CONSTRUCTION PLAN
MAPLE LAWN FARMS
Midtown District - Area 3
Parcel A-4, Non-Buildable Parcels RR-1 & RR-2 and Maple Lawn Boulevard

(A Resubdivision of Parcel 'C' & Parcel 'D')

GENERAL NOTES:

1. Zoning: A portion of the site (Parcels C and D) is being developed under MXD-3 regulations, per ZB995M, approved on 2/8/01 and the remaining portion of the property identified as Parcel 122 is zoned RR-DEO.
2. The previous Department of Planning and Zoning file numbers: S-01-17, ZB-995M, ZB-1039M, PB-353, F-03-01, F-04-01, F-03-90, F-04-79, F-04-88, F-04-112, SDP-03-140, SDP-03-111, SDP-04-82, SDP-04-112, SDP-04-121, WP-03-02, WP-03-108, and WP-03-120.
3. This project is in conformance with the latest Howard County standards unless waivers have been approved.
4. The Cemetery Inventory Maps do not show any cemeteries within the project limits.
5. The Scenic Roads Map does not indicate any scenic roads within or adjacent to the project limits.
6. This property was brought into the Metropolitan District on August 20, 2001.
7. All roads in this development are public. All areas indicated as alley will be private.
8. Site Analysis

Gross Site Area:	507.9 Acres ±
Gross Area of Phase 4b:	4.38 Acres ±
Net Area of Phase 4b (Area not yet platted):	3.12 Acres ±
Area of Open Space:	0.00 Acres ±
Area of 100 Year Floodplain in Phase Three:	0.35 Acres ±
Area of Roadway (Public):	2.03 Acres ±
Area of Roadway (Private):	0.00 Acres ±
Area of Lots:	2.35 Acres ±
Parcel A-4	0.01 Acres ±
Parcel RR-1	1.23 Acres ±
Parcel RR-2	1.11 Acres ±

9. Open Space Requirements:
   Minimum Open Space Requirement for Project is 35%.
   Total Open Space Required: 1.09 Acres ± (35%)
   Total Open Space Provided: 0.00 Acres ± (0.0%)
   Recreational Open Space Required: 0.12 Acres (10%)
   Recreational Open Space Provided: 0.00 Acres
   (See Chart this sheet)
   The excess open space area may be used to fulfill the minimum open space requirement for future phases.
10. Soils data was taken from the Soil Survey of Howard County, Maryland Issued July 1968.
11. Topography indicated was taken from aerial topography prepared during March 1997 by SDI. In areas within the limit of submission where no grading is being proposed, contours shown are grades established under F 03-90 or SDP-03-140 (OS 122).
12. Boundary information shown is based upon a field survey prepared by Gutschick, Little, and Weber, P.A. on or about June, 2001.
13. Wetland delineation by Exploration Research, Inc. approved by the Corps of of Engineers JD 63787-3 on 5/14/98. Notice of Intent to issue a permit is covered by MDE Tracking #01-NT-0344/200165421.
14. The 100-year flood plain limits were determined by the floodplain study prepared by Gutschick, Little and Weber, P.A. as part of F-03-01.
15. Horizontal and vertical datum is based on Howard County Station 41E.
16. Existing utilities were taken from available Howard County records.
17. Public water and sewer to be utilized.
    Existing Water Contract Number: 24-4264-D.
    Existing Sewer Contract Number: 24-4173-D.
18. Traffic Study was prepared and submitted as part of S 01-17, which was signed by the Planning Board on August 8, 2001. The improvements shown at the intersection of Johns Hopkins Road and Maple Lawn Boulevard are not required by the Traffic Report. However, the improvements shown are anticipated as a result of the revised PDP, which is being reviewed concurrent to this final plan.
19. All buffering and other landscaping requirements/features will be shown at the Site Development Plan stage and/or final plan stage and will be provided in accordance with the Comprehensive Sketch Plan criteria.
20. Perennial stream buffers are determined by land use adjoining the open space (i.e. Employment = 50' buffer, Residential = 75' buffer). All uses adjoining an intermittent stream = 50' buffer.
21. Stormwater management, for both quality (WQv) and quantity (CPv) will be provided partially by a regional facility (Type P-2) constructed under F 03-90 on Open Space Lot 221. The remainder will be provided by a facility (Type P-5) proposed under these plans. Both facilities will be publicly owned and jointly maintained. Both ponds will be wet ponds with extended detention.
22. As a consequence of the Sketch Plan approval prior to November 15, 2001, this project is grandfathered to the Fourth Edition of the Subdivision and Land Development Regulations.
23. As stated in the Decision and Order for this plan, The Planning Board shall review and approve site development plans for all single family attached and multi-family residential uses, and all employment and open space use development for the subject Maple Lawn Farms project. This and other Final Subdivision Plans submitted for this project shall not be approved by DPZ until finding test evaluation restrictions enunciated by the Zoning Board on page 22-23 of its decision on the PDP are met consistent with the requirements of Section 127E.4.c.2 of the Zoning Regulations.
24. No grading, removal of vegetative cover or trees, or placement of new structures is permitted within limits of wetlands, streams or their required buffers, and 100 year flood plain areas, except as permitted under WP-02-54, WP-03-02, and WP-03-120.
25. Open space lots may contain active recreational facilities as allowed by the approved Comprehensive Development Criteria.
26. Phasing for this project is in accordance with the Decision and Order for Zoning Board Case No. ZB-995M and the Decision and Order for PB Case No. 353 (Comprehensive Sketch Plan, S-01-17).
27. Development for this phase will be done in accordance with the Comprehensive Development Criteria approved with S-01-17 and PB-353.
28. The transportation and transit design will be implemented as outlined in the Petitioner's Exhibit 55 as submitted as part of ZB 995M. Location and number of bus stops within the limits of this Phase will be determined at Final Plan Stage. Any shelters will be provided at Site Development Plan Stage for the development adjacent to that structure so that architectural and hardscape features can be coordinated.
29. A Noise Study was prepared by Wilman & Associates for S 01-17, which was signed by the Planning Board on August 8, 2001.
30. There will be no moderate income housing units proposed under this phase of residential development, but are proposed for Phase 1, Stage 11 (Annual Phase IV).
31. For soil types, descriptions and limitations, see S 01-17.
32. In accordance with section 16.116 (c) of the Subdivision and Land Regulations, the location and design of the proposed utility lines and pedestrian pathways within environmental features and required buffers have been determined to be essential disturbances.
33. Parcel 122, Zoned RR, will be brought into the MXD Zoning through the FDP approval process as per ZB Case No. 1039M.
34. The Maple Lawn Boulevard road extension crossing through the environmentally sensitive areas and buffers was determined to be necessary for reasonable development of the property in accordance with Section 16.116(c) of the Subdivision and Land Development Regulations during review and approval of ZB Case No. 995 and Comprehensive Sketch Plan, S-01-17.
35. Parcels 'RR-1' and 'RR-2' are temporary Non-Buildable Parcels for the purpose to construct the Maple Lawn Boulevard extension to Johns Hopkins Road until the Oliver Property is zoned as "MXD-3" in accordance with ZB Case No. 1039M. The 2 parcels will then be resubdivided in the future as an MXD open space lot and employment use parcel.

WP-03-02

On Oct. 11,2002, WP-03-02 was granted to allow:

- Grading within the 75' stream buffer and floodplain as shown on the revised grading exhibit submitted 9/6/02 (waiver from Section 16.116 (a)(2)(ii) and Section 16.115 (c)(2) respectively.
- Elimination of truncation at right-of-way corners of residential lots and other parcel corners at right-of-ways where necessary to achieve the traditional neighborhood design (waiver from Section 16.114 (a)(5).

The disturbance within the floodplain and stream buffer is subject to obtaining the necessary permits from MDE and DNR. Elimination of the truncations is subject to having adequate sight and intersection distance as determined by the DPZ, Development Engineering Division.

WP-03-108

On April 2, 2003, WP-03-108 was granted for the following:

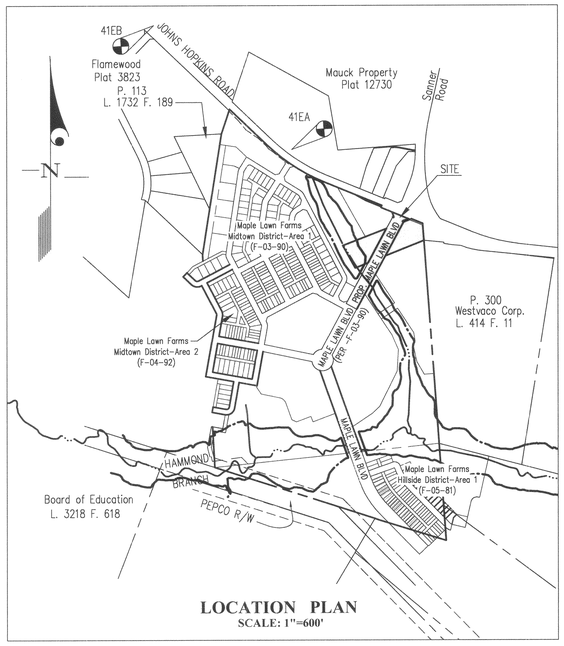
- Section 16.102 "Applicability" which requires the application of the Howard County Subdivision and Land Development Regulations for all divisions of land situated within Howard County for the purpose to allow recording of adjoiner deeds to reconfigure two (2) existing parcels of land, Parcels No. 114 & 205.

  Approval is subject to the following condition:
  1. Submit a copy of the recorded adjoiner deeds for the subject parcels of land to this Division for file retention purposes upon completion of the property line adjustment.

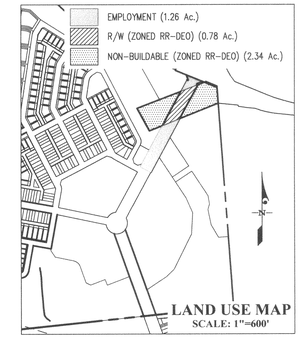
WP-03-120

On July 29, 2003, WP-03-120 was granted for the following:

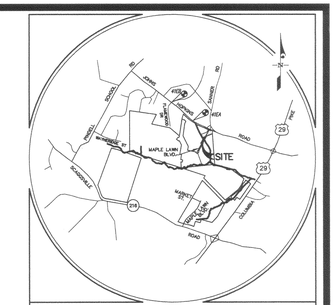
- Installation of a temporary stream crossing for the purpose of earth moving operations.



LOCATION PLAN
SCALE: 1"=600'



LAND USE MAP
SCALE: 1"=600'



VICINITY MAP
SCALE: 1" = 4000'

BENCHMARKS
41EA ELEV. = 407.05
STANDARD DISC ON CONCRETE MONUMENT
41EB ELEV. = 463.90
STANDARD DISC ON CONCRETE MONUMENT

LEGEND

400	EX. CONTOUR
	PROP. CONTOUR
	EXISTING TREELINE
SB	STREAM BUFFER
WB	WETLAND BUFFER
MH 20	STRUCTURE NUMBER
2	CENTERLINE CURVE
2	PROPERTY CORNER
15" HDPE	PROP. STORM DRAIN
	PROP. BARRICADE
	100 YEAR FLOODPLAIN
	LIMIT OF WETLAND
	WETLAND AREA
	CENTERLINE OF STREAM
	BOTTOM OF STREAM
	PROPOSED 5' PATHWAY
	EXISTING STRUCTURE TO BE REMOVED
	LIMIT OF DISTURBANCE
	EDGE OF EX. PAYMENT

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4. ROAD DETAILS AND STEET TREE & STREET LIGHT INFORMATION
5. SEDIMENT CONTROL PLANS, NOTES, & DETAILS
6. SEDIMENT CONTROL OVERVIEW PLAN
7. SEDIMENT CONTROL DETAILS
8. SEDIMENT CONTROL NOTES
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12. STORMWATER MANAGEMENT DRAINAGE AREA MAP
13. STORMWATER MANAGEMENT PROFILES & DETAILS
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16. SOIL BORING DETAILS AND NOTES
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18. LANDSCAPING PLAN, DETAILS, & NOTES

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19. TRAFFIC SIGNAL PLAN
20. GENERAL INFORMATION PLAN
21. SIGNING & PAVEMENT MARKING PLAN
22. SIGNING & PAVEMENT MARKING PLAN
23. PHASE 1 – MAINTENANCE OF TRAFFIC PLAN
24. PHASE II – MAINTENANCE OF TRAFFIC PLAN
25. GENERAL NOTES – MAINTENANCE OF TRAFFIC PLAN

ARCH SPAN CULVERT PLANS

26. PLAN AND PROFILE
27. DETAILS
28. REINFORCEMENT DETAILS
29. SPECIFICATIONS

OVERALL MXD TRACKING CHART

PHASE NO.	FILE REF. NO.	GROSS ACREAGE	NON-BUILDABLE SF	NON-BUILDABLE OR	NON-BUILDABLE EMP	NON-BUILDABLE OS	NON-BUILDABLE %	S.F.D. AC. (%)	O.R. AC. (%)	EMP. AC. (%)	O.S. AC. (%)	PUB. RD. SF	PUB. RD. OR	PUB. RD. EMP	PRIV. RD. ACREAGE	SFD UNITS	O.R. UNITS (APT./S.F.A.)	S.F.D. DENSITY	O.R. DENSITY	EMP. BLDG. AREA	EMP. F.A.R.
1	F-03-07	51.48	0.00	0.00	0.00	0.00	(0.0)	------	------	30.83	(59.9)	21.15	(40.7)	0.00	0.00	4.58	------	------	------	------	------
2	F-03-90	57.43	0.52	0.43	0.24	0.00	(3.2)	10.84	(29.0)	8.09	(21.6)	1.56	(4.2)	15.75	(42.1)	3.72	3.74	1.56	1.68	55	65	5.1/AC.	8.0/AC.	------	------
3	F-04-92	58.80	-0.52	-0.43	2.71	0.00	(3.0)	7.11	(12.1)	12.28	(20.9)	14.80	(25.2)	22.85	(38.9)	2.52	0.48	0.00	1.00	41	74	5.8/AC.	6.4/AC.	------	------
4a	F-05-81/82	15.47	0.00	1.48	-1.64	0.00	-(1.4)	0.00	(0.0)	7.29	(47.1)	1.69	(10.9)	6.70	(43.3)	0.00	3.40	1.64	0.46	------	59	------	8.0/AC.	------	------
4b	F-05-139	0.00	0.00	0.00	-1.26	0.00	(0.00)	0.00	(0.0)	0.00	(0.0)	1.26	(---)	0.00	(0.0)	0.00	0.00	1.26	------	------	------	------	------	------	------
4c	F-05-112/113	3.00	0.00	0.00	0.00	0.00	(0.0)	0.00	(0.0)	0.00	(0.0)	3.00	(100.0)	0.00	(0.0)	0.00	0.00	3.00	------	------	------	------	------	------	------
TOTALS		166.68		1.48			(0.9)	17.95	(10.8)	27.66	(16.6)	53.14	(31.9)	66.45	(39.9)		25.73		3.14	46	203	5.3/AC.	7.3/AC.	0.00	0.00

OVERALL DENISTY TABULATION	PROPOSED	ALLOWED	LAND USE ACREAGES*	PROPOSED	ALLOWED
OVERALL S.F.D./GROSS ACRE	5.3 UNITS/AC.	2.8 UNITS/AC.	SINGLE FAMILY DETACHED (S.F.D.)	17.95	198.3
OVERALL O.R./GROSS ACRE	7.3 UNITS/AC.	14.0 UNITS/AC.	OTHER RESIDENTIAL (O.R.)	29.14	53.0
OVERALL EMPLOYMENT F.A.R		0.35	EMPLOYMENT	53.14	77.1
OVERALL S.F.D./O.R. DENSITY	1.8 UNITS/AC.	2.2 UNITS/AC.	OPEN SPACE	66.45	174.5
			TOTALS	166.68	507.9

*LAND ACREAGES INCLUDE NON-BUILDABLE AREAS

MIXED RES. UNITS ALLOWED		5-01-17
SINGLE FAMILY DETACHED		485 (43.3%)
APARTMENTS (O.R.)		236 (21.1%)
SINGLE FAMILY ATTACHED		395 (35.4%)
	TOTAL	1116

NON-BUILDABLE TRACKING CHART

PARCEL	TOTAL NON-BUILDABLE PARCEL AREA	FILE UNDER WHICH PARCEL WAS CREATED	FILE UNDER WHICH PARCEL WAS CONVERTED	AREA CONVERTED	CONVERTED TO:	AREA REMAINING
A	0.52	F-03-90	F-04-92	0.52	O.R. LOTS	---
B	0.43	F-03-90	F-04-92	0.43	S.F.D. LOTS	---
C	0.24	F-03-90	THIS PLAN	0.24	R/W (EMP.)	---
D	1.02	F-04-92	THIS PLAN	1.02	R/W (EMP.)	---
E	1.68	F-04-92	F-05-82	1.68	R/W (EMP.)	---
F	1.38	F-05-81	---	0	---	1.38
G	0.10	F-05-81	---	0	---	0.10
TOTAL	5.38					1.48

OVERALL OPEN SPACE TRACKING CHART

PHASE NO.	FILE REF. NO.	GROSS ACREAGE	O.S. AC. (%)	ACTIVE O.S. AC. (%) *
1	F-03-07	51.48	21.15 (40.7)	———
2	F-03-90	57.43	15.75 (42.1)	7.52 (47.7) ①
3	F-04-92	58.80	22.85 (38.9)	———
4a	F-05-81	15.47	6.70 (43.3)	0.24 (4.3) ②
4b	F-05-139	0.00	0.00 (0.0)	———
4c	F-05-112	3.00	0.00 (0.0)	———
TOTAL		166.68	66.45 (39.9)	7.81 (11.8) *

① 7.52 ACRES = Community Center (OS 125 - 5.01 Ac. OS 126 (0.55 Ac.), and OS 230 (1.96 Ac.)

② 0.24 ACRES = Parkways

* The percent of active open space is based upon the total open space provided.

NON-MXD TRACKING CHART

AREA	TOTAL AREA	FILE UNDER WHICH AREA WAS CREATED	ZONING OF AREA
PARCEL RR-1	1.23	F-05-139	RR-DEO
PARCEL RR-2	1.11	F-05-139	RR-DEO
R/W	0.78	F-05-139	RR-DEO
TOTAL	3.12*		

* THIS AREA WILL BE ADDED TO THE OVERALL PROJECT AREA WITH THE APPROVAL OF THE AMENDED PRELIMINARY DEVELOPMENT PLAN AND THE AMENDED COMPREHENSIVE SKETCH PLAN.

THE LIMITS OF THIS FINAL PLAN COVERS PART OF THE DEVELOPMENT PROPOSED BY S-01-17 AS ANNUAL PHASE 4 (ALLOCATION YEAR 2007) AND PARCEL 122, WHICH WILL BECOME PART OF THE OVERALL PROJECT AREA WITH THE APPROVAL OF THE AMENDED PRELIMINARY DEVELOPMENT PLAN AND AMENDED COMPREHENSIVE SKETCH PLAN.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 11-21-05

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 11/29/05

Chief, Development Engineering Division MK — Date 11/30/05

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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DATE	REVISION	BY	APP'R.

PREPARED FOR:
G&R MAPLE LAWN INC.
SUITE 410 WOODHOLME CENTER
1829 REISTERSTOWN ROAD
BALTIMORE, MD 21208
ATTN: CHARLIE O'DONOVAN
410-484-8400

COVER SHEET

MAPLE LAWN FARMS
Midtown District - Area 3
Parcel A-4, Non-Buildable Parcels RR-1 & RR-2 and Maple Lawn Blvd.
(A Resubdivision of Parcels 'C' and 'D')

ELECTION DISTRICT No. 5 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	MXD-3/RR-DEO	04001B
DATE	TAX MAP – GRID	SHEET
NOV., 2005	41 – 16	1 OF 29

F-05-139

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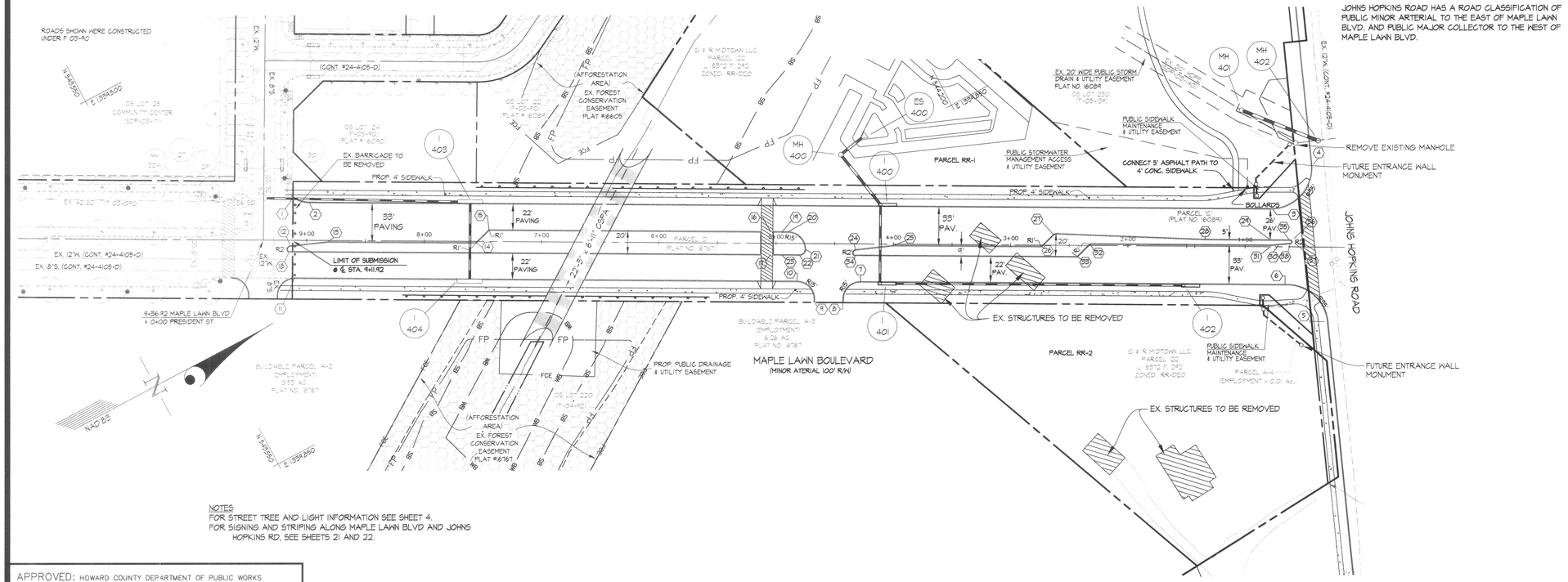


NOTES
FOR STREET TREE AND LIGHT INFORMATION SEE SHEET 4.
FOR SIGNING AND STRIPING ALONG MAPLE LAWN BLVD AND JOHNS HOPKINS RD, SEE SHEETS 21 AND 22.

TOP OF CURB ELEVATION TABLE			
PT. NO	STATION	OFFSET	ELEV. MATCH EXISTING
1	4+11.92	36.24' R	401.21
2	8+97.92	32.00' R	395.45
3	0+76.82	32.00' R	413.51
4	0+41.83	70.76' R	414.49
5	0+51.02	63.22' L	415.35
6	0+65.82	32.00' L	414.15
7	4+21.80	32.00' L	400.87
8	4+42.80	50.00' L	400.33
9	4+66.80	50.00' L	399.51
10	4+81.80	32.00' L	399.03
11	9+09.92	32.00' L	395.63
12	9+14.27	4.78' L	396.25
13	8+81.92	1.00' L	395.92
14	7+55.95	0.92' L	395.24
15	7+44.86	9.85' R	395.05
16	5+04.80	10.00' R	398.80
17	5+04.80	10.00' L	398.80
18	9+14.92	10.00' L	396.16
19	4+94.80	10.00' R	399.09
20	4+84.80	10.00' R	399.24
21	4+74.80	5.00' L	399.61
22	4+79.80	10.00' L	399.55
23	4+94.80	10.00' L	399.09

TOP OF CURB ELEVATION TABLE			
PT. NO	STATION	OFFSET	ELEV.
24	4+92.15	4.78' L	401.27
25	5+99.47	1.00' L	402.64
26	2+73.83	0.92' L	407.54
27	2+62.63	9.60' R	407.79
28	1+34.18	6.00' R	412.45
29	0+78.76	5.96' R	414.28
30	0+78.76	1.64' R	414.43
31	0+85.13	1.00' R	414.21
32	2+52.04	0.92' R	409.12
33	2+43.10	9.92' L	408.51
34	4+32.80	10.00' L	401.15
35	0+68.76	5.96' R	414.60
36	0+65.60	5.96' R	414.70
37	0+65.49	2.96' R	414.82
38	0+68.76	2.64' R	414.82

STORM DRAIN INFORMATION

From No.	To No.	Diameter & Type	L (ft)
I-402	I-401	15" HDPE	244 L.F.
I-401	I-400	18" HDPE	64 L.F.
I-400	MH-400	18" HDPE	51 L.F.
MH-400	ES-400	18" HDPE	20 L.F.
I-404	I-403	15" HDPE	64 L.F.
I-403	EX. MH-31	18" HDPE	162 L.F.
MH-402	MH-401	30" HDPE	79 L.F.

HDPE = High Density Polyethylene

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Chief, Bureau of Highways — Date 11-21-05

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Chief, Division of Land Development — Date 11/29/05
Chief, Development Engineering Division MK — Date 11/28/05

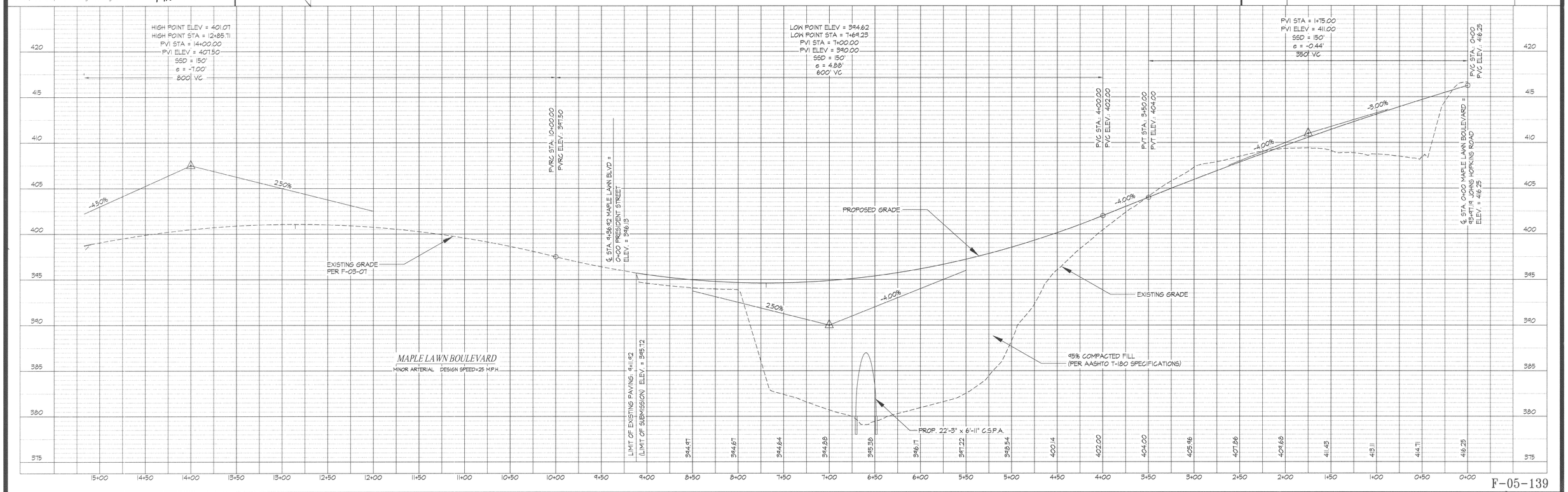
GLW GUTSCHICK LITTLE & WEBER, P.A.
CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS
3909 NATIONAL DRIVE – SUITE 250 – BURTONSVILLE OFFICE PARK
BURTONSVILLE, MARYLAND 20866
TEL: 301-421-4024 BALT: 410-880-1820 DC/VA: 301-989-2524 FAX: 301-421-4186

DESIGNED DEV/AWL | DRAWN AWL | CHECKED DEV | DATE NOV., 2005

Road Construction Plan
MAPLE LAWN FARMS
MIDTOWN DISTRICT - AREA 3
Parcel A-4, Non-Buildable Parcels RR-1 & RR-2 and Maple Lawn Blvd.
MAPLE LAWN BOULEVARD EXTENSION
A Resubdivision of Parcels 'C' and 'D'
ELECTION DISTRICT No. 5 — HOWARD COUNTY, MD

OWNER
G&R MAPLE LAWN INC.
SUITE 410 WOODHOLME CENTER
1829 REISTERSTOWN ROAD
BALTIMORE, MD 21208
ATTN: CHARLIE O'DONOVAN
410-484-8400

SCALE 1"=50' | DRAWING 2 OF 29 | ZONING MXD-3/ RR-DEO | JOB No. 04001b



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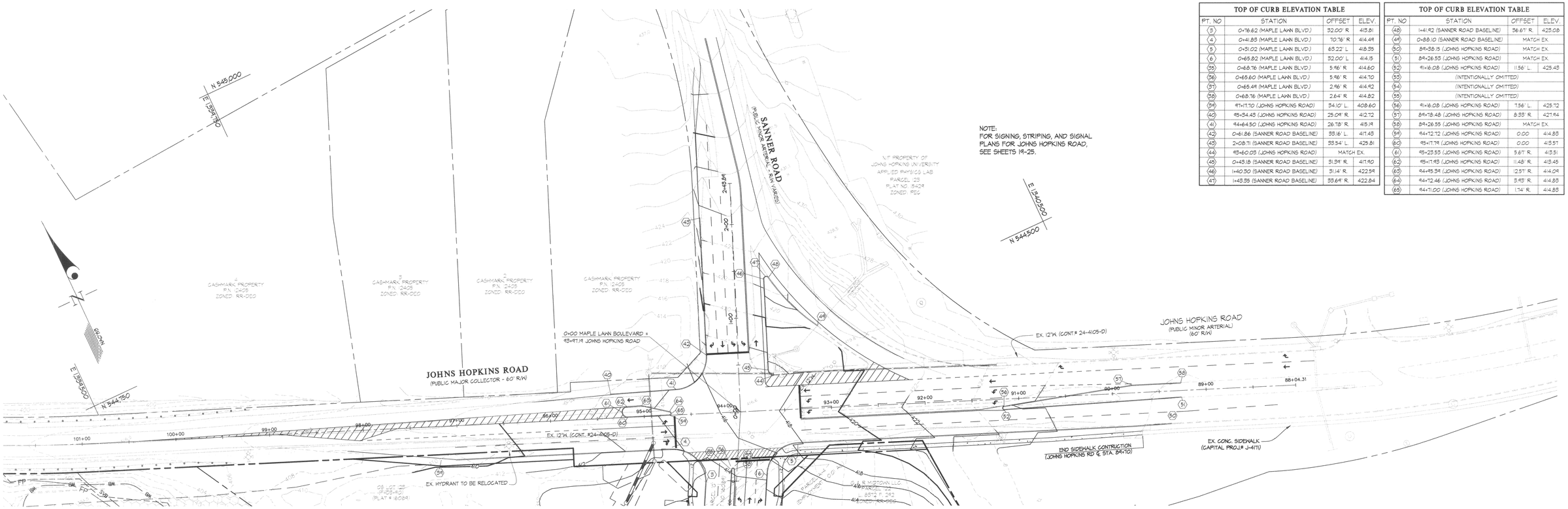
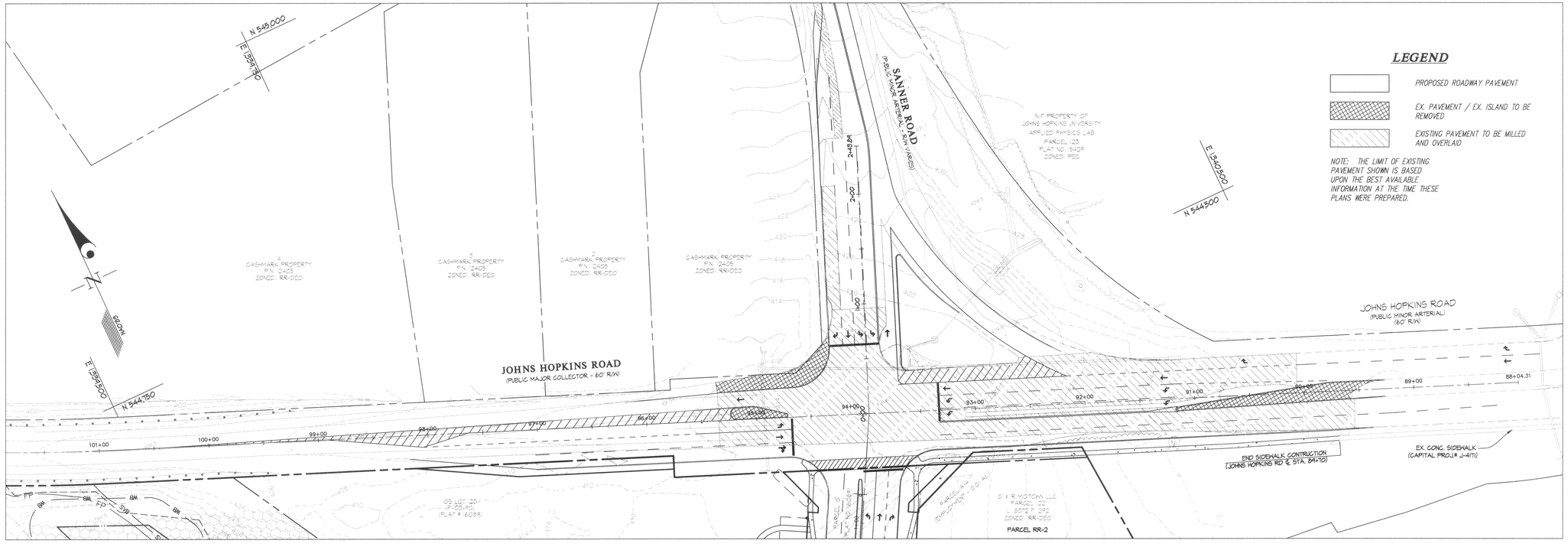
TOP OF CURB ELEVATION TABLE			
PT. NO	STATION	OFFSET	ELEV.
3	0+76.62 (MAPLE LAWN BLVD.)	32.00' R	413.81
4	0+41.83 (MAPLE LAWN BLVD.)	70.76' R	414.49
5	0+31.02 (MAPLE LAWN BLVD.)	65.22' L	418.35
6	0+65.82 (MAPLE LAWN BLVD.)	32.00' L	414.15
55	0+68.76 (MAPLE LAWN BLVD.)	5.96' R	414.60
56	0+65.60 (MAPLE LAWN BLVD.)	5.96' R	414.70
57	0+65.49 (MAPLE LAWN BLVD.)	2.96' R	414.92
58	0+68.76 (MAPLE LAWN BLVD.)	2.64' R	414.82
39	97+17.70 (JOHNS HOPKINS ROAD)	34.10' L	408.60
40	95+34.45 (JOHNS HOPKINS ROAD)	25.09' R.	412.72
41	94+64.50 (JOHNS HOPKINS ROAD)	26.78' R	415.19
42	0+61.86 (SANNER ROAD BASELINE)	33.16' L.	417.43
43	2+08.71 (SANNER ROAD BASELINE)	33.54' L	425.81
44	93+60.05 (JOHNS HOPKINS ROAD)	MATCH EX.	
45	0+43.18 (SANNER ROAD BASELINE)	31.39' R.	417.90
46	1+40.30 (SANNER ROAD BASELINE)	31.14' R.	422.94
47	1+48.35 (SANNER ROAD BASELINE)	33.64' R.	422.84

TOP OF CURB ELEVATION TABLE			
PT. NO	STATION	OFFSET	ELEV.
48	1+41.92 (SANNER ROAD BASELINE)	36.67' R.	423.08
49	0+88.10 (SANNER ROAD BASELINE)	MATCH EX.	
50	89+38.15 (JOHNS HOPKINS ROAD)	MATCH EX.	
51	89+26.53 (JOHNS HOPKINS ROAD)	MATCH EX.	
52	91+16.08 (JOHNS HOPKINS ROAD)	11.56' L.	425.43
53	(INTENTIONALLY OMITTED)		
54	(INTENTIONALLY OMITTED)		
55	(INTENTIONALLY OMITTED)		
56	91+16.08 (JOHNS HOPKINS ROAD)	7.56' L.	425.72
57	89+78.48 (JOHNS HOPKINS ROAD)	8.33' R.	427.94
58	89+26.53 (JOHNS HOPKINS ROAD)	MATCH EX.	
59	94+72.72 (JOHNS HOPKINS ROAD)	0.00	414.83
60	95+17.79 (JOHNS HOPKINS ROAD)	0.00	413.51
61	95+23.53 (JOHNS HOPKINS ROAD)	5.67' R.	413.51
62	95+17.93 (JOHNS HOPKINS ROAD)	11.48' R.	413.45
63	94+95.39 (JOHNS HOPKINS ROAD)	12.51' R.	414.09
64	94+72.46 (JOHNS HOPKINS ROAD)	3.93' R.	414.83
65	94+71.00 (JOHNS HOPKINS ROAD)	1.74' R.	414.83

NOTE:
FOR SIGNING, STRIPING, AND SIGNAL PLANS FOR JOHNS HOPKINS ROAD, SEE SHEETS 19-25.





LEGEND

- PROPOSED ROADWAY PAVEMENT
- EX. PAVEMENT / EX. ISLAND TO BE REMOVED
- EXISTING PAVEMENT TO BE MILLED AND OVERLAID

NOTE: THE LIMIT OF EXISTING PAVEMENT SHOWN IS BASED UPON THE BEST AVAILABLE INFORMATION AT THE TIME THESE PLANS WERE PREPARED.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Chief, Bureau of Highways — Date 11-21-05

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Chief, Division of Land Development — Date 11/29/05
Chief, Development Engineering Division — Date 11/28/05

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

\DRAWINGS\04001\04001B\Finals\04001bSG03.dwg | DES. DEV | DRN. AWL | CHK. DEV

DATE	REVISION	BY	APP'R.

PREPARED FOR:
G&R MAPLE LAWN INC.
SUITE 410 WOODHOLME CENTER
1829 REISTERSTOWN ROAD
BALTIMORE, MD 21208
ATTN: CHARLIE O'DONOVAN
410-484-8400

JOHNS HOPKINS / SANNER ROAD IMPROVEMENTS

MAPLE LAWN FARMS

Midtown District - Area 3

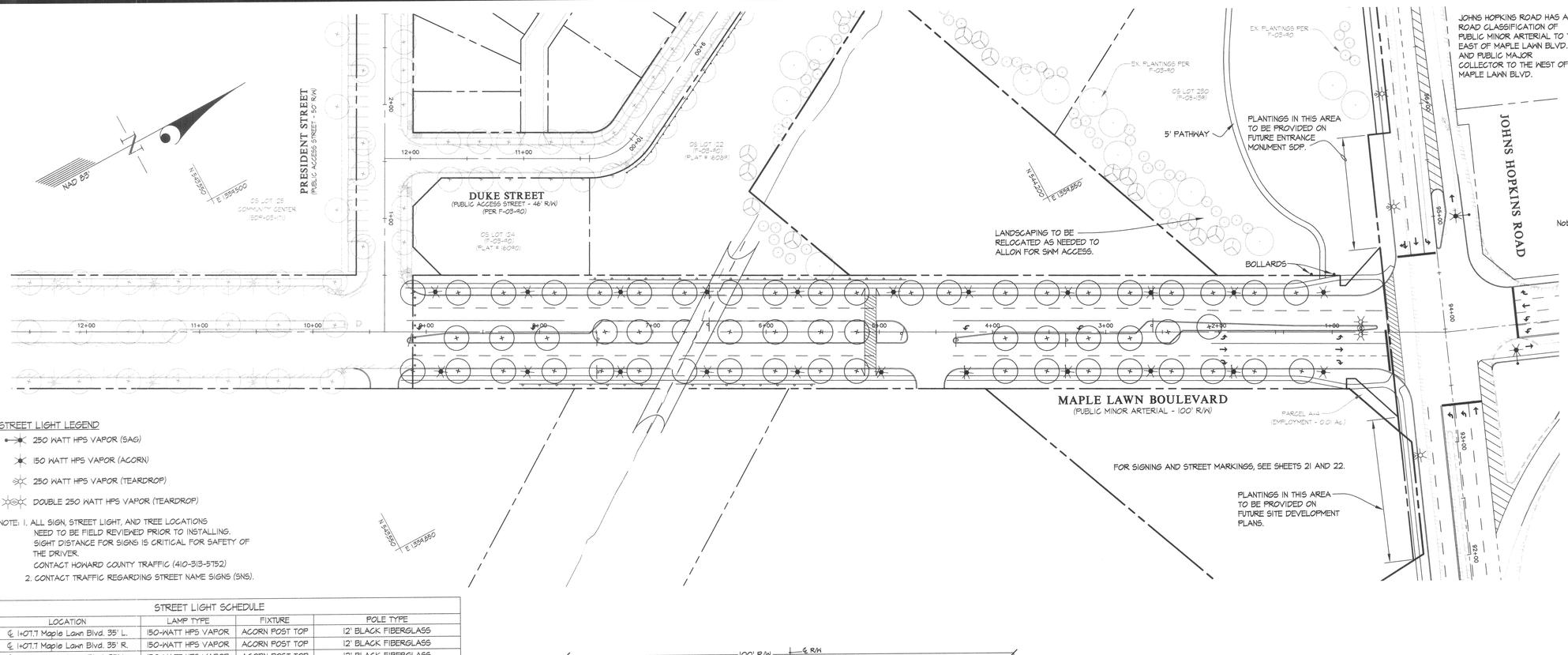
Parcel A-4, Non-Buildable Parcels RR-1 & RR-2 and Maple Lawn Blvd.

(A Resubdivision of Parcels 'C' and 'D')

ELECTION DISTRICT No. 5 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
1"=50'	MXD-3/RR-DEO	04001B
DATE	TAX MAP - GRID	SHEET
NOV., 2005	41 - 16	3 OF 29

F-05-139



JOHNS HOPKINS ROAD HAS A ROAD CLASSIFICATION OF PUBLIC MINOR ARTERIAL TO THE EAST OF MAPLE LAWN BLVD. AND PUBLIC MAJOR COLLECTOR TO THE WEST OF MAPLE LAWN BLVD.

STREET LIGHT LEGEND

- 250 WATT HPS VAPOR (SAG)
- 150 WATT HPS VAPOR (ACORN)
- 250 WATT HPS VAPOR (TEARDROP)
- DOUBLE 250 WATT HPS VAPOR (TEARDROP)

NOTE: 1. ALL SIGN, STREET LIGHT, AND TREE LOCATIONS NEED TO BE FIELD REVIEWED PRIOR TO INSTALLING. SIGHT DISTANCE FOR SIGNS IS CRITICAL FOR SAFETY OF THE DRIVER. CONTACT HOWARD COUNTY TRAFFIC (410-313-5752)
2. CONTACT TRAFFIC REGARDING STREET NAME SIGNS (SNS).

STREET LIGHT SCHEDULE

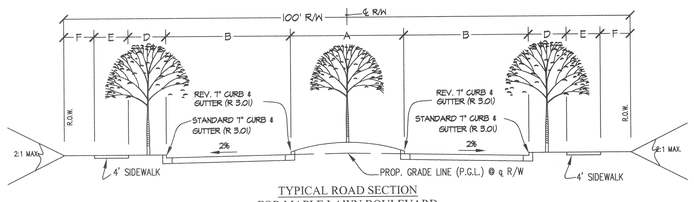
LOCATION	LAMP TYPE	FIXTURE	POLE TYPE
℄ 1+07.7 Maple Lawn Blvd. 35' L.	150-WATT HPS VAPOR	ACORN POST TOP	12' BLACK FIBERGLASS
℄ 1+07.7 Maple Lawn Blvd. 35' R.	150-WATT HPS VAPOR	ACORN POST TOP	12' BLACK FIBERGLASS
℄ 1+86.9 Maple Lawn Blvd. 35' L.	150-WATT HPS VAPOR	ACORN POST TOP	12' BLACK FIBERGLASS
℄ 1+86.9 Maple Lawn Blvd. 35' R.	150-WATT HPS VAPOR	ACORN POST TOP	12' BLACK FIBERGLASS
℄ 2+60.2 Maple Lawn Blvd. 35' L.	150-WATT HPS VAPOR	ACORN POST TOP	12' BLACK FIBERGLASS
℄ 2+60.2 Maple Lawn Blvd. 35' R.	150-WATT HPS VAPOR	ACORN POST TOP	12' BLACK FIBERGLASS
℄ 3+33.6 Maple Lawn Blvd. 35' L.	150-WATT HPS VAPOR	ACORN POST TOP	12' BLACK FIBERGLASS
℄ 3+33.6 Maple Lawn Blvd. 35' R.	150-WATT HPS VAPOR	ACORN POST TOP	12' BLACK FIBERGLASS
℄ 4+21.1 Maple Lawn Blvd. 35' R.	150-WATT HPS VAPOR	ACORN POST TOP	12' BLACK FIBERGLASS
℄ 4+22.8 Maple Lawn Blvd. 35' L.	150-WATT HPS VAPOR	ACORN POST TOP	12' BLACK FIBERGLASS
℄ 4+87.5 Maple Lawn Blvd. 35' R.	150-WATT HPS VAPOR	ACORN POST TOP	12' BLACK FIBERGLASS
℄ 4+98.2 Maple Lawn Blvd. 35' L.	150-WATT HPS VAPOR	ACORN POST TOP	12' BLACK FIBERGLASS
℄ 5+72.2 Maple Lawn Blvd. 35' L.	150-WATT HPS VAPOR	ACORN POST TOP	12' BLACK FIBERGLASS
℄ 5+72.2 Maple Lawn Blvd. 35' R.	150-WATT HPS VAPOR	ACORN POST TOP	12' BLACK FIBERGLASS
℄ 6+52.2 Maple Lawn Blvd. 35' L.	150-WATT HPS VAPOR	ACORN POST TOP	12' BLACK FIBERGLASS
℄ 6+52.2 Maple Lawn Blvd. 35' R.	150-WATT HPS VAPOR	ACORN POST TOP	12' BLACK FIBERGLASS
℄ 7+28.6 Maple Lawn Blvd. 35' L.	150-WATT HPS VAPOR	ACORN POST TOP	12' BLACK FIBERGLASS
℄ 7+28.6 Maple Lawn Blvd. 35' R.	150-WATT HPS VAPOR	ACORN POST TOP	12' BLACK FIBERGLASS
℄ 8+10.6 Maple Lawn Blvd. 35' L.	150-WATT HPS VAPOR	ACORN POST TOP	12' BLACK FIBERGLASS
℄ 8+10.6 Maple Lawn Blvd. 35' R.	150-WATT HPS VAPOR	ACORN POST TOP	12' BLACK FIBERGLASS
℄ 8+87.1 Maple Lawn Blvd. 35' L.	150-WATT HPS VAPOR	ACORN POST TOP	12' BLACK FIBERGLASS
℄ 8+92.2 Maple Lawn Blvd. 35' R.	150-WATT HPS VAPOR	ACORN POST TOP	12' BLACK FIBERGLASS
℄ 0+74.8 Maple Lawn Blvd. 4' R.	250-WATT HPS VAPOR	DOUBLE TEARDROP	23' BLACK FIBERGLASS W/ 4' ARM
℄ 92+91.6 Johns Hopkins Rd 34' L.	250-WATT HPS VAPOR	TEARDROP	23' BLACK FIBERGLASS W/ 4' ARM
℄ 95+12.1 Johns Hopkins Rd 34' L.	250-WATT HPS VAPOR	TEARDROP	23' BLACK FIBERGLASS W/ 4' ARM
℄ 96+12.0 Johns Hopkins Rd 34' L.	250-WATT HPS VAPOR	TEARDROP	23' BLACK FIBERGLASS W/ 4' ARM
℄ 94+98.0 Johns Hopkins Rd 32' R.	250-WATT HPS VAPOR	SAG	30' BRONZE FIBERGLASS W/ 12' ARM
℄ 0+60.4 Sanner Road 35' R.	250-WATT HPS VAPOR	SAG	30' BRONZE FIBERGLASS W/ 12' ARM

STREET TREE REQUIREMENTS

ROAD	LENGTH OF CURB	# OF TREES REQUIRED	# OF TREES PROVIDED
MAPLE LAWN BOULEVARD	1824'	46	57

SYMBOL	NAME (BOTANICAL/COMMON)	SIZE	REMARKS
⊕	Acer Sacharum / Green Mountain Sugar Maple	2 1/2" cal.	B & B Full Heads

NOTE: SEE SHEET 18 FOR TREE PLANTING DETAIL



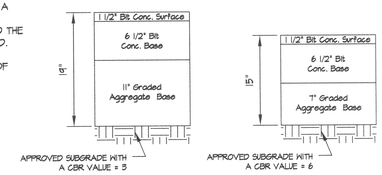
TYPICAL ROAD SECTION FOR MAPLE LAWN BOULEVARD

SCALE: NTS

TYPICAL ROAD SECTION & ROAD INFORMATION

ROAD NAME	STATION	ROAD CLASIFICATION	DESIGN SPEED	A	B	C	D	E	F	R/W	PAVING SECTION
MAPLE LAWN BLVD.	0+00 TO 9+11.12	MINOR ARTERIAL	25 MPH	20'	22'	N/A	6'-8"	4'	7'-4"	100'	P-5

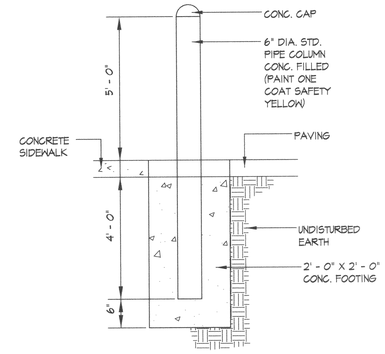
'C' IS USED WHEN PARALLEL PARKING IS PROVIDED. NO PARALLEL PARKING IS BEING PROVIDED ALONG THIS PORTION OF MAPLE LAWN BOULEVARD.



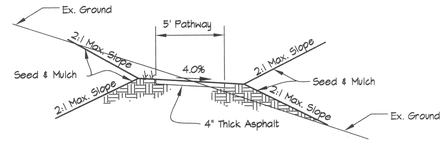
P-5 Granular Base
For Maple Lawn Blvd.
N.T.S.

Paving Sections

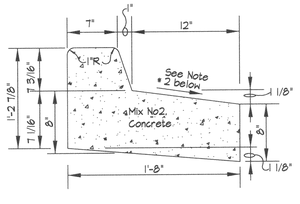
Note: Depending on the CBR values obtained in the field, the paving sections may be revised, if approved by a professional soils engineer. These substitutions must also be approved by the Howard County Dept. of Public Works.



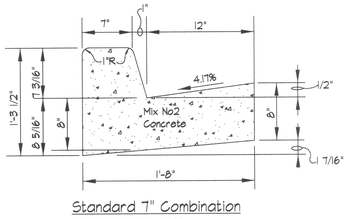
BOLLARD DETAIL
(N.T.S.)



5-0" Pathway Detail
N.T.S.



Reverse 7" Combination Curb & Gutter
N.T.S.



Standard 7" Combination Curb & Gutter
N.T.S.

Notes:
1. Standard 7" Combination Curb and Gutter to be used in all public rights of way.
2. Gutter pan at 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.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Chief, Bureau of Highways — Date 11-21-05

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Chief, Division of Land Development — Date 11/29/05
Chief, Development Engineering Division — Date 11/28/05

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:
G&R MAPLE LAWN INC.
SUITE 410 WOODHOLME CENTER
1829 REISTERSTOWN ROAD
BALTIMORE, MD 21208
ATTN: CHARLIE O'DONOVAN
410-484-8400

ROAD DETAILS AND STREET TREE & STREET LIGHT INFORMATION

MAPLE LAWN FARMS
Midtown District - Area 3
Parcel A-4, Non-Buildable Parcels RR-1 & RR-2 and Maple Lawn Blvd.
(A Resubdivision of Parcels 'C' and 'D')
ELECTION DISTRICT No. 5 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
1"=50'	MXD-3/RR-DEO	04001B
DATE	TAX MAP – GRID	SHEET
NOV., 2005	41 – 16	4 OF 29

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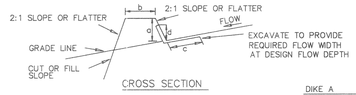
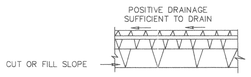
F-05-139

DETAIL 1 – EARTH DIKE



CROSS SECTION

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



PLAN VIEW

STANDARD SYMBOL
A–2 B–3

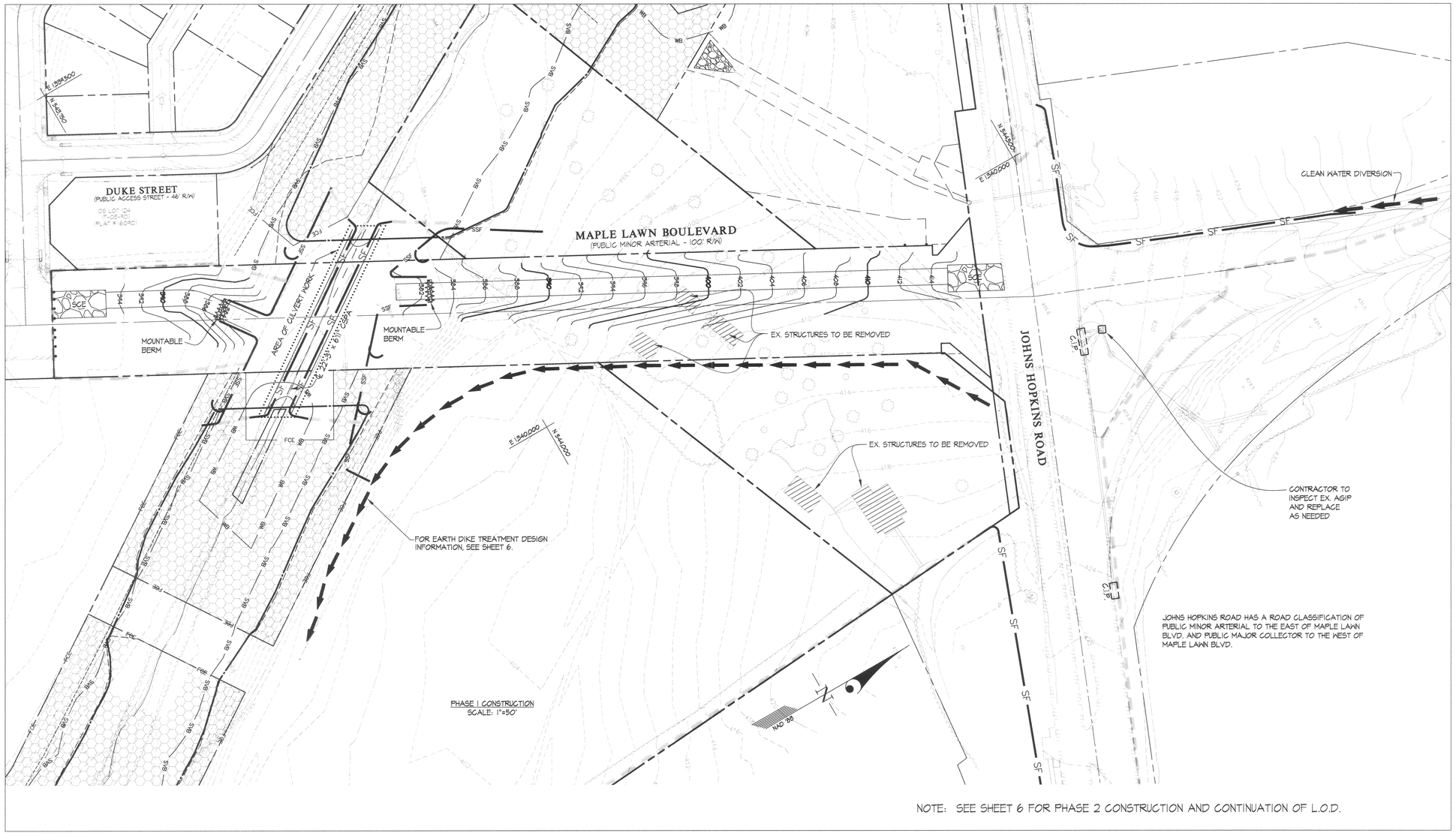
FLOW CHANNEL STABILIZATION
GRADE 0.5% MIN. 10% MAX.

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 objectional 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 rain event.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE A – 1 – 6	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION



PHASE I CONSTRUCTION
SCALE: 1"=50'

NOTE: SEE SHEET 6 FOR PHASE 2 CONSTRUCTION AND CONTINUATION OF L.O.D.

LEGEND

SCE	STONE CONSTRUCTION ENTRANCE
SF	SUPER SILT FENCE
SF	SILT FENCE
	EARTH DIKE
L.O.D.	LIMIT OF DISTURBANCE
	EARTH DIKE DRAINAGE AREA DIVIDE
	100 YR. FLOODPLAIN
410	EXISTING CONTOUR
410	PROPOSED CONTOUR

CONTRACTOR NOTES:
1. FOR STORM DRAIN SIZES, SEE SHEET 2.
2. WHERE THE L.O.D. IS NOT SHOWN, THE SEDIMENT CONTROL DEVICES WILL INDICATE THE LIMIT OF DISTURBANCE.
3. CONTRACTOR MUST TURN ALL SILT FENCE AND SUPER SILT FENCE UPHILL BY 2' IN ELEVATION.
4. WORK IN THE STREAM IS PROHIBITED FROM MARCH 1 TO JUNE 15.
5. DISTURBED AREAS WITHIN THE 100 YEAR FLOODPLAIN MUST BE STABILIZED ACCORDING TO THE RIPARIAN PLANTING NOTES ON SHEET 8.
6. THE CONTRACTOR MAY NOT CROSS THE STREAM AT ANY TIME DURING THE CONSTRUCTION OF THE CROSSING.

DEVELOPER'S/BUILDER'S CERTIFICATE

"I/We certify that all development and/or construction will be done according to this plan, and that any responsible personnel involved in the construction project will have a Certificate of Attendance at a Maryland Department of the Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I also authorize periodic on–site inspection by the HSCD."

Signature of Developer/Builder — Date 11-9-05

ENGINEER'S CERTIFICATE

"I certify that this plan for erosion and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District."

Date 11-9-05

These plans have been reviewed for the Howard Soil Conservation District and meet the technical requirements.

Natural Resources Conservation Service — Date 11/16/05

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

Howard S.C.D. — Date 11/16/05

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Chief, Bureau of Highways — Date 11-21-05

HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Chief, Division of Land Development — Date 11/29/05
Chief, Development Engineering Division — MK — Date 11/30/05

GLW GUTSCHICK LITTLE & WEBER, P.A.
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DATE	REVISION	BY	APP'R.

\DRAWINGS\04001\04001b\FINALS\04001SC05.dwg | DES. DEV | DRN. AWL | CHK. DEV

PREPARED FOR:
G&R MAPLE LAWN INC.
SUITE 410 WOODHOLME CENTER
1829 REISTERSTOWN ROAD
BALTIMORE, MD 21208
ATTN: CHARLIE O'DONOVAN
410–484–8400

SEDIMENT CONTROL PLAN, NOTES, AND DETAILS

MAPLE LAWN FARMS

Midtown District - Area 3

Parcel A-4, Non-Buildable Parcels RR-1 & RR-2 and Maple Lawn Blvd.

(A Resubdivision of Parcels 'C' and 'D')

ELECTION DISTRICT No. 5 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	MXD–3/RR–DEO	04001B
DATE	TAX MAP – GRID	SHEET
NOV., 2005	41 – 16	5 OF 29

F-05-139

Sequence of Construction

1. Obtain grading permit and arrange for an on-site pre-construction meeting. (1 day)
   Note: Work in the stream is prohibited from March 1 to June 15.
   MDE Permit number for the project is 01-NT-0544/200165421

PHASE 1 CONSTRUCTION

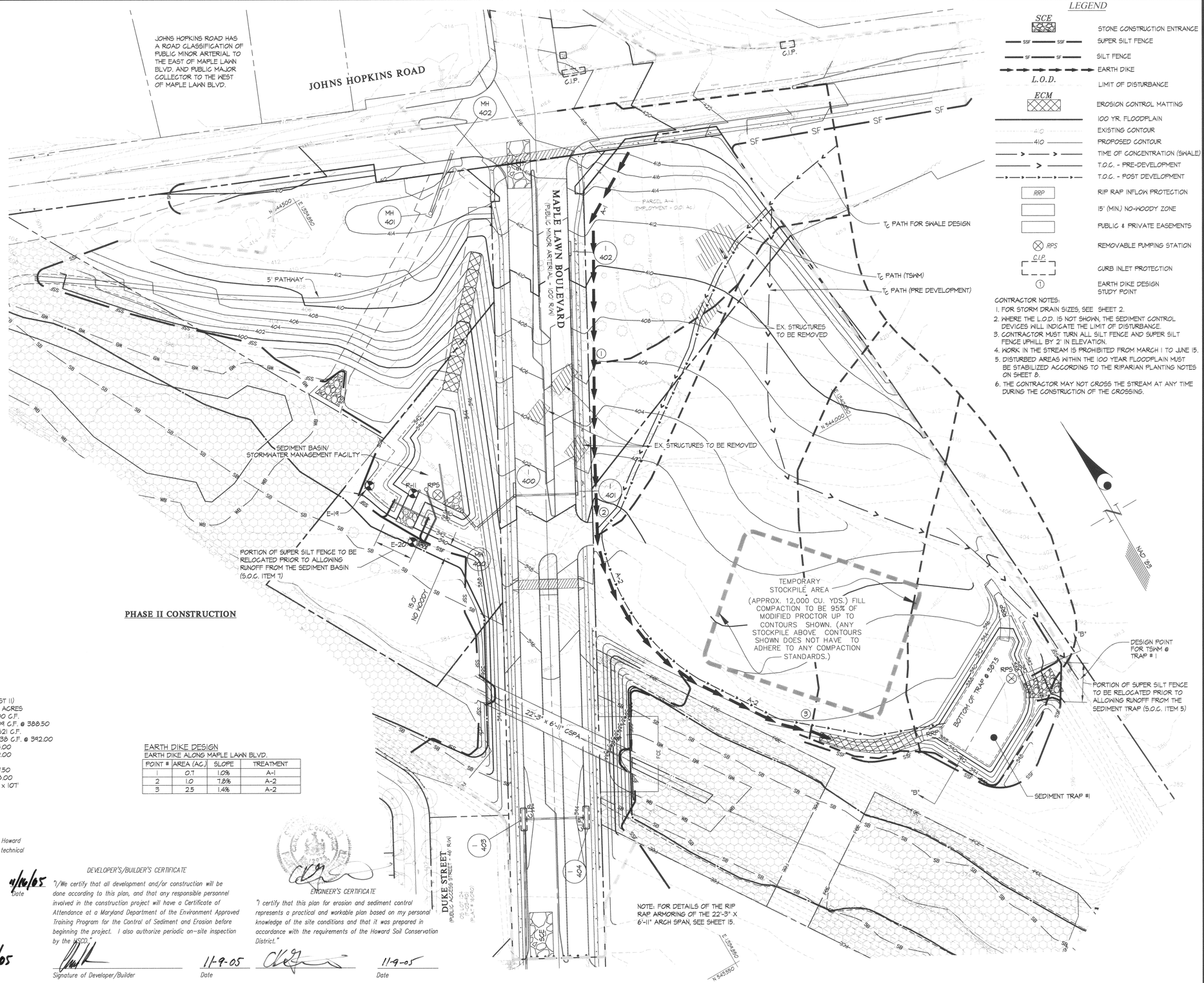
2. Install the stone construction entrances and the clean water diversion dike along the west side of the stormwater management facility and the earth dike along Maple Lawn Boulevard as shown on these plans. (1 week)
3. Install silt fence along the toe of the proposed stormwater management facility and along the stream banks as shown on sheet 5. When the limit of disturbance is adjacent to a tree save area, and silt fence is not required, install tree protection fence. (1 day)
4. Grade accesses to the arch span work area. (2 days)
5. With the permission of the sediment control inspector, remove a section of the silt fence at the base of each access and install mountable berms to reach the work area for the arch span. The silt fence along the stream bank is not to be altered.

PHASE 2 CONSTRUCTION

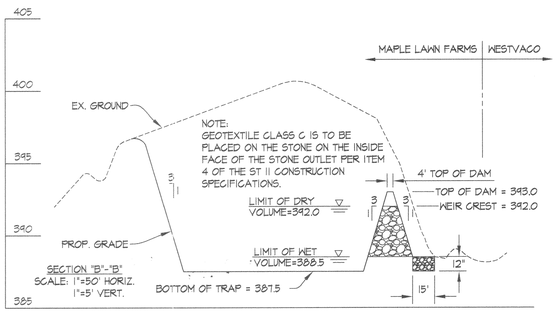
6. With the permission of the sediment control inspector, begin construction of sediment trap #1 and the stormwater management facility. The facility will be used as a sediment basin during the construction of the improvements shown on these plans. (1 month)
7. Prior to allowing runoff to leave the sediment basin, relocate the portion of the super silt fence in front of the control structure to the limits shown on sheet 8. (1 day)
8. Begin the construction of the 22'-3" x 6'-11" low profile arch span. (1 month)
9. Upon completion of the arch span, install silt fence along the toe of the road embankment and begin placing fill for Maple Lawn Boulevard. As the fill takes place, the silt fence will need to be relocated to insure runoff does not enter the stream. (2 days)
10. Begin rough grading. (1 month)
11. Install storm drains per these plans and the 12'x per Cont. # 24-4264-D (1 month)
12. With the permission of the sediment control inspector, begin improvements at the Johns Hopkins/ Sanner Road intersection. (2 months)
13. Install curb and gutter, sidewalks, and base paving. (1 month)
14. Fine grade site and stabilize disturbed areas in accordance with the topsoil and permanent seeding notes. (1 week) Note: Disturbed areas within the 100 year floodplain must be stabilized per the riparian seeding notes on sheet 8.
15. Install surface course paving. (1 week)
16. With permission from the sediment control inspector, remove the sediment and erosion control devices and stabilize any disturbed areas as needed. (1 week)
17. With permission from the sediment control inspector, convert the stormwater management facility to its final grades and remove the dewatering device. Stabilize any disturbed areas as needed. (1 week)

Contractor Notes

1. Contractor must keep silt fence between work areas and the existing stream through each phase of the arch super span construction.
2. Disturbed areas within the 100 Year Floodplain must be stabilized using the riparian planting specifications in the seeding notes on sheet 8 under the best management practices.
3. Any areas where work has been completed and the area will not be disturbed again, must be stabilized by the end of that day.
4. Sediment control devices must be checked on a regular basis and especially after rain events. Any necessary repairs must be made the same day.
5. Contractor must implement dust control measures (see sheet 8) as needed and upon request of the sediment control inspector.



PHASE II CONSTRUCTION



PROFILE THROUGH SEDIMENT TRAP #1

SEDIMENT BASIN INFORMATION

PRE-DEVELOPEMENT DRAINAGE AREA	3.2 ACRES
POST-DEVELOPMENT DRAINAGE AREA	2.5 ACRES
TOTAL STORAGE REQUIRED (WET VOLUME & 1 YR. TSWM)	24,131 C.F.
TOTAL STORAGE PROVIDED	24,488 C.F.
RISER DIMENSIONS	N/A
BARREL SIZE	N/A
WEIR CREST ELEVATION	392.00
OUTLET ELEVATION (LIMIT OF WET VOLUME)	388.10
CLEANOUT ELEVATION	388.40
BOTTOM ELEVATION	387.70
BOTTOM DIMENSIONS	VARIES
PRE-DEVELOPMENT 1 YEAR DISCHARGE	5.26 CFS
POST-DEVELOPMENT 1 YEAR DISCHARGE (UNMANAGED)	9.30 CFS
POST-DEVELOPMENT 1 YEAR DISCHARGE (MANAGED)	0.13 CFS @ 391.89
WET VOLUME REQUIRED	5760 CF
WET VOLUME PROVIDED	6,117 CF @ 388.10
DRY VOLUME REQUIRED	18,371 CF
DRY VOLUME PROVIDED	18,371 CF @ 391.89

SEDIMENT TRAP # 1

STONE OUTLET SEDIMENT TRAP (ST 11)	
DRAINAGE AREA	4.0 ACRES
WET VOLUME REQUIRED	7200 C.F.
WET VOLUME PROVIDED	7609 C.F. @ 388.50
DRY VOLUME REQUIRED	29,621 C.F.
DRY VOLUME PROVIDED	32,138 C.F. @ 392.00
TOP OF EMBANKMENT	393.00
WEIR CREST ELEVATION	392.00
WEIR CREST LENGTH	16'
BOTTOM ELEVATION	387.50
CLEANOUT ELEVATION	388.00
BOTTOM DIMENSIONS	68' x 107'

EARTH DIKE DESIGN

EARTH DIKE ALONG MAPLE LAWN BLVD.

POINT #	AREA (AC.)	SLOPE	TREATMENT
1	0.7	1.0%	A-1
2	1.0	7.8%	A-2
3	2.5	1.4%	A-2

LEGEND

SCE	STONE CONSTRUCTION ENTRANCE
SSF	SUPER SILT FENCE
SF	SILT FENCE
	EARTH DIKE
L.O.D.	LIMIT OF DISTURBANCE
ECM	EROSION CONTROL MATTING
	100 YR. FLOODPLAIN
410	EXISTING CONTOUR
410	PROPOSED CONTOUR
	TIME OF CONCENTRATION (SWALE)
	T.O.C. - PRE-DEVELOPMENT
	T.O.C. - POST DEVELOPMENT
RRP	RIP RAP INFLOW PROTECTION
	15' (MIN.) NO-WOODY ZONE
	PUBLIC & PRIVATE EASEMENTS
RPS	REMOVABLE PUMPING STATION
C.I.P.	CURB INLET PROTECTION
1	EARTH DIKE DESIGN STUDY POINT

CONTRACTOR NOTES:

1. FOR STORM DRAIN SIZES, SEE SHEET 2.
2. WHERE THE L.O.D. IS NOT SHOWN, THE SEDIMENT CONTROL DEVICES WILL INDICATE THE LIMIT OF DISTURBANCE.
3. CONTRACTOR MUST TURN ALL SILT FENCE AND SUPER SILT FENCE UPHILL BY 2' IN ELEVATION.
4. WORK IN THE STREAM IS PROHIBITED FROM MARCH 1 TO JUNE 15.
5. DISTURBED AREAS WITHIN THE 100 YEAR FLOODPLAIN MUST BE STABILIZED ACCORDING TO THE RIPARIAN PLANTING NOTES ON SHEET 8.
6. THE CONTRACTOR MAY NOT CROSS THE STREAM AT ANY TIME DURING THE CONSTRUCTION OF THE CROSSING.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 11-21-05

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 11/29/05

Chief, Development Engineering Division — Date 4/28/05

These plans have been reviewed for the Howard Soil Conservation District and meet the technical requirements.

Natural Resources Conservation Service — Date 11/10/05

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

Howard S.C.D. — Date 11/10/05

DEVELOPER'S/BUILDER'S CERTIFICATE

"I/We certify that all development and/or construction will be done according to this plan, and that any responsible personnel involved in the construction project will have a Certificate of Attendance at a Maryland Department of the Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I also authorize periodic on-site inspection by the HSCD."

Signature of Developer/Builder — Date 11-9-05

ENGINEER'S CERTIFICATE

"I certify that this plan for erosion and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District."

Date 11-9-05

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:
G&R MAPLE LAWN INC.
SUITE 410 WOODHOLME CENTER
1829 REISTERSTOWN ROAD
BALTIMORE, MD 21208
ATTN: CHARLIE O'DONOVAN
410-484-8400

SEDIMENT CONTROL OVERVIEW PLAN

MAPLE LAWN FARMS

Midtown District - Area 3

Parcel A-4, Non-Buildable Parcels RR-1 & RR-2 and Maple Lawn Blvd.

(A Resubdivision of Parcels 'C' and 'D')

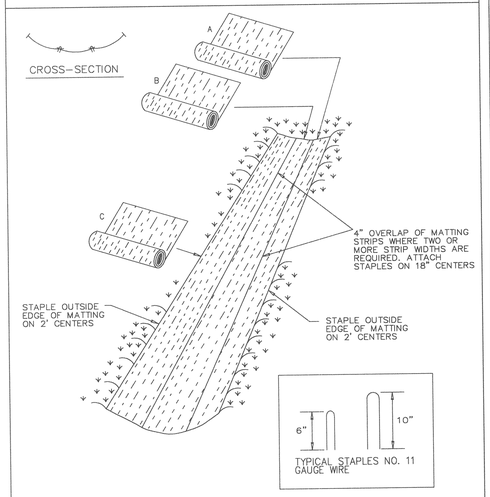
ELECTION DISTRICT No. 5 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
1"=50'	MXD-3/RR-DEO	04001B
DATE	TAX MAP - GRID	SHEET
NOV., 2005	41 - 16	6 OF 29

\DRAWINGS\04001\04001b\FINALS\04001bSC06.dwg | DES. DEV | DRN. AWL | CHK. DEV

F-05-139

DETAIL 30 – EROSION CONTROL MATTING



Construction Specifications

1. Key–in the matting by placing the top ends of the matting in a narrow trench, 6" in depth. Backfill the trench and tamp firmly to conform to the channel cross–section. Secure with a row of staples about 4" down slope from the trench. Spacing between staples is 6".

2. Staple the 4" overlap in the channel center using an 18" spacing between staples.

3. Before stapling the outer edges of the matting, make sure the matting is smooth and in firm contact with the soil.

4. Staples shall be placed 2' apart with 4 rows for each strip, 2 outer rows, and 2 alternating rows down the center.

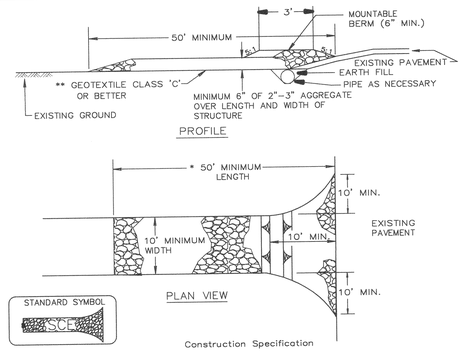
5. Where one roll of matting ends and another begins, the end of the top strip shall overlap the upper end of the lower strip by 4", shiplap fashion. Reinforce the overlap with a double row of staples spaced 6" apart in a staggered pattern on either side.

6. The discharge end of the matting liner should be similarly secured with 2 double rows of staples.

Note: If flow will enter from the edge of the matting then the area effected by the flow must be keyed–in.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE G – 22 – 2	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

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.

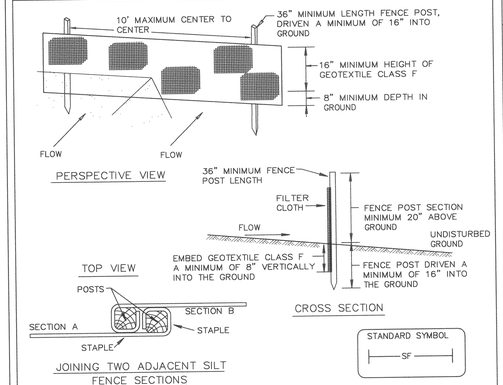
4. Stone – crushed aggregate (2" to 3") or reclaimed or recycled concrete equivalent shall be placed at least 6" deep over the length and width of the entrance.

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.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE F – 17 – 3	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 22 – SILT FENCE



Construction Specifications

1. Fence posts shall be a minimum of 36" long driven 16" minimum into the ground. Wood posts shall be 11/2" x 11/2" square (minimum) cut, or 13/4" diameter (minimum) round and shall be of sound quality hardwood. Steel posts will be standard T or U section weighting not less than 1.00 pond per linear foot.

2. Geotextile 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:

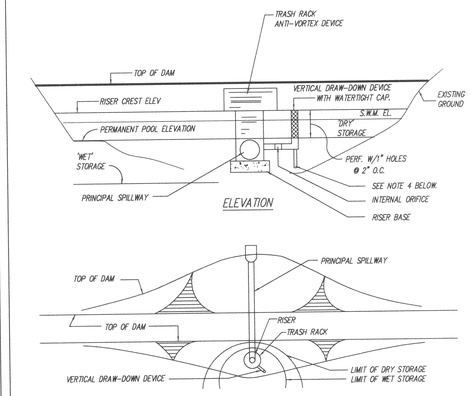
Tensile Strength	50 lbs/in (min.)	Test: MSMT 509
Tensile Modulus	20 lbs/in (min.)	Test: MSMT 509
Flow Rate	0.3 gal ft ² minute (max.)	Test: MSMT 322
Filtering Efficiency	75% (min.)	Test: MSMT 322

3. Where ends of geotextile fabric come together, they shall be overlapped, folded and stapled to prevent sediment bypass.

4. Silt Fence shall be inspected after each rainfall event and maintained when bulges occur or when sediment accumulation reached 50% of the fabric height.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE E – 15 – 3	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

BASIN DRAWDOWN SCHEMATIC VERTICAL DRAWDOWN DEVICE



CONSTRUCTION SPECIFICATIONS

1. Perforations in the draw–down device may not extend into the wet storage.

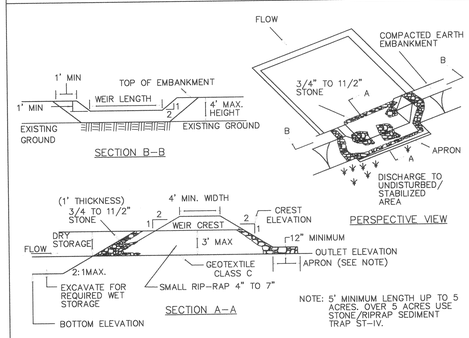
2. The total area of the perforations must be greater than 4 times the area of the internal orifice.

3. The perforated portion of the draw–down device shall be wrapped with 1/2" hardware cloth and geotextile fabric. The geotextile fabric shall meet the specifications for Geotextile Class E.

4. Provide support of draw–down device to prevent sagging and floatation. An acceptable preventative measure is to stake both sides of draw–down device with 1" steel angle, or 1" by 4" square or 2" round wodden posts set 3' minimum into the ground then joining them to the device by wrapping with 12 guage minimum wire.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE C – 10 – 30	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.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE C – 9 – 10	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

STONE OUTLET SEDIMENT TRAP – ST II

6. The structure shall be inspected periodically and after each rain and repairs made as needed.

7. Construction of traps shall be carried out in such a manner that sediment pollution is abated. Once constructed, the top and outside face of the embankment shall be stabilized with seed and mulch. Points of concentration inflow shall be protected in accordance with Grade Stabilization Structure criteria. The remainder of the interior slopes should be stabilized (one time) with seed and mulch upon trap completion and monitored and maintained erosion free during the life of the trap.

8. The structure shall be dewartered by approved methods, removed and the area stabilized when the drainage area has been properly stabilized.

9. Refer to section D for specifications concerning trap dewatering.

10. Minimum trap depth shall be measured from the weir elevation.

11. The elevation of the top of any dike directing water into the trap must equal or exceed the elevation of the trap embankment.

12. Geotextile Class C shall be placed over the bottom and sides of the outlet channel prior to the placement of stone. Sections of filter cloth must overlap at least 1' with the section nearest the entrance placed on top. The filter cloth shall be embedded at least 6" into existing ground at the entrance of the outlet channel.

13. Outlet – An outlet shall be provided, including a means of conveying the discharge in an erosion free manner to an existing stable channel.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE C – 9 – 10A	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

These plans have been reviewed for the Howard Soil Conservation District and meet the technical requirements.

Natural Resources Conservation Service — Date 11/14/05

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

Howard S.C.D. — Date 11/16/05

ENGINEER'S CERTIFICATE

"I certify that this plan for erosion and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District."

Signature of Engineer — Date 11-9-05

DEVELOPER'S/BUILDER'S CERTIFICATE

"I/We certify that all development and/or construction will be done according to this plan, and that any responsible personnel involved in the construction project will have a Certificate of Attendance at a Maryland Department of the Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I also authorize periodic on–site inspection by the HCSCD."

Signature of Developer/Builder — Date 11-09-05

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 11-21-05

HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 11/9/05

Chief, Development Engineering Division — Date 11/20/05

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3909 NATIONAL DRIVE – SUITE 250 – BURTONSVILLE OFFICE PARK
BURTONSVILLE, MARYLAND 20866
TEL: 301–421–4024 BALT: 410–880–1820 DC/VA: 301–989–2524 FAX: 301–421–4186

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DATE	REVISION	BY	APP'R.

PREPARED FOR:
G&R MAPLE LAWN INC.
SUITE 410 WOODHOLME CENTER
1829 REISTERSTOWN ROAD
BALTIMORE, MD 21208
ATTN: CHARLIE O'DONOVAN
410–484–8400

SEDIMENT CONTROL DETAILS

MAPLE LAWN FARMS

Midtown District - Area 3

Parcel A-4, Non-Buildable Parcels RR-1 & RR-2 and Maple Lawn Blvd.

(A Resubdivision of Parcels 'C' and 'D')

ELECTION DISTRICT No. 5 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	MXD–3/RR–DEO	04001B
DATE	TAX MAP – GRID	SHEET
NOV., 2005	41 – 16	7 OF 29

F-05-139

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) 131-1880

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) 7 calendar days for all perimeter sediment control structures, dikes and perimeter slopes and all slopes greater than 3:1, b) 14 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. 1, 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	:	~~4.35~~ 12.2 Acres
Area Disturbed	:	12.2 Acres
Area to be roofed or paved	:	3.0 Acres
Area to be vegetatively stabilized	:	9.2 Acres
Total Cut	:	31,600 Cu. Yds.
Total Fill	:	23,300 Cu. Yds.

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 peracre 10-10-10 fertilizer (23 lbs/1000 sq ft)beforeseeding.Harrow or disc into upperthree 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, areashaving slopes steeper than 2:1 require special consideration and design for adequate stabilization.Areas having slopessteeper than 2:1 shall have the appropriate stabilizationshown 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 must meet the following:

i. 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.

ii. Topsoil must be free of plant parts such as bermuda grass, quackgrass, Johnsongrass, nutsedge, poison ivy, thistle, or others as specified.

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

i. 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:

i. On soil meeting Topsoil specifications, obtain test results dictating fertilizer and lime amendments required to bring the soil into compliance with the following:

a. 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.

b. Organic content of topsoil shall be not less than 1.5 percent by weight.

c. Topsoil having soluble salt greater than 500 parts per mill shall not be used.

d. 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.

ii. 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

I. When topsoilling, maintain needed erosion and sediment control practices such as diversion, Grade Stabilization Structures, Earth Dikes, Slope Silt Fence and Sediment Traps and Basins.

ii. Grades on the areas to be topsoiled, which have been previously established, shall be maintained, albeit 4" - 8" higher in elevation.

iii. Topsoil shall be uniformly distributed in a 4" -8" layer and lightly compacted to a minimum thickness of 4". Spreading shall be performed in such a manner that sodding or seeding can proceed with a minimum of additional soil preparation and tillage.Any irregularities in the surface resulting from topsoilling or other operations shall be corrected in order to prevent the formation of depressions or water

iv. 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:

I. 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:

a. 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.

b. 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 constituents must be added to meet the requirements prior to use.

c. Composted sludge shall be applied at a rate of 1 ton/1,000 square feet.

ii. Composted sludge shall be amended with a potassium fertilizer applied at a rate of 41b/1,000 square feet, and 1/3 the normal lime application rate.

References: Guideline Specifications, Soil Preparation and Sodding, MD-VA Pub. #1 , 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 begins to flow.
5. Barriers - Solid board fences, silt fences, burlap fences, straw bales, and similar material can be used to controlair 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.

PLANTING NOTES

1. Riparian areas may be planted as soon as reasonable to do so. Late winter- early spring plantings are preferred. Earliest planting dates will vary from year to year but planting may generally begin as soon as the ground is no longer frozen. Alternate planting dates may be considered as condition warrants.
2. Soil amendments and fertilization recommendations will be made based upon the results of soil analysis for nitrogen, phosphorus, potassium, organic matter content and pH. If required, fertilizer will be provided using a slow release, soluble 16-8-16 analysis designed to last 5-8 years contained in polyethylene perforated bags such as manufactured by ADCO Works, P.O. Box 310 Hollins, N.Y. 11423 or approved equal.
3. Plant materials will be planted in accordance with the Planting Distribution Diagram, Planting Details and plant schedule.
4. Plant material shall be nursery grown and inspected prior to planting. Plants not conforming to the American Standard for Nursery Stock specifications for size, form, vigor, or roots, or due to trunk wounds, breakage, desiccation, insect or disease must be replaced.
5. Planting stock must be protected from desiccation at all times prior to planting. Materials held for planting shall be moistened and placed in cool shaded areas until ready for placement.
6. Newly planted trees may require watering at least once per week during the first growing season depending on rainfall in order to get established. The initial planting operation should allow for watering during installation to completely soak backfill material.
7. Planting holes should be excavated to a minimum diameter of 2.5 to 3 times the diameter of the root ball or container. Mechanical angering is preferred with scarification of the sides of each hole.
8. Mulch shall be applied in accordance with the diagram provided and shall consist of composted, shredded hardwood bark mulch, free of wood alcohol.
9. One hundred per cent (100 %) survival of riparian buffer plantings shall be guaranteed for one (1) year. Replacement plantings shall be provided after first year's growing season.

BEST MANAGEMENT PRACTICES

FOR WORKING IN NONTIDAL WETLANDS, WETLAND BUFFERS, WATERWAYS, AND 100-YEAR FLOODPLAINS

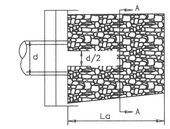
1. NO EXCESS FILL, CONSTRUCTION MATERIAL, OR DEBRIS SHALL BE STOCKPILES OR STORED IN NONTIDAL WETLANDS, NON-TIDAL WETLAND BUFFERS, WATERWAYS, OR 100 YEAR FLOODPLAIN.
2. PLACE MATERIALS IN A LOCATION AND MANNER WHICH DOES NOT ADVERSELY IMPACT SURFACE OR SUBSURFACE WATER FLOW INTO OR OUT OF NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, WATERWAYS, OR THE 100-YEAR FLOOD PLAIN.
3. DO NOT USE THE EXCAVATED MATERIAL AS BACKFILL IF IT CONTAINS WASTE METAL PRODUCTS, UNSIGHTLY DEBRIS, TOXIC MATERIAL, OR ANY OTHER DELETERIOUS SUBSTANCE. IF ADDITIONAL BACKFILL IS REQUIRED, USE CLEAN MATERIAL FREE OF WASTE METAL PRODUCTS, UNSIGHTLY DEBRIS, TOXIC MATERIAL, OR ANY OTHER DELETERIOUS SUBSTANCE.
4. PLACE HEAVY EQUIPMENT ON MATS OR SUITABLY OPERATE THE EQUIPMENT TO PREVENT DAMAGE TO NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, WATERWAYS, OR THE 100-YEAR FLOODPLAIN.
5. REPAIR AND MAINTAIN ANY SERVICEABLE STRUCTURE OR FILL SO THERE IS NO PERMANENT LOSS OF NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, OR WATERWAYS, OR PERMANENT MODIFICATION OF THE 100-YEAR FLOODPLAIN IN EXCESS OF THAT LOST UNDER THE ORIGINALLY AUTHORIZED STRUCTURE OR FILL.
6. RECTIFY ANY NONTIDAL WETLANDS, WETLAND BUFFERS, WATERWAYS OR 100-YEAR FLOODPLAIN TEMPORARILY IMPACTED BY ANY CONSTRUCTION.
7. ALL STABILIZATION IN THE NONTIDAL WETLAND AND NONTIDAL WETLAND BUFFER SHALL CONSIST OF THE FOLLOWING SPECIES:

   ANNUAL RYE GRASS (LOLIUM MULTIFLORUM)
   MILLET (SETARIA ITALICA)
   BARLEY (HORDEUM SPECIES)
   OATS (SP.)
   RYE (SECALE CEREALE)

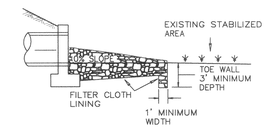
   THESE SPECIES WILL ALLOW FOR THE STABILIZATION OF THE SITE WHILE ALSO ALLOWING FOR THE VOLUNTARY REVEGETATION OF NATURAL WETLAND SPECIES. OTHER NON-PERSISTENT VEGETATION MAY BE ACCEPTABLE, BUT MUST BE APPROVED BY THE NONTIDAL WETLANDS AND WATERWAYS DIVISION. KENTUCKY 31 FESCUE SHALL NOT BE UTILIZED IN WETLAND OR BUFFER AREAS. THE AREA SHOULD BE SEEDED AND MULCHED TO REDUCE EROSION AFTER CONSTRUCTION ACTIVITIES HAVE BEEN COMPLETED.
8. AFTER INSTALLATION HAS BEEN COMPLETED, MAKE POST-CONSTRUCTION GRADES AND ELEVATIONS THE SAME AS THE ORIGINAL GRADES AND ELEVATIONS IN TEMPORARILY IMPACTED AREAS.
9. TO PROTECT AQUATIC SPECIES, IN-STREAM WORK IS PROHIBITED AS DETERMINED BY THE CLASSIFICATION OF THE STREAM

   USE 1 WATERS: IN STREAM WORK SHALL BE CONDUCTED DURING THE PERIOD MARCH 1 THROUGH JUNE 15, INCLUSIVE, DURING ANY YEAR.
10. STORMWATER RUNOFF FROM IMPERVIOUS SURFACES SHALL BE CONTROLLED TO PREVENT THE WASHING OF DEBRIS INTO THE WATERWAY.
11. CULVERTS SHALL BE CONSTRUCTED AND ANY RIPRAP PLACED SO AS NOT TO OBSTRUCT THE MOVEMENT OF AQUATIC SPECIES, UNLESS THE PURPOSE OF THE ACTIVITY IS TO IMPOUND WATER.

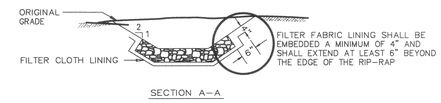
DETAIL 27 - ROCK OUTLET PROTECTION III



PLAN VIEW



ELEVATION



SECTION A-A

NOTE: FILTER CLOTH SHALL BE GEOTEXTILE CLASS C

Construction Specifications

1. The subgrade for the filter, riprap, or gabion shall be prepared to the required lines and grades. Any fill required in the subgrade shall be compacted to a density of approximately that of the surrounding undisturbed material.

2. The rock or gravel shall conform to the specified grading limits when installed respectively in the rip-rap or filter.

3. Geotextile shall be protected from punching, cutting,or tearing. ny damage other than an occasional small hole shall be repaired by placing another piece of geotextile over the damaged part or by completely replacing the geotextile. All overlaps whether for repairs or for joining two pieces of geotextile shall be a minimum of one foot.

4. Stone for the rip-rap or gabion outlets may be placed by equipment. They shall be constructed to the full course thickness in one operation and in such a manner as to avoid displacement of underlying materials. The stone for riprap or gabion outlets shall be delivered and placed in a manner that will ensure that it is reasonably homogeneous with the smaller stones and spalls filling the voids between the larger stones. Rip-rap shall be placed in a manner to prevent damage to the filter blanket or geotextile. Hand placement will be required to the extent necessary to prevent damage to the permanent works.

5. The stone shall be placed so that it blends in with the existing ground. If the stone is placed too high then the flow will be forced out of the channel and scour adjacent to the stone will occur.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE F - 18 - 10	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DEVELOPER'S/BUILDER'S CERTIFICATE

"I/We certify that all development and/or construction will be done according to this plan, and that any responsible personnel involved in the construction project will have a Certificate of Attendance at a Maryland Department of the Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I also authorize periodic on-site inspection by the HSCD."

Signature of Developer/Builder — Date 11-9-05

ENGINEER'S CERTIFICATE

"I certify that this plan for erosion and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District."

Signature of Engineer — Date 11-9-05

These plans have been reviewed for the Howard Soil Conservation District and meet the technical requirements.

Natural Resources Conservation Service — Date 11/16/05

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

Howard S.C.D. — Date 11/16/05

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 11-21-05

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 11/29/05

Chief, Development Engineering Division — Date 11/28/05

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.

\DRAWINGS\04001\04001b\FINALS\04001bSC08.dwg | DES. DEV | DRN. AWL | CHK. DEV

PREPARED FOR:
G&R MAPLE LAWN INC.
SUITE 410 WOODHOLME CENTER
1829 REISTERSTOWN ROAD
BALTIMORE, MD 21208
ATTN: CHARLIE O'DONOVAN
410-484-8400

SEDIMENT CONTROL DETAILS

MAPLE LAWN FARMS

Midtown District - Area 3

Parcel A-4, Non-Buildable Parcels RR-1 & RR-2 and Maple Lawn Blvd.

(A Resubdivision of Parcels 'C' and 'D')

ELECTION DISTRICT No. 5 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	MXD-3/RR-DEO	04001B
DATE	TAX MAP - GRID	SHEET
NOV., 2005	41 - 16	8 OF 29

F-05-139

DRAINAGE AREA INFORMATION			
INLET	AREA	'C' VALUE	% IMP.
I-400	0.49 Ac.	0.71	75%
I-401	0.33 Ac.	0.71	75%
I-402	0.44 Ac.	0.71	75%
I-403	0.68 Ac.	0.71	75%
I-404	0.67 Ac.	0.71	75%

LEGEND

WB — WETLAND BUFFER

SB — STREAM BUFFER

DRAINAGE DIVIDE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 11-21-05

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 11/29/05

Chief, Development Engineering Division — Date 11/30/05

GLW GUTSCHICK LITTLE & WEBER, P.A.

CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS

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STORM DRAIN DRAINAGE AREA MAP

MAPLE LAWN FARMS

Midtown District - Area 3

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ELECTION DISTRICT No. 5 — HOWARD COUNTY, MARYLAND

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1"=100'	MXD-3/RR-DEO	04001B
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NOV., 2005	41 – 16	9 OF 29

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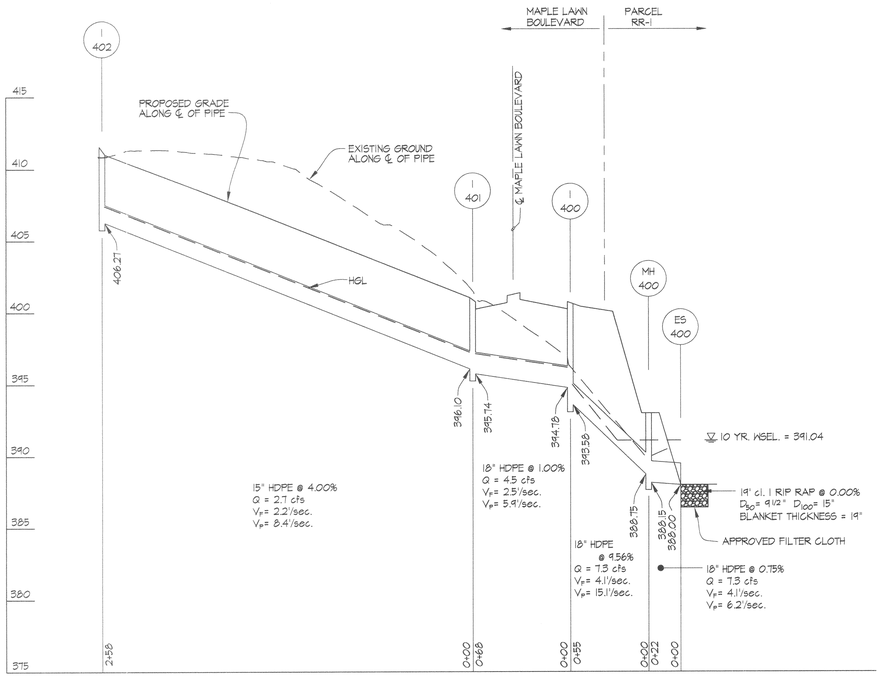
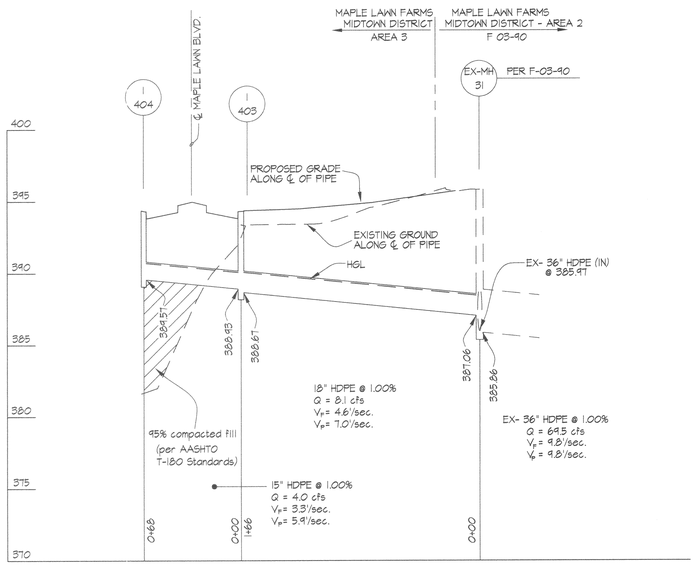
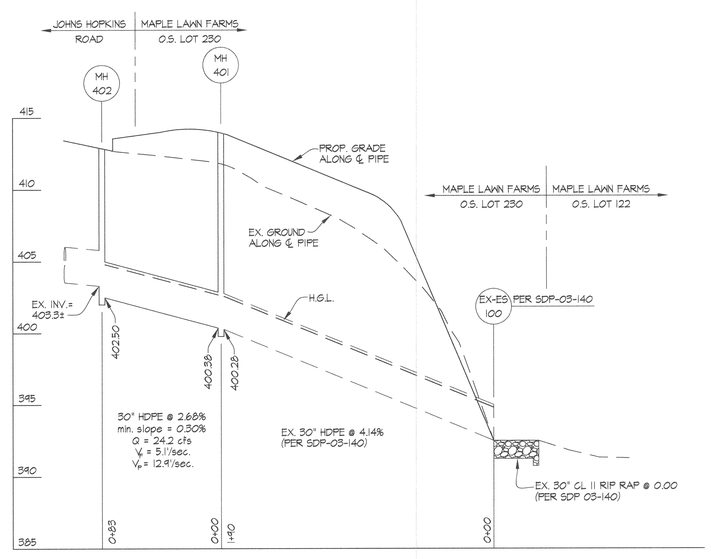
F-05-139





PROFILE
SCALE: 1"=50' HORIZ.
1"=5' VERT.



STRUCTURE SCHEDULE									
NO	TYPE	WIDTH (INSIDE)	TOP ELEVATION UPPER	TOP ELEVATION LOWER	INVERT ELEVATION UPPER	INVERT ELEVATION LOWER	STD. DETAIL	LOCATIONS ◇1	REMARKS
I-400	COG-15 INLET	3'-5"	400.56	399.98	394.78	393.58	MD-374.63	N 544,102 E 1,339,846	
I-401	COG-15 INLET	3'-5"	400.56	399.98	396.10	395.74	MD-374.63	N 544,072 E 1,339,952	
I-402	COG-15 INLET	3'-5"	411.04	410.49	---	406.27	MD-374.63	N 544,309 E 1,340,080	
I-403	COS-15 INLET	3'-5"	---	394.25	388.93	388.67	MD-374.63	N 543,748 E 1,339,731	
I-404	COS-15 INLET	3'-5"	---	394.25	---	389.57	MD-374.63	N 543,768 E 1,339,788	
MH-400	STANDARD MANHOLE	4'-0"	---	393.00	388.75	388.15	G-5.12	N 544,074 E 1,339,838	
MH-401	STANDARD MANHOLE	5'-0"	---	414.20	400.38	400.28	G-5.12	N 544,416 E 1,339,970	
MH-402	STANDARD MANHOLE	5'-0"	---	413.21	403.30	402.50	G-5.12	N 544,462 E 1,340,024	
EX-MH-31	STANDARD MANHOLE	5'-0"	---	395.91	388.17	385.86	G-5.13	N 543,648 E 1,339,641	PER F-03-90

◇1 COORDINATE POINT GIVEN IS TO THE CENTERLINE OF STRUCTURE AT THE FACE OF CURB FOR INLETS AND TO THE CENTERLINE OF STRUCTURE FOR MANHOLES AND END SECTIONS.

NOTE: ALL WATER AND SEWER CROSSINGS SHOWN ARE PER CONTRACT: 24-4264-D

PIPE SCHEDULE			
SIZE	TYPE	QUANTITY (l.f.)	REMARKS
15"	HDPE	318	
18"	HDPE	309	
30"	HDPE	79	

HDPE indicates High Density Polyethylene pipe, such as N-12 by ADS, or HI-Q by Hancor or an approved equal.

Trench bedding to be provided per Howard County Detail G 2.01, "Trench for P.V.C. pipe and H.D.P.E."

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 11-21-05

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 11/29/05

Chief, Development Engineering Division MK — Date 11/28/05

GLW GUTSCHICK LITTLE & WEBER, P.A.
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DATE	REVISION	BY	APP'R.

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STORM DRAIN PROFILES

MAPLE LAWN FARMS
Midtown District - Area 3
Parcel A-4, Non-Buildable Parcels RR-1 & RR-2 and Maple Lawn Blvd.
(A Resubdivision of Parcels 'C' and 'D')

ELECTION DISTRICT No. 5 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	MXD-3/RR-DEO	04001B
DATE	TAX MAP – GRID	SHEET
NOV., 2005	41 – 16	10 OF 29

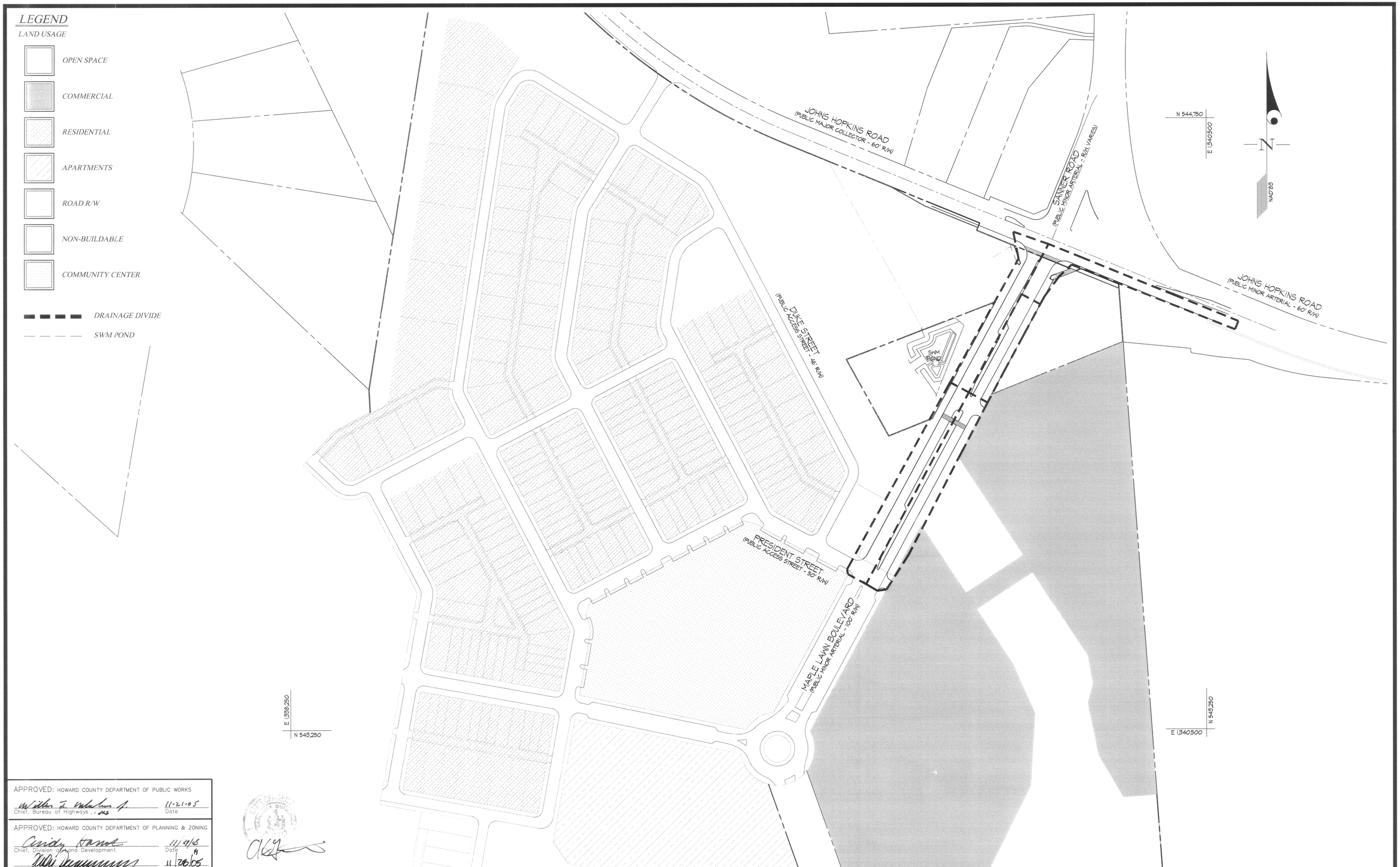
F-05-139

LEGEND

LAND USAGE

- OPEN SPACE
- COMMERCIAL
- RESIDENTIAL
- APARTMENTS
- ROAD R/W
- NON-BUILDABLE
- COMMUNITY CENTER

- DRAINAGE DIVIDE
- SWM POND



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LAND USE PLAN FOR SWM PLAN ONLY

MAPLE LAWN FARMS

Midtown District - Area 3

Parcel A-4, Non-Buildable Parcels RR-1 & RR-2 and Maple Lawn Blvd.

(A Resubdivision of Parcels 'C' and 'D')

ELECTION DISTRICT No. 5 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
1"=100'	MXD-3/RR-DEO	04001B
DATE	TAX MAP – GRID	SHEET
NOV., 2005	41 – 16	11 OF 29

F-05-139

Stormwater Management Summary for Facility West of Maple Lawn Boulevard

PRE-DEVELOPMENT

Drainage Area=3.2 Acres or 0.0050 Sq. Miles
Curve Number=81 Time of Concentration=0.06 Hours

Pre Development

SEGMENT	DESCRIPTION	TIME
A - B	40' OVERLAND FLOW @ 3% (PAVING, n = 0.011)	0.01 hr.
B - C	40' PAVED SHALLOW CONCENTRATED FLOW @ 2% (V = 2.9 f.p.s.)	-----
C - D	750' UNPAVED SHALLOW CONCENTRATED FLOW @ 5% (V = 3.6 f.p.s.)	0.05 hr.

POST-DEVELOPMENT

Drainage Area=2.5 Acres or 0.0039 Sq. Miles
Curve Number=88 Time of Concentration=0.07 Hours

Post Development

SEGMENT	DESCRIPTION	TIME
E - F	40' OVERLAND FLOW @ 3% (PAVING, n = 0.011)	0.01 hr.
F - G	530' SHALLOW CONCENTRATED FLOW @ 2.8% (V = 3.4 f.p.s.)	0.04 hr.
G - H	420' PIPE FLOW @ 7.0'/SEC.	0.02 hr.

Water Quality Volume Required:	3,715 c.f.	Provided:	4,190 c.f.
Recharge Volume Required:	519 c.f.	Provided:	See note 4 below
Channel Protection Volume Required:	8,738 c.f.	Provided:	10,068 c.f. @ 390.77

1. The facility will be publicly owned and maintained.
   An open space lot will be conveyed to the County.
2. The facility will be a P-5 (Pocket Pond), wet pond with extended detention.
3. The facility has an 'A' classification.
4. The storage will be provided in an infiltration trench type facility withing a parking lot at site development plan stage.

POND SUMMARY

	Before	Unmanaged	Managed
		FINAL SWM @ POND	
1 YR	5.26 c.f.s.	5.63 c.f.s.	0.10 c.f.s. @ 390.77
2 YR	7.52 c.f.s.	7.53 c.f.s.	0.88 c.f.s. @ 390.83
10 YR	15.15 c.f.s.	13.60 c.f.s.	13.31 c.f.s. @ 391.10
100 YR	---------	20.25 c.f.s.	19.38 c.f.s. @ 391.20
		TEMPORARY SWM @ POND	
1 YR	5.26 c.f.s.	9.30 c.f.s.	0.13 c.f.s. @ 391.89
2 YR	7.52 c.f.s.	11.71 c.f.s.	1.07 c.f.s. @ 392.04
10 YR	15.15 c.f.s.	19.28 c.f.s.	19.63 c.f.s. @ 392.39

LEGEND

HYDROLOGIC SOIL GROUP

'C' SOIL

'D' SOIL

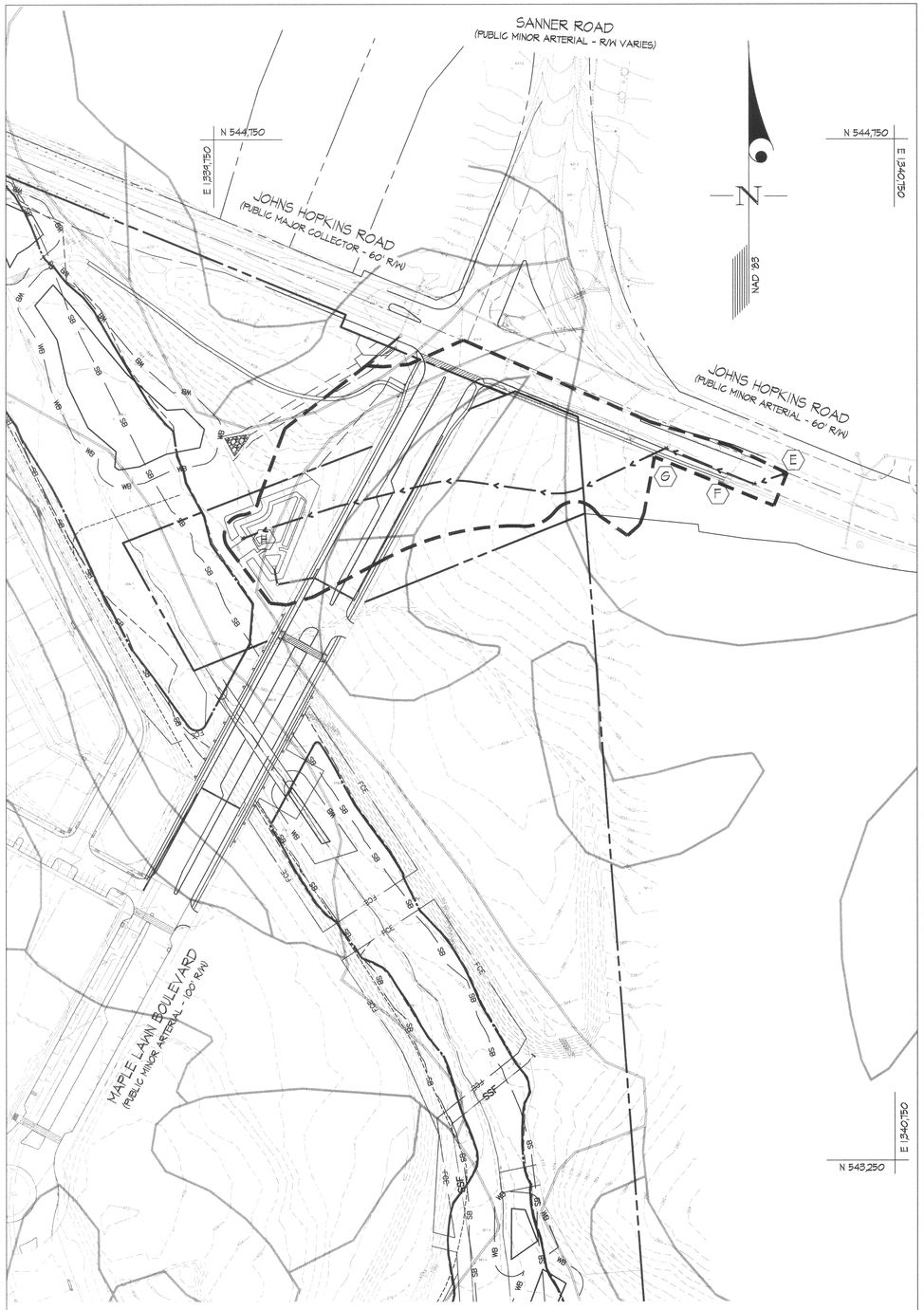
NOTE: REMAINDER OF DRAINAGE AREA TO POND IS 'B' SOIL.

Time of Concentration Path (Pre-Development)

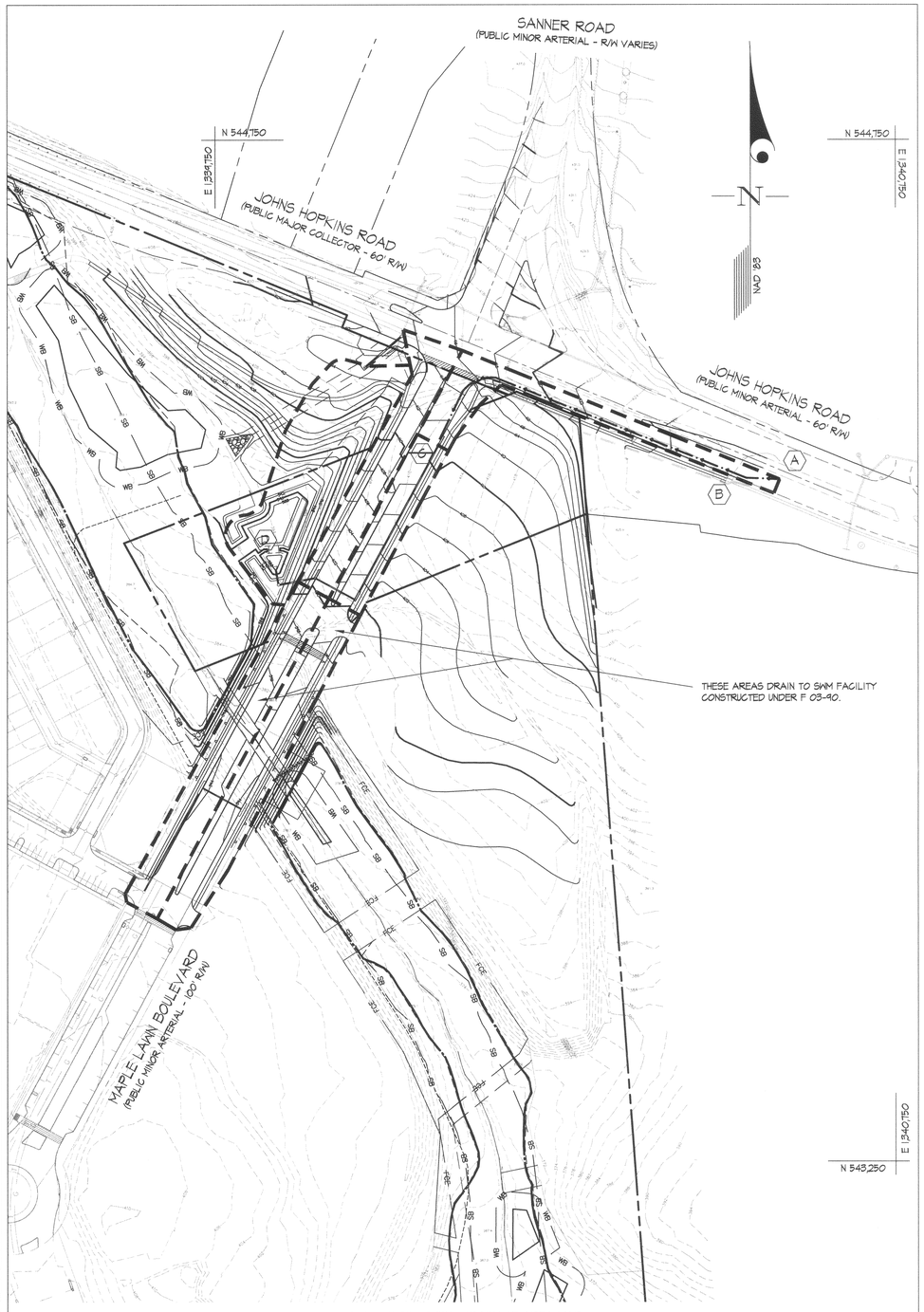
Limit of Drainage to SWM Pond (Pre & Post Development)

(A) Tc Segment

SWM POIND



PRE-DEVELOPMENT DRAINAGE AREA MAP
SCALE: 1"=100'



POST-DEVELOPMENT DRAINAGE AREA MAP
SCALE: 1"=100'

STATE OF MARYLAND

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

William F. Weber, P.E. — 11-21-05
Chief, Bureau of Highways — Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Cindy Hermann — 11/21/05
Chief, Division of Land Development — Date

11/20/05
Chief, Development Engineering Division — MK — Date

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

\DRAWINGS\04001\04001b\FINALS\04001bSWMDA12.dwg | DES. DEV | DRN. AWL | CHK. DEV

DATE	REVISION	BY	APP'R.

PREPARED FOR:
G&R MAPLE LAWN INC.
SUITE 410 WOODHOLME CENTER
1829 REISTERSTOWN ROAD
BALTIMORE, MD 21208
ATTN: CHARLIE O'DONOVAN
410-484-8400

STORMWATER MANAGEMENT DRAINAGE AREA MAP

MAPLE LAWN FARMS

Midtown District - Area 3

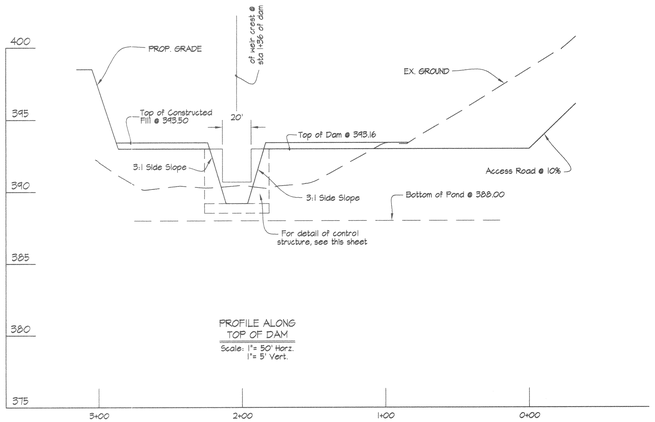
Parcel A-4, Non-Buildable Parcels RR-1 & RR-2 and Maple Lawn Blvd.

(A Resubdivision of Parcels 'C' and 'D')

ELECTION DISTRICT No. 5 — HOWARD COUNTY, MARYLAND

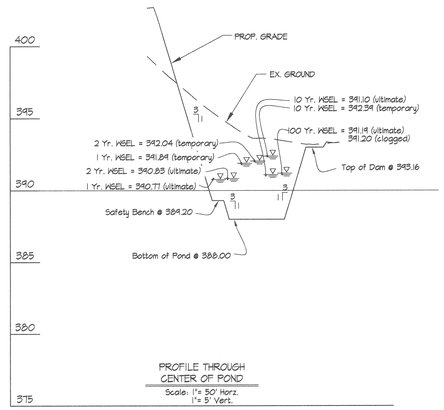
SCALE	ZONING	G. L. W. FILE No.
1"=100'	MXD-3/RR-DEO	04001B
DATE	TAX MAP - GRID	SHEET
NOV., 2005	41 - 16	12 OF 29

F-05-139



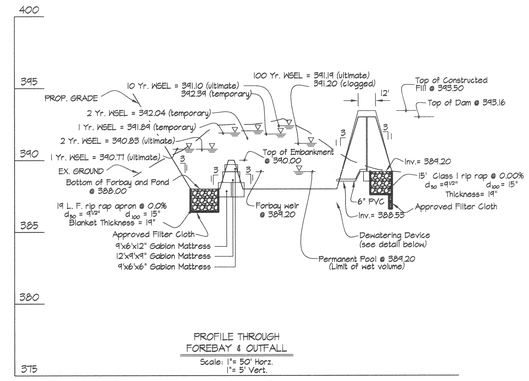
PROFILE ALONG TOP OF DAM

Scale: 1" = 50' Horz. 1" = 5' Vert.



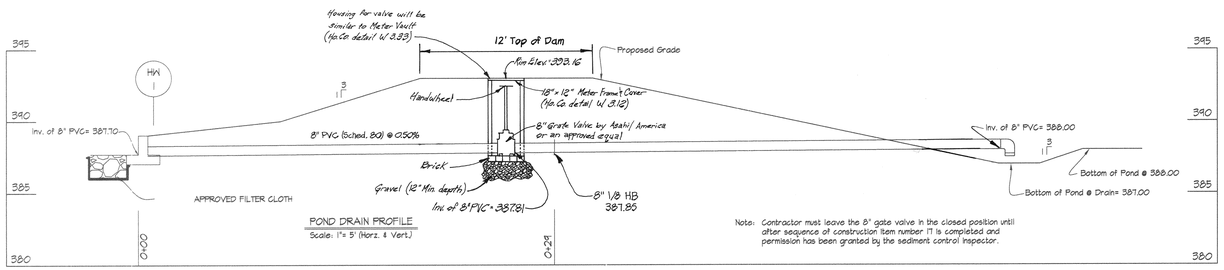
PROFILE THROUGH CENTER OF POND

Scale: 1" = 50' Horz. 1" = 5' Vert.



PROFILE THROUGH FOREBAY & OUTFALL

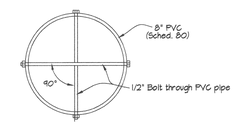
Scale: 1" = 50' Horz. 1" = 5' Vert.



POND DRAIN PROFILE

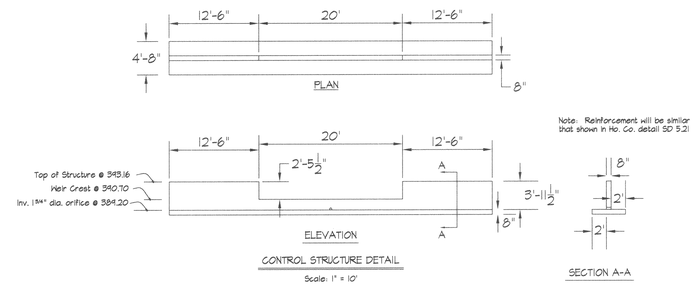
Scale: 1" = 5' (Horz. & Vert.)

Note: Contractor must leave the 8" gate valve in the closed position until after sequence of construction item number 17 is completed and permission has been granted by the sediment control inspector.



VARMINT GUARD AT DOWNSTREAM END OF POND DRAIN

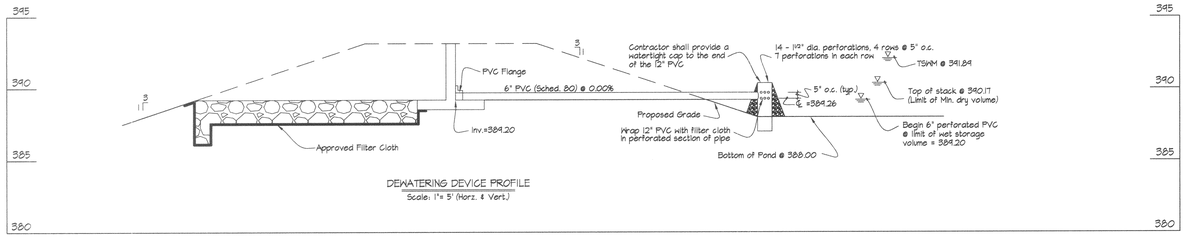
Not to Scale



Note: Reinforcement will be similar that shown in Ho. Co. detail SD 5.21

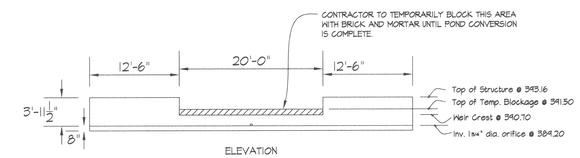
CONTROL STRUCTURE DETAIL

Scale: 1" = 10'



DEWATERING DEVICE PROFILE

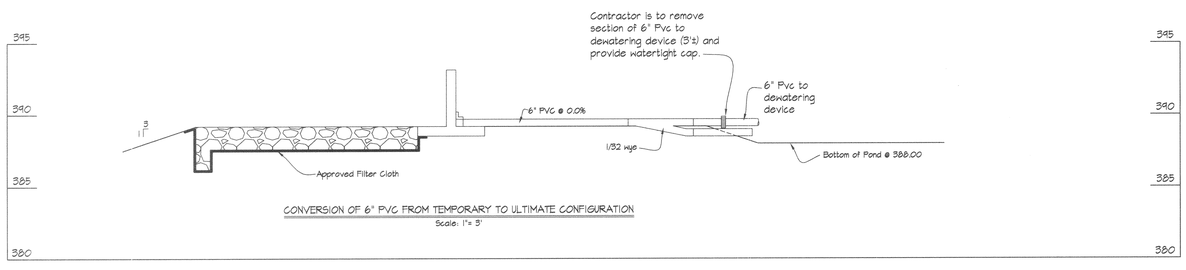
Scale: 1" = 5' (Horz. & Vert.)



ELEVATION

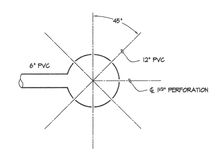
CONTROL STRUCTURE DETAIL (TEMPORARY CONDITION)

Scale: 1" = 10'



CONVERSION OF 6" PVC FROM TEMPORARY TO ULTIMATE CONFIGURATION

Scale: 1" = 5'



PERFORATION PATTERN

Not to Scale

DEVELOPER'S/BUILDER'S CERTIFICATE

"I/We certify that all development and/or construction will be done according to these plans, and that any responsible personnel involved in the construction project will have a Certificate of Attendance at a Maryland Department of the Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. ~~I shall engage a registered Professional Engineer to supervise pond construction and provide the Howard Soil Conservation District with an "as built" plan of the pond within 30 days of completion.~~ I also authorize periodic on-site inspections by the Howard Soil Conservation District.

Signature of Developer/Builder — *Date* 11-9-05

ENGINEER'S CERTIFICATE

"I certify that this plan for ~~pond construction~~ erosion and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions. This plan was prepared in accordance with the requirements of the Howard Soil Conservation District. ~~I have notified the developer that he/she must engage a registered professional engineer to supervise pond construction and provide the Howard Soil Conservation District with an "as built" plan of the pond within 30 days of completion.~~"

Engineer's Signature — *Date* 11-9-05

STATE OF MARYLAND — CHRISTOPHER M. GUTSCHICK — No. 11668

These plans have been reviewed for the Howard Soil Conservation District and meet the technical requirements.

Natural Resources Conservation Service — *Date* 11/16/05

Howard Soil Conservation District — *Date* 11/16/05

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

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 11-21-05

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 11/29/05

Chief, Development Engineering Division — Date 11/30/05

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

\DRAWINGS\04001\04001b\FINALS\04001SWM13.dwg | DES. DEV | DRN. AWL | CHK. DEV

DATE	REVISION	BY	APP'R.

PREPARED FOR:

G&R MAPLE LAWN INC.
SUITE 410 WOODHOLME CENTER
1829 REISTERSTOWN ROAD
BALTIMORE, MD 21208
ATTN: CHARLIE O'DONOVAN
410-484-8400

STORMWATER MANAGEMENT PROFILES & DETAILS

MAPLE LAWN FARMS

Midtown District - Area 3

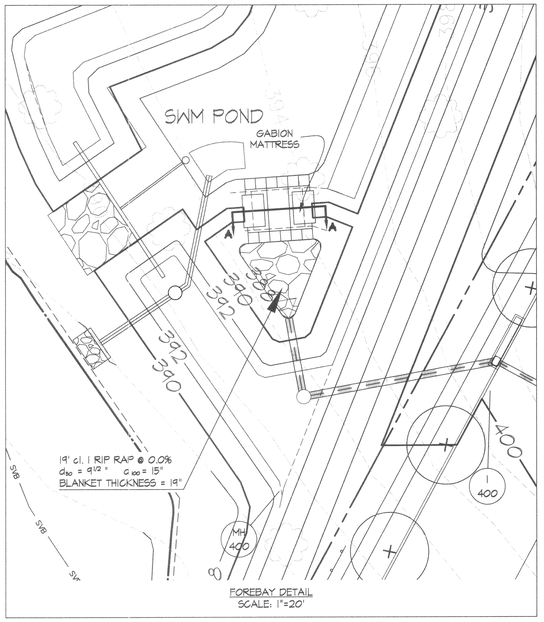
Parcel A-4, Non-Buildable Parcels RR-1 & RR-2 and Maple Lawn Blvd.

(A Resubdivision of Parcels 'C' and 'D')

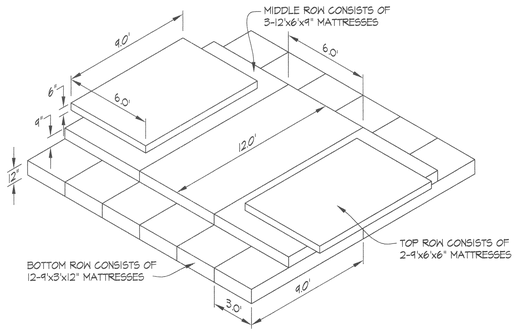
ELECTION DISTRICT No. 5 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	MXD-3/RR-DEO	04001B
DATE	TAX MAP – GRID	SHEET
NOV., 2005	41 – 16	13 OF 29

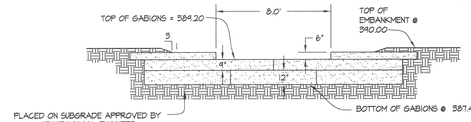
F-05-139



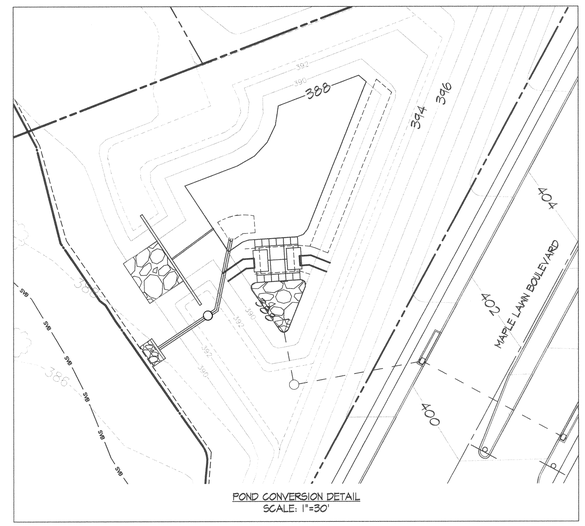
FOREBAY DETAIL
SCALE: 1"=20'



GABION MATTRESS DETAIL
SCALE: 1"=5'



FOREBAY SPILLWAY
SECTION 'A'-'A'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MAPLE LAWN BOULEVARD
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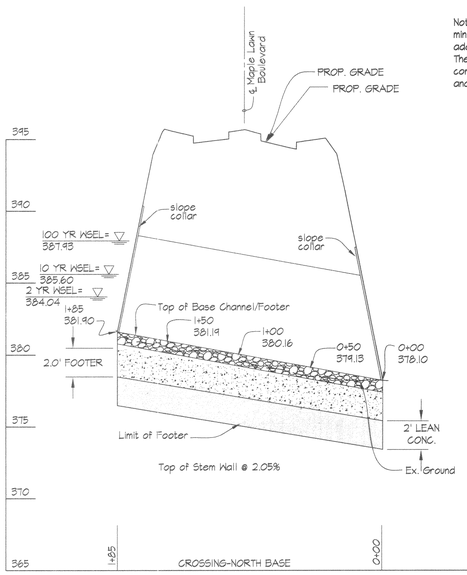
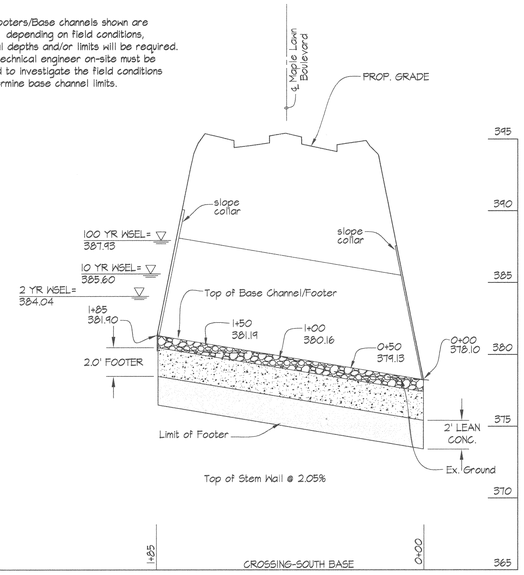
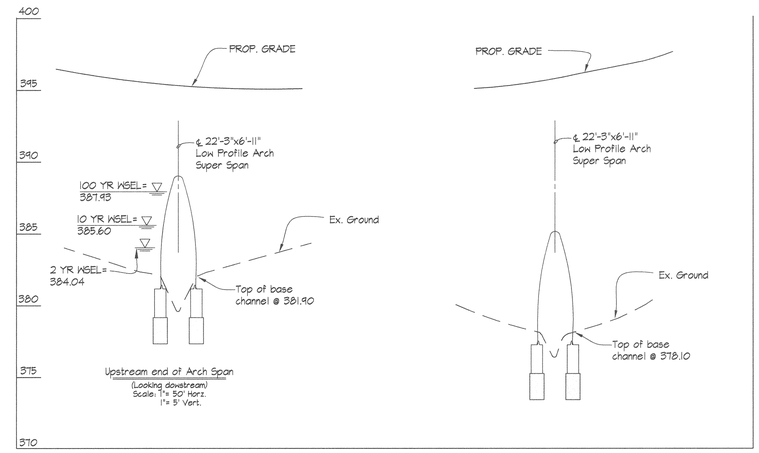
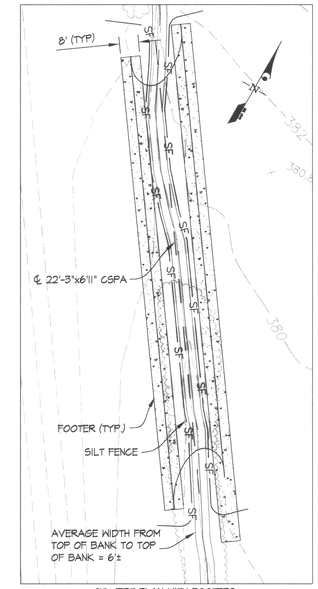


Note: Footers/Base channels shown are minimums. depending on field conditions, additional depths and/or limits will be required. The geotechnical engineer on-site must be consulted to investigate the field conditions and determine base channel limits.

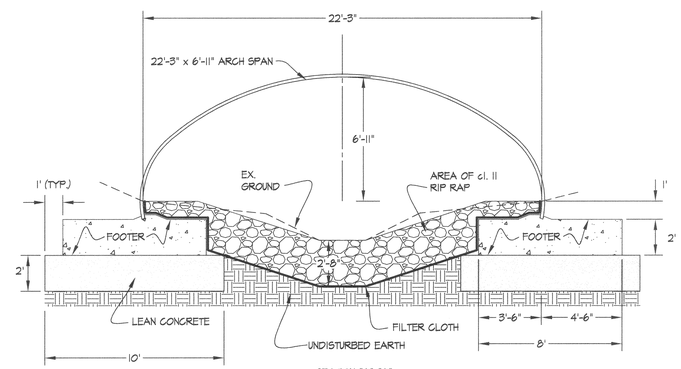


Note: Footers/Base channels shown are minimums. depending on field conditions, additional depths and/or limits will be required. The geotechnical engineer on-site must be consulted to investigate the field conditions and determine base channel limits.





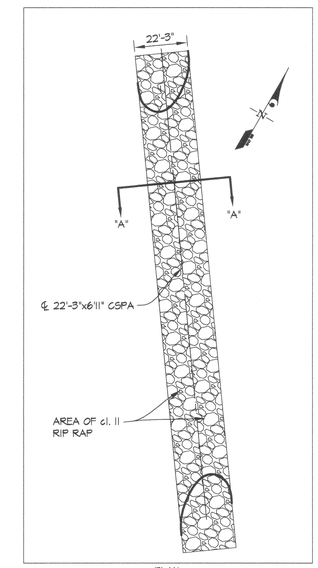
CULVERT PLAN WITH FOOTERS
SCALE: 1"=30'



SECTION "A"-"A"
SCALE: 1"=4'

Notes:

1. If the concrete mat and the footer are placed as two pours, the two must be tied together with rebar.
2. See pipe manufacturer plan (sheet 28) for FOOTING reinforcemnet detail.



PLAN
SCALE: 1"=30'

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 11-21-05

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 11/9/05

Chief, Development Engineering Division — Date 11/28/05

DEVELOPER'S/BUILDER'S CERTIFICATE

"I/We certify that all development and/or construction will be done according to this plan, and that any responsible personnel involved in the construction project will have a Certificate of Attendance at a Maryland Department of the Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I also authorize periodic on-site inspection by the HSCD."

Signature of Developer/Builder — Date 11-9-05

ENGINEER'S CERTIFICATE

"I certify that this plan for erosion and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District."

Date 11-9-05

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

Howard S.C.D. — Date 11/16/05

These plans have been reviewed for the Howard Soil Conservation District and meet the technical requirements.

Natural Resources Conservation Service — Date 11/16/05

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

DRAWINGS\04001\04001b\FINALS\04001DT15.dwg	DES. DEV	DRN. AWL	CHK. DEV

DATE	REVISION	BY	APP'R.

PREPARED FOR:
G&R MAPLE LAWN INC.
SUITE 410 WOODHOLME CENTER
1829 REISTERSTOWN ROAD
BALTIMORE, MD 21208
ATTN: CHARLIE O'DONOVAN
410-484-8400

STREAM CROSSING DETAILS & NOTES

MAPLE LAWN FARMS

Midtown District - Area 3

Parcel A-4, Non-Buildable Parcels RR-1 & RR-2 and Maple Lawn Blvd.

(A Resubdivision of Parcels 'C' and 'D')

ELECTION DISTRICT No. 5 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	MXD-3/RR-DEO	04001B
DATE	TAX MAP – GRID	SHEET
NOV., 2005	41 – 16	15 OF 29

F-05-139

HILLIS - CARNES
ENGINEERING ASSOCIATES, INC.

RECORD OF SOIL EXPLORATION

Page 1 of 1

Project Nam Maplelawn Farms
Location Scaggsville, Maryland
Boring Numbe R-9
Job # 01065A

SAMPLER
Datum
Surf. Elev. 401.2
Date Started 02-30-01
Hammer Wt. 140 Lbs.
Hammer Drop 30 Inches
Pipe Size 2.0 Inches OD
Hole Diameter 6"
Rock Core Di
Boring Metho HSA
Foreman Tim Celmer
Inspector
Complete 02-30-01

ELEV.	SOIL DESCRIPTION Color,Moisture,Density,Size,Proportion	STRA. DEPTH	DEPTH SCALE	CON	SAMPLE BLOWS 6"	NO.	REC.	BORING & SAMPLING NOTES
	SURFACE		0.0					
	Brown to reddish brown, moist, very loose to loose, silty fine sand, trace mica and root material (SM)			I	2-3-2-3	1	18"	0" Corn Field
				I	6-1-7-9	2	24"	No groundwater encounte while drilling
		5.0	5.0					
	Reddish brown to brown, moist, medium stiff to stiff, silt, trace fine sand some quartz fragments and mica (ML)			D	6-7-8-8	3	18"	Caved in at 6.1' at Completion
				I	4-6-6-7	4	19"	Caved in at 5.5' after 24 hours
		10.0	10.0					
	Bottom of Hole at 10.0'							Bag sample taken from 0'-10'
			15.0					
			20.0					

SAMPLER TYPE
DRIVEN SPLIT SPOON UNLESS OTHERWISE NOTED.
PT-PRESSED SHELBY TUBE
CA-CONTINUOUS FLIGHT AUGER
RC-ROCK CORE

SAMPLE CONDITIONS
D-DISINTEGRATED
I-INTACT
U-UNDISTURBED
L-LOST

GROUND WATER DEPTH
AT COMPLETION Dry FT.
AFTER FT.
AFTER FT.

BORING METHOD
HSA-HOLLOW STEM AUGERS
CFA-CONT. FLIGHT AUGERS
DC-DRIVING CASING
MD-MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" OD SAMPLER 1' WITH 140# HAMMER FALLING 30":COUNT MADE AT 6" INTERVALS

HILLIS - CARNES
ENGINEERING ASSOCIATES, INC.

RECORD OF SOIL EXPLORATION

Page 1 of 1

Project Name Maple Lawn - Oliver Property SWM
Location Howard County, Maryland
Boring Number P-11
Job # 01065I

SAMPLER
Datum
Surf. Elev. 391.2
Date Started 06-02-04
Hammer Wt. 140 Lbs.
Hammer Drop 30 Inches
Pipe Size 2.0 Inches OD
Hole Diameter
Rock Core Dia.
Boring Method HSA
Foreman Ola Aranmolate
Inspector
Completed 06-02-04

ELEV.	SOIL DESCRIPTION Color,Moisture,Density,Size,Proportion	STRA. DEPTH	DEPTH SCALE	CON	SAMPLE BLOWS 6"	NO.	REC.	BORING & SAMPLING NOTES
	SURFACE		0.0					2" Topsoil
	Orange brown, moist medium stiff to stiff, clayey silt, trace fine sand and mica (ML-CL)			I	6-6-7	1	14"	No groundwater encountered while drilling
	USDA: Sandy Loam			I	3-4-5	2	16"	
		5.0						
	Orange brown to brown moist, loose, micaceous silty sand (SM)			D	4-3-4	3	8"	
				D	3-3-3	4	10"	Caved in at 10.0' at Completion
								Caved in at 10.2' after 24 hours
		12.5						
	Brown, moist, very dense micaceous silty sand with weathered rock (Decomposed Rock)			I	21-28-32	5	15"	
		17.5						
	Auger Refusal at 17.5' Bottom of Test Hole at 17.5'				51/0"	6	N/A	
			20.0					

SAMPLER TYPE
DRIVEN SPLIT SPOON UNLESS OTHERWISE NOTED.
PT-PRESSED SHELBY TUBE
CA-CONTINUOUS FLIGHT AUGER
RC-ROCK CORE

SAMPLE CONDITIONS
D-DISINTEGRATED
I-INTACT
U-UNDISTURBED
L-LOST

GROUND WATER DEPTH
AT COMPLETION Dry FT.
AFTER 24 hrs Dry FT.
AFTER FT.

BORING METHOD
HSA-HOLLOW STEM AUGERS
CFA-CONT. FLIGHT AUGERS
DC-DRIVING CASING
MD-MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" OD SAMPLER 1' WITH 140# HAMMER FALLING 30":COUNT MADE AT 6" INTERVALS

HILLIS - CARNES
ENGINEERING ASSOCIATES, INC.

RECORD OF SOIL EXPLORATION

Page 1 of 1

Project Name Maple Lawn - Oliver Property SWM
Location Howard County, Maryland
Boring Number E-20
Job # 01065I

SAMPLER
Datum
Surf. Elev. 387.6
Date Started 06-02-04
Hammer Wt. 140 Lbs.
Hammer Drop 30 Inches
Pipe Size 2.0 Inches OD
Hole Diameter
Rock Core Dia.
Boring Method HSA
Foreman Ola Aranmolate
Inspector
Completed 06-02-04

ELEV.	SOIL DESCRIPTION Color,Moisture,Density,Size,Proportion	STRA. DEPTH	DEPTH SCALE	CON	SAMPLE BLOWS 6"	NO.	REC.	BORING & SAMPLING NOTES
	SURFACE		0.0					Boring offset 5' N and refused again at 8.5'
	Light brown, moist, medium stiff clayey silt trace mica and fine sand (ML-CL)			I	3-4-4	1	12"	2" Topsoil
		2.5						No groundwater encountered while drilling
	Orange brown, moist, medium dense micaceous silty sand with weathered rock (SM)			I	6-7-11	2	14"	Caved in at 4.5' at Completion
		6.0						Caved in at 4.0' after 24 hours
	Dark brown, moist, very dense, micaceous silty sand with rock fragments (Decomposed Rock)			D	51/4"	3	4"	
		8.5						
	Auger Refusal at 8.5' Bottom of Test Hole at 8.5'				51/0"	4	N/A	
			10.0					
			15.0					
			20.0					

SAMPLER TYPE
DRIVEN SPLIT SPOON UNLESS OTHERWISE NOTED.
PT-PRESSED SHELBY TUBE
CA-CONTINUOUS FLIGHT AUGER
RC-ROCK CORE

SAMPLE CONDITIONS
D-DISINTEGRATED
I-INTACT
U-UNDISTURBED
L-LOST

GROUND WATER DEPTH
AT COMPLETION Dry FT.
AFTER 24 hrs Dry FT.
AFTER FT.

BORING METHOD
HSA-HOLLOW STEM AUGERS
CFA-CONT. FLIGHT AUGERS
DC-DRIVING CASING
MD-MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" OD SAMPLER 1' WITH 140# HAMMER FALLING 30":COUNT MADE AT 6" INTERVALS

390.3
ENGINEERING ASSOCIATES, INC.

RECORD OF SOIL EXPLORATION

Page 1 of 1

Project Name Maple Lawn - Oliver Property SWM
Location Howard County, Maryland
Boring Number E-19
Job # 01065I

SAMPLER
Datum
Surf. Elev.
Date Started 06-02-04
Hammer Wt. 140 Lbs.
Hammer Drop 30 Inches
Pipe Size 2.0 Inches OD
Hole Diameter
Rock Core Dia.
Boring Method HSA
Foreman Ola Aranmolate
Inspector
Completed 06-02-04

ELEV.	SOIL DESCRIPTION Color,Moisture,Density,Size,Proportion	STRA. DEPTH	DEPTH SCALE	CON	SAMPLE BLOWS 6"	NO.	REC.	BORING & SAMPLING NOTES
	SURFACE		0.0					2" Topsoil
	Orange brown, moist, stiff silt, trace clay, fine sand, mica, and quartz rock fragments (ML)			I	4-5-7	1	14"	No groundwatedr encountered while drilling
				I	4-7-9	2	14"	Caved in at 4.0' at Completion
		5.0						Caved in at 4.0' after 24 hours
	Brown/gray, dry, very dense, micaceous silty sand with rock fragments (Decomposed Rock)			D	51/6"	3	6"	
		8.5						
	Auger Refusal at 8.5' Bottom of Test Hole at 8.5'				51/0"	4	N/A	
			10.0					
			15.0					
			20.0					

SAMPLER TYPE
DRIVEN SPLIT SPOON UNLESS OTHERWISE NOTED.
PT-PRESSED SHELBY TUBE
CA-CONTINUOUS FLIGHT AUGER
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SAMPLE CONDITIONS
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GROUND WATER DEPTH
AT COMPLETION Dry FT.
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BORING METHOD
HSA-HOLLOW STEM AUGERS
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STANDARD PENETRATION TEST-DRIVING 2" OD SAMPLER 1' WITH 140# HAMMER FALLING 30":COUNT MADE AT 6" INTERVALS

5.0 EVALUATIONS AND RECOMMENDATIONS

Our findings indicate that the site conditions are adequate for a project of the intended scope. Special consideration should be given to the dewatering necessary in order to accomplish the required excavation, undercutting and bedding construction for the culverts. Dense decomposed rock materials in HCEA boring B-4 at elevation El 359.2 may require non-conventional excavation techniques like the use of rippers, excavators with rock teeth, hoe ramming etc. to achieve planned foundation bedding invert levels.

The following recommendations have been developed on the basis of the previously described project characteristics and subsurface conditions. If there are any changes to the project characteristics or if different subsurface conditions are encountered during construction, HCEA should be consulted so that the recommendations of this report can be reviewed and revised, if necessary.

5.1 Culverts

Culvert structures can be planned to bear on medium dense, or very dense natural ground materials encountered at the boring locations. Soft/loose surficial soil conditions are anticipated to extend locally to depths of 2 to 5 feet below culvert invert levels at locations of borings B-2 and B-3 based on topographic information provided and the boring results. Pockets of organic alluvium could be encountered in areas of the existing stream, or in lowlying wetland areas adjacent to the stream.

Foundation bedding materials should extend through surficial organic soils and/or loose/soft materials that were encountered periodically in the upper two feet to five feet of site grades during the investigation. Undercut materials can be replaced with clean, crushed #57 stone or other freely draining material approved by the Geotechnical Engineer.

Dewatering of the culvert foundation to accomplish undercutting and to place bedding for support of the new culvert structures at Hammond Branch will be required. Depending upon the depths of proposed culvert bedding materials, undercut requirements and proximity of excavations to the existing stream; extensive groundwater flows through upper granular soils could require the need for an elaborate perimeter dewatering system like deep wells or well points. An effective system should maintain water levels a minimum of two feet below excavation invert levels.

Interested contractors should adequately familiarize themselves with the site conditions and the information provided prior to bidding the project. Specialty, foundation and/or dewatering contractors familiar with Piedmont geology in general and Howard County soils in particular should be solicited to identify project construction requirements and to perform the work.

Backfill materials and methods are extremely important in the construction of metal pipe arch culvert structures. Backfill of the haunch areas adjacent to the pipe are extremely critical to the performance or behavior of the completed structure. A "select fill structural backfill zone" consisting of the haunch areas under the culverts and a minimum 10 foot wide horizontal width beyond the sidewalls of the super-span structures is typically specified to be backfilled with coarse select granular borrow meeting AASHTO M-145 Classification A-1-b, or better. Manufacturer's representatives should be contacted directly for backfill requirements for their particular structure types.

Select backfill materials should be constructed in maximum 8-inch thick compacted lifts and to minimum in-place densities equal to 92 percent of Modified Proctor maximum dry density. Other suitable and compactable materials from onsite cuts can be used in the structural backfill zone of culverts beyond the 10-foot "select fill structural zone".

Culvert structures founded and backfilled as recommended and in accordance with all other Manufacturer Backfill Requirements are considered to have adequate bearing capacity to support structural loads and the soil envelope with minimal differential settlements. Settlements resulting from the silt and sand soils encountered in the investigation are expected to be elastic and to occur during backfilling and final grading operations. No long-term consolidation settlements are expected.

Hammond Branch waters have not been tested for pH and resistivity as part of this program. Manufacturers should be contacted directly with regard to specific concerns and/or testing requirements about corrosion protection.

Prior to beginning the stream diversion and culvert foundation excavation work, a special preconstruction conference on the culvert is recommended. The purpose of the meeting would be to review the contractors proposed construction means and methods. A representative of the Owner, Civil Engineer, Prime Contractor, Specialty subcontractors, Manufacturer and Geotechnical Engineer responsible for monitoring the construction should be in attendance.

Retaining walls-either consisting of poured in place concrete walls or a combination of poured in-place headwalls and segmental retaining walls-are assumed to be required for culvert end-sections. Walls should be designed for retained soils, surcharge loads and hydrostatic or seepage pressures as required by the road and culvert design.

An angle of internal friction of 32 degrees and an in-place moist or wet density of 138 pcf is recommended for walls retaining A-1, select granular backfill materials. For wall systems retaining on site, granular mixtures of sand and silt, we recommend an angle of internal friction of 30 degrees and a moist unit weight of 135 pcf. Clay soils should not be used to backfill structures.

Retaining walls must be designed for the full range of potential modes of failure including base sliding, overturning, bearing capacity, internal shear capacity and global stability.

Drainage systems are recommended for retaining wall designs. Depending on the size and height of the wall, drainage may include aggregate drainage material or man-made products like Mira-drain boards and a blanket drain with a discharge pipe and gravity flow to a suitable outfall. In the event that backfill soils retained by the wall are subject to horizontal water flows (i.e. seepage), additional chimney drains with outfalls to the blanket drain may also be required for upstream walls. Drainage materials may also require geotextile filter cloth for protection from fines associated with seepage. These details need to be considered in the particular wall design.

6.0 RECOMMENDED ADDITIONAL SERVICES

Additional soil and foundation engineering, testing, and consulting services recommended for this project are summarized below:

Site Preparation and Proofrolling: A Geotechnical Engineer or experienced Soils Inspector should inspect the site after it has been stripped and excavated. The inspector should determine if any undercutting or in-place densification is necessary to prepare a subgrade for fill placement or for slab support.

Fill Placement and Compaction: A Geotechnical Engineer or experienced Soils Inspector should witness any required filling operations and should take sufficient in-place density tests to verify that the specified degree of fill compaction is achieved. He should observe and approve borrow materials used and should determine if their existing moisture contents are suitable.

Footing Excavation Inspections: A Geotechnical Engineer or experienced Soils Inspector should inspect the footing excavations for the building foundations. He should verify that the design bearing pressure is available and that no loose pockets exist beneath the bearing surfaces of the footing excavations. Based on the inspection, the Inspector would either approve the bearing surfaces or recommend that loose or soft soils be undercut to expose satisfactory bearing materials.

HILLIS-CARNES ENGINEERING

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Chief, Bureau of Highways — Date 11-21-05

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Chief, Division of Land Development — Date 11/29/05
Chief, Development Engineering Division MK — Date 11/28/05

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DATE	REVISION	BY	APP'R.

PREPARED FOR:
G&R MAPLE LAWN INC.
SUITE 410 WOODHOLME CENTER
1829 REISTERSTOWN ROAD
BALTIMORE, MD 21208
ATTN: CHARLIE O'DONOVAN
410-484-8400

SOIL BORINGS DETAILS & NOTES

MAPLE LAWN FARMS
Midtown District - Area 3
Parcel A-4, Non-Buildable Parcels RR-1 & RR-2 and Maple Lawn Blvd.
(A Resubdivision of Parcels 'C' and 'D')

ELECTION DISTRICT No. 5 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	MXD-3/RR-DEO	04001B
DATE	TAX MAP - GRID	SHEET
NOV., 2005	41 - 16	16 OF 29

F-05-139

FOREST CONSERVATION PLANTING NOTES

RETENTION / AFFORESTATION / REFORESTATION SUMMARY TABLE FOR MAPLE LAWN FARM PROJECT

PHASE NO.	GROSS AC.	FLOODPLAIN AC.	NET TRACT AREA	EXG. FOREST IN AC.	FOREST CLEARED	FOREST RETAINED	EXCESS RETENTION	REF/AFF REQUIRED	CREDITED PLANTING PROVIDED	EXCESS FOREST CON (PLANTING+RETENTION)	COMMENTS
1	51.98	3.40	48.58	9.45	0.51	8.94	0.63	0.00	4.56	5.19	Per F-03-07
2	75.20 ①	2.38	72.82	0.00	0.00	0.00	0.00	10.92	6.67 ③	-4.25	Per F-03-90
2	5.70 ①	0.00	5.70	0.00	0.00	0.00	0.00	0.86	0.00	-0.86	Per SDP-03-140
3	19.09 ②	14.85	4.24	0.21	0.00	0.21	0.00	0.43	10.49	10.06	Per F-04-92
3	-	-	-	-	-	-	-	-	-1.16	-1.16	④ Per F-05-82
4a	15.48	3.00	12.48	1.92	1.65	0.27	0.00	3.21	0.88	-2.33	Per F-05-81
4b	3.12 ⑤	0.35	2.77	0.00	0.00	0.00	0.00	0.42	-0.12 ⑥	-0.54	Per this Plan
4c	3.00	0.00	3.00	0.00	0.00	0.00	0.00	0.45	0.00	-0.45	Per F-05-112
TOTAL	173.57	23.98	149.59	11.58	2.16	9.42	0.63	16.29	21.32	5.66	

① Includes future phase areas of Maple Lawn Farms. When those areas are recorded in future phases, the forest conservation requirements will already have been met.
② 19.09 ACRES = 59.80 ACRES (Phase 3 site total) - 40.71 ACRES (Area of forest con. in Phase 3 already provided by F-03-90 (35.01 Ac) and SDP-03-140 (5.70 Ac.))
③ Reduced from 6.97 Ac. as shown on F-03-90 to 6.67 Ac. because of the 0.16 Ac. reduction of Conservation Easement #4 on F-04-79 and the 0.14 Ac. reduction of Conservation Easement #5 on F-04-88.
④ F-05-82 is a revision of Open Space Lots 221 & 222, and a conversion of Parcel 'E' to R/N. Forest Conservation Easement (FCE) #7 will abandon 0.25 ac. and FCE #8 will abandon 0.91 ac.
⑤ 3.12 ACRES = 4.38 ACRES (Phase 4 site total) - 1.26 ACRES (Area of forest con. in Phase 4 already provided by F-03-90 and F-04-92).
⑥ 0.12 ACRES = Area subtracted from forest conservation area #11 to create Public Drainage and Utility Easement

FOREST CONSERVATION WORKSHEET

SITE DATA

A. GROSS SITE AREA	3.12
B. AREA WITHIN 100-YEAR FLOOD PLAIN	0.35
C. NET TRACT AREA	2.77
D. LAND USE CATEGORY	MXD-3
E. AFFORESTATION THRESHOLD (15% x NET TRACT AREA)	0.42
F. CONSERVATION THRESHOLD (15% x NET TRACT AREA)	0.42

EXISTING FOREST COVER

G. EXISTING FOREST ON NET TRACT AREA	0.00
H. AREA OF FOREST ABOVE AFFORESTATION THRESHOLD (On Net Tract Area)	0.00
I. AREA OF FOREST ABOVE CONSERVATION THRESHOLD (On Net Tract Area)	0.00

PROPOSED FOREST CLEARING

J. FOREST AREAS TO BE CLEARED (On Net Tract Area)	0.00
K. FOREST AREAS TO BE RETAINED (On Net Tract Area)	0.00

PLANTING REQUIREMENTS

TOTAL REFORESTATION REQUIRED (J x 2.00)	0.00
TOTAL AFFORESTATION REQUIRED (E - G)	0.42
TOTAL AFFORESTATION AND REFORESTATION REQUIRED	0.42
PLANTING TO BE PROVIDED	0.00

GENERAL NOTES

1. This afforestation plan is provided in accordance with the requirements of Subtitle 12 "Forest Conservation" of the Howard County Code.
2. Implementation of this plan must be performed by a contractor that is knowledgeable and experienced in afforestation/reforestation techniques and practices.
3. The owner is responsible for a 2-year (min.) post-construction maintenance period which involves activities necessary to ensure survival and growth of the conservation area. Two inspections per year by a qualified professional at beginning and end of the growing season, are recommended in order to take remedial steps as necessary. If, after one year, the possibility exists that the original planting (if applicable) will not meet survival rate standards, the applicant may choose to establish reinforcement plantings.
4. At the end of the post-construction management and protection period, certification by a qualified consultant will be required before to the owner can be released from his/her forest conservation obligation to the administrator of the Howard County Forest Conservation program.
5. The contractor is responsible for the location of any existing utilities. The repair of any utilities damaged by the contractor shall be at the contractor's expense.
6. Street trees provided at Final Plan Stage. Landscape and Buffering requirements to be provided at Site Plan and Final Plan Stage.
7. The forest conservation easements shown on this plan will be established to fulfill the requirements of the Forest Conservation Program. No clearing, grading or construction is permitted within the forest conservation easements, however, forest management practices as defined in the Deed of Forest Conservation Easement are allowed.
8. The forest conservation requirements per Section 16.1202 of the Howard County Code and the Forest Conservation manual for Phase 4 of this project with an afforestation obligation of 0.42 acres will be fulfilled by utilizing excess forest conservation from prior phases of this project.
9. For Forest Conservation Easement Bearing and Distance information, see the subdivision Plat associated with this Plan.

CONSTRUCTION PERIOD PROTECTION PROGRAM

1. The limit of forest retention shall be staked and flagged.
2. A pre-construction meeting at the site should be held to confirm the limits of clearing specified. The meeting should include the owner or the owner's representative, the on-site foreman in charge of land disturbance, the environmental consultant and the appropriate Howard County inspectors.
3. Forest protection devices and signs (see details) shall be installed prior to any clearing or grading. The protection devices and signs shall be maintained during the entire construction period. None of the devices shall be anchored or attached in any way to the trees to be saved. The maintenance time frame may be extended to accommodate subsequent phases of development..
4. Equipment, vehicles and building materials shall not be within the protected area. Activities strictly to implement any reforestation planting and maintenance (i.e. watering, fertilizing thinning, pruning, removal of dead and diseased trees where necessary, etc.) of the conservation area are permitted. Clearing for the purpose of sodding or planting grass is not permitted within the forest conservation area once it's established.
5. At the end of the construction period, the designated qualified professional shall convey certification to the administrator of the Howard County Forest Conservation Program that all forest retention areas have been preserved, all reforestation and/or afforestation plantings (if applicable) have been installed as required by the forest conservation plan, and that all protection measures required for the post-construction period have been installed.

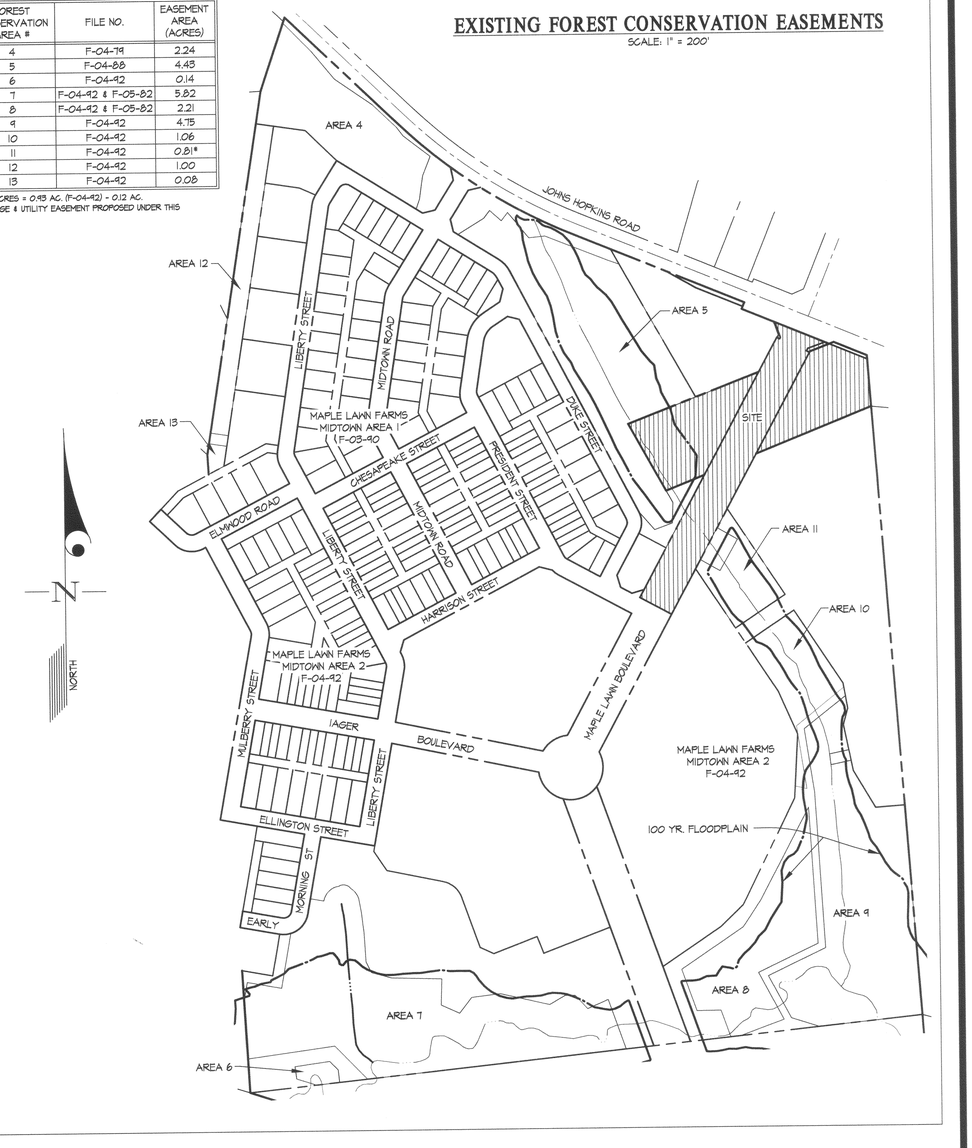
Upon review of the final certification document for completeness and accuracy, the program coordinator will notify the owner of release from the construction period obligations. The 2-year (min.) post-construction management and protection period then commences.

FOREST CONSERVATION AREA #	FILE NO.	EASEMENT AREA (ACRES)
4	F-04-79	2.24
5	F-04-88	4.43
6	F-04-92	0.14
7	F-04-92 & F-05-82	5.82
8	F-04-92 & F-05-82	2.21
9	F-04-92	4.75
10	F-04-92	1.06
11	F-04-92	0.81*
12	F-04-92	1.00
13	F-04-92	0.08

* 0.81 ACRES = 0.93 AC. (F-04-92) - 0.12 AC. (DRAINAGE & UTILITY EASEMENT PROPOSED UNDER THIS PLAN)

EXISTING FOREST CONSERVATION EASEMENTS

SCALE: 1" = 200'



APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

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DATE	REVISION	BY	APP'R.

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FOREST CONSERVATION DETAILS & NOTES

MAPLE LAWN FARMS
Midtown District - Area 3
Parcel A-4, Non-Buildable Parcels RR-1 & RR-2 and Maple Lawn Blvd.
(A Resubdivision of Parcels 'C' and 'D')

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PERIMETER PLANTING SCHEDULE – SCHEDULE A

PERIMETER	LAND USE	ADJACENT LAND USE	TYPE OF BUFFER	LINEAR FEET OF ROADWAY FRONTAGE/ PERIMETER	CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET) DESCRIBE BELOW IF NEEDED.	CREDIT FOR WALL, FENCE OR BERM (YES, NO, LINEAR FEET) DESCRIBE BELOW IF NEEDED.	NUMBER OF PLANTS REQUIRED			NUMBER OF PLANTS PROVIDED			HOW REQUIRED BUFFER IS BEING PROVIDED
							SHADE TREES	ORNAMENTAL TREES	EVERGREEN TREES	SHADE TREES	ORNAMENTAL TREES	EVERGREEN TREES	
EXTERNAL PERIMETER 8	COMMERCIAL	COMMERCIAL	'A' Buffer *	152'	NO	NO	2	2	7	——	——	——	DEFERRED TO SDP
EXTERNAL PERIMETER 9	COMMERCIAL	ROADWAY	'C' Buffer *	126'	NO	NO	3	2	6	——	——	——	DEFERRED TO SDP

* FOLLOWS COMPREHENSIVE SKETCH PLAN GUIDELINE REQUIREMENTS

STORMWATER MANAGEMENT AREA LANDSCAPING – SCHEDULE D

PERIMETER	PROPOSED LAND USE	ADJACENT LAND USE	TYPE OF BUFFER	LINEAR FEET OF PERIMETER	CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET) DESCRIBE BELOW IF NEEDED.	CREDIT FOR WALL, FENCE OR BERM (YES, NO, LINEAR FEET) DESCRIBE BELOW IF NEEDED.	NUMBER OF PLANTS REQUIRED		NUMBER OF PLANTS PROVIDED		HOW REQUIRED BUFFER IS BEING PROVIDED
							SHADE TREES	EVERGREEN TREES	SHADE TREES	EVERGREEN TREES	
SWM-4	SWM	ROADWAY	'C' Buffer	1,047 L.F.	YES - 722 LF (PER F-03-90)	NO	9	17	9	18	SEE THIS PLAN

NOTES

1. STREET TREES WILL BE PROVIDED AT FINAL PLAN STAGE.
2. INTERNAL PLANTING AND PARKING LOT LANDSCAPING WILL BE PROVIDED WITH THE SITE DEVELOPMENT PLANS. STORMWATER MANAGMENT BUFFERING WILL BE PROVIDED UNDER THIS PLAN.
3. THE BUFFERS SHOWN IN THE SCHEDULES ARE IN ACCORDANCE WITH THE LANDSCAPE MANUAL. ACCORDING TO THE COMPREHENSIVE SKETCH PLAN CRITERIA, THE FOLLOWING ARE THE MINIMUM PLANTING TO BE PROVIDED ALONG A PERIMETER EDGE:

   SHADE TREE: 1:80 LINEAR FEET OF MEASURED PERIMETER EDGE, AND
   SMALL ORNAMENTAL DECIDUOUS TREE: 1:60 LINEAR FEET OF MEASURED PERIMETER EDGE AND
   EVERGREEN TREE: 1:20 LINEAR FEET OF MEASURED PERIMETER EDGE.
4. THE BUFFERS SHOWN FOR SCHEDULE 'D' ARE IN ACCORDANCE WITH THE LANDSCAPING MANUAL ACCORDING TO THE COMPREHENSIVE SKETCH PLAN CRITERIA, THE FOLLOWING ARE THE MINIMUM PLANTING TO BE PROVIDED ALONG BUFFER TYPE 'B'.

   SHADE TREE: 1:50 LINEAR FEET OF MEASURED PERIMETER EDGE, AND
   EVERGREEN TREE: 1:40 LINEAR FEET OF MEASURED PERIMETER EDGE.

   BUFFER STORMWATER MANAGEMENT FROM A ROADWAY OR PERIMETER RESIDENTIAL PROPERTIES:

   SHADE TREE: 1:40 LINEAR FEET OF MEASURED PERIMETER EDGE, AND
   EVERGREEN TREE: 1:20 LINEAR FEET OF MEASURED PERIMETER EDGE.
5. AFFORESTATION PLANTING SIZE SHALL BE LARGE ENOUGH TO MEET THE LANDSCAPE BUFFERING REQUIREMENT ALONG EXTERNAL PERIMETERS WHERE APPLICABLE.
6. TREE PLANTING DETAILS CAN BE FOUND ON THIS SHEET.

Projected Bond Requirement:

Schedule 'D' Number of required Shade Trees for bonding:	9 x $300 =	$ 2,700.00
Schedule 'D' Number of required Evergreen Trees for bonding:	17 x $150 =	$ 2,550.00
		$ 5,250.00

COMMENTS:

HANDLING AND PLANTING OF SEEDLING(4)

C. CORRECT AND INCORRECT PLANTING DEPTH

SEEDLING AND WHIP PLANTING SPECIFICATION

NOTE:
Mulching newly planted seedlings helps the soil retain moisture and it protects the seedling from compaction and stem injuries.

SOURCE: adaptes from the Maryland State FOREST CONSERVATION MANUAL

TREE PLANTING AND MAINTENANCE CALENDAR

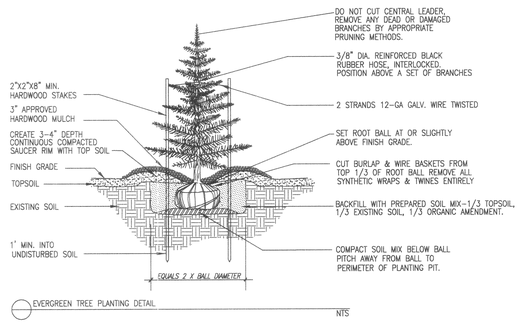
TASKS	MONTHS											
	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
TRANSPLANT OF 3" DBH OR GREATER												
PLANTING SEEDINGS, WHIPS												
MINIMUM MONITORING	*			*				*				
FERTILIZER + (IF NEEDED)												
WATER ++												
PRUNING												

KEY

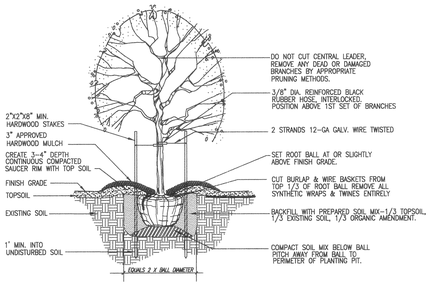
- * ACTIVITIES DURING THESE MONTHS ARE DEPENDENT UPON GROUND CONDITIONS
- GREATLY RECOMMENDED
- RECOMMENDED WITH ADDITIONAL CARE
- RECOMMENDED
- \+ DEPENDANT UPON SITE CONDITIONS
- \+\+ DEPENDANT UPON SITE CONDITIONS; WEEKLY WATERING IS GREATLY RECOMMENDED FROM MAY THROUGH OCTOBER UNLESS WEEKLY RAINFALL EQUALS 1"

NOTE:
The planting and care of trees is most successful when coordinated with the local climatic conditions. This calendar summarizes some of the recommended time frames for basic reforestation and stress reduction activities.

SOURCE: adapted from the Maryland State FOREST CONSERVATION MANUAL



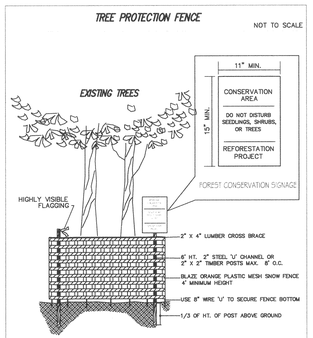
EVERGREEN TREE PLANTING DETAIL — NTS



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

TREE PROTECTION FENCE

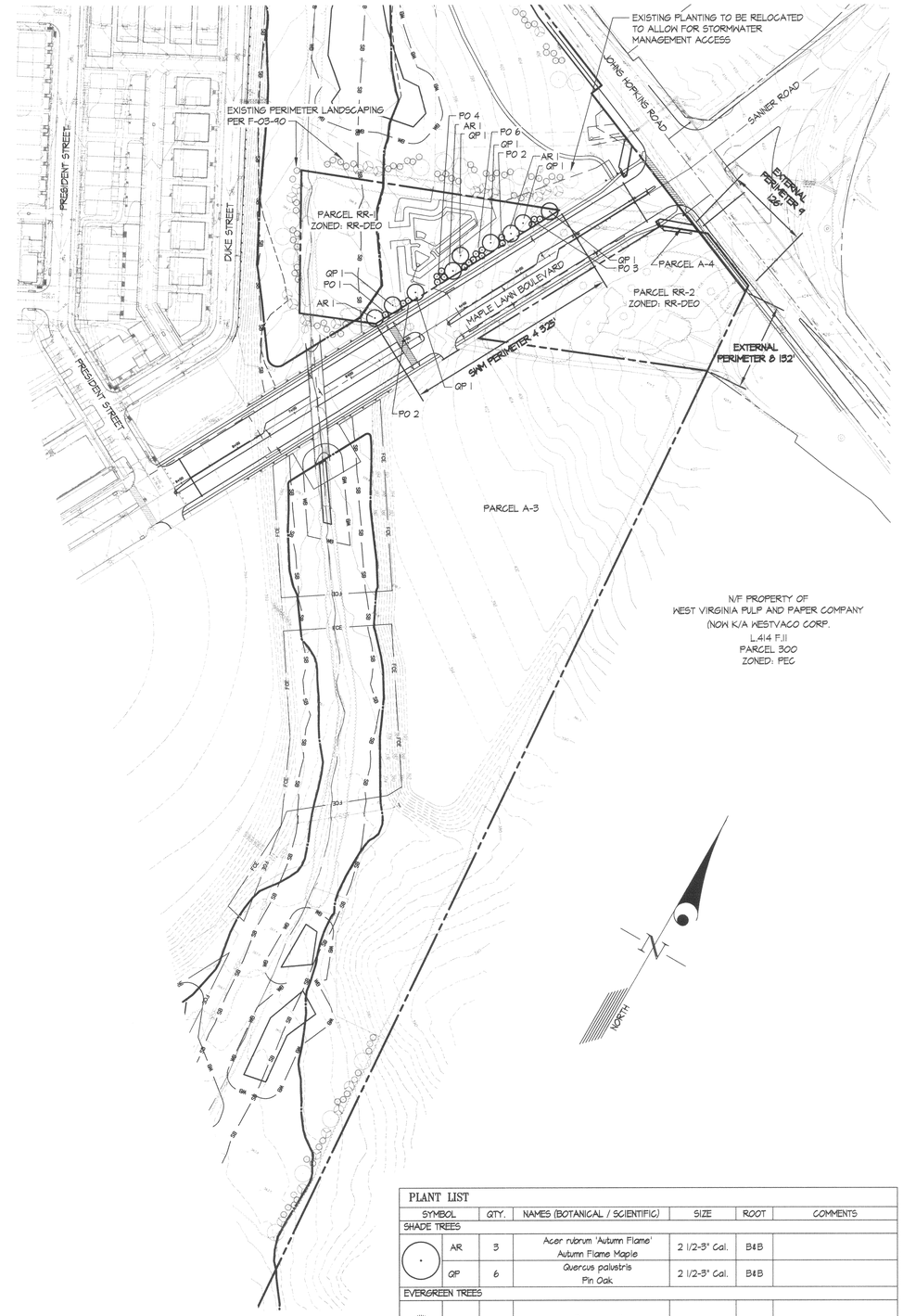
NOT TO SCALE



TREE PROTECTION FENCING

1. Forest protection device only.
2. Avoid root damage
3. Device must be maintained throughout construction.

adapted from the Maryland State FOREST CONSERVATION MANUAL



PLANT LIST

SYMBOL		QTY.	NAMES (BOTANICAL / SCIENTIFIC)	SIZE	ROOT	COMMENTS
SHADE TREES						
	AR	3	Acer rubrum 'Autumn Flame' Autumn Flame Maple	2 1/2-3" Cal.	B&B	
	QP	6	Quercus palustris Pin Oak	2 1/2-3" Cal.	B&B	
EVERGREEN TREES						
	PO	18	Picea omorika Serbian Spruce	6'-8' Ht.	B&B	

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 11-21-05

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 11/29/05

Chief, Development Engineering Division — Date 11/30/05

DEVELOPERS' CERTIFICATE:

I/We certify that the landscaping shown on this plan will be done according to the plan, Section 16.124 of the Howard County Code and the Landscape Manual. I/We further certify that upon completion of the landscape installation, a letter of notice, accompanied with an executed one year guarantee of plant materials, will be submitted to the Department of Planning and Zoning.

Name — Date 11-9-05

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

\DRAWINGS\04001\04001B\Finals\04001bLS18.dwg | DES. TWL | DRN. AWL | CHK. DEV

DATE	REVISION	BY	APP'R.

PREPARED FOR:
G&R MAPLE LAWN INC.
SUITE 410 WOODHOLME CENTER
1829 REISTERSTOWN ROAD
BALTIMORE, MD 21208
ATTN: CHARLIE O'DONOVAN
410-484-8400

LANDSCAPE PLAN, DETAILS & NOTES

MAPLE LAWN FARMS

Midtown District - Area 3

Parcel A-4, Non-Buildable Parcels RR-1 & RR-2 and Maple Lawn Blvd.

(A Resubdivision of Parcels 'C' and 'D')

ELECTION DISTRICT No. 5 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
1" = 100'	MXD-3/RR-DEO	04001B
DATE	TAX MAP – GRID	SHEET
NOV., 2005	41 – 16	18 OF 29

F-05-139

PROPOSED SIGNS

21,23,24, 26,29,30 — ONLY — R 3-5(L) 30" x 36"

28,32 — ONLY — R 3-5(R) 30" x 36"

25 — Maple Lawn Blvd / Sanner Rd — D-3(2) 32" x Var.

22 — Sanner Rd / Maple Lawn Blvd — D-3(2) 32" x Var.

27,31 — Johns Hopkins Rd — D-3(1) 16" x Var.

38,39 — Orange / NEW / Blk/White — JOHNS HOPKINS RD — "NEW" 24" x24 " W 3-3 30" x 30" D-3(1) 12" x Var. (No Greater Than 45" Wide)

40 — Orange / NEW / Blk/White — JOHNS HOPKINS RD — "NEW" 24" x24 " W 3-3 36" x 36" D-3(1) 12" x Var. (No Greater Than 45" Wide)

35 — Orange / NEW / Blk/White — SANNER ROAD / MAPLE LAWN BLVD — "NEW" 24" x 24" W 3-3 36" x 36" D-3(2) 24" x Var. (No Greater Than 45" Wide)

36,37 — Orange / NEW / Blk/White — MAPLE LAWN BLVD / SANNER ROAD — "NEW" 24" x 24" W 3-3 36" x 36" D-3(2) 24" x Var. (No Greater Than 45" Wide)

33,34 — R 10-4(1) 9" x 12" (To Be Installed With Pushbutton) and to read: PUSH BUTTON TO CROSS (MAPLE LAWN BLVD)

Johns Hopkins Road is considered to run in an East/West direction

PROPOSED SIGNALS

1,2,5-7,10 11,14-16 — R, Y, G — 12"

3,4,8,9,12, 13,17,18 — R, Y, G — 12"

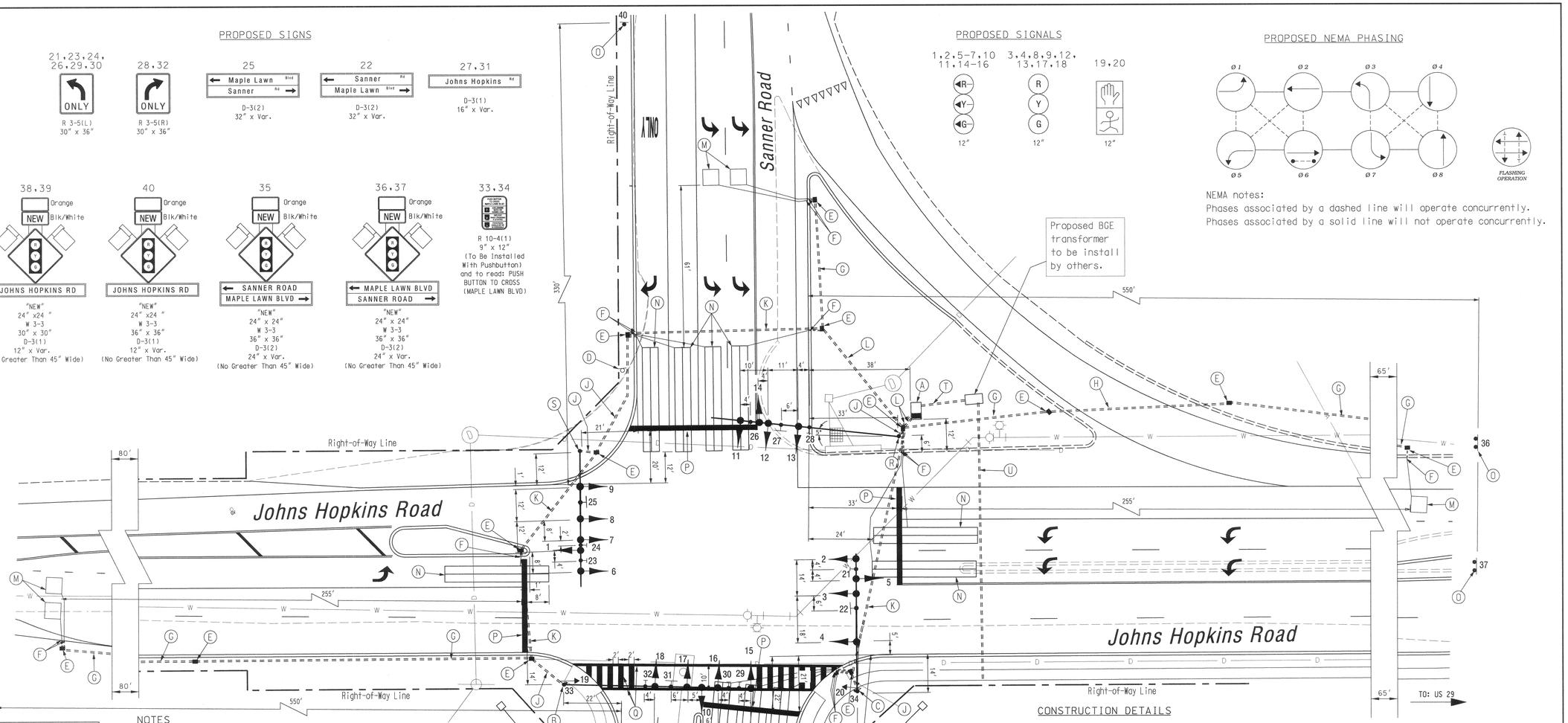
19,20 — 12"

PROPOSED NEMA PHASING

Ø1 Ø2 Ø3 Ø4 Ø5 Ø6 Ø7 Ø8

FLASHING OPERATION

NEMA notes:
Phases associated by a dashed line will operate concurrently.
Phases associated by a solid line will not operate concurrently.



LEGEND

PROPOSED	EXISTING
MAST ARM	
TRAFFIC SIGNAL HEAD	
PEDESTRIAN SIGNAL HEAD	
SIGN	
STREET LIGHT	
HANDBOX	
CONDUIT	
LOOP DETECTOR	
CONTROLLER WITH PAD	
WOOD POLE	
FIRE HYDRANT	
MANHOLE	
W.V. WATER VALVE	W.V.
G.V. GAS VALVE	G.V.
GEOMETRICS	

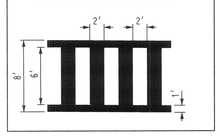
NOTES

1. Geometrics shall be confirmed prior to the installation of signal equipment. All traffic signal foundations shall be installed at final sidewalk or curb grade for closed sections highest roadway.
2. Loop detectors and conduits shall be installed prior to the installation of pavement markings.
3. Pavement markings detailed are proposed and are to be installed by the Contractor in accordance with MD-SHA standards. All other pavement markings will either be installed as part of the Developer's project or are to be considered as existing.
4. All underground and overhead utilities shown on these plans are schematic and are not to be considered complete. The Contractor shall be responsible for notifying all utility companies 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 equipment will occur, the Contractor shall notify the appropriate Project Engineer immediately.

UTILITY LEGEND

G	GAS MAIN
W	WATER MAIN
S	SEWER MAIN
D	STORM DRAIN
TV	CABLE TELEVISION
E	ELECTRIC CABLES
T	TELEPHONE CABLES
A	AERIAL CABLES

CROSSWALK DETAIL



CONSTRUCTION DETAILS

A. Install base mounted cabinet/controller, and necessary equipment for an underground electrical service.
B. Install 16 ft. steel Mono-Curve mast arm pole with 70 ft. Mono-Curve mast arm, vehicle signal heads, signs, pedestrian signal head, pedestrian pushbutton, and pedestrian pushbutton sign (Note: one 3 in. PVC conduit bend).
C. Install 27 ft. steel Mono-Curve mast arm pole with 50 ft. Mono-Curve mast arm, vehicle signal heads, and signs (Note: one 3 in. PVC conduit bend).
D. Remove existing ground mounted sign after traffic signal is in operation.
E. Install handhole.
F. Install 1 in. liquid tight flexible conduit for loop detector lead-in.
G. Install 2 in. polyvinyl chloride [Schedule 80] electrical conduit - trenched.
H. Install 2 in. polyvinyl chloride [Schedule 80] electrical conduit - bored.
J. Install 3 in. polyvinyl chloride [Schedule 80] electrical conduit - trenched.
K. Install 4 in. polyvinyl chloride [Schedule 80] electrical conduit - bored.
L. Install 4 in. polyvinyl chloride [Schedule 80] electrical conduit - trenched.
M. Install 6 ft. x 6 ft. vehicle loop detector (3 turns).
N. Install 6 ft. x 40 ft. quadrupole type vehicle loop detector (2-4-2 turns).
O. Install ground mounted sign as shown.
P. Install 24 in. wide white pavement marking - white for stop line.
Q. Install white pavement marking - for crosswalk as shown per crosswalk detail for the entire length. [broken for legibility purpose].
R. Install 16 ft. steel Mono-Curve mast arm pole with 70 ft. Mono-Curve mast arm, vehicle signal heads, and signs (Note: one 3 in. PVC conduit bend).
S. Install 27 ft. steel Mono-Curve mast arm pole with a 50 ft. Mono-Curve mast arm, vehicle signal heads, and signs (Note: one 3 in. PVC conduit bend).
T. Install 4 in. polyvinyl chloride [Schedule 80] electrical conduit- trenched with pull string to proposed transformer for underground electric service by BGE.
U. Install 4 in. polyvinyl chloride [Schedule 80] electrical conduit- bored with pull string to proposed transformer for BGE electrical service.

Approved: Howard County Dept. of Public Works
William J. Mitchell Jr. 11-21-05
Chief, Bureau of Highways — Date

Approved: Howard County Dept. of Planning & Zoning
Cindy Hannah 11/29/05
Chief, Division of Land Development — Date
MK 11/30/05
Chief, Development Engineering Division — Date

The Traffic Group
Suite H
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Baltimore, Maryland
410-931-6600
1-800-583-8411
Fax: 410-931-6601

STATE OF MARYLAND — PROFESSIONAL ENGINEER

DES: Frank Hoeckel				
DRN: Frank Hoeckel				
CHK: John Dimdorfer				
DATE: 7/5/05	BY	NO.	REVISION	DATE

600' SCALE MAP NO. _____ DATE: _____

TRAFFIC SIGNAL PLAN

Johns Hopkins Road at Maple Lawn Blvd/Sanner Road

SCALE: 1" = 20'

SHEET 19 OF 29

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F 05-139

PROJECT DESCRIPTION

I. GENERAL

This project involves the installation of a new traffic control signal at the intersection of Johns Hopkins Road and Sanner Road/Maple Lawn Blvd. in Howard County, Maryland. Johns Hopkins Road is considered to run in an east/west direction.

EQUIPMENT LIST

B. Equipment to be furnished and installed by the Contractor.
All equipment in this list shall have catalog cuts submitted for approval prior to installation.

Quantity	Units	Specification Section	Description
2	EA	818	16 ft. steel Mono-Curve mast arm pole with a 70 ft. Mono-Curve mast arm (Factory Powder Coated Black) [Spec MD 88.13-01].
2	EA	818	27 ft. steel Mono-Curve mast arm pole with a 50 ft. Mono-Curve mast arm (Factory Powder Coated Black) [Spec MD 818.13-01].
* 1	EA	816	Standard traffic signal controller, base mounted cabinet, and five (5) four-channel loop detector amplifiers.
* 10	EA	814	12 in., one-way, three section (RA,YA,GA) adjustable traffic signal head with mast arm mounting hardware and tunnel visors.
* 8	EA	814	12 in., one-way, three section (R,Y,G) adjustable traffic signal head with mast arm mounting hardware and tunnel visors.
* 2	EA	814	12 in. one-way, two section (symbolic DW/WK) adjustable pedestrian signal head with pole mounting hardware and cut-away visors.
* 2	EA	814	Pushbuttons For Pedestrian Signals
2	EA	813	30 in. x 36 in. R 3-5R sign with mast arm mounting hardware.
6	EA	813	30 in. x 36 in. R 3-5L sign with mast arm mounting hardware.
4	EA	813	36 in. x 36 in. W 3-3 with 24 in. x 24 in "NEW" sign for ground mounting.
2	EA	813	30 in. x 30 in. W 3-3 with 24 in. x 24 in. "NEW" sign for ground mounting.
2	EA	813	16 in. x Var. D-3(1) sign with "Signfix" mast arm mounting hardware.
2	EA	813	24 in. x Var. D-3(2) sign with "Signfix" mast arm mounting hardware.
3	EA	813	12 in. x Var D-3(1) sign for ground mounting.
3	EA	813	32 in. x Var D-3(2) sign for ground mounting.
2	EA	813 6	9 in. x 12 in. R10-4(1) pedestrian pushbutton sign with pole mounting hardware.

* Furnished by the County and reimbursed by the Developer.

Quantity	Units	Specification Section	Description
Lump Sum	LS	108	Mobilization.
Lump Sum	LS	104	Maintenance of traffic.
5	CY	205	Test pit excavation.
12	EA	811	Handhole.
1650	LF	815	Sawcut for signal loop detector.
5825	LF	810	Loop detector wire (No. 14 A.W.G.) encased in flexible tubing.
25	LF	810	1-conductor electrical cable (No. 4 A.W.G.) (3 pieces).
2400	LF	810	2-conductor (aluminum shielded) electrical cable (No. 14 A.W.G.).
375	LF	810	2-conductor electrical cable (No. 14 A.W.G.).
375	LF	810	3-conductor electrical cable (No. 14 A.W.G.)
2525	LF	810	5-conductor electrical cable (No. 14 A.W.G.).
425	LF	804	Green THWN stranded ground wire (No. 6 A.W.G.).
55	LF	805	1 in. liquid tight flexible non-metallic conduit for loop detector sleeve.
495	LF	805	2 in. polyvinyl chloride [Schedule 80] electrical conduit - trenched.
150	LF	805	2 in. polyvinyl chloride [Schedule 90] electrical conduit - bored
100	LF	805	3 in. polyvinyl chloride [Schedule 80] electrical conduit - trenched.
390	LF	805	4 in. polyvinyl chloride [Schedule 80] electrical conduit - bored.
90	LF	805	4 in. polyvinyl chloride [Schedule 80] electrical conduit - trenched.
17.5	CY	801	Concrete foundation for traffic signal equipment.
5	EA	804	Ground rod -¾in. diameter x 10 ft. length.
1	EA	807	Electrical utility service equipment (120/240 V, one phase, three wire system) with two -30 amp disconnect switches for a underground electrical service.
160	LF	549	24 in. wide HAPPTPM pavement marking- white for stop line.
435	LF	812	12 in. white HAPPTPM pavement marking - white for crosswalk
125	LF	812	Square metal tube post (galvanized) with pole cap (Per Traffic Division Specifications) for signs along John Hopkins Road and Scanner Road.
55	LF	812	Maple Lawn Specifications for sign post supports along for Maple Lawn Blvd
1	EA	---	Remove existing ground mounted sign.
Lump Sum	LS	---	As-built for S.H.A. [on CADD].

CONTACT LIST

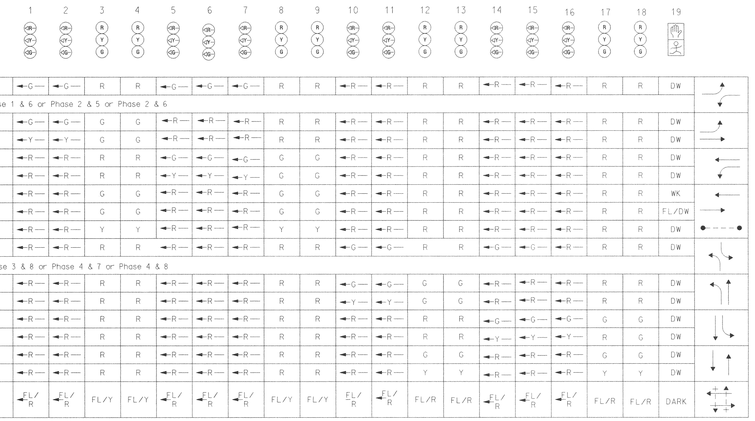
The contact persons are as follows:

Diane Schwarzman, P.E.
Howard County - Traffic
9250 Bendix Road
Columbia Maryland 21045
410-313-5753

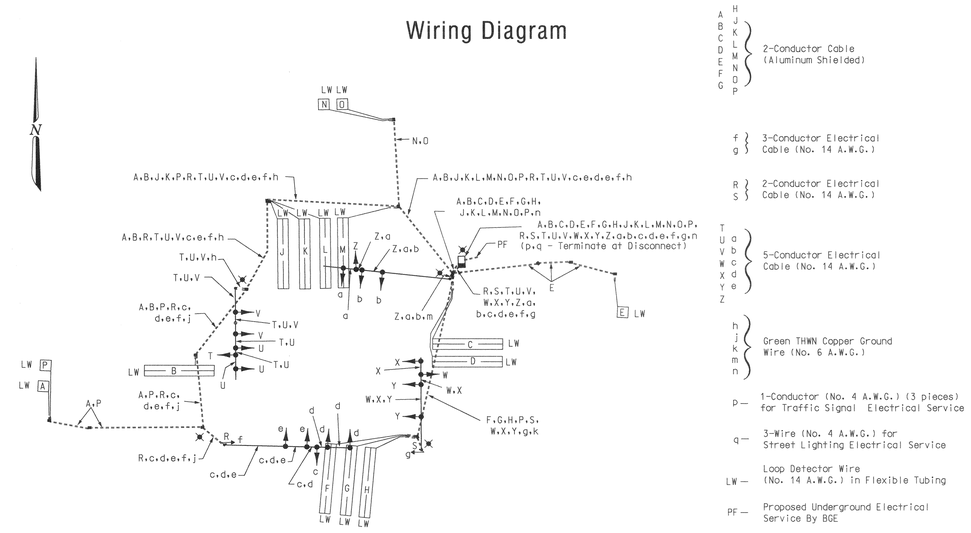
Richard Wilson
Howard County - Traffic Signal Shop
9240 Bendix Road
Columbia, Maryland 21045
410-313-7517

The Power Company Representative is:
Mr. Douge Shenton
Baltimore Gas and Electric Company
7317 Parkway Drive South
Hanover, Maryland 21076
410-859-9448
WMS • 1298854

Phase Chart



Wiring Diagram



A B C D E F G H J K L M N O P } 2-Conductor Cable (Aluminum Shielded)

f g } 3-Conductor Electrical Cable (No. 14 A.W.G.)

R S } 2-Conductor Electrical Cable (No. 14 A.W.G.)

T U V W X Y Z a b c d e } 5-Conductor Electrical Cable (No. 14 A.W.G.)

h i k m n } Green THWN Copper Ground Wire (No. 6 A.W.G.)

P— 1-Conductor (No. 4 A.W.G.) (3 pieces) for Traffic Signal Electrical Service

q— 3-Wire (No. 4 A.W.G.) for Street Lighting Electrical Service

LW— Loop Detector Wire (No. 14 A.W.G.) in Flexible Tubing

PF— Proposed Underground Electrical Service By BGE

— Proposed Grounding Rod

Approved: Howard County Dept. of Public Works
Chief, Bureau of Highways — Date 11-21-05

Approved: Howard County Dept. of Planning & Zoning
Chief, Division of Land Development — Date 11/23/05
Chief, Development Engineering Division — MK Date 11/28/05

The Traffic Group
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9900 Franklin Square Dr.
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410-931-6600
1-800-583-8411
Fax: 410-931-6601

STATE OF MARYLAND — PROFESSIONAL ENGINEER — NO. 21242

DES: Frank Hoeckel
DRN: Frank Hoeckel
CHK: John Dirndorfer
DATE: 7/5/05

BY	NO.	REVISION	DATE

600' SCALE MAP NO. _____ DATE: _____

GENERAL INFORMATION PLAN

Johns Hopkins Road
at
Maple Lawn Blvd/Sanner Road

SCALE: N/A

SHEET 20 OF 29

F 05-139

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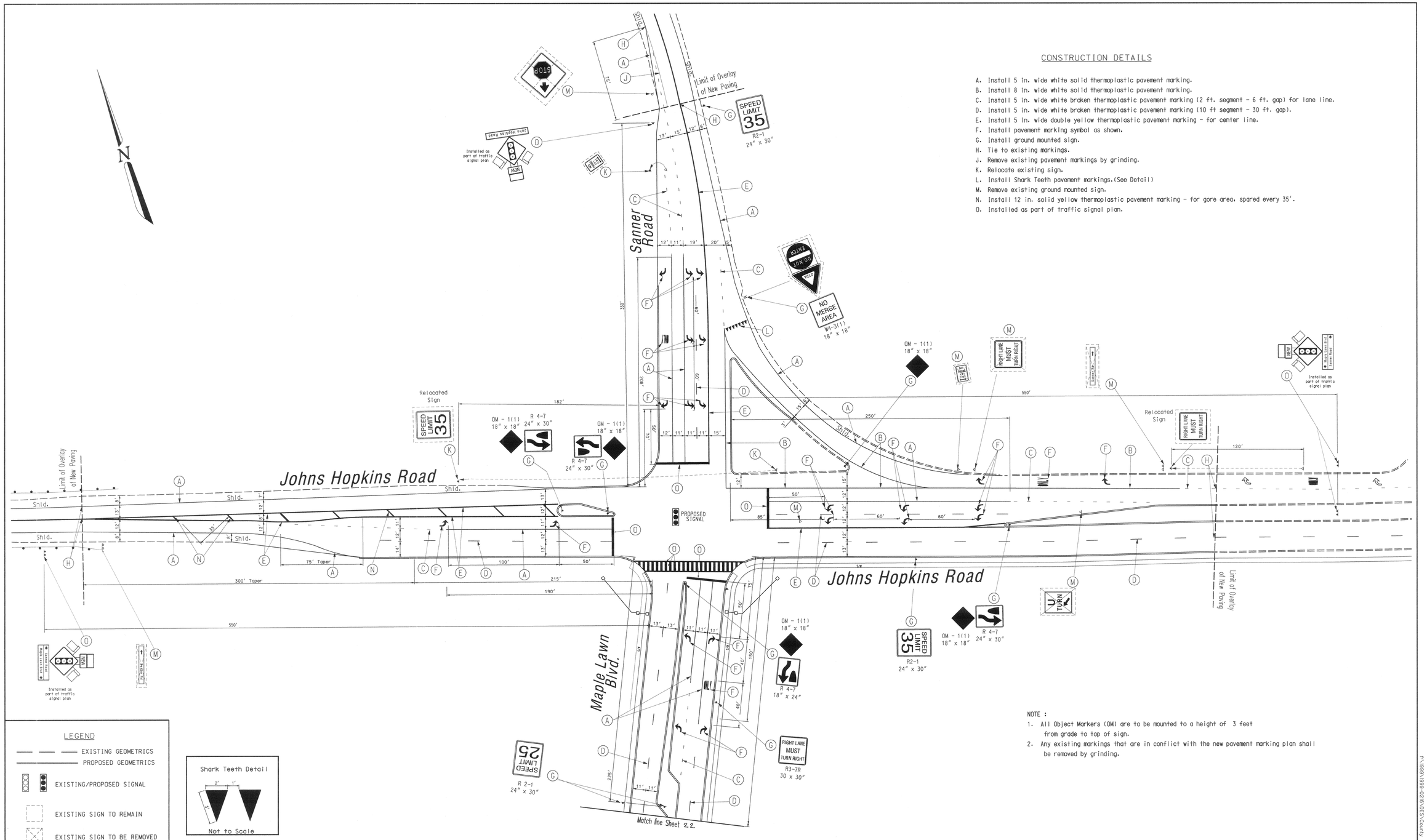

CONSTRUCTION DETAILS

A. Install 5 in. wide white solid thermoplastic pavement marking.
B. Install 8 in. wide white solid thermoplastic pavement marking.
C. Install 5 in. wide white broken thermoplastic pavement marking (2 ft. segment - 6 ft. gap) for lane line.
D. Install 5 in. wide white broken thermoplastic pavement marking (10 ft segment - 30 ft. gap).
E. Install 5 in. wide double yellow thermoplastic pavement marking - for center line.
F. Install pavement marking symbol as shown.
G. Install ground mounted sign.
H. Tie to existing markings.
J. Remove existing pavement markings by grinding.
K. Relocate existing sign.
L. Install Shark Teeth pavement markings.(See Detail)
M. Remove existing ground mounted sign.
N. Install 12 in. solid yellow thermoplastic pavement marking - for gore area, spared every 35'.
O. Installed as part of traffic signal plan.

NOTE :
1. All Object Markers (OM) are to be mounted to a height of 3 feet from grade to top of sign.
2. Any existing markings that are in conflict with the new pavement marking plan shall be removed by grinding.

LEGEND

EXISTING GEOMETRICS
PROPOSED GEOMETRICS
EXISTING/PROPOSED SIGNAL
EXISTING SIGN TO REMAIN
EXISTING SIGN TO BE REMOVED

Shark Teeth Detail
Not to Scale

Approved: Howard County Dept. of Public Works
Chief, Bureau of Highways — Date 11-21-05

Approved: Howard County Dept. of Planning & Zoning
Chief, Division of Land Development — Date 11/29/05
Chief, Development Engineering Division — MK Date 11/29/05

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Fax: 410-931-6601

DES: Frank Hoeckel
DRN: Frank Hoeckel
CHK: John Dimdorfer
DATE: 7/5/05

BY	NO.	REVISION	DATE

600' SCALE MAP NO. _____ DATE: _____

SIGNING AND PAVEMENT MARKING PLAN
Johns Hopkins Road
at
Maple Lawn Blvd/Sanner Road

SCALE: 1" = 40'
SHEET 21 OF 29

F 05-139

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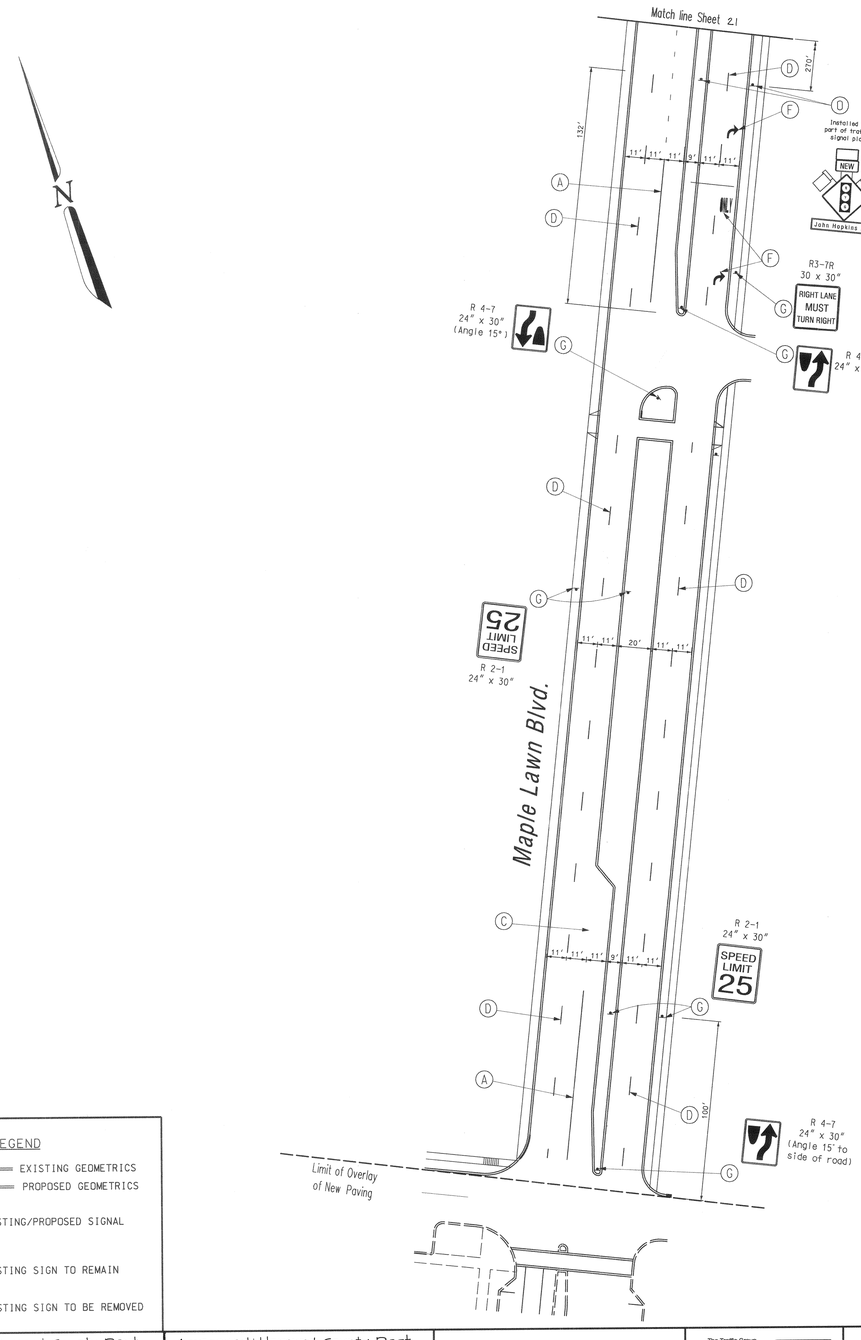

CONSTRUCTION DETAILS

A. Install 5 in. wide white solid thermoplastic pavement marking.
B. Install 8 in. wide white solid thermoplastic pavement marking.
C. Install 5 in. wide white broken thermoplastic pavement marking (2 ft. segment - 6 ft. gap) for lane line.
D. Install 5 in. wide white broken thermoplastic pavement marking (10 ft segment - 30 ft. gap).
E. Install 5 in. wide double yellow thermoplastic pavement marking - for center line.
F. Install pavement marking symbol as shown.
G. Install ground mounted sign.
H. Tie to existing markings.
J. Remove existing pavement markings by grinding.
K. Relocate existing sign.
L. Install Shark Teeth pavement markings.(See Detail)
M. Remove existing ground mounted sign.
N. Install 12 in. solid yellow thermoplastic pavement marking - for gore area, spared every 35'.
O. Installed as part of traffic signal plan.

NOTE : All Object Markers (OM) are to be mounted to a height of 3 feet from grade to top of sign.

MATERIAL LIST

Materials to be furnished and/or installed by the Contractor.
All material in this list shall have catalog cuts submitted for approval prior to installation.

Quantity	Units	Specification Section	Description
lump Sum	LS	108	Mobilization.
Lump Sum	LS	104	Maintenance of traffic.
2925	LF	549	5 in. wide pavement marking - white - (Thermoplastic).
3275	LF	549	5 in. wide pavement marking - yellow - (Thermoplastic).
800	LF	549	8 in. wide pavement marking - white - (Thermoplastic).
150	LF	549	12 in. wide pavement marking - yellow - for gore area.
8	EA	549	White Thermoplastic pavement marking symbol - "Right Arrow."
16	EA	549	White Thermoplastic pavement marking symbol - "Left Arrow".
4	EA	549	White Thermoplastic pavement marking symbol - "ONLY".
1	EA	813	18 in. x 24 in. R 4-7 sign for ground mounting.
6	EA	813	24 in. x 30 in. R 4-7 sign for ground mounting.
2	EA	813	30 in. x 30 in. R3-7R sign for ground mounting.
5	EA	813	18 in. x 18 in. OM-1(1) sign for ground mounting.
6	EA	813	24 in. x 30 in. R 2-1 sign for ground mounting.
1	EA	813	30 in. x 30 in. W4-3(1) sign for ground mounting.
200	LF	812	Maple Lawn Specifaction for signs along Maple Lawn Blvd.
240	LF	---	Removal of existing pavement markings by grinding.
2	EA	---	Relocate existing sign.
10	EA	---	Shark teeth (3' x 3' x 2') pavement marking (Thermoplastic).
4	EA	---	Removal of existing sign.

LEGEND

- EXISTING GEOMETRICS
- PROPOSED GEOMETRICS
- EXISTING/PROPOSED SIGNAL
- EXISTING SIGN TO REMAIN
- EXISTING SIGN TO BE REMOVED

Approved: Howard County Dept. of Public Works

William J. Mitchell 11-21-05
Chief, Bureau of Highways — Date

Approved: Howard County Dept. of Planning & Zoning

Cindy Hanson 11/29/05
Chief, Division of Land Development — Date

11/2005
Chief, Development Engineering Division — MK — Date

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9900 Franklin Square Dr.
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Fax: 410-931-6601

DES: Frank Hoeckel
DRN: Frank Hoeckel
CHK: John Dirndorfer
DATE: 6/1/05

BY	NO.	REVISION	DATE

600' SCALE MAP NO. _____ DATE: _____

SIGNING AND PAVEMENT MARKING PLAN

Johns Hopkins Road
at
Maple Lawn Blvd/Sanner Road

SCALE: 1" = 40'

SHEET 22 OF 29

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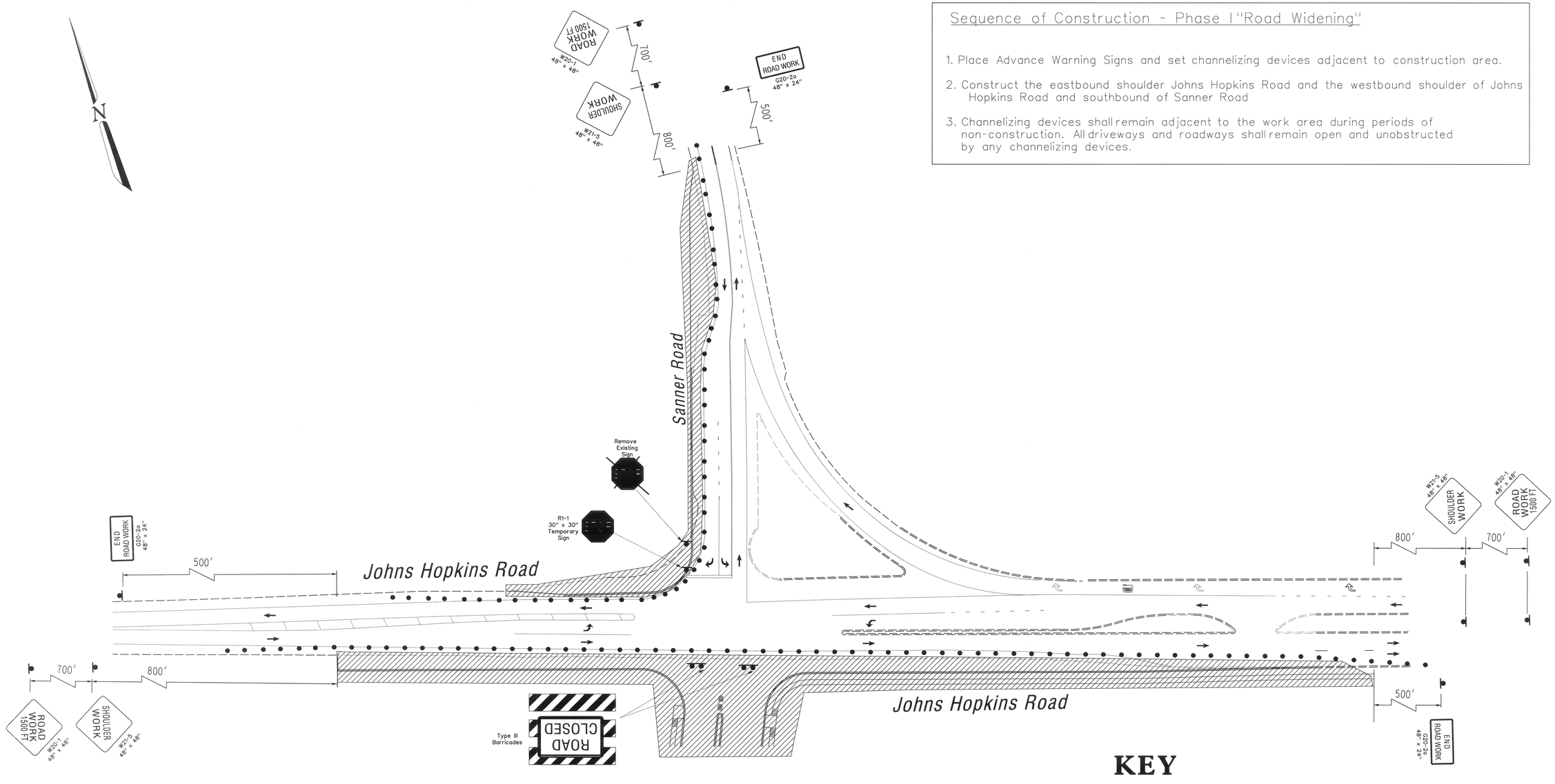
F 05-139

Sequence of Construction - Phase I "Road Widening"

1. Place Advance Warning Signs and set channelizing devices adjacent to construction area.
2. Construct the eastbound shoulder Johns Hopkins Road and the westbound shoulder of Johns Hopkins Road and southbound of Sanner Road
3. Channelizing devices shall remain adjacent to the work area during periods of non-construction. All driveways and roadways shall remain open and unobstructed by any channelizing devices.



KEY

- Area of Construction
- Direction of Traffic
- Channelizing Device (Drum)
- Existing Geometrics
- Proposed Geometrics
- Temporary Traffic Sign
- Construction Sign (placed in this phase)
- Existing Construction Sign (placed in previous phase)

UTILITY LEGEND

G	G	GAS MAIN
W	W	WATER MAIN
S	S	SEWER MAIN
D	D	STORM DRAIN
TV	TV	CABLE TELEVISION
E	E	ELECTRIC CABLES
T	T	TELEPHONE CABLES
A	A	AERIAL CABLES

Drop Off Policy

Contractor to maintain less than 2.5 in. of drop-off during periods of non-construction. Use appropriate standard. See General Note No: 13

Approved: Howard County Dept. of Public Works

William J. Weber Jr. 11-21-05
Chief, Bureau of Highways — Date

Approved: Howard County Dept. of Planning & Zoning

Cindy Hamm 11/29/05
Chief, Land Development Division — Date

MK 11/28/05
Chief, Development Engineering Division — Date

The Traffic Group
Suite H
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1-800-583-8411
Fax: 410-931-6601

DES: Frank Hoeckel
DRN: Frank Hoeckel
CHK: John Dirndorfer
DATE: 7/5/05

BY	NO.	REVISION	DATE

600' SCALE MAP NO. _____ DATE: _____

PHASE I – MAINTENANCE OF TRAFFIC PLAN

Johns Hopkins Road
at
Maple Lawn Blvd/Sanner Road

SCALE: 1" = 40'

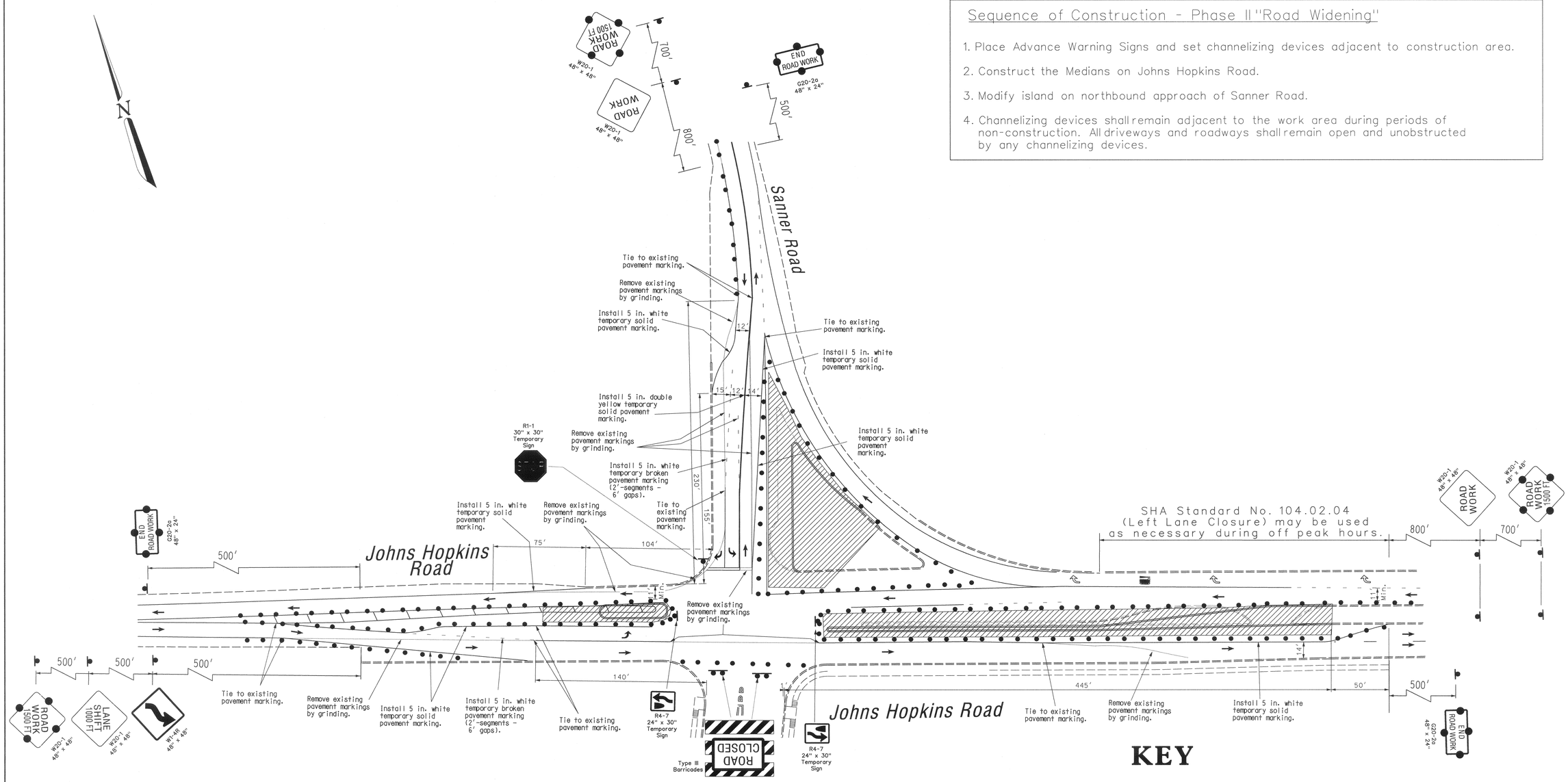
SHEET 23 OF 29

F:\1998\-1998-0236\DES\County Traffic\MOTR_Alt.dgn 7/7/2005

F 05-139

Sequence of Construction - Phase II "Road Widening"

1. Place Advance Warning Signs and set channelizing devices adjacent to construction area.
2. Construct the Medians on Johns Hopkins Road.
3. Modify island on northbound approach of Sanner Road.
4. Channelizing devices shall remain adjacent to the work area during periods of non-construction. All driveways and roadways shall remain open and unobstructed by any channelizing devices.



UTILITY LEGEND

G	G	GAS MAIN
W	W	WATER MAIN
S	S	SEWER MAIN
D	D	STORM DRAIN
TV	TV	CABLE TELEVISION
E	E	ELECTRIC CABLES
T	T	TELEPHONE CABLES
A	A	AERIAL CABLES

Drop Off Policy

Contractor to maintain less than 2.5 in. of drop-off during periods of non-construction. Use appropriate standard. See General Note No: 13

Approved: Howard County Dept. of Public Works

Chief, Bureau of Highways — Date 11-21-05

Approved: Howard County Dept. of Planning & Zoning

Chief, Land Development Division — Date 11/29/05

Chief, Development Engineering Division — Date 11/29/05

The Traffic Group
Suite H
9900 Franklin Square Dr.
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410-931-6600
1-800-583-8411
Fax: 410-931-6601

DES: Frank Hoeckel
DRN: Frank Hoeckel
CHK: John Dimdorfer
DATE: 7/5/05

BY	NO.	REVISION	DATE

600' SCALE MAP NO. _____ DATE: _____

PHASE II – MAINTENANCE OF TRAFFIC PLAN

Johns Hopkins Road at Maple Lawn Blvd/Sanner Road

SCALE: 1" = 40'

SHEET 24 OF 29

F 05-139

GENERAL NOTES
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATIONS (TTCTA)

1.0 INTRODUCTION

1.1 The General Notes (GN) supplement the Standard Details and the TTCTAs, and have been assembled to provide additional direction on the installation and application of traffic control devices shown in these standards. The GNs also provide additional guidelines and other useful information that will facilitate the installation of appropriate temporary traffic controls. Users of these standards shall also comply with provisions of FHWA's Manual on Uniform Traffic Control Devices (MUTCD) and SHA's Supplement to the MUTCD, Standard Specifications for Construction and Materials, and General Provisions for Construction Contracts.

1.2 The TTCTA show the minimum requirements necessary to plan for the safety of workers, motorists, pedestrians, and other system users throughout the temporary traffic control zone for various types of work activities. Typically, more traffic control devices are required for long-term stationary work activities than for short-term stationary work activities. Additional temporary traffic control devices may be necessary because of other traffic factors, such as the roadway's accident history, expected traffic backups, high truck traffic, roadway geometrics or characteristics, and other conditions that may adversely affect the flow of traffic. Users of these TTCTA should review the temporary traffic control setup once in place to ensure that traffic is traveling smoothly throughout the traffic control zone, driver expectancy is being met, and no other adjustments to the temporary traffic control devices are necessary. This review is to be repeated on a regular basis as noted elsewhere.

1.3 The TTCTA address a wide variety of different conditions; however, every situation could not be shown. Therefore, charts have been provided showing standard devices to be used for the proposed work zone activity and the placement of these devices for certain roadway conditions and work durations. The user is expected to combine the information from these charts into a workable traffic control plan.

1.4 In applying these standards and guidelines, questions about applications and interpretations should be referred to the State Highway Administration's Assistant District Engineer–Traffic, County Traffic Engineer, City Traffic Engineer, Public Works Engineer, or other responsible party, who has expertise in traffic engineering and has jurisdiction on the appropriate roadways. Such consultation may be required, for example, to determine the appropriate TTCTA for the work zone condition.

4.0 SIGNS

4.1 Signs should be spaced at the distances shown on the TTCTA diagrams.

4.2 See the "Sign and Buffer Spacing Charts/Standard Temporary Traffic Control Operations" for the appropriate spacing of the advance warning signs for lower speed highway facilities.

4.3 At locations where queues extend beyond the first advance warning sign, additional advance warning signs (static and/or PCMS) shall be placed in advance of the longest observed queue.

4.4 When bus and/or truck volumes are high, an initial advance warning sign may be placed on the left side of a multilane undivided roadway.

4.5 As of December 31, 2003, Fluorescent Orange High Performance Wide Angle (FOHPWA) Retroflective Sign Sheeting material shall be used on all temporary post-mounted warning signs erected in work zones.

4.10 G95-4 (Hat and Shovel) signs shall be used for projects lasting greater than two months in duration, unless otherwise specified by the Engineer.

4.11 Along streets in urban areas where the prevailing speed is 35 mph or less, and along secondary roads where the Average Daily Traffic (ADT) is less than 1000 vehicles, the minimum sign size of 36" x 36" may be used.

4.12 For utility operations, the word "AHEAD" may be used on warning signs in lieu of distance messages for warning signs placed up to and including 1500 feet in advance of the work area. At greater distances, the correct distance messages shall be used on such warning signs. Also, the message UTILITY WORK may be used in lieu of ROAD WORK or SHOULDER WORK. ROAD WORK AHEAD signs may also be used in lieu of distance messages on side streets and entrance ramps that intersect roads where work is being performed (as shown in the Typical Applications) and on the main road during mobile and mowing operations.

4.13 ROAD WORK AHEAD signs shall be installed on all side streets and entrance ramps that intersect roads within work zones. The signing shall be placed along the intersection approach to the right of the travel lane. Refer to Standard Detail 104.01-02 for guidance on sign placement. For side streets intersecting roads outside of work zone boundaries, no advanced signing should be installed.

4.14 Warning signs mounted on wood posts, and those mounted on approved portable supports, shall be mounted in conformance with Standard No. MD 104.01-17. Signs mounted on concrete barrier shall be installed using clamps that are on the Office of Traffic & Safety's Approved Product List.

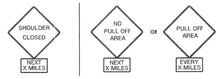
4.15 For shoulder closures greater than a half (1/2) mile in length, advance warning signs should be placed as follows:

a. A NEXT XX MILES supplemental plate should be provided with the first SHOULDER CLOSED sign in the sequence

b. The second SHOULDER CLOSED sign in the sequence should be replaced with either:

– a NO PULL OFF AREA warning sign with NEXT XX MILES supplemental plate, if there are no pull off areas throughout the work area, or

– a PULL OFF AREA warning sign with EVERY XX MILES supplemental plate, if pull off areas are provided (see MD 104.06-14).



4.16 A BUMP sign should be placed when there is a temporary pavement wedge along a transverse joint, a transverse construction trench with temporary backfill, or a similar transverse disturbance. Signs should be placed according to Shoulder Work Typical Applications for the appropriate prevailing speed and work duration, with BUMP signs replacing the SHOULDER WORK signs.

4.17 TRUCK CROSSING (W11-(10)1) signs shall only be used during the following two situations:

1) A work area entrance is allowed along a controlled access highway.

2) A work area entrance is provided along highways other than controlled access, the entrance does not have adequate decision sight distance for approaching traffic, and the entrance cannot be relocated to provide adequate decision sight distance. Refer to Standard No. MD 104.00-03 of the General Notes for decision sight distance criteria.

TRUCK CROSSING signs shall be placed according to the Shoulder Work Typical Applications, with TRUCK CROSSING signs replacing all SHOULDER WORK signs.

Any distances to be displayed on the TRUCK CROSSING sign shall be installed using supplemental distance plaques.

5.0 PORTABLE VARIABLE MESSAGE SIGNS (PVMS)

5.1 The PVMS shall not replace standard traffic control devices, but is to supplement these devices.

5.2 PVMS shall be used where a new traffic signal has been installed along State routes having a prevailing speed of 50 mph or greater.

5.3 PVMS shall display a message regarding new traffic signal installation up to 3 days prior to signal turn-on. PVMS shall be removed no later than 7 days after the signal is operational.

5.4 When PVMS are used to advise/warn motorists regarding a new traffic signal installation, they shall be installed along all the major approaches to the intersection, and shall be used in such a way as to supplement the standard traffic control devices required for a new traffic signal installation.

5.5 No more than two displays shall be used within any message cycle unless approved by the District Engineer or ADE-T.

5.6 For a list of standard messages/abbreviations, contact appropriate District Engineer or ADE-T. All customized messages shall be approved by the ADE-T.

5.7 A single message shall be displayed for 2-3 seconds with an "off" interval of 0.5 to 1.0 second. When two messages comprise a message cycle, neither message shall exceed 2 seconds duration. The second message shall follow the first message immediately without any "off" interval. If an off-interval is used between the first and second messages, it shall not exceed 0.5 second.

5.8 The text of the message shall not scroll or travel (horizontally or vertically) across the face of the sign.

5.9 A PVMS should not be used for more than 14 continuous days as part of the same application. A PVMS should be used 3 to 5 days in advance of planned roadwork, if needed.

5.10 PVMS should be used if there is significant change in traffic patterns, unexpected road conditions, or safety concerns that may result in delays/queues and may require caution/diversion.

5.11 PVMS should not be used in place of an arrow panel. The PVMS should be visible from 0.5 mile under day and night conditions and should be legible from a minimum distance of 650 feet.

5.12 PVMS should be placed on the shoulder of the roadway or, if practical, farther from the traveled lane (Standard MD 104.01-22).

5.13 In order to reduce the effect of sun behind the PVMS, the PVMS should be placed so that the sun is not directly behind it (such as during sunrise or sunset).

5.14 The entire message should be readable at least twice at the off-peak 85th-percentile speed prior to work starting or the anticipated prevailing speed.

6.0 ARROW PANELS

6.1 Arrow panels that are installed along roadways with prevailing speeds greater than 40 mph shall be provided with a minimum shoulder closure taper of 1/3 the taper length, (see 7.0 Channelizing Devices). For all other roadways a 100-foot minimum shoulder closure taper shall be used.

7.0 CHANNELIZING DEVICES

7.1 Taper Formulas:

L = WS for speeds greater than (>) 40 mph

L = WS²/60 for speeds equal to or less than (≤) 40 mph

Where: L = minimum length of taper (ft)
S = numerical value of prevailing travel speed or speed limit (MPH), whichever is higher, prior to work starting,
W = width of offset (ft)

7.2 Maximum spacing between channelizing devices:

Taper Channelization: equal in feet to the posted speed limit.

Tangent Channelization: equal in feet to twice the posted speed limit.

7.3 At horizontal or vertical curves, channelizing devices should be extended to a point where they are visible to approaching traffic. On two-lane, two-way roadways, a full taper length shall always be provided in advance of curves.

7.4 Drums, not cones, should always be used to form the taper on roadways having a prevailing travel speed greater than 40 MPH.

7.5 Storing channelizing devices within 30 feet of the edge of open section roadway or 15 feet of a closed section roadway along any roadway is prohibited without approval of the Engineer.

7.6 Type 3 object markers (VP-1) are required for barrier flare / tangent points.

7.7 The appropriate channelizing devices (including approved barrier) to separate opposing traffic shall be as shown on the plans or as directed by the Engineer.

7.8 On straight sections of roadway with full dimension center and / or lane lines, but without edge lines, channelizing drums shall be used to delineate the edge of the roadway, except at locations designated by the Engineer. Examples would include roadways with curbs, parking, bicycle lanes, or other markings. The channelizing drums may be spaced up to 500' apart where no undue hazards exist unless otherwise directed by the Engineer. On curves, these spacings shall be reduced to a value equal to the posted speed limit, unless otherwise directed by the Engineer.

8.0 PAVEMENT MARKINGS

8.1 Temporary pavement markings should be installed according to Section 104.02-03(f), Specific Requirements for Temporary Pavement Markings, from the Standard Specifications for Construction and Materials and from SHA's "Pavement Marking Policy and Guidelines" issued by OOTS.

8.2 Pavement markings that are no longer applicable shall be completely removed or obliterated. Temporary markings shall be used as necessary. Operations less than 12 hours or undertaken during the daytime may require that the permanent markings be temporarily covered with black tape as specified in Section 8.3.

8.3 Pavement marking lines adjacent to any long duration lane transition or lane closure taper shall be removed (or covered with SHA approved black pavement marking tape), unless otherwise directed by the Engineer. Pavement marking lines shall be re-installed (or uncovered) prior to re-opening the closed lane(s).

8.4 Temporary markings on intermediate pavement surfaces (e.g. base course) shall be placed to full dimensions per the Contract Documents (i.e. continuous double yellow center lines; single dashed yellow center line @ 10' segments, 30' gaps where passing is allowed; lane lines @ 10' segments, 30' gaps).

8.5 Guidance on UNMARKED PAVEMENT signing:

1. Daytime: If the pavement is not marked to SHA's standards/specifications during the daytime, no sign is needed, provided item #3 below is adhered to.

2. Nighttime: If, due to unforeseen circumstances as determined by the Engineer, the pavement is left in a condition overnight that does not meet SHA pavement marking standards/specifications, then UNMARKED PAVEMENT signing shall be used.

3. In all instances where less than standard markings are in place (permanent or short-term), appropriate channelizing devices and other traffic control devices shall be used to guide traffic through the work zone in an effective, safe, and positive manner.

9.0 FLAGGING

9.1 Where two or more flaggers are used and are unable to see each other, two-way radio communications shall be used.

9.2 If the entire work area is visible from one station, a single flagger may be used, subject to other safety considerations.

9.3 Guidance on flagging at signalized intersections:

1. Issues regarding flagging at signalized intersections should be discussed in the planning/design stages of the project and the recommended intersection control strategy should be specified in the contract documents.

2. At the pre-construction conference, SHA staff and the contractor should discuss the need for flagging operations, MSP (or local police) presence, and the Standard Operating Procedures to request signal operating mode modifications (if needed).

3. In general, all persons (contractors, maintenance, and utility) should contact the Assistant District Engineer – Traffic (ADE-T) to determine the best method for temporary traffic control at a signalized intersection from the following two (2) cases:

Case 1: The signal is turned to flashing mode during flagging operation.

Case 2: The signal is turned off (dark mode) during flagging operation.

Note: Except for police, flagging shall not occur at a signalized intersection operating in a full-color stop-and-go mode (Normal Operation).

10.0 VEHICLES

10.1 If work vehicles need to be stopped in a lane beyond a horizontal curve or a vertical curve (hill), non-essential vehicles are to be pulled as far off the road as possible or be otherwise parked in a manner as to inhibit the movement of traffic as little as possible. If no protection vehicle is available, channelizing devices shall be placed as specified in 7.0, Channelizing Devices.

10.2 Work vehicles should not occupy any part of the buffer area.

10.3 Vehicle safety lights (amber in color) shall be from the Office of Traffic & Safety's Approved Products list.

10.4 A protection vehicle with a rear truck-mounted-attenuator (TMA) is required for all freeway work operations that have no formal lane closure. A formal lane closure is one that includes a full complement of advance warning devices and a lane closure taper and a work area delineated by channelizing devices placed in accordance with these TTCTAs.

A protection vehicle is also required for highway marking operations and may be required under other traffic and work conditions in conformance with SHA policy or as directed by the Engineer. The protection vehicle may be considered as a substitute for the initial advance warning sign for some mobile work operations. A protection vehicle should also be used in advance of a work operation that is located beyond a horizontal and/or vertical curve. Consideration should also be given to placing an additional temporary advance warning sign(s) or truck mounted variable message sign no less than 500' and no more than 1500' (1/2 mile for expressway conditions) in advance of the protection vehicle, when one or more of the traffic factors listed under General Notes 1.2 exist.

10.5 When a police vehicle is required, the vehicle shall not be located in the buffer and/or taper, but should be located as directed by the Engineer, depending on the type of work. It is sometimes preferable to deploy the police vehicle in advance of the work zone or queue (if queue exists) to encourage speed reduction prior to the work zone.

11.0 WORK HOUR RESTRICTIONS

11.1 Unless otherwise specified in the Contract Document or permitted by the Engineer, work within a lane, within 15 feet of the nearest edge line (open section roadway), or within 2 feet of the face of curb (closed section roadway), is prohibited during peak hours 6 a.m. – 9 a.m. and 4 p.m. – 7 p.m., Monday – Friday. Also, such work is not permitted on Saturdays, Sundays, National or State holidays, or days preceding and following said holidays.

13.0 PAVEMENT DROP-OFF

13.1 When pavement drop-offs are present, the placement of temporary traffic control devices, including signs, channelizing devices, and barriers, as well as slope fillet wedges, shall follow SHA Standard Nos. MD 104.06-11, MD 104.06-12, MD 104.06-13, MD 104.06-14, MD 104.06-15, and MD 104.01-28. The Engineer may recommend alternative methods to protect the pavement edge drop-off, considering factors such as: pedestrian, bicycle, and traffic volumes, vehicle speeds, size of work zone, duration of work, etc.

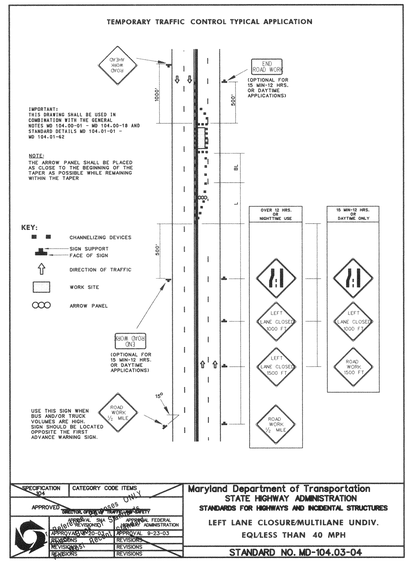
18.0 TRAFFIC CONTROL PLANS

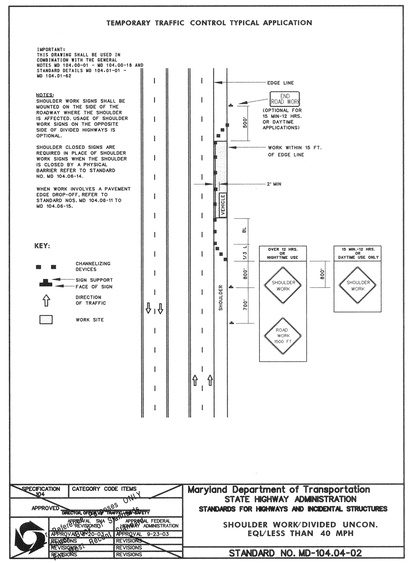
18.1 Alternate traffic control plans may be presented to the SHA District Office for approval in conformance with Section 104.01 of the Standard Specifications for Construction and Materials.

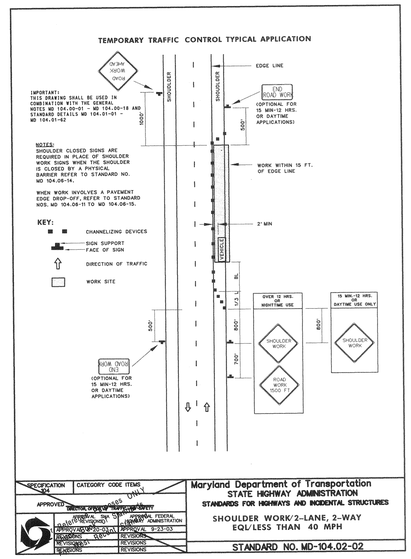
18.2 For emergency repair operations, a lesser number of traffic control devices (TCDs) than the full compliment may be used. This generally will consist of one sign per direction, flashing lights on the vehicle, and minimum number of channelizing devices, flags, or high level warning devices. Additional TCDs such as arrow panel(s), additional signing, etc., shall be placed as soon as possible in accordance with the standard TTCTA.

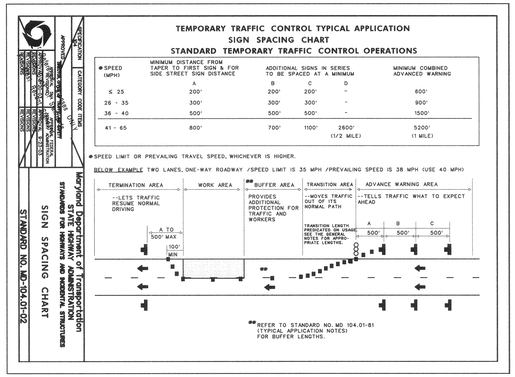
18.3 Where closely spaced work zones create conflicting traffic patterns (e.g. left-lane closure followed by right-lane closure), they should be no closer than 1.5 miles apart (last sign to first sign). Where work zones are closely spaced, but where traffic patterns are not significantly altered and no conflicts exist, no minimum spacing is required; however, care should be exercised to present appropriate and non-conflicting guidance to the public.

18.4 All signs, channelizing devices, and other traffic control devices shall be in conformance with the latest edition of the MUTCD.









General Notes & Standards Are For Reference Purposes ONLY Check the MD-SHA Standards For Highway and Incidental Structures For The Most Recent Standards

All Construction Signs Are To Be Fabricated Utilizing Fluorescent Orange High Performance Sign Material

Approved: Howard County Dept. of Public Works
William F. Weber II 11-21-05
Chief, Bureau of Highways Date

Approved: Howard County Dept. of Planning & Zoning
Cindy Hanaka 11/21/05
Chief, Division of Land Development Date
11/21/05
Chief, MK Development Engineering Division Date

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Fax: 410-931-6601

DES: Frank Hoeckel
DRN: Frank Hoeckel
CHK: John Dimdorfer
DATE: 7/05

BY	NO.	REVISION	DATE

600' SCALE MAP NO. ____ DATE: ____

GENERAL NOTES – MAINTENANCE OF TRAFFIC PLAN

Johns Hopkins Road
at
Maple Lawn Blvd/Sanner Road

SCALE: N/A

SHEET 25 OF 27

F 09-139

f:\1999\1999-0216\DES\County_Traffic\mdtpln3.dgn 7/7/2005

APPROVED: DEPARTMENT OF PLANNING & ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION MK — DATE 11/28/05

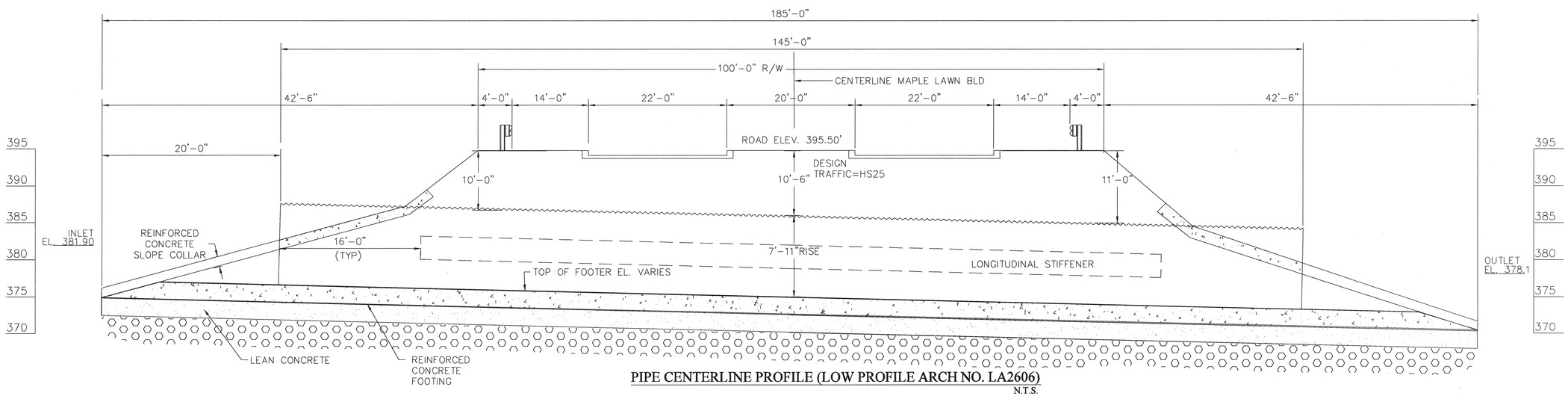
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 11/29/05

Approved: Howard County Dept. of Public Works

Chief, Bureau of Highways MS — Date 11-21-05

NOTE: THE LENGTH OF THE LONGSPAN PIPE SHOULD BE FIELD DETERMINED BY THE PROJECT CIVIL ENGINEER BASED ON THE FINAL GRADING PLAN FOR THE EMBANKMENT.

PLAN VIEW (LOW PROFILE ARCH NO. LA2606)



PIPE CENTERLINE PROFILE (LOW PROFILE ARCH NO. LA2606)

N.T.S.

REVISIONS

No.	DATE	BY	DESCRIPTION
1	09/23/05	CS	COMMENTS DATED 09/21/05 FROM THE REVIEW ENGINEER
2	11/04/05	MS	PER HOWARD COUNTY COMMENTS

DRAWN BY: CS
DESIGN BY: MH
CHECKED BY: MS
DATE: 6/10/05

DO NOT SCALE THIS DRAWING: WRITTEN DIMENSIONS AND NOTES HAVE PRECEDENCE OVER DRAWINGS

CLIENT: LONG SPAN BRIDGE & CULVERT
OWNER: G&R MAPLE LAWN, INC.
JOB No: R.A.1101-05-02

Ryan & Associates
A Division of WKR Consulting Inc.
Consulting & Design Engineers
Email: info@ryanandassociates.net
922 North East St.
Frederick, Md. 21701
Tel (301) 360-9534
Fax (301) 360-9574

PLAN AND PROFILE
LONG SPAN LOW PROFILE ARCH LA 2606
MAPLE LAWN FARMS
MAPLE LAWN BLVD., HOWARD COUNTY, MD

ENGINEER SEAL:

SHEET 26 OF 29

F 05-139

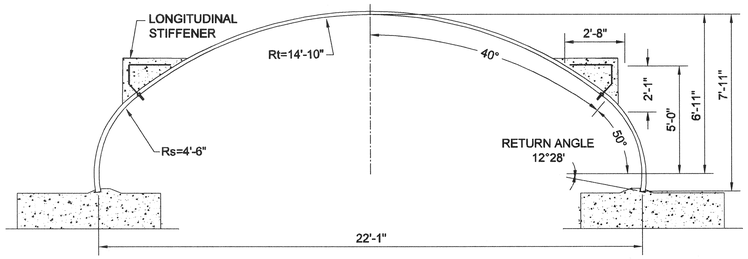
APPROVED: DEPARTMENT OF PLANNING & ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION MK — DATE 11/28/05

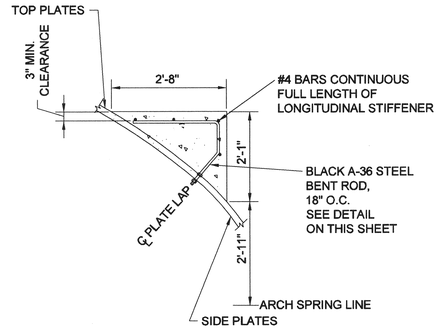
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 11/29/05

Approved: Howard County Dept. of Public Works

Chief, Bureau of Highways — Date 11-21-05

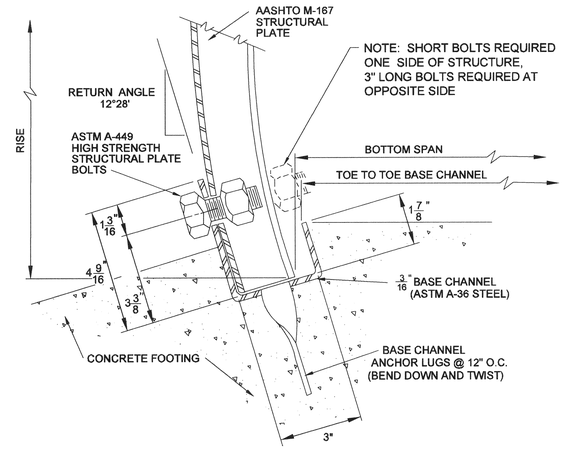


LOW PROFILE ARCH NO. LA2606 GAGE 10



LONGITUDINAL STIFFENER DETAIL

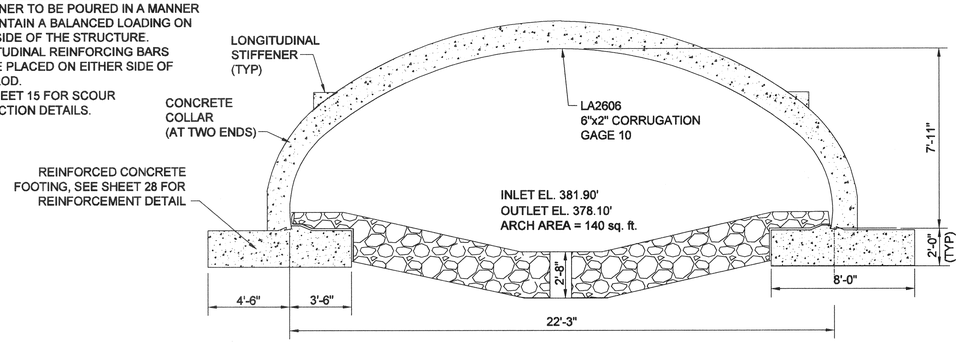
NOT TO SCALE



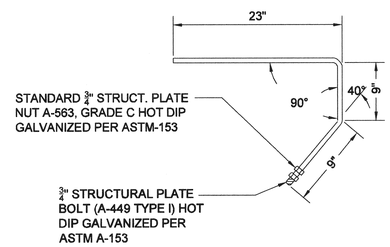
BASE CHANNEL DETAIL

NOT TO SCALE

NOTES:
1) REINFORCED CONCRETE LONGITUDINAL STIFFENER TO BE POURED IN A MANNER TO MAINTAIN A BALANCED LOADING ON EACH SIDE OF THE STRUCTURE.
2) LONGITUDINAL REINFORCING BARS MAY BE PLACED ON EITHER SIDE OF BENT ROD.
3) SEE SHEET 15 FOR SCOUR PROTECTION DETAILS.

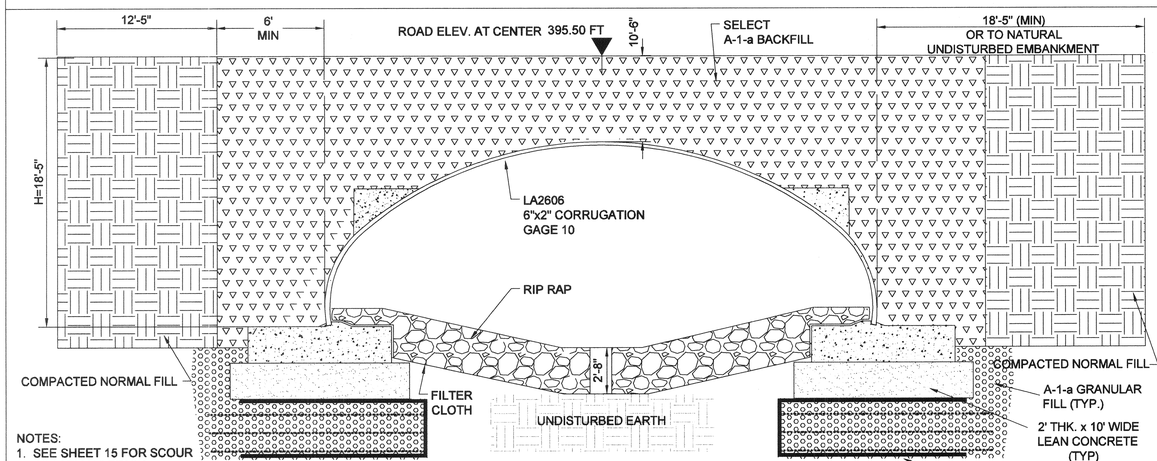


CROSS SECTION AT ENDS



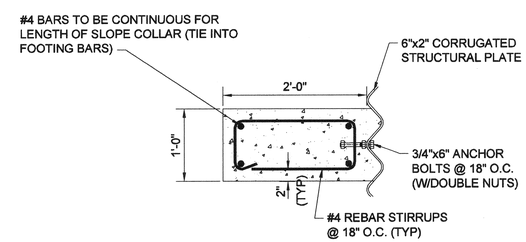
BENT ROD

NOT TO SCALE



NOTES:
1. SEE SHEET 15 FOR SCOUR PROTECTION DETAILS.
2. NO BACKFILL MAY BE PLACED AGAINST THE LONGSPAN ARCH OR IN THE SELECT BACKFILL ZONE WITHOUT THE PRESENCE OF A TECHNICIAN UNDER THE SUPERVISION OF THE DESIGN ENGINEER.

TYPICAL SELECT BACKFILL SECTION



CONCRETE SLOPE COLLAR REINFORCEMENT DETAIL

NOT TO SCALE

AASHTO M 145– TABLE 2 (MODIFIED*)

GROUP CLASSIFICATION	A–1		A–2 (MODIFIED)	
SIEVE ANALYSIS, PERCENT PASSING	A–1–a	A–1–b	A–2–4	A–2–5
NO. 10 (2.00 mm)	50 max	----	----	----
NO. 40 (.425 mm)	30 max	50 max	----	----
NO. 100 (.150 mm)	----	----	50 max	50 max
NO. 200 (.075 mm)	15 max	25 max	20 max	20 max
Characteristics of fraction passing No. 40 (0.425 mm)				
Liquid Limit	----	----	40 max	41 max
Plasticity Index	6 max	6 max	10 max	10 max
Usual Material Types	Stone Fragments Gravel and Sand		Silty or Clayey Gravel and Sand	

*Modified to be more select than M–145

SELECT BACKFILL CHART

REVISIONS

No.	DATE	BY	DESCRIPTION
1	09/23/05	CS	COMMENTS DATED 09/21/05 FROM THE REVIEW ENGINEER
2	11/04/05	MS	PER HOWARD COUNTY COMMENTS

DRAWN BY: CS
DESIGN BY: MH
CHECKED BY: MS
DATE: 08/15/05

DO NOT SCALE THIS DRAWING; WRITTEN DIMENSIONS AND NOTES HAVE PRECEDENCE OVER DRAWINGS

CLIENT: LONG SPAN BRIDGE & CULVERT
OWNER: G&R MAPLE LAWN INC.
JOB No: RA 1101-05-02

Ryan & Associates
A Division of WKR Consulting Inc.
Consulting & Design Engineers
Email: info@ryanandassociates.net
922 North East St.
Frederick, Md. 21701
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DETAILS
LONG SPAN LOW PROFILE ARCH LA 2606
MAPLE LAWN FARMS
MAPLE LAWN BLVD., HOWARD COUNTY, MD

ENGINEER SEAL: 11/04/05

SHEET 27 OF 29

F 05-139

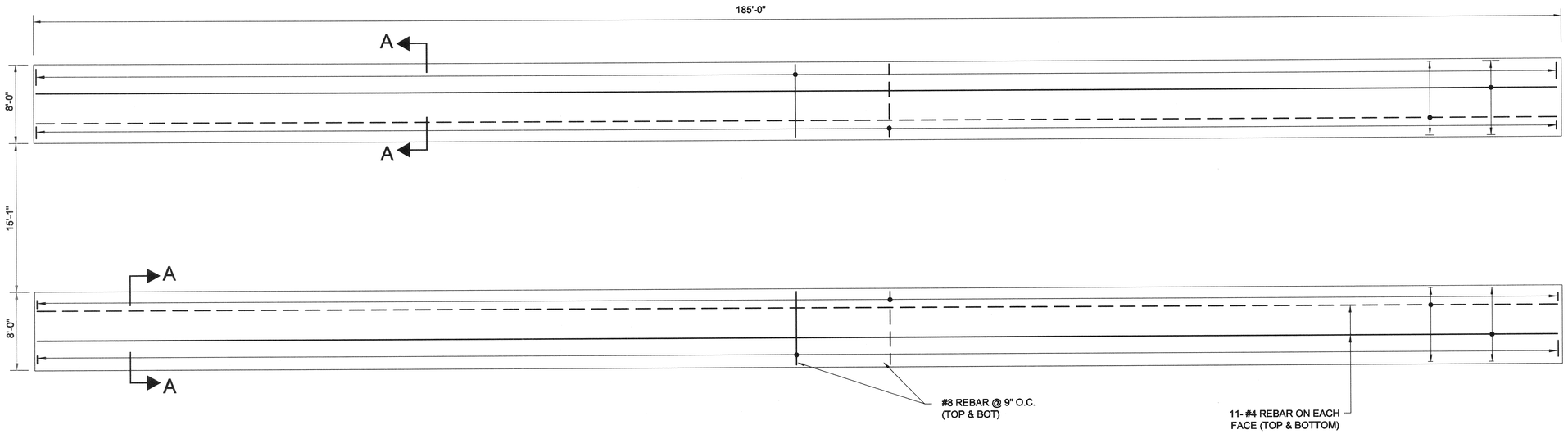
APPROVED: DEPARTMENT OF PLANNING & ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION MK — DATE 11/28/05

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 11/29/05 BS

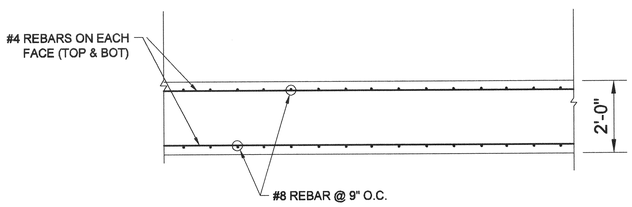
Approved: Howard County Dept. of Public Works

Chief, Bureau of Highways HS — Date 11-21-05



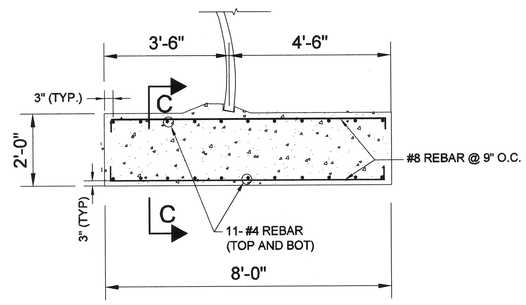
FOOTING REINFORCEMENT PLAN

SCALE: 1"=8'



SECTION C-C

SCALE: 1"=2'



SECTION A-A

N.T.S.

REVISIONS

No.	DATE	BY	DESCRIPTION
1	09/23/05	CS	COMMENTS DATED 09/21/05 FROM THE REVIEW ENGINEER
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CLIENT: LONG SPAN BRIDGE & CULVERT

OWNER: G&R MAPLE LAWN INC.

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REINFORCEMENT DETAILS

LONG SPAN LOW PROFILE ARCH LA 2606

MAPLE LAWN FARMS

MAPLE LAWN BLVD., HOWARD COUNTY, MD

ENGINEER SEAL:

11/04/05

F 05-139

NOTES & SPECIFICATIONS

DEFINITIONS

1. OWNER: G & R MAPLE LAWN, INC.
2. CONTRACTOR: GRAY & SON, INC.
3. DESIGN ENGINEER: RYAN & ASSOCIATES, INC.
4. CIVIL ENGINEER: GUTSCHIK, LITTLE & WEBER, PA
5. GEOTECHNICAL ENGINEER: HILLIS CARNES ENGINEERING ASSOCIATES, INC.

IF ANY OF THE ABOVE RESPONSIBILITIES CHANGE IT IS THE OWNER'S RESPONSIBILITY TO NOTIFY LSBC PRIOR TO THE START OF WORK. IT IS THE OWNER'S RESPONSIBILITY TO MAKE SURE ALL PARTIES LISTED ABOVE ARE AWARE OF THEIR ROLES, REQUIREMENTS, RESPONSIBILITIES AND FINAL SUBMITTALS.

GENERAL

1. CONTRACTOR SHALL NOTIFY SITE ENGINEER OF ANY DISCREPANCIES, OMISSIONS OR CONFLICTS BETWEEN THE VARIOUS ELEMENTS OF THE WORKING DRAWINGS AND/OR SPECIFICATIONS BEFORE PROCEEDING WITH ANY WORK INVOLVED. IN ALL CASES, UNLESS OTHERWISE DIRECTED, THE MOST STRINGENT REQUIREMENTS SHALL GOVERN AND BE PERFORMED.
2. CONTRACTOR SHALL VERIFY ALL CONDITIONS, DIMENSIONS AND ELEVATIONS, ETC., AT THE SITE AND SHALL COORDINATE WORK PERFORMED BY ALL TRADES. DO NOT SCALE DRAWINGS.
3. SHOP DRAWINGS SHALL BE REVIEWED AND APPROVED BY THE CIVIL ENGINEER PRIOR TO FABRICATION.
4. SIZES, LOCATIONS, LOADS, AND ANCHORAGE OF EQUIPMENT SHALL BE VERIFIED IN THE FIELD WITH EQUIPMENT MANUFACTURERS (SUPPLIERS) PRIOR TO FABRICATION OR INSTALLATION OF SUPPORTING STRUCTURES.
5. TEMPORARY BRACING SHALL BE PROVIDED WHEREVER NECESSARY TO TAKE CARE OF ALL LOADS TO WHICH THE STRUCTURE MAY BE SUBJECTED, INCLUDING WIND. SUCH BRACING SHALL BE LEFT IN PLACE AS LONG AS MAY BE REQUIRED FOR SAFETY OR UNTIL ALL THE STRUCTURAL ELEMENTS ARE COMPLETE.
6. DURING AND AFTER CONSTRUCTION THE CONTRACTOR AND/OR OWNER SHALL KEEP LOADS ON THE STRUCTURE WITHIN THE LIMITS OF THE DESIGN LOAD.
7. CONTRACTOR SHALL BE RESPONSIBLE FOR SAFETY AND PROTECTION WITHIN AND ADJACENT TO THE JOB SITE.
8. CIVIL ENGINEER IS RESPONSIBLE FOR EROSION AND SEDIMENT CONTROL DESIGN.
9. ROAD PAVEMENT DESIGN AND ITS APPURTENANCE STRUCTURE ARE CIVIL ENGINEER'S RESPONSIBILITY. REFER ALL PAVEMENT AND ROADWAY DRAINAGE SYSTEM TO CIVIL DRAWING(S).

CONCRETE

1. ALL FOUNDATION CONCRETE (FOOTINGS, WALLS ETC.) SHALL BE NORMAL WT CONCRETE WITH A COMPRESSIVE STRENGTH EQUAL TO AT LEAST 3,500 PSI WITHIN 28 DAYS AFTER CASTING. THE WATER/CEMENT RATIO SHALL BE NO GREATER THAN 0.50 AND SLUMP SHALL BE 2-4"
2. ALL CONCRETE WORK SHALL BE PLACED, CURED, STRIPPED, AND PROTECTED AS DIRECTED BY THESE SPECIFICATIONS AND ACI STANDARDS AND PRACTICES.
3. CONTRACTOR IS RESPONSIBLE FOR ALL SHORING AND FORMWORK.
4. CONCRETE DESIGN AND DETAILING SHALL CONFORM TO THE REQUIREMENTS OF ACI 318-02. CONTRACTOR SHALL SUBMIT MIX DESIGNS TO THE SITE ENGINEER ACCOMPANIED BY APPROPRIATE GRAPHS AND BACKGROUND DATA FOR APPROVAL. MIX DESIGN SHALL INDICATE 7 AND 28 DAY STRENGTHS, CEMENT CONTENT, AIR CONTENT, WATER-CEMENT RATIO, AMOUNT OF FINE AND COARSE AGGREGATES, AND ADMIXTURES.
   MINIMUM ULTIMATE COMPRESSIVE STRENGTH OF CONCRETE AT 28 DAYS SHALL BE AS FOLLOWS, UNLESS NOTED OTHERWISE:
   FOOTINGS AND OTHER CONCRETE 3500 PSI
   UNREINFORCED CONCRETE 2000 PSI
5. ALL EXTERIOR CONCRETE AND CONCRETE EXPOSED TO WEATHER SHALL BE AIR-ENTRAINED.
6. USE OF ADDITIVES SHALL NOT BE PERMITTED UNLESS SPECIFICALLY APPROVED BY THE GEOTECHNICAL ENGINEER.
7. THE CONCRETE SUBCONTRACTOR SHALL NOT REPRODUCE ANY PORTION OF THE STRUCTURAL CONTRACT DRAWINGS FOR UTILIZATION AS SHOP DRAWINGS.
8. CONCRETE SHALL BE CONSOLIDATED BY MEANS OF MECHANICAL VIBRATION. VIBRATORS SHALL BE INSERTED AND REMOVED VERTICALLY AT REGULAR INTERVALS NOT TO EXCEDE 18" TO ENSURE UNIFORM CONSOLIDATION. IN NO CASE SHALL VIBRATORS BE USED TO TRANSPORT CONCRETE INSIDE THE FORMS.
9. FORM WORK SHALL FOLLOW ACI 347, "RECOMMENDED PRACTICE FOR CONCRETE FORM WORK". FORMS SHALL CONFORM TO THE WORKING DRAWING TO SHAPE, LINE AND DIMENSIONS OF MEMBERS AND SHALL BE SUBSTANTIALLY FREE FROM SURFACE DEFECTS AND SUFFICIENTLY TIGHT TO PREVENT LEAKAGE. THEY SHALL BE PROPERLY BRACED AND TIED TO MAINTAIN POSITION AND SHAPE.
10. FRESH CONCRETE SHALL BE PROTECTED FROM RAINS, FLOWING WATER AND MECHANICAL INJURY, SUN, DRYING WINDS AND FREEZING FOR A PERIOD OF 7 DAYS. THE TEMPERATURE OF THE CONCRETE MUST BE KEPT ABOVE 50°F FOR AT LEAST 7 DAYS.
11. GROUND WATER AND SURFACE WATER WITHIN THE SUBGRADE EXCAVATION APEA MUST BE MAINTAINED BELOW THE BOTTOMS OF THE FOOTER ELEVATION AND THE BOTTOMS OF THE EXCAVATION DURING PREPARATION OF THF SUBGRADE.

Approved: Howard County Dept. of Planning & Zoning

Chief, Development Engineering Division — Date 11/30/05

Chief, Division of Land Development — Date 11/29/05

Approved: Howard County Dept. of Public Works

Chief, Bureau of Highways — Date 11-21-05

GEOTECHNICAL NOTES

1. GEOTECHNICAL SITE INFORMATION PROVIDED BY GEOTECHNICAL INVESTIGATION REPORT PREPARED BY HILLS-CARNES ENGINEERING ASSOCIATES, INC., DATED MAY 24, 2005
2. ALL STRUCTURAL FILL SOILS SHALL HAVE A MINIMUM DRY DENSITY OF 105PCF. FILL SHALL BE COMPACTED TO AT LEAST 95% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY THE STANDARD PROCTOR ASTM D698 (AASHTO T99) WITH THE EXCEPTION OF THE TOP FOOT WHICH WILL BE 100% OF THE MAXIMUM DRY DENSITY.
3. ALL STRUCTURAL FILL MATERIAL SHALL BE PLACED IN LAYERS WHICH, BEFORE COMPACTION, SHALL NOT EXCEED EIGHT INCHES. EACH LAYER SHALL SPREAD TO ENSURE CONFORMITY OF MATERIALS IN EACH LAYER.
4. VIRGIN / UNDISTURBED SOILS ARE DEFINED AS SOILS WITH A MINIMUM SPT "N" VALUE OF 12.

FOOTINGS

1. ALL FOOTINGS ARE BASED ON AN ALLOWABLE SOIL BEARING PRESSURE OF 4,000 PSF. ANY SOIL CONDITION ENCOUNTERED DURING EXCAVATION THAT IS CONTRARY TO THOSE USED FOR DESIGN OF FOOTINGS AS OUTLINED IN THESE DRAWINGS SHALL BE BROUGHT TO THE ATTENTION OF THE SITE GEOTECHNICAL ENGINEER FOR DIRECTION BEFORE PROCEEDING.
2. BOTTOM OF FOOTINGS SHALL BE A MINIMUM OF 3'-0" BELOW FINISHED GRADE, UNLESS A LOWER ELEVATION IS NOTED. FOOTING ELEVATIONS NOTED ARE ESTIMATED BASED ON AVAILABLE GEOTECHNICAL AND GRADING INFORMATION. ALL FOOTINGS ADJACENT TO EXISTING FOOTINGS SHALL BE LOWERED TO MATCH EXISTING FOOTING ELEVATION.
3. ALL FOUNDATION SUBGRADES SHALL BE INSPECTED AND APPROVED UNDER THE SUPERVISON OF THE REGISTERED PROFESSIONAL SITE GEOTECHNICAL ENGINEER OR HIS REPRESENTATIVE PRIOR TO POURING CONCRETE. FOOTINGS MAY BE LOWERED TO ACHIEVE THE MINIMUM FOOTING SUBGRADE BEARING CAPACITY OF 4,000 PSF.

REINFORCING STEEL

1. REINFORCING BARS SHALL BE DEFORMED BILLET STEEL CONFORMING TO ASTM A615, GRADE 60. ALL WELDED WIRE FABRIC SHALL CONFORM TO ASTM A-185. BARS SHALL BE BRANDED BY THE MANUFACTURER WITH BAR SIZE AND GRADE OF STEEL AND CERTIFIED MILL REPORTS SHALL BE SUBMITTED TO SITE ENGINEER FOR RECORD. REINFORCING STEEL SHALL BE DETAILED IN ACCORDANCE WITH THE ACI "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES", LATEST EDITION. PROVIDE CORNER BARS AT JUNCTIONS OF CONCRETE WALLS AND WALL FOOTINGS AND LAP 48 X BAR DIAMETER
2. WITH WALL REINFORCING AS SHOWN IN TYPICAL DETAILS, SIZE AND SPACING OF CORNER BARS TO BE SAME AS HORIZONTAL WALL REINFORCING, UNLESS SHOWN OTHERWISE. WHERE CONTINUOUS BARS ARE CALLED FOR, THEY SHALL RUN CONTINUOUSLY AROUND CORNERS AND LAPPED AS NECESSARY MIN. 48 X BAR DIAMETER. PROVIDE STANDARD HOOKS AT DISCONTINUOUS ENDS. TENSION AND COMPRESSION LAP SPLICES SHALL NOT BE LESS THAN THE SPLICE LENGTHS AS GIVEN IN ACI-318. GENERALLY LAP TOP BARS AT MID SPAN AND BOTTOM BARS AT SUPPORTS. PROVIDE PLACING ACCESSORIES IN ACCORDANCE WITH ACI RECOMMENDATIONS.
3. PROVIDE THE FOLLOWING MINIMUM CONCRETE COVER FOR REINFORCEMENT:
   CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH .....3"
   CONCRETE EXPOSED TO EARTH OR WEATHER
   NO. 6 THROUGH NO. 18 BARS.....2"
   NO. 5 BAR, W31 OR D31 WIRE,AND SMALLER.....1 1/2"
   CONCRETE SLABS, WALLS, JOISTS: NOT EXPOSED TO WEATHER OR IN CONTACT WITH THE GROUND:
   NO. 14 AND NO. 18 BARS.....1 1/2"
   NO. 11 BAR AND SMALLER.....3/4"
   BEAMS, COLUMNS:
   PRIMARY REINFORCEMENT, TIES, STIRRUPS, SPIRALS....1 1/2"

EARTHWORK SPECIFICATIONS

1. ALL LABOR, MATERIAL AND EQUIPMENT FOR THE EARTHWORK SHALL BE FURNISHED BY THE CONTRACTOR. THE CONTRACTOR SHALL PERFORM ALL WORK AND SERVICES EXCEPT THOSE SET OUT AND FURNISHED BY LONG SPAN BRIDGE & CULVERT, LLC. (LSBC) SEE LSBC SCOPE OF WORK THIS SHEET
2. THIS WORK SHALL CONSIST OF ALL CLEARING AND GRADING, PREPARATION OF THE LAND TO BE FILLED, FILLING OF THE LAND, SPREADING AND COMPACTION OF THE FILL, AND ALL SUBSIDIARY WORK NECESSARY TO COMPLETE THE GRADING OF THE CUT AND FILL AREAS TO CONFORM WITH THE PROJECT LINES, GRADES, SLOPES AND SPECIFICATIONS.
3. THIS WORK IS TO BE ACCOMPLISHED UNDER THE OBSERVATION OF THE GEOTECHNICAL ENGINEER OR HIS DESIGNATED REPRESENTATIVE. PLACEMENT OF BACK FILL MATERIAL WILL NOT BE PERMITTED UNLESS THE ENGINEER OR DESIGNATED REPRESENTATIVE (QA/QC FIELD TECHNICIAN) IS ON SITE.
4. PRIOR TO BIDDING THE WORK, THE CONTRACTOR SHALL EXAMINE, INVESTIGATE AND INSPECT THE CONSTRUCTION SITE AS TO THE NATURE AND LOCATION OF THE WORK AND LOCAL CONDITIONS AT THE CONSTRUCTION SITE INCLUDING, WITHOUT LIMITATION, THE CHARACTER OF SURFACE OR SUBSURFACE CONDITIONS AND OBSTACLES TO BE ENCOUNTERED ON AND AROUND THE CONSTRUCTION SITE; AND SHALL MAKE SUCH ADDITIONAL INVESTIGATION AS THEY MAY DEEM NECESSARY FOR THE PLANNING AND PROPER EXECUTION OF THE WORK.
5. THE GEOTECHNICAL INFORMATION FOR THIS PROJECT IS BASED ON SUBSURFACE INFORMATION PROVIDED BY HILLIS-CARNES ENGINEERING ASSOCIATES, INC. THE SUBGRADE SOIL BENEATH THE CONTINUOUS FOOTING FOUNDATION SHALL HAVE AN ALLOWABLE BEARING CAPACITY OF 4,000 PSF. THE SUBGRADE SOIL CONDITION, GRAVEL, AND THE ROCK QUALITY SHALL BE VERIFIED BY THE PROFESSIONAL SITE GEOTECHNICAL ENGINEER OR HIS REPRESENTATIVE IN THE FIELD. ALL STONE SUBGRADE SHALL BE COMPACTED WITH A VIBRATORY PLATE COMPACTOR IN NO MORE THAN 8" LIFTS AND VERIFIED BY THE PROFESSIONAL SITE GEOTECHNICAL ENGINEER OR HIS REPRESENTATIVE.
6. IF CONDITIONS OTHER THAN THOSE INDICATED BY THE CONFIRMATORY SUBSURFACE BORING PROGRAM ARE ENCOUNTERED BY THE CONTRACTOR, LONG SPAN BRIDGE & CULVERT, LLC (LSBC) SHOULD BE NOTIFIED IMMEDIATELY. THE MATERIAL, WHICH THE CONTRACTOR BELIEVES TO BE A CHANGED CONDITION, SHOULD NOT BE DISTURBED SO THAT LSBC AND/OR THEIR DESIGNATED REPRESENTATIVE CAN INVESTIGATE THE CONDITION.
7. THE WORK FOR CLEARING AND GRUBBING INCLUDES FURNISHING ALL LABOR, MATERIALS, TRANSPORTATION, SUPERVISION, TOOLS AND CONSTRUCTION MACHINERY WHICH MAY BE NECESSARY TO ACCOMPLISH THE CLEARING AND GRUBBING FOR THIS PROJECT AREA.
8. ALL TREES, BUSHES, ETC., SHALL BE REMOVED FROM THE LIMITS OF THE PROPOSED AREAS TO RECEIVE FILL OR OTHER ENGINEERED STRUCTURES. THE AREAS MAY BE EXTENDED OUTSIDE THE ACTUAL LINES OF CONSTRUCTION ONLY TO THE DISTANCE REQUIRED TO PROVIDE THE CONTRACTOR WITH SUFFICIENT SPACE TO PERFORM THE WORK.
9. ALL STUMPS, VEGETATION, BRUSH, DEBRIS OR DELETERIOUS MATERIALS SHALL BE REMOVED FROM THE LIMITS OF THE FILL OR OTHER ENGINEERED STRUCTURES.
10. THE WORK FOR STRIPPING INCLUDES FURNISHING ALL LABOR, MATERIALS, TRANSPORTATION, SUPERVISION, TOOLS AND CONSTRUCTION MACHINERY WHICH MAY BE NECESSARY TO BE PROVIDED BY THE CONTRACTOR.
11. WHEN THE CONSTRUCTION/OPERATION SEQUENCE REQUIRES, THE AREA OF FILL OR OTHER ENGINEERED STRUCTURES SHALL BE PROPERLY STRIPPED. THIS STRIPPING SHALL INCLUDE TOPSOIL AND OTHER DELETERIOUS MATERIALS. TOPSOIL SHALL BE REMOVED TO ITS FULL DEPTH AND STOCKPILED FOR USE IN THE FINAL COVER. ANY RUBBISH, ORGANIC AND OBJECTIONABLE SOILS AND OTHER DELETERIOUS MATERIAL SHALL BE PROPERLY DISPOSED OF AT A SITE APPROVED BY OWNER OR LSBC.
12. THE LINES AND GRADES SHALL BE ESTABLISHED BY USING CONTROL BENCHMARKS PROVIDED BY LICENSED SURVEYORS.
13. SOFT OR SPONGY COHESIVE OR SILTY MATERIALS ENCOUNTERED AT THE BASE OF THE EXCAVATION SHALL BE REMOVED AT THE DIRECTION OF THE SITE GEOTECHNICAL ENGINEER OR HIS REPRESENTATIVE. THE EXCAVATION FOR THE FOOTING WALL FOUNDATIONS SHALL BE OBSERVED AND SUBGRADE BEARING CAPACITY CERTIFIED BY THE SITE GEOTECHNICAL ENGINEER UPON COMPLETION OF THIS TASK. AT THE DIRECTION OF THE SITE GEOTECHNICAL ENGINEER OR HIS DESIGNATED REPRESENTATIVE, SOFT MATERIAL WILL BE REMOVED TO A DEPTH DIRECTED BY THE SITE GEOTECHNICAL ENGINEER OR HIS DESIGNATED REPRESENTATIVE, AND REPLACED WITH GRANULAR BACKFILL COMPACTED AT LEAST 100 PERCENT OF THE MAXIMUM DRY UNIT WEIGHT DENSITY AT A MOISTURE CONTENT WITHIN 2 PERCENT OF OPTIMUM AS DETERMINED BY AASHTO T-99 METHOD / ASTM D 698.
14. NO SELECT GRANULAR BACKFILL MAY BE PLACED, WITHOUT BEING OBSERVED BY LSBC'S SHAPE CONTROL TECHNICIAN.
15. GROUND WATER AND SURFACE WATER WITHIN THE SUBGRADE EXCAVATION AREA MUST BE MAINTAINED AT LEAST 3 FEET BELOW THE FOOTER ELEVATION DURING PREPARATION OF THE SUBGRADE IF ADDITIONAL EXCAVATION IS REQUIRED TO REMOVE UNSUITABLE MATERIALS, THE WATER MUST BE MAINTAINED 3 FEET BELOW THE DEEPEST EXCAVATION ELEVATION.
16. THE SUBGRADE SHALL BE COMPACTED WITH A SOIL VIBRATORY COMPACTOR OR EQUIVALENT WITH A DYNAMIC FORCE OF 50,000 POUNDS (MIN.). THE TOP 1-FOOT OF THE SUBGRADE SOIL SHALL BE COMPACTED TO AT LEAST 100 PERCENT OF THE MAXIMUM DRY UNIT WEIGHT AT A MOISTURE CONTENT WITHIN 2 PERCENT OF OPTIMUM AS DETERMINED BY AASHTO T-99 METHOD (STANDARD PROCTOR). ALL COMPACTION AND SUBGRADE BEARING CAPACITY TO BE VERIFIED BY THE SITE GEOTECHNICAL ENGINEER OR REPRESENTATIVE.
17. ALL SELECT GRANULAR BACKFILL MATERIAL AROUND THE CULVERT AND ABOVE THE FOOTING SHALL CONSIST OF AASHTO M145 A-1-a OR A-1-b. RECYCLED CONCRETE MATERIAL SHALL NOT BE ALLOWED. THE SELECT BACKFILL MATERIAL SHALL HAVE FINES (PASS NO. 200 SIEVE MATERIAL) LESS THAN 20% BY WEIGHT. SEE TYPICAL SELECT BACKFILL CHART IN THE SHEET 2.
18. THE SELECT GRANULAR BACKFILL MATERIAL AND SITE SOIL BACKFILL FOR THE ADJOINING EMBANKMENT MATERIAL SHALL BE TESTED IN THE LABORATORY FOR GRAIN SIZE DISTRIBUTRION (AASHTO T-27 FOR GRANULAR MATERIAL; AASHTO T-88 FOR SOIL MATERIAL) AND MOISTURE-DENSITY RELATIONSHIP (AASHTO T-99) . THE TESTING DESCRIBED ABOVE IS FOR PURPOSES OF VERIFICATION OF SITE SOILBACK FILL PARAMETERS AND IS IN ADDITION TO THE GENERAL PROJECT SPECIFICATIONS FOR THE EMBANKMENT BACKFILL, BUT DOES NOT SUPERSEDE PROJECT SPECIFICATIONS THAT MAY BE MORE STRINGENT.
19. ALL BACKFILL OPERATIONS SHALL PLACE THE MATERIAL EVENLY ON BOTH SIDES OF THE PLATE ARCH AND EACH LIFT SHALL EXTEND FOR THE ENTIRE LENGTH OF THE PLATE ARCH PRIOR TO PLACEMENT OF THE NEXT SEQUENTIAL LIFT. FILL PLACEMENT SHALL BEGIN IN THE MIDDLE OF THE PLATE ARCH LENGTH AND EXTEND EQUALLY ON BOTH SIDES IN THE UPSTREAM AND DOWNSTREAM DIRECTIONS.
20. THE SELECT GRANULAR BACKFILL SHALL BE PLACED IN HORIZONTAL LAYERS NOT TO EXCEED 8-INCH LOOSE DEPTH. THE LIFT THICKNESS MAY BE REDUCED BY THE SITE GEOTECHNICAL ENGINEER OR HIS DESIGNATED REPRESENTATIVE TO OBTAIN THE REQUIRED COMPACTION, FILL ALL THE VOIDS, ACHIEVE THE PROPER SEATING OF THE BACKFILL MATERIAL AND ACHIEVE THE STABILITY OF THE BACKFILL MATERIAL AND THE PLATE ARCH. THE GRANULAR BACKFILL SHALL BE COMPACTED TO 95 PERCENT OF THE MAXIMUM DRY UNIT WEIGHT AS DETERMINED BY THE STANDARD PROCTOR TEST (AASHTO T-99). FIELD NUCLEAR DENSITY TEST SHALL BE PERFORMED AT A MINIMUM FREQUENCY OF TWO TESTS PER LIFT AND EVERY 25 FEET ON EACH SIDE OF THE STRUCTURE. GREATER EMPHASIS SHALL BE GIVEN TO A UNIFORM DEGREE OF COMPACTION THROUGHOUT EACH LIFT THAN TO ACHIEVING A DEGREE OF COMPACTION GREATER THAN THE MINIMUM SPECIFIED CRITERIA. TESTING OF SELECT GRANULAR BACKFILL SHALL BE DONE BY SITE GEOTECHNICAL ENGINEER.
21. ALL GRANULAR MATERIAL SHALL BE COMPACTED USING MECHANICAL DEVICES, HAND DEVICES, VIBRATING PLATES OR OTHER EQUIPMENT APPROVED BY THE SITE GEOTECHNICAL ENGINEER. COMPACTION EQUIPMENT WEIGHING MORE THAN 24,000 POUNDS SHALL NOT BE USED WITHIN 2.5 FEET OF THE CORRUGATED METAL STRUCTURE. THE COMPACTION EQUIPMENT SHALL BE CAPABLE OF COMPACTING THE MATERIAL UNDER THE HAUNCH OF THE PLATE ARCH (I.E.; BELOW THE SPRING LINE OF THE PLATE ARCH).
22. THE SOIL BACKFILL (COMPACTED NORMAL BACKFILL) WITHIN 18"-3" OR TO NATURAL UNDISTURBED EMBANKMENT BACKFILL SHALL BE PLACED IN LAYERS NOT OF THE SELECTED GRANULAR TO EXCEED 8-INCH LOOSE DEPTH. THE LIFT THICKNESS MAY BE REDUCED BY THE SITE GEOTECHNICAL ENGINEER TO OBTAIN THE REQUIRED COMPACTION. THE SOILBACK FILL SHALL BE COMPACTED TO A MINIMUM OF 95 PERCENT OF THE MAXIMUM DRY UNIT WEIGHT AS DETERMINED BY THE STANDARD PROCTOR TEST (AASHTO T-99) AND TO A MOISTURE CONTENT WITHIN 2 PERCENT OF THE OPTIMUM MOISTURE CONTENT AS DETERMINED BY THE SAME TEST. FIELD NUCLEAR DENSITY TESTS SHALL BE PERFORMED AT A MINIMUM FREQUENCY OF FOUR TESTS PER EVERY OTHER LIFT AND EVERY 25 FEET ON THE SOILBACK FILL ON EACH SIDE OF THE STRUCTURE. THE TESTING DESCRIBED ABOVE IS IN ADDITION TO THE GENERAL PROJECT SPECIFICATIONS FOR EMBANKMENT BACKFILL AND DOES NOT SUPERSEDE PROJECT SPECIFICATION THAT ARE MORE STRINGENT THAN THESE REQUIREMENTS. THE SITE GEOTECHNICAL ENGINEER IS RESPONSIBLE FOR TESTING AND RECORDING MEASUREMENTS OF THE SOIL BACKFILL.
23. IF AT ANY TIME LONGITUDINAL CRACKS DEVELOP IN THE BACKFILL SURROUNDING THE PIPE TO A DISTANCE OF 30 FEET FROM THE SPRING LINE OF THE PLATE ARCH, THESE FEATURES MUST BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE FIELD QA/QC PERSONNEL AND THE SITE GEOTECHNICAL ENGINEER.
24. WHILE COMPACTING GRANULAR BACKFILL MATERIAL WITH A VIBRATOR COMPACTOR AND ADJACENT TO THE PLATE ARCH, THE OPPOSITE SIDE OF THE PLATE ARCH SHOULD BE OBSERVED TO NOTE IF VIBRATIONS ARE LOOSENING THE GRANULAR MATERIALS ON THAT SIDE. THIS MAY BE MORE PREVALENT AT HIGHER ELEVATIONS OF THE BACKFILL WITH RESPECT TO THE PLATE ARCH. IF THIS CONDITION OCCURS, THE FIELD QA/QC TECHNICIAN AND SITE GEOTECHNICAL ENGINEER SHOULD BE NOTIFIED PRIOR TO PLACEMENT OF A SEQUENTIAL LIFT ON EITHER SIDE.
25. THE STRUCTURE SHOULD NOT BE CROSSED WITH EQUIPMENT HEAVIER THAN A D-4 DOZER. NO OTHER EQUIPMENT OR HIGHWAY (HS-25) LOADING SHALL BE ALLOWED TO CROSS THE STRUCTURE UNTIL THE ASPHALT PAVEMENT IS PLACED UNLESS THERE IS A MINIMUM OF 12 INCHES OF SOIL COVER OR SPAN/8 INCHES OF SOIL COVER WHICHEVER IS GREATER, COVERING THE PLATE ARCH. TOP FILLING SHOULD BEGIN AT THE MIDDLE OF THE STRUCTURE (LENGTH WISE) WITH BACKFILL BEING PUSHED UP AND OVER THE STRUCTURE WITH A D-4 OR PREFERABLY SMALLER TYPE DOZER. THE FILL SHOULD BE PUSHED OVER THE STRUCTURE IN A MANNER 45 TO 90 DEGREES TO THE AXIS OF THE STRUCTURE. FIELD NUCLEAR DENSITY TEST SHALL BE PERFORMED AT A MINIMUM FREQUENCY OF FOUR TESTS PER EVERY LIFT ON THE SOIL BACKFILL ON EACH SIDE OF THE STRUCTURE.
    THE TESTING DESCRIBED ABOVE IS IN ADDITION TO THE GENERAL PROJECT SPECIFICATIONS FOR EMBANKMENT BACKFILL AND DOES NOT SUPERSEDE PROJECT SPECIFICATION THAT ARE MORE STRINGENT THAN THESE REQUIREMENTS. THE CONTRACTOR SHALL SUBMIT TO THE OWNER SAMPLES OF ALL PROPOSED SOIL BACKFILL MATERIAL FOR LABORATORY TESTING TO VERIFY MOISTURE AND DENSITY RELATIONSHIPS (AASHTO T-99/ASTM D 698) AND GRAIN SIZE RELATIONSHIPS (AASHTO T-27/ASTM C 136).
26. ALL CONSTRUCTION TO BE CERTIFIED AT THE END OF THE JOB BY A PROFESSIONAL ENGINEER (CIVIL ENGINEER OR SITE GEOTECHNICAL ENGINEER) THAT ALL WORK PERFORMED BY CONTRACTOR MEETS THESE DESIGN REQUIREMENTS AND SPECIFICATIONS. CERTIFICATION TO BE SUBMITTED TO LSBC AND THE LOCAL JURISDICTION FOR RECORD FILE.
27. NO SELECT GRANULAR BACKFILL MAYBE PLACED WITHOUT BEING OBSERVED BY LSBC'S SHAPE CONTROL TECHNICIAN

REQUIRED SUBMITTALS

THE CONTRACTOR MUST SUBMIT THE FOLLOWING ITEMS TO THE SITE CIVIL ENGINEER FOR APPROVAL IN WRITING AT LEAST 2 WEEKS PRIOR TO USE:
1. MANUFACTURE CERTIFICATION FOR YIELD STRENGTH OF REINFORCING STEEL.
2. MANUFACTURE CERTIFICATION FOR CONCRETE DESIGN.
3. SHOP DRAWINGS OF ALL CONCRETE WORK.

CONSTRUCTION OVERSIGHTS CERTIFICATIONS

THE PLATE ARCH CONSTRUCTION REQUIRES ENGINEERING OVERSIGHT AND INSPECTION. THE GEOTECHNICAL ENGINEERS MUST PROVIDE LSBC CERTIFICATION REPORTS OF ALL FOOTINGS AND RETAINING WALL/HEADWALLS REINFORCING PLACEMENT AND THE FOLLOWING ITEMS:
1. SUBGRADE BEARING CAPACITY AND BACKFILL (SELECT GRANULAR AND COMPACTED NORMAL BACKFILL) COMPACTION TESTING FIELD REPORTS, TESTING RESULTS, TESTING LOCATIONS, AND REGISTERED PROFESSIONAL ENGINEER'S CERTIFICATION.
2. FIELD REPORTS OF CONCRETE PLACEMENT REVIEW, LABORATORY TEST RESULTS OF CONCRETE CYLINDER BREAKS AT 7 AND 28 DAYS AND CERTIFIED BY A REGISTERED PROFESSIONAL ENGINEER.
3. FINAL REPORT OF CONSTRUCTION CERTIFICATION THAT THE CONSTRUCTION WAS PERFORMED IN ACCORDANCE WITH THE DESIGN AND THE MATERIAL TESTING AND INSPECTION VERIFYING SAME, STAMPED BY A REGISTERED PROFESSIONAL ENGINEER.

FILTER FABRIC

FILTER FABRIC SHALL BE PLACED BETWEEN WEEPHOLES AND THE GRANULAR MATERIAL. THE FILTER FABRIC CLOTH SHALL CONFORM TO THE FOLLOWING ASTM TESTS:

ASTM D4632 - MINIMUM TENSILE STRENGTH = 120 LBS
ASTM D4632 - MAXIMUM ELONGATION = 50%
ASTM D4833 - MINIMUM PUNCTURE STRENGTH = 50 LBS
ASTM D4533 - MINIMUM TEAR STRENGTH = 50 LBS
ASTM D4751 - APPARENT OPENING SIZE < 0.84 MM
ASTM D4491 - MINIMUM PERMEABILITY = 0.01 CM/SEC
ASTM D4355 - ULTRAVIOLET EXPOSURE STRENGTH RETENTION = 70%

FILTER FABRIC SHALL BE PLACED IN ACCORDANCE WITH THE SUGGESTED METHODS BY THE MANUFACTURER OR WITH PA DOT SPECIFICATIONS.

ENVIRONMENTAL PERMITTING

THESE PLANS DO NOT ADDRESS ENVIRONMENTAL PERMITTING REQUIREMENTS WHICH MUST BE ADDRESSED AND APPLIED FOR WITH THE STATE AND ARMY CORP OF ENGINEERS. THE PLATE ARCH CULVERT LIES WITHIN THE STREAM BUFFER.

WATER APPLICATIONS

WHEN WALLS ARE INSTALLED IN WATER APPLICATIONS (SUCH AS STORM WATER PONDS, STREAMS, BULKHEADS, AREAS ADJACENT TO FLOOD PLAINS, ETC.) ALL CLEAN GRAVEL MUST BE USED AS INFILL UP TO 1' ABOVE THE 100 YEAR FLOOD ELEVATION OF HIGH WATER LEVEL. THIS GRAVEL MUST BE FREE DRAINING AND HAVE LESS THAN 10 FINES (#57 OR EQUIVALENT). THE BURIED BLOCK, LEVELING PAD AND REINFORCED ZONE (UP TO THE EXTENT OF THE GRAVEL INFILL) MUST BE WRAPPED IN FILTER FABRIC (MIRAFI 140N OR EQUIVALENT) TO PREVENT THE MIGRATION OF FINES. A HORIZONTAL LAYER OF FILTER FABRIC SHALL BE PLACED ON TOP OF THE GRAVEL. RIP RAP IS REQUIRED IN FRONT OF THE BOTTOM THREE COURSES OF WALLS INSTALLED IN TIDAL WATERS. RIP RAP MAY ALSO BE REQUIRED TO PREVENT SCOURING AND EROSION WHERE PIPES THAT FREQUENTLY CARRY WATER EXIT THROUGH WALLS.

LONG SPAN BRIDGE & CULVERT, LLC SCOPE OF WORK

1. LONG SPAN BRIDGE & CULVERT, LLC (LSBC) WILL DELIVER, FURNISH AND ASSEMBLE THE LONG SPAN LOW PROFILE ARCH ON FOOTINGS DESIGNED BY RYAN & ASSOCIATES AND PREPARED BY SITE CONTRACTOR. THE BASE CHANNEL WILL BE FURNISHED BY LSBC AND INSTALLED IN THE CONCRETE FOUNDATIONS BY THE SITE CONTRACTOR IN ACCORDANCE WITH THE PLANS.
2. LSBC WILL CONDUCT A PRE-CONSTRUCTION MEETING PRIOR TO FOUNDATION PREPARATION AND ARCH ASSEMBLY. ATTENDANCE AT THE PRE-CONSTRUCTION MEETING IS MANDATORY FOR THE OWNER OR OWNER'S REPRESENTATIVES (E.G. SITE CIVIL ENGINEER, SITE CONTRACTOR, AND CONCRETE CONTRACTOR) AND SITE GEOTECHNICAL ENGINEER. IT IS THE OWNER'S RESPONSIBILITY TO HAVE EACH PARTY IN ATTENDANCE. IF A PARTY IS NOT IN ATTENDANCE IT IS THE OWNER'S RESPONSIBILITY TO INFORM THAT ENTITY OF ITS RESPONSIBILITIES AND DUTIES PRIOR TO THE START OF WORK.
3. LSBC WILL PROVIDE A SHAPE CONTROL TECHNICIAN TO MONITOR STRUCTURE'S SHAPE AND OBSERVE THE PROPER PLACEMENT AND COMPACTION OF THE SELECT FILL MATERIAL.
4. LSBC WILL REQUIRE THE SITE CONTRACTOR TO UNLOAD THE STRUCTURAL PLATES AND BASE CHANNEL. LSBC WILL REQUIRE THE SITE CONTRACTOR TO PROVIDE ACCESS TO THE STRUCTURE FOR A RUBBER TIRED CRANE. PARALLEL ACCESS ROADS SHALL BE WITHIN 30 FEET OF THE CENTERLINE OF THE STRUCTURE ON EACH SIDE.

SAFETY

1. ALL CONTRACTORS (AND VENDORS), THEIR REPRESENTATIVES & CREW MUST BE QUALIFIED/CERTIFIED TO PERFORM ALL WORKS AT SITE WITHIN THEIR SCOPE. THEY MUST ADHERE TO OSHA'S HEALTH & SAFETY RULES.

RYAN & ASSOCIATES RESPONSIBILITY

1. RA'S SCOPE OF WORK FOR THIS PROJECT IS DESIGN OF PLATE ARCH AND FOOTING. RA IS RESPONSIBLE FOR THAT ONLY. ACCEPTANCE OF THE PLAN DRAWINGS BY OUR CLENT & THE OWNER/DEVELOPER MEANS THEY AGREE TO OUR SCOPE & RESPONSIBILITIES.

REVISIONS

No.	DATE	BY	DESCRIPTION
1	09/23/05	CS	COMMENTS DATED 09/21/05 FROM THE REVIEW ENGINEER
2	11/04/05

NOTES & SPECIFICATIONS

DEFINITIONS

1. OWNER: G & R MAPLE LAWN, INC.
2. CONTRACTOR: GRAY & SON, INC.
3. DESIGN ENGINEER: RYAN & ASSOCIATES, INC.
4. CIVIL ENGINEER: GUTSCHIK, LITTLE & WEBER, PA
5. GEOTECHNICAL ENGINEER: HILLIS CARNES ENGINEERING ASSOCIATES, INC.

IF ANY OF THE ABOVE RESPONSIBILITIES CHANGE IT IS THE OWNER'S RESPONSIBILITY TO NOTIFY LSBC PRIOR TO THE START OF WORK. IT IS THE OWNER'S RESPONSIBILITY TO MAKE SURE ALL PARTIES LISTED ABOVE ARE AWARE OF THEIR ROLES, REQUIREMENTS, RESPONSIBILITIES AND FINAL SUBMITTALS.

GENERAL

1. CONTRACTOR SHALL NOTIFY SITE ENGINEER OF ANY DISCREPANCIES, OMISSIONS OR CONFLICTS BETWEEN THE VARIOUS ELEMENTS OF THE WORKING DRAWINGS AND/OR SPECIFICATIONS BEFORE PROCEEDING WITH ANY WORK INVOLVED. IN ALL CASES, UNLESS OTHERWISE DIRECTED, THE MOST STRINGENT REQUIREMENTS SHALL GOVERN AND BE PERFORMED.
2. CONTRACTOR SHALL VERIFY ALL CONDITIONS, DIMENSIONS AND ELEVATIONS, ETC., AT THE SITE AND SHALL COORDINATE WORK PERFORMED BY ALL TRADES. DO NOT SCALE DRAWINGS.
3. SHOP DRAWINGS SHALL BE REVIEWED AND APPROVED BY THE CIVIL ENGINEER PRIOR TO FABRICATION.
4. SIZES, LOCATIONS, LOADS, AND ANCHORAGE OF EQUIPMENT SHALL BE VERIFIED IN THE FIELD WITH EQUIPMENT MANUFACTURERS (SUPPLIERS) PRIOR TO FABRICATION OR INSTALLATION OF SUPPORTING STRUCTURES.
5. TEMPORARY BRACING SHALL BE PROVIDED WHEREVER NECESSARY TO TAKE CARE OF ALL LOADS TO WHICH THE STRUCTURE MAY BE SUBJECTED, INCLUDING WIND. SUCH BRACING SHALL BE LEFT IN PLACE AS LONG AS MAY BE REQUIRED FOR SAFETY OR UNTIL ALL THE STRUCTURAL ELEMENTS ARE COMPLETE.
6. DURING AND AFTER CONSTRUCTION THE CONTRACTOR AND/OR OWNER SHALL KEEP LOADS ON THE STRUCTURE WITHIN THE LIMITS OF THE DESIGN LOAD.
7. CONTRACTOR SHALL BE RESPONSIBLE FOR SAFETY AND PROTECTION WITHIN AND ADJACENT TO THE JOB SITE.
8. CIVIL ENGINEER IS RESPONSIBLE FOR EROSION AND SEDIMENT CONTROL DESIGN.
9. ROAD PAVEMENT DESIGN AND ITS APPURTENANCE STRUCTURE ARE CIVIL ENGINEER'S RESPONSIBILITY. REFER ALL PAVEMENT AND ROADWAY DRAINAGE SYSTEM TO CIVIL DRAWING(S).

CONCRETE

1. ALL FOUNDATION CONCRETE (FOOTINGS, WALLS ETC.) SHALL BE NORMAL WT CONCRETE WITH A COMPRESSIVE STRENGTH EQUAL TO AT LEAST 3,500 PSI WITHIN 28 DAYS AFTER CASTING. THE WATER/CEMENT RATIO SHALL BE NO GREATER THAN 0.50 AND SLUMP SHALL BE 2-4"
2. ALL CONCRETE WORK SHALL BE PLACED, CURED, STRIPPED, AND PROTECTED AS DIRECTED BY THESE SPECIFICATIONS AND ACI STANDARDS AND PRACTICES.
3. CONTRACTOR IS RESPONSIBLE FOR ALL SHORING AND FORMWORK.
4. CONCRETE DESIGN AND DETAILING SHALL CONFORM TO THE REQUIREMENTS OF ACI 318-02. CONTRACTOR SHALL SUBMIT MIX DESIGNS TO THE SITE ENGINEER ACCOMPANIED BY APPROPRIATE GRAPHS AND BACKGROUND DATA FOR APPROVAL. MIX DESIGN SHALL INDICATE 7 AND 28 DAY STRENGTHS, CEMENT CONTENT, AIR CONTENT, WATER-CEMENT RATIO, AMOUNT OF FINE AND COARSE AGGREGATES, AND ADMIXTURES.
   MINIMUM ULTIMATE COMPRESSIVE STRENGTH OF CONCRETE AT 28 DAYS SHALL BE AS FOLLOWS, UNLESS NOTED OTHERWISE:
   FOOTINGS AND OTHER CONCRETE 3500 PSI
   UNREINFORCED CONCRETE 2000 PSI
5. ALL EXTERIOR CONCRETE AND CONCRETE EXPOSED TO WEATHER SHALL BE AIR-ENTRAINED.
6. USE OF ADDITIVES SHALL NOT BE PERMITTED UNLESS SPECIFICALLY APPROVED BY THE GEOTECHNICAL ENGINEER.
7. THE CONCRETE SUBCONTRACTOR SHALL NOT REPRODUCE ANY PORTION OF THE STRUCTURAL CONTRACT DRAWINGS FOR UTILIZATION AS SHOP DRAWINGS.
8. CONCRETE SHALL BE CONSOLIDATED BY MEANS OF MECHANICAL VIBRATION. VIBRATORS SHALL BE INSERTED AND REMOVED VERTICALLY AT REGULAR INTERVALS NOT TO EXCEDE 18" TO ENSURE UNIFORM CONSOLIDATION. IN NO CASE SHALL VIBRATORS BE USED TO TRANSPORT CONCRETE INSIDE THE FORMS.
9. FORM WORK SHALL FOLLOW ACI 347, "RECOMMENDED PRACTICE FOR CONCRETE FORM WORK". FORMS SHALL CONFORM TO THE WORKING DRAWING TO SHAPE, LINE AND DIMENSIONS OF MEMBERS AND SHALL BE SUBSTANTIALLY FREE FROM SURFACE DEFECTS AND SUFFICIENTLY TIGHT TO PREVENT LEAKAGE. THEY SHALL BE PROPERLY BRACED AND TIED TO MAINTAIN POSITION AND SHAPE.
10. FRESH CONCRETE SHALL BE PROTECTED FROM RAINS, FLOWING WATER AND MECHANICAL INJURY, SUN, DRYING WINDS AND FREEZING FOR A PERIOD OF 7 DAYS. THE TEMPERATURE OF THE CONCRETE MUST BE KEPT ABOVE 50°F FOR AT LEAST 7 DAYS.
11. GROUND WATER AND SURFACE WATER WITHIN THE SUBGRADE EXCAVATION AREA MUST BE MAINTAINED BELOW THE BOTTOMS OF THE FOOTER ELEVATION AND THE BOTTOMS OF THE EXCAVATION DURING PREPARATION OF THE SUBGRADE.

Approved: Howard County Dept. of Planning & Zoning
Chief, Development Engineering Division — Date 11/29/05
Chief, Division of Land Development — Date 11/29/05
Approved: Howard County Dept. of Public Works
Chief, Bureau of Highways — Date 11-21-05

GEOTECHNICAL NOTES

1. GEOTECHNICAL SITE INFORMATION PROVIDED BY GEOTECHNICAL INVESTIGATION REPORT PREPARED BY HILLS-CARNES ENGINEERING ASSOCIATES, INC., DATED MAY 24, 2005
2. ALL STRUCTURAL FILL SOILS SHALL HAVE A MINIMUM DRY DENSITY OF 105PCF. FILL SHALL BE COMPACTED TO AT LEAST 95% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY THE STANDARD PROCTOR ASTM D698 (AASHTO T99) WITH THE EXCEPTION OF THE TOP FOOT WHICH WILL BE 100% OF THE MAXIMUM DRY DENSITY.
3. ALL STRUCTURAL FILL MATERIAL SHALL BE PLACED IN LAYERS WHICH, BEFORE COMPACTION, SHALL NOT EXCEED EIGHT INCHES. EACH LAYER SHALL SPREAD TO ENSURE CONFORMITY OF MATERIALS IN EACH LAYER.
4. VIRGIN / UNDISTURBED SOILS ARE DEFINED AS SOILS WITH A MINIMUM SPT "N" VALUE OF 12.

FOOTINGS

1. ALL FOOTINGS ARE BASED ON AN ALLOWABLE SOIL BEARING PRESSURE OF 4,000 PSF. ANY SOIL CONDITION ENCOUNTERED DURING EXCAVATION THAT IS CONTRARY TO THOSE USED FOR DESIGN OF FOOTINGS AS OUTLINED IN THESE DRAWINGS SHALL BE BROUGHT TO THE ATTENTION OF THE SITE GEOTECHNICAL ENGINEER FOR DIRECTION BEFORE PROCEEDING.
2. BOTTOM OF FOOTINGS SHALL BE A MINIMUM OF 3'-0" BELOW FINISHED GRADE, UNLESS A LOWER ELEVATION IS NOTED. FOOTING ELEVATIONS NOTED ARE ESTIMATED BASED ON AVAILABLE GEOTECHNICAL AND GRADING INFORMATION. ALL FOOTINGS ADJACENT TO EXISTING FOOTINGS SHALL BE LOWERED TO MATCH EXISTING FOOTING ELEVATION.
3. ALL FOUNDATION SUBGRADES SHALL BE INSPECTED AND APPROVED UNDER THE SUPERVISON OF THE REGISTERED PROFESSIONAL SITE GEOTECHNICAL ENGINEER OR HIS REPRESENTATIVE PRIOR TO POURING CONCRETE. FOOTINGS MAY BE LOWERED TO ACHIEVE THE MINIMUM FOOTING SUBGRADE BEARING CAPACITY OF 4,000 PSF.

REINFORCING STEEL

1. REINFORCING BARS SHALL BE DEFORMED BILLET STEEL CONFORMING TO ASTM A615, GRADE 60. ALL WELDED WIRE FABRIC SHALL CONFORM TO ASTM A-185. BARS SHALL BE BRANDED BY THE MANUFACTURER WITH BAR SIZE AND GRADE OF STEEL AND CERTIFIED MILL REPORTS SHALL BE SUBMITTED TO SITE ENGINEER FOR RECORD. REINFORCING STEEL SHALL BE DETAILED IN ACCORDANCE WITH THE ACI "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES", LATEST EDITION. PROVIDE CORNER BARS AT JUNCTIONS OF CONCRETE WALLS AND WALL FOOTINGS AND LAP 48 X BAR DIAMETER
2. WITH WALL REINFORCING AS SHOWN IN TYPICAL DETAILS, SIZE AND SPACING OF CORNER BARS TO BE SAME AS HORIZONTAL WALL REINFORCING, UNLESS SHOWN OTHERWISE. WHERE CONTINUOUS BARS ARE CALLED FOR, THEY SHALL RUN CONTINUOUSLY AROUND CORNERS AND LAPPED AS NECESSARY MIN. 48 X BAR DIAMETER. PROVIDE STANDARD HOOKS AT DISCONTINUOUS ENDS. TENSION AND COMPRESSION LAP SPLICES SHALL NOT BE LESS THAN THE SPLICE LENGTHS AS GIVEN IN ACI-318. GENERALLY LAP TOP BARS AT MID SPAN AND BOTTOM BARS AT SUPPORTS. PROVIDE PLACING ACCESSORIES IN ACCORDANCE WITH ACI RECOMMENDATIONS.
3. PROVIDE THE FOLLOWING MINIMUM CONCRETE COVER FOR REINFORCEMENT:
   CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH .....3"
   CONCRETE EXPOSED TO EARTH OR WEATHER
   NO. 6 THROUGH NO. 18 BARS.....2"
   NO. 5 BAR, W31 OR D31 WIRE,AND SMALLER.....1 1/2"
   CONCRETE SLABS, WALLS, JOISTS: NOT EXPOSED TO WEATHER OR IN CONTACT WITH THE GROUND:
   NO. 14 AND NO. 18 BARS.....1 1/2"
   NO. 11 BAR AND SMALLER.....3/4"
   BEAMS, COLUMNS:
   PRIMARY REINFORCEMENT, TIES, STIRRUPS, SPIRALS....1 1/2"

EARTHWORK SPECIFICATIONS

1. ALL LABOR, MATERIAL AND EQUIPMENT FOR THE EARTHWORK SHALL BE FURNISHED BY THE CONTRACTOR. THE CONTRACTOR SHALL PERFORM ALL WORK AND SERVICES EXCEPT THOSE SET OUT AND FURNISHED BY LONG SPAN BRIDGE & CULVERT, LLC. (LSBC) SEE LSBC SCOPE OF WORK THIS SHEET
2. THIS WORK SHALL CONSIST OF ALL CLEARING AND GRADING, PREPARATION OF THE LAND TO BE FILLED, FILLING OF THE LAND, SPREADING AND COMPACTION OF THE FILL, AND ALL SUBSIDIARY WORK NECESSARY TO COMPLETE THE GRADING OF THE CUT AND FILL AREAS TO CONFORM WITH THE PROJECT LINES, GRADES, SLOPES AND SPECIFICATIONS.
3. THIS WORK IS TO BE ACCOMPLISHED UNDER THE OBSERVATION OF THE GEOTECHNICAL ENGINEER OR HIS DESIGNATED REPRESENTATIVE. PLACEMENT OF BACK FILL MATERIAL WILL NOT BE PERMITTED UNLESS THE ENGINEER OR DESIGNATED REPRESENTATIVE (QA/QC FIELD TECHNICIAN) IS ON SITE.
4. PRIOR TO BIDDING THE WORK, THE CONTRACTOR SHALL EXAMINE, INVESTIGATE AND INSPECT THE CONSTRUCTION SITE AS TO THE NATURE AND LOCATION OF THE WORK AND LOCAL CONDITIONS AT THE CONSTRUCTION SITE INCLUDING, WITHOUT LIMITATION, THE CHARACTER OF SURFACE OR SUBSURFACE CONDITIONS AND OBSTACLES TO BE ENCOUNTERED ON AND AROUND THE CONSTRUCTION SITE; AND SHALL MAKE SUCH ADDITIONAL INVESTIGATION AS THEY MAY DEEM NECESSARY FOR THE PLANNING AND PROPER EXECUTION OF THE WORK.
5. THE GEOTECHNICAL INFORMATION FOR THIS PROJECT IS BASED ON SUBSURFACE INFORMATION PROVIDED BY HILLIS-CARNES ENGINEERING ASSOCIATES, INC. THE SUBGRADE SOIL BENEATH THE CONTINUOUS FOOTING FOUNDATION SHALL HAVE AN ALLOWABLE BEARING CAPACITY OF 4,000 PSF. THE SUBGRADE SOIL CONDITION, GRAVEL, AND THE ROCK QUALITY SHALL BE VERIFIED BY THE PROFESSIONAL SITE GEOTECHNICAL ENGINEER OR HIS REPRESENTATIVE IN THE FIELD. ALL STONE SUBGRADE SHALL BE COMPACTED WITH A VIBRATORY PLATE COMPACTOR IN NO MORE THAN 8" LIFTS AND VERIFIED BY THE PROFESSIONAL SITE GEOTECHNICAL ENGINEER OR HIS REPRESENTATIVE.
6. IF CONDITIONS OTHER THAN THOSE INDICATED BY THE CONFIRMATORY SUBSURFACE BORING PROGRAM ARE ENCOUNTERED BY THE CONTRACTOR, LONG SPAN BRIDGE & CULVERT, LLC (LSBC) SHOULD BE NOTIFIED IMMEDIATELY. THE MATERIAL, WHICH THE CONTRACTOR BELIEVES TO BE A CHANGED CONDITION, SHOULD NOT BE DISTURBED SO THAT LSBC AND/OR THEIR DESIGNATED REPRESENTATIVE CAN INVESTIGATE THE CONDITION.
7. THE WORK FOR CLEARING AND GRUBBING INCLUDES FURNISHING ALL LABOR, MATERIALS, TRANSPORTATION, SUPERVISION, TOOLS AND CONSTRUCTION MACHINERY WHICH MAY BE NECESSARY TO ACCOMPLISH THE CLEARING AND GRUBBING FOR THIS PROJECT AREA.
8. ALL TREES, BUSHES, ETC., SHALL BE REMOVED FROM THE LIMITS OF THE PROPOSED AREAS TO RECEIVE FILL OR OTHER ENGINEERED STRUCTURES. THE AREAS MAY BE EXTENDED OUTSIDE THE ACTUAL LINES OF CONSTRUCTION ONLY TO THE DISTANCE REQUIRED TO PROVIDE THE CONTRACTOR WITH SUFFICIENT SPACE TO PERFORM THE WORK.
9. ALL STUMPS, VEGETATION, BRUSH, DEBRIS OR DELETERIOUS MATERIALS SHALL BE REMOVED FROM THE LIMITS OF THE FILL OR OTHER ENGINEERED STRUCTURES.
10. THE WORK FOR STRIPPING INCLUDES FURNISHING ALL LABOR, MATERIALS, TRANSPORTATION, SUPERVISION, TOOLS AND CONSTRUCTION MACHINERY WHICH MAY BE NECESSARY TO BE PROVIDED BY THE CONTRACTOR.
11. WHEN THE CONSTRUCTION/OPERATION SEQUENCE REQUIRES, THE AREA OF FILL OR OTHER ENGINEERED STRUCTURES SHALL BE PROPERLY STRIPPED. THIS STRIPPING SHALL INCLUDE TOPSOIL AND OTHER DELETERIOUS MATERIALS. TOPSOIL SHALL BE REMOVED TO ITS FULL DEPTH AND STOCKPILED FOR USE IN THE FINAL COVER. ANY RUBBISH, ORGANIC AND OBJECTIONABLE SOILS AND OTHER DELETERIOUS MATERIAL SHALL BE PROPERLY DISPOSED OF AT A SITE APPROVED BY OWNER OR LSBC.
12. THE LINES AND GRADES SHALL BE ESTABLISHED BY USING CONTROL BENCHMARKS PROVIDED BY LICENSED SURVEYORS.
13. SOFT OR SPONGY COHESIVE OR SILTY MATERIALS ENCOUNTERED AT THE BASE OF THE EXCAVATION SHALL BE REMOVED AT THE DIRECTION OF THE SITE GEOTECHNICAL ENGINEER OR HIS REPRESENTATIVE. THE EXCAVATION FOR THE FOOTING WALL FOUNDATIONS SHALL BE OBSERVED AND SUBGRADE BEARING CAPACITY CERTIFIED BY THE SITE GEOTECHNICAL ENGINEER UPON COMPLETION OF THIS TASK. AT THE DIRECTION OF THE SITE GEOTECHNICAL ENGINEER OR HIS DESIGNATED REPRESENTATIVE, SOFT MATERIAL WILL BE REMOVED TO A DEPTH DIRECTED BY THE SITE GEOTECHNICAL ENGINEER OR HIS DESIGNATED REPRESENTATIVE, AND REPLACED WITH GRANULAR BACKFILL COMPACTED AT LEAST 100 PERCENT OF THE MAXIMUM DRY UNIT WEIGHT DENSITY AT A MOISTURE CONTENT WITHIN 2 PERCENT OF OPTIMUM AS DETERMINED BY AASHTO T-99 METHOD / ASTM D 698.
14. NO SELECT GRANULAR BACKFILL MAY BE PLACED, WITHOUT BEING OBSERVED BY LSBC'S SHAPE CONTROL TECHNICIAN.
15. GROUND WATER AND SURFACE WATER WITHIN THE SUBGRADE EXCAVATION AREA MUST BE MAINTAINED AT LEAST 3 FEET BELOW THE FOOTER ELEVATION DURING PREPARATION OF THE SUBGRADE IF ADDITIONAL EXCAVATION IS REQUIRED TO REMOVE UNSUITABLE MATERIALS, THE WATER MUST BE MAINTAINED 3 FEET BELOW THE DEEPEST EXCAVATION ELEVATION.
16. THE SUBGRADE SHALL BE COMPACTED WITH A SOIL VIBRATORY COMPACTOR OR EQUIVALENT WITH A DYNAMIC FORCE OF 50,000 POUNDS (MIN.). THE TOP 1-FOOT OF THE SUBGRADE SOIL SHALL BE COMPACTED TO AT LEAST 100 PERCENT OF THE MAXIMUM DRY UNIT WEIGHT AT A MOISTURE CONTENT WITHIN 2 PERCENT OF OPTIMUM AS DETERMINED BY AASHTO T-99 METHOD (STANDARD PROCTOR). ALL COMPACTION AND SUBGRADE BEARING CAPACITY TO BE VERIFIED BY THE SITE GEOTECHNICAL ENGINEER OR REPRESENTATIVE.
17. ALL SELECT GRANULAR BACKFILL MATERIAL AROUND THE CULVERT AND ABOVE THE FOOTING SHALL CONSIST OF AASHTO M145 A-1-o OR A-1-b. RECYCLED CONCRETE MATERIAL SHALL NOT BE ALLOWED. THE SELECT BACKFILL MATERIAL SHALL HAVE FINES (PASS NO. 200 SIEVE MATERIAL) LESS THAN 20% BY WEIGHT. SEE TYPICAL SELECT BACKFILL CHART IN THE SHEET 2.
18. THE SELECT GRANULAR BACKFILL MATERIAL AND SITE SOIL BACKFILL FOR THE ADJOINING EMBANKMENT MATERIAL SHALL BE TESTED IN THE LABORATORY FOR GRAIN SIZE DISTRIBUTRION (AASHTO T-27 FOR GRANULAR MATERIAL; AASHTO T-88 FOR SOIL MATERIAL) AND MOISTURE-DENSITY RELATIONSHIP (AASHTO T-99) . THE TESTING DESCRIBED ABOVE IS FOR PURPOSES OF VERIFICATION OF SITE SOILBACK FILL PARAMETERS AND IS IN ADDITION TO THE GENERAL PROJECT SPECIFICATIONS FOR THE EMBANKMENT BACKFILL, BUT DOES NOT SUPERSEDE PROJECT SPECIFICATIONS THAT MAY BE MORE STRINGENT.
19. ALL BACKFILL OPERATIONS SHALL PLACE THE MATERIAL EVENLY ON BOTH SIDES OF THE PLATE ARCH AND EACH LIFT SHALL EXTEND FOR THE ENTIRE LENGTH OF THE PLATE ARCH PRIOR TO PLACEMENT OF THE NEXT SEQUENTIAL LIFT. FILL PLACEMENT SHALL BEGIN IN THE MIDDLE OF THE PLATE ARCH LENGTH AND EXTEND EQUALLY ON BOTH SIDES IN THE UPSTREAM AND DOWNSTREAM DIRECTIONS.
20. THE SELECT GRANULAR BACKFILL SHALL BE PLACED IN HORIZONTAL LAYERS NOT TO EXCEED 8-INCH LOOSE DEPTH. THE LIFT THICKNESS MAY BE REDUCED BY THE SITE GEOTECHNICAL ENGINEER OR HIS DESIGNATED REPRESENTATIVE TO OBTAIN THE REQUIRED COMPACTION, FILL ALL THE VOIDS, ACHIEVE THE PROPER SEATING OF THE BACKFILL MATERIAL AND ACHIEVE THE STABILITY OF THE BACKFILL MATERIAL AND THE PLATE ARCH. THE GRANULAR BACKFILL SHALL BE COMPACTED TO 95 PERCENT OF THE MAXIMUM DRY UNIT WEIGHT AS DETERMINED BY THE STANDARD PROCTOR TEST (AASHTO T-99). FIELD NUCLEAR DENSITY TEST SHALL BE PERFORMED AT A MINIMUM FREQUENCY OF TWO TESTS PER LIFT AND EVERY 25 FEET ON EACH SIDE OF THE STRUCTURE. GREATER EMPHASIS SHALL BE GIVEN TO A UNIFORM DEGREE OF COMPACTION THROUGHOUT EACH LIFT THAN TO ACHIEVING A DEGREE OF COMPACTION GREATER THAN THE MINIMUM SPECIFIED CRITERIA. TESTING OF SELECT GRANULAR BACKFILL SHALL BE DONE BY SITE GEOTECHNICAL ENGINEER.
21. ALL GRANULAR MATERIAL SHALL BE COMPACTED USING MECHANICAL DEVICES, HAND DEVICES, VIBRATING PLATES OR OTHER EQUIPMENT APPROVED BY THE SITE GEOTECHNICAL ENGINEER. COMPACTION EQUIPMENT WEIGHING MORE THAN 24,000 POUNDS SHALL NOT BE USED WITHIN 2.5 FEET OF THE CORRUGATED METAL STRUCTURE. THE COMPACTION EQUIPMENT SHALL BE CAPABLE OF COMPACTING THE MATERIAL UNDER THE HAUNCH OF THE PLATE ARCH (I.E.; BELOW THE SPRING LINE OF THE PLATE ARCH).
22. THE SOIL BACKFILL (COMPACTED NORMAL BACKFILL) WITHIN 18"-3" OR TO NATURAL UNDISTURBED EMBANKMENT BACKFILL SHALL BE PLACED IN LAYERS NOT OF THE SELECTED GRANULAR TO EXCEED 8-INCH LOOSE DEPTH. THE LIFT THICKNESS MAY BE REDUCED BY THE SITE GEOTECHNICAL ENGINEER TO OBTAIN THE REQUIRED COMPACTION. THE SOILBACK FILL SHALL BE COMPACTED TO A MINIMUM OF 95 PERCENT OF THE MAXIMUM DRY UNIT WEIGHT AS DETERMINED BY THE STANDARD PROCTOR TEST (AASHTO T-99) AND TO A MOISTURE CONTENT WITHIN 2 PERCENT OF THE OPTIMUM MOISTURE CONTENT AS DETERMINED BY THE SAME TEST. FIELD NUCLEAR DENSITY TESTS SHALL BE PERFORMED AT A MINIMUM FREQUENCY OF FOUR TESTS PER EVERY OTHER LIFT AND EVERY 25 FEET ON THE SOILBACK FILL ON EACH SIDE OF THE STRUCTURE. THE TESTING DESCRIBED ABOVE IS IN ADDITION TO THE GENERAL PROJECT SPECIFICATIONS FOR EMBANKMENT BACKFILL AND DOES NOT SUPERSEDE PROJECT SPECIFICATION THAT ARE MORE STRINGENT THAN THESE REQUIREMENTS. THE SITE GEOTECHNICAL ENGINEER IS RESPONSIBLE FOR TESTING AND RECORDING MEASUREMENTS OF THE SOIL BACKFILL.
23. IF AT ANY TIME LONGITUDINAL CRACKS DEVELOP IN THE BACKFILL SURROUNDING THE PIPE TO A DISTANCE OF 30 FEET FROM THE SPRING LINE OF THE PLATE ARCH, THESE FEATURES MUST BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE FIELD QA/QC PERSONNEL AND THE SITE GEOTECHNICAL ENGINEER.
24. WHILE COMPACTING GRANULAR BACKFILL MATERIAL WITH A VIBRATOR COMPACTOR AND ADJACENT TO THE PLATE ARCH, THE OPPOSITE SIDE OF THE PLATE ARCH SHOULD BE OBSERVED TO NOTE IF VIBRATIONS ARE LOOSENING THE GRANULAR MATERIALS ON THAT SIDE. THIS MAY BE MORE PREVALENT AT HIGHER ELEVATIONS OF THE BACKFILL WITH RESPECT TO THE PLATE ARCH. IF THIS CONDITION OCCURS, THE FIELD QA/QC TECHNICIAN AND SITE GEOTECHNICAL ENGINEER SHOULD BE NOTIFIED PRIOR TO PLACEMENT OF A SEQUENTIAL LIFT ON EITHER SIDE.
25. THE STRUCTURE SHOULD NOT BE CROSSED WITH EQUIPMENT HEAVIER THAN A D-4 DOZER. NO OTHER EQUIPMENT OR HIGHWAY (HS-25) LOADING SHALL BE ALLOWED TO CROSS THE STRUCTURE UNTIL THE ASPHALT PAVEMENT IS PLACED UNLESS THERE IS A MINIMUM OF 12 INCHES OF SOIL COVER OR SPAN/8 INCHES OF SOIL COVER WHICHEVER IS GREATER, COVERING THE PLATE ARCH. TOP FILLING SHOULD BEGIN AT THE MIDDLE OF THE STRUCTURE (LENGTH WISE) WITH BACKFILL BEING PUSHED UP AND OVER THE STRUCTURE WITH A D-4 OR PREFERABLY SMALLER TYPE DOZER. THE FILL SHOULD BE PUSHED OVER THE STRUCTURE IN A MANNER 45 TO 90 DEGREES TO THE AXIS OF THE STRUCTURE. FIELD NUCLEAR DENSITY TEST SHALL BE PERFORMED AT A MINIMUM FREQUENCY OF FOUR TESTS PER EVERY LIFT ON THE SOIL BACKFILL ON EACH SIDE OF THE STRUCTURE. THE TESTING DESCRIBED ABOVE IS IN ADDITION TO THE GENERAL PROJECT SPECIFICATIONS FOR EMBANKMENT BACKFILL AND DOES NOT SUPERSEDE PROJECT SPECIFICATION THAT ARE MORE STRINGENT THAN THESE REQUIREMENTS. THE CONTRACTOR SHALL SUBMIT TO THE OWNER SAMPLES OF ALL PROPOSED SOIL BACKFILL MATERIAL FOR LABORATORY TESTING TO VERIFY MOISTURE AND DENSITY RELATIONSHIPS (AASHTO T-99/ASTM D 698) AND GRAIN SIZE RELATIONSHIPS (AASHTO T-27/ASTM C 136).
26. ALL CONSTRUCTION TO BE CERTIFIED AT THE END OF THE JOB BY A PROFESSIONAL ENGINEER (CIVIL ENGINEER OR SITE GEOTECHNICAL ENGINEER) THAT ALL WORK PERFORMED BY CONTRACTOR MEETS THESE DESIGN REQUIREMENTS AND SPECIFICATIONS. CERTIFICATION TO BE SUBMITTED TO LSBC AND THE LOCAL JURISDICTION FOR RECORD FILE.
27. NO SELECT GRANULAR BACKFILL MAYBE PLACED WITHOUT BEING OBSERVED BY LSBC'S SHAPE CONTROL TECHNICIAN

REQUIRED SUBMITTALS

THE CONTRACTOR MUST SUBMIT THE FOLLOWING ITEMS TO THE SITE CIVIL ENGINEER FOR APPROVAL IN WRITING AT LEAST 2 WEEKS PRIOR TO USE:
1. MANUFACTURE CERTIFICATION FOR YIELD STRENGTH OF REINFORCING STEEL.
2. MANUFACTURE CERTIFICATION FOR CONCRETE DESIGN.
3. SHOP DRAWINGS OF ALL CONCRETE WORK.

CONSTRUCTION OVERSIGHTS CERTIFICATIONS

THE PLATE ARCH CONSTRUCTION REQUIRES ENGINEERING OVERSIGHT AND INSPECTION. THE GEOTECHNICAL ENGINEERS MUST PROVIDE LSBC CERTIFICATION REPORTS OF ALL FOOTINGS AND RETAINING WALL/HEADWALLS REINFORCING PLACEMENT AND THE FOLLOWING ITEMS:
1. SUBGRADE BEARING CAPACITY AND BACKFILL (SELECT GRANULAR AND COMPACTED NORMAL BACKFILL) COMPACTION TESTING FIELD REPORTS, TESTING RESULTS, TESTING LOCATIONS, AND REGISTERED PROFESSIONAL ENGINEER'S CERTIFICATION.
2. FIELD REPORTS OF CONCRETE PLACEMENT REVIEW, LABORATORY TEST RESULTS OF CONCRETE CYLINDER BREAKS AT 7 AND 28 DAYS AND CERTIFIED BY A REGISTERED PROFESSIONAL ENGINEER.
3. FINAL REPORT OF CONSTRUCTION CERTIFICATION THAT THE CONSTRUCTION WAS PERFORMED IN ACCORDANCE WITH THE DESIGN AND THE MATERIAL TESTING AND INSPECTION VERIFYING SAME, STAMPED BY A REGISTERED PROFESSIONAL ENGINEER.

FILTER FABRIC

FILTER FABRIC SHALL BE PLACED BETWEEN WEEPHOLES AND THE GRANULAR MATERIAL. THE FILTER FABRIC CLOTH SHALL CONFORM TO THE FOLLOWING ASTM TESTS:

ASTM D4632 - MINIMUM TENSILE STRENGTH = 120 LBS
ASTM D4632 - MAXIMUM ELONGATION = 50%
ASTM D4833 - MINIMUM PUNCTURE STRENGTH = 50 LBS
ASTM D4533 - MINIMUM TEAR STRENGTH = 50 LBS
ASTM D4751 - APPARENT OPENING SIZE < 0.84 MM
ASTM D4491 - MINIMUM PERMEABILITY = 0.01 CM/SEC
ASTM D4355 - ULTRAVIOLET EXPOSURE STRENGTH RETENTION = 70%

FILTER FABRIC SHALL BE PLACED IN ACCORDANCE WITH THE SUGGESTED METHODS BY THE MANUFACTURER OR WITH PA DOT SPECIFICATIONS.

ENVIRONMENTAL PERMITTING

THESE PLANS DO NOT ADDRESS ENVIRONMENTAL PERMITTING REQUIREMENTS WHICH MUST BE ADDRESSED AND APPLIED FOR WITH THE STATE AND ARMY CORP OF ENGINEERS. THE PLATE ARCH CULVERT LIES WITHIN THE STREAM BUFFER.

WATER APPLICATIONS

WHEN WALLS ARE INSTALLED IN WATER APPLICATIONS (SUCH AS STORM WATER PONDS, STREAMS, BULKHEADS, AREAS ADJACENT TO FLOOD PLAINS, ETC.) ALL CLEAN GRAVEL MUST BE USED AS INFILL UP TO 1' ABOVE THE 100 YEAR FLOOD ELEVATION OF HIGH WATER LEVEL. THIS GRAVEL MUST BE FREE DRAINING AND HAVE LESS THAN 10 FINES (#57 OR EQUIVALENT). THE BURIED BLOCK, LEVELING PAD AND REINFORCED ZONE (UP TO THE EXTENT OF THE GRAVEL INFILL) MUST BE WRAPPED IN FILTER FABRIC (MIRAFI 140N OR EQUIVALENT) TO PREVENT THE MIGRATION OF FINES. A HORIZONTAL LAYER OF FILTER FABRIC SHALL BE PLACED ON TOP OF THE GRAVEL. RIP RAP IS REQUIRED IN FRONT OF THE BOTTOM THREE COURSES OF WALLS INSTALLED IN TIDAL WATERS. RIP RAP MAY ALSO BE REQUIRED TO PREVENT SCOURING AND EROSION WHERE PIPES THAT FREQUENTLY CARRY WATER EXIT THROUGH WALLS.

LONG SPAN BRIDGE & CULVERT, LLC SCOPE OF WORK

1. LONG SPAN BRIDGE & CULVERT, LLC (LSBC) WILL DELIVER, FURNISH AND ASSEMBLE THE LONG SPAN LOW PROFILE ARCH ON FOOTINGS DESIGNED BY RYAN & ASSOCIATES AND PREPARED BY SITE CONTRACTOR. THE BASE CHANNEL WILL BE FURNISHED BY LSBC AND INSTALLED IN THE CONCRETE FOUNDATIONS BY THE SITE CONTRACTOR IN ACCORDANCE WITH THE PLANS.
2. LSBC WILL CONDUCT A PRE-CONSTRUCTION MEETING PRIOR TO FOUNDATION PREPARATION AND ARCH ASSEMBLY. ATTENDANCE AT THE PRE-CONSTRUCTION MEETING IS MANDATORY FOR THE OWNER OR OWNER'S REPRESENTATIVES (E.G. SITE CIVIL ENGINEER, SITE CONTRACTOR, AND CONCRETE CONTRACTOR) AND SITE GEOTECHNICAL ENGINEER. IT IS THE OWNER'S RESPONSIBILITY TO HAVE EACH PARTY IN ATTENDANCE. IF A PARTY IS NOT IN ATTENDANCE IT IS THE OWNER'S RESPONSIBILITY TO INFORM THAT ENTITY OF ITS RESPONSIBILITIES AND DUTIES PRIOR TO THE START OF WORK.
3. LSBC WILL PROVIDE A SHAPE CONTROL TECHNICIAN TO MONITOR STRUCTURE'S SHAPE AND OBSERVE THE PROPER PLACEMENT AND COMPACTION OF THE SELECT FILL MATERIAL.
4. LSBC WILL REQUIRE THE SITE CONTRACTOR TO UNLOAD THE STRUCTURAL PLATES AND BASE CHANNEL. LSBC WILL REQUIRE THE SITE CONTRACTOR TO PROVIDE ACCESS TO THE STRUCTURE FOR A RUBBER TIRED CRANE. PARALLEL ACCESS ROADS SHALL BE WITHIN 30 FEET OF THE CENTERLINE OF THE STRUCTURE ON EACH SIDE.

SAFETY

1. ALL CONTRACTORS (AND VENDORS), THEIR REPRESENTATIVES & CREW MUST BE QUALIFIED/CERTIFIED TO PERFORM ALL WORKS AT SITE WITHIN THEIR SCOPE. THEY MUST ADHERE TO OSHA'S HEALTH & SAFETY RULES.

RYAN & ASSOCIATES RESPONSIBILITY

1. RA'S SCOPE OF WORK FOR THIS PROJECT IS DESIGN OF PLATE ARCH AND FOOTING. RA IS RESPONSIBLE FOR THAT ONLY. ACCEPTANCE OF THE PLAN DRAWINGS BY OUR CLENT & THE OWNER/DEVELOPER MEANS THEY AGREE TO OUR SCOPE & RESPONSIBILITIES.

REVISIONS

No.	DATE	BY	DESCRIPTION
1	09/23/05	CS	COMMENTS DATED 09/21/05 FROM THE REVIEW ENGINEER
2	11/04/05	M

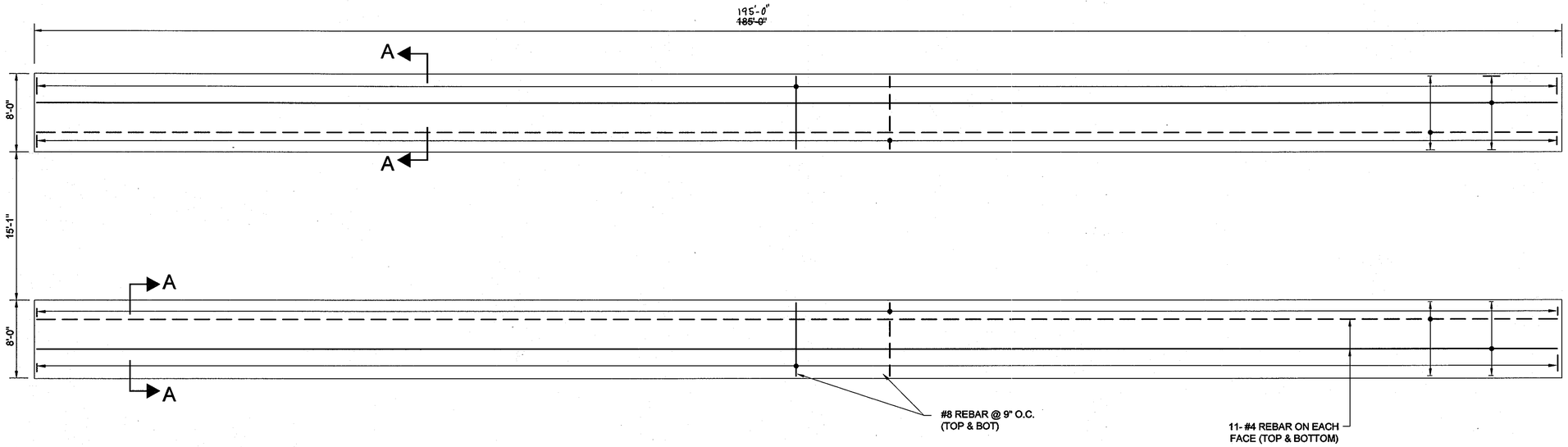
APPROVED: DEPARTMENT OF PLANNING & ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION MK — DATE 11/28/05

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 11/29/05

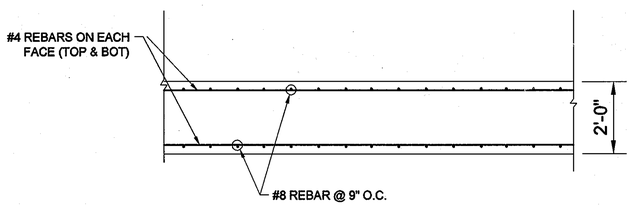
Approved: Howard County Dept. of Public Works

Chief, Bureau of Highways — Date 11-21-05



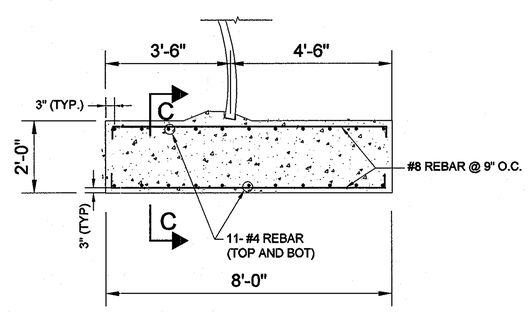
FOOTING REINFORCEMENT PLAN

SCALE: 1"=8'



SECTION C-C

SCALE: 1"=2'



SECTION A-A

N.T.S.

ASBUILT JAN., 2007

REVISIONS			
No.	DATE	BY	DESCRIPTION
1	09/23/05	CS	COMMENTS DATED 09/21/05 FROM THE REVIEW ENGINEER
2	11/04/05	MS	PER HOWARD COUNTY COMMENTS

DRAWN BY: CS

DESIGN BY: MH

CHECKED BY: MS

DATE: 08/15/05

DO NOT SCALE THIS DRAWING: WRITTEN DIMENSIONS AND NOTES HAVE PRECEDENCE OVER DRAWINGS

CLIENT: LONG SPAN BRIDGE & CULVERT

OWNER: G&R MAPLE LAWN INC.

JOB No: RA 1101-05-02

Ryan & Associates
A Division of WKR Consulting Inc.
Consulting & Design Engineers
Email: info@ryanandassociates.net
922 North East St.
Frederick, Md. 21701
Tel (301) 360-9534
Fax (301) 360-9574

REINFORCEMENT DETAILS

LONG SPAN LOW PROFILE ARCH LA 2606

MAPLE LAWN FARMS

MAPLE LAWN BLVD., HOWARD COUNTY, MD

ENGINEER SEAL:

STATE OF MARYLAND — MICHAEL SHAW — No. 22031 — PROFESSIONAL ENGINEER

SHEET 28 OF 29

F 05-139

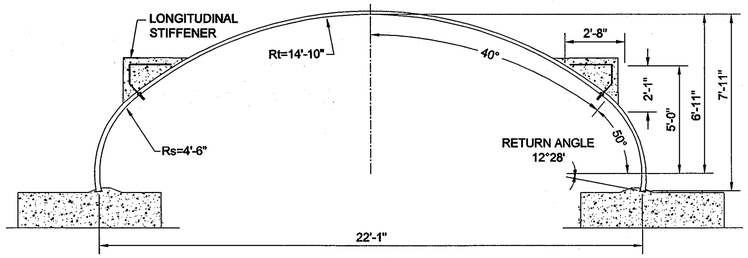
APPROVED: DEPARTMENT OF PLANNING & ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION MK — DATE 11/28/05

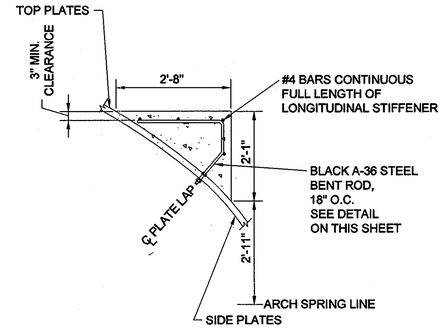
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 11/29/05

Approved: Howard County Dept. of Public Works

Chief, Bureau of Highways — Date 11-21-05

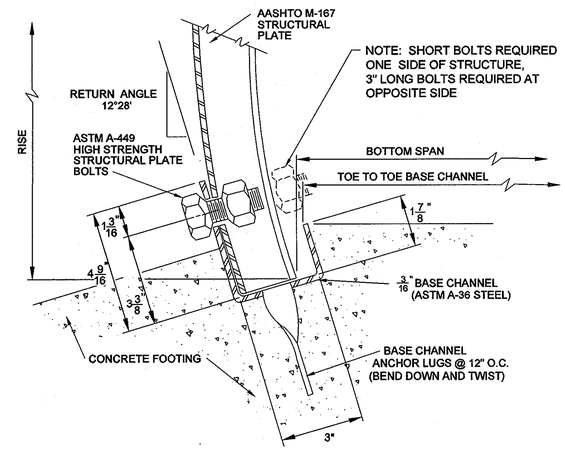


LOW PROFILE ARCH NO. LA2606 GAGE 10



LONGITUDINAL STIFFENER DETAIL

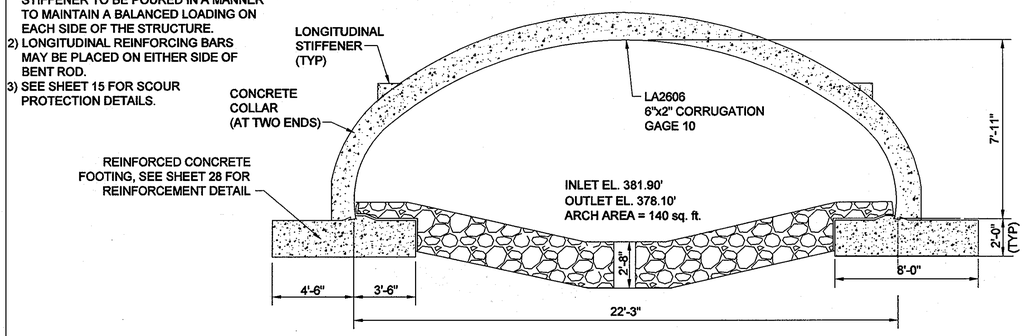
NOT TO SCALE



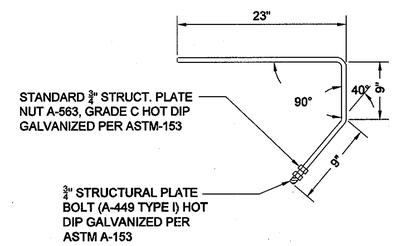
BASE CHANNEL DETAIL

NOT TO SCALE

NOTES:
1) REINFORCED CONCRETE LONGITUDINAL STIFFENER TO BE POURED IN A MANNER TO MAINTAIN A BALANCED LOADING ON EACH SIDE OF THE STRUCTURE.
2) LONGITUDINAL REINFORCING BARS MAY BE PLACED ON EITHER SIDE OF BENT ROD.
3) SEE SHEET 15 FOR SCOUR PROTECTION DETAILS.

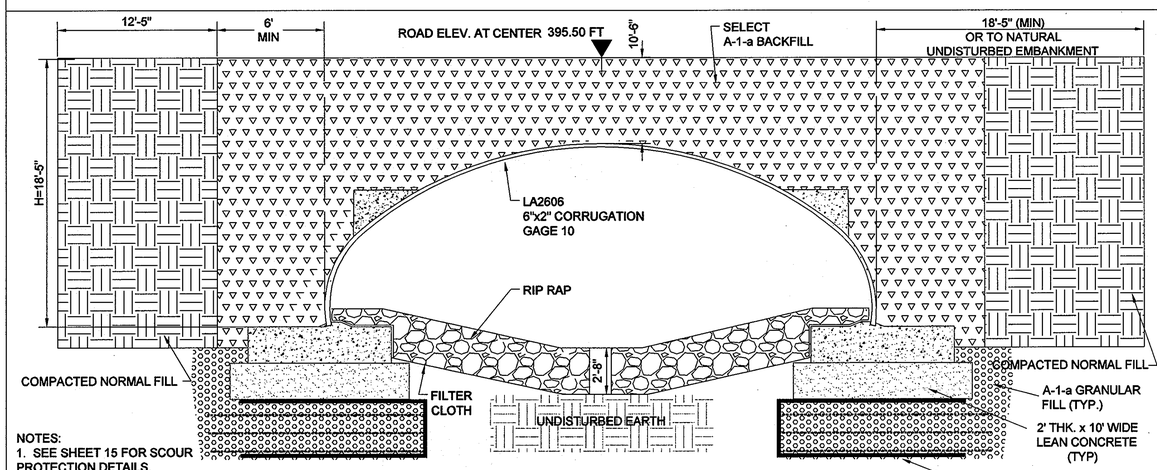


CROSS SECTION AT ENDS



BENT ROD

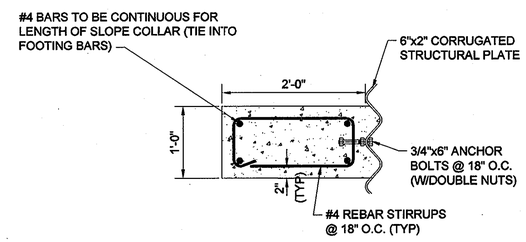
NOT TO SCALE



NOTES:
1. SEE SHEET 15 FOR SCOUR PROTECTION DETAILS.
2. NO BACKFILL MAY BE PLACED AGAINST THE LONGSPAN ARCH OR IN THE SELECT BACKFILL ZONE WITHOUT THE PRESENCE OF A TECHNICIAN UNDER THE SUPERVISION OF THE DESIGN ENGINEER.

PLACEMENT OF GEOGRID MATS TO BE DETERMINED BY SITE GEOTECH, IF ADEQUATE BEARING CAPACITY IS NOT ACHIEVED BELOW LEAN CONCRETE ELEVATION

TYPICAL SELECT BACKFILL SECTION



CONCRETE SLOPE COLLAR REINFORCEMENT DETAIL

NOT TO SCALE

AASHTO M 145- TABLE 2 (MODIFIED*)

GROUP CLASSIFICATION	A-1		A-2 (MODIFIED)	
SIEVE ANALYSIS, PERCENT PASSING	A-1-a	A-1-b	A-2-4	A-2-5
NO. 10 (2.00 mm)	50 max	----	----	----
NO. 40 (.425 mm)	30 max	50 max	----	----
NO. 100 (.150 mm)	----	----	50 max	50 max
NO. 200 (.075 mm)	15 max	25 max	20 max	20 max
Characteristics of fraction passing No. 40 (0.425 mm)				
Liquid Limit	----	----	40 max	41 max
Plasticity Index	6 max	6 max	10 max	10 max
Usual Material Types	Stone Fragments Gravel and Sand		Silty or Clayey Gravel and Sand	

*Modified to be more select than M-145

SELECT BACKFILL CHART

REVISIONS

No.	DATE	BY	DESCRIPTION
1	09/23/05	CS	COMMENTS DATED 09/21/05 FROM THE REVIEW ENGINEER
2	11/04/05	MS	PER HOWARD COUNTY COMMENTS

DRAWN BY: CS
DESIGN BY: MH
CHECKED BY: MS
DATE: 08/15/05

DO NOT SCALE THIS DRAWING: WRITTEN DIMENSIONS AND NOTES HAVE PRECEDENCE OVER DRAWINGS

CLIENT: LONG SPAN BRIDGE & CULVERT
OWNER: G&R MAPLE LAWN INC.
JOB No: RA 1101-05-02

Ryan & Associates
A Division of WKR Consulting Inc.
Consulting & Design Engineers
Email: info@ryanandassociates.net
922 North East St.
Frederick, Md. 21701
Tel (301) 360-9534
Fax (301) 360-9574

DETAILS
LONG SPAN LOW PROFILE ARCH LA 2606
MAPLE LAWN FARMS
MAPLE LAWN BLVD., HOWARD COUNTY, MD

ENGINEER SEAL:

F 05-139

APPROVED: DEPARTMENT OF PLANNING & ZONING

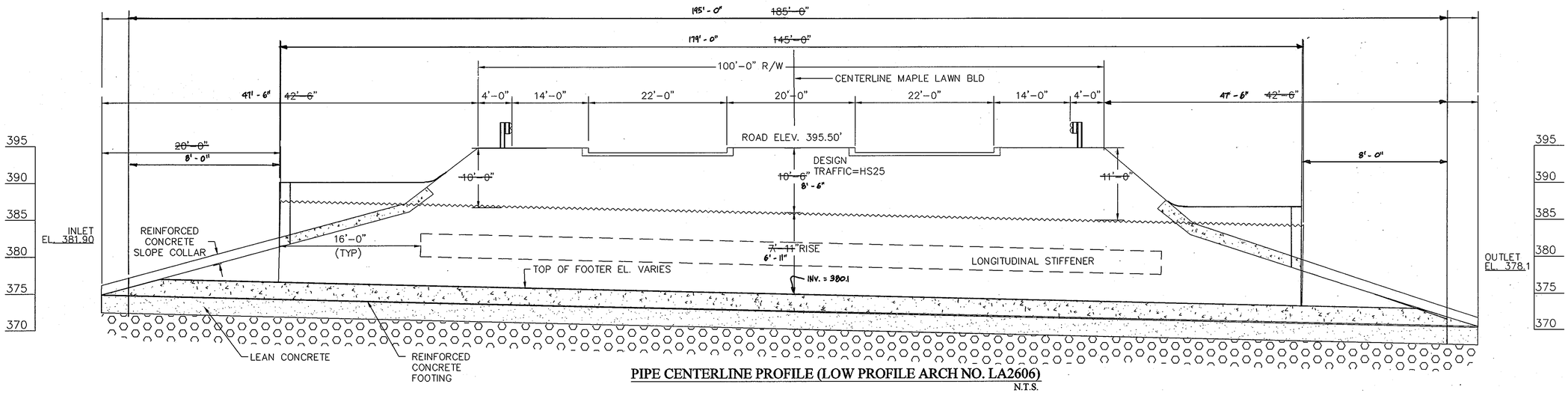
CHIEF, DEVELOPMENT ENGINEERING DIVISION MK	DATE 11/28/05
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 11/29/05

Approved: Howard County Dept. of Public Works

Chief, Bureau of Highways	Date 11-21-05

NOTE: THE LENGTH OF THE LONGSPAN PIPE SHOULD BE FIELD DETERMINED BY THE PROJECT CIVIL ENGINEER BASED ON THE FINAL GRADING PLAN FOR THE EMBANKMENT.

PLAN VIEW (LOW PROFILE ARCH NO. LA2606)



PIPE CENTERLINE PROFILE (LOW PROFILE ARCH NO. LA2606)

N.T.S.

ASBUILT JAN., 2007

REVISIONS			
No.	DATE	BY	DESCRIPTION
1	09/23/05	CS	COMMENTS DATED 09/21/05 FROM THE REVIEW ENGINEER
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DRAWN BY: CS
DESIGN BY: MH
CHECKED BY: MS
DATE: 6/15/05

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CLIENT: LONG SPAN BRIDGE & CULVERT
OWNER: G&R MAPLE LAWN, INC.
JOB No: R.A.1101-05-02

Ryan & Associates
A Division of WKR Consulting Inc.
Consulting & Design Engineers
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Frederick, Md. 21701
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PLAN AND PROFILE
LONG SPAN LOW PROFILE ARCH LA 2606
MAPLE LAWN FARMS
MAPLE LAWN BLVD., HOWARD COUNTY, MD

ENGINEER SEAL:

SHEET 26 OF 29

F 05-139

GENERAL NOTES
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATIONS (TTCTA)

1.0 INTRODUCTION

1.1 The General Notes (GN) supplement the Standard Details and the TTCTAs, and have been assembled to provide additional direction on the installation and application of traffic control devices shown in these standards. The GNs also provide additional guidelines and other useful information that will facilitate the installation of appropriate temporary traffic controls. Users of these standards shall also comply with provisions of FHWA's Manual on Uniform Traffic Control Devices (MUTCD) and SHA's Supplement to the MUTCD, Standard Specifications for Construction and Materials, and General Provisions for Construction Contracts.

1.2 The TTCTA show the minimum requirements necessary to plan for the safety of workers, motorists, pedestrians, and other system users throughout the temporary traffic control zone for various types of work activities. Typically, more traffic control devices are required for long-term stationary work activities than for short-term stationary work activities. Additional temporary traffic control devices may be necessary because of other traffic factors, such as the roadway's accident history, expected traffic backups, high truck traffic, roadway geometrics or characteristics, and other conditions that may adversely affect the flow of traffic. Users of these TTCTA should review the temporary traffic control setup once in place to ensure that traffic is traveling smoothly throughout the traffic control zone, driver expectancy is being met, and no other adjustments to the temporary traffic control devices are necessary. This review is to be repeated on a regular basis as noted elsewhere.

1.3 The TTCTA address a wide variety of different conditions; however, every situation could not be shown. Therefore, charts have been provided showing standard devices to be used for the proposed work zone activity and the placement of these devices for certain roadway conditions and work durations. The user is expected to combine the information from these charts into a workable traffic control plan.

1.4 In applying these standards and guidelines, questions about applications and interpretations should be referred to the State Highway Administration's Assistant District Engineer–Traffic, County Traffic Engineer, City Traffic Engineer, Public Works Engineer, or other responsible party, who has expertise in traffic engineering and has jurisdiction on the appropriate roadways. Such consultation may be required, for example, to determine the appropriate TTCTA for the work zone condition.

4.0 SIGNS

4.1 Signs should be spaced at the distances shown on the TTCTA diagrams.

4.2 See the "Sign and Buffer Spacing Charts/Standard Temporary Traffic Control Operations" for the appropriate spacing of the advance warning signs for lower speed highway facilities.

4.3 At locations where queues extend beyond the first advance warning sign, additional advance warning signs (static and/or PCMS) shall be placed in advance of the longest observed queue.

4.4 When bus and/or truck volumes are high, an initial advance warning sign may be placed on the left side of a multilane undivided roadway.

4.5 As of December 31, 2003, Fluorescent Orange High Performance Wide Angle (FOHPWA) Retroflective Sign Sheeting material shall be used on all temporary post-mounted warning signs erected in work zones.

4.6 FOHPWA Retroreflective Sign Sheeting material may be used for maintenance work along freeways and major expressways at the discretion of the Engineer.

4.7 Approved temporary roll-up signs may be used for maintenance work along all roadways.

4.8 When work zone speed limits along 65 and 60 mph roadways are reduced, temporary regulatory speed signing shall be posted for work activities of one-hour duration or longer, unless otherwise directed by the Engineer. These signs are to be placed as directed in Standard Nos. MD 104.01-06 and MD 104.01-07.

4.9 Sign designations and messages for the signs most commonly used in work zones are shown within these General Notes. See Specification 104.08-03 for information on other temporary traffic signs.

4.10 G95-4 (Hat and Shovel) signs shall be used for projects lasting greater than two months in duration, unless otherwise specified by the Engineer.

4.11 Along streets in urban areas where the prevailing speed is 35 mph or less, and along secondary roads where the Average Daily Traffic (ADT) is less than 1000 vehicles, the minimum sign size of 36" x 36" may be used.

4.12 For utility operations, the word "AHEAD" may be used on warning signs in lieu of distance messages for warning signs placed up to and including 1500 feet in advance of the work area. At greater distances, the correct distance messages shall be used on such warning signs. Also, the message UTILITY WORK may be used in lieu of ROAD WORK or SHOULDER WORK. ROAD WORK AHEAD signs may also be used in lieu of distance messages on side streets and entrance ramps that intersect roads where work is being performed (as shown in the Typical Applications) and on the main road during mobile and mowing operations.

4.13 ROAD WORK AHEAD signs shall be installed on all side streets and entrance ramps that intersect roads within work zones. The signing shall be placed along the intersection approach to the right of the travel lane. Refer to Standard Detail 104.01-02 for guidance on sign placement. For side streets intersecting roads outside of work zone boundaries, no advanced signing should be installed.

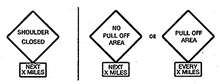
4.14 Warning signs mounted on wood posts, and those mounted on approved portable supports, shall be mounted in conformance with Standard No. MD 104.01-17. Signs mounted on concrete barrier shall be installed using clamps that are on the Office of Traffic & Safety's Approved Product List.

4.15 For shoulder closures greater than a half (1/2) mile in length, advance warning signs should be placed as follows:

a. A NEXT XX MILES supplemental plate should be provided with the first SHOULDER CLOSED sign in the sequence

b. The second SHOULDER CLOSED sign in the sequence should be replaced with either:

- a NO PULL OFF AREA warning sign with NEXT XX MILES supplemental plate, if there are no pull off areas throughout the work area, or
- a PULL OFF AREA warning sign with EVERY XX MILES supplemental plate, if pull off areas are provided (see MD 104.06-14).



4.16 A BUMP sign should be placed when there is a temporary pavement wedge along a transverse joint, a transverse construction trench with temporary backfill, or a similar transverse disturbance. Signs should be placed according to Shoulder Work Typical Applications for the appropriate prevailing speed and work duration, with BUMP signs replacing the SHOULDER WORK signs.

4.17 TRUCK CROSSING (W11-(10)1) signs shall only be used during the following two situations:

1) A work area entrance is allowed along a controlled access highway.

2) A work area entrance is provided along highways other than controlled access, the entrance does not have adequate decision sight distance for approaching traffic, and the entrance cannot be relocated to provide adequate decision sight distance. Refer to Standard No. MD 104.00-03 of the General Notes for decision sight distance criteria.

TRUCK CROSSING signs shall be placed according to the Shoulder Work Typical Applications, with TRUCK CROSSING signs replacing all SHOULDER WORK signs.

Any distances to be displayed on the TRUCK CROSSING sign shall be installed using supplemental distance plaques.

5.0 PORTABLE VARIABLE MESSAGE SIGNS (PVMS)

5.1 The PVMS shall not replace standard traffic control devices, but is to supplement these devices.

5.2 PVMS shall be used where a new traffic signal has been installed along State routes having a prevailing speed of 50 mph or greater.

5.3 PVMS shall display a message regarding new traffic signal installation up to 3 days prior to signal turn-on. PVMS shall be removed no later than 7 days after the signal is operational.

5.4 When PVMS are used to advise/warn motorists regarding a new traffic signal installation, they shall be installed along all the major approaches to the intersection, and shall be used in such a way as to supplement the standard traffic control devices required for a new traffic signal installation.

5.5 No more than two displays shall be used within any message cycle unless approved by the District Engineer or ADE-T.

5.6 For a list of standard messages/abbreviations, contact appropriate District Engineer or ADE-T. All customized messages shall be approved by the ADE-T.

5.7 A single message shall be displayed for 2-3 seconds with an "off" interval of 0.5 to 1.0 second. When two messages comprise a message cycle, neither message shall exceed 2 seconds duration. The second message shall follow the first message immediately without any "off" interval. If an off-interval is used between the first and second messages, it shall not exceed 0.5 second.

5.8 The text of the message shall not scroll or travel (horizontally or vertically) across the face of the sign.

5.9 A PVMS should not be used for more than 14 continuous days as part of the same application. A PVMS should be used 3 to 5 days in advance of planned roadwork, if needed.

5.10 PVMS should be used if there is significant change in traffic patterns, unexpected road conditions, or safety concerns that may result in delays/queues and may require caution/diversion.

5.11 PVMS should not be used in place of an arrow panel. The PVMS should be visible from 0.5 mile under day and night conditions and should be legible from a minimum distance of 650 feet.

5.12 PVMS should be placed on the shoulder of the roadway or, if practical, farther from the traveled lane (Standard MD 104.01-22).

5.13 In order to reduce the effect of sun behind the PVMS, the PVMS should be placed so that the sun is not directly behind it (such as during sunrise or sunset).

5.14 The entire message should be readable at least twice at the off-peak 85th-percentile speed prior to work starting or the anticipated prevailing speed.

6.0 ARROW PANELS

6.1 Arrow panels that are installed along roadways with prevailing speeds greater than 40 mph shall be provided with a minimum shoulder closure taper of 1/3 the taper length, (see 7.0 Channelizing Devices). For all other roadways a 100-foot minimum shoulder closure taper shall be used.

7.0 CHANNELIZING DEVICES

7.1 Taper Formulas:

L = WS for speeds greater than (>) 40 mph

L = $\frac{WS^2}{60}$ for speeds equal to or less than (≤) 40 mph

Where: L = minimum length of taper (ft)
S = numerical value of prevailing travel speed or speed limit (MPH), whichever is higher, prior to work starting,
W = width of offset (ft)

7.2 Maximum spacing between channelizing devices:

Taper Channelization: equal in feet to the posted speed limit.

Tangent Channelization: equal in feet to twice the posted speed limit.

7.3 At horizontal or vertical curves, channelizing devices should be extended to a point where they are visible to approaching traffic. On two-lane, two-way roadways, a full taper length shall always be provided in advance of curves.

7.4 Drums, not cones, should always be used to form the taper on roadways having a prevailing travel speed greater than 40 MPH.

7.5 Storing channelizing devices within 30 feet of the edge of open section roadway or 15 feet of a closed section roadway along any roadway is prohibited without approval of the Engineer.

7.6 Type 3 object markers (VP-1) are required for barrier flare / tangent points.

7.7 The appropriate channelizing devices (including approved barrier) to separate opposing traffic shall be as shown on the plans or as directed by the Engineer.

7.8 On straight sections of roadway with full dimension center and / or lane lines, but without edge lines, channelizing drums shall be used to delineate the edge of the roadway, except at locations designated by the Engineer. Examples would include roadways with curbs, parking, bicycle lanes, or other markings. The channelizing drums may be spaced up to 500' apart where no undue hazards exist unless otherwise directed by the Engineer. On curves, these spacings shall be reduced to a value equal to the posted speed limit, unless otherwise directed by the Engineer.

8.0 PAVEMENT MARKINGS

8.1 Temporary pavement markings should be installed according to Section 104.02-03(f), Specific Requirements for Temporary Pavement Markings, from the Standard Specifications for Construction and Materials and from SHA's "Pavement Marking Policy and Guidelines" issued by OOTS.

8.2 Pavement markings that are no longer applicable shall be completely removed or obliterated. Temporary markings shall be used as necessary. Operations less than 12 hours or undertaken during the daytime may require that the permanent markings be temporarily covered with black tape as specified in Section 8.3.

8.3 Pavement marking lines adjacent to any long duration lane transition or lane closure taper shall be removed (or covered with SHA approved black pavement marking tape), unless otherwise directed by the Engineer. Pavement marking lines shall be re-installed (or uncovered) prior to re-opening the closed lane(s).

8.4 Temporary markings on intermediate pavement surfaces (e.g. base course) shall be placed to full dimensions per the Contract Documents (i.e. continuous double yellow center lines; single dashed yellow center line @ 10' segments, 30' gaps where passing is allowed; lane lines @ 10' segments, 30' gaps).

8.5 Guidance on UNMARKED PAVEMENT signing:

1. Daytime: If the pavement is not marked to SHA's standards/specifications during the daytime, no sign is needed, provided item #3 below is adhered to.

2. Nighttime: If, due to unforeseen circumstances as determined by the Engineer, the pavement is left in a condition overnight that does not meet SHA pavement marking standards/specifications, then UNMARKED PAVEMENT signing shall be used.

3. In all instances where less than standard markings are in place (permanent or short-term), appropriate channelizing devices and other traffic control devices shall be used to guide traffic through the work zone in an effective, safe, and positive manner.

9.0 FLAGGING

9.1 Where two or more flaggers are used and are unable to see each other, two-way radio communications shall be used.

9.2 If the entire work area is visible from one station, a single flagger may be used, subject to other safety considerations.

9.3 Guidance on flagging at signalized intersections:

1. Issues regarding flagging at signalized intersections should be discussed in the planning/design stages of the project and the recommended intersection control strategy should be specified in the contract documents.

2. At the pre-construction conference, SHA staff and the contractor should discuss the need for flagging operations, MSP (or local police) presence, and the Standard Operating Procedures to request signal operating mode modifications (if needed).

3. In general, all persons (contractors, maintenance, and utility) should contact the Assistant District Engineer – Traffic (ADE-T) to determine the best method for temporary traffic control at a signalized intersection from the following two (2) cases:

Case 1: The signal is turned to flashing mode during flagging operation.

Case 2: The signal is turned off (dark mode) during flagging operation.

Note: Except for police, flagging shall not occur at a signalized intersection operating in a full-color stop-and-go mode (Normal Operation).

10.0 VEHICLES

10.1 If work vehicles need to be stopped in a lane beyond a horizontal curve or a vertical curve (hill), non-essential vehicles are to be pulled as far off the road as possible or be otherwise parked in a manner as to inhibit the movement of traffic as little as possible. If no protection vehicle is available, channelizing devices shall be placed as specified in 7.0, Channelizing Devices.

10.2 Work vehicles should not occupy any part of the buffer area.

10.3 Vehicle safety lights (amber in color) shall be from the Office of Traffic & Safety's Approved Products list.

10.4 A protection vehicle with a rear truck-mounted-attenuator (TMA) is required for all freeway work operations that have no formal lane closure. A formal lane closure is one that includes a full complement of advance warning devices and a lane closure taper and a work area delineated by channelizing devices placed in accordance with these TTCTAs.

A protection vehicle is also required for highway marking operations and may be required under other traffic and work conditions in conformance with SHA policy or as directed by the Engineer. The protection vehicle may be considered as a substitute for the initial advance warning sign for some mobile work operations. A protection vehicle should also be used in advance of a work operation that is located beyond a horizontal and/or vertical curve. Consideration should also be given to placing an additional temporary advance warning sign(s) or truck mounted variable message sign no less than 500' and no more than 1500' (1/2 mile for expressway conditions) in advance of the protection vehicle, when one or more of the traffic factors listed under General Notes 1.2 exist.

10.5 When a police vehicle is required, the vehicle shall not be located in the buffer and/or taper, but should be located as directed by the Engineer, depending on the type of work. It is sometimes preferable to deploy the police vehicle in advance of the work zone or queue (if queue exists) to encourage speed reduction prior to the work zone.

11.0 WORK HOUR RESTRICTIONS

11.1 Unless otherwise specified in the Contract Document or permitted by the Engineer, work within a lane, within 15 feet of the nearest edge line (open section roadway), or within 2 feet of the face of curb (closed section roadway), is prohibited during peak hours 6 a.m. – 9 a.m. and 4 p.m. – 7 p.m., Monday – Friday. Also, such work is not permitted on Saturdays, Sundays, National or State holidays, or days preceding and following said holidays.

13.0 PAVEMENT DROP-OFF

13.1 When pavement drop-offs are present, the placement of temporary traffic control devices, including signs, channelizing devices, and barriers, as well as slope fillet wedges, shall follow SHA Standard Nos. MD 104.06-11, MD 104.06-12, MD 104.06-13, MD 104.06-14, MD 104.06-15, and MD 104.01-28. The Engineer may recommend alternative methods to protect the pavement edge drop-off, considering factors such as: pedestrian, bicycle, and traffic volumes, vehicle speeds, size of work zone, duration of work, etc.

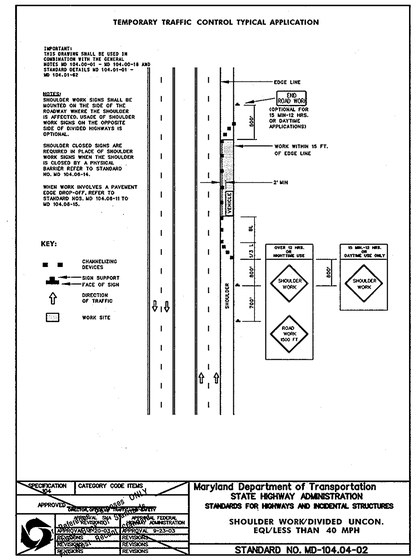
18.0 TRAFFIC CONTROL PLANS

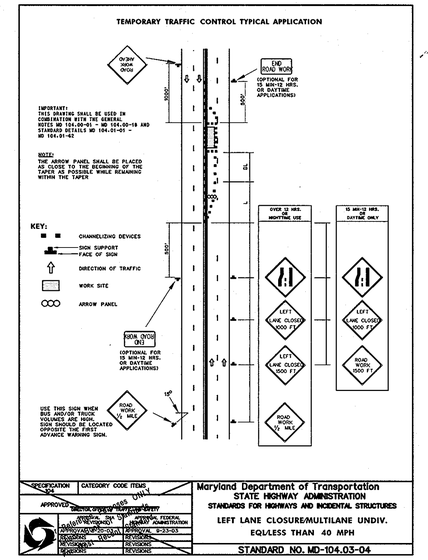
18.1 Alternate traffic control plans may be presented to the SHA District Office for approval in conformance with Section 104.01 of the Standard Specifications for Construction and Materials.

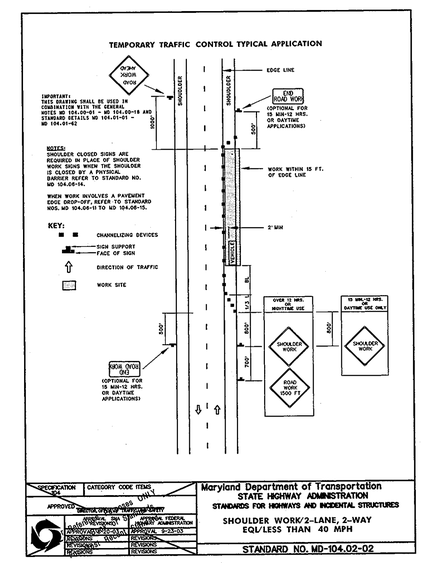
18.2 For emergency repair operations, a lesser number of traffic control devices (TCDs) than the full compliment may be used. This generally will consist of one sign per direction, flashing lights on the vehicle, and minimum number of channelizing devices, flags, or high level warning devices. Additional TCDs such as arrow panel(s), additional signing, etc., shall be placed as soon as possible in accordance with the standard TTCTA.

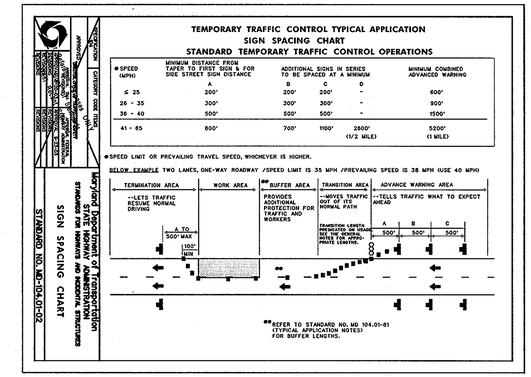
18.3 Where closely spaced work zones create conflicting traffic patterns (e.g. left-lane closure followed by right-lane closure), they should be no closer than 1.5 miles apart (last sign to first sign). Where work zones are closely spaced, but where traffic patterns are not significantly altered and no conflicts exist, no minimum spacing is required; however, care should be exercised to present appropriate and non-conflicting guidance to the public.

18.4 All signs, channelizing devices, and other traffic control devices shall be in conformance with the latest edition of the MUTCD.









General Notes & Standards Are For Reference Purposes ONLY Check the MD-SHA Standards For Highway and Incidental Structures For The Most Recent Standards

All Construction Signs Are To Be Fabricated Utilizing Fluorescent Orange High Performance Sign Material

Approved: Howard County Dept. of Public Works
Chief, Bureau of Highways — Date 11-21-05

Approved: Howard County Dept. of Planning & Zoning
Cindy Hanaka 11/29/05 — Chief, Division of Land Development — Date
Chief, Development Engineering Division — MK — Date 11/28/05

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1-800-583-8411
Fax: 410-931-6601

DES: Frank Hoeckel					
DRN: Frank Hoeckel					
CHK: John Dimdorfer					
DATE: 7/5/05	BY	NO.	REVISION	DATE	600' SCALE MAP NO. ____ DATE: ____

GENERAL NOTES – MAINTENANCE OF TRAFFIC PLAN

Johns Hopkins Road
at
Maple Lawn Blvd/Sanner Road

SCALE: N/A

SHEET 25 OF 27

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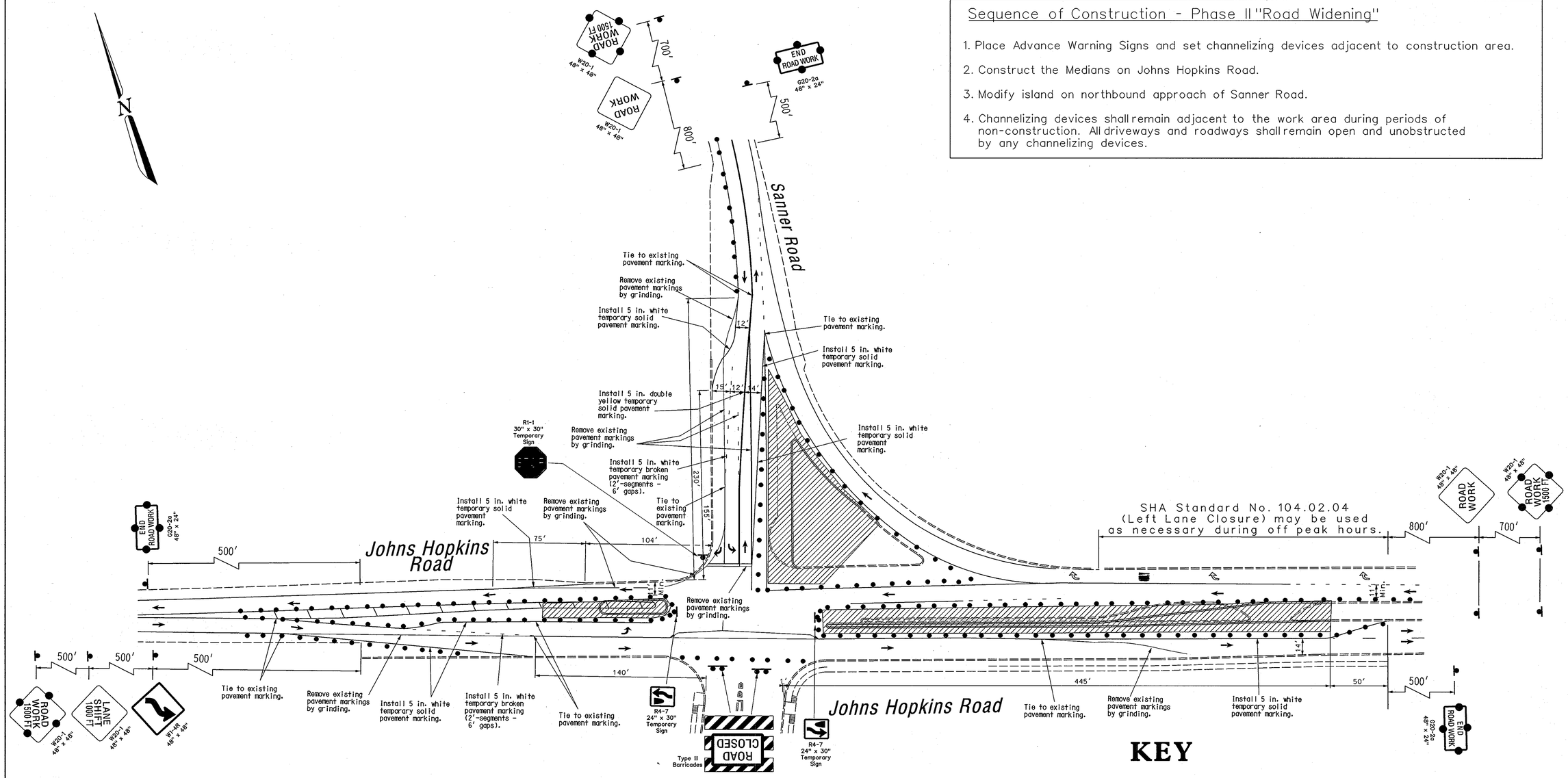
F 05-139

Sequence of Construction - Phase II "Road Widening"

1. Place Advance Warning Signs and set channelizing devices adjacent to construction area.
2. Construct the Medians on Johns Hopkins Road.
3. Modify island on northbound approach of Sanner Road.
4. Channelizing devices shall remain adjacent to the work area during periods of non-construction. All driveways and roadways shall remain open and unobstructed by any channelizing devices.



KEY

- Area of Construction
- Direction of Traffic
- Channelizing Device (Drum)
- Existing Geometrics
- Proposed Geometrics
- Temporary Traffic Sign
- Construction Sign (placed in this phase)
- Existing Construction Sign (placed in previous phase)

UTILITY LEGEND

G	G	GAS MAIN
W	W	WATER MAIN
S	S	SEWER MAIN
D	D	STORM DRAIN
TV	TV	CABLE TELEVISION
E	E	ELECTRIC CABLES
T	T	TELEPHONE CABLES
A	A	AERIAL CABLES

Drop Off Policy

Contractor to maintain less than 2.5 in. of drop-off during periods of non-construction. Use appropriate standard. See General Note No: 13

Approved: Howard County Dept. of Public Works

Mike Z. Mihelich 11-21-05
Chief, Bureau of Highways — Date

Approved: Howard County Dept. of Planning & Zoning

Cindy Hanna 11/29/05
Chief, Land Development Division — Date

MK 11/28/05
Chief, Development Engineering Division — Date

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STATE OF MARYLAND — NO. 21880 — PROFESSIONAL ENGINEER

DES: Frank Hoeckel
DRN: Frank Hoeckel
CHK: John Dimdorfer
DATE: 7/05

BY	NO.	REVISION	DATE

600' SCALE MAP NO. _____ DATE: _____

PHASE II – MAINTENANCE OF TRAFFIC PLAN

Johns Hopkins Road
at
Maple Lawn Blvd/Sanner Road

SCALE: 1" = 40'

SHEET 24 OF 29

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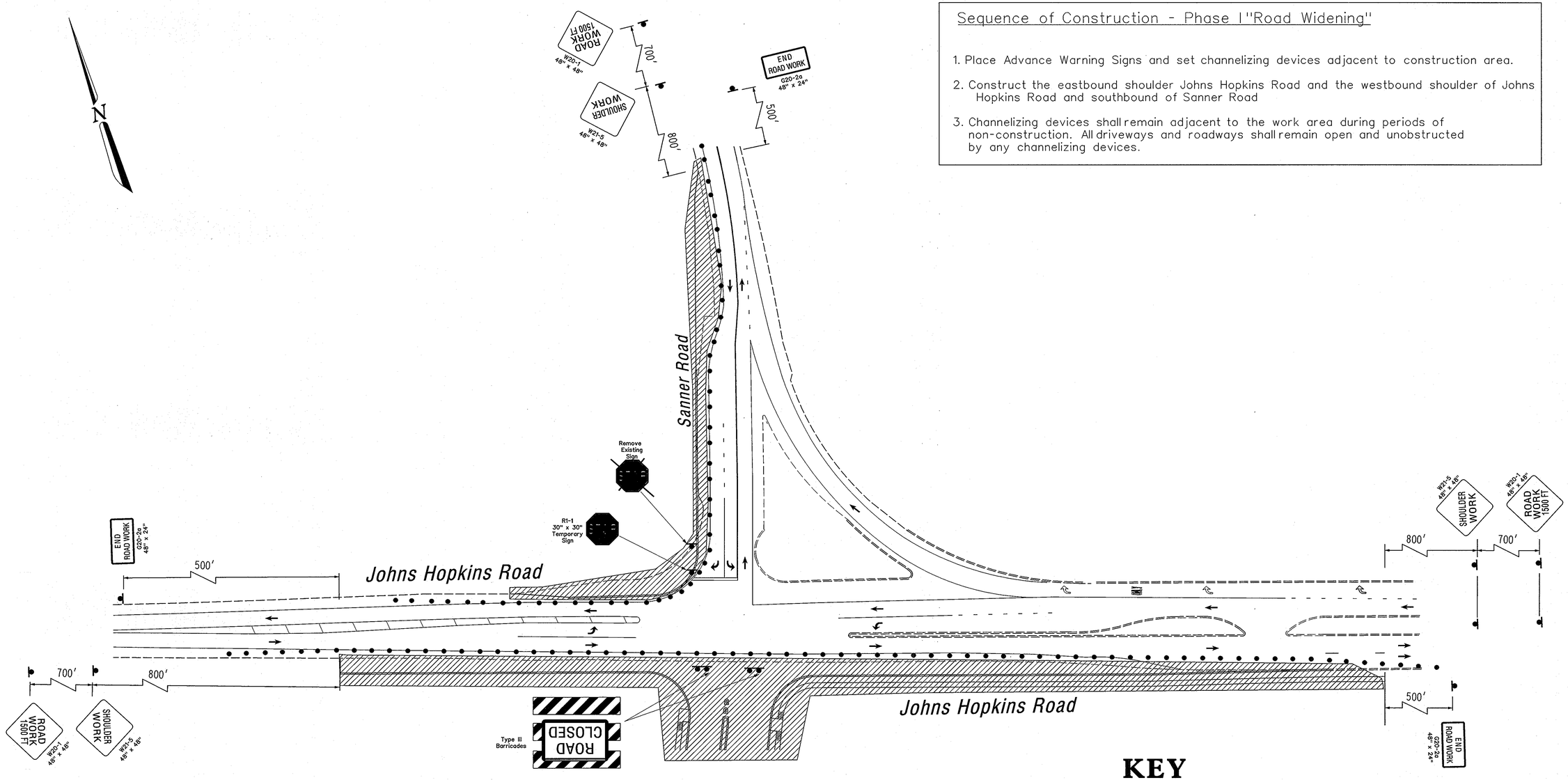
F 05-139

Sequence of Construction - Phase I "Road Widening"

1. Place Advance Warning Signs and set channelizing devices adjacent to construction area.
2. Construct the eastbound shoulder Johns Hopkins Road and the westbound shoulder of Johns Hopkins Road and southbound of Sanner Road
3. Channelizing devices shall remain adjacent to the work area during periods of non-construction. All driveways and roadways shall remain open and unobstructed by any channelizing devices.



KEY

- Area of Construction
- Direction of Traffic
- Channelizing Device (Drum)
- Existing Geometrics
- Proposed Geometrics
- Temporary Traffic Sign
- Construction Sign (placed in this phase)
- Existing Construction Sign (placed in previous phase)

UTILITY LEGEND

G	G	GAS MAIN
W	W	WATER MAIN
S	S	SEWER MAIN
D	D	STORM DRAIN
TV	TV	CABLE TELEVISION
E	E	ELECTRIC CABLES
T	T	TELEPHONE CABLES
A	A	AERIAL CABLES

Drop Off Policy

Contractor to maintain less than 2.5 in. of drop-off during periods of non-construction. Use appropriate standard. See General Note No: 13

Approved: Howard County Dept. of Public Works

William F. Weber Jr. 11-21-05
Chief, Bureau of Highways — Date

Approved: Howard County Dept. of Planning & Zoning

Cindy Hanson 11/21/05
Chief, Land Development Division — Date

11/22/05
Chief, Development Engineering Division — Date

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STATE OF MARYLAND — NO. 21980 — PROFESSIONAL ENGINEER

DES: Frank Hoeckel				
DRN: Frank Hoeckel				
CHK: John Dirndorfer				
DATE: 7/05	BY	NO.	REVISION	DATE

600' SCALE MAP NO. _____ DATE: _____

PHASE I – MAINTENANCE OF TRAFFIC PLAN

Johns Hopkins Road
at
Maple Lawn Blvd/Sanner Road

SCALE: 1" = 40'

SHEET 23 OF 29

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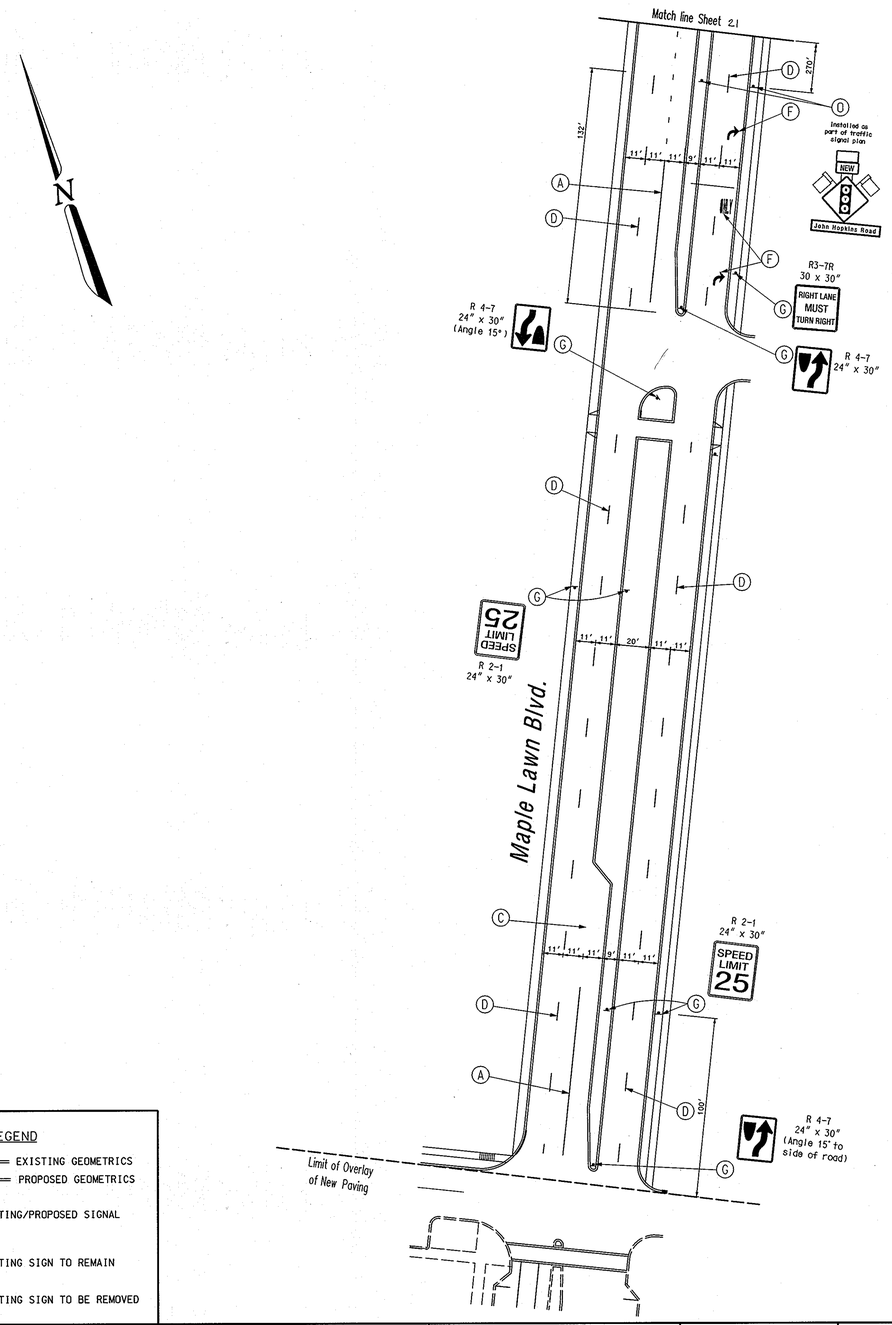

CONSTRUCTION DETAILS

A. Install 5 in. wide white solid thermoplastic pavement marking.
B. Install 8 in. wide white solid thermoplastic pavement marking.
C. Install 5 in. wide white broken thermoplastic pavement marking (2 ft. segment - 6 ft. gap) for lane line.
D. Install 5 in. wide white broken thermoplastic pavement marking (10 ft segment - 30 ft. gap).
E. Install 5 in. wide double yellow thermoplastic pavement marking - for center line.
F. Install pavement marking symbol as shown.
G. Install ground mounted sign.
H. Tie to existing markings.
J. Remove existing pavement markings by grinding.
K. Relocate existing sign.
L. Install Shark Teeth pavement markings.(See Detail)
M. Remove existing ground mounted sign.
N. Install 12 in. solid yellow thermoplastic pavement marking - for gore area, spared every 35'.
O. Installed as part of traffic signal plan.

NOTE : All Object Markers (OM) are to be mounted to a height of 3 feet from grade to top of sign.

MATERIAL LIST

Materials to be furnished and/or installed by the Contractor.
All material in this list shall have catalog cuts submitted for approval prior to installation.

Quantity	Units	Specification Section	Description
lump Sum	LS	108	Mobilization.
Lump Sum	LS	104	Maintenance of traffic.
2925	LF	549	5 in. wide pavement marking - white - (Thermoplastic).
3275	LF	549	5 in. wide pavement marking - yellow - (Thermoplastic).
800	LF	549	8 in. wide pavement marking - white - (Thermoplastic).
150	LF	549	12 in. wide pavement marking - yellow - for gore area.
8	EA	549	White Thermoplastic pavement marking symbol - "Right Arrow."
16	EA	549	White Thermoplastic pavement marking symbol - "Left Arrow".
4	EA	549	White Thermoplastic pavement marking symbol - "ONLY".
1	EA	813	18 in. x 24 in. R 4-7 sign for ground mounting.
6	EA	813	24 in. x 30 in. R 4-7 sign for ground mounting.
2	EA	813	30 in. x 30 in. R3-7R sign for ground mounting.
5	EA	813	18 in. x 18 in. OM-1(1) sign for ground mounting.
6	EA	813	24 in. x 30 in. R 2-1 sign for ground mounting.
1	EA	813	30 in. x 30 in. W4-3(1) sign for ground mounting.
200	LF	812	Maple Lawn Specifaction for signs along Maple Lawn Blvd.
240	LF	---	Removal of existing pavement markings by grinding.
2	EA	---	Relocate existing sign.
10	EA	---	Shark teeth (3' x 3' x 2') pavement marking (Thermoplastic).
4	EA	---	Removal of existing sign.

LEGEND

EXISTING GEOMETRICS
PROPOSED GEOMETRICS
EXISTING/PROPOSED SIGNAL
EXISTING SIGN TO REMAIN
EXISTING SIGN TO BE REMOVED

Approved: Howard County Dept. of Public Works
William J. Mitchell 11-21-05
Chief, Bureau of Highways — Date

Approved: Howard County Dept. of Planning & Zoning
Cindy Hanna 11/29/05
Chief, Division of Land Development — Date
MK 11/28/05
Chief, Development Engineering Division — Date

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STATE OF MARYLAND — NO. 21990 — PROFESSIONAL ENGINEER

DES: Frank Hoeckel
DRN: Frank Hoeckel
CHK: John Dirndorfer
DATE: 6/13/05

BY	NO.	REVISION	DATE

600' SCALE MAP NO. _____ DATE: _____

SIGNING AND PAVEMENT MARKING PLAN

Johns Hopkins Road
at
Maple Lawn Blvd/Sanner Road

SCALE: 1" = 40'

SHEET 22 OF 29

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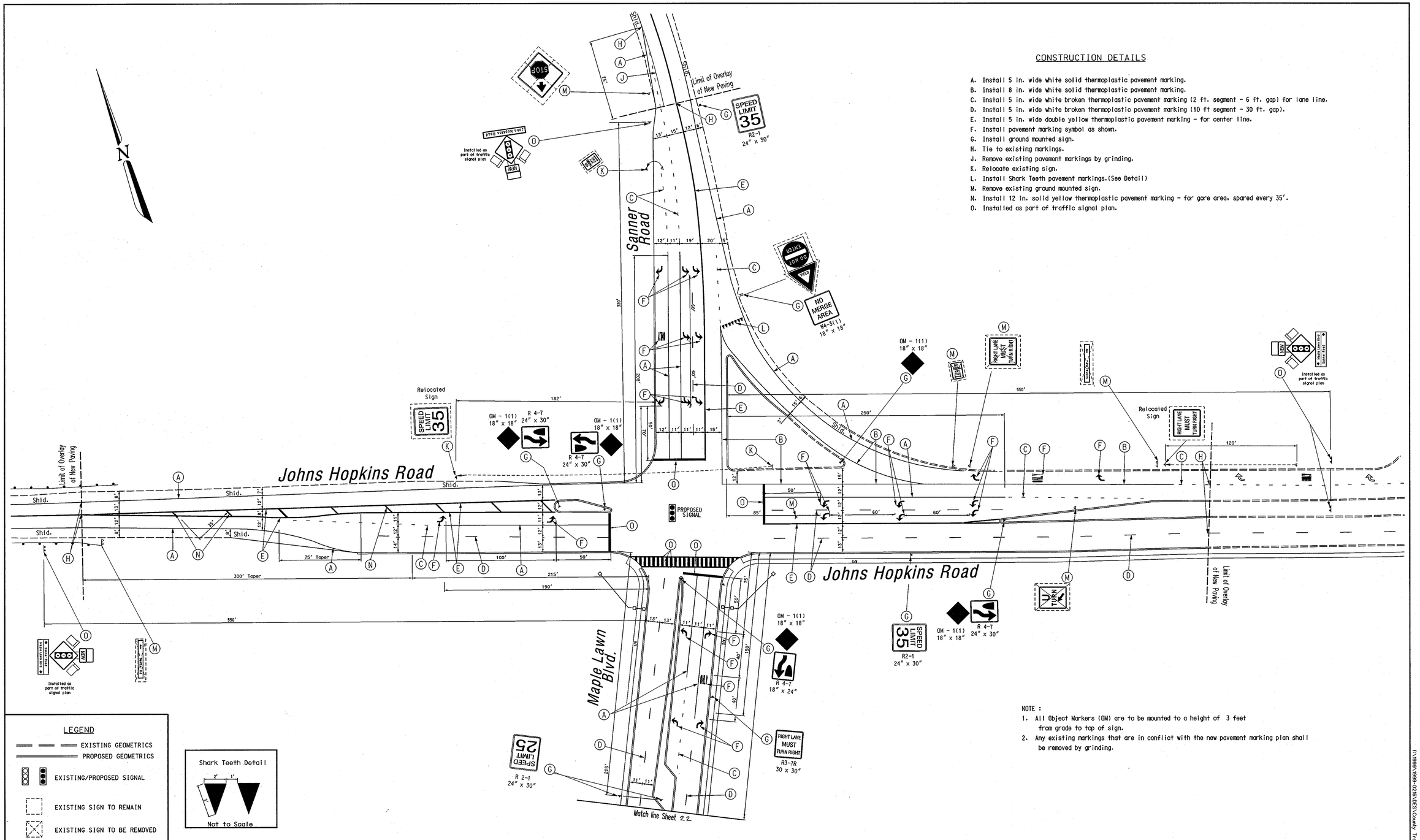
F 05-139



CONSTRUCTION DETAILS

A. Install 5 in. wide white solid thermoplastic pavement marking.
B. Install 8 in. wide white solid thermoplastic pavement marking.
C. Install 5 in. wide white broken thermoplastic pavement marking (2 ft. segment - 6 ft. gap) for lane line.
D. Install 5 in. wide white broken thermoplastic pavement marking (10 ft segment - 30 ft. gap).
E. Install 5 in. wide double yellow thermoplastic pavement marking - for center line.
F. Install pavement marking symbol as shown.
G. Install ground mounted sign.
H. Tie to existing markings.
J. Remove existing pavement markings by grinding.
K. Relocate existing sign.
L. Install Shark Teeth pavement markings.(See Detail)
M. Remove existing ground mounted sign.
N. Install 12 in. solid yellow thermoplastic pavement marking - for gore area, spared every 35'.
O. Installed as part of traffic signal plan.

NOTE :
1. All Object Markers (OM) are to be mounted to a height of 3 feet from grade to top of sign.
2. Any existing markings that are in conflict with the new pavement marking plan shall be removed by grinding.

LEGEND
EXISTING GEOMETRICS
PROPOSED GEOMETRICS
EXISTING/PROPOSED SIGNAL
EXISTING SIGN TO REMAIN
EXISTING SIGN TO BE REMOVED

Shark Teeth Detail
Not to Scale

Approved: Howard County Dept. of Public Works
William J. Mitchell 11-21-05
Chief, Bureau of Highways Date

Approved: Howard County Dept. of Planning & Zoning
Cindy Hanna 11/29/05
Chief, Division of Land Development Date
MK 11/29/05
Chief, Development Engineering Division Date

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Fax: 410-931-6601

DES: Frank Hoeckel
DRN: Frank Hoeckel
CHK: John Dirndorfer
DATE: 7/5/05

BY	NO.	REVISION	DATE

600' SCALE MAP NO. _____ DATE: _____

SIGNING AND PAVEMENT MARKING PLAN
Johns Hopkins Road
at
Maple Lawn Blvd/Sanner Road

SCALE: 1"=40'
SHEET 21 OF 29

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F 05-139

PROJECT DESCRIPTION

I. GENERAL

This project involves the installation of a new traffic control signal at the intersection of Johns Hopkins Road and Sanner Road/Maple Lawn Blvd. in Howard County, Maryland. Johns Hopkins Road is considered to run in an east/west direction.

EQUIPMENT LIST

B. Equipment to be furnished and installed by the Contractor.
All equipment in this list shall have catalog cuts submitted for approval prior to installation.

Quantity	Units	Specification Section	Description
2	EA	818	16 ft. steel Mono-Curve mast arm pole with a 70 ft. Mono-Curve mast arm (Factory Powder Coated Black) (Spec MD 818.13-01).
2	EA	818	27 ft. steel Mono-Curve mast arm pole with a 50 ft. Mono-Curve mast arm (Factory Powder Coated Black) (Spec MD 818.13-01).
* 1	EA	816	Standard traffic signal controller, base mounted cabinet, and five (5) four-channel loop detector amplifiers.
* 10	EA	814	12 in., one-way, three section (RA,YA,GA) adjustable traffic signal head with mast arm mounting hardware and tunnel visors.
* 8	EA	814	12 in., one-way, three section (R,Y,G) adjustable traffic signal head with mast arm mounting hardware and tunnel visors.
* 2	EA	814	12 in. one-way, two section (symbolic DW/WK) adjustable pedestrian signal head with pole mounting hardware and cut-away visors.
* 2	EA	814	Pushbuttons For Pedestrian Signals
2	EA	813	30 in. x 36 in. R 3-5R sign with mast arm mounting hardware.
6	EA	813	30 in. x 36 in. R 3-5L sign with mast arm mounting hardware.
4	EA	813	36 in. x 36 in. W 3-3 with 24 in. x 24 in "NEW" sign for ground mounting.
2	EA	813	30 in. x 30 in. W 3-3 with 24 in. x 24 in. "NEW" sign for ground mounting.
2	EA	813	16 in. x Var. D-3(1) sign with "Signfix" mast arm mounting hardware.
2	EA	813	24 in. x Var. D-3(2) sign with "Signfix" mast arm mounting hardware.
3	EA	813	12 in. x Var D-3(1) sign for ground mounting.
3	EA	813	32 in. x Var D-3(2) sign for ground mounting.
2	EA	813	9 in. x 12 in. R10-4(1) pedestrian pushbutton sign with pole mounting hardware.
		6	

* Furnished by the County and reimbursed by the Developer.

Quantity	Units	Specification Section	Description
Lump Sum	LS	108	Mobilization.
Lump Sum	LS	104	Maintenance of traffic.
5	CY	205	Test pit excavation.
12	EA	811	Handhole.
1650	LF	815	Sawcut for signal loop detector.
5825	LF	810	Loop detector wire (No. 14 A.W.G.) encased in flexible tubing.
25	LF	810	1-conductor electrical cable (No. 4 A.W.G.) (3 pieces).
2400	LF	810	2-conductor (aluminum shielded) electrical cable (No. 14 A.W.G.).
375	LF	810	2-conductor electrical cable (No. 14 A.W.G.).
375	LF	810	3-conductor electrical cable (No. 14 A.W.G.)
2525	LF	810	5-conductor electrical cable (No. 14 A.W.G.).
425	LF	804	Green THWN stranded ground wire (No. 6 A.W.G.).
55	LF	805	1 in. liquid tight flexible non-metallic conduit for loop detector sleeve.
495	LF	805	2 in. polyvinyl chloride (Schedule 80) electrical conduit - trenched.
150	LF	805	2 in. polyvinyl chloride (Schedule 90) electrical conduit - bored
100	LF	805	3 in. polyvinyl chloride (Schedule 80) electrical conduit - trenched.
390	LF	805	4 in. polyvinyl chloride (Schedule 80) electrical conduit - bored.
90	LF	805	4 in. polyvinyl chloride (Schedule 80) electrical conduit - trenched.
17.5	CY	801	Concrete foundation for traffic signal equipment.
5	EA	804	Ground rod -5/8in. diameter x 10 ft. length.
1	EA	807	Electrical utility service equipment (120/240 V, one phase, three wire system) with two -30 amp disconnect switches for a underground electrical service.
160	LF	549	24 in. wide HAPPTPM pavement marking- white for stop line.
435	LF	812	12 in. white HAPPTPM pavement marking - white for crosswalk
125	LF	812	Square metal tube post (galvanized) with pole cap (Per Traffic Division Specifications) for signs along John Hopkins Road and Scanner Road.
55	LF	812	Maple Lawn Specifications for sign post supports along for Maple Lawn Blvd
1	EA	---	Remove existing ground mounted sign.
Lump Sum	LS	---	As-built for S.H.A. (on CADD).

CONTACT LIST

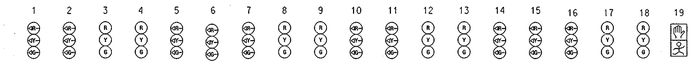
The contact persons are as follows:

Diane Schwarzman, P.E.
Howard County - Traffic
9250 Bendix Road
Columbia Maryland 21045
410-313-5753

Richard Wilson
Howard County - Traffic Signal Shop
9240 Bendix Road
Columbia, Maryland 21045
410-313-7517

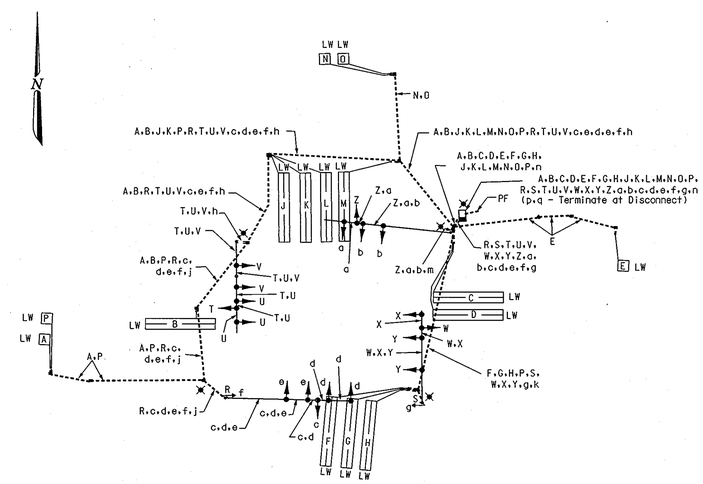
The Power Company Representative is:
Mr. Douge Shenton
Baltimore Gas and Electric Company
7317 Parkway Drive South
Hanover, Maryland 21076
410-859-9448
WMS # 1298854

Phase Chart



	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	
Phase 1 & 5	G	G	R	R	G	G	G	R	R	R	R	R	R	R	R	R	R	R	DW	
1 & 5 Change to Phase 1 & 6 or Phase 2 & 5 or Phase 2 & 6																				
Phase 1 & 6	G	G	G	G	R	R	R	R	R	R	R	R	R	R	R	R	R	R	DW	
1 Change	Y	Y	G	G	R	R	R	R	R	R	R	R	R	R	R	R	R	R	DW	
Phase 2 & 5	R	R	R	R	G	G	G	G	G	R	R	R	R	R	R	R	R	R	DW	
5 Change	R	R	R	R	Y	Y	Y	G	G	R	R	R	R	R	R	R	R	R	DW	
Phase 2 & 6	R	R	G	G	R	R	R	G	G	R	R	R	R	R	R	R	R	R	WK	
Ped Clearance	R	R	G	G	R	R	R	G	G	R	R	R	R	R	R	R	R	R	FL/DW	
2 & 6 Change	R	R	Y	Y	R	R	R	Y	Y	R	R	R	R	R	R	R	R	R	DW	
Phase 3 & 7	R	R	R	R	R	R	R	R	R	G	G	R	R	G	G	R	R	R	DW	
3 & 7 Change to Phase 3 & 8 or Phase 4 & 7 or Phase 4 & 8																				
Phase 3 & 8	R	R	R	R	R	R	R	R	R	G	G	G	G	R	R	R	R	R	DW	
3 Change	R	R	R	R	R	R	R	R	R	Y	Y	G	G	R	R	R	R	R	DW	
Phase 4 & 7	R	R	R	R	R	R	R	R	R	R	R	R	R	G	G	G	G	G	DW	
4 Change	R	R	R	R	R	R	R	R	R	R	R	R	R	Y	Y	Y	R	G	DW	
Phase 4 & 8	R	R	R	R	R	R	R	R	R	R	R	G	G	R	R	R	G	G	DW	
4 & 8 Change	R	R	R	R	R	R	R	R	R	R	R	Y	Y	R	R	R	Y	Y	DW	
Flashing Operation	FL/R	FL/R	FL/Y	FL/Y	FL/R	FL/R	FL/R	FL/Y	FL/Y	FL/R	FL/R	FL/R	FL/R	FL/R	FL/R	FL/R	FL/R	FL/R	DARK	

Wiring Diagram



A B C D E F G H J K L M N O P — 2-Conductor Cable (Aluminum Shielded)

f g — 3-Conductor Electrical Cable (No. 14 A.W.G.)

R S — 2-Conductor Electrical Cable (No. 14 A.W.G.)

T U V W X Y Z a b c d e — 5-Conductor Electrical Cable (No. 14 A.W.G.)

h j k m n — Green THWN Copper Ground Wire (No. 6 A.W.G.)

p — 1-Conductor (No. 4 A.W.G.) (3 pieces) for Traffic Signal Electrical Service

q — 3-Wire (No. 4 A.W.G.) for Street Lighting Electrical Service

LW — Loop Detector Wire (No. 14 A.W.G.) in Flexible Tubing

PF — Proposed Underground Electrical Service By BGE

— Proposed Grounding Rod

Approved: Howard County Dept. of Public Works

William F. Weber Jr. 11-21-05
Chief, Bureau of Highways — Date

Approved: Howard County Dept. of Planning & Zoning

Cindy Harris 11/29/05
Chief, Division of Land Development — Date

MK 11/28/05
Chief, Development Engineering Division — Date

The Traffic Group
Suite H
9900 Franklin Square Dr.
Baltimore, Maryland
410-931-6600
1-800-583-8411
Fax: 410-931-6601

STATE OF MARYLAND — MICHAEL HENRIQUES — NO. 21880 — PROFESSIONAL ENGINEER

DES: Frank Hoeckel					
DRN: Frank Hoeckel					
CHK: John Dimdorfer					
DATE: 7/05	BY	NO.	REVISION	DATE	600' SCALE MAP NO. _____ DATE: _____

GENERAL INFORMATION PLAN

Johns Hopkins Road
at
Maple Lawn Blvd/Sanner Road

SCALE: N/A

SHEET 20 OF 29

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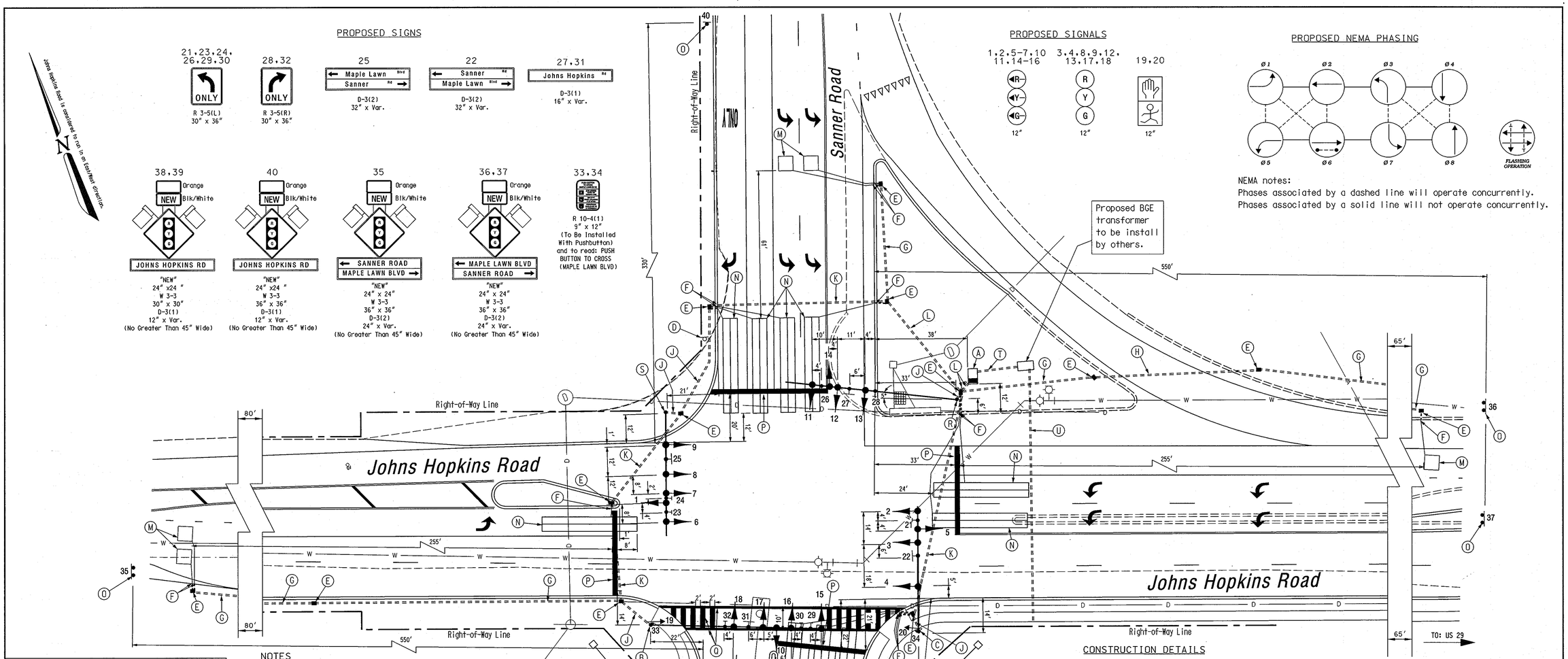
F 05-139



LEGEND

PROPOSED		EXISTING
	MAST ARM	
	TRAFFIC SIGNAL HEAD	
	PEDESTRIAN SIGNAL HEAD	
	SIGN	
	STREET LIGHT	
	HANDBOX	
	CONDUIT	
	LOOP DETECTOR	
	CONTROLLER WITH PAD	
	WOOD POLE	
	FIRE HYDRANT	
	MANHOLE	
W.V.	WATER VALVE	W.V.
G.V.	GAS VALVE	G.V.
	GEOMETRICS	

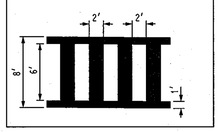
NOTES

1. Geometrics shall be confirmed prior to the installation of signal equipment. All traffic signal foundations shall be installed at final sidewalk or curb grade for closed sections highest roadway.
2. Loop detectors and conduits shall be installed prior to the installation of pavement markings.
3. Pavement markings detailed are proposed and are to be installed by the Contractor in accordance with MD-SHA standards. All other pavement markings will either be installed as part of the Developer's project or are to be considered as existing.
4. All underground and overhead utilities shown on these plans are schematic and are not to be considered complete. The Contractor shall be responsible for notifying all utility companies 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 equipment will occur, the Contractor shall notify the appropriate Project Engineer immediately.

UTILITY LEGEND

G — G	GAS MAIN
W — W	WATER MAIN
S — S	SEWER MAIN
D — D	STORM DRAIN
TV — TV	CABLE TELEVISION
E — E	ELECTRIC CABLES
T — T	TELEPHONE CABLES
A — A	AERIAL CABLES

CROSSWALK DETAIL



CONSTRUCTION DETAILS

A. Install base mounted cabinet/controller, and necessary equipment for an underground electrical service.
B. Install 16 ft. steel Mono-Curve mast arm pole with 70 ft. Mono-Curve mast arm, vehicle signal heads, signs, pedestrian signal head, pedestrian pushbutton, and pedestrian pushbutton sign (Note: one 3 in. PVC conduit bend).
C. Install 27 ft. steel Mono-Curve mast arm pole with 50 ft. Mono-Curve mast arm, vehicle signal heads, and signs (Note: one 3 in. PVC conduit bend).
D. Remove existing ground mounted sign after traffic signal is in operation.
E. Install handhole.
F. Install 1 in. liquid tight flexible conduit for loop detector lead-in.
G. Install 2 in. polyvinyl chloride [Schedule 80] electrical conduit - trenched.
H. Install 2 in. polyvinyl chloride [Schedule 80] electrical conduit - bored.
J. Install 3 in. polyvinyl chloride [Schedule 80] electrical conduit - trenched.
K. Install 4 in. polyvinyl chloride [Schedule 80] electrical conduit - bored.
L. Install 4 in. polyvinyl chloride [Schedule 80] electrical conduit - trenched.
M. Install 6 ft. x 6 ft. vehicle loop detector (3 turns).
N. Install 6 ft. x 40 ft. quadrupole type vehicle loop detector (2-4-2 turns).
O. Install ground mounted sign as shown.
P. Install 24 in. wide white pavement marking - white for stop line.
Q. Install white pavement marking - for crosswalk as shown per crosswalk detail for the entire length. [broken for legibility purpose].
R. Install 16 ft. steel Mono-Curve mast arm pole with 70 ft. Mono-Curve mast arm, vehicle signal heads, and signs (Note: one 3 in. PVC conduit bend).
S. Install 27 ft. steel Mono-Curve mast arm pole with a 50 ft. Mono-Curve mast arm, vehicle signal heads, and signs (Note: one 3 in. PVC conduit bend).
T. Install 4 in. polyvinyl chloride [Schedule 80] electrical conduit- trenched with pull string to proposed transformer for underground electric service by BGE.
U. Install 4 in. polyvinyl chloride [Schedule 80] electrical conduit- bored with pull string to proposed transformer for BGE electrical service.

Approved: Howard County Dept. of Public Works

William J. Weber II 11-21-05
Chief, Bureau of Highways Date

Approved: Howard County Dept. of Planning & Zoning

Cindy Harris 11/29/05
Chief, Division of Land Development Date

MK 11/30/05
Chief, Development Engineering Division Date

The Traffic Group
Suite H
9900 Franklin Square Dr.
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410-931-6600
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Fax: 410-931-6601

STATE OF MARYLAND — JOHN HENRY DIRNDORFER — No. 21869 — PROFESSIONAL ENGINEER

DES: Frank Hoeckel
DRN: Frank Hoeckel
CHK: John Dirndorfer
DATE: 7/5/05

BY	NO.	REVISION	DATE

600' SCALE MAP NO. _____ DATE: _____

TRAFFIC SIGNAL PLAN

Johns Hopkins Road at Maple Lawn Blvd/Sanner Road

SCALE: 1" = 20'

SHEET 19 OF 29

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PERIMETER PLANTING SCHEDULE – SCHEDULE A

PERIMETER	LAND USE	ADJACENT LAND USE	TYPE OF BUFFER	LINEAR FEET OF ROADWAY FRONTAGE/ PERIMETER	CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET) DESCRIBE BELOW IF NEEDED.	CREDIT FOR WALL, FENCE OR BERM (YES, NO, LINEAR FEET) DESCRIBE BELOW IF NEEDED.	NUMBER OF PLANTS REQUIRED			NUMBER OF PLANTS PROVIDED			HOW REQUIRED BUFFER IS BEING PROVIDED
							SHADE TREES	ORNAMENTAL TREES	EVERGREEN TREES	SHADE TREES	ORNAMENTAL TREES	EVERGREEN TREES	
EXTERNAL PERIMETER 8	COMMERCIAL	COMMERCIAL	'A' Buffer *	132'	NO	NO	2	2	7	——	——	——	DEFERRED TO SDP
EXTERNAL PERIMETER 9	COMMERCIAL	ROADWAY	'C' Buffer *	126'	NO	NO	3	2	6	——	——	——	DEFERRED TO SDP

* FOLLOWS COMPREHENSIVE SKETCH PLAN GUIDELINE REQUIREMENTS

STORMWATER MANAGEMENT AREA LANDSCAPING – SCHEDULE D

PERIMETER	PROPOSED LAND USE	ADJACENT LAND USE	TYPE OF BUFFER	LINEAR FEET OF PERIMETER	CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET) DESCRIBE BELOW IF NEEDED.	CREDIT FOR WALL, FENCE OR BERM (YES, NO, LINEAR FEET) DESCRIBE BELOW IF NEEDED.	NUMBER OF PLANTS REQUIRED		NUMBER OF PLANTS PROVIDED		
							SHADE TREES	EVERGREEN TREES	SHADE TREES	EVERGREEN TREES	HOW REQUIRED BUFFER IS BEING PROVIDED
SWM-4	SWM	ROADWAY	'C' Buffer	1,041 L.F.	YES - 722 LF (PER F-03-40)	NO	9	17	9	18	SEE THIS PLAN

NOTES

1. STREET TREES WILL BE PROVIDED AT FINAL PLAN STAGE.
2. INTERNAL PLANTING AND PARKING LOT LANDSCAPING WILL BE PROVIDED WITH THE SITE DEVELOPMENT PLANS. STORMWATER MANAGMENT BUFFERING WILL BE PROVIDED UNDER THIS PLAN.
3. THE BUFFERS SHOWN IN THE SCHEDULES ARE IN ACCORDANCE WITH THE LANDSCAPE MANUAL. ACCORDING TO THE COMPREHENSIVE SKETCH PLAN CRITERIA, THE FOLLOWING ARE THE MINIMUM PLANTING TO BE PROVIDED ALONG A PERIMETER EDGE:

   SHADE TREE: 1:80 LINEAR FEET OF MEASURED PERIMETER EDGE, AND
   SMALL ORNAMENTAL DECIDUOUS TREE: 1:60 LINEAR FEET OF MEASURED PERIMETER EDGE AND
   EVERGREEN TREE: 1:20 LINEAR FEET OF MEASURED PERIMETER EDGE.
4. THE BUFFERS SHOWN FOR SCHEDULE 'D' ARE IN ACCORDANCE WITH THE LANDSCAPING MANUAL ACCORDING TO THE COMPREHENSIVE SKETCH PLAN CRITERIA, THE FOLLOWING ARE THE MINIMUM PLANTING TO BE PROVIDED ALONG BUFFER TYPE 'B'.

   SHADE TREE: 1:50 LINEAR FEET OF MEASURED PERIMETER EDGE, AND
   EVERGREEN TREE: 1:40 LINEAR FEET OF MEASURED PERIMETER EDGE.

   BUFFER STORMWATER MANAGEMENT FROM A ROADWAY OR PERIMETER RESIDENTIAL PROPERTIES:

   SHADE TREE: 1:40 LINEAR FEET OF MEASURED PERIMETER EDGE, AND
   EVERGREEN TREE: 1:20 LINEAR FEET OF MEASURED PERIMETER EDGE.
5. AFFORESTATION PLANTING SIZE SHALL BE LARGE ENOUGH TO MEET THE LANDSCAPE BUFFERING REQUIREMENT ALONG EXTERNAL PERIMETERS WHERE APPLICABLE.
6. TREE PLANTING DETAILS CAN BE FOUND ON THIS SHEET.

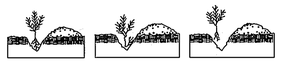
Projected Bond Requirement:

Schedule 'D' Number of required Shade Trees for bonding:	9 x $300 =	$ 2,700.00
Schedule 'D' Number of required Evergreen Trees for bonding:	17 x $150 =	$ 2,550.00
		$ 5,250.00

COMMENTS:

HANDLING AND PLANTING OF SEEDLING(4)

C. CORRECT AND INCORRECT PLANTING DEPTH



SEEDLING AND WHIP PLANTING SPECIFICATION

NOTE:
Mulching newly planted seedlings helps the soil retain moisture and it protects the seedling from compaction and stem injury.

SOURCE: adapted from the Maryland State FOREST CONSERVATION MANUAL

TREE PLANTING AND MAINTENANCE CALENDAR

TASKS	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
TRANSPLANT OF 2" DBH OR GREATER	▬	▬	▬							▬	▬	▬
PLANTING SEEDLINGS, WHIPS	▬	▬	▬							▬	▬	▬
MINIMUM MONITORING			*			*				*		
FERTILIZER + (IF NEEDED)						▭	▭	▭	▭	▭	▭	▭
WATER ++	▭	▭	▭	▭	▭	▭	▭	▭	▭	▭	▭	▭
PRUNING	▭	▭	▭		▭	▭						▭

KEY

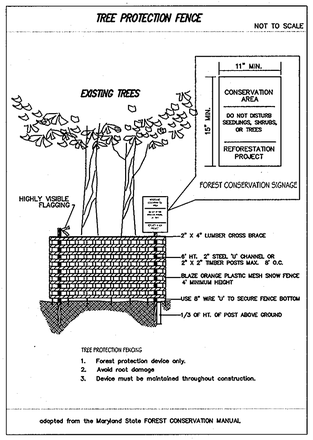
- * ACTIVITIES DURING THESE MONTHS ARE DEPENDENT UPON GROUND CONDITIONS
- ▬ GREATLY RECOMMENDED
- ▨ RECOMMENDED WITH ADDITIONAL CARE
- ▭ RECOMMENDED
- \+ DEPENDANT UPON SITE CONDITIONS
- ++ DEPENDANT UPON SITE CONDITIONS; WEEKLY WATERING IS GREATLY RECOMMENDED FROM MAY THROUGH OCTOBER UNLESS WEEKLY RAINFALL EQUALS 1"

NOTE:
The planting and care of trees is most successful when coordinated with the local climatic conditions. This calendar summarizes some of the recommended time frames for basic reforestation and stress-reduction activities.

SOURCE: adapted from the Maryland State FOREST CONSERVATION MANUAL

TREE PROTECTION FENCE

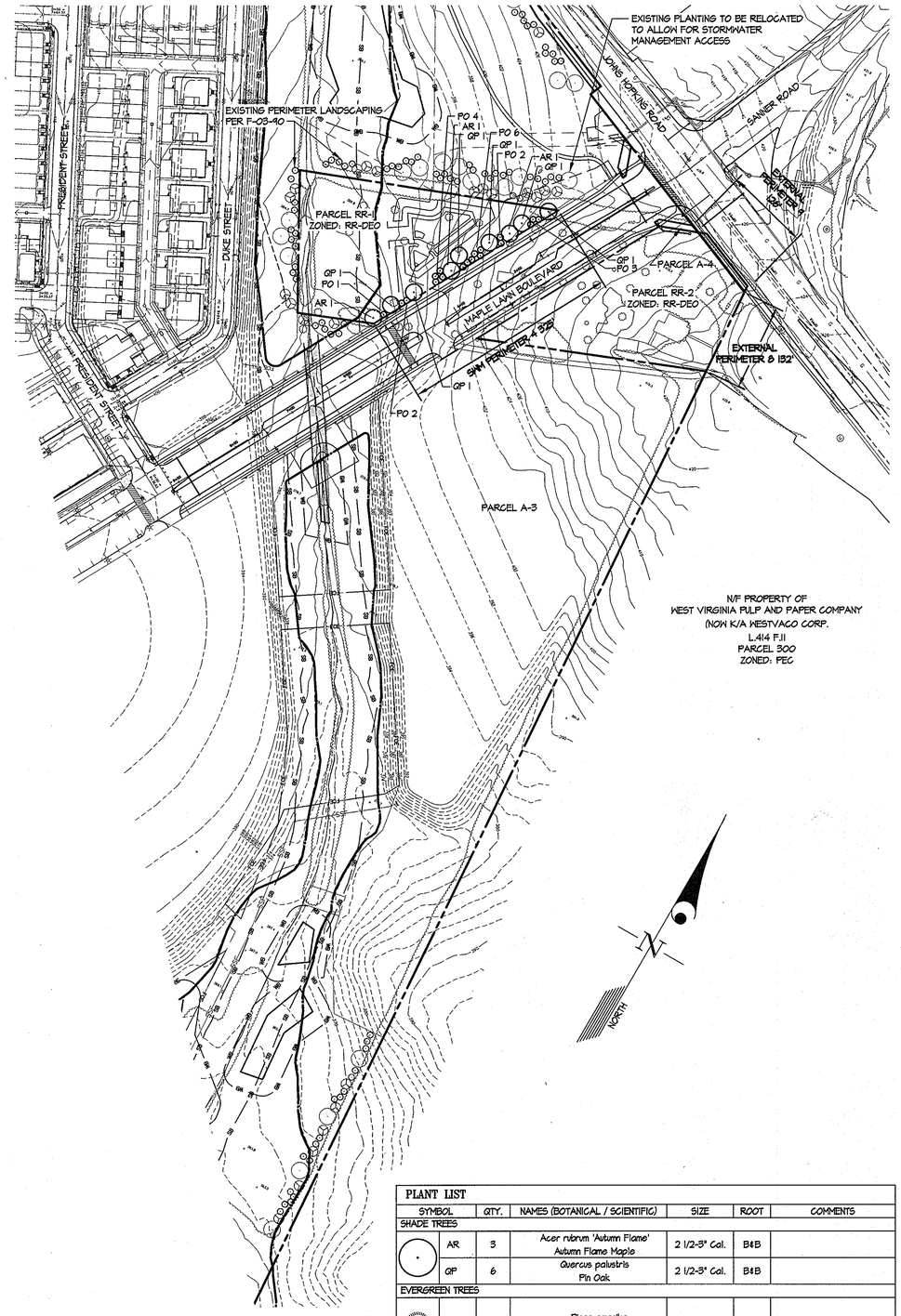
NOT TO SCALE

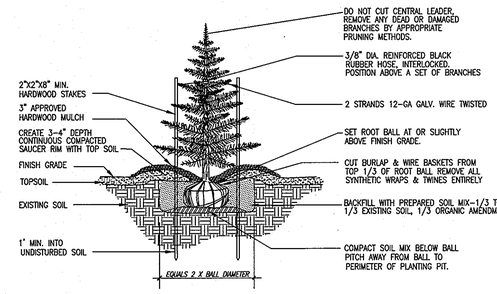


TREE PROTECTION FENCING

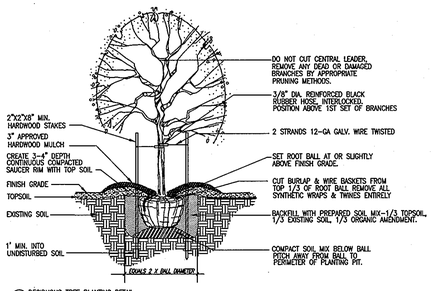
1. Forest protection device only.
2. Avoid root damage
3. Device must be maintained throughout construction.

adopted from the Maryland State FOREST CONSERVATION MANUAL





EVERGREEN TREE PLANTING DETAIL — NTS



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

PLANT LIST

SYMBOL	QTY.	NAMES (BOTANICAL / SCIENTIFIC)	SIZE	ROOT	COMMENTS
SHADE TREES					
AR	3	Acer rubrum 'Autumn Flame' Autumn Flame Maple	2 1/2-3" Cal.	B&B	
QP	6	Quercus palustris Pin Oak	2 1/2-3" Cal.	B&B	
EVERGREEN TREES					
PO	18	Picea omorika Serbian Spruce	6'-8' Ht.	B&B	

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 11-21-05

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 11/29/05

Chief, Development Engineering Division — Date 11/30/05

DEVELOPERS' CERTIFICATE:

I/We certify that the landscaping shown on this plan will be done according to the plan, Section 16.124 of the Howard County Code and the Landscape Manual. I/We further certify that upon completion of the landscape installation, a letter of notice, accompanied with an executed one year guarantee of plant materials, will be submitted to the Department of Planning and Zoning.

Name — Date 11-9-05

STATE OF MARYLAND REGISTERED PROFESSIONAL ENGINEER No. 17297

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

\DRAWINGS\04001\04001B\Finals\04001bLS18.dwg | DES. TWL | DRN. AWL | CHK. DEV

DATE	REVISION	BY	APP'R.

PREPARED FOR:
G&R MAPLE LAWN INC.
SUITE 410 WOODHOLME CENTER
1829 REISTERSTOWN ROAD
BALTIMORE, MD 21208
ATTN: CHARLIE O'DONOVAN
410-484-8400

LANDSCAPE PLAN, DETAILS & NOTES

MAPLE LAWN FARMS

Midtown District - Area 3

Parcel A-4, Non-Buildable Parcels RR-1 & RR-2 and Maple Lawn Blvd.

(A Resubdivision of Parcels 'C' and 'D')

ELECTION DISTRICT No. 5 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
1" = 100'	MXD-3/RR-DEO	04001B
DATE	TAX MAP – GRID	SHEET
NOV., 2005	41 – 16	18 OF 29

F-05-139

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FOREST CONSERVATION PLANTING NOTES

RETENTION / AFFORESTATION / REFORESTATION SUMMARY TABLE FOR MAPLE LAWN FARM PROJECT

PHASE NO.	GROSS AC.	FLOODPLAIN AC.	NET TRACT AREA	EXG. FOREST IN AC.	FOREST CLEARED	FOREST RETAINED	EXCESS RETENTION	REF/AFF REQUIRED	CREDITED PLANTING PROVIDED	EXCESS FOREST CON (PLANTING+RETENTION)	COMMENTS
1	51.98	3.40	48.58	9.45	0.51	8.94	0.63	0.00	4.56	5.19	Per F-03-07
2	75.20 ①	2.38	72.82	0.00	0.00	0.00	0.00	10.92	6.67 ⑤	-4.25	Per F-03-90
2	5.70 ①	0.00	5.70	0.00	0.00	0.00	0.00	0.86	0.00	-0.86	Per SDP-03-140
3	19.09 ②	14.85	4.24	0.21	0.00	0.21	0.00	0.43	10.49	10.06	Per F-04-92
3	-	-	-	-	-	-	-	-	-1.16	-1.16	④ Per F-05-82
4a	15.48	3.00	12.48	1.92	1.65	0.27	0.00	3.21	0.88	-2.33	Per F-05-81
4b	3.12 ⑤	0.35	2.77	0.00	0.00	0.00	0.00	0.42	-0.12 ⑥	-0.54	Per this Plan
4c	3.00	0.00	3.00	0.00	0.00	0.00	0.00	0.45	0.00	-0.45	Per F-05-112
TOTAL	173.57	23.98	149.59	11.58	2.16	9.42	0.63	16.29	21.32	5.66	

① Includes future phase areas of Maple Lawn Farms. When those areas are recorded in future phases, the forest conservation requirements will already have been met.
② 19.09 ACRES = 59.80 ACRES (Phase 3 site total) - 40.71 ACRES (Area of forest con. in Phase 3 already provided by F-03-90 (35.01 Ac) and SDP-03-140 (5.70 Ac.))
③ Reduced from 6.97 Ac. as shown on F-03-90 to 6.67 Ac. because of the 0.16 Ac. reduction of Conservation Easement #4 on F-04-79 and the 0.14 Ac. reduction of Conservation Easement #5 on F-04-88.
④ F-05-82 is a revision of Open Space Lots 221 & 222, and a conversion of Parcel 'E' to R/W. Forest Conservation Easement (FCE) #7 will abandon 0.25 ac. and FCE #8 will abandon 0.91 ac.
⑤ 3.12 ACRES = 4.38 ACRES (Phase 4 site total) - 1.26 ACRES (Area of forest con. in Phase 4 already provided by F-03-90 and F-04-92).
⑥ 0.12 ACRES = Area subtracted from forest conservation area #11 to create Public Drainage and Utility Easement

FOREST CONSERVATION WORKSHEET

SITE DATA	
A. GROSS SITE AREA	3.12
B. AREA WITHIN 100-YEAR FLOOD PLAIN	0.35
C. NET TRACT AREA	2.77
D. LAND USE CATEGORY	MXD-3
E. AFFORESTATION THRESHOLD (15% x NET TRACT AREA)	0.42
F. CONSERVATION THRESHOLD (15% x NET TRACT AREA)	0.42
EXISTING FOREST COVER	
G. EXISTING FOREST ON NET TRACT AREA	0.00
H. AREA OF FOREST ABOVE AFFORESTATION THRESHOLD (On Net Tract Area)	0.00
I. AREA OF FOREST ABOVE CONSERVATION THRESHOLD (On Net Tract Area)	0.00
PROPOSED FOREST CLEARING	
J. FOREST AREAS TO BE CLEARED (On Net Tract Area)	0.00
K. FOREST AREAS TO BE RETAINED (On Net Tract Area)	0.00
PLANTING REQUIREMENTS	
TOTAL REFORESTATION REQUIRED (J x 2.00)	0.00
TOTAL AFFORESTATION REQUIRED (E - G)	0.42
TOTAL AFFORESTATION AND REFORESTATION REQUIRED	0.42
PLANTING TO BE PROVIDED	0.00

GENERAL NOTES

1. This afforestation plan is provided in accordance with the requirements of Subtitle 12 "Forest Conservation" of the Howard County Code.
2. Implementation of this plan must be performed by a contractor that is knowledgeable and experienced in afforestation/reforestation techniques and practices.
3. The owner is responsible for a 2-year (min.) post-construction maintenance period which involves activities necessary to ensure survival and growth of the conservation area. Two inspections per year by a qualified professional at beginning and end of the growing season, are recommended in order to take remedial steps as necessary. If, after one year, the possibility exists that the original planting (if applicable) will not meet survival rate standards, the applicant may choose to establish reinforcement plantings.
4. At the end of the post-construction management and protection period, certification by a qualified consultant will be required before to the owner can be released from his/her forest conservation obligation to the administrator of the Howard County Forest Conservation program.
5. The contractor is responsible for the location of any existing utilities. The repair of any utilities damaged by the contractor shall be at the contractor's expense.
6. Street trees provided at Final Plan Stage. Landscape and Buffering requirements to be provided at Site Plan and Final Plan Stage.
7. The forest conservation easements shown on this plan will be established to fulfill the requirements of the Forest Conservation Program. No clearing, grading or construction is permitted within the forest conservation easements, however, forest management practices as defined in the Deed of Forest Conservation Easement are allowed.
8. The forest conservation requirements per Section 16.1202 of the Howard County Code and the Forest Conservation manual for Phase 4 of this project with an afforestation obligation of 0.42 acres will be fulfilled by utilizing excess forest conservation from prior phases of this project.
9. For Forest Conservation Easement Bearing and Distance information, see the subdivision Plat associated with this Plan.

CONSTRUCTION PERIOD PROTECTION PROGRAM

1. The limit of forest retention shall be staked and flagged.
2. A pre-construction meeting at the site should be held to confirm the limits of clearing specified. The meeting should include the owner or the owner's representative, the on-site foreman in charge of land disturbance, the environmental consultant and the appropriate Howard County inspectors.
3. Forest protection devices and signs (see details) shall be installed prior to any clearing or grading. The protection devices and signs shall be maintained during the entire construction period. None of the devices shall be anchored or attached in any way to the trees to be saved. The maintenance time frame may be extended to accommodate subsequent phases of development..
4. Equipment, vehicles and building materials shall not be within the protected area. Activities strictly to implement any reforestation planting and maintenance (i.e. watering, fertilizing thinning, pruning, removal of dead and diseased trees where necessary, etc.) of the conservation area are permitted. Clearing for the purpose of sodding or planting grass is not permitted within the forest conservation area once it's established.
5. At the end of the construction period, the designated qualified professional shall convey certification to the administrator of the Howard County Forest Conservation Program that all forest retention areas have been preserved, all reforestation and/or afforestation plantings (if applicable) have been installed as required by the forest conservation plan, and that all protection measures required for the post-construction period have been installed.

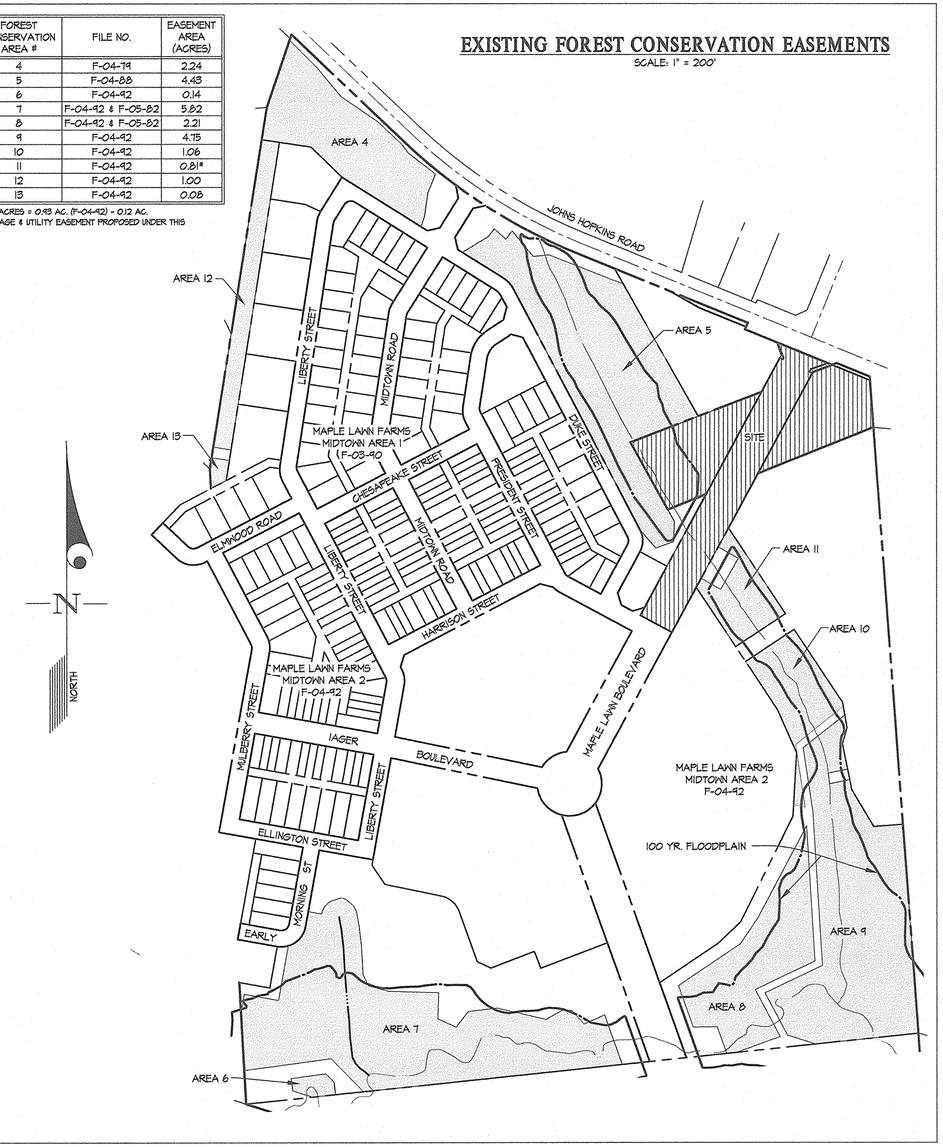
Upon review of the final certification document for completeness and accuracy, the program coordinator will notify the owner of release from the construction period obligations. The 2-year (min.) post-construction management and protection period then commences.

EXISTING FOREST CONSERVATION EASEMENTS

SCALE: 1" = 200'

FOREST CONSERVATION AREA #	FILE NO.	EASEMENT AREA (ACRES)
4	F-04-79	2.24
5	F-04-88	4.43
6	F-04-92	0.14
7	F-04-92 & F-05-82	5.82
8	F-04-92 & F-05-82	2.21
9	F-04-92	4.75
10	F-04-92	1.06
11	F-04-92	0.81*
12	F-04-92	1.00
13	F-04-92	0.08

* 0.81 ACRES = 0.93 AC. (F-04-92) - 0.12 AC. (DRAINAGE & UTILITY EASEMENT PROPOSED UNDER THIS PLAN)



APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 11-21-05

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 11/29/05

Chief, Development Engineering Division — Date 11/28/05

STATE OF MARYLAND — Michael B. Tran — No. 36666 — PROFESSIONAL ENGINEER — LANDSCAPE ARCHITECT

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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DATE	REVISION	BY	APP'R.

PREPARED FOR:
G&R MAPLE LAWN INC.
SUITE 410 WOODHOLME CENTER
1829 REISTERSTOWN ROAD
BALTIMORE, MD 21208
ATTN: CHARLIE O'DONOVAN
410-484-8400

FOREST CONSERVATION DETAILS & NOTES

MAPLE LAWN FARMS
Midtown District - Area 3
Parcel A-4, Non-Buildable Parcels RR-1 & RR-2 and Maple Lawn Blvd.
(A Resubdivision of Parcels 'C' and 'D')

ELECTION DISTRICT No. 5 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	MXD-3/RR-DEO	04001B
DATE	TAX MAP – GRID	SHEET
NOV., 2005	41 – 16	17 OF 29

F-05-139

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HILLIS - CARNES
ENGINEERING ASSOCIATES, INC.

RECORD OF SOIL EXPLORATION

Page 1 of 1

Project Name: Maplelawn Farms
Location: Scaggsville, Maryland
Boring Number: R-9
Job #: 01065A

SAMPLER
Datum:
Surf. Elev.: 491.2
Date Started: 02-30-01
Hammer Wt.: 140 Lbs.
Hammer Drop: 30 Inches
Pipe Size: 2.0 Inches OD
Hole Diameter: 6"
Rock Core Dia.: -
Boring Method: HSA
Foreman: Tim Celmer
Inspector:
Completed: 02-30-01

ELEV.	SOIL DESCRIPTION (Color, Moisture, Density, Size, Proportion)	STRA. DEPTH	DEPTH SCALE	CON	SAMPLE BLOWS 6"	NO.	REC.	BORING & SAMPLING NOTES
	SURFACE		0.0					
	Brown to reddish brown, moist, very loose to loose, silty fine sand, trace mica and root material (SM)			I	2-3-2-3	1	18"	0" Corn Field
				I	6-1-7-9	2	24"	No groundwater encounte while drilling
		5.0	5.0					
	Reddish brown to brown, moist, medium stiff to stiff, silt, trace fine sand some quartz fragments and mica (ML)			D	6-7-8-8	3	18"	Caved in at 6.1' at Completion
				I	4-6-6-7	4	19"	Caved in at 5.5' after 24 hours
		10.0	10.0					
	Bottom of Hole at 10.0'							Bag sample taken from 0'-10'
			15.0					
			20.0					

SAMPLER TYPE
DRIVEN SPLIT SPOON UNLESS OTHERWISE NOTED.
PT-PRESSED SHELBY TUBE
CA-CONTINUOUS FLIGHT AUGER
RC-ROCK CORE

SAMPLE CONDITIONS
D-DISINTEGRATED
I-INTACT
U-UNDISTURBED
L-LOST

GROUND WATER DEPTH
AT COMPLETION Dry FT.
AFTER FT.
AFTER FT.

BORING METHOD
HSA-HOLLOW STEM AUGERS
CFA-CONT. FLIGHT AUGERS
DC-DRIVING CASING
MD-MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" OD SAMPLER 1' WITH 140# HAMMER FALLING 30":COUNT MADE AT 6" INTERVALS

HILLIS - CARNES
ENGINEERING ASSOCIATES, INC.

RECORD OF SOIL EXPLORATION

Page 1 of 1

Project Name: Maple Lawn - Oliver Property SWM
Location: Howard County, Maryland
Boring Number: P-11
Job #: 01065I

SAMPLER
Datum:
Surf. Elev.: 391.2
Date Started: 06-02-04
Hammer Wt.: 140 Lbs.
Hammer Drop: 30 Inches
Pipe Size: 2.0 Inches OD
Hole Diameter:
Rock Core Dia.:
Boring Method: HSA
Foreman: Ola Aranmolate
Inspector:
Completed: 06-02-04

ELEV.	SOIL DESCRIPTION (Color, Moisture, Density, Size, Proportion)	STRA. DEPTH	DEPTH SCALE	CON	SAMPLE BLOWS 6"	NO.	REC.	BORING & SAMPLING NOTES
	SURFACE		0.0					2" Topsoil
	Orange brown, moist medium stiff to stiff, clayey silt, trace fine sand and mica (ML-CL)			I	6-6-7	1	14"	No groundwater encountered while drilling
	USDA: Sandy Loam			I	3-4-5	2	16"	
		5.0						
	Orange brown to brown moist, loose, micaceous silty sand (SM)			D	4-3-4	3	8"	
				D	3-3-3	4	10"	Caved in at 10.0' at Completion
								Caved in at 10.2' after 24 hours
		12.5						
	Brown, moist, very dense micaceous silty sand with weathered rock (Decomposed Rock)			I	21-26-32	5	15"	
			15.0					
		17.5						
	Auger Refusal at 17.5' Bottom of Test Hole at 17.5'				51/0"	6	N/A	
			20.0					

SAMPLER TYPE
DRIVEN SPLIT SPOON UNLESS OTHERWISE NOTED.
PT-PRESSED SHELBY TUBE
CA-CONTINUOUS FLIGHT AUGER
RC-ROCK CORE

SAMPLE CONDITIONS
D-DISINTEGRATED
I-INTACT
U-UNDISTURBED
L-LOST

GROUND WATER DEPTH
AT COMPLETION Dry FT.
AFTER 24 hrs Dry FT.
AFTER FT.

BORING METHOD
HSA-HOLLOW STEM AUGERS
CFA-CONT. FLIGHT AUGERS
DC-DRIVING CASING
MD-MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" OD SAMPLER 1' WITH 140# HAMMER FALLING 30":COUNT MADE AT 6" INTERVALS

HILLIS - CARNES
ENGINEERING ASSOCIATES, INC.

RECORD OF SOIL EXPLORATION

Page 1 of 1

Project Name: Maple Lawn - Oliver Property SWM
Location: Howard County, Maryland
Boring Number: E-20
Job #: 01065I

SAMPLER
Datum:
Surf. Elev.: 387.6
Date Started: 06-02-04
Hammer Wt.: 140 Lbs.
Hammer Drop: 30 Inches
Pipe Size: 2.0 Inches OD
Hole Diameter:
Rock Core Dia.:
Boring Method: HSA
Foreman: Ola Aranmolate
Inspector:
Completed: 06-02-04

ELEV.	SOIL DESCRIPTION (Color, Moisture, Density, Size, Proportion)	STRA. DEPTH	DEPTH SCALE	CON	SAMPLE BLOWS 6"	NO.	REC.	BORING & SAMPLING NOTES
	SURFACE		0.0					Boring offset 5' N and refused again at 8.5'
	Light brown, moist, medium stiff clayey silt trace mica and fine sand (ML-CL)			I	3-4-4	1	12"	2" Topsoil
		2.5						No groundwater encountered while drilling
	Orange brown, moist, medium dense micaceous silty sand with weathered rock (SM)			I	6-7-11	2	14"	Caved in at 4.5' at Completion
		6.0						Caved in at 4.0' after 24 hours
	Dark brown, moist, very dense, micaceous silty sand with rock fragments (Decomposed Rock)			D	51/4"	3	4"	
		8.5						
	Auger Refusal at 8.5' Bottom of Test Hole at 8.5'				51/0"	4	N/A	
			10.0					
			15.0					
			20.0					

SAMPLER TYPE
DRIVEN SPLIT SPOON UNLESS OTHERWISE NOTED.
PT-PRESSED SHELBY TUBE
CA-CONTINUOUS FLIGHT AUGER
RC-ROCK CORE

SAMPLE CONDITIONS
D-DISINTEGRATED
I-INTACT
U-UNDISTURBED
L-LOST

GROUND WATER DEPTH
AT COMPLETION Dry FT.
AFTER 24 hrs Dry FT.
AFTER FT.

BORING METHOD
HSA-HOLLOW STEM AUGERS
CFA-CONT. FLIGHT AUGERS
DC-DRIVING CASING
MD-MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" OD SAMPLER 1' WITH 140# HAMMER FALLING 30":COUNT MADE AT 6" INTERVALS

390.3
ENGINEERING ASSOCIATES, INC.

RECORD OF SOIL EXPLORATION

Page 1 of 1

Project Name: Maple Lawn - Oliver Property SWM
Location: Howard County, Maryland
Boring Number: E-19
Job #: 01065I

SAMPLER
Datum:
Surf. Elev.:
Date Started: 06-02-04
Hammer Wt.: 140 Lbs.
Hammer Drop: 30 Inches
Pipe Size: 2.0 Inches OD
Hole Diameter:
Rock Core Dia.:
Boring Method: HSA
Foreman: Ola Aranmolate
Inspector:
Completed: 06-02-04

ELEV.	SOIL DESCRIPTION (Color, Moisture, Density, Size, Proportion)	STRA. DEPTH	DEPTH SCALE	CON	SAMPLE BLOWS 6"	NO.	REC.	BORING & SAMPLING NOTES
	SURFACE		0.0					2" Topsoil
	Orange brown, moist, stiff silt, trace clay, fine sand, mica, and quartz rock fragments (ML)			I	4-5-7	1	14"	No groundwatedr encountered while drilling
		5.0		I	4-7-9	2	14"	Caved in at 4.0' at Completion
								Caved in at 4.0' after 24 hours
	Brown/gray, dry, very dense, micaceous silty sand with rock fragments (Decomposed Rock)			D	51/6"	3	6"	
		8.5						
	Auger Refusal at 8.5' Bottom of Test Hole at 8.5'				51/0"	4	N/A	
			10.0					
			15.0					
			20.0					

SAMPLER TYPE
DRIVEN SPLIT SPOON UNLESS OTHERWISE NOTED.
PT-PRESSED SHELBY TUBE
CA-CONTINUOUS FLIGHT AUGER
RC-ROCK CORE

SAMPLE CONDITIONS
D-DISINTEGRATED
I-INTACT
U-UNDISTURBED
L-LOST

GROUND WATER DEPTH
AT COMPLETION Dry FT.
AFTER 24 hrs Dry FT.
AFTER FT.

BORING METHOD
HSA-HOLLOW STEM AUGERS
CFA-CONT. FLIGHT AUGERS
DC-DRIVING CASING
MD-MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" OD SAMPLER 1' WITH 140# HAMMER FALLING 30":COUNT MADE AT 6" INTERVALS

5.0 EVALUATIONS AND RECOMMENDATIONS

Our findings indicate that the site conditions are adequate for a project of the intended scope. Special consideration should be given to the dewatering necessary in order to accomplish the required excavation, undercutting and bedding construction for the culverts. Dense decomposed rock materials in HCEA boring B-4 at elevation El 359.2 may require non-conventional excavation techniques like the use of rippers, excavators with rock teeth, hoe ramming etc. to achieve planned foundation bedding invert levels.

The following recommendations have been developed on the basis of the previously described project characteristics and subsurface conditions. If there are any changes to the project characteristics or if different subsurface conditions are encountered during construction, HCEA should be consulted so that the recommendations of this report can be reviewed and revised, if necessary.

5.1 Culverts

Culvert structures can be planned to bear on medium dense, or very dense natural ground materials encountered at the boring locations. Soft/loose surficial soil conditions are anticipated to extend locally to depths of 2 to 5 feet below culvert invert levels at locations of borings B-2 and B-3 based on topographic information provided and the boring results. Pockets of organic alluvium could be encountered in areas of the existing stream, or in lowlying wetland areas adjacent to the stream.

Foundation bedding materials should extend through surficial organic soils and/or loose/soft materials that were encountered periodically in the upper two feet to five feet of site grades during the investigation. Undercut materials can be replaced with clean, crushed #57 stone or other freely draining material approved by the Geotechnical Engineer.

Dewatering of the culvert foundation to accomplish undercutting and to place bedding for support of the new culvert structures at Hammond Branch will be required. Depending upon the depths of proposed culvert bedding materials, undercut requirements and proximity of excavations to the existing stream; extensive groundwater flows through upper granular soils could require the need for an elaborate perimeter dewatering system like deep wells or well points. An effective system should maintain water levels a minimum of two feet below excavation invert levels.

Interested contractors should adequately familiarize themselves with the site conditions and the information provided prior to bidding the project. Specialty, foundation and/or dewatering contractors familiar with Piedmont geology in general and Howard County soils in particular should be solicited to identify project construction requirements and to perform the work.

Backfill materials and methods are extremely important in the construction of metal pipe arch culvert structures. Backfill of the haunch areas adjacent to the pipe are extremely critical to the performance or behavior of the completed structure. A "select fill structural backfill zone" consisting of the haunch areas under the culverts and a minimum 10 foot wide horizontal width beyond the sidewalls of the super-span structures is typically specified to be backfilled with coarse select granular borrow meeting AASHTO M-145 Classification A-1-b, or better. Manufacturer's representatives should be contacted directly for backfill requirements for their particular structure types.

Select backfill materials should be constructed in maximum 8-inch thick compacted lifts and to minimum in-place densities equal to 92 percent of Modified Proctor maximum dry density. Other suitable and compactable materials from onsite cuts can be used in the structural backfill zone of culverts beyond the 10-foot "select fill structural zone".

Culvert structures founded and backfilled as recommended and in accordance with all other Manufacturer Backfill Requirements are considered to have adequate bearing capacity to support structural loads and the soil envelope with minimal differential settlements. Settlements resulting from the silt and sand soils encountered in the investigation are expected to be elastic and to occur during backfilling and final grading operations. No long-term consolidation settlements are expected.

Hammond Branch waters have not been tested for pH and resistivity as part of this program. Manufacturers should be contacted directly with regard to specific concerns and/or testing requirements about corrosion protection.

Prior to beginning the stream diversion and culvert foundation excavation work, a special preconstruction conference on the culvert is recommended. The purpose of the meeting would be to review the contractors proposed construction means and methods. A representative of the Owner, Civil Engineer, Prime Contractor, Specialty subcontractors, Manufacturer and Geotechnical Engineer responsible for monitoring the construction should be in attendance.

Retaining walls-either consisting of poured in place concrete walls or a combination of poured in-place headwalls and segmental retaining walls-are assumed to be required for culvert end-sections. Walls should be designed for retained soils, surcharge loads and hydrostatic or seepage pressures as required by the road and culvert design.

An angle of internal friction of 32 degrees and an in-place moist or wet density of 138 pcf is recommended for walls retaining A-1, select granular backfill materials. For wall systems retaining on site, granular mixtures of sand and silt, we recommend an angle of internal friction of 30 degrees and a moist unit weight of 135 pcf. Clay soils should not be used to backfill structures.

Retaining walls must be designed for the full range of potential modes of failure including base sliding, overturning, bearing capacity, internal shear capacity and global stability.

Drainage systems are recommended for retaining wall designs. Depending on the size and height of the wall, drainage may include aggregate drainage material or man-made products like Mira-drain boards and a blanket drain with a discharge pipe and gravity flow to a suitable outfall. In the event that backfill soils retained by the wall are subject to horizontal water flows (i.e. seepage), additional chimney drains with outfalls to the blanket drain may also be required for upstream walls. Drainage materials may also require geotextile filter cloth for protection from fines associated with seepage. These details need to be considered in the particular wall design.

6.0 RECOMMENDED ADDITIONAL SERVICES

Additional soil and foundation engineering, testing, and consulting services recommended for this project are summarized below:

Site Preparation and Proofrolling: A Geotechnical Engineer or experienced Soils Inspector should inspect the site after it has been stripped and excavated. The inspector should determine if any undercutting or in-place densification is necessary to prepare a subgrade for fill placement or for slab support.

Fill Placement and Compaction: A Geotechnical Engineer or experienced Soils Inspector should witness any required filling operations and should take sufficient in-place density tests to verify that the specified degree of fill compaction is achieved. He should observe and approve borrow materials used and should determine if their existing moisture contents are suitable.

Footing Excavation Inspections: A Geotechnical Engineer or experienced Soils Inspector should inspect the footing excavations for the building foundations. He should verify that the design bearing pressure is available and that no loose pockets exist beneath the bearing surfaces of the footing excavations. Based on the inspection, the Inspector would either approve the bearing surfaces or recommend that loose or soft soils be undercut to expose satisfactory bearing materials.

HILLIS-CARNES ENGINEERING

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Chief, Bureau of Highways — Date 11-21-05

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Chief, Division of Land Development — Date 11/29/05
Chief, Development Engineering Division MK — Date 11/28/05

STATE OF MARYLAND PROFESSIONAL ENGINEER CHARLES W. O'DONOVAN No. 12971

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

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DATE	REVISION	BY	APP'R.

PREPARED FOR:
G&R MAPLE LAWN INC.
SUITE 410 WOODHOLME CENTER
1829 REISTERSTOWN ROAD
BALTIMORE, MD 21208
ATTN: CHARLIE O'DONOVAN
410-484-8400

SOIL BORINGS DETAILS & NOTES

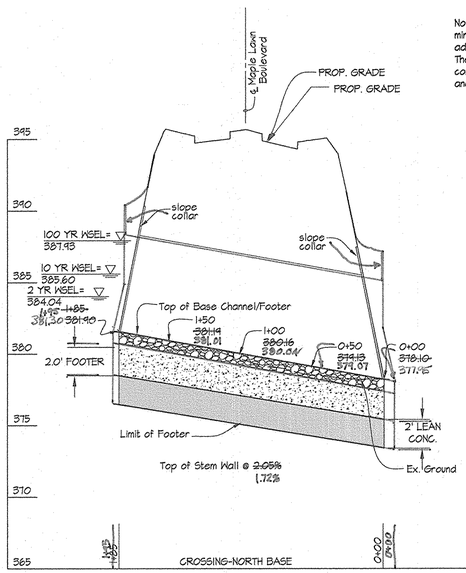
MAPLE LAWN FARMS
Midtown District - Area 3
Parcel A-4, Non-Buildable Parcels RR-1 & RR-2 and Maple Lawn Blvd.
(A Resubdivision of Parcels 'C' and 'D')

ELECTION DISTRICT No. 5 — HOWARD COUNTY, MARYLAND

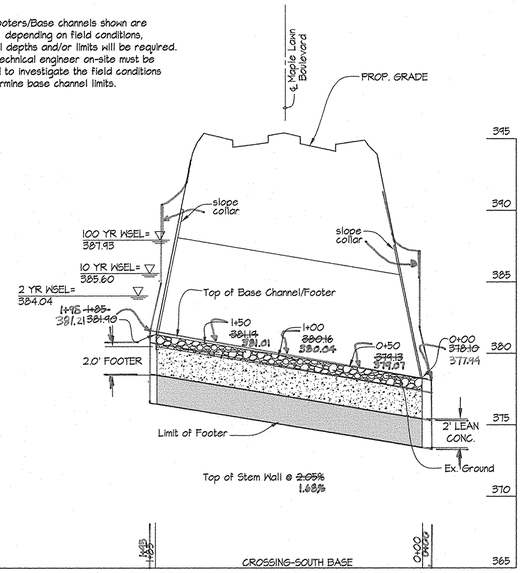
SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	MXD-3/RR-DEO	04001B
DATE	TAX MAP – GRID	SHEET
NOV., 2005	41 – 16	16 OF 29

F-05-139

L:\CADD\DRAWINGS\04001\04001B\Finals\04001bB016.dwg 11/8/2005 2:25:40 PM EST



Note: Footers/Base channels shown are minimums. depending on field conditions, additional depths and/or limits will be required. The geotechnical engineer on-site must be consulted to investigate the field conditions and determine base channel limits.



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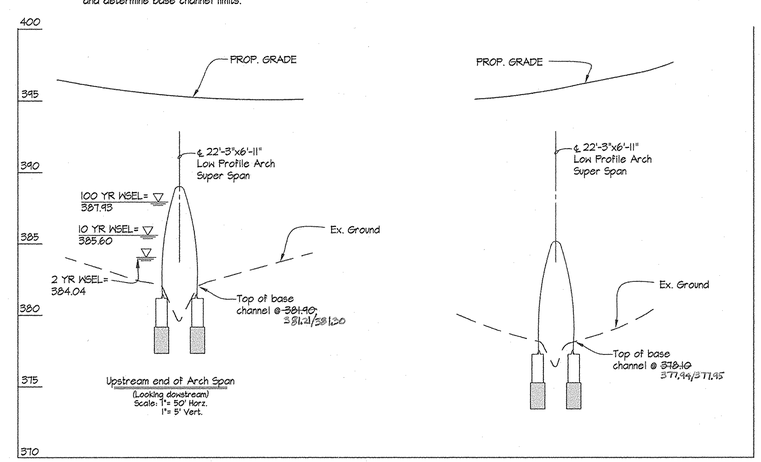
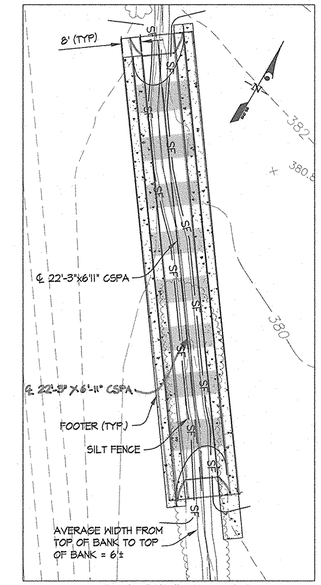
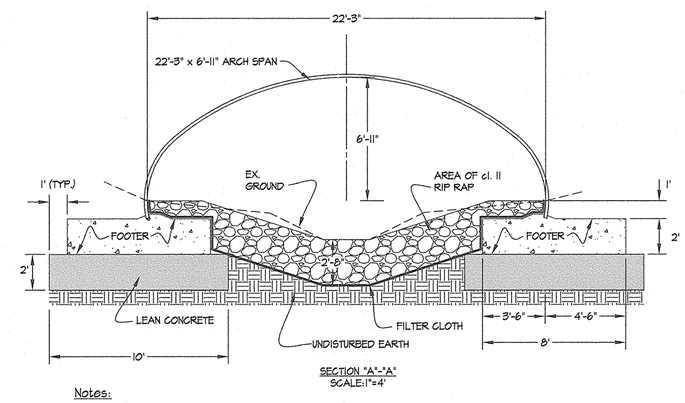




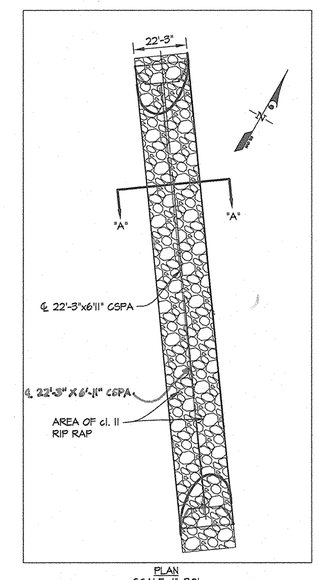
CULVERT PLAN WITH FOOTERS
SCALE: 1"=30'



SECTION "A"-"A"
SCALE:1"=4'

Notes:

1. If the concrete mat and the footer are placed as two pours, the two must be tied together with rebar.
2. See pipe manufacturer plan (sheet 2B) for FOOTING reinforcemnet detail.



PLAN
SCALE: 1"=30'

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Chief, Bureau of Highways — Date 11-21-05

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Chief, Division of Land Development — Date 11/9/05
Chief, Development Engineering Division MK — Date 11/28/05

DEVELOPER'S/BUILDER'S CERTIFICATE

"I/We certify that all development and/or construction will be done according to this plan, and that any responsible personnel involved in the construction project will have a Certificate of Attendance at a Maryland Department of the Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I also authorize periodic on-site inspection by the HSCD."

Signature of Developer/Builder — Date 11-9-05

ENGINEER'S CERTIFICATE

"I certify that this plan for erosion and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District."

Date 11-9-05

STATE OF MARYLAND — CHARLES K. GUTSCHICK — No. 11997

For As Built CKG

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

Howard S.C.D. — Date 11/16/05

These plans have been reviewed for the Howard Soil Conservation District and meet the technical requirements.

Natural Resources Conservation Service — Date 11/16/05

ASBUILT OCT., 2006

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

\DRAWINGS\04001\04001b\FINALS\04001DT15.dwg | DES. DEV | DRN. AWL | CHK. DEV

DATE	REVISION	BY	APP'R.

PREPARED FOR:
G&R MAPLE LAWN INC.
SUITE 410 WOODHOLME CENTER
1829 REISTERSTOWN ROAD
BALTIMORE, MD 21208
ATTN: CHARLIE O'DONOVAN
410-484-8400

STREAM CROSSING DETAILS & NOTES

MAPLE LAWN FARMS
Midtown District - Area 3
Parcel A-4, Non-Buildable Parcels RR-1 & RR-2 and Maple Lawn Blvd.
(A Resubdivision of Parcels 'C' and 'D')

ELECTION DISTRICT No. 5 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	MXD-3/RR-DEO	04001B
DATE	TAX MAP – GRID	SHEET
NOV., 2005	41 – 16	15 OF 29

F-05-139

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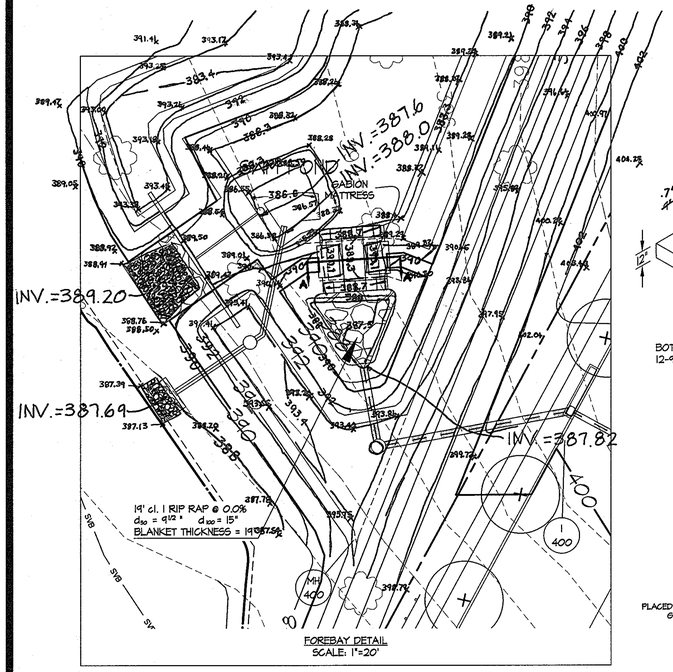
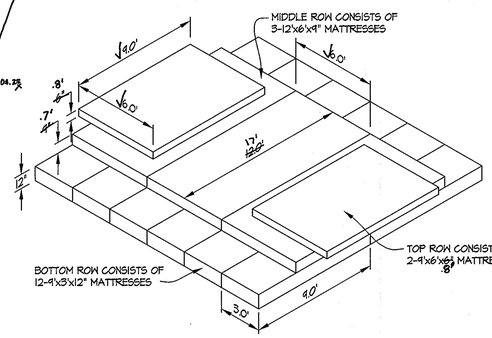
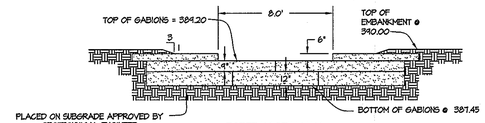


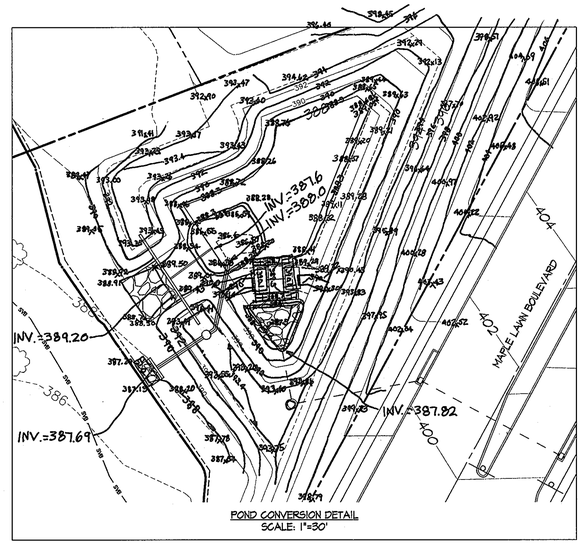
FOREBAY DETAIL
SCALE: 1"=20'



GABION MATTRESS DETAIL
SCALE: 1"=5'



FOREBAY SPILLWAY
SECTION 'A'-'A'



POND CONVERSION DETAIL
SCALE: 1"=30'

OPERATION AND MAINTENANCE SCHEDULE
FOR PUBLICLY OWNED AND JOINTLY MAINTAINED RETENTION POND
(BY HOWARD COUNTY DEPT. OF PUBLIC WORKS)

Routine Maintenance *(By Homeowner's Association)*

1. Facility shall be inspected annually and after major storms. Inspections shall be performed during wet weather to determine if the pond is functioning properly.

2. Top and side sloped of the embankment shall be mowed a minimum of two (2) times per year, once in June and once in September. Other side slopes and maintenance access shall be mowed as needed.

3. Debris and litter shall be removed during regular mowing operations as needed.

4. Visible signs of erosion in the pond as well as the rip-rap or gabion outlet area shall be repaired as soon as it is noticed.

Non-Routine Maintenance *(By Howard Co. Dept. of Public Works)*

1. Structural components of the pond such as the dam, the release structure, and the pipes shall be repaired upon the detection of any damage. The components shall be inspected during routine maintenance operations.

2. Sediment shall be removed from the pond, and foreboy, no later then when the capacity of the pond, is half-full of sediment or when deemed necessary for aesthetic reasons, upon approval from the Department of Public Works.

CONSTRUCTION SPECIFICATIONS

These specifications are appropriate to all ponds facility number 1& 3. All references to ASTM and AASHTO specifications apply to the most recent version.

Site Preparation

Areas designated for borrow areas, embankment, and structural works shall be cleared, grubbed and stripped of topsoil. All trees, vegetation, roots and other objectionable material shall be removed. Channel banks and sharp breaks shall be sloped to no steeper than 1:1. All trees shall be cleared and grubbed within 20 feet of the toe of the embankment.

Areas to be covered by the reservoir will be cleared of all trees, brush, logs, fences, rubbish and other objectionable material unless otherwise designated on the plans. Trees, brush, and stumps shall be cut approximately level with the ground surface.

All cleared and grubbed material shall be disposed of outside and below the limits of the dam and reservoir as directed by the owner or his representative. When specified, a sufficient quantity of topsoil will be stockpiled in a suitable location for use on the embankment and other designated areas.

Earth Fill

Material – The fill material shall be taken from approved designated borrow areas. It shall be free of roots, stumps, wood, rubbish, stones greater than 6", frozen or other objectionable materials. Fill material for the center of the embankment conform to Unified Soil Classification GC, SC, CH, or CL and must have at least 30
% passing the #200 sieve. Consideration may be given to the use of other materials in the embankment if designed by a geotechnical engineer. Such special designs must have construction supervised by a geotechnical engineer.

Materials used in the outer shell of the embankment must have the capability to support vegetation of the quality required to prevent erosion of the embankment.

Placement – Areas on which fill is to be placed shall be scarified prior to placement of fill. Fill materials shall be placed in maximum 8-inch thick (before compaction) layers which are to be continuous over the entire length of the fill. The most permeable borrow material shall be placed in the downstream portions of the embankment. The principal spillway must be installed concurrently with fill placement and not excavated into the embankment.

Compaction – The movement of the hauling and spreading equipment over the fill shall be controlled so that the entire surface of each lift shall be traversed by not less than one tread track of heavy equipment or compaction shall be achieved by a minimum of four complete passes of a sheepsfoot, rubber tired or vibratory roller. Fill material shall contain sufficient moisture such that the required degree of compaction will be obtained with the equipment used. The fill material shall contain sufficient moisture so that if formed into a ball it will not crumble, yet not be so wet that water can be squeezed out.

When required by the reviewing agency the minimum required density shall not be less than 95% of maximum dry density with a moisture content within ±2% of the optimum. Each layer of fill shall be compacted as necessary to obtain that density, and is to be certified by the Engineer at the time of construction. All compaction is to be determined by AASHTO Method T-99 (Standard Proctor).

Embankment Core – The core shall be parallel to the centerline of the embankment as shown on the plans. The top width of the core shall be a minimum of four feet. The height shall extend up to at least the 10-year water elevation or as shown on the plans. The side slopes shall be 1 to 1 or flatter. The core shall be compacted with construction equipment, rollers, or hand tampers to assure maximum density and minimum permeability. In addition, the core shall be placed concurrently with the outer shell of the embankment.

Structure Backfill

Backfill adjacent to pipes or structures shall be of the type and quality conforming to that specified for the adjoining fill material. The fill shall be placed in horizontal layers not to exceed four inches in thickness and compacted by hand tampers or other manually directed compaction equipment. The material needs to fill completely all spaces under and adjacent to the pipe. At no time during the backfilling operation shall driven equipment be allowed to operate closer than four feet, measured horizontally, to any part of a structure. Under no circumstances shall equipment be driven over any part of a concrete structure or pipe, unless there is a compacted fill of 24" or greater over pipe.

Structure backfill may be flowable fill meeting the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 313 as modified. The mixture shall have a 100-200 psi; 28 day unconfined compressive strength. The flowable fill shall have a minimum pH of 4.0 and a minimum resistivity of 2,000 ohm-cm. Material shall be placed such that a minimum of 6" (measured perpendicular to the outside of the pipe) of flowable fill shall be under (bedding), over and, on the sides of the pipe. It only needs to extend up to the spring line for rigid conduits. Average slump of the fill shall be 7" to assure flowability of the material. Adequate measures shall be taken (sand bags, etc.) to prevent floating the pipe. When using flowable fill, all metal pipe shall be bituminous coated. Any adjoining soil fill shall be placed in horizontal layers not to exceed four inches in thickness and compacted by hand tampers or other manually directed compaction equipment. The material shall completely fill all voids adjacent to the flowable fill zone. At no time during the backfilling operation shall driven equipment be allowed to operate closer than four feet, measured horizontally, to any part of a structure. Under no circumstances shall equipment be driven over any part of a structure or pipe unless there is a compacted fill of 24" or greater over the structure or pipe. Backfill material outside the structural backfill (flowable fill) zone shall be of the type and quality conforming to other embankment materials.

Pipe Conduits

All pipes shall be circular in cross section.

Corrugated Metal Pipe – All of the following criteria shall apply for corrugated metal pipe:

1. Materials –(Polymer Coated steel pipe) – Steel pipes with polymeric coatings shall have a minimum coating thickness of 0.01 inch (10 mil) on both sides of the pipe. This pipe and its appurtenances shall conform to the requirements of AASHTO Specifications M-245 & M-246 with watertight coupling bands or flanges.

Materials – (Aluminum Coated Steel Pipe) – This pipe and its appurtenances shall conform to the requirements of AASHTO Specification M-274 with watertight coupling bands or flanges. Aluminum Coated Steel Pipe, when used with flowable fill or when soil and/or water conditions warrant the need for increased durability, shall be fully bituminous coated per requirements of AASHTO Specification M-190 Type A. Any aluminum coating damaged or otherwise removed shall be replaced with cold applied bituminous coating compound. Aluminum surfaces that are to be in contact with concrete shall be painted with one coat of zinc chromate primer or two coats of asphalt.

Materials – (Aluminum Pipe) – This pipe and its appurtenances shall conform to the requirements of AASHTO Specification M-196 or M-211 with watertight coupling bands or flanges. Aluminum Pipe, when used with flowable fill or when soil and/or water conditions warrant for increased durability, shall be fully bituminous coated per requirements of AASHTO Specification M-190 Type A. Aluminum surfaces that are to be in contact with concrete shall be painted with one coat of zinc chromate primer or two coats of asphalt. Hot dip galvanized bolts may be used for connections. The pH of the surrounding soils shall be between 4 and 9.

2. Coupling bands, anti-seep collars, and sections, etc., must be composed of the same material and coatings as the pipe. Metals must be insulated from dissimilar materials with use of rubber or plastic insulating materials at least 24 mils in thickness.

3. Connections – All connections with pipes must be completely watertight. The drain pipe or barrel connection to the riser shall be welded all around when the pipe and riser are metal. Anti-seep collars shall be connected to the pipe in such a manner as to be completely watertight. Dimple bands are not considered to be watertight.

All connections shall use a rubber or neoprene gasket when joining pipe sections. The end of each pipe shall be re-rolled an adequate number of corrugations to accommodate the bandwidth. The following type connections are acceptable for pipes less than 24 inches in diameter: flanges on both ends of the pipe with a circular 3/8 inch closed cell neoprene gasket, prepunched to the flange bolt circle, sandwiched between adjacent flanges; a 12-inch wide standard lap type band with 12-inch wide by 3/8-inch thick closed cell circular neoprene gasket; and a 12-inch wide hugger type band with o-ring gaskets having a minimum diameter of 1/2 inch greater than the corrugation depth. Pipes 24 inches in diameter and larger shall be connected by a 24 inch long annular corrugated band using a minimum of 4 (four) rods and lugs, 2 on each connecting pipe end. A 24-inch wide by 3/8-inch thick closed cell circular neoprene gasket will be installed with 12 inches on the end of each pipe. Flanged joints with 3/8 inch closed cell gaskets the full width of the flange is also acceptable.

Helically corrugated pipe shall have either continuously welded seams or have lock seams with internal caulking or a neoprene bead.

4. Bedding – The pipe shall be firmly and uniformly bedded throughout its entire length. Where rock or soft, spongy or other unstable soil is encountered, all such material shall be removed and replaced with suitable earth compacted to provide adequate support.

5. Backfilling shall conform to "Structure Backfill".

6. Other details (anti-seep collars, valves, etc.) shall be as shown on the drawings.

Plastic Pipe – The following criteria shall apply for plastic pipe:

1. Materials – PVC pipe shall be PVC-1120 or PVC-1220 conforming to ASTM D-1785 or ASTM D-2241. Corrugated High Density Polyethylene (HDPE) pipe, couplings and fittings shall conform to the following: 4" – 10" inch pipe shall meet the requirements of AASHTO M252 Type S, and 12" through 24" inch shall meet the requirements of AASHTO M294 Type S.

2. Joints and connections to anti-seep collars shall be completely watertight.

3. Bedding – The pipe shall be firmly and uniformly bedded throughout its entire length. Where rock or soft, spongy or other unstable soil is encountered, all such material shall be removed and replaced with suitable earth compacted to provide adequate support.

4. Backfilling shall conform to "Structure Backfill".

5. Other details (anti-seep collars, valves, etc.) shall be as shown on the drawings.

Concrete

Concrete shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 414, Mix No. 3.

Rock Riprap

Rock riprap shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 311.

Geotextile shall be placed under all riprap and shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 921.09, Class C.

Care of Water during Construction

All work on permanent structures shall be carried out in areas free from water. The Contractor shall construct and maintain all temporary dikes, levees, cofferdams, drainage channels, and stream diversions necessary to protect the areas to be occupied by the permanent works. The contractor shall also furnish, install, operate, and maintain all necessary pumping and other equipment required for removal of water from various parts of the work and for maintaining the excavations, foundation, and other parts of the work free from water as required or directed by the engineer for constructing each part of the work. After having served their purpose, all temporary protective works shall be removed or leveled and graded to the extent required to prevent obstruction in any degree whatsoever of the flow of water to the spillway or outlet works and so as not to interfere in any way with the operation or maintenance of the structure. Stream diversions shall be maintained until the full flow can be passed through the permanent works. The removal of water from the required excavation and the foundation shall be accomplished in a manner and to the extent that will maintain stability of the excavated slopes and bottom required excavations and will allow satisfactory performance of all construction operations. During the placing and compacting of material in required excavations, the water level at the locations being refilled shall be maintained below the bottom of the excavation at such locations which may require draining the water sumps from which the water shall be pumped.

Stabilization

All borrow areas shall be graded to provide proper drainage and left in a sightly condition. All exposed surfaces of the embankment, spillway, spoil and borrow areas, and berms shall be stabilized by seeding, liming, fertilizing and mulching.

Erosion and Sediment Control

Construction operations will be carried out in such a manner that erosion will be controlled and water and air pollution minimized. State and local laws concerning pollution abatement will be followed. Construction plans shall detail erosion and sediment control measures.

OPERATION AND MAINTENANCE

An operation and maintenance plan in accordance with Local or State Regulations will be prepared for all ponds. As a minimum, the dam inspection checklist located in Appendix A shall be included as part of the operation and maintenance plan and performed at least annually. Written records of maintenance and major repairs needs to be retained in a file. The issuance of a Maintenance and Repair Permit for any repairs or maintenance that involves the modification of the dam or spillway from its original design and specifications is required. A permit is also required for any repairs or reconstruction that involve a substantial portion of the structure. All indicated repairs are to be made as soon as practical.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways	Date 11-21-05

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development	Date 11/29/05
Chief, Development Engineering Division MK	Date 11/30/05

DEVELOPER'S/BUILDER'S CERTIFICATE

"I/We certify that all development and/or construction will be done according to this plan, and that any responsible personnel involved in the construction project will have a Certificate of Attendance at a Maryland Department of the Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I also authorize periodic on-site inspection by the HCD."

Signature of Developer/Builder	Date 11-9-05

ENGINEER'S CERTIFICATE

"I certify that this plan for erosion and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District."

Signature of Engineer	Date 11-9-05

STATE OF MARYLAND — JOHN R. GUTSCHICK — No. 12273 — PROFESSIONAL ENGINEER

For As-Built CKJ

These plans have been reviewed for the Howard Soil Conservation District and meet the technical requirements.

Natural Resources Conservation Service	Date 11/16/05

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

Howard S.C.D.	Date 11/16/05

ASBUILT OCT., 2006

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DATE	REVISION	BY	APP'R.

PREPARED FOR:
G&R MAPLE LAWN INC.
SUITE 410 WOODHOLME CENTER
1829 REISTERSTOWN ROAD
BALTIMORE, MD 21208
ATTN: CHARLIE O'DONOVAN
410-484-8400

STORMWATER MANAGEMENT NOTES & DETAILS

MAPLE LAWN FARMS
Midtown District - Area 3
Parcel A-4, Non-Buildable Parcels RR-1 & RR-2 and Maple Lawn Blvd.
(A Resubdivision of Parcels 'C' and 'D')

ELECTION DISTRICT No. 5 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	MXD-3/RR-DEO	04001B
DATE	TAX MAP – GRID	SHEET
NOV., 2005	41 – 16	14 OF 29

F-05-139

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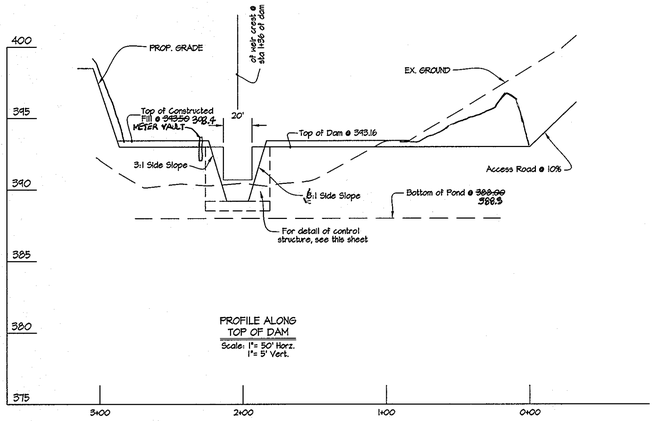
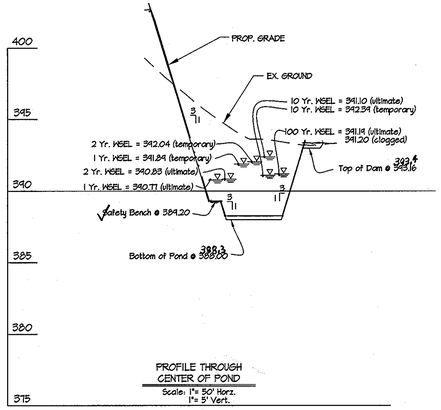
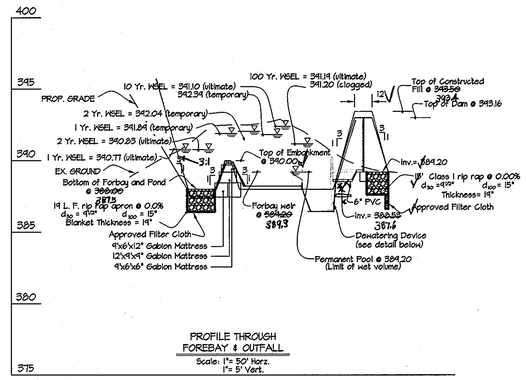


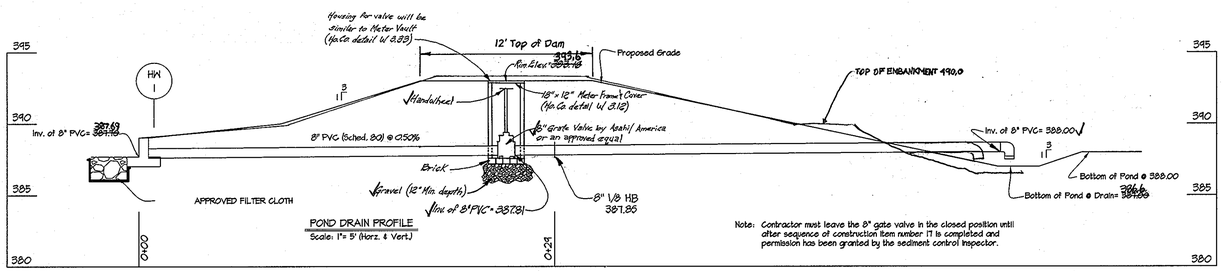
PROFILE ALONG TOP OF DAM
Scale: 1" = 50' Horz.
1" = 5' Vert.



PROFILE THROUGH CENTER OF POND
Scale: 1" = 50' Horz.
1" = 5' Vert.

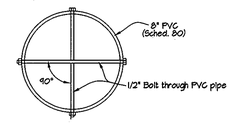


PROFILE THROUGH FOREBAY & OUTFALL
Scale: 1" = 50' Horz.
1" = 5' Vert.

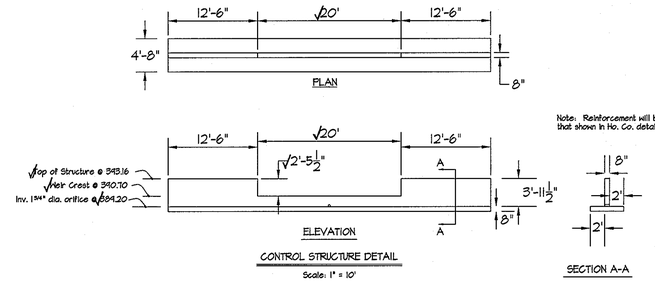


POND DRAIN PROFILE
Scale: 1" = 5' (Horz. & Vert.)

Note: Contractor must leave the 8" gate valve in the closed position until after sequence of construction item number 17 is completed and permission has been granted by the sediment control inspector.

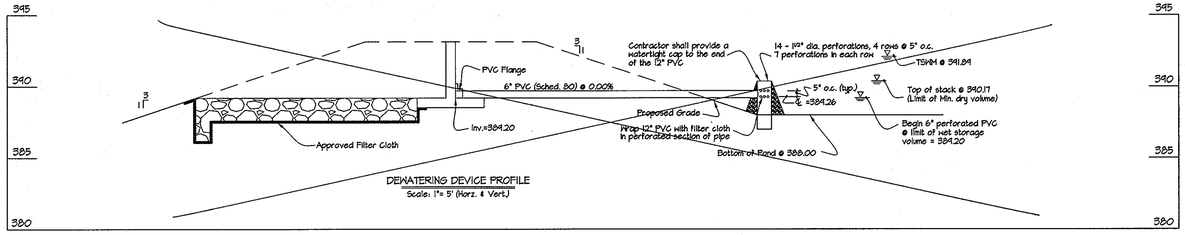


VARMINT GUARD AT DOWNSTREAM END OF POND DRAIN
Not to Scale

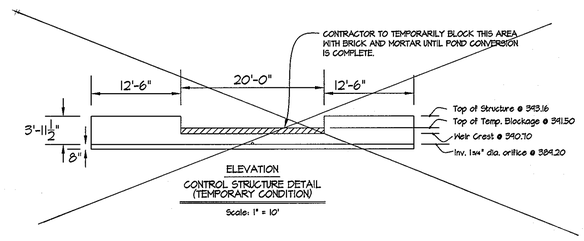


Note: Reinforcement will be similar that shown in Ho. Co. detail SD 5.21

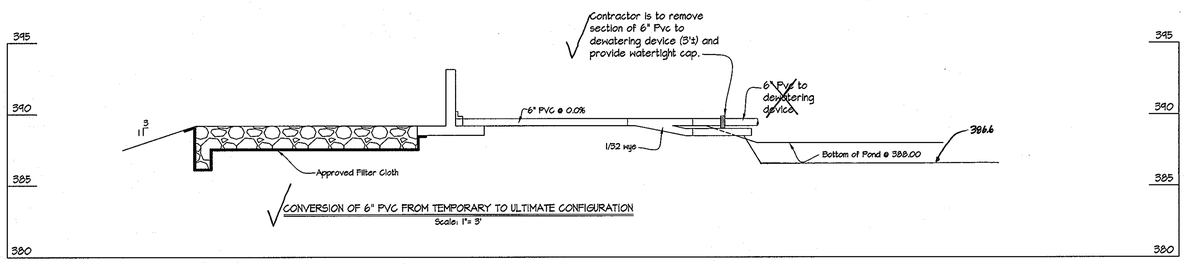
CONTROL STRUCTURE DETAIL
Scale: 1" = 10'



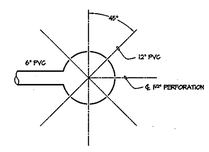
DEWATERING DEVICE PROFILE
Scale: 1" = 5' (Horz. & Vert.)



ELEVATION
CONTROL STRUCTURE DETAIL (TEMPORARY CONDITION)
Scale: 1" = 10'



CONVERSION OF 6" PVC FROM TEMPORARY TO ULTIMATE CONFIGURATION
Scale: 1" = 5'



PERFORATION PATTERN
Not to Scale

DEVELOPER'S/BUILDER'S CERTIFICATE

"I/We certify that all development and/or construction will be done according to these plans, and that any responsible personnel involved in the construction project will have a Certificate of Attendance at a Maryland Department of the Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. ~~I shall engage a registered Professional Engineer to supervise pond construction and provide the Howard Soil Conservation District with an "as-built" plan of the pond within 30 days of completion.~~ I also authorize periodic on-site inspections by the Howard Soil Conservation District.

Signature of Developer/Builder — Date: 11-9-05

For As-Built CKA

ENGINEER'S CERTIFICATE

"I certify that this plan for ~~pond construction,~~ erosion and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions. This plan was prepared in accordance with the requirements of the Howard Soil Conservation District. ~~I have notified the developer that he/she must engage a registered professional engineer to supervise pond construction and provide the Howard Soil Conservation District with an "as-built" plan of the pond within 30 days of completion.~~"

Engineer's Signature — Date: 11-9-05

These plans have been reviewed for the Howard Soil Conservation District and meet the technical requirements.

Natural Resources Conservation Service — Date: 11/16/05

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

Howard Soil Conservation District — Date: 11/16/05

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Chief, Bureau of Highways — Date: 11-21-05

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Chief, Division of Land Development — Date: 11/21/05
Chief, Development Engineering Division MK — Date: 11/20/05

ASBUILT OCT., 2006

ASBUILT SHEET 5 OF 7

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Stormwater Management Summary for Facility West of Maple Lawn Boulevard

PRE-DEVELOPMENT

Drainage Area=3.2 Acres or 0.0050 Sq. Miles
Curve Number=81 Time of Concentration=0.06 Hours

Pre Development

SEGMENT	DESCRIPTION	TIME
A - B	40' OVERLAND FLOW @ 3% (PAVING, n = 0.011)	0.01 hr.
B - C	40' PAVED SHALLOW CONCENTRATED FLOW @ 2% (V = 2.9 f.p.s.)	-----
C - D	750' UNPAVED SHALLOW CONCENTRATED FLOW @ 5% (V = 3.6 f.p.s.)	0.05 hr.

POST-DEVELOPMENT

Drainage Area=2.5 Acres or 0.0039 Sq. Miles
Curve Number=88 Time of Concentration=0.07 Hours

Post Development

SEGMENT	DESCRIPTION	TIME
E - F	40' OVERLAND FLOW @ 3% (PAVING, n = 0.011)	0.01 hr.
F - G	530' SHALLOW CONCENTRATED FLOW @ 2.8% (V = 3.4 f.p.s.)	0.04 hr.
G - H	420' PIPE FLOW @ 7.0'/SEC.	0.02 hr.

Water Quality Volume Required:	3,775 c.f.	Provided:	4,190 c.f.
Recharge Volume Required:	519 c.f.	Provided:	See note 4 below
Channel Protection Volume Required:	8,738 c.f.	Provided:	10,068 c.f. @ 390.77

1. The facility will be publicly owned and maintained.
   An open space lot will be conveyed to the County.
2. The facility will be a P-5 (Pocket Pond), wet pond with extended detention.
3. The facility has an 'A' classification.
4. The storage will be provided in an infiltration trench type facility withing a parking lot at site development plan stage.

POND SUMMARY

	Before	Unmanaged	Managed
		FINAL SWM @ POND	
1 YR	5.26 c.f.s.	5.63 c.f.s.	0.10 c.f.s. @ 390.77
2 YR	7.52 c.f.s.	7.53 c.f.s.	0.88 c.f.s. @ 390.83
10 YR	15.15 c.f.s.	13.60 c.f.s.	13.31 c.f.s. @ 391.10
100 YR	---------	20.25 c.f.s.	19.38 c.f.s. @ 391.20
		TEMPORARY SWM @ POND	
1 YR	5.26 c.f.s.	9.30 c.f.s.	0.13 c.f.s. @ 391.89
2 YR	7.52 c.f.s.	11.71 c.f.s.	1.07 c.f.s. @ 392.04
10 YR	15.15 c.f.s.	19.28 c.f.s.	19.63 c.f.s. @ 392.39

LEGEND

HYDROLOGIC SOIL GROUP

'C' SOIL

'D' SOIL

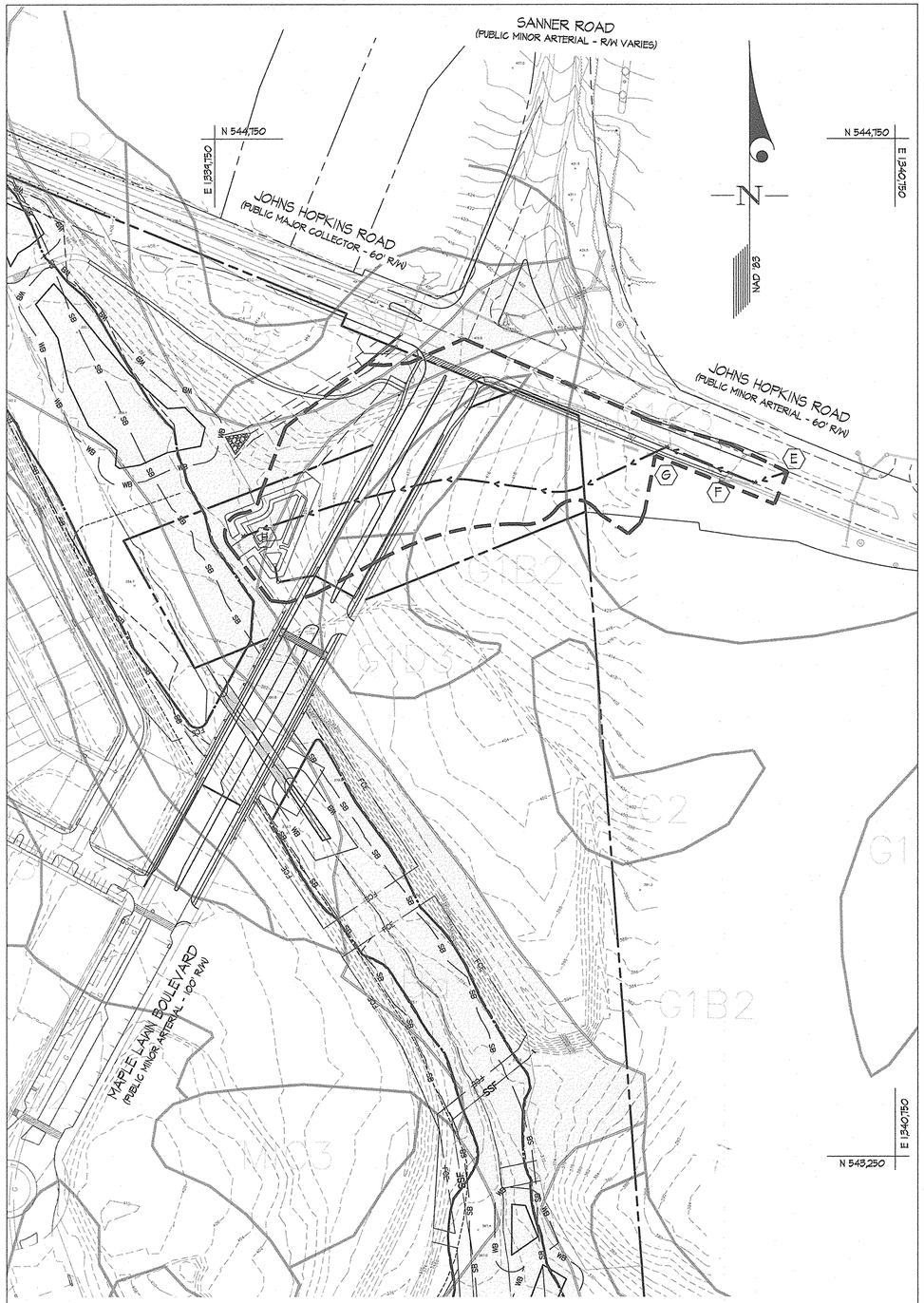
NOTE: REMAINDER OF DRAINAGE AREA TO POND IS 'B' SOIL.

Time of Concentration Path (Pre-Development)

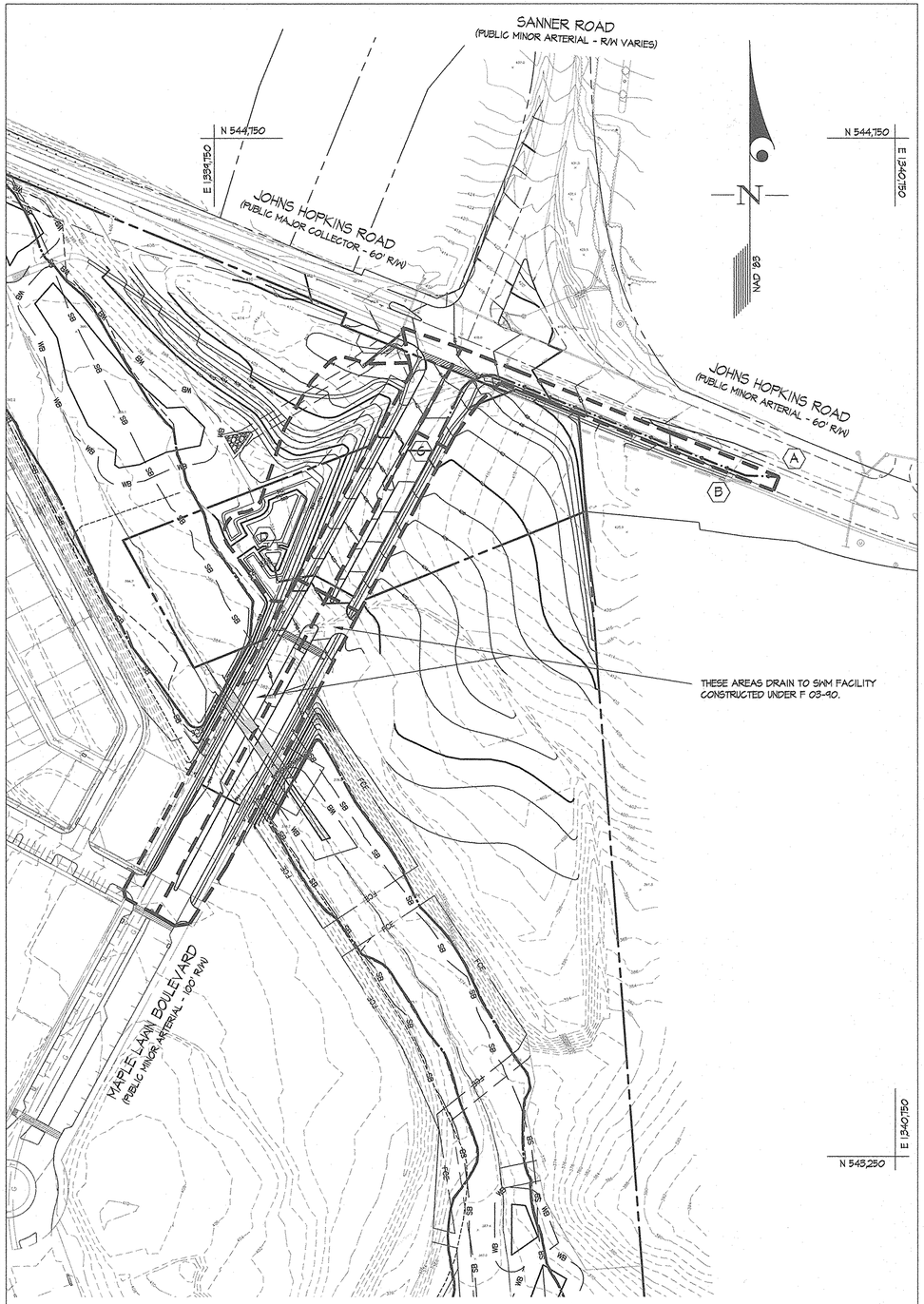
Limit of Drainage to SWM Pond (Pre & Post Development)

(A) Tc Segment

SWM POIND



PRE-DEVELOPMENT DRAINAGE AREA MAP
SCALE: 1"=100'



POST-DEVELOPMENT DRAINAGE AREA MAP
SCALE: 1"=100'

STATE OF MARYLAND
WILLIAM F. GUTSCHICK
No. 12073
PROFESSIONAL ENGINEER

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

William F. Weber Jr. — 11-21-05
Chief, Bureau of Highways — Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

David Harris — 11/21/05
Chief, Division of Land Development — Date

MK — 11/20/05
Chief, Development Engineering Division — Date

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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DATE	REVISION	BY	APP'R.

PREPARED FOR:
G&R MAPLE LAWN INC.
SUITE 410 WOODHOLME CENTER
1829 REISTERSTOWN ROAD
BALTIMORE, MD 21208
ATTN: CHARLIE O'DONOVAN
410-484-8400

STORMWATER MANAGEMENT DRAINAGE AREA MAP

MAPLE LAWN FARMS

Midtown District - Area 3
Parcel A-4, Non-Buildable Parcels RR-1 & RR-2 and Maple Lawn Blvd.
(A Resubdivision of Parcels 'C' and 'D')

ELECTION DISTRICT No. 5 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
1"=100'	MXD-3/RR-DEO	04001B
DATE	TAX MAP - GRID	SHEET
NOV., 2005	41 - 16	12 OF 29

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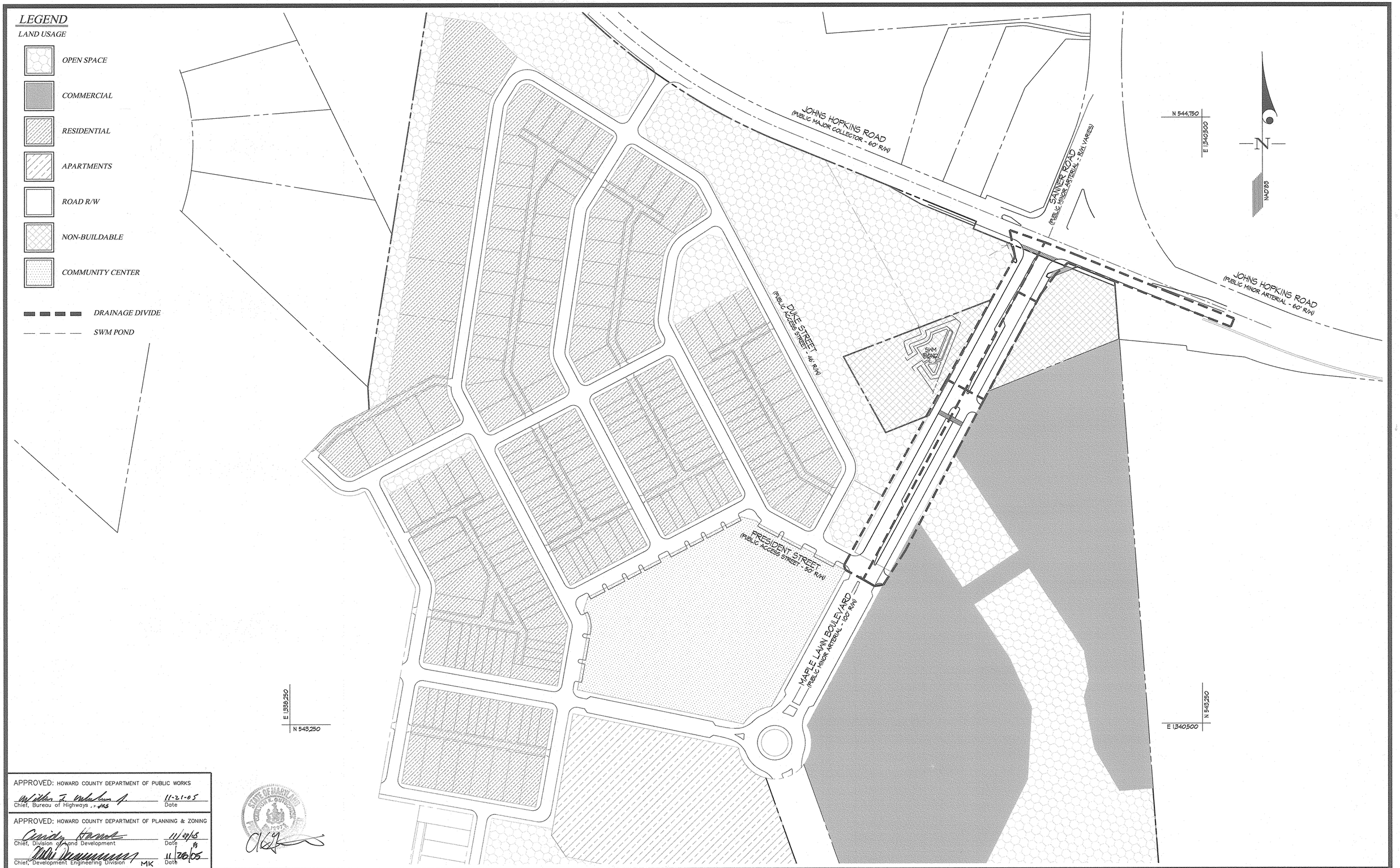

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 11-21-05

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 11/29/05

Chief, Development Engineering Division MK — Date 11/28/05

STATE OF MARYLAND — GEORGE E. GUTSCHICK — No. 12973

GLW GUTSCHICK LITTLE & WEBER, P.A.

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BURTONSVILLE, MARYLAND 20866
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DATE	REVISION	BY	APP'R.

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SUITE 410 WOODHOLME CENTER
1829 REISTERSTOWN ROAD
BALTIMORE, MD 21208
ATTN: CHARLIE O'DONOVAN
410-484-8400

LAND USE PLAN FOR SWM PLAN ONLY

MAPLE LAWN FARMS

Midtown District - Area 3

Parcel A-4, Non-Buildable Parcels RR-1 & RR-2 and Maple Lawn Blvd.

(A Resubdivision of Parcels 'C' and 'D')

ELECTION DISTRICT No. 5 — HOWARD COUNTY, MARYLAND

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1"=100'	MXD-3/RR-DEO	04001B
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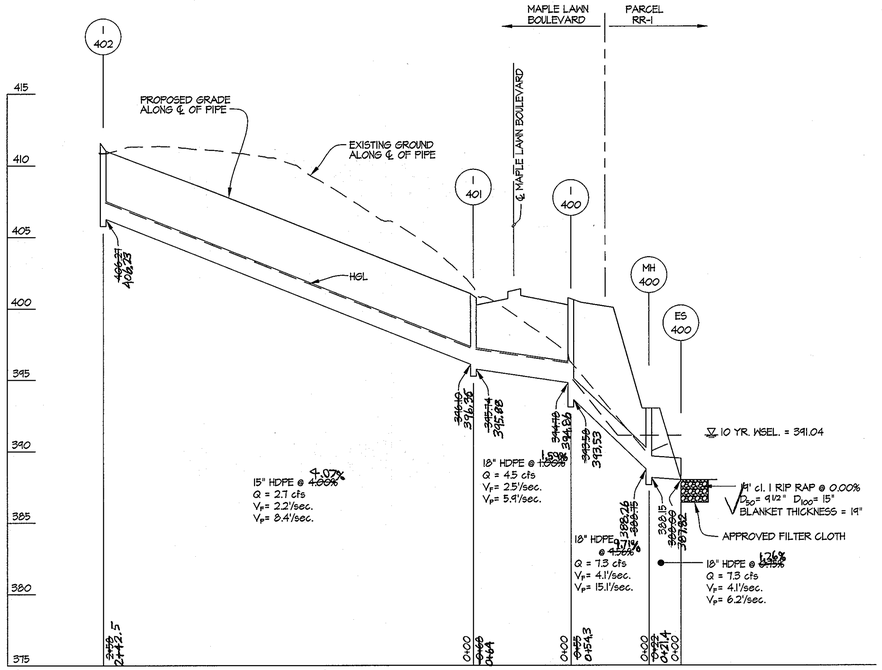
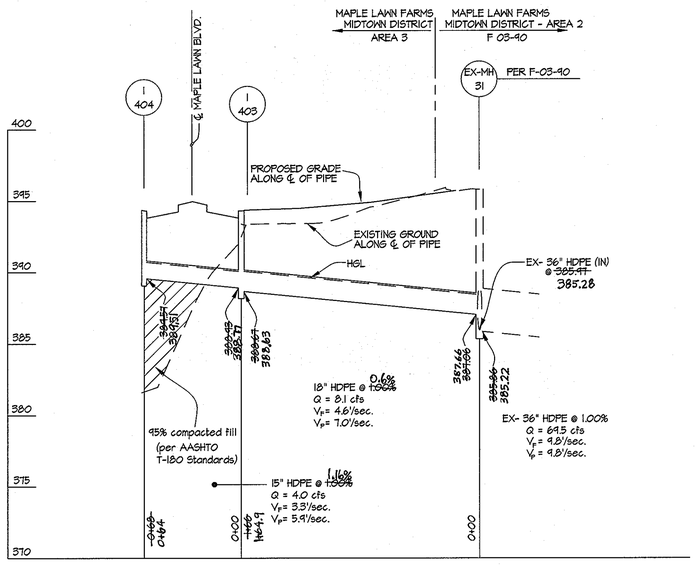
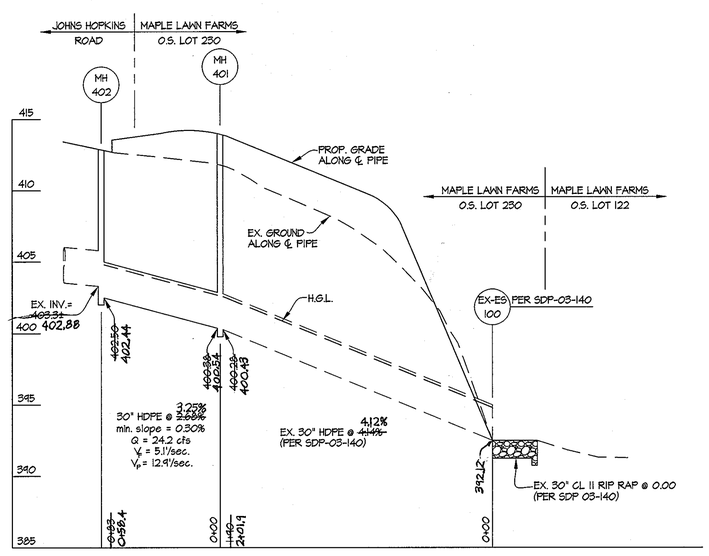




PROFILE
SCALE: 1"=50' HORIZ.
1"=5' VERT.



STRUCTURE SCHEDULE									
NO	TYPE	WIDTH (INSIDE)	TOP ELEVATION UPPER	TOP ELEVATION LOWER	INVERT ELEVATION UPPER	INVERT ELEVATION LOWER	STD. DETAIL	LOCATIONS ◇1	REMARKS
I-400	COS-15 INLET	3'-5"	401.10 ~~400.56~~	401.47 ~~399.98~~	399.98 ~~394.78~~	393.53 ~~393.50~~	MD-374.63	N 544,102 E 1,339,846	
I-401	~~COS-15 INLET~~ A-15 INLET	3'-5"	402.00 ~~400.56~~	401.16 ~~399.98~~	396.35 ~~394.10~~	395.88 ~~395.74~~	MD. CO. DET. MD. 601.04 ~~MD-374.63~~	N 544,072 E 1,339,952	
I-402	COS-15 INLET	3'-5"	411.63 ~~411.04~~	411.5 ~~410.49~~	---	406.28 ~~406.29~~	MD-374.63	N 544,309 E 1,340,080	
I-403	COS-15 INLET	3'-5"	---	394.33 ~~394.25~~	388.77 ~~388.93~~	388.63 ~~388.67~~	MD-374.63	N 543,798 E 1,339,731	
I-404	COS-15 INLET	3'-5"	---	394.49 ~~394.25~~	---	389.53 ~~389.51~~	MD-374.63	N 543,768 E 1,339,788	
							* OR AN ACCEPTABLE PRECAST STRUCTURE		
MH-400	STANDARD MANHOLE	4'-0"	---	393.69 ~~393.00~~	388.75	388.15	G-5.12	N 544,074 E 1,339,838	
MH-401	STANDARD MANHOLE	5'-0"	---	414.31 ~~414.26~~	400.94 ~~400.38~~	400.43 ~~400.28~~	G-5.12	N 544,416 E 1,339,970	
MH-402	STANDARD MANHOLE	5'-0"	---	413.56 ~~413.21~~	403.14 ~~402.50~~	402.44 ~~402.50~~	G-5.12	N 544,462 E 1,340,024	
EX-MH-31	STANDARD MANHOLE	5'-0"	---	389.41 ~~389.00~~	387.66 ~~386.19~~	386.22 ~~385.86~~	G-5.13	N 543,648 E 1,339,641	PER F-03-40

◇1 COORDINATE POINT GIVEN IS TO THE CENTERLINE OF STRUCTURE AT THE FACE OF CURB FOR INLETS AND TO THE CENTERLINE OF STRUCTURE FOR MANHOLES AND END SECTIONS.

NOTE: ALL WATER AND SEWER CROSSINGS SHOWN ARE PER CONTRACT: 24-4264-D

PIPE SCHEDULE			
SIZE	TYPE	QUANTITY (l.f.)	REMARKS
15"	HDPE	318	
18"	HDPE	309	
30"	HDPE	79	

HDPE indicates High Density Polyethylene pipe, such as N-12 by ADS, or HI-Q by Hancor or an approved equal.

Trench bedding to be provided per Howard County Detail G 2.01, "Trench for P.V.C. pipe and H.D.P.E."

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Chief, Bureau of Highways — Date 11-21-05

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Chief, Division of Land Development — Date 11/29/05
Chief, Development Engineering Division MK — Date 11/28/05

STATE OF MARYLAND GEORGE E. GUTSCHICK PROFESSIONAL ENGINEER 12007

For As-Built CKJ

ASBUILT OCT., 2006

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
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DATE	REVISION	BY	APP'R.

PREPARED FOR:
G&R MAPLE LAWN INC.
SUITE 410 WOODHOLME CENTER
1829 REISTERSTOWN ROAD
BALTIMORE, MD 21208
ATTN: CHARLIE O'DONOVAN
410-484-8400

STORM DRAIN PROFILES

MAPLE LAWN FARMS

Midtown District - Area 3

Parcel A-4, Non-Buildable Parcels RR-1 & RR-2 and Maple Lawn Blvd.

(A Resubdivision of Parcels 'C' and 'D')

ELECTION DISTRICT No. 5 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	MXD-3/RR-DEO	04001B
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NOV., 2005	41 – 16	10 OF 29

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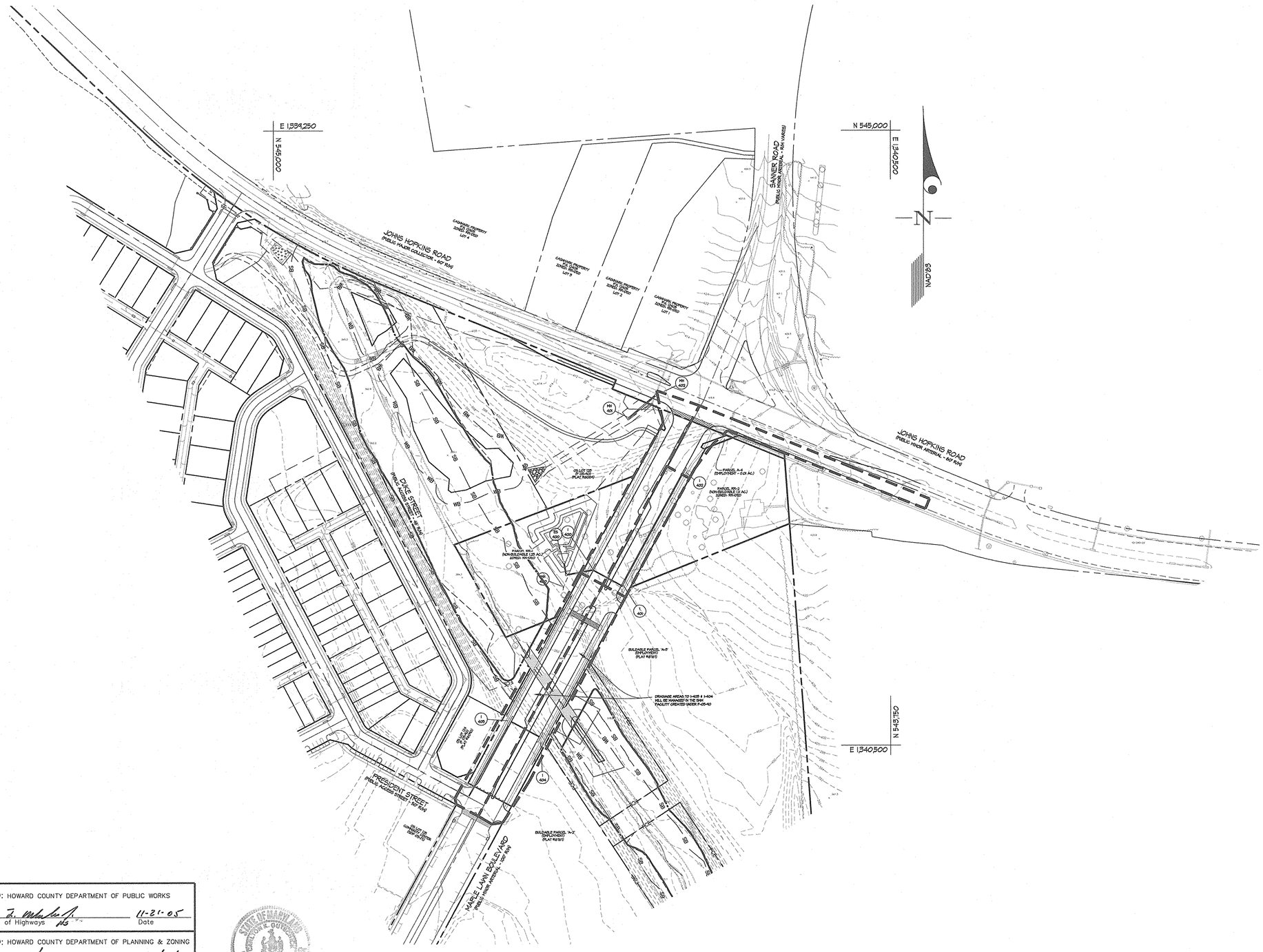

DRAINAGE AREA INFORMATION			
INLET	AREA	'C' VALUE	% IMP.
I-400	0.49 Ac.	0.71	75%
I-401	0.33 Ac.	0.71	75%
I-402	0.44 Ac.	0.71	75%
I-403	0.68 Ac.	0.71	75%
I-404	0.67 Ac.	0.71	75%

LEGEND

WB — WETLAND BUFFER

SB — STREAM BUFFER

DRAINAGE DIVIDE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 11-21-05

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 11/9/05

Chief, Development Engineering Division — Date 11/08/05

STATE OF MARYLAND — CHARLES K. O'DONOVAN — No. 10071

GLW GUTSCHICK LITTLE & WEBER, P.A.

CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS

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DATE	REVISION	BY	APP'R.

PREPARED FOR:

G&R MAPLE LAWN INC.

SUITE 410 WOODHOLME CENTER

1829 REISTERSTOWN ROAD

BALTIMORE, MD 21208

ATTN: CHARLIE O'DONOVAN

410-484-8400

STORM DRAIN DRAINAGE AREA MAP

MAPLE LAWN FARMS

Midtown District - Area 3

Parcel A-4, Non-Buildable Parcels RR-1 & RR-2 and Maple Lawn Blvd.

(A Resubdivision of Parcels 'C' and 'D')

ELECTION DISTRICT No. 5 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
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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) 131-1880

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) 7 calendar days for all perimeter sediment control structures, dikes and perimeter slopes and all slopes greater than 3:1, b) 14 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	:	~~14.8~~ 12.2 Acres
Area Disturbed	:	12.2 Acres
Area to be roofed or paved	:	3.0 Acres
Area to be vegetatively stabilized	:	9.2 Acres
Total Cut	:	31,600 Cu. Yds.
Total Fill	:	23,300 Cu. Yds.

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 dolomiticlimestone (92 lbs/1000 sq ft) and 1000 lbs peracre 10-10-10 fertilizer (23 lbs/1000 sq ft)beforeseeding.Harrow or disc into uppertthree 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, areashaving slopes steeper than 2:1 require special considerationand design for adequate stabilization.Areas having slopessteeper than 2:1 shall have the appropriate stabilizationshown 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 must meet the following:

i. 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.

ii. Topsoil must be free of plant parts such as bermuda grass, quackgrass, Johnsongrass, nutsedge, poison ivy, thistle, or others as specified.

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

I. 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:

I. On soil meeting Topsoil specifications, obtain test results dictating fertilizer and lime amendments required to bring the soil into compliance with the following:

a. 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.

b. Organic content of topsoil shall be not less than 1.5 percent by weight.

c. Topsoil having soluble salt greater than 500 parts per mill shall not be used.

d. 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.

ii. 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

I. 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.

ii. Grades on the areas to be topsoiled, which have been previously established, shall be maintained, albeit 4" - 8" higher in elevation.

III. 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

iv. 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:

i. 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:

a. 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.

b. 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 constituents must be added to meet the requirements prior to use.

c. Composted sludge shall be applied at a rate of 1 ton/1,000 square feet.

ii. Composted sludge shall be amended with a potassium fertilizer applied at a rate of 41b/1,000 square feet, and 1/3 the normal lime application rate.

References: Guideline Specifications, Soil Preparation and Sodding, MD-VA Pub. #1, Cooperative Extension Service, University of Maryland and Virginia Polytechnic Institutes. Revised 1978.

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 begins to flow.

5. Barriers - Solid board fences, silt fences, burlap fences, straw bales, and similar material can be used to controlair 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.

PLANTING NOTES

1. Riparian areas may be planted as soon as reasonable to do so. Late winter- early spring plantings are preferred. Earliest planting dates will vary from year to year but planting may generally begin as soon as the ground is no longer frozen. Alternate planting dates may be considered as condition warrants.
2. Soil amendments and fertilization recommendations will be made based upon the results of soil analysis for nitrogen, phosphorus, potassium, organic matter content and pH. If required, fertilizer will be provided using a slow release, soluble 16-8-16 analysis designed to last 5-8 years contained in polyethylene perforated bags such as manufactured by ADCO Works, P.O. Box 310 Hollins, N.Y. 11423 or approved equal.
3. Plant materials will be planted in accordance with the Planting Distribution Diagram, Planting Details and plant schedule.
4. Plant material shall be nursery grown and inspected prior to planting. Plants not conforming to the American Standard for Nursery Stock specifications for size, form, vigor, or roots, or due to trunk wounds, breakage, desiccation, insect or disease must be replaced.
5. Planting stock must be protected from desiccation at all times prior to planting. Materials held for planting shall be moistened and placed in cool shaded areas until ready for placement.
6. Newly planted trees may require watering at least once per week during the first growing season depending on rainfall in order to get established. The initial planting operation should allow for watering during installation to completely soak backfill material.
7. Planting holes should be excavated to a minimum diameter of 2.5 to 3 times the diameter of the root ball or container. Mechanical angering is preferred with scarification of the sides of each hole.
8. Mulch shall be applied in accordance with the diagram provided and shall consist of composted, shredded hardwood bark mulch, free of wood alcohol.
9. One hundred per cent (100 %) survival of riparian buffer plantings shall be guaranteed for one (1) year. Replacement plantings shall be provided after first year's growing season.

BEST MANAGEMENT PRACTICES

FOR WORKING IN NONTIDAL WETLANDS, WETLAND BUFFERS, WATERWAYS, AND 100-YEAR FLOODPLAINS

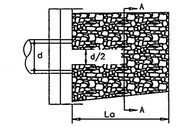
1. NO EXCESS FILL, CONSTRUCTION MATERIAL, OR DEBRIS SHALL BE STOCKPILES OR STORED IN NONTIDAL WETLANDS, NON-TIDAL WETLAND BUFFERS, WATERWAYS, OR 100 YEAR FLOODPLAIN.
2. PLACE MATERIALS IN A LOCATION AND MANNER WHICH DOES NOT ADVERSELY IMPACT SURFACE OR SUBSURFACE WATER FLOW INTO OR OUT OF NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, WATERWAYS, OR THE 100-YEAR FLOOD PLAIN.
3. DO NOT USE THE EXCAVATED MATERIAL AS BACKFILL IF IT CONTAINS WASTE METAL PRODUCTS, UNSIGHTLY DEBRIS, TOXIC MATERIAL, OR ANY OTHER DELETERIOUS SUBSTANCE. IF ADDITIONAL BACKFILL IS REQUIRED, USE CLEAN MATERIAL FREE OF WASTE METAL PRODUCTS, UNSIGHTLY DEBRIS, TOXIC MATERIAL, OR ANY OTHER DELETERIOUS SUBSTANCE.
4. PLACE HEAVY EQUIPMENT ON MATS OR SUITABLY OPERATE THE EQUIPMENT TO PREVENT DAMAGE TO NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, WATERWAYS, OR THE 100-YEAR FLOODPLAIN.
5. REPAIR AND MAINTAIN ANY SERVICEABLE STRUCTURE OR FILL SO THERE IS NO PERMANENT LOSS OF NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, OR WATERWAYS, OR PERMANENT MODIFICATION OF THE 100-YEAR FLOODPLAIN IN EXCESS OF THAT LOST UNDER THE ORIGINALLY AUTHORIZED STRUCTURE OR FILL.
6. RECTIFY ANY NONTIDAL WETLANDS, WETLAND BUFFERS, WATERWAYS OR 100-YEAR FLOODPLAIN TEMPORARILY IMPACTED BY ANY CONSTRUCTION.
7. ALL STABILIZATION IN THE NONTIDAL WETLAND AND NONTIDAL WETLAND BUFFER SHALL CONSIST OF THE FOLLOWING SPECIES:

   ANNUAL RYE GRASS (LOLIUM MULTIFLORUM)
   MILLET (SETARIA ITALICA)
   BARLEY (HORDEUM SPECIES)
   OATS (SP.)
   RYE (SECALE CEREALE)

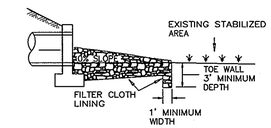
   THESE SPECIES WILL ALLOW FOR THE STABILIZATION OF THE SITE WHILE ALSO ALLOWING FOR THE VOLUNTARY REVEGETATION OF NATURAL WETLAND SPECIES. OTHER NON-PERSISTENT VEGETATION MAY BE ACCEPTABLE, BUT MUST BE APPROVED BY THE NONTIDAL WETLANDS AND WATERWAYS DIVISION. KENTUCKY 31 FESCUE SHALL NOT BE UTILIZED IN WETLAND OR BUFFER AREAS. THE AREA SHOULD BE SEEDED AND MULCHED TO REDUCE EROSION AFTER CONSTRUCTION ACTIVITIES HAVE BEEN COMPLETED.
8. AFTER INSTALLATION HAS BEEN COMPLETED, MAKE POST-CONSTRUCTION GRADES AND ELEVATIONS THE SAME AS THE ORIGINAL GRADES AND ELEVATIONS IN TEMPORARILY IMPACTED AREAS.
9. TO PROTECT AQUATIC SPECIES, IN-STREAM WORK IS PROHIBITED AS DETERMINED BY THE CLASSIFICATION OF THE STREAM

   USE I WATERS: IN STREAM WORK SHALL BE CONDUCTED DURING THE PERIOD MARCH 1 THROUGH JUNE 15, INCLUSIVE, DURING ANY YEAR.
10. STORMWATER RUNOFF FROM IMPERVIOUS SURFACES SHALL BE CONTROLLED TO PREVENT THE WASHING OF DEBRIS INTO THE WATERWAY.
11. CULVERTS SHALL BE CONSTRUCTED AND ANY RIPRAP PLACED SO AS NOT TO OBSTRUCT THE MOVEMENT OF AQUATIC SPECIES, UNLESS THE PURPOSE OF THE ACTIVITY IS TO IMPOUND WATER.

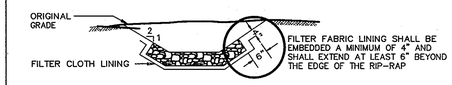
DETAIL 27 - ROCK OUTLET PROTECTION III



PLAN VIEW



ELEVATION



SECTION A-A

NOTE: FILTER CLOTH SHALL BE GEOTEXTILE CLASS C

Construction Specifications

1. The subgrade for the filter, riprap, or gabion shall be prepared to the required lines and grades. Any fill required in the subgrade shall be compacted to a density of approximately that of the surrounding undisturbed material.

2. The rock or gravel shall conform to the specified grading limits when installed respectively in the rip-rap or filter.

3. Geotextile shall be protected from punching, cutting,or tearing. ny damage other than an occasional small hole shall be repaired by placing another piece of geotextile over the damaged part or by completely replacing the geotextile. All overlaps whether for repairs or for joining two pieces of geotextile shall be a minimum of one foot.

4. Stone for the rip-rap or gabion outlets may be placed by equipment. They shall be constructed to the full course thickness in one operation and in such a manner as to avoid displacement of underlying materials. The stone for riprap or gabion outlets shall be delivered and placed in a manner that will ensure that it is reasonably homogeneous with the smaller stones and spalls filling the voids between the larger stones. Rip-rap shall be placed in a manner to prevent damage to the filter blanket or geotextile. Hand placement will be required to the extent necessary to prevent damage to the permanent works.

5. The stone shall be placed so that it blends in with the existing ground. If the stone is placed too high then the flow will be forced out of the channel and scour adjacent to the stone will occur.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE F - 18 - 10	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

William F. Weber, Jr. — Chief, Bureau of Highways — 11-21-05 Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — 11/29/05 Date

Chief, Development Engineering Division — MK — 11/28/05 Date

DEVELOPER'S/BUILDER'S CERTIFICATE

"I/We certify that all development and/or construction will be done according to this plan, and that any responsible personnel involved in the construction project will have a Certificate of Attendance at a Maryland Department of the Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I also authorize periodic on-site inspection by the HSCD."

Signature of Developer/Builder — 11-9-05 *Date*

ENGINEER'S CERTIFICATE

"I certify that this plan for erosion and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District."

Signature of Engineer — 11-9-05 *Date*

These plans have been reviewed for the Howard Soil Conservation District and meet the technical requirements.

Natural Resources Conservation Service — 11/16/05 *Date*

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

Howard Soil Conservation District — 11/16/05 *Date*

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.

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PREPARED FOR:
G&R MAPLE LAWN INC.
SUITE 410 WOODHOLME CENTER
1829 REISTERSTOWN ROAD
BALTIMORE, MD 21208
ATTN: CHARLIE O'DONOVAN
410-484-8400

SEDIMENT CONTROL DETAILS

MAPLE LAWN FARMS

Midtown District - Area 3

Parcel A-4, Non-Buildable Parcels RR-1 & RR-2 and Maple Lawn Blvd.

(A Resubdivision of Parcels 'C' and 'D')

ELECTION DISTRICT No. 5 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	MXD-3/RR-DEO	04001B
DATE	TAX MAP - GRID	SHEET
NOV., 2005	41 - 16	8 OF 29

F-05-139

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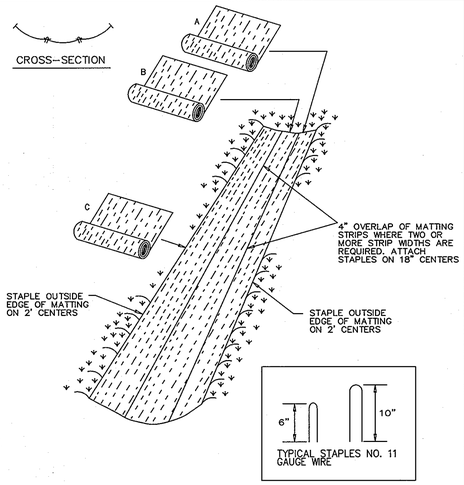
DETAIL 30 – EROSION CONTROL MATTING



Construction Specifications

1. Key–in the matting by placing the top ends of the matting in a narrow trench, 6" in depth. Backfill the trench and tamp firmly to conform to the channel cross–section. Secure with a row of staples about 4" down slope from the trench. Spacing between staples is 6".

2. Staple the 4" overlap in the channel center using an 18" spacing between staples.

3. Before stapling the outer edges of the matting, make sure the matting is smooth and in firm contact with the soil.

4. Staples shall be placed 2' apart with 4 rows for each strip, 2 outer rows, and 2 alternating rows down the center.

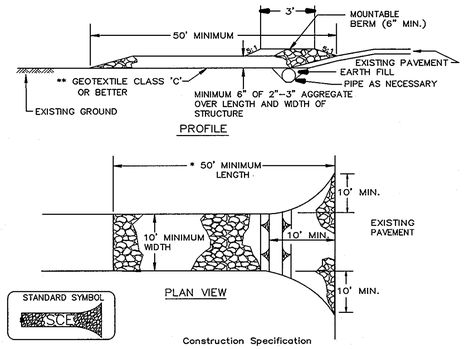
5. Where one roll of matting ends and another begins, the end of the top strip shall overlap the upper end of the lower strip by 4", shiplap fashion. Reinforce the overlap with a double row of staples spaced 6" apart in a staggered pattern on either side.

6. The discharge end of the matting liner should be similarly secured with 2 double rows of staples.

Note: If flow will enter from the edge of the matting then the area effected by the flow must be keyed–in.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE C – 22 – 2	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

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.

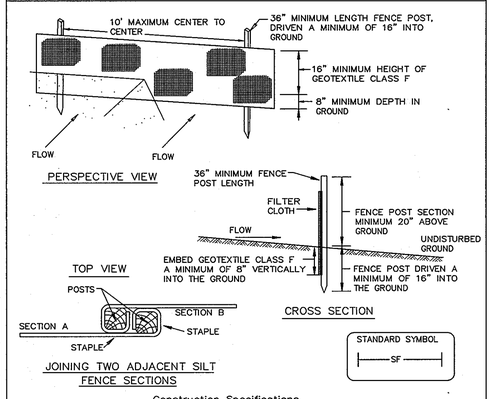
4. Stone – crushed aggregate (2" to 3") or reclaimed or recycled concrete equivalent shall be placed at least 6" deep over the length and width of the entrance.

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.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE F – 17 – 3	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 22 – SILT FENCE



Construction Specifications

1. Fence posts shall be a minimum of 36" long driven 16" minimum into the ground. Wood posts shall be 11/2" x 11/2" square (minimum) cut, or 13/4" diameter (minimum) round and shall be of sound quality hardwood. Steel posts will be standard T or U section weighting not less than 1.00 pond per linear foot.

2. Geotextile 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:

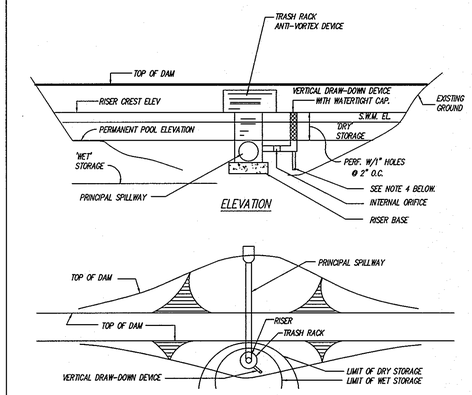
Tensile Strength	50 lbs/in (min.)	Test: MSMT 509
Tensile Modulus	20 lbs/in (min.)	Test: MSMT 509
Flow Rate	0.3 gal ft ²/ minute (max.)	Test: MSMT 322
Filtering Efficiency	75% (min.)	Test: MSMT 322

3. Where ends of geotextile fabric come together, they shall be overlapped, folded and stapled to prevent sediment bypass.

4. Silt Fence shall be inspected after each rainfall event and maintained when bulges occur or when sediment accumulation reached 50% of the fabric height.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE E – 15 – 3	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

BASIN DRAWDOWN SCHEMATIC VERTICAL DRAWDOWN DEVICE



CONSTRUCTION SPECIFICATIONS

1. Perforations in the draw–down device may not extend into the wet storage.

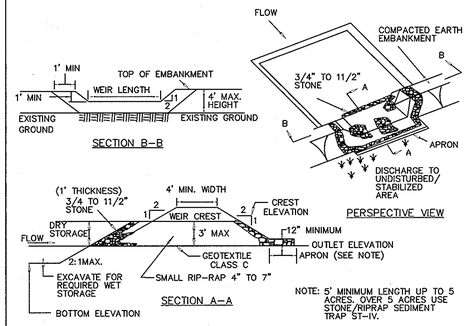
2. The total area of the perforations must be greater than 4 times the area of the internal orifice.

3. The perforated portion of the draw–down device shall be wrapped with 1/2" hardware cloth and geotextile fabric. The geotextile fabric shall meet the specifications for Geotextile Class E.

4. Provide support of draw–down device to prevent sagging and floatation. An acceptable preventative measure is to stake both sides of draw–down device with 1" steel angle, or 1" by 4" square or 2" round wooden posts set 3' minimum into the ground then fishing them to the device by wrapping with 12 gauge minimum wire.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE C – 18 – 30	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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STONE OUTLET SEDIMENT TRAP – ST II

6. The structure shall be inspected periodically and after each rain and repairs made as needed.

7. Construction of traps shall be carried out in such a manner that sediment pollution is abated. Once constructed, the top and outside face of the embankment shall be stabilized with seed and mulch. Points of concentration inflow shall be protected in accordance with Grade Stabilization Structure criteria. The remainder of the interior slopes should be stabilized (one time) with seed and mulch upon trap completion and monitored and maintained erosion free during the life of the trap.

8. The structure shall be dewatered by approved methods, removed and the area stabilized when the drainage area has been properly stabilized.

9. Refer to section D for specifications concerning trap dewatering.

10. Minimum trap depth shall be measured from the weir elevation.

11. The elevation of the top of any dike directing water into the trap must equal or exceed the elevation of the trap embankment.

12. Geotextile Class C shall be placed over the bottom and sides of the outlet channel prior to the placement of stone. Sections of filter cloth must overlap at least 1' with the section nearest the entrance placed on top. The filter cloth shall be embedded at least 6" into existing ground at the entrance of the outlet channel.

13. Outlet – An outlet shall be provided, including a means of conveying the discharge in an erosion free manner to an existing stable channel.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE C – 9 – 10A	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

These plans have been reviewed for the Howard Soil Conservation District and meet the technical requirements.

Natural Resources Conservation Service — Date 11/16/05

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

Howard S.C.D. — Date 11/16/05

ENGINEER'S CERTIFICATE

"I certify that this plan for erosion and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District."

Signature of Engineer — Date 11-9-05

DEVELOPER'S/BUILDER'S CERTIFICATE

"I/We certify that all development and/or construction will be done according to this plan, and that any responsible personnel involved in the construction project will have a Certificate of Attendance at a Maryland Department of the Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I also authorize periodic on–site inspection by the HCSCD."

Signature of Developer/Builder — Date 11-09-05

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 11-21-05

HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 11/29/05

Chief, Development Engineering Division — Date 11/28/05

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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DATE	REVISION	BY	APP'R.

PREPARED FOR:
G&R MAPLE LAWN INC.
SUITE 410 WOODHOLME CENTER
1829 REISTERSTOWN ROAD
BALTIMORE, MD 21208
ATTN: CHARLIE O'DONOVAN
410–484–8400

SEDIMENT CONTROL DETAILS

MAPLE LAWN FARMS
Midtown District - Area 3
Parcel A-4, Non-Buildable Parcels RR-1 & RR-2 and Maple Lawn Blvd.
(A Resubdivision of Parcels 'C' and 'D')

ELECTION DISTRICT No. 5 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	MXD–3/RR–DEO	04001B
DATE	TAX MAP – GRID	SHEET
NOV., 2005	41 – 16	7 OF 29

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Sequence of Construction

1. Obtain grading permit and arrange for an on-site pre-construction meeting. (1 day)
   Note: Work in the stream is prohibited from March 1 to June 15.
   MDE Permit number for the project is 01-NT-0344/200165421

PHASE 1 CONSTRUCTION

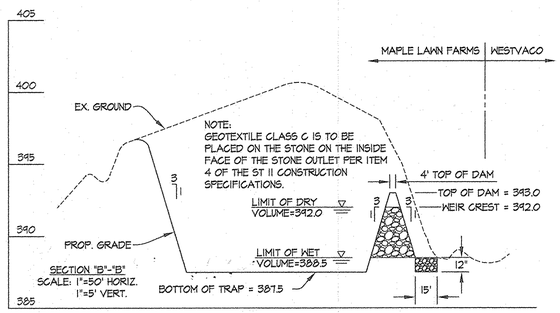
2. Install the stone construction entrances and the clean water diversion dike along the west side of the stormwater management facility and the earth dike along Maple Lawn Boulevard as shown on these plans. (1 week)
3. Install silt fence along the toe of the proposed stormwater management facility and along the stream banks as shown on sheet 5. When the limit of disturbance is adjacent to a tree save area, and silt fence is not required, install tree protection fence. (1 day)
4. Grade accesses to the arch span work area. (2 days)
5. With the permission of the sediment control inspector, remove a section of the silt fence at the base of each access and install mountable berms to reach the work area for the arch span. The silt fence along the stream bank is not to be altered.

PHASE 2 CONSTRUCTION

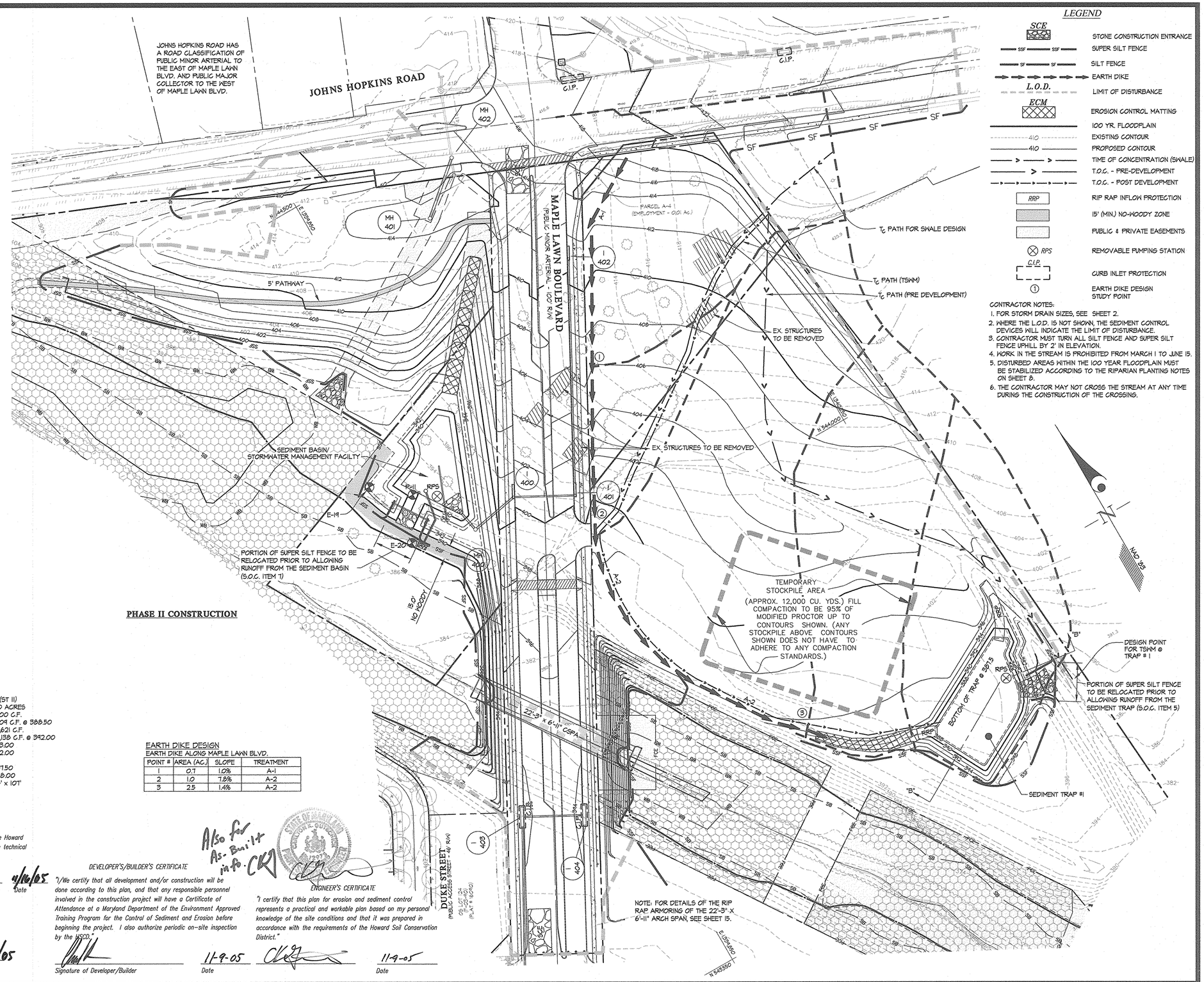
6. With the permission of the sediment control inspector, begin construction of sediment trap #1 and the stormwater management facility. The facility will be used as a sediment basin during the construction of the improvements shown on these plans. (1 month)
7. Prior to allowing runoff to leave the sediment basin, relocate the portion of the super silt fence in front of the control structure to the limits shown on sheet 6. (1 day)
8. Begin the construction of the 22'-3" x 6'-11" low profile arch span. (1 month)
9. Upon completion of the arch span, install silt fence along the toe of the road embankment and begin placing fill for Maple Lawn Boulevard. As the fill takes place, the silt fence will need to be relocated to insure runoff does not enter the stream. (2 days)
10. Begin rough grading. (1 month)
11. Install storm drains per these plans and the 12"ø per Cont. # 24-4264-D (1 month)
12. With the permission of the sediment control inspector, begin improvements at the Johns Hopkins/Sarner Road intersection. (2 months)
13. Install curb and gutter, sidewalks, and base paving. (1 month)
14. Fine grade site and stabilize disturbed areas in accordance with the topsoil and permanent seeding notes. (1 week) Note: Disturbed areas within the 100 year floodplain must be stabilized per the riparian seeding notes on sheet 8.
15. Install surface course paving. (1 week)
16. With permission from the sediment control inspector, remove the sediment and erosion control devices and stabilize any disturbed areas as needed. (1 week)
17. With permission from the sediment control inspector, convert the stormwater management facility to its final grades and remove the dewatering device. Stabilize any disturbed areas as needed. (1 week)

Contractor Notes

1. Contractor must keep silt fence between work areas and the existing stream through each phase of the arch super span construction.
2. Disturbed areas within the 100 Year Floodplain must be stabilized using the riparian planting specifications in the seeding notes on sheet 8 under the best management practices.
3. Any areas where work has been completed and the area will not be disturbed again, must be stabilized by the end of that day.
4. Sediment control devices must be checked on a regular basis and especially after rain events. Any necessary repairs must be made the same day.
5. Contractor must implement dust control measures (see sheet 8) as needed and upon request of the sediment control inspector.



PROFILE THROUGH SEDIMENT TRAP #1



PHASE II CONSTRUCTION

LEGEND

SCE	STONE CONSTRUCTION ENTRANCE
SSF	SUPER SILT FENCE
SF	SILT FENCE
	EARTH DIKE
L.O.D.	LIMIT OF DISTURBANCE
ECM	EROSION CONTROL MATTING
	100 YR. FLOODPLAIN
410	EXISTING CONTOUR
410	PROPOSED CONTOUR
	TIME OF CONCENTRATION (SWALE)
	T.O.C. - PRE-DEVELOPMENT
	T.O.C. - POST DEVELOPMENT
RRP	RIP RAP INFLOW PROTECTION
	15' (MIN.) NO-WOODY ZONE
	PUBLIC & PRIVATE EASEMENTS
RPS	REMOVABLE PUMPING STATION
C.I.P.	CURB INLET PROTECTION
1	EARTH DIKE DESIGN STUDY POINT

CONTRACTOR NOTES:

1. FOR STORM DRAIN SIZES, SEE SHEET 2.
2. WHERE THE L.O.D. IS NOT SHOWN, THE SEDIMENT CONTROL DEVICES WILL INDICATE THE LIMIT OF DISTURBANCE.
3. CONTRACTOR MUST TURN ALL SILT FENCE AND SUPER SILT FENCE UPHILL BY 2' IN ELEVATION.
4. WORK IN THE STREAM IS PROHIBITED FROM MARCH 1 TO JUNE 15.
5. DISTURBED AREAS WITHIN THE 100 YEAR FLOODPLAIN MUST BE STABILIZED ACCORDING TO THE RIPARIAN PLANTING NOTES ON SHEET 8.
6. THE CONTRACTOR MAY NOT CROSS THE STREAM AT ANY TIME DURING THE CONSTRUCTION OF THE CROSSING.

SEDIMENT BASIN INFORMATION

PRE-DEVELOPEMENT DRAINAGE AREA	3.2 ACRES
POST-DEVELOPMENT DRAINAGE AREA	2.5 ACRES
TOTAL STORAGE REQUIRED (WET VOLUME & 1 YR. TSWM)	24,131 C.F.
TOTAL STORAGE PROVIDED	24,488 C.F.
RISER DIMENSIONS	N/A
BARREL SIZE	N/A
WEIR CREST ELEVATION	392.00
OUTLET ELEVATION (LIMIT OF WET VOLUME)	389.10
CLEANOUT ELEVATION	388.40
BOTTOM ELEVATION	387.70
BOTTOM DIMENSIONS	VARIES
PRE-DEVELOPMENT 1 YEAR DISCHARGE	5.26 CFS
POST-DEVELOPMENT 1 YEAR DISCHARGE (UNMANAGED)	4.50 CFS
POST-DEVELOPMENT 1 YEAR DISCHARGE (MANAGED)	0.13 CFS @ 391.89
WET VOLUME REQUIRED	5760 CF
WET VOLUME PROVIDED	6,117 CF @ 389.10
DRY VOLUME REQUIRED	18,371 CF
DRY VOLUME PROVIDED	18,371 CF @ 391.89

SEDIMENT TRAP # 1

STONE OUTLET SEDIMENT TRAP (ST II)	
DRAINAGE AREA	4.0 ACRES
WET VOLUME REQUIRED	7200 C.F.
WET VOLUME PROVIDED	7604 C.F. @ 388.50
DRY VOLUME REQUIRED	29,621 C.F.
DRY VOLUME PROVIDED	32,138 C.F. @ 392.00
TOP OF EMBANKMENT	393.00
WEIR CREST ELEVATION	392.00
WEIR CREST LENGTH	16'
BOTTOM ELEVATION	387.50
CLEANOUT ELEVATION	388.00
BOTTOM DIMENSIONS	68' x 107'

EARTH DIKE DESIGN

EARTH DIKE ALONG MAPLE LAWN BLVD.

POINT #	AREA (AC.)	SLOPE	TREATMENT
1	0.7	1.0%	A-1
2	1.0	7.8%	A-2
3	2.5	1.4%	A-2

These plans have been reviewed for the Howard Soil Conservation District and meet the technical requirements.

Natural Resources Conservation Service — Date 11/16/05

Also for As-Built info. CRJ

DEVELOPER'S/BUILDER'S CERTIFICATE

"I/We certify that all development and/or construction will be done according to this plan, and that any responsible personnel involved in the construction project will have a Certificate of Attendance at a Maryland Department of the Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I also authorize periodic on-site inspection by the HSCD."

Signature of Developer/Builder — Date 11-9-05

ENGINEER'S CERTIFICATE

"I certify that this plan for erosion and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District."

Date 11-9-05

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

Howard S.C.D. — Date 11/16/05

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 11-21-05

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 11/29/05

Chief, Development Engineering Division MK — Date 11/28/05

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

DES. DEV	DRN. AWL	CHK. DEV

DATE	REVISION	BY	APP'R.

PREPARED FOR:
G&R MAPLE LAWN INC.
SUITE 410 WOODHOLME CENTER
1829 REISTERSTOWN ROAD
BALTIMORE, MD 21208
ATTN: CHARLIE O'DONOVAN
410-484-8400

SEDIMENT CONTROL OVERVIEW PLAN

MAPLE LAWN FARMS

Midtown District - Area 3

Parcel A-4, Non-Buildable Parcels RR-1 & RR-2 and Maple Lawn Blvd.

(A Resubdivision of Parcels 'C' and 'D')

ELECTION DISTRICT No. 5 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
1"=50'	MXD-3/RR-DEO	04001B
DATE	TAX MAP – GRID	SHEET
NOV., 2005	41 – 16	6 OF 29

F-05-139

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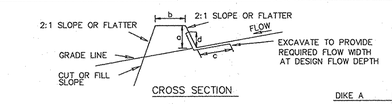
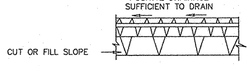
DETAIL 1 – EARTH DIKE



CROSS SECTION

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



PLAN VIEW

STANDARD SYMBOL
A–2 B–3

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

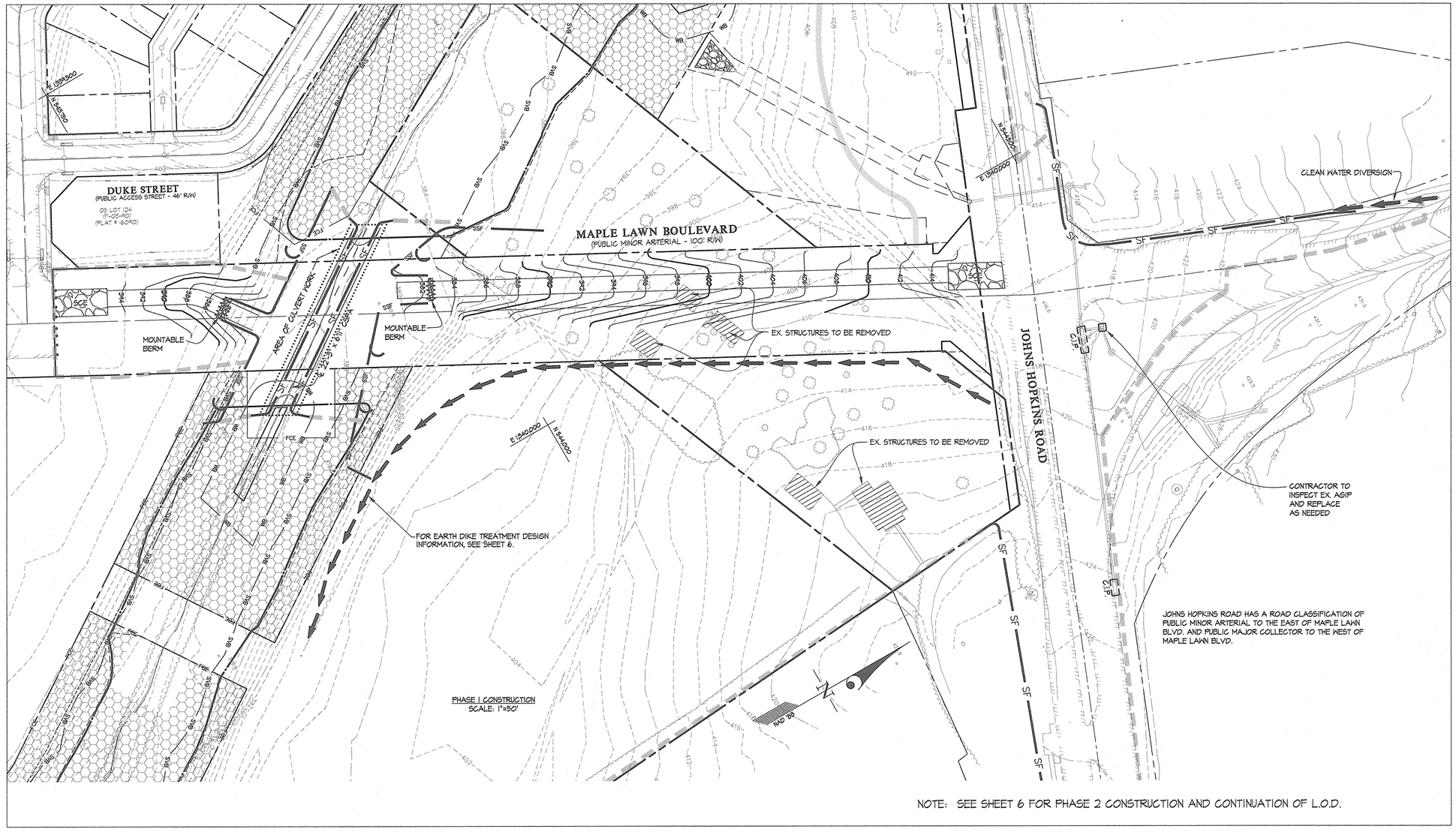
Construction Specifications

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 objectional 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 rain event.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE A – 1 – 6	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

LEGEND

SCE	STONE CONSTRUCTION ENTRANCE
SF	SUPER SILT FENCE
SF	SILT FENCE
	EARTH DIKE
L.O.D.	LIMIT OF DISTURBANCE
	EARTH DIKE DRAINAGE AREA DIVIDE
	100 YR. FLOODPLAIN
410	EXISTING CONTOUR
410	PROPOSED CONTOUR



NOTE: SEE SHEET 6 FOR PHASE 2 CONSTRUCTION AND CONTINUATION OF L.O.D.

CONTRACTOR NOTES:

1. FOR STORM DRAIN SIZES, SEE SHEET 2.
2. WHERE THE L.O.D. IS NOT SHOWN, THE SEDIMENT CONTROL DEVICES WILL INDICATE THE LIMIT OF DISTURBANCE.
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"I certify that this plan for erosion and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District."

Date 11-9-05

These plans have been reviewed for the Howard Soil Conservation District and meet the technical requirements.

Natural Resources Conservation Service — Date 11/10/05

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

Howard S.C.D. — Date 11/10/05

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 11-21-05

HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 11/29/05

Chief, Development Engineering Division — Date 11/30/05

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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DATE	REVISION	BY	APP'R.

PREPARED FOR:
G&R MAPLE LAWN INC.
SUITE 410 WOODHOLME CENTER
1829 REISTERSTOWN ROAD
BALTIMORE, MD 21208
ATTN: CHARLIE O'DONOVAN
410–484–8400

SEDIMENT CONTROL PLAN, NOTES, AND DETAILS

MAPLE LAWN FARMS

Midtown District - Area 3

Parcel A-4, Non-Buildable Parcels RR-1 & RR-2 and Maple Lawn Blvd.

(A Resubdivision of Parcels 'C' and 'D')

ELECTION DISTRICT No. 5 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	MXD–3/RR–DEO	04001B
DATE	TAX MAP – GRID	SHEET
NOV., 2005	41 – 16	5 OF 29

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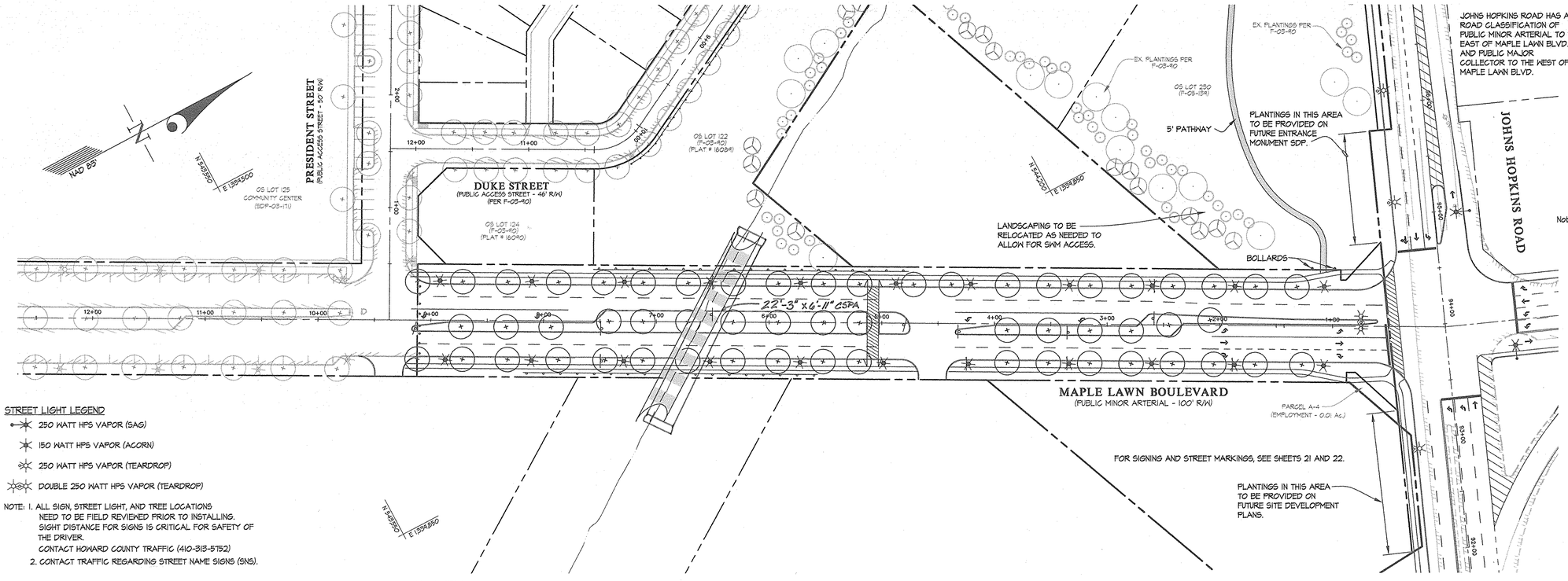


STREET LIGHT LEGEND

- 250 WATT HPS VAPOR (SAG)
- 150 WATT HPS VAPOR (ACORN)
- 250 WATT HPS VAPOR (TEARDROP)
- DOUBLE 250 WATT HPS VAPOR (TEARDROP)

NOTE: 1. ALL SIGN, STREET LIGHT, AND TREE LOCATIONS NEED TO BE FIELD REVIEWED PRIOR TO INSTALLING. SIGHT DISTANCE FOR SIGNS IS CRITICAL FOR SAFETY OF THE DRIVER. CONTACT HOWARD COUNTY TRAFFIC (410-313-5752)
2. CONTACT TRAFFIC REGARDING STREET NAME SIGNS (SNS).

STREET LIGHT SCHEDULE

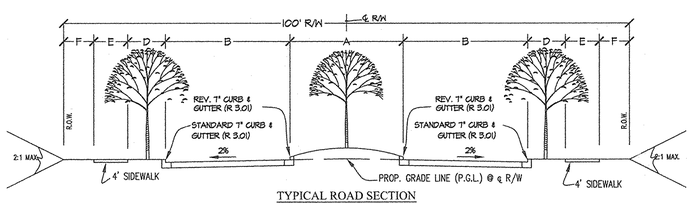
LOCATION	LAMP TYPE	FIXTURE	POLE TYPE
℄ 1+07.7 Maple Lawn Blvd. 35' L.	150-WATT HPS VAPOR	ACORN POST TOP	12' BLACK FIBERGLASS
℄ 1+07.7 Maple Lawn Blvd. 35' R.	150-WATT HPS VAPOR	ACORN POST TOP	12' BLACK FIBERGLASS
℄ 1+86.9 Maple Lawn Blvd. 35' L.	150-WATT HPS VAPOR	ACORN POST TOP	12' BLACK FIBERGLASS
℄ 1+86.9 Maple Lawn Blvd. 35' R.	150-WATT HPS VAPOR	ACORN POST TOP	12' BLACK FIBERGLASS
℄ 2+60.2 Maple Lawn Blvd. 35' L.	150-WATT HPS VAPOR	ACORN POST TOP	12' BLACK FIBERGLASS
℄ 2+60.2 Maple Lawn Blvd. 35' R.	150-WATT HPS VAPOR	ACORN POST TOP	12' BLACK FIBERGLASS
℄ 3+33.6 Maple Lawn Blvd. 35' L.	150-WATT HPS VAPOR	ACORN POST TOP	12' BLACK FIBERGLASS
℄ 3+33.6 Maple Lawn Blvd. 35' R.	150-WATT HPS VAPOR	ACORN POST TOP	12' BLACK FIBERGLASS
℄ 4+21.1 Maple Lawn Blvd. 35' R.	150-WATT HPS VAPOR	ACORN POST TOP	12' BLACK FIBERGLASS
℄ 4+22.8 Maple Lawn Blvd. 35' L.	150-WATT HPS VAPOR	ACORN POST TOP	12' BLACK FIBERGLASS
℄ 4+87.5 Maple Lawn Blvd. 35' R.	150-WATT HPS VAPOR	ACORN POST TOP	12' BLACK FIBERGLASS
℄ 4+98.2 Maple Lawn Blvd. 35' L.	150-WATT HPS VAPOR	ACORN POST TOP	12' BLACK FIBERGLASS
℄ 5+72.2 Maple Lawn Blvd. 35' L.	150-WATT HPS VAPOR	ACORN POST TOP	12' BLACK FIBERGLASS
℄ 5+72.2 Maple Lawn Blvd. 35' R.	150-WATT HPS VAPOR	ACORN POST TOP	12' BLACK FIBERGLASS
℄ 6+52.2 Maple Lawn Blvd. 35' L.	150-WATT HPS VAPOR	ACORN POST TOP	12' BLACK FIBERGLASS
℄ 6+52.2 Maple Lawn Blvd. 35' R.	150-WATT HPS VAPOR	ACORN POST TOP	12' BLACK FIBERGLASS
℄ 7+28.6 Maple Lawn Blvd. 35' L.	150-WATT HPS VAPOR	ACORN POST TOP	12' BLACK FIBERGLASS
℄ 7+28.6 Maple Lawn Blvd. 35' R.	150-WATT HPS VAPOR	ACORN POST TOP	12' BLACK FIBERGLASS
℄ 8+10.6 Maple Lawn Blvd. 35' L.	150-WATT HPS VAPOR	ACORN POST TOP	12' BLACK FIBERGLASS
℄ 8+10.6 Maple Lawn Blvd. 35' R.	150-WATT HPS VAPOR	ACORN POST TOP	12' BLACK FIBERGLASS
℄ 8+87.1 Maple Lawn Blvd. 35' L.	150-WATT HPS VAPOR	ACORN POST TOP	12' BLACK FIBERGLASS
℄ 8+92.2 Maple Lawn Blvd. 35' R.	150-WATT HPS VAPOR	ACORN POST TOP	12' BLACK FIBERGLASS
℄ 0+74.8 Maple Lawn Blvd. 4' R.	250-WATT HPS VAPOR	DOUBLE TEARDROP	23' BLACK FIBERGLASS W/ 4' ARM
℄ 42+91.6 Johns Hopkins Rd 34' L.	250-WATT HPS VAPOR	TEARDROP	23' BLACK FIBERGLASS W/ 4' ARM
℄ 45+12.1 Johns Hopkins Rd 34' L.	250-WATT HPS VAPOR	TEARDROP	23' BLACK FIBERGLASS W/ 4' ARM
℄ 46+12.0 Johns Hopkins Rd 34' L.	250-WATT HPS VAPOR	TEARDROP	23' BLACK FIBERGLASS W/ 4' ARM
℄ 94+48.0 Johns Hopkins Rd 32' R.	250-WATT HPS VAPOR	SAG	30' BRONZE FIBERGLASS W/ 12' ARM
℄ 0+60.4 Sanner Road 35' R.	250-WATT HPS VAPOR	SAG	30' BRONZE FIBERGLASS W/ 12' ARM

STREET TREE REQUIREMENTS

ROAD	LENGTH OF CURB	# OF TREES REQUIRED	# OF TREES PROVIDED
MAPLE LAWN BOULEVARD	1824'	46	57

SYMBOL	NAME (BOTANICAL/COMMON)	SIZE	REMARKS
⊕	Acer Sacharum / Green Mountain Sugar Maple	2 1/2" cal.	B & B Full Heads

NOTE: SEE SHEET 18 FOR TREE PLANTING DETAIL

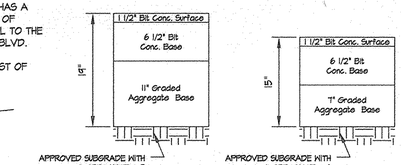


TYPICAL ROAD SECTION
FOR MAPLE LAWN BOULEVARD
SCALE: NTS

TYPICAL ROAD SECTION & ROAD INFORMATION

ROAD NAME	STATION	ROAD CLASIFICATION	DESIGN SPEED	A	B	C	D	E	F	R/W	PAVING SECTION
MAPLE LAWN BLVD.	0+00 TO 94+11.12	MINOR ARTERIAL	25 MPH	20'	22'	N/A	6'-8'	4'	1'-4'	100'	P-5

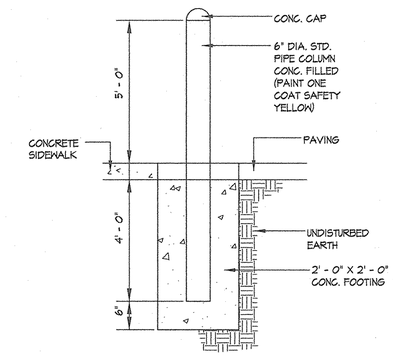
'C' IS USED WHEN PARALLEL PARKING IS PROVIDED. NO PARALLEL PARKING IS BEING PROVIDED ALONG THIS PORTION OF MAPLE LAWN BOULEVARD.



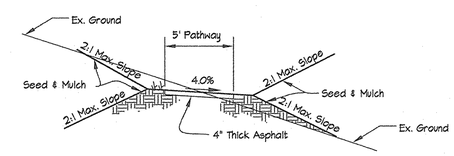
P-5 Granular Base
For Maple Lawn Blvd.
N.T.S.

Paving Sections

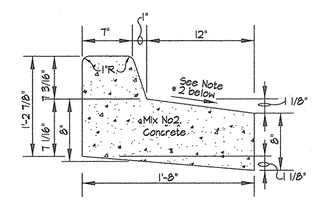
Note: Depending on the CBR values obtained in the field, the paving sections may be revised, if approved by a professional soils engineer. These substitutions must also be approved by the Howard County Dept. of Public Works.



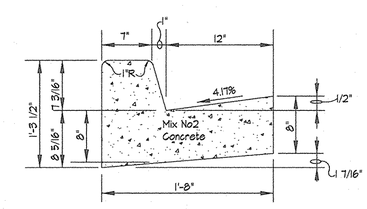
BOLLARD DETAIL
(N.T.S.)



5'-0" Pathway Detail
N.T.S.



Reverse "T" Combination
Curb & Gutter
N.T.S.



Standard "T" Combination
Curb & Gutter
N.T.S.

Notes:
1. Standard "T" Combination Curb and Gutter to be used in all public rights of way.
2. Gutter pan at 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.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
William F. Weber Jr. — Chief, Bureau of Highways — Date 11-21-05

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Chief, Division of Land Development — Date 11/29/05
Chief, Development Engineering Division — MK — Date 11/28/05

STATE OF MARYLAND — MARGARET L. GUTSCHICK — No. 12071

Also for As-Built info. CKJ

ASBUILT JAN., 2007

GLW GUTSCHICK LITTLE & WEBER, P.A.
CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS
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DES. DEV	DRN. AWL	CHK. DEV

DATE	REVISION	BY	APP'R.

PREPARED FOR:
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ATTN: CHARLIE O'DONOVAN
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ROAD DETAILS AND STREET TREE & STREET LIGHT INFORMATION

MAPLE LAWN FARMS

Midtown District - Area 3

Parcel A-4, Non-Buildable Parcels RR-1 & RR-2 and Maple Lawn Blvd.

(A Resubdivision of Parcels 'C' and 'D')

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F-05-139

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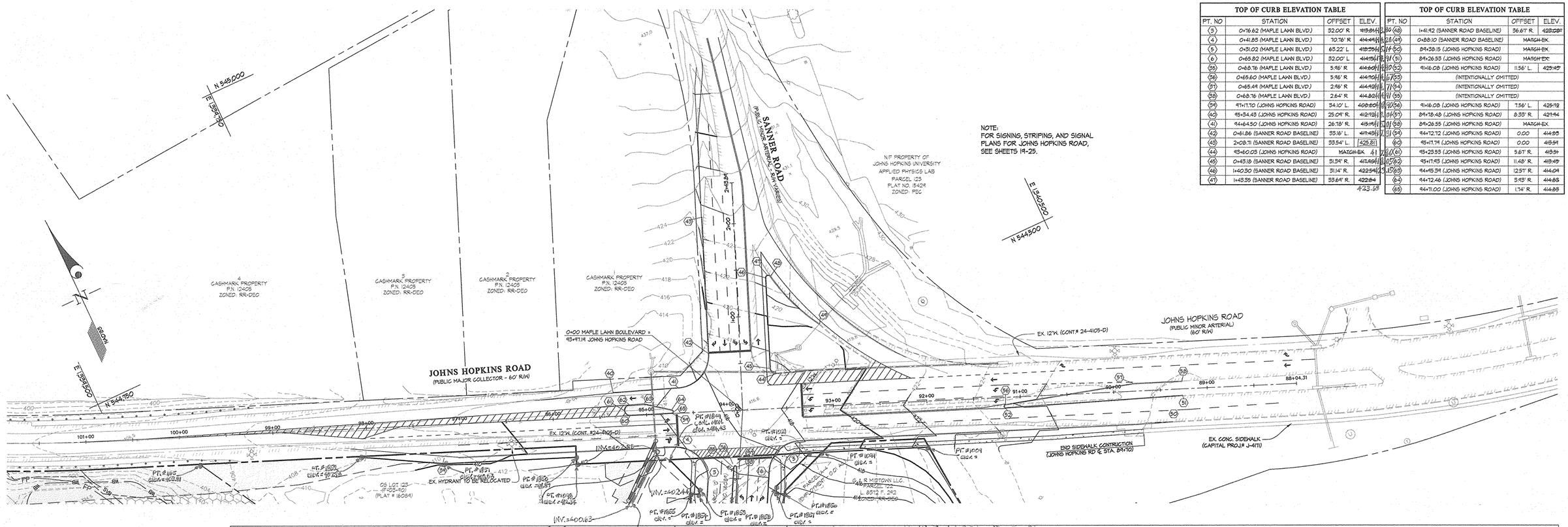
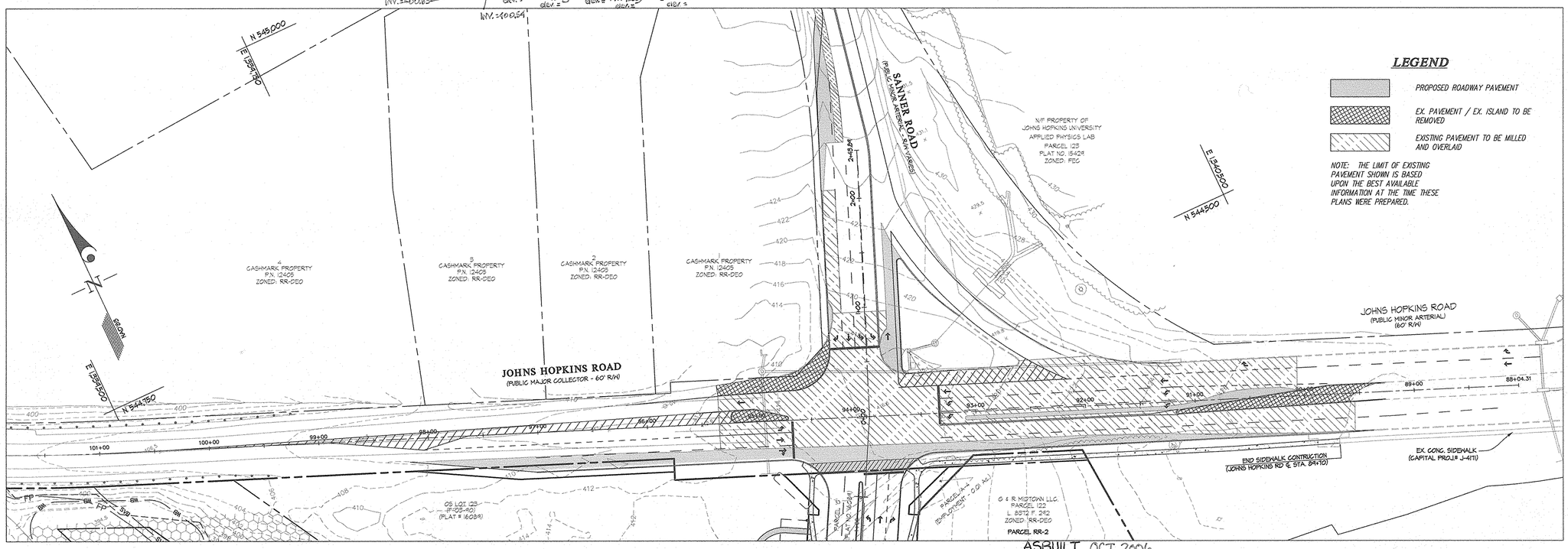
TOP OF CURB ELEVATION TABLE			
PT. NO	STATION	OFFSET	ELEV.
(3)	0+16.62 (MAPLE LAWN BLVD.)	32.00' R	415.84
(4)	0+41.85 (MAPLE LAWN BLVD.)	70.76' R	414.44
(5)	0+51.02 (MAPLE LAWN BLVD.)	63.22' L	418.54
(6)	0+65.82 (MAPLE LAWN BLVD.)	32.00' L	414.54
(56)	0+68.76 (MAPLE LAWN BLVD.)	5.96' R	414.60
(56)	0+65.60 (MAPLE LAWN BLVD.)	5.96' R	414.90
(57)	0+65.44 (MAPLE LAWN BLVD.)	2.96' R	414.92
(58)	0+68.76 (MAPLE LAWN BLVD.)	2.64' R	414.80
(59)	4+17.70 (JOHNS HOPKINS ROAD)	34.10' L.	408.60
(42)	4+34.43 (JOHNS HOPKINS ROAD)	25.04' R.	412.98
(41)	4+64.50 (JOHNS HOPKINS ROAD)	26.78' R.	415.14
(42)	0+61.86 (SANNER ROAD BASELINE)	33.16' L.	417.45
(43)	2+08.71 (SANNER ROAD BASELINE)	33.54' L.	425.81
(44)	1+60.03 (JOHNS HOPKINS ROAD)	MATCH-EX.	61
(45)	0+43.18 (SANNER ROAD BASELINE)	31.34' R.	413.46
(46)	1+40.30 (SANNER ROAD BASELINE)	31.14' R.	422.54
(47)	1+49.35 (SANNER ROAD BASELINE)	33.64' R.	422.84
			423.68

TOP OF CURB ELEVATION TABLE			
PT. NO	STATION	OFFSET	ELEV.
(48)	1+41.42 (SANNER ROAD BASELINE)	36.67' R.	422.28
(49)	0+28.10 (SANNER ROAD BASELINE)	MATCH-EX.	
(50)	84+38.15 (JOHNS HOPKINS ROAD)	MATCH-EX.	
(51)	84+26.53 (JOHNS HOPKINS ROAD)	MATCH-EX.	
(52)	91+16.08 (JOHNS HOPKINS ROAD)	11.56' L.	425.45
(53)	(INTENTIONALLY OMITTED)		
(54)	(INTENTIONALLY OMITTED)		
(55)	(INTENTIONALLY OMITTED)		
(56)	91+16.08 (JOHNS HOPKINS ROAD)	7.56' L.	425.72
(57)	84+18.48 (JOHNS HOPKINS ROAD)	8.33' R.	427.64
(58)	84+26.55 (JOHNS HOPKINS ROAD)	MATCH-EX.	
(59)	94+72.72 (JOHNS HOPKINS ROAD)	0.00	414.83
(60)	95+17.74 (JOHNS HOPKINS ROAD)	0.00	413.51
(61)	95+23.53 (JOHNS HOPKINS ROAD)	5.67' R.	413.51
(62)	95+17.83 (JOHNS HOPKINS ROAD)	11.48' R.	413.45
(63)	94+95.34 (JOHNS HOPKINS ROAD)	12.57' R.	414.04
(64)	94+72.46 (JOHNS HOPKINS ROAD)	5.43' R.	414.83
(65)	94+71.00 (JOHNS HOPKINS ROAD)	1.74' R.	414.83





ASBUILT OCT., 2006

For As-Built CKA

STATE OF MARYLAND — GARY K. GUTSCHICK — No. 12017

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

William J. Weber Jr. — 11-21-05
Chief, Bureau of Highways — Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Cindy Hanson — 11/29/05
Chief, Division of Land Development — Date

MK — 11/28/05
Chief, Development Engineering Division — Date

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

\DRAWINGS\04001\04001B\Finals\04001bSG03.dwg | DES. DEV | DRN. AWL | CHK. DEV

DATE	REVISION	BY	APP'R.

PREPARED FOR:
G&R MAPLE LAWN INC.
SUITE 410 WOODHOLME CENTER
1829 REISTERSTOWN ROAD
BALTIMORE, MD 21208
ATTN: CHARLIE O'DONOVAN
410-484-8400

JOHNS HOPKINS / SANNER ROAD IMPROVEMENTS

MAPLE LAWN FARMS

Midtown District - Area 3

Parcel A-4, Non-Buildable Parcels RR-1 & RR-2 and Maple Lawn Blvd.

(A Resubdivision of Parcels 'C' and 'D')

ELECTION DISTRICT No. 5 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
1"=50'	MXD-3/RR-DEO	04001B
DATE	TAX MAP – GRID	SHEET
NOV., 2005	41 – 16	3 OF 29

F-05-139

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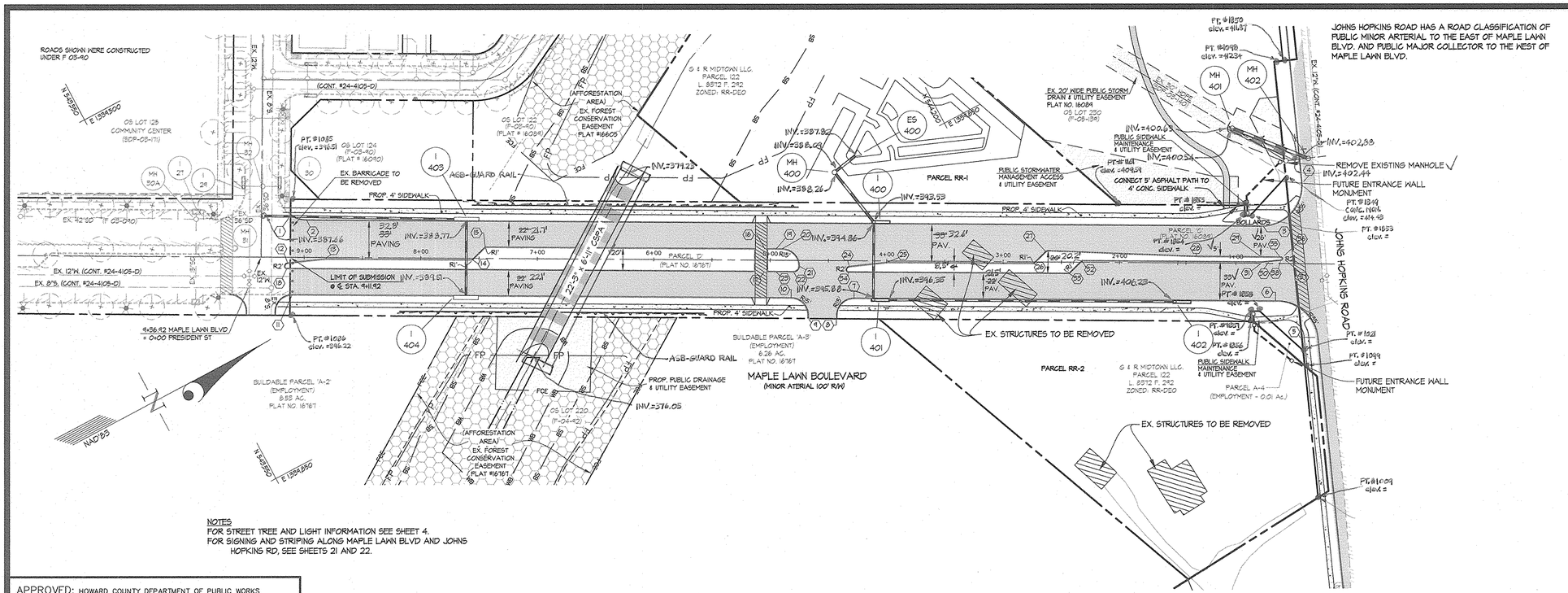


NOTES
FOR STREET TREE AND LIGHT INFORMATION SEE SHEET 4.
FOR SIGNING AND STRIPING ALONG MAPLE LAWN BLVD AND JOHNS HOPKINS RD, SEE SHEETS 21 AND 22.

TOP OF CURB ELEVATION TABLE				
PT. NO	STATION	OFFSET	ELEV.	
(1)	4+11.92	36.24' R	396.93	
(2)	8+97.92	32.00' R	~~398.45~~	402.17
(3)	0+76.62	32.00' R	~~413.81~~	402.72
(4)	0+41.88	70.76' R	~~414.44~~	407.51
(5)	0+31.02	68.22' L	~~418.39~~	407.87
(6)	0+65.82	32.00' L	~~414.15~~	
(7)	4+21.80	32.00' L	~~400.87~~	414.24
(8)	4+42.80	50.00' L	~~400.99~~	414.54
(9)	4+66.80	50.00' L	~~399.51~~	414.41
(10)	4+81.80	32.00' L	~~399.05~~	409.16
(11)	9+09.92	32.00' L	~~395.63~~	408.46
(12)	9+14.21	4.78' L	~~396.25~~	401.16
(13)	8+81.92	1.00' L	~~395.92~~	416.90
(14)	7+55.95	0.92' L	~~395.24~~	414.67
(15)	7+44.86	9.85' R	~~395.05~~	414.67
(16)	5+04.80	10.00' R	~~398.80~~	414.71
(17)	5+04.80	10.00' L	~~398.80~~	414.91
(18)	4+14.92	10.00' L	~~396.16~~	
(19)	4+94.80	10.00' R	~~399.01~~	
(20)	4+89.80	10.00' R	~~399.24~~	
(21)	4+74.80	5.00' L	~~399.81~~	
(22)	4+71.80	10.00' L	~~399.55~~	
(23)	4+94.80	10.00' L	~~399.04~~	

TOP OF CURB ELEVATION TABLE			
PT. NO	STATION	OFFSET	ELEV.
(24)	4+32.15	4.78' L	~~401.27~~
(25)	3+99.47	1.00' L	~~402.64~~
(26)	2+73.85	0.92' L	~~407.54~~
(27)	2+62.65	9.60' R	~~407.74~~
(28)	1+34.18	6.00' R	412.45
(29)	0+78.76	5.96' R	~~414.29~~
(30)	0+78.76	1.64' R	~~414.49~~
(31)	0+85.13	1.00' R	~~414.21~~
(32)	2+32.04	0.92' R	~~409.12~~
(33)	2+43.10	9.92' L	~~408.51~~
(34)	4+32.80	10.00' L	~~401.15~~
(35)	0+68.76	5.96' R	~~414.60~~
(36)	0+65.60	5.96' R	~~414.70~~
(37)	0+65.49	2.96' R	~~414.92~~
(38)	0+68.76	2.64' R	~~414.82~~

STORM DRAIN INFORMATION

From No.	To No.	Diameter & Type	L (ft)
I-402	I-401	15" HDPE	243 ~~244~~ L.F.
I-401	I-400	18" HDPE	✓64 L.F.
I-400	MH-400	18" HDPE	54.3 ~~51~~ L.F.
MH-400	ES-400	18" HDPE	21.4 ~~20~~ L.F.
I-404	I-403	15" HDPE	✓64 L.F.
I-403	EX. MH-31	18" HDPE	164.9 ~~162~~ L.F.
MH-402	MH-401	30" HDPE	63.74 L.F.

HDPE = High Density Polyethylene

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

DESIGNED DEV/AWL
DRAWN AWL
CHECKED DEV
DATE NOV., 2005

Road Construction Plan
MAPLE LAWN FARMS
MIDTOWN DISTRICT - AREA 3
Parcel A-4, Non-Buildable Parcels RR-1 & RR-2 and Maple Lawn Blvd.
MAPLE LAWN BOULEVARD EXTENSION
A Resubdivision of Parcels 'C' and 'D'
ELECTION DISTRICT No. 5 HOWARD COUNTY, MD

OWNER
G&R MAPLE LAWN INC.
SUITE 410 WOODHOLME CENTER
1829 REISTERSTOWN ROAD
BALTIMORE, MD 21208
ATTN: CHARLIE O'DONOVAN
410-484-8400

SCALE 1"=50'
DRAWING 2 OF 29
ZONING MXD-3/ RR-DEO
JOB No. 04001b

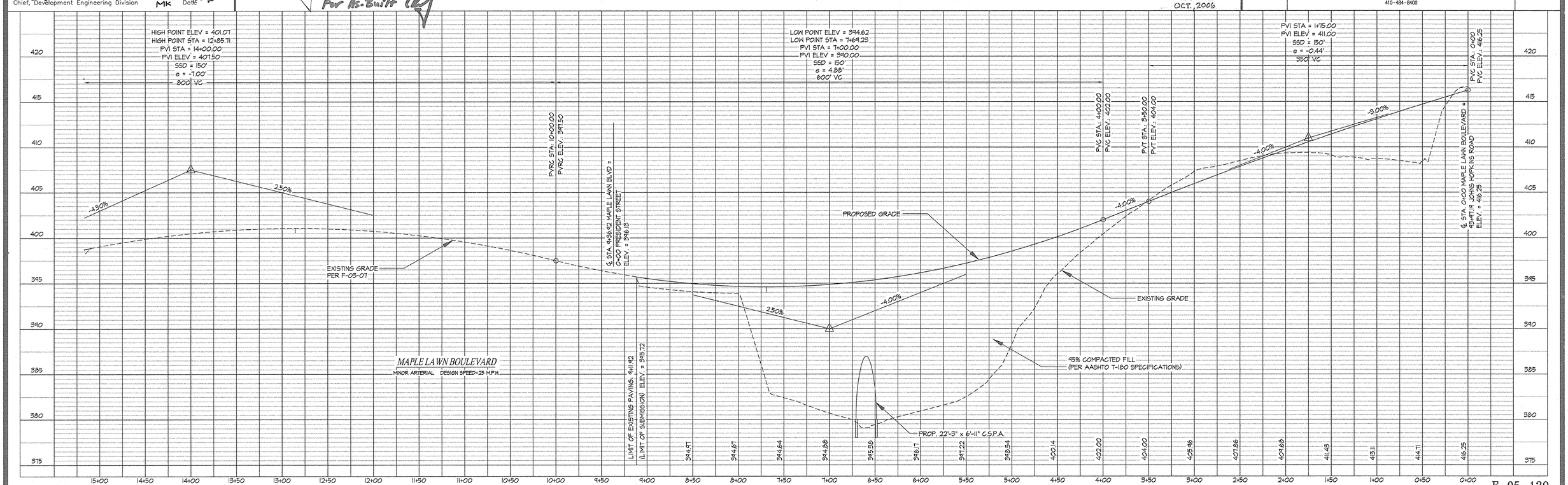
APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
William F. Weber Jr. 11-21-05
Chief, Bureau of Highways Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Cindy Hannah 11/29/05
Chief, Division of Land Development Date
William Damasco 11/28/05
Chief, Development Engineering Division MK Date

STATE OF MARYLAND CHARLES O'DONOVAN No. 10001 EXPIRES 1-20-06

For As-Built CKJ

ASBUILT OCT., 2006



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CONSTRUCTION PLAN
MAPLE LAWN FARMS
Midtown District - Area 3
Parcel A-4, Non-Buildable Parcels RR-1 & RR-2 and Maple Lawn Boulevard

(A Resubdivision of Parcel 'C' & Parcel 'D')

GENERAL NOTES:

1. Zoning: A portion of the site (Parcels C and D) is being developed under MXD-3 regulations, per ZB985M, approved on 2/8/01 and the remaining portion of the property identified as Parcel 122 is zoned RR-DEO.
2. The previous Department of Planning and Zoning file numbers: S-01-17, ZB-985M, ZB-1039M, PB-353, F-03-01, F-04-01, F-03-40, F-04-78, F-04-88, F-04-92, SDP-03-140, SDP-03-171, SDP-04-82, SDP-04-112, SDP-04-121, WP-03-02, WP-03-108, and WP-03-120.
3. This project is in conformance with the latest Howard County standards unless waivers have been approved.
4. The Cemetery Inventory Maps do not show any cemeteries within the project limits.
5. The Scenic Roads Map does not indicate any scenic roads within or adjacent to the project limits.
6. This property was brought into the Metropolitan District on August 20, 2001.
7. All roads in this development are public. All areas indicated as alley will be private.
8. Site Analysis

Gross Site Area:	507.9 Acres ±
Gross Area of Phase 4b:	4.39 Acres ±
Net Area of Phase 4b (Area not yet platted):	3.12 Acres ±
Area of Open Space:	0.00 Acres ±
Area of 100 Year Floodplain in Phase Three:	0.39 Acres ±
Area of Roadway (Public):	2.03 Acres ±
Area of Roadway (Private):	0.00 Acres ±
Area of Lots:	2.39 Acres ±
Parcel A-4	0.01 Acres ±
Parcel RR-1	1.23 Acres ±
Parcel RR-2	1.11 Acres ±

9. Open Space Requirements:
   Minimum Open Space Requirement for Project is 35%.
   Total Open Space Required: 1.09 Acres ± (25%)
   Total Open Space Provided: 0.00 Acres ± (0.0%)
   Recreational Open Space Required: 0.12 Acres (10%)
   Recreational Open Space Provided: 0.00 Acres (See Chart-this sheet)
   The excess open space area may be used to fulfill the minimum open space requirement for future phases.
10. Soils data was taken from the Soil Survey of Howard County, Maryland issued July 1968.
11. Topography indicated was taken from aerial topography prepared during March 1997 by SDI. In areas within the limit of submission where no grading is being proposed, contours shown are grades established under F 03-90 or SDP-03-140 (DS 122).
12. Boundary information shown is based upon a field survey prepared by Gutschick, Little, and Weber, P.A. on or about June, 2001.
13. Wetland delineation by Exploration Research, Inc. approved by the Corps of Engineers JD 65187-3 on 5/14/99. Notice of Intent to issue a permit is covered by MDE Tracking #01-NT-0344/200165421.
14. The 100-year flood plain limits were determined by the floodplain study prepared by Gutschick, Little and Weber, P.A. as part of F-03-01.
15. Horizontal and vertical datum is based on Howard County Station 41E.
16. Existing utilities were taken from available Howard County records.
17. Public water and sewer to be utilized:
    Existing Water Contract Number: 24-4264-D.
    Existing Sewer Contract Number: 24-4173-D.
18. Traffic Study was prepared and submitted as part of S 01-17, which was signed by the Planning Board on August 8, 2001. The improvements shown at the intersection of Johns Hopkins Road and Maple Lawn Boulevard are not required by the Traffic Report. However, the improvements shown are anticipated as a result of the revised FDP, which is being reviewed concurrent to this final plan.
19. All buffering and other landscaping requirements/features will be shown at the Site Development Plan stage and/or final plan stage and will be provided in accordance with the Comprehensive Sketch Plan criteria.
20. Perennial stream buffers are determined by land use adjoining the open space (i.e. Employment = 50' buffer, Residential = 75' buffer). All uses adjoining an intermittent stream = 50' buffer.
21. Stormwater management, for both quality (WQv) and quantity (CPv) will be provided partially by a regional facility (Type P-2) constructed under F 03-40 on Open Space Lot 221. The remainder will be provided by a facility (Type P-5) proposed under these plans. Both facilities will be publicly owned and jointly maintained. Both ponds will be wet ponds with extended detention.
22. As a consequence of the Sketch Plan approval prior to November 15, 2001, this project is grandfathered to the Fourth Edition of the Subdivision and Land Development Regulations.
23. As stated in the Decision and Order for this plan, The Planning Board shall review and approve site development plans for all single family attached and multi-family residential uses, and all employment and open space use development for the subject Maple Lawn Farms project. This and other Final Subdivision Plans submitted for this project shall not be approved by DPZ until finding test evaluation restrictions enunciated by the Zoning Board on page 22-23 of its decision on the FDP are met consistent with the requirements of Section 121E.4.c.2 of the Zoning Regulations.
24. No grading, removal of vegetative cover or trees, or placement of new structures is permitted within limits of wetlands, streams or their required buffers, and 100 year flood plain areas, except as permitted under WP-02-54, WP-03-02, and WP-03-120.
25. Open space lots may contain active recreational facilities as allowed by the approved Comprehensive Development Criteria.
26. Phasing for this project is in accordance with the Decision and Order for Zoning Board Case No. ZB-985M and the Decision and Order for PB Case No. 353 (Comprehensive Sketch Plan, S-01-17).
27. Development for this phase will be done in accordance with the Comprehensive Development Criteria approved with S-01-17 and PB-353.
28. The transportation and transit design will be implemented as outlined in the Petitioner's Exhibit 55 as submitted as part of ZB 985M. Location and number of bus stops within the limits of this Phase will be determined at Final Plan Stage. Any shelters will be provided at Site Development Plan Stage for the development adjacent to that structure so that architectural and hardscape features can be coordinated.
29. A Noise Study was prepared by Wildman & Associates for S 01-17, which was signed by the Planning Board on August 8, 2001.
30. There will be no moderate income housing units proposed under this phase of residential development, but are proposed for Phase I, Stage II (Annual Phase IV).
31. For soil types, descriptions and limitations, see S 01-17.
32. In accordance with section 16.116 (c) of the Subdivision and Land Regulations, the location and design of the proposed utility lines and pedestrian pathways within enviromental features and required buffers have been determined to be essential disturbances.
33. Parcel 122, Zoned RR, will be brought into the MXD Zoning through the FDP approval process as per ZB Case No. 1039M.
34. The Maple Lawn Boulevard road extension crossing through the environmentally sensitive areas and buffers was determined to be necessary for reasonable development of the property in accordance with Section 16.116(c) of the Subdivision and Land Development Regulations during review and approval of ZB Case No. 985 and Comprehensive Sketch Plan, S-01-17.
35. Parcels 'RR-1' and 'RR-2' are temporary Non-Buildable Parcels for the purpose to construct the Maple Lawn Boulevard extension to Johns Hopkins Road until the Oliver Property is zoned as "MXD-3" in accordance with ZB Case No. 1039M. The 2 parcels will then be resubdivided in the future as an MXD open space lot and employment use parcel.

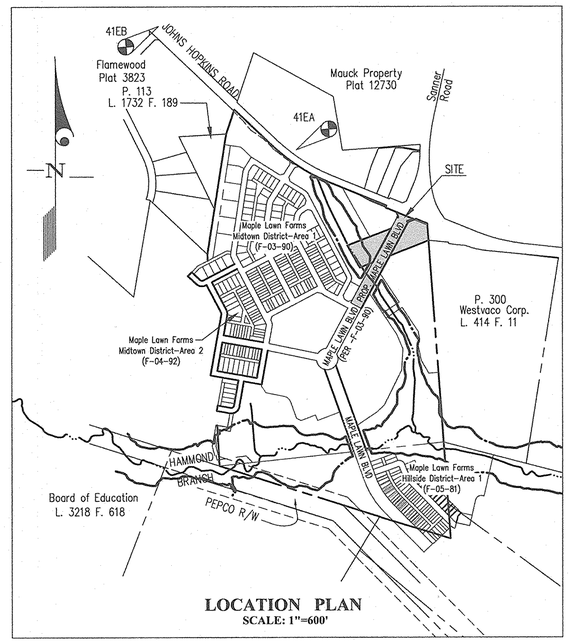
WP-03-02
On Oct. 11,2002, WP-03-02 was granted to allow:
- Grading within the 75' stream buffer and floodplain as shown on the revised grading exhibits submitted 9/6/02 (waiver from Section 16.116 (a)(2)(ii) and Section 16.115 (c)(2) respectively.
- Elimination of truncation at right-of-way corners of residential lots and other parcel corners at right-of-ways where necessary to achieve the traditional neighborhood design (waiver from Section 16.116 (a)(5).

The disturbance within the floodplain and stream buffer is subject to obtaining the necessary permits from MDE and DNR. Elimination of the truncations is subject to having adequate sight and intersection distance as determined by the DPZ, Development Engineering Division.

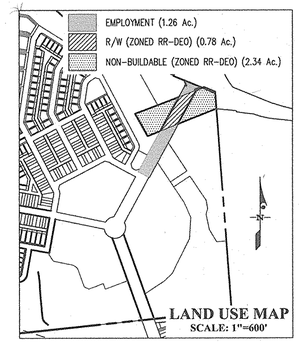
WP-03-108
On April 2, 2003, WP-03-108 was granted for the following:
- Section 16.102 "Applicability" which requires the application of the Howard County Subdivision and Land Development Regulations for all divisions of land situated within Howard County for the purpose to allow recording of adjoiner deeds to reconfigure two (2) existing parcels of land, Parcels No. 114 & 209.

Approval is subject to the following condition:
1. Submit a copy of the recorded adjoiner deeds for the subject parcels of land to this Division for file retention purposes upon completion of the property line adjustment.

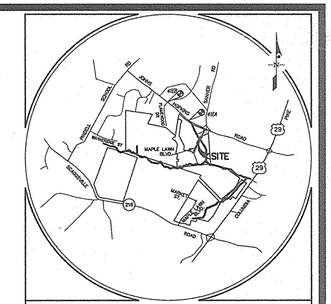
WP-03-120
On July 24, 2003, WP-03-120 was granted for the following:
- Installation of a temporary stream crossing for the purpose of earth moving operations.



LOCATION PLAN
SCALE: 1"=600'



LAND USE MAP
SCALE: 1"=600'



VICINITY MAP
SCALE: 1" = 4000'

BENCHMARKS
41EA — ELEV. = 407.05
STANDARD DISC ON CONCRETE MONUMENT
41EB — ELEV. = 463.90
STANDARD DISC ON CONCRETE MONUMENT

LEGEND

400	EX. CONTOUR
	PROP. CONTOUR
	EXISTING TREELINE
SB — SB	STREAM BUFFER
WB — WB	WETLAND BUFFER
MH 20	STRUCTURE NUMBER
2	CENTERLINE CURVE
2	PROPERTY CORNER
15" HDPE	PROP. STORM DRAIN
	PROP. BARRICADE
	100 YEAR FLOODPLAIN
	LIMIT OF WETLAND
	WETLAND AREA
	CENTERLINE OF STREAM
	BOTTOM OF STREAM
	PROPOSED 5' PATHWAY
	EXISTING STRUCTURE TO BE REMOVED
	LIMIT OF DISTURBANCE
	EDGE OF EX. PAVMENT

SHEET INDEX

1. COVER SHEET
2. ROAD CONSTRUCTION PLAN (MAPLE LAWN BLVD.)
3. JOHNS HOPKINS / SANNER ROAD IMPROVEMENTS
4. ROAD DETAILS AND STEET TREE & STREET LIGHT INFORMATION
5. SEDIMENT CONTROL PLANS, NOTES, & DETAILS
6. SEDIMENT CONTROL OVERVIEW PLAN
7. SEDIMENT CONTROL DETAILS
8. SEDIMENT CONTROL NOTES
9. STORM DRAIN DRAINAGE AREA MAP
10. STORM DRAIN PROFILES
11. LAND USE PLAN (FOR SWM ONLY)
12. STORMWATER MANAGEMENT DRAINAGE AREA MAP
13. STORMWATER MANAGEMENT PROFILES & DETAILS
14. STORMWATER MANAGEMENT NOTES & DETAILS
15. STREAM CROSSING DETAILS AND NOTES
16. SOIL BORING DETAILS AND NOTES
17. FOREST CONSERVATION NOTES AND DETAILS
18. LANDSCAPING PLAN, DETAILS, & NOTES

JOHNS HOPKINS ROAD AT MAPLE LAWN BOULEVARD/SANNER ROAD INTERSECTION PLANS

19. TRAFFIC SIGNAL PLAN
20. GENERAL INFORMATION PLAN
21. SIGNING & PAVEMENT MARKING PLAN
22. SIGNING & PAVEMENT MARKING PLAN
23. PHASE 1 – MAINTENANCE OF TRAFFIC PLAN
24. PHASE II – MAINTENANCE OF TRAFFIC PLAN
25. GENERAL NOTES – MAINTENANCE OF TRAFFIC PLAN

ARCH SPAN CULVERT PLANS

26. PLAN AND PROFILE
27. DETAILS
28. REINFORCEMENT DETAILS
29. SPECIFICATIONS

OVERALL MXD TRACKING CHART

PHASE NO.	FILE REF. NO.	GROSS ACREAGE	NON-BUILDABLE SF1	NON-BUILDABLE OR	NON-BUILDABLE EMP	NON-BUILDABLE OS	NON-BUILDABLE %	S.F.D. AC. (%)	O.R. AC. (%)	EMP. AC. (%)	O.S. AC. (%)	PUB. RD. SF	PUB. RD. OR	PUB. RD. EMP	PRIV. RD. ACREAGE	SFD UNITS	O.R. UNITS (APT./S.F.A.)	S.F.D. DENSIITY	O.R. DENSITY	EMP. BLDG. AREA	EMP. F.A.R.
1	F-03-07	51.98	0.00	0.00	0.00	0.00	(0.0)	------	------	30.83	(59.3)	21.15	(40.7)	0.00	0.00	438	------	------	------	------	------
2	F-03-40	37.43	0.52	0.43	0.24	0.00	(3.2)	10.84	(29.0)	8.09	(21.6)	1.56	(4.2)	15.75	(42.1)	3.72	3.74	1.56	1.68	55	65	5.1/AC.	8.0/AC.	------	------
3	F-04-42	58.80	-0.52	-0.43	2.71	0.00	(3.0)	7.11	(12.1)	12.28	(20.9)	14.20	(23.2)	22.85	(38.9)	2.52	0.46	0.00	1.00	41	78	5.8/AC.	6.4/AC.	------	------
4a	F-05-81/82	15.47	0.00	1.48	-1.69	0.00	-(1.4)	0.00	(0.0)	7.29	(47.1)	1.69	(10.9)	6.70	(43.3)	0.00	3.40	1.69	0.46	------	59	------	8.0/AC.	------	------
4b	F-05-139	* 0.00	0.00	0.00	-1.26	0.00	(0.00)	0.00	(0.0)	0.00	(0.0)	1.26	(---)	0.00	(0.0)	0.00	0.00	1.26	------	------	------	------	------	------	------
4c	F-05-112/113	3.00	0.00	0.00	0.00	0.00	(0.0)	0.00	(0.0)	0.00	(0.0)	3.00	(100.0)	0.00	(0.0)	0.00	0.00	3.00	------	------	------	------	------	------	------
TOTALS		166.68		1.48			(0.9)	17.95	(10.8)	27.66	(16.6)	53.14	(31.9)	66.45	(39.9)		25.73		3.14	96	203	5.3/AC.	7.3/AC.	0.00	0.00

OVERALL DENISTY TABULATION	PROPOSED	ALLOWED	LAND USE ACREAGES*	PROPOSED	ALLOWED
OVERALL S.F.D/GROSS ACRE	5.3 UNITS/AC.	2.8 UNITS/AC.	SINGLE FAMILY DETACHED (S.F.D.)	17.95	148.3
OVERALL O.R./GROSS ACRE	7.3 UNITS/AC.	14.0 UNITS/AC.	OTHER RESIDENTIAL (O.R.)	24.14	53.0
OVERALL EMPLOYMENT F.A.R	0.35		EMPLOYMENT	53.14	77.1
OVERALL S.F.D/O.R. DENSITY	1.8 UNITS/AC.	2.2 UNITS/AC.	OPEN SPACE	66.45	179.5
			TOTALS	166.68	507.9

MAX. RES. UNITS ALLOWED	5-01-17
SINGLE FAMILY DETACHED	485 (45.5%)
APARTMENTS (O.R.)	256 (21.1%)
SINGLE FAMILY ATTACHED	315 (33.4%)
TOTAL	1116

*LAND ACREAGES INCLUDE NON-BUILDABLE AREAS

NON-BUILDABLE TRACKING CHART

PARCEL	TOTAL NON-BUILDABLE PARCEL AREA	FILE UNDER WHICH PARCEL WAS CREATED	FILE UNDER WHICH PARCEL WAS CONVERTED	AREA CONVERTED	CONVERTED TO:	AREA REMAINING
A	0.52	F-03-40	F-04-42	0.52	O.R. LOTS	---
B	0.43	F-03-40	F-04-42	0.43	S.F.D. LOTS	---
C	0.24	F-03-40	THIS PLAN	0.24	R/W (EMP.)	---
D	1.02	F-04-42	THIS PLAN	1.02	R/W (EMP.)	---
E	1.69	F-04-42	F-05-82	1.69	R/W (EMP.)	---
F	1.38	F-05-81	---	0	---	1.38
G	0.10	F-05-81	---	0	---	0.10
TOTAL	5.38					1.48

OVERALL OPEN SPACE TRACKING CHART

PHASE NO.	FILE REF. NO.	GROSS ACREAGE	O.S. AC. (%)	ACTIVE O.S. AC. (%) *
1	F-03-07	51.98	21.15 (40.7)	———
2	F-03-40	37.43	15.75 (42.1)	7.52 (47.1) ①
3	F-04-42	58.80	22.85 (38.9)	———
4a	F-05-81	15.47	6.70 (43.3)	0.29 (4.3) ②
4b	F-05-139	0.00	0.00 (0.0)	———
4c	F-05-112	3.00	0.00 (0.0)	———
TOTAL		166.68	66.45 (39.9)	7.81 (11.8) *

① 7.52 ACRES = Community Center (OS 125 - 5.01 Ac.), OS 126 (0.55 Ac.), and OS 230 (1.96 Ac.)
② 0.29 ACRES = Pathways

* The percent of active open space is based upon the total open space provided.

NON-MXD TRACKING CHART

AREA	TOTAL AREA	FILE UNDER WHICH AREA WAS CREATED	ZONING OF AREA
PARCEL RR-1	1.23	F-05-139	RR-DEO
PARCEL RR-2	1.11	F-05-139	RR-DEO
R/W	0.78	F-05-139	RR-DEO
TOTAL	3.12*		

* THIS AREA WILL BE ADDED TO THE OVERALL PROJECT AREA WITH THE APPROVAL OF THE AMENDED PRELIMINARY DEVELOPMENT PLAN AND THE AMENDED COMPREHENSIVE SKETCH PLAN.

THE LIMITS OF THIS FINAL PLAN COVERS PART OF THE DEVELOPMENT PROPOSED BY S-01-17 AS ANNUAL PHASE 4 (ALLOCATION YEAR 2007) AND PARCEL 122, WHICH WILL BECOME PART OF THE OVERALL PROJECT AREA WITH THE APPROVAL OF THE AMENDED PRELIMINARY DEVELOPMENT PLAN AND AMENDED COMPREHENSIVE SKETCH PLAN.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
William J. Weber Jr. — 11-21-05
Chief, Bureau of Highways — Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Cindy Hansen — 11/29/05
Chief, Division of Land Development — Date
Chief, Development Engineering Division MK — 11/30/05 — Date

STATE OF MARYLAND — CHRISTOPHER K. RAMMUNN — No. 28338

CKR For As-Built CKR

ASBUILT OCT., 2006

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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DATE	REVISION	BY	APP'R.

PREPARED FOR:
G&R MAPLE LAWN INC.
SUITE 410 WOODHOLME CENTER
1829 REISTERSTOWN ROAD
BALTIMORE, MD 21208
ATTN: CHARLIE O'DONOVAN
410-484-8400

COVER SHEET

MAPLE LAWN FARMS
Midtown District - Area 3
Parcel A-4, Non-Buildable Parcels RR-1 & RR-2 and Maple Lawn Blvd.
(A Resubdivision of Parcels 'C' and 'D')
ELECTION DISTRICT No. 5 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	MXD-3/RR-DEO	04001B
DATE	TAX MAP – GRID	SHEET
NOV., 2005	41 – 16	1 OF 29

F-05-139

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