FINAL PLAN
SHIPLEY'S GRANT
PHASE V
LOTS C-308, D-5 THRU D-62, OPEN SPACE LOTS D-63 THRU D-68, COMMON OPEN SPACE LOTS D-69 THRU D-72 AND NON-BUILDABLE PARCELS "D-73" THRU "D-80"
AND
PHASE I
OPEN SPACE LOT C-64

General Notes:

1. All construction shall be in accordance with the latest standards and specifications of Howard County plus MSHA standards and specifications if applicable,
2. The contractor shall notify the Department of Public Works/ Bureau of Engineering/ Construction Inspection Division at (410) 313-1880 at least five (5) working days prior to the start of work.
3. The contractor shall notify "Miss Utility" at 1-800-257-7777 at least 48 hours prior to any excavation work being done.
4. Traffic control devices, markings and signing shall be in accordance with the latest edition of the Manual of Uniform Traffic Control Devices (MUTCD). All street and regulatory signs shall be in place prior to the placement of any asphalt.
5. Street light placement and the type of fixtures and poles shall be in accordance with the Howard County Design Manual, Volume III (2006), Section 5.5.A. A minimum of 20' shall be maintained between any street light and any tree.
6. All sign posts used for traffic control signs installed in the County right-of-way shall be mounted on a 2" galvanized steel, perforated, square tube sleeve (12 gauge) - 3' long. A galvanized steel pole cap shall be mounted on top of each post.
7. 95% compaction in filled areas shall meet AASHTO T-180 requirements.
8. Zoning: Site is being developed under the Amended 5th Edition of the Subdivision and Land development Regulations for RA-15 (including the Supplementary Regulations for Traditional Residential neighborhoods). This plan is subject to the Amended Zoning Regulations per ZRA-65.
9. Applicable DPZ File Reference: S 04-09, WP 04-105, P-06-001, F-06-019, WP 06-045, ZRA-65, P-06-004, F-07-001, F 07-48, F 07-54, F-07-077, F 08-001, F 08-006, P-09-02, F-09-88, F-10-060 & WP-10-107.
10. This project is in conformance with the latest Howard County standards unless waivers have been approved (WP 04-105, WP-06-045 & WP-10-107 see Notes 31 & 35 below).
11. Traffic Study and Traffic Signal Warrant Analysis by The Traffic Group, dated Jan. 26, 2004.
12. Boundary information is from boundary surveys by Gutschick, Little, and Weber, P.A., dated May, 2003.
13. Horizontal and vertical datum is based on Howard County Control Stations: 31GA, 37A4
14. Aerial topography by McKenzie Snyder, Inc. on 3/23/03. Topography NW of Md Route 108 provided by Ho. Co.
15. Wetland and stream delineation by Exploration Research, Inc. submitted and approved under Sketch Plan S 04-09 dated 2/15/05. Jurisdictional determination and verification of delineation of waters of the U.S. by U.S. Army Corps of Engineers on 3/28/03. No clearing, grading or construction is permitted within wetlands, streams or their required buffers, unless approved by DPZ as necessary disturbances or waivers have been approved. The Department of Planning and Zoning has determined that the proposed road crossing located within the environmental features and buffers are considered necessary road disturbances in accordance with Section 16.116(a) of the Howard County Subdivision and Land Development Regulations.
16. Vehicular ingress & egress to MD Route 108 is prohibited except as indicated on F-07-043. Vehicular ingress and egress to Snowden River Parkway and MD Route 100 is prohibited.
17. The Cemetery Inventory Maps do not show any cemeteries within the project limits. However, a cemetery does exist on the northern corner of the adjacent Curtis Property.
18. The Scenic Roads Map does not indicate any scenic roads within or adjacent to the project limits.
19. Existing utilities are based on available Howard County records and previous Shipley's Grant plans.
20. This property is within the Metropolitan District.
21. Water and Sewer are Public per Contract No. 14-4604-D and are within the Little Patuxent Sewerage Area
22. 100-Year Flood plain prepared by Gutschick, Little, and Weber, P.A was submitted and approved as a part of F 06- 019 dated September 2006.
23. All public streets within this development shall have sidewalks on both sides of the roadway. SFA lots may not be encumbered with sidewalks and/or sidewalk easements.
24. Noise study by Hyle Laboratories. dated May 12, 2005 and updated July 12, 2005
25. A Forest Stand Delineation Plan was submitted and approved for the area covered by this plan under S 04-09 February 15, 2005. A Forest Conservation Plan was submitted and approved for the area covered by this plan under F 06-019.
26. To fulfill the forest conservation requirements of this site, at least 1.48 acres of retention and 7.04 acres of afforestation are required. This requirement was addressed by providing 1.48 acres of on-site net tract forest retention, 5.74 acres of on-site afforestation, and 1.30 acres of off-site afforestation or 2.60 acres of off-site retention to be provided with the Phase 6 plans. Forest conservation easements have been established under F-06-19, F-07-88, F-08-117, and F-10-60.

    The 5.74 acres of on-site afforestation is hereby reduced to 5.66 acres as a result of a revision to reduce the area of Forest Conservation Easement No 2A (currently Easement 2E), reduce the area of Forest Conservation Easement No. 4 (currently Easement 4A, 4B, 4C, and 4D) and correct the afforestation area within Forest Conservation Easement No. 3. An abandonment fee was required for the 0.08 acre of abandoned afforestation in the existing forest conservation easement. No abandonment fee was was required for the 0.01 acre of non-credited retention removed from Easement No. 4. The abandonment fee of $3,267.00 was paid to the Howard County Forest Conservation Fund with the F-10-60 plat mylar submission.

    The 1.30 acres of the off-site afforestation shall be met by providing 1.30 acres of afforestation or 2.60 acres of retention before the Phase 6 of this project can be approved by DPZ.

    2.13 acres of the total 5.74 acres of afforestation is in Forest Conservation Area Easement No. 5 shown on the approved F-06-19 Forest Conservation Plan. The easement for the 2.13 acres of afforestation in Forest Conservation Area Easement No. 5 was recorded on Plat No. 21071. (F-09-88)
27. Where referred to herein, "Lot(s)" includes lot(s) as defined in Subdivision Sections 108(b)(130) and 108(b)(160).
28. The minimum width of Common Open Space Lots that contain alleys shall be 24 feet, The minimum width of alley drive lanes shall be 16 feet.
29. All Open Space Lots are to be conveyed to the Shipley's Grant Homeowner's Association.
30. During the 2006 legislative session, the County Council of Howard County introduced Bill ZRA-65 to amend the Howard County Zoning Regulations pertaining to Traditional Residential Neighborhoods by expanding the applicability of the regulations to B-1 and POR zoning districts, changing setback requirements, and changing maximum lot coverage, under certain circumstances. The effective date of the amended Zoning Regulations is April 10, 2006.
31. On July 14, 2004, WP 04-105, a waiver of Section 16.120.c.(4) was granted which requires single family attached lots to have at least 15' of frontage onto a public road right-of-way; Section 16.119.a.(5), which requires truncation of public road right-of-way boundaries where public roads intersect (at corner lots); and Section 16.116.a.2.(1) which prohibits disturbance to streams and stream buffers, to allow construction of two pedestrian bridges to cross the streams. Subject to the following 2 conditions in the approval letter:

    1. The disturbance to the stream and stream buffer related to the pedestrian bridges shall be minimized. The Preliminary Plan shall show the limit of disturbance and proposed grading associated with the bridges, and shall be subject to review and approval by the Subdivision Review Committee.
    2. If it is determined by the DED that sight distance is inadequate at the intersections for which truncation as waived, then the appropriate easements must be added to the plan/plat.

    On March 23, 2006, WP-06-45, approved the waivers for the following: Section 16.116(a)(1) request to be permitted to grade within 25 feet of a wetland; Section 16.116(a)(2)(ii), request to be permitted to grade within 75 feet of a perennial stream; Section 16.116(f)(1), request to be permitted to obtain vehicular access from minor arterial road instead of a lesser classification road for a proposed subdivision that fronts on minor and principle arterial roads and local road; Section 16.120(c)(1), request to be permitted to create commercial and apartment/multifamily parcels without a minimum of 60 feet of frontage on an approved public road, and Section 16.114.(1) request to be permitted to not submit and obtain approval of the required preliminary plan for a major subdivision before submitting the required final plan/plat. Subject to the following 4 conditions in the approval letter:

    1. Compliance with the DED comments of 2/14/06
    2. The stream and wetland buffers shall be afforested in accordance with the forest conservation plan for final plan/plat, F-06-19.
    3. The applicant must obtain all required State/COE permits.
    4. The stream and wetland buffer disturbances shall not exceed the one shown on the WP-06-45 exhibit of 2/2/06.
32. Landscape surety in the amount of $2,400.00 shall be posted as a part of the Developer's Agreement.
33. On July 9, 2008, a re-phasing of Shipley's Grant in accordance with the provisions of Section 16.1104(b)(1) was granted. The re-phasing was granted as follows:

Phase	Allocation Year	No. of Units
V	2011	59
VI	2012	88

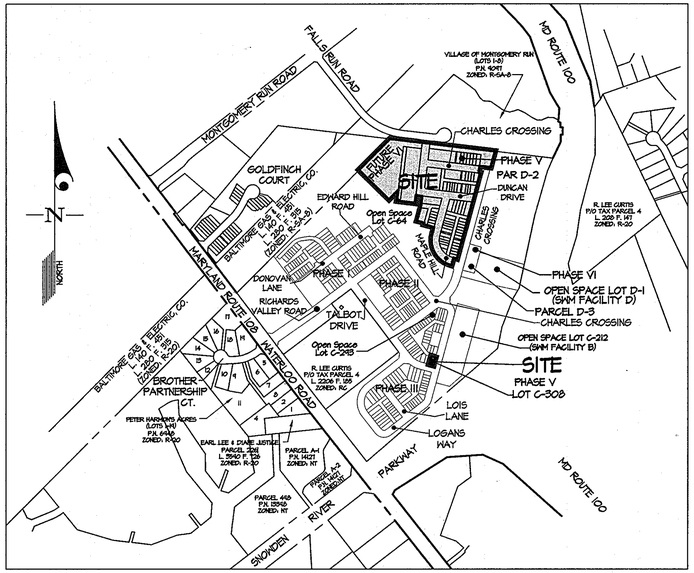
    A Preliminary Plan for Phase V must be submitted between July 1, 2008 and December 31, 2008. A Preliminary Plan for Phase VI must be submitted between July 1, 2009 and December 31, 2009.
34. Stormwater Management Pond 'B' is provided under F-06-19 and is a wet extended detention pond (type P-2). Pond 'B' has been designed to provide WQv, CPv, 1-y attenuation, and safe passage of the 100-yr storm. Pond 'B' is a MD-378 Hazard Class A Facility. Facility 'B' will be a public facility on homeowners association owned property (Open Space Lot C-212), jointly maintained by Howard County Department of Public Works and the homeowner's association.

    Stormwater Management Pond 'D' is provided under F-09-088 and is a wet extended detention pond (type P-2). Pond 'D' has been designed to provide WQv, CPv, 1-y attenuation, and safe passage of the 100-yr storm. Pond 'D' is a MD-378 Hazard Class A Facility. Facility 'D' will be a public facility on homeowners association owned property (Open Space Lot D-1), jointly maintained by Howard County Department of Public Works and the homeowner's association.

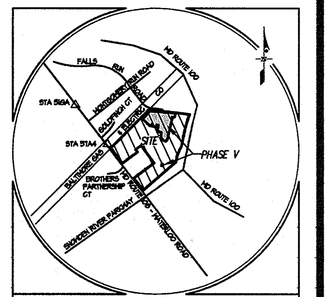
    The recharge (REV) requirements are provided under F-09-088 by an infiltration system (rev5 and rev6), located on homeowners association property (open space lot C-243), is to be privately owned and maintained by the homeowners association. Recharge requirements for Parcel D will be provided by recharge trenches designed in the SDP for Parcel D-2.
35. On March 16, 2010, WP-10-107, approved the waivers for the following: Section 16.116(a)(2)(i) and (ii) request to be permitted to grade within the 50 and 75 feet stream buffers as shown on the WP-10-107 exhibit/plan, subject to the following conditions in the approval letter:

    1. The stream buffer areas cleared and graded per this waiver petition approval:
        A. Shall not exceed the limits shown on the WP-10-107 exhibit/plan, and;
        B. Shall be afforested in accordance with the F-06-019 forest conservation plan.

    2. The F-10-048 road plans shall be revised:
        A. Per the attached DED comment #1 dated 03/02/10, which states "The area being graded shall be protected by vegetative cover and afforested once the construction of Maple Hill Road and the pad site located on Parcel D-80, as shown in the exhibit accompanying this waiver request, is complete. The stabilization of these areas shall be done prior to applying for building permits.
        B. To provide 55F or TPF along the LOD where it is located within the stream buffers.



KEY MAP
SCALE: 1" = 500'



VICINITY MAP
SCALE: 1" = 2,000'
ADC MAP PAGE: 4946 GRID C-6

Howard County Control Stations

31GA — ELEV. = 511.65
STANDARD DISC ON CONCRETE MONUMENT
N 564,925.75, E 1,367,067.65

37A4 — ELEV. = 437.28
STANDARD DISC ON CONCRETE MONUMENT
N 563,835.91, E 1,367,911.65

LEGEND

- EXIST. CURB & GUTTER/PAVEMENT
- STANDARD CURB & GUTTER
- EX. 8" S. — EXISTING SEWER MAIN
- EX. 8" W. — EXISTING WATER MAIN
- 8" S. — PROPOSED SEWER MAIN
- 8" W. — PROPOSED WATER MAIN
- EX. 18"SD — EXISTING STORM DRAIN
- PROPOSED STORM DRAIN
- PROPOSED SIDEWALK
- (4) — NUMBER OF PARKING SPACES
- PROP. BARRICADE
- LOD — PROP. LIMIT OF DISTURBANCE
- MH 20 — STRUCTURE NUMBER
- 400 — EXISTING CONTOUR
- PROP. CONTOUR
- EXISTING TREELINE
- WB — 25' WETLAND BUFFER
- SVB — SVB — STREAM BANK BUFFER
- 100 YEAR FLOODPLAIN EASEMENT
- CENTERLINE OF STREAM
- STREAM BANK
- WETLAND
- LOS — LIMIT OF SUBMISSION
- PROPOSED / EXISTING EASEMENT
- PROPOSED PAVEMENT
- C-135 — MIHU OFF-STREET PARKING SPACE (LOT SPECIFIC)
- STREET TREE
- ON-SITE AFFORESTATION AREA PER F-06-019
- FLOODPLAIN FOREST RETENTION PER F-06-019 (NO CREDIT FOR RETENTION)
- NET TRACT FOREST RETENTION PER F-06-019
- AFFORESTATION AREA IN THE FLOODPLAIN PER F-06-019
- NATURAL FOREST REGENERATION AREA AND FOREST REMOVAL AREA IN THE FLOODPLAIN PER F-06-019
- STREET LIGHT LOCATION

EXISTING FOREST CONSERVATION EASEMENT AREA TABULATION (SEE F-06-19, F-08-117, F-09-088, & F-10-060)

FOREST CONSERVATION EASEMENT (FCE) AREA	1	2(B-E)	3	4(A-D)	5	
LOT WHERE FCE IS LOCATED	C-211	C-64	C-212	C-212	D-2 & D-68	TOTAL
CREDITED FOREST RETENTION AREA ON NET TRACT (IN AC.)	N/A	1.40	0.08	N/A	N/A	1.48
NON-CREDITED FOREST RETENTION AREA IN FLOODPLAIN (IN AC.)	N/A	1.21	0.28	0.05	N/A	1.54
FOREST PLANTING AREA OUTSIDE THE FLOODPLAIN (IN AC.)	0.27	2.24	0.34	0.47	2.13	5.45
FOREST PLANTING AREA WITHIN THE FLOODPLAIN (IN AC.)	N/A	0.14	0.06	0.03	N/A	0.23
TOTAL ACREAGE OF AFFORESTATION PROVIDED (IN AC.)	0.27	2.38	0.40	0.50	2.13	5.68
NATURAL REGENERATION AREA (IN AC.)	N/A	N/A	N/A	N/A	N/A	N/A
MINIMUM TOTAL AREA IN CONSERVATION EASEMENT (IN AC.)	0.27	4.99	0.76	0.55	2.13	8.70

SHEET INDEX

1. COVER SHEET
2. MAPLE HILL ROAD PLAN AND PROFILE
3. CHARLES CROSSING AND DUNCAN DRIVE PLAN AND PROFILE
4. SIGNING, LIGHTING, STREET TREE, CURB DELINEATION PLAN & DETAILS
5. SEDIMENT CONTROL PLAN
6. SEDIMENT CONTROL NOTES AND DETAILS
7. GRADING PLAN
8. STORM DRAIN DRAINAGE AREA MAP
9. STORM DRAIN PROFILES
10. STORM DRAIN PROFILES
11. LANDSCAPE PLAN
12. CURB RETURN PROFILES

SFA PARKING ANALYSIS

Total Parking Required: 59 units x 2 spaces/unit = 118 Spaces
Garages: 102 Spaces (2 Car Garages)
Garages: 16 Spaces (1 Car Garage + Tandem space)
Total: 118 Spaces

Overflow/Guest Parking Requirements (per Design Manual Volume III, 2.9.B)
Parking Required: 59 units x 0.3 spaces per unit = 18 Spaces
Overflow/Guest Parking available: 39 Spaces (On-Street Parking)

DEVELOPMENT TRACKING CHART AND SITE ANALYSIS

* PARCELS 'A' AND 'B' PREVIOUSLY RECORDED UNDER F 06-019

PHASE No.	CO. FILE No.	R-A-15 ZONE AREAS: GROSS	100 YR. FLOOD PLAIN	NET	SFA LOTS	MIN. REQD. O/S [1]	CREDITED O/S PROV. [2]	NON-CREDITED O/S PROVIDED	TOTAL O/S PROVIDED	MIN. REQD. REC. O/S [3]	REC. O/S PROVIDED	MIN. REQD. TND O/S [4]	TND O/S PROVIDED	APT. PARCELS	PUBLIC ROADS	PRIVATE ROADS	B-1 ZONE GROSS ACREAGE	POR ZONE GROSS ACREAGE
PHASE I	F-06-019	15.69 AC.	1.26 AC.	12.21 AC.	2.15 AC.	3.4 AC.	8.2 AC. (60%)	0.4 AC.	8.6 AC.	24,800 S.F.	56,471 S.F.	0.7 AC./29,812 S.F.	0.9 AC./39,810 S.F.	0 AC.	2.0 AC.	0.9 AC.	4.2 AC.*	0 AC.
PHASE II	F-06-019	5.81 AC.	0 AC.	5.81 AC.	2.35 AC.	1.5 AC.	0.6 AC. (10%)	0.1 AC.	0.7 AC.	24,800 S.F.	28,248 S.F.	0.3 AC./13,066 S.F.	0.9 AC./40,144 S.F.	0 AC.	2.1 AC.	0.7 AC.	0.00 AC.	0 AC.
PHASE III	F-06-019	12.44 AC.	0.50 AC.	12.44 AC.	2.64 AC.	3.2 AC.	5.9 AC. (46%)	0.4 AC.	6.6 AC.	26,000 S.F.	21,618 S.F.	0.7 AC./30,942 S.F.	0 AC./0 S.F.	0 AC.	2.9 AC.	0.8 AC.	0.00 AC.	0 AC.
PHASE IV	F-06-019	5.71 AC.	0 AC.	5.71 AC.	0.64 AC.	1.4 AC.	1.9 AC. (33%)	0.1 AC.	2.0 AC.	26,000 S.F.	15,862 S.F.	0.3 AC./12,567 S.F.	0.2 AC./6,382 S.F.	1.8 AC.	1.4 AC.	0 AC.	0.00 AC.	6.6 AC.
PHASE V	F-06-048	5.50 AC.	0 AC.	5.50 AC.	2.09 AC.	1.4 AC.	0.5 AC. (9%)	0.1 AC.	0.6 AC.	23,600 S.F.	0 S.F.	0.3 AC./12,197 S.F.	0 AC./0 S.F.	0 AC.	1.9 AC.	0.9 AC.	0.00 AC.	0 AC.
CUMULATIVE TOTAL		45.65 AC.	1.86 AC.	41.74 AC.	9.87 AC.	10.9 AC.	17.1 AC. (38%)	1.1 AC.	18.3 AC.	125,200 S.F.	122,463 S.F.	2.2 AC./94,961 S.F.	2.0 AC./87,271 S.F.	1.8 AC.	10.3 AC.	3.3 AC.	4.2 AC.	6.6 AC.

NOTES:
1. MINIMUM REQUIRED OPEN SPACE (O/S) IS CALCULATED AS 25% OF THE GROSS AREA.
2. PERCENT OPEN SPACE PROVIDED IS OF THE GROSS AREA.
3. MINIMUM REQUIRED RECREATION OPEN SPACE (ROS) IS CALCULATED AS 400 S.F. PER UNIT.
4. MINIMUM REQUIRED TRADITIONAL NEIGHBORHOOD O/S IS CALCULATED AS 20% OF THE REQUIRED OPEN SPACE.
5. MINIMUM REQUIRED MIHU'S ARE CALCULATED AS 10% OF THE TOTAL NUMBER OF UNITS.

R-A-15 UNIT TABULATION

PHASE No.	MAXIMUM NUMBER OF UNITS PERMITTED: NET	MAX. UNIT DENSITY (15 UNITS/NET AC.)	* REQUIRED MIHU'S @ 10%	PROPOSED R-A-15 UNITS: STD. SFA UNITS	16' SFA MIHU UNITS	APT. UNITS	TOTAL UNITS	PROPOSED UNIT DENSITY
PHASE I	12.21 AC.	184	6	52	6	0	52	5 UNITS / NET AC.
PHASE II	5.81 AC.	87	6	62 (66)	0	0	62 (66)	11.4 UNITS / NET AC.
PHASE III	12.44 AC.	186	7	65 (69)	0	0	65 (69)	5.5 UNITS / NET AC.
PHASE IV	5.71 AC.	86	7	17	0	48 (40)	65 (57)	9.9 UNITS / NET AC.
PHASE V	5.50 AC.	82	6	59	0	0	59	10.7 UNITS / NET AC.
TOTAL	41.74 AC.	626	32	255 (260)	6	48 (40)	313	7.5 UNITS / NET AC.

NOTES:
1. OF THE 32 MIHU'S THAT ARE REQUIRED, 8 ARE PROVIDED ON SITE (ON LOTS C-3, C-4, C-11, C-12, C-19, C-20, C-32 & C-33) AND 24 ARE TO BE PROVIDED OFF-SITE AT "ELLICOTT GARDENS" (SDP-07-08) PER THE MIHU LETTER DATED JULY 2, 2008.
2. THE NUMBERS IN PARENTHESIS ARE THE RESULT OF 0F TRANSFERRING 8 ALLOCATION UNITS FROM THE PHASE IV APARTMENTS TO 8 SFA UNITS IN PHASE II AND III (EACH WITH 4 ADDITIONAL SFA UNITS). THE 8 ADDITIONAL SFA LOTS IN PHASE II AND III ARE CREATED BY PLAT NOs. 21038-41
3. THE PHASE IV APARTMENTS ARE ON SDP-10-081.

OWNERS:

BA WATERLOO TOWNHOMES, LLC
7850 WALKER DRIVE, SUITE 400
GREENBELT, MD 20770
PHONE: 301-220-0100
(LOT 308)

BA WATERLOO, LLC
7850 WALKER DRIVE, SUITE 400
GREENBELT, MD 20770
PHONE: 301-220-0100
(PARCEL "D-4")

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 5-14-10

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 5/25/10

Chief, Development Engineering Division — Date 5/20/10

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

L:\CADD\DRAWINGS\03006\Phase V\Finals\05-CS.dwg | DES. dds | DRN. dds | CHK.

DATE	REVISION	BY	APP'R.

OWNER
BA WATERLOO, LLC.
c/o BOZZUTO HOMES, INC.
7850 WALKER DRIVE, SUITE 400
GREENBELT, MARYLAND 20770
ATTN: DUNCAN SLIDELL
301-623-1525

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 14931 EXPIRATION DATE: MAY 21, 2012

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

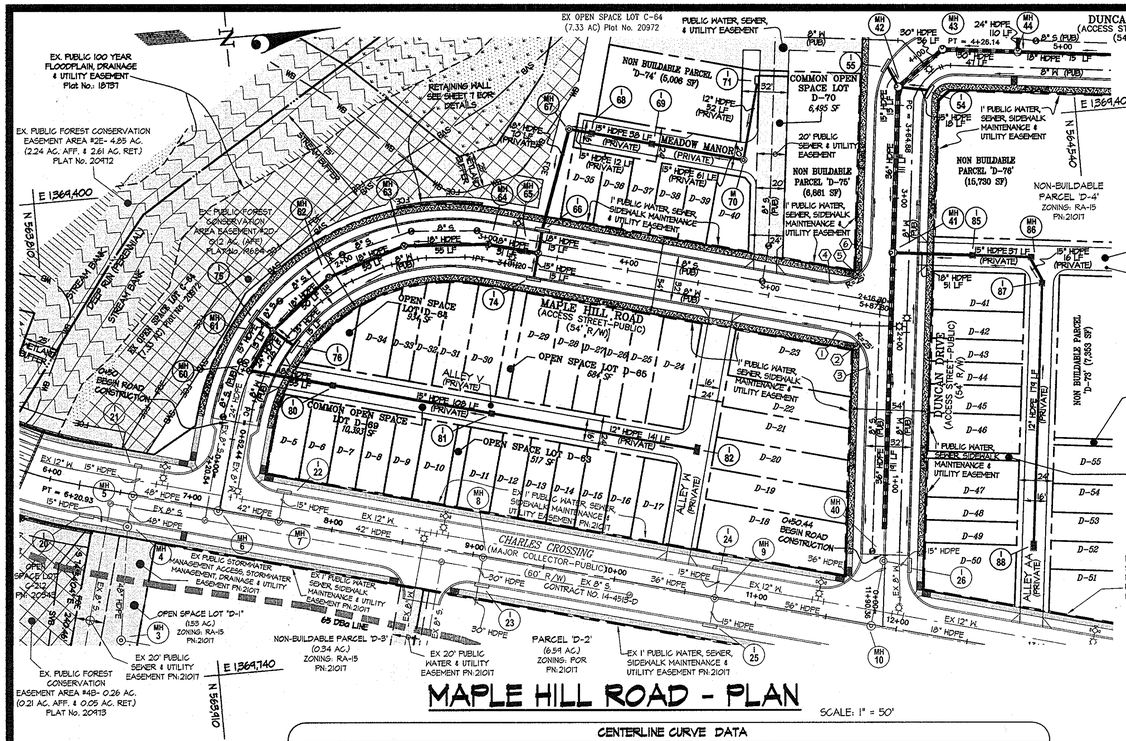
COVER SHEET

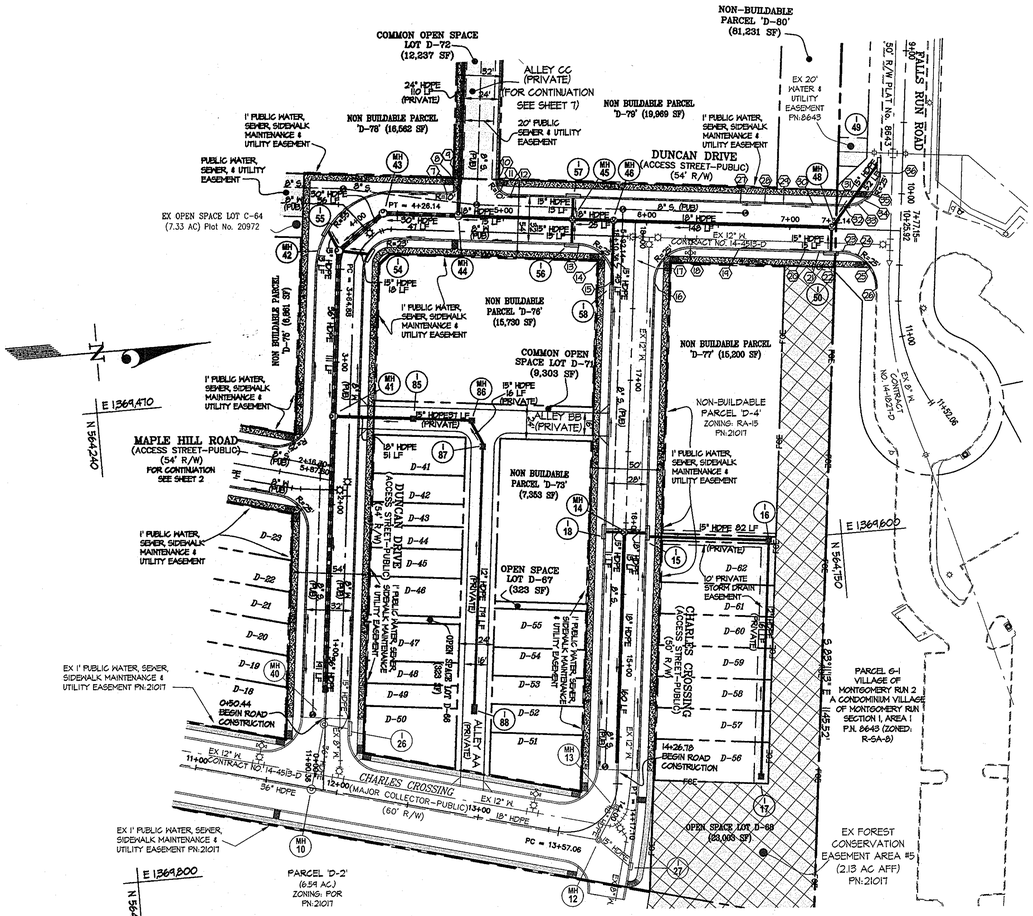
SHIPLEY'S GRANT
PHASE V
Lots C-308, D-5 thru D-62 and Open Space Lots D-63 thru D-68
Common Open Spcae Lots D-69 thru D-72 and Non-buildable Parcels D-73 thru D-80
AND PHASE I
Open Space Lot C-64

ELECTION DISTRICT No. 1 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	R-A-15	08002
DATE	TAX MAP – GRID	SHEET
MAY, 2010	37-1&2	1 OF 12

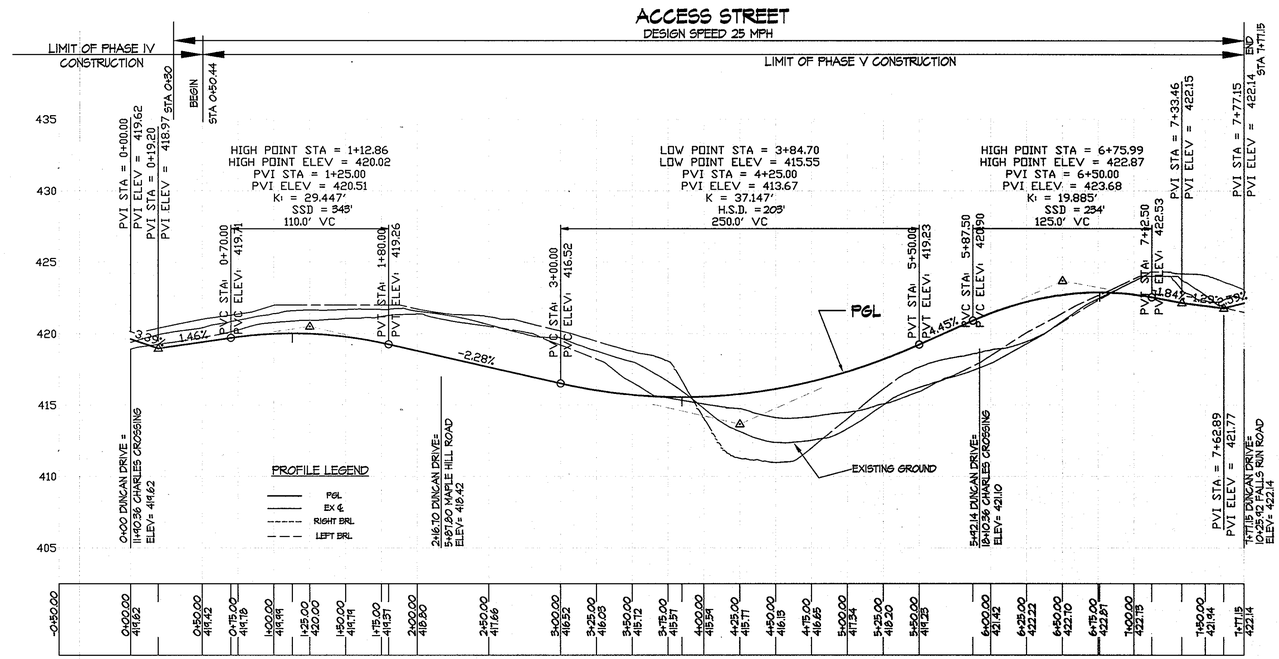
F-10-048


EX OPEN SPACE LOT C-64 (7.33 AC) Plat No. 20972
PUBLIC WATER, SEWER, & UTILITY EASEMENT
DUNCAN DRIVE (ACCESS STREET-PUBLIC) (54' R/W)
EX. PUBLIC 100 YEAR FLOODPLAIN, DRAINAGE & UTILITY EASEMENT Plat No.: 18791
RETAINING WALL SEE SHEET 11 FOR DETAILS
NON BUILDABLE PARCEL 'D-74' (6,008 SF)
COMMON OPEN SPACE LOT D-70 6,495 SF
MEADOW MANOR
NON BUILDABLE PARCEL 'D-75' (6,861 SF)
NON-BUILDABLE PARCEL 'D-4' ZONING: RA-15 FN: 21017
EX. PUBLIC FOREST CONSERVATION EASEMENT AREA #2E- 4.85 AC. (2.24 AC. AFF. & 2.61 AC. RET.) PLAT No. 20972
EX. PUBLIC FOREST CONSERVATION AREA EASEMENT #2D (2.30 AC. (AFF.) PLAT NO. 19694
E 1369,400
N 563910
COMMON OPEN SPACE LOT D-71 9,303 SF
ALLEY BB (PRIVATE) FOR CONTINUATION SEE SHEET 3
OPEN SPACE LOT D-67 323 SF
OPEN SPACE LOT D-66 323 SF
OPEN SPACE LOT C-64 9.34 AC.
MAPLE HILL ROAD (ACCESS STREET-PUBLIC) (54' R/W)
OPEN SPACE LOT D-65 684 SF
COMMON OPEN SPACE LOT D-69 10,859 SF
OPEN SPACE LOT D-63 517 SF
ALLEY V (PRIVATE)
ALLEY W (PRIVATE)
ALLEY AA (PRIVATE)
NON BUILDABLE PARCEL 'D-73' (7,655 SF)
CHARLES CROSSING (MAJOR COLLECTOR--PUBLIC) (60' R/W) CONTRACT NO. 14-4518-D
EX 2" S
EX 12" W
EX 12" M
EX 8" S
EX 8" W
EX 8" M
EX 6" W
EX 6" M
EX 6" S
EX 6" G
EX 6" E
EX 6" M
EX 6" W



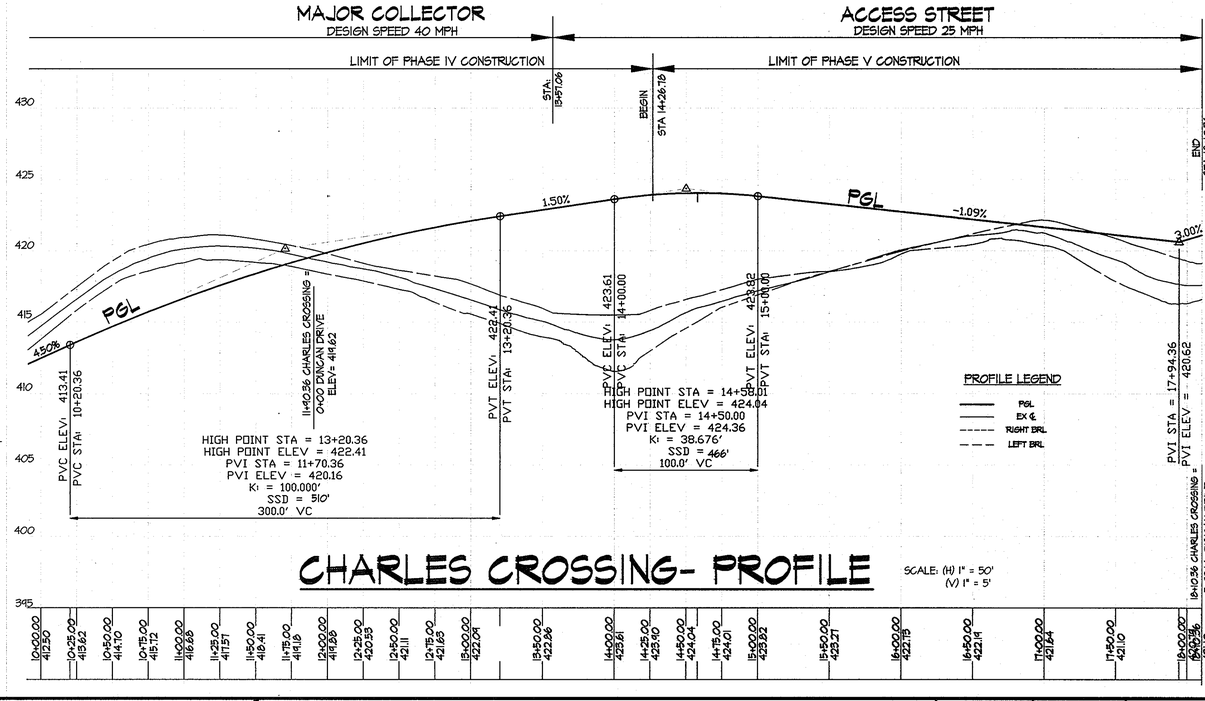
CHARLES CROSSING & DUNCAN DRIVE - PLAN

SCALE: 1" = 50'



DUNCAN DRIVE- PROFILE

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



CHARLES CROSSING- PROFILE

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

CURB FLOW LINE ELEVATION TABLE					CURB FLOW LINE ELEVATION TABLE					CURB FLOW LINE ELEVATION TABLE				
PT. NO	STATION	ROAD	OFFSET	ELEV.	PT. NO	STATION	ROAD	OFFSET	ELEV.	PT. NO	STATION	ROAD	OFFSET	ELEV.
(1)	4+60.14	DD	16' L	415.84	(19)	6+65	DD	16' R	422.36	(31)	7+33	DD	16' L	422.31
(2)	4+67.21	DD	18.93' L	416.02	(20)	7+11	DD	16' R	422.08	(32)	7+31.02	DD	16' L	422.25
(3)	4+70.14	DD	26' L	416.20	(21)	7+21	DD	16' R	421.98	(33)	7+47.61	DD	17.94' L	422.11
(10)	4+94.14	DD	26' L	416.92	(22)	7+33	DD	16' R	421.86	(34)	7+51.34	DD	20.51' L	422.02
(11)	4+97.07	DD	18.93' L	416.96	(23)	7+51.10	DD	16' R	421.78	(35)	7+56.31	DD	23.01' L	422.14
(12)	5+04.14	DD	16' L	416.99	(24)	7+47.72	DD	18.37' R	421.56	(36)	7+62.02	DD	40.68' L	match ex
(13)	5+53.14	DD	16' R	418.84	(25)	7+51.36	DD	26.35' R	421.43					
(14)	5+70.82	DD	23.32' R	419.66	(26)	7+62.10	DD	40.86' R	match ex					
(15)	11+69.36	CC	14' L	420.47	(27)	6+65	DD	16' L	422.36					
(16)	11+69.36	CC	14' R	420.47	(28)	6+82	DD	16' L	422.54					
(17)	6+07.83	DD	31.41' R	420.37	(29)	6+95	DD	16' L	422.58					
(18)	6+31.14	DD	16' R	421.88	(30)	7+16	DD	16' L	422.47					

NOTE: CC = CHARLES CROSSING
DD = DUNCAN DRIVE

CENTERLINE CURVE DATA

STREET NAME	P.C. STA.	P.C.C. STA.	P.T. STA.	RADIUS	ARC	TANGENT	CHORD	BEARING	DELTA
DUNCAN DRIVE	3+64.88	---	4+26.14	39.00'	61.26'	39.00'	55.15'	N 38° 11' 15" W	90° 00' 00"

NOTES:

1. ALL SIDEWALK RAMP SURFACE SHALL CONFORM TO ADAAG 4.29 FOR DETECTABLE WARNINGS. ADAAG 4.29 STATES: "DETECTABLE WARNINGS SHALL CONSIST OF RAISED TRUNCATED DOMES WITH A DIAMETER OF NOMINAL 0.9", A HEIGHT OF NOMINAL 0.2" AND A CENTER TO CENTER SPACING OF NOMINAL 2.35" AND CONTRAST VISUALLY WITH ADJOINING SURFACES, EITHER LIGHT ON DARK OR DARK ON LIGHT." CONTRACTOR SHALL COORDINATE WITH OWNER & ARCHITECT ON COLOR SELECTION FOR ALL CURB RAMPS. SEE MD-655.40
2. FOR MAPLE HILL ROAD PROFILE SEE SHEET 2
3. FOR STREET LIGHT & STREET TREE LOCATIONS SEE SHEET 4
4. FOR CURB RETURN PROFILES SEE SHEET 12
5. FOR CURB TRANSITIONS & SIDEWALK RAMPS, SEE SHEET 4

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 5-14-10

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 5/26/10

Chief, Development Engineering Division — Date 5/20/10

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

L:\CADD\DRAWINGS\03006\Phase V\Finals\05-Charles Crossing.dwg | DES. dds | DRN. dds | CHK

DATE	REVISION	BY	APP'R.

OWNER
BA WATERLOO, LLC.
c/o BOZZUTO HOMES, INC.
7850 WALKER DRIVE, SUITE 400
GREENBELT, MARYLAND 20770
ATTN: DUNCAN SLIDELL
301-623-1525

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16931, EXPIRATION DATE: MAY 21, 2012

STATE OF MARYLAND · MICHAEL JAMES TROJAN · 16931 · REGISTERED PROFESSIONAL ENGINEER

CHARLES CROSSING & DUNCAN DRIVE PLAN AND PROFILE

SHIPLEY'S GRANT

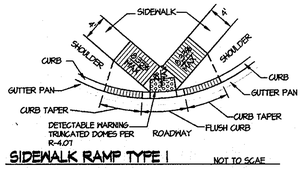
PHASE V

Lots C-308, D-5 thru D-62 and Open Space Lots D-63 thru D-68
Common Open Spcae Lots D-69 thru D-72 and Non-buildable Parcels D-73 thru D-80
AND PHASE 1
Open Space Lot C-64

ELECTION DISTRICT No. 1 — HOWARD COUNTY, MARYLAND

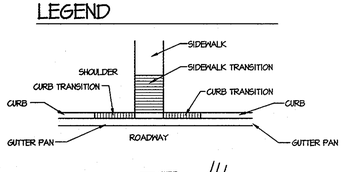
SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	R-A-15	08002
DATE	TAX MAP - GRID	SHEET
MAY, 2010	37-1&2	3 OF 12

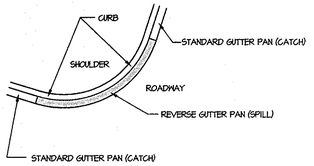
F-10-048



SIDEWALK RAMP TYPE I NOT TO SCALE

LEGEND





CURB TRANSITION NOTES

1. TRANSITION FROM 7" COMBINATION CURB AND GUTTER TO MODIFIED COMBINATION CURB AND GUTTER (10" MIN.) PER R-3.02
2. TRANSITION FROM 7" COMBINATION CURB AND GUTTER TO FLUSH CURB AND GUTTER (5' MIN.). PER R-3.02
3. FLUSH CURB AND GUTTER.* PER R-3.01
4. TRANSITION FROM FLUSH CURB AND GUTTER TO MODIFIED COMBINATION CURB AND GUTTER (5' MIN). PER R-3.02
5. TRANSITION FROM FLUSH CURB AND GUTTER TO 6" COMBINATION CURB AND GUTTER (5' MIN). PER R-3.02
6. TRANSITION FROM MODIFIED CURB AND GUTTER TO 7" COMBINATION CURB AND GUTTER FOR INLETS PER R-3.06 (15' MIN).
7. NOSE DOWN CURB (5' MIN) PER R-3.02

*NOTE: ALL SIDEWALK RAMPS SHALL HAVE A DETECTABLE WARNING SURFACE. SEE HOWARD COUNTY DETAIL R-4.07.

STREET TREE LEGEND

PROPOSED STREET TREE

EXISTING STREET TREE

STREET TREE SCHEDULE	
LINEAR FEET OF CURBLINE	2870 L.F.
NUMBER OF STREET TREES REQUIRED: STREET TREES (1:40)	72
NUMBER OF STREET TREES PROVIDED STREET TREES OTHER TREES (2:1 SUBSTITUTION)	72 0

GENERAL NOTES:

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

2. A 5' MINIMUM DISTANCE SHALL BE MAINTAINED BETWEEN ANY STREET LIGHT AND A FIRE HYDRANT.

3. SEE SHEET 11 FOR TREE PLANTING DETAIL.

STREET LIGHT LEGEND

- PROPOSED STREET LIGHT. 100 WATT HIGH PRESSURE SODIUM VAPOR PREMIER POST TOP FIXTURE MOUNTED ON A 14-FOOT BLACK FIBERGLASS EMBEDDED POLE
- PROPOSED STREET LIGHT. 150 WATT HIGH PRESSURE SODIUM VAPOR PREMIER POST TOP FIXTURE MOUNTED ON A 14-FOOT BLACK FIBERGLASS EMBEDDED POLE
- EXISTING STREET LIGHT.

STREET LIGHT LOCATIONS

STREET	STATION	OFFSET
CHARLES CROSSING	15+40	17' LEFT
CHARLES CROSSING	16+83	17' LEFT
CHARLES CROSSING	17+70	17' LEFT
MAPLE HILL ROAD	1+25	19' RIGHT
MAPLE HILL ROAD	1+42	19' LEFT
MAPLE HILL ROAD	3+26	19' LEFT
MAPLE HILL ROAD	4+85	19' RIGHT
MAPLE HILL ROAD	5+47	20' LEFT
DUNCAN DRIVE	1+20	19' RIGHT
DUNCAN DRIVE	2+71	19' RIGHT
DUNCAN DRIVE	3+42	19' LEFT
DUNCAN DRIVE	4+61	19' LEFT
DUNCAN DRIVE	6+50	19' RIGHT
DUNCAN DRIVE	7+54	30' LEFT

CONSTRUCTION DETAILS

(D) INSTALL GROUND MOUNTED SIGN

(E) INSTALL LIGHT POLE MOUNTED SIGN

SIGN LEGEND

STREET SIGN

PROPOSED SIGN DETAIL

EXISTING SIGN DETAIL

SIGNING NOTES:

SIGN ERECTED AT THE SIDE OF THE ROAD SHALL BE MOUNTED AT A HEIGHT OF AT LEAST 7 FEET MEASURED FROM THE BOTTOM OF THE SIGN TO THE NEAR EDGE OF THE PAVING.

2. ALL SIGN POSTS USED FOR TRAFFIC CONTROL SIGNS INSTALLED IN THE COUNTY RIGHT-OF-WAY SHALL BE MOUNTED ON A 2" GALVANIZED STEEL, PERFORATED, SQUARE TUBE POST (14 GAUGE) INSERTED INTO A 2-1/2" GALVANIZED STEEL, PERFORATED, SQUARE TUBE SLEEVE (12 GAUGE) - 3' LONG. A GALVANIZED STEEL POLE CAP SHALL BE MOUNTED ON TOP OF EACH POST.

3. SIGNS SHALL BE 12" TO 18" FROM EDGE OF SIGN TO CURBLINE. STOP SIGNS SHALL BE LOCATED 15' BACK FROM INTERSECTING STREET CURB LINE OR AS DIRECTED BY HOWARD COUNTY TRAFFIC DIVISION.

4. ALL SIGN LOCATIONS WITHIN THE PUBLIC RIGHT OF WAY SHALL BE APPROVED BY THE HOWARD COUNTY TRAFFIC DIVISION PRIOR TO ANY INSTALLATIONS.

5. ALL "NO PARKING" SIGNS SHOWN ON THE PLANS ARE ONLY A REPRESENTATION OF WHAT ACTUALLY MIGHT BE INSTALLED IN THE DEVELOPMENT. THE TRAFFIC DIVISION WILL DETERMINE THE LOCATION AND TYPE OF ALL "NO PARKING" SIGNS AT TIME OF INSTALLATION.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 5-14-10

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 5/18/10

Chief, Development Engineering Division — Date 5/20/10

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.

OWNER
BA WATERLOO, LLC.
c/o BOZZUTO HOMES, INC.
7850 WALKER DRIVE, SUITE 400
GREENBELT, MARYLAND 20770
ATTN: DUNCAN SLIDELL
301-623-1525

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

SIGNING, LIGHTING, STREET TREE, CURB DELINEATION PLAN & DETAILS

SHIPLEY'S GRANT

PHASE V

Lots C-308, D-5 thru D-62 and Open Space Lots D-63 thru D-68
Common Open Spcae Lots D-69 thru D-72 and Non-buildable Parcels D-73 thru D-80
AND PHASE 1
Open Space Lot C-64

ELECTION DISTRICT No. 1 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
1"=30'	R-A-15	08002
DATE	TAX MAP - GRID	SHEET
MAY, 2010	37-1&2	4 OF 12

F-10-048

LEGEND

- EXISTING CONTOUR
- PROPOSED CONTOUR
- 100 YEAR FLOODPLAIN EASEMENT
- FP — 100 YEAR FLOODPLAIN
- SSF — PROPOSED SUPER SILT FENCE
- SF — PROPOSED SILT FENCE
- LIMIT OF DISTURBANCE
- TEMPORARY SWALE
- EARTH DIKE
- TEMPORARY DRAINAGE DIVIDE
- SCE — STABILIZED CONSTRUCTION ENTRANCE
- PROPOSED TEMPORARY STOCKPILE AREA
- TABD — TEMPORARY ASPHALT BERM DIVERSION
- A — B — TIME OF CONCENTRATION PATH
- EROSION CONTROL MATTING PER C-22-2

SEDIMENT AND EROSION CONTROL SEQUENCE OF CONSTRUCTION

1. OBTAIN GRADING PERMIT AND ARRANGE PRE-CONSTRUCTION MEETING WITH SEDIMENT CONTROL INSPECTOR. (1 DAY).

2. EXAMINE THE EXISTING SEDIMENT CONTROL DEVICES (i.e. SCE AT ENTRANCE OFF FALLS RUN ROAD, BASIN D, & TEMPORARY SWALE B) FROM PHASE 4 (F-09-088) AND REPAIR AS NECESSARY. (5 DAYS).

3. INSTALL STABILIZED CONSTRUCTION ENTRANCE (SCE), CHD A, AND SILT FENCE ALONG EXISTING PORTION OF CHARLES CROSSING (5 DAYS)

4. INSTALL TRAPS G & H (50 DAYS)

5. INSTALL EARTH DIKES C & D AND SUPER SILT FENCE ALONG STREAM BUFFER (2 DAYS).

6. ONCE PERMISSION HAS BEEN GRANTED FROM THE SEDIMENT CONTROL INSPECTOR, MASS GRADE SITE. PROVIDE DUST CONTROL PER SPECIFICATIONS ON SHEET 6. ANY AREA DISTURBED WITHIN STREAM BUFFER MUST BE STABILIZED WITH EROSION CONTROL MATTING (90 DAYS)

7. STABILIZE ALL DISTURBED AREA WITH SEED AND MULCH. (5 DAYS)

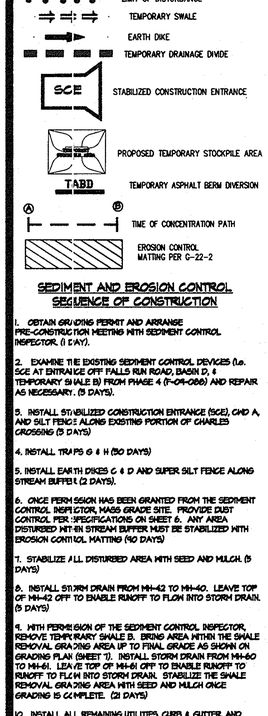
8. INSTALL STORM DRAIN FROM MH-42 TO MH-40. LEAVE TOP OF MH-42 OFF TO ENABLE RUNOFF TO FLOW INTO STORM DRAIN. (5 DAYS)

9. WITH PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, REMOVE TEMPORARY SWALE B. BRING AREA WITHIN THE SWALE REMOVAL GRADING AREA UP TO FINAL GRADE AS SHOWN ON GRADING PLAN (SHEET 1). INSTALL STORM DRAIN FROM MH-60 TO MH-61. LEAVE TOP OF MH-61 OFF TO ENABLE RUNOFF TO RUNOFF TO FLOW INTO STORM DRAIN. STABILIZE THE SWALE REMOVAL GRADING AREA WITH SEED AND MULCH ONCE GRADING IS COMPLETE. (21 DAYS)

10. INSTALL ALL REMAINING UTILITIES, CURB & GUTTER, AND PAVEMENT. (90 DAYS)

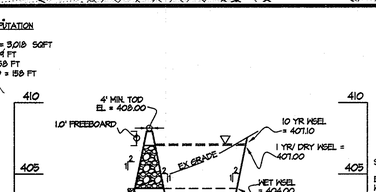
11. THE REMAINING PERIMETER CONTROLS MAY BE REMOVED WITH THE PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, ONCE ALL AREAS DRAINING TO THEM HAVE BEEN STABILIZED.

12. WITH PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, REFURBISH, STABILIZE AND CONVERT BASIN D TO THE PERMANENT SWM CONFIGURATION PER F-09-88 (2 DAYS)



SEDIMENT TRAP G ENLARGEMENT SCALE: 1"=20'

BAFFLE COMPUTATION
D = 3.0 FT.
A WET POOL = 3,018 SQFT
Ho = A/D = 714 FT
Lo = 2Ho = 5.9 FT
Lo PROVIDED = 15.6 FT



SEDIMENT TRAP G PROFILE THROUGH PRINCIPAL SPILLWAY

SEDIMENT TRAP G DATA TABLE

STONE OUTLET SEDIMENT TRAP

EXISTING DRAINAGE AREA : 1.2 AC
WORST CASE INTERIM DRAINAGE AREA : 1.35 AC

WET STORAGE VOL. REQUIRED : 0.06 AC-FT
WET STORAGE VOL. PROVIDED : 0.06 AC-FT
WET STORAGE ELEV : 404.00
DRY STORAGE REQUIRED: 0.06 AC-FT
DRY STORAGE PROVIDED = 0.25 AC-FT
DRY STORAGE WSEL = 401.00
EXISTING Q-1YR = 0.25 cfs
INTERIM Q-1YR = 0 cfs
SAFE PASS OF 10-YR STORM PROVIDED
Q_{10} = 3.84 cfs
10-YR WSEL = 407.10 ft.
BOTTOM ELEVATION : 405.00
TOP OF EMBANKMENT : 409.00
WEIR CREST ELEVATION : 407.00
WEIR LENGTH : 12'

EMERGENCY SPILLWAY ELEV : NONE
CLEANOUT ELEVATION : 403.50
EMBANKMENT TOP WIDTH: 4'
SIDE SLOPES : 2:1 INTERIOR - 3:1 EXTERIOR

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 5-14-10

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 5-6-10

Chief, Development Engineering Division — Date 5/20/10

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 5/6/10

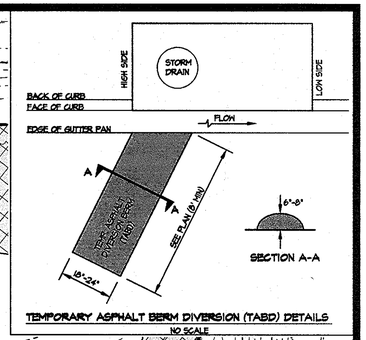
ENGINEER'S CERTIFICATE

"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."

ENGINEER'S SIGNATURE — DATE 5/6/10

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

HOWARD SOIL CONSERVATION DISTRICT — DATE 5/11/10



TEMPORARY ASPHALT BERM DIVERSION (TABD) DETAILS

NO SCALE

SEDIMENT BASIN D DATA TABLE

PRECAST RISER OUTLET SEDIMENT BASIN

EXISTING DRAINAGE AREA TO STUDY POINT = 4.83 AC (EX-D)
WORST CASE DRAINAGE AREA TO BASIN: 4.83 AC
INTERIM DRAINAGE AREA : 4.83 AC (INT-D)

WET STORAGE VOL. REQUIRED : 0.41 AC-FT
WET STORAGE VOL. PROVIDED : 1.16 AC-FT
WET STORAGE ELEV : 382.50
DRY STORAGE REQUIRED: 0.41 AC-FT
DRY STORAGE PROVIDED = 3.14 AC-FT
DRY STORAGE WSEL = 386.75
EXISTING Q-1YR = 1.71 cfs (EX-D)
INTERIM Q-1YR = 1.58 cfs (INT-D)
SAFE PASS OF 10-YR STORM PROVIDED
Q10 = 2.94 cfs
10-YR WSEL = 386.92 ft.
BOTTOM ELEVATION : 378.50
TOP OF EMBANKMENT : 392.00
OUTFALL: 8.2 LF 54" RCP @ 2.40%
RISER WEIR CREST ELEVATION : 388.75
RISER WEIR LENGTH : 26.0'
RISER TRASH RACK/ANTI-VORTEX: N/A

DEWATERING DEVICE = 8" PERFORATED PVC
-WITH 8" PVC BARREL AT 0.0%
DEWATERING INVERT AT 8" RISER = 378.50
INVERT FIRST PERFORATION= 382.50
INVERT LAST PERFORATION = 386.50
DEWATERING PERFORATION CONFIGURATION:
WITH 1" HOLES @ 2" C-O-C.
12 HOLES PER CIRCUMFERENTIAL ROW.
51 HOLES RUNNING VERTICALLY.
444 HOLES TOTAL.

EMERGENCY SPILLWAY ELEV : NONE
CLEANOUT ELEVATION : 380.10
EMBANKMENT TOP WIDTH: 12'
SIDE SLOPES : 3:1 INTERIOR - 3:1 EXTERIOR

G.L.W. GUTSCHICK LITTLE & WEBER, P.A.
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L:\CADD\DRAWINGS\03006\Phase V\Finals\05-SNE.dwg | DES. dds | DRN. dds | CHK.

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

SEDIMENT AND EROSION CONTROL PLAN

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F-10-048

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 SLOPE WHERE:

A. THE TEXTURE OF THE EXPOSED SUBSOIL/PARENT MATERIAL IS NOT ADEQUATE TO PRODUCE VEGETATIVE GROWTH.

B. THE SOIL MATERIAL IS SO SHALLOW THAT THE ROOTING ZONE IS NOT DEEP ENOUGH TO SUPPORT PLANTS OR FURNISH CONTINUING SUPPLIED OF MOISTURE AND PLANT NUTRIENTS.

C. THE ORIGINAL SOIL TO BE VEGETATED CONTAINS MATERIAL TOXIC TO PLANT GROWTH.

D. THE SOIL IS SO ACIDIC THAT TREATMENT WITH LIMESTONE IS NOT FEASIBLE.

II. FOR THE PURPOSE OF THESE STANDARDS AND SPECIFICATIONS, AREAS HAVING SLOPES STEEPER THAN 2:1 REQUIRE SPECIAL CONSIDERATION AND DESIGN FOR ADEQUATE STABILIZATION. AREAS HAVING SLOPES STEEPER THAN 2:1 SHALL HAVE THE APPROPRIATE STABILIZATION SHOWN ON THE PLANS.

CONSTRUCTION AND MATERIAL SPECIFICATIONS

I. TOPSOIL SALVAGED FROM THE EXISTING SITE MAY BE USED PROVIDED THAT IT MEETS THE STANDARDS AS SET FORTH IN THESE SPECIFICATIONS. TYPICALLY, THE DEPTH OF TOPSOIL TO BE SALVAGED FOR A GIVEN SOIL TYPE CAN BE FOUND IN THE RESPECTIVE SOIL PROFILE SECTION IN THE SOIL SURVEY PUBLISHED BY USDA-SCS IN COOPERATION WITH MARYLAND AGRICULTURAL EXPERIMENTAL STATION.

II. TOPSOIL SPECIFICATIONS - SOIL TO BE USED AS TOPSOIL MUST MEET THE FOLLOWING:

A. TOPSOIL SHALL BE A LOAM, SANDY LOAM, CLAY LOAM, SILT LOAM, SANDY CLAY LOAM, LOAMY SAND. OTHER SOILS MAY BE USED IF RECOMMENDED BY A AGRONOMIST OR SOIL SCIENTIST AND APPROVED BY THE APPROPRIATE APPROVAL AUTHORITY. REGARDLESS, TOPSOIL SHALL NOT BE A MIXTURE OF CONTRASTING TEXTURED SUBSOILS AND SHALL CONTAIN LESS THAN 5% BY VOLUME OF CINDERS, STONES, SLAG, COARSE FRAGMENTS, GRAVEL, STICKS, ROOTS, TRASH, OR OTHER MATERIALS LARGER THAN 1 1/2" IN DIAMETER.

B. TOPSOIL MUST BE FREE OF PLANT PARTS SUCH AS BERMUDA GRASS, QUACKGRASS, JOHNSONGRASS, NUTSEDGE, POISON IVY, THISTLE, OR OTHERS AS SPECIFIED.

C. WHERE THE SUBSOIL IS EITHER HIGHLY ACIDIC OR COMPOSED OF HEAVY CLAYS, GROUND LIMESTONE SHALL BE SPREAD AT THE RATE 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:

A. PLACE TOPSOIL (IF REQUIRED) AND APPLY SOIL AMENDMENTS AS SPECIFIED IN 20.0 VEGETATIVE STABILIZATION - SECTION I - VEGETATIVE STABILIZATION METHODS AND MATERIALS (OR SEE SEEDING NOTES).

IV. FOR SITES HAVING DISTURBED AREAS OVER 5 ACRES:

A. ON SOIL MEETING TOPSOIL SPECIFICATIONS, OBTAIN TEST RESULTS DICTATING FERTILIZER & LIME AMENDMENTS REQUIRED TO BRING THE SOIL INTO COMPLIANCE WITH THE FOLLOWING:

1. PH FOR TOPSOIL SHALL BE BETWEEN 6.0 AND 7.5. IF THE TESTED SOIL DEMONSTRATES A PH OF LESS THAN 6.0, SUFFICIENT LIME SHALL BE PRESCRIBED TO RAISE THE PH TO 6.5 OR HIGHER.
2. ORGANIC CONTENT OF TOPSOIL SHALL BE NOT LESS THAN 1.5 PERCENT BY WEIGHT.
3. TOPSOIL HAVING SOLUBLE SALT GREATER THAN 500 PARTS PER MILL SHALL NOT BE USED.
4. NO SOD OR SEED SHALL BE PLACED ON SOIL WHICH HAS BEEN WITH SOIL STERILANTS OR CHEMICALS USED FOR WEED CONTROL UNTIL SUFFICIENT TIME HAS ELAPSED (14 DAYS MIN.) TO PERMIT DISSIPATION OF PHOTO-TOXIC MATERIALS.

NOTE: TOPSOIL SUBSTITUTES OR AMENDMENTS, AS RECOMMENDED BY A QUALIFIED AGRONOMIST OR SOIL SCIENTIST AND APPROVED BY THE APPROPRIATE APPROVAL AUTHORITY, MAY BE USED IN LIEU OF NATURAL TOPSOIL.

B. PLACE TOPSOIL (IF REQUIRED) AND APPLY SOIL AMENDMENTS AS SPECIFIED IN 2.0 VEGETATIVE STABILIZATION - SECTION I - VEGETATIVE STABILIZATION METHODS AND MATERIALS (OR SEE SEEDING NOTES).

V. TOPSOIL APPLICATION

A. WHEN TOPSOILLING, MAINTAIN NEEDED EROSION AND SEDIMENT CONTROL PRACTICES SUCH AS DIVERSION, GRADE STABILIZATION STRUCTURES, EARTH DIKES, SLOPE SILT FENCE AND SEDIMENT TRAPS AND BASINS.
B. GRADES ON THE AREAS TO BE TOPSOILED, WHICH HAVE BEEN PREVIOUSLY ESTABLISHED, SHALL BE MAINTAINED, ALBEIT 4"-8" HIGHER IN ELEVATION.

C. TOPSOIL SHALL BE UNIFORMLY DISTRIBUTED IN A 4' -8' LAYER AND LIGHTLY COMPACTED TO A MINIMUM THICKNESS OF 4". SPREADING SHALL BE PERFORMED IN SUCH A MANNER THAT SODDING OR SEEDING CAN PROCEED WITH A MINIMUM OF ADDITIONAL SOIL PREPARATION AND TILLAGE. ANY IRREGULARITIES IN THE SURFACE RESULTING FROM TOPSOILLING OR OTHER OPERATIONS SHALL BE CORRECTED IN ORDER TO PREVENT THE FORMATION OF DEPRESSIONS OR WATER
D. TOPSOIL SHALL NOT BE PLACED WHILE THE TOPSOIL OR SUBSOIL IS FROZEN OR MUDDY CONDITION, WHEN THE SUBSOIL IS EXCESSIVELY WET OR IN A CONDITION THAT MAY OTHERWISE BE DETRIMENTAL TO PROPER GRADING AND SEEDBED PREPARATION.

VI. ALTERNATIVE FOR PERMANENT SEEDING - INSTEAD OF APPLYING THE FULL AMOUNTS OF LIME AND COMMERCIAL FERTILIZER, COMPOSTED SLUDGE AND AMENDMENTS MAY BE APPLIED AS SPECIFIED BELOW:

A. COMPOSTED SLUDGE MATERIAL FOR USE AS A SOIL CONDITIONER FOR SITES HAVING DISTURBED AREAS OVER 5 ACRES SHALL BE TESTED TO PRESCRIBE AMENDMENTS AND FOR SITES HAVING DISTURBED AREAS UNDER 5 ACRES SHALL CONFORM TO THE FOLLOWING REQUIREMENTS:

1. COMPOSTED SLUDGE SHALL BE SUPPLIED BY, OR ORIGINATE FROM, A PERSON OR PERSONS THAT ARE PERMITTED (AT THE TIME OF ACQUISITION OF THE COMPOST) BY THE MARYLAND DEPARTMENT OF THE ENVIRONMENT UNDER COMAR 26.04.06.

2. COMPOSTED SLUDGE SHALL CONTAIN AT LEAST 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.

3. COMPOSTED SLUDGE SHALL BE APPLIED AT A RATE OF 1 TON/1,000 SQUARE FEET.

B. COMPOSTED SLUDGE SHALL BE AMENDED WITH A POTASSIUM FERTILIZER APPLIED AT A RATE OF 4LB/1,000 SQUARE FEET, AND 1/3 THE NORMAL LIME APPLICATION RATE.

REFERENCES: GUIDELINE SPECIFICATIONS, SOIL PREPARATION AND SODDING. MD-VA PUB. #1, COOPERATIVE EXTENSION SERVICE, UNIVERSITY OF MARYLAND AND VIRGINIA POLYTECHNIC INSTITUTES. REVISED 1973.

SEDIMENT CONTROL NOTES

1. A MINIMUM OF 24 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY OFFICE OF INSPECTION AND PERMITS PRIOR TO THE START OF ANY CONSTRUCTION. (410) 313-1855

2. ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL AND REVISIONS THERETO.

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 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR PERMANENT SEEDINGS, SOD, TEMPORARY SEEDINGS AND MULCHING (SEC. G). 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.

TOTAL AREA OF SITE	:	58.6 ± ACRES
AREA DISTURBED	:	12.0 ± ACRES
AREA TO BE ROOFED OR PAVED	:	2.1 ± ACRES
AREA TO BE VEGETATIVELY STABILIZED	:	9.9 ± ACRES
TOTAL CUT	:	40,000 ± CU. YDS.
TOTAL FILL	:	40,000 ± CU. YDS.
OFF-SITE WASTE/BORROW AREA LOCATION	:	NONE

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 1 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 UREA-FORM FERTILIZER (9 LBS/1000 SQ FT).
2) ACCEPTABLE - APPLY 2 TONS PER ACRE DOLOMITIC LIMESTONE (92 LBS/1000 SQ FT) AND 1000 LBS PER ACRE OF 10-10-10 FERTILIZER (23 LBS/1000 SQ FT) BEFORE SEEDING. HARROW OR DISC INTO UPPER THREE INCHES OF SOIL.

SEEDING: FOR THE PERIODS MARCH 1 THRU APRIL 30, AND AUGUST 1 THRU OCTOBER 15, SEED WITH 60 LBS PER ACRE (1.4 LBS/1000 SQ FT) OF KENTUCKY 31 TALL FESCUE. FOR THE PERIOD MAY 1 THRU JULY 31, SEED WITH 60 LBS KENTUCKY 31 TALL FESCUE PER ACRE AND 2 LBS PER ACRE (.05 LBS/1000 SQ FT) OF WEEPING LOVEGRASS. DURING THE PERIOD OF OCTOBER 16 THRU FEBRUARY 28, PROTECT SITE BY: OPTION (1) 2 TONS PER ACRE OF WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING. OPTION (2) USE SOD. OPTION (3) SEED WITH 60 LBS/ACRE KENTUCKY 31 TALL FESCUE AND MULCH WITH 2 TONS/ACRE WELL ANCHORED STRAW.

MULCHING: APPLY 1-1/2 TO 2 TONS PER ACRE (70 TO 90 LBS/1000 SQ FT) OF UNROTTED SMALL GRAIN STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING MULCH ANCHORING TOOL OR 218 GALLONS PER ACRE (5 GAL/1000 SQ FT) OF EMULSIFIED ASPHALT ON FLAT AREAS. ON SLOPES 8 FEET OR HIGHER, USE 348 GALLONS PER ACRE (8 GAL/1000 SQ FT) FOR ANCHORING.

MAINTENANCE: INSPECT ALL SEEDED AREAS AND MAKE NEEDED REPAIRS, REPLACEMENTS AND RESEEDINGS.

TEMPORARY SEEDING NOTES

APPLY TO GRADED OR CLEARED AREAS LIKELY TO BE REDISTURBED WHERE A SHORT-TERM VEGETATIVE COVER IS NEEDED.

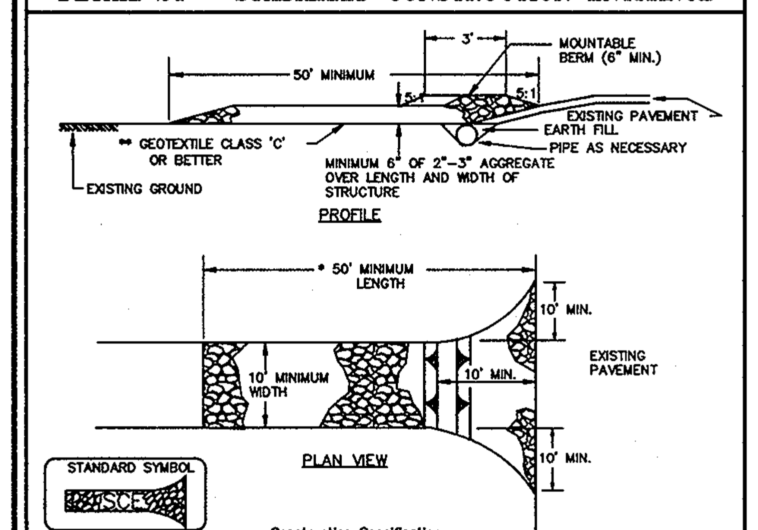
SEEDBED PREPARATION: LOOSEN UPPER THREE INCHES OF SOIL BY RAKING, DISCING OR OTHER ACCEPTABLE MEANS BEFORE SEEDING (UNLESS PREVIOUSLY LOOSENED).

SOIL AMENDMENTS: APPLY 600 LBS PER ACRE 10-10-10 FERTILIZER (14 LBS/1000 SQ FT).

SEEDING: FOR PERIODS MARCH 1 THRU APRIL 30 AND FROM AUGUST 15 THRU OCTOBER 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, WEED-FREE, 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.

DETAIL 24 - STABILIZED CONSTRUCTION ENTRANCE



Construction Specification

1. Length — minimum of 50' (*30' for single residence lot).

2. Width — 10' minimum, should be flared at the existing road to provide a turning radius.

3. Geotextile fabric (filter cloth) shall be placed over the existing ground prior to placing stone. **The plan approval authority may not require single family residences to use geotextile.

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

5. Surface Water — all surface water flowing to or diverted toward construction entrances shall be piped through the entrance, maintaining positive drainage. Pipe installed through the stabilized construction entrance shall be protected with a mountable berm with 5:1 slopes and a minimum of 6" of stone over the pipe. Pipe has to be sized according to the drainage. When the SCE is located at a high spot and has no drainage to convey a pipe will not be necessary. Pipe should be sized according to the amount of runoff to be conveyed. A 6" minimum will be required.

6. Location — A stabilized construction entrance shall be located at every point where construction traffic enters or leaves a construction site. Vehicles leaving the site must travel over the entire length of the stabilized construction entrance.

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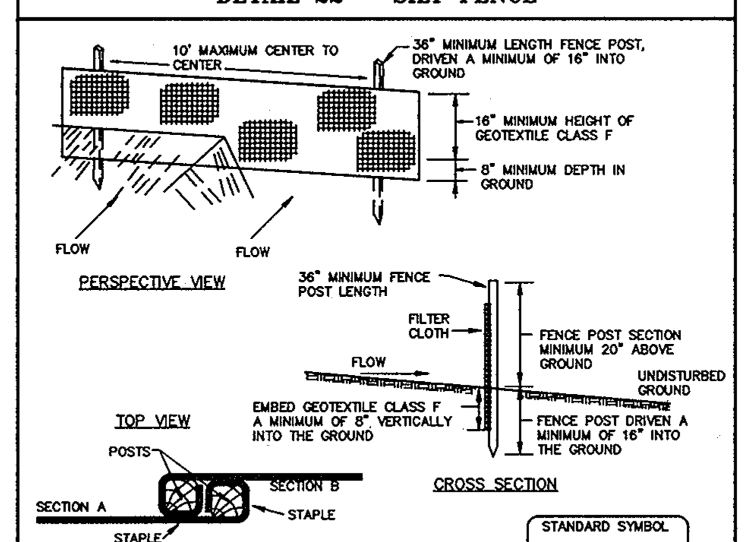
DETAIL 22 - SILT FENCE



Construction Specifications

1. Fence posts shall be a minimum of 36" long driven 16" minimum into the ground. Wood posts shall be 1 1/2" x 1 1/2" square (minimum) cut, or 1 3/4" 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 / 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.

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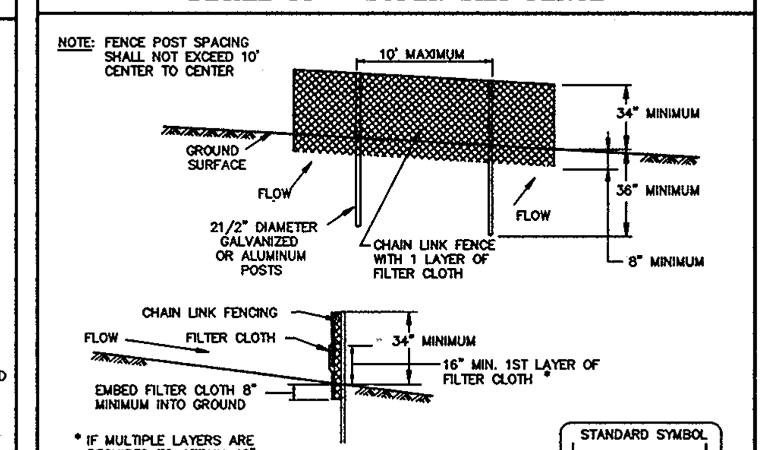
DETAIL 33 - SUPER SILT FENCE



Construction Specifications

1. Fencing shall be 42" in height and constructed in accordance with the latest Maryland State Highway Details for Chain Link Fencing. The specification for a 6' fence shall be used, substituting 42" fabric and 6' length posts.

2. Chain link fence shall be fastened securely to the fence posts with wire ties. The lower tension wire, brace and truss rods, drive anchors and post caps are not required except on the ends of the fence.

3. Filter cloth shall be fastened securely to the chain link fence with ties spaced every 24" at the top and mid section.

4. Filter cloth shall be embedded a minimum of 8" into the ground.

5. When two sections of filter cloth adjoin each other, they shall be overlapped by 6" and folded.

6. Maintenance shall be performed as needed and silt buildups removed when "bulges" develop in the silt fence, or when silt reaches 50% of fence height

7. Filter cloth shall be fastened securely to each fence post with wire ties or staples at top and mid section and shall meet the following requirements for Geotextile Class F:

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

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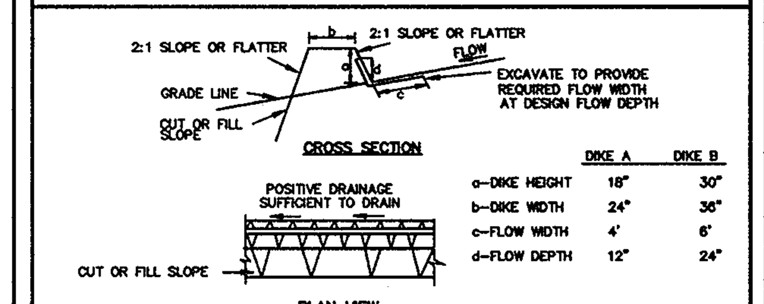
DETAIL 1 - EARTH DIKE



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

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

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

Construction Specifications

1. All temporary earth dikes shall have uninterrupted positive grade to an outlet. Spot elevations may be necessary for grades less than 1%.

2. Runoff diverted from a disturbed area shall be conveyed to a sediment trapping device.

3. Runoff diverted from an undisturbed area shall outlet directly into an undisturbed, stabilized area at a non-erosive velocity.

4. All trees, brush, stumps, obstructions, and other objectionable material shall be removed and disposed of so as not to interfere with the proper functioning of the dike.

5. The dike shall be excavated or shaped to line, grade and cross section as required to meet the criteria specified herein and be free of bank projections or other irregularities which will impede normal flow.

6. Fill shall be compacted by earth moving equipment.

7. All earth removed and not needed for construction shall be placed so that it will not interfere with the functioning of the dike.

8. Inspection and maintenance must be provided periodically and after each rain event.

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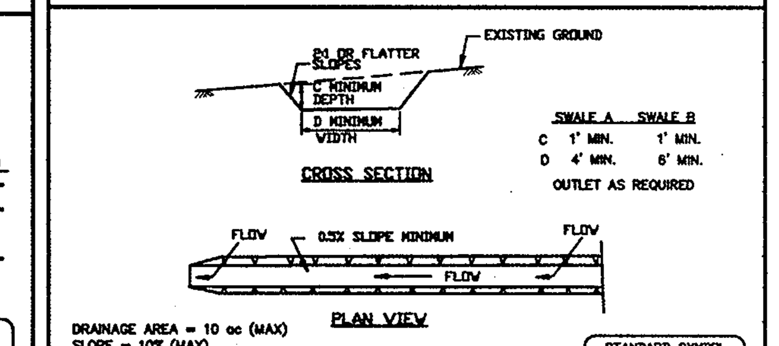
DETAIL 2 - TEMPORARY SWALE



	SWALE A	SWALE B
C	1' MIN.	1' MIN.
D	4' MIN.	6' MIN.

OUTLET AS REQUIRED

DRAINAGE AREA = 10 ac (MAX)
SLOPE = 10% (MAX)

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

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

Construction Specifications

1. All temporary swales shall have uninterrupted positive grade to an outlet. Spot elevations may be necessary for grades less than 1%.

2. Runoff diverted from a disturbed area shall be conveyed to a sediment trapping device.

3. Runoff diverted from an undisturbed area shall outlet directly into an undisturbed stabilized area at a non-erosive velocity.

4. All trees, brush, stumps, obstructions, and other objectional material shall be removed and disposed of so as not to interfere with the proper functioning of the swale.

5. The swale shall be excavated or shaped to line, grade and cross section as required to meet the criteria specified herein and be free of bank projections or other irregularities which will impede normal flow.

6. Fill, if necessary, shall be compacted by earth moving equipment.

7. All earth removed and not needed for construction shall be placed so that it will not interfere with the functioning of the swale.

8. Inspection and maintenance must be provided periodically and after each rain event.

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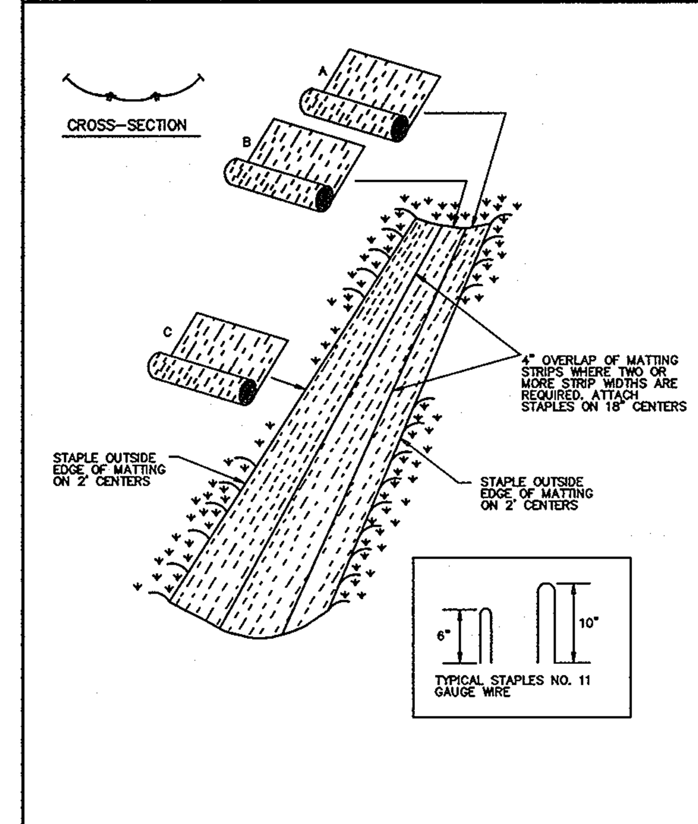
DETAIL 30 - EROSION CONTROL MATTING



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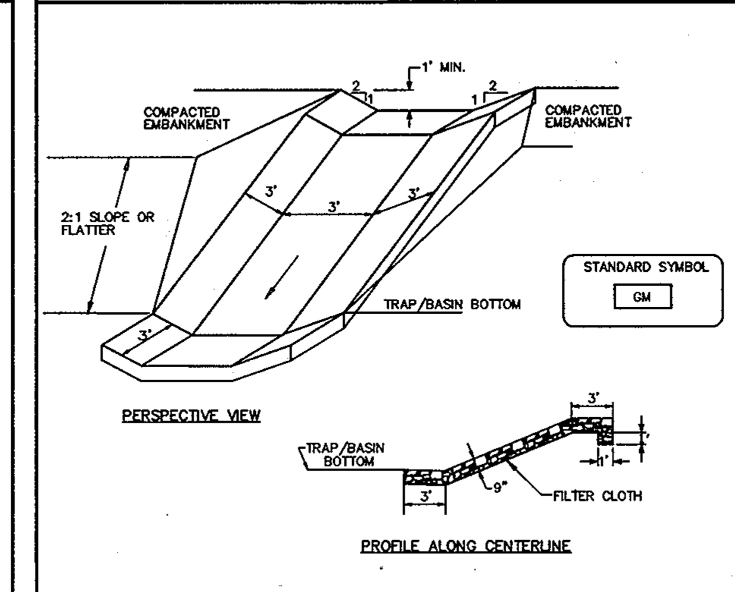
DETAIL 6 - GABION INFLOW PROTECTION



Construction Specifications

1. Gabion inflow protection shall be constructed of 9' x 3' x 9" gabion baskets forming a trapezoidal cross section 1' deep, with 2:1 side slopes, and a 3' bottom width.

2. Geotextile Class C shall be installed under all gabion baskets.

3. The stone used to fill the gabion baskets shall be 4" – 7".

4. Gabions shall be installed in accordance with manufacturers recommendations.

5. Gabion Inflow Protection shall be used where concentrated flow is present on slopes steeper than 4:1.

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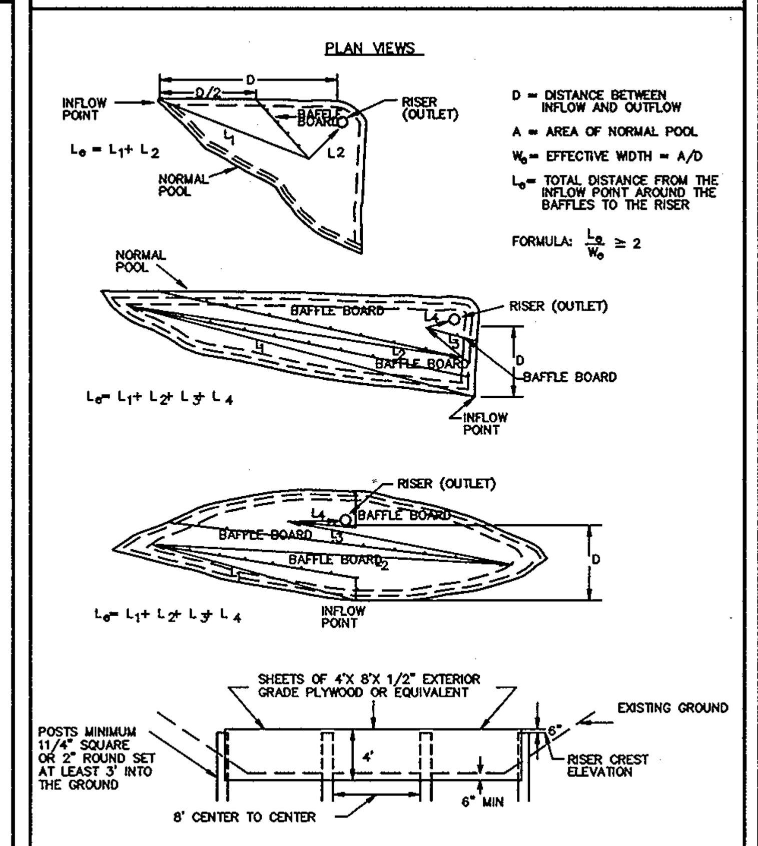
DETAIL 18 - SEDIMENT BASIN BAFFLES



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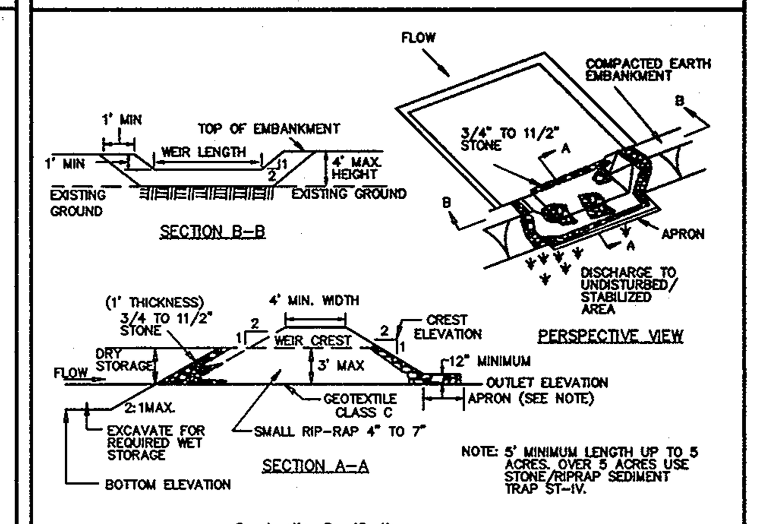
DETAIL 9 - STONE OUTLET SEDIMENT TRAP - ST II



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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Dust Control

Definition

Controlling dust blowing and movement on construction sites and roads.

Purpose

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

Conditions Where Practice Applies

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

Specifications

Temporary Methods

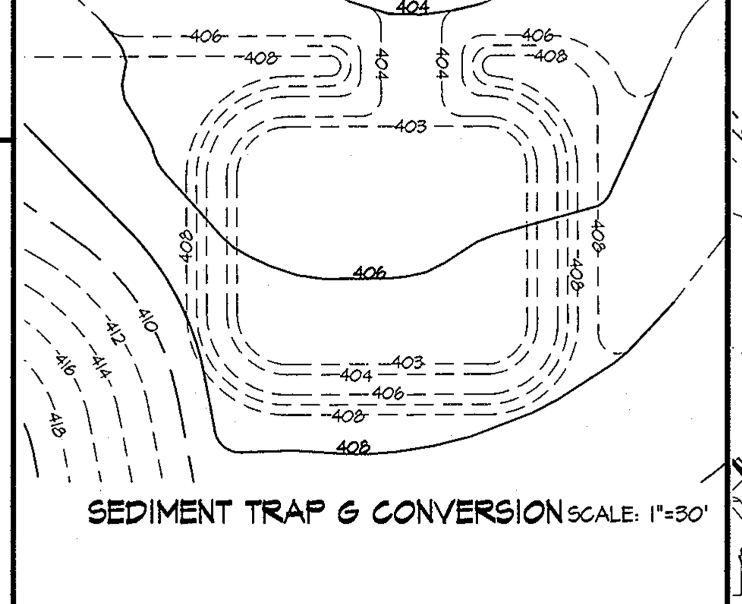
1. *Mulches – See standards for vegetative stabilization with mulches only. much should be crimped or tacked to prevent blowing.*
2. *Vegetative Cover – See standards for temporary vegetative cover.*
3. *Tillage – To roughen surface and bring clods to the surface. This is an emergency measure which should be used before soil blowing starts. Begin plowing on windward side of site. Chisel-type plows spaced 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, snow fences, straw bales, and similar material can be used to control air currents and soil blowing. Barriers placed at right angle to prevailing currents at intervals at about ten times their height are effective in controlling soil blowing.*
6. *Calcium Chloride – Apply at rates that will keep surface moist. May need treatment.*

Permanent Methods

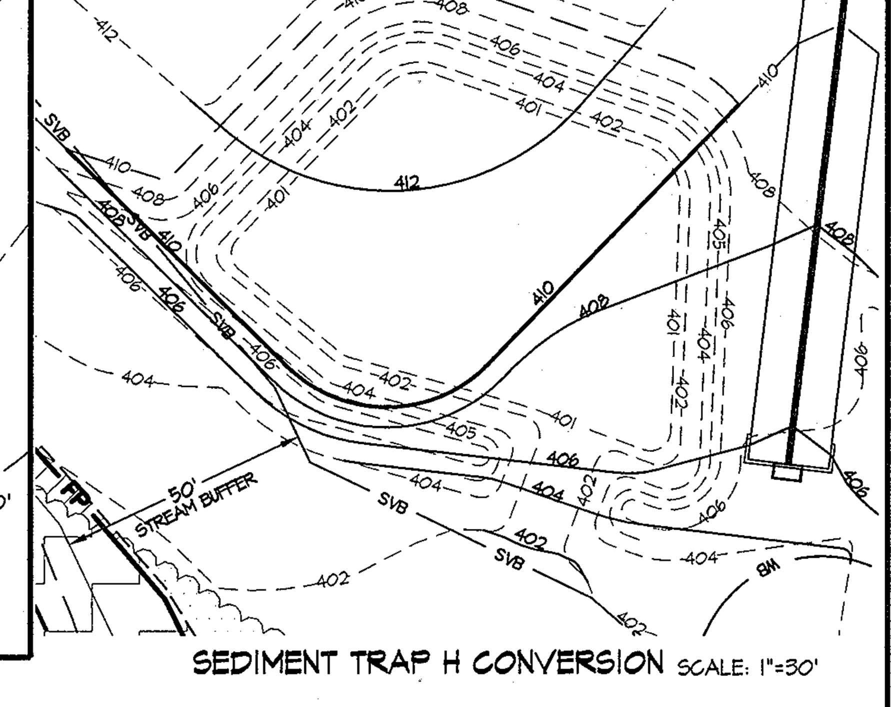
1. *Permanent Vegetation – See standards for permanent vegetative cover, and permanent stabilization with sod. Existing trees or large shrubs may afford valuable protection if left in place.*
2. *Topsoiling – Covering with less erosive soil material. See standards for top soil.*
3. *Stone – Cover surface with crushed stone or gravel.*

References

1. *Agriculture Handbook 346. Wind Erosion Forces in the United States and Their Use in Predicting Soil Loss.*
2. *Agriculture Information Bulletin 354. How to Control Wind Erosion, USDA_ARS.*



SEDIMENT TRAP G CONVERSION SCALE: 1"=30'



SEDIMENT TRAP H CONVERSION SCALE: 1"=30'

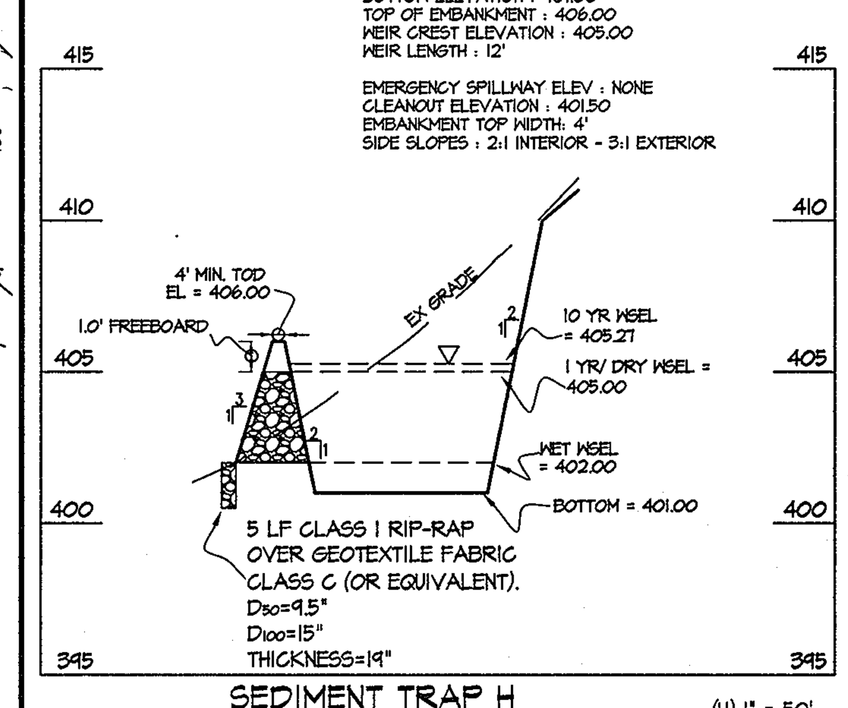
SEDIMENT TRAP H DATA TABLE

STONE OUTLET SEDIMENT TRAP

EXISTING DRAINAGE AREA : 0.2 AC
WORST CASE INTERIM DRAINAGE AREA : 2.7 AC

WET STORAGE VOL. REQUIRED : 0.11 AC-FT
WET STORAGE VOL. PROVIDED : 0.11 AC-FT
WET STORAGE ELEV : 402.00
DRY STORAGE REQUIRED: 0.11 AC-FT
DRY STORAGE PROVIDED = 0.41 AC-FT
DRY STORAGE WSEL = 405.00
EXISTING Q-1YR = 0.02 cfs
INTERIM Q-1YR = 0 cfs
SAFE PASS OF 10-YR STORM PROVIDED
Q_{10} = 10.12 cfs
10-YR WSEL = 405.27 ft.
BOTTOM ELEVATION : 401.00
TOP OF EMBANKMENT : 406.00
WEIR CREST ELEVATION : 405.00
WEIR LENGTH : 12'

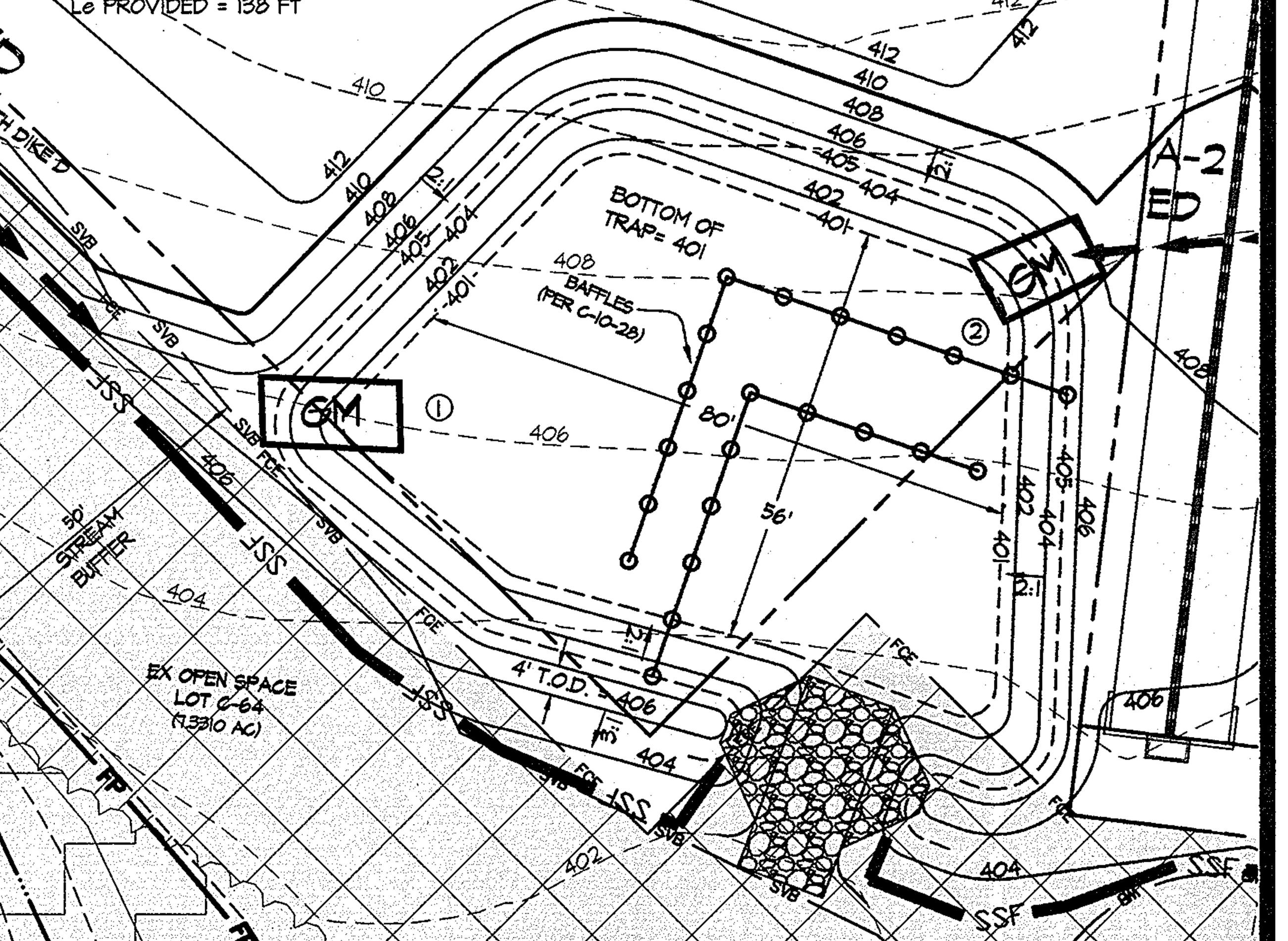
EMERGENCY SPILLWAY ELEV : NONE
CLEANOUT ELEVATION : 401.50
EMBANKMENT TOP WIDTH: 4'
SIDE SLOPES : 2:1 INTERIOR - 3:1 EXTERIOR



SEDIMENT TRAP H
PROFILE THROUGH PRINCIPAL SPILLWAY (H) 1" = 50' (V) 1" = 5'

① BAFFLE COMPUTATION
D = 85 FT.
A WET POOL = 4,900 SQFT
We = A/D = 58 FT
Le = 2We = 116 FT
Le PROVIDED = 138 FT

② BAFFLE COMPUTATION
D = 56 FT.
A WET POOL = 4,900 SQFT
We = A/D = 88 FT
Le = 2We = 176 FT
Le PROVIDED = 180 FT



SEDIMENT TRAP H ENLARGEMENT SCALE: 1"=20'

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 5-14-10

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 5/25/10

Chief, Development Engineering Division — Date 5/20/10

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 5/6/10

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."

ENGINEER'S SIGNATURE — DATE 5/6/10

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

HOWARD SOIL CONSERVATION DISTRICT — DATE 5/11/10

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

L:\CADD\DRAWINGS\03006\Phase V\Finals\05-SNE.dwg	DES. dds	DRN. dds	CHK.

DATE	REVISION	BY	APP'R.

OWNER
BA WATERLOO, LLC.
c/o BOZZUTO HOMES, INC.
7850 WALKER DRIVE, SUITE 400
GREENBELT, MARYLAND 20770
ATTN: DUNCAN SLIDELL
301-623-1525

PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 14931, EXPIRATION DATE: MAY 21, 2012

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

SEDIMENT AND EROSION CONTROL NOTES & DETAILS

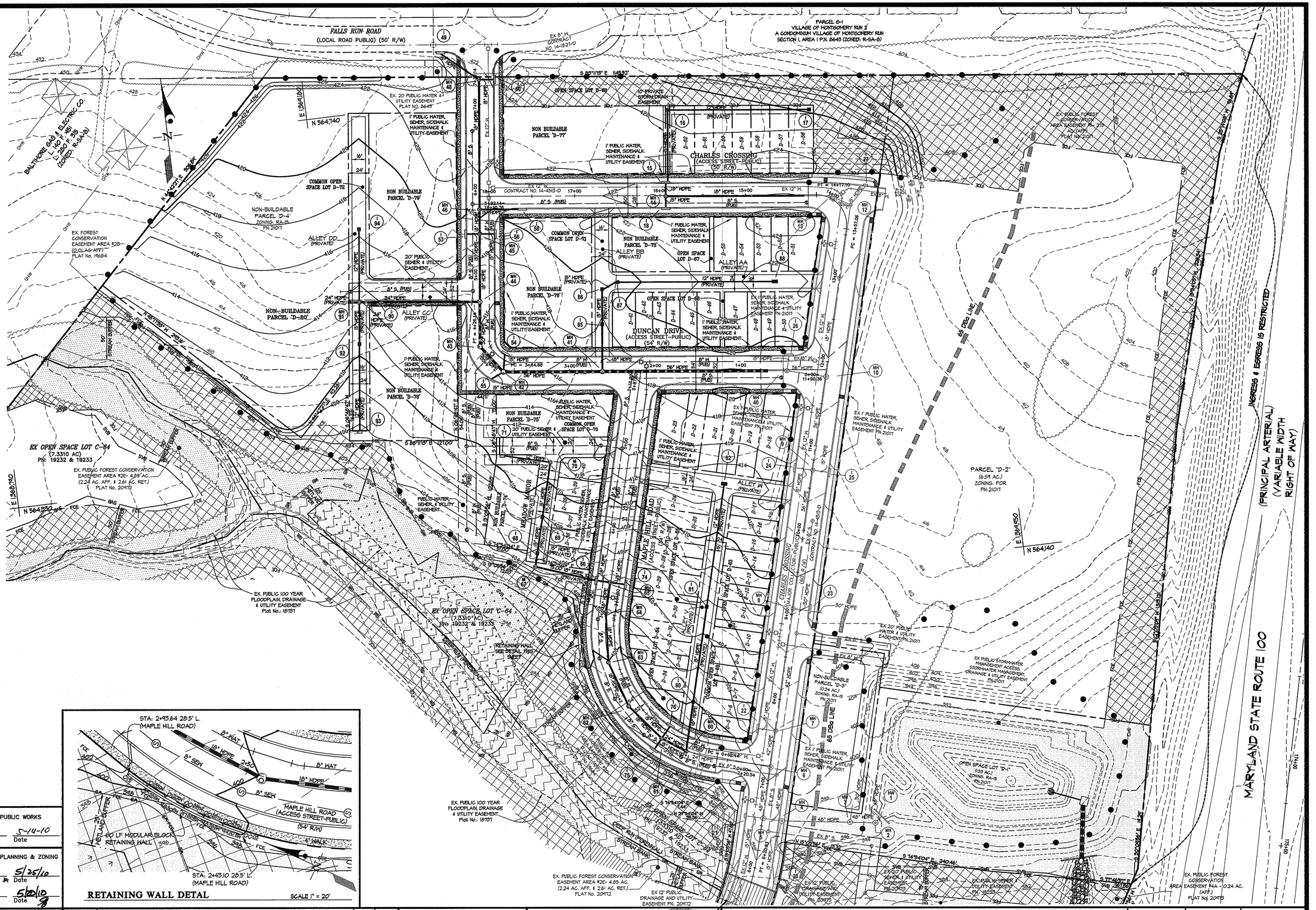
SHIPLEY'S GRANT

PHASE V
Lots C-308, D-5 thru D-62 and Open Space Lots D-63 thru D-68
Common Open Spcae Lots D-69 thru D-72 and Non-buildable Parcels D-73 thru D-80
AND PHASE 1
Open Space Lot C-64

ELECTION DISTRICT No. 1 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	R-A-15	08002
DATE	TAX MAP – GRID	SHEET
MAY, 2010	37–1&2	6 OF 12

F-10-048



APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 5-14-10

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 5/25/10

Chief, Development Engineering Division — Date 5/20/10

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

L:\CADD\DRAWINGS\03006\Phase V\Finals\05-GRADING.dwg | DES. dds | DRN. dds | CHK

DATE	REVISION	BY	APP'R.

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c/o BOZZUTO HOMES, INC.
7850 WALKER DRIVE, SUITE 400
GREENBELT, MARYLAND 20770
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STATE OF MARYLAND — MICHAEL JAMES TROSEN — REG. NO. 14931 — REGISTERED PROFESSIONAL ENGINEER

GRADING PLAN

SHIPLEY'S GRANT

PHASE V
Lots C-308, D-5 thru D-62 and Open Space Lots D-63 thru D-68
Common Open Spcae Lots D-69 thru D-72 and Non-buildable Parcels D-73 thru D-80
AND PHASE I
Open Space Lot C-64

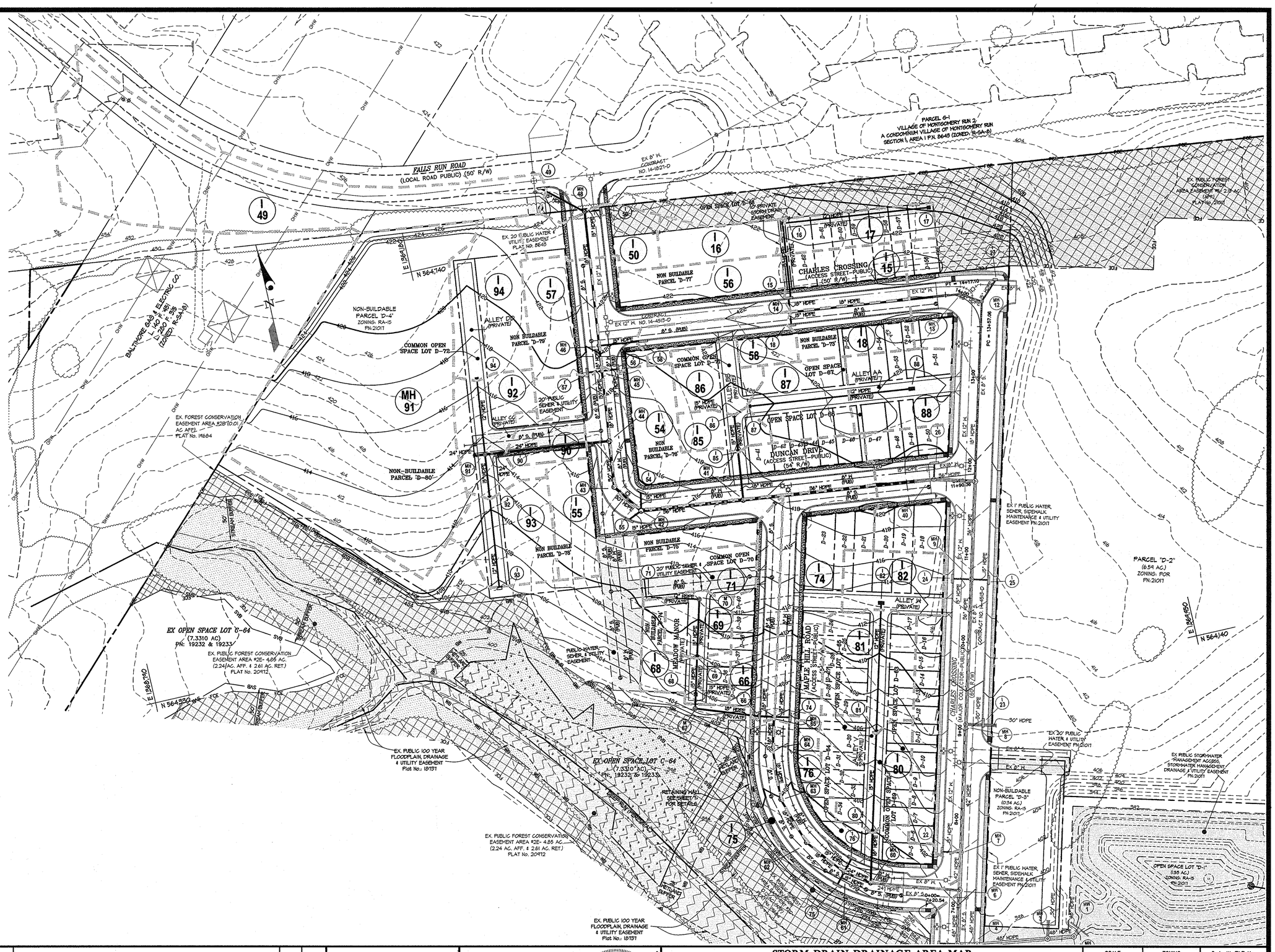
ELECTION DISTRICT No. 1 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
1"=50'	R-A-15	08002
DATE	TAX MAP – GRID	SHEET
MAY, 2010	37-1&2	7 OF 12

F-10-048

DRAINAGE AREA SUMMARY TABLE

AREA	D.A (ACRES)	% IMP.	'C'
I-15	0.21	99	0.85
I-16	0.14	99	0.85
I-17	0.16	99	0.85
I-18	0.18	99	0.85
I-49	1.02	40	0.49
I-50	0.20	99	0.85
I-54	0.51	99	0.85
I-55	0.52	99	0.85
I-56	0.38	99	0.85
I-57	0.24	99	0.85
I-58	0.11	99	0.85
I-66	0.22	99	0.85
I-68	0.15	99	0.85
I-69	0.12	99	0.85
I-71	0.13	99	0.85
I-74	0.43	99	0.85
I-75	0.22	99	0.85
I-76	0.35	99	0.85
I-80	0.26	99	0.85
I-81	0.29	99	0.85
I-82	0.18	99	0.85
I-85	0.09	99	0.85
I-86	0.15	99	0.85
I-87	0.20	99	0.85
I-88	0.23	99	0.85
I-90	0.10	99	0.85
M4-41	1.54	99	0.85
I-92	0.23	99	0.85
I-93	0.24	99	0.85
I-94	0.32	99	0.85



APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 5-14-10

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 5/25/10

Chief, Development Engineering Division — Date 5/20/10

GLW GUTSCHICK LITTLE & WEBER, P.A.
CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS
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DATE	REVISION	BY	APP'R.

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BA WATERLOO, LLC.
c/o BOZZUTO HOMES, INC.
7850 WALKER DRIVE, SUITE 400
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301-623-1525

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

STORM DRAIN DRAINAGE AREA MAP

SHIPLEY'S GRANT

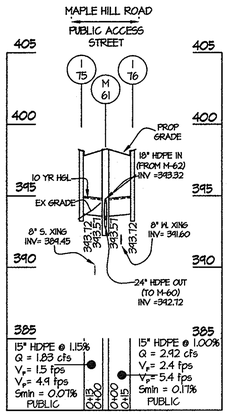
PHASE V

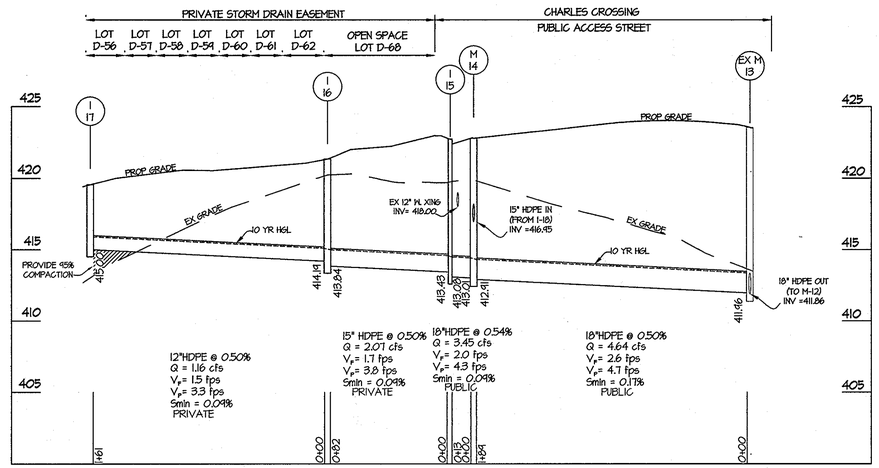
Lots C-308, D-5 thru D-62 and Open Space Lots D-63 thru D-68
Common Open Spcae Lots D-69 thru D-72 and Non-buildable Parcels D-73 thru D-80
AND PHASE I
Open Space Lot C-64

ELECTION DISTRICT No. 1 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
1"=50'	R-A-15	08002
DATE	TAX MAP – GRID	SHEET
MAY, 2010	37-1&2	8 OF 12

F-10-048





S.D. STRUCTURE SCHEDULE

NO.	TYPE	WIDTH (INSIDE)	TOP ELEVATION UPPER	TOP ELEVATION LOWER	INVERT ELEVATION UPPER	INVERT ELEVATION LOWER	STANDARD DETAIL	NOTES	LOCATION	OWNERSHIP & MAINTENANCE
M-14	MANHOLE	4'-0"	422.77	----	416.95	412.91	HO. CO. G. 5.12	(1)	1543.36 1' Left C.C.	PUBLIC
I-15	A-10	2'-6"	423.02	422.91	413.43	413.08	HO. CO. D 4.03		1543.36 14' Right C.C.	PUBLIC
I-16	'S'	2'-7.5"	421.00	----	414.19	413.84	HO. CO. D 4.22		N: 564,094 E: 1,364,600	PRIVATE
I-17	'S'	2'-7.5"	419.00	----	415.00	terminal	HO. CO. D 4.22		N: 564,678 E: 1,364,765	PRIVATE
I-18	A-10	2'-6"	423.02	422.91	417.08	terminal	HO. CO. D 4.03		1543.36 14' Left C.C.	PUBLIC
M-60	MANHOLE	4' -0"	348.41	----	343.08	342.48	HO. CO. G. 5.12	(1)	0+98.57 1' Left M.H.R.	PUBLIC
M-61	MANHAOLE	4'-0"	348.21	----	343.57	342.72	HO. CO. G. 5.12	(1)	1+31.75 1' Left M.H.R.	PUBLIC
M-62	MANHOLE	4' -0"	348.66	----	343.67	343.57	HO. CO. G. 5.12	(1)	1+85.81 1' Left M.H.R.	PUBLIC
M-63	MANHOLE	4' -0"	349.92	----	344.90	344.80	HO. CO. G. 5.12	(1)	2+42.42 1' Left M.H.R.	PUBLIC
M-64	MANHOLE	4' -0"	402.15	----	347.15	347.05	HO. CO. G. 5.12	(1)	3+01.20 1' Left M.H.R.	PUBLIC
M-65	MANHOLE	4' -0"	403.93	----	348.75	348.22	HO. CO. G. 5.12	(1)	3+36.44 1' Left M.H.R.	PUBLIC
I-66	A-10	2'-6"	404.34	403.79	348.55	348.45	HO. CO. D. 4.03		3+36.44 16' Left M.H.R.	PUBLIC
M-67	MANHOLE	4'-0"	405.00	----	349.60	349.25	HO. CO. G. 5.12		N: 564,187 E: 1,364,381	PRIVATE
I-68	'S'	2'-7.5"	405.75	-----	401.50	349.72	HO. CO. D 4.22		N: 564,202 E: 1,364,386	PRIVATE
I-69	'S'	2'-7.5"	407.88	----	403.65	403.55	HO. CO. D 4.22		N: 564,243 E: 1,364,396	PRIVATE
M-70	MANHOLE	4'-0"	411.13	----	404.81	404.46	HO. CO. G. 5.12		N: 564,306 E: 1,364,413	PRIVATE
I-71	A-5	3'-0"	410.61	410.51	405.35	terminal	HO. CO. D 4.01		N: 564,322 E: 1,364,384	PRIVATE
I-74	A-10	2'-6"	404.34	403.79	348.90	terminal	HO. CO. D 4.03		3+36.44 16' Right M.H.R.	PUBLIC
I-75	A-10	2'-6"	348.40	----	343.72	terminal	HO. CO. D 4.03		1+31.75 16' Left M.H.R.	PUBLIC
I-76	A-10	2'-6"	348.40	----	343.72	terminal	HO. CO. D 4.03		1+31.75 16' Right M.H.R.	PUBLIC
I-80	'S'	2'-7.5"	349.95	----	345.70	345.35	HO. CO. D 4.22		N: 564,001 E: 1,364,545	PRIVATE
I-81	'S'	2'-7.5"	405.57	----	401.57	401.22	HO. CO. D 4.22		N: 564,115 E: 1,364,514	PRIVATE
I-82	DOUBLE 'S'	2'-7.5"	412.21	----	408.21	terminal	HO. CO. D 4.23		N: 564,256 E: 1,364,612	PRIVATE

(1) USE OFFSET CONE SECTION. OFFSET MANHOLE COVER AS FAR FROM CROWN OF ROAD AS POSSIBLE SEE "TYPICAL MANHOLE LOCATION IN ROADWAY" DETAIL SHEET 2

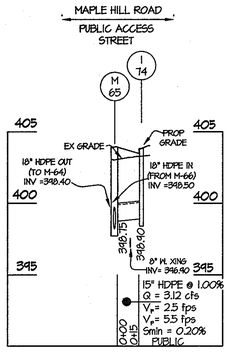
D.D. = DUNCAN DRIVE
C.C. = CHARLES CROSSING
M.H.R. = MAPLE HILL ROAD

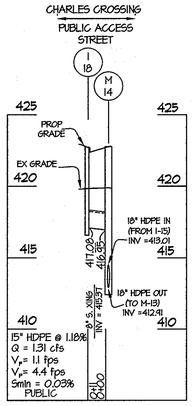
S.D. Pipe Summary Table
PRIVATELY OWNED AND MAINTAINED

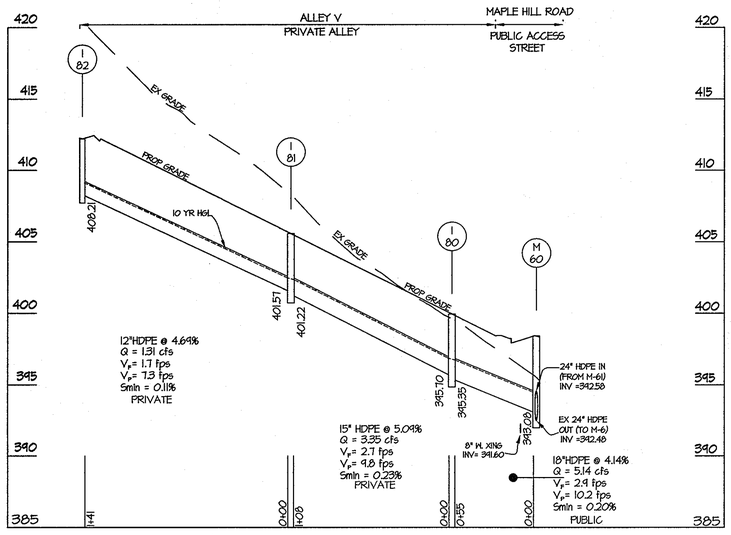
Size (in.)	Type	Quantity (L.F.)	Remarks
12	HDPE	354	ADS N12 or equiv.
15	HDPE	301	ADS N12 or equiv.
18	HDPE	70	ADS N12 or equiv.

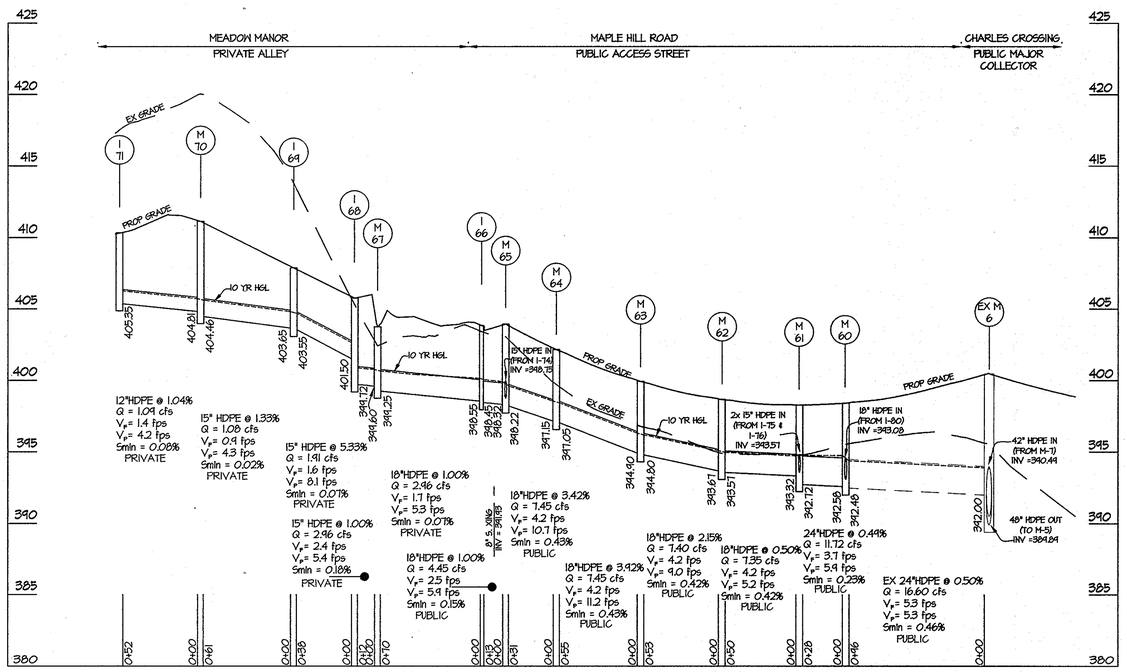
S.D. Pipe Summary Table
PUBLICLY OWNED AND MAINTAINED

Size (in.)	Type	Quantity (L.F.)	Remarks
15	HDPE	54	ADS N12 or equiv.
18	HDPE	459	ADS N12 or equiv.
24	HDPE	28	ADS N12 or equiv.









APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 5-14-10

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 5/25/10

Chief, Development Engineering Division — Date 5/20/10

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L:\CADD\DRAWINGS\03006\Phase V\Finals\05-SDPROF.dwg | DES. dds | DRN. dds | CHK. mt

DATE	REVISION	BY	APP'R.

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STATE OF MARYLAND — JAMES R. MILLER — 14951 — REGISTERED PROFESSIONAL ENGINEER

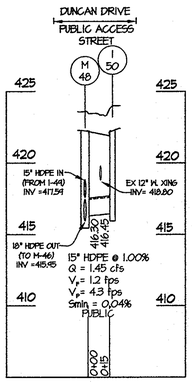
STORM DRAIN PROFILES

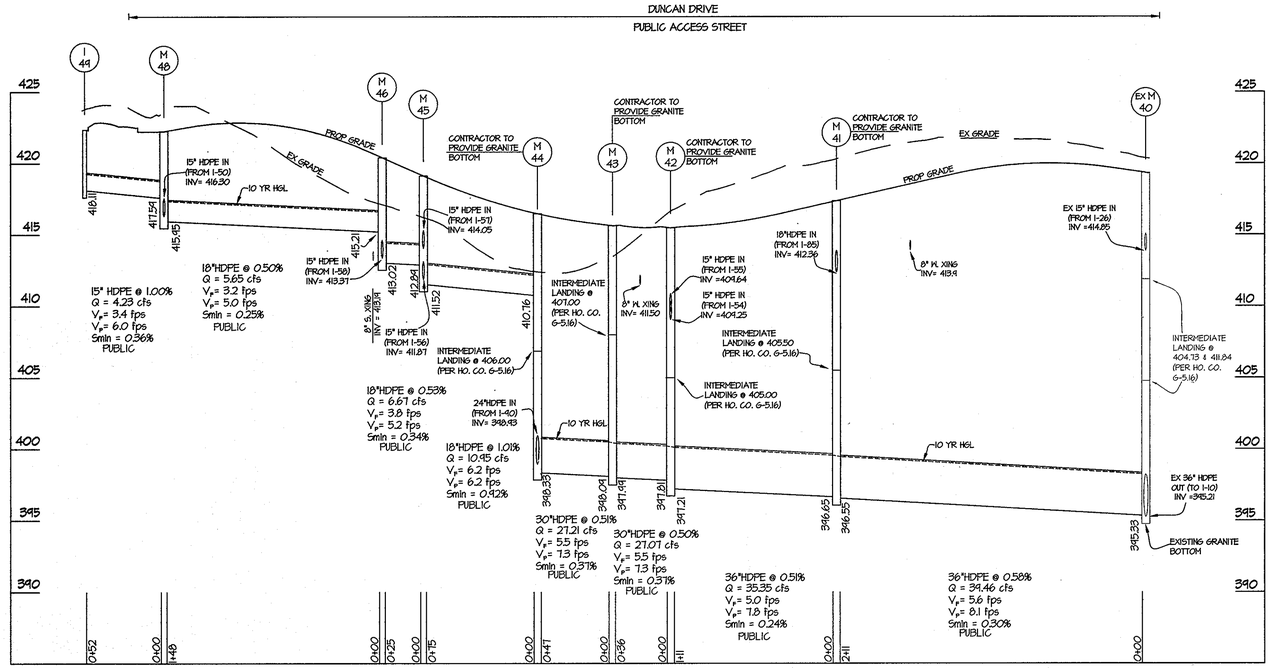
SHIPLEY'S GRANT
PHASE V
Lots C-308, D-5 thru D-62 and Open Space Lots D-63 thru D-68
Common Open Spcae Lots D-69 thru D-72 and Non-buildable Parcels D-73 thru D-80
AND PHASE 1
Open Space Lot C-64

ELECTION DISTRICT No. 1 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
1"=50' (H) 1" = 5' (V)	R-A-15	08002
DATE	TAX MAP - GRID	SHEET
MAY, 2010	37-1&2	9 OF 12

F-10-048





S.D. STRUCTURE SCHEDULE

NO.	TYPE	WIDTH (INSIDE)	TOP ELEVATION UPPER	TOP ELEVATION LOWER	INVERT ELEVATION UPPER	INVERT ELEVATION LOWER	STANDARD DETAIL	NOTES	LOCATION	OWNERSHIP & MAINTENANCE
M-41	MANHOLE	5'-0"	417.36	----	412.36	346.55	HO. CO. G. 5.13	(1)	2+61.88 1' Left D.D.	PUBLIC
M-42	MANHOLE	5'-0"	415.47	----	409.64	347.21	HO. CO. G. 5.13	(1)	3+76.93 3' Left D.D.	PUBLIC
M-43	MANHOLE	5'-0"	415.63	----	348.09	347.99	HO. CO. G. 5.13	(1)	4+16.64 2.2' Left D.D.	PUBLIC
M-44	MANHOLE	5'-0"	416.41	----	410.76	348.33	HO. CO. G. 5.13	(1)	4+68.56 1' Left D.D.	PUBLIC
M-45	MANHOLE	4' -0"	419.12	----	414.05	411.52	HO. CO. G. 5.12	(1)	5+48.14 1' Left D.D.	PUBLIC
M-46	MANHOLE	4'-0"	420.40	----	415.21	413.02	HO. CO. G. 5.12	(1)	5+76.29 1' Left D.D.	PUBLIC
M-48	MANHOLE	4'-0"	422.24	----	417.54	415.95	HO. CO. G. 5.12	(1)	7+29.10 1' Left D.D.	PUBLIC
I-49	A-10	2'-6"	423.01	422.94	418.11	terminal	HO. CO. D 4.03		N: 564,000 E: 1,364,345	PUBLIC
I-50	A-10	2'-6"	422.53	422.42	416.45	terminal	HO. CO. D 4.03		7+29.10 16' Right D.D.	PUBLIC
I-54	A-10	2'-6"	415.66	----	409.25	terminal	HO. CO. D 4.03		3+84.70 16' Right D.D.	PUBLIC
I-55	A-10	2'-6"	415.66	----	409.82	terminal	HO. CO. D 4.03		3+84.70 16' Left D.D.	PUBLIC
I-56	A-10	2'-6"	419.47	419.04	412.02	terminal	HO. CO. D 4.03		5+48.14 16' Right D.D.	PUBLIC
I-57	A-10	2'-6"	419.47	419.04	414.20	terminal	HO. CO. D 4.03		5+48.14 16' Left D.D.	PUBLIC
I-58	A-10	3'-0"	421.19	421.09	414.23	terminal	HO. CO. D 4.03		17+61.36 14' Left C.C.	PUBLIC
I-85	'S'	2'-7.5"	417.88	----	413.63	413.28	HO. CO. D 4.22		N: 564,459 E: 1,361,493	PRIVATE
I-86	'S'	2'-7.5"	418.49	----	414.24	414.14	HO. CO. D 4.22		N: 564,520 E: 1,361,468	PRIVATE
I-87	'S'	2'-7.5"	419.20	----	415.04	414.69	HO. CO. D 4.22		N: 564,506 E: 1,361,431	PRIVATE
I-88	DOUBLE 'S'	2'-7.5"	420.83	----	416.83	terminal	HO. CO. D 4.23		N: 564,484 E: 1,361,300	PRIVATE
I-90	A-5	3'-6"	414.71	414.58	349.58	349.48	HO. CO. D 4.01		N: 564,598 E: 1,361,240	PRIVATE
M-91	MANHOLE	4'-0"	413.14	----	408.14	349.69	HO. CO. G. 5.12		N: 564,520 E: 1,361,215	PRIVATE
I-92	'S'	2'-7.5"	410.70	----	401.12	400.71	HO. CO. D 4.22		N: 564,471 E: 1,361,209	PRIVATE
I-93	A-5	2'-6"	406.20	----	401.62	terminal	HO. CO. D 4.01		N: 564,371 E: 1,361,181	PRIVATE
I-94	'S'	2'-7.5"	416.29	----	412.29	terminal	HO. CO. D 4.22		N: 564,605 E: 1,361,225	PRIVATE

(1) USE OFFSET CONE SECTION. OFFSET MANHOLE COVER AS FAR FROM CROWN OF ROAD AS POSSIBLE SEE "TYPICAL MANHOLE LOCATION IN ROADWAY" DETAIL SHEET 2

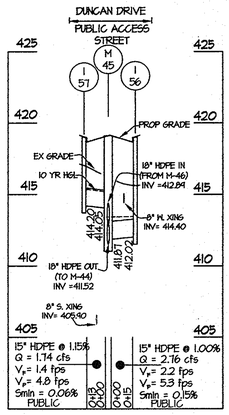
D.D. = DUNCAN DRIVE
C.C. = CHARLES CROSSING
M.H.R. = MAPLE HILL ROAD

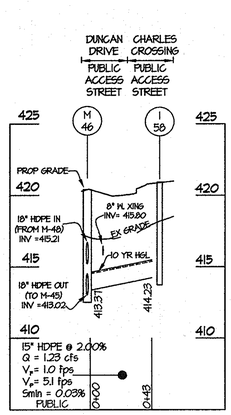
S.D. Pipe Summary Table
PRIVATELY OWNED AND MAINTAINED

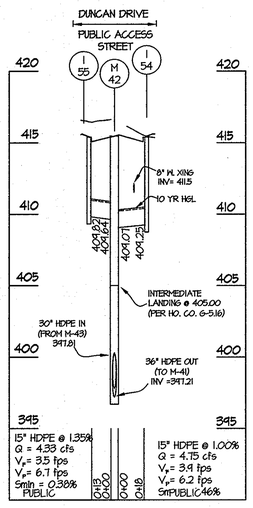
Size (in.)	Type	Quantity (L.F.)	Remarks
12	HDPE	361	ADS N12 or equiv.
15	HDPE	98	ADS N12 or equiv.
24	HDPE	131	ADS N12 or equiv.

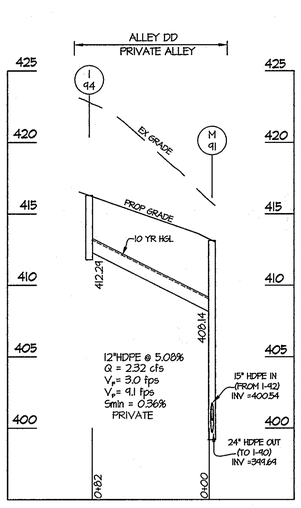
S.D. Pipe Summary Table
PUBLICLY OWNED AND MAINTAINED

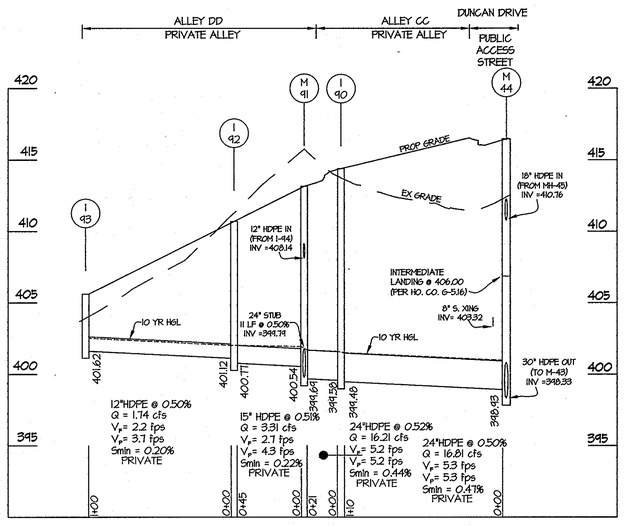
Size (in.)	Type	Quantity (L.F.)	Remarks
15	HDPE	169	ADS N12 or equiv.
18	HDPE	249	ADS N12 or equiv.
30	HDPE	83	ADS N12 or equiv.
36	HDPE	322	ADS N12 or equiv.

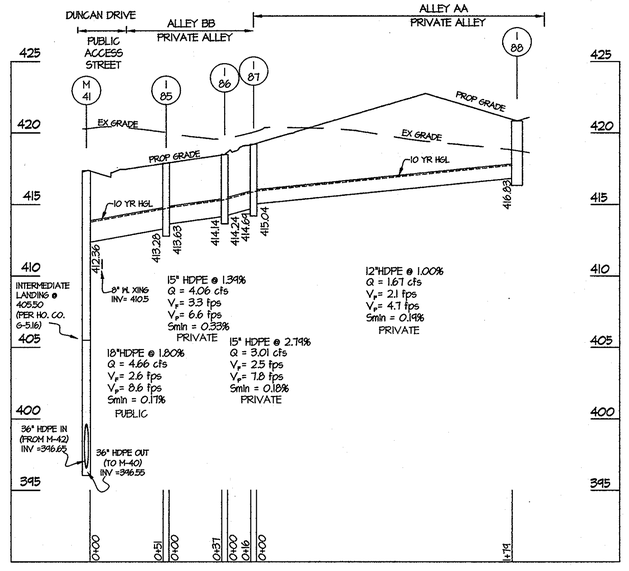












APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 5-14-10

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 5/25/10

Chief, Development Engineering Division — Date 5/20/10

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

L:\CADD\DRAWINGS\03006\Phase V\finals\05-SDPROF.dwg | DES. dds | DRN. dds | CHK

DATE	REVISION	BY	APP'R.

OWNER
BA WATERLOO, LLC.
c/o BOZZUTO HOMES, INC.
7850 WALKER DRIVE, SUITE 400
GREENBELT, MARYLAND 20770
ATTN: DUNCAN SLIDELL
301-623-1525

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 14931 EXPIRATION DATE: MAY 21, 2012

STATE OF MARYLAND — JAMES T. WEBER, JR. — REGISTERED PROFESSIONAL ENGINEER

STORM DRAIN PROFILES

SHIPLEY'S GRANT

PHASE V

Lots C-308, D-5 thru D-62 and Open Space Lots D-63 thru D-68
Common Open Spcae Lots D-69 thru D-72 and Non-buildable Parcels D-73 thru D-80
AND PHASE 1
Open Space Lot C-64

ELECTION DISTRICT No. 1 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
1"=50' (H) 1" = 5' (V)	R-A-15	08002
DATE	TAX MAP – GRID	SHEET
MAY, 2010	37-1&2	10 OF 12

F-10-048

PLANT MATERIALS AND PLANTING METHODS

A. PLANT MATERIALS

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

1. PLANT NAMES

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

2. PLANT STANDARDS

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

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

3. PLANT MEASUREMENTS

ALL PLANTS SHALL CONFORM TO THE MEASUREMENTS SPECIFIED IN THE PLANT SCHEDULE AS APPROVED BY THE ARC.

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

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

C. MINIMUM SIZE FOR PLANTING SHADE TREES SHALL BE 3-3½" CALIPER, 14'-16' IN HEIGHT.

D. MINIMUM SIZE FOR PLANTING MINOR OR INTERMEDIATE FOCUS TREES (PINES, CRABAPPLES, ETC.) SHALL BE 3"-3½" CALIPER, 10'-12' IN HEIGHT.

E. MINIMUM SIZE FOR PLANTING SHRUBS SHALL BE 18" - 24" SPREAD UNLESS NOTED OTHERWISE.

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

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

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

4. PLANT IDENTIFICATION

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

5. PLANT INSPECTION

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

B. PLANTING METHODS

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

1. PLANTING SEASONS

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

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

2. DIGGING

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

3. EXCAVATION OF PLANT PITS

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

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

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

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

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

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

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

4. STAKING, GUYING AND WRAPPING

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

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

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

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

D. ALL TREES UNDER 3" IN CALIPER ARE TO BE PLANTED AND STAKED IN ACCORDANCE WITH THE ATTACHED "TYPICAL TREE STAKING DETAIL". ALL TREES OVER 3" IN CALIPER ARE TO BE PLANTED AND GUYED IN ACCORDANCE WITH THE ATTACHED "TYPICAL TREE GUYING DETAIL".

5. PLANT PRUNING, EDGING AND MULCHING

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

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

C. AFTER CULTIVATION, ALL PLANT MATERIALS SHALL BE MULCHED WITH A 2" LAYER OF FINE, SHREDDED PINE BARK, PEAT MOSS, OR ANOTHER APPROVED MATERIAL OVER THE ENTIRE AREA OF THE BED OR SAUCER.

6. PLANT INSPECTION AND ACCEPTANCE

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

7. PLANT GUARANTEE

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

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

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

SODDING

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

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

LANDSCAPING NOTES:

1. THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH SECTION 16.124 OF THE HOWARD COUNTY CODE OF THE HOWARD COUNTY LANDSCAPE MANUAL.
2. CONTRACTOR SHALL NOTIFY ALL UTILITIES AT LEAST (5) FIVE DAYS BEFORE STARTING WORK. ALL GENERAL NOTES, ESPECIALLY THOSE REGARDING UTILITIES, ON SHEET 1 SHALL APPLY.
3. FIELD VERIFY UNDERGROUND UTILITY LOCATIONS AND EXISTING CONDITIONS BEFORE STARTING PLANTING WORK. CONTACT ENGINEER / LANDSCAPE ARCHITECT IF ANY RELOCATIONS ARE REQUIRED.
4. PLANT QUANTITIES SHOWN ON PLANT LIST ARE PROVIDED FOR THE CONVENIENCE OF THE CONTRACTOR ONLY. IF DISCREPANCIES EXIST BETWEEN QUANTITIES SHOWN ON THE PLAN AND THOSE SHOWN ON THE PLANT LIST, THE QUANTITIES ON THE PLAN SHALL TAKE PRECEDENCE.
5. ALL PLANT MATERIAL SHALL BE FULL, HEAVY, WELL FORMED, AND SYMMETRICAL AND CONFORM TO THE A.A.N. SPECIFICATIONS, AND BE INSTALLED IN ACCORDANCE WITH PROJECT SPECIFICATIONS.
6. NO SUBSTITUTION SHALL BE MADE WITHOUT WRITTEN CONSENT OF THE OWNER OR HIS REPRESENTATIVE.
7. ALL AREAS DISTURBED BY CONSTRUCTION ACTIVITIES BUT NOT OTHERWISE PLANTED, PAVED, OR MULCHED SHALL BE SEEDED OR SODDED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.
8. THE CONTRACTOR SHALL NOTIFY THE OWNER IN WRITING IF HE/SHE ENCOUNTERS SOIL DRAINAGE CONDITIONS WHICH MAY BE DETRIMENTAL TO THE GROWTH OF THE PLANTS.
9. ALL EXPOSED EARTH WITHIN LIMITS OF PLANTING BEDS SHALL BE MULCHED WITH SHREDDED HARDWOOD MULCH PER PLANTING DETAILS.
10. THE OWNER, TENANT, AND/OR THEIR AGENTS SHALL BE RESPONSIBLE FOR MAINTENANCE OF THE REQUIRED LANDSCAPING, INCLUDING BOTH PLANT MATERIALS AND BERMS, FENCES AND WALLS. ALL PLANT MATERIALS SHALL BE MAINTAINED IN GOOD GROWING CONDITION, AND WHEN NECESSARY, REPLACED WITH NEW MATERIALS TO ENSURE CONTINUED COMPLIANCE WITH APPLICABLE REGULATIONS. ALL OTHER REQUIRED LANDSCAPING SHALL BE PERMANENTLY MAINTAINED IN GOOD CONDITION, AND, WHEN NECESSARY, REPAIRED AND REPLACED.
11. "SCHEDULE A - "PERIMETER LANDSCAPING" IS PROVIDED FOR LANDSCAPE SURETY CALCULATION PURPOSES ONLY. FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING HAS BEEN POSTED WITH THE DPW DEVELOPER'S AGREEMENT IN THE AMOUNT OF $2,400.00 FOR:

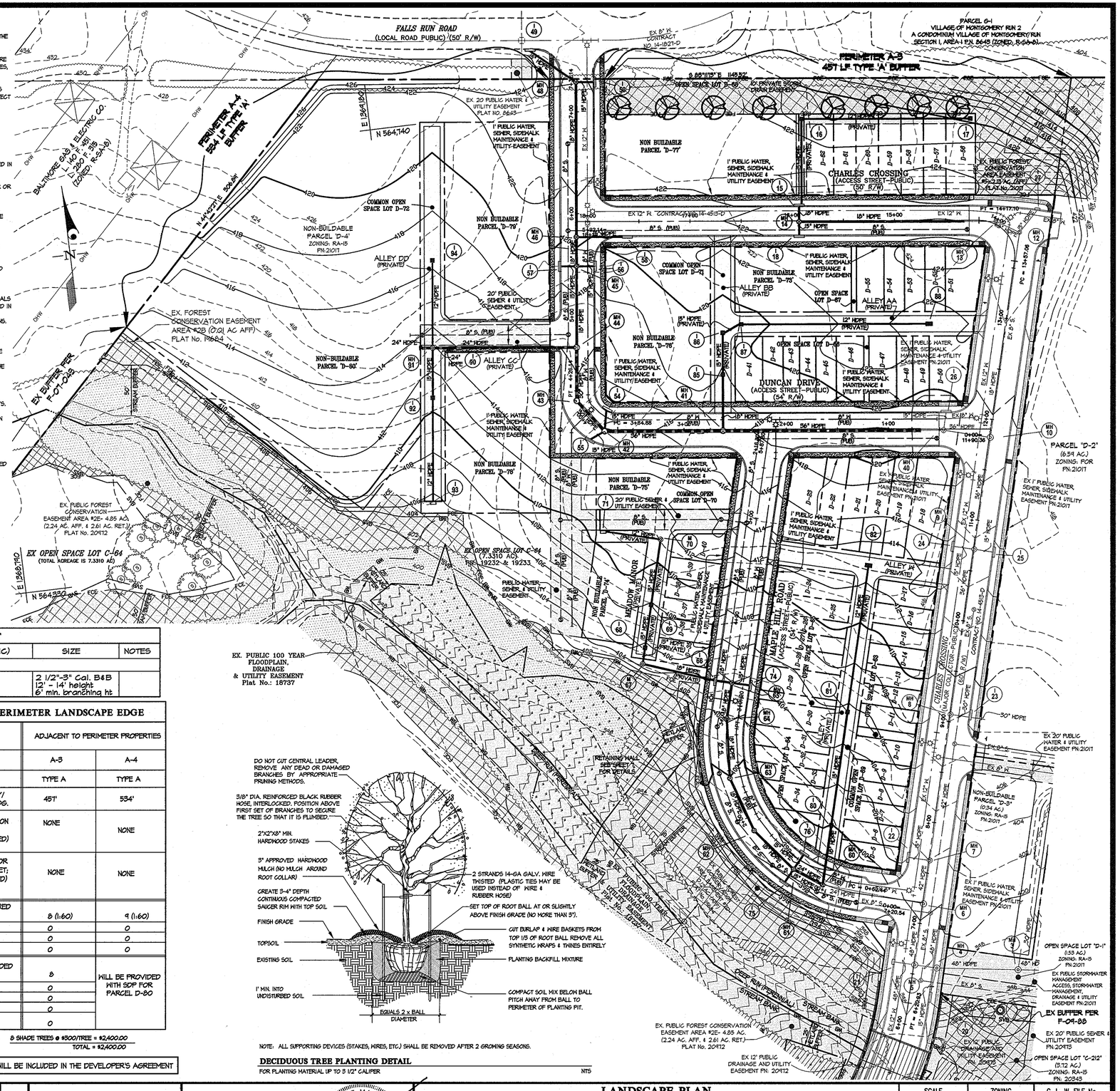
8 SHADE TREES @ $300/TREE= $2,400.00

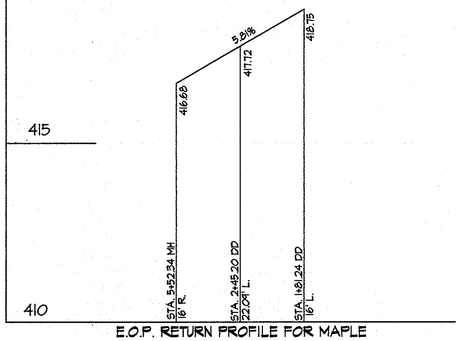
12. NO LANDSCAPING WILL BE ALLOWED WITHIN WATER AND SEWER EASEMENTS.
13. PERIMETER & STORMWATER MANAGEMENT AREA LANDSCAPING FOR OPEN SPACE LOTS D-1, D-2, & D-3 IS PROVIDED UNDER F-04-88 (PHASE 4).
14. SEE SHEET 4 FOR STREET TREE LOCATIONS.
15. LANDSCAPING REQUIRED BY TABLE 2 AND SCHEDULES B & C OF THE LANDSCAPE MANUAL FOR FUTURE STRUCTURES AND PARKING SHALL BE PROVIDED ON THE SITE DEVELOPMENT PLANS FOR THEIR DEVELOPMENT.

LEGEND

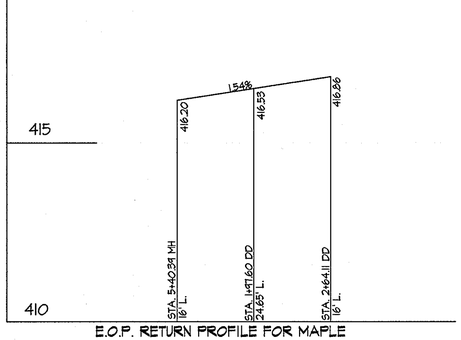
PROPOSED SHADE TREE

EXISTING PLANTINGS PER F-06-19, F-07-043, & F-04-88

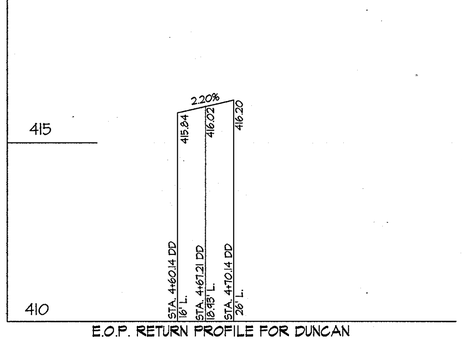

FALLS RUN ROAD
(LOCAL ROAD PUBLIC) (50' R/W)
PERIMETER A-4
254 LF TYPE 'A' BUFFER
PERIMETER A-3
457 LF TYPE 'A' BUFFER
CHARLES CROSSING
(ACCESS STREET-PUBLIC)
(50' R/W)
DUNCAN DRIVE
(ACCESS STREET-PUBLIC)
(54' R/W)
MAPLE HILL ROAD
(ACCESS STREET-PUBLIC)
(54' R/W)
CHARLES PASSING
(ACCESS STREET-PUBLIC)
(50' R/W)
PARCEL C-1
VILLAGE OF MONTGOMERY RUN 2
A CONDOMINIUM VILLAGE OF MONTGOMERY RUN
SECTION 1, AREA-1 PLAT 8648 (ZONED, R-SA-8)
PARCEL "D-2"
(6.54 AC.)
ZONING: FOR
PLAT No. 21017
EX. FOREST CONSERVATION EASEMENT AREA #2B (0.01 AC AFF)
PLAT No. 19624
EX. FOREST CONSERVATION EASEMENT AREA #2E- 4.85 AC. (2.24 AC. AFF. & 2.61 AC. RET.) PLAT No. 20472
EX. OPEN SPACE LOT C-64
(TOTAL ACREAGE IS 7.3310 AC)
PLAT No. 19232 & 19233
EX. PUBLIC 100 YEAR FLOODPLAIN, DRAINAGE & UTILITY EASEMENT Plat No.: 18737
EX. PUBLIC FOREST CONSERVATION EASEMENT AREA #2E- 4.85 AC. (2.24 AC. AFF. & 2.61 AC. RET.) PLAT No. 20472
EX. PUBLIC FOREST CONSERVATION EASEMENT AREA #2D- 0.34 AC. (0.34 AC. AFF.) PLAT No. 20472
EX. PUBLIC FOREST CONSERVATION EASEMENT AREA #2B (0.01 AC AFF) PLAT No. 19624
EX. EMPTER PER F-07-043
BALTIMORE GAS & ELECTRIC CO. L-140 F-351 L-260 F-355 (ZONED: R-SA-8)
NON-BUILDABLE PARCEL 'D-72'
NON-BUILDABLE PARCEL 'D-73'
NON-BUILDABLE PARCEL 'D-74'
NON-BUILDABLE PARCEL 'D-75'
NON-BUILDABLE PARCEL 'D-76'
NON-BUILDABLE PARCEL 'D-77'
NON-BUILDABLE PARCEL 'D-78'
NON-BUILDABLE PARCEL 'D-79'
NON-BUILDABLE PARCEL 'D-80'
NON-BUILDABLE PARCEL 'D-3'
(0.34 AC.)
ZONING: RA-15
FN: 21017
COMMON OPEN SPACE LOT D-72
COMMON OPEN SPACE LOT D-73
COMMON OPEN SPACE LOT D-74
OPEN SPACE LOT D-67
OPEN SPACE LOT D-68
OPEN SPACE LOT D-69
OPEN SPACE LOT D-80
OPEN SPACE LOT "D-1"
(1.53 AC.)
ZONING: RA-15
FN: 21017
OPEN SPACE LOT "D-2"
(5.72 AC.)
ZONING: RA-15
FN: 20343
ALLEY AA (PRIVATE)
ALLEY BB (PRIVATE)
ALLEY CC (PRIVATE)
ALLEY DD (PRIVATE)
ALLEY EE (PRIVATE)
ALLEY FF (PRIVATE)
ALLEY GG (PRIVATE)
ALLEY HH (PRIVATE)
ALLEY II (PRIVATE)
ALLEY JJ (PRIVATE)
ALLEY KK (PRIVATE)
ALLEY LL (PRIVATE)
ALLEY MM (PRIVATE)
ALLEY NN (PRIVATE)
MEADOW MANOR COURT (PRIVATE)
PERIMETER A-3
457 LF TYPE 'A' BUFFER
EX. EMPTER PER F-04-88
EX. BUFFER PER F-04-88
EX. 20' PUBLIC WATER & UTILITY EASEMENT FN:21017
EX. 1' PUBLIC WATER, SEWER, SIDEWALK MAINTENANCE & UTILITY EASEMENT FN:21017
EX. 1' PUBLIC WATER, SEWER, SIDEWALK MAINTENANCE & UTILITY EASEMENT FN:20472
EX. PUBLIC DRAINAGE AND UTILITY EASEMENT FN: 20472
EX. 20' PUBLIC SEWER & UTILITY EASEMENT FN:20472
EX. 12' PUBLIC DRAINAGE AND UTILITY EASEMENT FN: 20472
EX. 1' PUBLIC FOREST CONSERVATION EASEMENT AREA #2E- 4.85 AC. (2.24 AC. AFF. & 2.61 AC. RET.) PLAT No. 20472
EX. 1' PUBLIC WATER, SEWER, SIDEWALK MAINTENANCE & UTILITY EASEMENT
EX. 1' PUBLIC WATER, SEWER, SIDEWALK MAINTENANCE & UTILITY EASEMENT FN:21017
EX. 1' PUBLIC WATER, SEWER, SIDEWALK MAINTENANCE & UTILITY EASEMENT
EX. 20' PUBLIC WATER & UTILITY EASEMENT
1' PUBLIC WATER, SEWER, SIDEWALK MAINTENANCE & UTILITY EASEMENT
20' PUBLIC SEWER & UTILITY EASEMENT
RETAINING WALL SEE SHEET 5 FOR DETAILS
EX. 8" W. CONTRACT NO. 14-1921-D
EX. 12" W. CONTRACT NO. 14-4515-D
EX. 8" W. CONTRACT NO. 14-4515-D
EX. 12" W. CONTRACT NO. 14-4515-D
EX. 8" W. CONTRACT NO. 14-4515-D
EX. 8" W. CONTRACT NO. 14-4515-D
EX. 8



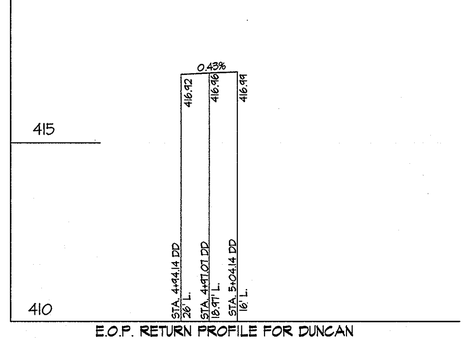
E.O.P. RETURN PROFILE FOR MAPLE HILL ROAD AND DUNCAN DRIVE



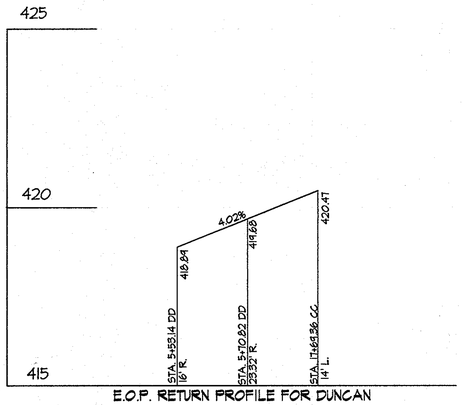
E.O.P. RETURN PROFILE FOR MAPLE HILL ROAD AND DUNCAN DRIVE



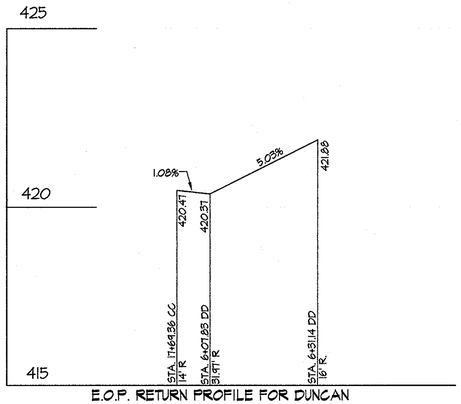
E.O.P. RETURN PROFILE FOR DUNCAN DRIVE AND ALLEY CC



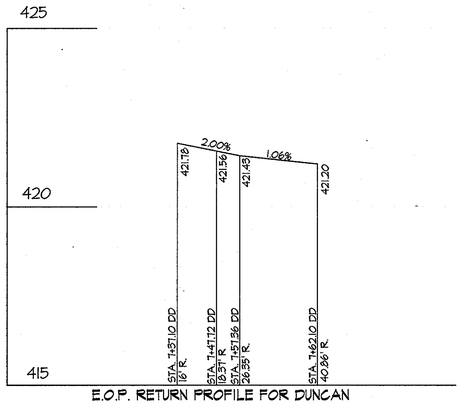
E.O.P. RETURN PROFILE FOR DUNCAN DRIVE AND ALLEY CC



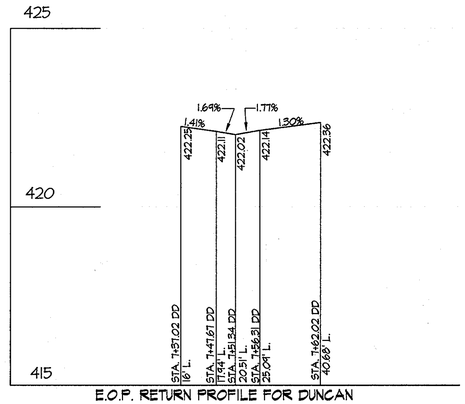
E.O.P. RETURN PROFILE FOR DUNCAN DRIVE AND CHARLES CROSSING



E.O.P. RETURN PROFILE FOR DUNCAN DRIVE AND CHARLES CROSSING



E.O.P. RETURN PROFILE FOR DUNCAN DRIVE AND FALLS RUN ROAD



E.O.P. RETURN PROFILE FOR DUNCAN DRIVE AND FALLS RUN ROAD

CURB RETURN PROFILES

SCALE: (H) 1" = 20'
(V) 1" = 2'

CC= CHARLES CROSSING
MH= MAPLE HILL ROAD
DD= DUNCAN DRIVE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 5-11-10

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 5/25/10

Chief, Development Engineering Division — Date 5/20/10

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

L:\CADD\DRAWINGS\03006\Phase V\Finals\05-CURB PROF.dwg | DES. dds | DRN. dds | CHK. [illegible]

DATE	REVISION	BY	APP'R.

OWNER
BA WATERLOO, LLC.
c/o BOZZUTO HOMES, INC.
7850 WALKER DRIVE, SUITE 400
GREENBELT, MARYLAND 20770
ATTN: DUNCAN SLIDELL
301-623-1525

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 14931 EXPIRATION DATE: MAY 21, 2012

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

CURB RETURN PROFILES

SHIPLEY'S GRANT
PHASE V
Lots C-308, D-5 thru D-62 and Open Space Lots D-63 thru D-68
Common Open Spcae Lots D-69 thru D-72 and Non-buildable Parcels D-73 thru D-80
AND PHASE I
Open Space Lot C-64

ELECTION DISTRICT No. 1 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	R-A-15	08002
DATE	TAX MAP - GRID	SHEET
MAY, 2010	37-1&2	12 OF 12

F-10-048