FINAL PLAN

DOWNTOWN COLUMBIA

WARFIELD NEIGHBORHOOD

PARCELS C-1 THRU C-4

PARCELS D-1 THRU D-4

General Notes:

1. All construction shall be in accordance with the latest standards and specifications of Howard County plus MSHA standards and specifications if applicable,
2. The contractor shall notify the Department of Public Works/ Bureau of Engineering/ Construction Inspection Division at (410) 313-1880 at least five (5) working days prior to the start of work.
3. The contractor shall notify "Miss Utility" at 1-800-257-7777 at least 48 hours prior to any excavation work being done.
4. Street light placement and the type of fixtures and poles shall be in accordance with the Howard County Design Manual, Volume III (2006), Section 5.5.A. A minimum of 20' shall be maintained between any street light and any tree.
5. Traffic Control Devices: a) The R1-1 (STOP) signs and the street name signs (SNS) assemblies for this development must be installed before the base paving is completed. b) The traffic control device locations shown on the plans are approximate and must be field approved by Howard County traffic division (410-313-2430) prior to the installation of any traffic control devices. c) All traffic control devices and their locations shall be in accordance with the latest edition of the "Maryland Manual on Uniform Traffic Control Devices" (MdMUTCD). d) All sign posts used for traffic control signs installed in the County Right-of-Way shall be mounted on a 2" galvanized steel, perforated ("Quick Punch"), square tube post (14 gauge) inserted into a 2-1/2" galvanized steel, perforated square tube sleeve (12gauge) - 3' long. the anchor shall not extend more than two "Quick Punch" holes above ground level. A galvanized steel pole cap shall be mounted on top of each post.
7. 95% compaction in fill areas shall meet AASHTO T-180 requirements.
8. The property is zoned NT per the September 11, 2011 comprehensive Zoning Plan.
9. Applicable DPZ File Reference: FDP DC-Warfield-1, ECP 12-058, SDP 91-018, SDP 97-107, F 93-03 AND SP 13-032.

   This project is in conformance with the latest Howard County standards unless waivers have been approved.

   Traffic Impact Study and Traffic Signal Warrant Analysis submitted and approved as a part of the Final Development Plan (FDP-DC-Warfield-1) by Wells and Associates.
10. Boundary information is from boundary surveys by Gutschick, Little, and Weber, P.A., dated November, 2011.
11. Horizontal and vertical datum is based on Howard County Control Stations: 30GA, 36AA
12. Aerial topography by McKenzie Snyder, Inc. on March, 2001 and Gutschick, Little and Weber on August, 2011. Topography north and west of Broken Land Parkway provided by Howard County GIS.
13. There are no wetlands or streams within the limit of this project. No clearing, grading or construction is permitted within wetlands, streams or their required buffers, unless approved by the Department of Planning and Zoning as necessary disturbances or waivers have been approved.
14. Vehicular ingress & egress to Broken Land Parkway is restricted except as approved by Howard County Department of Planning and Zoning.
15. The Cemetery Inventory Maps do not show any cemeteries within the project limits.
16. The Scenic Roads Map does not indicate any scenic roads within or adjacent to the project limits. Existing utilities are based on available Howard County records.
17. This property is within the Metropolitan District.
18. Water and Sewer are Public per Contract No. 24-4758-D and are within the Little Patuxent Sewerage Area
19. There are no 100-year flood plains within the limits of this project.
20. This subdivision is exempt from the requirements of Section 16.1202(b)(1)(iv) of the Howard County Code for forest Conservation because the subject property is part of a Planned Unit development which has preliminary development plan approval and 50% or more of the land is recorded and substantially developed before December 31, 1992.
21. Where referred to herein, "Lot(s)" includes lot(s) as defined in Subdivision Sections 108(b)(30) and 108(b)(60).
22. On December 5, 2011, a letter was issued by the department of Planning and Zoning, Division of Research in accordance with the provisions of Section 16.1104 granting housing unit allocations for FDP-DC-Warfield-1 as follows:

Phase	Allocation Year	No. of Units
1	2013	340
2	2015	267 (277)
3	2016	160

A Site Development Plan for Phase 1 must be submitted by August 29, 2012. A Site Development Plan for Phase 2 must be submitted between July 1, 2012 and April 1, 2013 (October 1, 2013). A Site Development Plan for Phase 3 must be submitted between July 1, 2013 and April 1, 2014.

A waiver of Section 16.1106(e) was approved on January 14, 2013 modifying the number of units and the latest date that a Site Development Plan can be submitted for Phase 2. The change is indicated in parentheses behind the originally set number of units and date. See note 31 below.

23. This site is subject to the Final Development Plan recorded as plat numbers 22008 thru 22011, the Neighborhood Concept Plan (NCP) recorded as plat numbers 22012 thru 22105, the Neighborhood Specific Design Guidelines (NSDG) recorded as Liber 14166 Folio 1 thru 250 and the Neighborhood Specific Implementation Plan (NSIP) recorded as Liber 14166 Folio 251 thru 287.
24. There are no known existing dedicated bicycle lanes or sharron bicycle and vehicular travel lanes.
25. For information on the potential transit route circulation, see the Neighborhood Specific Implementation Plan pages 10 and 11.
26. For information on the locations of primary and secondary pedestrian routes and the bicycle circulation, see Chapter 3 of the Warfield Neighborhood Specific Design Guidelines. For information on the Street Framework changes, see Chapter 3 of the Warfield Neighborhood Specific Design Guidelines.
27. Tabulation of Net New Downtown Community Commons:

Area of this Subdivision:	443,531 sq. ft.
Required 5% net new Downtown Community Commons:	22,177 sq. ft.
Provided area of Primary Amenity Space:	34,500 sq.ft
Required area of Secondary Amenity Space to be provided on on a Site Development Plan:	0 sq. ft.
Surplus Downtown Community Commons provided by this Subdivision:	12,223 sq. ft.

   Note: Additional surplus Downtown Community Commons area, if any, will be determined at Site Development Plan stage.
28. Street tree and landscape plans have been prepared by a Registered landscape Architect and are certified to conform with the Warfield Neighborhood Design Guidelines recorded in the Land Records of Howard County in Liber 14166, Folio 1 thru 250
29. This site is subject to the existing Development Area Declaration and Agreement dated December 1, 1970 recorded in Liber 552, Folio 380.
30. Landscape surety in the amount of $600.00 for street trees not within micro bio-retention facilities will be provided with the Developer's Agreement.
31. △ The developer is 100% responsible for the design and installation of the future traffic signals at intersections of Broken Land Parkway and Gramercy Place, Broken Land Parkway and Twin Rivers Road and Broken Land Parkway and Columbia Mall Circle. A redline to these plans will be required to add the signal plans when a signal is warranted.
32. On January 14, 2013, NP 13-045 granted a waiver of Section 16.1106(e) which states that Adequate Public Facilities milestones for Downtown Columbia occur nine months after the starting date. Milestones are assigned for Downtown Columbia at the time the Final Development Plan is initially submitted for review. Subject to the following conditions in the approval letter:
    1. The Site Development Plan for Parcel C-2 must be submitted for review on or before October 1, 2013;
    2. No more than 277 residential units may be requested for Parcel C-2;
    3. Development proposals for Parcels C-2 (Allocation Year 2015) and Parcel C-1 (Allocation Year 2016) may be submitted as one integrated Site Development Plan to be submitted on or before October 1, 2013 and proposing no more than 437 residential units;
    4. The Road Construction Drawings and the Final Plat, F 13-015, and the Site Development Plan (SDP 13-007) originals shall include the updated allocations chart with a footnote referencing the amendments granted as a part of this waiver petition (NP 13-045).
    5. A general note shall be included on the Road Construction Drawings and Final Plat (F 13-015) and the Site Development Plan (SDP 13-007) that references this waiver petition and includes the purpose of the waiver, date of the approval, and lists the conditions of approval.

HOWARD COUNTY CONTROL STATIONS

30GA
NORTHING: 566,053.5479
EASTING: 1,352,177.5307
ELEVATION: 334.878
(LATEST ADJ. NOV. 2008)

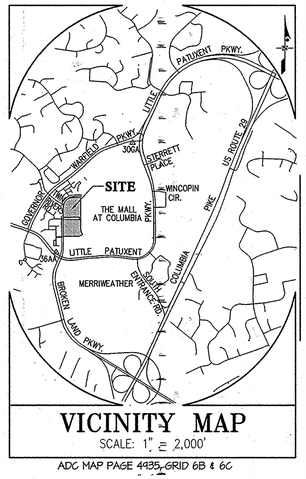
36AA
NORTHING: 562,804.8537
EASTING: 1,349,906.1701
ELEVATION: 354.151
(LATEST ADJ. NOV. 2008)

STORMWATER MANAGEMENT PRACTICE CHART:

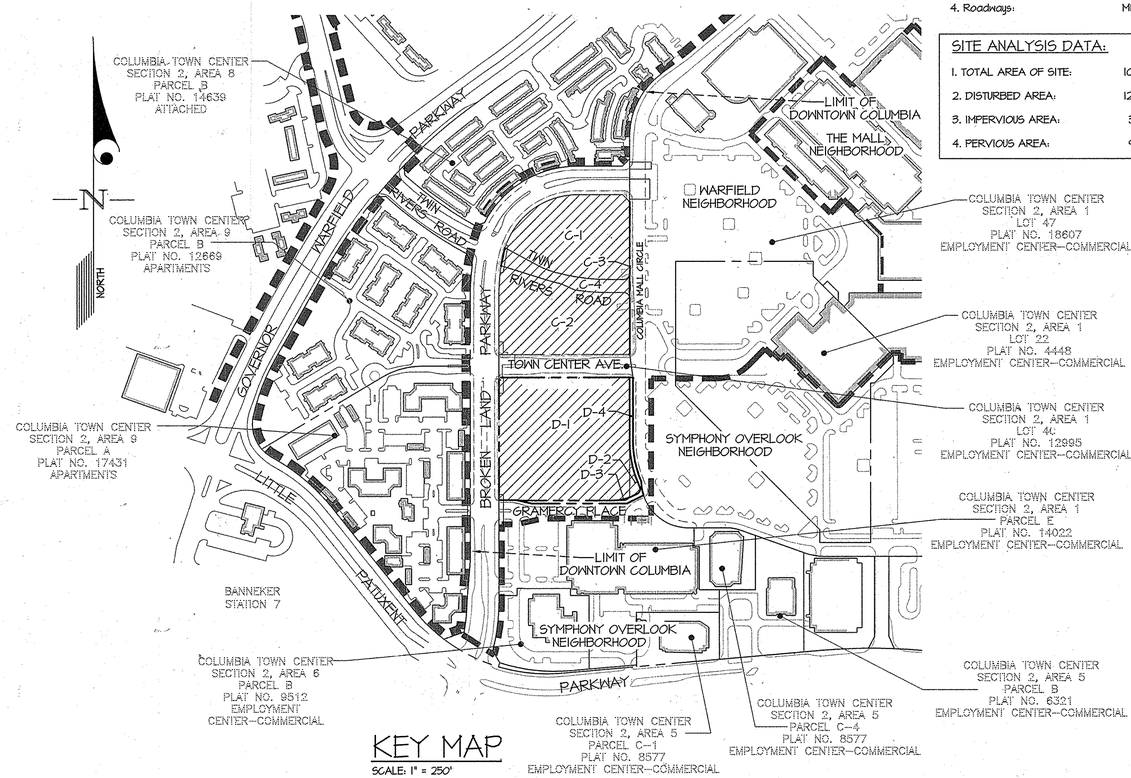
SITE	PRACTICES TO BE UTILIZED
1. Parcel C-1:	Micro bio-retention (M-6) and Rainwater Harvesting (M-1)
2. Parcel C-2:	Micro bio-retention (M-6) and Rainwater Harvesting (M-1)
3. Parcels D-1 & D-3:	Micro bio-retention (M-6) and Rainwater Harvesting (M-1)
4. Roadways:	Micro bio-retention (M-6)

SITE ANALYSIS DATA:

1. TOTAL AREA OF SITE:	10.23 ACRES
2. DISTURBED AREA:	12.05 ACRES
3. IMPERVIOUS AREA:	3.03 ACRES
4. PERVIOUS AREA:	9.02 ACRES



VICINITY MAP
SCALE: 1" = 2,000'
ADC MAP PAGE 4435, GRID 6B & 6C



KEY MAP
SCALE: 1" = 250'

LEGEND

	EXIST. CURB & GUTTER/PAVEMENT
	STANDARD CURB & GUTTER
	PROPOSED REVERSE
EX. 8" S.	EXISTING SEWER MAIN
EX. 8" W.	EXISTING WATER MAIN
EX. 18"SD	EXISTING STORM DRAIN
	PROPOSED STORM DRAIN
	PROPOSED SIDEWALK
4	NUMBER OF PARKING SPACES
LOD	PROP. LIMIT OF DISTURBANCE
MH 20	PROPOSED STORM DRAIN STRUCTURE NUMBER
MH 20	EXISTING STORM DRAIN STRUCTURE NUMBER
400	EXISTING CONTOUR
	PROP. CONTOUR
	STREET LIGHT LOCATION
	EXISTING PAVING
M6-20	PROPOSED MICRO BIO-RETENTION FACILITY

SHEET INDEX

1. COVER SHEET
2. TOWN CENTER AVENUE AND GRAMERCY PLACE PLAN & PROFILE
3. COLUMBIA MALL CIRCLE PLAN & PROFILE
4. TWIN RIVERS ROAD PLAN & PROFILE
5. PAVING DETAILS
6. PAVING REHABILITATION PLAN
7. GRADING PLAN
8. SEDIMENT CONTROL PLAN
9. SEDIMENT TRAP ENLARGEMENT PLAN
10. SEDIMENT CONTROL NOTES AND DETAILS
11. UNDERDRAIN MANIFOLD PLAN, PIPE SUMMARY AND ESD DETAILS
12. UNDERDRAIN MANIFOLD PLAN, PIPE SUMMARY, ESD NOTES & DETAILS
13. STORM DRAIN PROFILES & SCHEDULES
14. STORM DRAIN PROFILES
15. STORM DRAIN DRAINAGE AREA MAP
16. STORMWATER MANAGEMENT DRAINAGE AREA MAP
17. STREET TREE PLAN
18. LANDSCAPE PLANT LIST, DETAILS & SCHEDULES
19. SIGNING, PAVEMENT MARKING AND LIGHTING PLAN
20. PAVEMENT MARKING AND SIGNING DETAILS
21. TRAFFIC SIGNAL MODIFICATION PLAN.
22. TRAFFIC SIGNAL MODIFICATION PLAN.

OWNERS:

PARCELS C-1 THRU C-4 (OLD PARCEL C)
PARCEL C BUSINESS TRUST
c/o THE HOWARD HUGHES CORPORATION
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MD 21044

PARCELS D-1 THRU D-4 (OLD PARCEL D)
PARCEL D PROPERTY LLC
c/o KETTLER
1751 PINNACLE DRIVE
SUITE 700
MCLEAN, VA 22101

LOT 40
MALL ENTRANCES BUSINESS TRUST
PO BOX 617905
CHICAGO, IL 60661

LOT 47
MALL IN COLUMBIA BUSINESS TRUST
PO BOX 617905
CHICAGO, IL 60661

PARCEL E
CMI CORPORATE PARKING BUSINESS TRUST
PO BOX 833
COLUMBIA, MD 21044

PURPOSE NOTE:

PARCEL C-3 IS FOR THE WIDENING ADJUSTMENT OF COLUMBIA MALL CIRCLE. PARCEL C-4 IS FOR THE EXTENSION OF TWIN RIVERS ROAD.

PARCEL D-4 IS FOR WIDENING ADJUSTMENTS OF COLUMBIA MALL CIRCLE AND GRAMERCY PLACE AND COLUMBIA MALL CIRCLE INTERIM ALIGNMENT. PARCEL D-2 IS FOR THE FUTURE WIDENING OF COLUMBIA MALL CIRCLE TO THE ULTIMATE ALIGNMENT. PARCEL D-3 IS FOR GRAMERCY PLACE WIDENING ADJUSTMENT TO THE ULTIMATE ALIGNMENT AND SHALL BECOME PART OF THE DEVELOPMENT PARCEL (D-1).

NOTE:

CONTRACTOR SHALL TEST PIT ALL CONNECTIONS TO EXISTING UTILITIES PRIOR TO CONSTRUCTION TO VERIFY THE CONDITIONS. IF THEY ARE NOT AS INDICATED ON THE PLANS, NOTIFY THE ENGINEER IMMEDIATELY.

NOTE:

ALL IMPROVEMENTS FROM THE BACK OF THE CURB INTO THE DEVELOPABLE PARCEL ARE TO BE COORDINATED AND CONSTRUCTED WITHTHE APPLICABLE SITE DEVELOPMENT PLANS.

REVISED

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

PRIVATE ROADS, SD AND STORMWATER

Chief, Bureau of Highways — Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 12-21-15

Chief, Development Engineering Division — Date 3-25-15

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

DATE	REVISION	BY	APP'R.
2-18-15	ADD GENERAL NOTE 31 △	BTS	

L:\CADD\DRAWINGS\11053\PLANS BY GLW\FINALS\11053-F-01.dwg | DES. WSJ | DRN. WSJ | CHK. MJT

PREPARED FOR:
THE HOWARD HUGHES CORPORATION
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MARYLAND 21044
ATTN: BOB JENKINS
410-964-5443

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 14931
EXPIRATION DATE: MAY 21, 2016

STATE OF MARYLAND · MICHAEL JAMES WEBER · No. 14931 · REGISTERED PROFESSIONAL ENGINEER

COVER SHEET

DOWNTOWN COLUMBIA
WARFIELD NEIGHBORHOOD
PARCELS C-1 THRU C-4 & PARCELS D-1 THRU D-4
COLUMBIA TOWN CENTER
LOTS 40 & 47 SECTION 2 AREA 1 & PARCEL E, SECTION 2 AREA 8

ELECTION DISTRICT No. 5 — FDP-DC-WARFIELD-1 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	NT	11053
DATE	TAX MAP - GRID	SHEET
FEB., 2015	36 - 01	1 OF 22

F 13-015

©GLW 2012

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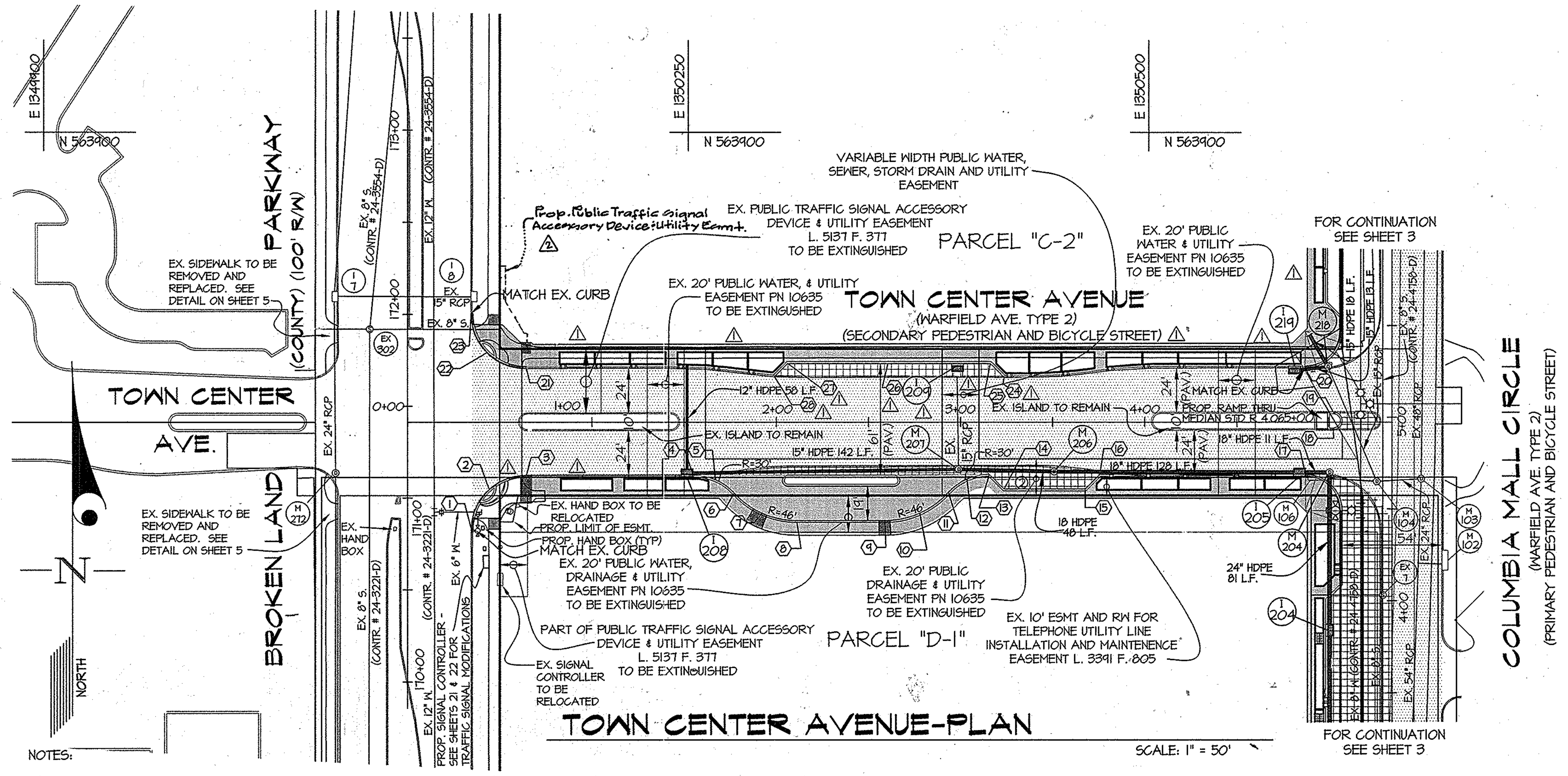
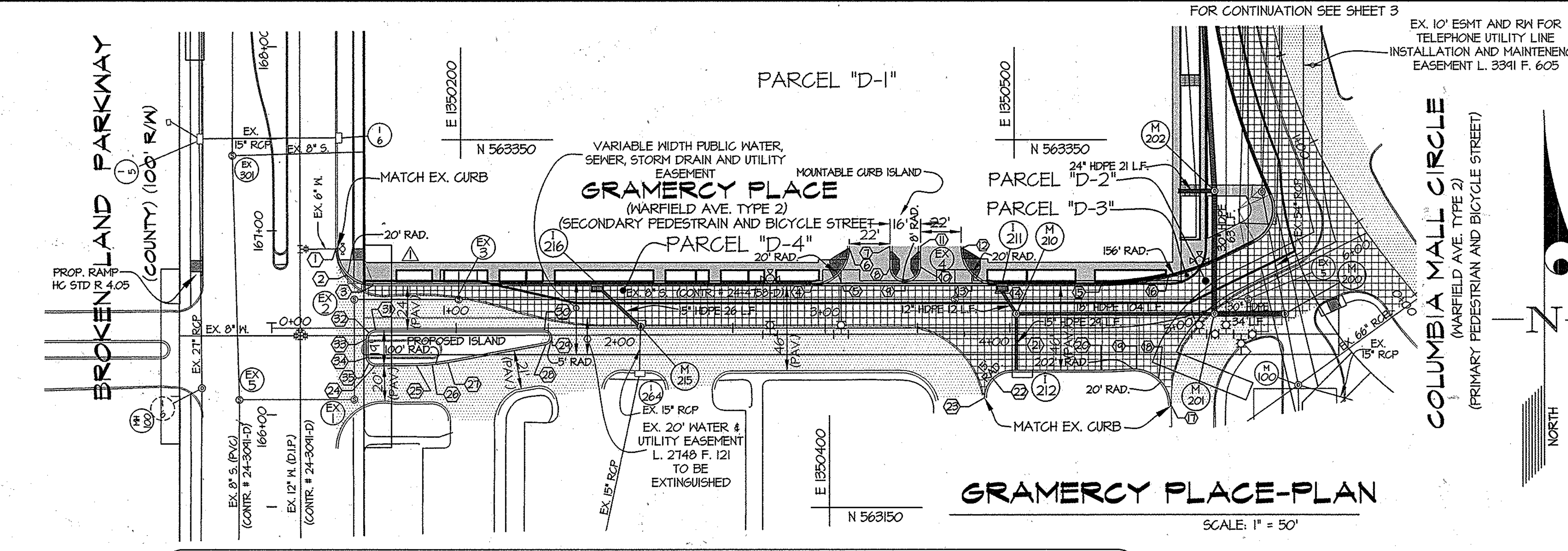


TOWN CENTER AVENUE-PLAN

SCALE: 1" = 50'



GRAMERCY PLACE-PLAN

SCALE: 1" = 50'

CENTERLINE CURVE DATA

STREET NAME	P.C. STA.	P.C.C. STA.	P.T. STA.	RADIUS	ARC	TANGENT	CHORD	BEARING	DELTA
GRAMERCY PLACE	4+49.41	---	5+33.73	179.00'	84.32'	42.96'	83.54'	N. 76° 30' 17" E.	26° 54' 25"

PAVING LEGEND

- P-5 PRIVATE PAVING
- CONCRETE PAVING
- PAVING OVERLAY

TOWN CENTER AVENUE
CURB FLOW LINE ELEVATION TABLE

PT. NO	STATION	OFFSET	ELEV.
1	0+34.53	58.92' R.	M.E.G.
2	0+44.28	36.53' R.	M.E.G.
3	0+64.48	28.89' R.	M.E.G.
4	1+54.83	28.75' R.	392.63
5	1+67.01	31.32' R.	392.29
6	1+77.10	38.60' R.	392.18
7	1+92.44	49.69' R.	391.75
8	2+10.96	53.61' R.	391.44
9	2+59.11	53.61' R.	390.30
10	2+77.84	49.63' R.	389.39
11	2+93.32	38.36' R.	388.52
12	3+03.42	31.01' R.	388.14
13	3+15.63	28.41' R.	387.77
14	3+23.66	36.41' R.	387.82
15	3+67.66	36.41' R.	386.55
16	3+75.66	28.41' R.	386.10
17	4+87.27	28.38' R.	M.E.G.
18	5+02.35	4.21' R.	M.E.G.
19	5+02.35	5.65' L.	M.E.G.
20	4+87.01	29.57' L.	M.E.G.
21	0+64.52	29.57' L.	M.E.G.
22	0+43.30	38.04' L.	M.E.G.
23	0+34.50	59.24' L.	M.E.G.
24 △	3+23.72	24.45' L.	M.E.G.
25 △	3+16.17	32.00' L.	387.53
26 △	2+61.17	32.00' L.	389.22
27 △	2+06.17	32.00' L.	390.91
28 △	1+98.99	24.82' L.	M.E.G.

GRAMERCY PLACE
CURB FLOW LINE ELEVATION TABLE

PT. NO	STATION	OFFSET	ELEV.
1	0+34.83	42.89' L.	M.E.G.
2	0+40.69	28.85' L.	377.02
3	0+54.83	23.00' L.	376.53
4	2+93.14	23.00' L.	378.44
5	3+07.28	28.86' L.	379.86
6	3+13.14	43.00' L.	381.25
7	3+35.14	44.29' L.	381.53
8	3+35.14	33.00' L.	381.17
9	3+43.37	25.00' L.	381.33
10	3+51.59	33.00' L.	381.76
11	3+51.59	44.29' L.	382.04
12	3+73.59	43.00' L.	382.50
13	3+79.45	28.86' L.	382.52
14	3+93.59	23.00' L.	383.00
15	4+49.41	23.00' L.	383.93
16	4+91.57	23.00' L.	384.60
17	4+79.97	45.56' R.	M.E.G.

M.E.G.=MATCH EX. GRADE

GRAMERCY PLACE
CURB FLOW LINE ELEVATION TABLE

PT. NO	STATION	OFFSET	ELEV.
18	4+76.23	29.95' R.	
19	4+66.55	23.00' R.	384.20
20	4+49.41	23.00' R.	383.92
21	4+01.23	23.00' R.	383.13
22	3+90.62	27.39' R.	383.03
23	3+86.23	38.00' R.	M.E.G.
24	0+54.30	28.48' R.	375.30
25	0+78.41	20.26' R.	375.58
26	0+86.98	19.81' R.	375.56
27	0+95.47	18.63' R.	375.52
28	1+43.16	9.92' R.	374.65
29	1+47.24	4.55' R.	374.68
30	1+42.26	0.00'	374.92
31	0+54.25	0.00'	375.92
32	0+50.72	1.46'	375.82
33	0+49.25	5.00'	375.66
34	0+49.25	15.48' R.	375.33
35	0+50.73	19.03' R.	375.26

NOTES:

1. SEE SHEET 4 FOR TYPICAL ROAD SECTIONS.

2. SEE SHEET 19 FOR STREET LIGHT LOCATIONS.

3. SEE SHEET 17 FOR STREET TREE LOCATIONS

4. SEE SHEET 11 & 12 FOR UNDERDRAIN MANIFOLD NOTES & DETAILS.

5. SEE SHEET 13 & 14 FOR STORM DRAIN PROFILES.

6. ALL SIDEWALK RAMP SURFACE SHALL CONFORM TO ADAAG 4.29 FOR DETECTABLE WARNINGS. ADAAG 4.29 STATES :"DETECTABLE WARNINGS SHALL CONSIST OF RAISED TRUNCATED DOMES WITH A DIAMETER OF NOMINAL 0.9", A HEIGHT OF NOMINAL 0.2" AND A CENTER TO CENTER SPACING OF NOMINAL 2.35" AND CONTRAST VISUALLY WITH ADJOINING SURFACES, EITHER LIGHT ON DARK OR DARK ON LIGHT." CONTRACTOR SHALL COORDINATE WITH OWNER & ARCHITECT ON COLOR SELECTION FOR ALL CURB RAMPS. SEE MD-655.40

7. TOWN CENTER AVE. AND GRAMERCY PL ARE BOTH SECONDARY PEDESTRIAN AND BICYCLE STREETS.

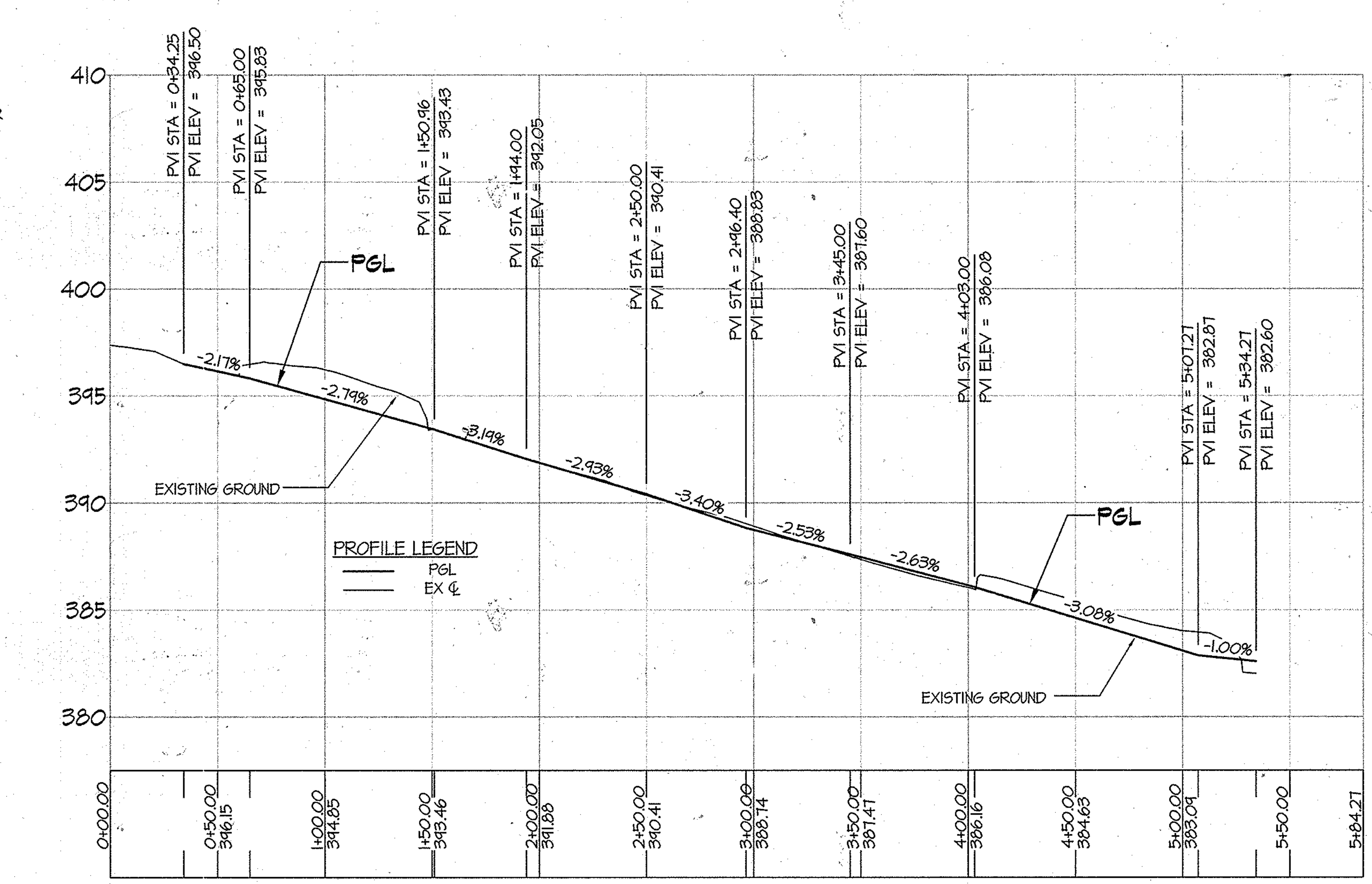
8. CURB RAMPS AT THE DROP-OFF ALONG TOWN CENTER AVENUE ARE HOWARD COUNTY STANDARD R 4.06.

9. FOR SIGNING AND PAVEMENT MARKINGS, INCLUDING CROSSWALK LOCATIONS AND DETAILS, SEE SHEETS 19 AND 20.

10. SIDEWALKS ARE PROVIDED ON SDP 13-007 UNLESS THERE ARE SECTIONS TO BE CONSTRUCTED WITH THESE ROAD CONSTRUCTION DRAWINGS.

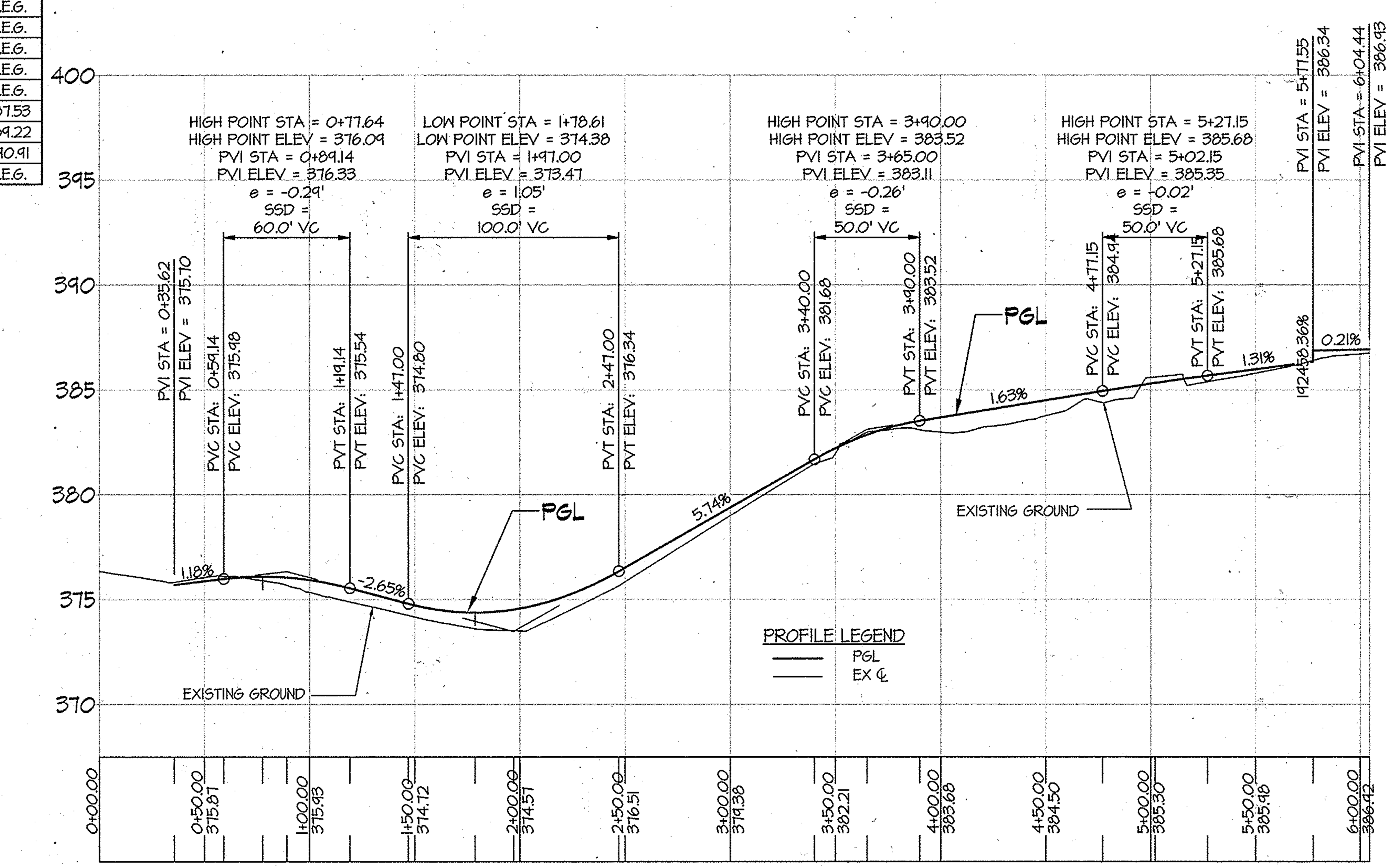
11. PROVIDE ONE FOUR-INCH PVC CONDUIT FOR FUTURE STREET LIGHT USE ACROSS TOWN CENTER AVENUE AND GRAMERCY PLACE AT BROKEN LAND PARKWAY. CONDUIT SHALL BE PLACED 24-INCHES BELOW PROPOSED GRADE AND 17-FEET BACK OF FLOWLINE BROKEN LAND PARKWAY.

12. INTERSECTION OF BROKEN LAND PARKWAY AND GRAMERCY PLACE SHALL BE PROVIDED WITH CONDUITS FOR FUTURE INTERSECTION SIGNALIZATION. COORDINATE NUMBER AND LOCATIONS WITH WELLS AND ASSOCIATES. SEE ALSO HOWARD COUNTY STANDARD T-1.01



TOWN CENTER AVENUE-PROFILE

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



GRAMERCY PLACE-PROFILE

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

SCALE: 1" = 50

0' 25 50 100 200

OWNERS:

PARCELS C-1 THRU C-4 (OLD PARCEL C)
PARCEL C BUSINESS TRUST
c/o THE HOWARD HUGHES CORPORATION
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MD 21044

PARCELS D-1 THRU D-4 (OLD PARCEL D)
PARCEL D PROPERTY LLC
c/o KETTLER
1751 PINNACLE DRIVE
SUITE 700
MCLEAN, VA 22101

LOT 40
MALL ENTRANCES BUSINESS TRUST
PO BOX 617905
CHICAGO, IL 60661

LOT 47
MALL IN COLUMBIA BUSINESS TRUST
PO BOX 617905
CHICAGO, IL 60661

PARCEL E
CMI CORPORATE PARKING BUSINESS TRUST
PO BOX 833
COLUMBIA, MD 21044

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

PRIVATE ROADS, SD AND STORMWATER

Chief, Bureau of Highways — Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 12-31-15

Chief, Development Engineering Division — Date 3-25-15

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

L:\CADD\DRAWINGS\11053\PLANS BY GLW\FINALS\11053-F-0204.dwg | DES. MJT | DRN. WsJ | CHK.

DATE	REVISION	BY	APP'R.
3.20.15	Revise Traffic Signal Easement NE Quadrant △2	9+	
2/18/15	REVISE PLANTER LOCATIONS, ADD ON-STREET PARKING, ADD I-209 △1	BTS	

PREPARED FOR:
THE HOWARD HUGHES CORPORATION
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MARYLAND 21044
ATTN: BOB JENKINS
410-964-5443

PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 14931, EXPIRATION DATE: MAY 21, 2016

STATE OF MARYLAND — MICHAEL JAMES TROPPEN — 14931 — REGISTERED PROFESSIONAL ENGINEER

REVISED

TOWN CENTER AVENUE & GRAMERCY PLACE PLAN AND PROFILE

DOWNTOWN COLUMBIA
WARFIELD NEIGHBORHOOD
PARCELS C-1 THRU C-4 & PARCELS D-1 THRU D-4
COLUMBIA TOWN CENTER
LOTS 40 & 47 SECTION 2 AREA 1 & PARCEL E, SECTION 2 AREA 8
FDP-DC-WARFIELD-1

ELECTION DISTRICT No. 5 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	NT	11053
DATE	TAX MAP – GRID	SHEET
FEB., 2015	36 – 01	2 OF 22

F 13-015

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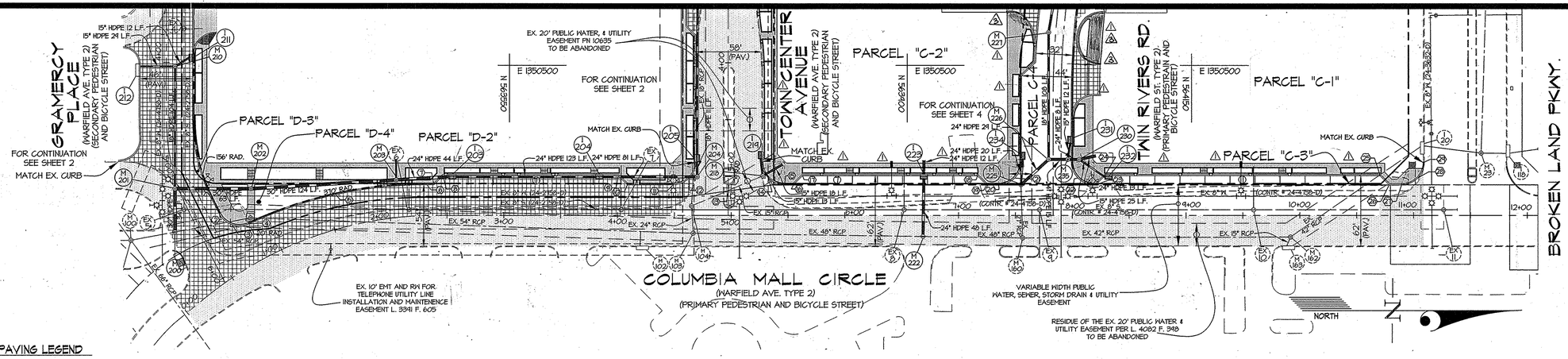
L:\CADD\DRAWINGS\11053\PLANS BY GLW\FINALS\11053-F-0204.dwg, PLOTTED: 2/19/2015 8:50 AM, LAST SAVED: 2/19/2015 5:59 AM, PLOTTED BY: Mike Troppen

GRAMERCY PLACE CURB FLOW LINE ELEVATION TABLE			
PT. NO	STATION	OFFSET	ELEV.
1	5+38.73	23.00' L.	385.18
2	5+47.88	23.00' L.	385.38
3	5+61.77	28.61' L.	385.45

COLUMBIA MALL CIRCLE CURB FLOW LINE ELEVATION TABLE			
PT. NO	STATION	OFFSET	ELEV.
4	0+85.31	33.18' L.	386.19
5	1+56.72	29.70' L.	384.70
6	2+32.80	27.12' L.	383.64
7	2+38.84	27.02' L.	383.54
8	2+46.65	35.00' L.	383.20
9	4+00.65	35.00' L.	381.22
10	4+08.65	27.00' L.	381.36
11	4+48.97	27.00' L.	381.84
12	4+63.12	32.86' L.	382.27
13	4+98.07	27.00' L.	382.73
14	5+32.74	32.45' L.	383.32
15	5+46.97	27.00' L.	383.57
16	5+54.72	27.00' L.	383.64
17	5+62.72	35.00' L.	383.84
18	7+16.72	35.00' L.	386.25
19	7+24.72	27.00' L.	386.63
20	7+35.22	27.00' L.	386.87
21	7+49.36	32.86' L.	387.15
22	8+05.08	32.86' L.	387.74
23	8+20.67	27.00' L.	388.25
24	8+28.67	35.00' L.	388.77
25	10+70.67	35.00' L.	392.05
26	10+78.67	27.00' L.	392.08
27	10+89.41	27.00' L.	392.25
28	11+03.54	32.90' L.	392.64
29	11+09.39	47.11' L.	M.E.G.

M.E.G.=MATCH EX. GRADE



COLUMBIA MALL CIRCLE-PLAN

SCALE: 1" = 50'

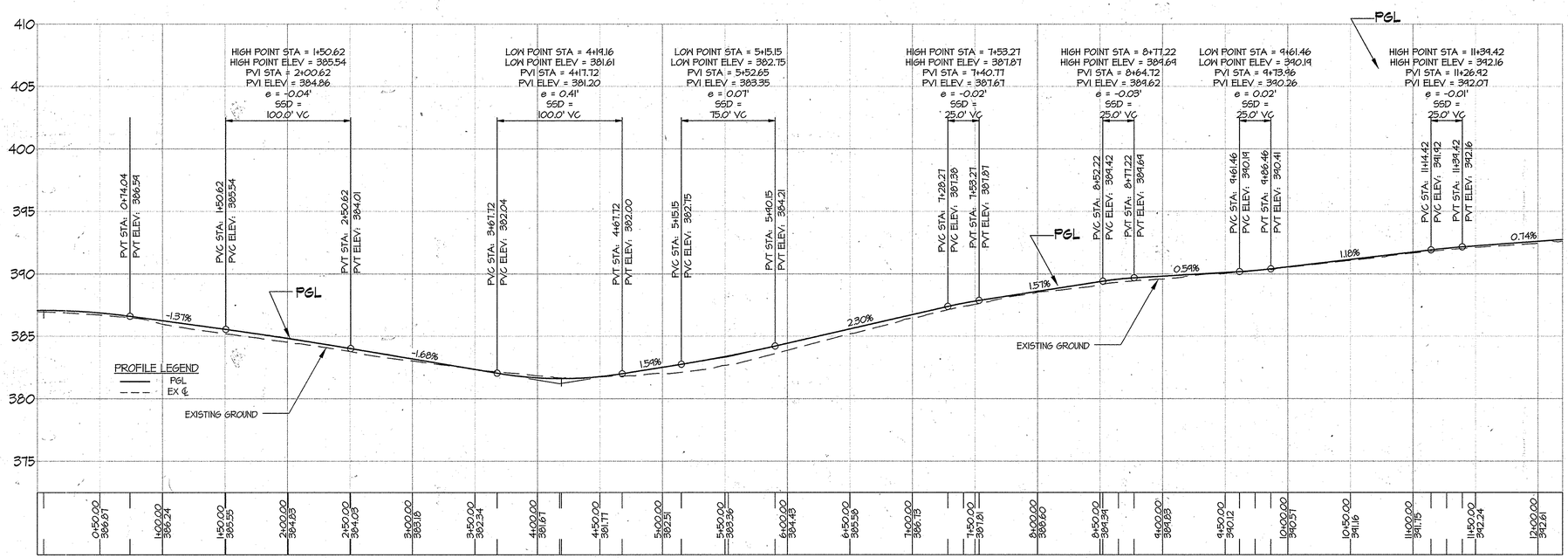
PAVING LEGEND

- P-5 PRIVATE PAVING
- CONCRETE PAVING
- PAVING OVERLAY

CENTERLINE CURVE DATA									
STREET NAME	P.C. STA.	P.C.C. STA.	P.T. STA.	RADIUS	ARC	TANGENT	CHORD	BEARING	DELTA
COLUMBIA MALL CIRCLE	0+19.74	---	2+41.10	522.00'	221.31'	115.23'	216.48'	N. 19° 41' 23" W.	24° 22' 46"

NOTES:

1. SEE SHEET 4 FOR TYPICAL ROAD SECTIONS.
2. SEE SHEET 14 FOR STREET LIGHT LOCATIONS.
3. SEE SHEET 17 FOR STREET TREE LOCATIONS
4. SEE SHEETS 11 & 12 FOR UNDERDRAIN MANIFOLD NOTES & DETAILS.
5. SEE SHEET 13 & 14 FOR STORM DRAIN PROFILES.
6. ALL SIDEWALK RAMP SURFACE SHALL CONFORM TO ADAAG 4.29 FOR DETECTABLE WARNINGS. ADAAG 4.29 STATES :"DETECTABLE WARNINGS SHALL CONSIST OF RAISED TRUNCATED DOMES WITH A DIAMETER OF NOMINAL 0.9", A HEIGHT OF NOMINAL 0.2" AND A CENTER TO CENTER SPACING OF NOMINAL 2.35" AND CONTRAST VISUALLY WITH ADJOINING SURFACES, EITHER LIGHT ON DARK OR DARK ON LIGHT." CONTRACTOR SHALL COORDINATE WITH OWNER & ARCHITECT ON COLOR SELECTION FOR ALL CURB RAMPS. SEE MD-655.40
7. COLUMBIA MALL CIRCLE IS A PRIMARY PEDESTRIAN AND BICYCLE STREET.
8. FOR SIGNING AND PAVEMENT MARKINGS, INCLUDING SIDEWALK LOCATIONS AND DETAILS, SEE SHEETS 19 AND 20.
9. SIDEWALKS ARE PROVIDED ON SDP 13-007 UNLESS THERE ARE SECTIONS TO BE CONSTRUCTED ON THESE ROAD CONSTRUCTION DRAWINGS.
10. INTERSECTION OF BROKEN LAND PARKWAY AND COLUMBIA MALL CIRCLE SHALL BE PROVIDED WITH CONDUITS FOR FUTURE INTERSECTION SIGNALIZATION. COORDINATE NUMBER AND LOCATIONS WITH WELLS AND ASSOCIATES. SEE ALSO HOWARD COUNTY STANDARD T-1.01



COLUMBIA MALL CIRCLE-PROFILE

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

SCALE: 1" = 50

0' 25 50 100 200

OWNERS:

PARCELS C-1 THRU C-4 (OLD PARCEL C)
PARCEL C BUSINESS TRUST
c/o THE HOWARD HUGHES CORPORATION
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MD 21044

PARCELS D-1 THRU D-4 (OLD PARCEL D)
PARCEL D PROPERTY LLC
c/o KETTLER
1751 PINNACLE DRIVE
SUITE 700
MCLEAN, VA 22101

LOT 40
MALL ENTRANCES BUSINESS TRUST
PO BOX 617905
CHICAGO, IL 60661

LOT 47
MALL IN COLUMBIA BUSINESS TRUST
PO BOX 617905
CHICAGO, IL 60661

PARCEL E
CMI CORPORATE PARKING BUSINESS TRUST
PO BOX 833
COLUMBIA, MD 21044

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
PRIVATE ROADS, SD AND STORMWATER
Chief, Bureau of Highways — Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Chief, Division of Land Development — Date 12-21-15
Chief, Development Engineering Division — Date 3-25-15

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

L:\CADD\DRAWINGS\11053\PLANS BY GLW\FINALS\11053-F-03.dwg | DES. MJT | DRN. WSJ | CHK. MJT

DATE	REVISION	BY	APP'R.
12-16-15	Revise Loading and Parking Entrances	gt	
2/18/15	REVISE PLANTER LOCATIONS	BTS	

PREPARED FOR:
THE HOWARD HUGHES CORPORATION
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MARYLAND 21044
ATTN: BOB JENKINS
410-964-5443

PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 14931
EXPIRATION DATE: MAY 21, 2016

REVISED

COLUMBIA MALL CIRCLE & PROFILE
DOWNTOWN COLUMBIA
WARFIELD NEIGHBORHOOD
PARCELS C-1 THRU C-4 & PARCELS D-1 THRU D-4
COLUMBIA TOWN CENTER
LOTS 40 & 47 SECTION 2 AREA 1 & PARCEL E, SECTION 2 AREA 8
ELECTION DISTRICT No. 5 — FDP-DC-WARFIELD-1 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
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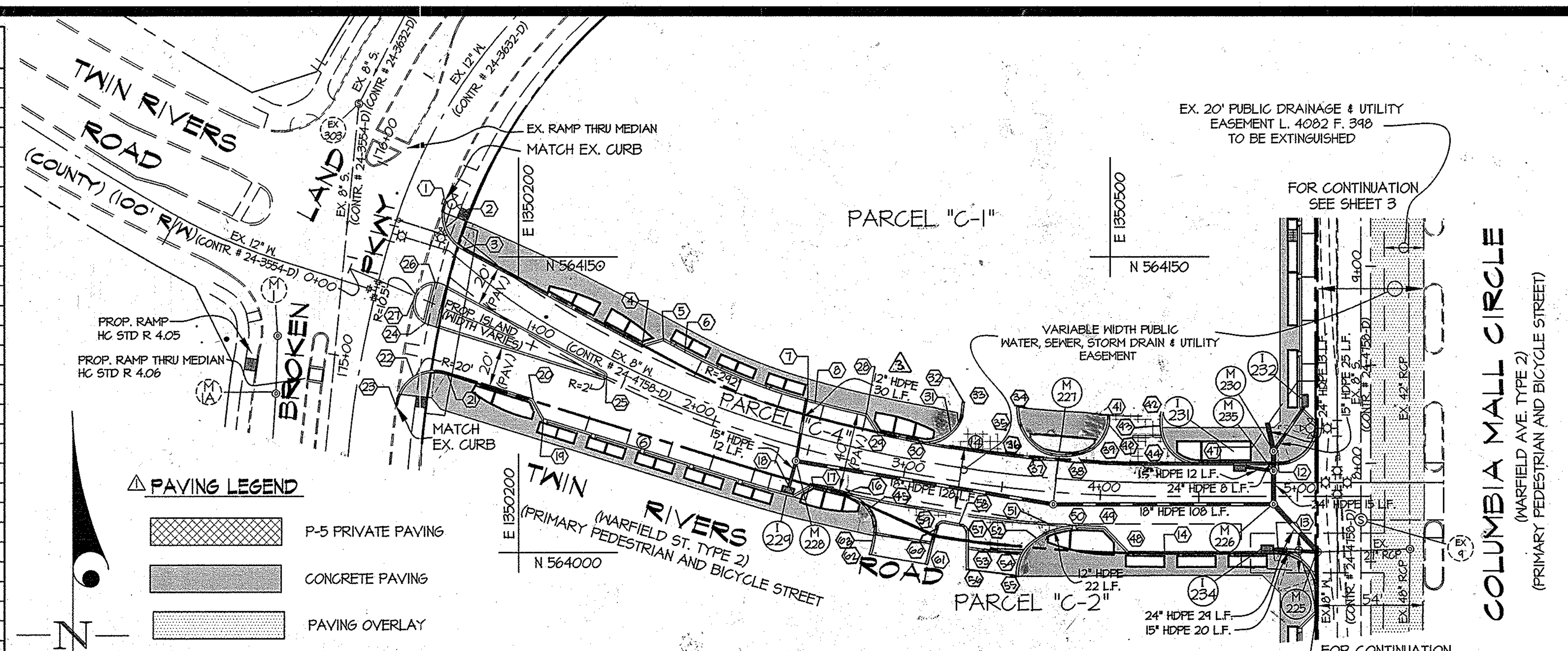
TWIN RIVERS ROAD
CURB FLOW LINE ELEVATION TABLE

PT. NO	STATION	OFFSET	ELEV.
1	0+30.90	50.19' L.	M.E.G.
2	0+36.26	37.06' L.	409.53
3	0+48.98	30.79' L.	408.93
4	1+51.75	20.87' L.	405.47
5	1+60.48	28.06' L.	404.79
6	1+72.66	26.89' L.	404.13
7	2+43.09	24.00' L.	399.36
8	2+47.09	24.00' L.	399.07
12	4+90.23	16.00' L.	387.78
13	4+90.23	28.00' R.	387.42
14	4+32.54	28.00' R.	389.15
△ 3 16	2+73.15	16.00' R.	397.43
17	2+56.40	16.00' R.	398.65
18	2+48.53	24.00' R.	398.97
19	1+19.72	32.00' R.	406.57
20	1+10.99	24.80' R.	407.10
21	0+65.44	29.20' R.	408.36
22	0+50.74	37.98' R.	408.86
23	0+48.23	54.93' R.	M.E.G.
24	0+45.70	10.79' R.	409.76
25	1+40.96	0.00'	406.90
26	0+42.38	10.22' L.	409.86
27	0+35.89	1.94' L.	M.E.G.
28	2+74.60	24.00' L.	397.16
29	2+82.74	16.00' L.	396.79
30	3+04.18	16.00' L.	395.35
3 31	3+20.30	22.91' L.	394.83
3 32	3+25.35	39.34' L.	395.10
3 33	3+25.14	40.60' L.	395.10
△ 3 34	3+53.88	40.91' L.	393.71
△ 3 35	3+54.46	36.07' L	393.64
△ 3 36	3+61.45	23.15' L.	392.72
△ 3 37	3+75.48	18.00' L.	391.58
△ 3 38	3+81.45	18.00' L.	391.32
△ 3 39	3+96.40	24.01' L.	391.06
△ 3 40	4+02.60	38.55' L.	391.30
△ 3 41	4+02.56	41.61' L	391.35
△ 3 42	4+30.35	42.03' L	390.00
△ 3 43	4+30.37	36.00' L.	389.91
△ 3 44	4+36.34	21.86' L.	389.74
△ 3 45	2+87.05	22.09' R	396.61
△ 3 46	— —	— —	— —
△ 47	4+50.49	16.00' L.	388.98
△ 48	4+14.93	28.00' R.	389.67
△ 3 49	4+03.10	16.00' R.	390.47
△ 3 50	3+92.78	16.00' R.	390.83
△ 3 51	3+80.26	17.99' R.	391.19
△ 3 52	3+68.97	23.75' R.	391.55
△ 3 53	3+63.02	30.84' R.	391.69
△ 3 54	3+60.93	39.98' R.	391.83
△ 3 55	3+60.94	44.25' R.	392.00
△ 3 56	3+38.20	44.24' R.	393.50
△ 3 57	3+35.58	24.28' R.	393.50
△ 3 58	3+31.76	20.84' R.	393.80
△ 3 59	3+23.41	20.84' R.	394.28
△ 3 60	3+19.59	24.27' R.	394.54
△ 3 61	2+169.0	44.23' R.	394.87
△ 3 62	2+92.98	44.21' R.	396.50
△ 3 63	2+92.26	36.52' R.	396.46

NOTES: M.E.G.=MATCH EX. GRADE

1. SEE SHEET 19 FOR STREET LIGHT LOCATIONS.
2. SEE SHEET 17 FOR STREET TREE LOCATIONS.
3. SEE SHEET 11 & 12 FOR UNDERDRAIN MANIFOLD NOTES & DETAILS.
4. SEE SHEET 13 & 14 FOR STORM DRAIN PROFILES.
5. ALL SIDEWALK RAMP SURFACE SHALL CONFORM TO ADAAG 4.29 FOR DETECTABLE WARNINGS. ADAAG 4.29 STATES :"DETECTABLE WARNINGS SHALL CONSIST OF RAISED TRUNCATED DOMES WITH A DIAMETER OF NOMINAL 0.9", A HEIGHT OF NOMINAL 0.2" AND A CENTER TO CENTER SPACING OF NOMINAL 2.35" AND CONTRAST VISUALLY WITH ADJOINING SURFACES, EITHER LIGHT ON DARK OR DARK ON LIGHT." CONTRACTOR SHALL COORDINATE WITH OWNER & ARCHITECT ON COLOR SELECTION FOR ALL CURB RAMPS. SEE MD-655.40
6. TWIN RIVERS ROAD IS A PRIMARY PEDESTRIAN AND BICYCLE STREET.
7. FOR SIGNING AND PAVEMENT MARKINGS, INCLUDING CROSSWALK LOCATIONS AND DETAILS, SEE SHEETS 19 AND 20.
8. SIDEWALKS ARE PROVIDED ON SDP 13-007 UNLESS THERE ARE SECTIONS TO BE CONSTRUCTED WITH THESE ROAD CONSTRUCTION DRAWINGS.
9. INTERSECTION OF BROKEN LAND PARKWAY AND TWIN RIVERS ROAD SHALL BE PROVIDED WITH CONDUITS FOR FUTURE INTERSECTION SIGNALIZATION. COORDINATE NUMBER AND LOCATIONS WITH WELLS AND ASSOCIATES. SEE ALSO HOWARD COUNTY STANDARD T-1.01
10. PROVIDE ONE FOUR-INCH PVC CONDUIT FOR FUTURE STREET LIGHT USE ACROSS TWIN RIVERS ROAD EXTENDED AT BROKEN LAND PARKWAY. CONDUIT SHALL BE PLACED 24-INCHES BELOW PROPOSED GRADE AND 17-FEET BACK OF FLOWLINE BROKEN LAND PARKWAY.

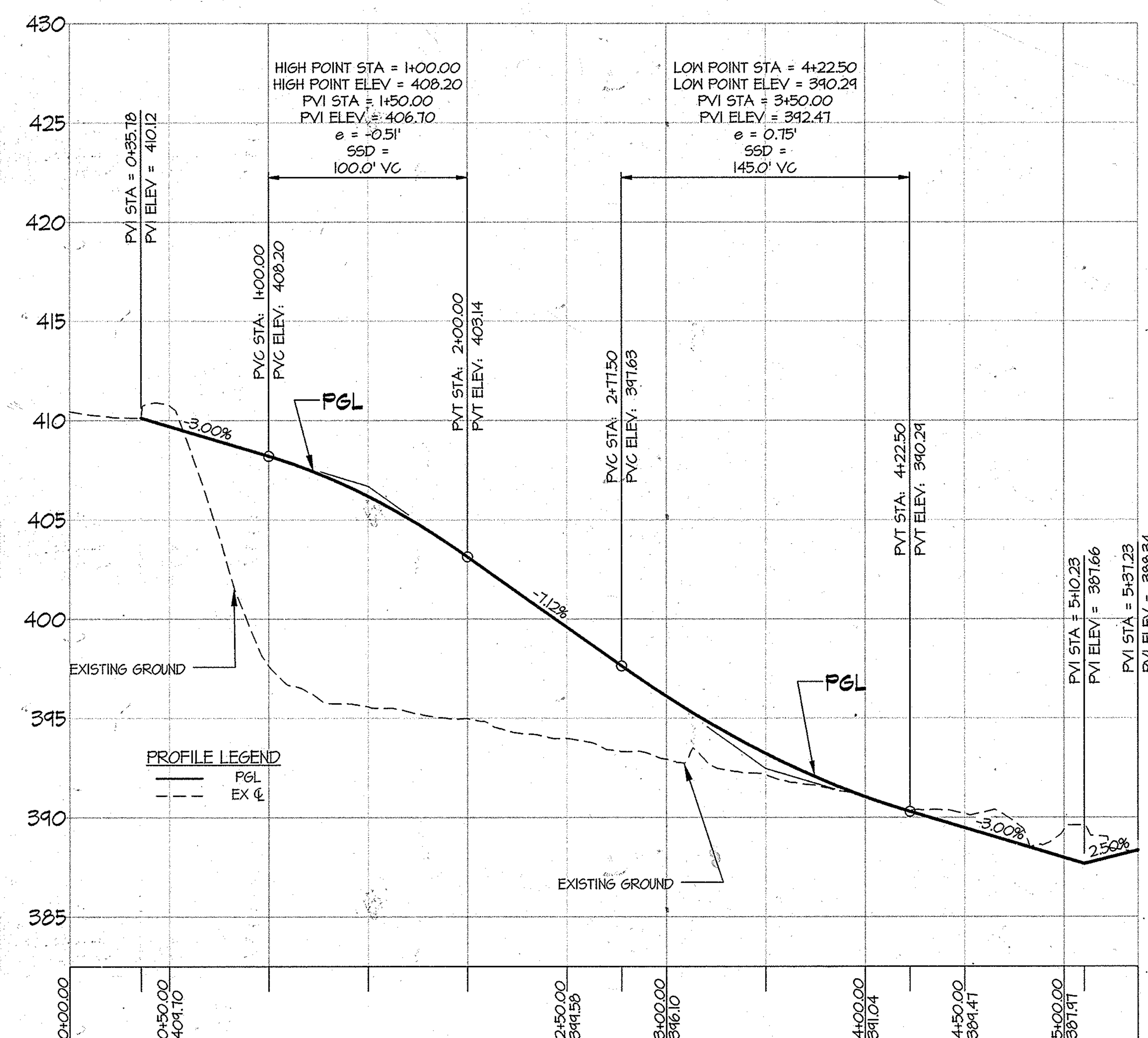
SCALE: 1" = 50
0' 25 50 100 200



△TWIN RIVERS ROAD EXTENDED-PLAN

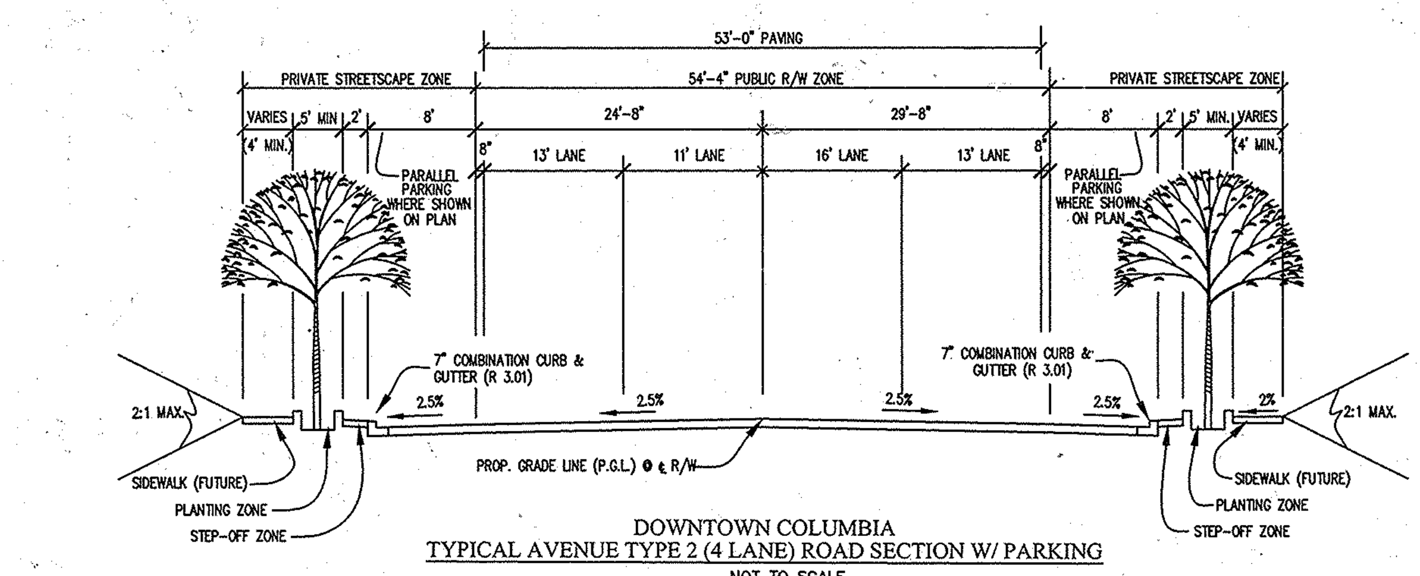
SCALE: 1" = 50'

CENTERLINE CURVE DATA									
STREET NAME	P.C. STA.	P.C.C. STA.	P.T. STA.	RADIUS	ARC	TANGENT	CHORD	BEARING	DELTA
TWIN RIVERS ROAD	1+74.08	---	2+47.09	542.92'	73.00'	36.56'	72.95'	S. 70° 58' 04" E.	15° 10' 48"
TWIN RIVERS ROAD	2+47.09	---	4+32.54	700.00'	184.92'	93.28'	184.92'	S. 82° 24' 36" E.	07° 42' 16"



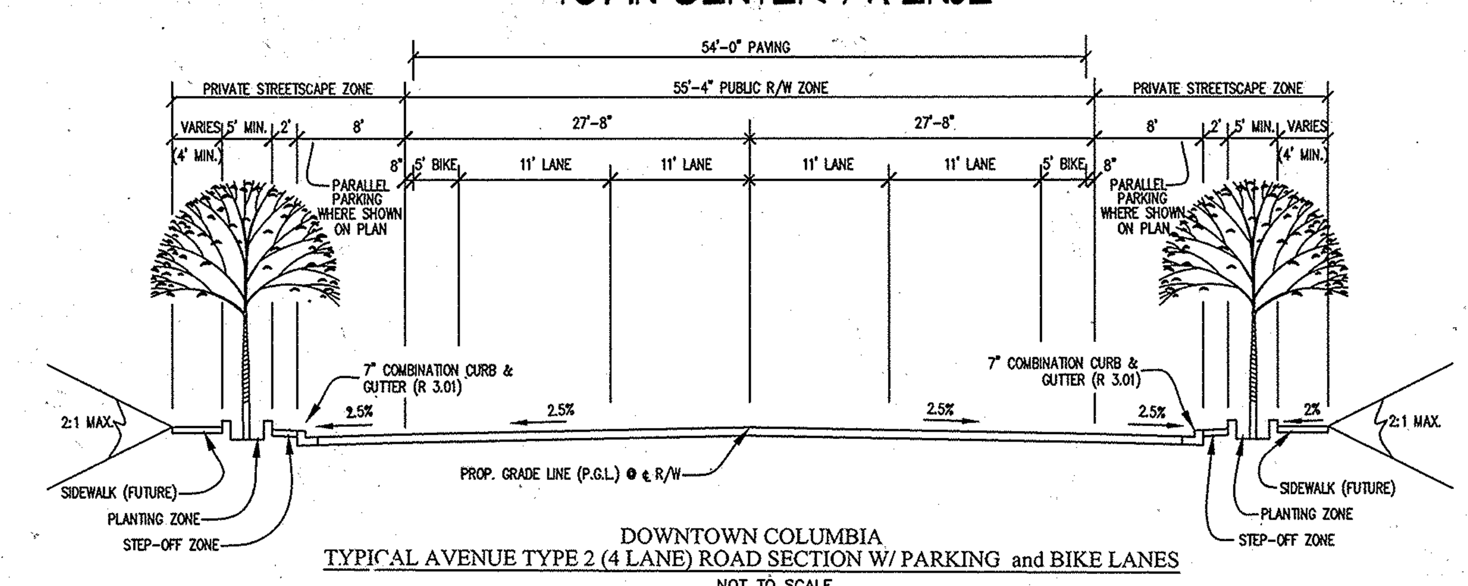
TWIN RIVERS ROAD EXTENDED-PROFILE

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



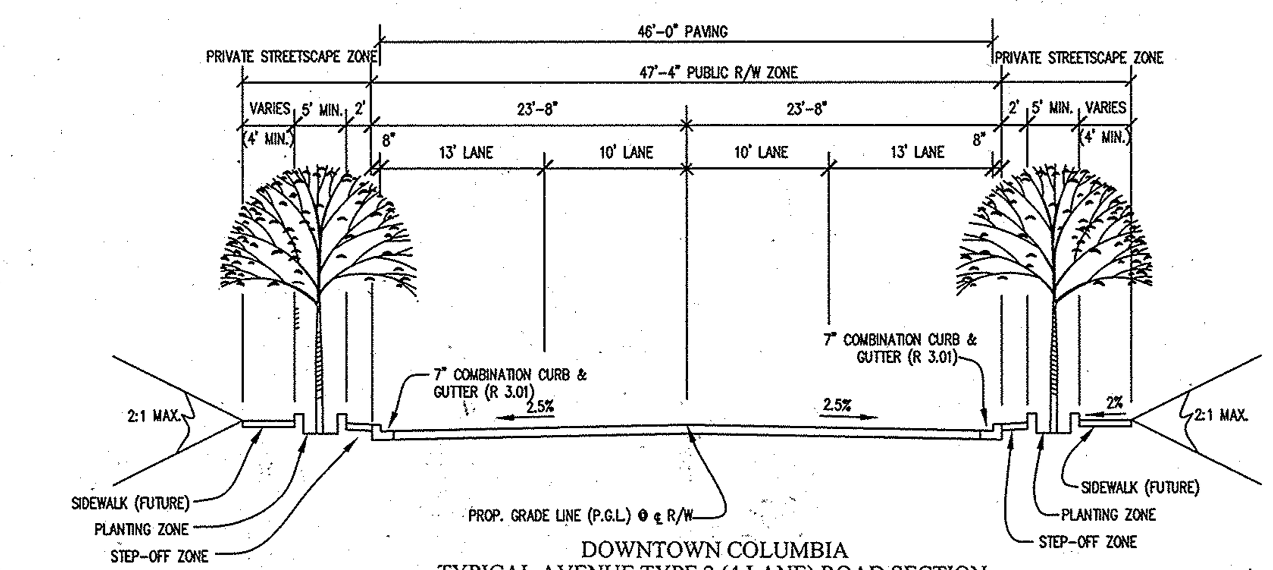
DOWNTOWN COLUMBIA
TYPICAL AVENUE TYPE 2 (4 LANE) ROAD SECTION W/ PARKING
NOT TO SCALE

TOWN CENTER AVENUE



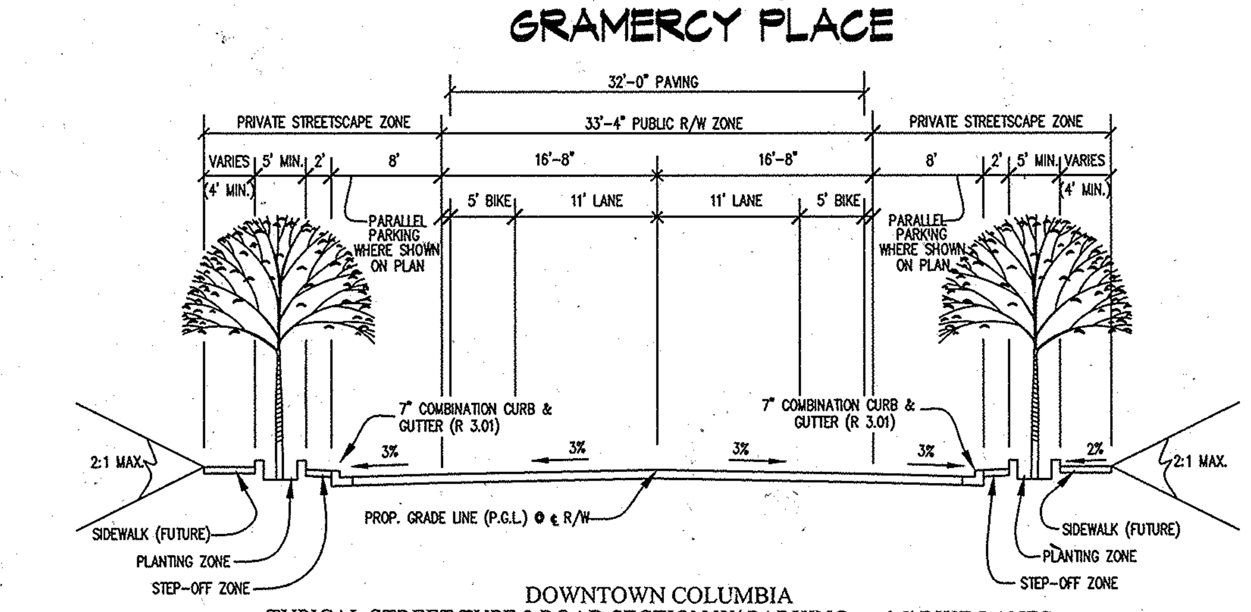
DOWNTOWN COLUMBIA
TYPICAL AVENUE TYPE 2 (4 LANE) ROAD SECTION W/ PARKING and BIKE LANES
NOT TO SCALE

COLUMBIA MALL CIRCLE



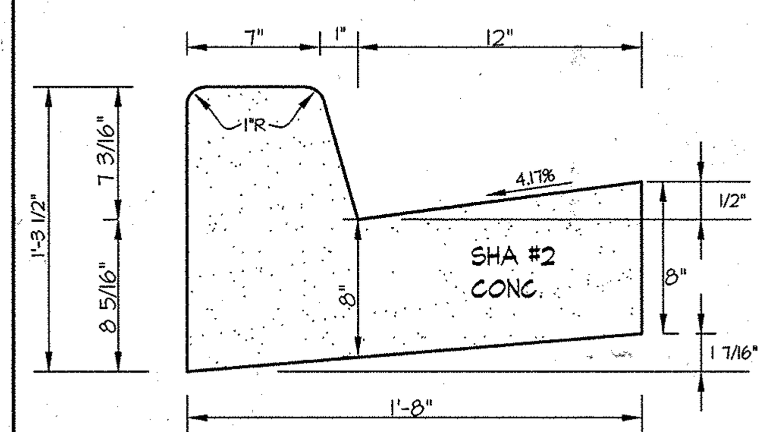
DOWNTOWN COLUMBIA
TYPICAL AVENUE TYPE 2 (4 LANE) ROAD SECTION
NOT TO SCALE

GRAMERCY PLACE

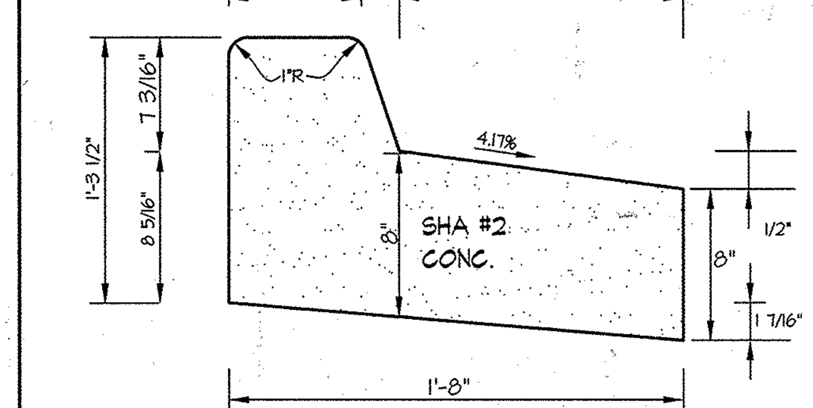


DOWNTOWN COLUMBIA
TYPICAL STREET TYPE 2 ROAD SECTION W/ PARKING and 5' BIKE LANES
NOT TO SCALE

TWIN RIVERS ROAD EXTENDED



TYPE A STANDARD COMBINATION CURB AND GUTTER
NOT TO SCALE

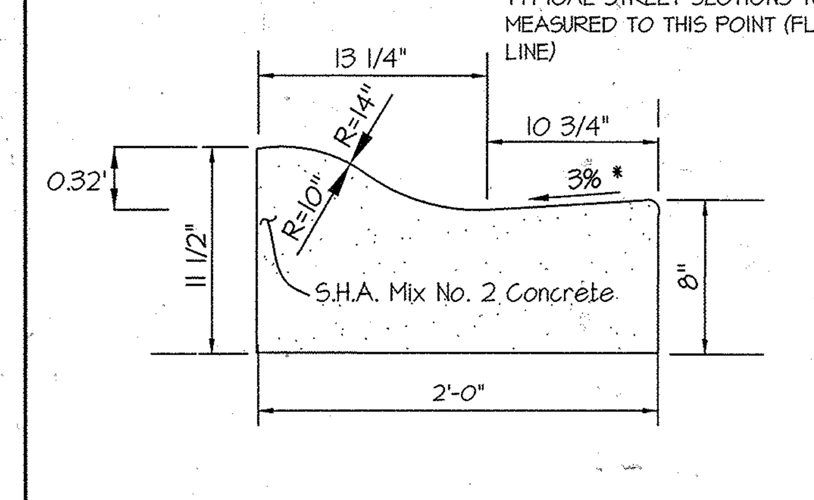


NOTES:

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

TYPE-A REVERSE CONCRETE CURB AND GUTTER
NOT TO SCALE

PAVEMENT WIDTH INDICATED ON TYPICAL STREET SECTIONS TO MEASURED TO THIS POINT (FLOW LINE)



NOTES:

* GUTTER PAN AT THE MEDIAN EDGE OF INTERMEDIATE ARTERIALS OR THE HIGH SIDE OF SUPERELEVATED SECTIONS SHALL BE SLOPED AT THE SAME RATE AND IN THE SAME DIRECTION AS THE PAVEMENT. MATCH PAVEMENT CROSS SLOPE WHEN CURB IS LOCATED ON THE LOW SIDE OF SUPERELEVATED SECTION AND THE RATE OF SUPERELEVATION IS GREATER THAN 3% FOR MODIFIED CURB AND GUTTER.

MOUNTABLE CURB AND GUTTER
NOT TO SCALE

TYPICAL ROAD SECTION ROAD INFORMATION				
ROAD NAME	STATION	ROAD CLASSIFICATION	30 MPH	PAVING SECTION
TOWN CENTER AVENUE	0+36 TO 5+34.27	AVENUE TYPE 2	30 MPH	P-5
COLUMBIA MALL CIRCLE	7+32.26 TO 8+35.99	AVENUE TYPE 2	30 MPH	P-5
GRAMERCY PLACE	0+36 TO 6+04.44	AVENUE TYPE 2	30 MPH	P-5
TWIN RIVERS ROAD	0+36 TO 5+10.23	STREET TYPE 2	25 MPH	P-5

OWNERS:

PARCELS C-1 THRU C-4 (OLD PARCEL C)
PARCEL C BUSINESS TRUST
c/o THE HOWARD HUGHES CORPORATION
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MD 21044

PARCELS D-1 THRU D-4 (OLD PARCEL D)
PARCEL D PROPERTY LLC
c/o KETTLER
1751 PINNACLE DRIVE
SUITE 700
MCLEAN, VA 22101

LOT 40
MALL ENTRANCES BUSINESS TRUST
PO BOX 617905
CHICAGO, IL 60661

LOT 47
MALL IN COLUMBIA BUSINESS TRUST
PO BOX 617905
CHICAGO, IL 60661

PARCEL E
CMI CORPORATE PARKING BUSINESS TRUST
PO BOX 833
COLUMBIA, MD 21044

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
PRIVATE ROADS, SD AND STORMWATER
Chief, Bureau of Highways — Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Chief, Division of Land Development — Date 12-21-15
Chief, Development Engineering Division — Date 3-25-15

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

L:\CADD\DRAWINGS\11053\PLANS BY GLW\FINALS\11053-F-0204.dwg | DES. MJT | DRN. WsJ | CHK.

DATE	REVISION	BY	APP'R.
12.14.15	Revise loading and Parking Entrances △3		
2/18/15	REVISE PLANTER LOCATIONS, ADD ON-STREET PARKING, ADD I-209 △	BTS	

PREPARED FOR:
THE HOWARD HUGHES CORPORATION
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MARYLAND 21044
ATTN: BOB JENKINS
410-964-5443

PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 14931, EXPIRATION DATE: MAY 21, 2016

REVISED

TWIN RIVERS ROAD EXTENDED PLAN & PROFILE
DOWNTOWN COLUMBIA
WARFIELD NEIGHBORHOOD
PARCELS C-1 THRU C-4 & PARCELS D-1 THRU D-4
COLUMBIA TOWN CENTER
LOTS 40 & 47 SECTION 2 AREA 1 & PARCEL E, SECTION 2 AREA 8
FDP-DC-WARFIELD-1
ELECTION DISTRICT No. 5 — HOWARD COUNTY, MARYLAND

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FEB., 2015	36 - 01	4 OF 22

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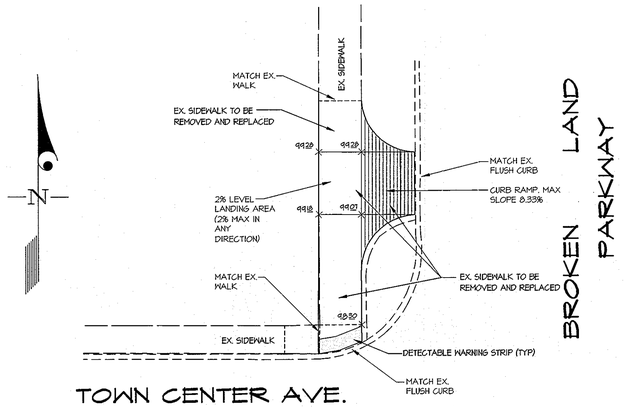
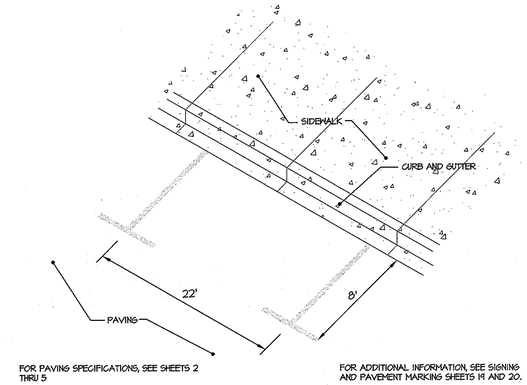
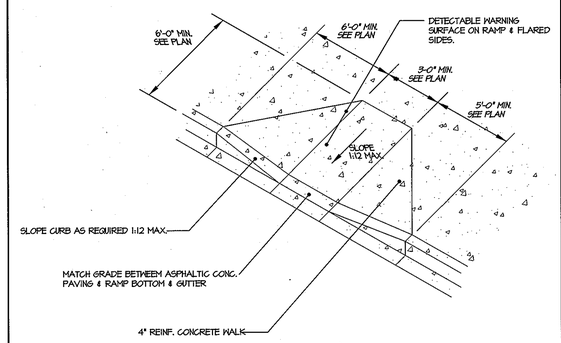


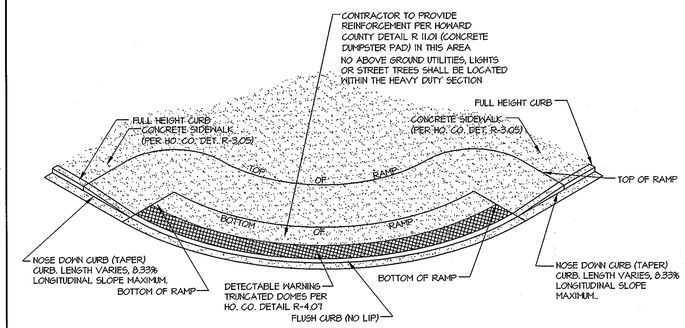
EX. RAMP REHABILITATION - NW QUADRANT, BROKEN LAND PARKWAY AT TOWN CENTER AVE.
NOT TO SCALE



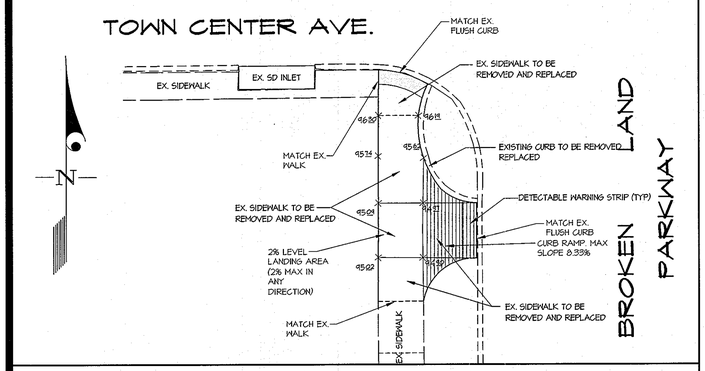
TYPICAL ON-STREET PARKING SPACE - PRIVATE
NOT TO SCALE



TYPE-1 CURB RAMP ALONG GRAMERCY PLACE ENTRANCE TO PARCEL D-1
NOT TO SCALE



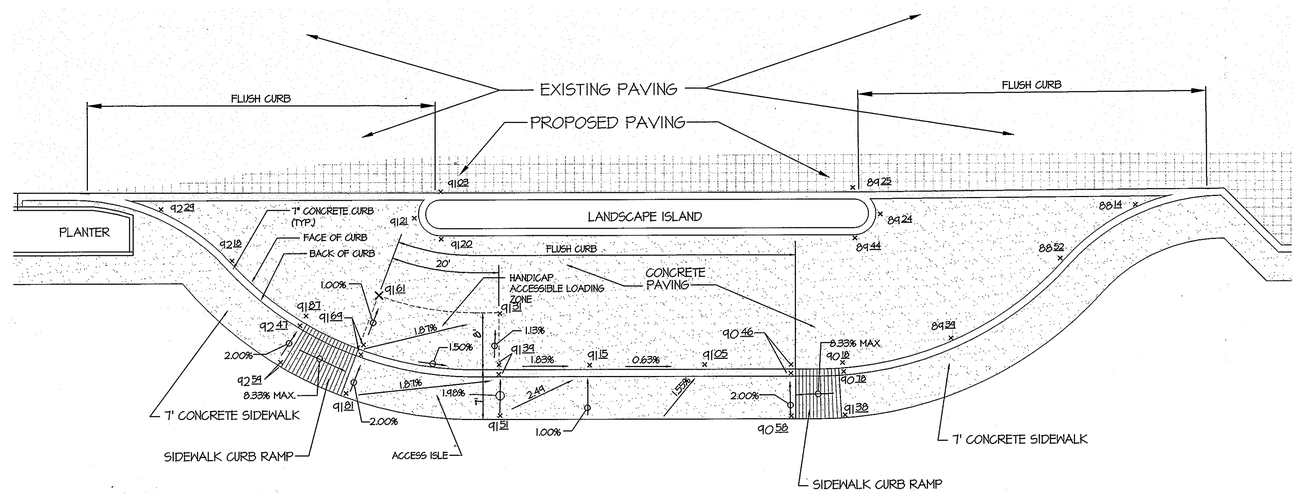
TYPICAL INTERSECTION RAMPING DETAIL - PRIVATE
NOT TO SCALE



EX. RAMP REHABILITATION - SW QUADRANT, BROKENLAND PARKWAY AT TOWN CENTER AVE.
NOT TO SCALE

HANDICAP ACCESSIBILITY NOTES:

1. MAXIMUM SIDEWALK CROSS SLOPE IS 2%.
2. A 5' X 5' MINIMUM LEVEL (2%) LANDING IS REQUIRED AT THE TOP AND BOTTOM OF ALL RAMPS. RAMPS ARE SLOPES GREATER THAN 5%.
3. MAXIMUM SLOPE IN ANY DIRECTION OF THE HANDICAP PARKING IS 2%.
4. DETECTABLE WARNINGS ARE REQUIRED ON ALL SIDEWALK RAMPS IN THE COUNTY RIGHT-OF-WAY.
5. DETECTABLE WARNINGS ARE REQUIRED ON ALL SIDEWALKS WITHOUT CURB RAMPS THAT TERMINATE AT FLUSH CURB FOR ROADWAYS.



PAVING AND HANDICAP ACCESSIBILITY DETAIL

SCALE: 1"=10'

OWNERS:

PARCELS C-1 THRU C-4 (OLD PARCEL C)
PARCEL C BUSINESS TRUST
c/o THE HOWARD HUGHES CORPORATION
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MD 21044

PARCELS D-1 THRU D-4 (OLD PARCEL D)
PARCEL D PROPERTY LLC
c/o KETTLER
1751 PINNACLE DRIVE
SUITE 700
MCLEAN, VA 22101

LOT 40
MALL ENTRANCES BUSINESS TRUST
PO BOX 617905
CHICAGO, IL 60661

LOT 47
MALL IN COLUMBIA BUSINESS TRUST
PO BOX 617905
CHICAGO, IL 60661

PARCEL E
CMI CORPORATE PARKING BUSINESS TRUST
PO BOX 833
COLUMBIA, MD 21044

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
PRIVATE ROADS, SD AND STORMWATER
Chief, Bureau of Highways — Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Chief, Division of Land Development — Date 3/28/13
Chief, Development Engineering Division — Date 3/20/13

GLW GUTSCHICK LITTLE & WEBER, P.A.
CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS
3909 NATIONAL DRIVE – SUITE 250 – BURTONSVILLE OFFICE PARK
BURTONSVILLE, MARYLAND 20866
TEL: 301-421-4024 BALT: 410-880-1820 DC/VA: 301-989-2524 FAX: 301-421-4188

DATE	REVISION	BY	APP'R.

L:\CADD\DRAWINGS\11053\PLANS BY GLW\FINALS\11053-F-05.dwg | DES. MJT | DRN. MJT | CHK. MJT

PREPARED FOR:
THE HOWARD HUGHES CORPORATION
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MARYLAND 21044
ATTN: BOB JENKINS
410-964-5443

PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 14931
EXPIRATION DATE: MAY 21, 2014

PAVING DETAILS
DOWNTOWN COLUMBIA
WARFIELD NEIGHBORHOOD
PARCELS C-1 THRU C-4 & PARCELS D-1 THRU D-4
COLUMBIA TOWN CENTER
LOTS 40 & 47 SECTION 2 AREA 1 & PARCEL E, SECTION 2 AREA 8
ELECTION DISTRICT No. 5 — FDP-DC-WARFIELD-1 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	NT	11053
DATE	TAX MAP – GRID	SHEET
MAR., 2013	36 – 01	5 OF 22

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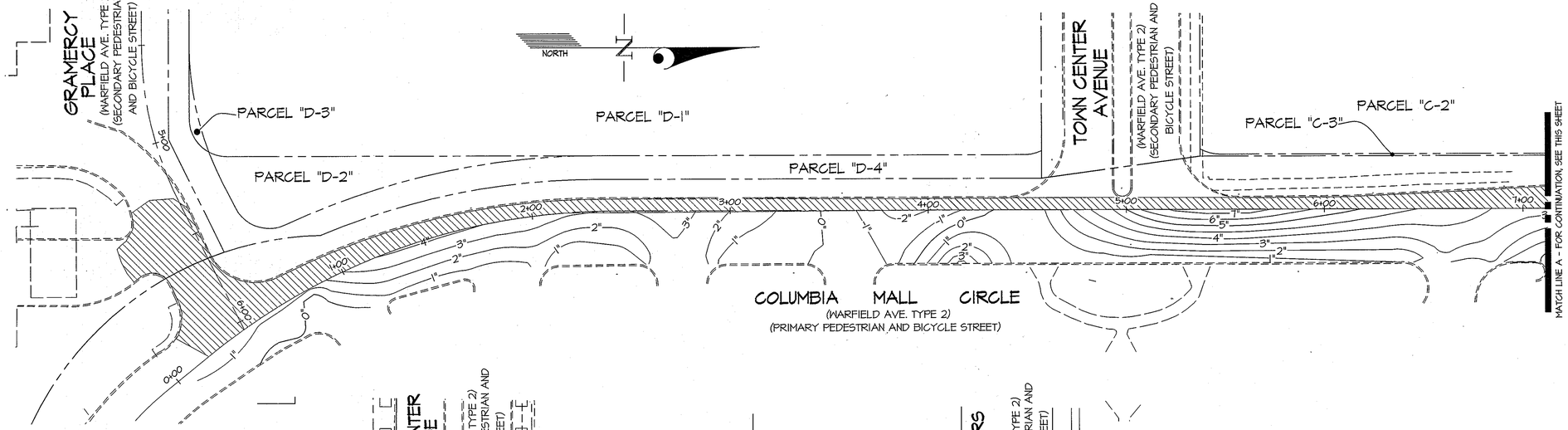

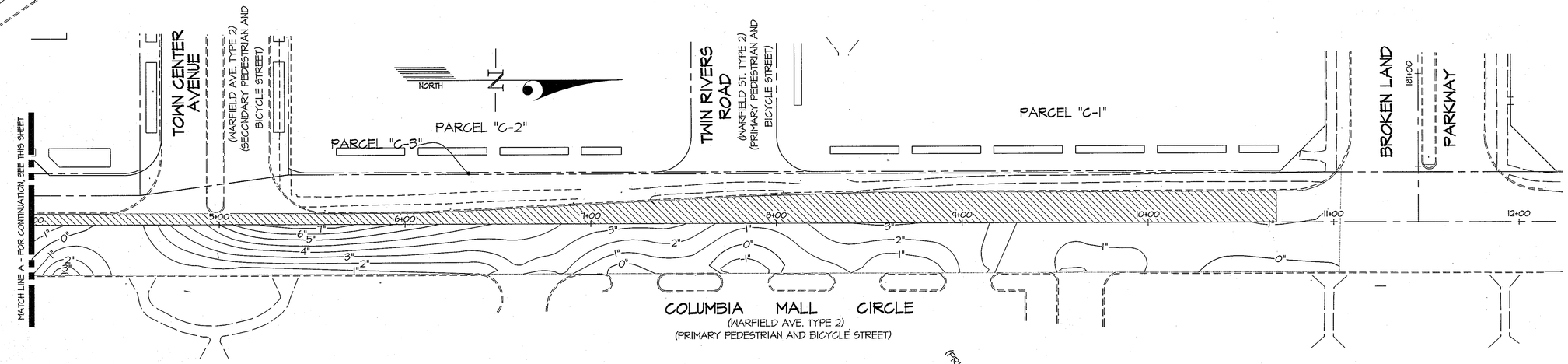

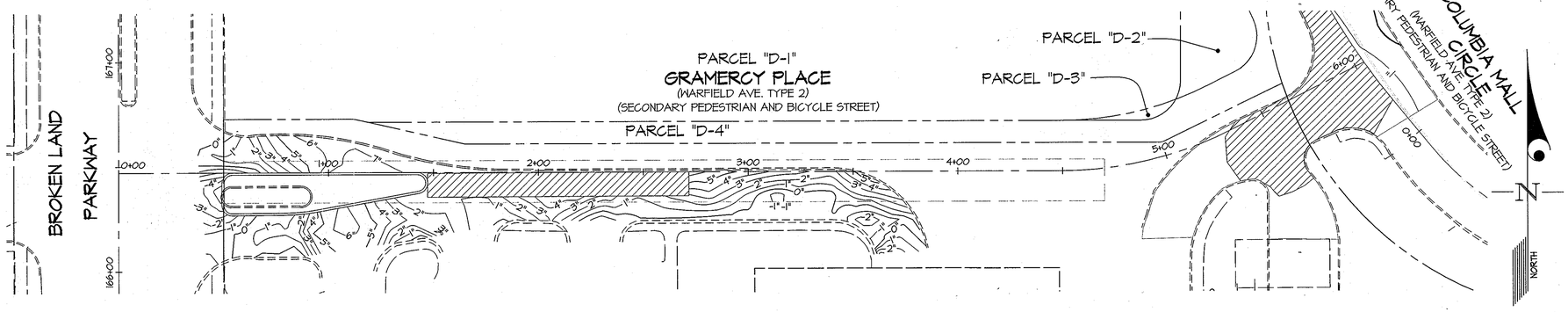

NOTES:

1. EXISTING PAVING THICKNESS TO BE VERIFIED BY THE CONTRACTOR. IF THE PAVING THICKNESS (TAKING INTO ACCOUNT THE WEDGING INDICATED ON THIS PLAN) IS LESS THAN A P-5 PAVING SECTION OR EQUIVALENT (AS DETERMINED BY A GEOTECHNICAL ENGINEER) THE EXISTING PAVING SHALL BE REMOVED.

2. ANY CONSTRUCTION THAT DEGRADES THE EXISTING PAVING SECTION TO LESS THAN A P-5 PAVING SECTION, SHALL BE REMOVED AND REPLACED WITH A P-5 OR EQUIVALENT PAVING SECTION.

3. THE CONTOURS SHOWN ON THIS PLAN REPRESENT THE AMOUNT OF MILLING (NEGATIVE VALUES) OR WEDGING (POSITIVE VALUES) PROPOSED TO BE ABLE TO PRODUCE A CROWNED PAVING SECTION.

4. ALL ROADWAY WITHIN THE PROJECT LIMITS WILL MINIMALLY BE MILLED 2-INCHES AND PAVED 2".

OWNERS:

PARCELS C-1 THRU C-4 (OLD PARCEL C)
PARCEL C BUSINESS TRUST
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10275 LITTLE PATUXENT PARKWAY
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PO BOX 617905
CHICAGO, IL 60661

PARCEL E
CMI CORPORATE PARKING BUSINESS TRUST
PO BOX 833
COLUMBIA, MD 21044

LEGEND

PAVING TO BE REMOVED

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

PRIVATE ROADS, SD AND STORMWATER

Chief, Bureau of Highways — Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 3/28/13

Chief, Development Engineering Division — Date 3/27/13

GLW GUTSCHICK LITTLE & WEBER, P.A.

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L:\CADD\DRAWINGS\11053\PLANS BY GLW\FINALS\11053-F-06.dwg | DES. MJT | DRN. WSJ | CHK. MJT

DATE	REVISION	BY	APP'R.

PREPARED FOR:

THE HOWARD HUGHES CORPORATION
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MARYLAND 21044
ATTN: BOB JENKINS
410-964-5443

PROFESSIONAL CERTIFICATION

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EXPIRATION DATE: MAY 21, 2014

STATE OF MARYLAND — MICHAEL JAMES TROPPEN — No. 14931 — REGISTERED PROFESSIONAL ENGINEER

PAVING REHABILITION PLAN

DOWNTOWN COLUMBIA

WARFIELD NEIGHBORHOOD

PARCELS C-1 THRU C-4 & PARCELS D-1 THRU D-4

COLUMBIA TOWN CENTER

LOTS 40 & 47 SECTION 2 AREA 1 & PARCEL E, SECTION 2 AREA 8

ELECTION DISTRICT No. 5 — FDP-DC-WARFIELD-1 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
1"=30'	NT	11053
DATE	TAX MAP – GRID	SHEET
MAR., 2013	36 – 01	6 OF 22

F 13-015

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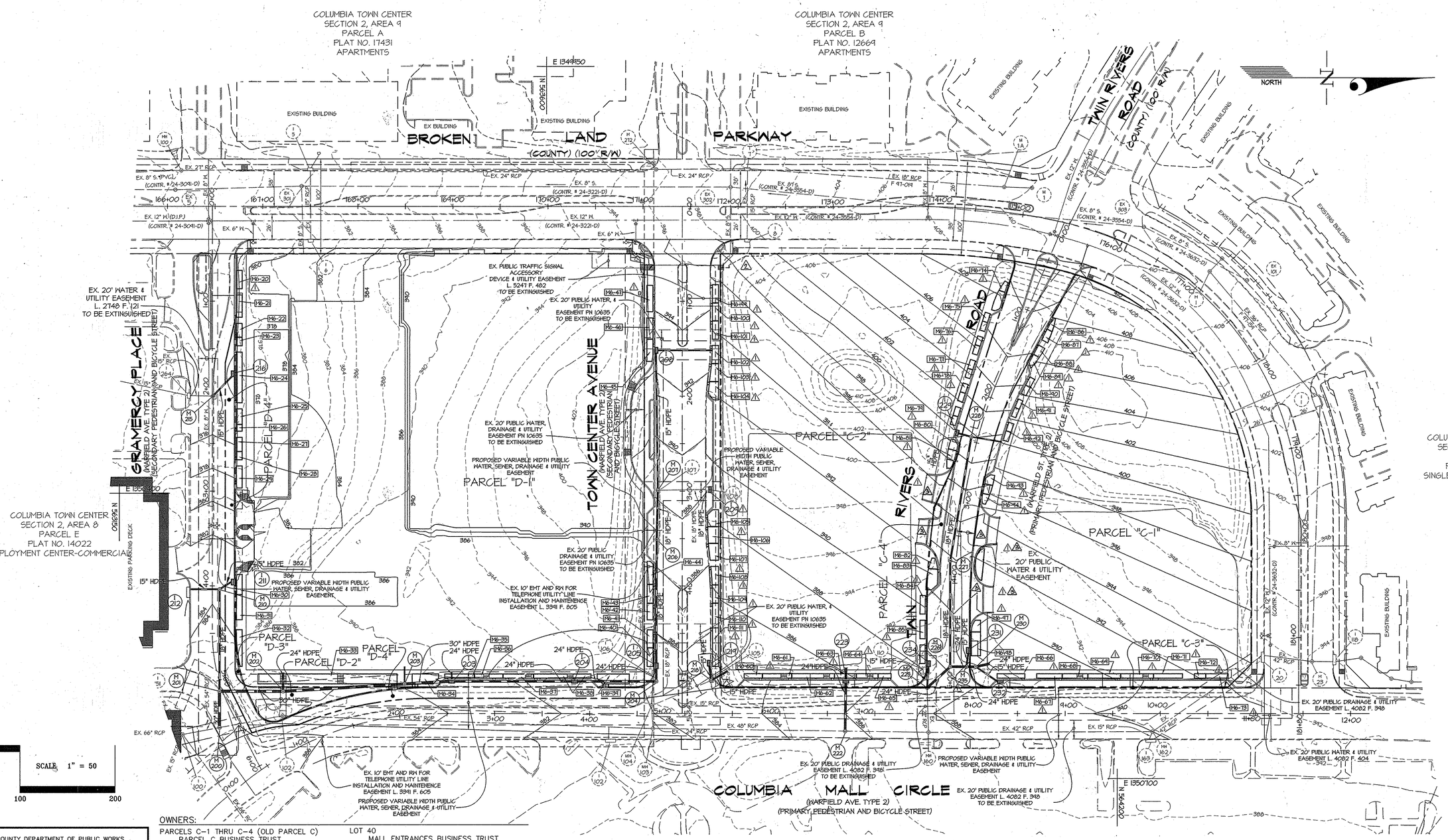

OWNERS:

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PARCEL E
CMI CORPORATE PARKING BUSINESS TRUST
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COLUMBIA, MD 21044

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

PRIVATE ROADS, SD AND STORMWATER

Chief, Bureau of Highways — Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 12-21-15

Chief, Development Engineering Division — Date 3-25-15

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DES. MJT	DRN. WSJ	CHK.

DATE	REVISION	BY	APP'R.
12.14.15	Revise Loading and Parking Entrances △3	gt	
11.24.15	Revise Traffic Signal Easement NE Quadrant △2	gt	
2/18/15	REVISE PLANTER LOCATIONS, ADD ON-STREET PARKING, ADD 1-209 △1	BTS	

PREPARED FOR:

THE HOWARD HUGHES CORPORATION
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MARYLAND 21044
ATTN: BOB JENKINS
410-964-5443

PROFESSIONAL CERTIFICATION

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EXPIRATION DATE: MAY 21, 2016

STATE OF MARYLAND — MICHAEL W. STEWART — No. 14931 — PROFESSIONAL ENGINEER

REVISED

GRADING PLAN

DOWNTOWN COLUMBIA

WARFIELD NEIGHBORHOOD
PARCELS C-1 THRU C-4 & PARCELS D-1 THRU D-4
COLUMBIA TOWN CENTER
LOTS 40 & 47 SECTION 2 AREA 1 & PARCEL E, SECTION 2 AREA 8
FDP-DC-WARFIELD-1

ELECTION DISTRICT No. 5 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
1"=50'	NT	11053
DATE	TAX MAP – GRID	SHEET
FEB., 2015	36 – 01	7 OF 22

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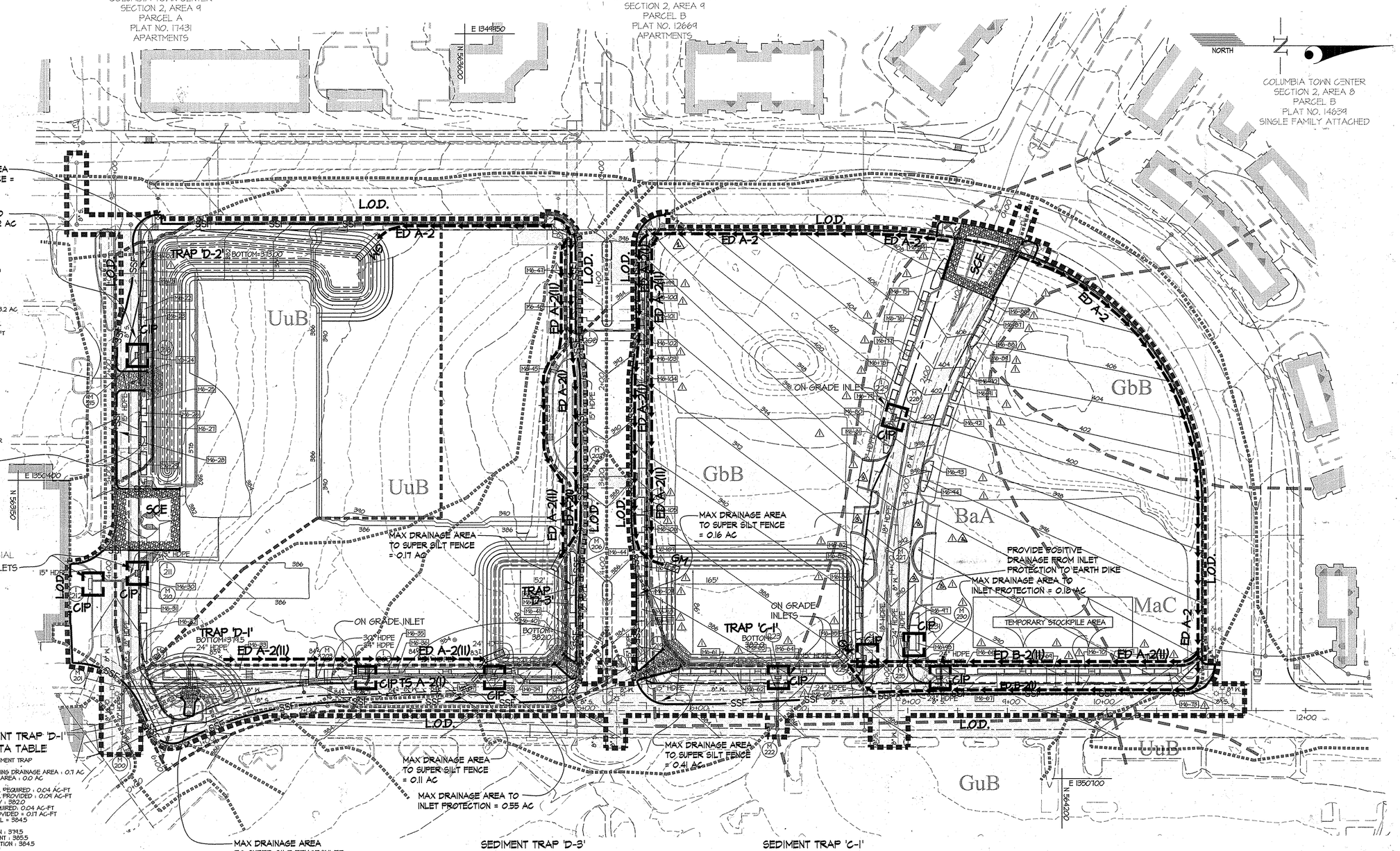
LEGEND

SSF	PROPOSED SUPER SILT FENCE
LOD / LIMIT	LIMITS OF DISTURBANCE/L.O.D.
SCE	STABILIZED CONSTRUCTION ENTRANCE
ED A-2(11)	PROPOED EARTH DIKE
TS A-2(11)	PROPOSED TEMPORARY SWALE
CIP	PROPOSED INLET PROTECTION
	EXIST. SEC DRAINAGE DIVIDE
	PROP. SEC DRAINAGE DIVIDE
	SOILS BOUNDARY



SEDIMENT TRAP 'D-2' DATA TABLE

STONE OUTLET SEDIMENT TRAP

WORST CASE EXISTING DRAINAGE AREA : 3.2 AC
INTERIM DRAINAGE AREA : 2.5 AC

WET STORAGE VOL. REQUIRED : 0.16 AC-FT
WET STORAGE VOL. PROVIDED : 0.28 AC-FT
WET STORAGE ELEV : 315.00
DRY STORAGE REQUIRED: 0.16 AC-FT
DRY STORAGE PROVIDED = 0.49 AC-FT
DRY STORAGE WSEL = 318.00
EXISTING Q-1YR = 10.68 cfs
INTERIM Q-1YR = 0 cfs
SAFE PASS OF 10-YR STORM PROVIDED
Q_{10} = 22.68 cfs
10-YR WSEL = 318.42 ft.
BOTTOM ELEVATION : 313.00
TOP OF EMBANKMENT : 319.00
WEIR CREST ELEVATION : 318.00
WEIR LENGTH : 16.5'

EMERGENCY SPILLWAY ELEV : NONE
CLEANOUT ELEVATION : 314.00
EMBANKMENT TOP WIDTH: 4'
SIDE SLOPES : 2:1 INTERIOR - 2:1 EXTERIOR

SEDIMENT TRAP 'D-1' DATA TABLE

STONE OUTLET SEDIMENT TRAP

WORST CASE EXISTING DRAINAGE AREA : 0.7 AC
INTERIM DRAINAGE AREA : 0.0 AC

WET STORAGE VOL. REQUIRED : 0.04 AC-FT
WET STORAGE VOL. PROVIDED : 0.04 AC-FT
WET STORAGE ELEV : 382.0
DRY STORAGE REQUIRED: 0.04 AC-FT
DRY STORAGE PROVIDED = 0.17 AC-FT
DRY STORAGE WSEL = 384.5

BOTTOM ELEVATION : 374.5
TOP OF EMBANKMENT : 385.5
WEIR CREST ELEVATION : 384.5
WEIR LENGTH : 40.'

EMERGENCY SPILLWAY ELEV : NONE
CLEANOUT ELEVATION : 380.75
EMBANKMENT TOP WIDTH: 4'
SIDE SLOPES : 2:1 INTERIOR - 2:1 EXTERIOR

SEDIMENT TRAP 'D-3' DATA TABLE

STONE OUTLET SEDIMENT TRAP

EXISTING DRAINAGE AREA : 1.2 AC
WORST CASE INTERIM DRAINAGE AREA : 2.0 AC

WET STORAGE VOL. REQUIRED : 0.08 AC-FT
WET STORAGE VOL. PROVIDED : 0.17 AC-FT
WET STORAGE ELEV : 383.5
DRY STORAGE REQUIRED: 0.08 AC-FT
DRY STORAGE PROVIDED = 0.21 AC-FT
DRY STORAGE WSEL = 385.5
EXISTING Q-1YR = 4.4 cfs
INTERIM Q-1YR = 0 cfs
SAFE PASS OF 10-YR STORM PROVIDED
Q_{10} = 11.1 cfs
10-YR WSEL = 385.74 ft.
BOTTOM ELEVATION : 382.0
TOP OF EMBANKMENT : 392.5
WEIR CREST ELEVATION : 391.5
WEIR LENGTH : 16.5'

EMERGENCY SPILLWAY ELEV : NONE
CLEANOUT ELEVATION : 387.5
EMBANKMENT TOP WIDTH: 4'
SIDE SLOPES : 2:1 INTERIOR - 2:1 EXTERIOR

SEDIMENT TRAP 'C-1' DATA TABLE

STONE OUTLET SEDIMENT TRAP

WORST CASE EXISTING DRAINAGE AREA : 5.6 AC
INTERIM DRAINAGE AREA : 5.2 AC

WET STORAGE VOL. REQUIRED : 0.23 AC-FT
WET STORAGE VOL. PROVIDED : 0.50 AC-FT
WET STORAGE ELEV : 383.5
DRY STORAGE REQUIRED: 0.23 AC-FT
DRY STORAGE PROVIDED = 0.70 AC-FT
DRY STORAGE WSEL = 385.5
EXISTING Q-1YR = 11.86 cfs
INTERIM Q-1YR = 0 cfs
SAFE PASS OF 10-YR STORM PROVIDED
Q_{10} = 31.03 cfs
10-YR WSEL = 385.84 ft.
BOTTOM ELEVATION : 382.00
TOP OF EMBANKMENT : 386.5
WEIR CREST ELEVATION : 385.5
WEIR LENGTH : 225'

EMERGENCY SPILLWAY ELEV : NONE
CLEANOUT ELEVATION : 382.75
EMBANKMENT TOP WIDTH: 4'
SIDE SLOPES : 2:1 INTERIOR - 2:1 EXTERIOR

NOTE: FOR SEDIMENT TRAP ENLARGEMENT AND BAFFLE PLAN SEE SHEET 8

SOIL TYPE	SOIL DESCRIPTION	SOILS GROUP
BaA	Baile silt loam, 0 to 3 percent slopes	"D"
GbB	Gladstone loam, 3 to 8 percent slopes	"B"
GuB	Glenville-Urban land-Udorthents complex, 0 to 8 percent slopes	"B"
MaC	Manor loam, 8 to 15 percent slopes	"B"
UuB	Urban land-Udorthents complex, 0 to 8 percent slopes	

OWNERS:

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PARCEL C BUSINESS TRUST
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COLUMBIA, MD 21044

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PARCEL E
OMI CORPORATE PARKING BUSINESS TRUST
PO BOX 833
COLUMBIA, MD 21044

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

Howard S.C.D. — Date 2/26/15

ENGINEER'S CERTIFICATE

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

ENGINEER'S SIGNATURE — DATE 2/18/15

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. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF DEVELOPER/BUILDER — DATE 2/17/15

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

PRIVATE ROADS, SD AND STORMWATER

Chief, Bureau of Highways — Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 12-21-15

Chief, Development Engineering Division — Date 3-25-15

THIS PLAN IS FOR SEDIMENT CONTROL PURPOSES ONLY!

REVISED

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

DATE	REVISION	BY	APP'R.
11.14.15	Revise Loading and Parking Entrances (3)	9+	
9.30.15	Revise Traffic Signal Easement NE Quadrant (2)	9+	
2/18/15	REVISE PLANTER LOCATIONS, ADD ON-STREET PARKING, ADD 1-204 (1)	BTS	

DES. MJT | DRN. WSJ | CHK.

PREPARED FOR:
THE HOWARD HUGHES CORPORATION
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MARYLAND 21044
ATTN: BOB JENKINS
410-964-5443

PROFESSIONAL CERTIFICATION

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STATE OF MARYLAND — MICHAEL JAMES TROY — REGISTERED PROFESSIONAL ENGINEER

SEDIMENT CONTROL PLAN & SOILS MAP

DOWNTOWN COLUMBIA

WARFIELD NEIGHBORHOOD
PARCELS C-1 THRU C-4 & PARCELS D-1 THRU D-4
COLUMBIA TOWN CENTER
LOTS 40 & 47 SECTION 2 AREA 1 & PARCEL E, SECTION 2 AREA 8

ELECTION DISTRICT No. 5 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
1"=50'	NT	11053
DATE	TAX MAP – GRID	SHEET
FEB., 2015	36 – 01	8 OF 22

FDP-DC-WARFIELD-1

F 13-015

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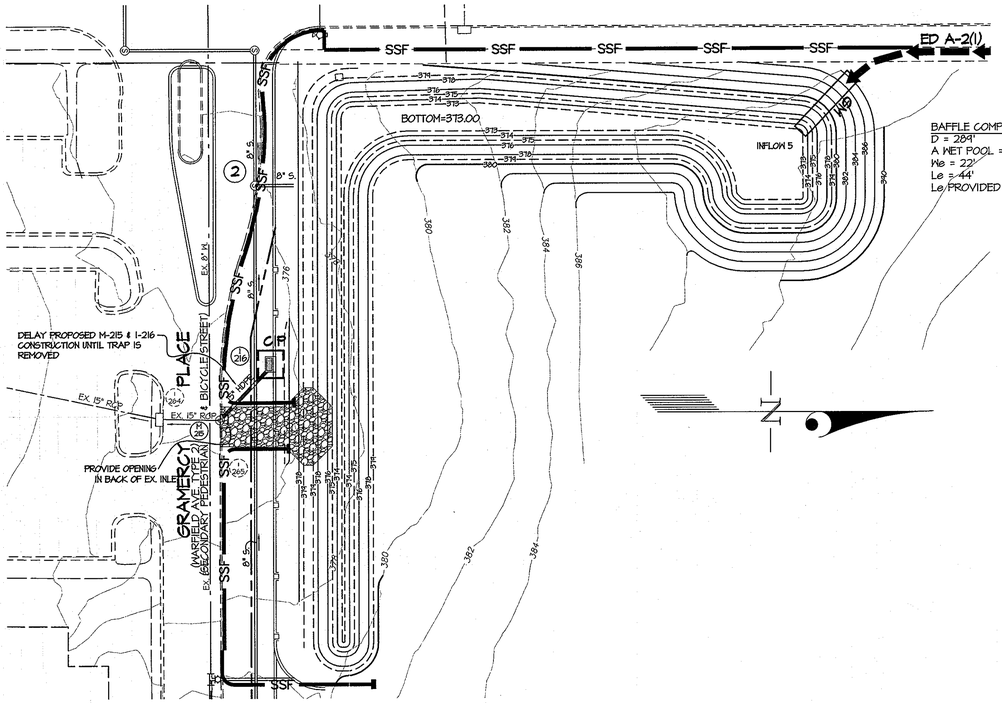


BAFFLE COMPUTATION INFLOW 5
D = 284'
A WET POOL = 6267 SF
We = 22'
Le = 44'
Le PROVIDED = 284'

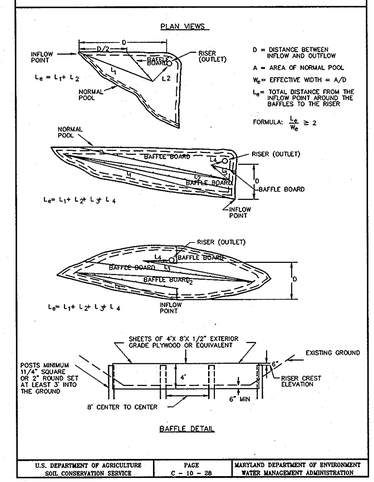
TRAP 'D-2' ENLARGEMENT

SCALE: 1" = 30'

SCALE: 1" = 20

0' 10 20 40 80

DETAIL 18 – SEDIMENT BASIN BAFFLES



U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE C – 10 – 28	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

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

Howard S.C.D. 3/19/13 Date

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ENGINEER'S SIGNATURE 2/28/13 DATE

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SIGNATURE OF DEVELOPER/BUILDER 2-28-13 DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

PRIVATE ROADS, SD AND STORMWATER

Chief, Bureau of Highways Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development 3/22/13 Date

Chief, Development Engineering Division 3/27/13 Date

OWNERS:

PARCELS C-1 THRU C-4 (OLD PARCEL C)
PARCEL C BUSINESS TRUST
c/o THE HOWARD HUGHES CORPORATION
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MD 21044

PARCELS D-1 THRU D-4 (OLD PARCEL D)
PARCEL D PROPERTY LLC
c/o KETTLER
1751 PINNACLE DRIVE
SUITE 700
MCLEAN, VA 22101

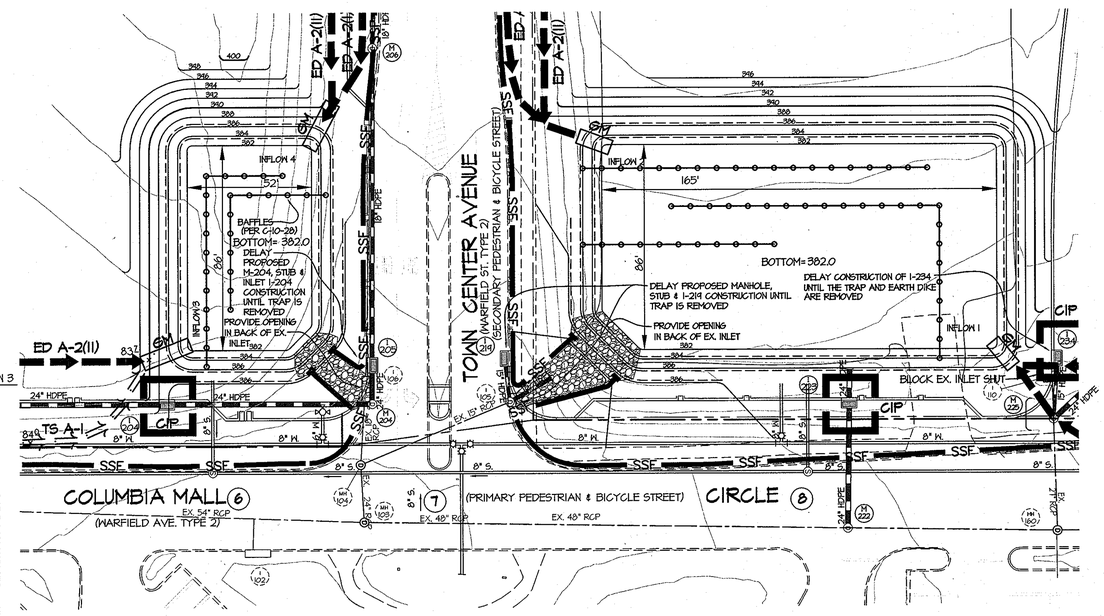
LOT 40
MALL ENTRANCES BUSINESS TRUST
PO BOX 617905
CHICAGO, IL 60661

LOT 47
MALL IN COLUMBIA BUSINESS TRUST
PO BOX 617905
CHICAGO, IL 60661

PARCEL E
CMI CORPORATE PARKING BUSINESS TRUST
PO BOX 833
COLUMBIA, MD 21044

BAFFLE COMPUTATION INFLOW 4
D = 86'
A WET POOL = 5250 SF
We = 61'
Le = 122'
Le PROVIDED = 124'

BAFFLE COMPUTATION INFLOW 2
D = 82'
A WET POOL = 15,114 SF
We = 184'
Le = 364'
Le PROVIDED = 346'



BAFFLE COMPUTATION INFLOW 3
D = 52'
A WET POOL = 5250 SF
We = 101'
Le = 202'
Le PROVIDED = 210'

BAFFLE COMPUTATION INFLOW 1
D = 161'
A WET POOL = 15,114 SF
We = 94'
Le = 188'
Le PROVIDED = 300'

TRAP 'D-3' ENLARGEMENT

SCALE: 1" = 30'

SEDIMENT TRAP 'C-1' ENLARGEMENT

SCALE: 1" = 30'

GLW GUTSCHICK LITTLE & WEBER, P.A.

CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS
3909 NATIONAL DRIVE – SUITE 250 – BURTONSVILLE OFFICE PARK
BURTONSVILLE, MARYLAND 20866
TEL: 301-421-4024 BALT: 410-880-1820 DC/VA: 301-989-2524 FAX: 301-421-4186

DATE	REVISION	BY	APP'R.

PREPARED FOR:
THE HOWARD HUGHES CORPORATION
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MARYLAND 21044
ATTN: BOB JENKINS
410-964-5443

PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 14931
EXPIRATION DATE: MAY 21, 2014

STATE OF MARYLAND MICHAEL J. TROPPER No. 14931 PROFESSIONAL ENGINEER

SEDIMENT TRAP DETAILS

DOWNTOWN COLUMBIA

WARFIELD NEIGHBORHOOD
PARCELS C-1 THRU C-4 & PARCELS D-1 THRU D-4
COLUMBIA TOWN CENTER
LOTS 40 & 47 SECTION 2 AREA 1 & PARCEL E, SECTION 2 AREA 8
FDP-DC-WARFIELD-1

ELECTION DISTRICT No. 5 HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
1"=30'	NT	11053
DATE	TAX MAP – GRID	SHEET
MAR., 2013	36 – 01	9 OF 22

F 13-015

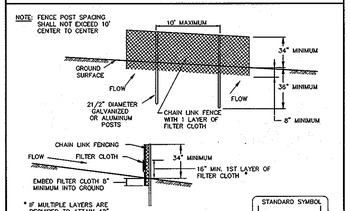
L:\CADD\DRAWINGS\11053\PLANS BY GLW\FINALS\11053-F-09.dwg, PLOTTED: 2/28/2013 4:40 PM, LAST SAVED: 2/8/2013 3:29 PM, PLOTTED BY: Mike Tropper

E:\CADD\DRAWINGS\11053\PLANS BY GLW\FINALS\11053-F-09.dwg | DES. XXX | DRN. XXX | CHK. XXX

© GLW 2012

DETAIL 33 – SUPER SILT FENCE

NOTE: FENCE POST SPACING SHALL NOT EXCEED 10' CENTER TO CENTER



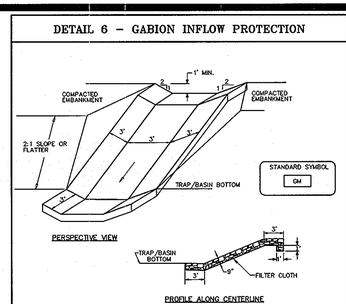
Construction Specifications

1. Fencing shall be 42" in height and constructed in accordance with the latest Maryland State Highway Details for Chain Link Fencing. The specification for a 6' fence shall be used, substituting 42" fabric and 6' length posts.
2. Chain link fence shall be fastened securely to the fence posts with wire ties. The lower tension wire, brace and truss rods, drive anchors and post caps are not required except on the ends of the fence.
3. Filter cloth shall be fastened securely to the chain link fence with ties spaced every 24" at the top and mid section.
4. Filter cloth shall be embedded a minimum of 8" into the ground.
5. When two sections of filter cloth adjoin each other, they shall be overlapped by 6" and folded.
6. Maintenance shall be performed as needed and silt buildups removed when "bulges" develop in the silt fence, or when silt reaches 50% of fence height
7. Filter cloth shall be fastened securely to each fence post with wire ties or staples at top and mid section and shall meet the following requirements for Geotextile Class F:

Tensile Strength	50 lbs/in (min.)	Test: MSMT 509
Tensile Modulus	20 lbs/in (min.)	Test: MSMT 509
Flow Rate	0.3 gal/ft /minute (max.)	Test: MSMT 322
Efficiency	75% (min.)	Test: MSMT 322

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE H – 35 – 3	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 6 – GABION INFLOW PROTECTION

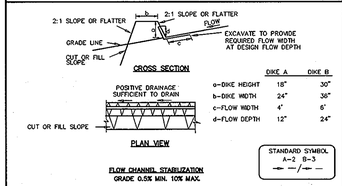


Construction Specifications

1. Gabion inflow protection shall be constructed of 9" x 3" x 9" gabion baskets forming a trapezoidal cross section 1' deep, with 2:1 side slopes, and a 3' bottom width.
2. Geotextile Class C shall be installed under all gabion baskets.
3. The stone used to fill the gabion baskets shall be 4" – 7".
4. Gabions shall be installed in accordance with manufacturers recommendations.
5. Gabion Inflow Protection shall be used where concentrated flow is present on slopes steeper than 4:1.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE B – 7 – 2	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 1 – EARTH DIKE



	DIKE A	DIKE B
a–DIKE HEIGHT	18"	30"
b–DIKE WIDTH	24"	36"
c–FLOW WIDTH	4'	6'
d–FLOW DEPTH	12"	24"

FLOW CHANNEL STABILIZATION
GRADE 0.5% MIN. 10% MAX.

1. Seed and cover with straw mulch.
2. Seed and cover with Erosion Control Matting or line with sod.
3. 4" – 7" stone or recycled concrete equivalent pressed into the soil 7" minimum

Construction Specifications

1. All temporary earth dikes shall have uninterrupted positive grade to an outlet. Spot elevations may be necessary for grades less than 1%.
2. Runoff diverted from a disturbed area shall be conveyed to a sediment trapping device.
3. Runoff diverted from an undisturbed area shall outlet directly into an undisturbed, stabilized area at a non-erosive velocity.
4. All trees, brush, stumps, obstructions, and other objectionable material shall be removed and disposed of so as not to interfere with the proper functioning of the dike.
5. The dike shall be excavated or shaped to line, grade and cross section as required to meet the criteria specified herein and be free of bank projections or other irregularities which will impede normal flow.
6. Fill shall be compacted by earth moving equipment.
7. All earth removed and not needed for construction shall be placed so that it will not interfere with the functioning of the dike.
8. Inspection and maintenance must be provided periodically and after each sediment control.

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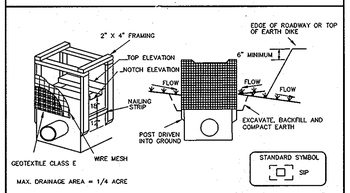
DETAIL 23A – STANDARD INLET PROTECTION



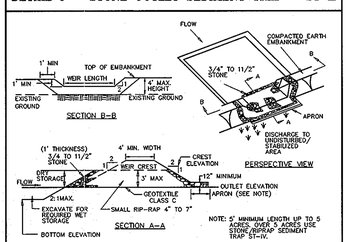
MAX. DRAINAGE AREA = 1/4 ACRE

Construction Specifications

1. Excavate completely around the inlet to a depth of 18" below the notch elevation.
2. Drive the 2" x 4" construction grade lumber posts 1' into the ground at each corner of the inlet. Place nail strips between the posts on the ends of the inlet. Assemble the top portion of the 2" x 4" frame using the overlap joint shown on Detail 23A. The top of the frame (weir) must be 6" below adjacent roadways where flooding and safety issues may arise.
3. Stretch the 1/2" x 1/2" wire mesh tightly around the frame and fasten securely. The ends must meet and overlap at a post.
4. Stretch the Geotextile Class E tightly over the wire mesh with the geotextile extending from the top of the frame to 18" below the inlet notch elevation. Fasten the geotextile firmly to the frame. The ends of the geotextile must meet at a post, be overlapped and folded, then fastened down.
5. Backfill around the inlet in compacted 6" layers until the layer of earth is level with the notch elevation on the ends and top elevation on the sides.
6. If the inlet is not in a sump, construct a compacted earth dike across the ditch line directly below it. The top of the earth dike should be at least 6" higher than the top of the frame.
7. The structure must be inspected periodically and after each rain and the geotextile replaced when it becomes clogged.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE E – 16 – 5	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 9 – STONE OUTLET SEDIMENT TRAP – ST II



Construction Specifications

1. Area under embankment shall be cleared, grubbed and stripped of any vegetation and root mat. The pool area shall be cleared.
2. The fill material for the embankment shall be free of roots and other woody vegetation as well as over-sized stones, rocks, organic material or other objectionable material. The embankment shall be compacted by traversing with equipment while it is being constructed.
3. All cut and fill slopes shall be 2:1 or flatter.
4. The stone used in the outlet shall be small rip-rap 4" to 7" in size with a 1' thick layer of 3/4" to 11/2" washed aggregate placed on the upstream face of the outlet. Stone facing shall be as necessary to prevent clogging. Geotextile Class C may be substituted for the stone facing by placing it on the inside face of the stone outlet.
5. Sediment shall be removed and trap restored to its original dimensions when the sediment has accumulated to one half of the wet storage depth of the trap. Removed sediment shall be deposited in a suitable area and in such a manner that it will not erode.

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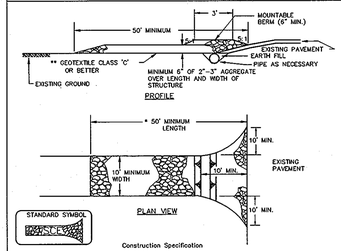
DETAIL 24 – STABILIZED CONSTRUCTION ENTRANCE



Construction Specification

1. Length – minimum of 50' (*30' for single residence lot).
2. Width – 10' minimum, should be flared at the existing road to provide a turning radius.
3. Geotextile fabric (filter cloth) shall be placed over the existing ground prior to placing stone. **The plan approval authority may not require single family residences to use geotextile.
4. Stone – crushed aggregate (2" to 3") or reclaimed or recycled concrete equivalent shall be placed at least 6" deep over the length and width of the entrance.
5. Surface Water – all surface water flowing to or diverted toward construction entrances shall be piped through the entrance, maintaining positive drainage. Pipe installed through the stabilized construction entrance shall be protected with a mountable berm with 5:1 slopes and a minimum of 6" of stone over the pipe. Pipe has to be sized according to the drainage. When the SCE is located at a high spot and has no drainage to convey a pipe will not be necessary. Pipe should be sized according to the amount of runoff to be conveyed. A 6" minimum will be required.
6. Location – A stabilized construction entrance shall be located at every point where construction traffic enters or leaves a construction site. Vehicles leaving the site must travel over the entire length of the stabilized construction entrance.

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SEDIMENT CONTROL NOTES

1. 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
2. All vegetative and structural practices are to be installed according to the provisions of this plan and are to be in conformance with the 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL.
3. 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.
4. All sediment traps/basins shown must be fenced and warning signs posted around their perimeter in accordance with Vol. I, Chapter 12, of the HOWARD COUNTY DESIGN MANUAL, Storm Drainage.
5. 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.
6. 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.
7. Site Analysis:

Total Area of Site	:	10.23	Acres
Area Disturbed	:	12.05	Acres
Area to be roofed or paved	:	3.03	Acres
Area to be vegetatively stabilized	:	9.02	Acres
Total Cut	:	66,324	Cu. Yds.
Total Fill	:	9,412	Cu. Yds.

Surplus cut to be disposed of on a site with an approved sediment control plan.

8. Any sediment control practice which is disturbed by grading activity for placement of utilities must be repaired on the same day of disturbance.
9. Additional sediment control must be provided, if deemed necessary by the Howard County DPW Sediment Control Inspector.
10. On all sites with disturbed areas in excess of 2 acres, approval of the inspection agency shall be requested upon completion of installation of perimeter erosion and sediment controls, but before proceeding with any other earth disturbance or grading. Other building or grading inspection approvals may not be authorized until this initial approval by the inspection agency is made.
11. 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.

PERMANENT SEEDING NOTES

Apply to graded or cleared area not subject to immediate further disturbance where a permanent long-lived 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: In lieu of soil test recommendations, use one of the following schedules

1) 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 ureaform 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.

Seeding: For the periods March 1 thru April 30, and August 1 thru October 15, seed with 60 lbs per acre (1.4 lbs/1000 sq ft) of Kentucky 31 Tall Fescue. For the period May 1 thru July 31, seed with 60 lbs Kentucky 31 Tall Fescue per acre and 2 lbs per acre (.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) Use sod. Option (3) Seed with 60 lbs/acre Kentucky 31 Tall Fescue and mulch with 2 tons/acre well anchored straw.

Mulching: Apply 1-1/2 to 2 tons per acre (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: Inspect all seeded areas and make needed repairs, replacements and reseedings.

TEMPORARY SEEDING NOTES

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

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 sq ft).

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

Mulching: 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.

STANDARD AND SPECIFICATIONS FOR TOPSOIL DEFINITION

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

PURPOSE

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

CONDITIONS WHERE PRACTICE APPLIES

I. This practice is limited to areas having 2:1 or flatter slopes where:
   a. The texture of the exposed subsoil/parent material is not adequate to produce vegetative growth.
   b. The soil material is so shallow that the rooting zone is not deep enough to support plants or furnish continuing supplied of moisture and plant nutrients.
   c. The original soil to be vegetated contains material toxic to plant growth.
   d. The soil is so acidic that treatment with limestone is not feasible.

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

CONSTRUCTION AND MATERIAL SPECIFICATIONS

I. Topsoil salvaged from the existing site may be used provided that it meets the standards as set forth in these specifications. Typically, the depth of topsoil to be salvaged for a given soil type 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, slag, coarse fragments, gravel, sticks, roots, trash, or other materials larger than 1 1/2" in diameter.
   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 of 4-8 tons/acre (200-400 pounds per 1,000 square feet) prior to the placement of topsoil. Lime 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 I – 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 I – Vegetative Stabilization Methods and Materials.

V. Topsoil Application
   a. When topsoiling, maintain needed erosion and sediment control practices such as diversion, Grade Stabilization Structures, Earth Dikes, Slope Silt Fence and Sediment Traps and Basins.
   b. Grades on the areas to be topsoiled, which have been previously established, shall be maintained, albeit 4" – 8" higher in elevation.
   c. Topsoil shall be uniformly distributed in a 4" –8" layer and lightly compacted to a minimum thickness of 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 topsoiling 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:
      i. Composted sludge shall be supplied by, or originate from, a person or persons that are permitted (at the time of acquisition of the compost) by the Maryland Department of the Environment under COMAR 26.04.06.
      2. Composted sludge shall contain at least 1 percent nitrogen, 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 48#/1,000 square feet, and 1/3 the normal lime application rate.

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

DUST CONTROL

Definition

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

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

Specifications

Temporary Methods

1. Mulches – See standards for vegetative stabilization with mulches only. Mulch should be crimped or tacked to prevent blowing.
2. Vegetative Cover – See standards for temporary vegetative cover.
3. Tillage – To roughen surface and bring clods to the surface. 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 occurs.
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 right angles 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.

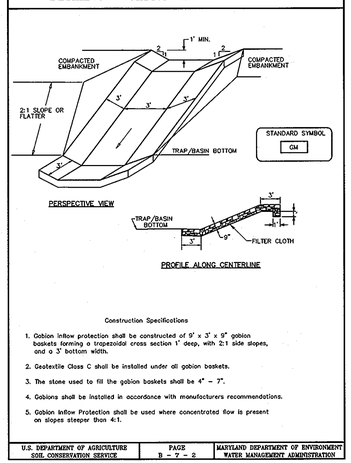
Permanent Methods

1. 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.

SEQUENCE OF CONSTRUCTION

1. Arrange pre-construction meeting with the Sediment Control Inspector and obtain the Grading Permit. 1 DAY
2. Install stabilize construction entrances, super silt fence and perimeter earth dikes, earth dikes (I) temporary swales (I) and stone outlet sediment traps. 3 WEEKS
3. Grade site. 2 MONTHS
4. As soon as areas draining to Trap D-1 have been brought up to grade, the area will drain to Trap D-3 and permission has been granted by the sediment control inspector, backfill and bring up to proposed grade Trap D-1. 2 WEEKS
5. As soon as areas for proposed road widening have been graded and permission has been obtained from the sediment control inspector, install earth dikes (II). Remove earth dikes (I) and temporary swales (I). 2 MONTHS
6. Install utilities and inlet protection as applicable. In areas where utilities are to be installed in existing paving, install only as much as that which shall be backfilled and stabilized within one working day. Temporarily place all excavated material in areas that are protected by sediment controls. Delay construction of proposed storm drain in the vicinity of trap outfalls until the traps are no longer being used and are being backfilled and brought up to proposed grade. 6 MONTHS
7. Install curb and gutter, sidewalks and stormwater planters and base paving except for areas near the trap outfalls. 2 MONTHS
8. Stabilize all non-paved areas with grass seed and mulch. 1 WEEK
9. When all areas drain to the sediment controls have been stabilized and permission has been granted by the Sediment Control Inspector, remove those sediment controls. Install remaining utilities, curb and gutter and base paving. Stabilize the remaining areas. 1 WEEK

DETAIL 6 – GABION INFLOW PROTECTION

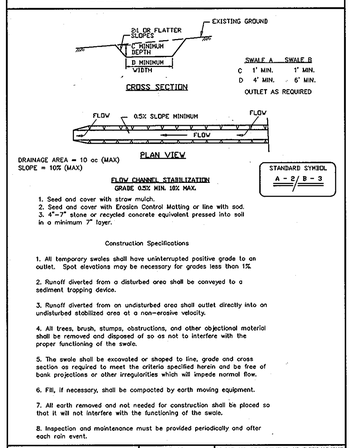


Construction Specifications

1. Gabion inflow protection shall be constructed of 9" x 3" x 9" gabion baskets forming a trapezoidal cross section 1' deep, with 2:1 side slopes, and a 3' bottom width.
2. Geotextile Class C shall be installed under all gabion baskets.
3. The stone used to fill the gabion baskets shall be 4" – 7".
4. Gabions shall be installed in accordance with manufacturers recommendations.
5. Gabion Inflow Protection shall be used where concentrated flow is present on slopes steeper than 4:1.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE B – 7 – 2	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 2 – TEMPORARY SWALE



FLOW CHANNEL STABILIZATION
GRADE 0.5% MIN. 10% MAX.

1. Seed and cover with straw mulch.
2. Seed and cover with Erosion Control Matting or line with sod.
3. 4"–7" stone or recycled concrete equivalent pressed into soil in a minimum 7" layer.

Construction Specifications

1. All temporary swales shall have uninterrupted positive grade to an outlet. Spot elevations may be necessary for grades less than 1%.
2. Runoff diverted from a disturbed area shall be conveyed to a sediment trapping device.
3. Runoff diverted from an undisturbed area shall outlet directly into an undisturbed stabilized area at a non-erosive velocity.
4. All trees, brush, stumps, obstructions, and other objectional material shall be removed and disposed of so as not to interfere with the proper functioning of the swale.
5. The swale shall be excavated or shaped to line, grade and cross section as required to meet the criteria specified herein and be free of bank projections or other irregularities which will impede normal flow.
6. Fill, if necessary, shall be compacted by earth moving equipment.
7. All earth removed and not needed for construction shall be placed so that it will not interfere with the functioning of the swale.
8. Inspection and maintenance must be provided periodically and after each rain event.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE A – 2 – 4	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

ENGINEER'S CERTIFICATE

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

Michael J. Troy — ENGINEER'S SIGNATURE — DATE 2/28/13

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 PERSONEL 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."

Robert Jenkins — SIGNATURE OF DEVELOPER/BUILDER — DATE 2-28-13

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

PRIVATE ROADS, SD AND STORMWATER

Chief, Bureau of Highways — Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Kent Sheubrooks — Chief, Division of Land Development — 3/28/13

Chief, Development Engineering Division — 3/27/13

OWNERS:

PARCELS C-1 THRU C-4 (OLD PARCEL C)
PARCEL C BUSINESS TRUST
c/o THE HOWARD HUGHES CORPORATION
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MD 21044

PARCELS D-1 THRU D-4 (OLD PARCEL D)
PARCEL D PROPERTY LLC
c/o KETTLER
1751 PINNACLE DRIVE
SUITE 700
MCLEAN, VA 22101

LOT 40
MALL ENTRANCES BUSINESS TRUST
PO BOX 617905
CHICAGO, IL 60661

LOT 47
MALL IN COLUMBIA BUSINESS TRUST
PO BOX 617905
CHICAGO, IL 60661

PARCEL E
CMI CORPORATE PARKING BUSINESS TRUST
PO BOX 833
COLUMBIA, MD 21044

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

John R. Robertson — Howard S.C.D. — Date 3/19/13

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

DATE	REVISION	BY	APP'R.

PREPARED FOR:
THE HOWARD HUGHES CORPORATION
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MARYLAND 21044
ATTN: BOB JENKINS
410-964-5443

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 14931 EXPIRATION DATE: MAY 21, 2014

STATE OF MARYLAND — MICHAEL JOHN TROY — No. 14931 — REGISTERED PROFESSIONAL ENGINEER

SEDIMENT CONTOL DETAILS

DOWNTOWN COLUMBIA

WARFIELD NEIGHBORHOOD

PARCELS C-1 THRU C-4 & PARCELS D-1 THRU D-4

COLUMBIA TOWN CENTER

LOTS 40 & 47 SECTION 2 AREA 1 & PARCEL E, SECTION 2 AREA 8

ELECTION DISTRICT No. 5 — FDP-DC-WARFIELD-1 — HOWARD COUNTY, MARYLAND

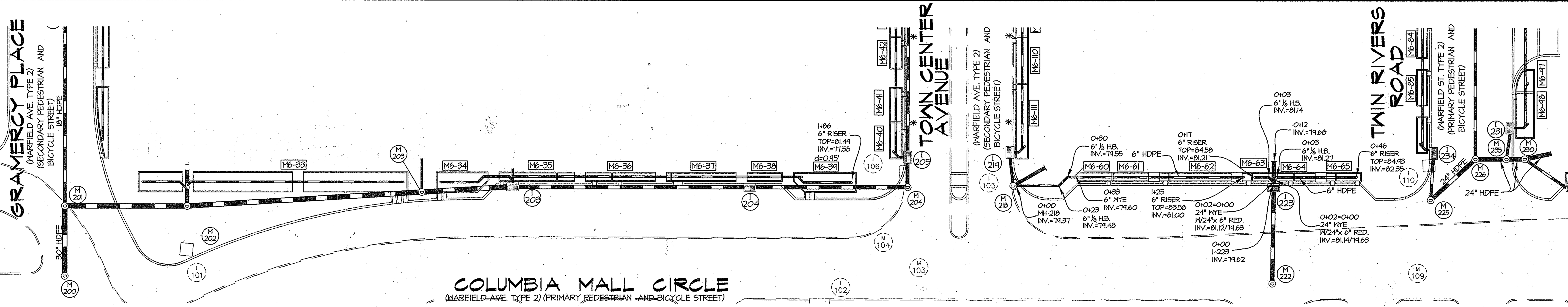
SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	NT	11053
DATE	TAX MAP – GRID	SHEET
MAR., 2013	36 – 01	10 OF 22

F 13-015

L:\CADD\DRAWINGS\11053\PLANS BY GLW\FINALS\11053-F-10.dwg | DES. WSJ | DRN. WSJ | CHK. MJT

L:\CADD\DRAWINGS\11053\PLANS BY GLW\FINALS\11053-F-10.dwg, PLOTTED: 2/28/2013 4:46 PM, LAST SAVED: 2/28/2013 4:46 PM, PLOTTED BY: Mike Troppen

©GLW 2012



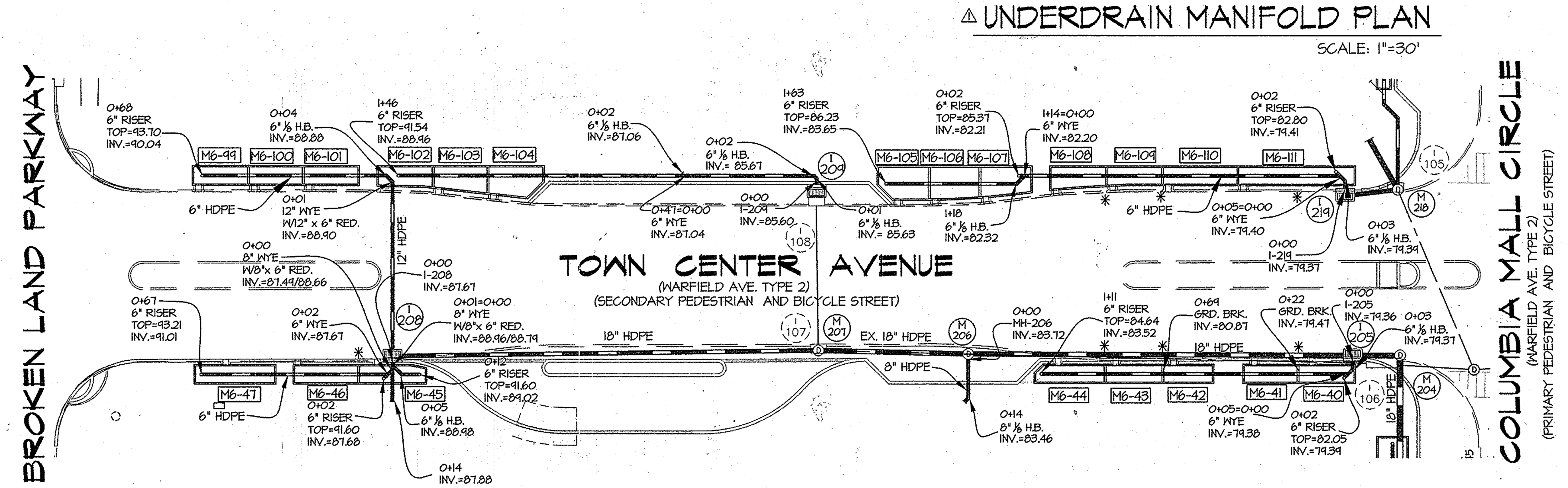
⚠ UNDERDRAIN MANIFOLD PLAN

SCALE: 1"=30'

NOTES:

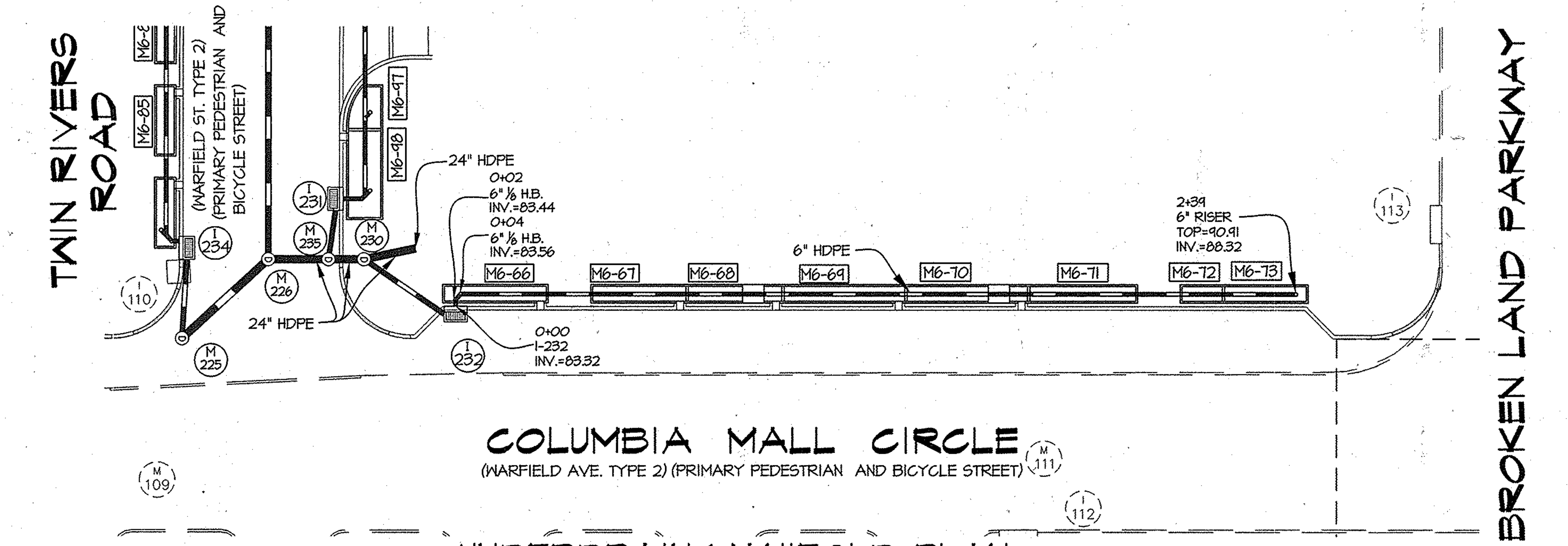
1. PLAN ASSUMES SOIL BETWEEN PLANTER PRACTICES WILL BE REPLACED & COMPACTED AFTER UNDERDRAIN INSTALLATION. IF THIS SOIL IS REMOVED & REPLACED WITH STONE, ANTI-SEEP COLLARS WILL BE REQUIRED.
2. *LOCATION OF VERTICAL STEP IN UNDERDRAIN. PROVIDE 45° SLOPE DOWN.
3. PIPE SECTIONS BETWEEN PLANTER PRACTICES SHALL BE SOLID HDPE OR WRAPPED W/FILTER FABRIC.
4. PROVIDE MIN. OF 0.50% SLOPE ON ALL UNDERDRAINS.
5. VERTICAL DROPS BETWEEN PLANTER PRACTICES NOT SHOWN.
6. CONTRACTOR TO COORDINATE LOCATIONS OF UNDERDRAINS WITH STREET LIGHTING FOUNDATIONS AND CONDUITS.

FOR PIPE SUMMARY & FITTINGS CHART SEE SHEET 12.



⚠ UNDERDRAIN MANIFOLD PLAN

SCALE: 1"=30'

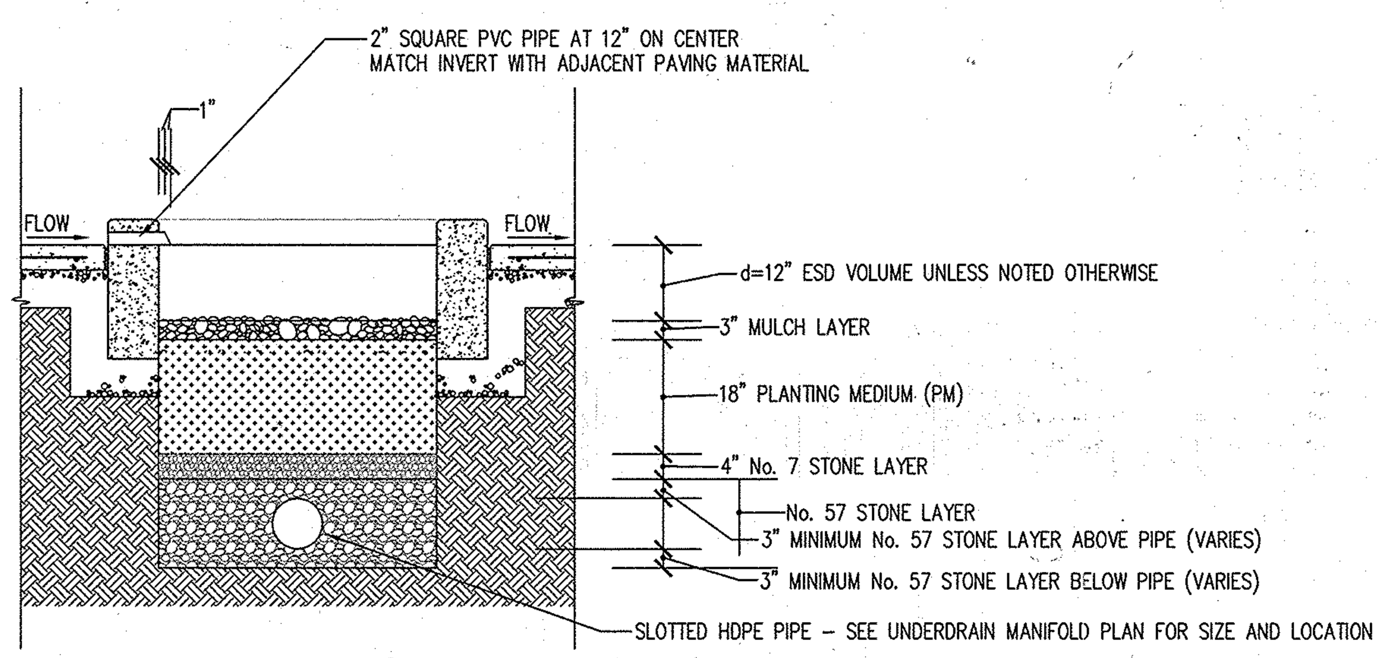


⚠ UNDERDRAIN MANIFOLD PLAN

SCALE: 1"=30'

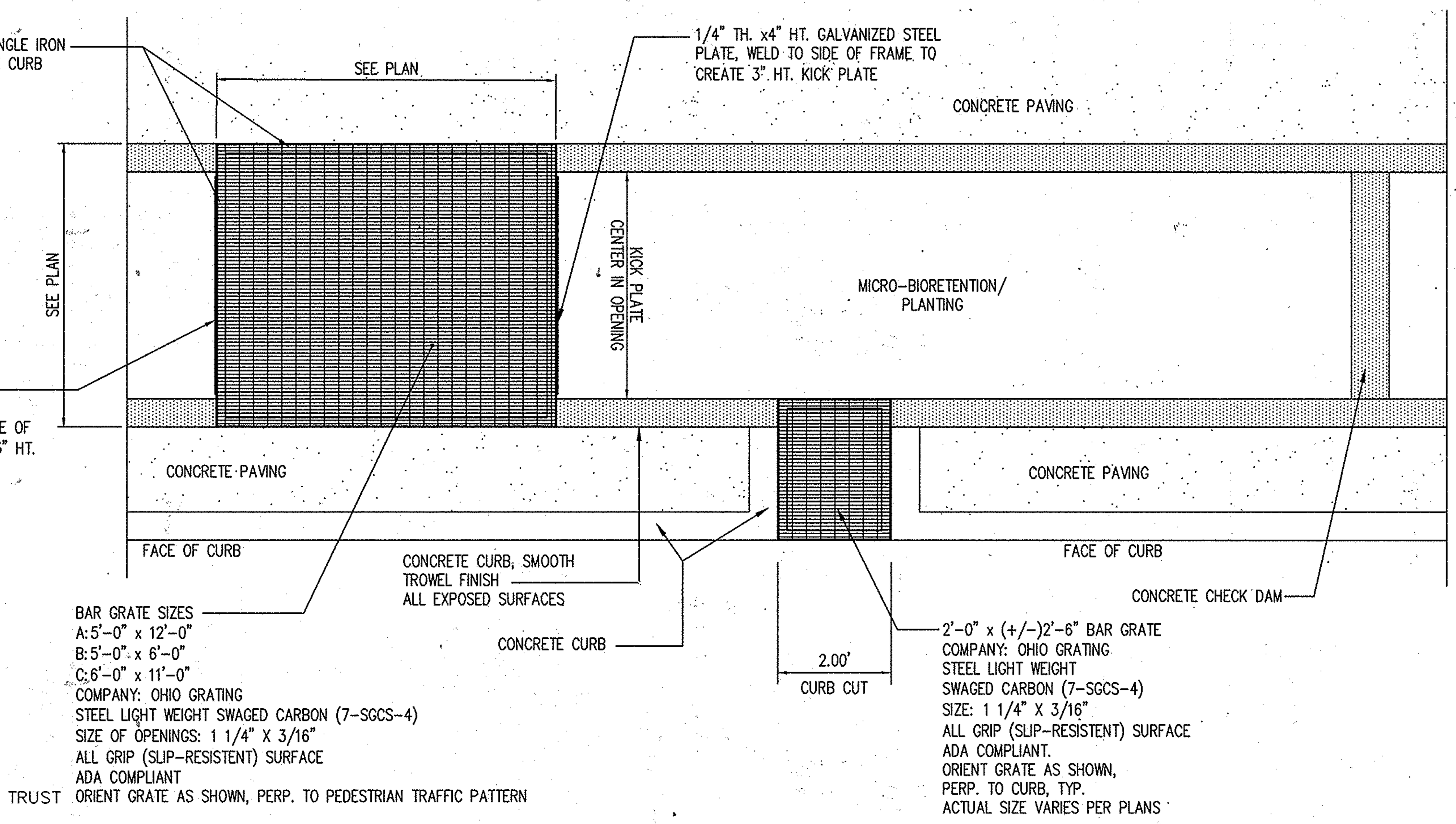
⚠ Town Center Avenue ESD Planter Tabulation													
Practice	Begin Station	Offset	End Station	Offset	Center 2' Curb Cut Station 1	Center 2' Curb Cut Station 2	Center 2' Curb Cut Station 3	Begin Walk Elevation	End Walk Elevation	Begin Top of Planter Elevation	End Top of Planter Elevation	Top of Planting Medium	Top of Weir Wall
M6-40	4+65.04	30.38	4+84.89	30.38	4+69.89	---	---	384.14	383.44	384.47	383.77	382.05	---
M6-41	4+45.89	30.38	4+65.04	30.38	4+49.89	---	---	384.72	384.14	383.77	384.47	382.70	384.14
M6-42	4+18.27	30.38	4+35.89	30.38	4+21.95	---	---	385.54	385.04	385.87	385.37	383.52	---
M6-43	3+98.27	30.38	4+18.27	30.38	4+01.95	---	---	386.10	385.54	386.43	385.87	384.08	385.54
M6-44	3+73.67	33.44	3+98.27	30.38	3+81.95	---	---	386.93	386.10	387.26	386.43	384.64	386.10
M6-45	1+39.87	30.66	1+63.44	31.85	1+46.33	---	---	393.71	392.99	394.04	393.32	391.60	---
M6-46	1+17.22	30.66	1+39.87	30.66	1+18.89	---	---	394.40	393.71	394.73	394.04	392.45	393.71
M6-47	0+82.91	30.66	1+11.22	30.66	0+93.87	---	---	395.73	394.62	396.06	394.95	393.21	---
M6-99	0+82.23	-31.45	1+01.70	-31.45	0+84.40	---	---	395.73	394.87	396.06	395.20	393.70	394.87
M6-100	1+01.70	-31.45	1+20.68	-31.45	1+03.71	---	---	394.87	394.28	395.20	394.61	392.88	394.28
M6-101	1+20.68	-31.45	1+40.15	-31.45	1+22.68	---	---	394.28	393.72	394.61	394.05	392.31	---
M6-102	1+46.15	-31.32	1+65.62	-30.49	1+48.30	---	---	393.52	392.93	393.85	393.26	391.54	392.93
M6-103	1+65.62	-30.49	1+84.59	-28.41	1+67.56	---	---	392.93	392.36	393.26	392.69	390.96	392.36
M6-104	Please See ESD Atypical Tabulation Planters Chart												
M6-105	Please See ESD Atypical Tabulation Planters Chart												
M6-106	3+37.66	-26.45	3+54.53	-27.18	3+39.33	---	---	387.93	387.41	388.26	387.74	385.87	387.41
M6-107	3+54.53	-27.18	3+72.98	-39.16	3+56.91	---	---	387.41	386.79	387.74	387.12	385.37	---
M6-108	3+78.98	-29.82	3+98.78	-31.32	3+81.19	---	---	386.61	386.06	386.94	386.39	384.62	386.06
M6-109	3+98.78	-31.32	4+18.09	-31.62	4+00.81	---	---	386.06	385.52	386.39	385.85	383.54	385.52
M6-110	4+18.09	-31.62	4+44.14	-31.62	4+20.10	---	---	385.52	384.77	385.85	385.10	383.54	---
M6-111	4+44.14	-31.62	4+84.90	-31.62	4+46.06	---	---	384.77	383.38	385.10	383.71	382.80	---

⚠ Columbia Mall Circle ESD Planter Tabulation													
Practice	Begin Station	Offset	End Station	Offset	Center 2' Curb Cut	Center 2' Curb Cut Station 2	Center 2' Curb Cut Station 3	Begin Walk Elevation	End Walk Elevation	Begin Top of Planter Elevation	End Top of Planter Elevation	Top of Planting Medium	Top of Weir Wall
M6-33	0+81.87	-79.04	2+01.69	-33.66	1+94.40	1+97.11	1+99.83	385.64	384.76	385.97	385.09	382.87	---
M6-34	2+15.63	-32.11	2+41.34	-37.00	2+16.94	2+19.69	---	384.55	384.13	384.88	384.46	382.58	---
M6-35	2+47.34	-37.00	2+68.19	-37.00	2+49.01	---	---	383.83	383.31	384.16	383.64	381.91	383.31
M6-36	2+68.41	-37.00	3+08.87	-37.00	2+99.43	---	---	383.31	382.80	383.64	383.13	381.06	382.80
M6-37	3+08.87	-37.00	3+40.95	-37.00	3+13.20	---	---	382.80	382.26	383.13	382.59	380.83	382.30
M6-38	3+40.95	-37.00	4+01.72	-37.00	3+43.43	3+46.43	---	382.26	381.82	382.59	382.15	380.27	---
M6-39	4+07.72	-37.00	4+41.97	-31.00	4+15.39	4+18.39	---	381.87	382.34	382.20	382.67	380.16	---
M6-60	5+62.30	-37.00	5+81.72	-37.00	5+79.71	---	---	384.54	384.38	384.87	384.71	382.62	---
M6-61	5+81.72	-37.00	6+12.64	-37.00	6+10.63	---	---	384.90	384.54	385.23	384.87	382.97	384.54
M6-62	6+12.64	-37.00	6+57.64	-37.00	6+55.63	---	---	385.53	384.90	385.86	385.23	383.58	384.90
M6-63	6+57.64	-37.00	6+80.55	-37.00	6+78.54	---	---	386.06	385.53	386.39	385.86	384.09	385.53
M6-64	6+80.55	-37.00	7+03.46	-37.00	7+01.45	---	---	386.58	386.06	386.91	386.39	384.62	386.06
M6-65	7+03.46	-37.00	7+17.34	-37.00	7+15.17	---	---	386.89	386.58	387.22	386.91	384.93	386.58
M6-66	7+17.34	-37.00	8+57.92	-37.00	8+55.75	---	---	389.27	389.14	389.60	389.47	387.23	---
M6-67	8+57.92	-37.00	8+97.00	-37.00	8+95.00	---	---	389.28	389.41	389.61	389.74	387.67	---
M6-68	8+97.00	-37.00	9+23.92	-37.00	9+21.91	---	---	389.74	389.28	390.07	389.61	387.82	389.28
M6-69	9+23.92	-37.00	9+58.44	-37.00	9+56.44	---	---	390.16	389.74	390.49	390.07	388.22	389.74
M6-70	9+58.44	-37.00	9+92.96	-37.00	9+90.96	---	---	390.88	390.16	391.21	390.49	388.92	390.16
M6-71	9+92.96	-37.00	10+23.63	-37.00	---	---	---	391.60	390.88	391.93	391.21	389.63	390.88
M6-72	10+35.63	-37.00	10+47.80	-37.00	---	---	---	392.16	391.88	392.49	392.21	390.63	---
M6-73	10+47.80	-37.00	10+71.63	-37.00	---	---	---	393.28	392.16	393.61	392.49	390.91	392.16



TYPICAL SECTION THROUGH MICRO BIO-RETENTION PLANTER 'A'

SCALE: 1"=2'



CURB CUT AND BRIDGE AT MICRO BIO-RETENTION DETAIL PLANTER 'A'

SCALE: 1"=2'

FOR MAIN LINE STORM DRAIN PROFILES SEE SHEETS 13 & 14.

OWNERS:

PARCELS C-1 THRU C-4 (OLD PARCEL C)
PARCEL C BUSINESS TRUST
c/o THE HOWARD HUGHES CORPORATION
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MD 21044

PARCELS D-1 THRU D-4 (OLD PARCEL D)
PARCEL D PROPERTY LLC
c/o KETTLER
1751 PINNACLE DRIVE
SUITE 700
MCLEAN, VA 22101

LOT 40
MALL ENTRANCES BUSINESS TRUST
PO BOX 617905
CHICAGO, IL 60661

LOT 47
MALL IN COLUMBIA BUSINESS TRUST
PO BOX 617905
CHICAGO, IL 60661

PARCEL E
CMI CORPORATE PARKING BUSINESS TRUST
PO BOX 833
COLUMBIA, MD 21044

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

PRIVATE ROADS, SD AND STORMWATER

Chief, Bureau of Highways — Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 12-21-15

Chief, Development Engineering Division — Date 3-25-15

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

L:\CADD\DRAWINGS\11053\PLANS BY GLW\FINALS\11053-F-1112.dwg | DES. MJT | DRN. WsJ | CHK.

DATE	REVISION	BY	APP'R.
2/18/15	REVISE PLANTER LOCATIONS, ADD ON-STREET PARKING, ADD I-209 ⚠	BTS	

PREPARED FOR:
THE HOWARD HUGHES CORPORATION
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MARYLAND 21044
ATTN: BOB JENKINS
410-964-5443

PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 14931 EXPIRATION DATE: MAY 21, 2016

STATE OF MARYLAND — MICHAEL JAMES TROPPEN — No. 14931 — REGISTERED PROFESSIONAL ENGINEER

REVISED

UNDERDRAIN MANIFOLD PLAN, NOTES & PIPE SUMMARY

DOWNTOWN COLUMBIA

WARFIELD NEIGHBORHOOD
PARCELS C-1 THRU C-4 & PARCELS D-1 THRU D-4
COLUMBIA TOWN CENTER
LOTS 40 & 47 SECTION 2 AREA 1 & PARCEL E, SECTION 2 AREA 8
FDP-DC-WARFIELD-1

ELECTION DISTRICT No. 5 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	NT	11053
DATE	TAX MAP – GRID	SHEET
FEB., 2015	36 – 01	11 OF 22

F 13-015

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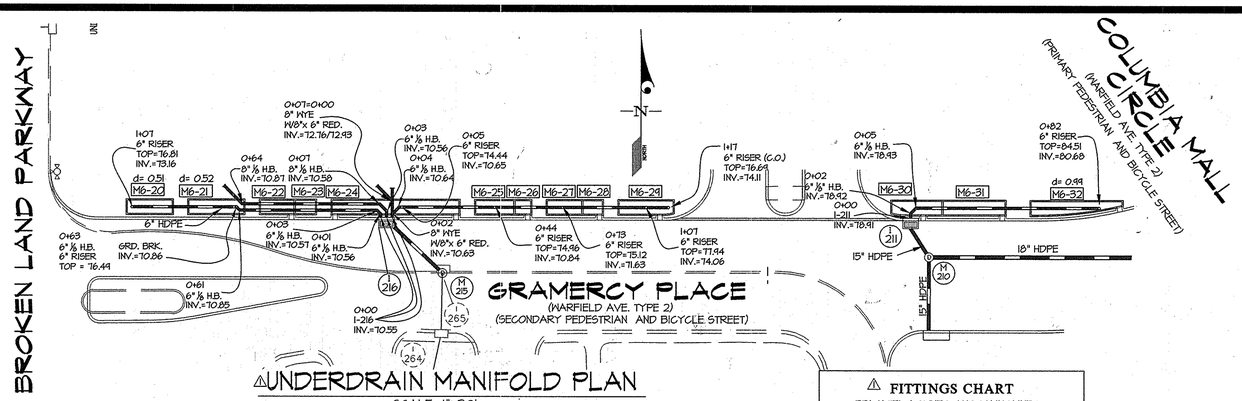
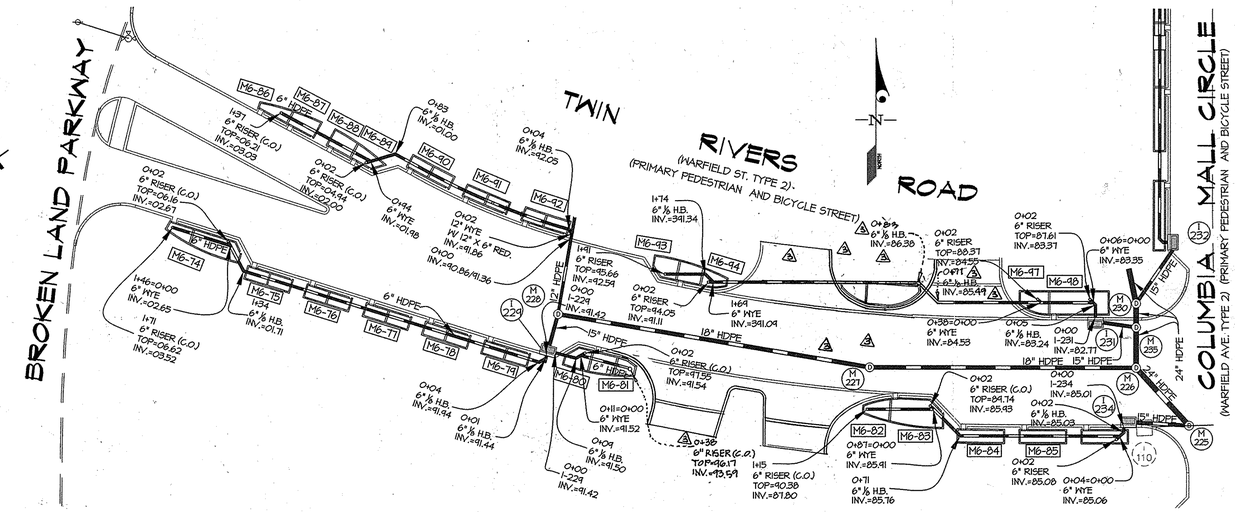


⚠UNDERDRAIN MANIFOLD PLAN

SCALE: 1"=30'



⚠⚠UNDERDRAIN MANIFOLD PLAN

SCALE: 1"=30'

⚠ Gramercy Place ESD Planter Tabulation

Practice	Begin Station	Offset	End Station	Offset	Center 2' Curb Cut Station 1	Center 2' Curb Cut Station 2	Center 2' Curb Cut Station 3	Begin Walk Elevation	End Walk Elevation	Begin Top of Planter Elevation	End Top of Planter Elevation	Top of Planting Medium	Top of Weir Wall
M6- 20	0+67.35	-25.00	0+87.22	-25.00	---	---	---	377.07	376.81	377.40	377.14	375.76	---
M6- 21	0+93.22	-25.00	1+17.22	-25.00	---	---	---	376.65	376.01	376.98	376.34	374.76	375.24
M6- 22	1+23.22	-25.00	1+37.97	-25.00	1+36.63	---	---	375.75	375.24	376.08	375.57	373.35	374.60
M6- 23	1+37.97	-25.00	1+47.22	-25.00	---	---	---	375.24	375.90	375.57	376.23	373.35	---
M6- 24	1+53.22	-25.00	2+07.22	-25.00	1+54.889	2+05.055	---	374.70	374.78	375.03	375.11	373.19	---
M6- 25	2+13.22	-25.00	2+29.95	-25.00	---	---	---	374.96	375.55	375.29	375.88	373.71	---
M6- 26	2+29.95	-25.00	2+37.22	-25.00	2+35.55		---	375.55	375.86	375.88	376.19	373.87	375.12
M6- 27	2+43.22	-25.00	2+58.42	-25.00	---	---	---	376.22	377.06	376.55	377.39	374.97	---
M6- 28	2+58.42	-25.00	2.67.22	-25.00	2+65.55	---	---	377.06	377.54	377.39	377.87	375.52	376.77
M6- 29	2+73.22	-25.00	2+96.91	-25.73	2+90.82	---	---	377.94	379.53	378.27	379.86	376.69	---
M6- 30	3+87.55	-25.73	4+09.19	-25.00	4+01.13	---	---	383.43	383.90	383.76	384.23	381.84	---
M6- 31	4+09.19	-25.00	4+35.89	-25.00	4.34.22	---	---	383.90	384.33	384.23	384.66	382.40	---
M6- 32	4+45.89	-25.00	4+91.01	-25.00	4+89.09	---	---	384.51	385.23	384.84	385.56	383.26	---

⚠ FITTINGS CHART

PRIVATELY OWNED AND MAINTAINED

SIZE (in.)	TYPE	QUANTITY
6"	RISER	41
6"	⅛ H.B.	40
8"	⅛ H.B.	4
6"	WYE	14
8"	WYE	4
12"	WYE	2
15"	WYE	1
24"	WYE	4
15"x 6"	TEE	1
8"x 6"	REDUCER	4
12"x 6"	REDUCER	2
15"x 6"	REDUCER	2
24"x 6"	REDUCER	4

⚠ S.D. PIPE SUMMARY TABLE

PRIVATELY OWNED AND MAINTAINED

SIZE (in.)	TYPE	QUANTITY (L.F.)	REMARKS
6"	HDPE	2,316	
8"	HDPE	127	

FOR MAIN LINE STORM DRAIN PROFILES SEE SHEETS 13 & 14 OF 22.

FOR NOTES SEE SHEETS 11 OF 22.

NOTES:
1. INCASE OF DISCREPANCIES BETWEEN THE CHART AND THE PLAN, THE PLAN SHALL GOVERN.
2. ALL RISERS FOR CLEANOUT LOCATIONS SHALL BE PVC WITH REMOVABLE PLUGS.
3. VERTICAL FITTINGS NOT INCLUDED.
4. ALL DRAIN RISERS SHALL HAVE NDS #40 ROUND GRATES OR EQUIVALENT AT THE SPECIFIED ELEVATION UNLESS NOTES OTHERWISE.

⚠⚠ ESD Planter Tabulation Atypical Planters

Practice	Begin Station	Offset	End Station	Offset	Center 2' Curb Cut Station 1	1 Begin Walk Elevation	2 Begin Walk Elevation	3 Begin Walk Elevation	1 End Walk Elevation	2 End Walk Elevation	3 End Walk Elevation	1 Begin Top of Planter Elevation	2 Begin Top of Planter Elevation	3 Begin Top of Planter Elevation	1 End Top of Planter Elevation	2 End Top of Planter Elevation	3 End Top of Planter Elevation	Top of Planting Medium 1	1 Top of Weir Wall	2 Top of Weir Wall	Top of Planting Medium 2
M6- 74	0+81.27	29.68	1+14.24	30.72	0+82.94	408.58	408.72	---	407.44	407.42	407.41	408.91	409.05	---	407.77	407.75	407.74	406.62	408.29	408.29	406.16
M6- 80	2+52.61	22.63	2+63.20	18.00	---	399.27	399.51	399.69	398.80	---	---	399.60	399.84	400.02	399.13	---	---	397.55	398.80	398.80	---
M6- 82	3+75.11	22.28	3+86.30	18.55	---	391.75	391.83	---	391.63	---	---	392.08	392.16	---	391.96	---	---	390.36	391.63	391.63	---
M6- 83	3+86.30	18.55	4+07.96	23.66	3+88.10	391.63	---	---	391.11	390.70	390.57	391.96	---	---	391.44	391.03	390.90	389.74	---	---	---
M6- 89	1+40.39	-23.97	1+50.41	-23.01	1+42.39	406.65	---	---	406.19	405.67	---	406.98	---	---	406.52	406.00	---	404.94	---	---	---
M6- 93	2+79.29	-22.28	2+90.49	-18.06	---	397.42	397.65	397.80	396.91	---	---	397.75	397.98	398.13	397.24		---	395.66	396.91	396.91	---
M6- 94	2+90.49	-18.06	3+12.34	-19.79	2+92.53	396.91	---	---	395.71	395.30	---	397.24	---	---	396.04	395.63	---	394.80	396.20	396.20	394.05
~~M6- 95~~	~~3+58.72~~	~~-26.28~~	~~3+72.97~~	~~-19.91~~	---	~~393.3~~	~~393.42~~	---	~~392.65~~	~~392.87~~	---	~~393.63~~	~~393.75~~	---	~~392.98~~	~~393.20~~	---	~~390.98~~	~~392.32~~	~~392.54~~	---
M6- 97	4+38.77	-22.34	4+51.36	-18.00	---	390.12	390.40	---	389.62	---	---	390.45	390.73	---	389.95	---	---	388.37	389.62	389.62	---
M6- 104	1+84.59	-28.41	2+04.56	-32.72	1+86.53	392.36	---	---	391.93	391.86	391.86	392.69	---	---	392.26	392.19	392.19	390.37	---	---	---
M6- 105	3+19.20	31.79	3+37.31	-26.45	3+26.43	389.41	389.48	388.48	387.93	---	---	389.74	389.81	388.81	388.26	---	---	386.23	387.93	387.93	---

⚠⚠Twin Rivers Road ESD Planter Tabulation

Practice	Begin Station	Offset	End Station	Offset	Center 2' Curb Cut Station 1	Center 2' Curb Cut Station 2	Center 2' Curb Cut Station 3	Begin Walk Elevation	End Walk Elevation	Begin Top of Planter Elevation	End Top of Planter Elevation	Top of Planting Medium 1	Top of Weir Wall	Top of Planting Medium 2
M6- 74	Please See ESD Atypical Tabulation Planters Chart													
M6- 75	1+18.62	34.11	1+38.53	32.19	1+21.17	---	---	407.21	406.50	407.54	406.83	405.25	406.89	405.25
M6- 76	1+44.50	31.61	1+64.41	29.69	1+46.66	---	---	406.22	405.26	406.55	405.59	404.19	405.76	404.01
M6- 77	1+70.38	29.12	1+89.51	27.43	1+72.54	---	---	404.91	403.78	405.24	404.11	402.84	404.34	402.53
M6- 78	1+95.21	27.05	2+14.26	26.26	1+97.27	---	---	403.38	402.07	403.71	402.40	401.29	402.71	400.82
M6- 79	2+19.98	26.15	2+39.05	26.01	2+22.06	---	---	401.63	400.30	401.96	400.63	399.54	400.96	399.05
M6- 80	Please See ESD Atypical Tabulation Planters Chart													
⚠ M6- 81	2+63.20	18.00	2+~~81.85~~ 82.96		2+65.15	---	---	398.80	397.42	399.13	397.75	396.72	398.07	396.17
M6- 82	Please See ESD Atypical Tabulation Planters Chart													
M6- 83	Please See ESD Atypical Tabulation Planters Chart													
M6- 84	4+13.58	30.00	4+32.77	30.00	4+16.16	---	---	390.33	389.78	390.66	390.11	388.38	---	---
M6- 85	4+38.77	30.00	4+58.77	30.00	4+40.94	---	---	389.61	389.01	389.94	389.34	387.63	---	---
M6- 87	1+10.37	-26.87	1+23.12	-25.64	1+12.36	---	---	407.78	407.35	408.11	407.68	406.10	---	---
M6- 88	1+29.09	-25.06	1+40.39	-23.97	1+31.25	---	---	407.11	406.65	407.44	406.98	405.10	406.65	---
M6- 89	Please See ESD Atypical Tabulation Planters Chart													
M6- 90	1+63.50	-29.78	1+84.47	-27.95	1+65.66	---	---	405.30	404.09	405.63	404.42	403.23	404.73	402.84
M6- 91	1+90.53	-27.49	2+11.69	-26.44	1+92.80	---	---	403.66	402.22	403.99	402.55	401.57	402.97	400.97
M6- 92	2+18.50	-26.22	2+39.95	-25.97	2+20.77	---	---	401.74	400.23	402.07	400.56	399.63	401.23	398.98
M6- 93	Please See ESD Atypical Tabulation Planters Chart													
M6- 94	Please See ESD Atypical Tabulation Planters Chart													
M6- 95	Please See ESD Atypical Tabulation Planters Chart													
⚠ ~~M6- 96~~	~~3+72.97~~	~~-19.91~~	~~3+86.78~~	~~-26.36~~	---	---	---	~~392.32~~	~~391.66~~	~~392.65~~	~~391.99~~	~~390.41~~	---	---
M6- 97	Please See ESD Atypical Tabulation Planters Chart													
M6- 98	4+51.36	-18.00	4+76.60	-18.00	4+53.38	---	---	389.62	388.84	389.95	389.17	387.61	---	---

REVISED

SPECIFICATIONS FOR BIORETENTION

1. Material Specifications
The allowable materials to be used in bioretention area are detailed in Table B.3.2.

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 bioretention area 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:

pH range	5.2 – 7.0
organic matter	1.5 – 4% (by weight)
magnesium	35 lb./ac.
phosphorus	(phosphate – P2O5) 75 lb./ac
potassium	(potash – K2O) 85 lb./ac soluble salts not to exceed 500 ppm

All bioretention areas shall have a minimum of one test. Each test shall consist of both the standard soil test for pH, phosphorus, and potassium and additional tests of organic matter, and soluble salts. A textural analysis is required from the site stockpiled topsoil. If topsoil is imported, then a texture analysis shall be performed for each location where the top soil was excavated.

Since different labs calibrate their testing equipment differently, all testing results shall come from the same testing facility.

Should the pH fall out of the acceptable range, it may be modified (higher) with lime or (lower) with iron sulfate plus sulfur.

3. Compaction
It is very important to minimize compaction of both the base of the bioretention area and the required backfill. When possible, use excavation hoes to remove original soil. If bioretention areas are excavated using a loader, the contractor should use wide track or marsh track equipment, or light equipment with turf type tires. Use of equipment with narrow tracks or narrow tires, rubber tires with large 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 retracture 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 12A to 18A. 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
Recommended plant material for bioretention areas can be found in Appendix A, Section A.2.3.

5. Plant Installation
Mulch should be placed to a uniform thickness of 2A to 3A. 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 2A by 2A 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'-0A 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.

[OPERATION AND MAINTENANCE SCHEDULE FOR LANDSCAPE INFILTRATION **(M-3)** MICRO-BIORETENTION **(M-6)**, RAIN GARDENS **(M-7)**, BIORETENTION SWALE **(M-8)**, ENHANCED FILTERS **(M-9)**]

a. The Owner shall maintain the plant material, mulch layer and soil layer annually. Maintenance of mulch and soil is limited to correcting areas of erosion or wash out. Any mulch replacement shall be done in the spring. Plant material shall be checked for disease and insect infestation and maintenance will address dead material and pruning. Acceptable replacement plant material is limited to the following: 2000 Maryland Stormwater Design Manual Volume II, Table A.4.1 and 2.⚠

b. The Owner shall perform a plant in the spring and in the fall of each year. During the inspection, the Owner shall remove dead and diseased vegetation considered beyond treatment, replace dead plant material with acceptable replacement plant material, treat diseased trees and shrubs, and replace all deficient stakes and wires.

c. The Owner shall inspect the mulch each spring. The mulch shall be replaced every two to three years. The previous mulch layer shall be removed before the new layer is applied.

d. The Owner shall correct soil erosion on an as needed basis, with a minimum of once per month and after each heavy storm..

Material	Specification	Size	Notes
Plantings	See Appendix A, Table A.4	N/A	Plantings are site-specific.
Planting soil [2.5' to 4' deep]	Sand 35 - 60% silt 30 - 55% clay 10 - 25%	N/A	USDA soil types loamy sand, sandy loam or loam.
Mulch	Shredded hardwood		Aged 6 months, minimum.
Pea gravel diaphragm and curtain drain	Pea gravel: ASTM-D-448 ornamental stone: washed cobbles	pea gravel: No. 6 stone: 2" to 5"	
Geotextile	Class "C" - apparent opening size (ASTM-D-4751), grabtensile strength (ASTM-D4632), puncture resistance(ASTM-D-4833)	N/A	For use as necessary beneath underdrains only.
Underdrain gravel	AASHTO M-43	0.375" to 0.75"	
Underdrain piping	F 758, Type PS 28 or AASHTO M-278	4" to 6" rigid schedule 40 PVC or SDR35	3/8" perf. @ 6" on center, 4 holes per row; minimum of 3" of gravel over pipes; not necessary underneath pipes.
Poured in place concrete (if required)	MSHA Mix No. 3; f'c = 3500psi @ 28 days, normal weight, air-entrained; reinforcing to meet ASTM-615-60	N/A	On-site testing of poured-in-place concrete required:28 day strength and slump test; all concrete design (cast-in-place or pre-cast) not using previously approved State or local standards requires design drawings sealed and approved by a professional structural engineer licensed in the State of Maryland - design to include meeting ACI Code 350.R/89; vertical loading [H-10 or H-20]; allowable horizontal loading (based on soil pressures); and analysis of potential cracking.
sand [1' deep]	AASHTO-M-6 or ASTM-C-33	0.02" to 0.04"	Sand substitutions such as Diabase and Graystone #10 are not acceptable. No calcium carbonated or dolomitic sand substitutions are acceptable. No "rock dust" can be used for sand.

OWNERS:

PARCELS C-1 THRU C-4 (OLD PARCEL C)
PARCEL C BUSINESS TRUST
c/o THE HOWARD HUGHES CORPORATION
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MD 21044

PARCELS D-1 THRU D-4 (OLD PARCEL D)
PARCEL D PROPERTY LLC
c/o KETTLER
1751 PINNACLE DRIVE
SUITE 700
MCLEAN, VA 22101

LOT 40
MALL ENTRANCES BUSINESS TRUST
PO BOX 617905
CHICAGO, IL 60661

LOT 47
MALL IN COLUMBIA BUSINESS TRUST
PO BOX 617905
CHICAGO, IL 60661

PARCEL E
CMI CORPORATE PARKING BUSINESS TRUST
PO BOX 833
COLUMBIA, MD 21044

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
PRIVATE ROADS, SD AND STORMWATER
Chief, Bureau of Highways — Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Kent Sheubrooks — 12-21-15
Chief, Division of Land Development — Date
Chad Edwards — 3-25-15
Chief, Development Engineering Division — Date

PREPARED FOR:
THE HOWARD HUGHES CORPORATION
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MARYLAND 21044
ATTN: BOB JENKINS
410-964-5443

PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 14831
EXPIRATION DATE: MAY 21, 2016

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

DATE	REVISION	BY	APP'R.
12.14.15	Revise Loading and Parking Entrances ⚠	gt	
2/18/15	REVISE PLANTER LOCATIONS, ADD ON-STREET PARKING, ADD I-204 ⚠	BTS	

L:\CADD\DRAWINGS\11053\PLANS BY GLW\FINALS\11053-F-1112.dwg DES. MJT DRN. WSJ CHK.

PLOTTED: 2/19/2015 9:05 AM, LAST SAVED: 2/19/2015 6:07 AM, PLOTTED BY: Mike Troppan

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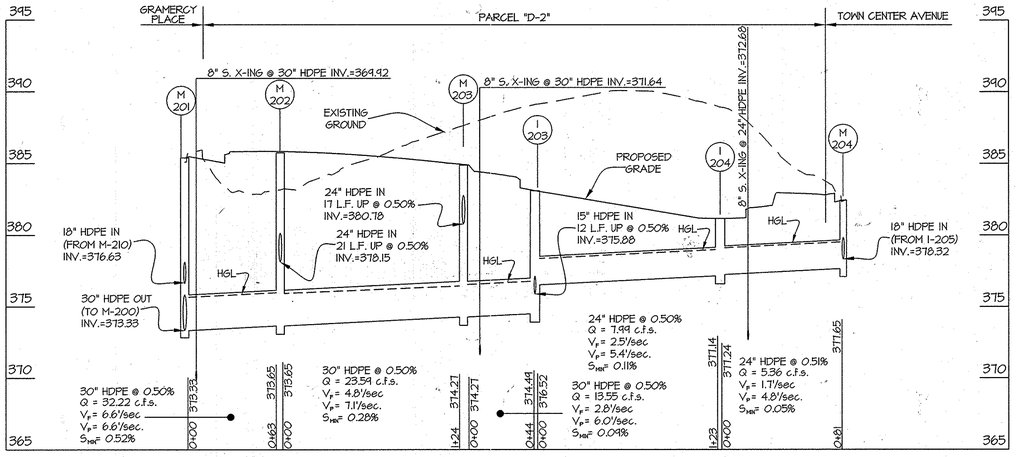
UNDERDRAIN MANIFOLD PLAN, NOTES & PIPE SUMMARY

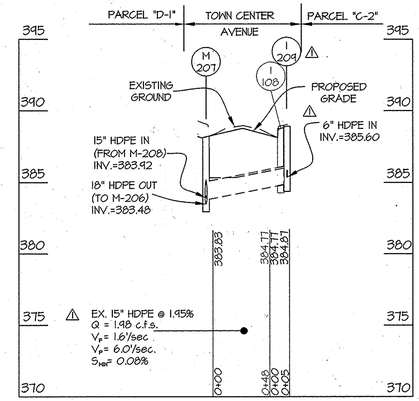
DOWNTOWN COLUMBIA

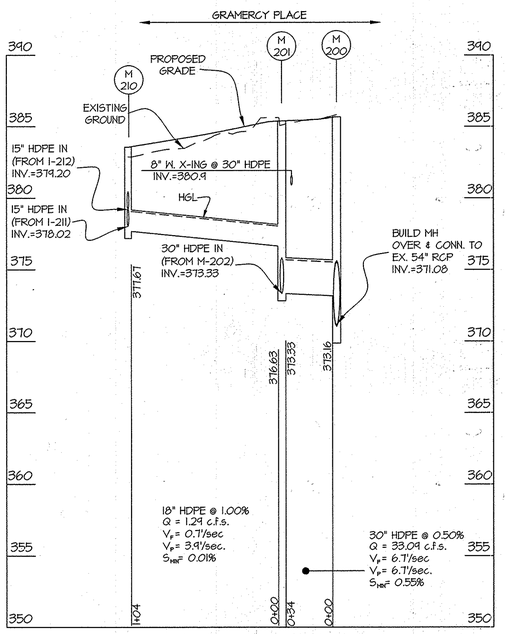
WARFIELD NEIGHBORHOOD
PARCELS C-1 THRU C-4 & PARCELS D-1 THRU D-4
COLUMBIA TOWN CENTER
LOTS 40 & 47 SECTION 2 AREA 1 & PARCEL E, SECTION 2 AREA 8
FDP-DC-WARFIELD-1
ELECTION DISTRICT No. 5 — HOWARD COUNTY, MARYLAND

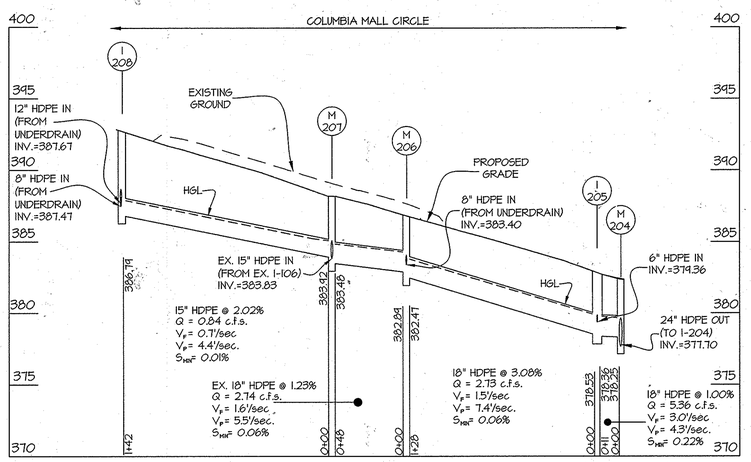
SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	NT	11053
DATE	TAX MAP – GRID	SHEET
FEB., 2015	36 – 01	12 OF 22

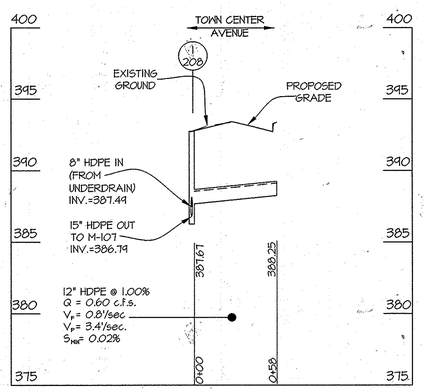
F 13-015

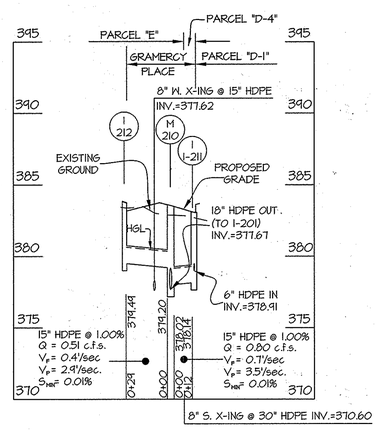


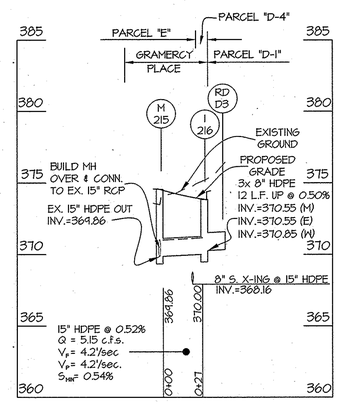












S.D. STRUCTURE SCHEDULE

NO.	TYPE	WIDTH (INSIDE)	TOP ELEVATION UPPER	TOP ELEVATION LOWER	INVERT ELEVATION UPPER	INVERT ELEVATION LOWER	STANDARD DETAIL	NOTES	LOCATION	OWNERSHIP & MAINTENANCE
M-200	MANHOLE	5'-0"	385.44	-----	373.16	371.08	HO. CO. G. 5.12		GRAMERCY PLACE 5+44.81 ~ 18.02' RIGHT	PRIVATE
M-201	MANHOLE	5'-0"	385.38	-----	376.63	373.33	HO. CO. G. 5.12		GRAMERCY PLACE 5+11.06 ~ 3.04' RIGHT	PRIVATE
M-202	MANHOLE	5'-0"	385.65	-----	378.15	373.65	HO. CO. G. 5.12		COLUMBIA MALL CIRCLE 0+98.66 ~ 60.11' LEFT	PRIVATE
M-203	MANHOLE	4'-0"	384.57	-----	380.78	374.27	HO. CO. G. 5.12		COLUMBIA MALL CIRCLE 2+09.47 ~ 31.49' LEFT	PRIVATE
M-204	MANHOLE	4'-0"	382.42	-----	378.32	377.65	HO. CO. G. 5.12		COLUMBIA MALL CIRCLE 4+70.01 ~ 33.98' LEFT	PRIVATE
I-203	DOUBLE WR	2'-7-1/2"	383.71	383.61	376.52	374.49	HO. CO. D. 4.35		COLUMBIA MALL CIRCLE 2+54.82 ~ 33.33' LEFT	PRIVATE
I-204	DOUBLE WR	2'-7-1/2"	381.71	381.70	377.24	377.14	HO. CO. D. 4.35		COLUMBIA MALL CIRCLE 3+84.01 ~ 33.39' LEFT	PRIVATE
I-205	DOUBLE WR	2'-7-1/2"	383.51	383.29	378.53	378.36	HO. CO. D. 4.35		TOWN CENTER AVENUE 4+84.02 ~ 26.73' RIGHT	PRIVATE
M-206	MANHOLE	4'-0"	386.81	-----	382.84	382.47	HO. CO. G. 5.12		TOWN CENTER AVENUE 3+50.85 ~ 26.84' RIGHT	PRIVATE
M-207	MANHOLE	4'-0"	388.18	-----	382.92	383.48	HO. CO. G. 5.12		TOWN CENTER AVENUE 2+98.42 ~ 25.30' RIGHT	PRIVATE
I-208	DOUBLE WR	2'-7-1/2"	393.34	393.18	387.41	386.79	HO. CO. D. 4.35		TOWN CENTER AVENUE 1+51.07 ~ 27.11' RIGHT	PRIVATE
M-210	MANHOLE	4'-0"	383.55	-----	379.20	377.67	HO. CO. G. 5.12		GRAMERCY PLACE 4+03.55 ~ 7.69 LEFT	PRIVATE
I-211	DOUBLE WR	2'-7-1/2"	383.69	383.59	378.91	378.14	HO. CO. D. 4.35		GRAMERCY PLACE 3+15.88 ~ 21.35' LEFT	PRIVATE
I-212	A-10	3'-0"	383.90	383.71	379.49	terminal	HO. CO. D. 4.04		GRAMERCY PLACE 4+06.73 ~ 23.00 RIGHT	PRIVATE
M-215	MANHOLE	4'-0"	374.55	-----	369.86	369.86	HO. CO. G. 5.12		GRAMERCY PLACE 1+99.84 ~ 0.68 LEFT	PRIVATE
I-216	DOUBLE WR	2'-7-1/2"	374.41	374.40	370.55	370.00	HO. CO. D. 4.35		GRAMERCY PLACE 1+76.49 ~ 21.35 LEFT	PRIVATE
M-218	MANHOLE	4'-0"	383.01	-----	379.31	377.11	HO. CO. G. 5.12		⚠ COLUMBIA MALL CIRCLE 5+27.62 ~ 34.78' LEFT	PRIVATE
I-219	DOUBLE WR	2'-7-1/2"	383.57	383.34	379.37	378.52	HO. CO. D. 4.35		COLUMBIA MALL CIRCLE 4+81.30 ~ 27.92 LEFT	PRIVATE
M-222	MANHOLE	5'-0"	385.55	-----	379.38	377.38	HO. CO. G. 5.12		COLUMBIA MALL CIRCLE 6+68.74 ~ 18.60' RIGHT	PRIVATE
I-223	DOUBLE WR	2'-7-1/2"	385.82	385.68	379.62	379.62	HO. CO. D. 4.35		COLUMBIA MALL CIRCLE 6+68.47 ~ 33.39' LEFT	PRIVATE
M-225	MANHOLE	4'-0"	387.22	-----	384.06	381.18	HO. CO. G. 5.12		COLUMBIA MALL CIRCLE 7+54.95 ~ 27.00 LEFT	PRIVATE
M-226	MANHOLE	4'-0"	388.21	-----	382.77	381.57	HO. CO. G. 5.12		TWIN RIVERS ROAD 4+67.84 ~ 4.00' RIGHT	PRIVATE
M-227	MANHOLE	4'-0"	391.78	-----	388.28	388.03	HO. CO. G. 5.12		TWIN RIVERS ROAD 3+76.60 ~ 6.25' RIGHT	PRIVATE
M-228	MANHOLE	4'-0"	391.70	-----	390.56	390.06	HO. CO. G. 5.12		TWIN RIVERS ROAD 2+65.60 ~ 7.01' RIGHT	PRIVATE
I-229	DOUBLE WR	2'-7-1/2"	400.00	399.56	391.42	390.67	HO. CO. D. 4.35		TWIN RIVERS ROAD 2+65.41 ~22.34' RIGHT	PRIVATE
M-230	MANHOLE	4'-0"	388.51	-----	383.82	381.64	HO. CO. G. 5.12		MALL RING ROAD 7+54.95 ~ 27.00' LEFT	PRIVATE
⚠ I-231	DOUBLE WR	2'-7-1/2"	389.06	388.88	382.54	terminal	HO. CO. D. 4.35		TWIN RIVERS ROAD 4+70.80 ~ 16.00' LEFT	PRIVATE
I-232	DOUBLE WR	2'-7-1/2"	388.86	388.78	383.32	382.57	HO. CO. D. 4.35		COLUMBIA MALL CIRCLE 8+31.62 ~ 33.95' LEFT	PRIVATE
I-234	DOUBLE WR	2'-7-1/2"	388.27	388.07	384.26	terminal	HO. CO. D. 4.35		TWIN RIVERS ROAD 4+84.78 ~ 26.34' RIGHT	PRIVATE
⚠ M-235	MANHOLE	4'-0"	387.45	-----	382.40	381.65	HO. CO. G. 5.12		TWIN RIVERS ROAD 4+67.84 ~ 12.80' LEFT	PRIVATE
⚠ I-209	DOUBLE WR	2'-7-1/2"	388.78	388.60	384.87	terminal	HO. CO. D. 4.35		TOWN CENTER AVENUE 2+48.32 ~ 30.74' LEFT	PRIVATE

EXISTING STRUCTURE NOTES:

EX. I-101 CONVERT EXISTING TYPE D YARD INLET TO MANHOLE. RIM= 385.93

EX. M-103 RIM= 381.58

EX. M-104 RIM= 382.03

EX. I-105 REMOVE EXISTING A-5 INLET AND PLACE MANHOLE OVER AND CONNECT TO EXISTING SD.

EX. I-106 REMOVE EXISTING A-10 INLET AND REMOVE PIPE BACK TO EXISTING MANHOLE M-104.

EX. I-107 REMOVE EXISTING A-5 INLET AND PLACE MANHOLE OVER AND CONNECT TO EXISTING SD.

EX. M-109 RIM= 387.42

EX. I-110 REMOVE EXISTING YARD INLET AND REMOVE EXISTING PIPE BACK TO PROPOSED INLET M-225.

EX. M-111 RIM= 390.00

EX. I-265 REMOVE EXISTING A-5 INLET AND PLACE MANHOLE OVER AND CONNECT TO EXISTING SD.

⚠ EX. I-108 REMOVE EXISTING A-5 INLET AND EXTEND PIPE IN LINE AND GRADE TO PROPOSED INLET I-209

S.D. PIPE SUMMARY TABLE

PRIVATELY OWNED AND MAINTAINED

SIZE (In.)	TYPE	QUANTITY (L.F.)	REMARKS
8"	HDPE	12	
12"	HDPE	88	
15"	HDPE	525	
18"	HDPE	479	
24"	HDPE	367	
30"	HDPE	265	

NOTE: FOR ADDTIONAL INFORMATION ON MICRO BIO-RENTION UNDERDRAIN CONNECTIONS WITH STORM DRAIN, SEE SHEETS 11 & 12.

OWNERS:

PARCELS C-1 THRU C-4 (OLD PARCEL C)
PARCEL C BUSINESS TRUST
c/o THE HOWARD HUGHES CORPORATION
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MD 21044

PARCELS D-1 THRU D-4 (OLD PARCEL D)
PARCEL D PROPERTY LLC
c/o KETTLER
1751 PINNACLE DRIVE
SUITE 700
MCLEAN, VA 22101

LOT 40
MALL ENTRANCES BUSINESS TRUST
PO BOX 617905
CHICAGO, IL 60661

LOT 47
MALL IN COLUMBIA BUSINESS TRUST
PO BOX 617905
CHICAGO, IL 60661

PARCEL E
CMI CORPORATE PARKING BUSINESS TRUST
PO BOX 833
COLUMBIA, MD 21044

PROFILE SCALES:
1" = 5' VERT.
1" = 50' HORZ.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

PRIVATE ROADS, SD AND STORMWATER

Chief, Bureau of Highways — Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 12-21-15

Chief, Development Engineering Division — Date 3-25-15

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

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DES. MJT	DRN. WSJ	CHK.

DATE	REVISION	BY	APP'R.
2/18/15	REVISE PLANTER LOCATIONS, ADD ON-STREET PARKING, ADD 2-I09 ⚠	BTS	

PREPARED FOR:
THE HOWARD HUGHES CORPORATION
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MARYLAND 21044
ATTN: BOB JENKINS
410-964-5443

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 14831
EXPIRATION DATE: MAY 21, 2016

REVISED

STORM DRAIN PROFILES & SCHEDULES

DOWNTOWN COLUMBIA

WARFIELD NEIGHBORHOOD
PARCELS C-1 THRU C-4 & PARCELS D-1 THRU D-4
COLUMBIA TOWN CENTER
LOTS 40 & 47 SECTION 2 AREA 1 & PARCEL E, SECTION 2 AREA 8

ELECTION DISTRICT No. 5 — FDP-DC-WARFIELD-1 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	NT	11053
DATE	TAX MAP – GRID	SHEET
FEB., 2015	36 – 01	13 OF 22

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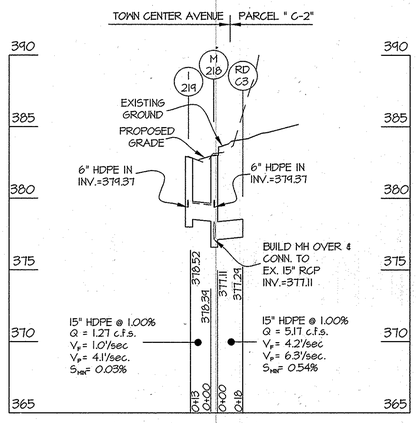
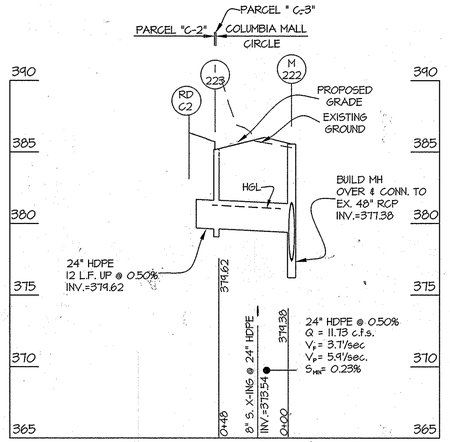
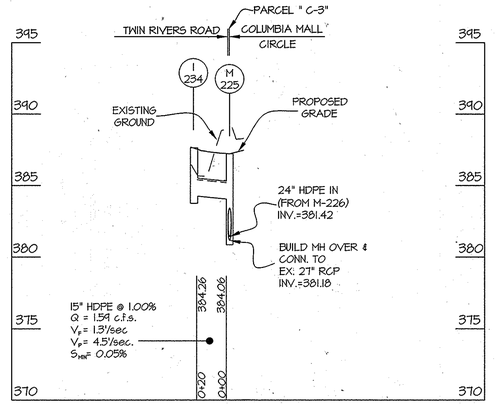
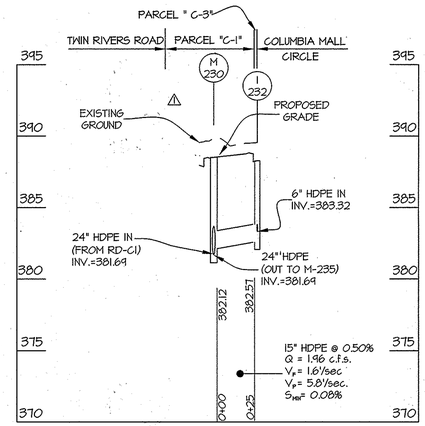
F 13-015

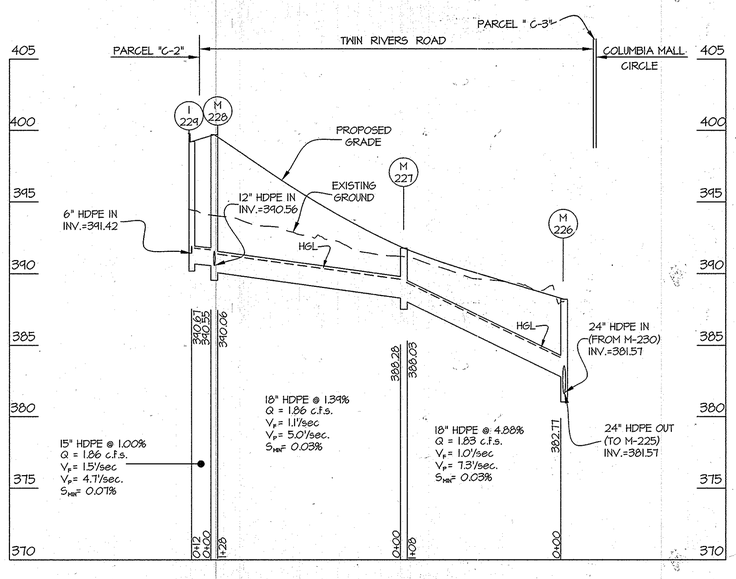


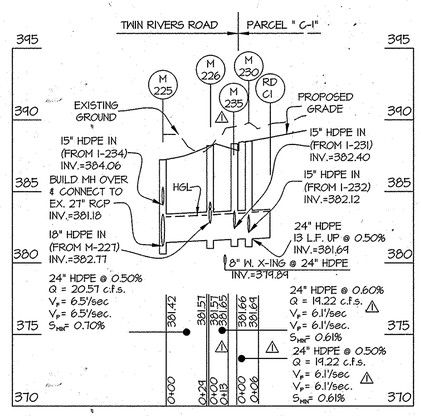


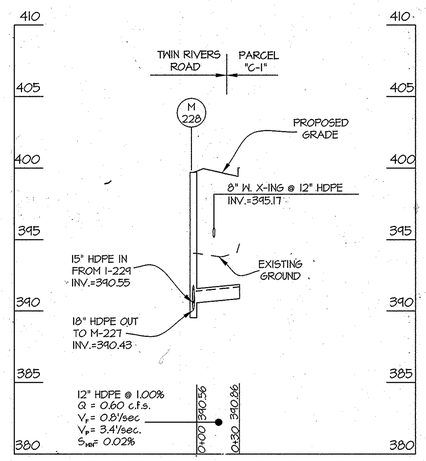


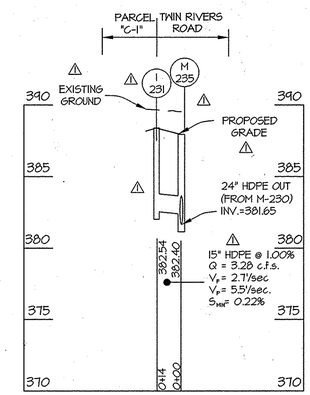


NOTE: FOR ADDTIONAL INFORMATION ON MICRO BIO-RETENTION UNDERDRAIN CONNECTIONS WITH STORM DRAIN, SEE SHEETS 11 & 12.









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1" = 50' HORZ.

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PO BOX 833
COLUMBIA, MD 21044

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
PRIVATE ROADS, SD AND STORMWATER
Chief, Bureau of Highways — Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Kent Sheubrooks — 3-25-15
Chief, Division of Land Development — Date
Chad Edwards — 3-25-15
Chief, Development Engineering Division — Date

GLW GUTSCHICK LITTLE & WEBER, P.A.
CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS
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DES. MJT | DRN. WBJ | CHK.

DATE	REVISION	BY	APP'R.
2/18/15	REVISE PLANTER LOCATIONS, ADD ON-STREET PARKING, ADD I-209 ⚠1	BTS	

PREPARED FOR:
THE HOWARD HUGHES CORPORATION
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MARYLAND 21044
ATTN: BOB JENKINS
410-964-5443

PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 14931
EXPIRATION DATE: MAY 21, 2016

STATE OF MARYLAND — MICHAEL JAMES BOLTON — 14931 — REGISTERED PROFESSIONAL ENGINEER

REVISED
STORM DRAIN PROFILES
DOWNTOWN COLUMBIA
WARFIELD NEIGHBORHOOD
PARCELS C-1 THRU C-4 & PARCELS D-1 THRU D-4
COLUMBIA TOWN CENTER
LOTS 40 & 47 SECTION 2 AREA 1 & PARCEL E, SECTION 2 AREA 8
ELECTION DISTRICT No. 5 — FDP-DC-WARFIELD-1 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	NT	11053
DATE	TAX MAP – GRID	SHEET
FEB., 2015	36 – 01	14 OF 22

F 13-015

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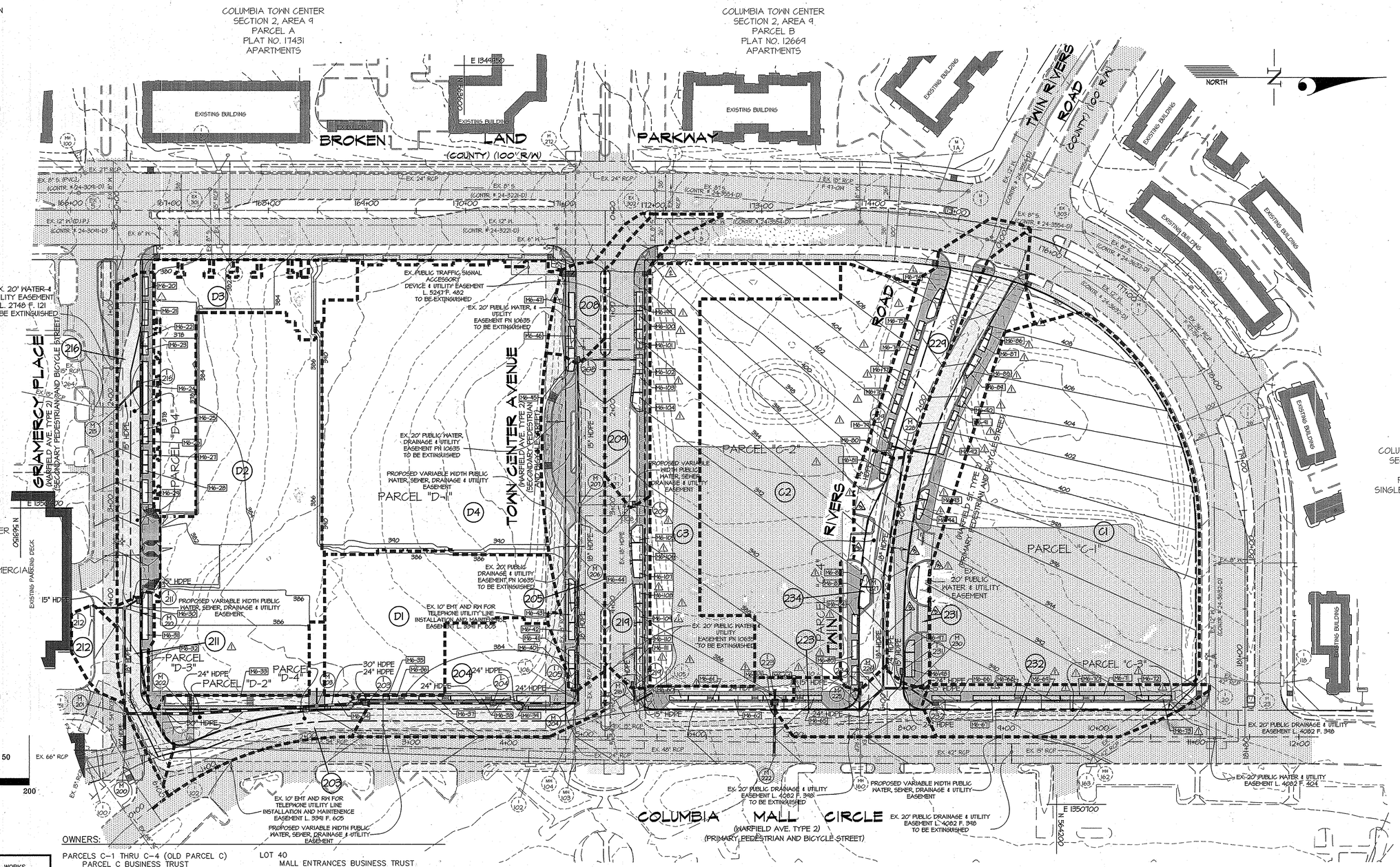
LEGEND

(102) DRAINAGE AREA IDENTIFICATION

PROP. 10 YR DRAINAGE DIVIDE

Drainage Area Summary Chart				
No.	Area (sq ft)	Area (Ac.)	Composite C	% Impervious
203	13,068	0.300	0.76	85
204	18,731	0.430	0.76	85
205	19,115	0.439	0.76	85
208	5,682	0.130	0.76	85
211	5,382	0.124	0.76	85
212	3,424	0.079	0.76	85
216	13,068	0.300	0.76	85
219	8,652	0.199	0.76	85
209	13,285	0.305	0.76	85
223	8,260	0.190	0.76	85
229	12,572	0.289	0.76	85
231	22,113	0.508	0.76	85
232	13,220	0.303	0.76	85
234	10,707	0.246	0.76	85
C1	83,984	1.928	0.86	100
C2	62,565	1.436	0.86	100
C3	30,799	0.707	0.86	100
D1	25,265	0.580	0.86	100
D2	55,757	1.280	0.86	100
D3	19,166	0.440	0.86	100
D4	65,340	1.500	0.86	100



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PARCEL E
OMI CORPORATE PARKING BUSINESS TRUST
PO BOX 833
COLUMBIA, MD 21044

COLUMBIA TOWN CENTER SECTION 2, AREA 1 LOT 47 PLAT NO. 18607 COMMERCIAL

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

PRIVATE ROADS, SD AND STORMWATER

Chief, Bureau of Highways — Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 12-21-15

Chief, Development Engineering Division — Date 3-25-15

GLW GUTSCHICK LITTLE & WEBER, P.A.

CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS
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DATE	REVISION	BY	APP'R.
12.14.15	Revise loading and Parking Entrances	gt	
9.02.15	Revise Traffic signal Easement NE Quadrant	gt	
2/18/15	REVISE PLANTER LOCATIONS, ADD ON-STREET PARKING, ADD 1-204	BTS	

PREPARED FOR:
THE HOWARD HUGHES CORPORATION
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MARYLAND 21044
ATTN: BOB JENKINS
410-964-5443

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 14831, EXPIRATION DATE: MAY 21, 2016

STATE OF MARYLAND — MICHAEL JAMES SCHUCK — No. 14831 — PROFESSIONAL ENGINEER

REVISED

STORM DRAIN DRAINAGE AREA MAP

DOWNTOWN COLUMBIA

WARFIELD NEIGHBORHOOD
PARCELS C-1 THRU C-4 & PARCELS D-1 THRU D-4
COLUMBIA TOWN CENTER
LOTS 40 & 47 SECTION 2 AREA 1 & PARCEL E, SECTION 2 AREA 8
FDP-DC-WARFIELD-1

ELECTION DISTRICT No. 5 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
1"=50'	NT	11053
DATE	TAX MAP – GRID	SHEET
FEB., 2015	36 – 01	15 OF 22

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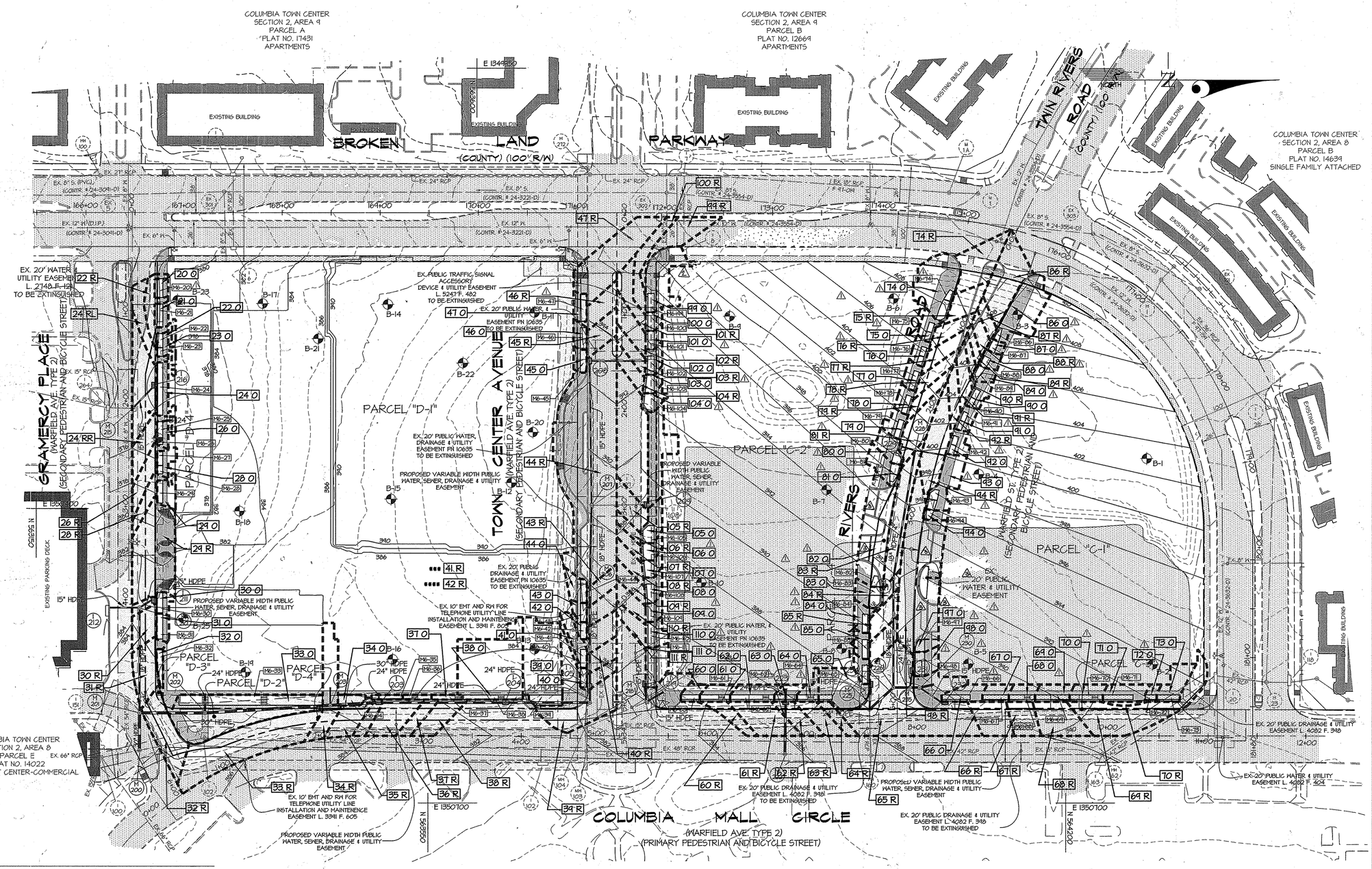
⚠ ESD Drainage Area Summary Chart

No.	Practice No.	Area	Area (Ac.) Overland (O)	Area	Area (Ac.) Roads (R)	% Impv.	Rational Formula C Factor
20	M6-20	262	0.006	—	—	100	0.98
21	M6-21	438	0.010	—	—	100	0.98
22	M6-22	369	0.008	810	0.019	100	0.98
23	M6-23	—	—	—	—	100	0.98
24L	M6-24L	724	0.017	1,039	0.024	100	0.98
24R	M6-24R			958	0.022	100	0.98
25	M6-25	—	—	—	—	100	0.98
26	M6-26	313	0.007	839	0.019	100	0.98
27	M6-27	—	—	—	—	100	0.98
28	M6-28	417	0.010	604	0.014	100	0.98
29	M6-29	509	0.012	3,892	0.089	100	0.98
30	M6-30	315	0.007	870	0.020	100	0.98
31	M6-31	346	0.008	1,418	0.033	100	0.98
32	M6-32	230	0.005	1,953	0.045	100	0.98
33	M6-33	4,857	0.112	4,717	0.108	100	0.98
34	M6-34	293	0.007	1,870	0.043	100	0.98
35	M6-35	159	0.004	998	0.023	100	0.98
36	M6-36	147	0.003	1,341	0.031	100	0.98
37	M6-37	153	0.004	551	0.013	100	0.98
38	M6-38	4374	0.100	999	0.023	100	0.98
39	M6-39	359	0.008	3,374	0.077	100	0.98
40	M6-40	315	0.007	652	0.015	100	0.98
41	M6-41	614	0.014	852	0.020	100	0.98
42	M6-42	224	0.005	673	0.015	100	0.98
43	M6-43	324	0.007	695	0.016	100	0.98
44	M6-44	336	0.008	11,834	0.272	100	0.98
45	M6-45	311	0.007	877	0.020	100	0.98
46	M6-46	347	0.008	811	0.019	100	0.98
47	M6-47	568	0.013	2,954	0.068	100	0.98
60	M6-60	354	0.008	618	0.014	100	0.98
61	M6-61	534	0.012	1,584	0.036	100	0.98
62	M6-62	777	0.018	188	0.004	100	0.98
63	M6-63	360	0.008	801	0.018	100	0.98
64	M6-64	424	0.010	443	0.010	100	0.98
65	M6-65	485	0.011	6,295	0.145	100	0.98
66	M6-66	404	0.009	1,450	0.033	100	0.98
67	M6-67	470	0.011	951	0.022	100	0.98
68	M6-68	468	0.011	1,539	0.035	100	0.98
69	M6-69	615	0.014	3,544	0.081	100	0.98
70	M6-70	589	0.014	336	0.008	100	0.98
71	M6-71	754	0.017	—	—	100	0.98
72	M6-72	204	0.005	—	—	100	0.98
73	M6-73	883	0.020	—	—	100	0.98
74	M6-74	2,293	0.053	2,341	0.054	100	0.98
75	M6-75	232	0.005	1,030	0.024	100	0.98
76	M6-76	322	0.007	769	0.018	100	0.98
77	M6-77	322	0.007	831	0.019	100	0.98
78	M6-78	310	0.007	745	0.017	100	0.98
79	M6-79	384	0.009	688	0.016	100	0.98
80	M6-80	349	0.008	—	—	100	0.98
81	M6-81	758	0.017	572	0.013	100	0.98
82	M6-82	268	0.006	—	—	100	0.98
83	M6-83	613	0.014	4,839	0.111	100	0.98
84	M6-84	316	0.007	489	0.011	100	0.98
85	M6-85	320	0.007	843	0.019	100	0.98
86	M6-86	2,047	0.047	3,503	0.080	100	0.98
87	M6-87	207	0.005	383	0.009	100	0.98
88	M6-88	210	0.005	544	0.012	100	0.98
89	M6-89	328	0.008	250	0.006	100	0.98
90	M6-90	316	0.007	435	0.010	100	0.98
91	M6-91	293	0.007	762	0.017	100	0.98
92	M6-92	366	0.008	719	0.017	100	0.98
93	M6-93	220	0.005	—	—	100	0.98
94	M6-94	506	0.012	2,755	0.063	100	0.98
~~95~~	~~M6-95~~	~~298~~	~~0.007~~	—	—	~~100~~	~~0.98~~ ⚠
~~96~~	~~M6-96~~	~~302~~	~~0.007~~	—	—	~~100~~	~~0.98~~ ⚠
97	M6-97	251	0.006	—	—	100	0.98 ⚠
98	M6-98	636	0.015	5,115	0.117	100	0.98 ⚠
99	M6-99	621	0.014	2,541	0.058	100	0.98
100	M6-100	312	0.007	1,019	0.023	100	0.98
101	M6-101	321	0.007	861	0.020	100	0.98
102	M6-102	335	0.008	994	0.023	100	0.98
103	M6-103	358	0.008	550	0.013	100	0.98
104	M6-104	410	0.009	583	0.013	100	0.98
105	M6-105	389	0.009	1,235	0.028	100	0.98
106	M6-106	380	0.009	317	0.007	100	0.98
107	M6-107	364	0.008	387	0.009	100	0.98
108	M6-108	352	0.008	695	0.016	100	0.98
109	M6-109	346	0.008	583	0.013	100	0.98
110	M6-110	536	0.012	601	0.014	100	0.98
111	M6-111	869	0.020	586	0.013	100	0.98



APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

PRIVATE ROADS, SD AND STORMWATER

Chief, Bureau of Highways — Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 12-21-15

Chief, Development Engineering Division — Date 3-25-15

OWNERS:

PARCELS C-1 THRU C-4 (OLD PARCEL C)
PARCEL C BUSINESS TRUST
c/o THE HOWARD HUGHES CORPORATION
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MD 21044

PARCELS D-1 THRU D-4 (OLD PARCEL D)
PARCEL D PROPERTY LLC
c/o KETTLER
1751 PINNACLE DRIVE
SUITE 700
MCLEAN, VA 22101

LOT 40
MALL ENTRANCES BUSINESS TRUST
PO BOX 617905
CHICAGO, IL 60661

LOT 47
MALL IN COLUMBIA BUSINESS TRUST
PO BOX 617905
CHICAGO, IL 60661

PARCEL E
CMI CORPORATE PARKING BUSINESS TRUST
PO BOX 833
COLUMBIA, MD 21044

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

DATE	REVISION	BY	APP'R.
12.14.15	Revise Loading and Parking Entrances ⚠	gt	
3.20.15	Revise Traffic signal Easement NE Quadrant ⚠	gt	
2/18/15	REVISE PLANTER LOCATIONS, ADD ON-STREET PARKING, ADD 1-204 ⚠	BTS	

E:\CADD\DRAWINGS\11053\PLANS BY GLW\FINALS\11053-F-16.dwg DES. MJT DRN. WSJ CHK.

L:\CADD\DRAWINGS\11053\PLANS BY GLW\FINALS\11053-F-16.dwg, PLOTTED: 2/19/2015 8:16 AM, LAST SAVED:2/19/2015 8:14 AM, PLOTTED BY: Mike Troppan

PREPARED FOR:
THE HOWARD HUGHES CORPORATION
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MARYLAND 21044
ATTN: BOB JENKINS
410–964–5443

PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 14931
EXPIRATION DATE: MAY 21, 2016

STATE OF MARYLAND · MICHAEL JAMES TROPPAN · No. 14931 · REGISTERED PROFESSIONAL ENGINEER

REVISED

ESD DRAINAGE AREA MAP

DOWNTOWN COLUMBIA

WARFIELD NEIGHBORHOOD
PARCELS C-1 THRU C-4 & PARCELS D-1 THRU D-4
COLUMBIA TOWN CENTER
LOTS 40 & 47 SECTION 2 AREA 1 & PARCEL E, SECTION 2 AREA 8
FDP-DC-WARFIELD-1

ELECTION DISTRICT No. 5 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
1"=50'	NT	11053
DATE	TAX MAP – GRID	SHEET
FEB., 2015	36 – 01	16 OF 22

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F 13-015

NOTES:

1. FINANCIAL SURETY FOR THE 4 STREET TREES (4 ORNAMENTAL) IN THE AMOUNT OF $600.00 IS PART OF THE DPW DEVELOPER'S AGREEMENT.

2. THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.125 OF THE HOWARD COUNTY CODE, THE ALTERNATIVE COMPLIANCE PROVISIONS OF THE LANDSCAPE MANUAL, AND THE LANDSCAPE GUIDELINES FOUND WITHIN THE WARFIELD NEIGHBORHOOD DESIGN GUIDELINES.

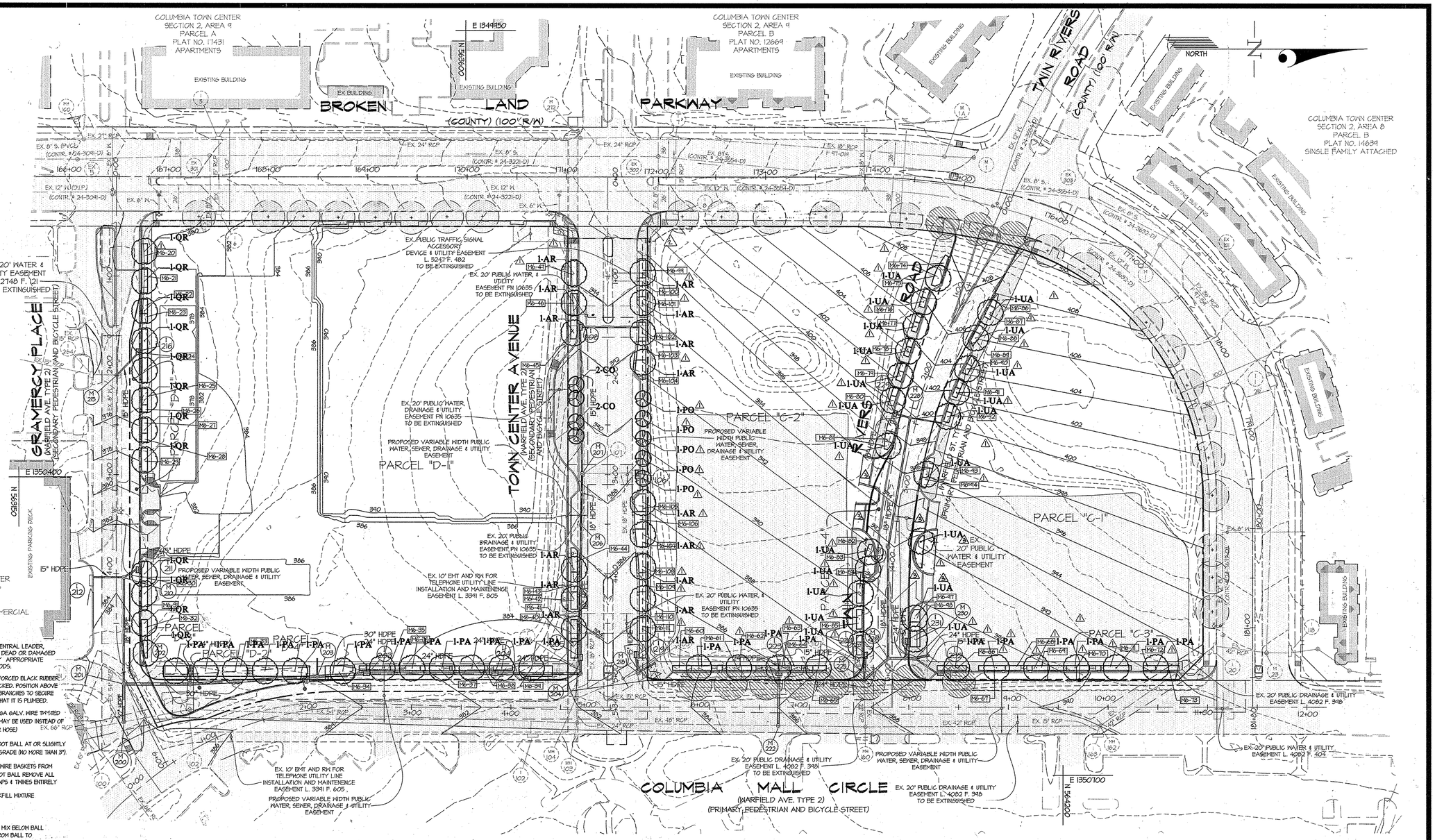
3. AT THE TIME OF PLANT INSTALLATION, ALL SHRUBS AND TREES LISTED AND APPROVED ON THE LANDSCAPE PLAN SHALL COMPLY WITH THE PROPER HEIGHT REQUIREMENT IN ACCORDANCE WITH THE HOWARD COUNTY LANDSCAPE MANUAL AND THE WARFIELD NEIGHBORHOOD DESIGN GUIDELINES. IN ADDITION, NO SUBSTITUTIONS OR RELOCATIONS OF THE REQUIRED PLANTINGS MAY BE MADE WITHOUT PRIOR REVIEW AND APPROVAL FROM THE DEPARTMENT OF PLANNING AND ZONING. ANY DEVIATION FROM THE APPROVED LANDSCAPE PLAN MAY RESULT IN DENIAL OR DELAY IN THE RELEASE OF LANDSCAPE SURETY UNTIL SUCH TIME AS ALL REQUIRED MATERIALS ARE PLANTED AND/OR REVISIONS ARE MADE TO THE APPLICABLE PLANS.

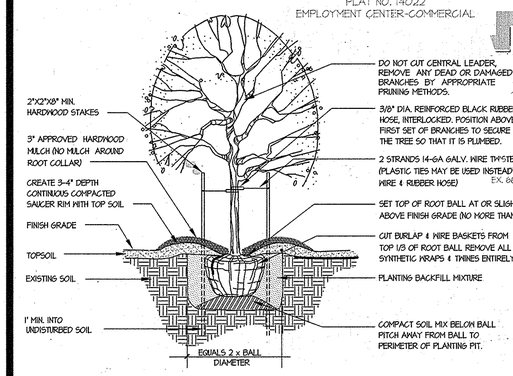
4. ALL PLANTINGS SHALL BE A MINIMUM OF FOUR FEET FROM THE EDGE OF CROSSWALKS AND HANDICAP CURB CUTS.

5. STREET TREES SHALL BE A MINIMUM OF 15 FEET FROM ALL SIGNS AND INTERSECTIONS WHEN PLANTED BETWEEN THE CURB AND SIDEWALK AND LOCATED WITH CONSIDERATION TO UNDERGROUND UTILITIES AND STRUCTURES.

6. STREET TREES SHALL NOT BE PLACED WITHIN 5 FEET OF A DRAIN INLET STRUCTURE, WITHIN 5 FEET OF AN OPEN SPACE ACCESS STRIP OR WITHIN 10 FEET OF A DRIVEWAY.

7. THE OWNER, TENANTS, AND/OR THEIR AGENTS SHALL BE RESPONSIBLE FOR MAINTENANCE OF THE REQUIRED LANDSCAPING INCLUDING BOTH PLANT MATERIALS AND BERMS, FENCES, AND WALLS. ALL PLANT MATERIAL SHALL BE MAINTAINED IN GOOD GROWING CONDITION, AND WHEN NECESSARY, REPLACED WITH NEW MATERIALS TO ENSURE CONTINUED COMPLIANCE WITH APPLICABLE REGULATIONS. ALL OTHER REQUIRED LANDSCAPING SHALL BE PERMANENTLY MAINTAINED IN GOOD CONDITION, AND WHEN NECESSARY, REPAIRED OR REPLACED.





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

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

SCALE: 1" = 50
0' 25 50 100 200

OWNERS: NTS

PARCELS C-1 THRU C-4 (OLD PARCEL C)
PARCEL C BUSINESS TRUST
c/o THE HOWARD HUGHES CORPORATION
10275 LITTLE PATUXENT PARKWAY
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COLUMBIA, MD 21044

⚠ PLANT LIST

SYMBOL	QTY.	TYPE	NAMES (BOTANICAL / SCIENTIFIC)	SIZE/COMMENTS
	SHADE TREES			
	16	AR	ACER RUBRUM 'OCTOBER GLORY'/ OCTOBER GLORY RED MAPLE	4" CAL. B&B
	25	PA	PLANTANUS ACERIFOLIA 'BLOODWOOD' / LONDON PLANE TREE	5" CAL. B&B
	12	QR	QUERCUS RUBRA / RED OAK	3" CAL. B&B
	12	UA	ULMUS AMERICANA 'PRINCETON' / AMERICAN ELM	3" CAL. B&B
	ORNAMENTAL TREES			
	4	CO	CERCIS CANADENSIS/RED BUD	8' HT. B&B
	5	PO	PRUNUS 'OKAME' / OKAME CHERRY	12' HT. B&B

DEVELOPER'S/OWNER'S LANDSCAPE CERTIFICATION:

I/WE CERTIFY THAT THE LANDSCAPING SHOWN ON THIS PLAN WILL BE DONE IN ACCORDING TO THE PLAN, SECTION 16.124 OF THE HOWARD COUNTY CODE, THE LANDSCAPE MANUAL FOR NEW TOWN ALTERNATIVE COMPLIANCE AND THE WARFIELD NEIGHBORHOOD DESIGN GUIDELINES. I/WE FURTHER CERTIFY THAT UPON COMPLETION A LETTER OF LANDSCAPE INSTALLATION, ACCOMPANIED BY AN EXECUTED ONE YEAR GUARANTEE OF PLANT MATERIALS, WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING.

Robert A. Julius
DEVELOPER'S/OWNER'S NAME

STREET TREE AND LANDSCAPE PLANS HAVE BEEN PREPARED BY A REGISTERED LANDSCAPE ARCHITECT AND ARE CERTIFIED TO CONFORM WITH THE WARFIELD NEIGHBORHOOD DESIGN GUIDELINES RECORDED IN THE LAND RECORDS OF HOWARD COUNTY IN LIBER 14166, FOLIO 1 THRU 250

LEGEND

- EXISTING STREET TREE (TO BE REMOVED)
- EXISTING STREET TREE (TO REMAIN)
- PROPOSED STREET TREE WITHIN MICRO BIO-RETENTION
- PROPOSED STREET TREE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
PRIVATE ROADS, SD AND STORMWATER
Chief, Bureau of Highways — Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Kent Sheubrooks — 12-11-15
Chief, Division of Land Development — Date
Chad Edelen — 3-25-15
Chief, Development Engineering Division — Date

GLW GUTSCHICK LITTLE & WEBER, P.A.
CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS
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L:\CADD\DRAWINGS\11053\PLANS BY GLW\FINALS\11053-F-17.dwg | DES. MJT | DRN. WSJ | CHK.

DATE	REVISION	BY	APP'R.
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PREPARED FOR:
THE HOWARD HUGHES CORPORATION
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MARYLAND 21044
ATTN: BOB JENKINS
410-964-5443

PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 14931
EXPIRATION DATE: MAY 21, 2016

STATE OF MARYLAND — BRIAN T. SCHEUNEMANN — No. 14931 — REGISTERED PROFESSIONAL ENGINEER

REVISED
STREET TREE PLAN
DOWNTOWN COLUMBIA
WARFIELD NEIGHBORHOOD
PARCELS C-1 THRU C-4 & PARCELS D-1 THRU D-4
COLUMBIA TOWN CENTER
LOTS 40 & 47 SECTION 2 AREA 1 & PARCEL E, SECTION 2 AREA 8
ELECTION DISTRICT No. 5 — FDP-DC-WARFIELD-1 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
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FEB., 2015	36 – 01	17 OF 22

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F 13-015

MICRO BIO-RETENTION PLANTER DETAILS

SCALE: 1"=10'

SPECIFICATIONS: PLANT MATERIALS AND PLANTING METHODS

A. PLANT MATERIALS

THE LANDSCAPE CONTRACTOR SHALL FURNISH AND INSTALL AND/OR DIG, BALL, BURLAP AND TRANSPLANT ALL OF THE PLANT MATERIALS CALLED FOR ON DRAWINGS AND/OR LISTED IN THE PLANT SCHEDULE.

1. PLANT NAMES

PLANT NAMES USED IN THE PLANT SCHEDULE SHALL CONFORM WITH "STANDARDIZED PLANT NAMES," LATEST EDITION.

2. PLANT STANDARDS

ALL PLANT MATERIAL SHALL BE EQUAL TO OR BETTER THAN THE REQUIREMENTS OF THE "USA STANDARD FOR NURSERY STOCK" LATEST EDITION, AS PUBLISHED BY THE AMERICAN ASSOCIATION OF NURSERYMEN (HERE- AFTER REFERRED TO AS AAN STANDARDS). ALL PLANTS SHALL BE TYPICAL OF THEIR SPECIES AND VARIETY, SHALL HAVE A NORMAL HABIT OF GROWTH AND SHALL BE FIRST QUALITY, SOUND, VIGOROUS, WELL-BRANCHED AND WITH HEALTHY, WELL-FURNISHED ROOT SYSTEMS. THEY SHALL BE FREE OF DISEASE, INSECT PESTS AND MECHANICAL INJURIES.

ALL PLANTS SHALL BE NURSERY GROWN AND SHALL HAVE BEEN GROWN UNDER THE SAME CLIMATE CONDITIONS AS THE LOCATION OF THIS PROJECT FOR AT LEAST TWO YEARS BEFORE PLANTING. NEITHER HEELED-IN PLANTS NOR PLANTS FROM COLD STORAGE WILL BE ACCEPTED.

3. PLANT MEASUREMENTS

ALL PLANTS SHALL CONFORM TO THE MEASUREMENTS SPECIFIED IN THE PLANT SCHEDULE AS APPROVED BY THE DESIGN REVIEW COMMITTEE (DRC).

A. CALIPER MEASUREMENTS SHALL BE TAKEN SIX INCHES (6") ABOVE GRADE FOR TREES UNDER FOUR-INCH (4") CALIPER AND TWELVE (12") ABOVE GRADE FOR TREES FOUR INCHES (4") IN CALIPER AND OVER.

B. MINIMUM BRANCHING HEIGHT FOR ALL SHADE TREES SHALL BE SIX FEET (6'), MAXIMUM EIGHT FEET (8').

C. CALIPER, HEIGHT, SPREAD AND SIZE OF BALL SHALL BE GENERALLY AS FOLLOWS:

CALIPER	HEIGHT	SPREAD	SIZE OF BALL
3" - 3.5"	14'-16'	6'-8'	32" DIAMETER
3.5"- 4"	14'-16'	8'-10'	36" DIAMETER
4" - 4.5"	16'-18'	8'-10'	40" DIAMETER
4.5"- 5"	16'-17'	10'-12'	44" DIAMETER
5" - 5.5"	16'-20'	10'-12'	48" DIAMETER
5.5"- 6"	18'-20'	12'-14'	52" DIAMETER

ALL PLANT MATERIAL SHALL GENERALLY AVERAGE THE MEDIAN FOR THE SIZE RANGES INDICATED ABOVE AS INDICATED IN THE "AAN STANDARDS".

4. PLANT IDENTIFICATION

LEGIBLE LABELS SHALL BE ATTACHED TO ALL SHADE TREES, MINOR TREES, SPECIMEN SHRUBS AND BUNDLES OR BOXES OF OTHER PLANT MATERIAL GIVING THE BOTANICAL AND COMMON NAMES, SIZE AND QUANTITY OF EACH. EACH SHIPMENT OF PLANTS SHALL BEAR CERTIFICATES OF INSPECTION AS REQUIRED BY FEDERAL, STATE AND COUNTY AUTHORITIES.

5. PLANT INSPECTION

THE DESIGN REVIEW COMMITTEE MAY, UPON REQUEST BY THE BUILDER OR DEVELOPER, AT LEAST TEN (10) DAYS PRIOR TO THE INSTALLATION OF ANY PROPOSED PLANT MATERIAL, INSPECT ALL PROPOSED PLANT MATERIAL AT THE SOURCE OF ORIGIN.

B. PLANTING METHODS

ALL PROPOSED PLANT MATERIALS THAT MEET THE SPECIFICATIONS IN SECTION A ARE TO BE PLANTED IN ACCORDANCE WITH THE FOLLOWING METHODS DURING THE PROPER PLANTING SEASONS AS DESCRIBED IN THE FOLLOWING:

1. PLANTING SEASONS

THE PLANTING OF DECIDUOUS TREES, SHRUBS AND VINES SHALL BE FROM MARCH 1ST TO JUNE 15TH AND FROM SEPTEMBER 15TH TO DECEMBER 15TH. PLANTING OF DECIDUOUS MATERIAL MAY BE CONTINUED DURING THE WINTER MONTHS PROVIDING THERE IS NO FROST IN THE GROUND AND FROST-FREE TOPSOIL PLANTING MIXTURES ARE USED.

THE PLANTING OF EVERGREEN MATERIAL SHALL BE FROM MARCH 15TH TO JUNE 15TH AND FROM AUGUST 15TH TO DECEMBER 1ST. NO PLANTING SHALL BE DONE WHEN THE GROUND IS FROZEN OR EXCESSIVELY MOIST. NO FROZEN OR WET TOPSOIL SHALL BE USED AT ANY TIME.

2. DIGGING

ALL PLANT MATERIAL SHALL BE DUG, BALLED AND BURLAPPED (B&B) IN ACCORDANCE WITH THE "AAN STANDARDS".

3. EXCAVATION OF PLANT PITS

THE LANDSCAPING CONTRACTOR SHALL EXCAVATE ALL PLANT PITS, VINE PITS, HEDGE TRENCHES AND SHRUB BEDS IN ACCORDANCE WITH THE FOLLOWING SCHEDULE:

A. LOCATIONS OF ALL PROPOSED PLANT MATERIAL SHALL BE STAKED AND APPROVED IN THE FIELD BY THE LANDSCAPE ARCHITECT BEFORE ANY OF THE PROPOSED PLANT MATERIAL IS INSTALLED BY THE LANDSCAPE CONTRACTOR.

B. ALL PITS SHALL BE GENERALLY CIRCULAR IN OUTLINE, VERTICAL SIDES; DEPTH SHALL NOT BE LESS THAN 6" DEEPER THAN THE ROOT BALL, DIAMETER SHALL NOT BE LESS THAN TWO TIMES THE DIAMETER OF THE ROOT BALL AS SET FORTH IN THE FOLLOWING SCHEDULE.

C. IF AREAS ARE DESIGNATED AS SHRUB BEDS OR HEDGE TRENCHES, THEY SHALL BE EXCAVATED TO AT LEAST 18" DEPTH MINIMUM. AREAS DESIGNATED FOR GROUND COVERS AND VINES SHALL BE EXCAVATED TO AT LEAST 12" IN DEPTH MINIMUM.

D. DIAMETER AND DEPTH OF TREE PITS SHALL GENERALLY BE AS FOLLOWS:

PLANT SIZE	ROOT BALL	PIT DIA.	PIT DEPTH
3" - 3.5"CAL.	32"	64"	28"
3.5"- 4" CAL.	36"	72"	32"
4" - 4.5"CAL.	40"	80"	36"
4.5"- 5" CAL.	44"	88"	40"
5" - 5.5"CAL.	48"	96"	44"
5.5"- 6" CAL.	52"	104"	48"

A 20 % COMPACTION FIGURE OF THE SOIL TO BE REMOVED IS ASSUMED AND WILL BE ALLOWED IN CALCULATION OF EXTRA TOPSOIL. THE TABULATED PIT SIZES ARE FOR PURPOSES OF UNIFORM CALCULATION AND SHALL NOT OVERRIDE THE SPECIFIED DEPTHS BELOW THE BOTTOMS OF THE ROOT BALLS.

4. STAKING, GUYING AND WRAPPING

ALL PLANT MATERIAL SHALL BE STAKED OR GUYED, AND WRAPPED IN ACCORDANCE WITH THE FOLLOWING SPECIFICATIONS:

A. STAKES: SHALL BE SOUND WOOD 2" X 2" ROUGH SAWN OAK OR SIMILAR DURABLE WOODS, OR LENGTHS, MINIMUM 7'-0" FOR MAJOR TREES AND 5'-0" MINIMUM FOR MINOR TREES.

B. WIRE AND CABLE: WIRE SHALL BE #10 GA. GALVANIZED OR BETHANIZED ANNEALED STEEL WIRE. FOR TREES OVER 3" CALIPER, PROVIDE 5/16" TURN BUCKLES, EYE AND EYE WITH 4" TAKE-UP. FOR TREES OVER 5" CALIPER, PROVIDE 3/16", 7 STRAND CABLE CADMIUM PLATED STEEL, WITH GALVANIZED "EYE" THIMBLES OF WIRE AND HOSE ON TREES UP TO 3" IN CALIPER.

C. HOSE: SHALL BE NEW, 2 PLY REINFORCED RUBBER HOSE, MINIMUM 1/2" I.D. "PLASTIC LOCK TIES" OR "PAUL'S TREES BRACES" MAY BE USED IN PLACE OF WIRE AND HOSE ON TREES UP TO 3" IN CALIPER.

D. ALL TREES UNDER 3" IN CALIPER ARE TO BE PLANTED AND STAKED IN ACCORDANCE WITH THE ATTACHED PLANTING DETAILS.

5. PLANT PRUNING, EDGING AND MULCHING

A. EACH TREE, SHRUB OR VINE SHALL BE PRUNED IN AN APPROPRIATE MANNER TO ITS PARTICULAR REQUIREMENTS, IN ACCORDANCE WITH ACCEPTED STANDARD PRACTICE. BROKEN OR BRUISED BRANCHES SHALL BE REMOVED WITH CLEAN CUTS FLUSH WITH THE ADJACENT TRUNK OR BRANCHES. ALL CUTS OVER 1" IN DIAMETER SHALL BE PAINTED WITH AN APPROVED ANTISEPTIC TREE WOUND DRESSING.

B. ALL TRENCHES AND SHRUB BEDS SHALL BE EDGED AND CULTIVATED TO THE LINES SHOWN ON THE DRAWING. THE AREAS AROUND ISOLATED PLANTS SHALL BE EDGED AND CULTIVATED TO THE FULL DIAMETER OF THE PIT. SOD WHICH HAS BEEN REMOVED AND STACKED SHALL BE USED TO TRIM THE EDGES OF ALL EXCAVATED AREAS TO THE NEAT LINES OF THE PLANT PIT SAUCERS, THE EDGES OF SHRUB AREAS, HEDGE TRENCHES AND VINE POCKETS.

C. AFTER CULTIVATION, ALL PLANT MATERIALS SHALL BE MULCHED WITH A 3" LAYER OF FINE, SHREDDED PINE BARK, PEAT MOSS, OR ANOTHER APPROVED MATERIAL OVER THE ENTIRE AREA OF THE BED OR SAUCER.

6. PLANT INSPECTION AND ACCEPTANCE

THE DESIGN REVIEW COMMITTEE SHALL BE RESPONSIBLE FOR INSPECTING ALL PLANTING PROJECTS ON A PERIODIC BASIS TO ASSURE THAT ALL WORK IS PROCEEDING IN ACCORDANCE WITH THE APPROVED PLANS AND SPECIFICATIONS.

7. PLANT GUARANTEE

ALL PLANT MATERIAL SHALL BE GUARANTEED FOR THE DURATION OF ONE FULL GROWING SEASON, AFTER FINAL INSPECTION AND ACCEPTANCE OF THE WORK IN THE PLANTING PROJECT. PLANTS SHALL BE ALIVE AND IN SATISFACTORY GROWING CONDITION AT THE END OF THE GUARANTEE PERIOD.

A. FOR THIS PURPOSE, THE "GROWING SEASON" SHALL BE THAT PERIOD BETWEEN THE END OF THE "SPRING" PLANTING SEASON, AND THE COMMENCEMENT OF THE "FALL" PLANTING SEASON.

B. GUARANTEE FOR PLANTING PERFORMED AFTER THE SPECIFIED END OF THE "SPRING" PLANTING SEASON, SHALL BE EXTENDED THROUGH THE END OF THE NEXT FOLLOWING "SPRING" PLANTING SEASON.

SODDING

ALL SODDING SHALL BE IN ACCORDANCE TO THE "LANDSCAPE SPECIFICATION GUIDELINES FOR BALTIMORE-WASHINGTON METROPOLITAN AREAS" LATEST EDITION, APPROVED BY THE LANDSCAPE CONTRACTORS ASSOCIATION OF METROPOLITAN WASHINGTON AND THE AMERICAN SOCIETY OF LANDSCAPE ARCHITECTS.

ALL SOD SHALL BE STRONGLY ROOTED SOD, NOT LESS THAN TWO YEARS OLD AND FREE OF WEEDS AND UNDESIRABLE NATIVE GRASSES. PROVIDE ONLY SOD CAPABLE OF GROWTH DEVELOPMENT WHEN PLANTED AND IN STRIPS NOT MORE THAN 18" WIDE X 4" LONG. PROVIDE SOD COMPOSED PRINCIPALLY OF IMPROVED STRAIN KENTUCKY BLUEGRASS, SUCH AS, COLUMBIA, VICTA, OR ESCORT.

LANDSCAPING NOTES

1. Contractor shall notify all utilities at least (5) five days before starting work. All General Notes. especially those regarding utilities. on Sheet 1 shall apply.
2. Field verify underground utility locations and existing conditions before starting planting work. Contact engineer / landscape architect if any relocation's are required.
3. Plant quantities shown on Plant List are provided for the convenience of the contractor only. If discrepancies exist between quantities shown on the plan and those shown on the plant list. the quantities on the plan shall take precedence.
4. All plant material shall be full. heavy. well formed. and symmetrical. and conform to the A.A.N. Specifications. and be installed in accordance with project specifications.
5. No substitution shall be made without written consent of the owner or his representative.
6. All areas disturbed by construction activities but not otherwise planted. paved. or mulched shall be seeded or sodded in accordance with the project specifications.
7. The contractor shall notify the owner in writing if he/she encounters soil drainage conditions which may be detrimental to the growth of the plants.
8. All exposed earth within limits of planting beds shall be mulched with shredded hardwood mulch per Planting Details.
9. The owner. tenant. and /or their agents shall be responsible for maintenance of the required landscaping. including both plant materials and berms. fences and walls. All plant materials shall be maintained in good growing condition.and when necessary. replaced with new materials to ensure continued compliance with applicable regulations. All other required landscaping shall be permanently maintained in good condition. and when necessary. repaired or replaced.

3 PLANT LIST

SYMBOL	QUANT.	SIZE	NAME (BOTANICAL/COMMON)
HERBACIOUS PERENNIAL			
3	410	1 GALLLON CONT.	AQUILEGIA CANADENSIS/ EASTERN COLUMBINE
3	425	1 GALLLON CONT.	ASPLENIUM PLATYNEURON/ EBONY SLEENWORT
	134	5 GALLLON CONT.	BAPTISIA AUSTRALIS/ WILD BLUE INDIGO
	551	1 GALLLON CONT.	CAREX PENNSYLVANICA/ PENNSYLVANIA SEDGE
	272	1 GALLLON CONT.	CHASMANTHIUM LATIFOLIUM/ RIVER OATS
3	748	1 GALLLON CONT.	ELYMUS HYSTRIX/ BOTTLE BRUSH GRASS
	182	5 GALLLON CONT.	ELYMUS VIRGINICUS/ VIRGINIA WILD RYE - GRASS
	39	5 GALLLON CONT.	EUPATORIUM MACULATUM/ SPOTTED JOE - PYE WEED
	626	1 GALLLON CONT.	HEUCHERA AMERICANA/ ALUM ROOT
	102	1 GALLLON CONT.	GERANIUM MACULATUM/ WILD GERANIUM
3	352	1 GALLLON CONT.	JUNCUS EFFUSUS/ SOFT RUSH
	24	1 GALLLON CONT.	LIATRIS SPICATA/ BLAZING STAR
	201	1 GALLLON CONT.	LOBELIA CARDINALIS/ CARDINAL FLOWER
	22	1 GALLLON CONT.	LOBELIA SIPHILITICA/ GREAT BLUE LOBELIA
	153	1 GALLLON CONT.	MONARDA DIDYMA/ SCARLET BEEBALM
	424	1 GALLLON CONT.	PANICUM VIRGATUM/ SWITCHGRASS
	33	1 GALLLON CONT.	RUDBECKIA LACINIATA/ GREENHEADED CONE FLOWER
	39	1 GALLLON CONT.	VERBENA HASTATA/ BLUE VERVAIN
	98	1 GALLLON CONT.	RUDBECKIA FULGIDA/ BLACK EYED SUSAN
	15	1 GALLLON CONT.	VERONICA SPICATA/ PINK SPIKED SPEEDWELL

DEVELOPER'S/OWNER'S LANDSCAPE CERTIFICATION:

I/WE CERTIFY THAT THE LANDSCAPING SHOWN ON THIS PLAN WILL BE DONE IN ACCORDING TO THE PLAN, SECTION 16.124 OF THE HOWARD COUNTY CODE, THE LANDSCAPE MANUAL FOR NEW TOWN ALTERNATIVE COMPLIANCE AND THE WARFIELD NEIGHBORHOOD DESIGN GUIDELINES. I/WE FURTHER CERTIFY THAT UPON COMPLETION A LETTER OF LANDSCAPE INSTALLATION, ACCOMPANIED BY AN EXECUTED ONE YEAR GUARANTEE OF PLANT MATERIALS, WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING.

Robert A. Jenkins

DEVELOPER'S/OWNER'S NAME

STREET TREE AND LANDSCAPE PLANS HAVE BEEN PREPARED BY A REGISTERED LANDSCAPE ARCHITECT AND ARE CERTIFIED TO CONFORM WITH THE WARFIELD NEIGHBORHOOD DESIGN GUIDELINES RECORDED IN THE LAND RECORDS OF HOWARD COUNTY IN LIBER 14166, FOLIO 1 THRU 250

OWNERS:

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PARCEL C BUSINESS TRUST
c/o THE HOWARD HUGHES CORPORATION
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MD 21044

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MCLEAN, VA 22101

LOT 40
MALL ENTRANCES BUSINESS TRUST
PO BOX 617905
CHICAGO, IL 60661

LOT 47
MALL IN COLUMBIA BUSINESS TRUST
PO BOX 617905
CHICAGO, IL 60661

PARCEL E
CMI CORPORATE PARKING BUSINESS TRUST
PO BOX 833
COLUMBIA, MD 21044

REVISED

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

PRIVATE ROADS, SD AND STORMWATER

Chief, Bureau of Highways — Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 12-31-15

Chief, Development Engineering Division — Date 3-25-15

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

L:\CADD\DRAWINGS\11053\PLANS BY GLW\FINALS\11053-F-18.dwg | DES. MJT | DRN. WsJ | CHK. MJT

DATE	REVISION	BY	APP'R.
12.14.15	Revise M6-81 and eliminate M6-95 & 96 3		
2/18/15	REVISE PLANTER DETAILS 1	BTS	

PREPARED FOR:
THE HOWARD HUGHES CORPORATION
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MARYLAND 21044
ATTN: BOB JENKINS
410-964-5443

PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 14931 EXPIRATION DATE: MAY 21, 2016

STATE OF MARYLAND — MICHAEL JAMES TROPPEN — No. 14931 — REGISTERED PROFESSIONAL ENGINEER

LANDSCAPE PLANT LIST, NOTES & SCHEDULES

DOWNTOWN COLUMBIA

WARFIELD NEIGHBORHOOD

PARCELS C-1 THRU C-4 & PARCELS D-1 THRU D-4

COLUMBIA TOWN CENTER

LOTS 40 & 47 SECTION 2 AREA 1 & PARCEL E, SECTION 2 AREA 8

FDP-DC-WARFIELD-1

ELECTION DISTRICT No. 5 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	NT	11053
DATE	TAX MAP - GRID	SHEET
FEB., 2015	36 - 01	18 OF 22

F 13-015

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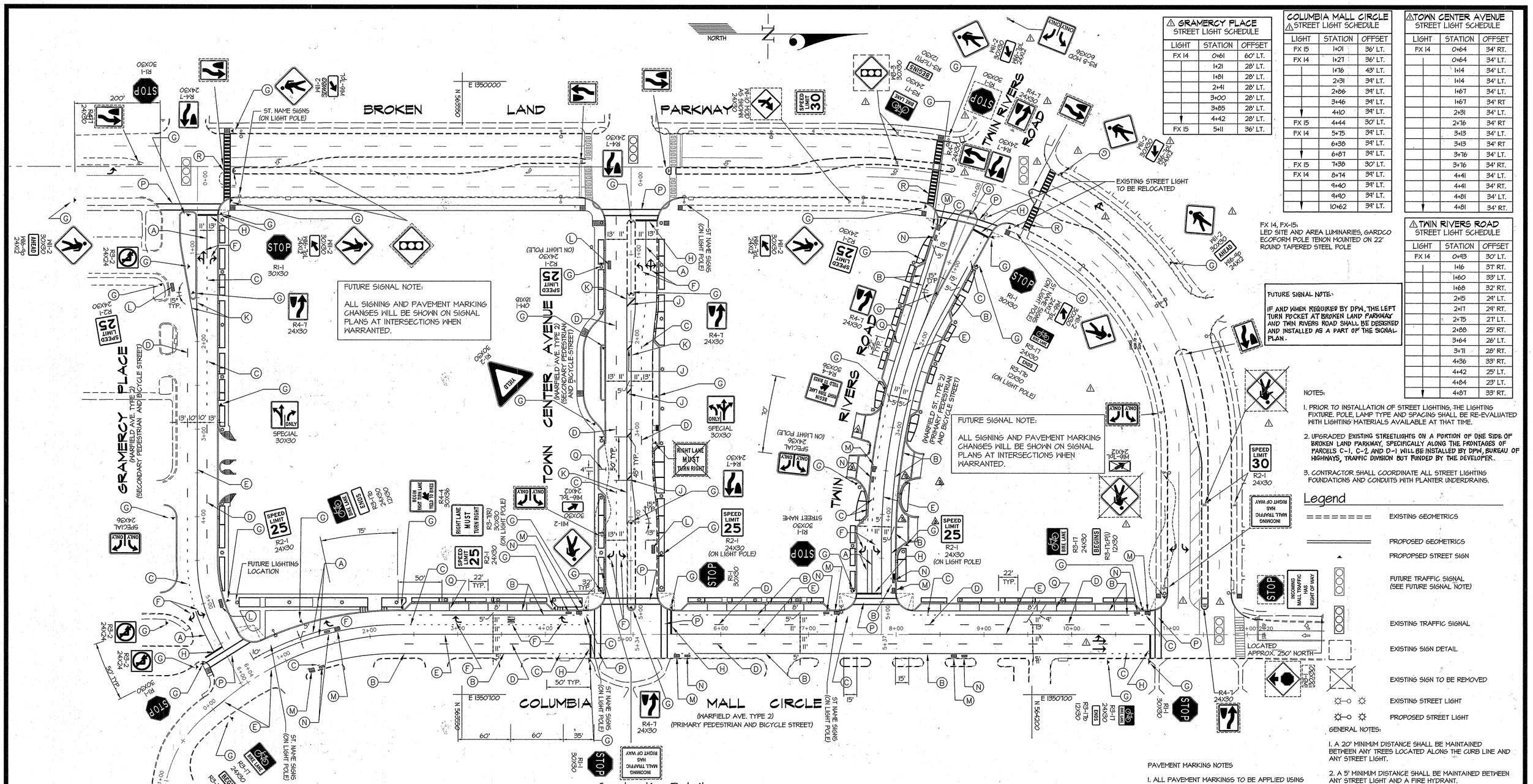
L:\CADD\DRAWINGS\11053\PLANS BY GLW\FINALS\11053-F-18.dwg, PLOTTED: 2/19/2015 6:41 AM, LAST SAVED: 2/19/2015 6:40 AM, PLOTTED BY: Mike Troppen



FX 14, FX-15:
LED SITE AND AREA LUMINARIES, GARDCO ECOFORM POLE TENON MOUNTED ON 22' ROUND TAPERED STEEL POLE

FUTURE SIGNAL NOTE:

IF AND WHEN REQUIRED BY DPW, THE LEFT TURN POCKET AT BROKEN LAND PARKWAY AND TWIN RIVERS ROAD SHALL BE DESIGNED AND INSTALLED AS A PART OF THE SIGNAL PLAN.

NOTES:

1. PRIOR TO INSTALLATION OF STREET LIGHTING, THE LIGHTING FIXTURE, POLE, LAMP TYPE AND SPACING SHALL BE RE-EVALUATED WITH LIGHTING MATERIALS AVAILABLE AT THAT TIME.
2. UPGRADED EXISTING STREETLIGHTS ON A PORTION OF ONE SIDE OF BROKEN LAND PARKWAY, SPECIFICALLY ALONG THE FRONTAGES OF PARCELS C-1, C-2 AND D-1 WILL BE INSTALLED BY DPW, BUREAU OF HIGHWAYS, TRAFFIC DIVISION BUT FUNDED BY THE DEVELOPER.
3. CONTRACTOR SHALL COORDINATE ALL STREET LIGHTING FOUNDATIONS AND CONDUITS WITH PLANTER UNDERDRAINS.

Legend

- EXISTING GEOMETRICS
- PROPOSED GEOMETRICS
- PROPOPSED STREET SIGN
- FUTURE TRAFFIC SIGNAL (SEE FUTURE SIGNAL NOTE)
- EXISTING TRAFFIC SIGNAL
- EXISTING SIGN DETAIL
- EXISTING SIGN TO BE REMOVED
- EXISTING STREET LIGHT
- PROPOSED STREET LIGHT

GENERAL NOTES:

1. A 20' MINIMUM DISTANCE SHALL BE MAINTAINED BETWEEN ANY TREES LOCATED ALONG THE CURB LINE AND ANY STREET LIGHT.
2. A 5' MINIMUM DISTANCE SHALL BE MAINTAINED BETWEEN ANY STREET LIGHT AND A FIRE HYDRANT.

SIGNING NOTES:

1. SIGN ERECTED AT THE SIDE OF THE ROAD SHALL BE MOUNTED AT A HEIGHT OF AT LEAST 7 FEET MEASURED FROM THE BOTTOM OF THE SIGN TO THE NEAR EDGE OF THE PAVING.
2. ALL SIGN POSTS USED FOR TRAFFIC CONTROL SIGNS SHALL BE MOUNTED ON A 2" GALVANIZED STEEL, PERFORATED, SQUARE TUBE POST (14 GAUGE)(QUICKPUNCH) INSERTED INTO A 2-1/2" GALVANIZED STEEL, PERFORATED, SQUARE TUBE SLEEVE (12 GAUGE) - 3' LONG UNLESS NOTED OTHERWISE. A GALVANIZED STEEL POLE CAP SHALL BE MOUNTED ON TOP OF EACH POST.
3. SIGNS SHALL BE 12" TO 18" FROM EDGE OF SIGN TO CURBLINE. ALL SIGNS SHALL BE AS DIRECTED BY HOWARD COUNTY TRAFFIC DIVISION.

⚠ GRAMERCY PLACE STREET LIGHT SCHEDULE

LIGHT	STATION	OFFSET
FX 14	0+61	60' LT.
	1+21	28' LT.
	1+81	28' LT.
	2+41	28' LT.
	3+00	28' LT.
	3+85	28' LT.
	4+42	28' LT.
FX 15	5+11	36' LT.

COLUMBIA MALL CIRCLE ⚠ STREET LIGHT SCHEDULE

LIGHT	STATION	OFFSET
FX 15	1+01	36' LT.
FX 14	1+27	36' LT.
	1+76	43' LT.
	2+31	39' LT.
	2+86	39' LT.
	3+46	39' LT.
	4+10	39' LT.
FX 15	4+44	30' LT.
FX 14	5+75	39' LT.
	6+38	39' LT.
	6+87	39' LT.
FX 15	7+38	30' LT.
FX 14	8+74	39' LT.
	9+40	39' LT.
	9+90	39' LT.
	10+62	39' LT.

⚠ TOWN CENTER AVENUE STREET LIGHT SCHEDULE

LIGHT	STATION	OFFSET
FX 14	0+64	34' RT.
	0+64	34' LT.
	1+14	34' LT.
	1+14	34' LT.
	1+67	34' LT.
	1+67	34' RT
	2+31	34' LT.
	2+76	34' RT
	3+13	34' LT.
	3+13	34' RT
	3+76	34' LT.
	3+76	34' RT.
	4+41	34' LT.
	4+41	34' RT.
	4+81	34' LT.
	4+81	34' RT.

⚠ TWIN RIVERS ROAD STREET LIGHT SCHEDULE

LIGHT	STATION	OFFSET
FX 14	0+93	30' LT.
	1+16	37' RT.
	1+60	33' LT.
	1+68	32' RT.
	2+15	29' LT.
	2+17	29' RT.
	2+75	27' LT.
	2+88	25' RT.
	3+64	26' LT.
	3+71	28' RT.
	4+36	33' RT.
	4+42	25' LT.
	4+84	23' LT.
	4+87	33' RT.

Construction Details

A. Install 5 inch wide white solid pavement marking for lane line.
B. Install 5 inch wide white solid pavement marking for edge line.
C. Install 5 inch wide white broken pavement marking (2 foot segment - 6 foot gap) for lane line.
D. Install 5 inch wide white broken pavement marking (10 foot segment - 30 foot gap) for lane line.
E. Install 5 inch wide double yellow pavement parking for centerline.
F. Install white pavement marking symbol as shown.
G. Install ground mounted sign.
H. Install 24 inch wide white solid pavement marking for stop line.
J. Install 16 inch wide white solid pavement marking for median.
K. Install 5 inch wide yellow solid pavement marking for island.
L. Install white pavement marking sharrow symbol.
M. Install white bike lane pavement marking bike symbol.
N. Install white bike lane pavement marking arrow symbol.
P. Install crosswalk pavement marking.
Q. Install 5 inch wide white solid pavement marking for parking space.
R. Install white crosswalk pavement marking.

PAVEMENT MARKING NOTES

1. ALL PAVEMENT MARKINGS TO BE APPLIED USING NON-TOXIC LEAD-FREE WATERBOURN TRAFFIC PAINT BY SHERWIN WILLIAMS, ENNIS PAINT, INC. OR APPROVED EQUAL.
2. ALL PAVEMENT MARKINGS ARE TO BE EITHER LOCATED OR APPROVED BY THE TRAFFIC DIVISION PRIOR TO THE PLACEMENT OF ANY MARKINGS.
3. ANY EXISTING PAVEMENT MARKINGS IN CONFLICT WITH THESE PLANS SHALL BE REMOVED BY GRINDING.

OWNERS:

PARCELS C-1 THRU C-4 (OLD PARCEL C)
PARCEL C BUSINESS TRUST
c/o THE HOWARD HUGHES CORPORATION
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MD 21044

PARCELS D-1 THRU D-4 (OLD PARCEL D)
PARCEL D PROPERTY LLC
c/o KETTLER
1751 PINNACLE DRIVE
SUITE 700
MCLEAN, VA 22101

LOT 40
MALL ENTRANCES BUSINESS TRUST
PO BOX 617905
CHICAGO, IL 60661

LOT 47
MALL IN COLUMBIA BUSINESS TRUST
PO BOX 617905
CHICAGO, IL 60661

PARCEL E:
CMI CORPORATE PARKING BUSINESS TRUST
PO BOX 833
COLUMBIA, MD 21044

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
PRIVATE ROADS, SD AND STORMWATER
Chief, Bureau of Highways — Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Kent Sheubrooks — 12-21-15
Chief, Division of Land Development — Date
Chad Edmondson — 3-25-15
Chief, Development Engineering Division — Date

PREPARED FOR:
THE HOWARD HUGHES CORPORATION
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MARYLAND 21044
ATTN: BOB JENKINS
410-964-5443

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

DATE	REVISION	BY	APP'R.
12.14.15	Revise Loading and Parking Entrances ⚠	gt	
2/18/15	REVISE PLANTER LOCATIONS, REVISE FOR NEW SIGNALS ⚠	BTS	

L:\CADD\DRAWINGS\11053\PLANS BY GLW\FINALS\11053-F-19.dwg | DES. WSJ | DRN. WSJ | CHK.

REVISED

SIGNING, PAVEMENT MARKING AND LIGHTING PLAN

DOWNTOWN COLUMBIA

WARFIELD NEIGHBORHOOD
PARCELS C-1 THRU C-4 & PARCELS D-1 THRU D-4
COLUMBIA TOWN CENTER
LOTS 40 & 47 SECTION 2 AREA 1 & PARCEL E, SECTION 2 AREA 8
ELECTION DISTRICT No. 5 — FDP-DC-WARFIELD-1 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
1" = 50'	NT	11053
DATE	TAX MAP - GRID	SHEET
FEB., 2015	36 - 01	19 OF 22

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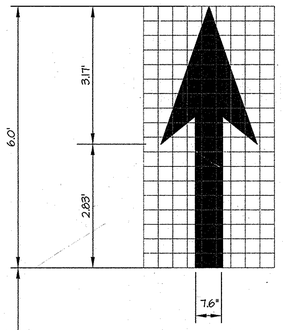
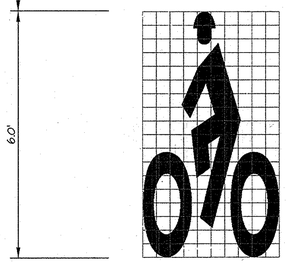
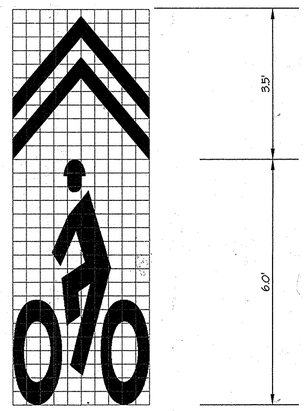


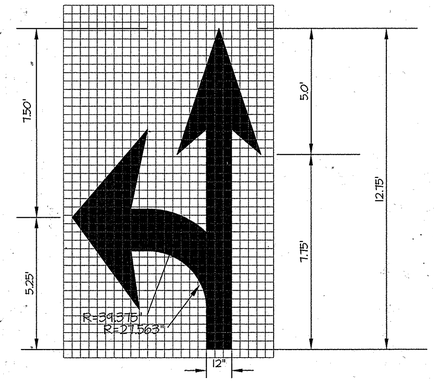
N BIKE LANE ARROW PAVEMENT MARKING SYMBOL



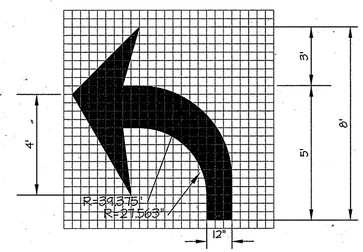
M BIKE LANE PAVEMENT MARKING SYMBOL
NOT TO SCALE



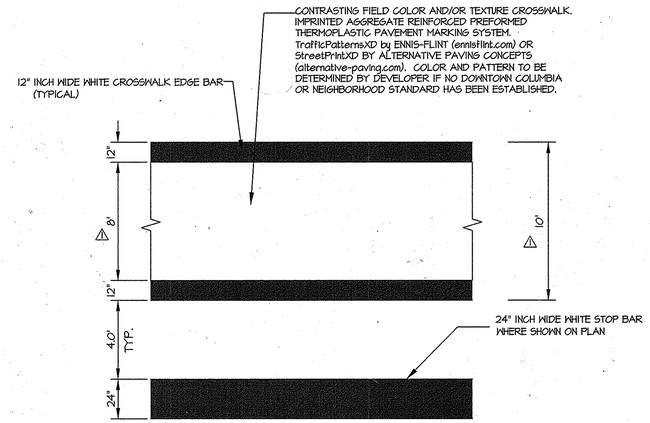
L SHARROW PAVEMENT MARKING SYMBOL
NOT TO SCALE



PAVEMENT MARKING ARROW
NOT TO SCALE

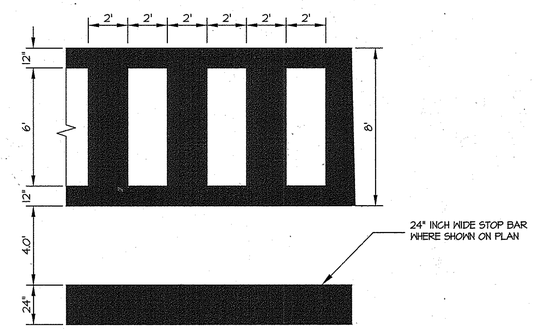


PAVEMENT MARKING ARROW
NOT TO SCALE



P CROSSWALK DETAIL
NOT TO SCALE

NOTE:
THE LENGTH OF THE CROSSWALK VARIES BASED ON THE INTERSECTION.



R CROSSWALK DETAIL
NOT TO SCALE

NOTE:
THE LENGTH OF THE CROSSWALK VARIES BASED ON THE INTERSECTION.

OWNERS:

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PARCEL C BUSINESS TRUST
c/o THE HOWARD HUGHES CORPORATION
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MD 21044

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APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
PRIVATE ROADS, SD AND STORMWATER
Chief, Bureau of Highways — Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Kent Sheubrooks — 12-21-15
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DATE	REVISION	BY	APP'R.
2/18/15	REVISE CROSSWALK DIMENSIONS.	BTS	

PREPARED FOR:
THE HOWARD HUGHES CORPORATION
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MARYLAND 21044
ATTN: BOB JENKINS
410-964-5443

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EXPIRATION DATE: MAY, 21, 2016

STATE OF MARYLAND — MARK JAMES RAMSEY — 14931 — PROFESSIONAL ENGINEER

REVISED

SIGNAGE AND STRIPING DETAILS
DOWNTOWN COLUMBIA
WARFIELD NEIGHBORHOOD
PARCELS C-1 THRU C-4 & PARCELS D-1 THRU D-4
COLUMBIA TOWN CENTER
LOTS 40 & 47 SECTION 2 AREA 1 & PARCEL E, SECTION 2 AREA 8
ELECTION DISTRICT No. 5 — FDP-DC-WARFIELD-1 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
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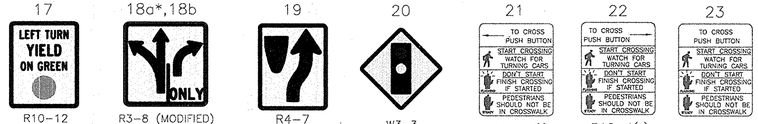
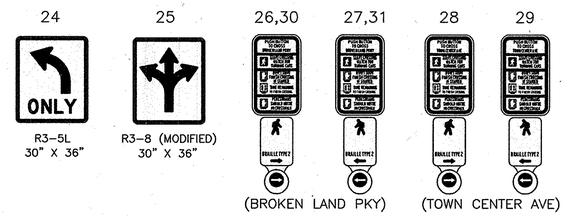
EXISTING SIGNS



BROKEN LAND PARKWAY IS ASSUMED TO RUN IN A NORTH–SOUTH DIRECTION.

PROPOSED SIGNS



CONSTRUCTION DETAILS

A. INSTALL BASE MOUNTED CABINET AND CONTROLLER, CONCRETE FOUNDATION, GROUND RODS, AND ALL NECESSARY EQUIPMENT FOR AN ELECTRICAL SERVICE, ONE 30 AMP DISCONNECT SWITCH. (NOTE: TWO 4–INCH P.V.C. AND TWO–2 INCH P.V.C. SCHEDULE 80 CONDUIT BENDS).

B. INSTALL HANDBOX.

C. REMOVE PUSHBUTTON(S) AND PEDESTRIAN SIGN(S).

D. INSTALL 3–INCH P.V.C. (SCHEDULE 80) ELECTRICAL CONDUIT (BORED).

E. INSTALL 3–INCH P.V.C. (SCHEDULE 80) ELECTRICAL CONDUIT (TRENCHED).

F. REMOVE PUSHBUTTON AND PEDESTRIAN SIGN. INSTALL APS BUTTON AND SIGN ON PEDESTAL POLE.

G. INSTALL TWO (2) 4–INCH P.V.C. (SCHEDULE 80) ELECTRICAL CONDUITS (TRENCHED).

H. REMOVE EXISTING EQUIPMENT.

J. ABANDON EXISTING EQUIPMENT.

K. REMOVE EXISTING SIGN & INSTALL SIGNS AS SHOWN.

L. INSTALL VIDEO DETECTION CAMERA.

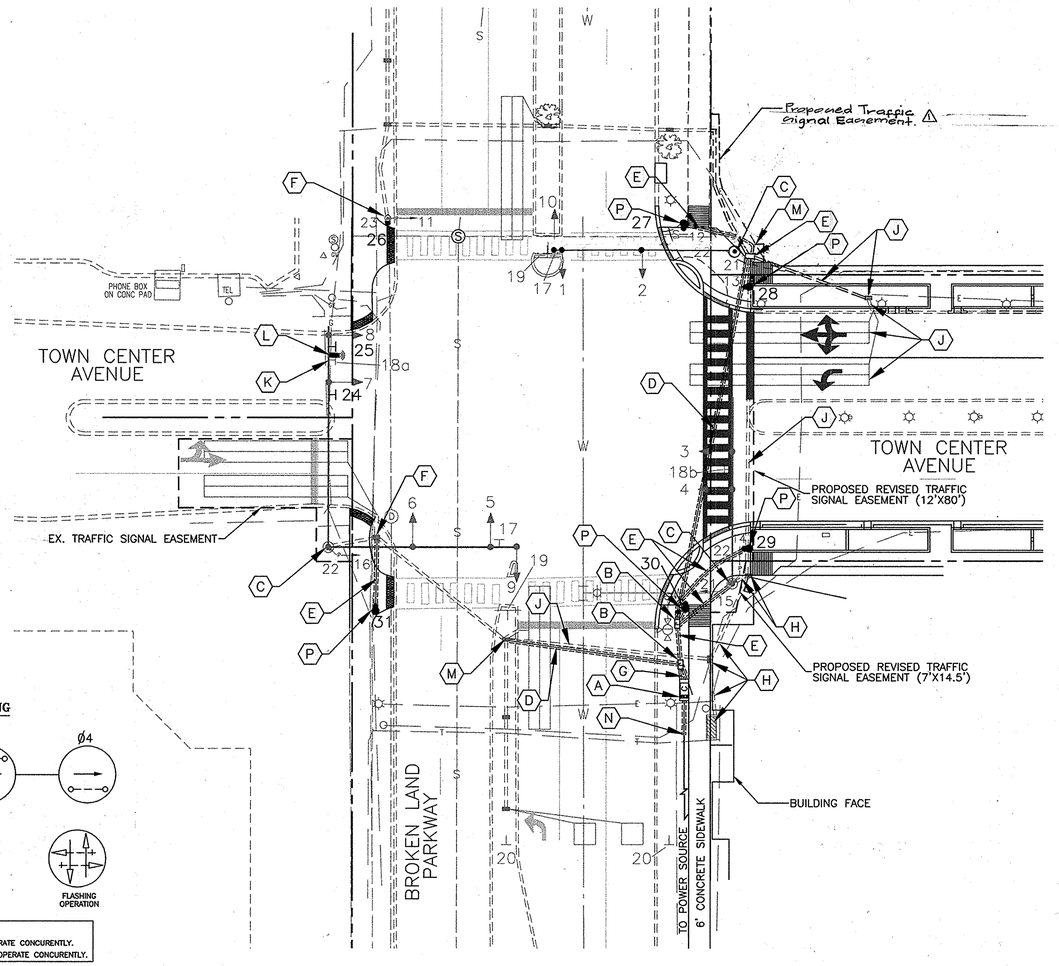
M. INTERCEPT PROPOSED CONDUIT WITH EXISTING HANDBOX. PULL WIRE BACK TO HANDBOX. REWIRE THROUGH NEW CONDUIT TO NEW CABINET.

N. INSTALL 4–INCH P.V.C. (SCHEDULE 80) ELECTRICAL CONDUIT (TRENCHED) AND PULL STRING TO. POTENTIAL BGE POWER SOURCE (TO DE DETERMINED).

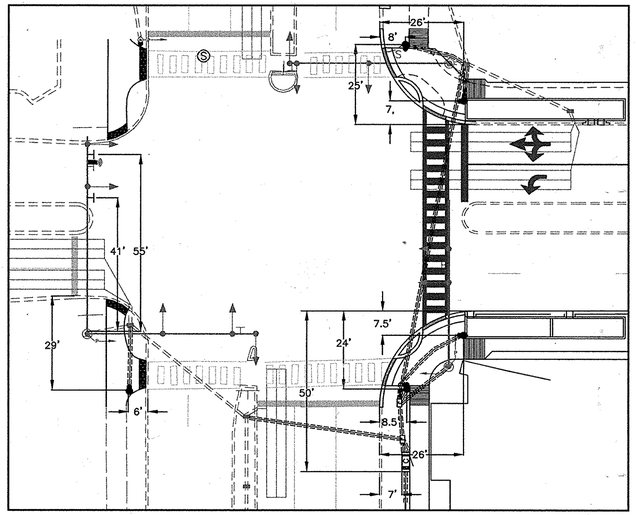
P. INSTALL ALUMINUM POLE, APS BUTTON AND SIGN.

NOTES:

1. CONTRACTOR SHALL VERIFY LOCATION OF ALL UTILITIES BEFORE STARTING CONSTRUCTION AND HAND EXCAVATE OR TEST PIT ALL UTILITY CROSSINGS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING ALL UTILITY COMPANIES PRIOR TO CONSTRUCTION SO THAT ALL UTILITIES ARE MARKED. IF THERE ARE ANY PERCEIVED CONFLICTS BETWEEN EXISTING UTILITIES AND PROPOSED TRAFFIC SIGNAL EQUIPMENT, THE CONTRACTOR SHALL NOTIFY THE APPROPRIATE PROJECT ENGINEER IMMEDIATELY.
2. CONTRACTOR MUST VERIFY ALL PROPOSED TRAFFIC SIGNAL EQUIPMENT LOCATIONS WITH THE HOWARD COUNTY'S TRAFFIC SIGNAL ENGINEER PRIOR INSTALLATION. CONTRACTOR SHALL CONTACT MR. KRIS JAGARAPU AT (410) 313–5753 TO SET UP A PRE–CONSTRUCTION MEETING IN THE FIELD.
3. ALL PAVEMENT MARKINGS INCLUDING CROSSWALKS, STOP BARS AND ARROWS TO BE INSTALLED BY THE DEVELOPER'S GENERAL/PAVING CONTRACTOR.
4. VIDEO CAMERA LOCATION/ALIGNMENT SHALL BE COORDINATED WITH HOWARD COUNTY'S TRAFFIC SIGNAL ENGINEER.
5. ALL ABANDONED CONDUITS/CABLE SHALL BE PROPERLY TERMINATED AND REMOVED BY CONTRACTOR.
6. EXISTING TRAFFIC SIGNAL CABINET AND UPS CABINET MUST BE RETURNED TO HOWARD COUNTY.
7. THE CONTRACTOR IS RESPONSIBLE TO MAKE PRIOR ARRANGEMENT WITH HOWARD COUNTY POLICE DEPARTMENT TO DIRECT TRAFFIC ON THE DAY OF THE TRAFFIC SIGNAL TURN–ON WHEN THE EXISTING TRAFFIC SIGNAL WILL BE DARK.



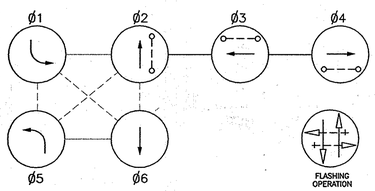
SIGNAL AND SIGN DIMENSIONS



LEGEND

- VIDEO DETECTION CAMERA
- MAST ARM
- TRAFFIC SIGNAL HEAD
- EXISTING HANDBOX
- PROPOSED HANDBOX
- SIGN
- ALUMINUM PEDESTAL POLE
- APS BUTTON
- PROPOSED CONDUIT
- EXISTING CONDUIT
- LOOP DETECTORS
- STREET LIGHT ON SIGNAL POLE
- CONTROLLER WITH PAD & UPS
- PED POLE

NEMA PHASING



PHASING NOTES:
1. PHASES ASSOCIATED BY A LINE WILL NOT OPERATE CONCURENTLY.
2. PHASES ASSOCIATED BY A DASHED LINE WILL OPERATE CONCURENTLY.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Director of Public Works	Date 2/11/13
Chief, Traffic Engineering Division	Date 2/8/13
Chief, Bureau of Highways	Date 2-8-13

UTILITY LEGEND

G	GAS MAIN
W	WATER MAIN
S	SEWER MAIN
D	STORM DRAIN
E	ELECTRIC CABLES
T	TELEPHONE CABLES

Approved: Howard County Department of Public Works
Private Roads, SWM and Stormwater
Chief, Bureau of Highways ..... Date

Approved: Howard County Department of Planning & Zoning
Chief, Division of Land Development ..... Date 3/28/13
Chief, Development Engineering Division ..... Date 3/27/13

48 Hours
Before You Dig Call
"MISS UTILITY"
Service Protection Center
MEMBER ONE CALL SYSTEM INTERNATIONAL
CALL TOLL FREE
1 - 800 - 257 - 7777

CALL "MISS UTILITY" AT 1-800-257-7777, 48 HOURS PRIOR TO THE START OF WORK. THE EXCAVATOR MUST NOTIFY ALL PUBLIC UTILITY COMPANIES WITH UNDER GROUND FACILITIES IN THE AREA OF PROPOSED EXCAVATION AND HAVE THOSE FACILITIES LOCATED BY THE UTILITY COMPANIES PRIOR TO COMMENCING EXCAVATION.

WELLS + ASSOCIATES, INC
1420 Spring Hill Road, Suite 600, McLean, Virginia 22102
Phone: 703/917–6620 Facsimile: 703/917–0739

Q:\Projects\0001 - 1500\1072 Broken Land Parkway\Signal Mod Plan_2012.dwg | DES. RAR | DRN. RAR | CHK. LES

DATE	REVISION	BY	APP'R.
7.10.15	Revise Traffic Signal Easement NE Quadrant 1	JH	

PREPARED FOR:
HOWARD HUGHES CORPORATIONS
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MARYLAND 21044
ATTN: BOB JENKINS
410–964–5443

PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 37869
EXPIRATION DATE: 10-16-2013
STATE OF MARYLAND CHRISTOPHER L. LAGER No. 37869 PROFESSIONAL ENGINEER

TRAFFIC SIGNAL MODIFICATION PLAN – BROKEN LAND PARKWAY @ TOWN CENTER AVENUE

DOWNTOWN COLUMBIA
WARFIELD NEIGHBORHOOD
PARCELS C–1 THRU C–4 & PARCELS D–1 THRU D–4
COLUMBIA TOWN CENTER
LOTS 40 & 47 SECTION 2 AREA 1 & PARCEL E, SECTION 2 AREA 8
ELECTION DISTRICT No. 5 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
1" = 20'	NT	11053
DATE	TAX MAP – GRID	SHEET
FEB., 2013	36 – 01	21 OF 22

F 13–015

BROKEN LAND PARKWAY IS ASSUMED TO RUN IN A NORTH–SOUTH DIRECTION.

PROJECT DESCRIPTION

I. GENERAL
THIS PROJECT INVOLVES THE MODIFICATION OF AN EXISTING TRAFFIC SIGNAL AT THE INTERSECTION OF BROKEN LAND PARKWAY AND COLUMBIA MALL ENTRANCE IN HOWARD COUNTY, MARYLAND, IN CONJUNCTION WITH A NEW DEVELOPMENT ON THE EAST SIDE OF BROKEN LAND PARKWAY. THE TRAFFIC SIGNAL MODIFICATION WILL INCLUDE A NEW CONTROLLER, APS PUSHBUTTONS, SIGNS AND PAVEMENT MARKINGS.

II. INTERSECTION OPERATION
THE INTERSECTION WILL OPERATE IN NEMA, FOUR PHASE FULLY ACTUATED MODE. THE NORTHBOUND AND SOUTHBOUND MOVEMENTS WILL OPERATE CONCURRENTLY AND THE EASTBOUND AND WESTBOUND MOVEMENTS WILL OPERATE SPLIT PHASED. APS PUSHBUTTONS WILL BE INSTALLED TO SERVE THE NORTH, SOUTH AND EAST PEDESTRIAN CROSSINGS.

III. SPECIAL NOTES
1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR TERMINATING ALL SIGNAL CABLES, TO THE APPROPRIATE TERMINALS AND SHALL PROPERLY LABEL EACH CABLE.
2. CONTACT MR. KRIS JAGARAPU AT (410) 313–5753 TO SET UP A PRE–CONSTRUCTION MEETING IN THE FIELD.
3. ALL UNDERGROUND AND OVERHEAD UTILITIES SHOWN ON THESE PLANS ARE SCHEMATIC ONLY AND MAY NOT BE COMPLETE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING MISS UTILITY (1–800–257–7777) PRIOR TO CONSTRUCTION SO THAT ALL UTILITIES MAY BE LOCATED IN THE FIELD. IF THE CONTRACTOR PERCEIVES THAT A CONFLICT BETWEEN THE UTILITIES AND THE TRAFFIC SIGNAL WILL OCCUR, THE CONTRACTOR SHALL NOTIFY THE PROJECT ENGINEER IMMEDIATELY SO THAT THE CONFLICT MAY BE RESOLVED.

PHASE AND SEQUENCE DIAGRAM

SIGNAL HEADS

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
PHASE 1+5	G	R	R	R	G	R	R	R	G	G						
PHASE 1+5 CHANGE	Y	R	R	R	Y	R	R	R	Y	Y						
PHASE 1+6	R	R	R	R	G	G	R	R	R	G						
PHASE 1+6 CHANGE	R	R	R	R	Y	G	R	R	R	Y						
PHASE 2+5	G	G	R	R	R	R	R	R	G	R						
PHASE 2+5 CHANGE	Y	G	R	R	R	R	R	R	Y	R						
PHASE 2+6	G	G	R	R	G	G	R	R	G	G						
PED CLEAR	G	G	R	R	G	G	R	R	G	G						
PHASE 2+6 CHANGE	Y	Y	R	R	Y	Y	R	R	Y	Y						
PHASE 3	R	R	R	R	R	R	G	G	R	R						
PED CLEAR	R	R	R	R	R	R	G	G	R	R						
PHASE 3 CHANGE	R	R	R	R	R	R	Y	Y	R	R						
PHASE 4	R	R	G	G	R	R	Y	Y	R	R						
PED CLEAR	R	R	G	G	R	R	R	R	R	R						
PHASE 4 CHANGE	R	R	Y	Y	R	R	R	R	R	R						
FLASH OPER.	FL Y	FL Y	FL R	FL R	FL Y	FL Y	FL R	FL R	FL Y	FL Y	DARK	DARK	DARK	DARK	DARK	DARK

EQUIPMENT LIST A

EQUIPMENT TO BE PROVIDED BY THE COUNTY WHEN REIMBURSED BY THE DEVELOPER AND INSTALLED BY THE TRAFFIC SIGNAL CONTRACTOR

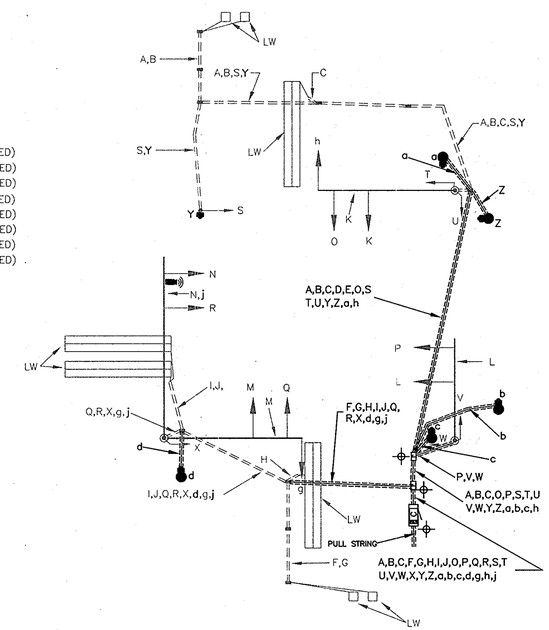
DESCRIPTION	UNITS	QUANTITY
EAGLE EIGHT–PHASE, FULL–TRAFFIC ACTUATED CONTROLLER HOUSED IN A NEMA SIZE "6" BASE MOUNTED CABINET PER HOWARD COUNTY SPECIFICATIONS	EA	1
UPS SYSTEM BATTERY BACK–UP SYSTEM	EA	1
2 WIRE CENTRAL CONTROL UNIT	EA	1
VIDEO DETECTION CAMERA & INTERFACE BOARD	EA	2
VIDEO DETECTION CAMERA CABLE	FT	300
APS PUSHBUTTON AND SIGN	EA	6

EQUIPMENT LIST B

FURNISHED AND INSTALLED BY THE CONTRACTOR

DESCRIPTION	UNITS	QUANTITY
MAINTENANCE OF TRAFFIC	LS	1
MOBILIZATION	LS	1
TEST PIT EXCAVATION	CY	2
ALUMINUM PEDESTAL POLE, SQUARE BASE, POLE CAP, ANCHOR BOLTS & HARDWARE	EA	5
CONCRETE FOR SIGNAL FOUNDATION	CY	3
SHEET ALUMINUM SIGN	SF	15
NO. 6 AWG STRANDED BARE COPPER GROUND WIRE	LF	110
3" SCHEDULE 80 PVC RIGID CONDUIT – TRENCHED	LF	150
3" SCHEDULE 80 RIGID PVC CONDUIT – BORED	LF	160
4" SCHEDULE 80 RIGID PVC CONDUIT – TRENCHED	LF	20
ELECTRICAL UTILITY SERVICE EQUIPMENT 120/240 VOLTS 60 AMPS	LS	1
FURNISH AND INSTALL HANDHOLE	EA	2
GROUND ROD – 3/4" DIAMETER x 10' LENGTH	EA	3
ELECTRICAL CABLE – 2 CONDUCTOR (No. 14 AWG)	LF	800

WIRING DIAGRAM



WIRING LEGEND

A = 2 CONDUCTOR CABLE (ALUMINUM SHIELDED)
B = 2 CONDUCTOR CABLE (ALUMINUM SHIELDED)
C = 2 CONDUCTOR CABLE (ALUMINUM SHIELDED)
F = 2 CONDUCTOR CABLE (ALUMINUM SHIELDED)
G = 2 CONDUCTOR CABLE (ALUMINUM SHIELDED)
H = 2 CONDUCTOR CABLE (ALUMINUM SHIELDED)
I = 2 CONDUCTOR CABLE (ALUMINUM SHIELDED)
J = 2 CONDUCTOR CABLE (ALUMINUM SHIELDED)
K = 5 CONDUCTOR CABLE (NO. 14 A.W.G.)
L = 5 CONDUCTOR CABLE (NO. 14 A.W.G.)
M = 5 CONDUCTOR CABLE (NO. 14 A.W.G.)
N = 5 CONDUCTOR CABLE (NO. 14 A.W.G.)
O = 7 CONDUCTOR CABLE (NO. 14 A.W.G.)
P = 7 CONDUCTOR CABLE (NO. 14 A.W.G.)
Q = 7 CONDUCTOR CABLE (NO. 14 A.W.G.)
R = 7 CONDUCTOR CABLE (NO. 14 A.W.G.)
S = 3 CONDUCTOR CABLE (NO. 14 A.W.G.)
T = 3 CONDUCTOR CABLE (NO. 14 A.W.G.)
U = 3 CONDUCTOR CABLE (NO. 14 A.W.G.)
V = 3 CONDUCTOR CABLE (NO. 14 A.W.G.)
W = 3 CONDUCTOR CABLE (NO. 14 A.W.G.)
X = 3 CONDUCTOR CABLE (NO. 14 A.W.G.)
Y = 2 CONDUCTOR CABLE (NO. 14 A.W.G.)
Z = 2 CONDUCTOR CABLE (NO. 14 A.W.G.)
a = 2 CONDUCTOR CABLE (NO. 14 A.W.G.)
b = 2 CONDUCTOR CABLE (NO. 14 A.W.G.)
c = 2 CONDUCTOR CABLE (NO. 14 A.W.G.)
d = 2 CONDUCTOR CABLE (NO. 14 A.W.G.)
g = 7 CONDUCTOR CABLE (NO. 14 A.W.G.)
h = 7 CONDUCTOR CABLE (NO. 14 A.W.G.)
j = VIDEO DETECTION CAMERA CABLE
LW = LOOP WIRE
⊕ = GROUND ROD
DARK = NEW/RELOCATED WIRING
LIGHT = EXISTING WIRING

Approved: Howard County Department of Public Works
Private Roads, OD and Stormwater
Chief, Bureau of Highways — Date

Approved: Howard County Department of Planning & Zoning
Kent Sheubrooks — 3/28/13
Chief, Division of Land Development — Date
3/27/13
Chief, Development Engineering Division — Date

LEGEND

- VIDEO DETECTION CAMERA
- MAST ARM
- TRAFFIC SIGNAL HEAD
- EXISTING HANDBOX
- PROPOSED HANDBOX
- SIGN
- ALUMINUM PEDESTAL POLE
- APS BUTTON
- PROPOSED CONDUIT
- EXISTING CONDUIT
- LOOP DETECTORS
- STREET LIGHT ON SIGNAL POLE
- CONTROLLER WITH PAD & UPS
- PED POLE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Director of Public Works — Date 2/11/13
Chief, Traffic Engineering Division — Date 2/8/13
Chief, Bureau of Highways — Date 2-08-13

WELLS + ASSOCIATES, INC
1420 Spring Hill Road, Suite 600, McLean, Virginia 22102
Phone: 703/917–6620 Facsimile: 703/917–0739

Q:\Projects\1000 - 1500\1072 Broken Land Parkway\Signal Mod Plan_2012.dwg | DES. RAR | DRN. RAR | CHK. LES

DATE	REVISION	BY	APP'R.

PREPARED FOR:
HOWARD HUGHES CORPORATIONS
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MARYLAND 21044
ATTN: BOB JENKINS
410–964–5443

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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. 37892
EXPIRATION DATE: 10-10-2013
STATE OF MARYLAND — CHRISTOPHER L. LESLIE — No. 37892 — PROFESSIONAL ENGINEER

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