PATAPSCO VALLEY BUSINESS CENTER
SITE DEVELOPMENT PLAN
PARCEL I

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 "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK.
3. THE CONTRACTOR IS TO NOTIFY THE FOLLOWING UTILITIES OR AGENCIES AT LEAST FIVE DAYS BEFORE STARTING WORK ON THESE DRAWINGS:

MISS UTILITY	
VERIZON TELEPHONE COMPANY:	1-800-257-7777
HOWARD COUNTY BUREAU OF UTILITIES:	1-410-954-6281
AT&T CABLE LOCATION DIVISION:	313-2366
B.G.&E. CO. CONTRACTOR SERVICES:	393-3553
B.G.&E. CO. UNDERGROUND DAMAGE CONTROL:	850-4620
STATE HIGHWAY ADMINISTRATION:	787-4620

4. SITE ANALYSIS:
   AREA OF PARCEL: 64.277 AC.
   PRESENT ZONING: M-2
   USE OF STRUCTURE: WAREHOUSE
   BUILDING 1 COVERAGE: 456,240 SF. (INCLUDES 6000 SF. MEZZANINE)
   BUILDING 2 COVERAGE: 214,900 SF.
   BUILDING 3 COVERAGE: 50,690 SF.
   TOTAL BUILDING COVERAGE: 721,830 SF.
   BUILDING 1 COVERAGE ON SITE (INCLUDING ROOF): 10.474 AC. OR 16.30% OF GROSS AREA
   BUILDING 2 COVERAGE ON SITE (INCLUDING ROOF): 4.933 AC. OR 7.67% OF GROSS AREA
   BUILDING 3 COVERAGE ON SITE (INCLUDING ROOF): 1.164 AC. OR 1.81% OF GROSS AREA
   TOTAL BUILDING COVERAGE ON SITE (INCLUDING ROOF): 16.571 AC. OR 25.78% OF GROSS AREA
   PAVED PARKING LOT/AREA ON SITE: 19.77 AC. OR 30.76% OF GROSS AREA
   AREA OF LANDSCAPE ISLAND: 1.90 AC. OR 2.96% OF GROSS AREA
   LIMIT OF DISTURBED AREA: 44.82 AC. OR OR 69.73% OF GROSS AREA
   CUT: 37,575 CY FILL: 37,575 CY
5. PROJECT BACKGROUND:
   LOCATION : COLUMBIA, MD.; TAX MAP 38, BLOCK 18, PARCEL 284 & 285
   ZONING : M-2
   SUBDIVISION : PATAPSCO VALLEY BUSINESS CENTER
   SECTION/AREA : N/A
   SITE AREA : 64.277 AC.
   DPZ REFERENCES : S-91-19, P-91-14, F-94-24, F-02-164, PLAT NO. 15493-15500, AA-05-015, F-05-149, F-06-230
6. 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 START OF WORK.
7. ANY DAMAGE TO PUBLIC RIGHT-OF-WAYS, PAVING, OR EXISTING UTILITIES WILL BE CORRECTED AT THE CONTRACTOR'S EXPENSE.
8. EXISTING UTILITIES LOCATED FROM ROAD CONSTRUCTION PLANS, FIELD SURVEYS, PUBLIC WATER AND AND SEWER EXTENSION PLANS AND AVAILABLE RECORD DRAWINGS. APPROXIMATE LOCATION OF EXISTING UTILITIES ARE SHOWN FOR THE CONTRACTORS INFORMATION. CONTRACTOR SHALL LOCATE EXISTING UTILITIES WELL IN ADVANCE OF CONSTRUCTION ACTIVITIES AND TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THE EXISTING UTILITIES AND TO MAINTAIN UNINTERRUPTED SERVICE. ANY DAMAGE INCURRED DUE TO CONTRACTOR'S OPERATION SHALL BE REPAIRED IMMEDIATELY AT THE CONTRACTOR'S EXPENSE.
9. ALL REINFORCED CONCRETE FOR STORM DRAIN STRUCTURES SHALL HAVE A MINIMUM OF 28 DAYS STRENGTH OF 3,500 P.S.I.
10. 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.
11. ESTIMATES OF EARTHWORK QUANTITIES ARE PROVIDED SOLEY FOR THE PURPOSE OF CALCULATING FEES.
12. SOIL COMPACTION SPECIFICATIONS, REQUIREMENTS, METHODS AND MATERIALS ARE TO BE IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE PROJECT GEOTECHNICAL ENGINEER. GEOTECHNICAL ENGINEER TO CONFIRM ACCEPTABILITY OF PROPOSED PAVING SECTION, BASED ON SOIL TEST PRIOR TO CONSTRUCTION.
13. THE EXISTING TOPOGRAPHY IS TAKEN FROM AN AERIAL SURVEY PREPARED BY POTOMAC AERIAL SURVEYS, INC., DATED OCTOBER 1, 2005.
14. THE BOUNDARY SHOWN ON THIS PLAN IS BASED ON A FIELD RUN MONUMENTED BOUNDARY SURVEY PERFORMED ON OR ABOUT JULY 10, 1990 BY FISHER, COLLINS AND CARTER, INC.
15. A NOISE STUDY IS NOT REQUIRED FOR THIS PROJECT.
16. ALL PAVING TO BE MINIMUM HOWARD COUNTY STANDARD DETAIL P-3 UNLESS OTHERWISE NOTED. (SEE DETAILS, SHEET 4) THE GEOTECHNICAL ENGINEER TO CONFIRM PAVING SECTION PRIOR TO CONSTRUCTION.
17. ALL CURB AND GUTTER TO BE HOWARD COUNTY STANDARD DETAIL 3.01 UNLESS OTHERWISE NOTED. (SEE DETAIL, SHEET 4)
18. CONTRACTOR RESPONSIBLE TO CONSTRUCT ALL HANDICAP RAMPS AND HANDICAP ACCESS IN ACCORDANCE WITH CURRENT ADA REQUIREMENTS.
19. WHERE DRAINAGE FLOWS AWAY FROM CURB, CONTRACTOR TO REVERSE THE GUTTER PAN.
20. ALL ELEVATIONS ARE TO FLOWLINE/BOTTOM OF CURB UNLESS OTHERWISE NOTED.
21. ALL DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.
22. PUBLIC WATER AVAILABLE THROUGH CONTRACT 14-3342-D.
    PUBLIC SEWER AVAILABLE THROUGH CONTRACT 181-S. THIS PROPERTY IS LOCATED IN THE PATAPSCO DRAINAGE AREA.
23. STORMWATER MANAGEMENT FOR THE ENTIRE SUBDIVISION WAS PROVIDED UNDER F94-24. DETENTION FACILITIES WERE SIZED TO MANAGE ULTIMATE SITE CONDITIONS AND ARE PRIVATELY OWNED AND MAINTAINED.
24. ALL EXTERIOR LIGHTING TO CONFORM TO SECTION 134 OF THE HOWARD COUNTY ZONING REGULATIONS. (DETAIL ON SHEET 7)
25. GEOTECHNICAL REPORT PREPARED BY ENGINEERING CONSULTING SERVICES, LTD., DATED DECEMBER 20, 2004
26. ANY EXISTING STREET TREES DAMAGED OR DESTROYED DURING CONSTRUCTION WILL BE REPLACED BY THE CONTRACTOR.
27. THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND LANDSCAPE MANUAL.
28. FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING HAS BEEN POSTED AS PART OF THE DEVELOPER'S AGREEMENT IN THE AMOUNT OF $44,130.00 FOR THE REQUIRED 119 SHADE TREES, 31 EVERGREEN TREES AND 126 SHRUBS.
29. THE FOREST CONSERVATION OBLIGATION FOR THIS PLAN HAS BEEN MET BY THE CREATION OF AN ONSITE 0.72 ACRE RETENTION FOREST CONSERVATION EASEMENT AND BY A PYMENT OF $18,295.20 THAT WAS MADE TO HO.CO FOREST CONSERVATION FUND FOR THE REMAINING OBLIGATION OF 0.84 ACRES OF REFORESTATION (0.84 ACRE = 36,590.40 SQ.FT.X $0.50 = $18,295.20). SURETY IN THE AMOUNT OF $6,272.64 HAS BEEN POSTED AS A PART OF THE DEVELOPER'S AGREEMENT FOR THE ONSITE 0.72 ACRE RETENTION FOREST CONSERVATION EASEMENT (0.72 ACRE = 31,363.20 SQ.FT. X $0.20 = $6,272.64).
30. TRAFFIC STUDY PREPARED BY THE TRAFFIC GROUP DATED JULY 25, 2003.
31. ALL STORMDRAIN PIPE BEDDING IS TO BE CLASS 'C'.
32. BUILDING TO HAVE INSIDE WATER METER SETTING.
33. THIS PLAN IS SUBJECT THE THE AMENDED FIFTH EDITION OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS.
34. NO CLEARING, GRADING OR CONSTRUCTION IS PERMITTED WITHIN THE WETLANDS, STREAM(S) OR REQUIRED BUFFERS, FLOODPLAIN AND FOREST CONSERVATIN EASEMENT AREAS, EXCEPT AS SHOWN ON THIS PLAN.
35. SUBJECT PROPERTY IS ZONED M-2 PER 2/2/04 COMPREHENSIVE ZONING PLAN.
36. REF. WP-91-98, DATED MARCH 15, 1991, WHICH APPROVED THE FOLLOWING FOR F-94-24:
    1. SECTION 16.116C.4 – TO PERMIT REMOVAL OF VEGITATIVE COVER AND/OR GRADING ON SPECIFIC STEEP SLOPES ADJACENT TO A FLOODPLAIN OR WETLAND, AND WITHIN SPECIFIC WETLANDS.
    2. SECTION 16.116.C.6 – TO PERMIT REMOVAL OF VEGETATIVE COVER AND/OR GRADING WITHIN THE REQUIRED 25 FOOT WETLAND BUFFERS FOR ROAD CROSSING, STORMWATER MANAGEMENT AND SPECIFIC FUTURE DEVELOPMENT AREAS.
37. IMPACT TO NONTIDAL WETLANDS & WATERWAYS WAS APROVED ON JANUARY 13, 1994 BY MARYLAND DEPARTMENT OF NATURAL RESOURCES WATER RESOURSES ADMINISTRATION TRACKING No. 1991011196 DIVISION No. 93-NT-0858.
38. THE FLOODPLAIN STUDY AND WETLANDS DELINEATION WAS APPROVED UNDER P-91-14 ON OCTOBER 1, 1992.
39. THE EROSION & SEDIMENT CONTROL MEASURES SHOWN ON F-94-24 ARE TO UTILIZED TO THE EXTENT POSSIBLE DURING CONSTRUCTION.
40. REF. AA-05-015, AN ADMINISTRATIVE ADJUSTMENT FROM SECTION 123.0.2.c. OF THE ZONINGN REGULATIONS TO REDUCE THE 150 FOOT STRUCTURE AND USE SETBACK FROM A RESIDENTIAL DISTRICT TO 120 FEET FOR CAR PARKING, TRAILER STORAGE, DRIVEWAY, AND RETAINING WALLS, AS AUTHORIZED UNDER THE ADMINISTRATIVE ADJUSTMENT PROCEDURE, SECTION 100.F.1.; GRANTED MAY 23, 2005, SUBJECT TO THE FOLLOWING CONDITIONS:
    1. THE PETITIONER SHALL COMPLY WITH ALL APPLICABLE FEDERAL, STATE, AND COUNTY LAWS AND REGULATIONS.
    2. THE GRANTED ADMINISTRATIVE ADJUSTMENT SHALL APPLY SOELEY TO THE PROPOSED CAR PARKING, TRAILER STORAGE, DRIVEWAY, AND RETAINING WALLS AS DEPICTED ON THE ADMINISTRATIVE ADJUSTMENT PLAN SUBMITTED BY THE PETITIONER AND NOT TO ANY OTHER STRUCTURE, ADDITION, BUILDING OR USE.
    3. A BUILDING PERMIT FOR THE DISTRIBUTION CENTER DEVELOPMENT SHALL BE OBTAINED WITHIN TWO YEARS FROM THE DATE OF THIS ORDER AND SUBSTANTIAL CONSTRUCTION SHALL BE COMPLETED WITHIN THREE YEARS. THE PETITIONER SHALL SUBMIT A COPY OF THIS DECISION AND ORDER WITH THE BUILDING PERMIT APPLICATION.
    4. THIS DECISION AND ORDER SHALL BE MAINTAINED IN THE OWNERS' PROPERTY RECORDS AND SHALL BE TRANSFERRED TO ANY SUCCEEDING OWNER OF THE PROPERTY.
41. THIS PLAN IS SUBJECT TO MDE APPLICATION TRACKING NO. 200564908.

PARKING TABULATION

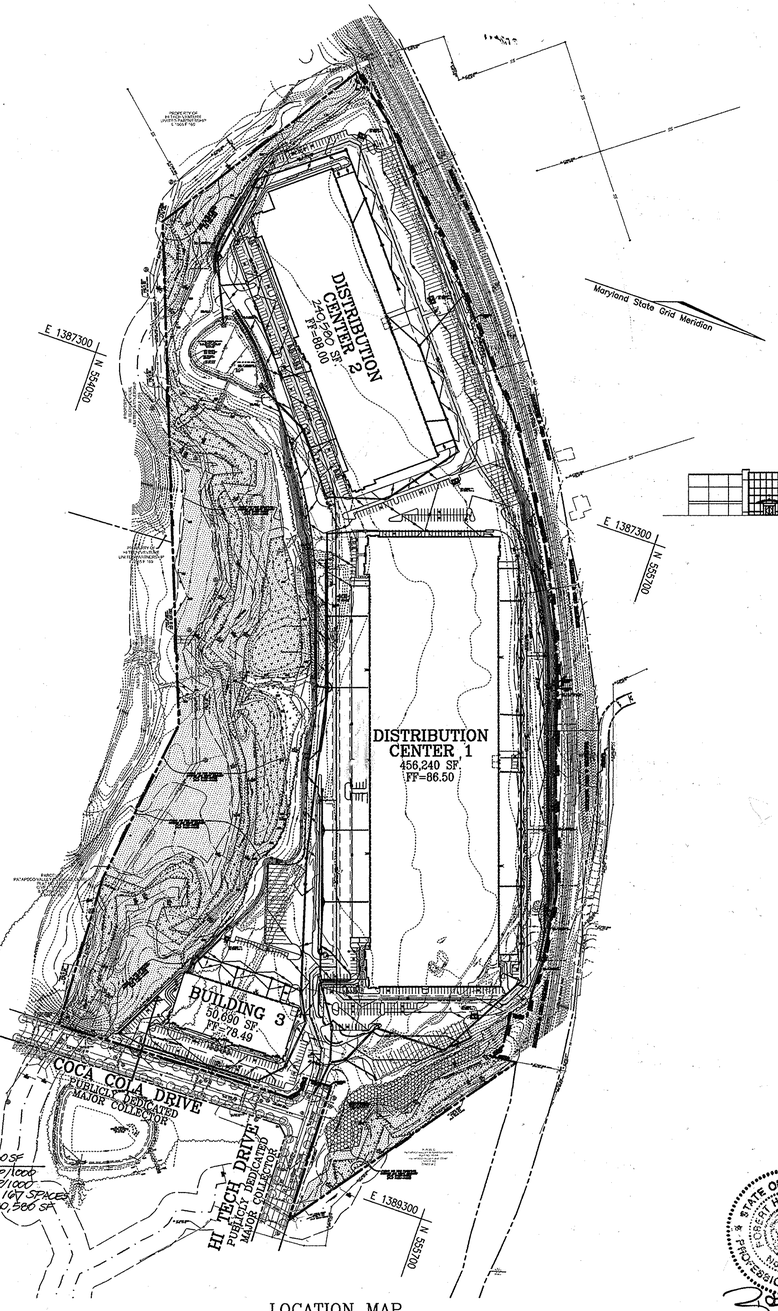
REQUIREMENT DESCRIPTION	REQUIRED
BUILDING #1 (WAREHOUSE/DISTRIBUTION) 456,240 SF @ 0.5 SPACE/1000 SF	228 SPACES
BUILDING #1 (MEZZANINE) 6,000 SF @ 2.5 SPACE/1000 SF	15 SPACES
BUILDING #2 (WAREHOUSE/DISTRIBUTION) 214,900 SF @ 0.5 SPACE/1000 SF	107 SPACES
BUILDING #3 (HYBRID INDUSTRIAL/OFFICE SPACE) 50,690 SF @ 2.5 SPACE/1000 SF	127 SPACES
TOTAL SPACES: REQUIRED	587 SPACES
TOTAL SPACES: PROVIDED	580 SPACES** (INCLUDING 22 HANDICAP)

BUILDING #2 (MEZZANINE) 25,180 SF
- OFFICE 10,806 SF @ 3.33 SP/1000
- STORAGE 9,174 SF @ 0.33 SP/1000
TOTAL PARKING BUILDING #2 = 167 SPACES
TOTAL SF BUILDING #2 = 240,580 SF

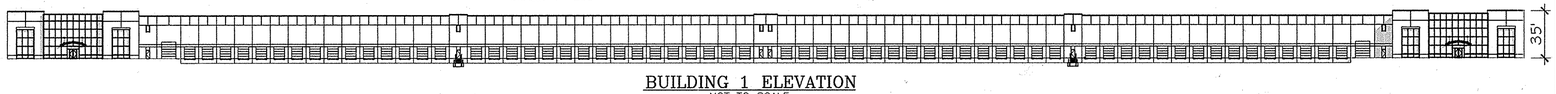
** THERE ARE 150 TRAILER STORAGE SPACES LOCATED ON-SITE FOR VEHICLES OWNED/USED BY THE COMPANY WHICH ARE EXCLUDED FROM THE TOTAL NUMBER OF SPACES PROVIDED.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 7/6/06
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 7/6/06
DIRECTOR	DATE 7/7/06



LOCATION MAP
SCALE: 1"=200'



BUILDING 1 ELEVATION
NOT TO SCALE

LEGEND

EXISTING CONTOUR	382
PROPOSED CONTOUR	82
EXISTING SPOT ELEVATION	+382.56
PROPOSED SPOT ELEVATION	+82.53
DIRECTION OF FLOW	
EXISTING TREES TO REMAIN	
LIGHT POLES	SINGLE OVERHEAD, DOUBLE OVERHEAD
CONCRETE	

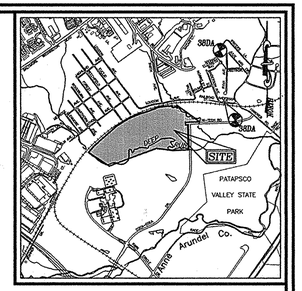
BENCHMARKS

COORDINATES BASED ON NAD '83, MARYLAND COORDINATE SYSTEM AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS 38DA, 38GA.

38DA	N 556796.2929	E 1390221.4861
38GA	N 555.8973157	E 1390132.1323

BENCH MARK ELEVATIONS BASED ON TWO EXISTING PUBLIC SEWER MANHOLE RIM ELEVATIONS (CONT. 14-3342-D).

SMH-191	N 555317 E 1389268	RIM ELEV. 70.19
SMH-192	N 555311 E 1389048	RIM ELEV. 74.08



VICINITY MAP
SCALE: 1"=2000'

BUILDING 3 ELEVATION
NOT TO SCALE

BUILDING 2 ELEVATION
NOT TO SCALE

SHEET INDEX

DESCRIPTION	SHEET NO.
COVER SHEET	1 OF 30
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SITE LAYOUT PLAN	6 OF 30
SITE LAYOUT PLAN	7 OF 30
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SITE GRADING, SEDIMENT AND EROSION CONTROL PLAN	9 OF 30
SITE GRADING, SEDIMENT AND EROSION CONTROL PLAN	10 OF 30
SITE GRADING, SEDIMENT AND EROSION CONTROL PLAN	11 OF 30
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WALL DETAILS	28 OF 30
WALL DETAILS	29 OF 30
BASIN/SWM 6 & 7A	30 OF 30

ADDRESS CHART	
LOT/PARCEL#	STREET ADDRESS
1	7401 COCA COLA DRIVE (DISTRIBUTION CENTER 1)
	7491 COCA COLA DRIVE (DISTRIBUTION CENTER 2)
	7451 COCA COLA DRIVE (BUILDING 3)

PERMIT INFORMATION CHART

SUBDIVISION NAME			SECTION/AREA		PARCEL NUMBER
PATAPSCO VALLEY BUSINESS CENTER			N/A		1*
PLAT NO.	BLOCK NO.	ZONE	TAX/ZONE	ELECT. DIST.	CENSUS TR.
18406-19410	18	M-2	38	1st	6012.02
WATER CODE: A04			SEWER CODE: 2150500		

STATE OF MARYLAND ROBERT HARRIS VOGEL No. 16193 PROFESSIONAL ENGINEER 8/4/06

FOR REV. 7 ONLY & REV. 8 10/30/14

Professional Certification. I hereby certify that those documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.

License No. 16597 Expiration Date: 8/15/13

STATE OF MARYLAND ROBERT HARRIS VOGEL No. 16193 REGISTERED PROFESSIONAL ENGINEER 11/7/13

NO.	REVISION	DATE
8	PRECAST DRIVE-IN, FENCED AREA AND PARKING SPACES	10/30/14
7	ADDITION OF HC. RAMPS ON BUILDING 1	09-05-12
6	ADD RAMP TO BUILDING 3.	9/24/09
5	MODIFY ENTRANCE TO BUILDING 1	9/24/09
4	ADD DOOR TO BUILDING 2, ADD CONCRETE SLAB FOR FUTURE OIL TANK AND CONDENSER ADJACENT TO BLDG 2.	1/28/09
3	ADD MEZZANINE TO BUILDING #2	10/2/08
1	SHEETS 2,5,6,8,11,12,16,21,23	7.28.06

OWNER/PETITIONER

CROSSROADS VENTURE, LLC.
C/O J. PAUL PRICE
101 CONSTITUTION AVENUE, NW, SUITE 600E
WASHINGTON, DC 20001

SITE DEVELOPMENT PLAN

COVER SHEET

PATAPSCO VALLEY BUSINESS CENTER
PARCEL I

TAX MAP 38 BLOCK 19/18 PARCEL I
1ST ELECTION DISTRICT HOWARD COUNTY, MARYLAND

ROBERT H. VOGEL ENGINEERING, INC.
ENGINEERS • SURVEYORS • PLANNERS
8407 MAIN STREET ELLICOTT CITY, MD 21043
TEL: 410.461.7666 FAX: 410.461.8961

STATE OF MARYLAND ROBERT HARRIS VOGEL No. 16193 REGISTERED PROFESSIONAL ENGINEER

ROBERT H. VOGEL, PE No.16193

DESIGN BY:	WGZ/DZ
DRAWN BY:	DZ
CHECKED BY:	RHV
DATE:	JUNE 1, 2006
SCALE:	1"=200'
W.O. NO.:	04-121

SHEET 1 OF 30

SDP-05-153

KEY MAP
NOT TO SCALE

NO.	REVISION	DATE
6	ADD RAMP TO BUILDING 3	9/24/09
1	SHC ALIGNMENT & BLDG #3 & SHC LABEL TO BLDG #1	07.28.06

SITE DEVELOPMENT PLAN

SITE LAYOUT

PATAPSCO VALLEY BUSINESS CENTER
PARCEL I

TAX MAP 38 BLOCK 19/18 — PARCEL I
1ST ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

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STATE OF MARYLAND — ROBERT HARRIS VOGEL — No. 16193 — REGISTERED PROFESSIONAL ENGINEER

ROBERT H. VOGEL, PE No.16193

DESIGN BY: WGZ/DZ
DRAWN BY: DZ
CHECKED BY: RHV
DATE: JUNE 1, 2006
SCALE: 1"=40'
W.O. NO.: 04-121

2 SHEET OF 30

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 7/6/06
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 7/6/06
DIRECTOR — DATE 7/6/06

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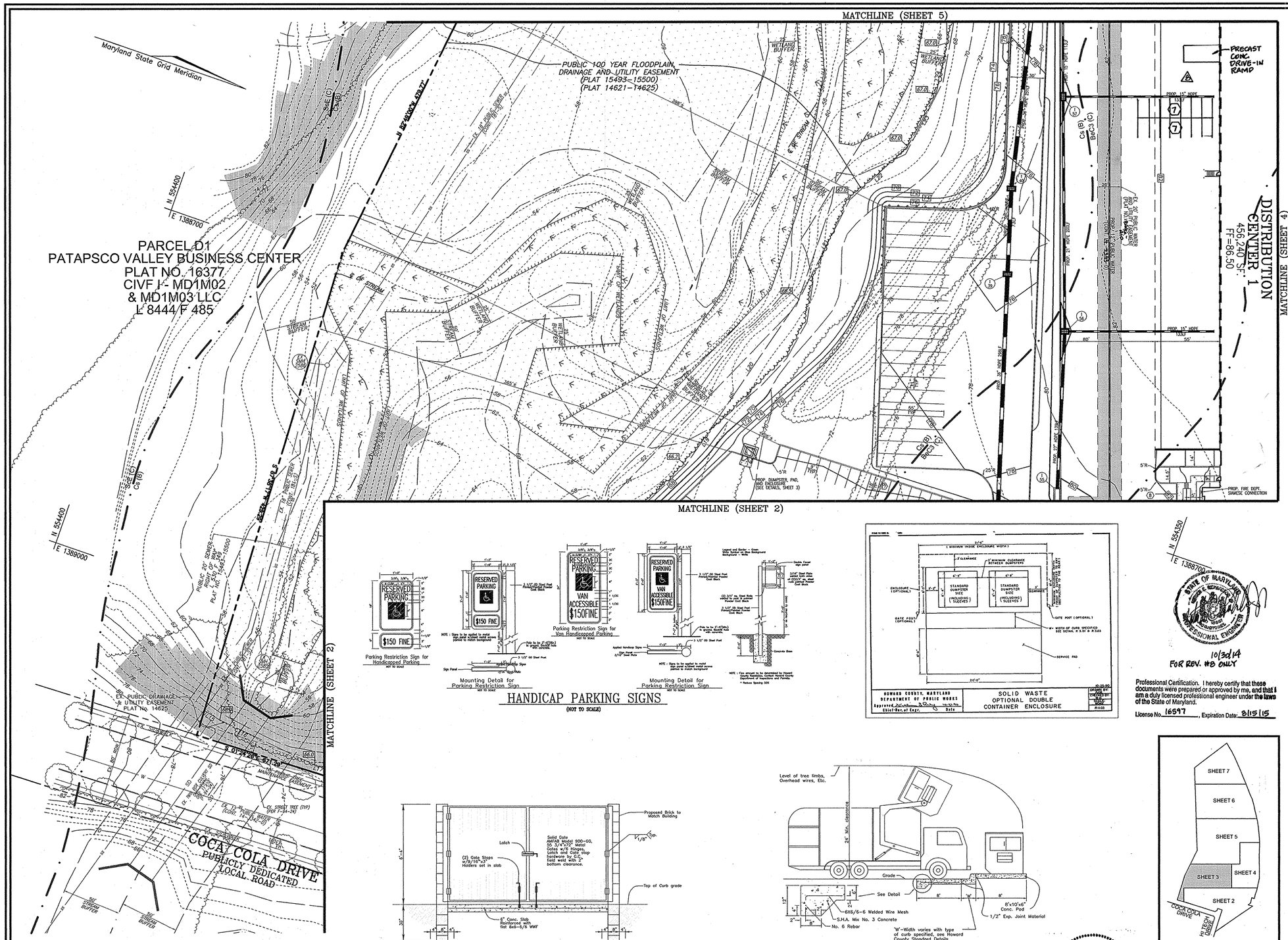
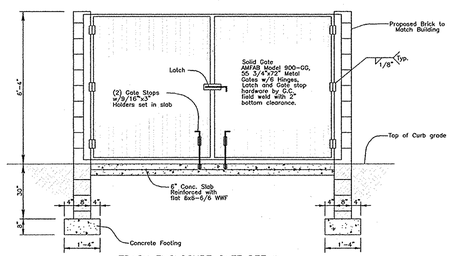
SDP-05-153



HANDICAP PARKING SIGNS
(NOT TO SCALE)



TRASH ENCLOSURE GATE DETAIL
NO SCALE

SOLID WASTE SERVICE PAD
HOWARD COUNTY STD. R 11.01
NOT TO SCALE

KEY MAP
NOT TO SCALE

LEGEND:

- EXISTING CONTOUR
- PROPOSED CONTOUR
- PROPOSED SPOT ELEVATION
- EXISTING SPOT ELEVATION
- EXISTING CURB AND GUTTER
- PROPOSED CURB AND GUTTER
- EXISTING UTILITY POLE
- EXISTING LIGHT POLE
- EXISTING MAILBOX
- EXISTING SIGN
- EXISTING SANITARY MANHOLE
- EXISTING SANITARY LINE
- EXISTING CLEANOUT
- EXISTING FIRE HYDRANT
- EXISTING WATER LINE
- PROPOSED STORM DRAIN
- PROPOSED STORM DRAIN INLET
- EXISTING TREES (FIELD LOCATED)
- EXISTING TREELINE (FIELD LOCATED)
- EXISTING VEGETATION (APPROXIMATE LOCATION)
- EXISTING STREET TREES (F-04-__)
- EXISTING FENCE
- PROPERTY LINE
- RIGHT-OF-WAY LINE
- M1B2 / M1D3 SOILS BOUNDARY
- PROPOSED SIDEWALK
- MODERATE SLOPES (15% - 24.99%)
- STEEP SLOPE (>25%)
- PUBLIC 100 YR FLOODPLAIN
- FOREST CONSERVATION EASEMENT (RETENTION)

10/30/14
FOR REV. #8 ONLY

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.

License No. 16597, Expiration Date: 8/15/15

NO.	REVISION	DATE
8	PRECAST DRIVE-IN RAMP, FENCED AREA AND PARKING SPACES	10/30/14

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 7/6/06
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 7/6/06
DIRECTOR	DATE 7/6/06

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SITE DEVELOPMENT PLAN

SITE LAYOUT

PATAPSCO VALLEY BUSINESS CENTER PARCEL I

TAX MAP 38 BLOCK 19/18 — PARCEL I
1ST ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

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ROBERT H. VOGEL, PE No.16193

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DRAWN BY:	DZ
CHECKED BY:	RHV
DATE:	JUNE 1, 2006
SCALE:	1"=40'
W.O. NO.:	04-121

3 SHEET OF 30

SDP-05-153

FENCE DETAIL
NTS

KEY MAP
NOT TO SCALE

SIDEWALK HANDICAP RAMP DETAIL
NOT TO SCALE

NOTE: REFER TO DETAIL 7 ON THIS SHEET FOR VERTICAL CURB DETAIL.

CONCRETE CURB - NOSE DOWN
NOT TO SCALE

NOTES:
1. LIGHT TO BE KIM ENTABLATURE RECTILINEAR WITH 250 WATT FIXTURE.
2. LIGHTING DETAIL FOR INFORMATIONAL PURPOSES ONLY. SEE ELECTRICAL AND ARCHITECTURAL PLANS FOR ACTUAL LIGHTING DETAILS AND SPECIFICATIONS.

POLE BASE DETAIL
(NOT TO SCALE)

*NOTE : DEPRESSED CURB IN HANDICAP ACCESSABLE AREAS SHALL HAVE A 0.0417'(1/2") RISE FROM PAVING TO TOP OF CURB.

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

STANDARD COMBINATION CURB AND GUTTER
HOWARD COUNTY STANDARD R-3.01
(NOT TO SCALE)

HANDICAP RAMP
NOT TO SCALE

HO. CO. STD. R-3.05
TYPICAL SIDEWALK AT BUILDING
(N.T.S.)

HO. CO. STD. R-3.05
TYPICAL SIDEWALK DETAIL
(N.T.S.)

NO.	REVISION	DATE
8	PRECAST DRIV-IN RAMP, FENCED AREA AND PARKING SPACES	10/30/14

SITE DEVELOPMENT PLAN

SITE LAYOUT

PATAPSCO VALLEY BUSINESS CENTER
PARCEL I

TAX MAP 38 BLOCK 19/18 PARCEL I
1ST ELECTION DISTRICT HOWARD COUNTY, MARYLAND

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4 SHEET OF 30

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STATE OF MARYLAND ROBERT HARRIS VOGEL NO. 16193 PROFESSIONAL ENGINEER 6/4/06

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.

License No. 16597, Expiration Date: 8/15/15

10/30/14
FOR REV. #8 ONLY

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Signature	Date
CHIEF, DEVELOPMENT ENGINEERING DIVISION	7/6/06
CHIEF, DIVISION OF LAND DEVELOPMENT	7/6/06
DIRECTOR	7/6/06

SDP-05-153

MATCHLINE (SHEET 6)

PROPERTY OF
HI TECH VENTURE
LIMITED PARTNERSHIP
L 1565 F 169

PARCEL D1
PATAPSCO VALLEY BUSINESS CENTER
PLAT NO. 16377
CAFP 1-MD1M02
& MD1M03 LLC
L 8444 F 485

DISTRIBUTION
CENTER 1
456,240 SF.
FF=86.50

PROP. 6" PRIVATE SHC

PROP. 6" PRIVATE SHC

PROP. 6" PRIVATE SHC

MATCHLINE (SHEET 7)

MATCHLINE (SHEET 5)

AS-BUILT CERTIFICATION
I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND MEETS THE APPROVED PLANS AND SPECIFICATIONS.
ROBERT H. VOGEL, P.E. No. 16193
10/18/09

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 7/6/06
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 7/6/06
DIRECTOR	DATE 7/6/06

KEY MAP
NOT TO SCALE

N 555250
E 1387500

OWNER/PETITIONER
CROSSROADS VENTURE, LLC.
C/O J. PAUL PRICE
101 CONSTITUTION AVENUE, NW, SUITE 600E
WASHINGTON, DC 20001

NO.	REVISION	DATE
4	ADD DOOR TO BUILDING 2, ADD CONCRETE SLAB FOR FUTURE OIL TANK AND CONDENSER ADJACENT TO BUILDING 2	1/28/09
2	ADD MEZZANINE TO BUILDING #2	10/2/08

SITE DEVELOPMENT PLAN

SITE LAYOUT

PATAPSCO VALLEY BUSINESS CENTER
PARCEL I

TAX MAP 38 BLOCK 19/18 — PARCEL I
1ST ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

ROBERT H. VOGEL ENGINEERING, INC.
ENGINEERS • SURVEYORS • PLANNERS
8407 MAIN STREET, ELLICOTT CITY, MD 21043
TEL: 410.461.7666 FAX: 410.461.8961

ROBERT H. VOGEL, PE No.16193

DESIGN BY: WGZ/DZ
DRAWN BY: DZ
CHECKED BY: RHV
DATE: JUNE 1, 2006
SCALE: 1"=40'
W.O. NO.: 04-121

6 SHEET OF 30

SDP-05-153

KEY MAP
NOT TO SCALE

MATCHLINE (SHEET 6)

NO.	REVISION	DATE
4	ADD DOOR TO BUILDING 2, ADD CONCRETE SLAB FOR FUTURE OIL TANK AND CONDENSER ADJACENT TO BUILDING 2	1/28/09
2	ADD MEZZANINE TO BUILDING #2	10/2/08

SITE DEVELOPMENT PLAN

SITE LAYOUT

PATAPSCO VALLEY BUSINESS CENTER PARCEL I

TAX MAP 38 BLOCK 19/18 — PARCEL I
1ST ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

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STATE OF MARYLAND ROBERT HARRIS VOGEL NO. 16193 REGISTERED PROFESSIONAL ENGINEER
ROBERT H. VOGEL, PE No.16193

DESIGN BY: WGZ/DZ
DRAWN BY: DZ
CHECKED BY: RHV
DATE: JUNE 1, 2006
SCALE: 1"=40'
W.O. NO.: 04-121

7 SHEET OF 30

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 7/6/06
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 7/6/06
DIRECTOR — DATE 7/6/06

N 554950
E 1386950

STATE OF MARYLAND ROBERT HARRIS VOGEL NO. 16193 PROFESSIONAL ENGINEER 6/4/09

OWNER/PETITIONER
CROSSROADS VENTURE, LLC.
C/O J. PAUL PRICE
101 CONSTITUTION AVENUE, NW, SUITE 600E
WASHINGTON, DC 20001

SDP-05-153

MATCHLINE (SHEET 9)

MATCHLINE (SHEET 10)

MATCHLINE (SHEET 9)

DISTRIBUTION CENTER 1
456,240 SF.
FF=86.50

BUILDING 3
50,650 SF.
FF=78.49

SEDCON #2

SEDCON #1

COCA COLA DRIVE
PUBLICLY DEDICATED
MAJOR COLLECTOR

HI TECH DRIVE
PUBLICLY DEDICATED
MAJOR COLLECTOR

BALTIMORE & OHIO RAILROAD

PUBLIC 100 YEAR FLOODPLAIN, DRAINAGE AND UTILITY EASEMENT (PLAT 15493-15500) (PLAT 14621-14625)

EX. PUBLIC EXTENDED DETENTION SWM POND #6 (F-94-24) (SEE SHEET 30 FOR BASIN DETAILS)

N 554950
E 1389300

N 555200
E 1388650

N 555500
E 1389300

Maryland State Grid Meridian

PARCEL C
PATAPSCO VALLEY BUSINESS CENTER
PLAT NO. 15495
PATAPSCO VALLEY DEV. CORP.
L 5551 F 385
ZONED M-2

KEY MAP
NOT TO SCALE

SHEET 13
SHEET 12
SHEET 11
SHEET 10
SHEET 9
SHEET 8
COCA COLA DRIVE
HI TECH DRIVE

AREA OF DISTURBANCE: 2,029,060 S.F. OR 46.58 AC.

NO.	REVISION	DATE
G	ADD RAMP TO BUILDING 3	9/24/09
L	SHC ALIGNMENT TO BLDG #3 & SHC LABEL TO BLDG #1	7.26.06

SEDIMENT BASIN #6

DRAINAGE AREA:	35.8 AC. (MAX DA ONCE BASIN #7 IS REMOVED)
STORAGE REQUIRED (SEDIMENT)	128,880 C.F.
STORAGE PROVIDED:	190,656 C.F.
EX. TOP EMBANKMENT ELEVATION:	65.40
TOP RISER ELEVATION:	63.00
WEIR CREST ELEVATION:	63.00
BOTTOM ELEVATION:	58.50
CLEANOUT ELEVATION:	59.54
SIDE SLOPES:	3:1
WET VOLUME REQUIRED:	1.48 AC.FT.
WET VOLUME PROVIDED:	1.48 AC.FT.
WET VOLUME ELEVATION:	60.28
DRY STORAGE REQUIRED:	1.48 AC.FT.
DRY VOLUME PROVIDED:	2.90 AC.FT.
DRY STORAGE ELEVATION:	61.78
EMERGENCY SPILLWAY ELEVATION:	64.00
Q1 (EX. SDP-94-009, F-94-24):	6.48 CFS
Q1 (PROPOSED, TR-20):	5.67 CFS
DEWATERING DEVICE:	12"
DEWATERING DEVICE ELEV.:	60.40

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 7/6/06

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 7/6/06

DIRECTOR — DATE 7/6/06

REVIEWED FOR HOWARD S.C.D. & MEETS TECHNICAL REQUIREMENTS.

USDA-NATURAL RESOURCES CONSERVATION SERVICE — DATE 2/20/06

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

HOWARD S.C.D. — DATE 2/20/06

BY THE DEVELOPER:

"I/WE CERTIFY THAT ALL DEVELOPEMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN FOR SEDIMENT AND EROSION CONTROL AND THAT ALL 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 ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF DEVELOPER — DATE 3/01/06

BY THE ENGINEER:

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

SIGNATURE OF ENGINEER — DATE 3/1/06

OWNER/PETITIONER
CROSSROADS VENTURE, LLC.
C/O J. PAUL PRICE
101 CONSTITUTION AVENUE, NW, SUITE 600E
WASHINGTON, DC 20001

SITE DEVELOPMENT PLAN

SITE GRADING, SEDIMENT AND EROSION CONTROL PLAN
PATAPSCO VALLEY BUSINESS CENTER PARCEL I

TAX MAP 38 BLOCK 19/18 — PARCEL I
1ST ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

ROBERT H. VOGEL ENGINEERING, INC.
ENGINEERS • SURVEYORS • PLANNERS
8407 MAIN STREET
ELLICOTT CITY, MD 21043
TEL: 410.461.7666
FAX: 410.461.8961

STATE OF MARYLAND — ROBERT HARRIS VOGEL — NO. 16193 — REGISTERED PROFESSIONAL ENGINEER — 3/1/06

ROBERT H. VOGEL, PE No.16193

DESIGN BY: WGZ/DZ
DRAWN BY: DZ
CHECKED BY: RHV
DATE: FEB. 27, 2006
SCALE: 1"=30'
W.O. NO.: 04-121

SHEET 8 OF 30

SDP-05-153

LEGEND:

- EXISTING CONTOUR
- PROPOSED CONTOUR
- PROPOSED SPOT ELEVATION
- EXISTING SPOT ELEVATION
- EXISTING CURB AND GUTTER
- PROPOSED CURB AND GUTTER
- EXISTING UTILITY POLE
- EXISTING LIGHT POLE
- EXISTING MAILBOX
- EXISTING SIGN
- EXISTING SANITARY MANHOLE
- EXISTING SANITARY LINE
- EXISTING CLEANOUT
- EXISTING FIRE HYDRANT
- EXISTING WATER LINE
- PROPOSED STORM DRAIN
- PROPOSED STORM DRAIN INLET
- EXISTING TREES (FIELD LOCATED)
- EXISTING TREELINE (FIELD LOCATED)
- EXISTING VEGETATION (APPROXIMATE LOCATION)
- EXISTING STREET TREES (F-04-___)
- EXISTING FENCE
- PROPERTY LINE
- RIGHT-OF-WAY LINE
- SOILS BOUNDARY
- PROPOSED SIDEWALK
- MODERATE SLOPES (15% - 24.99%)
- STEEP SLOPE (>25%)
- PUBLIC 100 YR FLOODPLAIN
- FOREST CONSERVATION EASEMENT (RETENTION)
- SILT FENCE
- SUPER SILT FENCE
- LIMIT OF DISTURBANCE
- EARTH DIKE
- ENGINEERED SWALE
- CURB INLET PROTECTION
- AT GRADE INLET PROTECTION
- STABILIZED CONSTRUCTION ENTRANCE

NO.	REVISION	DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 7/6/06

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 7/6/06

DIRECTOR — DATE 7/4/06

REVIEWED FOR HOWARD S.C.D. & MEETS TECHNICAL REQUIREMENTS.

USDA-NATURAL RESOURCES CONSERVATION SERVICE — DATE 2/28/06

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

HOWARD S.C.D. — DATE 2/28/06

BY THE DEVELOPER:

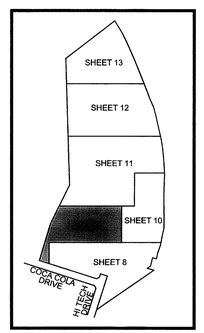
"I/WE CERTIFY THAT ALL DEVELOPEMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN FOR SEDIMENT AND EROSION CONTROL, AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT."

DON BOWERS — SIGNATURE OF DEVELOPER — DATE 3/01/06

BY THE ENGINEER:

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

SIGNATURE OF ENGINEER — DATE 3/1/06



KEY MAP
NOT TO SCALE

OWNER/PETITIONER
CROSSROADS VENTURE, LLC.
C/O J. PAUL PRICE
101 CONSTITUTION AVENUE, NW, SUITE 600E
WASHINGTON, DC 20001

SITE DEVELOPMENT PLAN

SITE GRADING, SEDIMENT AND EROSION CONTROL PLAN

PATAPSCO VALLEY BUSINESS CENTER PARCEL I

TAX MAP 38 BLOCK 19 & 18 — PARCEL I
1ST ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

ROBERT H. VOGEL ENGINEERING, INC.
ENGINEERS • SURVEYORS • PLANNERS
8407 MAIN STREET, ELLICOTT CITY, MD 21043
TEL: 410.461.7666 FAX: 410.461.8961

STATE OF MARYLAND — ROBERT HARRIS VOGEL — No. 16193 — REGISTERED PROFESSIONAL ENGINEER — 3/1/06

ROBERT H. VOGEL, PE No.16193

DESIGN BY:	WGZ/DZ
DRAWN BY:	DZ
CHECKED BY:	RHV
DATE:	FEB. 27, 2006
SCALE:	1"=40'
W.O. NO.:	04-121

SHEET 9 OF 30

SDP-05-153

KEY MAP
NOT TO SCALE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 7/6/06
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 7/6/06
DIRECTOR	DATE 7/6/06

REVIEWED FOR HOWARD S.C.D. & MEETS TECHNICAL REQUIREMENTS.

USDA-NATURAL RESOURCES CONSERVATION SERVICE — DATE 2/26/06

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

HOWARD S.C.D. — DATE 2/26/06

BY THE DEVELOPER:

"I/WE CERTIFY THAT ALL DEVELOPEMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN FOR SEDIMENT AND EROSION CONTROL, AND THAT ALL 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 ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT."

Don Bowers — SIGNATURE OF DEVELOPER — DATE 3/01/06

BY THE ENGINEER:

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

SIGNATURE OF ENGINEER — DATE 3/1/06

10/30/14

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.

License No. 16597, Expiration Date: 8/15/15

FOR REV. #8 ONLY

OWNER/PETITIONER
CROSSROADS VENTURE, LLC.
C/O J. PAUL PRICE
101 CONSTITUTION AVENUE, NW, SUITE 600E
WASHINGTON, DC 20001

NO.	REVISION	DATE
8	PRECAST DRIVE-INS RAMPS, FENCED AREA AND PARKING SPACES	10/30/14

SITE DEVELOPMENT PLAN

SITE GRADING, SEDIMENT AND EROSION CONTROL PLAN

PATAPSCO VALLEY BUSINESS CENTER PARCEL I

TAX MAP 38 BLOCK 19/18 — PARCEL I
1ST ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

ROBERT H. VOGEL ENGINEERING, INC.
ENGINEERS • SURVEYORS • PLANNERS
8407 MAIN STREET, ELLICOTT CITY, MD 21043
TEL: 410.461.7666 FAX: 410.461.8961

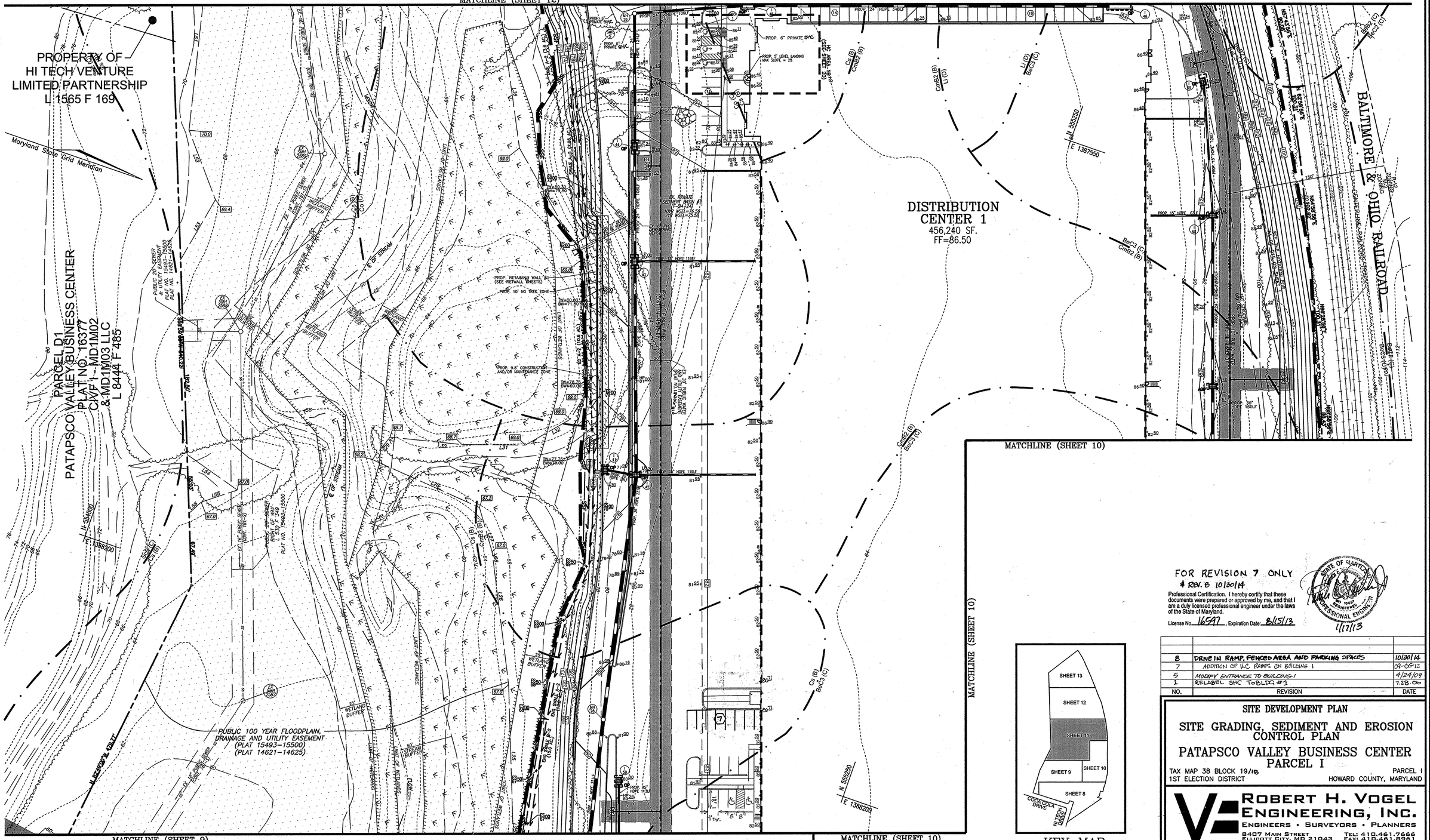
STATE OF MARYLAND — ROBERT HARRIS VOGEL — NO. 16193 — REGISTERED PROFESSIONAL ENGINEER — 3/1/06

ROBERT H. VOGEL, PE No.16193

DESIGN BY: WGZ/DZ
DRAWN BY: DZ
CHECKED BY: RHV
DATE: FEB. 27, 2006
SCALE: 1"=40'
W.O. NO.: 04-121

10 SHEET OF 30

SDP-05-153



SHEET 13
SHEET 12
SHEET 11
SHEET 9
SHEET 10
SHEET 8
COCA COLA DRIVE
HITECH DRIVE

KEY MAP
NOT TO SCALE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 7/6/06

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 7/6/06

DIRECTOR — DATE 7/6/06

REVIEWED FOR HOWARD S.C.D. & MEETS TECHNICAL REQUIREMENTS.

USDA-NATURAL RESOURCES CONSERVATION SERVICE — DATE 3/28/06

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

HOWARD S.C.D. — DATE 3/28/06

BY THE DEVELOPER:

"I/WE CERTIFY THAT ALL DEVELOPEMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN FOR SEDIMENT AND EROSION CONTROL, AND THAT ALL 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 ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT."

DON BOWERS — SIGNATURE OF DEVELOPER — DATE 3/01/06

BY THE ENGINEER:

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

SIGNATURE OF ENGINEER — DATE 3/1/06

OWNER/PETITIONER
CROSSROADS VENTURE, LLC.
C/O J. PAUL PRICE
101 CONSTITUTION AVENUE, NW, SUITE 600E
WASHINGTON, DC 20001

FOR REVISION 7 ONLY
REV. 8 10/30/14

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.

License No. 16597, Expiration Date: 8/15/13

STATE OF MARYLAND — ROBERT HARRIS VOGEL — NO. 16193 — REGISTERED PROFESSIONAL ENGINEER

11/7/13

NO.	REVISION	DATE
8	DRIVE IN RAMP, FENCED AREA AND PARKING SPACES	10/30/14
7	ADDITION OF H.C. RAMPS ON BUILDING 1	09-05-12
5	MODIFY ENTRANCE TO BUILDING 1	4/24/09
1	RELABEL SHC TO BLDG #1	7.28.06

SITE DEVELOPMENT PLAN

SITE GRADING, SEDIMENT AND EROSION CONTROL PLAN

PATAPSCO VALLEY BUSINESS CENTER PARCEL I

TAX MAP 38 BLOCK 19/18 — PARCEL I
1ST ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

ROBERT H. VOGEL ENGINEERING, INC.
ENGINEERS • SURVEYORS • PLANNERS
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ELLICOTT CITY, MD 21043 — FAX: 410.461.8961

STATE OF MARYLAND — ROBERT HARRIS VOGEL — NO. 16193 — REGISTERED PROFESSIONAL ENGINEER — 3/1/06

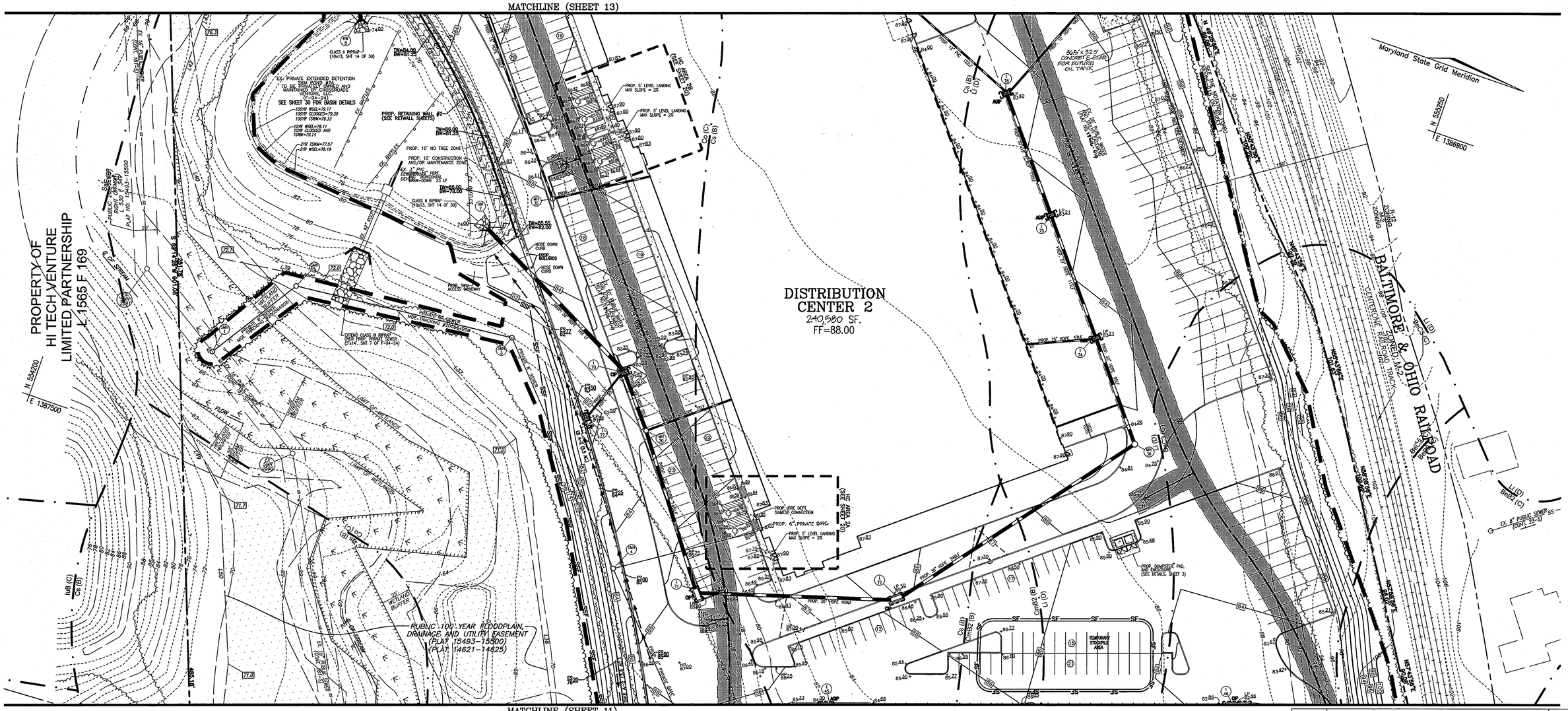
ROBERT H. VOGEL, PE No.16193

DESIGN BY:	WGZ/DZ
DRAWN BY:	DZ
CHECKED BY:	RHV
DATE:	FEB. 27, 2006
SCALE:	1"=40'
W.O. NO.:	04-121

SHEET 11 OF 30

SDP-05-153

MATCHLINE (SHEET 13)



MATCHLINE (SHEET 11)

NO.	REVISION	DATE
4	ADD DOOR TO BUILDING 2, ADD CONCRETE SLAB FOR FUTURE OIL TANK AND CONDENSER ADJACENT TO BUILDING 2	1/26/09
1	RELABEL SHC TO BLDG # 1 & #2.	7.28.06

SEDIMENT BASIN #7

DRAINAGE AREA:	5.5 AC.
STORAGE REQUIRED (SEDIMENT)	19,800 C.F.
STORAGE PROVIDED:	65,932 C.F.
TOP EMBANKMENT ELEVATION:	78.10
TOP RISER ELEVATION:	75.90
WEIR CREST ELEVATION:	75.90
BOTTOM ELEVATION:	72.00
CLEANOUT ELEVATION:	72.35
SIDE SLOPES:	3:1
WET VOLUME REQUIRED:	0.23 AC.FT.
WET VOLUME PROVIDED:	0.23 AC.FT.
WET VOLUME ELEVATION:	72.68
DRY STORAGE REQUIRED:	0.23 AC.FT.
DRY VOLUME PROVIDED:	0.23 AC.FT.
DRY STORAGE ELEVATION:	73.35

SEDIMENT BASIN #7A

DRAINAGE AREA:	16.1 AC. (MAX DA ONCE BASIN #7 IS REMOVED)
STORAGE REQUIRED (SEDIMENT)	57,960 C.F.
STORAGE PROVIDED:	87,532 C.F.
TOP EMBANKMENT ELEVATION:	82.38
TOP RISER ELEVATION:	78.80
WEIR CREST ELEVATION:	78.20
BOTTOM ELEVATION:	74.00
CLEANOUT ELEVATION:	74.73
SIDE SLOPES:	3:1
WET VOLUME REQUIRED:	0.66 AC.FT.
WET VOLUME PROVIDED:	0.66 AC.FT.
WET VOLUME ELEVATION:	75.46
DRY STORAGE REQUIRED:	0.66 AC.FT.
DRY VOLUME PROVIDED:	1.35 AC.FT.
DRY STORAGE ELEVATION:	76.73
Q2 (PREVIOUS DESIGN):	4.2 CFS
Q2 (PROPOSED, TR-20):	4.0 CFS
DEWATERING DEVICE:	12"
DEWATERING DEVICE ELEV.:	75.50

NOTE: THIS PLAN IS SUBJECT TO MDE APPLICATION TRACKING NO. 200564908.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 7/6/06

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 7/6/06

DIRECTOR — DATE 7/6/06

REVIEWED FOR HOWARD S.C.D. & MEETS TECHNICAL REQUIREMENTS.

USDA-NATURAL RESOURCES CONSERVATION SERVICE — DATE 2/28/06

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

HOWARD S.C.D. — DATE 2/28/06

BY THE DEVELOPER:

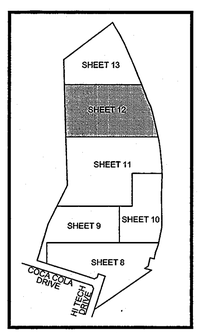
"I/WE CERTIFY THAT ALL DEVELOPEMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN FOR SEDIMENT AND EROSION CONTROL, AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF DEVELOPER — DATE 3/01/06

BY THE ENGINEER:

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

SIGNATURE OF ENGINEER — DATE 3/1/06



KEY MAP
NOT TO SCALE

OWNER/PETITIONER
CROSSROADS VENTURE, LLC.
C/O J. PAUL PRICE
101 CONSTITUTION AVENUE, NW, SUITE 600E
WASHINGTON, DC 20001

SITE DEVELOPMENT PLAN

SITE GRADING, SEDIMENT AND EROSION CONTROL PLAN

PATAPSCO VALLEY BUSINESS CENTER PARCEL I

TAX MAP 38 BLOCK 19/18 — PARCEL I
1ST ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

ROBERT H. VOGEL ENGINEERING, INC.
ENGINEERS • SURVEYORS • PLANNERS
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STATE OF MARYLAND — ROBERT HARRIS VOGEL — NO. 16193 — REGISTERED PROFESSIONAL ENGINEER — 2/1/06

ROBERT H. VOGEL, PE No.16193

DESIGN BY:	WGZ/DZ
DRAWN BY:	DZ
CHECKED BY:	RHV
DATE:	FEB. 27, 2006
SCALE:	1"=40'
W.O. NO.:	04-121

SHEET 12 OF 30

SDP-05-153

MATCHLINE (SHEET 12)

KEY MAP
NOT TO SCALE

NO.	REVISION	DATE
4	ADD DOOR TO BUILDING 2, ADD CONCRETE SLAB FOR FUTURE OIL TANK AND CONDENSER ADJACENT TO BUILDING 2	1/28/09

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

[signature] 7/6/06
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

[signature] 7/6/06
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE

[signature] 7/6/06
DIRECTOR — DATE

REVIEWED FOR HOWARD S.C.D. & MEETS TECHNICAL REQUIREMENTS.

[signature] 2/28/06
USDA-NATURAL RESOURCES CONSERVATION SERVICE — DATE

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

[signature] 2/28/06
HOWARD S.C.D. — DATE

BY THE DEVELOPER:

"I/WE CERTIFY THAT ALL DEVELOPEMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN FOR SEDIMENT AND EROSION CONTROL, AND THAT ALL 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 ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT."

Don Bowers 3/01/06
SIGNATURE OF DEVELOPER — DATE

BY THE ENGINEER:

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

[signature] 3/1/06
SIGNATURE OF ENGINEER — DATE

OWNER/PETITIONER
CROSSROADS VENTURE, LLC.
C/O J. PAUL PRICE
101 CONSTITUTION AVENUE, NW, SUITE 600E
WASHINGTON, DC 20001

SITE DEVELOPMENT PLAN

SITE GRADING, SEDIMENT AND EROSION CONTROL PLAN

PATAPSCO VALLEY BUSINESS CENTER PARCEL I

TAX MAP 38 BLOCK 19/18 — PARCEL I
1ST ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

ROBERT H. VOGEL ENGINEERING, INC.
ENGINEERS • SURVEYORS • PLANNERS
8407 MAIN STREET ELLICOTT CITY, MD 21043
TEL: 410.461.7666 FAX: 410.461.8961

STATE OF MARYLAND — ROBERT HARRIS VOGEL — NO. 16193 — REGISTERED PROFESSIONAL ENGINEER
ROBERT H. VOGEL, PE No.16193

DESIGN BY: WGZ/DZ
DRAWN BY: DZ
CHECKED BY: RHV
DATE: FEB. 27, 2006
SCALE: 1"=40'
W.O. NO.: 04-121

SDP-05-153

DETAIL 24 - STABILIZED CONSTRUCTION ENTRANCE

CONSTRUCTION SPECIFICATION

1. LENGTH – MINIMUM OF 50' (* 30' FOR A 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 THE ENTRANCE.
5. SURFACE WATER – ALL SURFACE WATER FLOWING TO OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED THROUGH THE ENTRANCE, MAINTAINING POSITIVE DRAINAGE. PIPE INSTALLED THROUGH THE STABILIZED CONSTRUCTION ENTRANCE SHALL BE PROTECTED WITH A MOUNTABLE BERM WITH 5:1 SLOPES AND A MINIMUM OF 6" OF STONE OVER THE PIPE. PIPE HAS TO BE SIZED ACCORDING TO THE DRAINAGE. WHEN THE SCE IS LOCATED AT A HIGH SPOT AND HAS NO DRAINAGE TO CONVEY, A PIPE WILL NOT BE NECESSARY. PIPE SHOULD BE SIZED ACCORDING TO THE AMOUNT OF RUNOFF TO BE CONVEYED. A 6" MINIMUM WILL BE REQUIRED.
6. LOCATION – A STABILIZED CONSTRUCTION ENTRANCE SHALL BE LOCATED AT EVERY POINT WHERE CONSTRUCTION TRAFFIC ENTERS OR LEAVES A CONSTRUCTION SITE. VEHICLES LEAVING THE SITE MUST TRAVEL OVER THE ENTIRE LENGTH OF THE STABILIZED CONSTRUCTION ENTRANCE.

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DETAIL 22 - SILT FENCE

CONSTRUCTION SPECIFICATIONS

1. FENCE POSTS SHALL BE A MINIMUM OF 36" LONG, DRIVEN 16" MINIMUM INTO THE GROUND. WOOD POSTS SHALL BE 1 1/2" X 1 1/2" SQUARE (MINIMUM) CUT, OR 1 3/4" DIAMETER (MINIMUM) ROUND AND SHALL BE OF SOUND QUALITY HARDWOOD. STEEL POSTS WILL BE STANDARD T OR U SECTION WEIGHING NOT LESS THAN 1.00 POUND PER LINEAR FOOT.
2. GEOTEXTILE SHALL BE FASTENED SECURELY TO EACH FENCE POST WITH WIRE TIES OR STAPLES AT TOP AND MID-SECTION AND SHALL MEET THE FOLLOWING REQUIREMENTS FOR GEOTEXTILE CLASS F:

TENSILE STRENGTH	50 LBS/IN (MIN.)	TEST: MSMT 509
TENSILE MODULUS	20 LBS/IN (MIN.)	TEST: MSMT 509
FLOW RATE	0.3 GAL FT /MINUTE (MAX.)	TEST: MSMT 322
FILTERING EGGECIENCY	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 REACHES 50% OF THE FABRIC HEIGHT.

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DETAIL 33 - SUPER SILT FENCE

CONSTRUCTION SPECIFICATIONS

1. FENCING SHALL BE 42" IN HEIGHT AND CONSTRUCTED IN ACCORDANCE WITH THE LATEST MARYLAND STATE HIGHWAY DETAILS FOR CHAIN LINK FENCING. THE SPECIFICATION FOR A 6' FENCE SHALL BE USED, SUBSTITUTING 42" FABRIC AND 6' LENGTH POSTS.
2. CHAIN LINK FENCE SHALL BE FASTENED SECURELY TO THE FENCE POSTS WITH WIRE TIES. THE LOWER TENSION WIRE, BRACE AND TRUSS RODS, DRIVE ANCHORS AND POST CAPS ARE NOT REQUIRED EXCEPT ON THE ENDS OF THE FENCE.
3. FILTER CLOTH SHALL BE FASTENED SECURELY TO THE CHAIN LINK FENCE WITH TIES SPACED EVERY 24" AT THE TOP AND MID SECTION.
4. FILTER CLOTH SHALL BE EMBEDDED A MINIMUM OF 8" INTO THE GROUND.
5. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER, THEY SHALL BE OVERLAPPED BY 6" AND FOLDED.
6. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND SILT BUILDUPS REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE, OR WHEN SILT REACHES 50% OF FENCE HEIGHT
7. FILTER CLOTH SHALL BE FASTENED SECURELY TO EACH FENCE POST WITH WIRE TIES OR STAPLES AT TOP AND MID SECTION AND SHALL MEET THE FOLLOWING REQUIREMENTS FOR GEOTEXTILE CLASS F:

TENSILE STRENGTH	50 LBS/IN (MIN.)	TEST: MSMT 509
TENSILE MODULUS	20 LBS/IN (MIN.)	TEST: MSMT 509
FLOW RATE	0.3 GAL/FT /MINUTE (MAX.)	TEST: MSMT 322
FILTERING EFFICIENCY	75% (MIN.)	TEST: MSMT 322

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DETAIL 23C - CURB INLET PROTECTION (COG OR COS INLETS)

MAX. DRAINAGE AREA = 1/4 ACRE

CONSTRUCTION SPECIFICATIONS

1. ATTACH A CONTINUOUS PIECE OF WIRE MESH (30" MINIMUM WIDTH BY THROAT LENGTH PLUS 4') TO THE 2" X 4" WEIR (MEASURING THROAT LENGTH PLUS 2') AS SHOWN ON THE STANDARD DRAWING.
2. PLACE A CONTINUOUS PIECE OF GEOTEXTILE CLASS E THE SAME DIMENSIONS AS THE WIRE MESH OVER THE WIRE MESH AND SECURELY ATTACH IT TO THE 2" X 4" WEIR.
3. SECURELY NAIL THE 2" X 4" WEIR TO A 9" LONG VERTICAL SPACER TO BE LOCATED BETWEEN THE WEIR AND THE INLET FACE (MAX. 4' APART).
4. PLACE THE ASSEMBLY AGAINST THE INLET THROAT AND NAIL (MINIMUM 2' LENGTHS OF 2" X 4" TO THE TOP OF THE WEIR AT SPACER LOCATIONS). THESE 2" X 4" ANCHORS SHALL EXTEND ACROSS THE INLET TOP AND BE HELD IN PLACE BY SANDBAGS OR ALTERNATE WEIGHT.
5. THE ASSEMBLY SHALL BE PLACED SO THAT THE END SPACERS ARE A MINIMUM 1' BEYOND BOTH ENDS OF THE THROAT OPENING.
6. FORM THE 1/2 " X 1/2 " WIRE MESH AND THE GEOTEXTILE FABRIC TO THE CONCRETE GUTTER AND AGAINST THE FACE OF THE CURB ON BOTH SIDES OF THE INLET. PLACE CLEAN 3/4 " X 1 1/2 " STONE OVER THE WIRE MESH AND GEOTEXTILE IN SUCH A MANNER TO PREVENT WATER FROM ENTERING THE INLET UNDER OR AROUND THE GEOTEXTILE.
7. THIS TYPE OF PROTECTION MUST BE INSPECTED FREQUENTLY AND THE FILTER CLOTH AND STONE REPLACED WHEN CLOGGED WITH SEDIMENT.
8. ASSURE THAT STORM FLOW DOES NOT BYPASS THE INLET BY INSTALLING A TEMPORARY EARTH OR ASPHALT DIKE TO DIRECT THE FLOW TO THE INLET.

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DETAIL 23B - AT GRADE INLET PROTECTION

MAX. DRAINAGE AREA = 1/4 ACRE

CONSTRUCTION SPECIFICATIONS

1. LIFT GRATE AND WRAP WITH GEOTEXTILE CLASS E TO COMPLETELY COVER ALL OPENINGS, THEN SET GRATE BACK IN PLACE.
2. PLACE 3/4" TO 11/2" STONE, 4"-6" THICK ON THE GRATE TO SECURE THE FABRIC AND PROVIDE ADDITIONAL FILTRATION.

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DETAIL 26 - ROCK OUTLET PROTECTION II

CONSTRUCTION SPECIFICATIONS

1. THE SUBGRADE FOR THE FILTER, RIP-RAP, OR GABION SHALL BE PEREPARED TO THE REQUIRED LINES AND GRADES. ANY FILLL 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 LIIMITS WHEN INSTALLED RESPECTIVELY IN THE RIP-RAP OR FILTER.
3. GEOTEXTILE SHALL BE PROTECTED FROM PUNCHING, CUTTING, OR TEARING. ANY DAMAGE OTHER THAN AN OCCASIONAL SMALL HOLE SHALL BE REPARIED BY PLACING ANOTHER PIECE OF GEOTEXTILE OVER THE DAMAGED PART OR BY COMPLETELY REPLACING THE GEOTEXTILE. ALL OVERLAPS WHETHER FOR REPAIRS OR FOR JOINING TWO PIECES OF GEOTEXTILE SHALL BE A MINIMUM OF ONE FOOT.
4. STONE FOR THE RIP-RAP OR GABION OUTLETS MAY BE PLACED BY EQUIPMENT. THEY SHALL BE CONSTRUCTED TO THE FULL COURSE THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO AVOID DISPLACEMENT OF UNDERLYING MATERIALS. THE STONE FOR RIP-RAP OR GABION OUTLETS SHALL BE DELIVERED AND PLACED IN A MANNER THAT WILL ENSURE THAT IT IS REASONABLY HOMOGENEOUS WITH THE SMALLER STONES AND SPALLS FILLING THE VOIDS BETWEEN THE LARGER STONES. RIP-RAP SHALL BE PLACED IN A MANNER TO PREVENT DAMAGE TO THE FILTER BLANKET OR GEOTEXTILE. HAND PLACEMENT WILL BE REQUIRED TO THE EXTENT NECESSARY TO PREVENT DAMAGE TO THE PERMANENT WORKS.
5. THE STONE SHALL BE PLACED SO THAT IT BLENDS IN WITH THE EXISTING GROUND. IF THE STONE IS PLACED TOO HIGH THEN THE FLOW WILL BE FORCED OUT OF THE CHANNEL AND SCOUR ADJACENT TO THE STONE WILL OCCUR.

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DETAIL 5 - RIP-RAP INFLOW PROTECTION

CONSTRUCTION SPECIFICATIONS

1. RIP-RAP LINED INFLOW CHANNELS SHALL BE 1' IN DEPTH, HAVE A TRAPEZOIDAL CROSS SECTION WITH 2:1 OR FLATTER SIDE SLOPES AND 3' (MIN.) BOTTOM WIDTH. THE CHANNEL SHALL BE LINED WITH 4" TO 12" RIP-RAP TO A DEPTH OF 18".
2. FILTER CLOTH SHALL BE INSTALLED UNDER ALL RIP-RAP. FILTER CLOTH SHALL BE GEOTEXTILE CLASS C.
3. ENTRANCE AND EXIT SECTIONS SHALL BE INSTALLED AS SHOWN ON THE DETAIL SECTION.
4. RIP-RAP USED FOR THE LINING MAY BE RECYCLED FOR PERMANENT OUTLET PROTECTION IF THE BASIN IS TO BE CONVERTED TO A STORMWATER MANAGEMENT FACILITY.
5. GABION INFLOW PROTECTION MAY BE USED IN LIEU OF RIP-RAP INFLOW PROTECTION.
6. RIP-RAP SHOULD BLEND INTO EXISTING GROUND.
7. RIP-RAP INFLOW PROTECTION SHALL BE USED WHERE THE SLOPE IS BETWEEN 4:1 AND 10:1, FOR SLOPES FLATTER THAN 10:1 USE EARTH DIKE OR TEMPORARY SWALE LINING CRITERIA.

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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 MOVEMENTS WHERE ON AND OFF-SITE DAMAGE IS LIKELY WITHOUT TREATMENT.

SPECIFICATIONS

TEMPORARY METHODS:

1. MULCHES – SEE STANDARDS FOR VEGETATIVE STABILIZATION WITH MULCHES ONLY. MULCH SHOULD BE CRIMPED OR TACKED TO PREVENT BLOWING.
2. VEGETATIVE COVER – SEE STANDARDS FOR TEMPORATRY VEGATATIVE COVER.
3. TILLAGE – TO ROUGHEN SURFACE AND BRING CLODS TO THE SURFACE. THIS IS AN EMERGENCY MEASURE WHICH SHOULD BE USED BEFORE SOIL BLOWING STARTS. BEGIN PLOWING ON WINDWARD SIDE OF SITE. CHISEL-TYPE PLOWS SPACED ABOUT 12" APART, SPRING-TOOTHED HARROWS, AND SIMILAR PLOWS ARE EXAMPLES OF EQUIPMENT WHICH MAY PRODUCE THE DESIRED EFFECT.
4. IRRIGATION – THIS IS GENERALLY DONE AS AN EMERGENCY TREATMENT. SITE IS SPRINKLED WITH WATER UNTIL THE SURFACE IS MOIST. REPEAT AS NEEDED. AT NO TIME SHOULD THE SITE BE IRRIGATED TO THE POINT THAT RUNOFF BEGINS TO FLOW.
5. BARRIERS – SOLID BOARD FENCES, SILT FENCES, SNOW FENCES, 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 VEGATATION – SEE STANDARDS FOR PERMENANT VEGATATIVE 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.

PERMANENT SEEDING NOTES

APPLY TO GRADED OR CLEARED AREAS NOT SUBJECT TO IMMEDIATE FURTHER DISTURBANCE WHERE A PERMANENT LONG-LIVED VEGETATIVE

SEEDBED PREPARATION: Loosen upper three inches of soil by raking, discing or other acceptable means before seeding, if not previously

SOIL AMENDMENTS: In lieu of soil test recommendations, use one of

1) Preferred-Apply 2 tons per acre dolomitic limestone (92 lbs/ 100 sq.ft.) and 600 lbs per acre 10-10-10 fertilizer (14 lbs./ 1000 sq.ft.) before seeding. Harrow or disc into upper three inches of soil. At the time of seeding, apply 400 lbs. per acre 30-0-0 ureaform fertilizer (9 lbs/1000 sq.ft.)
2) Acceptable-Apply 2 tons per acre dolomatic limestone (92 lbs/ 1000 sq.ft.) and apply 1000 lbs. per acre 10-10-10- fertilizer (23 lbs./1000 sq.ft.) before seeding. Harrow or disc into upper

SEEDING: For the periods March 1 thru April 30, and August 1 thru October 15, seed with 60 lbs. per acre (1.4 lbs/1000 sq.ft.) of Kentucky 31 Tall Fescue. For the period May 1 thru July 31, seed with 60 lbs. Kentucky 31 Tall Fescue per acre and 2 lbs. per acre (.05 lbs./1000 sq.ft.) of weeping lovegrass. During the period of October 16 thru February 28, protect site by: Option (1) 2 tons per acre well anchored straw mulch and seed as soon as possible in the spring. Option (2) Use sod. Option (3) Seed with 60 lbs/acre Kentucky 31 Tall Fescue and mulch with 2 tons/acre well anchored

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

MAINTENANCE: Inspect all seeded areas and make needed repairs,

TEMPORARY SEEDING NOTES

SEEDBED PREPARATION: Loosen upper three inches of soil by raking, discing or other acceptable means before seeding, if not previously

SOIL AMENDMENTS: Apply 600 lbs. per acre 10-10-10 fertilizer

SEEDING: For periods March 1 thru April 30 and from August 15 thru November 15, seed with 2 1/2 bushel per acre of annual rye (3.2 lbs./1000 sq.ft.) For the period May 1 thru August 14, seed with 3 lbs. per acre of weeping lovegrass (.07 lbs./1000 sq.ft.). For the period November 1 thru February 28, protect site by applying 2 tons per acre of well anchored straw mulch and seed as soon as possible

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

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

21.0 STANDARDS AND SPECIFICATIONS FOR TOPSOIL

Placement of topsoil over a prepared subsoil prior to

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

Conditions Where Practice Applies

I. This practice is limited to areas having 2:1 or flatter

a. The texture of the exposed subsoil/parent material

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

d. The soil is so acidic that treatment with

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

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

II. Topsoil Specifications – Soil to be used as topsoil

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 a 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 that 1 and 1/2" in

ii. Topsoil must be free of plants or plant parts such as Bermuda grass, quackgrass, Johnsongrass, nutsedge, poison

iii. Where the subsoil is either highly acidic or composed of heavy clays, ground limestone shall be spread at the rate of 4-8 tons/acre (200-400 pounds per 1,000 square feet) prior to the placement of topsoil. Lime shall be distributed uniformly over designated areas and worked into the soil in conjunction with tillage operations as described

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

ii. Place topsoil (if required) and apply soil ammendments specified in 20.0 Vegetative Stabilization-Section I-Vegetative Stabilization Methods and Materials.

V. Topsoil Application

i. When topsoiling, maintain needed erosion and sediment control practices such as 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 place 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.

SEQUENCE OF CONSTRUCTION

1. OBTAIN GRADING PERMIT AND COPY OF F-94-24 PLANS. OBTAIN MDE PERMIT FOR INSTALLATION AND DISTURBANCE OF WETLAND FOR INSTALLATION OF SANITARY SEWER. (MDE TRACKING # 200564908)
2. NOTIFY HOWARD COUNTY BUREAU OF INSPECTIONS AND PERMITS (313-1880) AT LEAST 24 HOURS AND MISS UTILITY AT LEAST 48 HOURS BEFORE STARTING ANY WORK.
3. CONSTRUCT STABILIZED CONSTRUCTION ENTRANCES AND INSTALL TREE PROTECTION DEVICES. EXISTING SEDIMENT BASIN 7A IS TO BE USED AND MAINTAINED DURING CONSTRUCTION. EXISTING SWM FACILITY #6 IS TO BE CONVERTED BACK TO SEDIMENT BASIN USING DETAILS PROVIDED ON THESE PLANS (TOP OF DAM, EMER. SPILLWAY, & RISER MODIFICATIONS).
4. CLEAR AND GRUB FOR SEDIMENT CONTROL DEVICES ONLY. CONSTRUCT STORM DRAIN SYSTEM FROM EX. MH LOCATED IN HI TECH DRIVE TO SEDCON AREA #1, BUT DO NOT INSTALL I-59. BLOCK MH-32 AT THE CONNECTION TO I-53. CONSTRUCT STORM DRAIN SYSTEM FROM ES-6A TO SEDCON AREA #2, BUT DO NOT INSTALL I-35. CONSTRUCTION WITHIN COCA COLA DRIVE IS TO COMPLETED TO FINISHED GRADE INCLUDING FINAL PAVEMENT.
5. BEGIN REMOVAL OF BASIN #7, INCLUDING THE EX. 21" BCCMP OUTFALL PIPE. INSTALL ALL SILT FENCE AND SUPER SILT FENCE AS SHOWN ON PLANS. CONSTRUCT EARTH DIKES, SWALES, AND COMPLETE GRADING FOR SEDCON AREAS #1 & #2 MAINTAINING POSITIVE FLOW AT ALL TIMES.
6. WITH INSPECTOR'S APPROVALS, CLEAR AND GRUB REMAINDER OF SITE. BEGIN GRADING OF BUILDING PADS, PARKING AND ROADWAY AREAS. BEGIN FOUNDATION CONSTRUCTION. AS GRADING CONTINUES, THE CONTRACTOR IS TO MAINTAIN POSITIVE FLOW TO THE BASINS AND SEDCON AREAS AT ALL TIMES. EMPLOY DUST CONTROL MEASURES AS NEEDED.
7. COMPLETE INSTALLATION OF STORM DRAINS FROM I-38 TO I-46, I-60 TO I-69, I-53 TO I-58, AND ALL STORM DRAINS LEADING TO SEDIMENT BASIN #7A. STORM DRAIN SHALL BE BLOCKED AND/OR INLET PROTECTION ADDED TO PREVENT SEDIMENT FROM ENTERING THE SYSTEM.
8. BEGIN BUILDING #1 & #2 CONSTRUCTION.
9. COMPLETE INSTALLATION OF THE OTHER ON-SITE UTILITIES.
10. INSTALL ON-SITE CURB AND GUTTER AND INSTALL PAVING BASE COURSE AROUND BUILDINGS #1 & #2. WITH INSPECTOR'S APPROVAL, REMOVE DIKES AND SWALES DRAINING TO BASIN #7A. REMOVE BLOCKING AND INLET PROTECTION OF STORM DRAIN SYSTEM DRAIN TO BASIN #7A PER THE SEDIMENT CONTROL INSPECTOR AS WORK PROGRESSES.
11. WITH APPROVAL OF SEDIMENT CONTROL INSPECTOR, BACKFILL SEDCON AREA #1, AND ASSOCIATED DIKES. INSTALL ALL REMAINING STORM DRAINS CONNECTIONS TO AND INCLUDING I-59. REMOVE BLOCKING AND COMPLETE STORM DRAIN CONNECTION FROM I-53 TO MH-32.
12. INSTALL STORM DRAIN SYSTEM FROM I-50 TO I-38, AND I-36 TO I-38. STORM DRAIN SHALL BE BLOCKED AND/OR INLET PROTECTION ADDED TO PREVENT SEDIMENT FROM ENTERING THE SYSTEM.
13. BEGIN BUILDING #3 CONSTRUCTION.
14. WITH APPROVAL OF SEDIMENT CONTROL INSPECTOR, BACKFILL SEDCON AREA #2, REMOVE ASSOCIATED DIKES AND SWALES, AND INSTALL ALL REMAINING STORM DRAINS.
15. INSTALL REMAINING ON-SITE CURB AND GUTTER AND PAVING BASE COURSE. REMOVE BLOCKING AND INLET PROTECTION OF STORM DRAIN SYSTEM DRAIN PER THE SEDIMENT CONTROL INSPECTOR AS WORK PROGRESSES.
16. COMPLETE CONSTUCTION OF ALL BUILDINGS.
17. INSTALL ALL PAVING SURFACE COURSE, AND INSTALL SIDEWALKS.
18. FINE GRADE AND STABILIZE ALL AREAS OF PARCEL INCLUDING ANY EXPOSED EARTH AREAS OUTSIDE LOD. REMOVE ALL TRASH, JUNK AND DEBREE FROM ENTIRE PARCEL, INCLUDING ALL FLOODPLAIN AND BUFFER AREAS.
19. WITH PERMISSION FROM INSPECTOR, CLEAN AND FLUSH STORM DRAINS SYSTEM. DISPOSE OF SEDIMENT LADEN MATERIAL CLEANED OUT OF STORM DRAIN IN A MANNER APPROVED BY THE SEDIMENT CONTROL INSPECTOR.
20. CONVERT SEDIMENT BASINS #6 & #7A TO STORMWATER MANAGEMENT PONDS AS SHOWN ON APPROVED CONSTRUCTION DRAWINGS F-94-24. DETAILS AND SPECIFICATIONS FOR TRASH RACKS AND SWM CONVERSIONS ARE SHOWN F-94-24. CONTRACTOR TO PROVIDE AS-BUILTS OF FACILITIES UPON COMPLETION OF FINAL POND CONVERSION.
21. REMOVE ALL SEDIMENT CONTROL MEASURES AFTER RECIEVING APPROVAL FROM THE SEDIMENT CONTROL INSPECTOR.
22. INSTALL ALL SITE LANDSCAPING AS SHOWN ON THESE PLANS.

NOTES:

1. DUE TO THE DIFFICULTY OF MAINTAINING INTERNAL EARTH DIKES, CONTRACTOR SHALL LIMIT GRADING AND FILL TO AREA BETWEEN SUPER SILT FENCE AND DIKE.
2. DURING GRADING AND AFTER EACH RAINFALL, CONTRACTOR WILL INSPECT AND PROVIDE NECESSARY MAINTENANCE TO THE SEDIMENT CONTROL MEASURES ON THIS PLAN.
3. FOLLOWING INITIAL SOIL DISTURBANCES OR REDISTURBANCE PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN:
   A. 7 CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DIKES, SWALES AND ALL SLOPES GREATER THAN 3:1.
   B. 14 CALENDAR DAYS FOR ALL OTHER DISTURBED AREAS.

BEST MANAGEMENT PRACTICES FOR WORKING IN NONTIDAL WETLANDS, THE NONTIDAL WETLAND BUFFER, WATERS OF THE STATE, AND 100-YEAR FLOODPLAIN

1) No excess fill, construction material, or debris shall be stockpiled or stored in nontidal wetlands, nontidal wetland buffers, waterways, or the 100-year floodplain.
2) Place materials in a location and manner that does not adversely impact surface or subsurface water flow into or out of nontidal wetlands, nontidal wetland buffers, waterways, or the 100-year floodplain.
3) Do not use the excavated material as backfill if it contains waste metal products, unsightly debris, toxic material, or any other deleterious substance. If additional backfill is required, use clean material free of waste metal products, unsightly debris, toxic material, or any other deleterious substance.
4) Place heavy equipment on mats or suitably operate the equipment to prevent damage to nontidal wetlands, nontidal wetland buffers, waterways, or the 100-year floodplain.
5) Repair and maintain any serviceable structure or fill so there is no permanent loss of nontidal wetlands, nontidal wetland buffers, or waterways, or permanent modification of the 100-year floodplain in excess of that lost under the originally authorized structure or fill.
6) Rectify any nontidal wetlands, wetland buffers, waterways, or 100-year floodplain temporarily impacted by any construction.
7) All stabilization in the nontidal wetland and nontidal wetland buffer shall consist of the following species: Annual Ryegrass (*Lolium multiflorum*), Millet (*Setaria italica*), Barley (*Hordeum* sp.), Oats (*Uniola* sp.), and/or Rye (*Secale cereale*). These species will allow for the stabilization of the site while also allowing for the voluntary revegetation of natural wetland species. Other non-persistent vegetation may be acceptable, but must be approved by the Nontidal Wetlands and Waterways Division. **Kentucky 31 fescue shall not be utilized in wetland or buffer areas.** The area should be seeded and mulched to reduce erosion after construction activities have been completed.
8) After installation has been completed, make post-construction grades and elevations the same as the original grades and elevations in temporarily impacted areas.
9) To protect aquatic species, in-stream work is prohibited as determined by the classification of the stream:

   Use I waters: In-stream work shall not be conducted during the period March 1 through June 15, inclusive, during any year.

10) Stormwater runoff from impervious surfaces shall be controlled to prevent the washing of debris into the waterway.
11) Culverts shall be constructed and any riprap placed so as not to obstruct the movement of aquatic species, unless the purpose of the activity is to impound water.

DETAIL 1 - EARTH DIKE

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

STANDARD SYMBOL A-2 B-3

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

1. SEED AND COVER WITH STRAW MULCH.
2. SEED AND COVER WITH EROSION CONTROL MATTING OR LINE WITH SOD.
3. 4" - 7" STONE OR RECYCLED CONCRETE EQUIVALENT PRESSED INTO THE SOIL 7" MINIMUM

CONSTRUCTION SPECIFICATIONS

1. ALL TEMPORARY EARTH DIKES SHALL HAVE UNINTERRUPTED POSITIVE GRADE TO AN OUTLET. SPOT ELEVATIONS MAY BE NECESSARY FOR GRADES LESS THAN 1%.
2. RUNOFF DIVERTED FROM A DISTURBED AREA SHALL BE CONVEYED TO A SEDIMENT TRAPPING DEVICE.
3. RUNOFF DIVERTED FROM AN UNDISTURBED AREA SHALL OUTLET DIRECTLY INTO AN UNDISTURBED, STABILIZED AREA AT A NON-EROSIVE VELOCITY.
4. ALL TREES, BRUSH, STUMPS, OBSTRUCTIONS, AND OTHER OBJECTIONAL MATERIAL SHALL BE REMOVED AND DISPOSED OF SO AS NOT TO INTERFERE WITH THE PROPER FUNCTIONING OF THE DIKE.
5. THE DIKE SHALL BE EXCAVATED OR SHAPED TO LINE, GRADE AND CROSS SECTION AS REQUIRED TO MEET THE CRITERIA SPECIFIED HEREIN AND BE FREE OF BANK PROJECTIONS OR OTHER IRREGULARITIES WHICH WILL IMPEDE NORMAL FLOW.
6. FILL SHALL BE COMPACTED BY EARTH MOVING EQUIPMENT.
7. ALL EARTH REMOVED AND NOT NEEDED FOR CONSTRUCTION SHALL BE PLACED SO THAT IT WILL NOT INTERFERE WITH THE FUNCTIONING OF THE DIKE.
8. INSPECTION AND MAINTENANCE MUST BE PROVIDED PERIODICALLY AND AFTER EACH RAIN EVENT.

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

DETAIL 30 - EROSION CONTROL MATTING

CONSTRUCTION SPECIFICATIONS

1. KEY-IN THE MATTING BY PLACING THE TOP ENDS OF THE MATTING IN A NARROW TRENCH, 6" IN DEPTH. BACKFILL THE TRENCH AND TAMP FIRMLY TO CONFORM TO THE CHANNEL CROSS-SECTION. SECURE WITH A ROW OF STAPLES ABOUT 4" DOWN SLOPE FROM THE TRENCH. SPACING BETWEEN STAPLES IS 6".
2. STAPLE THE 4" OVERLAP IN THE CHANNEL CENTER USING AN 18" SPACING BETWEEN STAPLES.
3. BEFORE STAPLING THE OUTER EDGES OF THE MATTING, MAKE SURE THE MATTING IS SMOOTH AND IN FIRM CONTACT WITH THE SOIL.
4. STAPLES SHALL BE PLACED 2' APART WITH 4 ROWS FOR EACH STRIP, 2 OUTER ROWS, AND 2 ALTERNATING ROWS DOWN THE CENTER.
5. WHERE ONE ROLL OF MATTING ENDS AND ANOTHER BEGINS, THE END OF THE TOP STRIP SHALL OVERLAP THE UPPER END OF THE LOWER STRIP BY 4", SHIPLAP FASHION. REINFORCE THE OVERLAP WITH A DOUBLE ROW OF STAPLES SPACED 6" APART IN A STAGGERED PATTERN ON EITHER SIDE.
6. THE DISCHARGE END OF THE MATTING LINER SHOULD BE SIMILARLY SECURED WITH 2 DOUBLE ROWS OF STAPLES.

NOTE: IF FLOW WILL ENTER FROM THE EDGE OF THE MATTING THEN THE AREA EFFECTED BY THE FLOW MUST BE KEYED-IN.

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

SEDIMENT CONTROL NOTES

1. A MINIMUM OF 48 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY DEPARTMENT OF INSPECTION, LICENSE AND PERMITS SEDIMENT CONTROL DIVISION PRIOR TO THE START OF ANY CONSTRUCTION (313-1855).
2. ALL VEGETATION AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL. AND REVISIONS THERETO.
3. FOLLOWING INITIAL SOIL DISTURBANCE OR REDISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN: (A) 7 CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DIKES, PERIMETER SLOPES, AND ALL SLOPES GREATER THAN 3:1, (B) 14 DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.
4. ALL SEDIMENT TRAPS/BASINS SHOWN MUST BE FENCED AND WARNING SIGNS POSTED AROUND THEIR PERIMETER IN ACCORDANCE WITH VOL. 1, CHAPTER 7, 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 BE DONE WHEN RECOMMENDED SEEDING DATES DO NOT ALLOW FOR PROPER GERMINATION AND ESTABLISHMENT OF GRASSES.
6. ALL SEDIMENT CONTROL STRUCTURES ARE TO REMAIN IN PLACE AND ARE TO BE MAINTAINED IN OPERATIVE CONDITION UNTIL PERMISSION FOR THEIR REMOVAL HAS BEEN OBTAINED FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
7. SITE ANALYSIS :

TOTAL AREA	64.277 ACRES
AREA DISTURBED	44.82 ACRES
AREA TO BE ROOFED OR PAVED	36.34 ACRES
AREA TO BE VEGETATIVELY STABILIZED	8.48 ACRES
TOTAL CUT	37,575 CY
TOTAL FILL	37,575 CY
WASTE/BORROW LOCATION	OFFSITE *

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.

* TO BE DETERMINED BY CONTRACTOR, WITH PRE-APPROVAL OF THE SEDIMENT CONTROL INSPECTOR WITH AN APPROVED AND ACTIVE GRADING PERMIT.

'A' & 'B' SWALE @ FLOODPLAIN
TYPICAL SECTION A-A
NOT TO SCALE

SOILS LEGEND

SYMBOL	NAME / DESCRIPTION	HYDRIC	DEPTH TO WATER TABLE
BrB2	BRANDYWINE LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY ERODED	–	30+'
BrD3	BRANDYWINE LOAM, 15 TO 25 PERCENT SLOPES, SEVERELY ERODED	–	30+'
IuB	IUKA LOAM, LOCAL ALLUVIUM, 1-5 PERCENT SLOPES	I	1.5'-3'
KeB2	KELLY SILT LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY ERODED	I	1'-3'
LeB2	LEGORE SILT LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY ERODED	–	20+'
LeC2	LEGORE SILT LOAM, 8 TO 15 PERCENT SLOPES, MODERATELY ERODED	–	20+'
MrE	MONTALTO AND RELAY SOILS, 15 TO 45 PERCENT SLOPES	–	20+'
NeB2	NESHAMINY SILT LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY ERODED	–	20+'
NeC2	NESHAMINY SILT LOAM, 8 TO 15 PERCENT SLOPES, MODERATELY ERODED	–	20+'
SfC2	SASSAFRAS GRAVELLY SANDY LOAM, 5-10% SLOPES, MODERATELY ERODED	–	5+'
WaB	WATCHUNG SILT LOAM, 3 TO 8 PERCENT SLOPES	X	0-1'

X=HYDRIC SOIL
I=INCLUSIONAL SOIL

OWNER/PETITIONER

CROSSROADS VENTURE, LLC.
C/O J. PAUL PRICE
101 CONSTITUTION AVENUE, NW, SUITE 600E
WASHINGTON, DC 20001

NO.	REVISION	DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 7/6/06

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 7/6/06

DIRECTOR — DATE 7/6/06

REVIEWED FOR HOWARD S.C.D. & MEETS TECHNICAL REQUIREMENTS.

USDA-NATURAL RESOURCES CONSERVATION SERVICE — DATE 2/28/06

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

HOWARD S.C.D. — DATE 2/28/06

BY THE DEVELOPER:

"I/WE CERTIFY THAT ALL DEVELOPEMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN FOR SEDIMENT AND EROSION CONTROL, AND THAT ALL 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 ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT."

Don Bowers — SIGNATURE OF DEVELOPER — DATE 3/01/06

BY THE ENGINEER:

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

SIGNATURE OF ENGINEER — DATE 3/1/06

SITE DEVELOPMENT PLAN

SEDIMENT AND EROSION CONTROL NOTES AND DETAILS

PATAPSCO VALLEY BUSINESS CENTER PARCEL I

TAX MAP 38 BLOCK 19/18 — PARCEL I
1ST ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

ROBERT H. VOGEL ENGINEERING, INC.
ENGINEERS • SURVEYORS • PLANNERS
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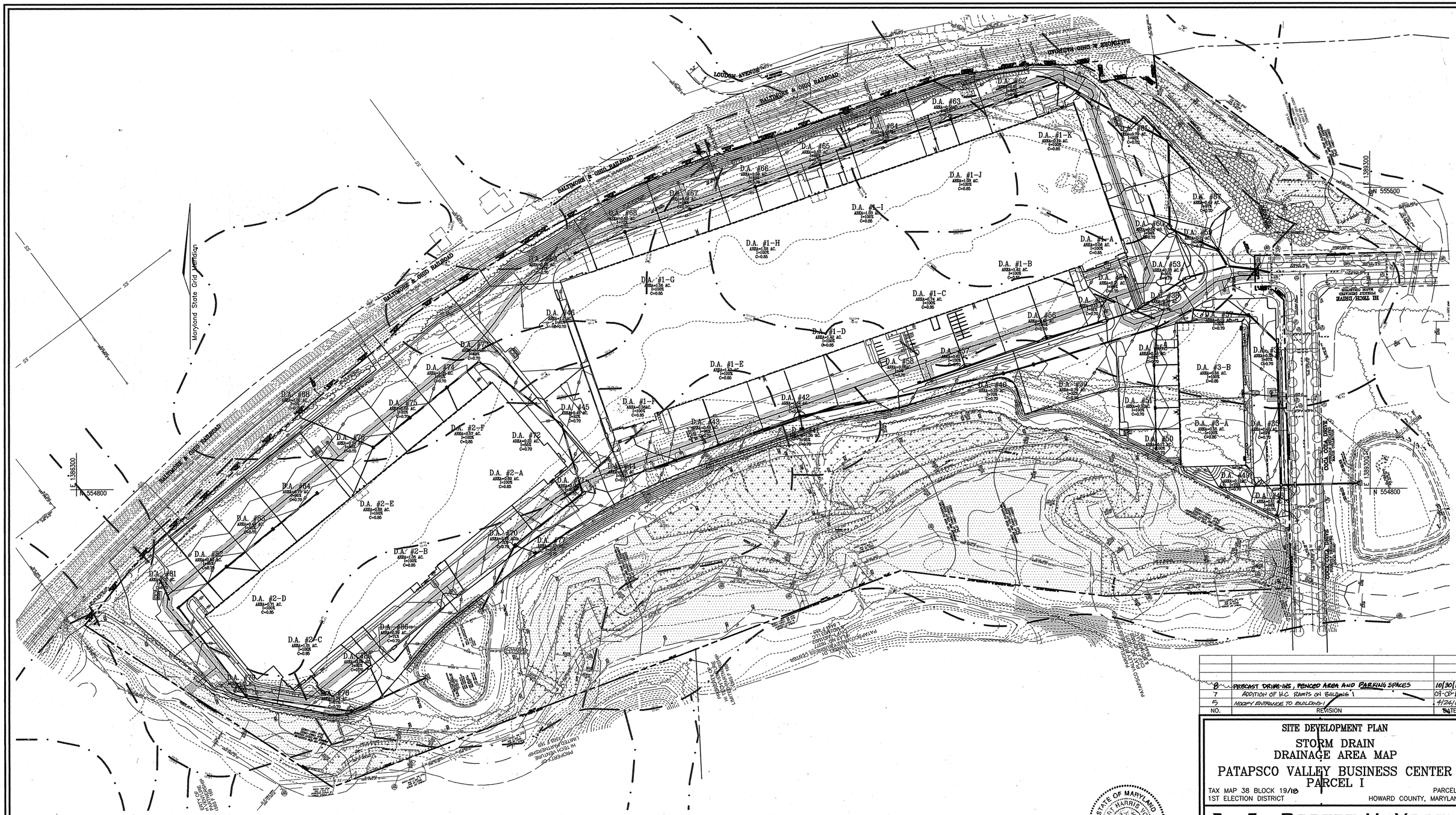
TEL: 410.461.7666 FAX: 410.461.8961

STATE OF MARYLAND — ROBERT HARRIS VOGEL — No. 16193 — REGISTERED PROFESSIONAL ENGINEER — 3/1/06

ROBERT H. VOGEL, PE No.16193

DESIGN BY:	WGZ/DZ
DRAWN BY:	DZ
CHECKED BY:	RHV
DATE:	FEB. 27, 2006
SCALE:	AS SHOWN
W.O. NO.:	04-121

SDP-05-153



NO.	REVISION	DATE
8	PRECAST DRIVE-INS, PENCOD AREA AND PARKING SPACES	10/30/14
7	ADDITION OF H.C. RAMPS ON BUILDING 1	09-08-12
5	MODIFY ENTRANCE TO BUILDING 1	4/24/09

SITE DEVELOPMENT PLAN
STORM DRAIN DRAINAGE AREA MAP
PATAPSCO VALLEY BUSINESS CENTER PARCEL I

TAX MAP 38 BLOCK 19/18 — PARCEL I
1ST ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 7/6/06
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 7/6/06
DIRECTOR — DATE 7/6/06

FOR REVISION 7 ONLY
& REV #8 10/30/14

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
License No. 16597, Expiration Date: 8/15/13

11/7/13

STATE OF MARYLAND — ROBERT HARRIS VOGEL — NO. 16193 — REGISTERED PROFESSIONAL ENGINEER — 11/4/14

ROBERT H. VOGEL ENGINEERING, INC.
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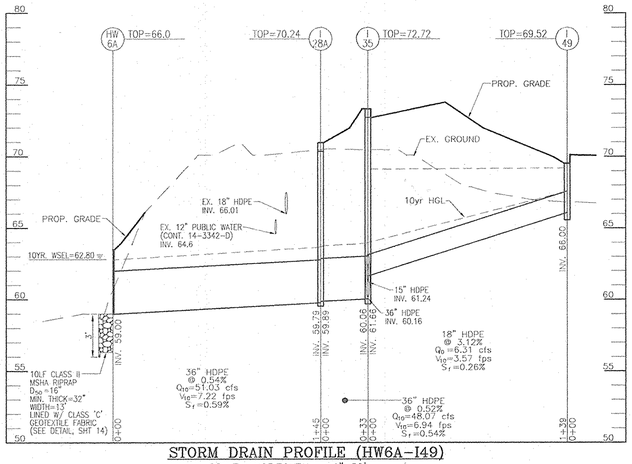
OWNER/PETITIONER
CROSSROADS VENTURE, LLC.
C/O J. PAUL PRICE
101 CONSTITUTION AVENUE, NW, SUITE 600E
WASHINGTON, DC 20001

STATE OF MARYLAND — ROBERT HARRIS VOGEL — NO. 16193 — REGISTERED PROFESSIONAL ENGINEER
ROBERT H. VOGEL, PE No. 16193

DESIGN BY:	WGZ/DZ
DRAWN BY:	DZ
CHECKED BY:	RHV
DATE:	JUNE 1, 2006
SCALE:	1"=100'
W.O. NO.:	04-121

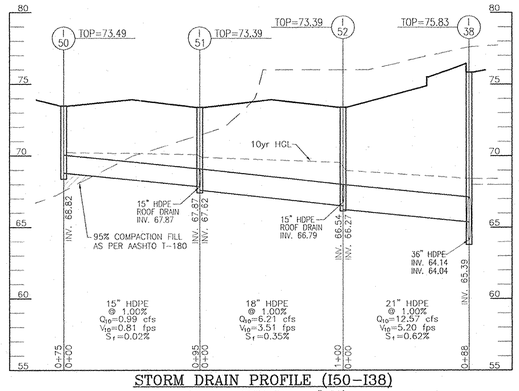
SHEET 15 OF 30

SDP-05-153



STORM DRAIN PROFILE (HW6A-I49)

SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'



STORM DRAIN PROFILE (I50-I38)

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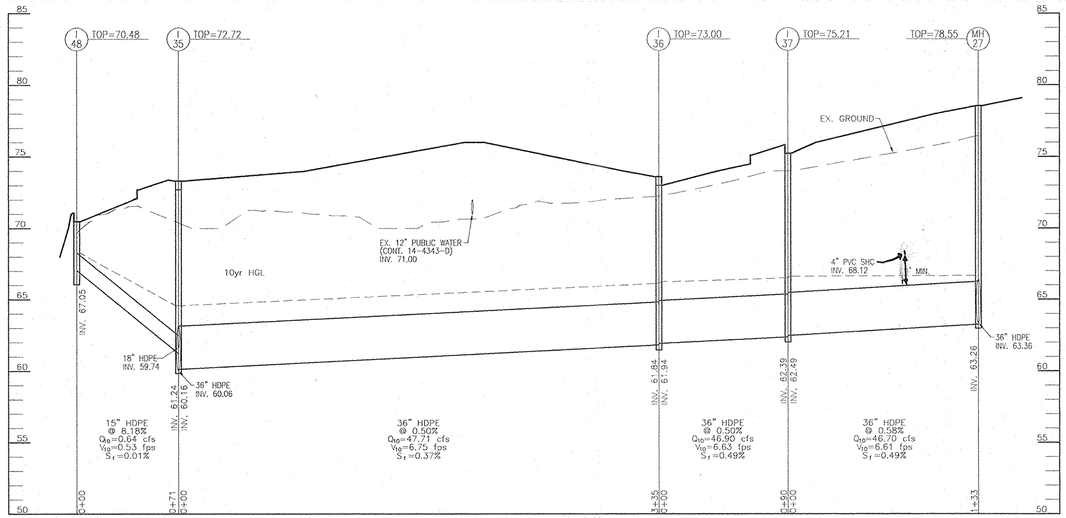
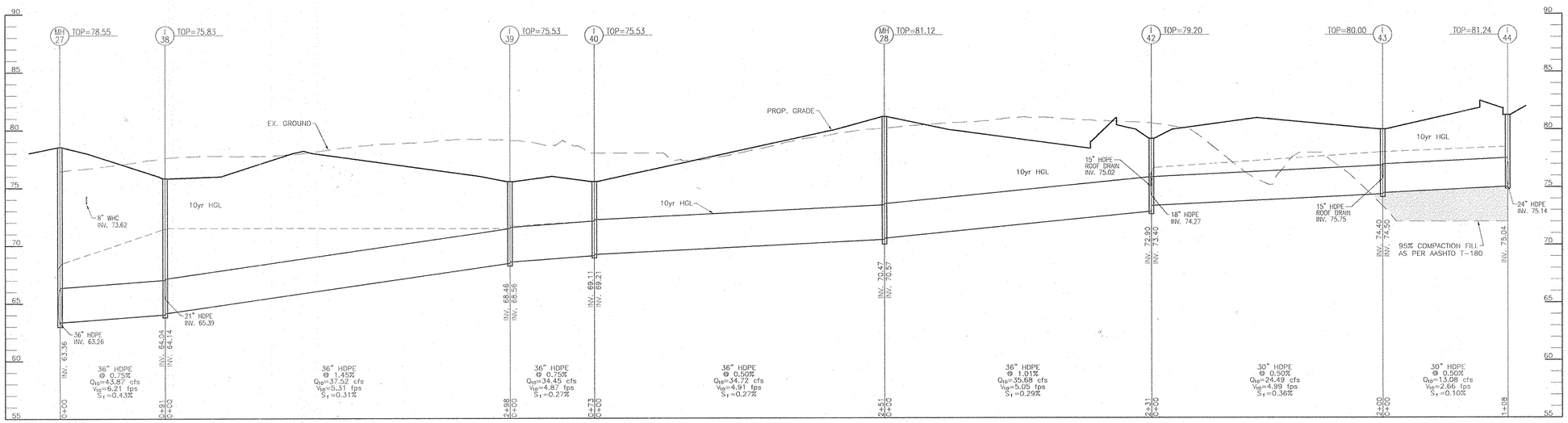
VERTICAL – 1"=5'



STORM DRAIN PROFILE (I48-MH27)

SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'



STORM DRAIN PROFILE (MH27-I44)

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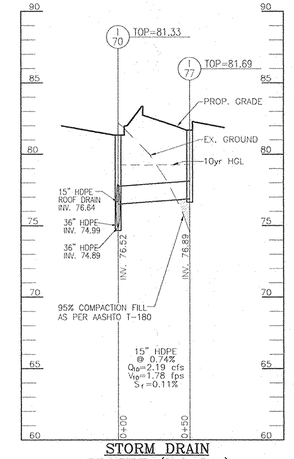
VERTICAL – 1"=5'



STORM DRAIN
PROFILE (I70-I77)

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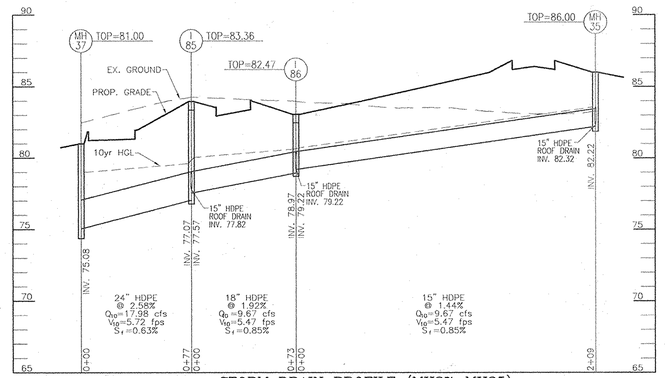
VERTICAL – 1"=5'



STORM DRAIN PROFILE (MH37-MH35)

SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 7/6/06
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 7/6/06
DIRECTOR	DATE 7/6/06

STATE OF MARYLAND
ROBERT HARRIS VOGEL
No. 16193
REGISTERED
PROFESSIONAL ENGINEER
7/6/06

OWNER/PETITIONER
CROSSROADS VENTURE, LLC.
C/O J. PAUL PRICE
101 CONSTITUTION AVENUE, NW, SUITE 600E
WASHINGTON, DC 20001

NO.	REVISION	DATE
1	REVISE SANITARY SEWER CROSSING BETWEEN I37 & M27	7.28.06

SITE DEVELOPMENT PLAN

STORM DRAIN PROFILES

PATAPSCO VALLEY BUSINESS CENTER
PARCEL I

TAX MAP 38 BLOCK 19/18 — PARCEL I
1ST ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

ROBERT H. VOGEL ENGINEERING, INC.
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STATE OF MARYLAND
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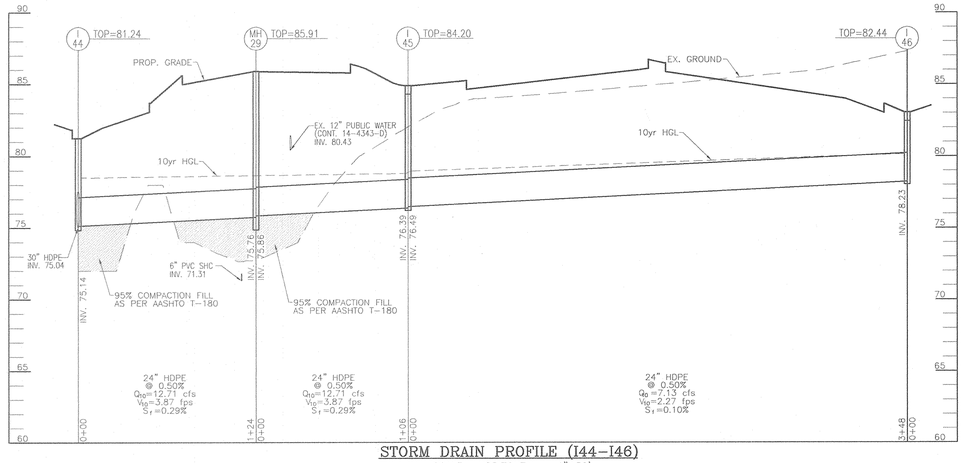
No. 16193
REGISTERED
PROFESSIONAL ENGINEER
ROBERT H. VOGEL, PE No.16193

DESIGN BY:	WGZ/DZ
DRAWN BY:	DZ
CHECKED BY:	RHV
DATE:	JUNE 1, 2006
SCALE:	1"=50'
W.O. NO.:	04-121

SHEET 16 OF 30

SDP-05-153



STORM DRAIN PROFILE (I44-I46)

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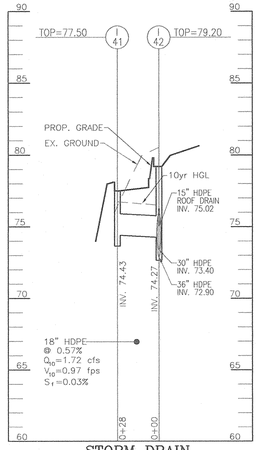
VERTICAL – 1"=5'



STORM DRAIN PROFILE (I42-I41)

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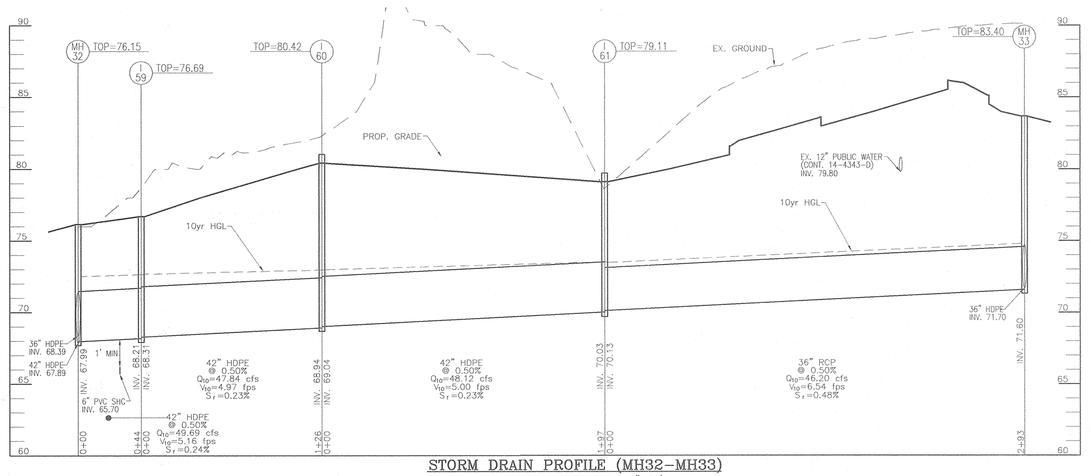
VERTICAL – 1"=5'



STORM DRAIN PROFILE (MH32-MH33)

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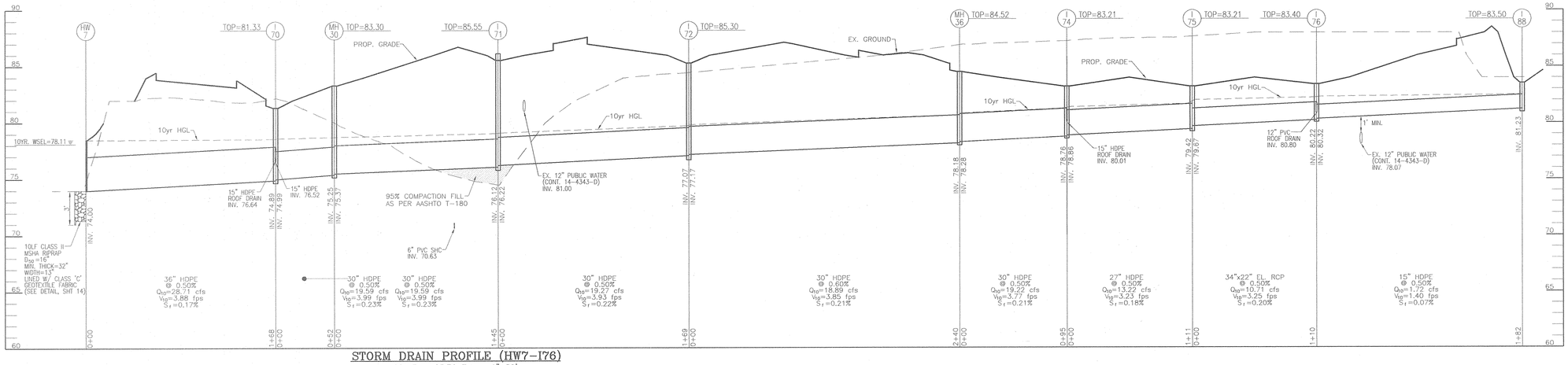
VERTICAL – 1"=5'



STORM DRAIN PROFILE (HW7-I76)

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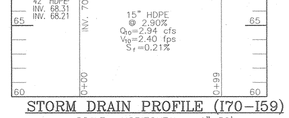
VERTICAL – 1"=5'



STORM DRAIN PROFILE (I70-I59)

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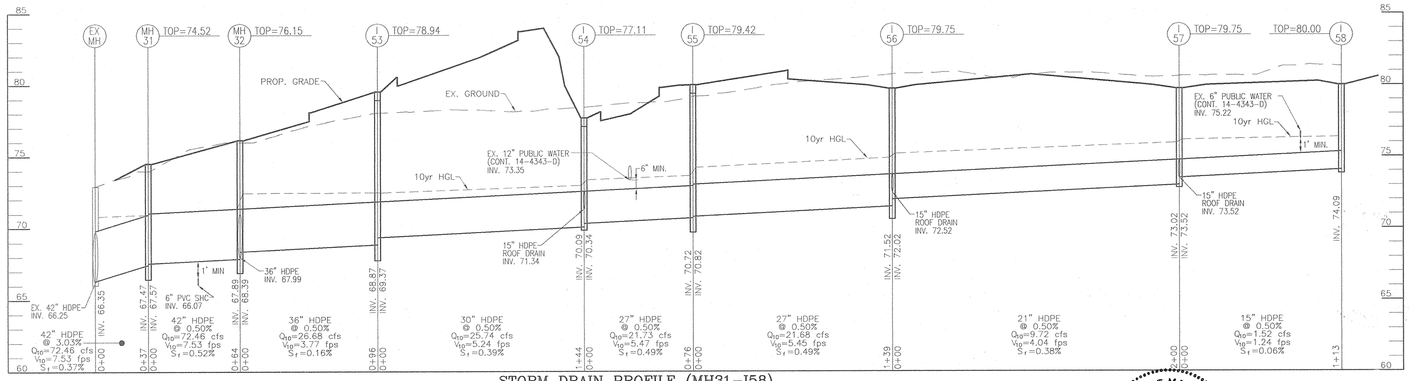
VERTICAL – 1"=5'



STORM DRAIN PROFILE (MH31-I58)

SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 7/6/06
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 7/6/06
DIRECTOR	DATE 7/6/06

NO.	REVISION	DATE

SITE DEVELOPMENT PLAN

STORM DRAIN PROFILES

PATAPSCO VALLEY BUSINESS CENTER
PARCEL I

TAX MAP 38 BLOCK 19/18 PARCEL I
1ST ELECTION DISTRICT HOWARD COUNTY, MARYLAND

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STATE OF MARYLAND ROBERT HARRIS VOGEL NO. 16193 REGISTERED PROFESSIONAL ENGINEER
ROBERT H. VOGEL, PE No.16193

DESIGN BY:	WGZ/DZ
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DATE:	JUNE 1, 2006
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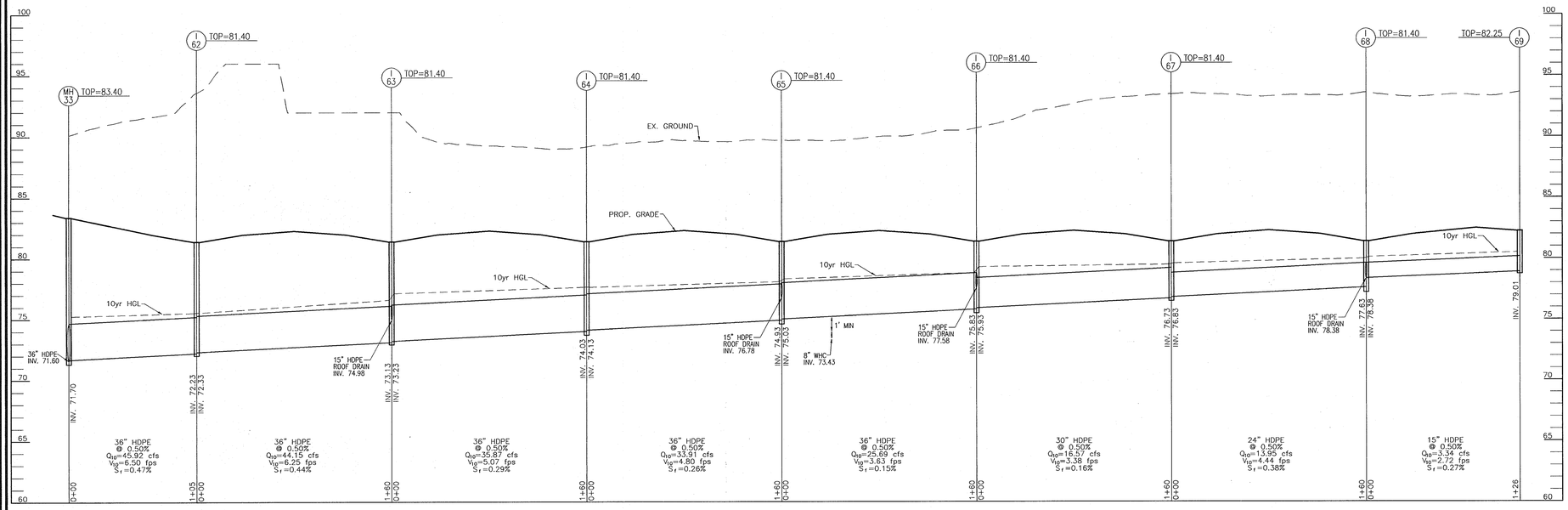
W.O. NO.:	04-121

SHEET 17 OF 30

STATE OF MARYLAND ROBERT HARRIS VOGEL NO. 16193 PROFESSIONAL ENGINEER

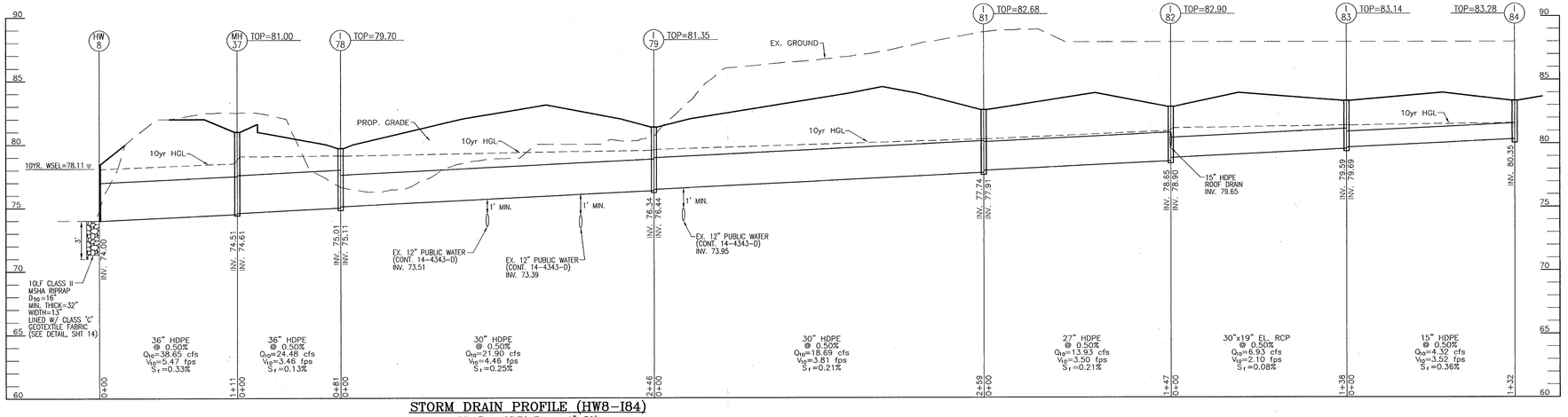
OWNER/PETITIONER
CROSSROADS VENTURE, LLC.
C/O J. PAUL PRICE
101 CONSTITUTION AVENUE, NW, SUITE 600E
WASHINGTON, DC 20001

SDP-05-153



STORM DRAIN PROFILE (MH33–I69)

SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'



STORM DRAIN PROFILE (HW8–I84)

SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'

STRUCTURE SCHEDULE

NO.	TYPE	LOCATION	TOP ELEV.	INV. IN	INV. OUT	COMMENTS
I-28A	TYPE 'A-10' INLET		70.24	59.89	59.79	HO. CO. STD SD-4.02
I-35	TYPE 'A-5' INLET		72.72	60.18/61.24 61.24	60.06	HO. CO. STD SD-4.01
I-36	TYPE 'A-10' INLET		73.00	61.94	61.84	HO. CO. STD SD-4.01
I-37	DOUBLE TYPE 'S' COMB. INLET (NORMAL)		75.21	62.49	62.39	HO. CO. STD SD-4.33
I-38	DOUBLE TYPE 'S' COMB. INLET (NORMAL)		75.83	65.39	64.04	HO. CO. STD SD-4.33
I-39	DOUBLE TYPE 'S' INLET		75.53	68.56	68.46	HO. CO. STD SD-4.23
I-40	DOUBLE TYPE 'S' INLET		75.53	69.21	69.11	HO. CO. STD SD-4.23
I-41	DOUBLE TYPE 'S' COMB. INLET (PARALLEL)		77.50	--	74.43	HO. CO. STD SD-4.34
I-42	DOUBLE TYPE 'S' COMB. INLET (NORMAL)		79.20	75.02/73.40 74.27	72.90	HO. CO. STD SD-4.33
I-43	DOUBLE TYPE 'S' COMB. INLET (PARALLEL)		80.00	75.40 75.75	74.40	HO. CO. STD SD-4.34
I-44	DOUBLE TYPE 'S' COMB. INLET (PARALLEL)		81.24	75.14	75.04	HO. CO. STD SD-4.34
I-45	TYPE 'A-10' INLET		84.20	76.49	76.39	HO. CO. STD SD-4.02
I-46	COS-20		82.44	--	78.23	MD. 374.61
I-48	DOUBLE TYPE 'S' COMB. INLET (PARALLEL)		70.48	--	67.05	HO. CO. STD SD-4.34
I-49	DOUBLE TYPE 'S' COMB. INLET (PARALLEL)		69.52		66.00	HO. CO. STD SD-4.34
I-50	DOUBLE TYPE 'S' INLET		73.49	--	68.82	HO. CO. STD SD-4.23
I-51	DOUBLE TYPE 'S' INLET		73.39	67.67 67.87	67.62	HO. CO. STD SD-4.23
I-52	DOUBLE TYPE 'S' INLET		73.39	66.79 66.54	66.27	HO. CO. STD SD-4.23
I-53	TYPE 'A-10' INLET		78.94	69.37	68.87	HO. CO. STD SD-4.02
I-54	TYPE 'A-10' INLET		77.11	71.34 70.34	70.09	HO. CO. STD SD-4.02
I-55	TYPE 'A-10' INLET		79.42	70.82	70.72	HO. CO. STD SD-4.02
I-56	DOUBLE TYPE 'S' COMB. INLET (NORMAL)		79.75	72.02 72.52	71.52	HO. CO. STD SD-4.33
I-57	DOUBLE TYPE 'S' COMB. INLET (PARALLEL)		79.75	73.52 73.52	73.02	HO. CO. STD SD-4.34
I-58	DOUBLE TYPE 'S' COMB. INLET (PARALLEL)		80.00	--	74.09	HO. CO. STD SD-4.34
I-59	DOUBLE TYPE 'S' COMB. INLET (NORMAL)		76.69	68.31 70.56	68.21	HO. CO. STD SD-4.33
I-60	TYPE 'A-10' INLET		80.42	69.04	68.94	HO. CO. STD SD-4.02
I-61	TYPE 'A-10' INLET		79.11	70.13	70.03	HO. CO. STD SD-4.02
I-62	DOUBLE TYPE 'S' INLET		81.40	72.33	72.23	HO. CO. STD SD-4.23
I-63	DOUBLE TYPE 'S' INLET		81.40	73.23 74.98	73.13	HO. CO. STD SD-4.23
I-64	DOUBLE TYPE 'S' INLET		81.40	74.13	74.03	HO. CO. STD SD-4.23
I-65	DOUBLE TYPE 'S' INLET		81.40	75.03 76.78	74.93	HO. CO. STD SD-4.23
I-66	DOUBLE TYPE 'S' INLET		81.40	75.93	75.83	HO. CO. STD SD-4.23
I-67	DOUBLE TYPE 'S' INLET		81.40	76.83	76.73	HO. CO. STD SD-4.23
I-68	DOUBLE TYPE 'S' INLET		81.40	78.38 78.77	77.63	HO. CO. STD SD-4.23
I-69	DOUBLE TYPE 'S' COMB. INLET (PARALLEL)		82.25	--	79.01	HO. CO. STD SD-4.34
I-70	DOUBLE TYPE 'S' COMB. INLET (NORMAL)		81.33	76.52/74.99 76.64	74.89	HO. CO. STD SD-4.33
I-71	TYPE 'A-10' INLET		85.55	76.22	76.12	HO. CO. STD SD-4.02
I-72	TYPE 'A-10' INLET		85.30	77.17	77.07	HO. CO. STD SD-4.02
I-74	DOUBLE TYPE 'S' INLET		83.21	78.86 80.01	78.76	HO. CO. STD SD-4.23
I-75	DOUBLE TYPE 'S' INLET		83.21	79.67	79.42	HO. CO. STD SD-4.23
I-76	DOUBLE TYPE 'S' INLET		83.40	80.30 80.80	80.22	HO. CO. STD SD-4.23
I-77	DOUBLE TYPE 'S' COMB. INLET (PARALLEL)		81.69	--	76.89	HO. CO. STD SD-4.34
I-78	DOUBLE TYPE 'S' COMB. INLET (NORMAL)		79.70	75.11	75.01	HO. CO. STD SD-4.33
I-79	DOUBLE TYPE 'S' COMB. INLET (NORMAL)		81.35	76.44	76.34	HO. CO. STD SD-4.33
I-81	DOUBLE TYPE 'S' INLET		82.68	77.91	77.74	HO. CO. STD SD-4.23
I-82	DOUBLE TYPE 'S' INLET		82.90	78.90 79.65	78.65	HO. CO. STD SD-4.23
I-83	DOUBLE TYPE 'S' INLET		83.14	79.69	79.59	HO. CO. STD SD-4.23
I-84	DOUBLE TYPE 'S' INLET		83.28	--	80.35	HO. CO. STD SD-4.23
I-85	TYPE 'A-10' INLET		83.36	77.57 77.67	77.07	HO. CO. STD SD-4.02
I-86	TYPE 'A-10' INLET		82.47	78.22 78.22	78.97	HO. CO. STD SD-4.02
I-87	TYPE 'A-10' INLET		76.19	--	73.43	HO. CO. STD SD-4.02
I-88	TYPE 'D' INLET		83.50	--	81.23	HO. CO. STD SD-4.39
M-27	5'-0" STANDARD PRECAST MANHOLE		78.55	63.36	63.26	HO. CO. STD G-5.13
M-28	4'-0" STANDARD PRECAST MANHOLE		81.12	70.57	70.47	HO. CO. STD G-5.12
M-29	4'-0" STANDARD PRECAST MANHOLE		85.91	75.86	75.76	HO. CO. STD G-5.12
M-30	4'-0" STANDARD PRECAST MANHOLE		83.30	74.99	74.89	HO. CO. STD G-5.12
M-31	5'-0" STANDARD PRECAST MANHOLE		74.52	67.57	67.47	HO. CO. STD G-5.13
M-32	84" DIAM. PRECAST MANHOLE		76.15	68.39 67.99	67.89	MD. 384.07
M-33	72" DIAM. PRECAST MANHOLE		83.40	71.70	71.60	MD. 384.05
M-35	4'-0" STANDARD PRECAST MANHOLE		86.00	82.32	82.22	HO. CO. STD G-5.12
M-36	5'-0" STANDARD PRECAST MANHOLE		84.52	78.28	78.18	HO. CO. STD G-5.13
M-37	5'-0" STANDARD PRECAST MANHOLE		81.00	75.08 74.61	74.51	HO. CO. STD G-5.13
HW-6A	TYPE 'A' HEADWALL			---	59.00	HO. CO. STD SD-5.11
HW-7	TYPE 'A' HEADWALL			---	74.00	HO. CO. STD SD-5.11
HW-8	TYPE 'A' HEADWALL			---	74.00	HO. CO. STD SD-5.11
SMH-1	4'-0" STANDARD PRECAST DROP MANHOLE		66.0±	58.74 61.35	58.74	HO. CO. STD G-5.12
SMH-2	4'-0" STANDARD PRECAST MANHOLE		70.42	64.35	64.25	HO. CO. STD G-5.12
SMH-3	4'-0" STANDARD PRECAST MANHOLE		76.00	67.88	67.78	HO. CO. STD G-5.12
SMH-4	4'-0" STANDARD PRECAST MANHOLE		84.25	69.26	69.16	HO. CO. STD G-5.12
SMH-5	4'-0" STANDARD PRECAST MANHOLE		85.68	71.12	71.02	HO. CO. STD G-5.12
SMH-6	4'-0" STANDARD PRECAST MANHOLE		74.32	65.25	65.15±	HO. CO. STD G-5.12
SMH-7	4'-0" STANDARD PRECAST MANHOLE		76.45	65.90 66.86	65.80	HO. CO. STD G-5.12

NOTES:
1. FOR TYPE 'A-5, A-10', SINGLE AND DOUBLE TYPE 'S' COMB. INLETS, TOP ELEVATIONS ARE AT FLOWLINE. TOP ELEVATIONS FOR SINGLE AND DOUBLE TYPE 'S' INLETS ARE AT CENTER TOP OF GRATE AND TOP OF MANHOLE COVERS FOR PRECAST MANHOLES. TOP ELEVATION FOR TYPE 'D' INLETS ARE AT WEIR.
2. FOR TOP SLAB SLOPES SEE GRADING PLAN.
3. SEE ARCHITECTURAL PLANS FOR ROOF DRAIN DETAILS.

PIPE SCHEDULE

SIZE	TYPE	LENGTH
15"	HDPE (INCL. ROOF DRAINS)	2545
18"	HDPE	340
24"	HDPE	815
27"	HDPE	473
30"	HDPE	1616
36"	HDPE	3187
42"	HDPE	468
3"	PVC	15
12"	PVC	137
15"	HDPE	1330
30"x19"	HORZ. ELLIPT. RCP CL.IV HE	138
34"x22"	HORZ. ELLIPT. RCP CL.IV HE	110

All concrete pipe to be Class IV.
All pipe bedding to meet the minimum Howard County Specifications.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 7/6/06
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 7/6/06
DIRECTOR — DATE 7/6/06

STATE OF MARYLAND ROBERT HARRIS VOGEL No. 16193 PROFESSIONAL ENGINEER 7/6/06

OWNER/PETITIONER
CROSSROADS VENTURE, LLC.
C/O J. PAUL PRICE
101 CONSTITUTION AVENUE, NW, SUITE 600E
WASHINGTON, DC 20001

NO.	REVISION	DATE

SITE DEVELOPMENT PLAN

STORM DRAIN PROFILES, STRUCTURE SCHEDULE, AND PIPE SCHEDULE

PATAPSCO VALLEY BUSINESS CENTER PARCEL I

TAX MAP 38 BLOCK 19/18 — PARCEL I
1ST ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

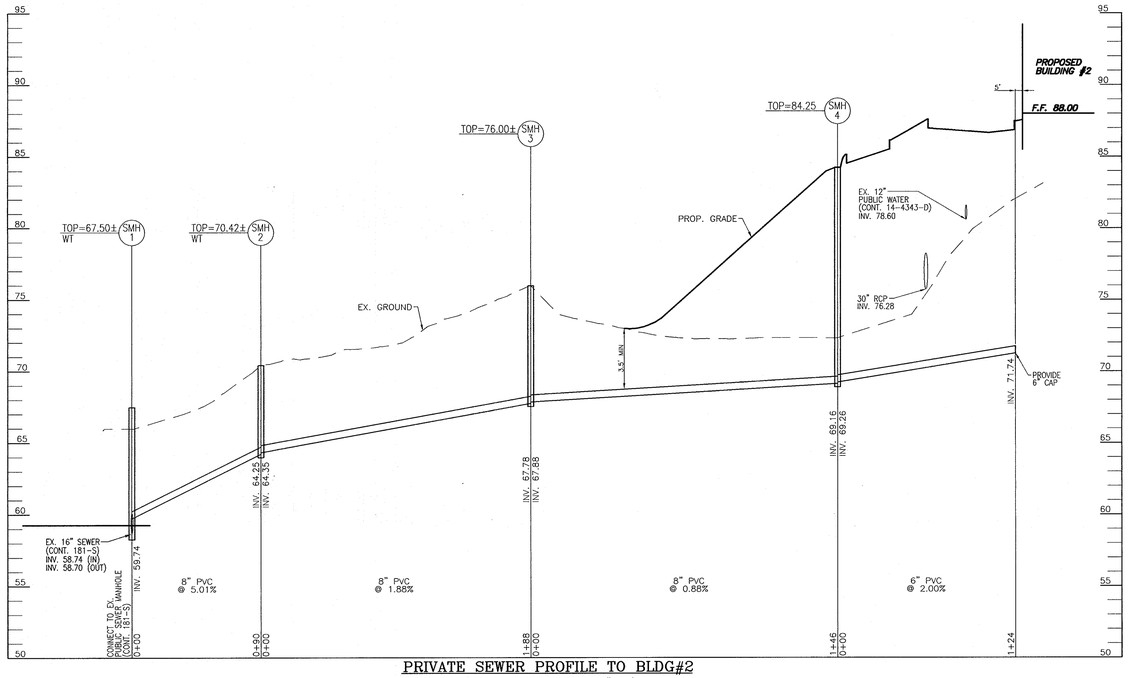
ROBERT H. VOGEL ENGINEERING, INC.
ENGINEERS • SURVEYORS • PLANNERS
8407 MAIN STREET, ELLICOTT CITY, MD 21043
TEL: 410.461.7666 FAX: 410.461.8961

STATE OF MARYLAND ROBERT HARRIS VOGEL No. 16193 REGISTERED PROFESSIONAL ENGINEER
ROBERT H. VOGEL, PE No.16193

DESIGN BY: WGZ/DZ
DRAWN BY: DZ
CHECKED BY: RHV
DATE: JUNE 1, 2006
SCALE: 1"=50'
W.O. NO.: 04-121

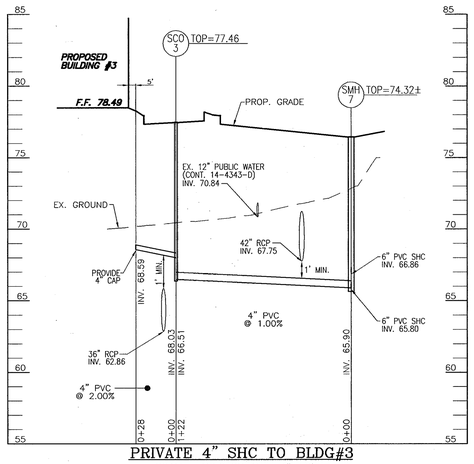
SHEET 18 OF 30

SDP-05-153



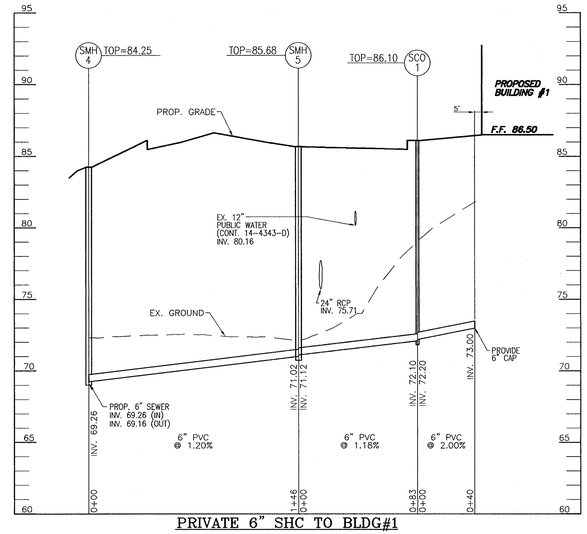
PRIVATE SEWER PROFILE TO BLDG#2

SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'



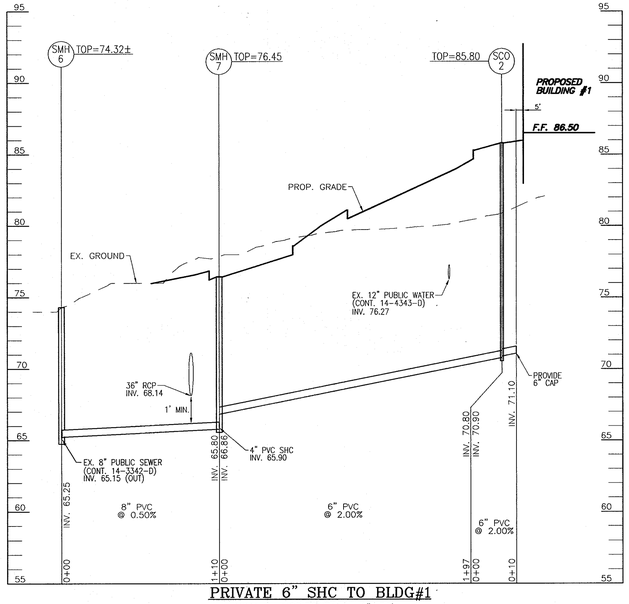
PRIVATE 4" SHC TO BLDG#3

SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'



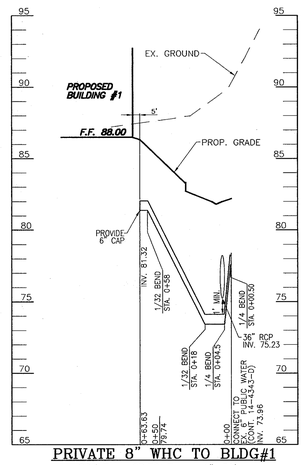
PRIVATE 6" SHC TO BLDG#1

SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'



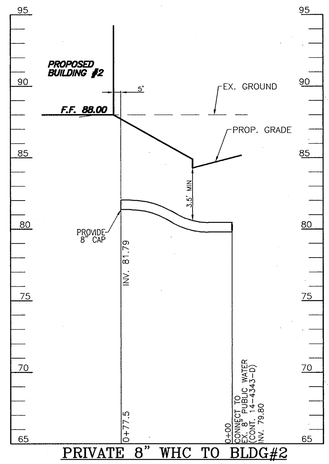
PRIVATE 6" SHC TO BLDG#1

SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'



PRIVATE 8" WHC TO BLDG#1

SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'



PRIVATE 8" WHC TO BLDG#2

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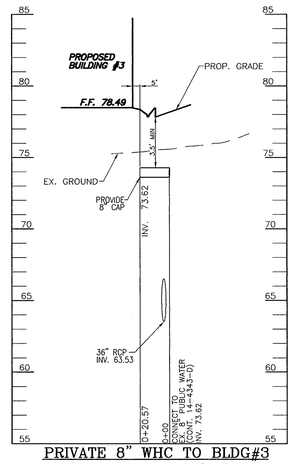
VERTICAL – 1"=5'



PRIVATE 8" WHC TO BLDG#3

SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 7/6/06
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 7/6/06
DIRECTOR	DATE 7/6/06

NO.	REVISION	DATE

SITE DEVELOPMENT PLAN

WATER AND SEWER PROFILES

PATAPSCO VALLEY BUSINESS CENTER
PARCEL I

TAX MAP 38 BLOCK 19/18 PARCEL I
1ST ELECTION DISTRICT HOWARD COUNTY, MARYLAND

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ROBERT H. VOGEL, PE No.16193

7/14/06

DESIGN BY: WGZ/DZ
DRAWN BY: DZ
CHECKED BY: RHV
DATE: JUNE 1, 2006
SCALE: 1"=50'
W.O. NO.: 04-121

19 SHEET OF 30

OWNER/PETITIONER
CROSSROADS VENTURE, LLC.
C/O J. PAUL PRICE
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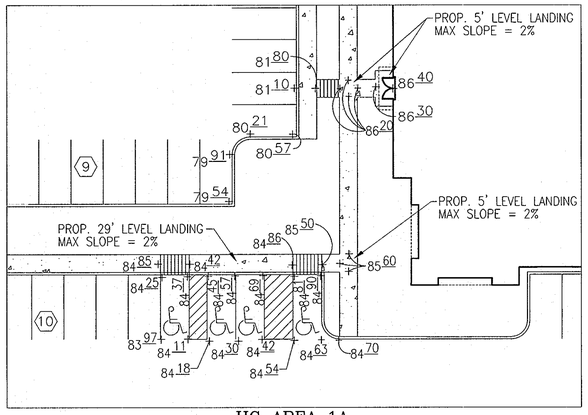
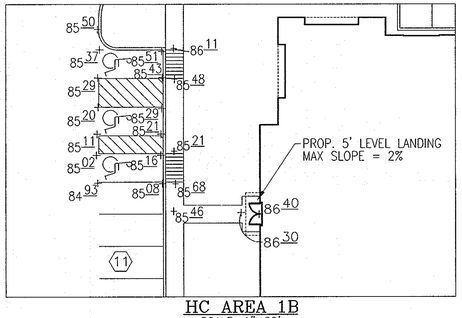
WASHINGTON, DC 20001

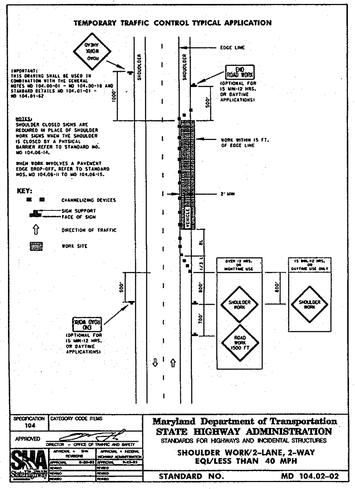
SDP-05-153

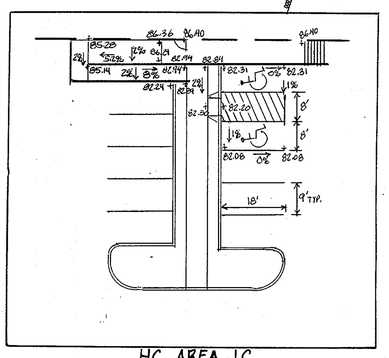


HC AREA 1A
SCALE: 1"=20'



HC AREA 1B
SCALE: 1"=20'





PAVING DELINEATION
SCALE: 1"=200'

HC AREA 1C
SCALE: 1"=20'

PAVEMENT SECTIONS

	STANDARD DUTY	HEAVY DUTY
SURFACE COURSE ASPHALT HMA Superpave – 9.5mm**	1.5"	1.5"
BASE COURSE ASPHALT HMA Superpave – 12.5mm** HMA Superpave – 19.0mm**	2.0" --	-- 4.0"
GRADED AGGREGATE BASE GAB	4.0"	4.0"
TOTAL PAVEMENT THICKNESS	7.5"	9.5"

*Compaction: Level 1 (50 gyrations)
**Binder Type: PG64-22

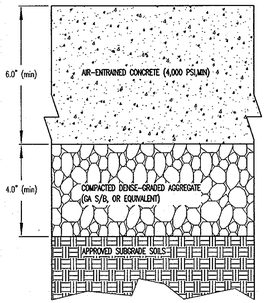
PAVING LEGEND

STANDARD DUTY PAVING SECTION

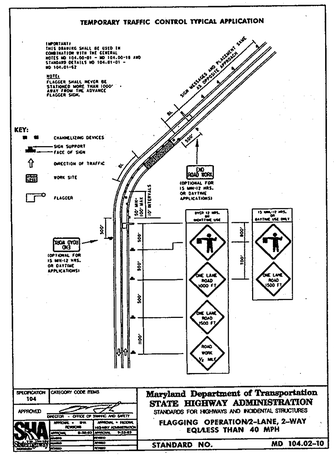
CONCRETE PAVING SECTION

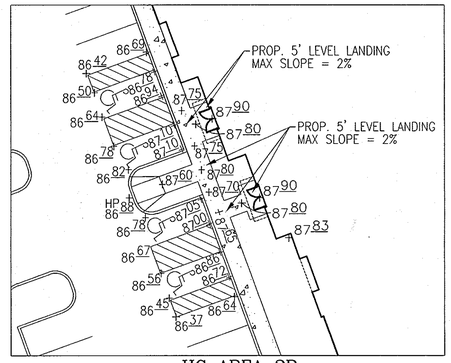
HEAVY DUTY PAVING SECTION

NOTE: CONCRETE PAVING SECTION AT TRAILER STORAGE AREAS IS 15-FEET WIDE, CENTERED 45-FEET FROM FACE OF CURB. LOADING DOCK CONCRETE PAVING SECTION, AT LOADING DOCKS, ARE 55-FEET WIDE, MEASURED FROM FACE OF BUILDING.

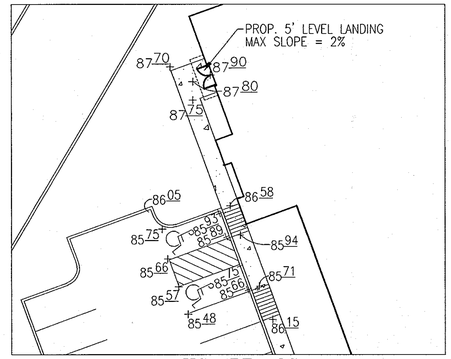


CONCRETE PAVING SECTION
NOT TO SCALE

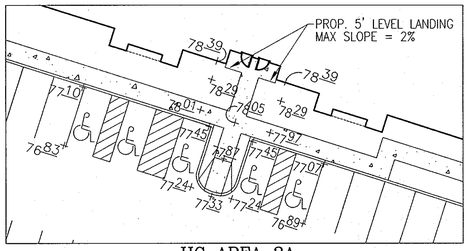




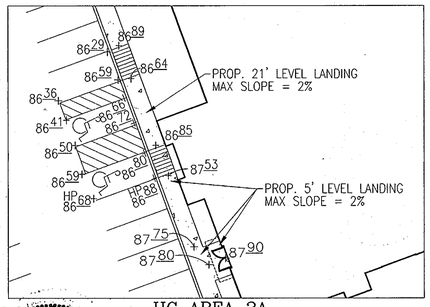
HC AREA 2B
SCALE: 1"=20'



HC AREA 2C
SCALE: 1"=20'



HC AREA 3A
SCALE: 1"=20'



HC AREA 2A
SCALE: 1"=20'

NO.	REVISION	DATE
7	ADDITION OF H.C. RAMPS ON BUILDING 1	09-05-12
5	MODIFY ENTRANCE TO BUILDING 1	4/24/09

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 7/6/06

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 7/6/06

DIRECTOR — DATE 7/6/06

FOR REVISION 7 ONLY

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.

License No. 16597, Expiration Date: 8/15/13

STATE OF MARYLAND — ROBERT HARRIS VOGEL — No. 16193 — REGISTERED PROFESSIONAL ENGINEER

11/27/13

STATE OF MARYLAND — ROBERT HARRIS VOGEL — No. 16193 — PROFESSIONAL ENGINEER

11/14/06

OWNER/PETITIONER
CROSSROADS VENTURE, LLC.
C/O J. PAUL PRICE
101 CONSTITUTION AVENUE, NW, SUITE 600E
WASHINGTON, DC 20001

SITE DEVELOPMENT PLAN

PAVING DELINEATION, HANDICAPPED PARKING INSETS, AND MOT PLAN

PATAPSCO VALLEY BUSINESS CENTER PARCEL I

TAX MAP 38 BLOCK 19/18 — PARCEL I
1ST ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

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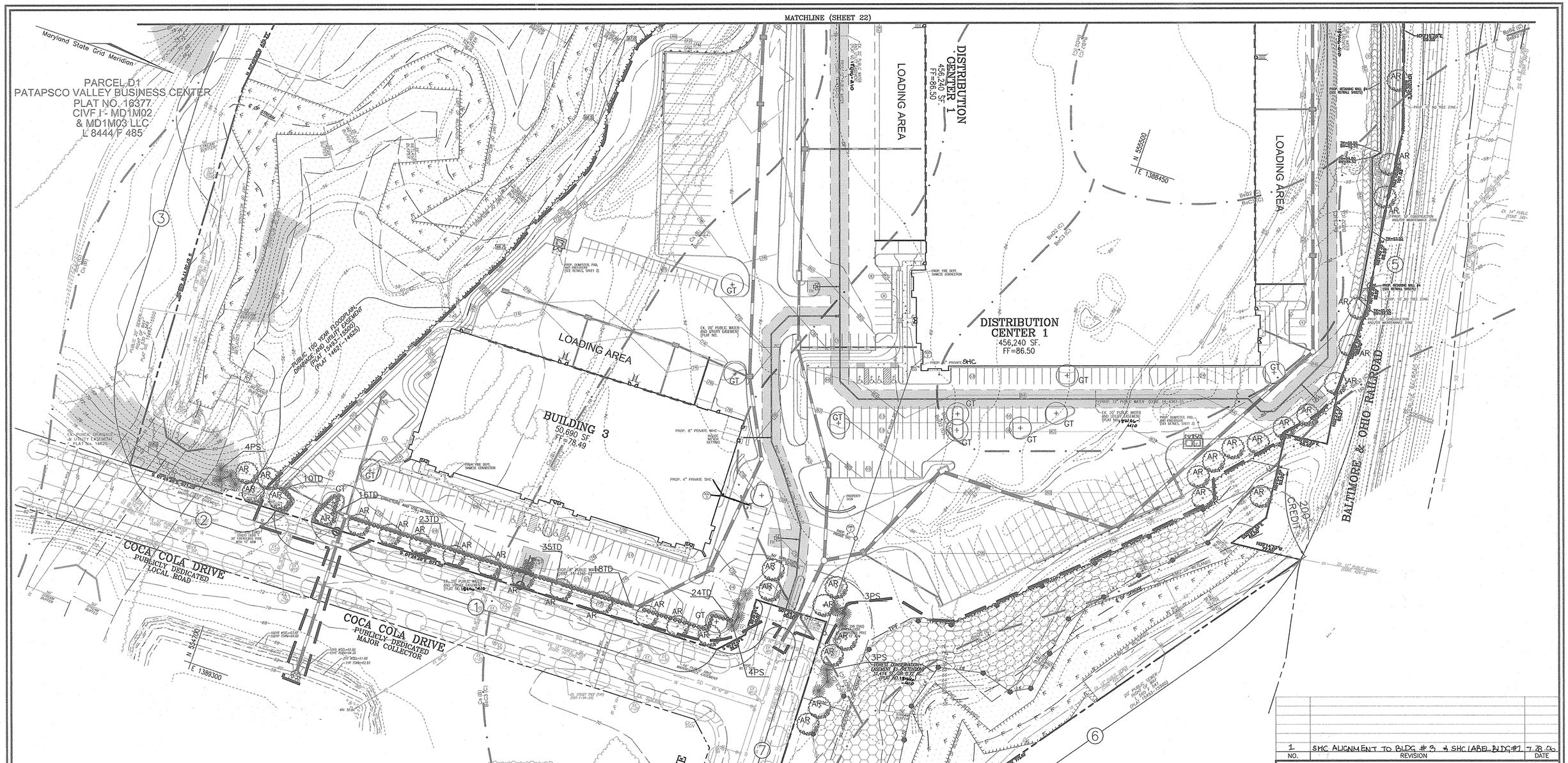
ROBERT H. VOGEL, PE No.16193

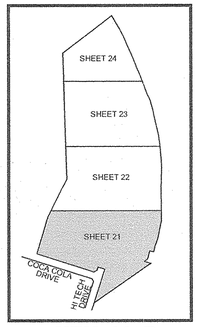
DESIGN BY: WGZ/DZ
DRAWN BY: DZ
CHECKED BY: RHV
DATE: JUNE 1, 2006
SCALE: 1"=100'
W.O. NO.: 04-121

SHEET 20 OF 30

SDP-05-153



NO.	REVISION	DATE
1	SHC ALIGNMENT TO BLDG #3 & SHC LABEL BLDG #7	7.28.06



KEY MAP
NOT TO SCALE

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 (1) YEAR GUARANTEE OF PLANT MATERIALS, WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING.

Don Bowers — 1 June 2006
SIGNATURE OF DEVELOPER — DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

[signature] — 7/6/06
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

[signature] — 7/6/06
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE

[signature] — 7/6/06
DIRECTOR — DATE

STATE OF MARYLAND ROBERT HARRIS VOGEL No. 16193 REGISTERED PROFESSIONAL ENGINEER — 6/26/06

[signature] 6/6/06
LARRY J. THOMPSON
DNR QUALIFIED PROFESSIONAL

OWNER/PETITIONER
CROSSROADS VENTURE, LLC.
C/O J. PAUL PRICE
101 CONSTITUTION AVENUE, NW, SUITE 600E
WASHINGTON, DC 20001

SITE DEVELOPMENT PLAN

LANDSCAPE PLAN AND FOREST CONSERVATION PLAN

PATAPSCO VALLEY BUSINESS CENTER PARCEL I

TAX MAP 38 BLOCK 19/18 — PARCEL I
1ST ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

ROBERT H. VOGEL ENGINEERING, INC.
ENGINEERS • SURVEYORS • PLANNERS
8407 MAIN STREET
ELLICOTT CITY, MD 21043
TEL: 410.461.7666
FAX: 410.461.8961

STATE OF MARYLAND ROBERT HARRIS VOGEL No. 16193 REGISTERED PROFESSIONAL ENGINEER
ROBERT H. VOGEL, PE No.16193

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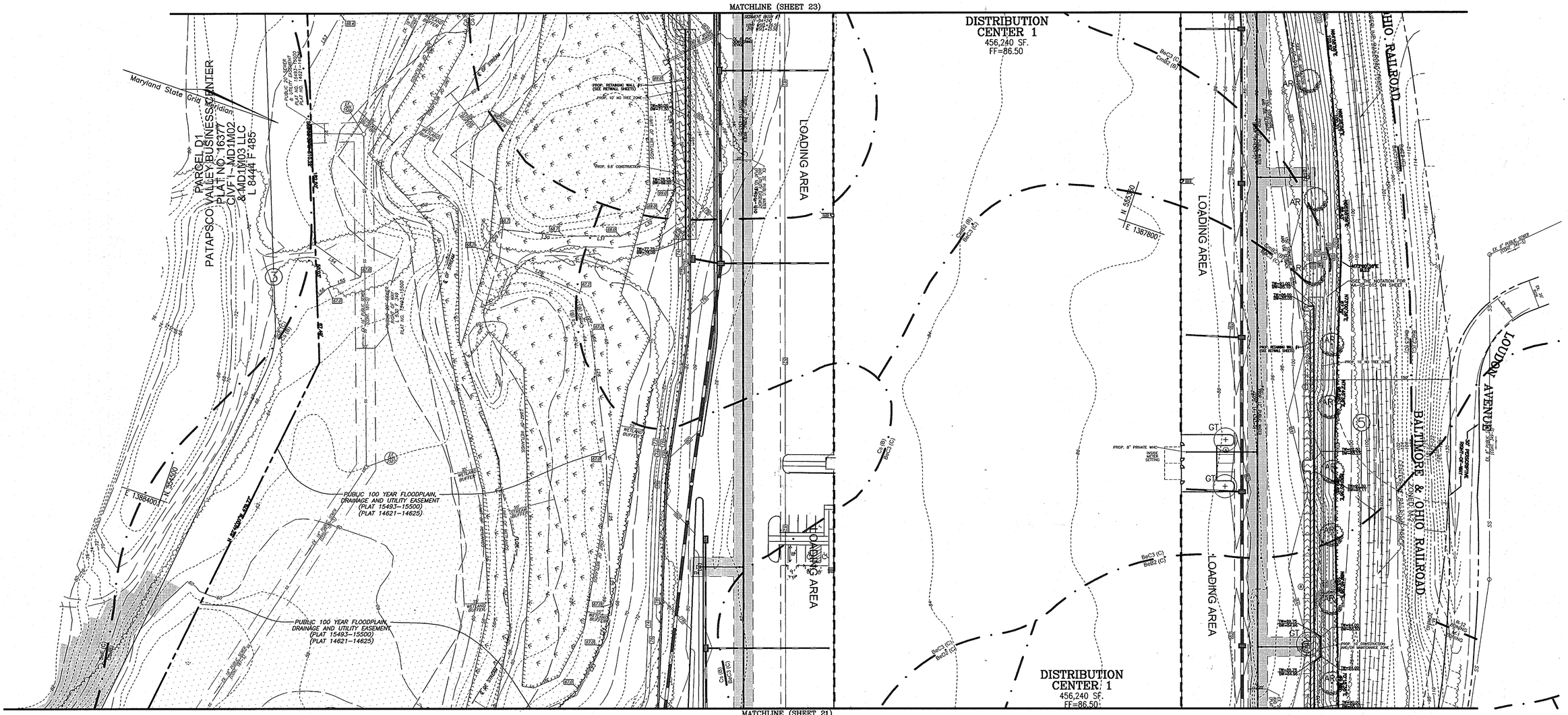
SDP-05-153



NO.	REVISION	DATE
7	ADDITION OF H.C. RAMPS ON BUILDING 1	09-05-12
5	MODIFY ENTRANCE TO BUILDING 1	4/24/09

6.6.06
LARRY A. THOMPSON
DNR QUALIFIED PROFESSIONAL

SITE DEVELOPMENT PLAN

LANDSCAPE PLAN AND FOREST CONSERVATION PLAN

PATAPSCO VALLEY BUSINESS CENTER PARCEL I

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ROBERT H. VOGEL, PE No.16193

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DATE: JUNE 1, 2006
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W.O. NO.: 04-121

SHEET 22 OF 30

DEVELOPER'S/BUILDER'S CERTIFICATE

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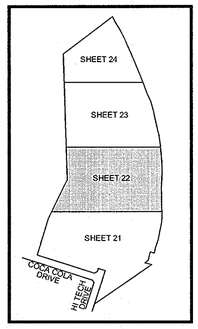
Jon Bowers — 1 June 2006
SIGNATURE OF DEVELOPER — DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 7/6/06
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 7/6/06
DIRECTOR — DATE 7/6/06



KEY MAP
NOT TO SCALE

FOR REVISION 7 ONLY

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
License No. 16597, Expiration Date: 8/15/13

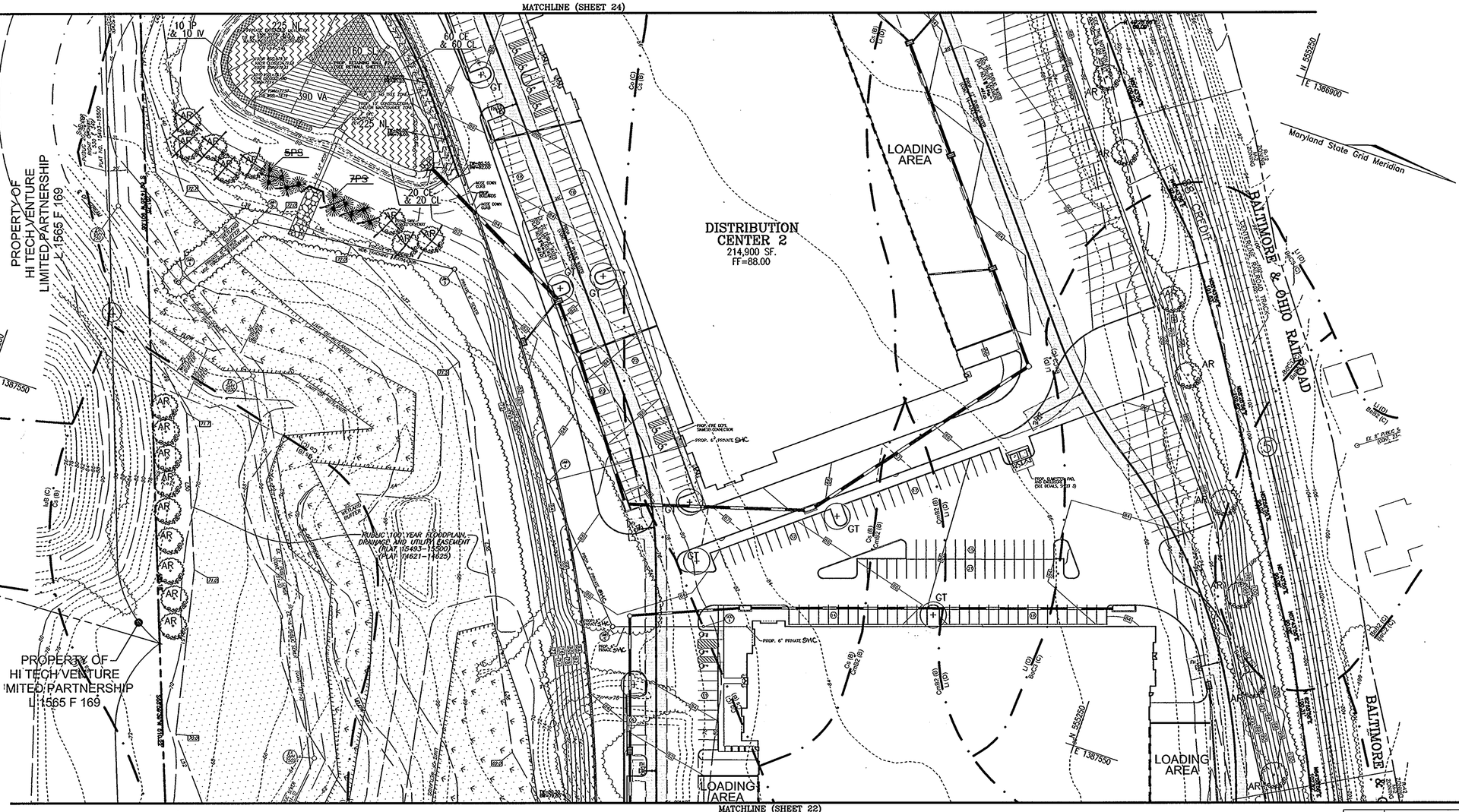
STATE OF MARYLAND — ROBERT HARRIS VOGEL — NO. 16193 — REGISTERED PROFESSIONAL ENGINEER
11/7/13

STATE OF MARYLAND — ROBERT HARRIS VOGEL — NO. 16193 — PROFESSIONAL ENGINEER

OWNER/PETITIONER
CROSSROADS VENTURE, LLC.
C/O J. PAUL PRICE
101 CONSTITUTION AVENUE, NW, SUITE 600E
WASHINGTON, DC 20001

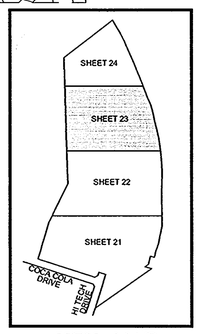
SDP-05-153

MATCHLINE (SHEET 24)



LEGEND:

- EXISTING CONTOUR
- PROPOSED CONTOUR
- PROPOSED SPOT ELEVATION
- EXISTING SPOT ELEVATION
- EXISTING CURB AND GUTTER
- PROPOSED CURB AND GUTTER
- EXISTING UTILITY POLE
- EXISTING LIGHT POLE
- EXISTING MAILBOX
- EXISTING SIGN
- EXISTING SANITARY MANHOLE
- EXISTING SANITARY LINE
- EXISTING CLEANOUT
- EXISTING FIRE HYDRANT
- EXISTING WATER LINE
- EXISTING FENCE
- PROPERTY LINE
- RIGHT-OF-WAY LINE
- SOILS BOUNDARY
- PROPOSED STORM DRAIN
- PROPOSED STORM DRAIN INLET
- PROPOSED SIDEWALK
- PROPOSED LIGHT POLE
- PROPOSED SHADE TREE
- PROPOSED EVERGREEN TREE
- PROPOSED SHRUBS
- LANDSCAPE PERIMETER
- FOREST CONSERVATION EASEMENT (RETENTION)



KEY MAP
NOT TO SCALE

2' DEEP STORMWATER POND HERBACEOUS LANDSCAPE SCHEDULE

KEY	QUAN.	BOTANICAL NAME	SIZE	REMARKS
IP	26	IRIS PSEUDACORIS YELLOW WATER IRIS	PLUG	1.5' OC
IV	26	IRIS VERSICOLOR BLUE FLOG (WEAR GLOVES)	PLUG	1.5' OC
CE	80	CYPERUS ESCULENTUS YELLOW NUT SEDGE	PLUG	2' OC
CL	80	CAREX LACUSTRIS LAKE SEDGE	PLUG	2' OC
SL	160	SAGITTARIA LATIFOLIA DUCK POTATO (DO NOT PLANT TUBERS)	PLUG	4' OC
VA	390	VALLISNERIA AMERICANA WILD CELERY	PLUG	2' OC
NL	450	NUPHAR LUTEUM SPATTERDOCK	PLUG	1.5' OC

PRIOR TO INSTALLATION OF PLANT MATERIALS, ADD THREE INCHES OF TOPSOIL TO PLANTING AREA. STABILIZE WITH 40 POUNDS PER ACRE OF A HYDROSEED MIX (WET MIX AND MEADOW MIX) FROM SYLVA NATIVE NURSERY OR EQUAL.

ALL PLANT MATERIALS TO CONFORM TO THE MOST CURRENT AAN SPECIFICATIONS AND BE INSTALLED IN ACCORDANCE WITH LCAMW SPECIFICATIONS.

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Don Bowers — 1 June 2006
SIGNATURE OF DEVELOPER — DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 7/6/06
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 7/6/06
DIRECTOR — DATE 7/6/06

STATE OF MARYLAND — ROBERT HARRIS VOGEL — NO. 16193 — REGISTERED PROFESSIONAL ENGINEER

6.6.06
DNR QUALIFIED PROFESSIONAL

OWNER/PETITIONER
CROSSROADS VENTURE, LLC.
C/O J. PAUL PRICE
101 CONSTITUTION AVENUE, NW, SUITE 600E
WASHINGTON, DC 20001

NO.	REVISION	DATE
2	REMOVE LANDSCAPE TREES ON POND 7A EMBANKMENT	7-9-08
1	SHC LABEL FOR PLDC #1 & #2	7-28-06

SITE DEVELOPMENT PLAN
LANDSCAPE PLAN AND
FOREST CONSERVATION PLAN

PATAPSCO VALLEY BUSINESS CENTER
PARCEL I

TAX MAP 38 BLOCK 19/18 — PARCEL I
1ST ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

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ROBERT H. VOGEL, PE No.16193

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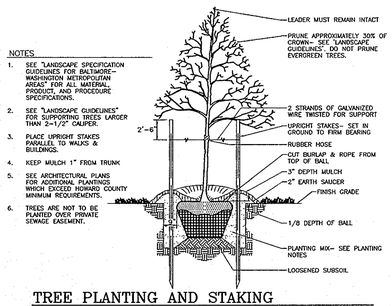
SHEET 23 OF 30

SDP-05-153

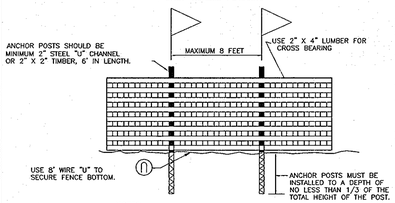


NOTES

1. SEE "LANDSCAPE SPECIFICATION GUIDELINES FOR BALTIMORE-WASHINGTON METROPOLITAN AREAS" FOR ALL MATERIAL, PRODUCT, AND PROCEDURE SPECIFICATIONS.
2. SEE "LANDSCAPE GUIDELINES" FOR SUPPORTING TREES LARGER THAN 2-1/2" CALIPER.
3. PLACE UPRIGHT STAKES PARALLEL TO WALKS & BUILDINGS.
4. KEEP MULCH 1" FROM TRUNK
5. SEE ARCHITECTURAL PLANS FOR ADDITIONAL PLANTINGS WHICH EXCEED HOWARD COUNTY MINIMUM REQUIREMENTS.
6. TREES ARE NOT TO BE PLANTED OVER PRIVATE SEWAGE EASEMENT.

TREE PLANTING AND STAKING

DECIDUOUS TREES UP TO 2-1/2" CALIPER — NOT TO SCALE



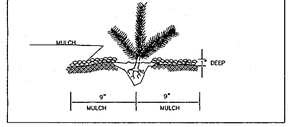
NOTES:

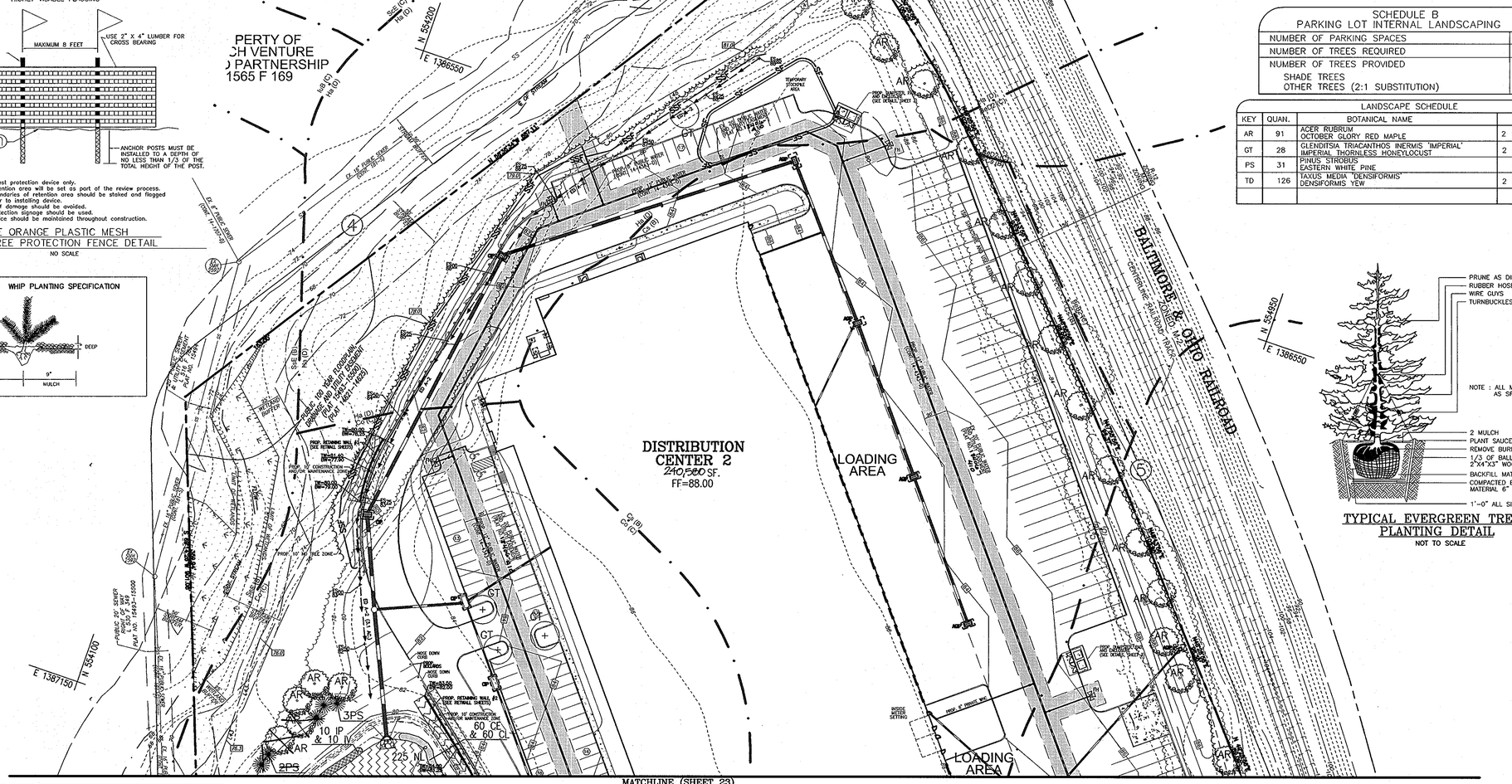
1. Forest protection device only.
2. Retention area will be set as part of the review process.
3. Boundaries of retention area should be staked and flagged prior to installing device.
4. Roof damage should be avoided.
5. Protection signage should be used.
6. Device should be maintained throughout construction.

BLAZE ORANGE PLASTIC MESH TYPICAL TREE PROTECTION FENCE DETAIL

NO SCALE

SEEDLING AND WHIP PLANTING SPECIFICATION





SCHEDULE A
PERIMETER LANDSCAPE EDGE

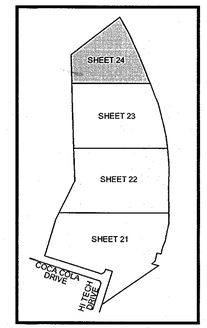
CATEGORY	ADJACENT TO ROADWAYS AND PERIMETER PROPERTIES						
Perimeter/Frontage Designation Landscape Type	1 E	2 B	3 A	4 A	5 A	6 A	7 B
Linear Feet of Roadway Frontage/Perimeter	505	167	1419	1588	3033	775	549
Credit for Existing Vegetation (Yes, No, Linear Feet Describe below if needed)	No	No	Yes (1419')	Yes (1050')	Yes (352')	Yes (775')	Yes (168")
Credit for Wall, Fence or Berm (Yes, No, Linear Feet Describe below if needed)	No	No	No	No	No	No	No
Number of Plants Required							
Shade Trees	1:40 13	1:50 3	1:60 0	1:60 9	1:60 45	1:60 0	1:50 8
Evergreen Trees	–	1:40 4	–	–	–	–	1:40 10
Shrubs	1:4 126	–	–	–	–	–	–
Number of Plants Provided							
Shade Trees	13	3	0	9	45	0	8
Evergreen Trees	–	4	–	0	–	–	10
Other Trees (2:1 Substitution)	–	–	–	–	–	–	–
Shrubs (10:1 Substitution)	126	–	–	–	–	–	–
Describe Plant Substitution Credits Below if needed)							

SCHEDULE B
PARKING LOT INTERNAL LANDSCAPING

NUMBER OF PARKING SPACES	559
NUMBER OF TREES REQUIRED	28
NUMBER OF TREES PROVIDED	
SHADE TREES	28
OTHER TREES (2:1 SUBSTITUTION)	–

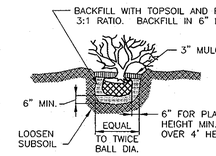
LANDSCAPE SCHEDULE

KEY	QUAN.	BOTANICAL NAME	SIZE	CAT
AR	91	ACER RUBRUM OCTOBER GLORY RED MAPLE	2 1/2"–3" CAL.	B & B
GT	28	GLENDITSIA TRIACANTHOS INERMIS 'IMPERIAL' IMPERIAL THORNLESS HONEYLOCUST	2 1/2"–3" CAL.	B & B
PS	31	PINUS STROBUS EASTERN WHITE PINE	6'–8' HT.	B & B
TD	126	TAXUS MEDIA 'DENSIFORMIS' DENSIFORMIS YEW	2 1/2' –3' HT.	B & B



KEY MAP

NOT TO SCALE



SHRUB PLANTING DETAIL

NOT TO SCALE

FOREST CONSERVATION WORKSHEET

NET TRACT AREA:

A. TOTAL TRACT AREA — 64.28 AC
B. DEDUCTIONS (15.55 AC FLOODPLAIN, 41.87 AC. F-94-24 APPROVED CLEARING) — 57.42 AC
C. NET TRACT AREA — 6.86 AC

LAND USE CATEGORY (FROM TABLE 3.2.1, PAGE 40, MANUAL)

INPUT THE NUMBER "1" UNDER THE APPROPIATE LAND USE ZONING, AND LIMIT TO ONLY ONE ENTRY.

ARA	MDR	IDA	HDR	MPD	CIA
0	0	0	0	0	1

D. AFFOREST THRESHOLD — 15% X D = 1.03 AC
E. CONSERVATION THRESHOLD — 15% X D = 1.03 AC

EXISTING FOREST COVER:

F. EXISTING FOREST COVER (EXCLUDING FLOODPLAIN AND F-94-24 CLEARING) = 1.93 AC
G. AREA OF FOREST ABOVE CONSERVATION THRESHOLD = 0.90 AC

BREAK EVEN POINT:

H. BREAK EVEN POINT= 1.21 AC
I. FOREST CLEARING PERMITTED WITHOUT MITIGATION = 0.72 AC

PROPOSED FOREST CLEARING:

J. TOTAL AREA OF FOREST TO BE CLEARED = 1.21 AC
K. TOTAL AREA OF FOREST TO BE RETAINED = 0.72 AC

PLANTING REQUIREMENTS:

L. REFORESTATION FOR CLEARING ABOVE CONSERVATION THRESHOLD = 0.23 AC
M. REFORESTATION FOR CLEARING BELOW CONSERVATION THRESHOLD = 0.62 AC
N. CREDIT FOR RETENTION ABOVE CONSERVATION THRESHOLD = 0.00 AC
P. TOTAL REFORESTATION REQUIRED = 0.84 AC
Q. TOTAL AFFORESTATION REQUIRED = 0.00 AC
R. TOTAL REFORESTATION AND AFFORESTATION REQUIRED = 0.84 AC

THE FOREST CONSERVATIN OBLIGATION FOR THIS PLAN HAS BEEN MET BY THE CREATION OF AN ONSITE 0.72 ACRE RETENTION FOREST CONSERVATION EASEMENT AND BY A PAYMENT OF $18,295.20 THAT WAS MADE TO THE HO. CO. FOREST CONSERVATION FUND FOR THE REMAINING OBLIGATION OF 0.84 ACRE OF REFORESTATION (0.84 ACRE = 36,590.40 SQ.FT. X $0.50 = $18,295.20).
SURETY IN THE AMOUNT OF $6,272.64 HAS BEEN POSTED AS PART OF THE DEVELOPER'S AGREEMENT FOR THE ONSITE 0.72 ACRE RETENTION FOREST CONSERVATION EASEMENT (0.72 ACRE = 31,363.20 SQ.FT. X $0.20 = $6,272.64).

6.6.06
ANTHONY J. THOMPSON
DNR QUALIFIED PROFESSIONAL

TYPICAL EVERGREEN TREE PLANTING DETAIL

NOT TO SCALE

NO.	REVISION	DATE
4	ADD DOOR TO BUILDING 2, ADD CONCRETE SLAB FOR FUTURE OIL TANK AND CONDENSER ADJACENT TO BUILDING 2.	1/28/09
1	REMOVE LANDSCAPE TREES ON POND 7A EMBANKMENT	7-9-08

SITE DEVELOPMENT PLAN

LANDSCAPE PLAN AND FOREST CONSERVATION PLAN

PATAPSCO VALLEY BUSINESS CENTER PARCEL I

TAX MAP 38 BLOCK 19/18 — PARCEL I
1ST ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

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STATE OF MARYLAND — ROBERT HARRIS VOGEL — NO. 16193 — REGISTERED PROFESSIONAL ENGINEER

ROBERT H. VOGEL, PE No.16193

DESIGN BY:	WGZ/DZ
DRAWN BY:	DZ
CHECKED BY:	RHV
DATE:	JUNE 1, 2006
SCALE:	1"=50'
W.O. NO.:	04-121

SHEET 24 OF 30

DEVELOPER'S/BUILDER'S CERTIFICATE

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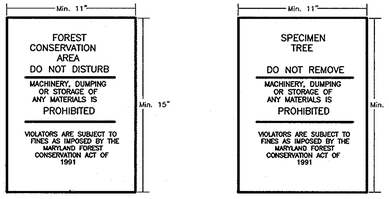
SIGNATURE OF DEVELOPER — DATE 1 JUNE 2006

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 7/6/06
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 7/6/06
DIRECTOR — DATE 7/6/06



Note:
1. Bottom of signs to be higher than top of tree protection fence.
2. Signs to be placed approximately 50–100' feet apart. Conditions on site affecting visibility my warrant placing signs closer or farther apart.
3. Attachment of signs to trees is prohibited.

SCHEDULE D
STORMWATER MANAGEMENT AREA LANDSCAPING

PERIMETER TYPE	B
LINEAR FEET OF PERIMETER	662 LF
CREDIT FOR EX VEGETATION (NO, YES AND LINEAR FEET)	YES 542
CREDIT FOR OTHER LANDSCAPING (NO, YES AND %)	NO
NUMBER OF TREES REQUIRED	
SHADE TREES	3
EVERGREEN TREES	3
NUMBER OF TREES PROVIDED	
SHADE TREES	3
EVERGREEN TREES	3
OTHER TREES (2:1 SUB.)	–

LANDSCAPE SCHEDULE NOTE:

1. ALL PLANT MATERIALS SHALL BE FULL AND HEAVY, BE WELL FORMED AND SYMMETRICAL, CONFORM TO THE MOST CURRENT AAN SPECIFICATIONS AND BE INSTALLED IN ACCORDANCE WITH HRD PLANTING SPECIFICATIONS.
2. CONTRACTOR SHALL VERIFY LOCATION OF ALL UNDERGROUND UTILITIES PRIOR TO DIGGING.
3. FINAL LOCATION OF PLANT MATERIAL MAY NEED TO VARY TO MEET FINAL FIELD CONDITIONS. TREES SHALL NOT BE PLANTED IN THE BOTTOM OF DRAINAGE SWALES.
4. CONTRACTOR SHALL VERIFY PLANT QUANTITIES PRIOR TO BIDDING. IF PLAN DIFFERS FROM LANDSCAPE SCHEDULE, THE PLAN SHALL GOVERN.

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. THE REQUIRED PARKING AND PERIMETER LANDSCAPING WILL BE BONDED PER THIS SUBMISSION.
2. FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING HAS BEEN POSTED AS PART OF THE DEVELOPER'S AGREEMENT IN THE AMOUNT OF $44,130.00 FOR THE REQUIRED 119 SHADE TREES, 31 EVERGREEN TREES AND 126 SHRUBS.
3. SWM LANDSCAPING IS NOT REQUIRED FOR THIS SITE SINCE THE SWM FACILITY IS NOT VISIBLE FROM A PUBLIC ROAD.

STATE OF MARYLAND — ROBERT HARRIS VOGEL — NO. 16193 — PROFESSIONAL ENGINEER

OWNER/PETITIONER
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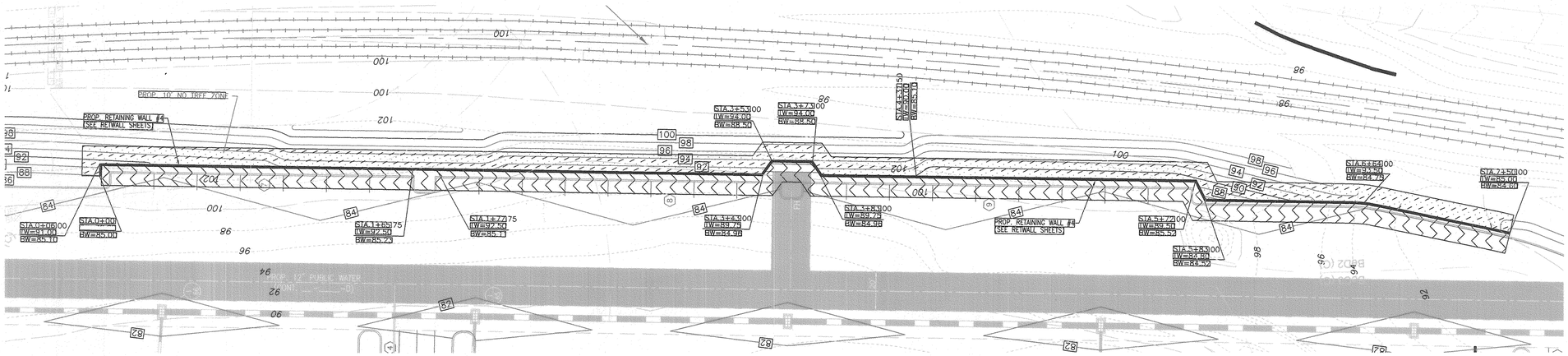
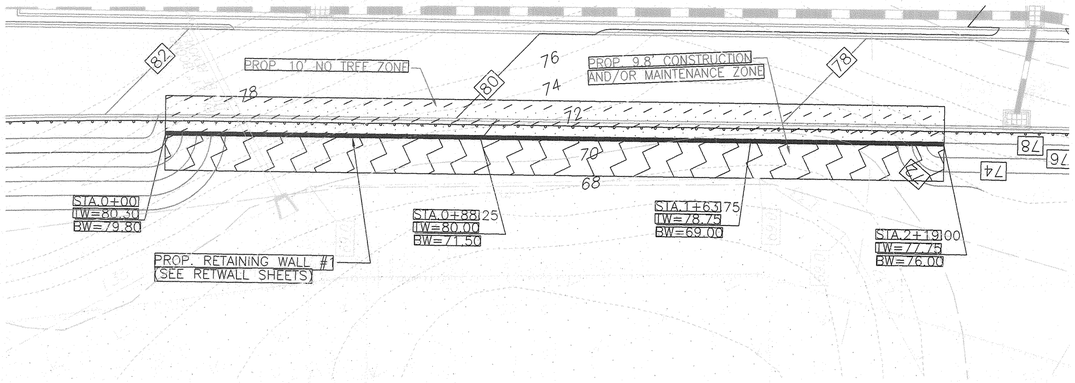
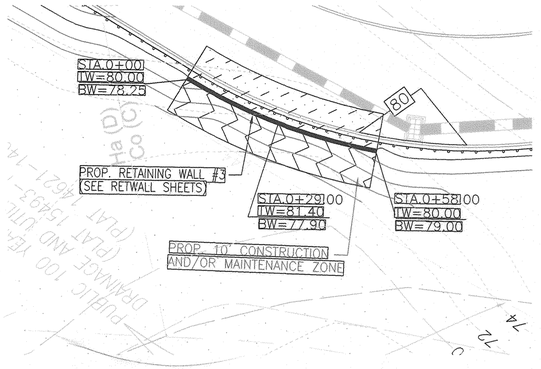
SDP-05-153



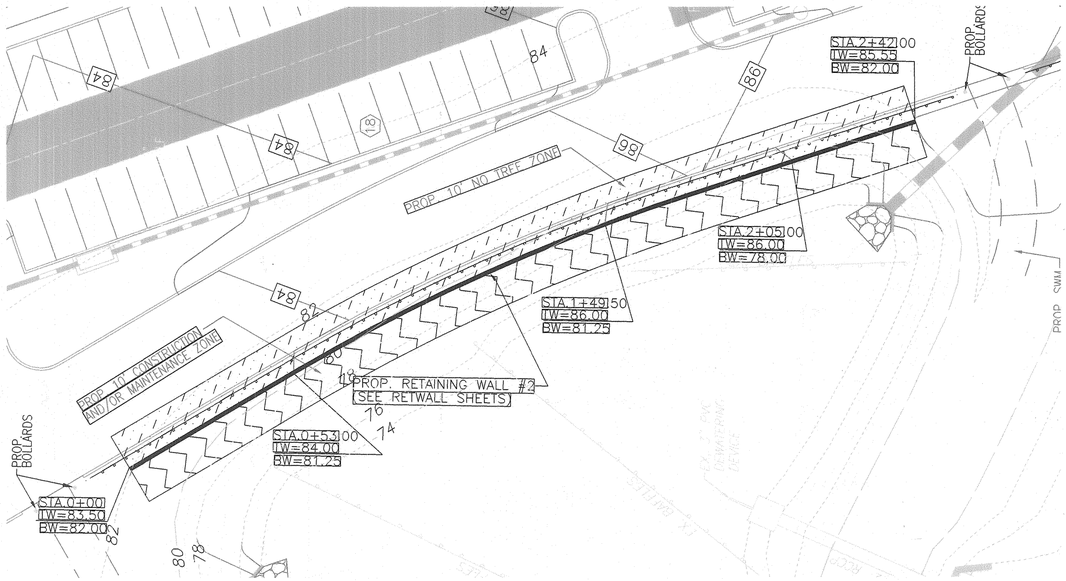
WALL #4 PLAN VIEW
SCALE: 1"=30'



WALL #1 PLAN VIEW
SCALE: 1"=20'



WALL #3 PLAN VIEW
SCALE: 1"=20'



WALL #2 PLAN VIEW
SCALE: 1"=20'

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 7/6/06
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 7/6/06
DIRECTOR	DATE 7/6/06

OWNER/PETITIONER
CROSSROADS VENTURE, LLC.
C/O J. PAUL PRICE
101 CONSTITUTION AVENUE, NW, SUITE 600E
WASHINGTON, DC 20001

STATE OF MARYLAND
JOHN D. WOODBURN
No. 11292
REGISTERED
PROFESSIONAL ENGINEER
JOHN D. WOODBURN, P.E.

No.	REVISIONS	DATE

SITE DEVELOPMENT PLAN
Retaining Wall Plan Views
Patapsco Valley Business Park
TAX MAP 38 BLOCK 19/18 1ST ELECTION DISTRICT
Parcel I
PARCEL 1 HOWARD COUNTY, MARYLAND
Crossroads Venture, LLC

DSH	KRM	June 2005	NTS	2734-E1	25 of 30

ECS MID-ATLANTIC, LLC
1340 CHARWOOD ROAD, SUITE P
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"Setting The Standard For Service"
ECS LLC MID-ATLANTIC

SDP-05-153

RETAINING WALL SPECIFICATION GUIDELINES

PART 1: GENERAL

1.01 Description

A. Retaining walls must be constructed under the supervision of a Maryland Registered Professional Engineer.

B. Work includes furnishing and installing concrete modular block retaining wall units to the lines and grades shown on the construction drawings and as specified herein.

C. Work includes preparing foundation soil, furnishing and installing leveling pad, unit fill and reinforced backfill to the lines and grades shown on the construction drawings.

D. Work includes furnishing and installing all related materials required for construction of the retaining wall as shown on the construction drawings.

1.02 Reference Standards

A.	ASTM C 90	Load Bearing Concrete Masonry Units.
B.	ASTM C 140	Sampling and Testing Concrete Masonry Units.
C.	ASTM D 448	Sizes of Aggregate for Road and Bridge Construction.
D.	ASTM D 698	Laboratory Compaction Characteristics using Standard Effort.

1.03 Delivery, Storage and Handling

A. Contractor shall check the materials upon delivery to assure that proper materials have been received.

B. Contractor shall prevent excessive mud, wet cement, epoxy, and similar materials (which may affix themselves) from coming in contact with the materials.

C. Contractor shall protect the materials from damage and exposure to sunlight. Damaged materials shall not be incorporated into the retaining wall structure and backfill.

1.04 Quality Assurance

A. Owner will be responsible for soil testing and construction observations for quality control during earthwork and retaining wall construction operations.

PART 2: MATERIALS

2.01 Definitions

A. Modular Wall Units – KEYSTONE or equivalent modular concrete facing and corner units, machine made from portland cement, water, and mineral aggregates.

B. Structural Geogrid – a structural geogrid formed by a regular network of integrity connected tensile elements with apertures of sufficient size to allow interlocking with surrounding soil, rock, or earth and function primarily as reinforcement.

C. Unit Fill/Drainage Aggregate – drainage aggregate, such as No. 57 Stone, which is placed within the cells of the modular concrete units and immediately behind the units to a width of at least 12 inches.

D. Reinforced Backfill – Compacted soil which is within the reinforced soil volume as shown on the plans.

E. Excavation Face – The interface between the reinforced backfill and the retained fill. During construction, measures shall be taken to avoid developing a shear plane at this interface.

F. Retained Backfill – On-site material located behind the reinforced zone of soil.

2.02 Concrete Units

A. Concrete segmental units shall conform to the requirements of NCMA TEK 2-4 and have a minimum 28-day compression strength of 4,000 psi. The units shall also pass 150 freeze thaw cycles in water with less than 1% weight loss for samples tested in accordance with ASTM C-1262.

B. Wall Face Units for general wall construction shall be KEYSTONE Standard II Units or equivalent. Sculptured face or straight (flat) face may be used.

C. Top of wall Cap Units shall be KEYSTONE Cap Units or equivalent with fiberglass connecting pins.

2.03 Fiberglass Connecting Pins

A. Connecting pins shall be 1/2" diameter thermoset isopathalic polyester resin-pultruded fiberglass reinforcement rods supplied by the unit manufacturer.

2.04 Construction Adhesive

A. Construction adhesive for top of wall cap blocks shall be KEYSTONE KapSealTM or an approved equivalent construction adhesive. Material shall conform to ASTM 2339 and shall be supplied by the block unit supplier.

2.05 Soil Fill Materials

A. Base Leveling and Pad Material
1. Material shall consist of crushed stone (GA S/B) as shown on the construction drawing. The leveling pad shall be, at a minimum, 6-inches thick. MSHA No. 57 Stone or pea gravel is not permitted.

B. Unit Fill/Drainage Aggregate
1. Fill for units shall be free draining crushed stone or gravel, with a maximum aggregate size of 1/2" to 3/4" and no more than 5% passing the No. 50 sieve and conforming to ASTM D 448. Gradation of the unit fill shall be approved by the Geotechnical Engineer. Pea gravel shall not be used. MSHA No. 57 stone may be used.

C. Reinforced Backfill
1. Material shall consist of soil classified as SM, SC, or more granular soils per USCS with minimum soil parameters as indicated under design parameters. The backfill material shall contain no particles greater than 2.5 inches in diameter. Other backfill materials my be approved by the Geotechnical Engineer.

D. Impervious Soil
1. Material may be imported or site excavated soils exhibiting a USCS designation of a lean clay (CL) or clayey sand (SC). The material shall contain no less than 40 percent by weight passing the US Standard No. 200 sieve and exhibit a plasticity index no less than 4 and no greater than 20. Other materials may be approved by the Geotechnical Engineer.

E. Sample Submittal
1. The contractor shall submit samples and material specifications of the proposed backfill soils (unit fill, pad material, reinforced backfill) to the Geotechnical Engineer for approval.
2. Soil must meet or exceed the friction angle specified in design parameters.
3. Direct shear testing is required for all soil samples used for Reinforced Backfill.

2.06 Structural Geogrid

A. The geogrid identified for the retaining wall consists of the following:
Tensar UXK110047.
Tensar UXK140065.

B. Other geogrid may be utilized provided the materials meet or exceed the minimum strength with similar or better strain characteristics of the Tensar geogrid and are approved by the Geotechnical Engineer for use with soil backfill. The material shall be protected from sunlight and weather while stored on site in accordance with the manufacturer's recommendation.

2.07 Geotextile

A. A non-woven geotextile shall be utilized as shown on the plans to provide a filter between the unit fill/drainage aggregate and the reinforced backfill. The geotextile shall consist of a Mirafi 140N, or an approved equivalent.

B. Where geogrids are located, the geotextile shall be placed as illustrated on the plans. At junctions and ends, the geotextile shall be overlapped at least 12 inches. The geotextile shall be placed so that intimate contact is made between the geotextile and the backfill material.

C. The material shall be protected from sunlight and weather while stored on site in accordance with the manufacturer's recommendation. Ripped or otherwise damaged material shall not be used.

PART 3: INSTALLATION

3.01 Excavation

A. Contractor shall excavate to the lines and grades shown on the construction drawings. Contractor shall be careful not to disturb embankment and foundation materials beyond lines shown.

B. All existing topsoil, rootmat and other soft or unsuitable materials shall, at a minimum, be removed from the footprint of the retained soil mass.

C. If groundwater is encountered during the excavation of the backslope, a backslope drainage system shall be utilized. The system shall tie into the internal wall drainage system to provide adequate release of any water which accumulates behind the reinforced zone.

3.02 Foundation Preparation

A. Foundation shall be excavated as required for leveling pad dimensions shown on the construction drawings, or as directed by the Geotechnical Engineer.

B. The required bearing pressure beneath the footing of the wall must be verified in the field by a Geotechnical Engineer.

C. Unsuitable soils shall be removed and replaced with approved material.

D. Over-excavated areas shall be backfilled with approved, compacted backfill material or as approved by the Geotechnical Engineer.

3.03 Base Leveling Pad

A. Leveling pad materials shall be placed upon an approved foundation as shown on the construction drawings to a minimum thickness of 6 inches.

B. Aggregate material shall be compacted to provide a dense, level surface on which to place the first course of modular units. Compaction shall be to at least 95% of the maximum dry density as determined by the Standard Proctor Compaction Test (ASTM D 698). Leveling pad shall be prepared and leveled to ensure complete contact of retaining wall unit with base.

3.04 Unit Installation

A. The first course of concrete modular units shall be carefully placed on the base leveling pad. Each unit shall be checked for level (in both directions) and alignment.

B. Install fiberglass connecting pins and fill all voids in and around the modular units with unit fill material. Tamp or rod unit fill to ensure that all voids are completely filled.

C. Sweep excess material from top of units and install the next course. Ensure that the units of each course are completely filled, backfilled and compacted prior to proceeding to next course.

D. Place each subsequent course, ensuring that pins protrude into adjoining courses a minimum of 1 inch. Two pins are required per unit. Pull each unit forward to obtain the desired offset (as noted on the plans), away from the fill zone, locking against the pins in the previous course and backfill as the course is completed.

E. Repeat procedure to the extent of wall height. Wall construction shall not exceed 2 courses in height before reinforced backfill is placed.

F. Follow wall erection and unit fill placement closely with any other backfilling required. Compaction of all soils shall be to 95% of the maximum dry density as determined in accordance with ASTM D 698.

G. As appropriate where the wall changes elevation, units can be stepped with the grade or turned into the embankment with a convex return end. Provide appropriate buried units on compacted leveling pad in area of convex return end.

3.05 Geogrid Installation

A. The geogrid type and length (direction perpendicular to the wall face) shall conform to those indicated on the construction drawings. Geogrid shall be laid continuously at the proper elevations and orientation as shown on the construction drawings or as directed by the Geotechnical Engineer.

B. Correct orientation (roll direction) of the geogrid shall be verified by the Contractor.

C. The geogrid shall be connected to the modular wall units by placing the geogrid over fiberglass pins and laying the grid back to the fill side.

D. A filtering, non-woven geotextile shall be located between the drainage aggregate/unit fill and the reinforced backfill. The geotextile shall be folded back parallel, above and below the geogrid as necessary to ensure continuous grid placement.

E. The geogrid shall be pulled taut to set the geogrid against the fiberglass pins and to eliminate loose folds in the material. The fill surface shall be level. To tension the geogrid, backfill shall be placed over the geogrid from immediately behind the wall to the back end of the geogrid.

F. No geogrid overlaps will be allowed in any length of geogrid perpendicular to the wall face except at corners or angled locations. The geogrid shall overlap rather than provide no coverage. A minimum of 4 inches of soil cover is required between over lapping layers of geogrid.

3.06 Fill Placement

A. Backfill material shall be placed in 8 inch loose lifts and compacted to at least 95% of the maximum dry density as determined by ASTM D 698. The in-place moisture content shall be in the range of at the optimum moisture content to 2 percentage points higher than the optimum moisture cont, as determined in accordance with ASTM D 698.

B. Backfill shall be placed, spread and compacted in such a manner that minimizes the development of slack or loss of pretension of the geogrid. Backfill shall be placed in horizontal layers. Where applicable, the excavation face shall be benched into the natural, on-site soils to provide connection of backfill on a level surface and to increase the interlock between the retained soils and the reinforced backfill. Bench heights shall not exceed 24 inches.

C. Only hand-operated compaction equipment shall be allowed within 5 feet of the back surface of the KEYSTONE or equivalent units.

D. Backfill shall be placed from immediately behind the wall towards the excavation face/retained soils and compacted to the specifications presented herein with appropriate compaction equipment.

E. Tracked construction equipment shall not be operated directly on the geogrid. A minimum backfill thickness of 6 inches is required prior to operation of tracked vehicles over the geogrid. Turning of tracked vehicles shall not be permitted overtop the geogrid.

F. Rubber-tired equipment may pass over the geogrid reinforcement at slow speeds (less than 10 mph). Avoid sudden braking and sharp turning.

G. The suitability of the fill material must be confirmed by a Geotechnical Engineer.

H. The upper 8 inches of wall backfill shall consist of impervious soil, compacted to at least 95% of the maximum dry density as determined by ASTM D 698. The in-place moisture content shall be in the range of at the optimum moisture content to 2 percentage points higher than the optimum moisture content, as determined in accordance with ASTM D 698.

3.07 Cap Installation

A. Provide permanent mechanical connection to wall units with KEYSTONE KapSealTM or equivalent construction adhesive. Apply adhesive to top surface of lower unit and place cap unit atop adhesive.

B. Place Cap Units over projecting pins from the units below. Pull forward to setback position.

C. Backfill and compact to finished grade.

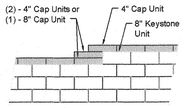
DESIGN PARAMETERS

Characteristics:

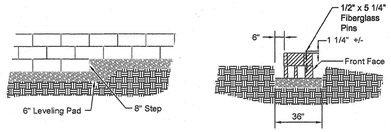
Configuration:	Battered face wall (4.4% or 8.8%)
Maximum Exposed Wall Height:	Wall #1= 10'-4" Wall #2= 8'-0" Wall #3= 3'-7" Wall #4= 17'-10"
Backslope Angle:	Varies (2H:1V maximum)
Bearing Capacity:	Minimum 3,000 psf
Wall Embedment:	Varies (16 inches minimum)
Surcharge:	Varies (250 psf maximum)

Soil Parameters:

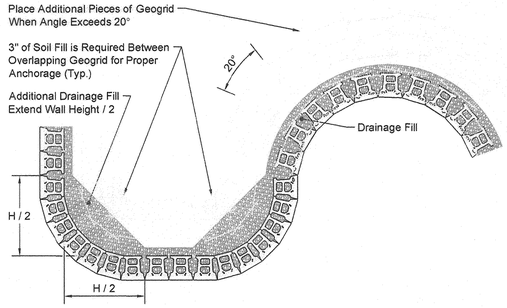
Soil Type	Minimum Friction Angle	Minimum Unit Weight (pcf)
Reinforced fill (SM, SC, or more granular)		
Walls 1, 2, & 3	28	125
Wall 4	32	130
Retained soils		
All Walls	27	120
Foundation soils		
All Walls	27	120



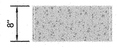
TOP OF WALL STEPS
SCALE: NTS



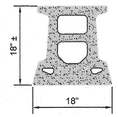
LEVELING PAD AND STEP DETAILS
SCALE: NTS



GEOGRID INSTALLATION ON CURVES
SCALE: NTS



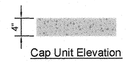
Standard II Elevation



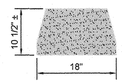
Standard II Plan

STANDARD II UNIT
SCALE: NTS

Corner Unit Elevation

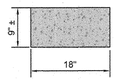


Cap Unit Elevation



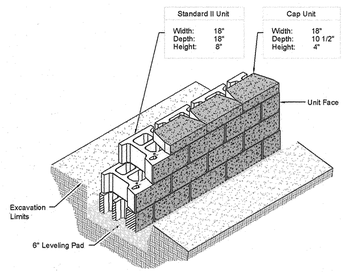
Cap Unit Plan

3-PLANE SPLIT CAP UNIT OPTION
SCALE: NTS



Corner Unit Plan

CORNER UNIT
SCALE: NTS



STANDARD II UNIT ISOMETRIC SECTION VIEW
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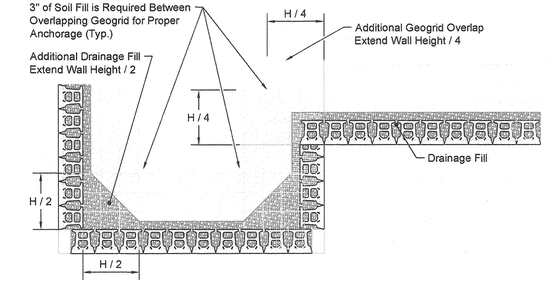
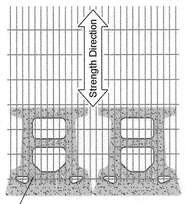
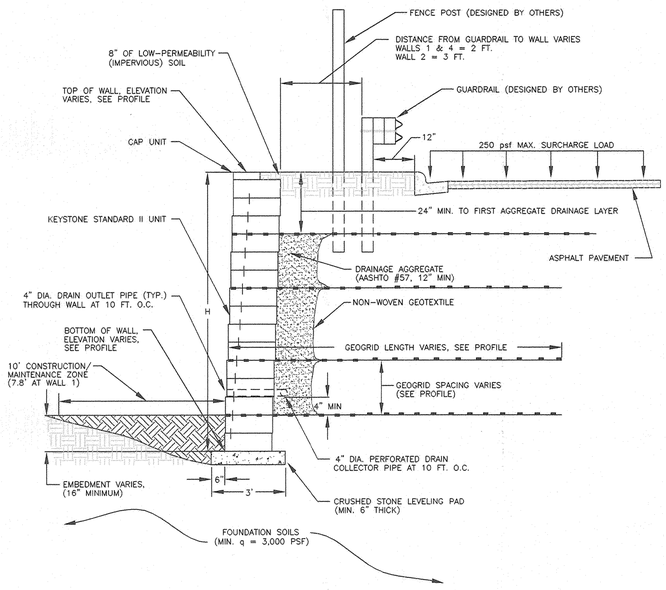


GEOGRID INSTALLATION AT CORNERS
SCALE: NTS

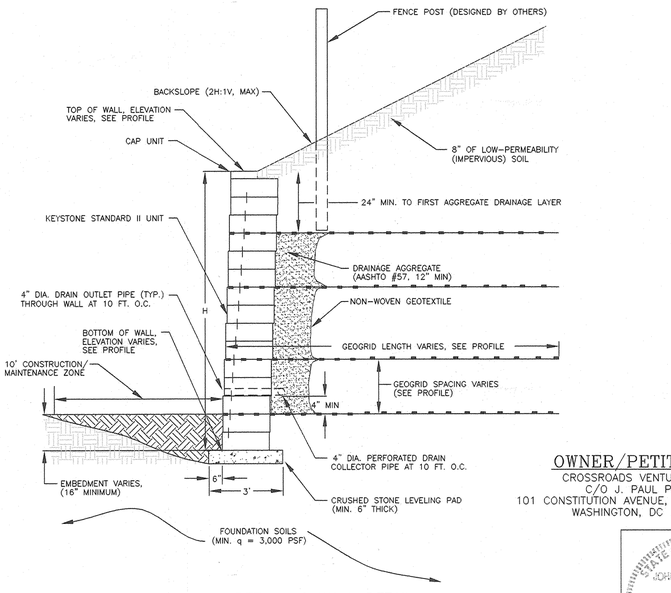


Geogrid is to be Placed on Level Backfill and Extended Over the Fiberglass Pins. Place Next Unit. Pull Grid Taught and Backfill. Stake as required.

GRID & PIN CONNECTION
SCALE: NTS



TYPICAL RETAINING WALL DETAIL FOR WALLS 1 & 3
4.4% BATTERED FACE
SCALE: NTS



TYPICAL RETAINING WALL DETAIL FOR WALL 4
4.4% BATTERED FACE
SCALE: NTS

OWNER/PETITIONER
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APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 7/6/06
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 7/6/06
DIRECTOR	DATE 7/6/06

JOHN D. WOODBURN, P.E.

No.	REVISIONS	DATE

SITE DEVELOPMENT PLAN
Retaining Wall Notes & Details
Patapsco Valley Business Park
TAX MAP 38, BLOCK 19/18 1ST ELECTION DISTRICT
Parcel I
PARCEL A HOWARD COUNTY, MARYLAND
Crossroads Venture, LLC

DSH	KRM	June 2005	NTS	2734-E1	26 of 30

ECS MID-ATLANTIC, LLC
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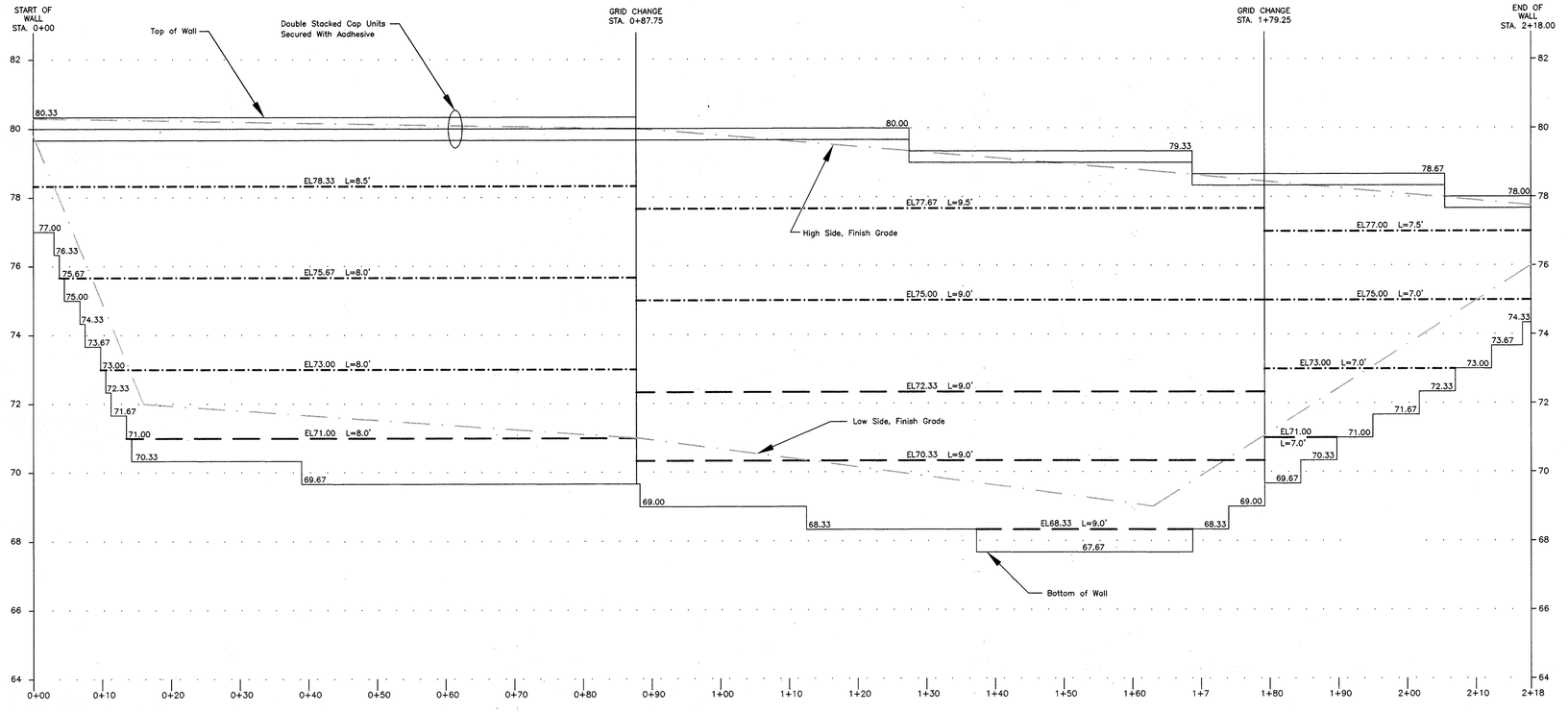
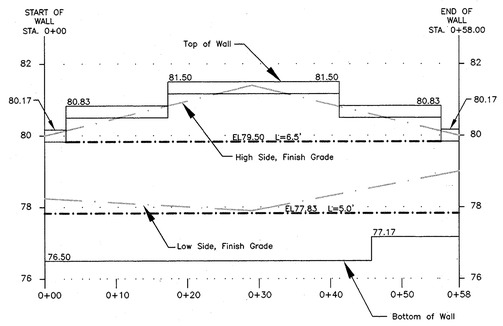


WALL #1 PROFILE

SCALE
VERTICAL SCALE 1"=2'
HORIZONTAL SCALE 1"=10'

TENSAR UXK110047 GEOGRID
TENSAR UXK140065 GEOGRID



WALL #3 PROFILE

SCALE
VERTICAL SCALE 1"=2'
HORIZONTAL SCALE 1"=10'

TENSAR UXK110047 GEOGRID

Note: For Clarity, Guardrails And Fences Are Not Shown On Wall Profiles. Please See Wall Details And Specifications For Guardrails And Fences.

No.	REVISIONS	DATE

SITE DEVELOPMENT PLAN

Retaining Wall Profile View

Patapsco Valley Business Park

TAX MAP 38, BLOCK 19/18
1ST ELECTION DISTRICT

Parcel I

PARCEL I
HOWARD COUNTY, MARYLAND

Crossroads Venture, LLC

DSH	KRM	June 2005	NTS	2734-E1	27 of 30

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 7/6/06

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 7/6/06

DIRECTOR — DATE 7/6/06

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STATE OF MARYLAND — JOHN D. WOODBURN — No. 17911 — PROFESSIONAL ENGINEER

JOHN D. WOODBURN, P.E.

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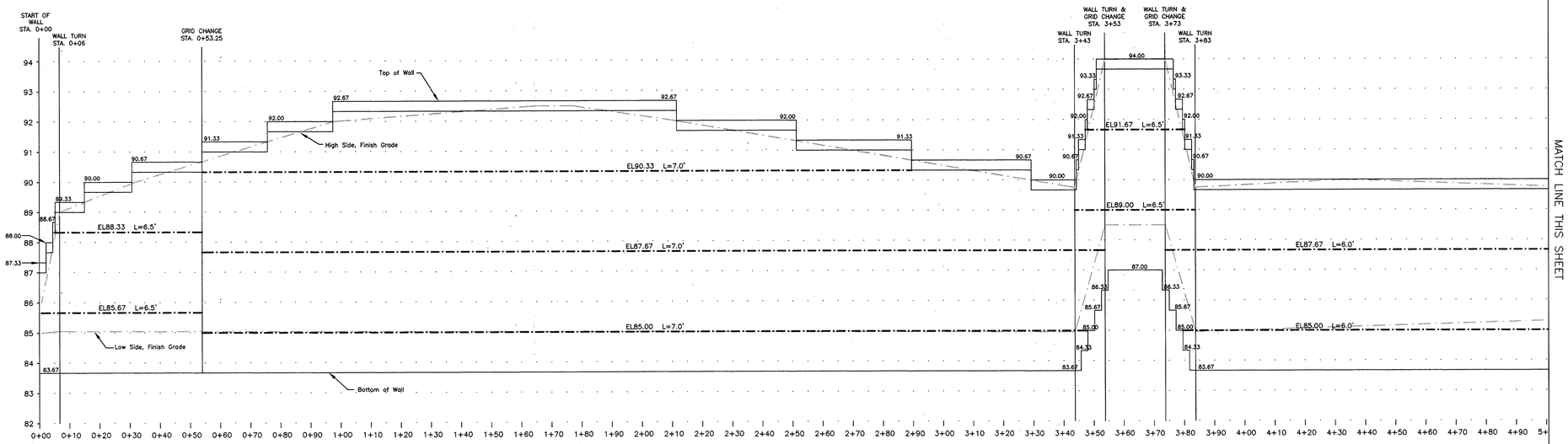
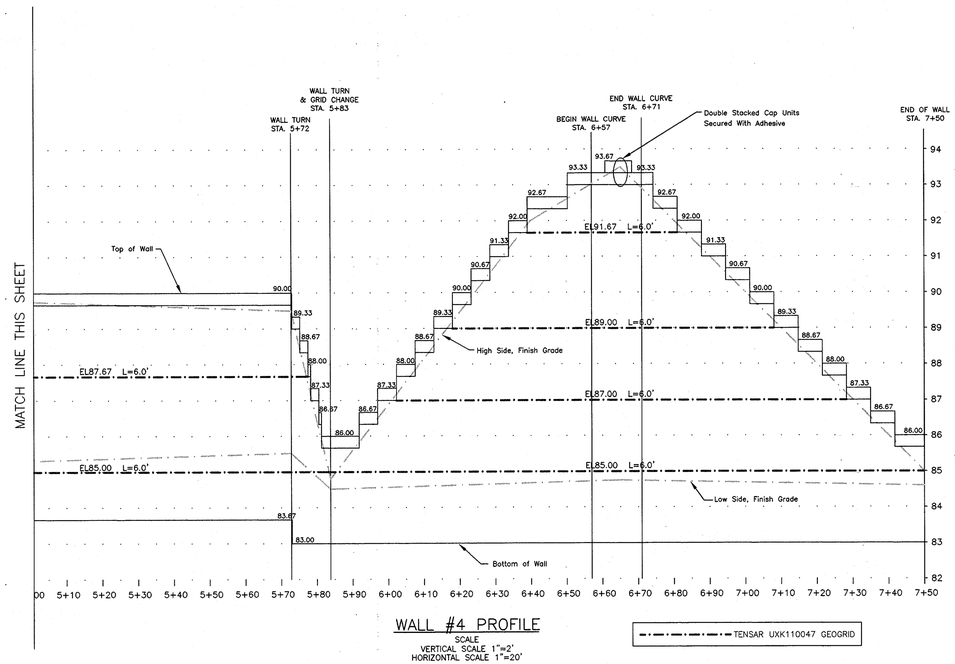


WALL #4 PROFILE
SCALE
VERTICAL SCALE 1"=2'
HORIZONTAL SCALE 1"=20'

TENSAR UXK110047 GEOGRID



WALL #4 PROFILE
SCALE
VERTICAL SCALE 1"=2'
HORIZONTAL SCALE 1"=20'

TENSAR UXK110047 GEOGRID

Note: For Clarity, Guardrails And Fences Are Not Shown On Wall Profiles. Please See Wall Details And Specifications For Guardrails And Fences.

No.	REVISIONS	DATE

SITE DEVELOPMENT PLAN
Retaining Wall Profiles
Patapsco Valley Business Park
TAX MAP 38, BLOCK 19/18
1ST ELECTION DISTRICT
Parcel I
PARCEL 1
HOWARD COUNTY, MARYLAND

Crossroads Venture, LLC

DSH	KRM	June 2005	NTS	2734-E1	28 of 30

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 7/6/06
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DIRECTOR — DATE 7/6/06

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JOHN D. WOODBURN
No. 10,003
REGISTERED PROFESSIONAL ENGINEER
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"Setting The Standard For Service"

ECS LLC MID-ATLANTIC

SDP-05-153

Retaining Wall Specifications and Guidelines

Part 1: General

1.01 Description
A. Retaining walls must be constructed under the supervision of a Maryland Registered Professional Engineer.
B. Work includes preparation of foundation soils, furnishing all materials, and installing all materials to the lines and grades shown on the construction drawings.

1.02 Codes and Standards
A. "International Building Code – 2003", International Code Council, Inc.
B. "ACI Manual of Concrete Practice – Parts 1 Through 5 – 2001"
C. "Manual of Standard Practice" – Concrete Steel Reinforcing Institute
D. "American Society for Testing and Materials"

1.03 Damage, Storage, and Handling
A. The Contractor shall check the materials upon delivery to assure that the proper materials have been received.
B. The Contractor shall properly handle and store the materials to prevent damage to the materials. Damaged materials shall not be incorporated into the wall.

1.04 Quality Assurance
A. The Owner shall engage a qualified testing agency to provide observation and testing services as described below.
B. Concrete Placement
1. The agency shall inspect the formwork and reinforcing steel placement for compliance with the contract documents. Reinforcing steel should be inspected for correct size, quantity, and spacing.
2. Fresh concrete shall be sampled in accordance with ASTM C 172, and tested for slump, air entrainment, and temperature.
3. Test cylinders shall be molded in accordance with ASTM C 31. Four test cylinders shall be molded for each day's pour, or for every 100 cubic yards of concrete placed, whichever is greater.
C. Fill Placement
1. All soil fills shall be tested in accordance with ASTM D 2922.
2. A minimum of one compaction test per lift should be made per 2,500 square feet of fill lift area, but not fewer than two tests per lift should be made.
3. The elevations and locations of the field density tests should be clearly identified at the time of fill placement and compaction.

Part 2: Materials

2.01 Concrete
A. Concrete shall conform to Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 414
B. Concrete shall have a minimum 28-day compressive strength of 3,000 psi
C. Concrete shall have a maximum slump of 5 inches and shall be air entrained to 6% (+/- 1%) by volume. Concrete for foundations does not require air entrainment.
D. Concrete shall have a minimum density of 145 pcf and a maximum water-to-cement ratio of 0.50

2.02 Steel Reinforcement
A. Steel reinforcing shall conform to ASTM A-615, Grade 60.
B. Submit shop drawings at least 15 business days before date reviewed submittals will be needed. Shop drawings shall bear the contractor's stamp of approval which shall constitute that he has verified all field measurements, construction criteria, materials, and similar data, and has checked each drawing for completeness, coordination, and compliance with contract documents.

2.03 Soil Backfill
A. Material should consist of soil classified as SM, SC, or more granular, in accordance with ASTM D 2487.
B. Material should have no particle larger than 2.5 inches and shall contain at least 30 percent, by weight, retained on the U.S. No. 200 sieve.
C. Materials should have a Liquid Limit less than 45, and a Plasticity Index less than 20.
D. Material should have a minimum friction angle of 28 degrees and a minimum dry unit weight of 120 pcf.
E. The Contractor should submit samples of the proposed backfill soils to the Geotechnical Engineer of Record for approval prior to their use.

Part 3: Construction

3.01 General
A. All existing underground utilities shall be properly marked, and relocated if necessary, prior to construction.
B. All proposed underground utilities or structures in the general wall area shall be completely installed prior to the construction of the wall.
C. Protect all existing and/or new structures from damage by construction equipment. Immediately repair any damage that may occur.

3.02 Foundation
A. The wall foundation shall be excavated to the grades and lines as shown on the construction drawings. Contractor shall not disturb foundation soils beyond the lines and grades shown.
B. All footings and keys shall be placed directly against and on undisturbed natural soils or approved compacted structural fill. Formwork shall not be used unless approved by the Engineer.
C. The foundation shall bear at a minimum depth of 39 inches below the final exterior grade at the front side of the retaining wall.
D. The foundation subgrade soils shall be tested by a qualified representative of the Geotechnical Engineer to verify the availability of the design bearing pressure of 2,500 psf.
E. If unsuitable soils are encountered at design foundation levels, the unsuitable soils shall be removed and the over-excavated areas shall be replaced with compacted structural fill or lean concrete.
F. A minimum of 12 inches of compacted structural fill soils shall be placed between the wall footing and the approved subgrade soils.
G. Keyways shall be provided between the stem and the footing. The keyway should measure 2" deep by 4" wide (minimum) and can be formed with conventional 2x4 lumber prior to concrete placement.

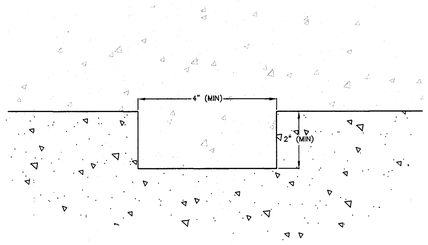
3.03 Steel Reinforcement
A. All steel reinforcing shall have a minimum clear cover of 3 inches unless otherwise noted on the contract documents.
B. Where applicable, splices for reinforcing steel shall be made by contact tension lap splices.
C. Welding and field-bending of reinforcing steel is not permitted.
D. Furnish all accessories, chairs, space bars, supports, etc. necessary to secure reinforcing.

3.04 Cast-In-Place Concrete.
A. Footing Concrete
1. The vertical faces of the footing and key excavations may be used as forms for placement of foundation concrete.
2. Foundation concrete, or protective mud mats, should be placed the same day that the foundation subgrade is approved.
3. Provide concrete protection against freezing during placement and for 5 days thereafter.

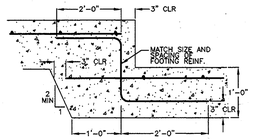
B. Wall Concrete
1. Furnish and erect concrete forms to the lines and grades shown on the construction drawings.
2. Locate construction joints as to not impair the strength of the structure, but not more than 60 feet in any direction. Provide continuous bentonite strip waterstrip at all construction joints.
3. Make stops in concrete pours using vertical bulkheads.
4. All reinforcing shall be continuous through joints and bulkheads.
5. Chamfer exposed concrete corners 3/4" by 3/4" minimum.
6. Provide 4" diameter weep holes every 8 feet along the bottom of the wall. The weep holes should be formed in place prior to concrete placement by using PCV pipe. Weep hole locations must not interfere with steel reinforcing.

3.05 Backfilling
A. All soil backfill shall conform to the material requirements of section 2.03.
B. Where applicable, backfill shall be benched into natural soils with bench heights not exceeding 2 feet.
C. Backfill shall be moisture conditioned to within 2 percentage points of the optimum moisture content, as determined in accordance with ASTM D-698.
D. Backfill shall be placed in loose lifts, not exceeding 8 inches in thickness, and then compacted to at least 95 percent of the maximum dry density, as determined in accordance with ASTM D-698.
E. Backfilling shall not occur against the wall until the wall concrete has attained at least 75 percent of the 28-day design strength.
F. Drainage boards, consisting of a Miradrain 9900, or an approved equivalent, shall be continuously placed against the backside of the wall, from the weep hole level to within 12 inches of the top of the wall.
G. Where feasible, maintain equal grades on each side of the wall during backfilling to prevent overturning and lateral movements. When the grade differential from the backside to the frontside of the wall exceeds 12 inches, only hand-operated compaction equipment shall be allowed.

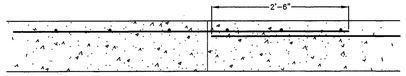
3.06 Finish
A. Refer to Architectural drawings and specifications for detailed information regarding wall finish and wall cap (if any).
B. Final grades at the wall shall be established by the Contractor in accordance with the most recent site grading plans.
C. Final grades shall be stabilized and seeded per the approved civil plans unless noted otherwise on the site grading plans.



TYPICAL KEYWAY AT FOOTING/STEM INTERFACE
NTS

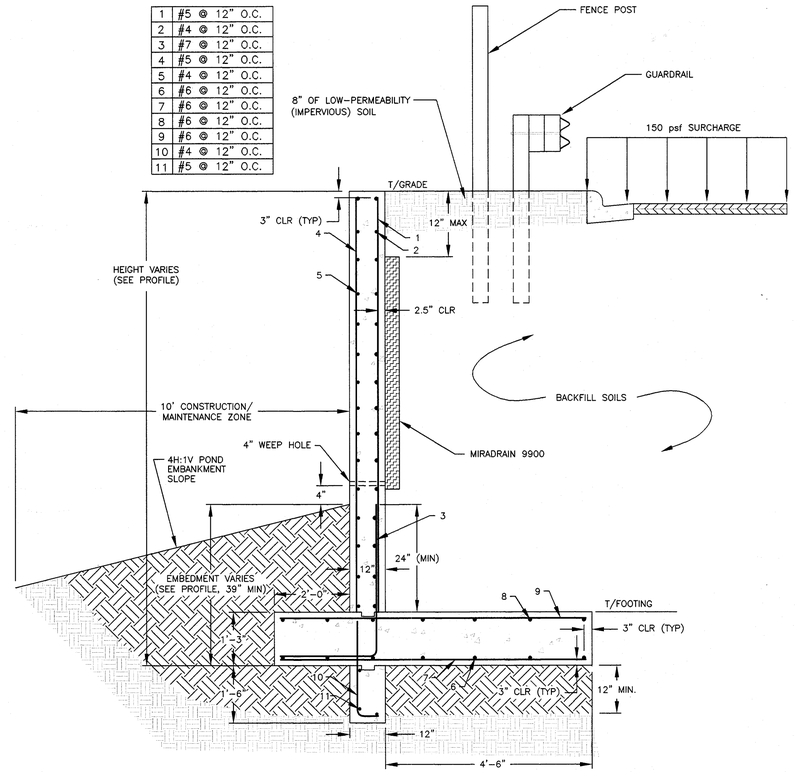


FOOTING STEP
NTS



CONSTRUCTION JOINT
NTS

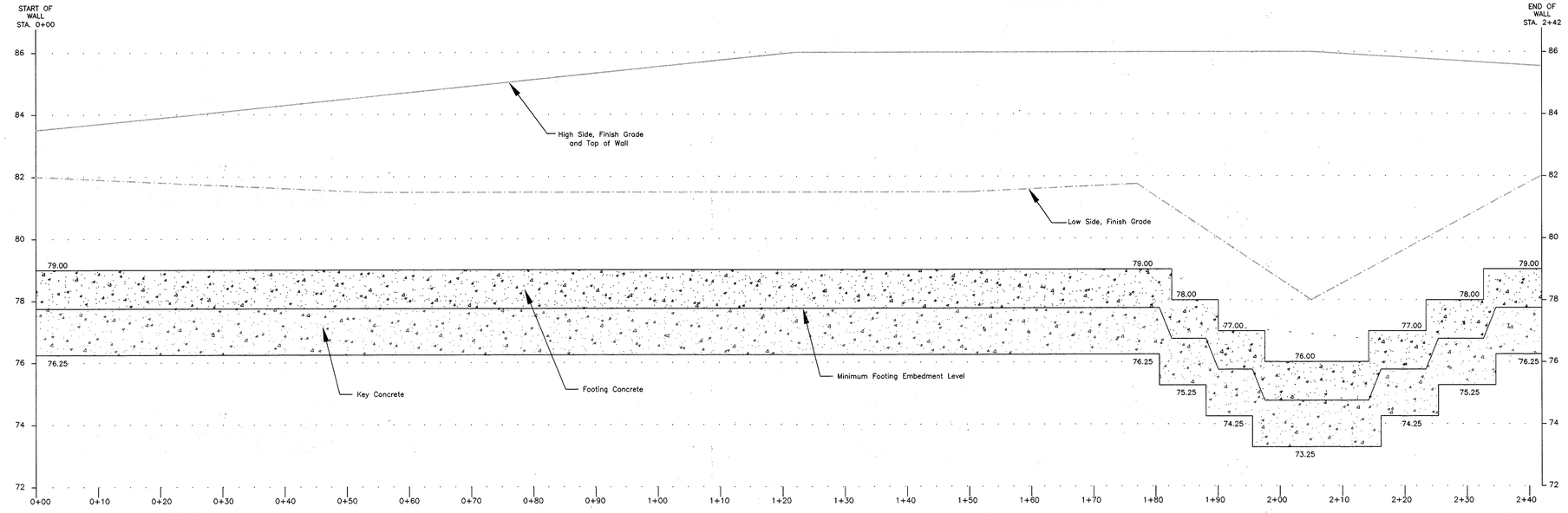
1	#5 @ 12" O.C.
2	#4 @ 12" O.C.
3	#7 @ 12" O.C.
4	#5 @ 12" O.C.
5	#4 @ 12" O.C.
6	#6 @ 12" O.C.
7	#6 @ 12" O.C.
8	#6 @ 12" O.C.
9	#6 @ 12" O.C.
10	#4 @ 12" O.C.
11	#5 @ 12" O.C.



APPROVED SUBGRADE SOILS
(MIN. q = 3,000 PSF)

WALL #2 TYPICAL SECTION
NTS

Note: For Clarity, Guardrails And Fences Are Not Shown On Wall Profiles. Please See Wall Details And Specifications For Guardrails And Fences.



WALL #2 PROFILE
SCALE
VERTICAL SCALE 1"=2'
HORIZONTAL SCALE 1"=10'

No.	REVISIONS	DATE

SITE DEVELOPMENT PLAN
Retaining Wall Profiles
Patapsco Valley Business Park
TAX MAP 30, BLOCK 19/18 1ST ELECTION DISTRICT
Parcel I
PARCEL 1 HOWARD COUNTY, MARYLAND
Crossroads Venture, LLC

DSH	KRM	June 2005	NTS	2734-E1	29 of 30

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

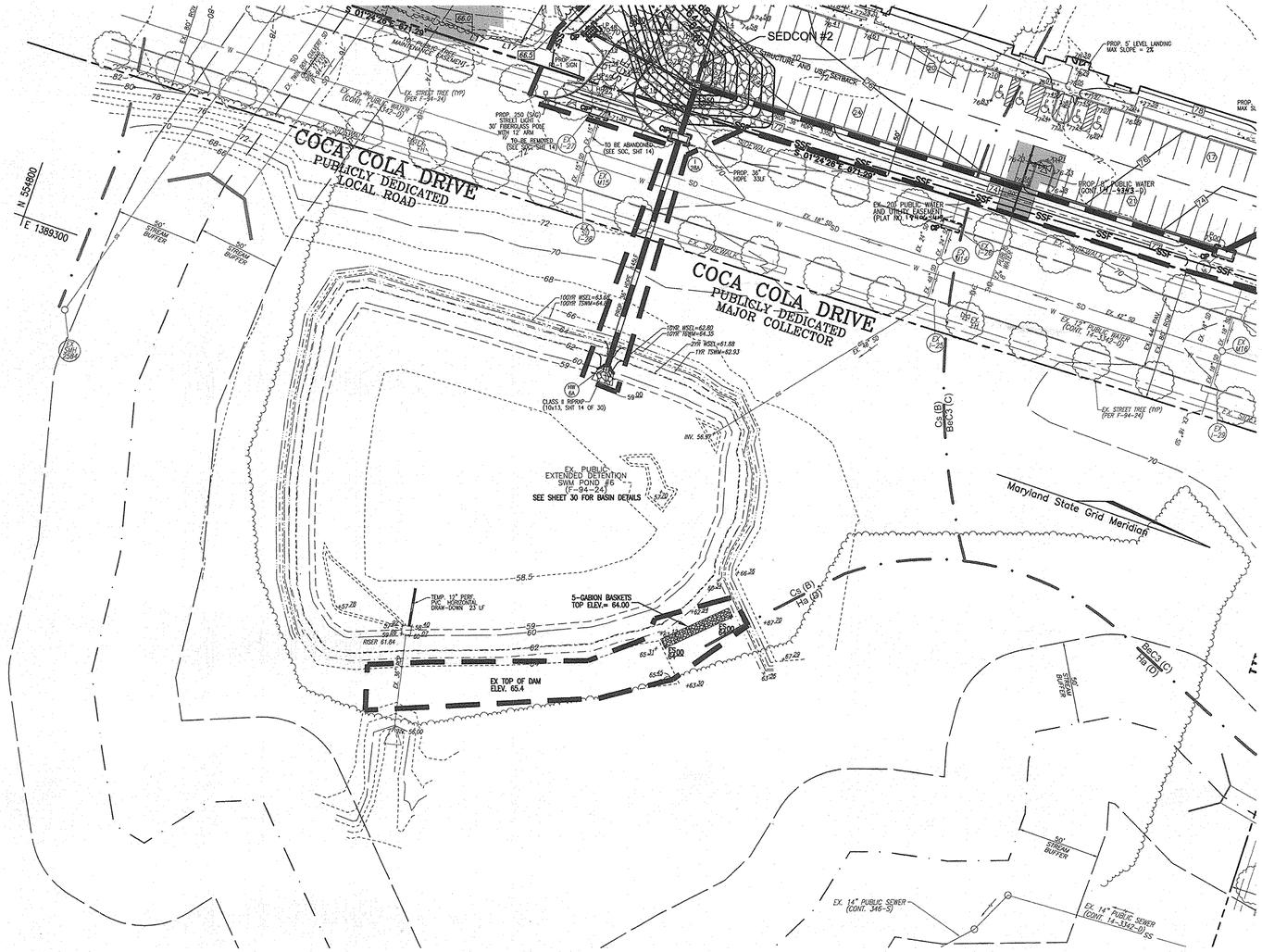
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 7/6/06
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 7/6/06
DIRECTOR	DATE 7/6/06

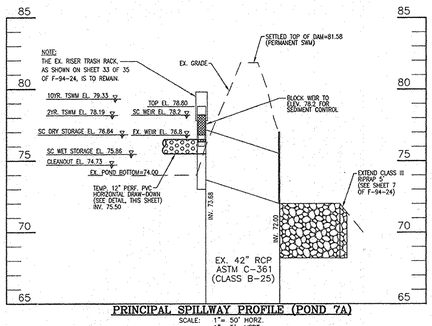
OWNER/PETITIONER
CROSSROADS VENTURE, LLC.
C/O J. PAUL PRICE
101 CONSTITUTION AVENUE, NW, SUITE 600E
WASHINGTON, DC 20001

STATE OF MARYLAND JOHN D. WOODBURN No. 21076 REGISTERED PROFESSIONAL ENGINEER
JOHN D. WOODBURN, P.E.

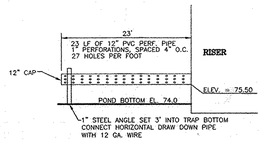
ECS MID-ATLANTIC, LLC
1340 CHARWOOD ROAD, SUITE P
HANOVER, MARYLAND 21076
(410) 859-4300 FAX(410) 859-4324
"Setting The Standard For Service"
ECS LLC MID-ATLANTIC

SDP-05-153



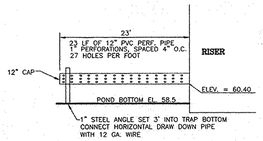


PRINCIPAL SPILLWAY PROFILE (POND 7A)
SCALE: 1"= 50' HORZ.
1"= 5' VERT.



TEMP. SEDIMENT BASIN #7A HORIZONTAL DRAW-DOWN DEVICE

NOT TO SCALE
REF.: 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL PAGE C-10-29

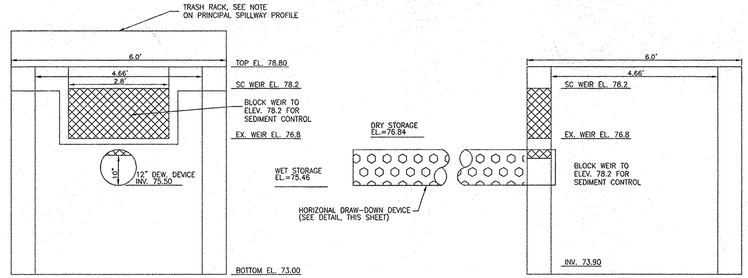


TEMP. SEDIMENT BASIN #6 HORIZONTAL DRAW-DOWN DEVICE

NOT TO SCALE
REF.: 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL PAGE C-10-29

CONSTRUCTION SPECIFICATIONS

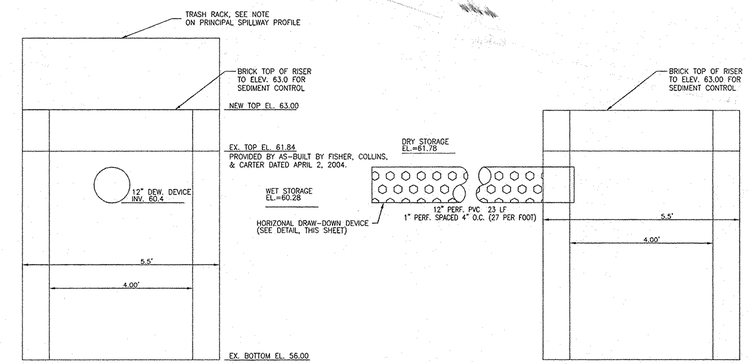
1. THE TOTAL AREA OF THE PERFORATIONS MUST BE GREATER THEN 4 TIMES THE AREA OF THE INTERNAL ORIFICE.
2. THE PERFORATED PORTION OF THE DRAW-DOWN DEVICE SHALL BE WRAPPED WITH 1/2" HARDWARE CLOTH AND GEOTEXTILE FABRIC. THE GEOTEXTILE FABRIC SHALL MEET THE SPECIFICATIONS FOR GEOTEXTILE CLASS E.
3. PROVIDE SUPPORT OF DRAW-DOWN DEVICE TO PREVENT SAGGING AND FLOATATION. AN ACCEPTABLE PREVENTATIVE MEASURE IS TO STAKE BOTH SIDES OF DRAW-DOWN DEVICE WITH 1" STEEL ANGLE, OR 1" x4" 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.



BASIN #7A CONC. RISER DETAIL WITH REVISED SEDIMENT CONTROL OPENINGS

(SEE F-94-24, SHEET 33 OF 35 FOR PREVIOUS RISER SPECS, OTHER PERTINENT DETAILS, AND SWM SPECIFICATIONS)
SCALE: 1/2"=1'

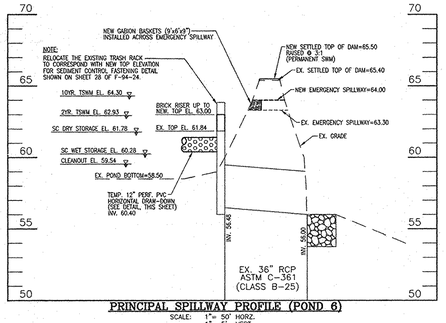
NOTES:
1. BRICK UP EXISTING WEIR TO ELEV..= 78.0 FOR SEDIMENT CONTROL..
2. BLOCK EX. 3" SWM ORIFICE.
3. INSTALL 12" PERF. PVC HORIZONTAL DRAW-DOWN DEVICE (23 L.F.) @ ELEV. 75.50 FOR BASIN OPERATION. 27 PERF. PER FOOT, SPACES 4" O.C.
4. EXISTING TRASH RACK, AS SHOWN ON SHEET 33 OF 35 OF F-94-24, IS TO REMAIN.



BASIN #6 CONC. RISER DETAIL WITH REVISED SEDIMENT CONTROL OPENINGS

(SEE F-94-24, SHEET 33 OF 35 FOR PREVIOUS RISER SPECS, OTHER PERTINENT DETAILS, AND SWM SPECIFICATIONS)
SCALE: 1/2"=1'

NOTES:
1. REMOVE EXISTING TRASH RACK @ RISER TOP AND RELOCATE TO NEW RISER TOP ELEV. = 63.00.
2. BLOCK EX. 3" SWM ORIFICE.
3. INSTALL 12" PERF. PVC HORIZONTAL DRAW-DOWN DEVICE (23 L.F.) @ ELEV. 60.40 FOR BASIN OPERATION. 27 PERF. PER FOOT, SPACES 4" O.C.
4. RELOCATE EXISTING TRASH RACK TO CORRESPOND WITH NEW TOP ELEVATION FOR SEDIMENT CONTROL. FASTENING DETAIL SHOWN ON SHEET 28 OF F-94-24.



PRINCIPAL SPILLWAY PROFILE (POND 6)
SCALE: 1"= 50' HORZ.
1"= 5' VERT.

NO.	REVISION	DATE

SITE DEVELOPMENT PLAN

BASIN 6 PLAN VIEW AND RISER DETAIL, AND POND 7A RISER DETAIL

PATAPSCO VALLEY BUSINESS CENTER PARCEL I

TAX MAP 38 BLOCK 19/16 — PARCEL I
1ST ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

ROBERT H. VOGEL ENGINEERING, INC.
ENGINEERS • SURVEYORS • PLANNERS
8407 MAIN STREET — TEL: 410.461.7666
ELLICOTT CITY, MD 21043 — FAX: 410.461.8961

STATE OF MARYLAND — ROBERT HARRIS VOGEL — NO. 16193 — REGISTERED PROFESSIONAL ENGINEER
ROBERT H. VOGEL, PE No.16193

DESIGN BY: WGZ/DZ
DRAWN BY: DZ
CHECKED BY: RHV
DATE: FEB. 27, 2006
SCALE: 1"=40'
W.O. NO.: 04-121

30 SHEET OF 30

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 7/6/06
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 7/6/06
DIRECTOR — DATE 7/6/06

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

USDA-NATURAL RESOURCES CONSERVATION SERVICE — DATE 2/28/06

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

HOWARD S.C.D. — DATE 2/28/06

BY THE DEVELOPER:

"I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE IN ACCORDANCE 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."

DON BOWERS — SIGNATURE OF DEVELOPER — DATE 3/01/06

BY THE ENGINEER:

"I HEREBY 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."

SIGNATURE OF ENGINEER — DATE 3/1/06

OWNER/PETITIONER

CROSSROADS VENTURE, LLC.
C/O J. PAUL PRICE
101 CONSTITUTION AVENUE, NW, SUITE 600E
WASHINGTON, DC 20001

SDP-05-153