SITE DEVELOPMENT PLAN
DORSEY WOODS
PARCELS 134 & 528
6th ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

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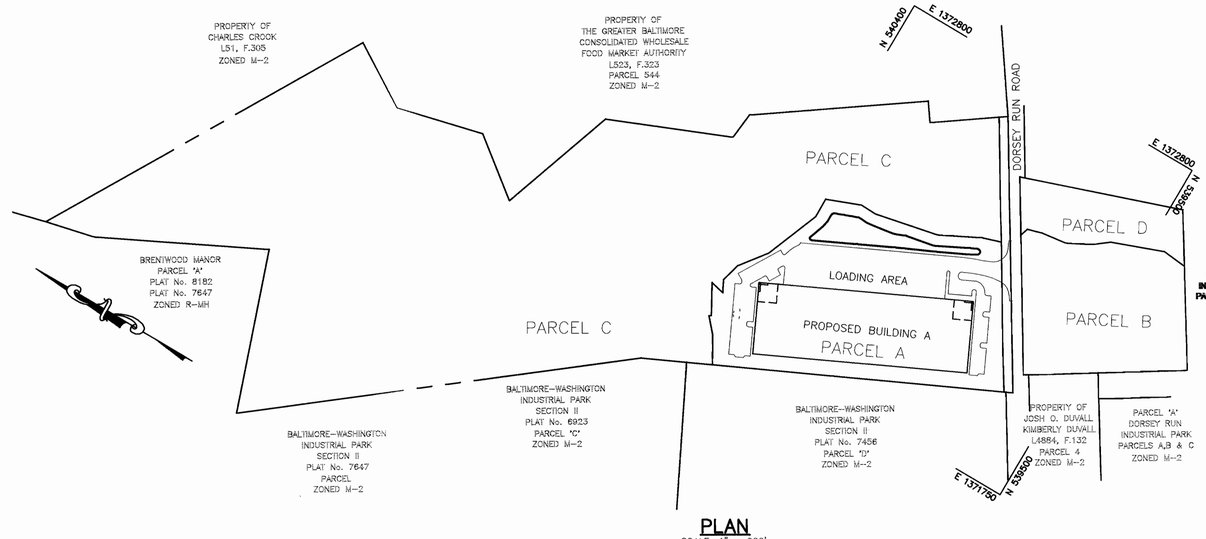
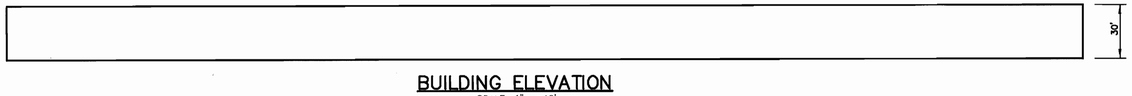
GENERAL NOTES

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 ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). ALL STREET AND REGULATORY SIGNS SHALL BE IN PLACE PRIOR TO THE PLACEMENT OF ANY ASPHALT.
5. ALL PLAN DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.
6. THE EXISTING TOPOGRAPHY IS TAKEN FROM FIELD RUN SURVEY WITH MAXIMUM TWO FOOT CONTOUR INTERVALS PREPARED BY PHR&A DATED OCTOBER 2001.
7. THE COORDINATES SHOWN HEREON ARE BASED UPON THE HOWARD COUNTY GEODETIC CONTROL WHICH IS BASED UPON THE MARYLAND STATE PLANE COORDINATE SYSTEM. HOWARD COUNTY MONUMENT NOS. 43AA AND 48AA WERE USED FOR THIS PROJECT.
8. WATER IS PUBLIC. CONTRACT NO. 454-W
9. SEWER IS PUBLIC. SEWER DRAINAGE AREA: PATAPSCO CONTRACT NO. 487-S
10. THE STORMWATER MANAGEMENT FACILITIES PROPOSED FOR THIS SITE ARE A PRIVATELY OWNED AND MAINTAINED EXTENDED DETENTION POND, GRASS CHANNEL, AND BIORETENTION BMP.
11. APPROXIMATE LOCATION OF EXISTING UTILITIES ARE SHOWN. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THE EXISTING UTILITIES AND MAINTAIN UNINTERRUPTED SERVICE. ANY DAMAGE INCURRED DUE TO CONTRACTOR'S OPERATION SHALL BE REPAIRED IMMEDIATELY AT THE CONTRACTOR'S EXPENSE. EXISTING UTILITIES ARE SHOWN BASED ON THE BEST AVAILABLE INFORMATION.
12. THE 100- YEAR FLOODPLAIN IS PER DORSEY RUN FLOODPLAIN STUDY (HOWARD COUNTY MAP NO. 20-44)
13. THE WETLANDS DELINEATION STUDY FOR THIS PROJECT WAS PREPARED BY PHR&A DATED FEBRUARY 2002.
14. THE TRAFFIC STUDY WAS PREPARED BY THE TRAFFIC GROUP INC. DATED FEBRUARY 2002.
15. THE GEOTECHNICAL STUDY FOR STORMWATER MANAGEMENT FOR THIS PROJECT WAS PREPARED BY SPECIALIZED ENGINEERING DATED FEBRUARY 2002.
16. THE BOUNDARY SURVEY FOR THIS PROJECT WAS PREPARED BY (PHR&A) DATED FEBRUARY 2002.
17. SUBJECT PROPERTY ZONED M-2 PER 10-18-93 COMPREHENSIVE ZONING PLAN.
18. ALL ELEVATIONS SHOWN ARE BASED ON THE U.S.C. AND G.S. MEAN SEA LEVEL DATUM, 1929.
19. SEE DEPARTMENT OF PLANNING AND ZONING FILE NO'S. F-02-119, WP-02-84.
20. THE CONTRACTOR SHALL VERIFY EXISTING UTILITIES AT LEAST FIVE DAYS BEFORE STARTING WORK SHOWN ON THESE DRAWINGS.
21. CONTRACTOR IS SOLELY RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, PROCEDURES, AND SAFETY PRECAUTIONS AND PROGRAMS.
22. NO PIPE SHALL BE LAID UNTIL LINES OF EXCAVATION HAVE BEEN BROUGHT WITHIN 6" OF FINISHED GRADE.
23. ALL INLETS SHALL BE CONSTRUCTED IN ACCORDANCE WITH HOWARD COUNTY STANDARDS.
24. ALL PIPE ELEVATIONS SHOWN ARE INVERT ⌒ ELEVATIONS.
25. STORM DRAIN TRENCHES WITHIN ROAD RIGHT OF WAY SHALL BE BACKFILLED AND COMPACTED IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL, VOLUME IV, i.e., STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION, LATEST AMENDMENTS.
26. PROFILE STATIONS SHALL BE ADJUSTED AS NECESSARY TO CONFORM TO PLAN DIMENSIONS.
27. ALL FILL AREAS WITHIN ROADWAY AND UNDER STRUCTURES TO BE COMPACTED TO A MINIMUM OF 95% COMPACTION OF AASHTO T99.
28. THIS DEVELOPMENT COMPLIES WITH THE REQUIREMENTS OF 16.1200 OF HOWARD COUNTY CODES FOR FOREST CONSERVATION THROUGH THE ESTABLISHMENT OF A FOREST RETENTION EASEMENT THAT ENCOMPASSES 6.853 AC. OF EXISTING FOREST ON F-02-119, PLAT NO. 15910 & 15911.
29. WP-02-84 IS A REQUEST TO WAIVE SECTION 16. 102 (F)--MERGER OF NON--RESIDENTIAL PARCELS: WHERE TWO OR MORE NON--RESIDENTIAL PARCELS THAT HAVE NOT BEEN PART OF A PREVIOUSLY RECORDED SUBDIVISION ARE TO BE MERGED AND INTERIOR LOT LINES ARE TO BE ELIMINATED, NEITHER A SKETCH OR PRELIMINARY PLAN IS REQUIRED AS LONG AS NO PUBLIC ROAD IMPROVEMENTS ARE REQUIRED. THE INITIAL SUBDIVISION MAY BE A FINAL PLAN WAS APPROVED ON APRIL 15, 2002 WITH CONDITIONS.
30. NO CLEARING, GRADING OR CONSTRUCTION IS PERMITTED WITHIN THE WETLANDS, STREAMS OR THEIR BUFFERS AND FOREST CONSERVATION AREAS.
31. FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING HAS BEEN POSTED AS PART OF THE DPW DEVELOPERS AND AGREEMENT IN THE AMOUNT OF $14,670 FOR 29 SHADE TREES, 21 EVERGREEN TREES, 6 ORNAMENTAL TREES, AND 64 SHRUBS.
32. A FEE-IN-LIEU PAYMENT WILL BE PAID BY DEVELOPER TO ADDRESS THE REQUIRED DORSEY RUN ROAD IMPROVEMENTS. THE FEE WILL BE APPLIED TO CAPITAL PROJECT J-4182.
33. THIS STORMWATER MANAGEMENT FACILITY IS DESIGNED FOR IMPERVIOUS AREAS AS SHOWN ON THE SITE PLAN. NO ADDITIONAL INCREASE AREAS IS ALLOWED WITHOUT ADEQUATE STORMWATER QUALITY MANAGEMENT BEING ADDRESSED.



PLAN
SCALE: 1" = 200'

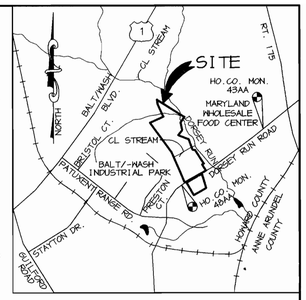


BUILDING ELEVATION
SCALE: 1" = 40'

BENCH MARK

HO. CO. SURVEY CONTROL STATION: 48AA
N 539,314.900 E 1,371,539.251
ELEVATION: 240.809'
46' NORTH OF DORSEY RUN ROAD AND 42.9' SOUTHEAST OF FENCED LOT, WEST CORNER.

HO. CO. SURVEY CONTROL STATION: 43HA
N 540,761.716 E 1,373,837.365
ELEVATION: 224.907'
70.5' FROM TOP WEST CORNER OF NORMAN GEIPE VAN LINE BLDG. HEADING TOWARD DORSEY RUN RD. AND 8.3' SOUTH OF DORSEY RUN RD. FACE OF CURB.



VICINITY MAP
SCALE: 1"=2000'

SITE TABULATION

SITE AREA-PARCEL A	7.489 ACRES
LIMIT OF DISTURBED AREA	7.5 ACRES
PRESENT ZONING	M-2
PROPOSED USE	OFFICE/ WAREHOUSE FACILITY (ONE STORY)
120,000 SF FLOOR AREA OFFICE 6,000 SF WAREHOUSE 114,000 SF	
PARKING SPACES REQUIRED	
OFFICE 3.3 SP/1000 SF	20 SPACES
WAREHOUSE 0.5 SP/1000 SF	57 SPACES
TOTAL	77 SPACES
PARKING SPACES PROVIDED	90 SPACES (INCLUDES 4 HC SPACES) ⚠

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

DIRECTOR — DATE 11/26/02

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 11/4/02

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 11/22/02

DATE	NO.	REVISION
1-7-03	⚠	REVISED SITE TABULATION

OWNER: MS. CHARLOTTE M. DUVALL AND MR. BRYAN M. DUVALL
8101 DORSEY RUN ROAD
JESSUP, MARYLAND 20794
410-799-7724

DEVELOPER: OPUS EAST LLC
2099 GAITHER ROAD, SUITE 101
ROCKVILLE, MD 20850
(301) 354-4444
ATTN: TIM HOGAN

PROJECT
DORSEY WOODS
PARCEL A, AN OFFICE-WAREHOUSE BUILDING

AREA TAX MAP 43 BLOCK 20 & TAX MAP 48 BLOCK 2
PARCEL A ZONED M-2
6th ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE
TITLE SHEET

Patton Harris Rust & Associates, pc
Engineers. Surveyors. Planners. Landscape Architects.
PHR+A
8818 Centre Park Drive
Columbia, MD 21045
T 410.997.8900
F 410.997.9282

10.15.02
DATE

STATE OF MARYLAND — CHRISTOPHER J. REID — No. 19949 — REGISTERED PROFESSIONAL ENGINEER

CHRISTOPHER J. REID #19949

DESIGNED BY :	A.C.R
DRAWN BY :	DAM
CHECKED BY :	C.J.R.
PROJECT NO :	01284 C000COV.DWG
DATE :	OCTOBER 14, 2002
SCALE :	AS SHOWN
DRAWING NO.	1 OF 17

ADDRESS CHART

LOT NUMBER	STREET ADDRESS
	8100 DORSEY RUN ROAD

SUBDIVISION NAME			SECT./AREA		PARCEL
DORSEY WOODS			-		134 AND 528
PLAT # 15911	BLOCK # 2	ZONING M-2	TAX MAP NO. 48	ELECT. DIST. 6	CENSUS TRACT 6069.01
WATER CODE B02			SEWER CODE 3020000		

SDP-02-102

P:\project\01284\1-0\Engr\Plans\C000COV.dwg, SITE, 10/11/02 11:33:38 AM, HP750C(36).pc3, Arch D - 24 x 36 in. (landscape), 1:1

SWMF #1 SUMMARY CHART	
DRAINAGE AREA	6.7 Ac.
RE_V REQUIRED	0.68 Ac.
RE_V PROVIDED	0.7 Ac.
WQ_V REQUIRED	0.125 Ac.–Ft.
WQ_V PROVIDED	0.125 Ac.–Ft.
CP_V REQUIRED	0.65 Ac.–Ft.
CP_V PROVIDED	0.65 Ac.–Ft.

Rev IS PROVIDED VIA THE GRASS CHANNEL CREDIT.

WQ_V IS PROVIDED IN A BIORETENTION FACILTY.

CP_V IS PROVIDED IN A EXTENDED DETENTION POND.

Q_P AND Q_f ARE NOT REQUIRED FOR THIS SITE.

THE 100 YR. W.S.E. IS 179.09 WHICH PROVIDES 2 FEET OF FREEBOARD.

THE TOP OF DAM ELEV. IS 181.10.

LEGEND

EX.CONTOUR
PROP.CONTOUR
EX.TREELINE
PROP.TREELINE
PROP.SPOT ELEVATION
100 YEAR FLOODPLAIN
WETLANDS
P-2 PAVING
SIDEWALK
P-3 PAVING
LIGHT-ROADWAY/PARKING
LIGHT-FIELD
LIMIT OF WETLANDS
AREA NOT INCLUDED IN APPROVED CONDITIONAL USE

NOTES:

1. ALL RADII ARE 5' UNLESS OTHERWISE NOTED.
2. ALL DIMENSIONS ARE TO FACE OF CURB OR BUILDING UNLESS OTHERWISE NOTED.
3. ALL ON-SITE ROADS ARE PRIVATE.
4. ALL LIGHTING IS TO BE DIRECTED/REFLECTED AWAY FROM ADJACENT PUBLIC ROADS AND RESIDENTIALLY ZONED PROPERTIES, AND BE IN ACCORDANCE WITH SECTION 134 OF THE HOWARD COUNTY ZONING REGULATIONS.
5. * STD/REV – STANDARD TO REVERSE CURB TRANSITION.
6. SITE LIGHTS TO BE 175 WATT MH CUTOFF RECTILINEAR FIXTURE (COOPER) MOUNTED AT 20' ON A EMBEDED BRONZE FIBERGLASS POLE.

DAM CENTERLINE DATA

(1) N 540332.73, E 1372085.95		(9) – (10)	S 08° 52' 44" E, 43.37'
(1) – (2)	R=316.00', L=17.39'	(10) – (11)	R=244.65', L=32.16'
(2) – (3)	S 68° 10' 31" E, 28.60'	(11) – (12)	R=928.85', L=59.16'
(3) – (4)	R=116.00', L=54.50'	(12) – (13)	R=13679.71', L=49.59'
(4) – (5)	R=13.75', L=17.07"	(13) – (14)	R=123.23', L=36.00'
(5) – (6)	S 21° 17' 55" E, 61.31'	(14) – (15)	R=1267.21', L=58.50'
(6) – (7)	R=47.00', L=21.98'	(15) – (16)	R=1792.51' L=19.32'
(7) – (8)	N 04° 25' 46" E, 5.87'	(16) – (17)	R=31.14', L=18.46'
(8) – (9)	R=113.00', L=22.03'	(17) – (18)	R=15.22', L=23.80'
		(18)	N 539879.99, E 1372294.28

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

DIRECTOR	DATE 11/26/02
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 11/14/02
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 11/22/02

DATE	NO.	REVISION
1-7-03	2	REV. HC PARKING, ADDED FENCE, RAILING & STAIRS
01-03-03	1	ADDED 5' SIDEWALK, ADJUSTED BIO-RETENTION FACILITY

OWNER: MS. CHARLOTTE M. DUVALL AND MR. BRYAN M. DUVALL
8101 DORSEY RUN ROAD
JESSUP, MARYLAND 20794
410-799-7724

DEVELOPER: OPUS EAST LLC
2099 GAITHER ROAD, SUITE 101
ROCKVILLE, MD 20850
(301) 354-4444
ATTN: TIM HOGAN

PROJECT
DORSEY WOODS
PARCEL A, AN OFFICE–WAREHOUSE BUILDING

AREA TAX MAP 43 BLOCK 20 & TAX MAP 48 BLOCK 2
PARCEL A ZONED M-2
6th ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE
SITE DEVELOPMENT PLAN

Patton Harris Rust & Associates, pc
Engineers. Surveyors. Planners. Landscape Architects.
8818 Centre Park Drive
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T 410.997.8900
F 410.997.9282

10.15.02
DATE

STATE OF MARYLAND — CHRISTOPHER J. REID — NO. 19949 — REGISTERED PROFESSIONAL ENGINEER

CHRISTOPHER J. REID #19949

DESIGNED BY :	A.C.R
DRAWN BY :	DAM
CHECKED BY :	C.J.R.
PROJECT NO :	01284 C400SIT.DWG
DATE :	OCTOBER 14, 2002
SCALE :	1"= 40'
DRAWING NO.	2 OF 17

SDP-02-102

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PROFILE
SCALE :
HOR.-1"=50'
VERT.-1"=5'

PROFILE
SCALE :
HOR.-1"=50'
VERT.-1"=5'

PROFILE
SCALE :
HOR.-1"=50'
VERT.-1"=5'

PROFILE
SCALE :
HOR.-1"=50'
VERT.-1"=5'

WATER PROFILE
SCALE :
HOR.-1"=50'
VERT.-1"=5'

SEWER PROFILE
SCALE :
HOR.-1"=50'
VERT.-1"=5'

HC RAMP DETAIL
SCALE :
HOR.-1"=20'

HC RAMP DETAIL
SCALE :
HOR.-1"=20'

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

DIRECTOR — DATE 11/26/02

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 11/14/02

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 11/22/02

DATE	NO.	REVISION
1-7-04	1	REV. HC RAMP DETAIL

OWNER: MS. CHARLOTTE M. DUVALL AND MR. BRYAN M. DUVALL
8101 DORSEY RUN ROAD
JESSUP, MARYLAND 20794
410-799-7724

DEVELOPER OPUS EAST LLC
2099 GAITHER ROAD, SUITE 101
ROCKVILLE, MD 20850
(301) 354-4444
ATTN: TIM HOGAN

PROJECT
DORSEY WOODS
PARCEL A, AN OFFICE-WAREHOUSE BUILDING

AREA TAX MAP 43 BLOCK 20 & TAX MAP 48 BLOCK 2
PARCEL A ZONED M-2
6th ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE
PROFILES

Patton Harris Rust & Associates,pc
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10.15.02
DATE

STATE OF MARYLAND — CHRISTOPHER J. REID — NO. 19949 — REGISTERED PROFESSIONAL ENGINEER

CHRISTOPHER J. REID #19949

DESIGNED BY : A.C.R
DRAWN BY : DAM
CHECKED BY : C.J.R.
PROJECT NO : 01284 C900DET5.DWG
DATE : OCTOBER 14, 2002
SCALE : AS SHOWN
DRAWING NO. 8 OF 17

SDP-02-102

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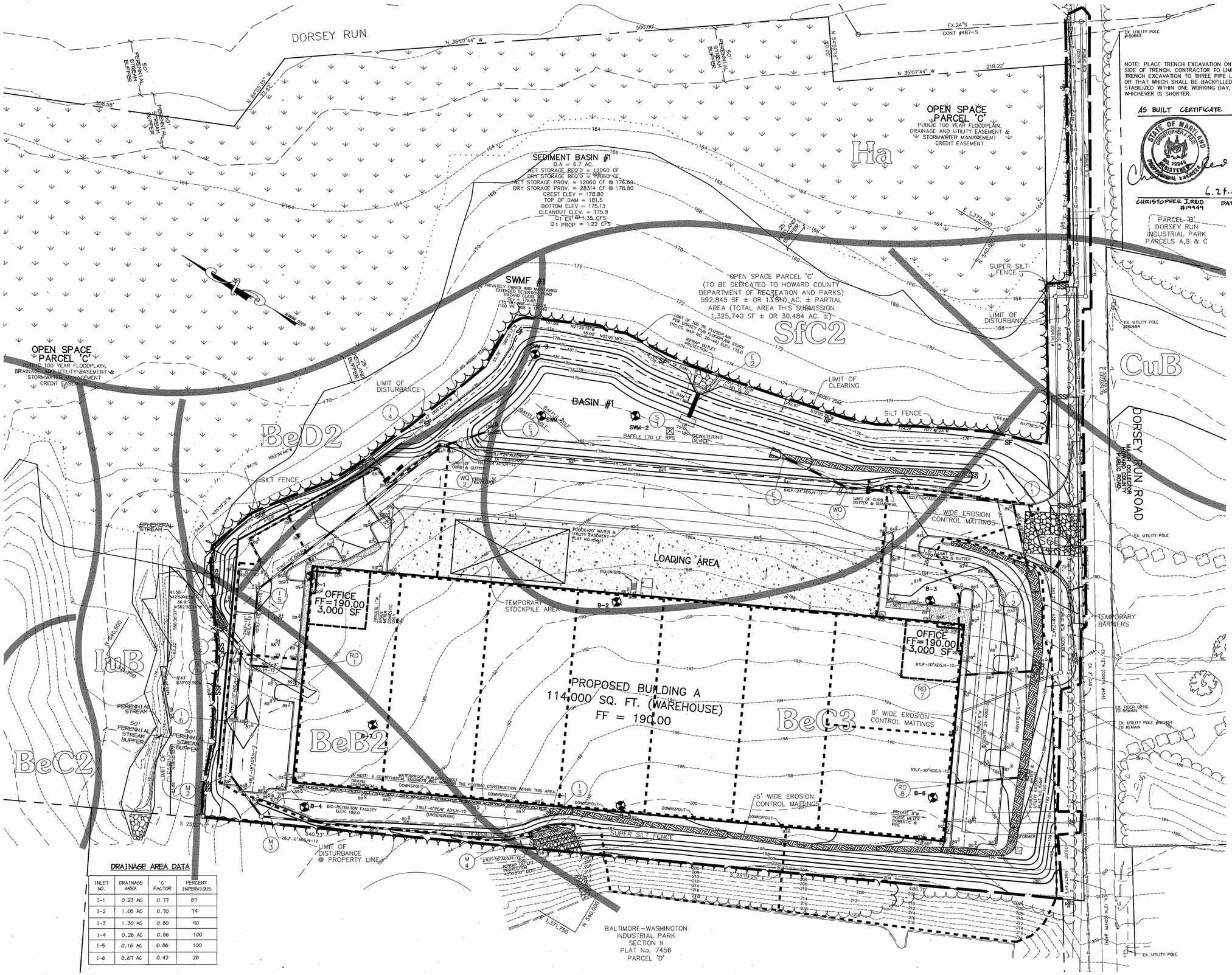

DRAINAGE AREA DATA

INLET NO.	DRAINAGE AREA	'C' FACTOR	PERCENT IMPERVIOUS
I-1	0.23 AC	0.77	87
I-2	1.05 AC	0.70	74
I-3	1.30 AC	0.80	90
I-4	0.26 AC	0.86	100
I-5	0.16 AC	0.86	100
I-6	0.67 AC	0.42	28

BY THE DEVELOPER :

I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

DEVELOPER — DATE 10-15-02
TIM HOGAN

BY THE ENGINEER :

I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION.

ENGINEER — DATE 10.15.02

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL.

NATURAL RESOURCES CONSERVATION SERVICE — DATE 11/13/02

THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

HOWARD SOIL CONSERVATION DISTRICT — DATE 11/13/02

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

DIRECTOR — DATE 11/26/02

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 11/14/02

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 11/22/02

DATE	NO.	REVISION

OWNER: MS. CHARLOTTE M. DUVALL AND MR. BRYAN M. DUVALL
8101 DORSEY RUN ROAD
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410-799-7724

DEVELOPER: OPUS EAST LLC
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(301) 354-4444
ATTN: TIM HOGAN

PROJECT
DORSEY WOODS
PARCEL A, AN OFFICE-WAREHOUSE BUILDING

AREA TAX MAP 43 BLOCK 20 & TAX MAP 48 BLOCK 2
PARCEL A ZONED M-2
6th ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE
DRAINAGE AREA MAP AND SEDIMENT CONTROL PLAN

Patton Harris Rust & Associates, pc
Engineers. Surveyors. Planners. Landscape Architects.
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Columbia, MD 21045
T 410.997.8900
F 410.997.9282

10 DATE

STATE OF MARYLAND CHRISTOPHER J. REID NO. 19949 PROFESSIONAL ENGINEER

CHRISTOPHER J. REID #19949

DESIGNED BY :	A.C.R
DRAWN BY :	DAM
CHECKED BY :	C.J.R.
PROJECT NO :	01284 C600ESC.DWG
DATE :	OCTOBER 14, 2002
SCALE :	1"= 40'
DRAWING NO.	3 OF 17

AS-BUILT- SDP-02-102

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MD-378 STANDARDS AND SPECIFICATIONS

SPECIFICATIONS

THESE SPECIFICATIONS ARE APPROPRIATE TO ALL PONDS WITHIN THE SCOPE OF THE STANDARD FOR PRACTICE MD-378. ALL REFERENCES TO ASTM AND AASHTO SPECIFICATIONS APPLY TO THE MOST RECENT VERSION.

SITE PREPARATION

AREAS DESIGNATED FOR BORROW AREAS, EMBANKMENT, AND STRUCTURAL WORKS SHALL BE CLEARED, GRUBBED AND STRIPPED OF TOPSOIL. ALL TREES, VEGETATION, ROOTS AND OTHER OBJECTIONABLE MATERIAL SHALL BE REMOVED. CHANNEL BANKS AND SHARP BREAKS SHALL BE SLOPED TO NO STEEPER THAN 1:1. ALL TREES SHALL BE CLEARED AND GRUBBED WITHIN 15 FEET OF THE TOE OF THE EMBANKMENT.

AREAS TO BE COVERED BY THE RESERVOIR WILL BE CLEARED OF ALL TREES, BRUSH, LOGS, FENCES, RUBBISH AND OTHER OBJECTIONABLE MATERIAL UNLESS OTHERWISE DESIGNATED ON THE PLANS. TREES, BRUSH AND STUMPS SHALL BE CUT APPROXIMATELY LEVEL WITH THE GROUND SURFACE. FOR DRY STORMWATER MANAGEMENT PONDS, A MINIMUM OF A 25 FOOT RADIUS AROUND THE INLET STRUCTURE SHALL BE CLEARED.

ALL CLEARED AND GRUBBED MATERIAL SHALL BE DISPOSED OF OUTSIDE AND BELOW THE LIMITS OF THE DAM AND RESERVOIR AS DIRECTED BY THE OWNER OR HIS REPRESENTATIVE. WHEN SPECIFIED, A SUFFICIENT QUANTITY OF TOPSOIL WILL BE STOCKPILED IN A SUITABLE LOCATION FOR USE ON THE EMBANKMENT AND OTHER DESIGNATED AREAS.

EARTH FILL

MATERIAL – THE FILL MATERIAL SHALL BE TAKEN FROM APPROVED DESIGNATED BORROW AREAS. IT SHALL BE FREE OF ROOTS, STUMPS, WOOD, RUBBISH, STONES GREATER THAN 6", FROZEN OR OTHER OBJECTIONABLE MATERIALS. FILL MATERIAL FOR THE CENTER OF THE EMBANKMENT, AND CUT OFF TRENCH SHALL CONFORM TO UNIFIED SOIL CLASSIFICATION GC, SC, CH, OR CL AND MUST HAVE AT LEAST 30% PASSING THE #200 SIEVE. CONSIDERATION MAY BE GIVEN TO THE USE OF OTHER MATERIALS IN THE EMBANKMENT IF DESIGNED BY A GEOTECHNICAL ENGINEER. SUCH SPECIAL DESIGNS MUST HAVE CONSTRUCTION SUPERVISED BY A GEOTECHNICAL ENGINEER.

PLACEMENT – AREAS ON WHICH FILL IS TO BE PLACED SHALL BE SCARIFIED PRIOR TO PLACEMENT OF FILL. FILL MATERIALS SHALL BE PLACED IN MAXIMUM 8-INCH THICK (BEFORE COMPACTION) LAYERS WHICH ARE TO BE CONTINUOUS OVER THE ENTIRE LENGTH OF THE FILL. THE MOST PERMEABLE BORROW MATERIAL SHALL BE PLACED IN THE DOWNSTREAM PORTIONS OF THE EMBANKMENT. THE PRINCIPAL SPILLWAY MUST BE INSTALLED CONCURRENTLY WITH FILL PLACEMENT AND NOT EXCAVATED INTO THE EMBANKMENT.

COMPACTION – THE MOVEMENT OF THE HAULING AND SPREADING EQUIPMENT OVER THE FILL SHALL BE CONTROLLED SO THAT THE ENTIRE SURFACE OF EACH LIFT SHALL BE TRAVERSED BY NOT LESS THAN ONE TREAD TRACK OF THE EQUIPMENT OR COMPACTION SHALL BE ACHIEVED BY A MINIMUM OF FOUR COMPLETE PASSES OF A SHEEPSFOOT, RUBBER TIRE OR VIBRATORY ROLLER. FILL MATERIAL SHALL CONTAIN SUFFICIENT MOISTURE SUCH THAT THE REQUIRED DEGREE OF COMPACTION WILL BE OBTAINED WITH THE EQUIPMENT USED. THE FILL MATERIAL SHALL CONTAIN SUFFICIENT MOISTURE SO THAT IF FORMED INTO A BALL IT WILL NOT CRUMBLE YET NOT BE SO WET THAT WATER CAN BE SQUEEZED OUT.

WHEN REQUIRED BY THE REVIEWING AGENCY THE MIMIMUM REQUIRED DENSITY SHALL NOT BE ESS THAN 95% OF MAXIMUM DRY DENSITY WITH A MOISTURE CONTENT WITHIN +/- 2% OF THE OPTIMUM. EACH LAYER OF FILL SHALL BE COMPACTED AS NECESSARY TO OBTAIN THAT DENSITY, AND IS TO BE CERTIFIED BY THE ENGINEER AT THE TIME OF CONSTRUCTION. ALL COMPACTION IS TO BE DETERMINED BY AASHTO METHOD T-99 (STANDARD PROCTOR).

CUTOFF TRENCH – THE CUTOFF TRENCH SHALL BE EXCAVATED INTO IMPERVIOUS MATERIAL ALONG OR PARALLEL TO THE CENTERLINE OF THE EMBANKMENT AS SHOWN ON THE PLANS. THE BOTTOM WIDTH OF THE TRENCH SHALL BE GOVERNED BY THE EQUIPMENT USED FOR EXCAVATION, WITH THE MINIMUM WIDTH BEING FOUR FEET. THE DEPTH SHALL BE AT LEAST FOUR FEET BELOW EXISTING GRADE OR AS SHOWN ON THE PLANS. THE SIDE SLOPES OF THE TRENCH SHALL BE 1 TO 1 OR FLATTER. THE BACKFILL SHALL COMPACTED WITH CONSTRUCTION EQUIPMENT, ROLLERS, OR HAND TAMPERS TO ASSURE MAXIMUM DENSITY AND MAXIMUM PERMEABILITY.

EMBANKMENT CORE – THE CORE SHALL BE PARALLEL TO THE CENTERLINE OF THE EMBANKMENT AS SHOWN ON THE PLANS. THE TOP WIDTH OF THE CORE SHALL BE A MINIMUM OF FOUR FEET. THE HEIGHT SHALL EXTEND UP TO AT LEAST THE 10 YEAR WATER ELEVATION OR AS SHOWN ON THE PLANS. THE SIDE SLOPES SHALL BE 1 TO 1 OR FLATTER. THE CORE SHALL BE COMPACTED WITH CONSTRUCTION EQUIPMENT, ROLLERS, OR HAND TAMPERS TO ASSURE MAXIMUM DENSITY AND MINIMUM PERMEABILITY. IN ADDITION, THE CORE SHALL BE PLACED CONCURRENTLY WITH THE OUTER SHELL OF THE EMBANKMENT.

STRUCTURE BACKFILL

BACKFILL ADJACENT TO PIPES OR STRUCTURES SHALL BE OF THE TYPE AND QUALITY CONFORMING TO THAT SPECIFIED FOR THE ADJOINING FILL MATERIAL. THE FILL SHALL BE PLACED IN HORIZONTAL LAYERS NOT TO EXCEED FOUR INCHES IN THICKNESS AND COMPACTED BY HAND TAMPERS OR OTHER MANUALLY DIRECTED COMPACTION EQUIPMENT. THE MATERIAL NEEDS TO FILL COMPLETELY ALL SPACES UNDER AND ADJACENT TO THE PIPE. AT NO TIME DURING THE BACKFILLING OPERATION SHALL DRIVEN EQUIPMENT BE ALLOWED TO OPERATE CLOSER THAN FOUR FEET, MEASURED HORIZONTALLY, TO ANY PART OF A STRUCTURE. UNDER NO CIRCUMSTANCES SHALL EQUIPMENT BE DRIVEN OVER ANY PART OF A CONCRETE STRUCTURE OR PIPE, UNLESS THERE IS A COMPACTED FILL OF 24" OR GREATER OVER THE STRUCTURE OR PIPE.

STRUCTURE BACKFILL MAY BE FLOWABLE FILL MEETING THE REQUIREMENTS OF MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, SECTION 313 AS MODIFIED. THE MIXTURE SHALL HAVE A 100-200 PSI; 28 DAY UNCONFINED COMPRESSIVE STRENGTH. THE FLOWABLE FILL SHALL HAVE A MINIMUM PH OF 4.0 AND A MINIMUM RESISTIVITY OF 2000 OHM-CM. MATERIAL SHALL BE PLACED SUCH THAT A MINIMUM OF 6" (MEASURED PERPENDICULAR TO THE PIPE) OF FLOWABLE FILL SHALL BE UNDER (BEDDING), OVER AND, ON THE SIDES OF THE PIPE. IT ONLY NEEDS TO EXTEND UP TO THE SPRING LINE FOR RIGID CONDUITS. AVERAGE SLUMP OF THE FILL SHALL BE 7" TO ASSURE FLOWABILITY OF THE MATERIAL. ADEQUATE MEASURES SHALL BE TAKEN (SAND BAGS, ETC.) TO PREVENT FLOATING THE PIPE. WHEN USING FLOWABLE FILL, ALL METAL PIPE SHALL BE BITUMINOUS COATED. ANY ADJOINIG SOIL FILL SHALL BE PLACED IN HORIZONTAL LAYERS NOT TO EXCEED FOUR INCHED IN THICKNESS AND COMPACTED BY HAND TAMPERS OR OTHER MANUALLY DIRECTED COMPACTION EQUIPMENT. THE MATERIAL SHALL COMPLETELY FILL ALL VOIDS ADJACENT TO THE FLOWABLE FILL ZONE. AT NO TIME DURING THE BACKFILLING OPERATION SHALL DRIVEN EQUIPMENT BE ALLOWED TO OPERATE CLOSER THAN FOUR FEET, MEASURED HORIZONTALLY, TO ANY PART OF A STRUCTURE. UNDER NO CIRCUMSTANCES SHALL EQUIPMENT BE DRIVEN OVER ANY PART OF A STRUCTURE OR PIPE UNLESS THERE IS A COMPACTED FILL OF 24" OR GREATER OVER THE STRUCTURE OR PIPE. BACKFILL MATERIAL OUTSIDE THE STRUCTURAL BACKFILL (FLOWABLE FILL) ZONE SHALL BE OF THE TYPE AND QUALITY CONFORMING TO THAT SPECIFIED FOR THE CORE OF THE EMBANKMENT OR OTHER EMBANKMENT MATERIALS.

PIPE CONDUITS

ALL PIPES SHALL BE CIRCULAR IN CROSS SECTION.

CORRUGATED METAL PIPE – ALL OF THE FOLLOWING CRITERIA SHALL APPLY FOR CORRUGATED METAL PIPE:

1. MATERIALS – (POLYMER COATED STEEL PIPE) – STEEL PIPES WITH POLYMERIC COATINGS SHALL HAVE A MINIMUM COATING THICKNESS OF 0.01 INCH (10MIL) ON BOTH SIDES OF THE PIPE. THIS PIPE AND ITS APPURTENANCES SHALL CONFORM TO THE REQUIREMENTS OF AASHTO SPECIFICATIONS M-245 & M-246 WITH WATERTIGHT COUPLING BANDS OR FLANGES.

   MATERIALS – (ALUMINUM COATED STEEL PIPE) – THIS PIPE AND ITS APPURTENANCES SHALL CONFORM TO THE REQUIREMENTS OF AASHTO SPECIFICATIONS M-274 WITH WATERTIGHT COUPLING BANDS OR FLANGES. ALUMINUM COATED STEEL PIPE, WHEN USED WITH FLOWABLE FILL OR WHEN SOIL AND/OR WATER CONDITIONS WARRANT THE NEED FOR INCREASED DURABILITY, SHALL BE FULLY BITUMINOUS COATED PER REQUIREMENTS OF AASHTO SPECIFICATION M-190 TYPE A. ANY ALUMINUM COATING DAMAGED OR OTHERWISE REMOVED SHALL BE REPLACED WITH COLD APPLIED BITUMINOUS COATING COMPOUND. ALUMINUM SURFACES THAT ARE TO BE IN CONTACT WITH CONCRETE SHALL BE PAINTED WITH ONE COAT OF ZINC CHROMATE PRIMER OR TWO COATS OF ASPHALT.

   MATERIALS – (ALUMINUM PIPE) – THIS PIPE AND ITS APPURTENANCES SHALL CONFORM TO TO THE REQUIREMENTS OF AASHTO SPECIFICATIONS M-196 OR M-211 WITH WATERTIGHT COUPLING BANDS OR FLANGES. ALUMINUM PIPE, WHEN USED WITH FLOWABLE FILL OR WHEN SOIL AND/OR WATER CONDITIONS WARRANT THE NEED FOR INCREASED DURABILITY, SHALL BE FULLY BITUMINOUS COATED PER REQUIREMENTS OF AASHTO SPECIFICATION M-190 TYPE A. ALUMINUM SURFACES THAT ARE TO BE IN CONTACT WITH CONCRETE SHALL BE PAINTED WITH ONE COAT OF ZINC CHROMATE PRIMER OR TWO COATS OF ASPHALT. HOT DIP GALVANIZED BOLTS MAT BE USED FOR CONNECTIONS. THE PH OF THE SURROUNDING SOILS SHALL BE BETWWEN 4 AND 9.

2. COUPLING BANDS, ANTI-SEEP COLLARS, END SECTIONS, ETC., MUST BE COMPOSED OF THE SAME MATERIAL AND COTED AS THE PIPE. METALS MUST BE INSULATED FROM DISSIMILAR MATERIALS WITH USE OF RUBBER OR PLASTIC INSULATING MATERIALS AT AT LEAST 24 MILS IN THICKNESS.

3. CONNECTIONS – ALL CONNECTIONS WITH PIPES MUST BE COMPLETELY WATERTIGHT. THE DRAIN PIPE OR BARREL CONNECTION TO THE RISER SHALL BE WELDED ALL AROUND WHEN THE PIPE AND RISER ARE METAL. ANTI-SEEP COLLARS SHALL BE CONNECTED TO THE PIPE IN SUCH A MANNER AS TO BE COMPLETELY WATERTIGHT. DIMPLE BANDS ARE NOT CONSIDERED TO BE WATERTIGHT.

   ALL CONNECTIONS SHALL USE A RUBBER OR NEOPRENE GASKET WHEN JOINING PIPE SECTIONS. THE END OF EACH PIPE SHALL BE RE-ROLLED AN ADEQUATE NUMBER OF CORRUGATIONS TO ACCOMMODATE THE BAND WIDTH. THE FOLLOWING TYPE CONNECTIONS ARE ACCEPTABLE FOR PIPES LESS THAN 24" IN DIAMETER; FLANGES ON BOTH ENDS OF THE PIPE WITH A CIRCULAR 3/8 INCH CLOSED CELL NEOPRENE GASKET, PREPUNCHED TO THE FLANGE BOLT CIRCLE, SANDWICHED BETWEEN ADJACENT FLANGES; A 12 INCH WIDE STANDARD LAP TYPE BAND WITH 12 INCH WIDE BY 3/8 INCH THICK CLOSED CELL CIRCULAR NEOPRENE GASKET; AND A 12 INCH WIDE HUGGER TYPE BAND WITH O-RING GASKETS HAVING A MINIMUM DIAMETER OF 1/2 INCH GREATER THAN THE CORRUGATION DEPTH. PIPES 24 INCHES IN DIAMETER AND LARGER SHALL BE CONNECTED BY A 24 INCH LONG ANNULAR CORRUGATED BAND USING A MINIMUM OF 4 (FOUR) RODS AND LUGS, 2 ON EACH CONNECTING PIPE ENDS. A 24 INCH WIDE BY 3/8 INCH THICK CLOSED CELL CIRCULAR NEOPRENE GASKET WILL BE INSTALLED WITH 12 INCH ON THE END OF EACH PIPE. FLANGED JOINTS WITH 3/8 INCH CLOSED CELL GASKETS THE FULL WIDTH OF THE FLANGE IS ALSO ACCEPTABLE.

   HELICALLY CORRUGATED PIPE SHALL HAVE EITHER CONTINUOUSLY WELDED SEAMS OR HAVE LOCK SEAMS WITH INTERNAL CAULKING OR A NEOPRENE BEAD.

4. BEDDING – THE PIPE SHALL BE FIRMLY AND UNIFORMLY BEDDED THROUGHOUT ITS ENTIRE LENGTH. WHERE ROCK OR SOFT, SPONGY OR OTHER UNSTABLE SOIL IS ENCOUNTERED, ALL SUCH MATERIAL SHALL BE REMOVED AND REPLACED WITH SUITABLE EARTH COMPACTED TO PROVIDE ADEQUATE SUPPORT.

5. BACKFILLING SHALL CONFORM TO "STRUCTURE BACKFILL."

6. OTHER DETAILS (ANTI-SEEP COLLARS, VALVES, ETC.) SHALL BE AS SHOWN ON THE DRAWINGS.

REINFORCED CONCRETE PIPE – ALL OF THE FOLLOWING CRITERIA SHALL APPLY FOR REINFORCED CONCRETE PIPE:

1. MATERIALS – REINFORCED CONCRETE PIPE SHALL HAVE BELL AND SPIGOT JOINTS WITH RUBBER GASKETS AND SHALL EQUAL OR EXCEED ASTM DESIGNATION C-361.

2. BEDDING – ALL REINFORCED CONCRETE PIPE CONDUITS SHALL BE LAID IN A CONCRETE BEDDING/CRADLE FOR THEIR ENTIRE LENGTH. THIS BEDDING/CRADLE SHALL CONSIST OF HIGH SLUMP CONCRETE PLACED UNDER THE PIPE AND UP THE SIDE OF THE PIPE AT LEAST 50% OF ITS OUTSIDE DIAMETER WITH A MINIMUM THICKNESS OF 6 INCHES. WHERE A CONCRETE CRADLE IS NOT NEEDED FOR STRUCTURAL REASONS, FLOWABLE FILL MAY BE USED AS DESCRIBED IN THE "STRUCTURE BACKFILL" SECTION OF THIS STANARD. GRAVEL BEDDING IS NOT PERMITTED.

3. LAYING PIPE – BELL AND SPIGOT PIPE SHALL BE PLACED WITH THE BELL END UPSTREAM. JOINTS SHALL BE MADE IN ACCORDANCE WITH RECOMMENDATIONS OF THE MANUFACTURER OF THE MATERIAL. AFTER THE JOINTS ARE SEALED FOR THE ENTIRE LINE, THE BEDDING SHALL BE PLACED SO THAT ALL SPACES UNDER THE PIPE ARE FILLED. CARE SHALL BE EXERCISED TO PREVENT ANY DEVIATION FROM THE ORIGINAL LINE AND GRADE OF THE PIPE. THE FIRST JOINT MUST BE LOCATED WITHIN 4 FEET FROM THE RISER.

4. BACKFILLING SHALL CONFORM TO "STRUCTURE BACKFILL."

5. OTHER DETAILS (ANTI-SEEP COLLARS, VALVES, ETC.) SHALL BE AS SHOWN ON THE DRAWINGS.

PLASTIC PIPE – THE FOLLOWING CRITERIA SHALL APPLY FOR PIPE:

1. MATERIALS – PVC PIPE SHALL BE PVC-1120 OR PVC-1220 CONFORMING TO ASTM D-1785 OR ASTM D-2241. CORRUGATED HIGH DENSITY POLYETHYLENE (HDPE) PIPE, COUPLINGS AND FITTINGS SHALL CONFORM TO THE FOLLOWING: 4 – 10 INCH PIPE SHALL MEET THE REQUIREMENTS OF AASHTO M252 TYPE S, AND 12" THROUGH 24" SHALL MEET THE REQUIREMENTS OF AASHTO M294 TYPE S.

2. JOINTS AND CONNECTIONS TO ANTI-SEEP COLLARS SHALL BE COMPLETELY WATERTIGHT.

3. BEDDING – THE PIPE SHALL BE FIRMLY AND UNIFORMLY BEDDED THROUGHOUT ITS ENTIRE LENGTH. WHERE ROCK OR SOFT, SPONGY OR OTHER UNSTABLE SOIL IS ENCOUNTERED, ALL SUCH MATERIAL SHALL BE REMOVED AND REPLACED WITH SUITABLE EARTH COMPACTED TO PROVIDE ADEQUATE SUPPORT.

4. BACKFILLING SHALL CONFORM TO STRUCTURE "BACKFILL".

5. OTHER DETAILS (ANTI-SEEP COLLARS, VALVES, ETC.) SHALL BE AS SHOWN ON THE DRAWINGS.

CONCRETE

CONCRETE SHALL MEET THE REQUIREMENTS OF MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, SECTION 414, MIX NO. 3.

ROCK RIPRAP

ROCK RIPRAP SHALL MEET THE REQUIREMENTS OF MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, SECTION 311.

GEOTEXTILE SHALL BE PLACED UNDER ALL RIPRAP AND SHALL MEET THE REQUIREMENTS OF MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, SECTION 921.09, CLASS C.

CARE OF WATER DURING CONSTRUCTION

ALL WORK ON PERMANENT STRUCTURES SHALL BE CARRIED OUT IN AREAS FREE FROM WATER. THE CONTRACTOR SHALL CONSTRUCT AND MAINTAIN ALL TEMPORARY DIKES, LEVEES, COFFERDAMS, DRAINAGE CHANNELS, AND STREAM DIVERSIONS NECESSARY TO PROTECT THE AREAS TO BE OCCUPIED BY THE PERMANENT WORKS. THE CONTRACTOR SHALL ALSO FURNISH, INSTALL, OPERATE, AND MAINTAIN ALL NECESSARY PUMPING AND OTHER EQUIPMENT REQUIRED FOR REMOVAL OF WATER FROM THE VARIOUS PARTS OF THE WORK AND FOR MAINTAINING THE EXCAVATIONS, FOUNDATION, AND OTHER PARTS OF THE WORK FREE FROM WATER AS REQUIRED OR DIRECTED BY THE ENGINEER FOR CONSTRUCTING EACH PART OF THE WORK. AFTER HAVING SERVED THEIR PURPOSE, ALL TEMPORARY PROTECTIVE WORKS SHALL BE REMOVED OR LEVELED AND GRADED TO THE EXTENT REQUIRED TO PREVENT OBSTRUCTION IN ANY DEGREE WHATSOEVER OF THE FLOW OF WATER TO THE SPILLWAY OR OUTLET WORKS AND SO AS NOT TO INTERFERE IN ANY WAY WITH THE OPERATION OR MAINTENANCE OF THE STRUCTURE. STREAM DIVERSIONS SHALL BE MAINTAINED UNTIL THE FULL FLOW CAN BE PASSED THROUGH THE PERMANENT WORKS. THE REMOVAL OF WATER FROM THE REQUIRED EXCAVATION AND THE FOUNDATION SHALL BE ACCOMPLISHED IN A MANNER AND TO THE EXTENT THAT WILL MAINTAIN STABILITY OF THE EXCAVATED SLOPES AND BOTTOM OF REQUIRED EXCAVATIONS AND WILL ALLOW SATISFACTORY PERFORMANCE OF ALL CONSTRUCTION OPERATIONS. DURING THE PLACING AND COMPACTING OF MATERIAL IN REQUIRED EXCAVATIONS, THE WATER LEVEL AT THE LOCATIONS BEING REFILLED SHALL BE MAINTAINED BELOW THE BOTTOM OF THE EXCAVATION AT SUCH LOCATIONS WHICH MAY REQUIRE DRAINING THE WATER TO SUMPS FROM WHICH THE WATER SHALL BE PUMPED.

STABILIZATION

ALL BORROW AREAS SHALL BE GRADED TO PROVIDE PROPER DRAINAGE AND LEFT IN A SIGHTLY CONDITION. ALL EXPOSED SURFACES OF THE EMBANKMENT, SPILLWAY, SPOIL AND BORROW AREAS, AND BERMS SHALL BE STABILIZED BY SEEDING, LIMING, FERTILIZING AND MULCHING IN ACCORDANCE WITH THE NATURAL RESOURCES CONSERVATION SERVICE STANDARDS AND SPECIFICATIONS FOR CRITICAL AREA PLANTING (MD-342) OR AS SHOWN ON THE ACCOMPANYING DRAWINGS.

EROSION AND SEDIMENT CONTROL

CONSTRUCTION OPERATIONS WILL BE CARRIED OUT IN SUCH A MANNER THAT EROSION WILL BE CONTROLLED AND WATER AND AIR POLLUTION MINIMIZED. STATE AND LOCAL LAWS CONCERNING POLLUTION ABATEMENT WILL BE FOLLOWED. CONSTRUCTION PLANS SHALL DETAIL EROSION AND SEDIMENT CONTROL MEASURES.

REFER TO THE 2000 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR RATE AND METHODS NOT COVERED.

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, IF NOT PREVIOUSLY LOOSENED.

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

SEEDING : FOR PERIODS MARCH 1 THRU APRIL 30 AND FROM AUGUST 15 THRU NOVEMBER 15, SEED WITH 2-1/2 BUSHELS PER ACRE OF ANNUAL RYE (3.2 LBS. PER 1000 SQ.FT.). FOR THE PERIOD MAY 1 THRU AUGUST 14, SEED WITH 3 LBS. PER ACRE OF WEEPING LOVEGRASS (0.07 LBS. PER 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. PER 1000 SQ.FT.) OF UNROTTED SMALL GRAIN STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING MULCH ANCHORING TOOL OR 218 GAL. PER ACRE (5 GAL. PER 1000 SQ.FT.) OF EMULSIFIED ASPHALT ON FLAT AREAS. ON SLOPES, 8 FT. OR HIGHER, USE 347 GAL. PER ACRE (8 GAL. PER 1000 SQ.FT.) FOR ANCHORING.

REFER TO THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR RATE AND METHODS NOT COVERED.

PERMANENT SEEDING NOTES

APPLY TO GRADED OR CLEARED AREAS 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, IF NOT 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. PER 1000 SQ.FT.) AND 600 LBS. PER ACRE 10-10-10 FERTILIZER (14 LBS. PER 1000 SQ.FT.) BEFORE SEEDING. HARROW OR DISC INTO UPPER THREE INCHES OF SOIL. AT TIME OF SEEDING, APPLY 400 LBS. PER ACRE 30-0-0 UREAFORM FERTILIZER (9 LBS. PER 1000 SQ.FT.).

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

SEEDING : FOR THE PERIOD MARCH 1 THRU APRIL 30 AND FROM AUGUST 1 THRU OCTOBER 15, SEED WITH 60 LBS. PER ACRE (1.4 LBS. PER 1000 SQ.FT.) OF KENTUCKY 31 TALL FESCUE. FOR THE PERIOD MAY 1 THRU JULY 31, SEED WITH 60 LBS. KENTUCKY 31 TALL FESCUE PER ACRE AND 2 LBS. PER ACRE (0.05 LBS. PER 1000 SQ.FT.) OF WEEPING LOVEGRASS. DURING THE PERIOD OCTOBER 16 THRU FEBRUARY 28, PROTECT SITE BY ONE OF THE FOLLOWING OPTIONS :

1) 2 TONS PER ACRE OF WELL-ANCHORED MULCH STRAW AND SEED AS SOON AS POSSIBLE IN THE SPRING.

2) USE SOD.

3) SEED WITH 60 LBS. PER ACRE KENTUCKY 31 TALL FESCUE AND MULCH WITH 2 TONS PER ACRE WELL ANCHORED STRAW.

MULCHING : APPLY 1-1/2 TO 2 TONS PER ACRE (70 TO 90 LBS. PER 1000 SQ.FT.) OF UNROTTED SMALL GRAIN STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING MULCH ANCHORING TOOL OR 218 GAL. PER ACRE (5 GAL. PER 1000 SQ.FT.) OF EMULSIFIED ASPHALT ON FLAT AREAS. ON SLOPES, 8 FT. OR HIGHER, USE 347 GAL. PER ACRE (8 GAL. PER 1000 SQ.FT.) FOR ANCHORING.

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

STANDARD SEDIMENT CONTROL NOTES

1. A MINIMUM OF 48 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY DEPARTMENT OF INSPECTIONS, LICENSES AND PERMITS, SEDIMENT CONTROL DIVISION PRIOR TO THE START OF ANY CONSTRUCTION (313-1855).
2. ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL AND REVISIONS THERETO.
3. FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN: A)7 CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DIKES, PERIMETER SLOPES, AND ALL SLOPES STEEPER 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 THE PERIMETER IN ACCORDANCE WITH VOL. 1, CHAPTER 7, 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 SEEDING, SOD, TEMPORARY SEEDING, AND MULCHING (SEC. G.). TEMPORARY STABILIZATION WITH MULCH ALONE SHALL ONLY BE DONE WHEN RECOMMENDED SEEDING DATES DO NOT ALLOW FOR PROPER GERMINATION AND ESTABLISHED OF GRASSES.
6. ALL SEDIMENT CONTROL STRUCTURES ARE TO REMAIN IN PLACE AND ARE TO BE MAINTAINED IN OPERATIVE CONDITION UNTIL PERMISSION FOR THEIR REMOVAL HAS BEEN OBTAINED FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
7. SITE ANALYSIS:

TOTAL AREA OF SITE	7.489 ACRES
AREA DISTURBED	7.5 ACRES
AREA TO BE ROOFED OR PAVED	5.2 ACRES
AREA TO BE VEGETATIVELY STABILIZED	2.3 ACRES
TOTAL CUT	42000 CU. YARDS
TOTAL FILL	22000 CU. YARDS

OFFSITE WASTE AREA LOCATION TO HAVE ACTIVE GRADING PERMIT

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 CONTROLS MUST BE PROVIDED, IF DEEMED NECESSARY BY THE HOWARD COUNTY 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 THREE PIPE LENGTHS OR THAT WHICH SHALL BE BACK-FILLED AND STABILIZED WITHIN ONE WORKING DAY, WHICHEVER IS SHORTER.
12. SITE GRADING WILL BEGIN ONLY AFTER ALL PERIMETER SEDIMENT CONTROL MEASURES HAVE BEEN INSTALLED AND ARE IN A FUNCTIONING CONDITION.
13. SEDIMENT WILL BE REMOVED FROM TRAPS WHEN ITS DEPTH REACHES CLEAN OUT ELEVATION SHOWN ON THE PLANS.
14. CUT AND FILL QUANTITIES PROVIDED UNDER SITE ANALYSIS DO NOT REPRESENT BID QUANTITIES. THESE QUANTITIES DO NOT DISTINGUISH BETWEEN TOPSOIL, STRUCTURAL FILL OR EMBANKMENT MATERIAL, NOR DO THEY REFLECT CONSIDERATION OF UNDERCUTTING OR REMOVAL OF UNSUITABLE MATERIAL. THE CONTRACTOR SHALL FAMILIARIZE HIMSELF WITH SITE CONDITIONS WHICH MAY AFFECT THE WORK.

21.0 STANDARD AND SPECIFICATIONS FOR TOPSOIL

DEFINITION

PLACEMENT OF TOPSOIL OVER A PREPARED SUBSOIL PRIOR TO ESTABLISHMENT OF PERMANENT VEGETATION.

PURPOSE

TO PROVIDE A SUITABLE SOIL MEDIUM FOR VEGETATIVE GROWTH. SOILS OF CONCERN HAVE LOW MOISTURE CONTENT, LOW NUTRIENT LEVELS, LOW PH, MATERIALS TOXIC TO PLANTS, AND/OR UNACCEPTABLE SOIL GRADATION.

CONDITIONS WHERE PRACTICE APPLIES

I. THIS PRACTICE IS LIMITED TO AREAS HAVING 2:1 OR FLATTER SLOPES WHERE:
   A. THE TEXTURE OF THE EXPOSED SUBSOIL/PARENT MATERIAL IS NOT ADEQUATE TO PRODUCE VEGETATIVE GROWTH.
   B. THE SOIL MATERIAL IS SO SHALLOW THAT THE ROOTING ZONE IS NOT DEEP ENOUGH TO SUPPORT PLANTS OR FURNISH CONTINUING SUPPLIES OF MOISTURE AND PLANT NUTRIENTS.
   C. THE ORIGINAL SOIL TO BE VEGETATED CONTAINS MATERIAL TOXIC TO PLANT GROWTH.
   D. THE SOIL IS SO ACIDIC THAT TREATMENT WITH LIMESTONE IS NOT FEASIBLE.

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 REPRESENTATIVE SOIL PROFILE SECTION IN THE SOIL SURVEY PUBLISHED BY USDA-SCS IN COOPERATION WITH MARYLAND AGRICULTURAL EXPERIMENTATION STATION.

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

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

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

   III. WHERE SUBSOIL IS EITHER HIGHLY ACIDIC OR COMPOSED OF HEAVY CLAYS, GROUND LIMESTONE SHALL BE SPREAD AT THE RATE OF 4-8 TONS/ACRE (200-400 POUNDS PER 1,000 SQUARE FEET) PRIOR TO THE PLACEMENT OF TOPSOIL. LIME SHALL BE DISTRIBUTED UNIFORMLY OVER DESIGNATED AREAS AND WORKED INTO THE SOIL IN CONJUNCTION WITH TILLAGE OPERATIONS AS DESCRIBED IN THE FOLLOWING PROCEDURES.

II. FOR SITES HAVING DISTURBED AREAS UNDER 5 ACRES:
   I. PLACE TOPSOIL (IF REQUIRED) AND APPLY SOIL AMENDMENTS AS SPECIFIED IN 20.0 VEGETATIVE STABILIZATION – BSECTION I – VEGETATIVE STABILIZATION METHODS AND MATERIALS.

III. FOR SITES HAVING DISTURBED AREAS OVER 5 ACRES:

   I. ON SOIL MEETING TOPSOIL SPECIFICATIONS, OBTAIN TEST RESULTS DICTATING FERTILIZER AND LIME AMENDMENTS REQUIRED TO BRING THE SOIL INTO COMPLIANCE WITH THE FOLLOWING:
      A. PH FOR TOPSOIL SHALL BE BETWEEN 6.0 AND 7.5. IF THE TESTED SOIL DEMONSTRATES A PH OF LESS THAN 6.0, SUFFICIENT LIME SHALL BE PRESCRIBED TO RAISE THE PH TO 6.5 OR HIGHER.
      B. ORGANIC CONTENT OF TOPSOIL SHALL BE NOT LESS THAN 1.5 PERCENT BY WEIGHT.
      C. TOPSOIL HAVING SOLUBLE SALT CONTENT GREATER THAN 500 PARTS PER MILLION SHALL NOT BE USED.
      D. NO SOD OR SEED SHALL BE PLACED ON SOIL WHICH HAS BEEN TREATED WITH SOIL STERILANTS OR CHEMICALS USED FOR WEED CONTROL UNTIL SUFFICIENT TIME HAS ELAPSED (14 DAYS MIN.) TO PERMIT DISSIPATION OF PHYTO-TOXIC MATERIALS.

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

   II. PLACE TOPSOIL (IF REQUIRED) AND APPLY SOIL AMENDMENTS AS SPECIFIED IN 20.0 VEGETATIVE STABILIZATION – BSECTION I – VEGETATIVE STABILIZATION METHODS AND MATERIALS.

V. TOPSOIL APPLICATION

   I. WHEN TOPSOILING, MAINTAIN NEEDED EROSION AND SEDIMENT CONTROL PRACTICES SUCH AS DIVERSIONS, GRADE STABILIZATION STRUCTURES, EARTH DIKES, SLOPE SILT FENCE AND SEDIMENT TRAPS AND BASINS.

   II. GRADES ON THE AREAS TO BE TOPSOILED, WHICH HAVE BEEN PREVIOUSLY ESTABLISHED, SHALL BE MAINTAINED, ALBEIT 4" – 8" HIGHER IN ELEVATION.

   III. TOPSOIL SHALL BE UNIFORMLY DISTRIBUTED IN A 4" – 8" LAYER AND LIGHTLY COMPACTED TO A MINIMUM THICKNESS OF 4". SPREADING SHALL BE PERFORMED IN SUCH A MANNER THAT SODDING OR SEEDING CAN PROCEED WITH A MINIMUM OF ADDITIONAL SOIL PREPARATION AND TILLAGE. ANY IRREGULARITIES IN THE SURFACE RESULTING FROM TOPSOILING OR OTHER OPERATIONS SHALL BE CORRECTED IN ORDER TO PREVENT THE FORMATION OF DEPRESSIONS OR WATER POCKETS.

   IV. TOPSOIL SHALL NOT BE PLACED WHILE THE TOPSOIL OR SUBSOIL IS IN A FROZEN OR MUDDY CONDITION, WHEN THE SUBSOIL IS EXCESSIVELY WET OR IN A CONDITION THAT MAY OTHERWISE BE DETRIMENTAL TO PROPER GRADING AND SEEDBED PREPARATION.

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

   I. COMPOSTED SLUDGE MATERIAL FOR USE AS A SOIL CONDITIONER FOR SITES HAVING DISTURBED AREAS OVER 5 ACRES SHALL BE TESTED TO PRESCRIBE AMENDMENTS AND FOR SITE HAVING DISTURBED AREAS UNDER 5 ACRES SHALL CONFORM TO THE FOLLOWING REQUIREMENTS:
      A. COMPOSTED SLUDGE SHALL BE SUPPLIED BY, OR ORIGINATE FROM, A PERSON OR PERSONS THAT ARE PERMITTED (AT THE TIME OF ACQUISITION OF THE COMPOST) BY THE MARYLAND DEPARTMENT OF THE ENVIRONMENT UNDER COMAR 26.04.06.
      B. COMPOSTED SLUDGE SHALL CONTAIN AT LEAST 1 PERCENT NITROGEN, 1.5 PERCENT PHOSPHORUS, AND 0.2 PERCENT POTASSIUM AND HAVE A PH OF 7.0 TO 8.0. IF COMPOST DOES NOT MEET THESE REQUIREMENTS, THE APPROPRIATE CONSTITUENTS MUST BE ADDED TO MEET THE REQUIREMENTS PRIOR TO USE.
      C. COMPOSTED SLUDGE SHALL BE APPLIED AT A RATE OF 1 TON/1,000 SQUARE FEET.
      D. COMPOSTED SLUDGE SHALL BE AMENDED WITH A POTASSIUM FERTILIZER APPLIED AT THE RATE OF 4 LB/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.

OPERATION, MAINTENANCE AND INSPECTION

INSPECTION OF THE POND SHOWN HEREON SHALL BE PERFORMED AT LEAST ONCE ANNUALLY, IN ACCORDANCE WITH THE CHECKLIST AND REQUIREMENTS CONTAINED WITHIN USDA, SCS "STANDARDS AND SPECIFICATION FOR PONDS" (MD378). THE POND OWNER AND ANY HEIRS, SUCCESSORS, OR ASSIGNS SHALL BE RESPONSIBLE FOR THE SAFETY OF THE POND AND THE CONTINUED OPERATION, SURVEILLANCE, INSPECTION, AND MAINTENANCE THEREOF. THE POND OWNER SHALL PROMPTLY NOTIFY THE SOIL CONSERVATION DISTRICT OF ANY UNUSUAL OBSERVATIONS THAT MAY BE INDICATIONS OF DISTRESS SUCH AS EXCESSIVE SEEPAGE, TURBID SEEPAGE, SLIDING OR SLUMPING.

RIPRAP TO BE EMBEDDED IN PROPOSED TRANSITION SECTION

NOTE: Q_{10}, V & DEPTH CALCULATED AT END OF RIPRAP OUTLET CHANNEL.

STRUCTURE	MEDIAN STONE DIA.	LENGTH (L)	WIDTH (W)	THICKNESS (T)	Q_{10} (CFS)	V_P (FPS)	d_P (FT)
E-1	9.5" ✓	12' ✓	10' ✓	19"	7.62	5.00	0.98
E-2	9.5" ✓	16' ✓	10' ✓	19"	27.91	7.14	1.59
E-3	9.5" ✓	12' ✓	10' ✓	19"	6.58	6.60	0.72
E-4	9.5" ✓	12' ✓	10' ✓	19"	8.84	9.50	0.78
RD-7	9.5" ✓	10' ✓	10' ✓	19"			
RD-8	9.5" ✓	10' ✓	10' ✓	19"			

RIPRAP OUTLET PROTECTION DETAIL

NO SCALE

SEQUENCE OF CONSTRUCTION

1. OBTAIN GRADING PERMIT.
2. INSTALL STABILIZED CONSTRUCTION ENTRANCE, SILT FENCE, SUPER SILT FENCE, AND CONSTRUCT SEDIMENT BASIN (4 WEEKS).
3. INSTALL STORM DRAINS I-3 THRU E-4 TO DIVERT EXISTING RUNOFF. ONCE INSTALLED PLACE RIPRAP AND SSF ON HILLSIDE. (1WEEK)
4. UPON ACCEPTANCE BY THE COUNTY INSPECTOR CONTRACTOR PROCEED WITH ROUGH GRADING AND BUILDING CONSTRUCTION.
5. AS SUBGRADE ELEVATIONS ARE ESTABLISHED, INSTALL STORM DRAINS, WATER, AND SEWER. (3 WEEKS)
6. INSTALL CURB AND GUTTER AND PAVE. (3 WEEKS)
7. APPLY TOPSOIL AND STABILIZE DISTURBED AREAS IN ACCORDANCE WITH PERMANENT SEEDING NOTES. (1 WEEKS)
8. PERFORM FINE GRADING, LANDSCAPING, LIGHTING AND SIDEWALKS. (2 WEEKS)
9. COMPLETE BUILDING CONSTRUCTION AND DORSEY RUN ROAD WIDENING.
10. UPON PERMISSION OF COUNTY SEDIMENT CONTROL INSPECTOR, REMOVE ALL REMAINING SEDIMENT CONTROL DEVICES AND CONVERT SEDIMENT BASINS TO PERMANENT STORM WATER MANAGEMENT FACILITIES. CONVERT FACILITIES IN THE FOLLOWING STEPS:
    A. CLEAN STORM DRAIN INLETS AND FLUSH OUT PIPES. (3 DAYS)
    B. PUMP OUT STANDING WATER IN BASIN USING PUMPING STATION. (2 DAYS)
    C. REMOVE TEMPORARY DEWATERING DEVICE AND PLYWOOD. (1 DAY)
    D. INSTALL ORIFICE PLATES. (2 DAYS)
    E. REMOVE ACCUMULATED SEDIMENT AND GRADE BASIN TO CONFORM WITH SHEET 2. (2 DAYS)
    F. STABILIZE REMAINING DISTURBED AREAS IN ACCORDANCE WITH PERMANENT SEEDING NOTES. (3 DAYS)

OPERATION AND MAINTENANCE SCHEDULE OF PRIVATELY OWNED AND MAINTAINED STORMWATER MANAGEMENT FACILITY EXTENDED DETENTION POND

ROUTINE MAINTENANCE

1. FACILITY SHALL BE INSPECTED ANUALLY AND AFTER MAJOR STORMS. INSPECTIONS SHOULD BE PERFORMED DURING WET WEATHER TO DETERMINE IF THE POND IS FUNCTIONING PROPERLY.
2. TOP AND SIDE SLOPES OF THE EMBANKMENT SHALL BE MOWED A MINIMUM OF TWO (2) TIMES A YEAR, ONCE IN JUNE AND ONCE IN SEPTEMBER. OTHER SIDE SLOPES, THE BOTTOM OF THE POND, AND MAINTENANCE ACCESS SHOULD BE MOWED AS NEEDED.
3. DEBRIS AND LITTER NEXT TO THE OUTLET STRUCTURE SHALL BE REMOVED DURING REGULAR MOWING OPERATIONS AND AS NEEDED.
4. VISIBLE SIGNS OF EROSION IN THE POND AS WELL AS RIPRAP OUTLET AREA SHALL BE REPAIRED AS SOON AS IT IS NOTICED.

NON-ROUTINE MAINTENANCE

1. STRUCTURAL COMPONENTS OF THE POND SUCH AS THE DAM, THE RISER, AND THE PIPES SHALL BE REPAIRED UPON THE THE DETECTION OF ANY DAMAGE. THE COMPONENTS SHOULD BE INSPECTED DURING ROUTINE MAINTENANCE OPERATIONS.
2. SEDIMENT SHOULD BE REMOVED WHEN ITS ACCUMULATION SIGNIFICANTLY REDUCES THE DESIGN STORAGE, INTERFERE WITH THE FUNCTION OF THE RISER, WHEN DEEMED NECESSARY FOR AESTHETIC REASONS, OR WHEN DEEMED NECESSARY BY THE HOWARD COUNTY'S DEPARTMENT OF PUBLIC WORKS.

OPERATION AND MAINTENANCE SCHEDULE OF PRIVATELY OWNED AND MAINTAINED BIORETENTION FACILITY

1. ANNUAL MAINTENANCE OF PLANT MATERIAL, MULCH LAYER, AND SOIL LAYER IS REQUIRED. MAINTENANCE OF MULCH AND SOIL IS LIMITED TO CORRECTING AREAS OF EROSION OR WASH OUT. ANY MULCH REPLACEMENT SHALL BE DONE IN THE SPRING. PLANT MATERIAL SHALL BE CHECKED FOR DISEASE AND INSECT INFESTATION AND MAINTENANCE WILL ADDRESS DEAD MATERIAL AND PRUNING.
2. SCHEDULE OF PLANT INSPECTION WILL BE TWICE A YEAR IN SPRING AND FALL. THIS INSPECTION WILL INCLUDE REMOVAL OF DEAD AND DISEASED VEGETATION CONSIDERED BEYOND TREATMENT, TREATMENT OF ALL DISEASED TREES AND SHRUBS AND REPLACEMENT OF ALL DEFICIENT STAKES AND WIRES.
3. MULCH SHALL BE INSPECTED EACH SPRING. REMOVE PREVIOUS MULCH LAYER BEFORE APPLYING NEW LAYER ONCE EVERY 2 TO 3 YEARS.
4. SOIL EROSION TO BE ADDRESSED ON AN AS NEEDED BASIS WITH A MINIMUM OF ONCE PER MONTH AND AFTER HEAVY STORM EVENTS.

GEOTECH RECOMMENDATIONS

1. THE GEOTECHNICAL ENGINEER SHOULD WITNESS ANY REQUIRED FILL OPERATIONS AND SHOULD VERIFY THAT AN ADEQUATE DEGREE OF COMPACTION IS ACHIEVED. THE INSPECTOR SHOULD OBSERVE AND APPROVE ALL ON-SITE OR BORROW MATERIALS USED AND SHOULD DETERMINE IF THEY ARE SUITABLE.
2. CONSIDERATION COULD BE GIVEN TO EXCAVATING THE CLAY SOILS FOR THE CUT-OFF TRENCH AND EMBANKMENT CORE OF THE POND FROM BELOW THE FINISHED GRADE ELEVATIONS DURING CONSTRUCTION. HOWEVER THE WIDE VARIATION IN VERTICAL AND HORIZONTAL LOCATION OF THE CLAY SOIL MAY BE DIFFICULT TO LOCATE. IF CLAY SOILS FROM ON SITE ARE NOT AVAILABLE, AND ARE REQUIRED FOR CONSTRUCTION THE CLAY SOILS WOULD HAVE TO BE IMPORTED FROM OFF SITE.

RIPRAP CONSTRUCTION SPECIFICATIONS

1. THE SUBGRADE FOR THE FILTER, RIP-RAP, OR GABION SHALL BE PREPARED TO THE REQUIRED LINES AND GRADES. ANY FILL REQUIRED IN THE SUBGRADE SHALL BE COMPACTED TO A DENSITY OF APPROXIMATELY THAT OF THE SURROUNDING UNDISTURBED MATERIAL.
2. THE ROCK OR GRAVEL SHALL CONFORM TO THE SPECIFIED GRADING LIMITS WHEN INSTALLED RESPECTIVELY IN THE RIP-RAP OR FILTER.
3. GEOTEXTILE CLASS C OR BETTER SHALL BE PROTECTED FROM PUNCHING, CUTTING, OR TEARING. ANY DAMAGE OTHER THAN AN OCCASIONAL SMALL HOLE SHALL BE REPAIRED BY PLACING ANOTHER PIECE OF GEOTEXTILE FABRIC OVER THE DAMAGED WHETHER FOR REPAIRS OR FOR JOINING TWO PIECES OF GEOTEXTILE FABRIC SHALL BE A MINIMUM OF ONE FOOT.
4. STONE FOR THE RIP-RAP OR GABION OUTLETS MAY BE PLACED BY EQUIPMENT. THEY SHALL BE CONSTRUCTED TO THE FULL COURSE THICKNESS IN ONE OPERATION AND AND IN SUCH A MANNER AS TO AVOID DISPLACEMENT OF UNDERLYING MATERIALS. THE STONE FOR RIP-RAP OR GABION OUTLETS SHALL BE DELIVERED AND PLACED IN A MANNER THAT WILL ENSURE THAT IT IS REASONABLY HOMOGENOUS WITH THE SMALLER STONES AND SPALLS FILLING THE VOIDS BETWEEN THE LARGER STONES. RIP-RAP SHALL BE PLACED IN A MANNER TO PREVENT DAMANGE TO THE FILTER BLANKET OR GEOTEXTILE FABRIC.HAND PLACEMENT WILL BE REQUIRED TO THE EXTENT NECESSARY TO PREVENT DAMAGE TO THE PERMANENT WORKS.
5. THE STONE SHALL BE PLACED SO THAT IT BLENDS IN WITH THE EXISTING GROUND.IF THE STONE IS PLACED TOO HIGH THEN THE FLOW WILL BE FORCED OUT OF THE CHANNEL AND SCOUR ADJACENT TO THE STONE WILL OCCUR.

AS-BUILT CERTIFICATE

STATE OF MARYLAND — CHRISTOPHER J. REID — NO. 19949 — REGISTERED PROFESSIONAL ENGINEER

CHRISTOPHER J. REID #19949 — 6.24.04 DATE

BY THE DEVELOPER :

I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

DEVELOPER — TIM HOGAN — 10-15-02 DATE

BY THE ENGINEER :

I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION.

ENGINEER — Christopher J Reid — 10.15.02 DATE

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL.

NATURAL RESOURCES CONSERVATION SERVICE — Jim Myers / CR — 11/13/02 DATE

THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

HOWARD SOIL CONSERVATION DISTRICT — 11/13/02 DATE

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

DIRECTOR — 11/26/02 DATE

CHIEF, DEVELOPMENT ENGINEERING DIVISION — 11/14/02 DATE

CHIEF, DIVISION OF LAND DEVELOPMENT — 11/22/02 DATE

DATE	NO.	REVISION

OWNER: MS. CHARLOTTE M. DUVALL AND MR. BRYAN M. DUVALL, 8101 DORSEY RUN ROAD, JESSUP, MARYLAND 20794, 410-799-7724

DEVELOPER: OPUS EAST LLC, 2099 GAITHER ROAD, SUITE 101, ROCKVILLE, MD 20850, (301) 354-4444, ATTN: TIM HOGAN

PROJECT: **DORSEY WOODS** — PARCEL A, AN OFFICE-WAREHOUSE BUILDING

AREA: TAX MAP 43 BLOCK 20 & TAX MAP 48 BLOCK 2, PARCEL A ZONED M-2, 6th ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

TITLE: SEDIMENT CONTROL NOTES

Patton Harris Rust & Associates, pc
Engineers. Surveyors. Planners. Landscape Architects.
PHR+A
8818 Centre Park Drive
Columbia, MD 21045
T 410.997.8900
F 410.997.9282

10.15.02 DATE

CHRISTOPHER J. REID #19949

DESIGNED BY :	A.C.R
DRAWN BY :	DAM
CHECKED BY :	C.J.R.
PROJECT NO :	01284 C900DET3.DWG
DATE :	OCTOBER 14, 2002
SCALE :	AS SHOWN
DRAWING NO.	4 OF 17

AS-BUILT- SDP-02-102

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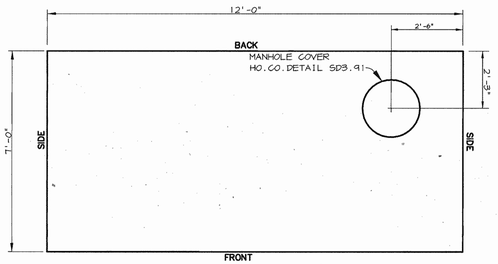
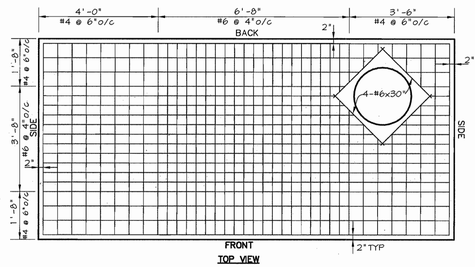


TOP VIEW



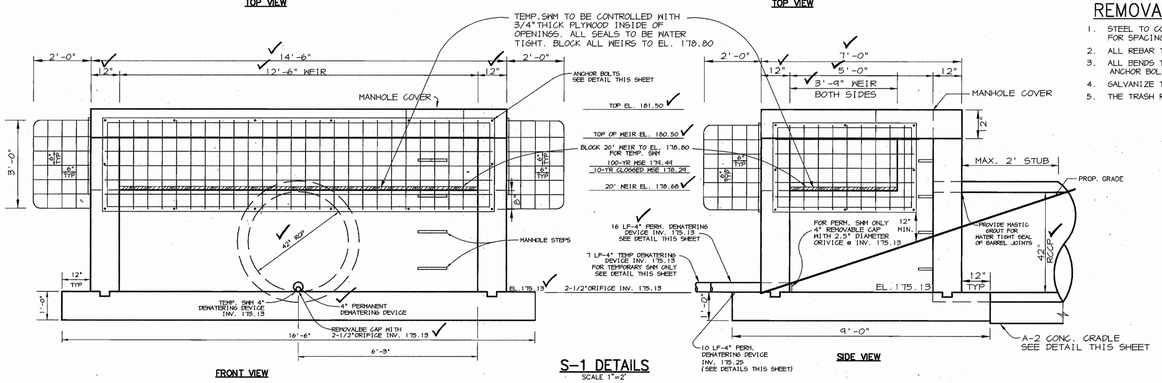
TOP VIEW

RISER STRUCTURE NOTES FOR S-1

1. RISER TO BE PRECAST. SHOP DRAWINGS FOR THIS CONCRETE STRUCTURE SHALL MEET THE MINIMUM ASTM REQUIREMENTS FOR CAST IN PLACE STRUCTURES. A SHOP DRAWING SHALL BE SUBMITTED TO THE ENGINEER PRIOR TO FABRICATION AND SHALL BE SIGNED AND SEALED BY A MARYLAND REGISTERED PROFESSIONAL ENGINEER.
2. SEE THIS SHEET FOR REINFORCEMENT DETAILS.
3. CONCRETE SHALL BE MSHA MIX NO. 3 (f'c=3,500 psi MINIMUM)
4. WHEN POND IS CONVERTED INTO A PERMANENT FACILITY, THE TEMPORARY DEWATERING DEVICE SHALL BE REPLACED WITH THE PERM DEWATERING DEVICE AND 7" ORIFICE SHALL BE REMOVED.
5. REFER TO HOWARD COUNTY STD. 6-5.21 FOR MANHOLE STEP DETAILS.
6. RISER JOINTS SHALL BE WATERTIGHT USING NEOPRENE GASKETS.
7. ALL PIPE CONNECTIONS SHALL PROVIDE RUBBER GASKET FOR WATERTIGHTNESS.
8. RISER SHALL BE PLACED ON A FIRMLY COMPACTED SUBGRADE AND SHALL BE APPROVED BY A GEOTECHNICAL ENGINEER.

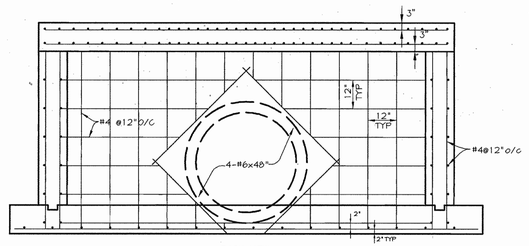
REMOVABLE TRASH RACK NOTES:

1. STEEL TO CONFORM TO ASTM A-36. #5 BARS TO BE SMOOTH. SEE DETAIL FOR SPACING. SPACING SHALL BE A MAXIMUM OF 8"c/c.
2. ALL REBAR TO BE WELDED AT ALL INTERSECTIONS.
3. ALL BENDS TO BE 2" RADIUS. 2" x 2" ANGLE IRON AND 1/2" DIAMETER ANCHOR BOLTS TO BE USED FOR TRASH RACK FRAME.
4. GALVANIZE TRASH RACK AFTER FABRICATION AND PAINT BATTLESHIP GRAY.
5. THE TRASH RACK SHALL BE REMOVABLE.

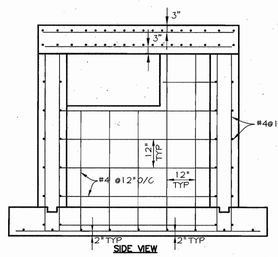


S-1 DETAILS

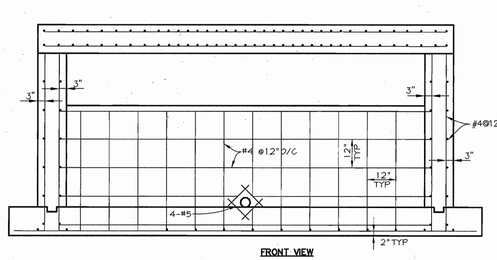
SCALE 1"=2'



BACK VIEW

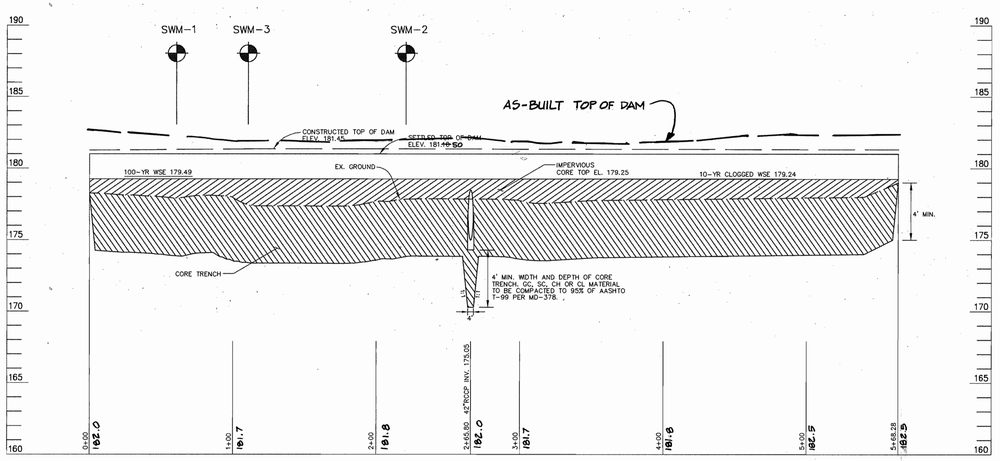


SIDE VIEW



FRONT VIEW

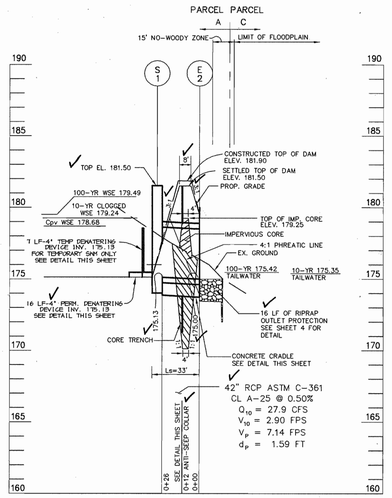
S-1 REBAR LAYOUT



CENTERLINE OF EMBANKMENT PROFILE

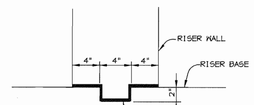
SCALE :
HOR.-1"=50'
VERT.-1"=5'

NOTES:
1. GEOTECHNICAL ENGINEER TO BE PRESENT DURING CORE TRENCH MATERIAL INSTALLATION.
2. THE CORE TRENCH SHALL EXTEND 4' MINIMUM BELOW THE LEVEL OF ANY FILL AS DETERMINED BY A GEOTECHNICAL ENGINEER.



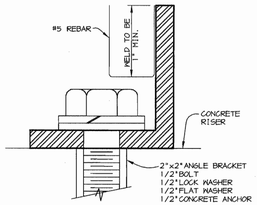
PRINCIPAL SPILLWAY PROFILE

SCALE :
HOR.-1"=50'
VERT.-1"=5'



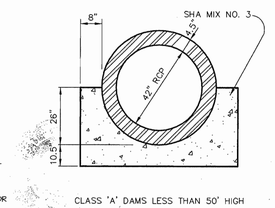
TYPICAL KEY JOINT DETAIL

NO SCALE



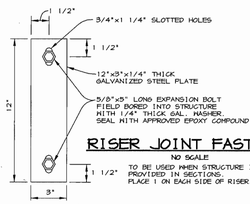
ANCHOR BOLTS

NO SCALE



A-2 CONCRETE CRADLE

NO SCALE



RISER JOINT FASTENER

NO SCALE

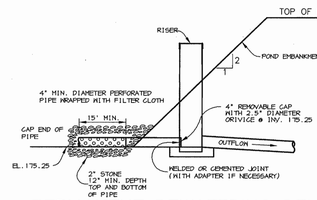
TO BE USED WHEN STRUCTURE IS PROVIDED IN SECTIONS. PLACE 1 ON EACH SIDE OF RISER.

AS-BUILT CERTIFICATE.

STATE OF MARYLAND CHRISTOPHER J. REID 19949 REGISTERED PROFESSIONAL ENGINEER

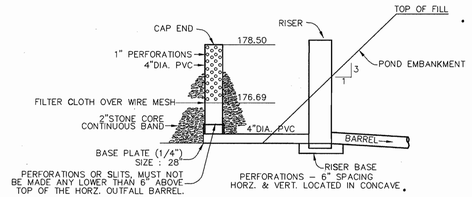
CHRISTOPHER J. REID #19949

6.24.04
DATE



PERMANENT DEWATERING DEVICE

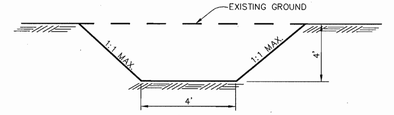
NO SCALE



SEDIMENT BASIN DEWATERING DEVICE WITH 4" PERFORATED RISER

NO SCALE

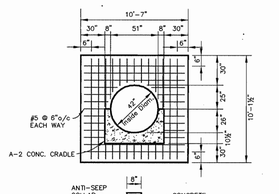
1. PERFORATIONS ON THE DRAW-DOWN DEVICE MAY NOT EXTEND INTO THE WET STORAGE.
2. THE TOTAL AREA OF THE PERFORATIONS MUST BE GREATER THAN 2 TIMES THE AREA OF THE INTERNAL ORIFICE.
3. THE PERFORATED PORTION OF THE DRAW-DOWN DEVICE SHALL BE WRAPPED WITH 1/2" HARDWARE CLOTH AND GEOTEXTILE FABRIC. THE GEOTEXTILE FABRIC SHALL MEET THE SPECIFICATIONS FOR GEOTEXTILE CLASS E.
4. PROVIDED SUPPORT OF DRAW-DOWN DEVICE TO PREVENT SAGGING AND FLOATATION. AN ACCEPTABLE PREVENTATIVE MEASURE IS TO STAKE BOTH SIDES OF DRAW-DOWN DEVICE WITH 1" STEEL ANGLE, OR 1" BY 4" SQUARE OR 2" ROUND WOODEN POSTS SET 3' MINIMUM INTO THE GROUND THEN JOINING THEM TO THE DEVICE BY WRAPPING WITH 12 GAUGE MINIMUM WIRE.

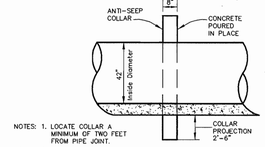


NOTE: GC, SC, CH, OR CL MATERIAL IS TO BE USED FOR CORE TRENCH. IF UNSUITABLE MATERIAL EXISTS ON SITE, ACCEPTABLE MATERIAL WILL NEED TO BE TRUCKED TO SITE.

CORE TRENCH DETAIL

NO SCALE





NOTES: 1. LOCATE COLLAR A MINIMUM OF TWO FEET FROM PIPE JOINT.
NOTES: 2. COLLAR/PIPE CONNECTION SHALL BE WATERTIGHT.

CONCRETE ANTI-SEEP COLLAR SWMF #1

NO SCALE

BY THE DEVELOPER :

I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

10-15-02
DEVELOPER DATE
Tim Hogan

BY THE ENGINEER :

I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION.

10.15.02
ENGINEER DATE

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL.

11/13/02
NATURAL RESOURCES CONSERVATION SERVICE DATE

THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

11/13/02
HOWARD SOIL CONSERVATION DISTRICT DATE

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

11/26/02
DIRECTOR DATE

11/14/02
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

11/22/02
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

DATE	NO.	REVISION

OWNER: MS. CHARLOTTE M. DUVALL AND MR. BRYAN M. DUVALL
8101 DORSEY RUN ROAD
JESSUP, MARYLAND 20794
410-799-7724

DEVELOPER OPUS EAST LLC
2099 GAITHER ROAD, SUITE 101
ROCKVILLE, MD 20850
(301) 354-4444
ATTN: TIM HOGAN

PROJECT
DORSEY WOODS
PARCEL A, AN OFFICE-WAREHOUSE BUILDING

AREA TAX MAP 43 BLOCK 20 & TAX MAP 48 BLOCK 2
PARCEL A ZONED M-2
6th ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE
SEDIMENT CONTROL NOTES AND DETAILS

Patton Harris Rust & Associates, pc
Engineers. Surveyors. Planners. Landscape Architects.
8818 Centre Park Drive
Columbia, MD 21045
T 410.997.8900
F 410.997.9282

10.15.02
DATE

STATE OF MARYLAND CHRISTOPHER J. REID 19949 REGISTERED PROFESSIONAL ENGINEER

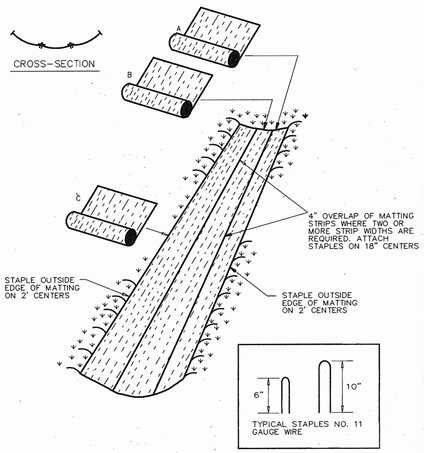
CHRISTOPHER J. REID #19949

DESIGNED BY :	A.C.R
DRAWN BY :	DAM
CHECKED BY :	C.J.R.
PROJECT NO :	01284 C900DET4.DWG
DATE :	OCTOBER 14, 2002
SCALE :	AS SHOWN
DRAWING NO.	5 OF 17

AS-BUILT SDP-02-102

J:\project\01284\1-0\Engr\Plans\C900DET4.dwg, Model, 10/11/02 12:24:43 PM, HP750C(36).pc3, User1308, 1:50

DETAIL 30 – EROSION CONTROL MATTING



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

EROSION CONTROL MATTING

Construction Specifications

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

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

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

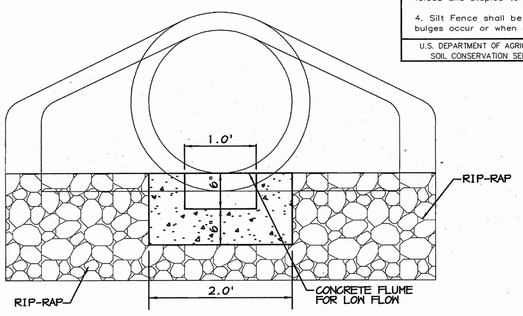
4. Staples shall be placed 2' apart with 4 rows for each strip, 2 outer rows, and 2 alternating rows down the center.

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

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

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

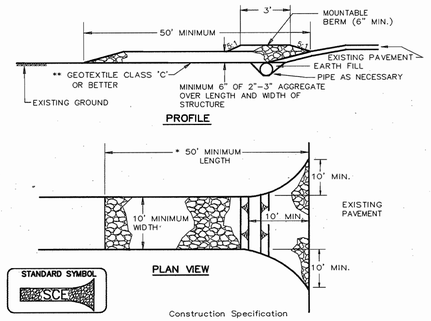
U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE G – 22 – 2A	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION



LOW FLOW PILOT CHANNEL @ END SECTION DETAIL

SCALE: 1"= 1'

DETAIL 24 – STABILIZED CONSTRUCTION ENTRANCE



Construction Specification

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

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

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

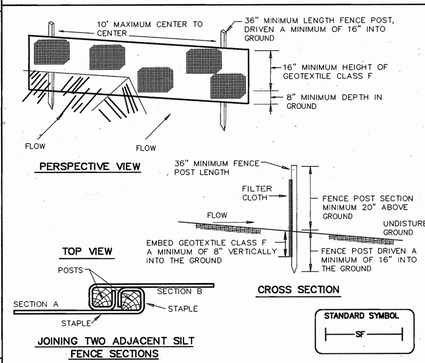
4. Stone – crushed aggregate (2" to 3") or reclaimed or recycled concrete equivalent shall be placed at least 6" deep over the length and width of the entrance.

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

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

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

DETAIL 22 – SILT FENCE



Construction Specifications

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

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

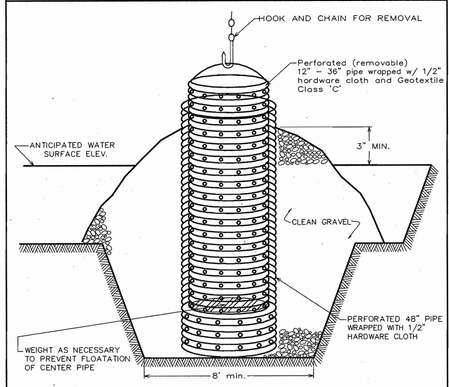
Tensile Strength	50 lbs/in (min.)	Test: MSMT 509
Tensile Modulus	20 lbs/in (min.)	Test: MSMT 509
Flow Rate	0.3 gal ft ²/ minute (max.)	Test: MSMT 322
Filtering Efficiency	75% (min.)	Test: MSMT 322

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

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

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

DETAIL 20A – REMOVABLE PUMPING STATION



Construction Specifications

1. The outer pipe should be 48" dia. or shall, in any case, be at least 4" greater in diameter than the center pipe. The outer pipe shall be wrapped with 1/2" hardware cloth to prevent backfill material from entering the perforations.

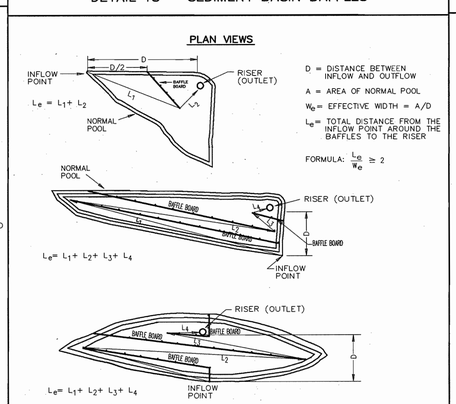
2. After installing the outer pipe, backfill around outer pipe with 2" aggregate or clean gravel.

3. The inside stand pipe (center pipe) should be constructed by perforating a corrugated or PVC pipe between 12" and 36" in diameter. The perforations shall be 1/2" X 6" slits or 1" diameter holes 6" on center. The center pipe shall be wrapped with 1/2" hardware cloth first, then wrapped again with Geotextile Class C.

4. The center pipe should extend 12" to 18" above the anticipated water surface elevation or riser crest elevation when dewatering a basin.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE D – 12 – 4	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

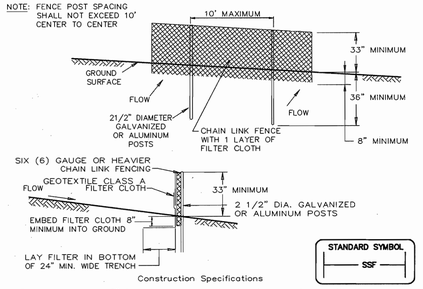
DETAIL 18 – SEDIMENT BASIN BAFFLES



U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE C – 19 – 28	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 33 – SUPER SILT FENCE

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



Construction Specifications

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

2. The posts do not need to be set in concrete.

3. Chain link fence shall be fastened securely to the fence posts with wire ties or staples. The lower tension wire, brace and truss rods, drive anchors and post caps are not required except on the ends of the fence. The chain link fencing shall be six (6) gauge or heavier.

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

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

6. When two sections of geotextile fabric adjoin each other, they shall be overlapped by 6" and folded.

7. 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

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE H – 26 – 3	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

30.0 – 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 OFF–SITE DAMAGE IS LIKELY WITHOUT TREATMENT.

SPECIFICATIONS

TEMPORARY METHODS

1. MULCHES – SEE STANDARDS FOR VEGETATIVE STABILIZATION WITH MULCHES ONLY. MULCH SHOULD BE CRIMPED OR TACKED TO PREVENT BLOWING.

2. VEGATATIVE 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 SIMILIAR 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, BURLAP FENCES, STRAW BALES, AND SIMILAR MATERIAL CAN BE USED TO CONTROL AIR CURRENTS AND SOIL BLOWING. BARRIERS PLACED AT RIGHT ANGLES TO PREVAILING CURRENTS AT INTERVALS OF ABOUT 10 TIMES THEIR HEIGHT ARE EFFECTIVE IN CONTROLLING SOIL BLOWING.

6. CALCIUM CHLORIDE – APPLY AT RATES THAT WILL KEEP SURFACE MOIST. MAY NEED RETREATMENT.

PERMANENT METHODS

1. PERMANENT VEGETATION – SEE STANDARDS FOR PERMANENT VEGETATIVE COVER. AND PERMANENT STABILIZATION WITH SOD. EXISTING TREES OR LARGE SHRUBS MAY AFFORD VALUABLE PROTECTION IF LEFT IN PLACE.

2. TOPSOILING – COVERING WITH LESS EROSIVE SOIL MATERIALS. SEE STANDARDS FOR TOPSOILING.

3. STONE – COVER SURFACE WITH CRUSHED STONE OR COARSE GRAVEL.

REFERENCES

1. AGRICULTURE HANDBOOK 346. WIND EROSION FORCES IN THE UNITED STATES AND THEIR USES IN PREDICTING SOIL LOSS.

2. AGRICULTURE INFORMATION BULLETIN 354. HOW TO CONTROL WIND EROSION, USDA–ARS.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE H – 30 – 1	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

AS–BUILT CERTIFICATE

CHRISTOPHER J. REID #19949 — 6.24.04 DATE

BY THE DEVELOPER :

I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS–BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON–SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

DEVELOPER — 10.15.02 DATE

TIM HOGAN

BY THE ENGINEER :

I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS–BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION.

ENGINEER — 10.15.02 DATE

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL.

NATURAL RESOURCES CONSERVATION SERVICE — 11/13/02 DATE

THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

HOWARD SOIL CONSERVATION DISTRICT — 11/13/02 DATE

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

DIRECTOR — 11/26/02 DATE

CHIEF, DEVELOPMENT ENGINEERING DIVISION — 11/14/02 DATE

CHIEF, DIVISION OF LAND DEVELOPMENT — 11/22/02 DATE

DATE	NO.	REVISION

OWNER: MS. CHARLOTTE M. DUVALL AND MR. BRYAN M. DUVALL
8101 DORSEY RUN ROAD
JESSUP, MARYLAND 20794
410–799–7724

DEVELOPER: OPUS EAST LLC
2099 GAITHER ROAD, SUITE 101
ROCKVILLE, MD 20850
(301) 354–4444
ATTN: TIM HOGAN

PROJECT

DORSEY WOODS
PARCEL A, AN OFFICE–WAREHOUSE BUILDING

AREA: TAX MAP 43 BLOCK 20 & TAX MAP 48 BLOCK 2
PARCEL A ZONED M–2
6th ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE

SEDIMENT CONTROL NOTES AND DETAILS

Patton Harris Rust & Associates, pc
Engineers. Surveyors. Planners. Landscape Architects.
8818 Centre Park Drive
Columbia, MD 21045
T 410.997.8900
F 410.997.9282

10.15.02 DATE

CHRISTOPHER J. REID #19949

DESIGNED BY :	A.C.R
DRAWN BY :	DAM
CHECKED BY :	C.J.R.
PROJECT NO :	01284 C900DET2.DWG
DATE :	OCTOBER 14, 2002
SCALE :	AS SHOWN
DRAWING NO.	6 OF 17

AS–BUILT– SDP–02–102

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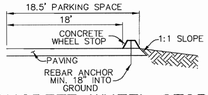
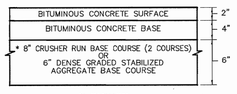


CONCRETE WHEEL STOP LOCATION PLAN
NO SCALE



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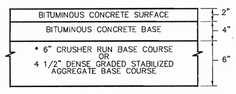

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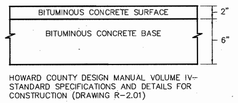
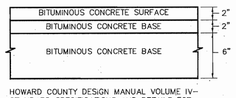


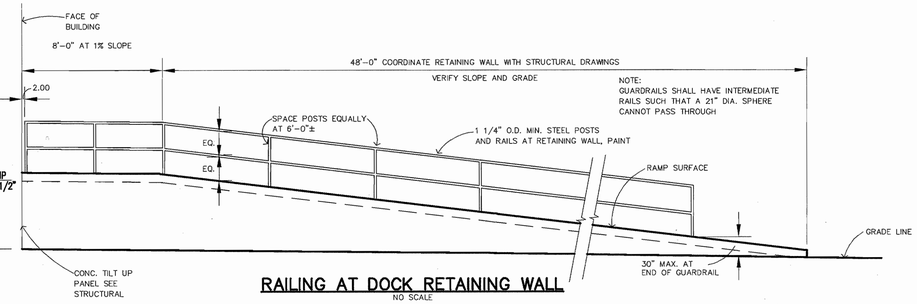
HOWARD COUNTY DESIGN MANUAL VOLUME IV- STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION (DRAWING R-2.01)

P-2 PAVING
NO SCALE



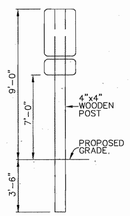
HOWARD COUNTY DESIGN MANUAL VOLUME IV- STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION (DRAWING R-2.01)

P-3 PAVING
NO SCALE



RAILING AT DOCK RETAINING WALL
NO SCALE

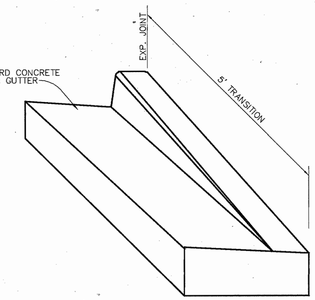
COLOR
LEGEND AND BORDER – GREEN
WHITE SYMBOLS ON BLUE BACKGROUND
BACKGROUND – WHITE



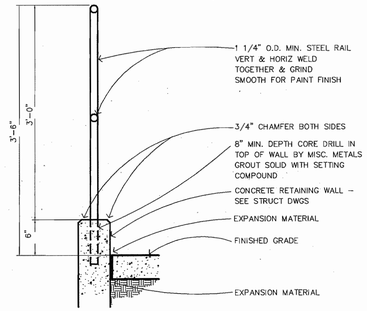
* FOR VAN ACCESSIBLE SPACES ONLY, SEE PLAN FOR LOCATION.

NOTE
DISTANCE FROM GROUND TO BOTTOM OF SIGN TO BE 7'.

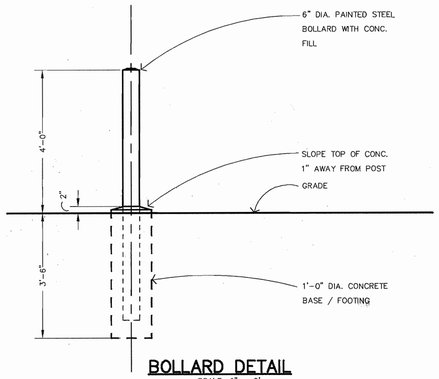
HANDICAP SIGN DETAIL
NO SCALE



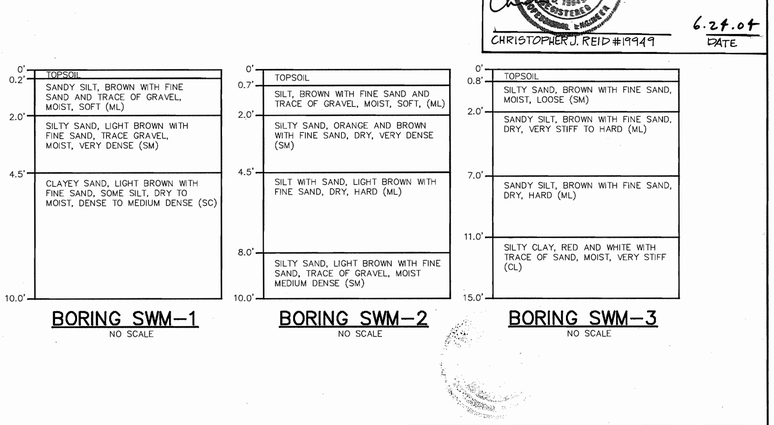
NOSE DOWN CURB DETAIL
NO SCALE



RAILING AT DOCK RETAINING WALL
SCALE: 1" = 1'



BOLLARD DETAIL
SCALE: 1" = 2'



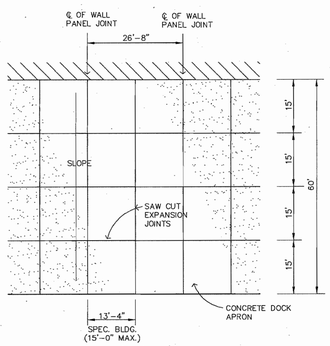
BORING SWM-1
NO SCALE

BORING SWM-2
NO SCALE

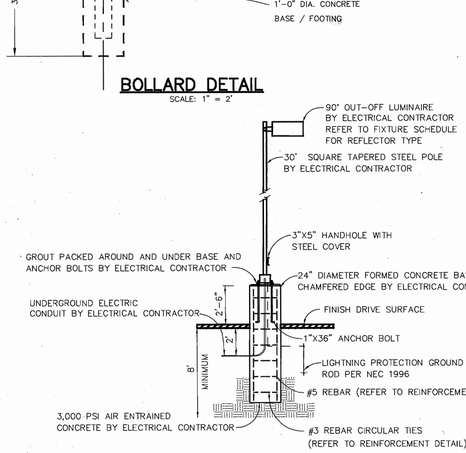
BORING SWM-3
NO SCALE

NOTES :
PROVIDE LATITUDINAL EXPANSION JOINTS AT 15' O.C. (MAX.) PROVIDE CONTRACTION (DUMMY) JOINT AT 5' O.C. INTERVALS BETWEEN EXPANSION JOINTS. SIDEWALK TO BE SCRIBED IN 5' MAX. SQUARES.

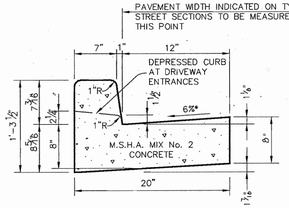
SIDEWALK DETAIL
NO SCALE



TYPICAL CONTROL JOINT LAYOUT
SCALE: 1" = 1'



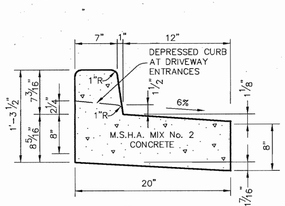
LIGHT POLE DETAIL
NO SCALE



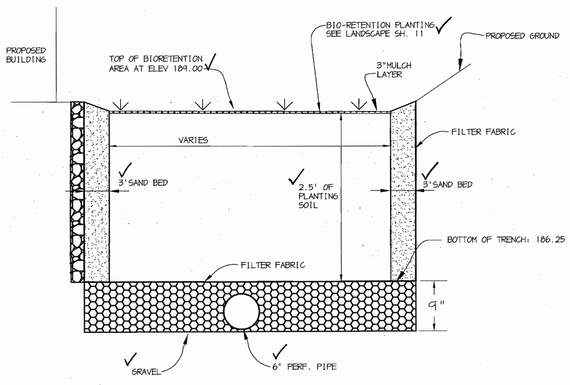
HOWARD COUNTY DESIGN MANUAL, VOLUME IV, STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION (DRAWING R-3.01).

* GUTTER PAN AT THE MEDIAN EDGE OF INTERMEDIATE ARTERIALS OR THE HIGH SIDE OF SUPERELEVATED SECTIONS SHALL BE SLOPED AT THE SAME RATE AS THE PAVEMENT.

STANDARD 7" COMBINATION CURB AND GUTTER
NO SCALE



REVERSE 7" COMBINATION CURB AND GUTTER
NO SCALE



BIORETENTION SECTION A-A
SCALE :
HOR.-1"=10'
VERT.-1"=1'

PIPE SCHEDULE

PIPE LENGTH	SIZE	TYPE
43	8"	ADS, N-12
118	10"	ADS, N-12
840	18"	ADS, N-12
261	24"	ADS, N-12
26	42"	ASTM, C-361

STRUCTURE SCHEDULE

STRUCTURE	TYPE	LOCATION	INV. IN	INV. OUT	TOP	REMARKS
I-1	A-5 3.5'WIDE	N 539,856.10 E 1,372,293.72	177.83 (18")	177.33 (24")	181.6	HOCO STD. DETAIL SD-4.40
I-2	S	N 539,813 E 1,372,248	–	178.15 (18")	181.5	HOCO STD. DETAIL SD-4.22
I-3	S	N 540,077.00 E 1,371,807.55	–	189.33 (18")	193.0	HOCO STD. DETAIL SD-4.22
I-4	A-5 3.5'WIDE	N 540,333.60 E 1,372,071.34	179.00 (18")	178.50 (24")	184.6	HOCO STD. DETAIL SD-4.40
I-5	DBL S	N 540,411.53 E 1,371,872.59	182.75 (18")	182.65 (18")	187.5	HOCO STD. DETAIL SD-4.23
I-6	DBL S	N 540,358.42 E 1,371,761.73	–	184.00 (18")	187.5	HOCO STD. DETAIL SD-4.23
M-1	4'-0" DIA.	N 540,396.65 E 1,371,818.39	177.40 (18")	177.30 (18")	188.6	HOCO STD. DETAIL G-5.11
M-2	4'-0" DIA.	N 540,346.07 E 1,371,712.78	183.50 (18")	183.40 (18")	188.7	HOCO STD. DETAIL G-5.11
M-3	4'-0" DIA.	N 540,301.80 E 1,371,694.69	184.50 (18")	184.40 (18")	188.7	HOCO STD. DETAIL G-5.11
M-4	4'-0" DIA.	N 540,098.66 E 1,371,789.45	189.00 (18")	188.90 (18")	195.5	HOCO STD. DETAIL G-5.11
E-1	24"ADS END SECTION	N 540,060.06 E 1,372,223.24	176.00 (24")	–	–	HOCO STD. DETAIL SD-5.51
E-2	TYPE A HEADWALL	N 540,156.49 E 1,372,234.79	175.00 (42")	–	–	HOCO STD. DETAIL SD-5.11
E-3	24"ADS END SECTION	N 540,304.17 E 1,372,105.29	176.80 (24")	–	–	HOCO STD. DETAIL SD-5.51
E-4	18"ADS END SECTION	N 540,419.33 E 1,371,826.40	176.70 (18")	–	–	HOCO STD. DETAIL SD-5.51
S-1	MODIFIED STRUCTURE	N 540,159.75 E 1,372,208.91 (NE CNR) N 540,158.60 E 1,372,202.00 (NW CNR) N 540,145.44 E 1,372,211.28 (SE CNR) N 540,144.30 E 1,372,204.37 (SW CNR)	–	175.13 (42")	181.5	SEE SHEET 5
WQ-1	3K	N 549,994.60 E 1,372,228.89	176.57 (24")	176.32 (24")	184.2	SEE SHEET 9
WQ-2	3K	N 540,321.03 E 1,372,085.82	177.48 (24")	177.10 (24")	181.9	SEE SHEET 9

NOTES:
FOR END SECTIONS AND HEADWALLS THE LOCATION IS CENTER OF THROAT OPENING AT FACE OF STRUCTURE.
LOCATION OF INLETS AND MANHOLES IS AT CENTER OF TOP COVER; FOR "A" INLETS LOCATION IS GIVEN FOR CENTER OF THROAT OPENING AT FACE OF CURB;

Table: Materials Specifications for Bioretention

MATERIAL	SPECIFICATIONS	SIZE	NOTES
PLANTINGS	SEE LANDSCAPE PLAN SHEET	N/A	
PLANTING SOIL (2.5' TO 4' DEEP)	SAND 35 – 60 % SILT 30 – 55 % CLAY 10 – 25 %	N/A	USDA SOIL TYPES LOAMY SAND, SANDY LOAM, OR LOAM
MULCH	SHREDDED HARDWOOD	N/A	AGED 6 MONTHS, MINIMUM
STONE DIAGHRAM AND CURTAIN DRAIN	PEA GRAVEL: ASTM-D-448 ORNAMENTAL STONE: WASHED COBBLES	PEA GRAVEL: No. 6 STONE: ·2" to 5"	
GEOTEXTILE	CLASSE "C"-APPARENT OPENING SIZE (ASTM-D-4751), GRAB TENSILE STRENGTH (ASTM-D-4632), PUNCTURE RESISTANCE (ASTM-D-4822)	N/A	FOR USE AS NECESSARY BENEATH UNDERDRAINS ONLY.
UNDERDRAIN GRAVEL	AASHTO M-43	0.375" to 0.75"	
UNDERDRAIN PIPE	F 758, TYPE PS 28 OR AASHTO M-278	4" TO 6" RIGID SCHEDULE 40 PVC OR SDR35	3/8" PERF. @ 6"O/C, 4 HOLES PER ROW, MIN. OF 3" OF GRAVEL OVER PIPES.
SAND	AASHTO M-6 or ASTM C-33	0.02" to 0.04"	SAND SUBSTITUTIONS SUCH AS DIABASE AND GRASTONE #10 ARE NOT ACEPTABLE. NO CALCIUM CARBONATED OR DOLOMITIC SAND SUBSTITUTIONS ARE ACCEPTABLE. NO "ROCK DUST" CAN BE USED FOR SAND.

AS-BUILT CERTIFICATE
STATE OF MARYLAND CHRISTOPHER J. REID 19949 REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER J. REID #19949
6.27.02
DATE

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

DIRECTOR — 11/26/02 DATE

CHIEF, DEVELOPMENT ENGINEERING DIVISION — 11/14/02 DATE

CHIEF, DIVISION OF LAND DEVELOPMENT — 11/22/02 DATE

DATE	NO.	REVISION

OWNER: MS. CHARLOTTE M. DUVALL AND MR. BRYAN M. DUVALL
8101 DORSEY RUN ROAD
JESSUP, MARYLAND 20794
410-799-7724

DEVELOPER OPUS EAST LLC
2099 GAITHER ROAD, SUITE 101
ROCKVILLE, MD 20850
(301) 354-4444
ATTN: TIM HOGAN

PROJECT
DORSEY WOODS
PARCEL A, AN OFFICE-WAREHOUSE BUILDING

AREA TAX MAP 43 BLOCK 20 & TAX MAP 48 BLOCK 2
PARCEL A ZONED M-2
6th ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE
DETAILS

Patton Harris Rust & Associates, pc
Engineers. Surveyors. Planners. Landscape Architects.
PHR+A
8818 Centre Park Drive
Columbia, MD 21045
T 410.997.8900
F 410.997.9282

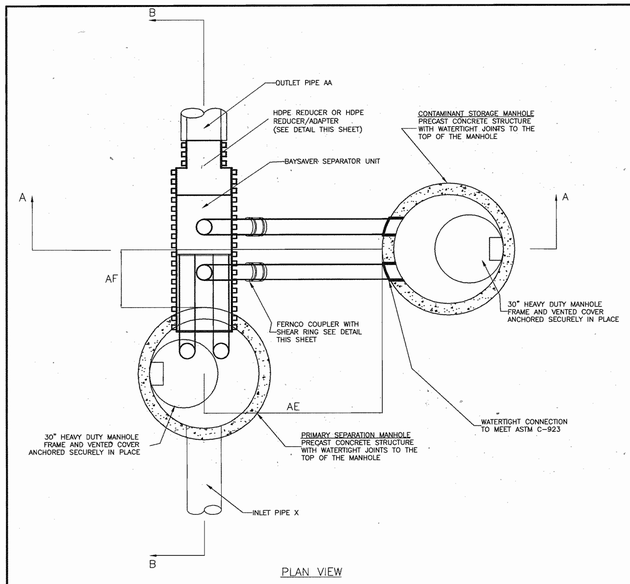
10.15.02
DATE

STATE OF MARYLAND CHRISTOPHER J. REID 19949 REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER J. REID #19949

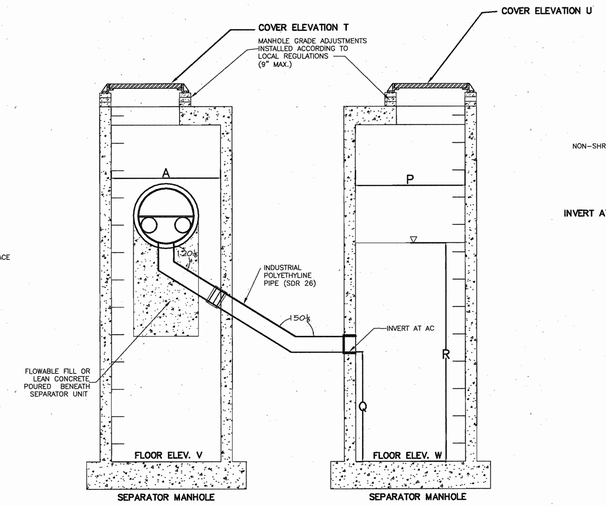
DESIGNED BY :	A.C.R
DRAWN BY :	DAM
CHECKED BY :	C.J.R.
PROJECT NO :	01284 C900DET1.DWG
DATE :	OCTOBER 14, 2002
SCALE :	AS SHOWN
DRAWING NO.	7 OF 17

AS-BUILT — SDP-02-102

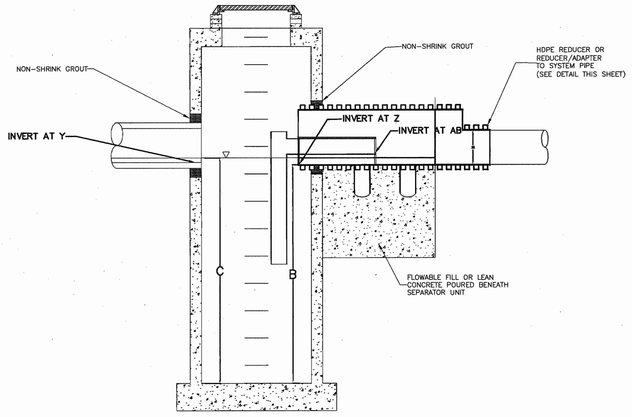
S:\project\01284\1-0\Engr\Plans\C900DET1.dwg, Model, 10/11/02 11:39:38 AM, HP750C(36).pc3, User1309, 1:50



PLAN VIEW



SECTION AA



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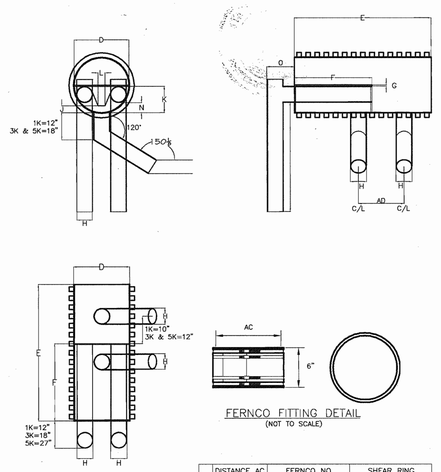
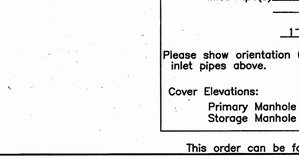


FERNCO FITTING DETAIL
(NOT TO SCALE)

	DISTANCE AC	FERNCO NO.	SHEAR RING
1K	7.10"	1055-66	SR-27
3K	10.60"	1056-1010	SR-39
5K	12.73"	1004-1010	SR-44

HDPE-HDPE REDUCER DETAIL

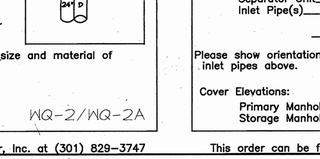
FOR USE WITH HDPE OUTLET PIPES
NOT TO SCALE



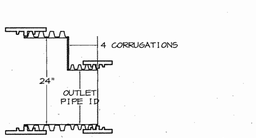
PLAN VIEW

REDUCER/ADAPTER DETAIL

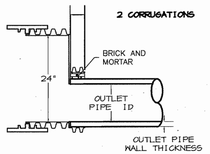
FOR USE WITH OUTLET PIPES OTHER THAN HDPE
NOT TO SCALE



PLAN VIEW



SECTION AA



SECTION AA

SEQUENCE OF CONSTRUCTION AND INSPECTOR'S CHECK-OFF LIST FOR DUAL MANHOLE SEPARATORS

STAGE (X = APPROVAL REQUIRED)	DEVELOPER'S/ENGINEER APPROVAL		INSPECTOR		GEOTECHNICAL ENGINEER	
	INITIALS	DATE	INITIALS	DATE	INITIALS	DATE
1. PRE-CONSTRUCTION MEETING.	X		X		X	
2. INSTALL MANHOLES AND ASSOCIATED STORM DRAINAGE: A. OBTAIN APPROVAL OF SUBGRADE FROM GEOTECHNICAL ENGINEER. (SUBGRADE TO HAVE A MINIMUM OF 95% COMPACTION)					X	
B. INSTALLATION OF PRECAST BASE, LOWER TANK AND LOWER PIPING.	X		X			
C. BACKFILL AND MIN. 95% COMPACTION AROUND LOWER TANK AND LOWER PIPING.					X	
D. INSTALLATION OF PRECAST MIDDLE SECTION(S) WITH SEPARATOR UNIT AND REMAINING PIPING.	X		X			
E. INSTALLATION OF PRECAST TOP SLAB.	X		X			
F. INSTALLATION OF ADJUSTMENT RINGS AND FRAME AND COVER.	X		X			
G. INSTALLATION OF FLOWABLE FILL OR CONCRETE BACKFILL.					X	
3. BACKFILLING OPERATION AND COMPACTION.					X	
4. SITE IS PERMANENTLY STABILIZED. SEDIMENT CONTROL MEASURES REMOVED AND ALL SEDIMENT AND DEBRIS REMOVED FROM DUAL MANHOLE SEPARATORS.			X			
5. FINAL INSPECTION.			X			

GENERAL CONSTRUCTION NOTES

1. ALL WORK MUST BE DONE WITH REGARD FOR THE SAFETY OF THE CONSTRUCTION CREW.

2. ALL WORK AND MATERIALS MUST COMPLY WITH APPLICABLE STATE AND LOCAL REGULATIONS.

3. KNOW THE LOCATION AND DEPTH OF ANY UNDERGROUND UTILITIES BEFORE EXCAVATION BEGINS.

NOTE:

BAYSAVERS ARE TO BE INSTALLED WITH THE STORM DRAIN SYSTEM AND WILL FUNCTION AS SECONDARY SEDIMENT CONTROL DEVICES.

UPON COMPLETION OF SITE STABILIZATION, EACH BAYSAVER SYSTEM SHALL BE FLUSHED CLEAN & THE MANHOLES CLEANED OUT AND REFILLED WITH CLEAN WATER.

NOTE: DIMENSIONAL SHOP DRAWINGS ARE TO BE APPROVED BY THE DESIGN ENGINEER

BAYSAVER MAINTENANCE

BAYSAVER SYSTEMS MUST BE INSPECTED AND MAINTAINED PERIODICALLY. INSPECTION IS MADE BY CHECKING THE DEPTH OF SEDIMENT IN EACH MANHOLE WITH A GRADE STICK OR SIMILAR DEVICE. MAINTENANCE IS REQUIRED WHEN THE SEDIMENT DEPTH IN EITHER MANHOLE EXCEEDS 2 FEET. MINIMUM INSPECTION IS REQUIRED TWICE A YEAR TO MAINTAIN OPERATION AND FUNCTION OF BAYSAVER.

MAINTENANCE CONSISTS OF THE FOLLOWING:

A. CONTAMINANT STORAGE MANHOLE

1. REMOVE THE ENTIRE VOLUME OF THE CONTAMINATED WATER BY VACUUM TRUCK.

2. CLEAN THE MANHOLE WALLS AND FLUSH OUT THE MANHOLE USING A HIGH PRESSURE HOSE AND REMOVE FLUSHING WATER BY VACUUM TRUCK. MAKE CERTAIN MANHOLE IS CLEAN.

B. PRIMARY SEPARATION MANHOLE

1. USING A SUBMERSIBLE PUMP, PUMP THE CLEAN WATER FROM THE CENTER OF THE MANHOLE DIRECTLY INTO THE EMPTY STORAGE MANHOLE UNTIL THE WATER LEVEL FALLS TO 1 FOOT ABOVE THE SEDIMENT LAYER.

2. REMOVE THE SETTLED SEDIMENT AND REMAINING WATER BY VACUUM TRUCK.

3. CLEAN THE MANHOLE WALLS AND FLUSH OUT THE MANHOLE USING A HIGH PRESSURE HOSE AND REMOVE FLUSHING WATER BY VACUUM TRUCK. MAKE CERTAIN MANHOLE IS CLEAN.

4. CONTAMINATED MATERIAL REMOVED FROM THE MANHOLES MUST BE DISPOSED OF RESPONSIBLY AND LEGALLY BY THE OPERATOR OF THE VACUUM TRUCK.

BAYSAVER INSTALLATION INSTRUCTIONS

1. EXCAVATION MUST PROVIDE ADEQUATE SPACE TO CONNECT INLET AND OUTLET PIPES TO SEPARATOR MANHOLE AND BAYSAVER UNIT. INSTALL PRECAST DROP STRUCTURES ON SOLID GROUND AS VERIFIED BY A GEOTECHNICAL ENGINEER.

2. VERIFY THE SUBGRADE ELEVATION AGAINST THE MANHOLE DIMENSIONS AND CONNECTING STORM DRAIN INVERTS.

3. MAKING SURE THE BASES ARE LEVEL AND THE STORAGE MANHOLE OPENINGS ARE ALIGNED WITH THE SEPARATOR UNIT, INSTALL PRIMARY AND STORAGE MANHOLES. INSTALL RUBBER GASKETS ON BASE UNITS AND COAT WITH LUBRICATING GREASE. INSTALL ADDITIONAL MANHOLE SECTIONS AS REQUIRED. SEAL LIFT HOLES WITH NON-SHRINK GROUT.

4. BACKFILL BASE SECTIONS OF MANHOLES TO INVERT OF STORAGE MANHOLE CONNECTING PIPES. USING APPROVED BACKFILL MATERIAL, BACKFILL AND COMPACT IN 8 INCH LIFTS. BACKFILL AND COMPACTION SHOULD BE MONITORED BY A GEOTECHNICAL ENGINEER.

5. INSTALL BAYSAVER SEPARATOR UNIT AND CONNECTING PIPES. SEAL ALL CONNECTING JOINTS AND INSTALL SEPARATOR UNIT/STORM DRAIN JOINT COLLAR. CUT EXCESS LENGTH OFF CONNECTING PIPES INSIDE STORAGE MANHOLE.

6. BACKFILL SEPARATOR UNIT AND MANHOLES. AREAS NOT ACCESSIBLE TO COMPACTION EQUIPMENT MUST BE BACKFILLED WITH LEAN CONCRETE OR FLOWABLE FILL.

7. INSTALL AND SET MANHOLE COVER GRADE ADJUSTMENT RINGS AS NECESSARY.

8. INSTALL AND SET MANHOLE FRAME AND COVER UNITS.

OPERATION AND MAINTENANCE SCHEDULE FOR BAYSAVER UNITS

1. BAYSAVER STRUCTURES WILL REQUIRE PERIODIC INSPECTION AND CLEANING TO MAINTAIN OPERATION AND FUNCTION. OWNERS WILL HAVE THE BAYSAVER UNIT INSPECTED YEARLY OR AS REQUIRED BY HOWARD COUNTY. UTILIZING THE BAYSAVER UNITS INSPECTION/MONITORING FORM. INSPECTIONS CAN BE DONE BY USING A CLEAR PLEXIGLAS TUBE ("SLUDGE JUDGE") TO EXTRACT A WATER COLUMN SAMPLE. WHEN SEDIMENT DEPTHS EXCEED THE SPECIFIED LEVEL (TABLE 6 OF TECHNICAL MANUAL) THEN CLEANING OF THE UNIT IS REQUIRED.

2. BAYSAVER STRUCTURES MUST BE CHECKED AND CLEANED IMMEDIATELY AFTER PETROLEUM SPILLS. CONTACT APPROPRIATE REGULATORY AGENCIES.

3. MAINTENANCE OF BAYSAVER UNITS SHOULD BE DONE BY A VACUUM TRUCK WHICH WILL REMOVE THE WATER, SEDIMENT, DEBRIS, FLOATING HYDROCARBONS, AND OTHER MATERIALS IN THE UNIT. THE PROPER CLEANING AND DISPOSAL OF THE REMOVED MATERIALS AND LIQUID MUST BE FOLLOWED.

4. INLET AND OUTLET PIPES MUST BE CHECKED FOR ANY OBSTRUCTIONS AND IF ANY OBSTRUCTIONS ARE FOUND THEY MUST BE REMOVED. STRUCTURAL PARTS OF THE BAYSAVER WILL BE REPAIRED AS NEEDED.

5. OWNER SHALL RETAIN AND MAKE BAYSAVER UNITS INSPECTION/MONITORING FORMS AVAILABLE TO HOWARD COUNTY OFFICIALS UPON THEIR REQUEST.

WQ-2/WQ-2A

Project: DORSEY WOODS
Address: DORSEY RUN ROAD, JESSUP, MD 20794
Delivery Date:
Owner: OPUS EASTLLE
Contact: TIM HOGAN
Address: ROCKVILLE, MD 301 354-4444
Designer: PHR&A
Contact: AIMEE REMINGTON
Phone: 410-997-8400
Fax: 410-997-9282
Contractor:
Address:
Contact:
Phone:
Fax:

Separator Unit Model:
1K ☐
3K ■
5K ☐

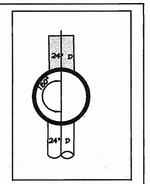
Circle system orientation above

Manhole Specifications:

Primary Manhole Diameter: 60 ✓ inches
Storage Manhole Diameter: 60 ✓ inches

Floor Elevations:
Primary Manhole 169.10 ✓
Storage Manhole 169.10 ✓

Primary Manhole Inverts:
Separator Unit 177.48 ✓
Inlet Pipe(s) 177.48 (IN) ✓
177.10 (OUT) ✓



Please show orientation (including angle), size and material of inlet pipes above.

Cover Elevations:
Primary Manhole ~~101.9~~ 102.0
Storage Manhole ~~104.0~~ 103.8

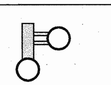
WQ-2/WQ-2A

This order can be faxed to Bay Saver, Inc. at (301) 829-3747

WQ-1/WQ-1A

Project: DORSEY WOODS
Address: DORSEY RUN ROAD, JESSUP, MD 20794
Delivery Date:
Owner: OPUS EASTLLE
Contact: TIM HOGAN
Address: ROCKVILLE, MD 301 354-4444
Designer: PHR&A
Contact: AIMEE REMINGTON
Phone: 410-997-8400
Fax: 410-997-9282
Contractor:
Address:
Contact:
Phone:
Fax:

Separator Unit Model:
1K ☐
3K ■
5K ☐



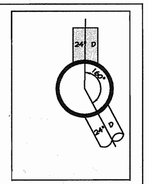
Circle system orientation above

Manhole Specifications:

Primary Manhole Diameter: 60 ✓ inches
Storage Manhole Diameter: 60 ✓ inches

Floor Elevations:
Primary Manhole 168.32 ✓
Storage Manhole 168.32 ✓

Primary Manhole Inverts:
Separator Unit 176.57 ✓
Inlet Pipe(s) 176.57 (IN) ✓
176.32 (OUT) ✓



Please show orientation (including angle), size and material of inlet pipes above.

Cover Elevations:
Primary Manhole 104.2-1
Storage Manhole 104.2-16

WQ-1/WQ-1A

This order can be faxed to Bay Saver, Inc. at (301) 829-3747

AS-BUILT CERTIFICATE

CHRISTOPHER J. REID #19949 — 6.24.04 DATE

Baysaver Separator Unit	Baysaver Manhole Sizes (prim. x stor.)	Maximum Treatment (cfs)*1	Maximum Treatment (gpm)*1	Impervious Area (acres)
1K Baysaver Separator	→ 48x48	2.4	1076	1.2 WQ-1
	48x50	2.4	1076	1.4
	48x72	2.4	1076	1.6
	60x60	2.4	1076	1.5
3K Baysaver Separator	→ 60x60	7.2	3231	3.6 WQ-2
	60x72	7.2	3231	4.1
	60x84	7.2	3231	4.6
	72x72	7.2	3231	4.4
5K Baysaver Separator	72x72	11.1	4981	5.5
	72x84	11.1	4981	6.5
	72x96	11.1	4981	7.5
	96x96	11.1	4981	8.0

BAYSAVER SYSTEM DIMENSIONS

	DESCRIPTION	1K SYSTEM	3K SYSTEM	5K SYSTEM
	SEPARATOR MANHOLE DIMENSIONS			
A	PRIMARY MANHOLE DIAMETER	48"	60"	96"
B	MANHOLE DEPTH BELOW OUTLET	8' - 0"	8' - 0"	8' - 0"
C	MINIMUM FLUID DEPTH	8' - 3"	8' - 4 1/2"	8' - 6"
	STANDARD SEPARATOR UNIT DIMENSIONS			
D	SEPARATOR UNIT ID	24"	36"	48"
E	SEPARATOR UNIT LENGTH	60"	80.0"	78"
F	BYPASS PLATE LENGTH	34"	45"	45"
G	WEIR/BYPASS PLATE THICKNESS	3/4"	3/4"	3/4"
H	ELBOW AND CONNECTING PIPE OD	7.125"	10.75"	12.75"
I	ELBOW LENGTH	48"	48"	48"
J	WEIR HEIGHT ABOVE INVERT	3"	4"	6"
K	BYPASS PLATE HEIGHT ABOVE INVERT	12"	18"	24"
L	WIDTH OF WEIR AT BASE	3"	4 1/2"	6"
M	OUTLET PIPE DIAMETER	M	M	M
N	ELBOW INVERT HEIGHT ABOVE UNIT INVERT	4 1/2"	7 1/2"	11"
O	ELBOW PIPE OVERHANG	12"	18"	24"
	STORAGE MANHOLE DIMENSIONS			
P	STORAGE MANHOLE DIAMETER	48"	60"	96"
Q	MANHOLE DEPTH BELOW INLET/OUTLET	48"	48"	48"
R	FLUID DEPTH	8' - 0"	8' - 0"	8' - 0"
S	TOTAL STORAGE VOLUME	200 CF	300 CF	450 CF
	SYSTEM DIMENSIONS AND ELEVATIONS			
T	SEPARATOR MANHOLE COVER ELEVATION	T	T	T
U	STORAGE MANHOLE COVER ELEVATION	U	U	U
V	SEPARATOR MANHOLE FLOOR ELEVATION	V	V	V
W	STORAGE MANHOLE FLOOR ELEVATION	W	W	W
X	INLET PIPE ID AND MATERIAL	X1 X2	X1 X2	X1 X2
Y	INLET PIPE INVERT	Y1 Y2	Y1 Y2	Y1 Y2
Z	SEPARATOR UNIT INVERT	Z	Z	Z
AA	OUTLET PIPE ID AND MATERIAL	AA	AA	AA
AB	ELBOW INVERT ELEVATION	AB	AB	AB
AC	CONNECTING PIPE INVERT ELEVATION	AC	AC	AC
AD	CONNECTION PIPE SPACING	20"	24"	24"
AE	STORAGE MANHOLE SIDE OFFSET	72 ± 6"	72 ± 6"	72 ± 6"
AF	STORAGE MANHOLE DOWNSTREAM OFFSET	23"	31"	25"

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

DIRECTOR — 11/26/02 DATE

CHIEF, DEVELOPMENT ENGINEERING DIVISION — 11/4/02 DATE

CHIEF, DIVISION OF LAND DEVELOPMENT — 11/22/02 DATE

DATE	NO.	REVISION

OWNER: MS. CHARLOTTE M. DUVALL AND MR. BRYAN M. DUVALL
8101 DORSEY RUN ROAD
JESSUP, MARYLAND 20794
410-799-7724

DEVELOPER: OPUS EAST LLC
2099 GAITHER ROAD, SUITE 101
ROCKVILLE, MD 20850
(301) 354-4444
ATTN: TIM HOGAN

PROJECT

DORSEY WOODS
PARCEL A, AN OFFICE-WAREHOUSE BUILDING

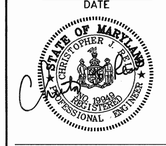
AREA TAX MAP 43 BLOCK 20 & TAX MAP 48 BLOCK 2
PARCEL A ZONED M-2
6th ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE

BAYSAVER DETAILS

Patton Harris Rust & Associates, pc
Engineers. Surveyors. Planners. Landscape Architects.
PHR+A
8818 Centre Park Drive
Columbia, MD 21045
T 410.997.8900
F 410.997.9282

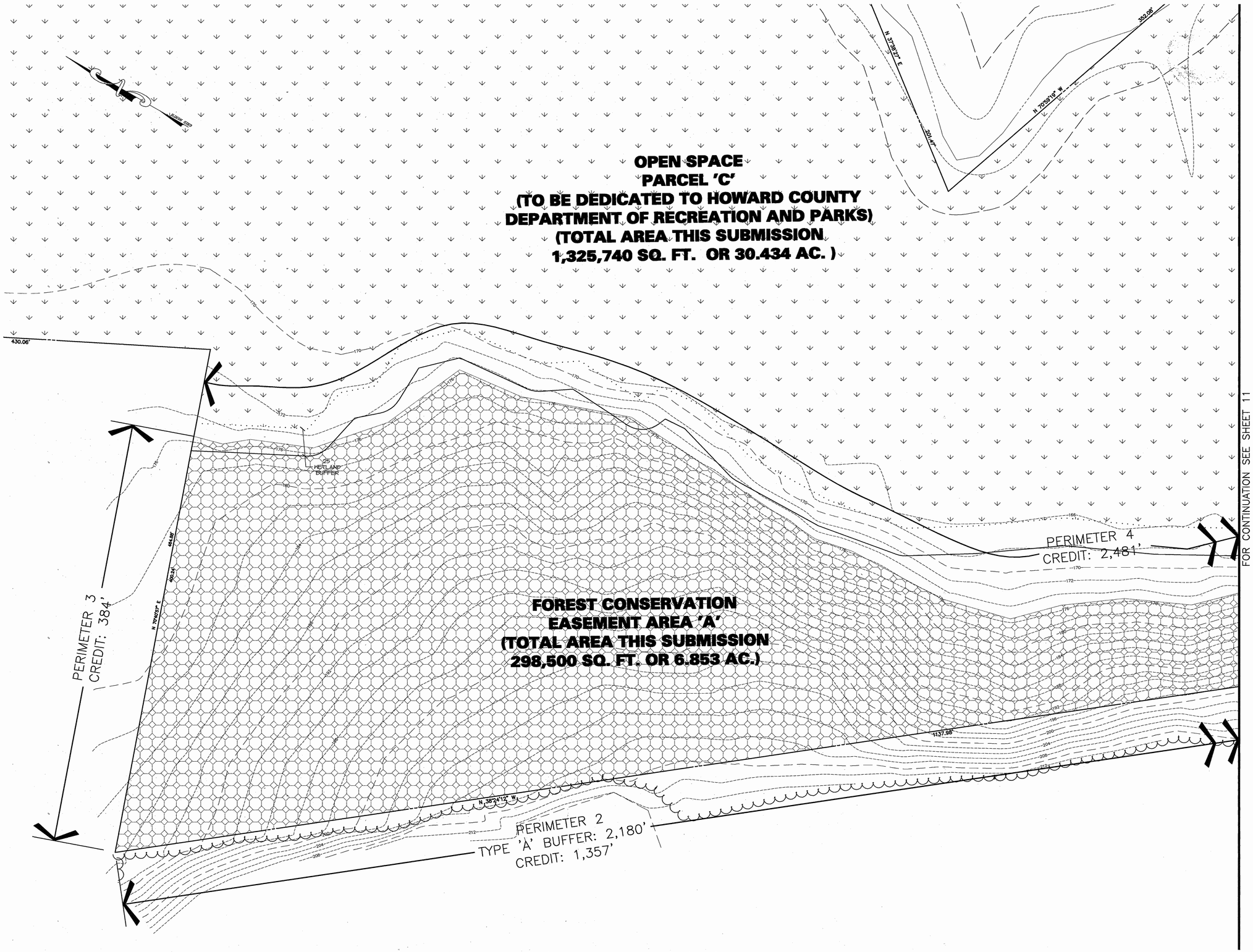
10.15.02 DATE



DESIGNED BY :	A.C.R
DRAWN BY :	DAM
CHECKED BY :	C.J.R.
PROJECT NO :	01284 C900DET.DWG
DATE :	OCTOBER 14, 2002
SCALE :	AS SHOWN
DRAWING NO.	9 OF 17

AS-BUILT — SDP-02-102

S:\projects\01284\1-01\Engr\Plans\C900DET.dwg, Model, 10/11/02 11:41:12 AM, HP750C(36).pc3, User1308, 1:69.4576



NO LANDSCAPING THIS SHEET

AS-BUILT CERTIFICATE

CHRISTOPHER J. REID #19949 — 6.24.04 DATE

LEGEND

- EX. TREELINE
- PROP. TREELINE
- PROPERTY LINE
- WETLANDS AND 25' BUFFER
- PERENNIAL STREAM AND 50' BUFFER
- 100-YEAR FLOODPLAIN
- CONTOUR LINES
- EX. BUILDING
- PROP. SHADE TREE
- PROP. EVERGREEN TREE
- PROP. SHRUBS
- LANDSCAPE REQUIREMENT (AR-3)
- BIORETENTION PLANTING (CE 1,000)
- PERIMETER LANDSCAPE EDGE LIMITS
- PERIMETER LANDSCAPE EDGE CONTINUATION OFF THE SHEET
- CREDITED LANDSCAPE ISLAND

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

DIRECTOR — 11/26/02 DATE

CHIEF, DEVELOPMENT ENGINEERING DIVISION — 11/14/02 DATE

CHIEF, DIVISION OF LAND DEVELOPMENT — 11/22/02 DATE

DATE	NO.	REVISION

OWNER: MS. CHARLOTTE M. DUVALL AND MR. BRYAN M. DUVALL
8101 DORSEY RUN ROAD
JESSUP, MARYLAND 20794
410-799-7724

DEVELOPER: OPUS EAST LLC
2099 GAITHER ROAD, SUITE 101
ROCKVILLE, MD 20850
(301) 354-4444
ATTN: TIM HOGAN

PROJECT: DORSEY WOODS
PARCEL A, AN OFFICE-WAREHOUSE BUILDING

AREA: TAX MAP 43 BLOCK 20 & TAX MAP 48 BLOCK 2
PARCEL A ZONED M-2
6th ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: LANDSCAPE PLAN

Patton Harris Rust & Associates, pc
Engineers. Surveyors. Planners. Landscape Architects.
PHR+A
8818 Centre Park Drive
Columbia, MD 21045
T 410.997.8900
F 410.997.9282

10.14.02 DATE

DAVID T. DOWS RLA # 830

DESIGNED BY :	GTH
DRAWN BY :	DAMGTH
CHECKED BY :	PJS
PROJECT NO :	01284 L202LND.DWG
DATE :	OCTOBER 14, 2002
SCALE :	1"= 40'
DRAWING NO.	10 OF 17

AS-BUILT- SDP-02-102

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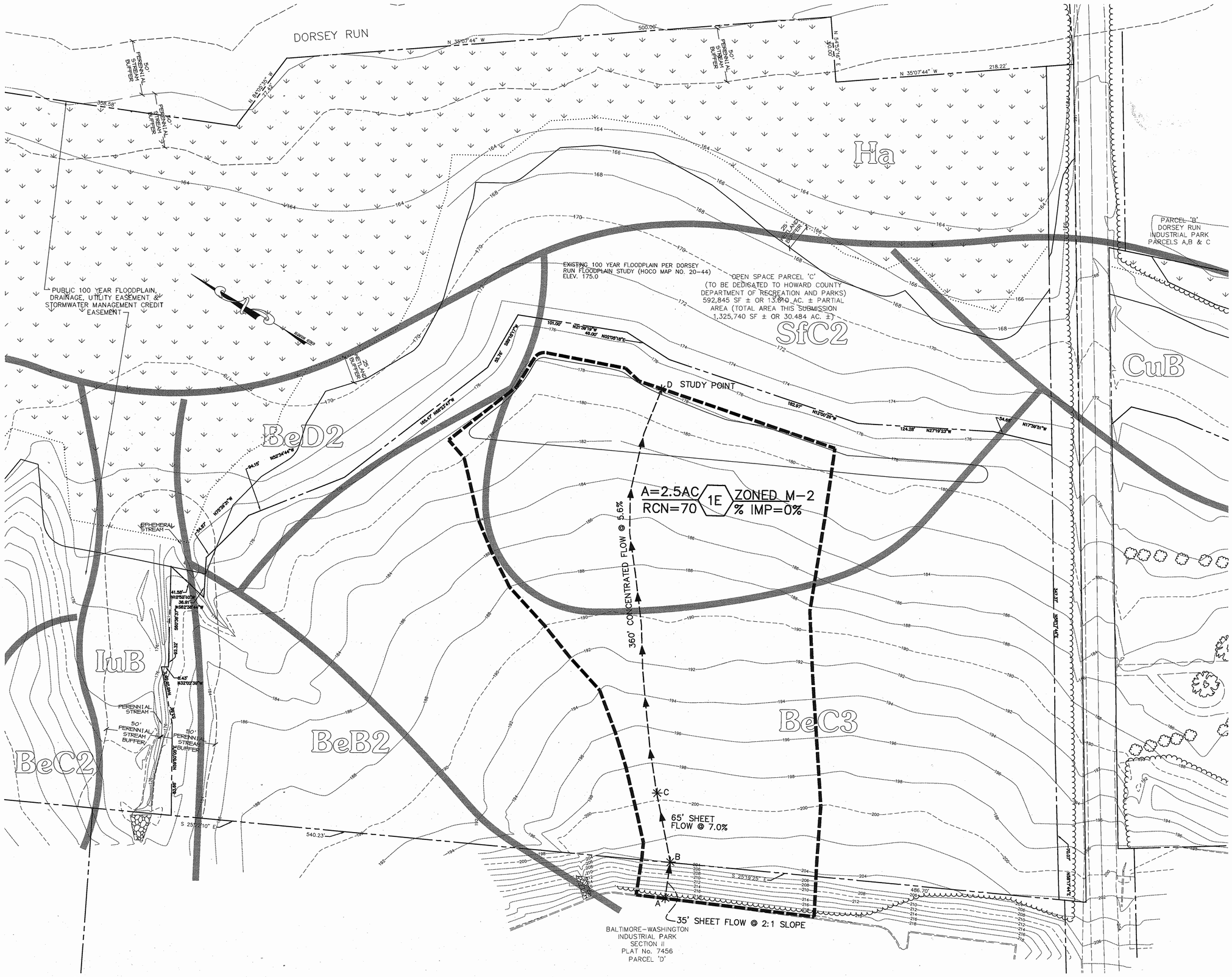

AS-BUILT CERTIFICATE

STATE OF MARYLAND — CHRISTOPHER J. REID — No. 19949 — PROFESSIONAL ENGINEER

CHRISTOPHER J. REID #19949 — 6.24.04 DATE

BY THE DEVELOPER :

I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

DEVELOPER — Tim HOGAN — 10-15-02 DATE

BY THE ENGINEER :

I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION.

ENGINEER — 10-15-02 DATE

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL.

NATURAL RESOURCES CONSERVATION SERVICE — DATE

THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

HOWARD SOIL CONSERVATION DISTRICT — DATE

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

DIRECTOR — 11/26/02 DATE

CHIEF, DEVELOPMENT ENGINEERING DIVISION — 11/14/02 DATE

CHIEF, DIVISION OF LAND DEVELOPMENT — 11/26/02 DATE

DATE	NO.	REVISION

OWNER: MS. CHARLOTTE M. DUVALL AND MR. BRYAN M. DUVALL, 8101 DORSEY RUN ROAD, JESSUP, MARYLAND 20794, 410-799-7724

DEVELOPER: OPUS EAST LLC, 2099 GAITHER ROAD, SUITE 101, ROCKVILLE, MD 20850, (301) 354-4444, ATTN: TIM HOGAN

PROJECT
DORSEY WOODS
PARCEL A, AN OFFICE-WAREHOUSE BUILDING

AREA TAX MAP 43 BLOCK 20 & TAX MAP 48 BLOCK 2
PARCEL A ZONED M-2
6th ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE
EXISTING CONDITIONS STORMWATER DRAINAGE AREA MAP

Patton Harris Rust & Associates, pc
Engineers. Surveyors. Planners. Landscape Architects.
PHR+A
8818 Centre Park Drive
Columbia, MD 21045
T 410.997.8900
F 410.997.9282

10.15.02 DATE

STATE OF MARYLAND — CHRISTOPHER J. REID — No. 19949 — PROFESSIONAL ENGINEER

CHRISTOPHER J. REID #19949

DESIGNED BY :	A.C.R
DRAWN BY :	DAM
CHECKED BY :	C.J.R.
PROJECT NO :	01284 C410XDA.DWG
DATE :	OCTOBER 14, 2002
SCALE :	1"= 40'
DRAWING NO.	13 OF 17

AS-BUILT — SDP-02-102

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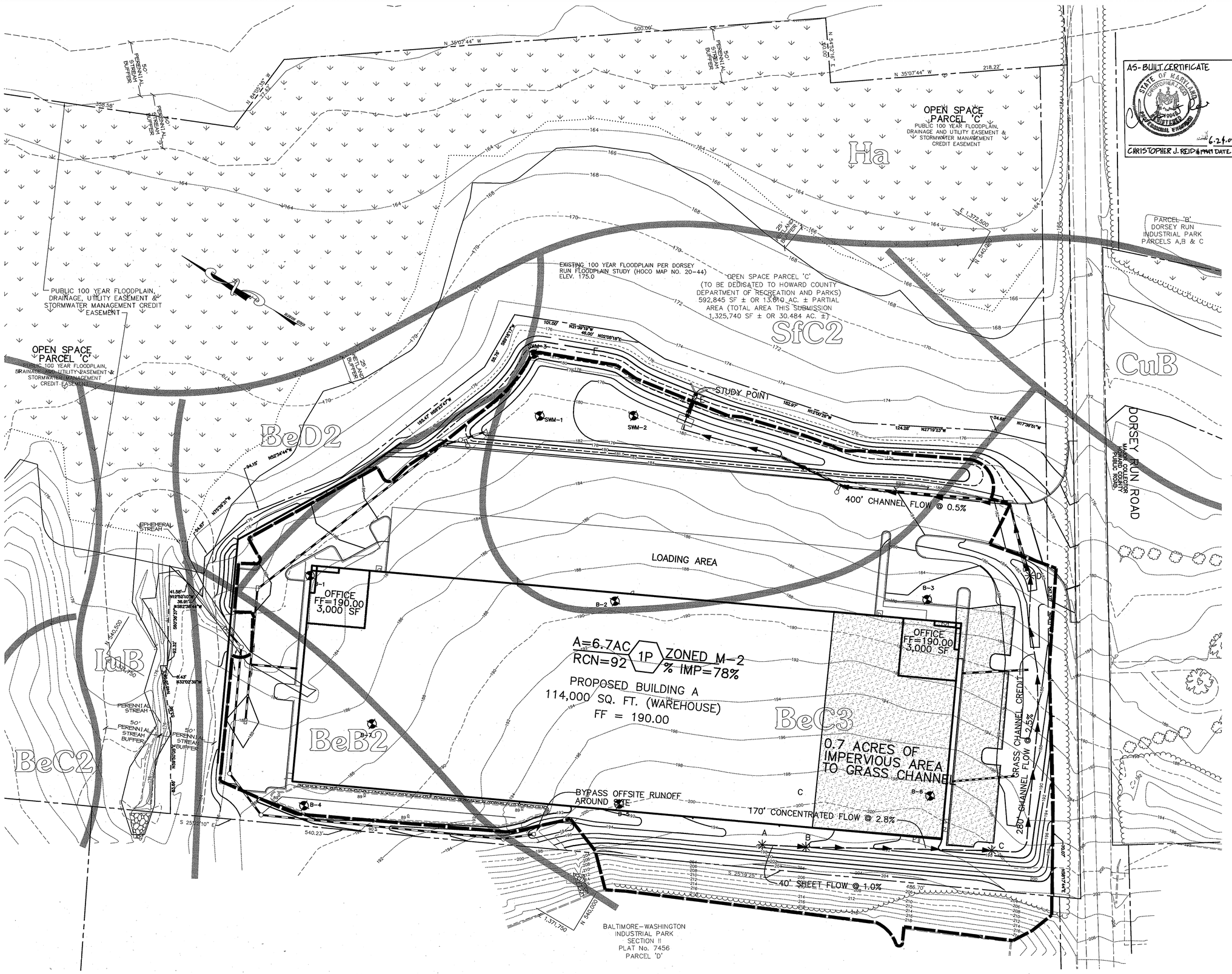


AS-BUILT CERTIFICATE

STATE OF MARYLAND — CHRISTOPHER J. REID — No. 19949 — REGISTERED PROFESSIONAL ENGINEER

6.24.04

CHRISTOPHER J. REID #19949 DATE

LEGEND

- TIME OF CONCENTRATION PATH
- GRASS CHANNEL CREDIT
- DRAINAGE AREA DIVIDE
- NATURAL AREA CONSERVATION CREDIT
- IMPERVIOUS AREA FOR REv
- SOIL LINES
- BORING LOCATION

BY THE DEVELOPER :

I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

10-15-02

DEVELOPER — DATE

TIM HOGAN

BY THE ENGINEER :

I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION.

Christy J Reid 10.15.02

ENGINEER — DATE

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL.

CB 11/13/02

NATURAL RESOURCES CONSERVATION SERVICE — DATE

THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

11/18/02

HOWARD SOIL CONSERVATION DISTRICT — DATE

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

DIRECTOR — 11/26/02 DATE

CHIEF, DEVELOPMENT ENGINEERING DIVISION — 11/14/02 DATE

CHIEF, DIVISION OF LAND DEVELOPMENT — 11/22/02 DATE

DATE	NO.	REVISION

OWNER: MS. CHARLOTTE M. DUVALL AND MR. BRYAN M. DUVALL, 8101 DORSEY RUN ROAD, JESSUP, MARYLAND 20794, 410-799-7724

DEVELOPER: OPUS EAST LLC, 2099 GAITHER ROAD, SUITE 101, ROCKVILLE, MD 20850, (301) 354-4444, ATTN: TIM HOGAN

PROJECT

DORSEY WOODS

PARCEL A, AN OFFICE-WAREHOUSE BUILDING

AREA TAX MAP 43 BLOCK 20 & TAX MAP 48 BLOCK 2, PARCEL A ZONED M-2, 6th ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

TITLE

PROPOSED CONDITIONS STORMWATER DRAINAGE AREA MAP

Patton Harris Rust & Associates, pc
Engineers. Surveyors. Planners. Landscape Architects.
PHR+A
8818 Centre Park Drive
Columbia, MD 21045
T 410.997.8900
F 410.997.9282

10.15.02 DATE

STATE OF MARYLAND — CHRISTOPHER J. REID — No. 19949 — REGISTERED PROFESSIONAL ENGINEER

CHRISTOPHER J. REID #19949

DESIGNED BY :	A.C.R
DRAWN BY :	DAM
CHECKED BY :	C.J.R.
PROJECT NO :	01284 C410PDA.DWG
DATE :	OCTOBER 14, 2002
SCALE :	1"= 40'
DRAWING NO.	14 OF 17

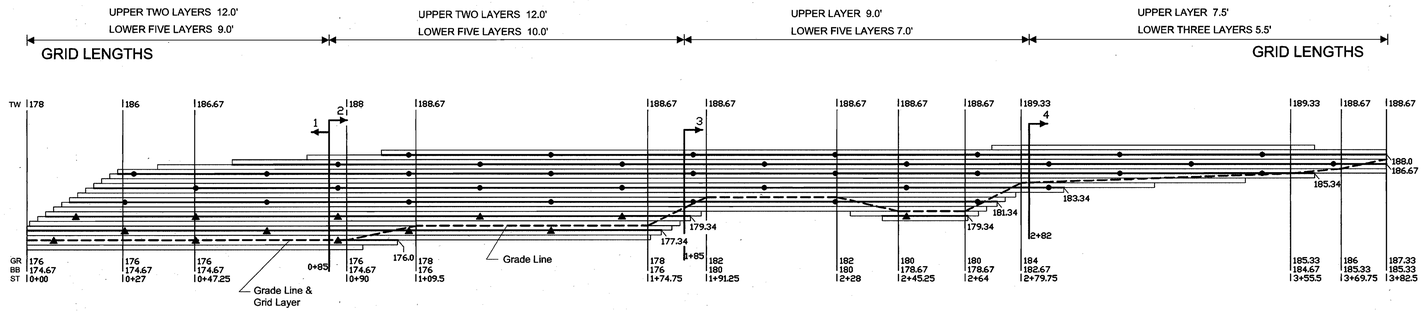
AS-BUILT — SDP-02-102

J:\projects\01284\1-01Engr\Plans\C410PDA.dwg, SITE, 10/11/02 11:43:51 AM, HP750C(36).pc3, Arch D - 24 x 36 in. (landscape), 1:1

CORNERSTONE

RETAINING WALL ELEVATION

HORIZONTAL SCALE: 1" = 20' VERTICAL SCALE: 1"=10'

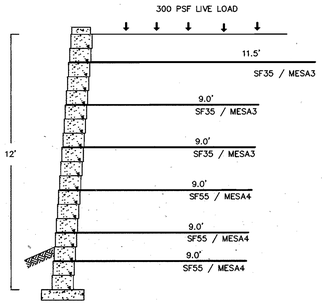


TW = TOP OF WALL (NOT INCLUDING CAP).
GR = PROPOSED FINISHED GRADE AT BASE OF WALL
BB = BOTTOM OF BLOCK / TOP OF FOOTER
ST = WALL STATION

GRID KEY: SYNTEEN SF35 OR UXMESA3

SYNTEEN SF55 OR UXMESA4

WALL #1 SECTION 1
0+00 TO 0+85



Block Dimensions
Total Wall Height = 12' Block Height = .667'
Angle of Setback = 4.5° Depth of Block = 1.00'
Length of Block = 1.50'

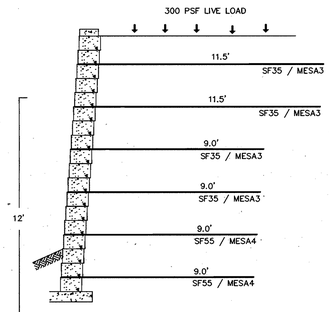
SOIL PARAMETERS
Infill Friction Angle = 28° Unit Weight = 120 PSF
Retained Friction Angle = 27° Unit weight = 120 PSF
Foundation Friction Angle = 27° Unit Weight = 120 PSF

Bearing Capacity Factor of Safety = 4.56
MAXIMUM BEARING PRESSURE = 1981 PSF

Safety Factors Static & Seismic
Minimum Sliding =1.5 Actual Sliding = 2.06
Minimum Overturning = 2.0 Actual Overturning = 4.36

N. T. S.

WALL #1 SECTION 2
0+85 TO 1+85



Block Dimensions
Total Wall Height = 12' Block Height = .667'
Angle of Setback = 4.5° Depth of Block = 1.00'
Length of Block = 1.50'

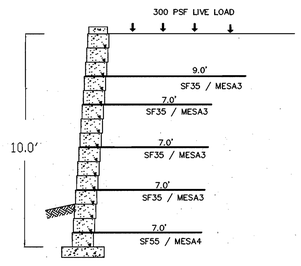
SOIL PARAMETERS
Infill Friction Angle = 28° Unit Weight = 120 PSF
Retained Friction Angle = 27° Unit weight = 120 PSF
Foundation Friction Angle = 27° Unit Weight = 120 PSF

Bearing Capacity Factor of Safety = 4.56
MAXIMUM BEARING PRESSURE = 1981 PSF

Safety Factors Static & Seismic
Minimum Sliding =1.5 Actual Sliding = 2.06
Minimum Overturning = 2.0 Actual Overturning = 4.36

N. T. S.

WALL #1 SECTION 3
1+85 TO 2+82



Block Dimensions
Total Wall Height = 10.0' Block Height = .667'
Angle of Setback = 4.5° Depth of Block = 1.00'
Length of Block = 1.50'

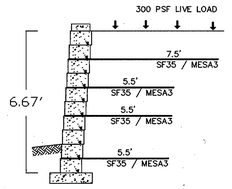
SOIL PARAMETERS
Infill Friction Angle = 28° Unit Weight = 125 PSF
Retained Friction Angle = 27° Unit weight = 125 PSF
Foundation Friction Angle = 27° Unit Weight = 125 PSF

Bearing Capacity Factor of Safety = 4.45
MAXIMUM BEARING PRESSURE = 1872 PSF

Safety Factors Static & Seismic
Minimum Sliding =1.5 Actual Sliding = 1.72
Minimum Overturning = 2.0 Actual Overturning = 3.42

N. T. S.

WALL #1 SECTION 4
2+82 TO 3+82



Block Dimensions
Total Wall Height = 6.67' Block Height = .667'
Angle of Setback = 4.5° Depth of Block = 1.00'
Length of Block = 1.50'

SOIL PARAMETERS
Infill Friction Angle = 28° Unit Weight = 125 PSF
Retained Friction Angle = 27° Unit weight = 125 PSF
Foundation Friction Angle = 27° Unit Weight = 125 PSF

Bearing Capacity Factor of Safety = 4.81
MAXIMUM BEARING PRESSURE = 1295 PSF

Safety Factors Static & Seismic
Minimum Sliding =1.5 Actual Sliding = 1.73
Minimum Overturning = 2.0 Actual Overturning = 3.85

N. T. S.

AS BUILT CERTIFICATE

STATE OF MARYLAND CHRISTOPHER J. REID 19949 REGISTERED PROFESSIONAL ENGINEER

CHRISTOPHER J. REID #19949 6.24.04

1. The proposed retaining wall construction shall be performed under the observation of a Maryland Registered Professional Engineer.
2. Foundation soils for the proposed retaining wall must be examined by the geotechnical engineer to assure the actual foundation soil strength meets or exceeds the assumed design strength.

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

DIRECTOR 11/26/02 DATE

CHIEF, DEVELOPMENT ENGINEERING DIVISION 11/14/02 DATE

CHIEF, DIVISION OF LAND DEVELOPMENT 11/24/02 DATE

DATE NO.	REVISION
05/21/02	Retaining Wall Design

OWNER: MS. CHARLOTTE M. DUVALL AND MR. BRYAN M. DUVALL
8101 DORSEY RUN ROAD
JESSUP, MARYLAND 20794
410-799-7724

DEVELOPER OPUS EAST LLC
2099 GAITHER ROAD, SUITE 101
ROCKVILLE, MD 20850
(301) 354-4444
ATTN: TIM HOGAN

PROJECT
DORSEY WOODS
PARCEL A, AN OFFICE-WAREHOUSE BUILDING

AREA TAX MAP 43
PARCELS A ZONED M-2
6th ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE
RETAINING WALL ELEVATION & SPECIFIC CROSS SECTIONS

Patton Harris Rust & Associates, pc
Engineers. Surveyors. Planners. Landscape Architects.
PHR+A
8818 Centre Park Drive
Columbia, MD 21045
T 410.997.8900
F 410.997.9282

10/8/02 DATE

STATE OF MARYLAND WILLIAM KARL RYAN No. 21586 PROFESSIONAL ENGINEER

WILLIAM K. RYAN, PE #21586

DESIGNED BY :	DKS
DRAWN BY :	RSP
CHECKED BY :	SLM
PROJECT NO :	PA221066
DATE :	MARCH 5, 2002
SCALE :	AS SHOWN
DRAWING NO.	15 OF 17

RYAN & ASSOCIATES
A Division of WKR Consulting, Inc.
RETAINING WALL DIVISION
717-477-8400 fax 717-477-8410
68 West King Street
Shippensburg, PA 17257

AS-BUILT- SDP-02-102

PLOT DATE: 05210205LM RA PROJECT #PA221066

GENERAL NOTES

1. **SOIL PARAMETERS:** Based on the geo-technical report for this site dated February 18, 2002 done by Specialized Engineering, an internal angle of friction of 27° was used for the foundation and retained soils in this design. A friction angle of 28° was used for the infill soil. Clayey soils (CL & SC) are predominant in the lower elevations of the borings and silty/ sandy soils (ML, SM & SP) are predominant in the upper lenses. The more favorable silty/ sandy soils shall be used for infill (within the reinforced geo-grid zone). CH (fat clay), MH (elastic silt) and OH/ OL/ PT (organic) are not acceptable for wall construction. If these unsuitable soils are encountered they must be removed and replaced with soils meeting or exceeding the design friction angle of 27 (under the wall's footing and behind the reinforced zone to a distance that is twice the exposed wall height). The site geo-technical engineer shall monitor this closely during the construction process. An assumed unit weight of 125 PCF was used, and fluctuations of 5 PCF higher or lower will not change affect design.

2. **CONSTRUCTION OVERSIGHT:** The foundation soils must be examined by the site geo-technical engineer to assure that the actual foundation soil strength meets or exceeds that required in the "Bearing Capacity" section (item #3 below). The construction of these walls shall be performed under the observation of a Maryland Registered Professional Engineer.

3. **BEARING CAPACITY:** The footing sub-grade must be tested and have an allowable bearing capacity of 2,500 PSF prior to installation of the stone base. The sub-grade must be virgin (natural undisturbed soil) or fill compacted to 95% of a standard proctor maximum dry density. The actual highest bearing pressure exerted by this wall (including the surcharge above) is 2,360 PSF. Any areas of the footing not mëeting this maximum pressure will require undercutting or enlarged grid reinforced footer.

4. **FACTORS OF SAFETY:** The following factors of safety have been met in this design: Sliding 1.5, Overturning 2.0, Bearing Capacity 2.0 and Global Stability 1.3, Geo-grid pullout 1.5 (from block and from soil), Geo-grid overstress 1.5 and Global Stability 1.3.

5. **SLOPES & SURCHARGES:** A live load surcharge of 300 PSF was applied to this wall for the proposed pavement and vehicles. There are no proposed slopes above this wall.

6. **DRAIN TILES:** Two 4" drainpipes are required on this wall- one within the footer (or behind the first course) and one at the rear of the reinforced geo-grid zone (mandated by Howard County). These drain tiles may be vented to daylight at the end(s) of the wall or through the wall face at maximum 30' on center. NOTE: If the pipes are vented through the wall face they must be at or within 6" above finished grade in front of the wall. The best method of venting these drain pipes for this particular site may be determined in the field by the wall installer, general contractor and site geo-technical engineer.

7. **WALL BATTER:** The wall batter is 4.5° (block setback of 5/8" per course).

8. **EMBEDMENT:** 2 blocks from station 0+00 to 0+90, 2 blocks increasing tō 3 blocks from 0+90 to 1+09, 3 blocks from 1+09 to 2+28, 3 blocks decreasing to 2 blocks from 2+28 to 2+45, 2 blocks from 2+45 to 2+80, 2 blocks decreasing to 1 block from 2+80 to 3+55 and 1 block increasing to 3 blocks from 3+55 to 3+82.

9. **WALL PROFILE:** This elevation drawing was done to represent the grade changes necessary on the civil plans and was done in even block course increments of .667' (8"). Minor field changes may be necessary if the actual field grades differ from this profile. The cap height of .333' (4") is not shown on the profile drawing, however its height may have been used to obtain the desired TW elevations in some cases.

10. **SPECIFICATIONS:** Construction and materials must conform to the "*Ryan & Associates segmental retaining wall specifications and installation guidelines for Cornerstone*" (these are located in the separate 8 ½" X 11" calculations submittal).

11. **GEO-GRIDS:** Synteen SF35 and SF55 geo-grids, which have LTDS (Long Term Design Strengths) of 1308 and 1906 respectively, were used in this design. Tensar UXMESA3
and UXMESA4, which have higher LTDS of 1876 and 2852 respectively, may also be used. All other grid substitutions must have prior approval of Ryan & Associates.

12. **GLOBAL STABILITY:** A global stability analysis was performed on the area of the wall referenced by Section #2. The analysis was pulled at wall station 1+09. 25# of cohesion was used. A copy of this analysis is included in the 8 ½" X 11" calculations submittal.

13. **FILL SLOPES:** Portions of this wall rest on "fill slopes". It is imperative that these slopes are constructed in lifts and compacted to 95% of a standard proctor maximum dry density prior to wall construction.

14. **GUARDRAIL:** If a guardrail is required above this wall it must be kept back a minimum of 3' from the back of the wall if it is subject to vehicular impact. If it is installed closer than this 3' minimum from the back of the wall then wheel stops or curbing must be installed to prevent vehicular contact. If this is not possible, the wall installer may follow the special instructions on the detail sheet "GUARD RAIL WITH IMPACT LOAD" included in the 8 ½" X 11" calculations submittal. This requires that concrete form tubes be installed in sections and that the grid becomes integral with them. The top two layers of grid must also be lengthened by 2' beyond the design length and the heavier SF55 geo-grid used.

15. **STORM WATER PIPES IN THE REINFORCED GEO-GRID ZONE:** In some cases the storm water pipes shown on the civil plans are behind the wall and are closer than the length of the geo-grid reinforcing. If their elevations put them up within the reinforced zone of the wall it is acceptable to shorten one layer of grid to meet the pipe structure. The layers above and below the shortened layer must be installed to the full design length. If the grid is shortened to the point where the wall installer's compaction equipment cannot properly compact the area between the wall and the pipe, all #57 stone must be used between the wall and the pipe and this confined area compacted with a vibratory plate compactor.

16. **STORMWATER PIPE:** A stormwater pipe intersects the wall at approximate wall station 2+62. This pipe is 18" ADS (plastic) and the segmental wall may not bear on it. The "BB" (bottom of block) elevation of the wall at this station is 178.67 and the top of pipe elevation is going to be approximately 178.25 +/-. Since it is directly under the wall a grade beam or lintels will need to be used. If a grade beam is cast in place, it shall be constructed of 3,000 PSI concrete and have dimensions of 1' wide X 4' long X 8" (one block course) high. Three #5 grade 60 bars shall be placed 5" down from the top (3" up from the bottom). The two outer bars shall be 3" in from the sides and the middle bar evenly spaced in between. It shall bear a minimum of 9" (half a block width) on either side. The top of this beam shall line up with the top of the next block course to prevent cutting of blocks. If the contractor opts to use precast block lintels, three 4" X 8" X 44" lintels (as manufactured by York Lintel & Cast Stone or equivalent) shall be stacked side by side and shall bear a minimum of 9" on the adjacent blocks.

17. **TANGENT ANGLE:** The angle point as drawn at wall station 1+75 on the civil plans should be built as a radius (outside curve) to avoid a vertical joint.

TYPICAL SECTION WITH GUARD RAIL BEHIND WALL

N. T. S.

TYPICAL PIPE OUTLET DETAIL

N. T. S.

REINFORCEMENT PLACEMENT FOR OUTSIDE CURVES

N. T. S.

CORNERSTONE BLOCK DIMENSIONS
TOP VIEW

CORNERSTONE BLOCK DIMENSIONS
FRONT VIEW

CORNERSTONE CAP DIMENSIONS

RYAN & ASSOCIATES
A Division of WKR Consulting, Inc.
RETAINING WALL DIVISION
717-477-8400 fax 717-477-8410
68 West King Street
Shippensburg, PA 17257

AS BUILT CERTIFICATE

CHRISTOPHER J. REID #19949 — 6.24.04 DATE

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

DIRECTOR — 11/26/02 DATE

CHIEF, DEVELOPMENT ENGINEERING DIVISION — 11/14/02 DATE

CHIEF, DIVISION OF LAND DEVELOPMENT — 11/22/02 DATE

DATE	NO.	REVISION
05/21/02		Retaining Wall Design

OWNER: MS. CHARLOTTE M. DUVALL AND MR. BRYAN M. DUVALL
8101 DORSEY RUN ROAD
JESSUP, MARYLAND 20794
410-799-7724

DEVELOPER: OPUS EAST LLC
2099 GAITHER ROAD, SUITE 101
ROCKVILLE, MD 20850
(301) 354-4444
ATTN: TIM HOGAN

PROJECT: **DORSEY WOODS**
PARCEL A, AN OFFICE-WAREHOUSE BUILDING

AREA: TAX MAP 43
PARCELS A ZONED M-2
6th ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: **RETAINING WALL DETAILS & GENERAL NOTES**

Patton Harris Rust & Associates, pc
Engineers. Surveyors. Planners. Landscape Architects.
PHR+A
8818 Centre Park Drive
Columbia, MD 21045
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10/8/02 DATE

WILLIAM K. RYAN, PE #21586

DESIGNED BY : DKS
DRAWN BY : RSP
CHECKED BY : SLM
PROJECT NO : PA221066
DATE : MARCH 5, 2002
SCALE : AS SHOWN
DRAWING NO. 16 OF 17

AS-BUILT- SDP-02-102

PLOT DATE: 052102SLM RA PROJECT #PA221066

SPECIFICATIONS FOR SEGMENTAL RETAINING WALL SYSTEMS

PART 1: GENERAL

1.01 Description

A. Work includes furnishing and installing segmental retaining wall (SRW) units to the lines and grades designated on the construction drawings. Also included is furnishing and installing appurtenant materials required for construction of the retaining wall as shown on the construction drawings.

1.02 Reference Standards

A. **ASTM C 140-** Sampling and Testing Concrete Masonry Units
B. **ASTM D 4595-** Tensile Properties of Geotextiles by the Wide-Width Strip Method.
C. **ASTM D 5262-** Test Method for Evaluating the Unconfined Creep Behavior of Geo- Grids
D. **GRI:GG1-** Single Rib Geogrid Tensile Strength
E. **GRI:GG5-** Geogrid Pullout
F. **ASTM D 698-** Moisture Density Relationship for Soils, Standard Method
G. **ASTM D 422-** Gradation of Soils
H. **ASTM 4318-** Atterberg Limits of Soil
I. **ASTM 3034-** Specification for Polyvinyl Chloride (PVC) Plastic Pipe
J. **ASTM D1248-** Specification for Corrugated Plastic Pipe

PART 2: MATERIALS

2.01 Segmental Retaining Wall Units

A. SRW units shall be machine formed, Portland Cement concrete blocks specifically designed for retaining wall applications. SRW unit currently approved for this project is:

Cornerstone as manufactured by United Concrete Products

NOTE: Where Cornerstone specifications and reference documents conflict with these specifications, these specifications hold precedence.

B. SRW units shall be capable of being erected with the horizontal gap between adjacent units not exceeding 1/8". The units shall be uniformly square and not trapezoidal in shape.

C. SRW units shall have a minimum 4" overlap of units on each successive course so that walls are interlocked and continuous.

D. SRW units shall be sound and free of cracks or other defects that would interfere with the proper placing of the unit or significantly impair the strength or permanence of the structure. Cracking or excessive chipping may be grounds for rejection. Units showing cracks longer than 1/2" shall not be used within the wall. Units showing chips visible at a distance of 30 feet from the wall shall not be used within the wall.

E. Concrete used to manufacture SRW units shall have a minimum 28 days compressive strength of 3,000 psi and a maximum moisture absorption rate, by weight, of 8% as determined in accordance with ASTM C 140. Compressive strength test specimens shall conform to the saw-cut coupon provisions of Section 5.2.4 of ASTM C140 with the following exception: Coupon shall be taken from the least dimension of the unit of a size and shape representing the geometry of the unit as a whole.

F. SRW units' molded dimensions shall not differ more than ± 1/8 inch from that specified, except height which shall be ± 1/16 inch as measured in accordance with ASTM C140.

2.02 Geosynthetic Reinforcement

A. Geosynthetic reinforcement shall consist of geogrids or geotextiles as indicated on the design plans. No grid substitutions shall be permitted without the approval of Ryan & Associates.

2.03 Leveling Pad

A. Unless otherwise noted on the cross sections, the leveling pad shall be 6" deep X 24" wide. Material for leveling pad shall consist of compacted sand, gravel, or a combination thereof. (Typical stone used for this pad is #57, CR6, 21A, etc.) The leveling pad should extend laterally at least a distance of 6 inches from the toe and heel of the lowermost SRW unit. In cases of poor bearing capacity or fill soils an enlarged, grid reinforced footer may be required. This typically consists of 1' deep X 4' wide with geo-grid under and within the stone. Lean, un-reinforced concrete with strength of 1500 PSI and 6" deep may also be used as for the leveling pad.

2.04 Drainage Aggregate

A. Drainage aggregate shall be angular, clean stone or granular fill consisting of #57 or approved equal (i.e.- median stone size ½" to 1 ½"). Rounded, pea gravel is not permissible.

2.05 Drainage Pipe

A. The drainage collection pipe shall be a 4" perforated or slotted PVC, or corrugated HDPE pipe.

B. Drain pipes are mandatory and shall be vented to daylight at the end(s) of the wall or at a central low point of the wall. If this is not possible, vent through the wall above finished grade at maximum intervals of 30' O.C. In no case shall a continuous pipe be run for more than 300' without an outlet to daylight.

2.06 Reinforced (Infill) Soil: the reinforced geo-grid zone

A. The soil used must meet or exceed the design friction angle noted on the design cross sections. The reinforced material shall be free of debris and organic material (i.e.- no trash, plants or root matter, top soil, etc.). Unless otherwise noted on the plans, the reinforced zone material shall **not** consist of CH (fat clay), MH (fat silt), or OH (organic) soils.

B. Rocks may be used as infill material as long as their diameter is 6" or less. NOTE: when all gravel is used as infill the LTDS of the geo-grid must be reduced to account for additiona installation damage from the large particles. Recycled concrete is permissible for infill.

2.07 Retained Soil: the area beyond the infill soil and extending to a distance of twice the exposed wall height

A. The soil used must meet or exceed the design friction angle noted on the design cross sections. Unless otherwise noted on the plans, the retained material shall **not** consist of CH (fat clay), MH (fat silt), or OH (organic) soils.

PART 3: CONSTRUCTION

3.01 Inspection

A. The Owner or Owner's Representative is responsible for verifying that the contractor meets all the requirements of the specification. This includes all submittals for materials and design, qualifications, and proper installation of wall system.

B. Contractor's field construction supervisor shall have demonstrated experience and be qualified to direct all work at the site.

3.02 Excavation

A. Contractor shall excavate to the lines and grades shown on the project plans. Contractor shall take precautions to minimize over-excavation. Over-excavation shall be filled with compacted infill material or as directed by the Geotechnical Engineer.

B. Contractor shall verify location of existing structures and utilities prior to excavation. Contractor shall ensure all surrounding structures are protected from the effects of wall excavation. Excavation support (shoring), if required, is the responsibility of the Contractor

3.03 Foundation Preparation

A. Following excavation, the foundation soil shall be examined by the Owner's Geotechnical Engineer to assure that the actual foundation soil strength meets or exceeds the allowable design bearing strength (this parameter can be found in the design's General Notes). Soils not meeting the required strength shall be removed and replaced with select structural fill compacted to 95% of a standard proctor for the full depth.

B. If large deposits of fill are encountered an enlarged, grid reinforced footer may be required.

4.04 Leveling Pad Construction

A. Leveling pad shall be placed as shown on the construction drawings with a minimum thickness of 6" and a minimum width of 24". The leveling pad should at a minimum extend laterally at least a distance of 6 inches from the toe and heel of the lower most SRW Unit.

B. Soil leveling pad material shall be compacted with a vibratory plate compactor to provide a firm, level-bearing surface on which to place the first course of units. Compaction will be with mechanical plate compactors to achieve 95% of maximum standard proctor density (ASTM D 698). A thin layer (not to exceed ½") of well-graded sand or stone dust can be used to smooth the top of the leveling pad.

4.05 SRW Unit Installation

A. All SRW units shall be installed at the proper elevation and orientation as shown on the wall profiles and details on the construction plans. The SRW units shall be installed in general accordance with the manufacturer's recommendations. The design engineer of record (Ryan & Associates) specifications and drawings shall govern in any conflict between the two requirements.

B. First course of SRW units shall be placed on the leveling pad. The units shall be leveled side-to-side, front-to-rear and with adjacent units, and aligned to ensure intimate contact with the leveling pad. The first course is the most important to ensure accurate and acceptable results. No gaps shall be left between the front of adjacent units. Alignment may be done by means of a string line or offset from base line to the back of the units.

C. Clean all excess debris from top of units and install next course.

D. Lay out of curves and corners shall be installed in accordance with the plan details or in general accordance with SRW manufacturer's installation guidelines. Walls shall be interlocked by overlapping successive courses. Continuous vertical joints are not permitted unless glued. In general, all tangent angles shown on the civil drawings should be changed into curves to enhance the wall's strength and appearance. Inside and outside corners may be constructed without compromising the wall's integrity.

E. Repeat procedures to extent of wall height.

F. The wall face cant shall not differ more than ± 2 degrees from that specified.

G. Embedment shall follow the general rule of 1" buried for every 1' of wall exposed when the front slope is 4:1 or greater. For 3:1 front slopes a minimum of 21" shall be buried, and for 2:1 front slopes a minimum of 29" shall be buried.

4.06 Geosynthetic Reinforcement Placement

A. All geosynthetic reinforcement shall be installed at the proper elevation and orientation as shown on the wall profiles and details on the final construction plans. Partial grid coverage is not acceptable- no gaps shall be present between grid sections.

B. At the elevations shown on the plans, the geosynthetic reinforcement shall be laid horizontally on compacted infill and on top of the concrete SRW units. Embedment of the geosynthetic in the SRW units shall be consistent with SRW manufacturer's recommendations. Correct orientation of the geosynthetic reinforcement shall be verified by the Contractor to be in accordance with the geosynthetic manufacturer's recommendations. The highest strength direction of the geosynthetic must be perpendicular to the wall face.

C. Geosynthetic reinforcement layers shall be one continuous piece for their entire embedment length. Overlap of the geosynthetic in the design strength direction (perpendicular to the wall face) is not permitted.

D. Tracked construction equipment shall not be operated directly on the geosynthetic reinforcement. A minimum of 6 inches of backfill is required prior to operation of tracked vehicles over the geosynthetic. Turning should be kept to a minimum. Rubber-tired equipment may pass over the geosynthetic reinforcement at slow speeds (less than 5 mph).

E. The geosynthetic reinforcement shall be in tension and free of wrinkles prior to placement of soil fill. The nominal tension shall be applied to the reinforcement and secured in place with staples, stakes or by hand tensioning until reinforcement is covered by six inches of fill.

4.07 Drainage Materials

A. Drainage aggregate shall be installed to the line, grades, and sections shown on the final plans. Drainage fill shall be placed to the minimum thickness of 12" as shown on the construction plans behind units. Drainage fill shall also fill all voids between and within (if hollow) the units.

B. Drainage collection pipes shall be installed to maintain gravity flow of water outside the reinforced soil zone. The drainage collection pipe shall daylight into a storm sewer manhole or along a slope at an elevation lower than the lowest point of the pipe within the aggregate drain (see section 2.05).

C. All drainage zone aggregate shall be compacted with a vibratory plate compactor with a minimum of two passes.

4.08 Backfill Placement

A. The reinforced backfill shall be placed as shown in the construction plans in the maximum compacted lift thickness of 10 inches and shall be compacted to a minimum of 95% of standard proctor density (ASTM D 698) at a moisture content within 2% of optimum. The backfill shall be placed and spread in such a manner as to eliminate wrinkles or movement of the geosynthetic reinforcement and the SRW units. Compaction testing shall be done at 25%, 50%, 75%, and 100% of the wall height or as specified by the site geo-technical engineer.

B. Only a vibratory plate or small-scale vibratory smooth drum compactor equipment shall be allowed within 3 feet of the front of the wall face ("consolidation zone"). Compaction within the 3 feet behind the wall shall be achieved by at least three (3) passes of the lightweight mechanical plate compactor or roller. Heavy equipment (such as track hoes, ride on rollers, pans, etc.) must be kept back a minimum of 3' from the rear of the wall ("compaction zone").

D. At the end of each day's operation, the Contractor shall slope the last level of backfill away from the wall facing to direct water runoff away from the wall face.

E. At completion of wall construction if final grading, paving, landscaping, and/or storm drainage installation adjacent to the wall is not placed immediately after wall completion, temporary grading shall be provided to ensure water runoff is not allowed to *collect or pond* behind the wall until final construction adjacent to the wall is completed.

F. Filter fabric is neither required nor recommended behind the drainage layer. Installation of filter fabric has proven to result in poor wall construction and its benefit has not been proven when used with clays, silts, and mixed soils. The exception is when all sand is used for infill material since it is non-cohesive and could potentially slough, clogging the drainage layer.

4.09 SRW Caps

A. SRW caps shall be properly aligned and glued to underlying units with a flexible, high-strength concrete adhesive (adhesive should be designed for "concrete to concrete" applications). Rigid adhesive or mortar is not acceptable.

4.10 Water Applications

A. When walls are installed in water applications (such as storm water ponds, streams, bulkheads, areas adjacent to flood plains, etc.) all granular material must be used as infill up to 1' above the 100 year flood elevation or the high water level. This material must be free draining and have less than 10% fines. The leveling pad and the reinforced zone (up to the extent of the stone infill) must be wrapped in filter fabric to prevent migration of fines. Rip rap stone is required in front of the bottom three course on walls installed in tidal waters. Rip rap may also be required to prevent scouring and erosion in front of walls installed in water sources prone to fluctuating water levels, and where pipes that frequently carry water exit through walls.

4.11 Rails, Fences, & Other Structures

A. Open rails and fences not subject to wind loads may be placed directly behind the wall as long as they are not subject to vehicular impact. Solid or semi-solid fences that are subject to wind loads must be kept back a minimum of 3' from the rear of the wall to prevent loading of the wall.

B. Guardrails subject to vehicular impact must be kept back a minimum of 3' to prevent loading of the wall. Guardrails may be placed closer than this 3' minimum only if a barrier (such as wheel stops, curbing, etc.) prevents impact.

C. Light posts and similar structures subject to wind loads must be kept back a minimum of 3' to prevent loading of the wall.

D. In cases where this 3' minimum cannot be met due to restraints on the site, additional analyses will need to be done to determine a method of stabilization. Ryan & Associates can be contracted to provide this design for an additional cost.

4.12 Storm Structures

A. RCP pipes may pass through the wall without compromising the design. The SRW units may be cut to fit around the pipe and the void filled with non-shrink grout or type "M" mortar. A concrete collar may be cast around the structure if desired. When a collar is cast, the top of the collar shall line up with an even block course to maintain proper alignment and neat workmanship. Corrugated steel pipes may not be able to support the wall's weight and may require a concrete beam. Check load capabilities with the pipe manufacturer.

B. When a pipe is located in or below the leveling pad a grade beam may be required. Ryan & Associates shall be consulted to determine the size, strength and reinforcing of the beam.

C. Concrete storm structures may be located behind a wall and within the reinforced zone as dictated by the project's civil drawings. If the structure(s) cannot be moved out of the reinforced zone and the grid installed to the full design length the following shall apply. On small structures (such as manholes, collection boxes, concrete pipes less than 20" O.D., etc.) it is acceptable to shorten the grid from the design length and meet the structure. The area between the wall and structure must be filled with #57 stone or equal- not the site soil. On large structures and in cases where pipes parallel the wall for long distances, Ryan & Associates shall be consulted to determine the impact on the wall before allowing this to be done.

4.13 Construction Adjacent to Completed Wall

A. The Owner or Owner's Representative is responsible for ensuring that construction adjacent to the wall by others does not disturb the wall or place temporary construction loads on the wall that exceed design loads, including loads such as water pressure, temporary grades, or equipment loading. Heavy paving or grading equipment shall be kept a minimum of three feet behind the back of the wall face. Equipment with wheel loads in excess of 150 psf live load shall not be operated with 10 feet of the face of the retaining wall during construction adjacent to the wall. Care should be taken by the General Contractor to ensure water runoff is directed away from the wall structure until final grading and surface drainage collection systems are completed.

B. Care must be taken when installing appurtenances (such as transformers, generators, etc.) within the reinforced zone of the wall. The compaction integrity of the reinforced zone must be maintained, both below and beside (around) the appurtenance. Neglecting to do so may cause hydrostatic pressure and wall failure.

END OF SECTION

Revised 01-02-01

RYAN & ASSOCIATES
A Division of WKR Consulting, Inc.
RETAINING WALL DIVISION
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88 West King Street
Shippensburg, PA 17257

AS BUILT CERTIFICATE

STATE OF MARYLAND CHRISTOPHER J. REID 19949 REGISTERED PROFESSIONAL ENGINEER

CHRISTOPHER J. REID #19949 — 6.24.04 DATE

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

DIRECTOR — 11/26/02 DATE

CHIEF, DEVELOPMENT ENGINEERING DIVISION — 11/14/02 DATE

CHIEF, DIVISION OF LAND DEVELOPMENT — 11/26/02 DATE

DATE NO.	REVISION
05/21/02	Retaining Wall Design

OWNER: MS. CHARLOTTE M. DUVALL AND MR. BRYAN M. DUVALL, 8101 DORSEY RUN ROAD, JESSUP, MARYLAND 20794, 410-799-7724

DEVELOPER: OPUS EAST LLC, 2099 GAITHER ROAD, SUITE 101, ROCKVILLE, MD 20850, (301) 354-4444, ATTN: TIM HOGAN

PROJECT
DORSEY WOODS
PARCEL A, AN OFFICE-WAREHOUSE BUILDING

AREA: TAX MAP 43, PARCELS A ZONED M-2, 6th ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

TITLE
RETAINING WALL SPECIFICATIONS

Patton Harris Rust & Associates, pc
Engineers. Surveyors. Planners. Landscape Architects.
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10/8/02 DATE

STATE OF MARYLAND WILLIAM KEVIN RYAN No. 21586 PROFESSIONAL ENGINEER

WILLIAM K. RYAN, PE #21586

DESIGNED BY :	DKS
DRAWN BY :	RSP
CHECKED BY :	SLM
PROJECT NO :	PA221066
DATE :	MARCH 5, 2002
SCALE :	AS SHOWN
DRAWING NO.	17 OF 17

RA PROJECT #PA221066

PLOT DATE: 052102SLM

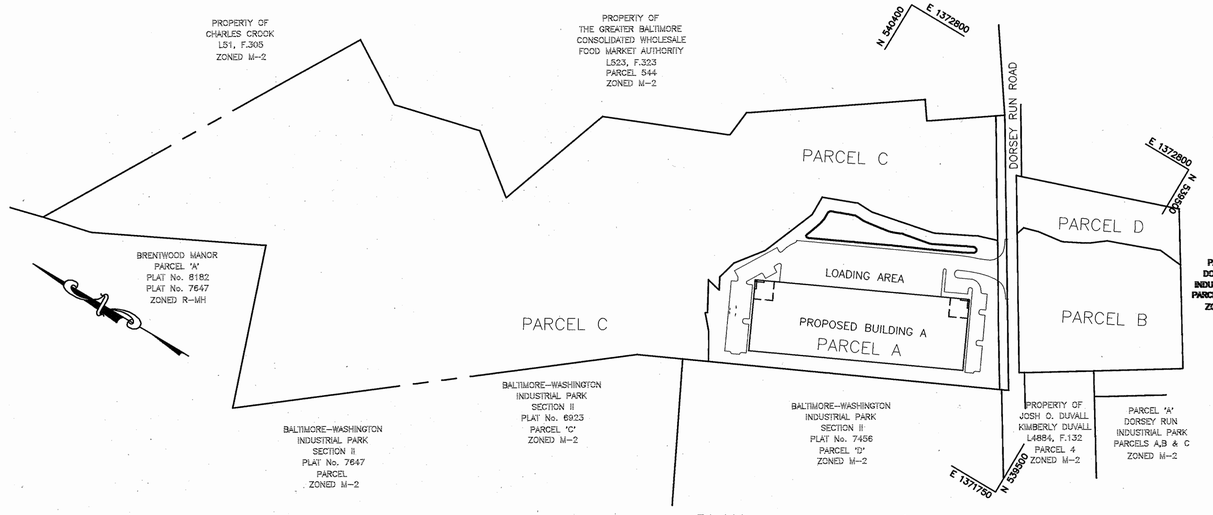
AS-BUILT- SDP-02-102

SITE DEVELOPMENT PLAN
DORSEY WOODS
PARCELS 134 & 528
6th ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

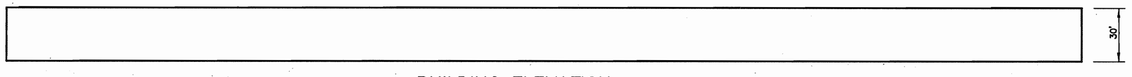
SHEET INDEX	
NO	DESCRIPTION
1	TITLE SHEET
2	SITE DEVELOPMENT PLAN
3	DRAINAGE AREA MAP AND SEDIMENT CONTROL PLAN
4	SEDIMENT CONTROL NOTES
5	SEDIMENT CONTROL NOTES AND DETAILS
6	SEDIMENT CONTROL NOTES AND DETAILS
7	DETAILS
8	PROFILES
9	BAYSAVER DETAILS
10	LANDSCAPE PLAN
11	LANDSCAPE PLAN
12	LANDSCAPE SCHEDULES AND DETAILS
13	EXISTING CONDITIONS STORMWATER DRAINAGE AREA MAP
14	PROPOSED CONDITIONS STORMWATER DRAINAGE AREA MAP
15	RETAINING WALL DETAILS
16	RETAINING WALL DETAILS
17	RETAINING WALL DETAILS

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 ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). ALL STREET AND REGULATORY SIGNS SHALL BE IN PLACE PRIOR TO THE PLACEMENT OF ANY ASPHALT.
5. ALL PLAN DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.
6. THE EXISTING TOPOGRAPHY IS TAKEN FROM FIELD RUN SURVEY WITH MAXIMUM TWO FOOT CONTOUR INTERVALS PREPARED BY PHR&A DATED OCTOBER 2001.
7. THE COORDINATES SHOWN HEREON ARE BASED UPON THE HOWARD COUNTY GEODETIC CONTROL WHICH IS BASED UPON THE MARYLAND STATE PLANE COORDINATE SYSTEM. HOWARD COUNTY MONUMENT NOS. 43AA AND 48AA WERE USED FOR THIS PROJECT.
8. WATER IS PUBLIC. CONTRACT NO. 454-W
9. SEWER IS PUBLIC. SEWER DRAINAGE AREA: PATAPSCO CONTRACT NO. 487-S
10. THE STORMWATER MANAGEMENT FACILITIES PROPOSED FOR THIS SITE ARE A PRIVATELY OWNED AND MAINTAINED EXTENDED DETENTION POND, GRASS CHANNEL, AND BIORETENTION BMP.
11. APPROXIMATE LOCATION OF EXISTING UTILITIES ARE SHOWN. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THE EXISTING UTILITIES AND MAINTAIN UNINTERRUPTED SERVICE. ANY DAMAGE INCURRED DUE TO CONTRACTOR'S OPERATION SHALL BE REPAIRED IMMEDIATELY AT THE CONTRACTOR'S EXPENSE. EXISTING UTILITIES ARE SHOWN BASED ON THE BEST AVAILABLE INFORMATION.
12. THE 100- YEAR FLOODPLAIN IS PER DORSEY RUN FLOODPLAIN STUDY (HOWARD COUNTY MAP NO. 20-44)
13. THE WETLANDS DELINEATION STUDY FOR THIS PROJECT WAS PREPARED BY PHR&A DATED FEBRUARY 2002.
14. THE TRAFFIC STUDY WAS PREPARED BY THE TRAFFIC GROUP INC. DATED FEBRUARY 2002.
15. THE GEOTECHNICAL STUDY FOR STORMWATER MANAGEMENT FOR THIS PROJECT WAS PREPARED BY SPECIALIZED ENGINEERING DATED FEBRUARY 2002.
16. THE BOUNDARY SURVEY FOR THIS PROJECT WAS PREPARED BY (PHR&A) DATED FEBRUARY 2002.
17. SUBJECT PROPERTY ZONED M-2 PER 10-18-93 COMPREHENSIVE ZONING PLAN.
18. ALL ELEVATIONS SHOWN ARE BASED ON THE U.S.C. AND G.S. MEAN SEA LEVEL DATUM, 1929.
19. SEE DEPARTMENT OF PLANNING AND ZONING FILE NO'S. F-02-119, WP-02-84.
20. THE CONTRACTOR SHALL VERIFY EXISTING UTILITIES AT LEAST FIVE DAYS BEFORE STARTING WORK SHOWN ON THESE DRAWINGS.
21. CONTRACTOR IS SOLELY RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, PROCEDURES, AND SAFETY PRECAUTIONS AND PROGRAMS.
22. NO PIPE SHALL BE LAID UNTIL LINES OF EXCAVATION HAVE BEEN BROUGHT WITHIN 6" OF FINISHED GRADE.
23. ALL INLETS SHALL BE CONSTRUCTED IN ACCORDANCE WITH HOWARD COUNTY STANDARDS.
24. ALL PIPE ELEVATIONS SHOWN ARE INVERT ⌀ ELEVATIONS.
25. STORM DRAIN TRENCHES WITHIN ROAD RIGHT OF WAY SHALL BE BACKFILLED AND COMPACTED IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL, VOLUME IV, i.e., STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION, LATEST AMENDMENTS.
26. PROFILE STATIONS SHALL BE ADJUSTED AS NECESSARY TO CONFORM TO PLAN DIMENSIONS.
27. ALL FILL AREAS WITHIN ROADWAY AND UNDER STRUCTURES TO BE COMPACTED TO A MINIMUM OF 95% COMPACTION OF AASHTO T99.
28. THIS DEVELOPMENT COMPLIES WITH THE REQUIREMENTS OF 16.1200 OF HOWARD COUNTY CODES FOR FOREST CONSERVATION THROUGH THE ESTABLISHMENT OF A FOREST RETENTION EASEMENT THAT ENCOMPASSES 6.853 AC. OF EXISTING FOREST ON F-02-119, PLAT NO. 15910 & 15911.
29. WP-02-84 IS A REQUEST TO WAIVE SECTION 16. 102 (F)-MERGER OF NON-RESIDENTIAL PARCELS: WHERE TWO OR MORE NON-RESIDENTIAL PARCELS THAT HAVE NOT BEEN PART OF A PREVIOUSLY RECORDED SUBDIVISION ARE TO BE MERGED AND INTERIOR LOT LINES ARE TO BE ELIMINATED, NEITHER A SKETCH OR PRELIMINARY PLAN IS REQUIRED AS LONG AS NO PUBLIC ROAD IMPROVEMENTS ARE REQUIRED. THE INITIAL SUBDIVISION MAY BE A FINAL PLAN WAS APPROVED ON APRIL 15, 2002 WITH CONDITIONS.
30. NO CLEARING, GRADING OR CONSTRUCTION IS PERMITTED WITHIN THE WETLANDS, STREAMS OR THEIR BUFFERS AND FOREST CONSERVATION AREAS.
31. FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING HAS BEEN POSTED AS PART OF THE DPW DEVELOPERS AND AGREEMENT IN THE AMOUNT OF $14,670 FOR 29 SHADE TREES, 21 EVERGREEN TREES, 6 ORNAMENTAL TREES, AND 64 SHRUBS.
32. A FEE-IN-LIEU PAYMENT WILL BE PAID BY DEVELOPER TO ADDRESS THE REQUIRED DORSEY RUN ROAD IMPROVEMENTS. THE FEE WILL BE APPLIED TO CAPITAL PROJECT J-4182.
33. THIS STORMWATER MANAGEMENT FACILITY IS DESIGNED FOR IMPERVIOUS AREAS AS SHOWN ON THE SITE PLAN. NO ADDITIONAL INCREASE AREAS IS ALLOWED WITHOUT ADEQUATE STORMWATER QUALITY MANAGEMENT BEING ADDRESSED.



PLAN
SCALE: 1" = 200'

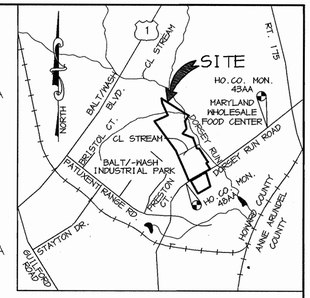


BUILDING ELEVATION
SCALE: 1" = 40'

AS-BUILT CONTROL BENCH MARK

HO. CO. SURVEY CONTROL STATION: 48AA
N 539,314.900 E 1,371,539.251
ELEVATION: 240.809'
46' NORTH OF DORSEY RUN ROAD AND 42.9' SOUTHEAST OF FENCED LOT, WEST CORNER.

HO. CO. SURVEY CONTROL STATION: 43HA
N 540,761.716 E 1,373,837.365
ELEVATION: 224.907'
70.5' FROM TOP WEST CORNER OF NORMAN GEIPE VAN LINE BLDG. HEADING TOWARD DORSEY RUN RD. AND 8.3' SOUTH OF DORSEY RUN RD. FACE OF CURB.



VICINITY MAP
SCALE: 1"=2000'

SITE TABULATION

SITE AREA-PARCEL A	7.489 ACRES
LIMIT OF DISTURBED AREA	7.5 ACRES
PRESENT ZONING	M-2
PROPOSED USE	OFFICE/ WAREHOUSE FACILITY (ONE STORY)
120,000 SF FLOOR AREA OFFICE 6,000 SF WAREHOUSE 114,000 SF	
PARKING SPACES REQUIRED	
OFFICE 3.3 SP/1000 SF	20 SPACES
WAREHOUSE 0.5 SP/1000 SF	57 SPACES
TOTAL	77 SPACES
PARKING SPACES PROVIDED	90 SPACES (INCLUDES 4 HC SPACES) ⚠

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

DIRECTOR — DATE 11/26/02

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 11/14/02

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 11/22/02

DATE	NO.	REVISION
1.7.04	⚠	REVISED SITE TABULATION

OWNER: MS. CHARLOTTE M. DUVALL AND MR. BRYAN M. DUVALL
8101 DORSEY RUN ROAD
JESSUP, MARYLAND 20794
410-799-7724

DEVELOPER: OPUS EAST LLC
2099 GAITHER ROAD, SUITE 101
ROCKVILLE, MD 20850
(301) 354-4444
ATTN: TIM HOGAN

PROJECT
DORSEY WOODS
PARCEL A, AN OFFICE-WAREHOUSE BUILDING

AREA TAX MAP 43 BLOCK 20 & TAX MAP 48 BLOCK 2
PARCEL A ZONED M-2
6th ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE
TITLE SHEET

Patton Harris Rust & Associates, pc
Engineers. Surveyors. Planners. Landscape Architects.
PHR+A
8818 Centre Park Drive
Columbia, MD 21045
T 410.997.8900
F 410.997.9282

AS-BUILT CERTIFICATE

STATE OF MARYLAND — CHRISTOPHER J. REID — NO. 19949 — REGISTERED PROFESSIONAL ENGINEER

CHRISTOPHER J. REID #19949 — 6.24.04 DATE

ADDRESS CHART

LOT NUMBER	STREET ADDRESS
	8100 DORSEY RUN ROAD

SUBDIVISION NAME: DORSEY WOODS			SECT./AREA: -		PARCEL: 134 AND 528
PLAT # 15911	BLOCK # 2	ZONING M-2	TAX MAP NO. 48	ELECT. DIST. 6	CENSUS TRACT 6069.01
WATER CODE: W02			SEWER CODE: 3020000		

10.15.02 DATE

STATE OF MARYLAND — CHRISTOPHER J. REID — NO. 19949 — PROFESSIONAL ENGINEER

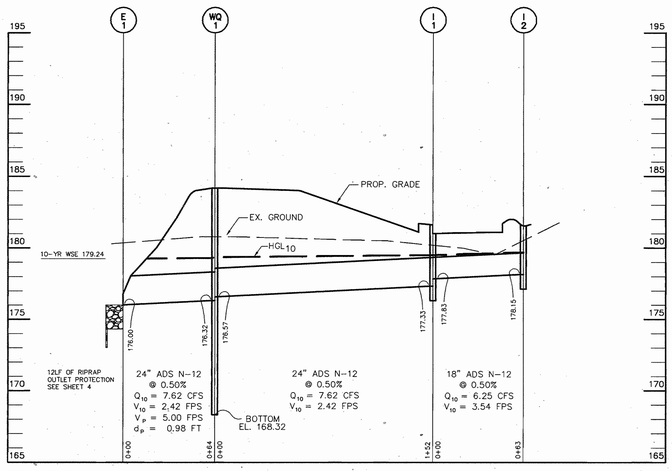
CHRISTOPHER J. REID #19949

DESIGNED BY :	A.C.R
DRAWN BY :	DAM
CHECKED BY :	C.J.R.
PROJECT NO :	01284 C000COV.DWG
DATE :	OCTOBER 14, 2002
SCALE :	AS SHOWN
DRAWING NO.	1 OF 17

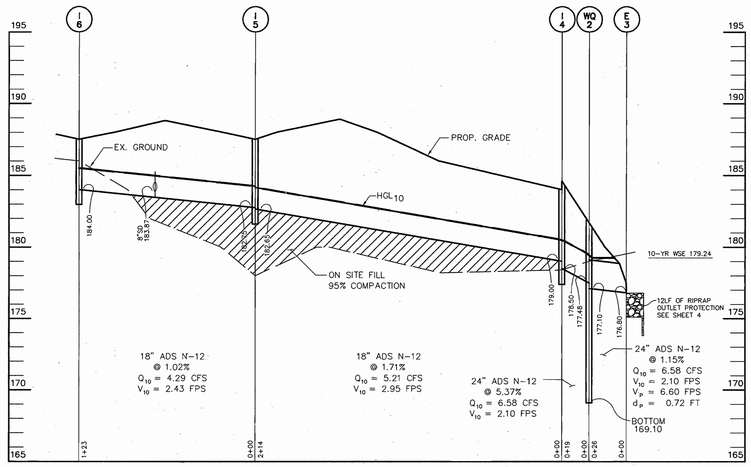
AS-BUILT-

SDP-02-102

J:\project\01284\1.0\Engr\Plans\C000COV.dwg, SITE, 10/11/02 11:33:38 AM, HP750C(36).pc3, Arch D - 24 x 36 in. (landscape), 1:1



PROFILE
SCALE :
HOR.-1"=50'
VERT.-1"=5'



PROFILE
SCALE :
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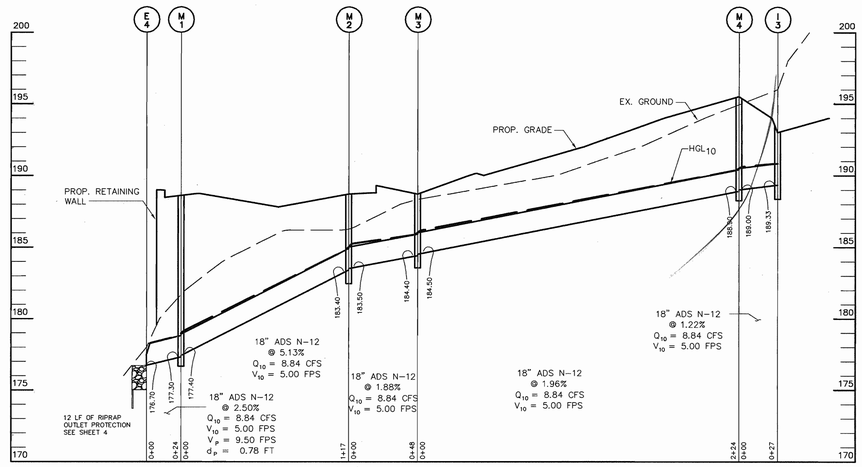
VERT.-1"=5'



PROFILE
SCALE :
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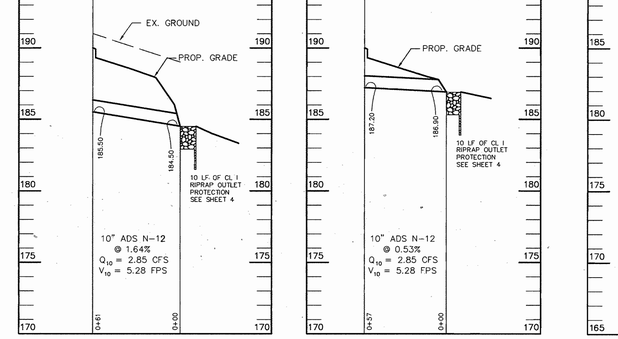
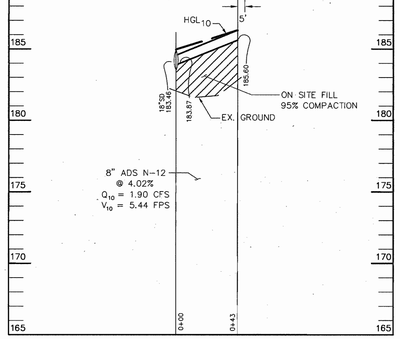
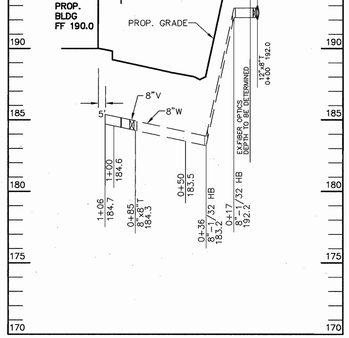
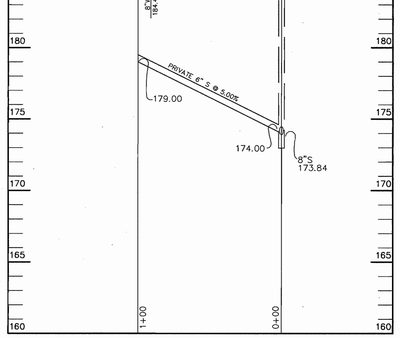




PROFILE
SCALE :
HOR.-1"=50'
VERT.-1"=5'



WATER PROFILE
SCALE :
HOR.-1"=50'
VERT.-1"=5'



SEWER PROFILE
SCALE :
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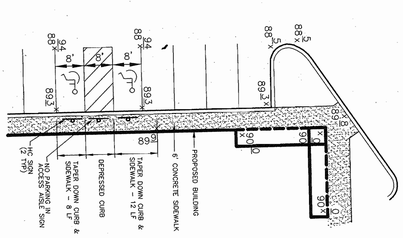
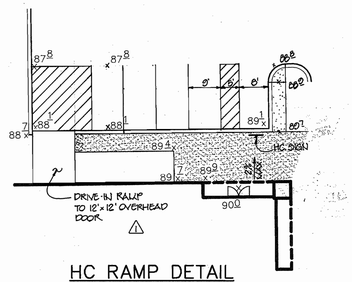
VERT.-1"=5'



HC RAMP DETAIL
SCALE :
HOR.-1"=20'



HC RAMP DETAIL
SCALE :
HOR.-1"=20'

AS-BUILT CERTIFICATE

I HEREBY CERTIFY THAT THE INFORMATION SHOWN HEREON IS CORRECT AS-BUILT INFORMATION.

STATE OF MARYLAND — CHRISTOPHER J. REID — No. 19949 — REGISTERED PROFESSIONAL ENGINEER

6.24.04
CHRISTOPHER J. REID # 19949 — DATE

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

DIRECTOR — 11/26/02 DATE

CHIEF, DEVELOPMENT ENGINEERING DIVISION — 11/14/02 DATE

CHIEF, DIVISION OF LAND DEVELOPMENT — 11/26/02 DATE

DATE	NO.	REVISION
1.7.04	1	REV. HC RAMP DETAIL

OWNER: MS. CHARLOTTE M. DUVALL AND MR. BRYAN M. DUVALL
8101 DORSEY RUN ROAD
JESSUP, MARYLAND 20794
410-799-7724

DEVELOPER: OPUS EAST LLC
2099 GAITHER ROAD, SUITE 101
ROCKVILLE, MD 20850
(301) 354-4444
ATTN: TIM HOGAN

PROJECT
DORSEY WOODS
PARCEL A, AN OFFICE-WAREHOUSE BUILDING

AREA TAX MAP 43 BLOCK 20 & TAX MAP 48 BLOCK 2
PARCEL A ZONED M-2
6th ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE
PROFILES

Patton Harris Rust & Associates, pc
Engineers. Surveyors. Planners. Landscape Architects.
8818 Centre Park Drive
Columbia, MD 21045
T 410.997.8900
F 410.997.9282

10.15.02
DATE

STATE OF MARYLAND — CHRISTOPHER J. REID — No. 19949 — REGISTERED PROFESSIONAL ENGINEER

CHRISTOPHER J. REID #19949

DESIGNED BY :	A.C.R
DRAWN BY :	DAM
CHECKED BY :	C.J.R.
PROJECT NO :	01284 C900DET5.DWG
DATE :	OCTOBER 14, 2002
SCALE :	AS SHOWN
DRAWING NO.	8 OF 17

AS-BUILT — SDP-02-102

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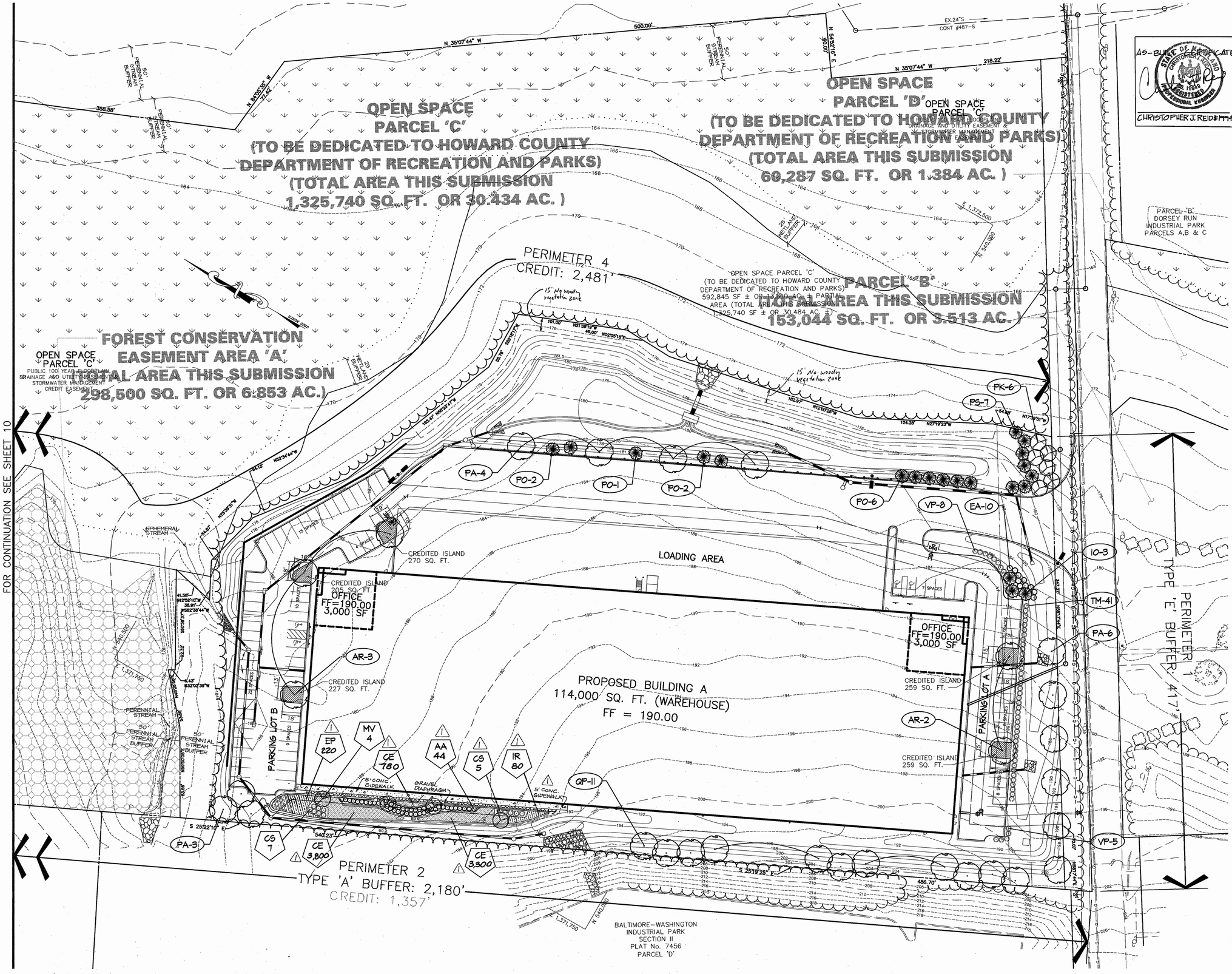

AS-BUILT CERTIFICATE

I HEREBY CERTIFY THAT THE INFORMATION SHOWN HEREON IS CORRECT AND THAT THE CONSTRUCTION OF THE IMPROVEMENTS WERE MADE UNDER MY RESPONSIBLE CHARGE AND THAT THEY COMPLY WITH THE APPROVED PLANS AND ALL APPLICABLE REGULATIONS.

CHRISTOPHER J. REID #17771 — 6.29.04 DATE

STATE OF MARYLAND — CHRISTOPHER J. REID — NO. 17771 — REGISTERED PROFESSIONAL ENGINEER

LEGEND

- EX. TREELINE
- PROP. TREELINE
- PROPERTY LINE
- WETLANDS AND 25' BUFFER
- PERENNIAL STREAM AND 50' BUFFER
- 100-YEAR FLOODPLAIN
- CONTOUR LINES
- EX. BUILDING
- PROP. SHADE TREE
- PROP. EVERGREEN TREE
- PROP. SHRUBS
- LANDSCAPE REQUIREMENT (AR-3)
- BIORETENTION PLANTING (CE 1,000)
- PERIMETER LANDSCAPE EDGE LIMITS
- PERIMETER LANDSCAPE EDGE CONTINUATION OFF THE SHEET
- CREDITED LANDSCAPE ISLAND
- FOREST CONSERVATION EASEMENT

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

DIRECTOR — DATE 11/26/02

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 4/14/03

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 11/22/02

DATE	NO.	REVISION
01.03.03	1	ADDED 5' SIDEWALK, ADJUSTED BIO-RETENTION FACILITY REVISED LANDSCAPING.

OWNER: MS. CHARLOTTE M. DUVALL AND MR. BRYAN M. DUVALL, 8101 DORSEY RUN ROAD, JESSUP, MARYLAND 20794, 410-799-7724

DEVELOPER: OPUS EAST LLC, 2099 GAITHER ROAD, SUITE 101, ROCKVILLE, MD 20850, (301) 354-4444, ATTN: TIM HOGAN

PROJECT

DORSEY WOODS

PARCEL A, AN OFFICE-WAREHOUSE BUILDING

AREA TAX MAP 43 BLOCK 20 & TAX MAP 48 BLOCK 2
PARCEL A ZONED M-2
6th ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE

LANDSCAPE PLAN

Patton Harris Rust & Associates, pc
Engineers. Surveyors. Planners. Landscape Architects.
PHR+A
8818 Centre Park Drive
Columbia, MD 21045
T 410.997.8900
F 410.997.9282

10.14.02 DATE

STATE OF MARYLAND — 830 — DAVID T. DOWS — REGISTERED LANDSCAPE ARCHITECT

DAVID T. DOWS RLA # 830

DESIGNED BY :	GTH
DRAWN BY :	DAMGTH
CHECKED BY :	PJS
PROJECT NO :	01284 L201LND.DWG
DATE :	OCTOBER 14, 2002
SCALE :	1"= 40'
DRAWING NO.	11 OF 17

AS-BUILT — SDP-02-102

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SCHEDULE A - PERIMETER LANDSCAPE EDGE

	ADJACENT TO PERIMETER PROPERTIES			ADJACENT TO ROADWAYS
PERIMETER	2	3	4	1
LANDSCAPE TYPE	A	A	A	E
LINEAR FEET OF ROADWAY FRONTAGE/ PERIMETER	2,180'±	384'±	2,481'±	417'±
CREDIT FOR EXISTING DRIVE AISLE (LINEAR FEET)	NO	NO	NO	YES 44'±
CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	YES 1,357'±	YES 384'±	YES 2,481'±	NO
LINEAR FEET REMAINING	823'±	0'	0'	373'±
CREDIT FOR WALL, FENCE, OR BERM (YES/NO/LINEAR FEET)	NO –	NO –	NO –	NO –
NUMBER OF PLANTS REQUIRED				
SHADE TREES	14	0	0	9
EVERGREEN TREES	0	0	0	0
SHRUBS	0	0	0	94
NUMBER OF PLANTS PROVIDED				
SHADE TREES	14	0	0	6
EVERGREEN TREES	0	0	0	3
SMALL FLOWERING TREES	0	0	0	6
SHRUBS	0	0	0	64

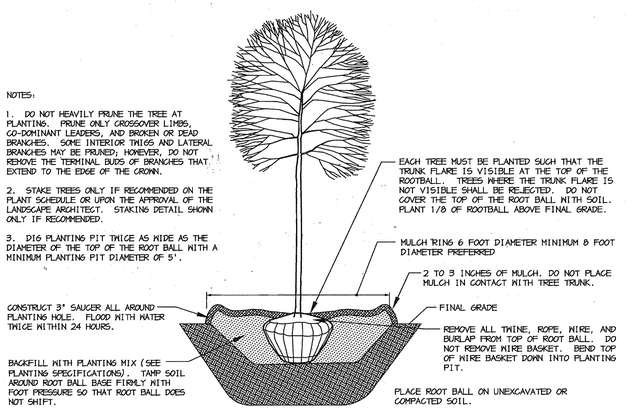
SCHEDULE A SUBSTITUTION NOTES:
PERIMETER 1: (6) ORNAMENTAL TREES AND (3) EVERGREENS WERE SUBSTITUTED FOR (3) SHADE TREES AND (30) SHRUBS.

SCHEDULE B - PARKING LOT INTERNAL LANDSCAPING

PARKING LOT	A	B
NUMBER OF PARKING SPACES	28	56
NUMBER OF SHADE TREES REQUIRED (1/20 SPACES)	2	3
NUMBER OF TREES PROVIDED		
SHADE TREES	2	3
OTHER TREES (2:1 SUBSTITUTION)	–	–
NUMBER OF ISLANDS REQUIRED (1/20 SPACES)	2	3
NUMBER OF ISLANDS PROVIDED (200 SF/ISLAND)	2	3

PLANT LIST

SYMBOL	QTY.	SCIENTIFIC/ COMMON NAME	SIZE	ROOT	REMARKS
AR	5	Acer rubrum 'Red Sunset' Red Sunset Red Maple	2.5"-3" cal.	B&B	Plant as shown
PA	13	Platanus xacerifolia 'Bloodgood' Bloodgood London Planetree	2.5"-3" cal.	B&B	Plant as shown
QP	11	Quercus palustris Pin Oak	2.5"-3" cal.	B&B	Plant as shown
IO	3	Ilex opaca American Holly	6'-8' ht.	B&B	Plant as shown
PO	11	Picea abies Norway Spruce	6'-8' ht.	B&B	Plant as shown
PS	7	Pinus strobus Eastern White Pine	6'-8' ht.	B&B	Plant as shown
PK	6	Prunus serrulata 'Kwanzan' Kwanzan cherry	1.5"-2" ht.	B&B	Plant as shown
EA	10	Euonymus alatus 'Compactus' Dwarf Burning Bush	24"-30" ht.	Cont.	Plant 4.5' o.c.
TM	41	Taxus x media 'Densiformis' Densiformis Yew	24"-30" ht.	Cont.	Plant 4.5' o.c.
VP	13	Viburnum plicatum tomentosa Doublefile Viburnum	24"-30" ht.	Cont.	Plant 5' o.c.



DECIDUOUS B&B TREE PLANTING DETAIL
NOT TO SCALE

PLANTING SPECIFICATIONS

1. Plants, related material, and operations shall meet the detailed description, as given on the plans and as described herein. Where discrepancies exist between Standards & Guidelines referenced within these specifications and the Howard County Landscape Manual, the latter takes precedence.

2. All plant material, unless otherwise specified, that is not nursery grown, uniformly branched, does not have a vigorous root system, and does not conform to the most recent edition of the American Association of Nurserymen (AAN) Standards will be rejected. Plant material that is not healthy, vigorous, free from defects, decay, disfiguring roots, sunscald injuries, abrasions of the bark, plant disease, insect pest eggs, borers and all forms of insect infestations or objectionable disfigurements will be rejected. Plant material that is weak or which has been cut back from larger grades to meet specified requirements will be rejected. Trees with forked leaders will be rejected. All B & B plants shall be freshly dug; no healed-in plants or plants from cold storage will be accepted.

3. Unless otherwise specified, all general conditions, planting operations, details and planting specifications shall conform to the most recent edition of the "Landscape Specification Guidelines by the Landscape Contractors Association of MD, DC, & VA", (hereinafter "Landscape Guidelines") approved by the Landscape Contractors Association of Metropolitan Washington and the Potomac Chapter of the American Society of Landscape Architects.

4. Contractor shall guarantee all plant material for a period of one year after date of acceptance in accordance with the appropriate section on the Landscape Guidelines. Contractor's attention is directed to the maintenance requirements found within the one year specifications including watering and replacement of specified plant material.

5. Contractor shall be responsible for notifying all relevant and appropriate utility companies, utility contractors, and "Miss Utility" a minimum of 48 hours prior to the beginning of any work. Contractor may make minor adjustments in spacing and location of plant material to avoid conflicts with utilities. Major changes will require the approval of the landscape architect. Damage to existing structure and utilities shall be repaired at the expense of the Contractor.

6. Protection of existing vegetation to remain shall be accomplished via the temporary installation of 4 foot high snow fence at the drip line, see detail.

7. Contractor is responsible for installing all material in the proper planting season for each plant type. All planting is to be completed within growing season of completion of site construction. Do not plant Pinus strobus or XCupressocyparis leylandii between November 15 and March 15. Landscape plants are not to be installed before site is graded to final grade.

8. Contractor to regrade, fine grade, sod, hydroseed and straw mulch all areas disturbed by their work.

9. Bid shall be based on actual site conditions. No extra payment shall be made for work arising from actual site conditions differing from those indicated on drawings and specifications.

10. Plant quantities are provided for the convenience of the contractor only. If discrepancies exist between quantities shown on plan and those shown on the plant list, the quantities on the plan take precedence. Where discrepancies on the plan exist between the symbols and the callout leader, the number of symbols take precedence.

11. All plants spaced 6' o.c. or closer shall have a continuous mulch bed. All shrubs and groundcover areas shall be planted in continuous planting beds, prepared as specified, unless otherwise indicated on plans. (See Specification 13). Beds to be mulched with minimum 2" and maximum 3" of composted, double-shredded hardwood mulch throughout.

12. Positive drainage shall be maintained on planting beds (minimum 2 percent slope).

13. Bed preparation shall be as follows: Till into a minimum depth of 6" 1 yard of Compro or Leafgro per 200 SF of planting bed, and 1 yard of topsoil per 100 SF of bed. Add 3 lbs of standard 5-10-5 fertilizer per cubic yard of planting mix and till. Ericaceous plants (Azaleas, Rhododendrons, etc.): top dress after planting with iron sulfate or comparable product according to package directions. Taxus baccata 'Repandens' (English weeping yews): Top dress after planting with 1/4 to 1/2 cup lime each.

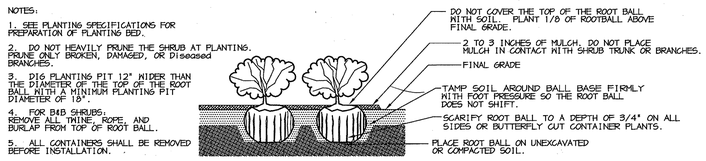
14. Planting mix: For trees not in a prepared bed, mix 50% Compro or Leafgro with 50% soil from tree hole to use as backfill, see tree planting detail.

15. Weed & Insect control: Incorporate a pre-emergent herbicide into the planting bed following recommended rates on the label. For tree planting, apply a pre-emergent on top of soil and root ball before mulching. Caution: For areas to be planted with a ground cover, be sure to carefully check the chemical used to ensure its adaptability to the specific groundcover to be treated. Maintain the mulch weed-free for the extent of the warranty period. Under no circumstances is a pesticide containing chlorpycrifos to be used as a means of pest control.

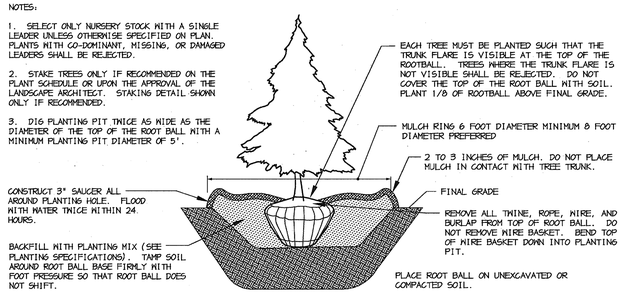
16. Water: All plant material planted shall be watered thoroughly the day of planting. All plant material not yet planted shall be properly protected from drying out until planted. At a minimum, water unplanted plant material daily and as necessary to avoid dessication.

17. Pruning: Do not heavily prune trees and shrubs at planting. Prune only broken, dead, or diseased branches.

18. All areas within contract limits disturbed during or prior to construction not designated to receive plants and mulch shall be fine graded, grass seed planted, and covered with straw mulch.



SHRUB BED PLANTING DETAIL - B&B AND CONTAINER SHRUBS
NOT TO SCALE



EVERGREEN B&B TREE PLANTING DETAIL
NOT TO SCALE

⚠ BIORETENTION PLANT LIST

KEY	QTY.	SCIENTIFIC/ COMMON NAME	SIZE	ROOT	SPACING	ZONE*
MV	4	MAGNOLIA VIRGINIANA SWAMP MAGNOLIA	6-8' HT.	B&B	PLANT AS SHOWN	***
AA	44	ARONIA ARBUTIFOLIA RED CHOKEBERRY	24" HT.	CONT.	PLANT AS SHOWN	***
CS	12	CORNUS SERICEA RED TWIG DOGWOOD	24" HT.	CONT.	PLANT AS SHOWN	***
CE	7880	CAREX ELATA 'AUREA'** BOWLES GOLDEN SEDGE	BAREROOT	CONT.	6" SPACING	(1,2),3
EP	220	EUPATORIUM PURPUREA JOE PYE WEED	1 GAL.	CONT.	18" SPACING	****
IR	80	IRIS VERSICOLOR 'BLUE FLAG' BLUE FLAG IRIS	BAREROOT	CONT.	18" SPACING	(1,2),3

BIORETENTION PLANT LIST NOTES:
* HYDROLOGIC ZONES ACCORDING TO APPENDIX A OF THE MARYLAND MODEL STORMWATER MANAGEMENT ORDINANCE JULY 2000.
** ALSO KNOWN CAREX STRICTA 'AUREA'
*** KNOWN TO TOLERATE INNUNDATION AS WELL AS DRY AREAS ACCORDING TO DIRR, MICHAEL A., MANUAL OF WOODY LANDSCAPE PLANTS
**** COMMONLY USED BIORETENTION SPECIES ACCORDING TO TABLE A.4 IN APPENDIX A OF THE MARYLAND MODEL STORMWATER MANAGEMENT ORDINANCE JULY 2000.

SCHEDULE D - STORMWATER MANAGEMENT AREA LANDSCAPING

S.W.M. POND PERIMETER	1
LANDSCAPE TYPE	*
LINEAR FEET OF TOTAL PERIMETER	
CREDIT FOR EX. VEGETATION (NO OR YES & %)	
CREDIT FOR OTHER PROP. LANDSCAPING (NO OR YES & %)	
LINEAR FEET OF REMAINING PERIMETER	
NUMBER OF TREES REQUIRED: SHADE TREES EVERGREEN TREES	
NUMBER OF PLANTS PROVIDED SHADE TREES EVERGREEN TREES OTHER TREES (2:1 SUBSTITUTION, 50% MAX.)	

* SEE GENERAL NOTE #9

GENERAL NOTES:

1. THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL.

2. FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING MUST BE POSTED AS PART OF THE DEVELOPER'S AGREEMENT IN THE AMOUNT OF $14,670.
29 SHADE TREES @ $300 = $8,700
21 EVERGREEN TREES @ $150 = $3,150
6 ORNAMENTAL TREES @ $150 = $900
64 SHRUBS @ $30 = $1,920

3. THIS PLAN IS FOR LANDSCAPING PURPOSES ONLY.

4. CONTRACTOR IS SOLELY RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, PROCEDURES, AND SAFETY PRECAUTIONS AND PROGRAMS.

5. ALL MATERIAL SELECTED 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.

6. ALL MATERIAL SHALL BE PLANTED IN ACCORDANCE WITH THE MINIMUM STANDARDS CITED IN THE LATEST EDITION OF "LANDSCAPE SPECIFICATION GUIDELINES" PUBLISHED BY THE LANDSCAPE CONTRACTORS ASSOCIATION.

7. AT THE TIME OF INSTALLMENT, ALL SHRUBS AND OTHER PLANTINGS SHALL BE OF THE PROPER HEIGHT AND/OR SPREAD REQUIREMENTS IN ACCORDANCE WITH THIS PLAN AND THE HOWARD COUNTY LANDSCAPE MANUAL.

8. AT THE TIME OF INSTALLMENT, ALL SHRUBS AND OTHER PLANTINGS HEREWITH LISTED AND APPROVED FOR THIS SITE, SHALL BE OF THE PROPER HEIGHT REQUIREMENTS IN ACCORDANCE WITH THE HOWARD COUNTY LANDSCAPE MANUAL. IN ADDITION, NO SUBSTITUTIONS OR RELOCATION OF REQUIRED PLANTINGS MAY BE MADE WITHOUT PRIOR REVIEW AND APPROVAL FROM THE DEPARTMENT OF PLANNING AND ZONING. ANY DEVIATION FROM THIS APPROVED LANDSCAPE PLAN MAY RESULT IN DENIAL OR DELAY IN THE RELEASE OF LANDSCAPE SURETY UNTIL SUCH TIME AS ALL REQUIRED MATERIALS ARE PLANTED AND/OR REVISIONS ARE MADE TO APPLICABLE PLANS AND CERTIFICATES.

9. STORMWATER MANAGEMENT LANDSCAPING HAS BEEN PROVIDED WITH FOUR (4) SHADE TREES AND FIVE (5) EVERGREEN TREES, IN-LIEU OF A TYPE 'B' PERIMETER PLANTING REQUIREMENT, AS APPROVED BY HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING.

DEVELOPER'S/BUILDER'S CERTIFICATE:

I/WE CERTIFY THAT THE LANDSCAPING SHOWN ON THIS PLAN WILL BE DONE ACCORDING TO THE PLAN, SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE HOWARD COUNTY LANDSCAPE MANUAL. I/WE FURTHER CERTIFY THAT UPON COMPLETION, A CERTIFICATION OF LANDSCAPE INSTALLATION, ACCOMPANIED BY AN EXECUTED ONE YEAR GUARANTEE OF PLANT MATERIALS, WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING.

10-15-02
SIGNATURE DATE
TIM HOGAN

AS BUILT CERTIFICATE

STATE OF MARYLAND · CHRISTOPHER J. REID · 19949 · REGISTERED PROFESSIONAL ENGINEER

CHRISTOPHER J. REID #19949 — 6.24.04 DATE

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

DIRECTOR — 11/26/02 DATE

CHIEF, DEVELOPMENT ENGINEERING DIVISION — 11/14/02 DATE

CHIEF, DIVISION OF LAND DEVELOPMENT — 11/22/02 DATE

DATE	NO.	REVISION
01-08-08	⚠	REVISED BIORETENTION PLANT LIST (QTY.)

OWNER: MS. CHARLOTTE M. DUVALL AND MR. BRYAN M. DUVALL
8101 DORSEY RUN ROAD
JESSUP, MARYLAND 20794
410-799-7724

DEVELOPER: OPUS EAST LLC
2099 GAITHER ROAD, SUITE 101
ROCKVILLE, MD 20850
(301) 354-4444
ATTN: TIM HOGAN

PROJECT
DORSEY WOODS
PARCEL A, AN OFFICE-WAREHOUSE BUILDING

AREA TAX MAP 43 BLOCK 20 & TAX MAP 48 BLOCK 2
PARCEL A ZONED M-2
6th ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE
LANDSCAPE SCHEDULES AND DETAILS

Patton Harris Rust & Associates, pc
Engineers. Surveyors. Planners. Landscape Architects.
PHR+A
8818 Centre Park Drive
Columbia, MD 21045
T 410.997.8900
F 410.997.9282

10.14.02 DATE

STATE OF MARYLAND · 830 · DAVID T. DOWS · REGISTERED LANDSCAPE ARCHITECT

DAVID T. DOWS RLA # 830

DESIGNED BY :	GTH
DRAWN BY :	DAMGTH
CHECKED BY :	PJS
PROJECT NO :	01284 L203LND.DWG
DATE :	OCTOBER 14, 2002
SCALE :	1"= 40'
DRAWING NO.	12 OF 17

AS-BUILT- SDP-02-102

J:\projects\01284\1-01Engr\Plans\L203LND.dwg, SITE, 10/11/02 11:52:10 AM, HP750C(36).pc3, Arch D - 24 x 36 in. (landscape), 1:1

SWMF #1 SUMMARY CHART	
DRAINAGE AREA	6.7 Ac.
RE_V REQUIRED	0.68 Ac.
RE_V PROVIDED	0.7 Ac.
WQ_V REQUIRED	0.125 Ac.–Ft.
WQ_V PROVIDED	0.125 Ac.–Ft.
CP_V REQUIRED	0.65 Ac.–Ft.
CP_V PROVIDED	0.65 Ac.–Ft.

Rev IS PROVIDED VIA THE GRASS CHANNEL CREDIT.
WQ_V IS PROVIDED IN A BIORETENTION FACILTY.
CP_V IS PROVIDED IN A EXTENDED DETENTION POND.
Q_P AND Q_f ARE NOT REQUIRED FOR THIS SITE.
THE 100 YR. W.S.E. IS 179.09 WHICH PROVIDES 2 FEET OF FREEBOARD.
THE TOP OF DAM ELEV. IS 181.10.

AS-BUILT CERTIFICATE

STATE OF MARYLAND — CHRISTOPHER J. REID — NO. 19949 — REGISTERED PROFESSIONAL ENGINEER

6.24.04
CHRISTOPHER J. REID #19949 DATE

LEGEND

EX.CONTOUR
PROP.CONTOUR
EX.TREELINE
PROP.TREELINE
PROP.SPOT ELEVATION (132)
100 YEAR FLOODPLAIN
WETLANDS
P-2 PAVING
SIDEWALK
P-3 PAVING
LIGHT-ROADWAY/PARKING
LIGHT-FIELD
LIMIT OF WETLANDS
AREA NOT INCLUDED IN APPROVED CONDITIONAL USE

NOTES:

1. ALL RADII ARE 5' UNLESS OTHERWISE NOTED.
2. ALL DIMENSIONS ARE TO FACE OF CURB OR BUILDING UNLESS OTHERWISE NOTED.
3. ALL ON-SITE ROADS ARE PRIVATE.
4. ALL LIGHTING IS TO BE DIRECTED/REFLECTED AWAY FROM ADJACENT PUBLIC ROADS AND RESIDENTIALLY ZONED PROPERTIES, AND BE IN ACCORDANCE WITH SECTION 134 OF THE HOWARD COUNTY ZONING REGULATIONS.
5. ✻ STD/REV – STANDARD TO REVERSE CURB TRANSITION.
6. SITE LIGHTS TO BE 175 WATT MH CUTOFF RECTILINEAR FIXTURE (COOPER) MOUNTED AT 20' ON A EMBEDED BRONZE FIBERGLASS POLE.

DAM CENTERLINE DATA

(1) N 540332.73, E 1372085.95
(1) – (2) R=316.00', L=17.39'
(2) – (3) S 68° 10' 31" E, 28.60'
(3) – (4) R=116.00', L=54.50'
(4) – (5) R=13.75', L=17.07"
(5) – (6) S 21° 17' 55" E, 61.31'
(6) – (7) R=47.00', L=21.98'
(7) – (8) N 04° 25' 46" E, 5.87'
(8) – (9) R=113.00', L=22.03'
(9) – (10) S 08° 52' 44" E, 43.37'
(10) – (11) R=244.65', L=32.16'
(11) – (12) R=928.85', L=59.16'
(12) – (13) R=13679.71', L=49.59'
(13) – (14) R=123.23', L=36.00'
(14) – (15) R=1267.21', L=58.50'
(15) – (16) R=1792.51' L=19.32'
(16) – (17) R=31.14', L=18.46'
(17) – (18) R=15.22', L=23.80'
(18) N 539879.99, E 1372294.28

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

DIRECTOR — 11/26/02 DATE
CHIEF, DEVELOPMENT ENGINEERING DIVISION — 11/14/02 DATE
CHIEF, DIVISION OF LAND DEVELOPMENT — 11/22/02 DATE

DATE	NO.	REVISION
1-7-04	4	REV. HC PARKING, ADDED FENCE, RAILING & STAIRS
01-03-03	3	ADDED 5' SIDEWALK, ADJUSTED BIO-RETENTION FACILITY

OWNER: MS. CHARLOTTE M. DUVALL AND MR. BRYAN M. DUVALL
8101 DORSEY RUN ROAD
JESSUP, MARYLAND 20794
410-799-7724

DEVELOPER: OPUS EAST LLC
2099 GAITHER ROAD, SUITE 101
ROCKVILLE, MD 20850
(301) 354-4444
ATTN: TIM HOGAN

PROJECT
DORSEY WOODS
PARCEL A, AN OFFICE–WAREHOUSE BUILDING

AREA TAX MAP 43 BLOCK 20 & TAX MAP 48 BLOCK 2
PARCEL A ZONED M-2
6th ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE
SITE DEVELOPMENT PLAN

Patton Harris Rust & Associates, pc
Engineers. Surveyors. Planners. Landscape Architects.
PHR+A
8818 Centre Park Drive
Columbia, MD 21045
T 410.997.8900
F 410.997.9282

10.15.02 DATE

STATE OF MARYLAND — CHRISTOPHER J. REID — NO. 19949 — REGISTERED PROFESSIONAL ENGINEER

CHRISTOPHER J. REID #19949

DESIGNED BY :	A.C.R
DRAWN BY :	DAM
CHECKED BY :	C.J.R.
PROJECT NO :	01284 C400SIT.DWG
DATE :	OCTOBER 14, 2002
SCALE :	1"= 40'
DRAWING NO.	2 OF 17

AS-BUILT - SDP-02-102

P:\projects\01284\1-01\engr\Plans\C400SIT.dwg, SITE, 10/11/02 03:23:49 PM, HP750C(36).pc3, Arch D - 24 x 36 in. (landscape), 1:1

DORSEY RUN

OPEN SPACE PARCEL 'C'
PUBLIC 100 YEAR FLOODPLAIN, DRAINAGE AND UTILITY EASEMENT & STORMWATER MANAGEMENT CREDIT EASEMENT

OPEN SPACE PARCEL 'C'
(TO BE DEDICATED TO HOWARD COUNTY DEPARTMENT OF RECREATION AND PARKS)
592,845 SF ± OR 13.610 AC. ± PARTIAL AREA (TOTAL AREA THIS SUBMISSION 1,325,740 SF ± OR 30.484 AC. ±)

SWMF #1
PRIVATELY OWNED AND MAINTAINED EXTENDED DETENTION POND HAZARD CLASS 'A'
CPv = 176.68
100 YR. WSE = 179.79

PROPOSED BUILDING A
114,000 SQ. FT. (WAREHOUSE)
FF = 190.00

OFFICE FF=190.00 3,000 SF

LOADING AREA

SEE BLOW UP THIS SHEET

DEPRESSED CURB

DEMO EXIST. CURB & SIDEWALK AS REQ'D. FOR NEW CONSTRUCTION

NEW ACCESS RAMP

NEW CROSS-SLOPE

SCALE: 1" = 20'

PARCEL 'B'
DORSEY RUN INDUSTRIAL PARK PARCELS A,B & C

DORSEY RUN ROAD
MD. ROUTE 32 (GUILFORD ROAD)
HOWARD COUNTY PUBLIC ROAD

BALTIMORE-WASHINGTON INDUSTRIAL PARK SECTION II PLAT No. 7456 PARCEL 'D'

AS-BUILT CERTIFICATE

STATE OF MARYLAND
CHRISTOPHER J. REID
NO. 19949
REGISTERED
PROFESSIONAL ENGINEER

6.24.04
CHRISTOPHER J. REID #19949 DATE

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THE TOP OF DAM ELEV. IS 181.10.

LEGEND

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PROP.CONTOUR
EX.TREELINE
PROP.TREELINE
PROP.SPOT ELEVATION 132
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WETLANDS
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SIDEWALK
P-3 PAVING
LIGHT-ROADWAY/PARKING
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(8) – (9)	R=113.00', L=22.03'	(17) – (18)	R=15.22', L=23.80'
		(18)	N 539879.99, E 1372294.28

6.14.04 ⚠ ADDED 9' SIDEWALK & ACCESS RAMP

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

DIRECTOR — DATE 11/26/02

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 11/14/02

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 11/22/02

DATE	NO.	REVISION
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01-03-05	⚠	ADDED 5' SIDEWALK, ADJUSTED BIO-RETENTION FACILITY

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PROJECT
DORSEY WOODS
PARCEL A, AN OFFICE-WAREHOUSE BUILDING

AREA TAX MAP 43 BLOCK 20 & TAX MAP 48 BLOCK 2
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DESIGNED BY :	A.C.R
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