEET. FLARE SCE 10 FEET MINIMUM AT THE EXISTING ROAD TO PROVIDE A TURNING RADIUS. POSTS-PIPE ALL SURFACE WATER FLOWING TO OR DIVERTED TOWARD THE SCE UNDER THE ENTRANCE, MAINTAINING POSITIVE DRAINAGE. PROTECT PIPE INSTALLED THROUGH THE SCE WITH A MOUNTABLE BERM WITH 5:1 SLOPES AND A MINIMUM OF 12 INCHES OF STONE OVER THE PIPE. PROVIDE PIPE AS SPECIFIED ON APPROVED PLAN. WHEN THE SCE IS LOCATED AT A HIGH SPOT AND HAS NO DRAINAGE TO CONVEY, A PIPE IS NOT NECESSARY. A MOUNTABLE BERM IS REQUIRED WHEN SCE IS NOT STEP 1 STEP 2 WEIR CREST-LOCATED AT A HIGH SPOT STAPLE-----STAPLE STAPLE--STAPLE TWIST POSTS TOGETHER PREPARE SUBGRADE AND PLACE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS. 2:1 OR FLATTER-(TYP.) PLACE CRUSHED AGGREGATE (2 TO 3 INCHES IN SIZE) OR EQUIVALENT RECYCLED CONCRETE (WITHOUT TO 3 IN STONE-REBAR) AT LEAST 6 INCHES DEEP OVER THE LENGTH AND WIDTH OF THE SCE. STAPLE ----------STAPLE MAINTAIN ENTRANCE IN A CONDITION THAT MINIMIZES TRACKING OF SEDIMENT. ADD STONE OR MAKE OTHER REPAIRS AS CONDITIONS DEMAND TO MAINTAIN CLEAN SURFACE, MOUNTABLE BERM, AND STEP 3 CONFIGURATION SPECIFIED DIMENSIONS, IMMEDIATELY REMOVE STONE AND/OR SEDIMENT SPILLED, DROPPED, OR TRACKED DIMENSIONS IMMEDIATELY REMOVED STONE SHOULD AND/OR SWEEPING. WASHING ROADWAY TO REMOVE MUD TRACKED ONTO PAVEMENT IS NOT ACCEPTABLE UNLESS WASH WATER IS -----6 IN MIN. STAPLE--STAPLE DIRECTED TO AN APPROVED SEDIMENT CONTROL PRACTICE. NONWOVEN GEOTEXTILE -JOINING TWO ADJACENT SILT FENCE SECTIONS (TOP VIEW) 1 OF 2 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL FROSION AND SEDIMENT CONTROL MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL S. DEPARTMENT OF AGRICULTURE MARYLAND DEPARTMENT OF ENVIRONMEN WATER MANAGEMENT ADMINISTRATION . DEPARTMENT OF AGRICULTURE RESOURCES CONSERVATION SERVICE MARYLAND DEPARTMENT OF ENVIRONMEN WATER MANAGEMENT ADMINISTRATION 2011 2011 J.S. DEPARTMENT OF AGRICULTURE RAL RESOURCES CONSERVATION SERVICE STANDARD SYMBO TANDARD SYMBO **DETAIL E-7 TEMPORARY STONE OUTLET** DETAIL E-3 SUPER SILT FENCE DETAIL E-1 SILT FENCE ⊢----SSF-----I I------SF------I STRUCTURE 10 FT MA) CONSTRUCTION SPECIFICATIONS CONSTRUCTION SPECIFICATIONS USE WOOD POSTS 1½ X 1½ ± χ_6 Inch (MINIMUM) Square cut of sound quality hardwood. As an alternative to wooden post use standard "t" or "U" section steel posts weighing not PROVIDE STORAGE VOLUME AS SPECIFIED ON APPROVED PLANS. LESS THAN 1 POUND PER LINEAR FOOT. -34 IN MIN USE 36 INCH MINIMUM POSTS DRIVEN 16 INCH MINIMUM INTO GROUND NO MORE THAN 6 FEET APART. TRANSTRATION USE WOVEN SLIT FILM GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS AND FASTEN GEOTEXTILE GROUND SURFACE -8 IN JRELY TO UPSLOPE SIDE OF FENCE POSTS WITH WRE TIES OR STAPLES AT TOP AND MID-SECTION -36 IN MIN PROVIDE MANUFACTURER CERTIFICATION TO THE AUTHORIZED REPRESENTATIVE OF INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT THE GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION H-1 MATERIALS. 2% IN DIAMETER GALVANIZED CHAIN LINK FENCE WITH WOVEN SLIT FILM GEOTEXTILE EMBED GEOTEXTILE A MINIMUM OF 8 INCHES VERTICALLY INTO THE GROUND. BACKFILL AND COMPACT THE SOIL ON BOTH SIDES OF FABRIC. STEEL OF ELEVATION WHERE TWO SECTIONS OF GEOTEXTILE ADJOIN: OVERLAP, TWIST, AND STAPLE TO POST IN CROSS SECTION. ACCORDANCE WITH THIS DETAIL. EXTEND BOTH ENDS OF THE SILT FENCE A MINIMUM OF FIVE HORIZONTAL FEET UPSLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT TO PREVENT RUNOFF FROM GOING AROUND THE ENDS OF THE SILT FENCE. CHAIN LINK FENCING WOVEN SLIT FILM GEOTEXTILE-APPROVED PLAN. REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BULGES DEVELOP IN SILT FENCE OR WHEN. SEDIMENT REACHES 25% OF FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN. IF UNDERMINING OCCURS, REINSTALL FENCE. FLOW -EMBED GEOTEXTILE AND -CHAIN LINK FENCE 8 IN MIN. INTO GROUND CROSS SECTION CONSTRUCTION SPECIFICATIONS INSTALL 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. . FASTEN 9 GAUGE OR HEAVIER GALVANIZED CHAIN LINK FENCE (2% INCH MAXIMUM OPENING) 42 INCHES IN HEIGHT SECURELY TO THE FENCE POSTS WITH WIRE TIES OR HUG RINGS. FASTEN WOVEN SLIT 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 GEOTEXTILE AND CHAIN LINK FENCE A MINIMUM OF 8 INCHES INTO THE GROUND WHERE ENDS OF THE GEOTEXTILE COME TOGETHER, THE ENDS SHALL BE OVERLAPPED BY 6 INCHES, FOLDED, AND STAPLED TO PREVENT SEDIMENT BY PASS. 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. PROVIDE MANUFACTURER CERTIFICATION TO THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION H-1 MATERIALS. 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. MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL FROSION AND SEDIMENT CONTROL U.S. DEPARTMENT OF AGRICULTURE JRAL RESOURCES CONSERVATION SERVI MARYLAND DEPARTMENT OF ENVIRONME WATER MANAGEMENT ADMINISTRATION S. DEPARTMENT OF AGRICULTURE MARYLAND DEPARTMENT OF ENVIRONME WATER MANAGEMENT ADMINISTRATION .S. DEPARTMENT OF AGRICULTURE 2011 ENGINEER'S CERTIFICATE I HEREBY CERTIFY THAT THIS PLAN FOR SEDIMENT AND EROSION CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON 2:1 SLOPE OR FLATTER-MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD EXISTING-GROUND SOIL CONSERVATION DISTRICT." CONTINUOUS GRADE 0.5% MIN. TO 10% MAX. SLOPE 11-12-15 DATE PLAN VIEW DEVELOPER'S/BUILDER'S CERTIFICATE FLOW CHANNEL STABILIZATION "I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE A-2/B-2 ACCORDING TO THIS PLAN OF DEVELOPMENT FOR SEDIMENT AND EROSION, CONTROL, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE A-3/B-3 NOTE: THERE IS NO AS-BUILT CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A INFORMATION PROVIDED ON THIS SHEET : DEPARTMENT OF ENVIORMMENT APPROVED TRAINING PROGRAM FOR THE CONSTRUCTION SPECIFICATIONS CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. Stall Janolegy ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT." G. SCO1 SHANABERGER & LANE Professional L.S. #10849 Exp. Date 4/2/2 COMPACT FILL. 11/12/15 AS-BUILT DATE: 12-1-17 40 12-15-17 PROVIDE OUTLET PROTECTION AS REQUIRED ON APPROVED PLAN. APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS 11/18/2015 neuns hief, Bureau of Highways 🛛 🖊 🖊 Date This Development Plan is approved for Soil Erosion and Sediment Control by APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING the Howard Soil Conservation District ket Shilingh 15242 U.S. DEPARTMENT OF AGRICULTURE nief Division of Land Development OMP URAL RESOURCES CONSERVATION SERV Date 11-19-15 nief, 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 :\cadd\0RAMMXS\11071\PIANS BY GLW\Finds\PARCEL A\11071_12-14_SC NOTES.dwg DES. WSJ DRN. WSJ CHK. MJT DATE REVISION



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	- PREPARED FOR:	PROFESSIONAL CERTIFICATION	SEDIMEN
	THE HOWARD HUGHES CORPORATION 10480 LITTLE PATUXENT PARKWAY SUITE 400	and an international and the second sec	DO
	COLUMBIA MD 21044	PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 12975 EXPIRATION DATE: MAY 26, 2016	CRESCENT NEIGHBORHOOD PA SPACE LOTS 1, 8 & 9 AND MERRIW
BY APP'R.		11-12-15 (1615)	ELECTION DISTRICT No. 5

F 15-098

D ROAD CONSTRUCTION SET SUPERCEDE PLANS DATED 10/13/2015			
T CONTROL NOTES AND DETAILS	SCALE	ZONING	G. L. W. FILE No.
WNTOWN COLUMBIA	AS SHOWN	NT	11071
RCELS A-1 THRU A-3, E, NON-BUILDABLE BULK PARCEL L, OPEN EATHER-SYMPHONY WOODS NEIGHBORHOOD OPEN SPACE LOT 1	DATE	TAX MAP - GRID	SHEET
HOWARD COUNTY, MARYLAND	NOV., 2015	36 – 01	14 OF 31

FROM NO.	TO NO.	DIA. (IN.) \$	L	'C'	FACTOR	R COM	PUTAT	IONS
r KOMINO.	10 NO.	TYPE OF PIPE	(ft)	STRUCT	JRE ARE	A (AC.)	'C'	IMPERVIC
ST-78A	M-78	24" HDPE	15	1-91	0.3	17 Ac.	0.85	99%
M-78	M-77	24" HDPE	179	1-92	0.1	5 Ac.	0.85	99%
1-95B	M-77	24" HDPE	26	1-93	0.1	5 Ac.	0.85	99%
M-77	M-76	30" HDPE	26	1-95	1.8	9 Ac.	0.85	99%
M-76	M-75	30" HDPE	102	1-98		8 Ac.	0.85	99%
ST-79	M-75	24" HDPE	26	1-99		2 Ac.	0.85	99%
M-75	ES-13	30" HDPE	164	1-100		1 Ac.	0.85	99%
1-85	1-84	I8" HDPE	33	1-104		2 Ac.	0.85	99%
		18 HDPE		1-105		4 Ac.	0.85	99%
I-84A	1-84		50	1-106		2 Ac.	0.85	99%
1-84	M-83	18" HDPE	108	I-107 RS-10		2 Ac. 8 Ac.	0.85 0.24	99% 0%
M-83	E5-82	18" HDPE	65	1-88		о АС. Э АС.	0.24	99%
E5-82	RS-81			1-87		18 AC.	0.85	99%
RS-81	ES-80	18" HDPE	74	1-86		0 AC.	0.85	99%
				1-85		31 Ac.	0.85	99%
1-87	1-86	18" HDPE	17	I-84A		6 Ac.	0.85	99%
				1-84	0.1	9 Ac.	0.85	99%
1-106	M-106A	15" HDPE	77	ST-78	A 2.5	8 Ac.	0.86	99%
1-107	M-106A	15" HDPE	148	ST-70	1 1.7	1 Ac.	0.85	99%
M-106A	M-105A	18" HDPE	197	RS-8	1 0.1	6 Ac.	0.24	0%
1-105	M-105A	15" HDPE	13	1-95B	3.9	O Ac.	0.86	99%
M-105A	1-104	18" HDPE	38	EX. I-	5 1.14	I Ac.	0.85	99%
1-104	ES-103	18" HDPE	27			•		
ES-103	R5-102							
RS-102	ES-101	I5" HDPE	81					
1-100	1-99	18" HDPE	11					
1-99	1-93	24" HDPE	19					
1-95	M-94	18" HDPE	18					
M-94	1-92	18" HDPE	132					
1-93	1-92	24" HDPE	48					
1-92	M-91A	30" HDPE	106		\wedge			
M-91A	M-91B	30" HDPE	59		دے			
1-91	M-91B	15" HDPE	10	From	TO NO.	Dia.	(in)\$	L
M-91B	M-90A	30" HDPE	99	No.		Type	of Pipe	e (f+.)
1-98	M-90A	15" HDPE	44	1-86	MH-C	18"H	DPE	82
M-90A	ES-B	36" HDPE	70	MH-C	MH-B	18" H	DPE	87
M-A	ES-A	18" HDPE	109	MH-B	EG-A	185" H	DPE	57

NOTES: I. STRUCTURE 74 HAS BEEN OMITTED INTENTIONALLY 2. I-95B IS TO BE CONSTRUCTED AS A MANHOLE UNDER THIS PLAN. THE TOP WILL BE CONVERTED TO AN INLET UNDER SDP-15-068.

LEGEND

- LIMIT OF DISTURBANCE
- 350 ----

-352 ---

-----352

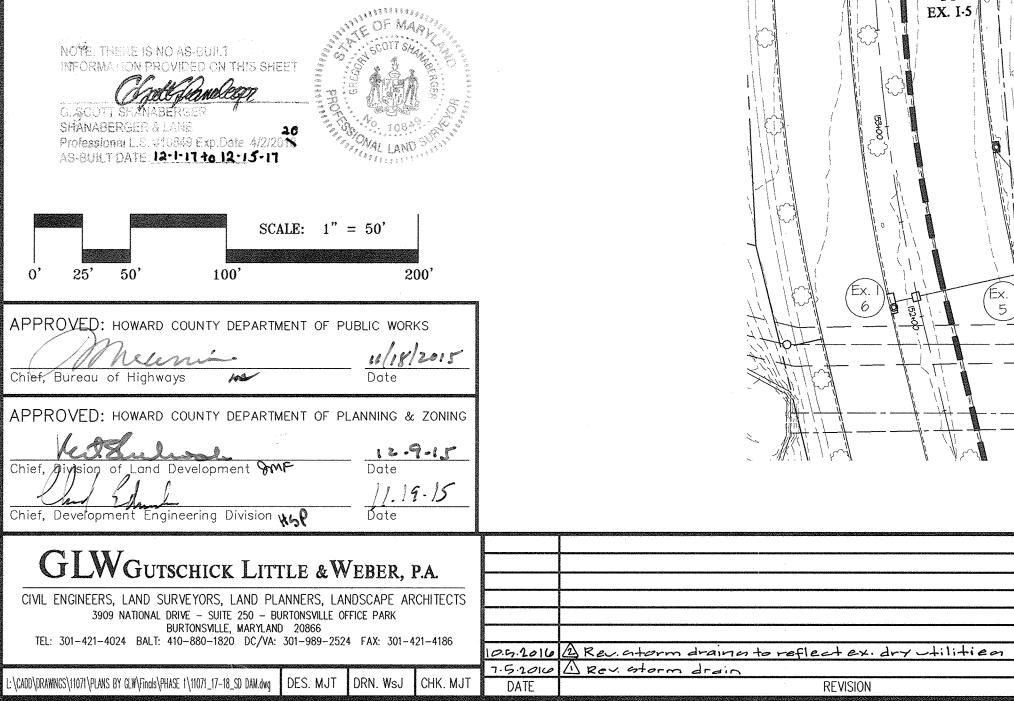
- EXISTING MINOR CONTOUR
 - PROPOSED MAJOR COUNTOUR

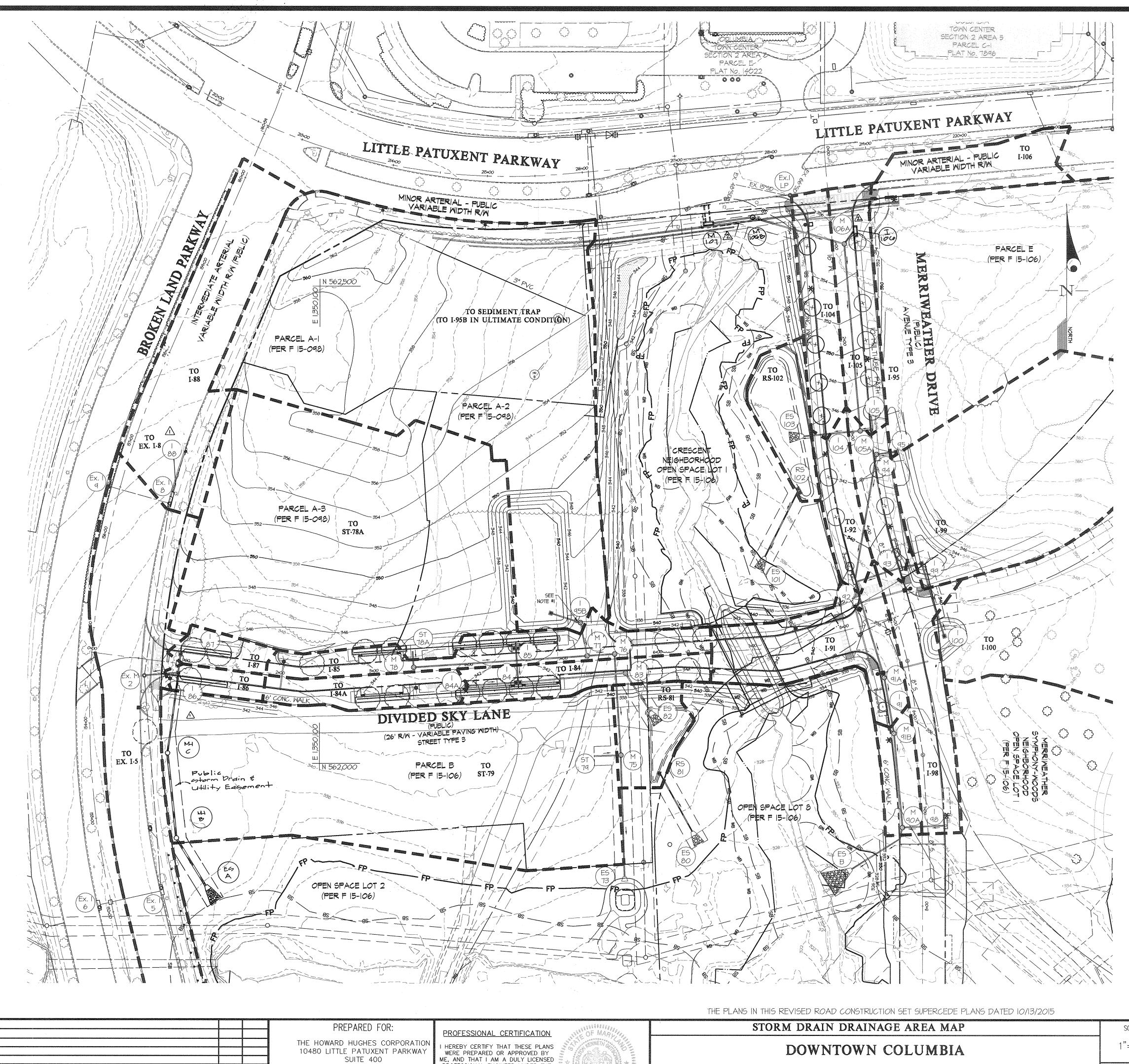
EXISTING MAJOR COUNTOUR

- PROPOSED MINOR CONTOUR
- DRAINAGE DIVIDE ULTIMATE CONDITIONS PER SDP 15-068

NOTES:

- THIS MANHOLE IS TO BE REPLACED WITH AN INLET UNDER THE SDP-15-068 CONTRACT AND WILL CAPTURE THE WATER FLOWING TO THIS POINT FOR THE ULTIMATE CONDITIONS ON THE SITE
- 2. ALL STORM DRAIN THAT TREATS THE ROAD IS TO BE PUBLICLY OWNED AND MAINTAINED
- 3. Existing 1-8 to be removed and replaced by inlet 88.





SUITE 400

PROFESSIONAL ENGINEER UNDER THE

LAWS OF THE STATE OF MARYLAND, LICENSE NO.12975 EXPIRATION DATE: MAY 26, 2016

COLUMBIA, MD 21044 ATTN: BOB JENKINS

410-964-5443

94 DAV

BY APP'R.

REVISION

© GLW 2014

Ti	Æ	PL	ANS	IN	THIS	REV	'ISED

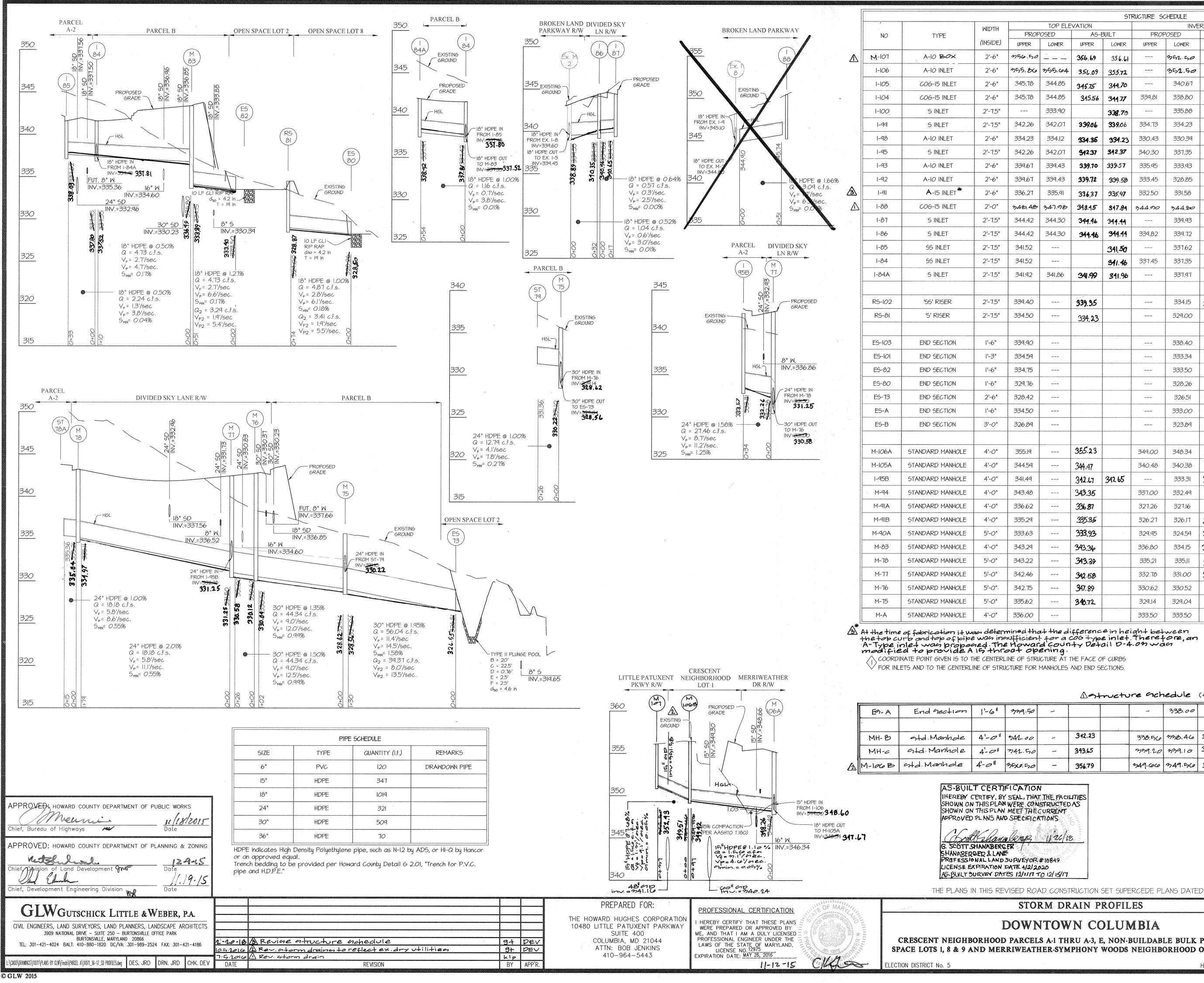
DON

CRESCENT NEIGHBORHOOD PAR SPACE LOTS 1, 8 & 9 AND MERRIWE



			li internet interne
RAIN DRAINAGE AREA MAP	SCALE	ZONING	G. L. W. FILE No.
WNTOWN COLUMBIA	1"=50'	NT	11071
RCELS A-1 THRU A-3, E, NON-BUILDABLE BULK PARCEL L, OPEN /EATHER-SYMPHONY WOODS NEIGHBORHOOD OPEN SPACE LOT 1	DATE	TAX MAP - GRID	SHEET
HOWARD COUNTY, MARYLAND	NOV., 2015	36 - 01	15 OF 31

F 15-098



		(1 mm)	ST	RUCTURE SO		~~~				1
PROP	TOP ELE	• • • • • • • • • • • • • • • • • • • •	BUILT	PROF	INVE POSED	RT AS-E		STD. DETAIL	LOCATIONS	REMARKS
UPPER	LOWER	UPPER	LOWER	UPPER	LOWER	UPPER	LOWER			
56.50	·	356.69	356.61		352.50		352.4 3	HO.CO. D-4.03	N 562,565 E 1,350,509	
55.86	355.64	356.09	355.72		352.50		349.39	HO.CO. D-4.03	N 562,558 E 1,350,664	
345.78	344.85	345.75	344.70		340.67	· · · · · · · · · · · · · · · · · · ·	340.79	MD 374.31	N 562,356 E 1,350,680	
345.78	344.85	345.56	344.77	339.81	338.80	339.55	338.86	MD 374.31	N 562,351 E 1,350,634	
	333.90	<u></u>	338.70		335.88		335.52	HO.CO. D-4.22	N 562,134 E 1,350,759	· .
342.26	342.07	339.06	339 .06	334.73	334.23	334.65	333.98	HO.CO. D-4.22	N 562,210 E 1,350,738	
334.23	334.12	334.35	334.23	330.43	330.39	330.52	329.89	HO.CO. D-4.03	N 561,933 E 1,350,758	
342.26	342.07	342.37	342.37	340.30	337.35	340.43	337.45	HO.CO. D-4.22	N 562,327 E 1,350,708	
339.67	339.43	339.70	339.57	335.95	333.93	333.86	333.71	HO.CO. D-4.03	N 562,207 E 1,350,710	
339.67	339.43	339.72	339.58	333.45	328.85	332.12	328:71	HO.CO. D-4.03	N 562,194 E 1,350,665	
336.27	335.91	336.37	335.97	332.50	331.58	331.83	331,54	HO.CO. D-4.03	N 562,043 E 1,350,701	
48.48	347.98	348.45	\$47.84	344.00	344.80	345,11	344.76	MD 5HA 374.62	N 562,277 E 1,349,94	
344.42	344.30	344.46	344.44		339.93		340.05	HO.CO. D-4.22	N 562,11 DE 1,349,94	
344.42	344.30	344.46	344.44	339.82	339.72	340.46	340.45	HO.CO. D-4.22	N 562,094 E 1,349,938	
341.52			341.50		337.62	338.28	338.03	HO.CO. D-4.23	N 562,083 E 1,350,307	
341.52		*****	341.46	337.45	337.35	337.80	337.52	HO.CO. D-4.23	085 5 N 562,123 E 1,350,307	
341.92	341.86	341.99	311.96		337.97		338.+2	HO.CO. D-4.22	N 562,081 E 1,350,255	
								/		
339.40		339.35			334.15	335.00	333.96	HO.CO. D-4.23	N 562,286 E 1,350,605	
334.50		334,23			329.00	329.91	328.87	HO.CO. D-4.22	N 561,990 E 1,350,458	
										· · · · ·
339.90	aper un den				338.40		33 5.2 6	HO.CO. D-5.51	N 562,348 E 1,350,608	
334.59					333.34		333.44	HO.CO. D-5.51	N 562,212 E 1,350,569	
334.75					333.50		333.40	HO.CO. D-5.51	N 562,038 E 1,350,457	
329.76					328.26		328.35	HO.CO. D-5.51	N 561,925 E 1,350,496	
328.42			n ha a sun sin ta da anna a sun su sun anna ann ann ann an da ba a	1996 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 19	326.51		326.55	HO.CO. D-5.51	N 561,843 E 1,350,423	
334.50				11.11.11.11.11.11.11.11.11.11.11.11.11.	333.00		338.03	HO.CO. D-5.51	N 561,972 E 1349,880 N 561,942 E 1,350,451	
326.89			. ,		323.89		320.84	HO.CO. D-5.51	N 561,890 E 1,350,662	
355.19		355.23		349.00	348.34	348.26	347.67	HO.CO. G-5.12	N 562,544 E 1,350,65	<u> </u>
344.59		344.47		340.48	340.38	340.16	340.06	HO.CO. G-5.12	N 562,349 E 1,350,670	
341.49		342.67	342.65	مانى ھارى ھارى مارى مەرىپىرىكى بىلىرى مەرىپىرىكى بىلىرى ھارى مەرىپىرىكى بىلىرى بىلىرى بىلىرى بىلىرى بىلىرى بىلى بىلىرى ھارى ھارى بىلىرى	333.31	333.14	333.51	HO.CO. G-5.12	N 562,14 E 1,350,37	1
343.48		343.35		337.00	332.49	336.62	332.15	HO.CO. G-5.12	N 562,32 E 1,350,687	
336.62		336.87		327.26	327.16	326.89	326.81	HO.CO. G-5.12	N 562,09 E 1,350,696	
335.29		335.35		326.27	326.17	325.97	325.73	HO.CO. G-5.12	N 562,032 E 1,350,70	
333.63	ayiti aati asti	333.93		329.95	324.59	329.94	324.32	HO.CO. G-5.13	N 561,933 E 1,350,715	
343.29		343.36		336.80	334.15	336.49	333.89	HO.CO. G-5.12	N 562,095 E 1,350,422	
343.22		343.39		335.21	335.11	335.04	334.97	HO.CO. G-5.13	N 562,10 E 1,350,199	· · · · · · · · · · · · · · · · · · ·
342.46		342.58		332.78	331.00	332.24	330.58	HO.CO. G-5.13	N 562,115 E 1,350,38	
342.75		347.89	**************************************	330.62	330.52	33012	330.04	HO.CO. G-5.13	N 562,11 E 1,350,411	
335.62		340.72		329.14	329.04	328.62	328.54	HO.CO. G-5.13	N 562,007 E 1,350,47	
36.00				333.50	333.50			HO.CO. G-5.12	N 562,051 E 1,350,451	THIS ISES-

Structure 74 has been omitted intentionally.

2. See sheets 13-14 for profiles and structure schedule of storm drain within

stormwater management areas (micro-biorentention and planters). 3. I-95B is constructed under this plan as a manhole and will have the top

converted to an inlet under SDP-15-068.

Agtructure achedule (cont.)

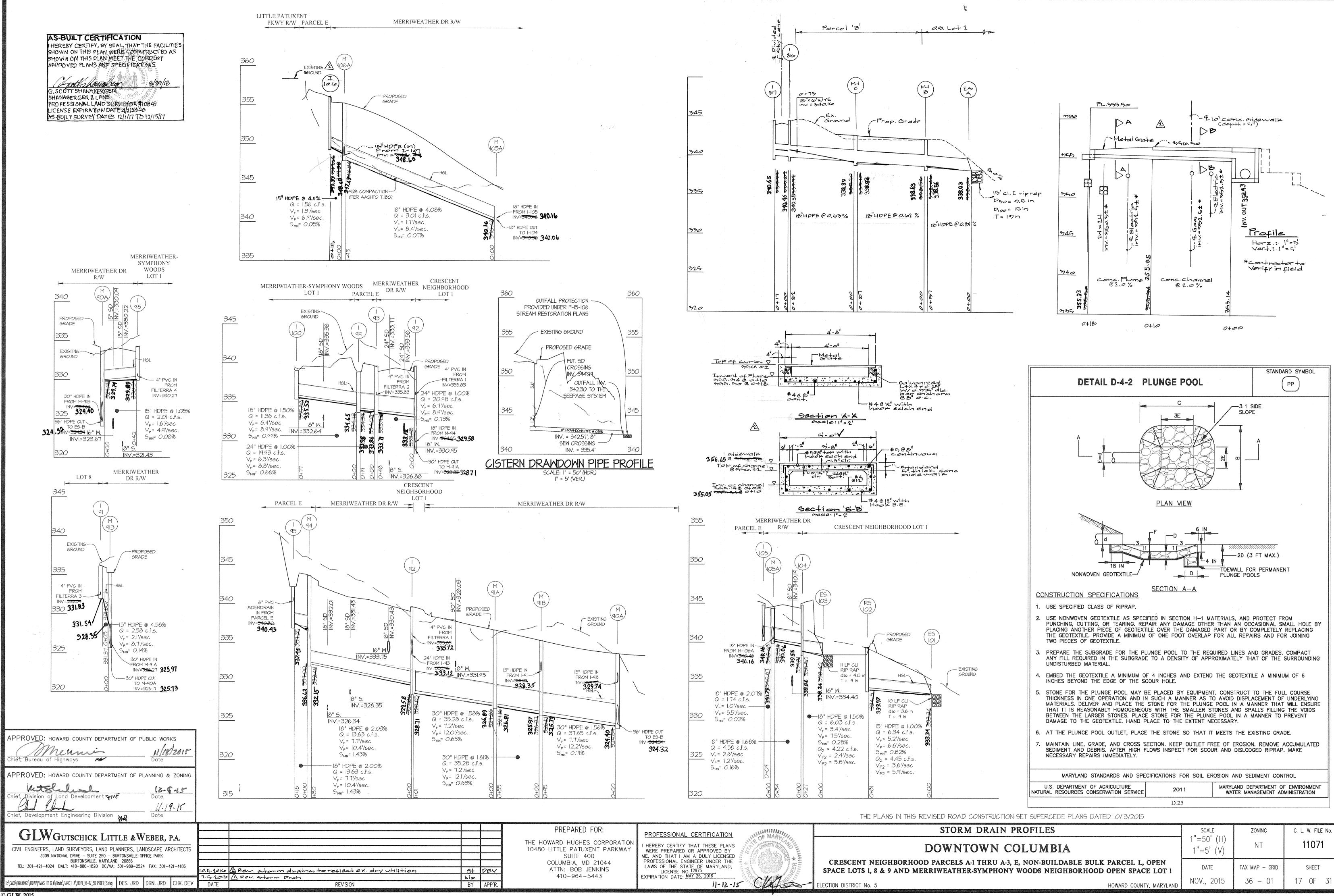
				(. ,		872 980	
mq.50			338.00		338.03	Ho. Co. D-5.51	N 561,868 E 1,349,982	
							920	·····
12.00	 342.23	338.5	6 338.46	338.63	338.56	Ho.Co.G-5.12	N 561,922 E 1,349,949	
\$2.50	 343.65	2. ארגננ	0 339.10	338.89	338.82	Ho. Co. G-5.12	N 562, 00 E 1,349,939	
0.50	 356.79	349.00	6 349.50	349.51	349.42	Ho. Co. G-5.12	N 502, 572 E 1,3550, 5556	
	 					, , , , , , , , , , , , , , , , , , ,	N562.573 E1,350.552	

Notes:

TIC	3N			
., TH	AT TH	EF		TIES
r TA	ECUI	REA	IT .	
CIF14	211 A S	242		
afg.		124	:/12	14 - 14 - 14 - 14 - 14 - 14 - 14 - 14 -
	Ko. 10 Kaluna	1842- 1815		
1/2/	R#10 2020	>		
<u> </u> µn	TOI	2/15	//7]

THE PLANS IN THIS REVISED ROAD CONSTRUCTION SET SUPERCEDE PLANS DATED 10/13/2015

LU ROAD CONSTRUCTION SET SUI EROLUE I LANS DATED 10/15/2015			
STORM DRAIN PROFILES	SCALE	ZONING	G. L. W. FILE No.
OWNTOWN COLUMBIA	1"=50'(H) 1"=5'(V)	NT	11071
ARCELS A-1 THRU A-3, E, NON-BUILDABLE BULK PARCEL L, OPEN WEATHER-SYMPHONY WOODS NEIGHBORHOOD OPEN SPACE LOT 1	DATE	TAX MAP – GRID	SHEET
HOWARD COUNTY, MARYLAND	NOV., 2015	36 - 01	16 OF 31



STORM DRAIN PROFILES	SCALE	ZONING	G. L. W. FILE No.
WNTOWN COLUMBIA	1"=50'(H) 1"=5'(V)	NT	11071
RCELS A-1 THRU A-3, E, NON-BUILDABLE BULK PARCEL L, OPEN EATHER-SYMPHONY WOODS NEIGHBORHOOD OPEN SPACE LOT 1	DATE	TAX MAP – GRID	SHEET
HOWARD COUNTY, MARYLAND	NOV., 2015	36 - 01	17 OF 31

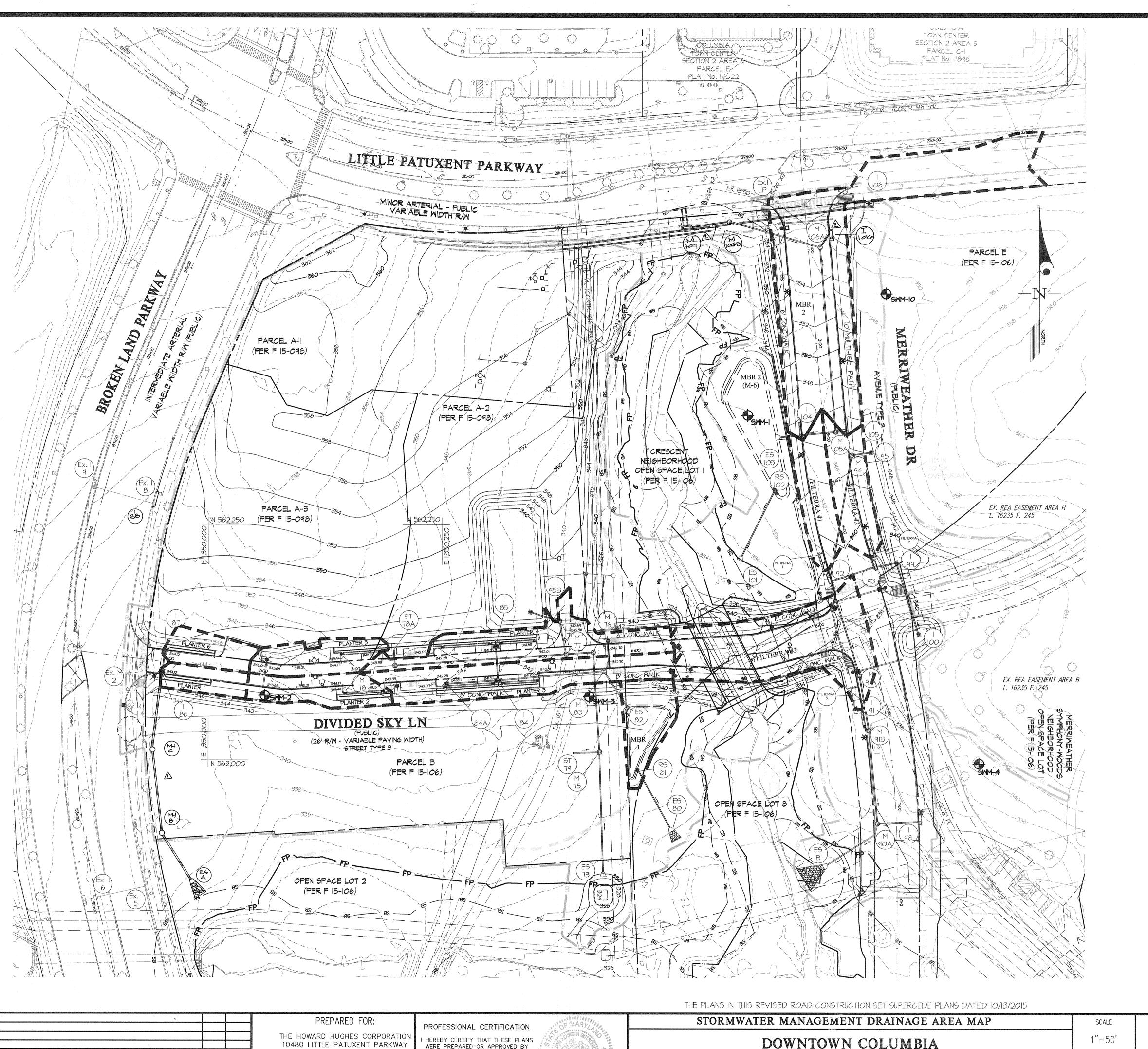
FACILITY	DRAINAGE AREA (SQ. FT.)	ESDv (CU. FT.) (Pe = 1.95")	ESDv (CU. FT.) (Pe = 1.00")	ESDV PROVIDED (CU. FT.)
PLANTER I	2550	390	200	351
PLANTER 2	4529	693	· 355	380
PLANTER 3	10313	1577	809	733
PLANTER 4	9884	1511	775	733
PLANTER 5	4479	685	351	380
PLANTER 6	3203	490	251	351
MBR-01	4300	35	18	2514
MBR-02	29491	4510	2313	6013
FILTERRA I	5111	782	401	401
FILTERRA 2	5411	827	424	424
FILTERRA 3	15305	2340	1200	1200
		TOTAL ESDV PROVIDED		13480
TOTAL ESDV REQUIRED			13839	

FOR STORM DRAIN INFORMATION, SEE SHEET 15

NOVE: THERE IS NO AS BUILT INFORMATION PROVIDED ON THIS SHEET G. SCOTT SHAMABERGER SHANABERGER & LANE Professional L.S. #10849 Exp. Date 4/2/2049 AS-BUILT DATE: 12-1-17 + 0 12-15-17 SCALE: 1'' = 50'25' 50' 100' 0' APPROVED; HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS 11/18/2015 Menni Chief, Bureau of Highways 🛛 🚧 Date APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING Ketsheline 12-9-15 Date ief, Division of Land Development 9MF land 11-19-15 hief, 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

10.5.2010 A Rev. otorm drains to reflect ex. dry utilities 7.5.2016 A Rev. otorm drain DATE REVISION

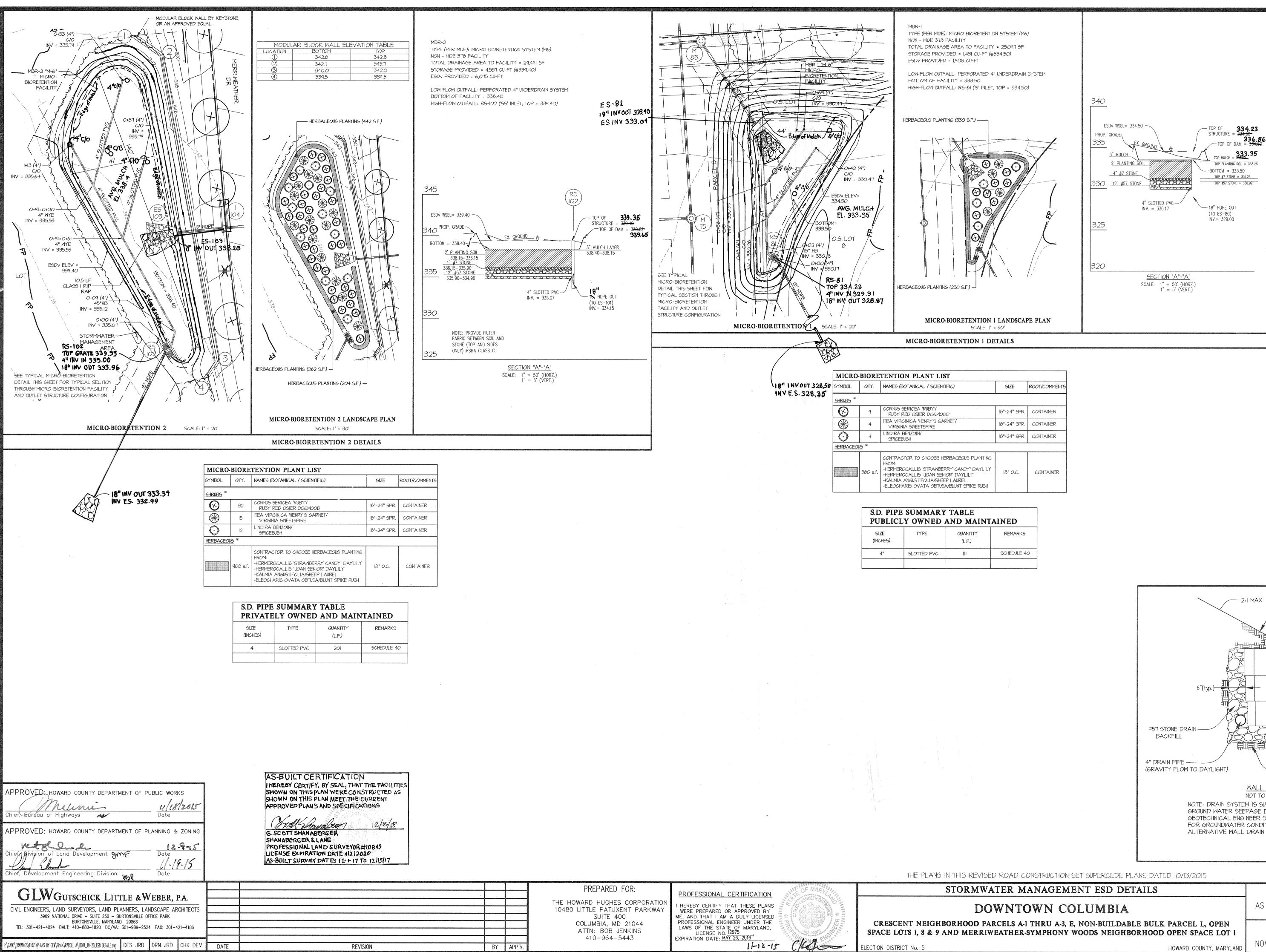


DD\DRAWINGS\11071\PLANS BY GLW\Findis\PARCEL A\11071_18_SWM DAM.dwg, ED:11/12/2015 3:56 PM, LAST SAVED:11/12/2015 11:58 AM, PLOTTED BY: Jay Hari

E L'(CADD\DRAWINGS\11071\PLANS BY GLW\Findis\PARCEL A\11071_18_SWM DAM.dwg DES. MJT DRN. WsJ CHK. MJT © GLW 2014

		PREPARED FOR:	PROFESSIONAL CERTIFICATION	STORMWATER
**************************************		THE HOWARD HUGHES CORPORATION 10480 LITTLE PATUXENT PARKWAY SUITE 400	WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED	DC
gt klp	PEV	COLUMBIA, MD 21044 ATTN: BOB JENKINS 410-964-5443	PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 12975, EXPIRATION DATE: MAY 26, 2016	CRESCENT NEIGHBORHOOD PA SPACE LOTS 1, 8 & 9 AND MERRIV
BY	APP'R.		11-12-15 CMA	ELECTION DISTRICT No. 5

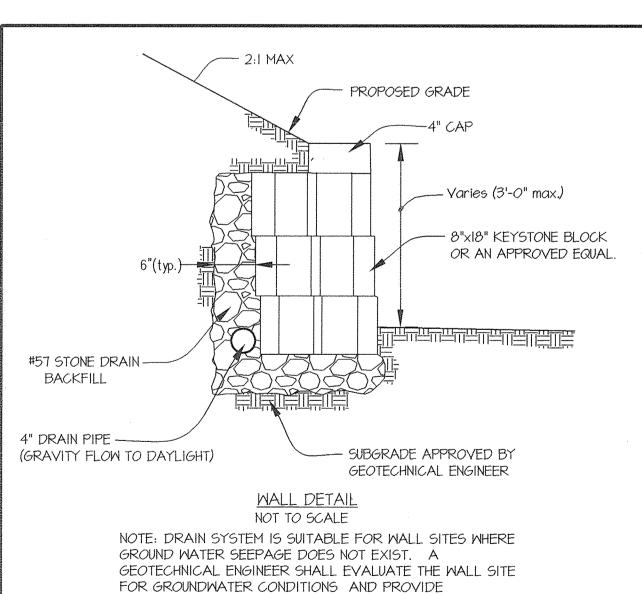
MANAGEMENT DRAINAGE AREA MAP	SCALE	ZONING	G. L. W. FILE No.
WNTOWN COLUMBIA	1"=50'	NT	11071
RCELS A-1 THRU A-3, E, NON-BUILDABLE BULK PARCEL L, OPEN VEATHER-SYMPHONY WOODS NEIGHBORHOOD OPEN SPACE LOT 1	DATE	TAX MAP - GRID	SHEET
HOWARD COUNTY, MARYLAND	NOV., 2015	36 - 01	18 OF 31



	S.D. PIPE SUMMARY TABLE PUBLICLY OWNED AND MAINTA						
SIZE (INCHES)	TYPE	QUANTITY (L.F.)					
4"	SLOTTED PVC	111					
			Τ				

D ROAD CONSTRUCTION SET SUPERCEDE PLANS DATED 10/13/2015			
ATER MANAGEMENT ESD DETAILS	SCALE	ZONING	G. L. W. FILE No.
WNTOWN COLUMBIA	AS SHOWN	NT	11071
RCELS A-1 THRU A-3, E, NON-BUILDABLE BULK PARCEL L, OPEN /EATHER-SYMPHONY WOODS NEIGHBORHOOD OPEN SPACE LOT 1	DATE	TAX MAP - GRID	SHEET
HOWARD COUNTY, MARYLAND	NOV., 2015	36 - 01	19 OF 31

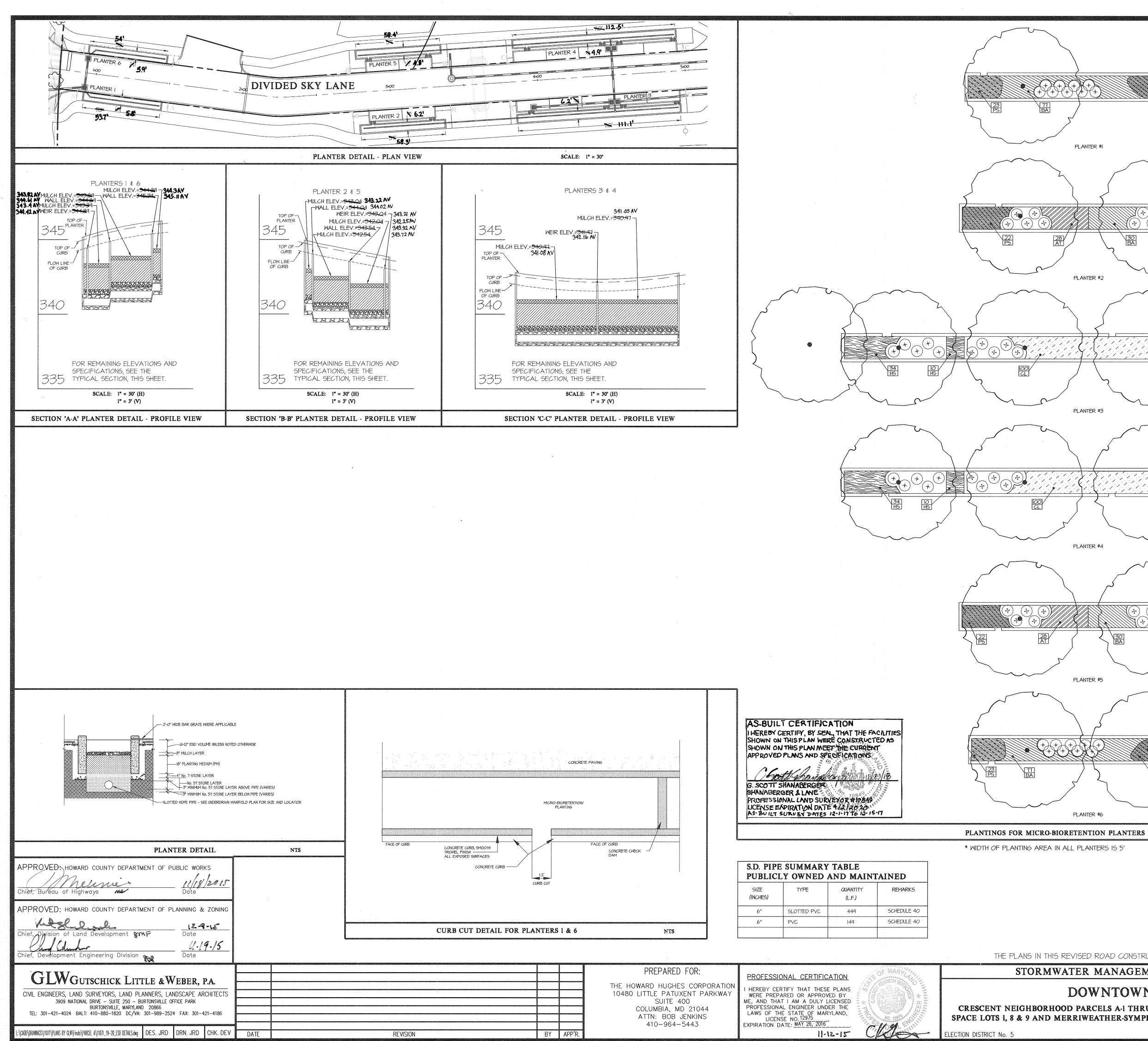
4" DRAIN PIPE (GRAVITY FLOW TO DAYLIGHT) NOTE: DRAIN SYS GROUND WATER SI GEOTECHNICAL EN FOR GROUNDWATE		KIST. A JATE THE WALL SITI PROVIDE	=
ROAD CONSTRUCTION SET SUPERCEDE PLANS DATED 10/13/2015			
ER MANAGEMENT ESD DETAILS	SCALE	ZONING	G. L. W. FILE No.
NTOWN COLUMBIA	AS SHOWN	NT	11071

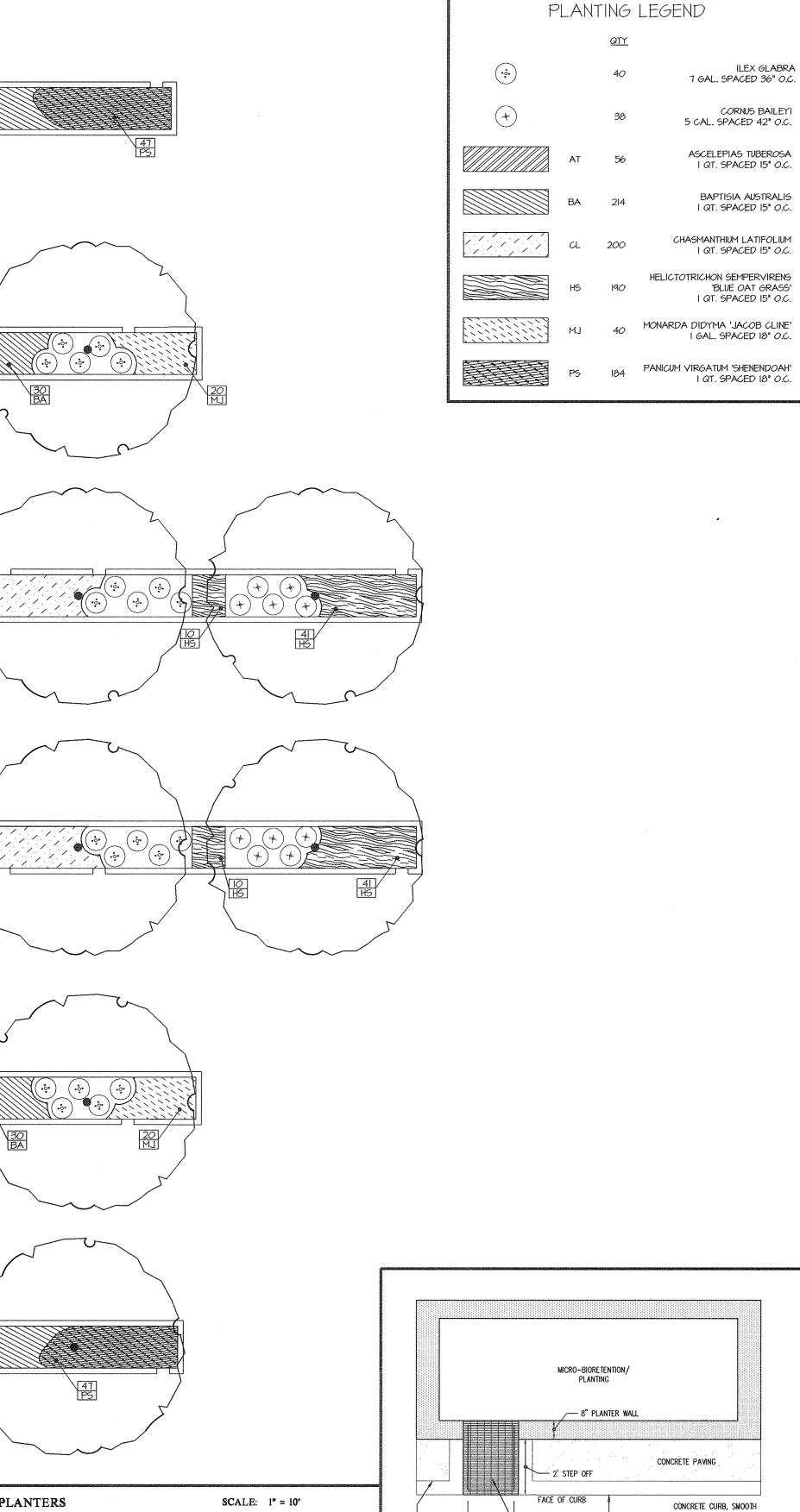


18"-24" SPR.	CONTAINER			
18"-24" SPR.	CONTAINER			
18" O.C.	CONTAINE			

SIZE	ROOT/COMMENT
18"-24" SPR.	CONTAINER
18"-24" SPR.	CONTAINER
18"-24" SPR.	CONTAINER
18" O.C.	CONTAINER

SIZE	ROOT/COMMENTS
18"-24" SPR.	CONTAINER
18"-24" SPR.	CONTAINER
18"-24" SPR.	CONTAINER
18" O.C.	CONTAINER





CONCRETE CURB, SMOOTH - TROWEL FINISH ALL EXPOSED SURFACES SWAGED CARBON (7-SGCS-4) SIZE: 1 1/4" X 3/16" ALL GRIP (SLIP-RESISTENT) SURFACE ADA COMPLIANT. ORIENT GRATE AS SHOWN, PERP. TO CURB, TYP. ACTUAL SIZE VARIES PER PLANS NTS

CURB CUT DETAIL FOR PLANTERS 2, 3, 4, & 5

1.5

CURB CUT

- CONCRETE CURB

SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	NT	11071
DATE	TAX MAP - GRID	SHEET
NOV., 2015	36 - 01	20 OF 31
	AS SHOWN date	AS SHOWN NT DATE TAX MAP - GRID

APPENDIX B.I.I. - SUPPLEMENTAL POND SPECIFICATIONS

SUPPLEMENTAL STORMWATER PONDS AND WETLAND SPECIFICATIONS (NON-378)

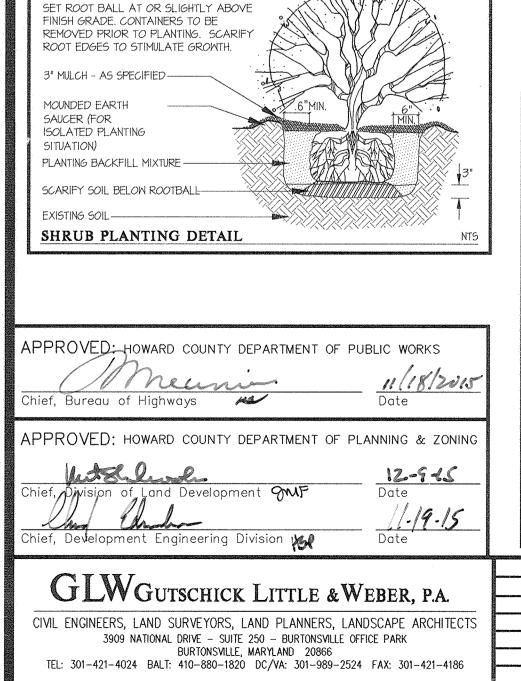
- THESE NOTES AND SPECIFICATIONS ARE IN ADDITION TO THE MD-378 SPECIFICATIONS. IF THERE IS ANY QUESTIONS AS TO THE APPLICABILITY, THE MD-378 SPECIFICATIONS SUPERCEDE.
- IT IS PREFERRED TO USE THE SAME MATERIAL IN THE EMBANKMENT AS IS BEING INSTALLED FOR THE CORE TRENCH. IF THIS IS NOT POSSIBLE BECAUSE 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 IO-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.
- IF THE COMPACTION TESTS FOR THE SITE IMPROVEMENTS IS USING MODIFIED PROCTOR (AASHTO T-180), 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 ±2% 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 ±2% OF THE OPTIMUM.
- 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-378 SPECIFICATIONS, CAN BE MADE.
- 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 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL PERMANENT SEEDING, SECTION IN CHAPTER 20. 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.
- 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-705 GEOLON N70 MIRAFI 180-N WEBTEC NOT
- THIS IS ONLY A PARTIAL LISTING OF AVAILABLE GEOTEXTILES BASED ON INFORMATION PROVIDED BY THE MANUFACTURES OF THE 1997 SPECIFIER'S 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
- A RULE OF THUMB TO DETERMINE WHEN AN EXCAVATED POND MAY NEED TO BE CONSIDERED AN EMBANKMENT POND IS AS FOLLOWS: PROVIDE CALCULATION OF 10H + 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%.
- THE DESIGN ENGINEER AND GEOTECHINCAL ENGINEER SHOULD MAKE THE DETERMINATION THAT THE SETTLEMENT OF THE POND WILL NOT CAUSE EXCESSIVE JOINT EXTENSION. FOR FURTHER INFORMATION ON JOINT ANALYSIS, SEE NRCE PUBLICATION TR-18
- FILL PLACEMENT SHALL NOT EXCEED A MAXIMUM 8-INCH. EACH LIFT SHALL BE CONTINUOUS FOR THE ENTIRE LENGTH OF THE EMBANKMENT.
- 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
- 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.
- BIORETENTION PLANTING WILL BE PROVIDED IN ACCORDANCE WITH THE CRESCENT NEIGHBORHOOD DESIGN GUIDELINES.

STORMWATER MANAGEMENT GENERAL NOTES:

NOTE

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- . THE STORMWATER MANAGEMENT OBLIGATION WAS MET WITH ESD PRACTICES INCLUDING: MICRO-BIORETENTION FACILITIES (M-6), PLANTERS (M-6), AND FILTERRAS
- 2. ESD PRACTICES LOCATED WITHIN THE PUBLIC STORMWATER MANAGEMENT EASEMENT SHALL BE PUBLICLY OWNED BUT JOINTLY MAINTAINED WITH THE EXCEPTION OF THE FILTERRA DEVICES WHICH ARE TO BE PRIVATELY OWNED AND PRIVATELY
- ON LOT ESD PRACTICES SHALL BE SUBJECT TO RECORDED DOCUMENTS OUTLINING OWNERSHIP AND FUTURE MAINTENANCE.



GENERAL NOTES

I. MATERIAL SPECIFICATIONS

THE ALLOWABLE MATERIALS TO BE USED IN THESE MICRO-BIORETENTION PRACTICES ARE DETAILED IN TABLE B.4.1.

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 PROVE A HINDRANCE 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 15.08.01.05.

- THE PLANTING SOIL SHALL BE TESTED AND SHALL MEET THE FOLLOWING CRITERIA: SOIL COMPONENT - LOAMY SAND OR SANDY LOAM (USDA SOIL TEXTURAL CLASSIFICATION)
- ORGANIC CONTENT -- MIN, 10% 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%). MEDIA SHALL HAVE A CLAY CONTENT OF LESS THAN 5% CLAY CONTENT SHOULD BE BETWEEN 5.5-7.0. AMENDMENTS (E.G., LIME, IRON PH RANGE -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 TURE TYPE TIRES. USE OF EQUIPMENT WITH NARROW TRACKS OR NARROW TIRES, RUBBER TIRES WITH LARGE LUGS, 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 PLOW RIPPER OR SUBSOILER. THESE TILLING OPERATIONS ARE TO REFRACTURE 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 LANDSCAPE PLAN, THIS SDP SET.
- 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 AGED (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 SO 1/8TH 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 THOROUGHLY 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. GRASS AND LEGUME PLUGS 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 UREA FERTILIZER AT A RATE OF 2 POUNDS PER 1000 SQUARE FEET

6. UNDERDRAINS

UNDERDRAINS ARE TO BE PLACED ON A 3'-O" 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).

7. MISCELLANEOUS

THE BIORETENTION FACILITY MAY NOT BE CONSTRUCTED UNTIL ALL CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED.

DO NOT CUT CENTRAL LEADER, REMOVE ANY DEAD OR DAMAGED BRANCHES BY APPROPRIATE RUNING METHODS. -2'-0" WIDE BAR GRATE CIT BURLAP & WIRE SET TOP OF ROOT BALL AT OR SLIGHTLY BASKETS FROM ABOVE FINISH GRADE (NO MORE THAN 3" > /3 OF ROOT BALL REMOVE ALL _d=12" ESD VOLUME UNLESS NOTED OTHERWISE TWINES ENTIREL 3" MULCH LAYER EXISTING SOIL -18" PLANTING MEDIUM (PM) -4" No. 7 STONE LAYER -No. 57 STONE LAYER - 3" MINIMUM No. 57 STONE LAYER ABOVE PIPE (VARIES, 3" MINIMUM No. 57 STONE LAYER BELOW PIPE (VARIES) -SLOTTED HDPE PIPE - SEE UNDERDRAIN MANIFOLD PLAN FOR SIZE AND LOCATION STREET TREE PLANTING DETAIL FOR PLANTING MATERIAL UP TO 3 1/2" CALIPER : \CADD\DRAMMICS\11071\PLANS BY QLW\Finds\PARCEL A\11071_21_SMM NOTES and DETALS.dwg DES. JRD DRN. JRD CHK. DEV DATE

REVISION

OPERATION AND MAINTENANCE SCHEDULE FOR

- THE OWNER SHALL BE RESPONSIBLE FOR THE MAINTENANCE OF ALL STORM DRAIN
- WITHIN PRIVATE EASEMENTS.

ACTIVATION STREET SWEEPING COMPLETED), NEGATING THE TOP PLATES, B. ACTIVATION INCLUDES INSTALLATION OF PLANT(S) AND MULCH LAYERS AS NECESSARY.

MAINTENANCE

EXCESSIVE LEAFLITTER.

FILTERRATM UNIT INSPECTION . FILTER MEDIA EVALUATION AND RECHARGE AS NECESSARY 5 REPLACEMENT OF MULCH 6. DISPOSAL OF ALL MAINTENANCE REFUSE ITEMS

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.I AND 2.

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.

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 NEEDED BASIS, WITH A MINIMUM OF ONCE PER MONTH AND AFTER EACH HEAVY STORM.

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

PIPES AND OUTFALLS WITHIN PUBLIC EASEMENTS. THE OWNER SHALL BE RESPONSIBLE FOR THE MAINTENANCE OF ALL UNDER DRAIN PIPES AND STRUCTURES

OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED FILTERRA DEVICES

A. ACTIVATION OF THE FILTERRA™ UNIT IS PERFORMED ONLY BY THE SUPPLIER. PURCHASER IS RESPONSIBLE FOR FILTERRATM INLET 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 CHANCE OF CONSTRUCTION MATERIALS CONTAMINATING THE FILTERRATM SYSTEM. CARE SHALL BE TAKEN DURING CONSTRUCTION NOT TO DAMAGE THE PROTECTIVE THROAT AND

A. EACH CORRECTLY INSTALLED FILTERRA™ UNIT IS TO BE MAINTAINED BY THE SUPPLIER, OR A SUPPLIER APPROVED CONTRACTOR FOR A MINIMUM PERIOD OF I YEAR. HE COST OF THIS SERVICE IS TO BE INCLUDED IN THE PRICE OF EACH FILTERRATM 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

C. EACH MAINTENANCE VISIT CONSISTS OF THE FOLLOWING TASKS.

. FOREIGN DEBRIS, SILT, MULCH & TRASH REMOVAL

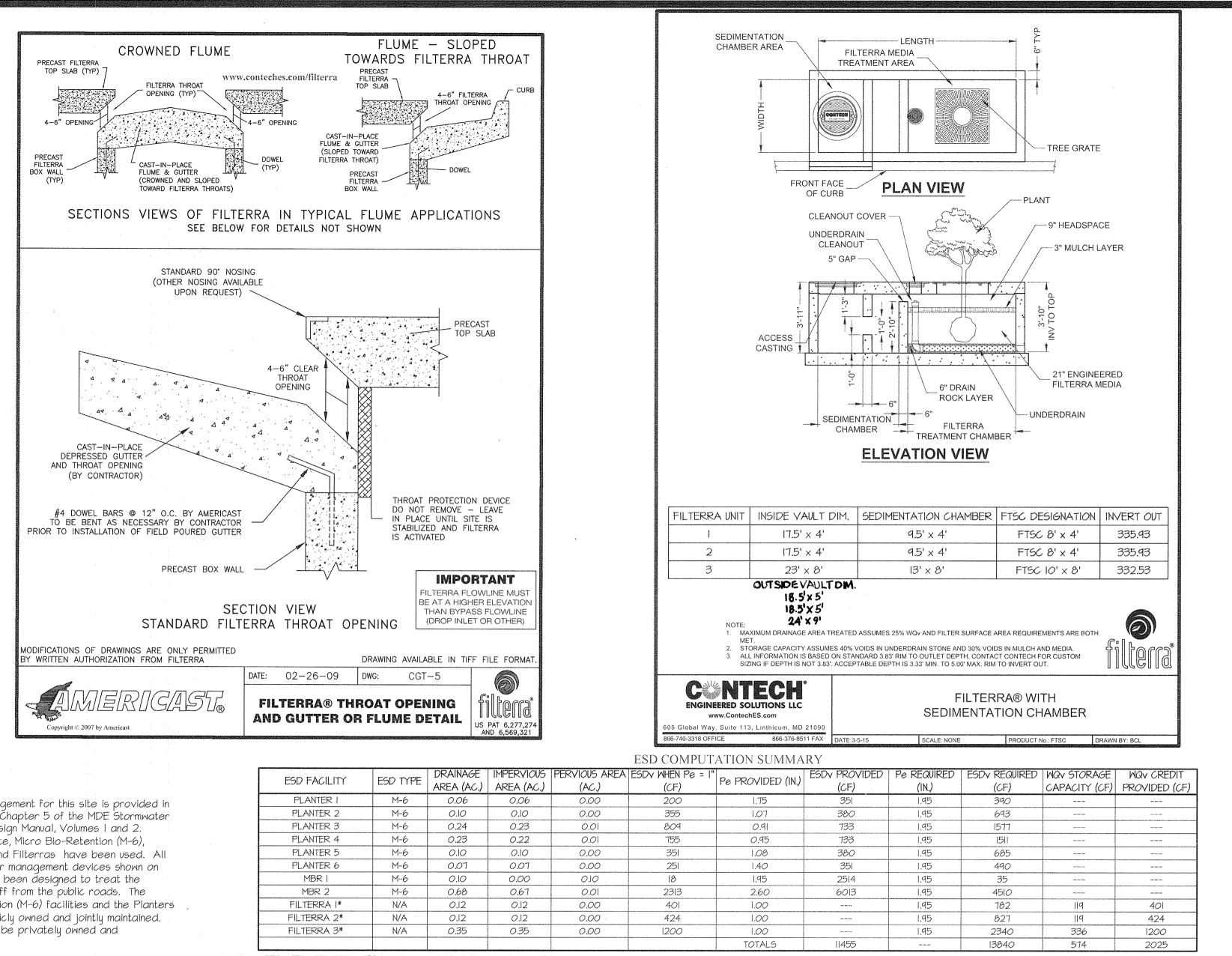
. PLANT HEALTH EVALUATION AND PRUNING OR REPLACEMENT AS NECESSARY

1. MAINTENANCE RECORDS UPDATED AND STORED (REPORTS AVAILABLE UPON REQUEST) D. THE BEGINNING AND ENDING DATE OF SUPPLIER'S OBLIGATION TO MAINTAIN THE INSTALLED SYSTEM SHALL BE DETERMINED BY THE SUPPLIER AT THE TIME THE SYSTEM IS ACTIVATED. OWNERS MUST PROMPTLY NOTIFY THE SUPPLIER OF ANY DAMAGE TO THE PLANT(S), WHICH CONSTITUTE(S) AN INTEGRAL PART OF THE BIORETENTION TECHNOLOGY.

ATTN: BOB JENKINS

410-964-5443

BY APP'R.



NOTE: Stormwater management for this site is provided in accordance with Chapter 5 of the MDE Stormwater Manangement Design Manual, Volumes 1 and 2. Throughout the site, Micro Bio-Retention (M-6), Planters (M-6), and Filterras have been used. All of the stormwater management devices shown on these plans have been designed to treat the stormwater run-off from the public roads. The Micro Bio-Retention (M-6) facilities and the Planters (M-6) will be publicly owned and jointly maintained. The Filterras will be privately owned and maintained.

ESD FACILITY	ESD TYPE	DRAINAGE AREA (AC.)	IMPERVIOUS AREA (AC.)	PERVIC
PLANTER I	M-6	0.06	0.06	0
PLANTER 2	M-6	0.10	0.10	0
PLANTER 3	M-6	0.24	0.23	C
PLANTER 4	M-6	0.23	0.22	C
PLANTER 5	M-6	0.10	0.10	0
PLANTER 6	M-6	0.07	0.07	0
MBR I	M-6	0.10	0.00	C
MBR 2	M-6	0.68	0.67	0
FILTERRA I*	N/A	0.12	0.12	0
FILTERRA 2*	N/A	0.12	0.12	0
FILTERRA 3*	N/A	0.35	0.35	0
	L			
REATMENT REQUIRED: 13	840 CF	TREATMENT F	PROVIDED: 134	180 CF

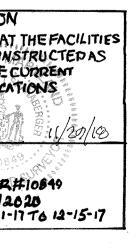
OVEREL ON STRUCTURE MICRO-BIORETENTION FACILITY SLOPE UP GRADE TO THE TOP OF THE OVERFLOW STRUCTURE PLAN VIEW 12" 1 BOTTOM OF-MAX FACILITY 🚵 3" MULCH 24" PLANTING SOIL NOTE: PROVIDE FILTER -FABRIC BETWEEN 88888 4" #7 STONE BIO-RETENTION MEDIA AND 20202020505 12" #51 STONE ADJACENT SOIL (SIDES ONLY) AS-BUILT CERTIFICATION MSHA CLASS C SEE INDIVIDUAL - MICRO-BIORETENTION DETAILS FOR HEREBY CERTIFY, BY SEAL, THAT THE FACILITIES SECTION A-A UNDERDRAIN LOCATIONS AND SHOWN ON THIS PLAN WERE CONSTRUCTED AS SLOPE UP GRADE TO THE TOP INVERTS SHOWN ON THIS PLAN MEET. THE CURRENT OF THE OVERFLOW STRUCTURE APPROVED PLANS AND SPECIFICATIONS ESDV W.S.E.L. 🗸 2 ret sinaverber BOTTOM OF-FACILITY XXXXX G. SCOTT SHANABERGER OVERFLOW STRUCTURE SHANABERGER & LANE PRO FESSIONALLAND SURVEYOR #10849 LOSE ANY TEMPORARY LICENSE EXPIRATION DATE 4/2/2020 AS BUILT SURVEY DATES 12-1-17 TO 12-15-17 OPENINGS IN OVERFLOW **SECTION B-B** STRUCTURE WITH CONSTRUCTION OF MICRO-BIORETENTION FACILITY TYPICAL MICRO-BIORETENTION SECTION SCALE: NTS PREPARED FOR: STORMWATER PROFESSIONAL CERTIFICATION THE HOWARD HUGHES CORPORATION HEREBY CERTIFY THAT THESE PLANS 10480 LITTLE PATUXENT PARKWAY WERE PREPARED OR APPROVED BY SUITE 400 ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE COLUMBIA, MD 21044 LAWS OF THE STATE OF MARYLAND, LICENSE NO. 12975 EXPIRATION DATE: MAY 26, 2016

11-12-15 CL

CRESCENT NEIGHBORHOOD PAR SPACE LOTS 1, 8 & 9 AND MERRIW

ELECTION DISTRICT No. 5

*SEE FILTERRA DETAIL, THIS SHEET, FOR ADDITIONAL INFORMATION



THE PLANS IN THIS REVISED ROAD CONSTRUCTION SET SUPERCEDE PLANS DATED 10/13/2015

		a na sha na sha na sha na sha na sha sha sha sha sha sha sha sha sha sh	
WATER MANAGEMENT NOTES and DETAILS	SCALE	ZONING	G. L. W. FILE No.
DOWNTOWN COLUMBIA	AS SHOWN	NT	11071
OD PARCELS A-1 THRU A-3, E, NON-BUILDABLE BULK PARCEL L, OPEN ERRIWEATHER-SYMPHONY WOODS NEIGHBORHOOD OPEN SPACE LOT 1	DATE	TAX MAP - GRID	SHEET
HOWARD COUNTY, MARYLAND	NOV., 2015	36 - 01	21 OF 31

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GENERAL NOTES:

- 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.

DESIGN DATA

DESIGN LOADING: BRIDGE UNITS: HL-93 HEADWALLS: EARTH PRESSURE ONLY WINGWALLS: EARTH PRESSURE ONLY DESIGN FILL HEIGHT: 3'-6" MIN. TO 6'-0" MAX. FROM TOP OF CROWN TO TOP OF PAVEMENT. DESIGN METHOD: LOAD RESISTANCE FACTOR DESIGN PER AASHTO LRFD SPECIFICATION FACTORED BEARING RESISTANCE: 12000 PSF*

*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 OF 12000 PSF PROVIDED BY EMAIL ON JUNE 2, 2015

MATERIALS

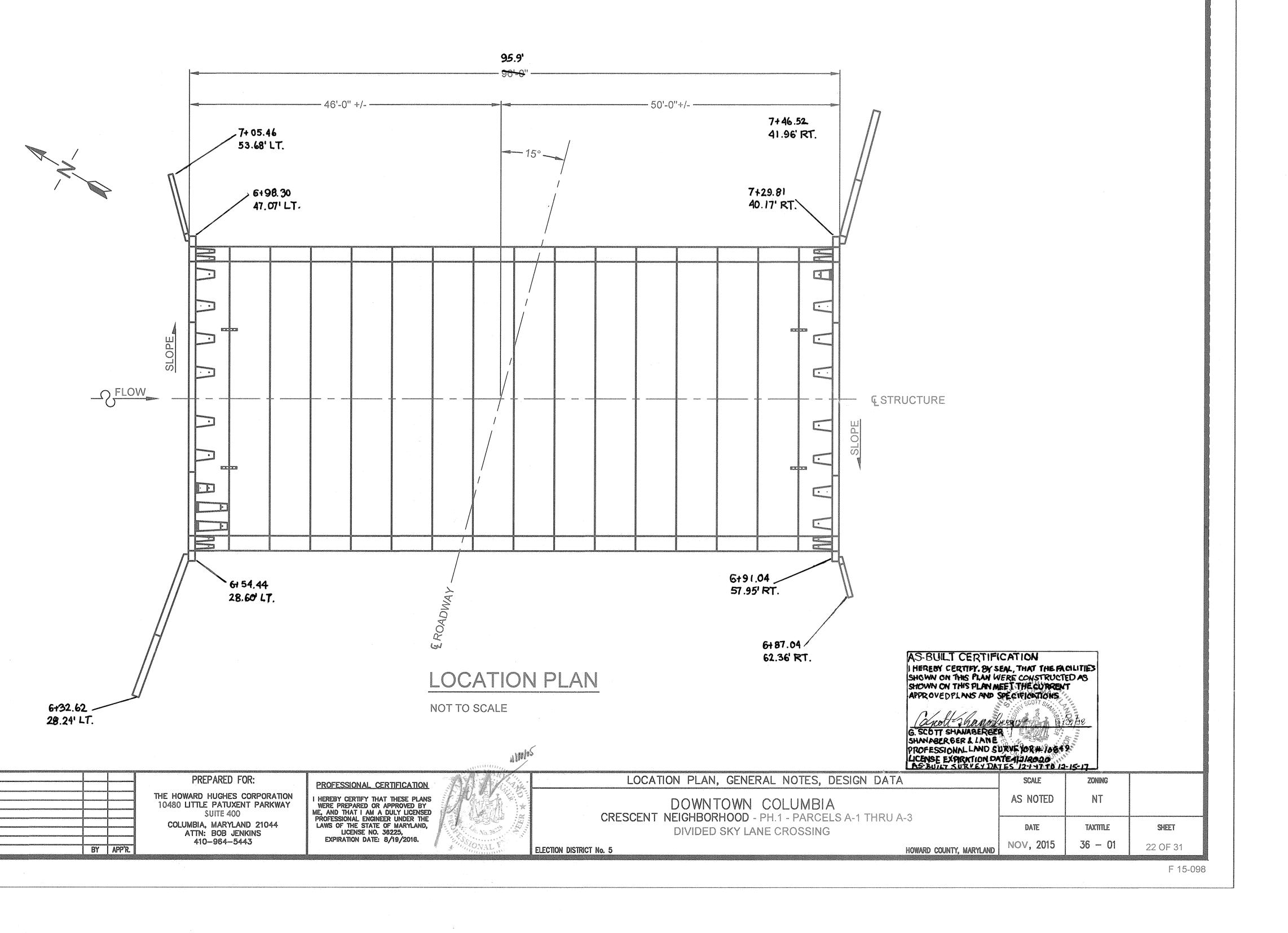
PRECAST UNITS SHALL BE CONSTRUCTED AND INSTALLED IN ACCORDANCE WITH CON/SPAN® SPECIFICATIONS. CONCRETE FOR FOOTINGS SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI. REINFORCING STEEL FOR FOOTINGS SHALL CONFORM TO ASTM A615 OR A996-GRADE 60.

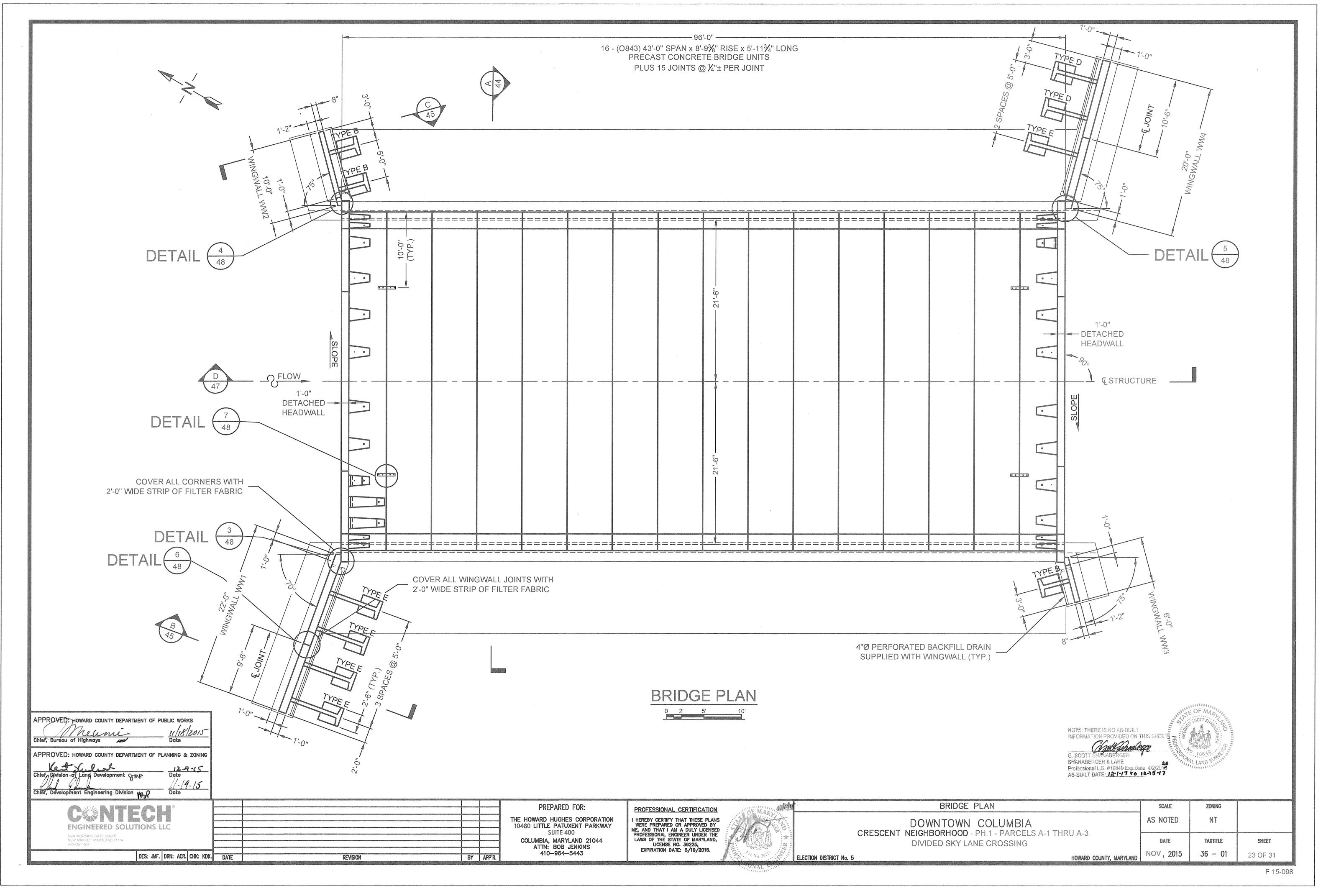
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	c works <u>1/18/2015</u> Date	
Ind fland	NING & ZONING LZ-G5 Date $\frac{1}{$	
C IN NTECH ENGINEERED SOLUTIONS LLC		
5604 MORNING GATE COURT NEW MARKET, MARYLAND 21774 443-457-1507		

DES: JMF. DRN: ACR. CHK: KDK. DATE

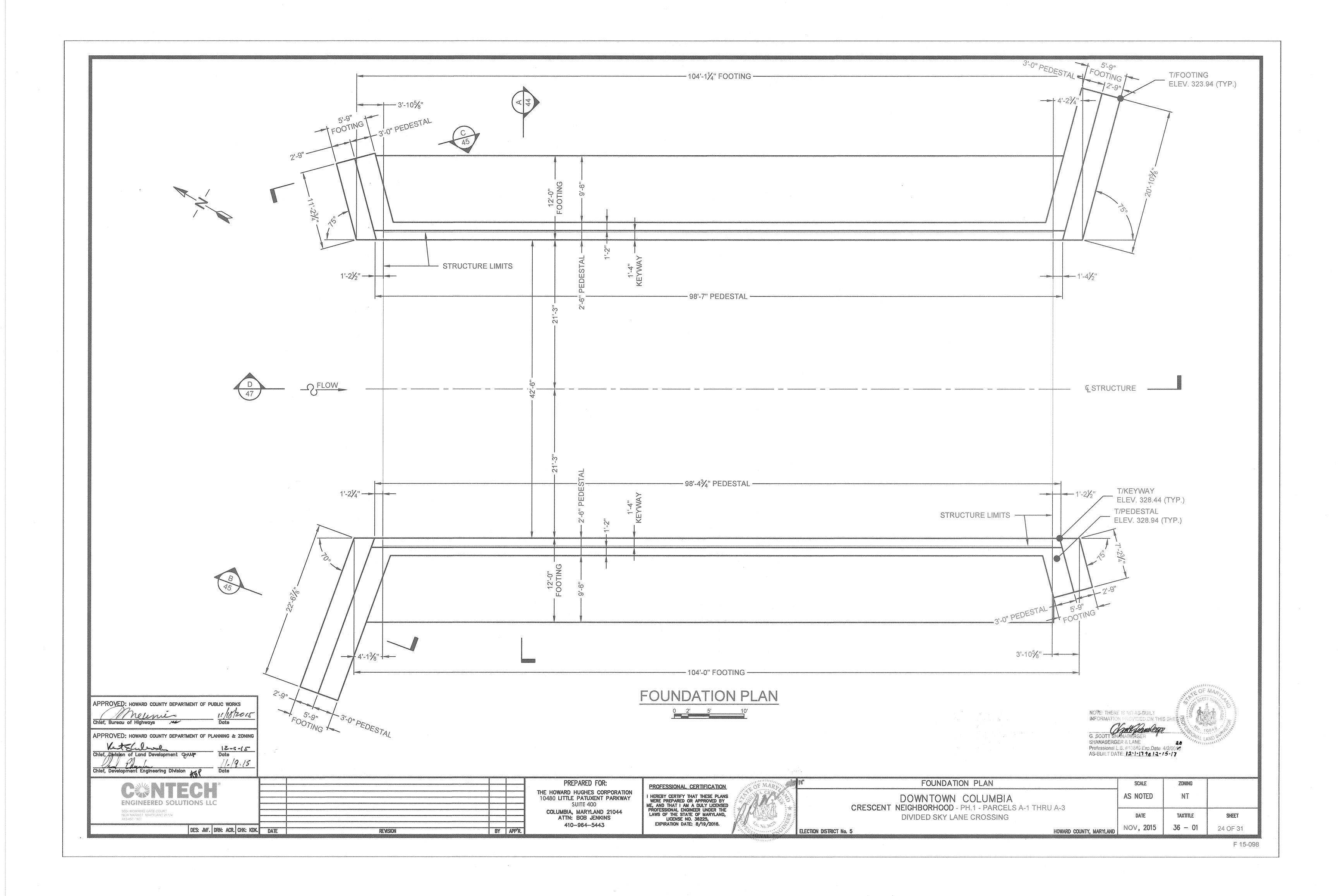
DOWNTOWN COLUMBIA CRESCENT NEIGHBORHOOD DIVIDED SKY LANE CROSSING HOWARD COUNTY, MARYLAND



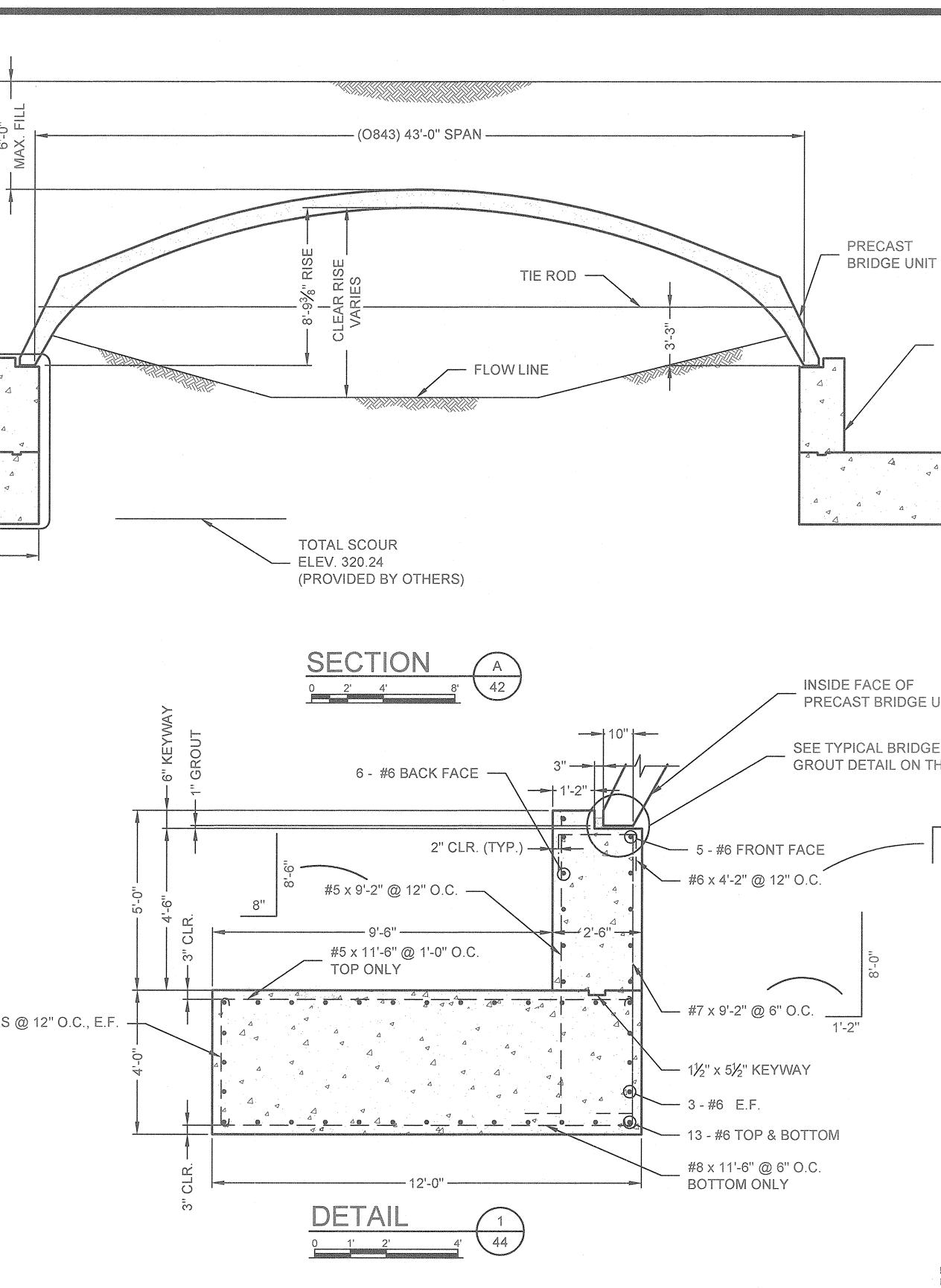


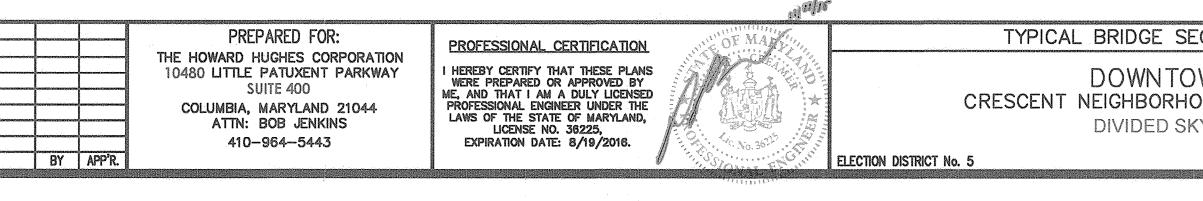
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DETAIL $\left(\frac{1}{44}\right)$ · · △ 1 .4 FILL LIFTING INSERT POCKET PRIMER COMPATIBLE WITH GROUT, FINISHING FLUSH WITH JOINT WRAP TOP OF PRECAST 9" SQUARE PIECE BRIDGE UNIT OF JOINT WRAP 1 1 Inci III PRECAST BRIDGE UNIT, LIFTING INSERT HEADWALL OR WINGWALL TYPICAL LIFT INSERT SEALING DETAIL NOT TO SCALE #5 HOOKED BARS @ 12" O.C., E.F. APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS meuni 11/18/2015 Chief, Bureau of Highways Here APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING Chief, Division of Land Development 12-9-65 Date <u>//-/9-15</u> Date Chief, Development Engineering Division E ENGINEERED SOLUTIONS LLC 5604 MORNING GATE COURT NEW MARKET, MARYLAND 21774 443-457-1567 DES: JMF. DRN: ACR. CHK: KDK. DATE REVISION



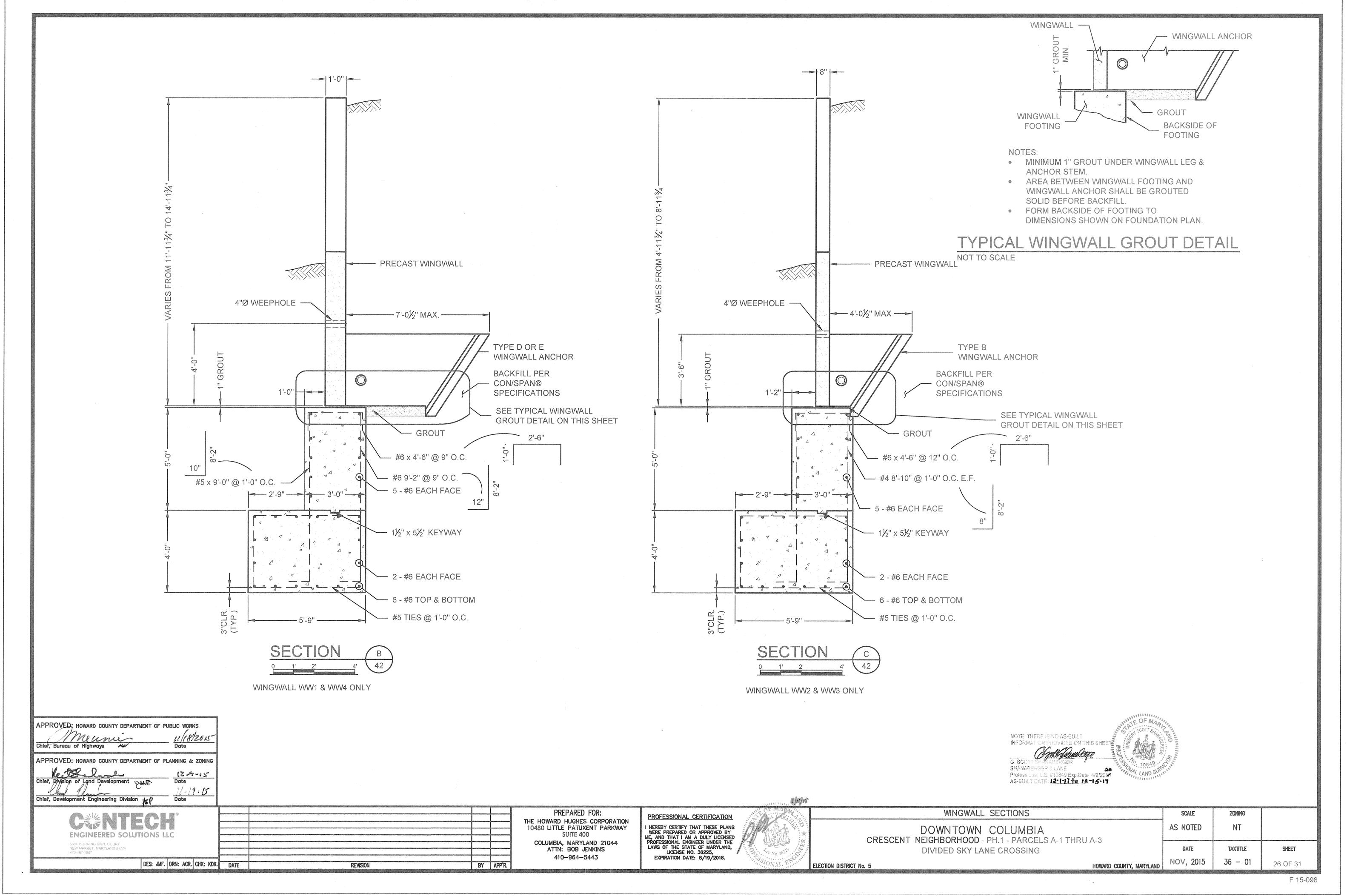


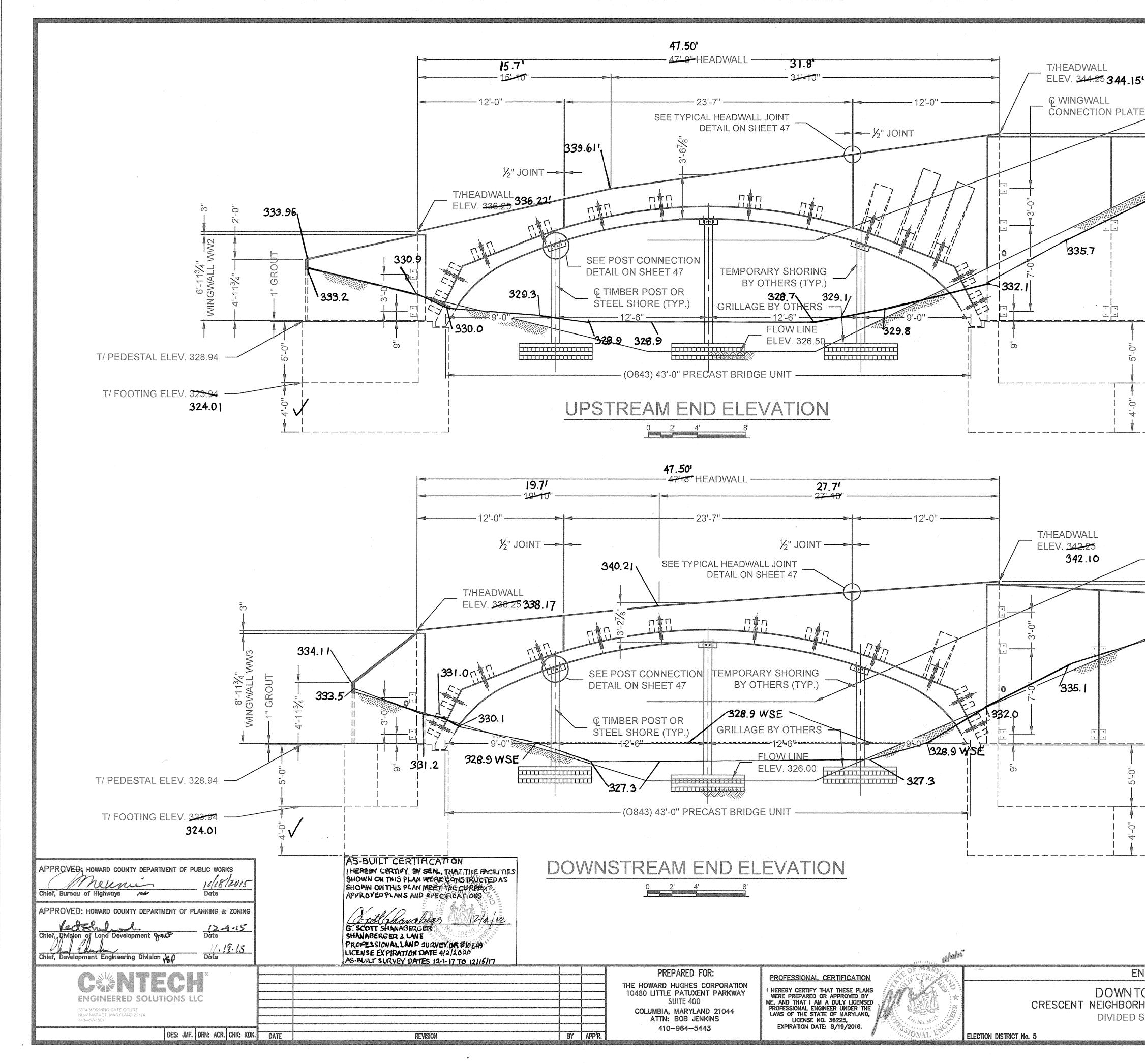
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= GE UNIT			
DGE UNIT N THIS SHEET			
2'-2"			
GROUT TO TOP OF KEYWAY NOTE: FILL ENTIRE KEYWAY IN NOMINAL 1" VOID BETW KEYWAY AND BOTTOM O BRIDGE UNIT LEG WITH	PREC GROUT UNIT LE CLUDING EEN BOTTOM OF PRECAST		EUNIT
TYPICAL BRIDGE UNIT		JT DE	TAIL
NOTE: THERE IS NO AS-BUILT INFORMATION PROVIDED ON THIS SHEET G. SCOTT SHANABERGER SHANABERGER & LANE Professional L.S. #10649 Exp. Date 4/2/2016 AS-BUILT DATE: 12-1-[1] to 12-15-17			
AS-BUILT DATE 12-1-11 to 12-15-17			
	SCALE	ZONING	
TION, FOUNDATION DETAILS	scale AS NOTED	zoning NT	
AS-BUILT DATE 12-1-17 - 12-15-17 TION, FOUNDATION DETAILS VN COLUMBIA DD - PH.1 - PARCELS A-1 THRU A-3 LANE CROSSING			SHEET

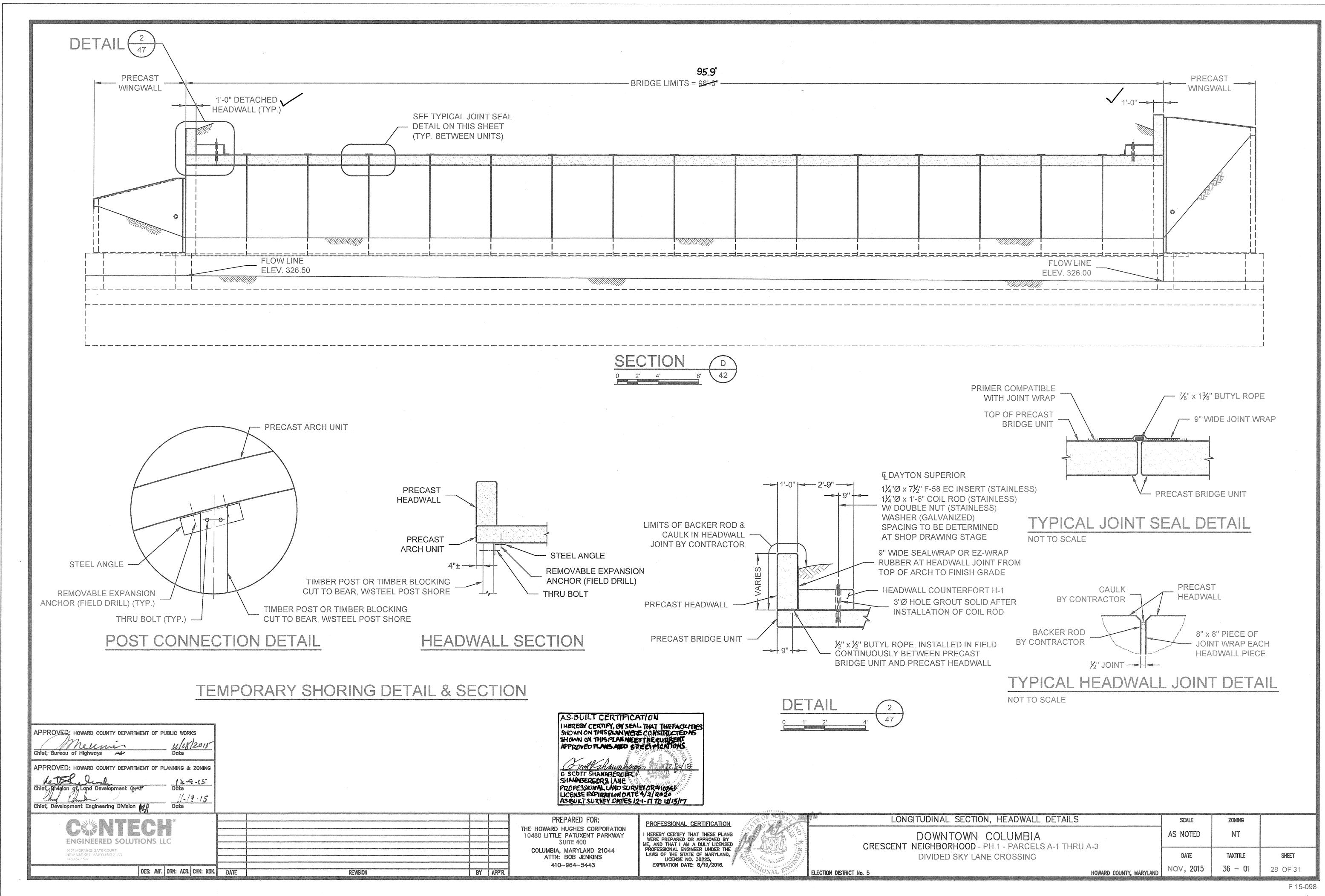
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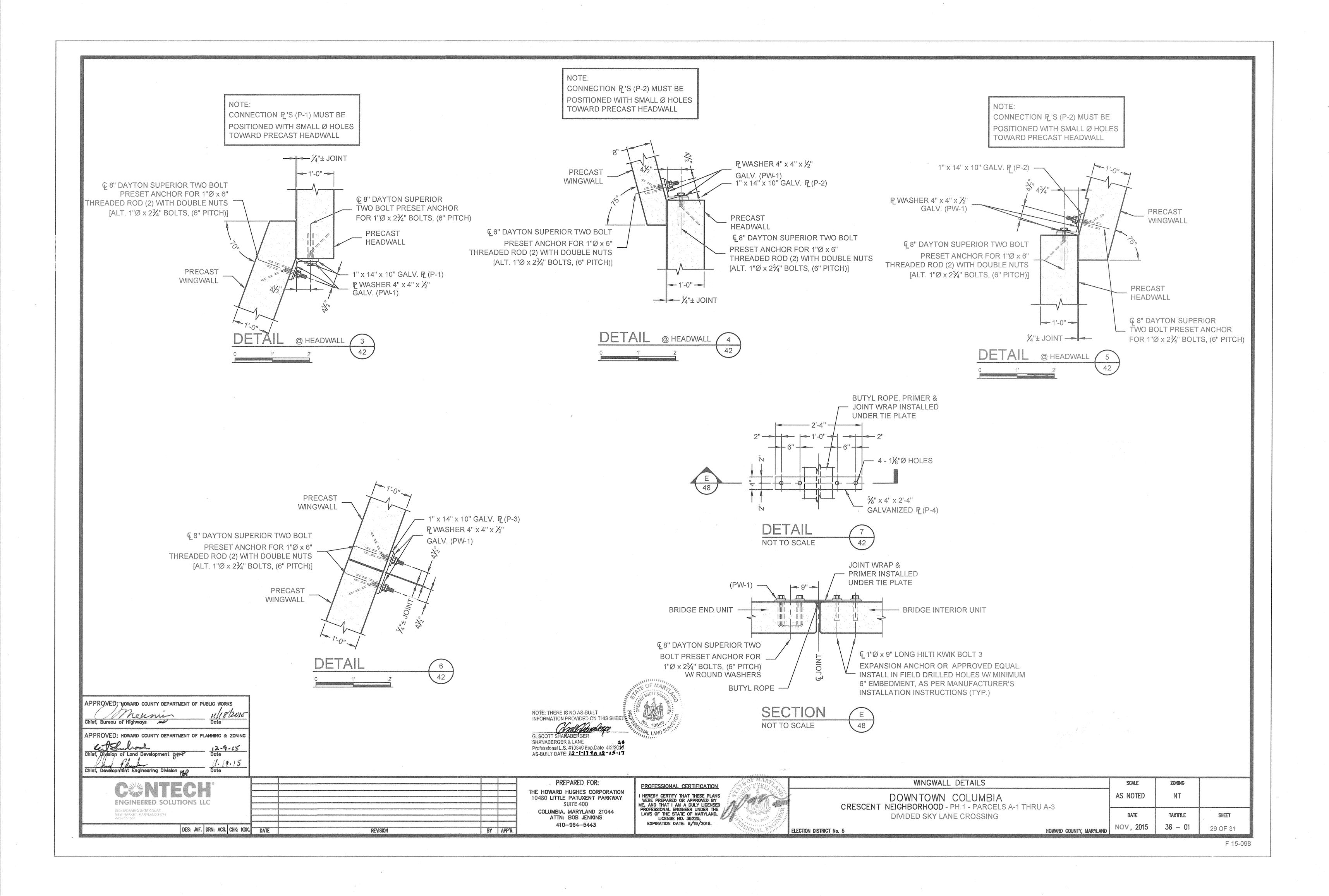
REINFORCING NOT SHOWN FOR CLARITY





100-YEAR FLOOD				
(PROVIDED BY OTHERS)				
ND ELEVATIONS OWN COLUMBIA HOOD - PH.1 - PARCELS A-1 THRU A-3 SKY LANE CROSSING HOWARD COUNTY, MARYLAND	SCALE AS NOTED DATE NOV, 2015	zoning NT taxtitle 36 — 01	Sheet 27 of 31	





DESCRIPTION

- 1.1. TYPE THIS WORK SHALL CONSIST OF FURNISHING AND CONSTRUCTING A CON/SPAN® BRIDGE SYSTEM IN ACCORDANCE WITH THESE SPECIFICATIONS AND IN REASONABLY CLOSE CONFORMITY WITH THE LINES, GRADES, DESIGN AND DIMENSIONS SHOWN ON THE PLANS OR AS ESTABLISHED BY THE ENGINEER. IN SITUATIONS WHERE TWO OR MORE SPECIFICATIONS APPLY TO THIS WORK, THE MOST STRINGENT REQUIREMENTS SHALL GOVERN.
- 1.2. DESIGNATION PRECAST REINFORCED CONCRETE CON/SPAN® BRIDGE UNITS MANUFACTURED IN ACCORDANCE WITH THIS SPECIFICATION SHALL BE DESIGNATED BY SPAN AND RISE PRECAST REINFORCED CONCRETE WINGWALLS AND HEADWALLS MANUFACTURED IN ACCORDANCE WITH THIS SPECIFICATION SHALL BE DESIGNATED BY LENGTH, HEIGHT, AND DEFLECTION ANGLE. PRECAST REINFORCED CONCRETE EXPRESS™ FOUNDATION UNITS MANUFACTURED IN ACCORDANCE WITH THIS SPECIFICATION SHALL BE DESIGNATED BY LENGTH, HEIGHT AND WIDTH.

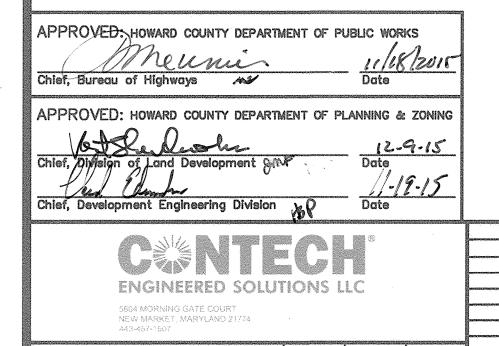
2.1. SPECIFICATIONS - THE PRECAST ELEMENTS ARE DESIGNED IN ACCORDANCE WITH THE "AASHTO LRFD BRIDGE SPECIFICATION" 6TH EDITION, ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, 2012. A MINIMUM OF ONE FOOT OF COVER ABOVE THE CROWN OF THE BRIDGE UNITS IS REQUIRED IN THE INSTALLED CONDITION. (UNLESS NOTED OTHERWISE ON THE SHOP DRAWINGS AND DESIGNED ACCORDINGLY.)

MATERIAL

- 3.1. CONCRETE THE CONCRETE FOR THE PRECAST ELEMENTS SHALL BE AIR-ENTRAINED WHEN INSTALLED IN AREAS SUBJECT TO FREEZE-THAW CONDITIONS, COMPOSED OF PORTLAND CEMENT, FINE AND COARSE AGGREGATES, ADMIXTURES AND WATER. AIR-ENTRAINED CONCRETE SHALL CONTAIN 6 ± 2 PERCENT AIR. THE AIR- ENTRAINING ADMIXTURE SHALL CONFORM TO AASHTO M154. THE MINIMUM CONCRETE COMPRESSIVE STRENGTH SHALL BE AS SHOWN ON THE SHOP DRAWINGS.
 - 3.1.1. PORTLAND CEMENT SHALL CONFORM TO THE REQUIREMENTS OF ASTM SPECIFICATIONS C150-TYPE I, TYPE II, OR TYPE III CEMENT.
- 3.1.2. COARSE AGGREGATE SHALL CONSIST OF STONE HAVING A MAXIMUM SIZE OF 1 INCH. AGGREGATE SHALL MEET REQUIREMENTS FOR ASTM C33.
- 3.1.3. WATER REDUCING ADMIXTURE THE MANUFACTURER MAY SUBMIT, FOR APPROVAL BY THE ENGINEER, A WATER-REDUCING ADMIXTURE FOR THE PURPOSE OF INCREASING WORKABILITY AND REDUCING THE WATER REQUIREMENT FOR THE CONCRETE.
- 3.1.4. CALCIUM CHLORIDE THE ADDITION TO THE MIX OF CALCIUM CHLORIDE OR ADMIXTURES CONTAINING CALCIUM CHLORIDE WILL NOT BE PERMITTED.
- 3.1.5. MIXTURE THE AGGREGATES, CEMENT AND WATER SHALL BE PROPORTIONED AND MIXED IN A BATCH MIXER TO PRODUCE A HOMOGENEOUS CONCRETE MEETING THE TRENGTH REQUIREMENTS OF THIS SPECIFICATION. THE PROPORTION OF PORTLAND CEMENT IN THE MIXTURE SHALL NOT BE LESS THAN 564 POUNDS (6 SACKS) PER CUBIC YARD OF CONCRETE.
- 3.2. STEEL REINFORCEMENT 3.2.1. THE MINIMUM STEEL YIELD STRENGTH SHALL BE 60,000 PSI, UNLESS OTHERWISE NOTED ON THE SHOP DRAWINGS. 3.2.2. ALL REINFORCING STEEL FOR THE PRECAST ELEMENTS
 - SHALL BE FABRICATED AND PLACED IN ACCORDANCE WITH THE DETAILED SHOP DRAWINGS SUBMITTED BY THE MANUFACTURER
- 3.2.3. REINFORCEMENT SHALL CONSIST OF WELDED WIRE FABRIC CONFORMING TO ASTM SPECIFICATION A 185 OR A 497, OR DEFORMED BILLET STEEL BARS CONFORMING TO ASTM SPECIFICATION A 615. GRADE 60. LONGITUDINAL DISTRIBUTION REINFORCEMENT MAY CONSIST OF WELDED WIRE FABRIC OR DEFORMED BILLET-STEEL BARS.
- 3.3. STEEL HARDWARE 3.3.1. BOLTS AND THREADED RODS FOR WINGWALL CONNECTIONS SHALL CONFORM TO ASTM A 307. NUTS SHALL CONFORM TO AASHTO M292 (ASTM A194) GRADE 2H. ALL BOLTS, THREADED RODS AND NUTS USED IN
 - WINGWALL CONNECTIONS SHALL BE MECHANICALLY ZINC COATED IN ACCORDANCE WITH ASTM B695 CLASS 50. 3.3.2. STRUCTURAL STEEL FOR WINGWALL CONNECTION PLATES AND PLATE WASHERS SHALL CONFORM TO AASHTO M 270 (ASTM A 709) GRADE 36 AND SHALL BE HOT DIP GALVANIZED
- AS PER AASHTO M111 (ASTM A123) 3.3.3, INSERTS FOR WINGWALLS SHALL BE 1" DIAMETER TWO-BOLT PRESET WINGWALL ANCHORS AS MANUFACTURED BY DAYTON SUPERIOR CONCRETE ACCESSORIES, MIAMISBURG, OHIO, (800) 745-3700 AND

DES: JMF. DRN: ACR. CHK: KDK. DATE

SHALL BE MECHANICALLY ZINC COATED IN ACCORDANCE WITH ASTM B695 CLASS 50.



- 3.3.4. FERRULE LOOP INSERTS SHALL BE F-64 FERRULE LOOP INSERTS AS MANUFACTURED BY DAYTON SUPERIOR CONCRETE ACCESSORIES, MIAMISBURG, OHIO, (800)
- 745-3700. 3.3.5. HOOK BOLTS USED IN ATTACHED HEADWALL CONNECTIONS
- SHALL BE ASTM A307 3.3.6. INSERTS FOR DETACHED HEADWALL CONNECTIONS SHALL BE AISI TYPE 304 STAINLESS STEEL, EXPANDED COIL INSERTS AS MANUFACTURED BY DAYTON SUPERIOR CONCRETE ACCESSORIES, MIAMISBURG, OHIO, (800) 745-3700. COIL RODS AND NUTS USED IN HEADWALL CONNECTIONS SHALL BE AISI TYPE 304 STAINLESS STEEL WASHERS USED IN HEADWALL CONNECTIONS SHALL BE EITHER AISI TYPE 304 STAINLESS STEEL PLATE WASHERS OR AASHTO M270 (ASTM A709) GRADE 36 PLATE WASHERS
- HOT DIP GALVANIZED AS PER AASHTO M111 (ASTM A123) 3.3.7. MECHANICAL SPLICES OF REINFORCING BARS SHALL BE MADE USING THE DOWEL BAR SPLICER SYSTEM AS MANUFACTURED BY DAYTON SUPERIOR CONCRETE ACCESSORIES, MIAMISBURG, OHIO, (800) 745-3700, AND SHALL CONSIST OF THE DOWEL BAR SPLICER (DB-SAE) AND DOWEL-IN (DI).

4. MANUFACTURE OF PRECAST ELEMENTS - SUBJECT TO THE PROVISIONS OF SECTION 5, BELOW, THE PRECAST ELEMENT DIMENSION AND REINFORCEMENT DETAILS SHALL BE AS PRESCRIBED IN THE PLAN AND SHOP DRAWINGS PROVIDED BY THE MANUFACTURER.

4.1. FORMS - THE FORMS USED IN MANUFACTURE SHALL BE SUFFICIENTLY RIGID AND ACCURATE TO MAINTAIN THE REQUIRED PRECAST ELEMENT DIMENSIONS WITHIN THE PERMISSIBLE VARIATIONS GIVEN IN SECTION 5 OF THESE SPECIFICATIONS. ALL CASTING SURFACES SHALL BE OF A SMOOTH MATERIAL

4.2. PLACEMENT OF REINFORCEMENT 4.2.1. PLACEMENT OF REINFORCEMENT IN PRECAST BRIDGE UNITS - THE COVER OF CONCRETE OVER THE OUTSIDE CIRCUMFERENTIAL REINFORCEMENT SHALL BE 2" MINIMUM. THE COVER OF CONCRETE OVER THE INSIDE CIRCUMFERENTIAL REINFORCEMENT SHALL BE 11/2" MINIMUM, UNLESS OTHERWISE NOTED ON THE SHOP DRAWINGS. THE CLEAR DISTANCE OF THE END CIRCUMFERENTIAL WIRES SHALL NOT BE LESS THAN 1" NOR MORE THAN 2" FROM THE ENDS OF EACH SECTION. REINFORCEMENT SHALL BE ASSEMBLED UTILIZING SINGLE OR MULTIPLE LAYERS OF WELDED WIRE FABRIC (NOT TO EXCEED 3 LAYERS), SUPPLEMENTED WITH A SINGLE LAYER OF DEFORMED BILLET-STEEL BARS, WHEN NECESSARY. WELDED WIRE FABRIC SHALL BE COMPOSED OF CIRCUMFERENTIAL AND LONGITUDINAL WIRES MEETING THE SPACING REQUIREMENTS OF 4.3, BELOW, AND SHALL CONTAIN SUFFICIENT LONGITUDINAL WIRES EXTENDING THROUGH THE BRIDGE UNIT TO MAINTAIN THE SHAPE AND POSITION OF THE REINFORCEMENT. LONGITUDINAL DISTRIBUTION REINFORCEMENT MAY BE WELDED WIRE FABRIC OR DEFORMED BILLET-STEEL BARS AND SHALL MEET THE SPACING REQUIREMENTS OF 4.3, BELOW. THE ENDS OF THE LONGITUDINAL DISTRIBUTION REINFORCEMENT SHALL BE NOT MORE THAN 3" AND NOT LESS THAN 1%" FROM THE ENDS OF THE BRIDGE UNIT. 4.2.2. BENDING OF REINFORCEMENT FOR PRECAST BRIDGE UNITS

- THE OUTSIDE AND INSIDE CIRCUMFERENTIAL REINFORCING STEEL FOR THE CORNERS OF THE BRIDGE SHALL BE BENT TO SUCH AN ANGLE THAT IS APPROXIMATELY EQUAL TO THE CONFIGURATION OF THE BRIDGE'S OUTSIDE CORNER.
- **4.2.3. PLACEMENT OF REINFORCEMENT FOR PRECAST** WINGWALLS AND HEADWALLS - THE COVER OF CONCRETE OVER THE LONGITUDINAL AND TRANSVERSE REINFORCEMENT SHALL BE 2" MINIMUM. THE CLEAR DISTANCE FROM THE END OF EACH PRECAST ELEMENT TO THE END OF REINFORCING STEEL SHALL NOT BE LESS THAN 11/2" NOR MORE THAN 3". REINFORCEMENT SHALL BE ASSEMBLED UTILIZING A SINGLE LAYER OF WELDED WIRE FABRIC, OR A SINGLE LAYER OF DEFORMED BILLET-STEEL BARS. WELDED WIRE FABRIC SHALL BE COMPOSED OF TRANSVERSE AND LONGITUDINAL WIRES MEETING THE SPACING REQUIREMENTS OF 4.3, BELOW, AND SHALL CONTAIN SUFFICIENT LONGITUDINAL WIRES EXTENDING THROUGH THE ELEMENT TO MAINTAIN THE SHAPE AND POSITION OF THE REINFORCEMENT. LONGITUDINAL
- DEFORMED BILLET-STEEL BARS AND SHALL MEET THE SPACING REQUIREMENTS OF 4.3, BELOW. 4.2.4. PLACEMENT OF REINFORCMENT FOR PRECAST FOUNDATION UNITS - THE COVER OF CONCRETE OVER THE BOTTOM REINFORCEMENT SHALL BE 3 INCHES MINIMUM. THE COVER OF CONCRETE FOR ALL OTHER
- DISTANCE FROM THE END OF EACH PRECAST ELEMENT TO THE END OF REINFORCING STEEL SHALL NOT BE LESS THAN 2 INCHES NOR MORE THAN 3 INCHES. REINFORCEMENT SHALL BE ASSEMBLED UTILIZING A SINGLE LAYER OF WELDED WIRE FABRIC OR A SINGLE LAYER OF DEFOREMED BILLET-STEEL BARS. WELDED WIRE FABRIC SHALL BE COMPOSED OF TRANSVERSE AND LONGITUDINAL WIRES MEETING THE SPACING REQUIREMENTS OF 4.3, BELOW, AND SHALL CONTAIN SUFFICIENT LONGITUDINAL WIRES EXTENDING THROUGH THE ELEMENT TO MAINTAIN THE

REVISION

REINFORCEMENT MAY BE WELDED WIRE FABRIC OR

REINFORCEMENT SHALL BE 2 INCHES MINIMUM. THE CLEAR

SHAPE AND POSITION OF THE REINFORCEMENT

LONGITUDINAL REINFORCEMENT MAY BE WELDED WIRE FABRIC OR DEFORMED BILLET-STEEL BARS AND SHALL MEET THE SPACING REQUIREMENTS OF 4.3, BELOW. 4.3. LAPS, WELDS, SPACING

4.3.1. LAPS, WELDS, AND SPACING FOR PRECAST BRIDGE UNITS -TENSION SPLICES IN THE CIRCUMFERENTIAL REINFORCEMENT SHALL BE MADE BY LAPPING. LAPS MAY BE TACK WELDED TOGETHER FOR ASSEMBLY PURPOSES. FOR SMOOTH WELDED WIRE FABRIC, THE OVERLAP SHALL MEET THE REQUIREMENTS OF AASHTO 5.11.2.5.2 AND 5.11.6.2. FOR DEFORMED WELDED WIRE FABRIC, THE OVERLAP SHALL MEET THE REQUIREMENTS OF AASHTO 5.11.2.5.1 AND 5.11.6.1. THE OVERLAP OF WELDED WIRE FABRIC SHALL BE MEASURED BETWEEN THE OUTER-MOST LONGITUDINAL WIRES OF EACH FABRIC SHEET. FOR DEFORMED BILLET-STEEL BARS, THE OVERLAP SHALL MEET THE REQUIREMENTS OF AASHTO 5.11.2.1 FOR SPLICES OTHER THAN TENSION SPLICES, THE OVERLAP SHALL BE A MINIMUM OF 1'-0" FOR WELDED WIRE FABRIC OR DEFORMED BILLET-STEEL BARS. THE SPACING CENTER TO CENTER OF THE CIRCUMFERENTIAL WIRES IN A WIRE FABRIC SHEET SHALL BE NOT LESS THAN 2" NOR MORE THAN 4". THE SPACING CENTER TO CENTER OF THE LONGITUDINAL WIRES SHALL NOT BE MORE THAN 8". THE SPACING CENTER TO CENTER OF THE LONGITUDINAL DISTRIBUTION STEEL FOR EITHER LINE OF REINFORCING IN THE TOP SLAB SHALL BE NOT MORE THAN 1'-4".

4.3.2. LAPS, WELDS, AND SPACING FOR PRECAST WINGWALLS, HEADWALLS AND FOUNDATIONS - SPLICES IN THE REINFORCEMENT SHALL BE MADE BY LAPPING. LAPS MAY BE TACK WELDED TOGETHER FOR ASSEMBLY PURPOSES. FOR SMOOTH WELDED WIRE FABRIC, THE OVERLAP SHALL MEET THE REQUIREMENTS OF AASHTO 5.11.2.5.2 AND 5.11.6.2. FOR DEFORMED WELDED WIRE FABRIC, THE OVERLAP SHALL MEET THE REQUIREMENTS OF AASHTO 5.11.2.5.1 AND 5.11.6.1. FOR DEFORMED BILLET-STEEL BARS, THE OVERLAP SHALL MEET THE REQUIREMENTS OF AASHTO 5.11.2.1. THE SPACING CENTER-TO-CENTER OF THE WIRES IN A WIRE FABRIC SHEET SHALL BE NOT LESS THAN 2" NOR MORE THAN 8".

4.4. CURING - THE PRECAST CONCRETE ELEMENTS SHALL BE CURED FOR A SUFFICIENT LENGTH OF TIME SO THAT THE CONCRETE WILL DEVELOP THE SPECIFIED COMPRESSIVE STRENGTH IN 28 DAYS OR LESS. ANY ONE OF THE FOLLOWING METHODS OF CURING OR COMBINATIONS THEREOF SHALL BE USED: 4.4.1. STEAM CURING - THE PRECAST ELEMENTS MAY BE LOW-PRESSURE STEAM CURED BY A SYSTEM THAT WILL MAINTAIN A MOIST ATMOSPHERE.

4.4.2. WATER CURING - THE PRECAST ELEMENTS MAY BE WATER CURED BY ANY METHOD THAT WILL KEEP THE SECTIONS MOIST.

4.4.3. MEMBRANE CURING - A SEALING MEMBRANE CONFORMING TO THE REQUIREMENTS OF ASTM SPECIFICATION C309 MAY BE APPLIED AND SHALL BE LEFT INTACT UNTIL THE REQUIRED CONCRETE COMPRESSIVE STRENGTH IS ATTAINED. THE CONCRETE TEMPERATURE AT THE TIME OF APPLICATION SHALL BE WITHIN +/- 10 DEGREES F OF THE ATMOSPHERIC TEMPERATURE. ALL SURFACES SHALL BE KEPT MOIST PRIOR TO THE APPLICATION OF THE COMPOUNDS AND SHALL BE DAMP WHEN THE COMPOUND IS APPLIED.

4.5. STORAGE, HANDLING & DELIVERY 4.5.1. STORAGE - PRECAST CONCRETE BRIDGE ELEMENTS SHALL BE LIFTED AND STORED IN "AS-CAST" POSITION. PRECAST CONCRETE HEADWALL AND WINGWALL UNITS ARE CAST. STORED AND SHIPPED IN A FLAT POSITION. THE PRECAST ELEMENTS SHALL BE STORED IN SUCH A MANNER TO PREVENT CRACKING OR DAMAGE. STORE ELEMENTS USING TIMBER SUPPORTS AS APPROPRIATE. THE UNITS SHALL NOT BE MOVED UNTIL THE CONCRETE COMPRESSIVE STRENGTH HAS REACHED A MINIMUM OF 2500 PSI, AND THEY SHALL NOT BE STORED IN AN UPRIGHT POSITION.

4.5.2. HANDLING - HANDLING DEVICES SHALL BE PERMITTED IN EACH PRECAST ELEMENT FOR THE PURPOSE OF HANDLING AND SETTING. SPREADER BEAMS MAY BE REQUIRED FOR THE LIFTING OF PRECAST CONCRETE BRIDGE ELEMENTS TO PRECLUDE DAMAGE FROM BENDING OR TORSION FORCES. 4.5.3. DELIVERY - PRECAST CONCRETE ELEMENTS MUST NOT BE

SHIPPED UNTIL THE CONCRETE HAS ATTAINED THE. SPECIFIED DESIGN COMPRESSIVE STRENGTH, OR AS DIRECTED BY THE DESIGN ENGINEER. PRECAST CONCRETE ELEMENTS MAY BE UNLOADED AND PLACED ON THE GROUND AT THE SITE UNTIL INSTALLED. STORE ELEMENTS USING TIMBER SUPPORTS AS APPROPRIATE.

4.6. QUALITY ASSURANCE - THE PRECASTER SHALL DEMONSTRATE ADHERENCE TO THE STANDARDS SET FORTH IN THE NPCA QUALITY CONTROL MANUAL. THE PRECASTER SHALL MEET EITHER SECTION 4.6.1 OR 4.6.2

4.6.1. CERTIFICATION - THE PRECASTER SHALL BE CERTIFIED BY THE PRECAST/PRESTRESSED CONCRETE INSTITUTE PLANT CERTIFICATION PROGRAM OR THE NATIONAL PRECAST CONCRETE ASSOCIATION'S PLANT CERTIFICATION PROGRAM PRIOR TO AND DURING PRODUCTION OF THE PRODUCTS COVERED BY THIS SPECIFICATION.

4.6.2. QUALIFICATIONS, TESTING AND INSPECTION

4.6.2.1. THE PRECASTER SHALL HAVE BEEN IN THE BUSINESS OF PRODUCING PRECAST CONCRETE PRODUCTS SIMILAR TO THOSE SPECIFIED FOR A MINIMUM OF THREE YEARS. HE SHALL MAINTAIN A PERMANENT QUALITY CONTROL DEPARTMENT OR RETAIN AN INDEPENDENT TESTING AGENCY ON A

INDUSTRY STANDARDS. 4.6.2.2. THE PRECASTER SHALL SHOW THAT THE FOLLOWING TESTS ARE PERFORMED IN ACCORDANCE WITH THE ASTM STANDARDS INDICATED IN SECTION 6 OF THESE SPECIFICATIONS. 4.6.2.2.1. AIR CONTENT: C231 OR C173 4.6.2.2.2. COMPRESSIVE STRENGTH: C31,C39,C497 REGULAR INTERVALS OR UPON REQUEST. 4.6.2.4. THE OWNER MAY PLACE AN INSPECTOR IN THE 4.6.3. DOCUMENTATION - THE PRECASTER SHALL SUBMIT PRECAST PRODUCTION REPORTS TO CONTECH® ENGINEERED SOLUTIONS AS REQUIRED. 5. PERMISSIBLE VARIATIONS 5.1. BRIDGE UNITS 5.1.1. INTERNAL DIMENSIONS - THE INTERNAL DIMENSION SHALL VARY NOT MORE THAN 1% FROM THE DESIGN DIMENSIONS NOR MORE THAN $1\frac{1}{2}$ " WHICHEVER IS LESS. 5.1.2. SLAB AND WALL THICKNESS - THE SLAB AND WALL

THICKNESS SHALL NOT BE LESS THAN THAT SHOWN IN THE DESIGN BY MORE THAN $\frac{1}{2}$ ". A THICKNESS MORE THAN THAT REQUIRED IN THE DESIGN SHALL NOT BE CAUSE FOR REJECTION 5.1.3. LENGTH OF OPPOSITE SURFACES - VARIATIONS IN LAYING LENGTHS OF TWO OPPOSITE SURFACES OF THE BRIDGE

UNIT SHALL NOT BE MORE THAN $\frac{1}{2}$ " IN ANY SECTION. EXCEPT WHERE BEVELED ENDS FOR LAYING OF CURVES ARE SPECIFIED BY THE PURCHASER.

5.1.4. LENGTH OF SECTION - THE UNDERRUN IN LENGTH OF A 5.1.5. POSITION OF REINFORCEMENT - THE MAXIMUM VARIATION IN POSITION OF THE REINFORCEMENT SHALL BE $\pm \frac{1}{2}$ ". IN NO CASE SHALL THE COVER OVER THE REINFORCEMENT BE LESS THAN 1%" FOR THE OUTSIDE CIRCUMFERENTIAL STEEL OR BE LESS THAN 1" FOR THE INSIDE CIRCUMFERENTIAL STEEL AS MEASURED TO THE EXTERNAL OR INTERNAL SURFACE OF THE BRIDGE. THESE TOLERANCES OR COVER **REQUIREMENTS DO NOT APPLY TO MATING SURFACES OF**

THE JOINTS. 5.1.6. AREA OF REINFORCEMENT - THE AREAS OF STEEL REINFORCEMENT SHALL BE THE DESIGN STEEL AREAS AS SHOWN IN THE MANUFACTURER'S SHOP DRAWINGS. STEEL AREAS GREATER THAN THOSE REQUIRED SHALL NOT BE CAUSE FOR REJECTION. THE PERMISSIBLE VARIATION IN DIAMETER OF ANY REINFORCEMENT SHALL CONFORM TO THE TOLERANCES PRESCRIBED IN THE ASTM SPECIFICATION FOR THAT TYPE OF REINFORCEMENT

5.2. WINGWALLS & HEADWALLS 5.2.1. WALL THICKNESS - THE WALL THICKNESS SHALL NOT VARY FROM THAT SHOWN IN THE DESIGN BY MORE THAN 1/3". 5.2.2. LENGTH/HEIGHT OF WALL SECTIONS - THE LENGTH AND HEIGHT OF THE WALL SHALL NOT VARY FROM THAT SHOWN IN THE DESIGN BY MORE THAN $\frac{1}{2}$ ".

5.2.3. POSITION OF REINFORCEMENT - THE MAXIMUM VARIATION IN THE POSITION OF THE REINFORCEMENT SHALL BE $\pm \frac{1}{3}$ ". IN NO CASE SHALL THE COVER OVER THE REINFORCEMENT

BE LESS THAN 1%" 5.2.4. SIZE OF REINFORCEMENT - THE PERMISSIBLE VARIATION IN DIAMETER OF ANY REINFORCING SHALL CONFORM TO THE TOLERANCES PRESCRIBED IN THE ASTM SPECIFICATION FOR THAT TYPE OF REINFORCING. STEEL AREA GREATER THAN THAT REQUIRED SHALL NOT BE CAUSE FOR

REJECTION. 5.3. FOUNDATION UNITS

5.3.1. WALL THICKNESS - THE WALL THICKNESS SHALL NOT VARY FROM THAT SHOWN IN THE DESIGN BY MORE THAN $\frac{1}{2}$ ". 5.3.2. LENGTH/ HEIGHT/WIDTH OF FOUNDATION SECTIONS - THE LENGTH, HEIGHT AND WIDTH OF THE FOUNDATION UNITS SHALL NOT VARY FROM THAT SHOWN IN THE DESIGN BY

MORE THAN 1/3" 5.3.3. POSITION OF REINFORCEMENT - THE MAXIMUM VARIATION IN THE POSITION OF THE REINFORCEMENT SHALL BE $\pm \frac{1}{2}$ ". IN NO CASE SHALL THE COVER OVER THE REINFORCEMENT BE

LESS THAN 1%" 5.3.4. SIZE OF REINFORCEMENT - THE PERMISSIBLE VARIATION IN DIAMETER OF ANY REINFORCING SHALL CONFORM TO THE TOLERANCES PRESCRIBED IN THE ASTM SPECIFICATION FOR THAT TYPE OF REINFORCING. STEEL AREA GREATER THAN THAT REQUIRED SHALL NOT BE CAUSE FOR REJECTION.

6. TESTING/INSPECTION 6.1. TESTING

ELECTION DISTRICT No. 5

afili

6.1.1. TYPE OF TEST SPECIMEN - CONCRETE COMPRESSIVE STRENGTH SHALL BE DETERMINED FROM COMPRESSION TESTS MADE ON CYLINDERS OR CORES. FOR CYLINDER TESTING, A MINIMUM OF 4 CYLINDERS SHALL BE TAKEN FOR EACH BRIDGE ELEMENT, EACH ELEMENT SHALL BE CONSIDERED SEPARATELY FOR THE PURPOSE OF TESTING AND ACCEPTANCE.

6.1.2. COMPRESSION TESTING - CYLINDERS SHALL BE MADE AND

DIVIDED

BY	

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

111-01 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. 36225. EXPIRATION DATE: 8/19/2016.

SPECIFICATIONS FOR DOWNT CRESCENT NEIGHBORI

CONTINUING BASIS. THE AGENCY SHALL ISSUE A REPORT, CERTIFIED BY A LICENSED ENGINEER DETAILING THE ABILITY OF THE PRECASTER TO PRODUCE QUALITY PRODUCTS CONSISTENT WITH

INDICATED. TESTS SHALL BE PERFORMED AS

4.6.2.3. THE PRECASTER SHALL PROVIDE DOCUMENTATION DEMONSTRATING COMPLIANCE WITH THIS SECTION TO CONTECH® ENGINEERED SOLUTIONS AT PLANT WHEN THE PRODUCTS COVERED BY THIS SPECIFICATION ARE BEING MANUFACTURED.

TESTED AS PRESCRIBED BY THE ASTM C39 SPECIFICATION CYLINDERS SHALL BE CURED IN THE SAME ENVIRONMENT AS THE BRIDGE ELEMENTS. CORES SHALL BE OBTAINED AND TESTED FOR COMPRESSIVE STRENGTH IN ACCORDANCE WITH THE PROVISIONS OF THE ASTM C42 SPECIFICATION.

- 6.1.3. ACCEPTABILITY OF CYLINDER TESTS WHEN THE AVERAGE COMPRESSIVE STRENGTH OF ALL CYLINDERS TESTED IS EQUAL TO OR GREATER THAN THE DESIGN COMPRESSIVE STRENGTH, AND NOT MORE THAN 10% OF THE CYLINDERS TESTED HAVE A COMPRESSIVE STRENGTH LESS THAN THE DESIGN CONCRETE STRENGTH, AND NO CYLINDER TESTED HAS A COMPRESSIVE STRENGTH LESS THAN 80% OF THE DESIGN COMPRESSIVE STRENGTH, THEN THE ELEMENT SHALL BE ACCEPTED. WHEN THE COMPRESSIVE STRENGTH OF THE CYLINDERS TESTED DOES NOT CONFORM TO THESE ACCEPTANCE CRITERIA, THE ACCEPTABILITY OF THE ELEMENT MAY BE DETERMINED AS DESCRIBED IN SECTION 6.1.4, BELOW
- 6.1.4. ACCEPTABILITY OF CORE TESTS THE COMPRESSIVE STRENGTH OF THE CONCRETE IN A BRIDGE ELEMENT IS ACCEPTABLE WHEN THE AVERAGE CORE TEST STRENGTH IS EQUAL TO OR GREATER THAN THE DESIGN CONCRETE STRENGTH. WHEN THE COMPRESSIVE STRENGTH OF A CORE TESTED IS LESS THAN THE DESIGN CONCRETE STRENGTH, THE PRECAST ELEMENT FROM WHICH THAT CORE WAS TAKEN MAY BE RE-CORED. WHEN THE COMPRESSIVE STRENGTH OF THE RE-CORE IS EQUAL TO OR GREATER THAN THE DESIGN CONCRETE STRENGTH THE COMPRESSIVE STRENGTH OF THE CONCRETE IN THAT BRIDGE ELEMENT IS ACCEPTABLE.
 - 6.1.4.1. WHEN THE COMPRESSIVE STRENGTH OF ANY RECORE IS LESS THAN THE DESIGN CONCRETE STRENGTH, THE PRECAST ELEMENT FROM WHICH THAT CORE WAS TAKEN SHALL BE REJECTED.
 - 6.1.4.2. PLUGGING CORE HOLES THE CORE HOLES SHALL BE PLUGGED AND SEALED BY THE MANUFACTURER IN A MANNER SUCH THAT THE ELEMENTS WILL MEET ALL OF THE TEST REQUIREMENTS OF THIS SPECIFICATION. PRECAST ELEMENTS SO SEALED SHALL BE CONSIDERED SATISFACTORY FOR USE 6.1.4.3. TEST EQUIPMENT - EVERY MANUFACTURER FURNISHING PRECAST ELEMENTS UNDER THIS
- SPECIFICATION SHALL FURNISH ALL FACILITIES AND PERSONNEL NECESSARY TO CARRY OUT THE TEST REQUIRED. 6.2. INSPECTION - THE QUALITY OF MATERIALS, THE PROCESS OF

MANUFACTURE, AND THE FINISHED PRECAST ELEMENTS SHALL BE SUBJECT TO INSPECTION BY THE PURCHASER.

7. JOINTS THE BRIDGE UNITS SHALL BE PRODUCED WITH FLAT BUTT ENDS. THE BRIDGE UNITS SHALL BE SUCH THAT WHEN TH THE ENDS OF THE BRIDGE UNITS SHALL BE SUCH THAT WHEN THE SECTIONS ARE LAID TOGETHER THEY WILL MAKE A CONTINUOUS LINE WITH A SMOOTH INTERIOR FREE OF APPRECIABLE IRREGULARITIES, ALL COMPATIBLE WITH THE PERMISSIBLE VARIATIONS IN SECTION 5, ABOVE. THE JOINT WIDTH BETWEEN ADJACENT PRECAST UNITS SHALL NOT EXCEED $\frac{3}{4}$ " WORKMANSHIP/ FINISH

THE BRIDGE UNITS, WINGWALLS, HEADWALLS AND FOUNDATION UNITS SHALL BE SUBSTANTIALLY FREE OF FRACTURES. THE ENDS OF THE BRIDGE UNITS SHALL BE NORMAL TO THE WALLS AND CENTERLINE OF THE BRIDGE SECTION, WITHIN THE LIMITS OF THE VARIATIONS GIVEN IN SECTION 5, ABOVE, EXCEPT WHERE BEVELED ENDS ARE SPECIFIED. THE FACES OF THE WINGWALLS AND HEADWALLS SHALL BE PARALLEL TO EACH OTHER, WITHIN THE LIMIT OF VARIATIONS GIVEN IN SECTION 5, ABOVE. THE SURFACE OF THE PRECAST ELEMENTS SHALL BE A SMOOTH STEEL FORM OR TROWELED SURFACE. TRAPPED AIR POCKETS CAUSING SURFACE DEFECTS SHALL BE CONSIDERED AS PART OF A SMOOTH, STEEL FORM FINISH.

). REPAIRS

PRECAST ELEMENTS MAY BE REPAIRED, IF NECESSARY, BECAUSE OF IMPERFECTIONS IN MANUFACTURE OR HANDLING DAMAGE AND WILL BE ACCEPTABLE IF. IN THE OPINION OF THE PURCHASER. THE REPAIRS ARE SOUND, PROPERLY FINISHED AND CURED, AND THE REPAIRED SECTION CONFORMS TO THE REQUIREMENTS OF THIS SPECIFICATION. 10. REJECTION

THE PRECAST ELEMENTS SHALL BE SUBJECT TO REJECTION ON ACCOUNT OF ANY OF THE SPECIFICATION REQUIREMENTS. INDIVIDUAL PRECAST ELEMENTS MAY BE REJECTED BECAUSE OF ANY OF THE FOLLOWING:

10.1 FRACTURES OR CRACKS PASSING THROUGH THE WALL EXCEPT FOR A SINGLE END CRACK THAT DOES NOT EXCEED ONE HALF THE THICKNESS OF THE WALL.

10.2. DEFECTS THAT INDICATE PROPORTIONING, MIXING, AND MOLDING NOT IN COMPLIANCE WITH SECTION 4 OF THESE SPECIFICATIONS. 10.3. HONEYCOMBED OR OPEN TEXTURE.

10.4. DAMAGED ENDS, WHERE SUCH DAMAGE WOULD PREVENT MAKING A SATISFACTORY JOINT.

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	SP, SM, SW	A3 A4		ising the manipulation of the second statistic stage	51 MIN	10 MAX 36 MIN	40 MAX	NON- PLASTIC 10 MAX	FINE SANDS
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13.1.	CONSTRUCTION SPECIFICATION GENERAL - TH ELEMENTS SH CON/SPAN BF 1.1. LIFTING - ENSURE THAT AVAILABLE TO BE ACCOMPLI PRECAST COI LIFTING REAC CHECKED WE CRANE LOCAT LIFT ANCHOR	HE INSTAI HALL BE A RIDGE SYS IT IS THE F A CRANI HANDLE SHED BY NCRETE (CH FOR EA LL IN ADV TION AND	LATION OF T SEXPLAINED STEMS INSTA RESPONSIBI OF THE CO THE PRECA USING THE V COMPONENTS ACH CRANE U ANCE OF SH TO AVOID AI LES PROVIDE	THE PRECA D IN THE P ALLATION H ILITY OF TI RRECT LIF ST CONCR WEIGHTS C S AND BY I JNIT. SITE IIPPING TC NY LIFTING D IN EACH	AST CONCE UBLICATIC HANDBOOK HE CONTR TING CAPA ETE UNITS GIVEN FOR DETERMIN CONDITION ENSURE I RESTRIC UNIT ARE	RETE N ACTOR TO ACITY IS 5. THIS CAN THE ING THE NG THE NS MUST BE PROPER FIONS. THE	HAR TIES RES PRIC CON REQ IN AI PRIC CON	DWOOD BLOO /TIE RODS TC TRICTIONS, TI OR TO PLACEN TRACTOR MU UEST A SUGG DDITION, IF TH OR TO SETTING TROL PROCE 1) FIND "MEAS SITE, PRIOR T TIES/TIE RODS (3) SPAN MEA ARCH UNIT. 2) AFTER SET	CKS BE USED IN CONJUNCT MAINTAIN SPAN. IF, HOWE HESE CABLE TIES/TIE RODS MENT OF THE BRIDGE ELEM JST NOTIFY CONTECH (MAN SESTED INSTALLATION PRO HE CABLE TIES/TIE RODS MI G ARCH UNITS, THE FOLLOW DURE MUST BE FOLLOWED DURE MUST BE FOLLOWED SURED SPAN" UPON ARCH L TO LIFTING FROM TRUCK AN S. "MEASURED SPAN" SHAL SUREMENTS ALONG THE LA
	THE FOUNDA AND WINGWA FORM ONE MO USED. THE CONTRA	TIONS FO LLS MUS ONOLITHI CTOR SH/	R PRECAST (T BE CONNEC C BODY. EXP ALL BE RESP	OTED BY R PANSION JO ONSIBLE F	EINFORCE DINTS SHA	MENT TO LL NOT BE	UND SPR AFTI OR 1 ASS SHA	ER SELF-WEI EADING OF TH ER THEIR PLA TE RODS ARE IST IN PREVEI LL NOT BE RE	E, BRIDGE ELEMENTS WILL GHT. IT IS IMPERATIVE THA HE BRIDGE ELEMENTS BE A CEMENT. GENERALLY, HOP SHIPPED IN THE LARGER E NTING THIS SPREADING. CA MOVED UNTILL BRIDGE UN CURED. IT IS RECOMMENDI
	STRAIGHT ED 10'-0". IF A PRECAST SHALL PREPA GRANULAR M PLACING THE	CONCRE RE A 4" T ATERIAL	TE FOOTING HICK BASE L THE FULL WI	IS USED, AYER OF C	THE CONT	RACTOR	THE ADJ, 13.4. IT IS STR	TRUE LINE AI ACENT PRECA THE CONTRA UCTURE SPAI	HALL BE TAKEN IN SETTING ND GRADE. THE JOINT WIDT AST UNITS SHALL NOT EXCE ACTOR'S RESPONSIBILITY TO N DURING ALL PHASES OF I
	BACKFILLING THE FULL DES THE FOOTING WITH GRADES	SIGN CON S SURFAC S SHOWN	E SHALL BE (ON THE PLA	TRENGTH. CONSTRU(NS. WHEN	CTED IN AC	CORDANCE WITH A 10'-0"	SUP FOR 13.3. PLA(PLA(PLY OF 1/4", 1/2" VARIOUS SHI CEMENT OF B CED AS SHOW	OR THE BOTTOM OF THE WI AND ⁷ / ₈ " THICK HARDBOARE IMMING PURPOSES SHALL I RIDGE UNITS - THE BRIDGE WN ON THE ENGINEER'S PLA
	NO KEYWAY I OTHERWISE S THE FOOTING SHALL REACH PLACEMENT (SPECIFIEI SS SHALL H A COMP	D ON THE PLA BE GIVEN A S RESSIVE STR	ANS. SMOOTH F RENGTH O	LOAT FINIS F 2,000 PSI	SH AND BEFORE	BE S PLAS EQU	ET ON HARDI STIC SHIMS (E AL) MEASURII THE PLANS. A	HMS - THE BRIDGE UNITS A BOARD SHIMS CONFORMIN DAYTON SUPERIOR P-80, P-4 NG 5" x 5", MINIMUM, UNLES MINIMUM GAP OF ½" SHALL DOTING AND THE BOTTOM C
	THE BRIDGE I EITHER PREC SIZE AND ELE BY THE ENGIN SURFACE OF	AST OR C VATION C NEER. A K THE BRIE	CAST-IN-PLAC DF THE FOOT EYWAY SHAI DGE FOOTING	CE CONCRI TNGS SHAI LL BE FOR AS SPECI	ETE FOOTI LL BE AS D MED IN TH IFIED ON T	NGS. THE ESIGNED E TOP HE PLANS.	AFTI COV CON DESI CON	ER, OR 2'-0" N CRETE BRIDG GN LOAD LIM CRETE BRIDG	
	THE SITE SOI CAPACITY ME REQUIREMEN FOOTINGS.	LS ENGIN ETS OR E	EER SHALL (EXCEEDS THE	CERTIFY THE FOOTING	HAT THE BI G DESIGN		4" O' WITH AFTI 1'-0" EQU	VER THE CRO H A WEIGHT C ER THE COMP OVER THE CF IPMENT WITH	WN OF THE BRIDGE, CONS OF LESS THAN 10 TONS MAY PACTED FILL LEVEL HAS RE ROWN OF THE BRIDGE, CON A WEIGHT OF LESS THAN
V T	VINGWALL ELEN HE RAPID INST. FOOTINGS DO NOT OVER SITE SOIL EN	MENTS. EX ALLATION R EXCAVA	XERCISING S I OF THE PRE	PECIAL CA ECAST CON TIONS UNL	RE WILL F MPONENTS ESS DIREC	ACILITATE	PRE	CONSTRUC OPERATION CONSTRUCTIO	TION MACHINERY DURING
T B		OR TRAL REPARAT RECT IN I, CARE A	DEMARK OF 1 TON STALLATION ND CAUTION	OF THE PF MUST BE I	RECAST CO	DNCRETE	CAS LOAI APP	E SHALL EQU D (HL-93) BE P ROVED BY CO . IN THE IMME	IPMENT OPERATING IN EXC PERMITTED OVER THE BRID ONTECH® ENGINEERED SO EDIATE AREA OF THE BRID RESTRICTIONS FOR THE L
V	ERTICAL LEG C BRIDO	OF THE BF GE SPAN :	SHALL BE SHO RIDGE SECTIO X BRIDGE RIS JFACTURE	ON:	HE INSIDE	OF THE	DRA ENG	WINGS WITHO	IAN THOSE GIVEN IN THE M DUT WRITTEN APPROVAL F LUTIONS. ON EQUIPMENT WEIGHT RI

EMENTS. THE PRECAST E SUPPORTED OR RAISED BY IN THE MANUALS AND ROVAL FROM CONTECH®

G IN EXCESS OF THE DESIGN HE BRIDGE UNITS UNLESS **RED SOLUTIONS.** HE BRIDGE UNITS, THE OR THE USE OF HEAVY DURING BACKFILLING

ALL CROSS THE BARE

HAS REACHED A MINIMUM OF E, CONSTRUCTION EQUIPMENT ONS MAY CROSS THE BRIDGE. HAS REACHED A MINIMUM OF GE, CONSTRUCTION

HAS REACHED THE DESIGN CROWN OF THE PRECAST EQUIPMENT WITHIN THE MAY CROSS THE PRECAST

UNITS AND WINGWALLS SHALL IFORMING TO ASTM D1037 OR P-80, P-81 OR APPROVED , UNLESS SHOWN OTHERWISE "SHALL BE PROVIDED **DTTOM OF THE BRIDGE'S** THE WINGWALL, ALSO, A RDBOARD OR PLASTIC SHIMS SHALL BE ON SITE. BRIDGE UNITS SHALL BE ER'S PLAN DRAWINGS. SETTING THE ELEMENTS TO NT WIDTH BETWEEN NOT EXCEED $\frac{3}{4}$ ".

BILITY TO MAINTAIN THE SES OF INSTALLATION. DUE TO TS WILL TEND TO SPREAD IVE THAT ANY LATERAL NTS BE AVOIDED DURING AND LLY, HORIZONTAL CABLE TIES ARGER BRIDGE ELEMENTS TO DING. CABLE TIES/TIE RODS IDGE UNITS ARE GROUTED MMENDED THAT TEMPORARY NJUNCTION WITH THE CABLE , HOWEVER, DUE TO SITE IE RODS MUST BE REMOVED GE ELEMANTS, THE CH (MANUFACTURER) AND

RODS MUST BE REMOVED

LLOWED: ARCH UNIT'S DELIVERY TO RUCK AND REMOVING CABLE AN" SHALL BE THE AVERAGE OF

INIT ON THE FOUNDATION,

- 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

DRAINAGE

- TWO ADJOINING BRIDGE UNITS SHALL BE COVERED WITH A $\frac{7}{6}$ " x 1%" 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
- 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
- TO KEEP THE JOINT WRAP IN ITS PROPER LOCATION OVER THE
- ENGINEER.
- ARE EXPECTED TO GO BELOW 35° FOR A PERIOD OF 72 HOURS. FILL THE BRIDGE-FOUNDATION KEYWAY WITH CEMENT GROUT 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
- TEMPORARY HARDWOOD WEDGES SHALL BE REMOVED AND THEIR HOLES FILLED WITH GROUT.
- WEATHER.

MODIFIED IN THIS SECTION.

- ZONE A: CONSTRUCTED EMBANKMENT OR OVERFILL. CONCRETE BRIDGE INSTALLATION.
- FOOTING.

- CONTRACTOR)

AS THAT OF THE BRIDGE FILL. IT MUST BE PLACED IN

AASHTO T-99.

